

**SERVICING AND STORMWATER MANAGEMENT  
IMPLEMENTATION REPORT**

**HOME FARM  
RENTAL DEVELOPMENT  
TOWN OF THE BLUE MOUNTAINS**

**MACPHERSON BUILDERS (BLUE MOUNTAINS) LTD.**

**PREPARED BY:**

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## 1.0 INTRODUCTION

C.F. Crozier & Associates Inc. (Crozier) was retained by MacPherson Builders (Blue Mountains) Ltd. (MacPherson) to prepare a Servicing and Stormwater Management Implementation Report and accompanying engineering drawings for the proposed Home Farm Rental Development in support of Site Plan Approval. The rental development site, herein referred to as the "Subject Lands", is situated on the Home Farm property, located directly north of the Home Farm sanitary sewage pump station, north SWM pond, and Street C. The site is bound by the Town property to the west which is approved for development of a Fire Station, and future long-term care facility (LTC) at the north end of the Town property (design by others). North and east of the rental development consist of open space lands on the Home Farm property owned by MacPherson to be conveyed to municipality as part of Phase 2 registration. Refer to **Figure 1** for the Site Location Plan.

The Site Concept Plan, prepared by RN Design (June 2026) is illustrated in **Figure 2**. The development will consist of 112 units that will have two units per townhouse, with one unit occupying the basement and one unit occupying the main and second floor. The site will include private roads (Streets "X" and "Y") and additional parking areas. The site will be a private development with easements for select public civil services to allow the acceptance of sanitary and storm flows from the LTC. The rental development will be serviced through the Home Farm Residential Development. The proposed rental development also includes the extension and design of Home Farm Street "A" north, which terminates as a cul-de-sac at the southwest corner of the Subject Lands. A private road access to the LTC will continue north of the cul-de-sac and will be designed and constructed by the LTC team.

This report provides information about the proposed water and sanitary sewer servicing and stormwater management (SWM) systems designed to service the development to demonstrate development feasibility. This report has been prepared based on the design framework established through the detailed design of the Home Farm development. The Home Farm development was designed and approved based on the 2009 Town of The Blue Mountains engineering standards. As the Subject Lands are serviced through the Home Farm site, the 2009 design standards have been used for consistency.

## 2.0 BACKGROUND

The Subject Lands were initially rezoned as part of the Home Farm Residential Development Draft Plan of Subdivision, approved through the Ontario Land Tribunal (formerly Local Planning Appeal Tribunal "LPAT" at the time of approval). The Home Farm Residential Development Draft Plan is included as **Figure 3**. The Subject Lands were included in the Draft Plan as Block 238 and classified as lands to be retained for future development. The Home Farm Residential Development proceeded through the Subdivision Agreement process and received three pre-servicing agreements for tree removals, earthworks, and servicing and is in the process of finalizing the Subdivision Agreement.

To date, the Home Farm Residential Development has constructed the proposed sanitary pumping station, realigned the watercourse 7 channel and has graded the proposed stormwater management facilities. Civil services have not been installed, providing flexibility for potential required changes to the downstream system to accommodate the rental development and LTC.

In addition to the LTC facility, a Town fire hall has also been proposed on the Town property adjacent to the Subject Lands. The construction process of the fire hall has been initiated. Stormwater management for the fire hall is planned to drain to the north stormwater management facility within the Home Farm Residential Development, sanitary flows will drain to the sewer on Grey Road 19, and roadway access to the firehall is provided via Grey Road 19.

Previously completed studies and plans prepared in support of the Home Farm Residential Development accounted for development of the Town property where the LTC and Fire Hall are proposed, as well as a portion of the Subject Lands, and as such previous calculations and conclusions are referenced throughout this report. For further information regarding the Home Farm Residential Development, please refer to the Servicing & Stormwater Management Implementation Report (Crozier, December 2021), Water Distribution System Letter (Crozier, December 2022), and Stormwater Management Update Memorandum (Crozier, March 2024).

As part of the Home Farm Residential Development, an existing watercourse "Watercourse 7" was realigned through a 60m wide block in the development. The proposed design contained a defined channel and cross section, and the realigned channel is proposed to receive flows from North Stormwater Management Pond. For further information regarding the hydraulic conditions of the watercourse realignment, refer to the Home Farm Residential Development – Hydraulic Modelling Update (Crozier, January 2024). The realignment and restoration of the channel is complete.

Existing zoning on the site (as per TOBM zoning map) denotes the Subject Lands as Development. Refer to **Figure 4** for the Town of The Blue Mountains zoning map of the site. An application to re-zone the site was submitted to the Town in May 2026.

Additional external documents and plans were reviewed over the course of completing this engineering assessment. As such, the servicing and design considerations herein are dependent on the following:

- Functional Servicing and Stormwater Management Report by Higgins Engineering Ltd. – February 2015
- Geotechnical Investigation by Terraprobe - July 2011
- Natural Hazard Setback and Slope Stability Requirements by Terraprobe - May 2014
- Environmental Impact Study by SLR Consulting Ltd. – April 2015
- Cultural Heritage Documentation Report by Archaeological Services – March 2014
- Cultural Heritage Assessment Report, Build Heritage Resources and Cultural Heritage Landscapes – January 2014
- Traffic Impact Study by C.F. Crozier & Associates Inc. – December 2013
- Visual Impact Assessment Report by Seferin Design Group – June 2015
- Stage 1 & 2 Archaeological Assessment by Archaeological Services – December 2013
- Phase I Environmental Site Assessment by SLR Consulting Ltd. – November 2010
- Well Assessment by Terraprobe – March 2015
- Town of The Blue Mountains Fire Station 2 Replacement Final Design Report by J.L. Richards – April 2025
- Home Farm Issued for Subdivision Agreement Submission Materials by Crozier - June 2025

### 3.0 SITE DESCRIPTION

The Home Farm Residential Development comprises of 56.13 ha (138.7 acres) located east of Grey County Road 19 between Helen Street and extension of Craigleith Road. The west side of the property extends 610m along Grey County Road 19 and extends easterly approximately 1360m towards Highway 26. The development resides on two property parcels. The larger parcel is legally described as Concession 2 South, Part Lot 20, Town of The Blue Mountains. The second parcel north of the larger parcel, which hosts the Subject Lands, is legally described as Plan 529, Part Lot 159, Town of The Blue Mountains.

The Nipissing Ridge traverses the Home Farm property running from southeast to northwest dividing the site into two sections: an upper plateau and a lower plateau. The Subject Lands are situated on

the upper plateau lands. A well-documented archaeological site known as Plater-Martin is located northeast of the upper plateau and east of, but not directly abutting, the Subject Lands.

The Subject Lands currently consist of cleared area which formerly contained thickets, and a portion that remains uncleared with sparse thickets.

The Subject Lands slope southwest to northeast from the western boundary towards the Nipissing Ridge. Elevations of the Plater-Martin archaeological area are generally level with the lower portion of the upper plateau and connects to the upper plateau via a narrow (60 m) isthmus. The upper plateau slopes at approximately 3% and drops about 21 m across the Nipissing Ridge to the lower terrace which slopes at approximately 2.4% to the northeast.

The native surficial soils within the main development area of the site are characterized on the OMAFRA Maps as Kemble Silty Clay (Hydrologic Soil Group C) and are considered to be slow draining. This is consistent with the Geotechnical Report by Terraprobe (July 2011) which confirmed in Boreholes 3, 4, and 7 the soils are primarily sandy silt glacial till with clay and traces of gravel. The soils traversing the Nipissing Ridge are characterized as Waterloo Sandy Loam (Hydrologic Soil Group A) and are considered to be well draining. Refer to **Figure 5** for the site Soil Map generated from OMAFRA Maps.

Investigations in July 2011 and March 2015 by Terraprobe found that the soil in the upper terrace is dense at a depth of approximately 3 m. Subsequent geotechnical investigations confirmed that at a depth of approximately 3 m to 3.5 m there is a layer of very dense hard pan clay where boreholes from the 2011 Geotechnical Investigation showed refusal.

Additional geotechnical investigations by Green Geotechnical are underway to support the detailed design of the Subject Lands. Preliminary findings showed that each borehole contained sandy silt to silty sand till material overtop cobbles and very dense clay material, with only one borehole encountering groundwater at a depth of 4.6 m. Further groundwater monitoring within the Subject Lands is ongoing and will continue for a year to capture spring high levels. The results will be finalized in a report and further analyzed in a future submission.

Archaeological Services Inc. (ASI) carried out a Cultural Heritage Assessment Report that included background historic research and review of secondary source as part of the Home Farm Residential Development. The study concluded that the Plater-Martin site traversing the Home Farm lands will be protected. Development is not proposed in the Plater-Martin site.

#### **4.0 ROAD STANDARD**

The primary accesses to the rental development are proposed via the extension of Street "B" northeast of the sanitary pumping station as a private roadway and the extension of Street "A" north through the Town property as a public right-of-way (ROW) with a private roadway connection of Street "Y" to Street "A". Primary access to the Subject Lands from external roadways is provided via Street "B" within the Home Farm Residential Development at the proposed connection to Grey Road 19. An additional access to the Home Farm Residential Development is provided via Helen St to Grey Road 19 and an emergency access connection to the fire hall is proposed via the Street "A" cul-de-sac.

Roadways through the Subject Lands will consist of private roads which are proposed to be privately owned and maintained. Refer to **Drawing C902** for the typical road cross sections proposed within this development.

The internal road network and parking areas will be constructed in accordance with geotechnical

recommendations and in compliance with Accessibility for Ontarians with Disabilities Act (AODA).

## **5.0 SANITARY SERVICING**

### **5.1 Existing Sanitary Infrastructure**

Existing sanitary infrastructure near the Subject Lands includes:

- 200mm diameter sewer along Grey Road 19 flowing north. The upstream terminus of the sewer is located at the projection of Comet Lane.
- Sanitary Pumping Station (SPS) on the Home Farm property.
- Future 200mm diameter sewers located along local right of ways in the Home Farm Residential Development, including fronting the Subject Lands, as well as the future forcemain connecting the SPS to Grey Road 19 gravity sewers.

Home Farm Residential Development sanitary flows will be directed to the new SPS. The SPS directs flows through a forcemain that follows the Street "B" road alignment to Grey Road 19, at which point it outlets to the existing 200mm diameter sewer. Flows from the gravity sewer travel north along Grey Road 19, then east to the Lakeshore Road Sewage Pumping Station (SPS). From the Lakeshore Rd Pumping Station, flows will continue to the Craighleith Wastewater Treatment Plant (WWTP).

The original Home Farm development sanitary design accounted for sanitary flows from the Town property and the Subject Lands draining to the new SPS. The fire hall located on the Town property will drain to Grey Rd 19. The LTC and rental developments will drain to the Home Farm SPS via connection to the gravity sanitary system north of the SPS and North SWM Pond.

Sanitary servicing capacity was reserved for the Home Farm Residential Development in the Lakeshore Road SPS and the Craighleith WWTP, which includes development of the Subject Lands.

### **5.2 Proposed Sanitary Servicing Strategy**

The Subject Lands will be serviced by a network of gravity sewers that direct flow towards the Home Farm Residential Development SPS. Gravity sanitary services are proposed throughout the site, and as such gravity sewers along the private roadway will be constructed deep enough to provide gravity drainage of basements. Proposed sewers will also accept flow from the LTC Facility at Street "X".

Revised sanitary demands were estimated for the Home Farm Residential Development, LTC development, and Rental development using the following criteria as specified in the Town of The Blue Mountains Standards:

- Average Residential Flow Rate – 350 L/cap/day
- Infiltration – 0.28 L/s/ha
- Long Term Care Homes – 450 L/cap/day (per bed, OBC)
- Peaking Factor – 3.8-4.1 (Harmon Formula)
- Population Density – 2.15 Persons/Unit

Based on these values, sanitary demands for each of the developments were estimated and are shown in **Table 1**.

**Table 1: Preliminary Sanitary Demand**

|                                           | Home Farm    | Rental Development | LTC Development         | Total Demands |
|-------------------------------------------|--------------|--------------------|-------------------------|---------------|
| Sanitary Drainage Area (ha)               | 15.59        | 1.99               | 1.342                   | 19.00         |
| Population                                | 475          | 241                | 192 (247 <sup>1</sup> ) | 908 (963)     |
| Average Daily Flows (L/s)                 | 1.92         | 0.98               | 1.00                    | 3.90          |
| Daily Peak Flow (L/s)                     | <b>12.04</b> | <b>4.57</b>        | <b>4.51</b>             | <b>20.18</b>  |
| Percent share of Average Daily Peak Flows | <b>58%</b>   | <b>22%</b>         | <b>20%</b>              | -             |

Note 1: Equivalent population based on prorating flow rate of 450 L/bed/day to 350 L/cap/day.

As noted in the Home Farm Residential Development Sanitary Pumping Station Design Brief (Crozier, May 2024), the design peak flow for the SPS was previously 18.15L/s. Per **Table 1**, the new design flow is 20.15 L/s due to change in land use and drainage areas from the proposed rental and LTC developments. Details regarding the revised SPS design can be found in the updated Home Farm Residential Development Sanitary Pumping Station Design Brief (Crozier, June 2026) submitted under a separate cover. According to the revised design brief, the SPS can adequately service the proposed developments with minor adjustments. Refer to **Drawing C301** for details regarding the proposed sanitary servicing layout.

A detailed sanitary sewer design sheet has been created for the proposed gravity sanitary network within the Rental development, and to confirm that the capacity of sewers within the Home Farm Residential Development are sized to take the revised sanitary flows. Based on the proposed flows from the Rental development and LTC facility, there is sufficient capacity in the Home Farm Residential Development sewer system to accommodate the proposed developments. Refer to **Appendix A** for the sanitary sewer design sheet and to **Drawing C303** for the sanitary drainage area plan.

The external sanitary sewer design sheet was updated with the new proposed flows from the Home Farm SPS to ensure downstream capacity is available between the gravity sewer outlet on Grey Road 19 and the Lakeshore Road SPS. Please refer to the external design sheet included in **Appendix A** which demonstrates sufficient capacity is available.

## 6.0 WATER SERVICING

### 6.1 Existing Potable Water Supply Infrastructure

Existing water infrastructure near the Subject Lands includes:

- 350 mm diameter watermain along Grey Road 19
- Future 200 mm diameter watermain located within the Home Farm Residential Development, including fronting the Subject Lands.
- Future 200mm diameter watermain located within the firehall development.

The proposed boundary watermain network also contains stubs at the terminuses of Street "A" and Street "C". Connection and extension of the watermain at these locations was previously contemplated as part of the Home Farm Residential Development and has been accounted for in the design of the development.

### 6.2 Proposed Water Servicing Strategy

The Home Farm Residential Development will be serviced via two connections to the existing 350 mm diameter watermain along Grey Road 19 at Street "B" and Helen Street. The Rental development will connect to the proposed 200mm diameter watermain located on Street "C", as well as the future

extension of the stub on Street "A" that will be completed as part of the proposed development. Connections will be made to these watermain, which are to be extended and looped using 200mm diameter watermain through the proposed development.

Local watermain with individual service connections for each unit will follow the alignment of the internal roadways. Fire flows for the site will be provided by proposed fire hydrants throughout the development. The watermain will be public and will be owned and operated by the Town.

Revised domestic water demands were estimated for the Home Farm Residential Development, Fire Station, LTC development, and Rental development using the following criteria as specified in the Town of The Blue Mountains Standards and MECP Design Guidelines for Drinking Water Systems:

- Average Flow Rate – 350 L/cap/day
- Long Term Care Homes – 450 L/cap/day (per bed, OBC)
- Peak Factors: Peak Day/ Peak Hour – ranges based on population per MECP Guidelines
- Population Density – 2.15 Persons/Unit

Based on these values, water demands for each of the developments were estimated and are shown in **Table 2**.

**Table 2: Preliminary Water Demand**

|                           | Home Farm     | Rental Development | LTC Development  | Total Demands |
|---------------------------|---------------|--------------------|------------------|---------------|
| Population                | <b>475</b>    | <b>241</b>         | <b>192</b>       | <b>908</b>    |
| Average Daily Flows (L/s) | 1.92          | 0.98               | 1.00             | 3.92          |
| Max Day Peak Factor       | 2.95          | 4.08               | 4.54             | 2.75          |
| Max Day Demand (L/s)      | 5.68          | 3.98               | 4.54             | 10.73         |
| Peak Hour Factor          | 4.40          | 6.13               | 6.84             | 4.13          |
| Peak Hour Flow (L/s)      | 8.47          | 5.98               | 6.84             | 16.11         |
| Fire Flow Demand (L/s)    | 133           | 133                | 150 <sup>1</sup> | 200           |
| Total Design Flow (L/s)   | <b>138.68</b> | <b>136.98</b>      | <b>154.54</b>    | <b>210.73</b> |

Note 1: Information provided by Walter Fedy

Maximum fire flows required to service the Subject Lands were determined to be 133 L/s per the Fire Underwriter's Survey. Calculations were completed under the assumption that there is a maximum of 4 townhouse units before the placement of a fire wall. The total design flow (peak residential + fire flow) for the rental development distribution system is **136.98 L/s**. Refer to **Appendix B** for potable water servicing demand and fire flow calculations and **Drawing C304** for the proposed watermain distribution plan.

A watermain connection to the proposed LTC facility is also proposed through the proposed development at the northwest corner of the condominium roadway. 200 mm watermain stubs are proposed to provide water service connections at the northeast end of Street "X" and the north end of the Street "A" cul-de-sac for the LTC.

An updated water model has been completed as part of design of the Rental development, which confirms the ability of the proposed Home Farm water distribution network to support the proposed demands from the Rental. Boundary conditions have previously been provided by the Town's Water

Model from JL Richards based on the water demands from the Home Farm development. It is recommended that updated boundary conditions be obtained to reflect the current conditions of the water distribution system and to provide more accurate modeling results. Refer to the updated Water Distribution System Memo (Crozier, June 2026) submitted under separate cover for preliminary results and more information.

## 7.0 CIVIL SERVICE OWNERSHIP

Due to the agreement to service the long-term care facility through the rental development, and partial servicing of the Fire Hall through the Home Farm development, ownership of services varies from typical developments. **Table 3** summarizes the ownership of the services in the rental development and Home Farm development. The Home Farm development ownership was established through coordination with the Town, as well as approved ECA and CLI-ECA applications.

**Table 3: Civil Service Ownership Summary**

| Civil Service   | Home Farm                                                                                                                                     | Rental                                                      |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Sanitary Sewers | Public                                                                                                                                        | Public                                                      |
| SPS & Forcemain | Public                                                                                                                                        | -                                                           |
| Watermain       | Public                                                                                                                                        | Public                                                      |
| Storm Sewers    | Public – Street A & B, SWM Ponds, Areas where public drains to private road (Street C) <sup>1</sup><br>Private – Storm sewer on private roads | Public – Street X<br>Private – Street Y                     |
| Roads           | Public – Street A & B<br>Private – remainder of roads                                                                                         | Public - Street A to cul-de-sac<br>Private – Street X and Y |

Note 1: Storm sewer at Street C cul-de-sac previously noted to be private shall become public as LTC flow will be conveyed through pipe.

Public services will be owned and maintained by the Town.

## 8.0 UTILITIES

The proposed Rental development will be serviced with natural gas, telephone, cable TV and hydro. The design of such utilities will be coordinated with the local utility companies servicing the Town. Utilities are proposed to follow the alignment of the internal private road network, with individual service connections to each proposed and future building.

Initial correspondence with Rogers identifies that the Home Farm Residential development is to be serviced prior to service extension to the Rental development. Rogers has confirmed there is adequate residual capacity to service the Rental Development.

A Composite Utility Plan will follow in future submissions which will outline the proposed utility alignments throughout the development. Enbridge is confirming whether existing services have capacity to service the proposed development. Coordination with Hydro One and Bell is ongoing and results will be summarized in a future submission.

## **9.0 STORMWATER MANAGEMENT & DRAINAGE**

### **9.1 Stormwater Management Criteria**

The management of stormwater and site drainage for the Subject Lands will follow the policies and standards of the various agencies including: Town of The Blue Mountains (TOBM), Ministry of the Environment, Conservation and Parks (MECP), and Grey Sauble Conservation Authority (GSCA).

The stormwater management criteria for the proposed development includes:

- Water Quantity Control
  - "Post-to-Pre" runoff peak flow control to maintain or reduce pre-development peak flows in post-development conditions at site outlets
- Water Quality Control
  - MECP "Enhanced Protection" (80% long-term TSS removal for 90% of the annual runoff) given Georgian Bay as ultimate receiver
- Erosion Control
  - Source control and extended detention required to respect natural geomorphic characteristics of receiving watercourses.
  - 24-hour drawdown of the 4 hour 25mm event.
- Development Standard
  - Urban cross section complete with 5-year storm sewer system
  - Lot grading at 2% optimum
  - Minor and major drainage system to convey frequent and infrequent storm events

### **9.2 Site Grading Criteria**

The grading criteria that will be applied to the proposed residential development includes the following:

- All dwelling basements/crawl spaces will be sited above the existing bedrock surface;
- All dwelling basements/crawl spaces will be sited above the proposed sanitary pumping station emergency storage elevation.
- Minimum 0.5m separation of seasonally high groundwater level to underside of basement floor will be provided;
- Site grading to provide suitable cover over the storm sewer to prevent frost heave and provide overland flow routes for major storm runoff;
- The grading must match the existing elevations surrounding the property.
- Limits of grading shall not encroach into the stable slope area of adjacent ravines.

The grading plan is included as **Drawing C401**.

### **9.3 Existing Drainage Conditions**

The Subject Lands currently drain from southwest to the northeast.

The catchment for the Subject Lands was previously characterized in the Home Farm Residential Development pre-development drainage plan as part of catchment "2C" with a catchment area of 5.37 ha. The catchment included the properties that comprise of a portion of the Subject Lands, the

town-owned firehall development, and the LTC. The pre-development catchment has been revised to include the entire area for the Subject Lands, along with the fire hall and the LTC, and now consists of 5.91 ha of drainage area. The revised pre-development plan has been included as **Figure 6** in this report. Refer to **Appendix C** for updated pre-development hydrologic parameter calculations.

Refer to the Home Farm Servicing & SWM Implementation Report for discussion on a historic land swap of areas between Watercourse 7 and Watercourse 8 drainage areas. Development of the Subject Lands and the Town property will complete the land swap.

#### **9.4 Proposed Drainage Conditions**

Following the requirements of the TOBM, the development will incorporate a “dual” drainage system consisting of minor and major stormwater flow routes. The development will consist of an urban cross section including mountable curb and gutter for the private roads, complete with storm sewers and catchbasins. Extension of Street “A” will consist of a barrier curb and gutter system, which will direct flows to the Home Farm and rental developments. Minor system flows will be collected by a series of catchbasins and conveyed to the North SWM Pond on the Home Farm development through a storm sewer system sized to convey up to the 5-year return rainfall event. Major system flows will be conveyed overland via the internal roadway network to the spillway into the North SWM pond.

The North SWM Pond and local storm sewers within the Home Farm Residential Development have been designed to accommodate flows from the Subject Lands, Firehall and LTC. The Storm Sewer Design Sheet has been included in **Appendix E** and the storm drainage area plan is included in **Drawing C302**.

Major drainage will be conveyed to the North SWM Pond via the proposed road servicing corridor. Flows will be contained via the curb and gutter system and will be conveyed along the proposed road grades to the north side of the North SWM Pond. The proposed road cross section's ability to convey major storm overland flows has been demonstrated through a FlowMaster model, included in **Appendix E**.

##### 9.4.1. Drainage Catchment Areas

The development area of the Home Farm Residential Development site was previously broken into three main drainage areas for assessment of the Stormwater Management conditions. Post development flows entering the North SWM Pond included Catchments 2A, 2B, and 2C. Previously, catchment 2C partially included drainage area from the Subject Lands, as well as drainage from the proposed firehall and LTC developments. The post-development catchment plan has been revised to include the entire drainage area for the Subject Lands along with the firehall and LTC development. In the post development condition of the Subject Lands, Catchment 2C is further subdivided to differentiate stormwater contributions to the North SWM Pond from the firehall (2C-1), the LTC (2C-2) and the Subject Lands (2C-3). Refer to **Figure 7** for the revised post-development drainage plans and to **Appendix C** for updated hydrologic parameters calculations.

Post-development flows from the North SWM Pond catchment area have been controlled to match pre-development (point of interest #2). Overall flows for Watercourse 7 have also been assessed to ensure the entirety of the development does not increase local flows.

##### 9.4.2. Stormwater Management Facility

Runoff generated from the Subject Lands will be collected, attenuated and treated by the Home Farm North SWM Pond “end-of-pipe” Stormwater Management facility. The location of the North SWM

Pond is shown on **Figure 7**. Detailed drawings of the SWM Facility are included with the Home Farm Detailed Design set submitted to the Town in support of the subdivision agreement.

The North SWM Pond (SWM Facility #2) is a proposed wet pond at the north end of the Home Farm site, located north of the realigned Watercourse 7. Catchment areas draining to Stormwater Management Facility #2 consist of both pervious and impervious drainage areas (Catchments 2A, 2B, and 2C), with a portion of the Subject Lands being represented in Catchment 2C. SWM Facility #2 was originally designed with a forebay and main cell and sized to provide quality treatment and quantity control for Catchment Areas 2A, 2B & future development area 2C. The runoff generated from Catchment 2C was previously modeled based on an overall assumed impervious level of 44%, which was based on the previously proposed development concept of the parcel of land located within 2C, as laid out in the Higgins FSR & SWM Report (Feb 2015). Updated modelling has been completed to confirm the additional drainage area and increased impervious area can be received by the North SWM Pond.

Minor flows enter the North Pond via one storm sewer inlet located at the south side of the pond from Street "B". In major storm events, flows will enter the pond from the north and south sides from low points in the roadway adjacent the pond. The North Pond will outlet from the southeast side of the pond and will cross Street "B" prior to discharging to the realigned portion of Watercourse 7. The emergency spill route for the North Pond is via a 975 mm diameter concrete culvert under Street "B" to Watercourse 7. Culvert sizing for this spill route has been confirmed through an alternative modeling scenario where the culvert is solely relied upon to convey the highest storm flows to the watercourse without overflow from the pond. Model inputs, outputs and sizing calculations are included in **Appendix D**. Earthworks have been completed for the North SWM pond which is currently acting as a temporary sediment basin. Inlet and outlet structures have not been installed.

Major drainage entering the SWM pond from the north is conveyed through an articulating concrete block system. As part of the Home Farm Residential Development design, the articulating concrete block system is proposed at the terminus of the Street "C" roadway. An additional articulating concrete block system inlet was included at station 0+190 of Street "X" within the Rental Development to direct overland flow to the pond. The concrete block system has been designed to convey major flows from the Rental development, a portion of the fire hall, and the LTC into the North Pond. Through coordination with the manufacturer, the IECS CC35 Class Block product has been specified for the overland flow inflow channel to the pond. Refer to **Appendix E** for IECS sizing calculations and detail drawings for the revised articulating concrete block system.

## 9.5 Stormwater Quality Control

The North Pond consists of a permanent pool and extended detention capabilities to meet the water quality and erosion control criteria of the MECP "Enhanced Protection" to treat 80% long-term suspended solids removal prior to discharging to Watercourse 7 (Table 3.2 MOE SWM Planning & Design Manual). The stormwater management pond quality calculations have been updated to account for the increase in impervious area and confirm quality treatment is available for the proposed development.

The greater of the MECP water quality control volume (40 m<sup>3</sup>/ha) and the runoff volume generated during the 6-hour Kiefer Chu 25mm storm event was used to determine the minimum required extended detention volumes for the SWM Facility. The permanent pool volume was calculated based on Table 3.2 of the MECP SWM Planning & Design Manual for Water Quality Storage Requirements for enhanced protection of the North SWM Pond. Refer to **Table 4** for a summary of the revised water quality volumes for the North SWM Pond. Updated calculations are included in **Appendix D**.

**Table 4: SWM Facility Quality Volumes (m<sup>3</sup>)**

|                       |                           |                       |
|-----------------------|---------------------------|-----------------------|
| Drainage Area Stats   | 11.33 ha                  | 54% impervious        |
| <b>Quality Volume</b> | <b>Extended Detention</b> | <b>Permanent Pool</b> |
| Required              | 1478                      | 1670                  |
| Provided              | 1741                      | 2131                  |

As shown in **Table 4**, the minimum water quality volumes for the North SWM Pond are still met in the post development condition. Water Quality requirement calculations and SWM Facility sizing are available in **Appendix D**. SWM Facility Design Details are further outlined in **Section 9.7**.

## 9.6 Stormwater Quantity Control

### 9.6.1. Hydrologic Model

Pre-development and post-development hydrologic modeling were completed using the latest version of the Stormwater Management Hydrologic Model (SWMHYMO) to determine the peak flows throughout the Home Farm Residential Development as well as the updated and divided Catchment 2C. For both pre- and post-development modeling, rainfall distributions for the array of design storms (i.e. 2 to 100-Year) were simulated using the 6-Hour Kifer Chu, the 4-Hour Chicago, the 12-hour SCS and the 24-hour SCS storm distributions. The Timmins Storm event was used as the Regional storm for the study area. For further details regarding the set-up of the hydrologic model, refer to the Servicing & Stormwater Management Implementation Report completed as part of the Home Farm Residential Development (Crozier, December 2021).

The previously completed hydrologic model was updated to divide Catchment 2C to include updated site layouts for the proposed development, firehall, and LTC developments. The following analysis was completed to ensure the previously designed North SWM Pond can provide the necessary level of attenuation to peak flows. Areas used in the pre- and post-development overall Watercourse 7 flow portion of the model are summarized in **Table 5**.

**Table 5: Area Summary - Overall Watercourse 7 Peak Flow Model**

| Catchment ID               | Location                                            | Pre-Development Area (ha) | Post-Development Area (ha) |
|----------------------------|-----------------------------------------------------|---------------------------|----------------------------|
| 701                        | Upstream of Grey Rd 19                              | 146.70                    | 137.80                     |
| 702/7021                   | Downstream of Grey Rd 19 / Upstream of Lakeshore Rd | 34.50                     | 22.98                      |
| Site (Catchments 1, 2 & 3) | Proposed Developed Area of Site                     | 0.00                      | 20.02                      |
| Total                      | Watercourse 7 Upstream of Lakeshore Road            | 181.20                    | 180.80                     |

The North Pond captures and control flows from Catchment 2 and was sized to ensure that the runoff generated due to increased imperviousness is captured and treated adequately, ensuring peak flows do not exceed pre-development values for the 2-year through 100-year storm events. Flows from the 24-Hour SCS storm distribution model for Catchment 2 is summarized in this report since this storm distribution produces the highest values. The results from the other storm distribution models can be

found in **Appendix C**.

#### 9.6.2. North SWM Pond Operations

The North SWM Pond was designed to provide sufficient storage to ensure the post-development flows at each Home Farm hydrologic point of interest as shown on **Figure 6**. As completed in the revised hydrologic modelling, the North SWM Pond is adequately designed to attenuate flows from the proposed catchments with the revised land uses and increased drainage area. By still controlling the peak flows to Catchment 2 with the increased drainage area, the overall flow at Watercourse 7 at Home Farm Hydrologic Point of Interest #4 is also controlled to pre-development flow rates.

An updated stage-storage-discharge relationship was developed for the pond using the previous design with the second outlet orifice increased to 0.41 m in diameter (0.37 m previously) and a spillway to control flows. Refer to **Appendix D** for the updated pond sizing calculations.

**Table 5** shows the peak flows in and out of each pond under post-development conditions during each storm event, as well as the storage volume used during each storm.

**Table 5: SWM Pond Peak Flow Summary and Storage Requirements (24-Hour SCS)**

| Pond ID                     | Peak Flow (m <sup>3</sup> /s)  | Return Period |        |         |         |         |          |          |
|-----------------------------|--------------------------------|---------------|--------|---------|---------|---------|----------|----------|
|                             |                                | 2-Year        | 5-Year | 10-Year | 25-Year | 50-Year | 100-Year | Regional |
| <b>SWMF #2 (North Pond)</b> | Peak Flow In                   | 1.15          | 1.56   | 1.85    | 2.22    | 2.50    | 2.80     | 1.23     |
|                             | Peak Flow Out                  | 0.21          | 0.36   | 0.39    | 0.43    | 0.46    | 0.48     | 0.84     |
|                             | % Difference                   | -81%          | -77%   | -79%    | -81%    | -82%    | -83%     | -31%     |
|                             | Storage Used (m <sup>3</sup> ) | 2105          | 2626   | 3081    | 3691    | 4170    | 4654     | 5052     |

#### 9.6.3. Summary of Peak Flows

The North SWM Pond has been designed to provide storage and attenuate the peak flows to the pre-development conditions for drainage Catchment #2. Similarly, Catchment 1 and 3 are controlled by the South SWM Pond and Bioretention and Dry Pond, respectively, on the Home Farm Development. Refer to the Home Farm reports for further information on the other SWM Facilities. Through ensuring each catchment is separately controlled to pre-development conditions the pre-development overall flows in Watercourse 7 downstream of the development are also maintained, however this is also assessed separately.

The assessment of peak flows was compared to the pre-development peak flows to accurately determine the impact of the revised Catchment 2C. For the purpose of this analysis, only drainage conditions for Catchment 2 to Hydrologic POI #2 were affected, thus flows from Catchment 2 were assessed to confirm the revised Catchment 2C can be accommodated. **Table 6** summarizes the peak flows draining to Catchment 2 from the North Pond in pre- and post-development conditions.

**Table 6: Summary of Peak Flows – (24-Hour SCS)**

| Location                                         | Return Period | Peak Flow (m <sup>3</sup> /s) |                  | % Difference |
|--------------------------------------------------|---------------|-------------------------------|------------------|--------------|
|                                                  |               | Pre-Development               | Post-Development |              |
| Catchment 2<br>(North Pond)<br>Hydrologic POI #2 | 2-Year        | 0.29                          | 0.21             | -27%         |
|                                                  | 5-Year        | 0.47                          | 0.36             | -25%         |
|                                                  | 10-Year       | 0.60                          | 0.39             | -35%         |
|                                                  | 25-Year       | 0.77                          | 0.43             | -44%         |
|                                                  | 50-Year       | 0.91                          | 0.46             | -50%         |
|                                                  | 100-Year      | 1.05                          | 0.48             | -54%         |
|                                                  | Regional      | 0.99                          | 0.84             | -15%         |
| Watercourse 7                                    | 2-Year        | 2.19                          | 2.00             | -9%          |
|                                                  | 5-Year        | 3.36                          | 3.18             | -5%          |
|                                                  | 10-Year       | 4.18                          | 4.13             | -1%          |
|                                                  | 25-Year       | 5.26                          | 5.19             | -1%          |
|                                                  | 50-Year       | 6.12                          | 6.02             | -2%          |
|                                                  | 100-Year      | 6.99                          | 6.85             | -2%          |
|                                                  | Regional      | 10.46                         | 10.49            | 0%           |

As shown in **Table 6**, post-development peak flows do not exceed pre-development flows for the 2 through 100-year storms, and the Regional event at the Hydrologic POI #2.

Refer to **Appendix C** for the SWMHYMO model input and output files and to **Figure 6** and **Figure 7** for the pre- and post-development drainage area plans.

## 9.7 SWM Facility Design

As discussed in **Section 9.4**, the minor storm (sewer) and major storm (overland) drainage systems from the Home Farm, firehall, LTC, and proposed developments outlet to the North Pond (SWMF#2). This section consists of additional details regarding the updated design and operation values of the pond.

The North Pond was designed as a wet pond with main cell and forebay permanent pool depths of 1.5m. A summary of the water surface elevation at the utilized storage volume in each storm event (from **Table 5**) is included in **Table 7**.

**Table 7: SWM Pond Operating Characteristics**

| Operating Level                 | SWMF #2<br>North Pond<br>Catchment Area =11.49ha |                          |
|---------------------------------|--------------------------------------------------|--------------------------|
|                                 | Elevation (m)                                    | Volume (m <sup>3</sup> ) |
| Bottom of Forebay               | 211.80                                           | 0                        |
| Bottom of Main Cell             | 211.80                                           | 0                        |
| Permanent Pool <sup>1,2</sup>   | 213.30                                           | 2131 (1670)              |
| Extended Detention <sup>2</sup> | 214.00                                           | 1741 (1478)              |

| Operating Level | SWMF #2<br>North Pond<br>Catchment Area =11.49ha |                          |
|-----------------|--------------------------------------------------|--------------------------|
|                 | Elevation (m)                                    | Volume (m <sup>3</sup> ) |
| 2-Year WSE      | 214.12                                           | 2105                     |
| 5-Year WSE      | 214.29                                           | 2626                     |
| 10-Year WSE     | 214.43                                           | 3081                     |
| 25-Year WSE     | 214.61                                           | 3691                     |
| 50-Year WSE     | 214.74                                           | 4170                     |
| 100-Year WSE    | 214.88                                           | 4654                     |
| Regional WSE    | 214.94                                           | 5052                     |
| Top of Berm     | 215.20                                           | 5870                     |

- <sup>1</sup> Permanent Pool represents dead storage; all other volumes represent active storage.
- <sup>2</sup> Required Permanent Pool and Extended Detention volumes have been shown in brackets per the values outlined in **Table 4**.
- <sup>3</sup> Volumes for the 2- through 100-year storms represent the volumes used in each storm event in the 24-Hour SCS model (from **Table 5**). Elevations are interpolated from the SWM Pond stage-storage table in **Appendix D**.

The internal grading of the North SWM Pond consists of a maximum 4:1 H:V side slopes below the permanent pool, and a maximum of 5:1 H:V side slopes above the permanent pool, which adhere to the MOE SWM Guidelines and Municipal Guidelines. Per **Table 7**, adequate Permanent Pool and Extended Detention volumes have been provided in the design of SWM Facility to accommodate the updated catchment information. The updated quality sizing, stage-storage-discharge relationship, forebay sizing, and extended detention calculations for the pond are included in **Appendix D**.

## 10.0 EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION

Erosion and sediment controls will be implemented prior to the commencement of any site servicing works and maintained throughout construction until the site is stabilized or as directed by the Engineer, GSCA and/or Town. Controls are to be inspected regularly, after each significant rainfall, and maintained in proper working condition. The proposed erosion and sediment controls include, silt fencing, flow check dams, dust suppression, mud mats. The need for additional controls will be based on the field conditions, at the discretion of the Engineer and implemented as necessary. Refer to **Drawing C201** for the proposed ESC plan.

- Silt Fencing

Heavy Duty Silt Fence will be constructed in accordance with the GSCA typical detail. It should be noted that additional silt fence may be added based on field decisions by the Engineer and Developer prior to, during and following the earthworks.

- Flow Check Dams

Temporary straw bale (OPSD 219.180) and rock check dams (OPSDs 219.210) will be utilized on-site as

needed to prevent any silt migration off site during and after construction activities. These dams will promote settling of suspended solids and will reduce flow velocities. Sediment accumulation will be monitored and removed as necessary.

- Mud Mat

A mud mat will be maintained at the site construction entrance until base asphalt is placed to limit mud tracking from the site onto the surrounding road network. The Contractor shall ensure mud mat maintenance (cleaning / additional stone) is completed on an as needed basis to ensure proper operation.

- Dust Suppression

The Contractor will be responsible for ensuring dust suppression is maintained by the use of water or calcium chloride, or other methods approved by the Engineer.

## 11.0 CONCLUSIONS

Based on the foregoing we conclude that the proposed Home Farm development can be adequately serviced.

1. The servicing and stormwater management strategy presented herein is consistent with the design criteria of the Town and MECP.
2. Access to the site will be provided via the extensions of Street "A" and Street "B" into the proposed development. Internal roadways will be privately owned and maintained with select underground infrastructure being publicly owned and maintained.
3. Domestic water supply will be provided via a looped system with two proposed connections to the existing watermains along Street "C". The internal watermain will be publicly owned and operated by the Town.
4. The development will be serviced by public and private sanitary gravity sewer system discharging into the on-site public sewage pumping system within the Home Farm Residential Development.
5. All major utilities are available to the development, located in the boundary roadways and Home Farm Residential Development.
6. Stormwater Management will be accomplished via the use of the North SWM Pond in the Home Farm Residential Development. The North SWM Pond is a wet pond and consists of a permanent pool and extended detention capabilities to meet the water quality and erosion control criteria of the MECP "Enhanced Protection", as well as adequate quantity controls prior to discharging to the realigned Watercourse 7. The North SWM Pond will provide quality and quantity control and will reduce peak flows discharging to Watercourse 7 to pre-development conditions. The development will be serviced by a storm sewer system which will route minor storm flows (5-year event) into the pond. Major storm flows will be routed to the south via the proposed road corridors which provide positive drainage to the North SWM Pond.

Given the above noted conclusions, we support the development of the subject lands from the perspective of engineering servicing and stormwater management requirements.

Respectfully submitted,

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# **APPENDIX A**

## Sanitary Servicing Design Calculations

Sanitary Demand Calculations  
Sanitary Sewer Design Sheet  
External Sanitary Sewer Design Sheet



Project: Home Farm  
File: 721-3464  
Date: June 26, 2026  
By: NS  
Check By: JE

HOME FARM (Total) - SANITARY DEMAND CALCULATIONS

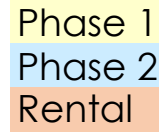
Note: This Scenario uses a projected flow for a future Long Term Care Facility as well as 112 Affordable Housing Units

|                                            | Home Farm                                 | Rental      | LTC         | Total        |                |
|--------------------------------------------|-------------------------------------------|-------------|-------------|--------------|----------------|
| <b>Developed Site Area</b>                 | 15.59                                     | 1.99        | 1.42        | 19.00        | ha             |
| <b>Residential Population Calculation</b>  |                                           |             |             |              |                |
| Number of Residential Units                | 221                                       | 112         |             | 333          | units          |
| Person Per Residential Unit                | (Town Development Standards) 2.15         | 2.15        |             | 2.15         | persons/unit   |
| Residential Population                     | 475                                       | 241         | 0           | 716          | persons        |
| Long Term Care Population                  | -                                         |             | 192         | 192          | beds           |
| <b>Total</b>                               | <b>475</b>                                | <b>241</b>  | <b>192</b>  | <b>908</b>   | <b>persons</b> |
| <b>Total Population</b>                    |                                           |             |             |              |                |
| Total Population                           | <b>475</b>                                | <b>241</b>  | <b>192</b>  | <b>908</b>   | <b>people</b>  |
| Equivalent Total Population                | (Used in Harmon Formula) <b>475</b>       | <b>241</b>  | <b>247</b>  | <b>963</b>   | <b>people</b>  |
| <b>Sanitary Design Flows - Residential</b> |                                           |             |             |              |                |
| Residential                                | (Town Development Standards) 350          | 350         | 350         | 350          | L/C-day        |
| Average Residential Daily Flow             | 1.92                                      | 0.98        | 0.00        | 2.90         | L/sec          |
| Long Term Care Homes (per Bed)             | (OBC) -                                   | 450.00      | 450.00      | 450.00       | L/C-day        |
| Average LTC Flow                           |                                           | 0.00        | 1.00        | 1.00         | L/sec          |
| <b>Inflow &amp; Infiltration</b>           |                                           |             |             |              |                |
| Inflow & Infiltration Allowance            | (Town Development Standards) 0.28         | 0.28        | 0.28        | 0.28         | L/s/ha         |
| Inflow & Infiltration Design Flow          | 4.37                                      | 0.56        | 0.40        | 5.32         | L/sec          |
| <b>Total Sanitary Design Flows</b>         |                                           |             |             |              |                |
| Total Average Daily Flow                   | 1.92                                      | 0.98        | 1.00        | 3.90         | L/sec          |
| Max Day Peak Factor                        | (Harmon Formula) 4.0                      | 4.1         | 4.1         | 3.8          |                |
| Max Day Flow                               | 7.67                                      | 4.02        | 4.11        | 14.86        | L/sec          |
| <b>Total Daily Peak Flow</b>               | (Town Development Standards) <b>12.04</b> | <b>4.57</b> | <b>4.51</b> | <b>20.18</b> | <b>L/sec</b>   |

| HOME FARM<br>721-3464<br>SANITARY SEWER DESIGN SHEET                     |          |         |       |           |                              |      |                  |                      |                 |                |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
|--------------------------------------------------------------------------|----------|---------|-------|-----------|------------------------------|------|------------------|----------------------|-----------------|----------------|----------------|--------------------------------------------------------------------------------------------------------------------|---------------------|----------------------|------------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|----------|------------------------------|--------------|-----------|-----------|-----------|
| <div><div>C</div><div>CROZIER</div><div>CONSULTING ENGINEERS</div></div> |          |         |       |           | Phase 1<br>Phase 2<br>Rental |      |                  | <div>Unit Type</div> |                 | <div>PPU</div> |                | <div>DESIGNED BY: JE</div> <div>CHECKED BY: JE/RW</div> <div>DATE: 2026-06-25</div> <div>ISSUED FOR: 1st Sub</div> |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
|                                                                          |          |         |       |           |                              |      |                  | SINGLE DETACHED      |                 | 2.15           |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
|                                                                          |          |         |       |           |                              |      |                  | SEMI DETACHED        |                 |                |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
|                                                                          |          |         |       |           |                              |      |                  | TOWNHOUSE            |                 | 2.15           |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
|                                                                          |          |         |       |           |                              |      |                  | APARTMENT            |                 |                |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
| <div>DESIGN PARAMETERS</div>                                             |          |         |       |           |                              |      |                  |                      |                 |                |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
| Mannings "n": 0.013                                                      |          |         |       |           |                              |      |                  |                      |                 |                |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
| Residential Peak Factor (M): 1+([14/[4+(P/1000)^0.5]])                   |          |         |       |           |                              |      |                  |                      |                 |                |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
| Residential Avg. Daily Flow: 350 L/cap/day                               |          |         |       |           |                              |      |                  |                      |                 |                |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
| LTC Avg. Daily Flow: 450 L/cap/day                                       |          |         |       |           |                              |      |                  |                      |                 |                |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
| Inflow & Infiltration: 0.28 L/s/ha                                       |          |         |       |           |                              |      |                  |                      |                 |                |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
| CATCHMENT I.D.                                                           | STREET   | FROM MH | TO MH | AREA (Ha) | RESIDENTIAL                  |      |                  | RESIDENTIAL          |                 |                | MAX FLOW (L/s) | INFILT. (L/s)                                                                                                      | TOTAL INFILT. (L/s) | TOTAL FLOW (q) (L/s) | LENGTH (m) | PIPE DIA. (mm) | SLOPE (%) | PIPE INV ELEV. |           | PIPE OBV ELEV. |           | CAP. (Q) (L/s) | CAP. (%) | FULL FLOW VELOCITY (V) (m/s) | GROUND ELEV. |           | COVER     |           |
|                                                                          |          |         |       |           | UNITS                        | POP. | TOTAL TRIB. POP. | PEAK FACTOR          | AVG. FLOW (L/s) | MAX FLOW (L/s) |                |                                                                                                                    |                     |                      |            |                |           | UPPER END      | LOWER END | UPPER END      | LOWER END |                |          |                              | UPPER END    | LOWER END | UPPER END | LOWER END |
| SOUTHERN AREA                                                            |          |         |       |           |                              |      |                  |                      |                 |                |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
| 212A                                                                     | Helen St | MH13A   | MH13  | 1.36      | 6                            | 13   | 13               | 4.40                 | 0.05            | 0.23           | 0.23           | 0.38                                                                                                               | 0.38                | 0.61                 | 97.8       | 200            | 2.83%     | 226.02         | 223.26    | 226.22         | 223.46    | 55.18          | 1.11%    | 1.76                         | 229.06       | 227.25    | 2.84      | 3.79      |
| 212                                                                      | Helen St | MH13    | MH12  | 0.34      | 5                            | 11   | 24               | 4.37                 | 0.10            | 0.42           | 0.42           | 0.10                                                                                                               | 0.48                | 0.89                 | 100.5      | 200            | 1.69%     | 222.67         | 220.97    | 222.87         | 221.17    | 42.64          | 2.10%    | 1.36                         | 227.25       | 224.48    | 4.38      | 3.31      |
| 221                                                                      | Street F | MH19    | MH12  | 0.50      | 9                            | 19   | 19               | 4.38                 | 0.08            | 0.34           | 0.34           | 0.14                                                                                                               | 0.14                | 0.48                 | 62.8       | 200            | 1.00%     | 221.66         | 221.03    | 221.86         | 221.23    | 32.80          | 1.47%    | 1.04                         | 225.28       | 224.48    | 3.42      | 3.25      |
| 211                                                                      | Helen St | MH12    | MH11  | 0.50      | 13                           | 28   | 71               | 4.28                 | 0.29            | 1.23           | 1.23           | 0.14                                                                                                               | 0.76                | 1.99                 | 87.2       | 200            | 1.32%     | 220.94         | 219.79    | 221.14         | 219.99    | 37.68          | 5.27%    | 1.20                         | 224.48       | 222.96    | 3.34      | 2.97      |
| 222                                                                      | Street A | MH11    | MH20  | 0.53      | 13                           | 28   | 99               | 4.24                 | 0.40            | 1.70           | 1.70           | 0.15                                                                                                               | 0.90                | 2.61                 | 66.1       | 200            | 0.50%     | 219.35         | 219.02    | 219.55         | 219.22    | 23.19          | 11.23%   | 0.74                         | 222.96       | 222.73    | 3.41      | 3.51      |
| 217                                                                      | Street A | MH20    | MH16  | 0.08      | 1                            | 2    | 101              | 4.24                 | 0.41            | 1.74           | 1.74           | 0.02                                                                                                               | 0.93                | 2.66                 | 18.7       | 200            | 0.50%     | 218.97         | 218.88    | 219.17         | 219.08    | 23.19          | 11.48%   | 0.74                         | 222.73       | 222.64    | 3.56      | 3.56      |
| 220                                                                      | Street F | MH19    | MH18  | 0.12      | 1                            | 2    | 2                | 4.46                 | 0.01            | 0.04           | 0.04           | 0.03                                                                                                               | 0.03                | 0.07                 | 14.7       | 200            | 2.00%     | 221.74         | 221.45    | 221.94         | 221.65    | 46.38          | 0.16%    | 1.48                         | 225.28       | 225.04    | 3.34      | 3.39      |
| 219                                                                      | Street F | MH18    | MH17  | 0.21      | 2                            | 4    | 6                | 4.43                 | 0.03            | 0.12           | 0.12           | 0.06                                                                                                               | 0.09                | 0.21                 | 32.0       | 200            | 2.84%     | 221.40         | 220.49    | 221.60         | 220.69    | 55.27          | 0.38%    | 1.76                         | 225.04       | 223.67    | 3.44      | 2.98      |
| 218                                                                      | Street F | MH17    | MH16  | 0.18      | 1                            | 2    | 9                | 4.42                 | 0.03            | 0.15           | 0.15           | 0.05                                                                                                               | 0.14                | 0.30                 | 41.6       | 200            | 2.81%     | 220.44         | 219.27    | 220.64         | 219.47    | 54.98          | 0.54%    | 1.75                         | 223.67       | 222.64    | 3.03      | 3.17      |
| 216                                                                      | Street F | MH16    | MH15  | 0.18      | 1                            | 2    | 112              | 4.23                 | 0.45            | 1.92           | 1.92           | 0.05                                                                                                               | 1.12                | 3.04                 | 52.5       | 200            | 1.16%     | 218.80         | 218.19    | 219.00         | 218.39    | 35.33          | 8.59%    | 1.12                         | 222.64       | 222.00    | 3.64      | 3.61      |
| 224                                                                      | Street F | MH15    | MH21  | 0.40      | 4                            | 9    | 120              | 4.22                 | 0.49            | 2.06           | 2.06           | 0.11                                                                                                               | 1.23                | 3.29                 | 62.2       | 200            | 1.71%     | 218.14         | 217.08    | 218.34         | 217.28    | 42.89          | 7.67%    | 1.37                         | 222.00       | 220.46    | 3.66      | 3.18      |
| 223                                                                      | Street F | MH21    | MH5   | 0.49      | 7                            | 15   | 135              | 4.21                 | 0.55            | 2.31           | 2.31           | 0.14                                                                                                               | 1.37                | 3.68                 | 69.9       | 200            | 2.50%     | 217.05         | 215.30    | 217.25         | 215.50    | 51.86          | 7.09%    | 1.65                         | 220.46       | 218.89    | 3.21      | 3.39      |
| 210                                                                      | Helen St | MH11A   | MH10  | 0.62      | 16                           | 34   | 34               | 4.34                 | 0.14            | 0.61           | 0.61           | 0.17                                                                                                               | 0.17                | 0.78                 | 80.1       | 200            | 2.00%     | 219.17         | 217.57    | 219.37         | 217.77    | 46.38          | 1.68%    | 1.48                         | 222.58       | 220.90    | 3.21      | 3.13      |
| 209                                                                      | Helen St | MH10    | MH9   | 0.81      | 20                           | 43   | 77               | 4.27                 | 0.31            | 1.34           | 1.34           | 0.23                                                                                                               | 0.40                | 1.74                 | 89.4       | 200            | 2.30%     | 217.45         | 215.40    | 217.65         | 215.60    | 49.74          | 3.50%    | 1.58                         | 220.90       | 218.97    | 3.25      | 3.37      |
| 239 (FM)**                                                               | Helen St | FM1     | MH31  | 1.07      | 12                           | 26   | 26               | 4.36                 | 0.10            | 0.46           | 0.46           | 0.30                                                                                                               | 0.30                | 0.76                 | 10.0       | 200            | 2.00%     | 214.25         | 214.05    | 214.45         | 214.25    | 46.38          | 1.63%    | 1.48                         | 216.03       | 216.03    | 1.58      | 1.78      |
| 226A                                                                     | Helen St | MH31    | MH31A | 0.09      | 3                            | 6    | 32               | 4.35                 | 0.13            | 0.57           | 0.57           | 0.03                                                                                                               | 0.32                | 0.89                 | 15.0       | 200            | 1.00%     | 213.87         | 213.72    | 214.07         | 213.92    | 32.80          | 2.72%    | 1.04                         | 216.03       | 216.51    | 1.96      | 2.59      |
| 226                                                                      | Helen St | MH31A   | MH9   | 0.72      | 17                           | 37   | 69               | 4.28                 | 0.28            | 1.19           | 1.19           | 0.20                                                                                                               | 0.53                | 1.72                 | 77.9       | 200            | 0.50%     | 213.69         | 213.30    | 213.89         | 213.50    | 23.19          | 7.42%    | 0.74                         | 216.51       | 218.97    | 2.62      | 5.47      |
| 208                                                                      | Street E | MH9     | MH8   | 0.04      | 0                            | 0    | 146              | 4.19                 | 0.59            | 2.48           | 2.48           | 0.01                                                                                                               | 0.94                | 3.42                 | 49.7       | 200            | 0.51%     | 213.22         | 212.97    | 213.42         | 213.17    | 23.42          | 14.61%   | 0.75                         | 218.97       | 219.04    | 5.55      | 5.87      |
| 207                                                                      | Street E | MH8     | MH7   | 0.04      | 0                            | 0    | 146              | 4.19                 | 0.59            | 2.48           | 2.48           | 0.01                                                                                                               | 0.95                | 3.43                 | 48.3       | 200            | 0.51%     | 212.94         | 212.69    | 213.14         | 212.89    | 23.42          | 14.66%   | 0.75                         | 219.04       | 218.52    | 5.90      | 5.63      |
| 238 (FM)**                                                               | Street G | FM2     | MH28  | 1.48      | 13                           | 28   | 28               | 4.36                 | 0.11            | 0.49           | 0.49           | 0.41                                                                                                               | 0.41                | 0.91                 | 10.0       | 200            | 2.00%     | 213.58         | 213.38    | 213.78         | 213.58    | 46.38          | 1.96%    | 1.48                         | 215.45       | 215.45    | 1.67      | 1.87      |
| 225A                                                                     | Street G | MH28    | MH28A | 0.20      | 2                            | 4    | 32               | 4.35                 | 0.13            | 0.57           | 0.57           | 0.06                                                                                                               | 0.47                | 1.04                 | 15.0       | 200            | 1.00%     | 213.22         | 213.07    | 213.42         | 213.27    | 32.80          | 3.17%    | 1.04                         | 215.45       | 216.05    | 2.03      | 2.78      |
| 225                                                                      | Street G | MH28A   | MH7   | 0.69      | 10                           | 22   | 54               | 4.31                 | 0.22            | 0.94           | 0.94           | 0.19                                                                                                               | 0.66                | 1.60                 | 62.2       | 200            | 0.49%     | 213.04         | 212.74    | 213.24         | 212.94    | 22.96          | 6.98%    | 0.73                         | 216.05       | 218.52    | 2.81      | 5.58      |
| 214                                                                      | Street G | MH15    | MH14  | 0.53      | 10                           | 22   | 22               | 4.38                 | 0.09            | 0.38           | 0.38           | 0.15                                                                                                               | 0.15                | 0.53                 | 90.6       | 200            | 2.00%     | 218.34         | 216.53    | 218.54         | 216.73    | 46.38          | 1.14%    | 1.48                         | 222.00       | 219.92    | 3.46      | 3.19      |
| 213                                                                      | Street G | MH14    | MH7   | 0.32      | 5                            | 11   | 32               | 4.35                 | 0.13            | 0.57           | 0.57           | 0.09                                                                                                               | 0.24                | 0.81                 | 52.6       | 200            | 1.48%     | 216.50         | 215.72    | 216.70         | 215.92    | 39.90          | 2.02%    | 1.27                         | 219.92       | 218.52    | 3.22      | 2.60      |
| 206                                                                      | Street E | MH7     | MH6   | 0.02      | 0                            | 0    | 232              | 4.12                 | 0.94            | 3.88           | 3.88           | 0.01                                                                                                               | 1.86                | 5.74                 | 24.2       | 200            | 0.49%     | 212.66         | 212.55    | 212.86         | 212.75    | 22.96          | 24.98%   | 0.73                         | 218.52       | 218.58    | 5.66      | 5.83      |
| 205                                                                      | Street E | MH6     | MH5   | 0.24      | 2                            | 4    | 237              | 4.12                 | 0.96            | 3.95           | 3.95           | 0.07                                                                                                               | 1.92                | 5.87                 | 61.4       | 200            | 0.50%     | 212.50         | 212.19    | 212.70         | 212.39    | 23.19          | 25.32%   | 0.74                         | 218.58       | 218.89    | 5.88      | 6.50      |
| 204                                                                      | Street E | MH5     | MH4   | 0.20      | 2                            | 4    | 376              | 4.03                 | 1.52            | 6.15           | 6.15           | 0.06                                                                                                               | 3.35                | 9.50                 | 42.2       | 200            | 0.49%     | 212.16         | 211.95    | 212.36         | 212.15    | 22.96          | 41.37%   | 0.73                         | 218.89       | 218.29    | 6.53      | 6.14      |
| 203                                                                      | Street E | MH4     | MH3   | 0.11      | 0                            | 0    | 376              | 4.03                 | 1.52            | 6.15           | 6.15           | 0.03                                                                                                               | 3.38                | 9.53                 | 70.0       | 200            | 0.50%     | 211.92         | 211.57    | 212.12         | 211.77    | 23.19          | 41.09%   | 0.74                         | 218.29       | 216.66    | 6.17      | 4.89      |
| NORTHERN AREA                                                            |          |         |       |           |                              |      |                  |                      |                 |                |                |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |
| 231A                                                                     | Street B | MH37    | MH36  | 0.17      | 3                            | 6    | 6                | 4.43                 | 0.03            | 0.12           | 0.12           | 0.05                                                                                                               | 0.05                | 0.16                 | 20.0       | 200            | 1.00%     | 222.81         | 222.61    | 223.01         | 222.81    | 32.80          | 0.50%    | 1.04                         | 226.25       | 225.91    | 3.24      | 3.10      |
| 231                                                                      | Street B | MH36    | MH35  | 0.54      | 7                            | 15   | 22               | 4.38                 | 0.09            | 0.38           | 0.38           | 0.15                                                                                                               | 0.20                | 0.58                 | 90.1       | 200            | 1.00%     | 222.06         | 221.16    | 222.26         | 221.36    | 32.80          | 1.77%    | 1.04                         | 225.91       | 224.93    | 3.65      | 3.57      |
| 230                                                                      | Street B | MH35    | MH34  | 0.48      | 7                            | 15   | 37               | 4.34                 | 0.15            | 0.64           | 0.64           | 0.13                                                                                                               | 0.33                | 0.98                 | 87.5       | 200            | 2.10%     | 221.11         | 219.27    | 221.31         | 219.47    | 47.53          | 2.05%    | 1.51                         | 224.93       | 222.54    | 3.62      | 3.07      |
| 229                                                                      | Street B | MH34    | MH33  | 0.22      | 2                            | 4    | 41               | 4.33                 | 0.17            | 0.72           | 0              |                                                                                                                    |                     |                      |            |                |           |                |           |                |           |                |          |                              |              |           |           |           |

**721-3464**

SANITARY SEWER DESIGN SHEET



| DESIGN PARAMETERS            |                                    |           |
|------------------------------|------------------------------------|-----------|
| Mannings "n":                | 0.013                              |           |
| Residential Peak Factor (M): | $1 + (1/4 / [4 + (P/1000)^{0.5}])$ |           |
| Residential Avg. Daily Flow: | 350                                | L/cap/day |
| LTC Avg. Daily Flow:         | 450                                | L/cap/day |
| Inflow & Infiltration:       | 0.28                               | L/s/ha    |

|              |            |
|--------------|------------|
| DESIGNED BY: | JE         |
| CHECKED BY:  | JE/RW      |
| DATE:        | 2026-06-25 |
| ISSUED FOR:  | 1st Sub    |

| CATCHMENT I.D.                                  | STREET    | FROM MH   | TO MH     | AREA (Ha) | RESIDENTIAL |      |                  | RESIDENTIAL |                 |                | MAX FLOW (L/s) | INFILT. (L/s) | TOTAL INFILT. (L/s) | TOTAL FLOW (q) (L/s) | LENGTH (m) | PIPE DIA. (mm) | SLOPE (%) | PIPE INV. ELEV. |           | PIPE OBV. ELEV. |           | CAP. (Q) (L/s) | CAP. (%) | FULL FLOW VELOCITY (V) (m/s) | GROUND ELEV. |           | COVER     |           |
|-------------------------------------------------|-----------|-----------|-----------|-----------|-------------|------|------------------|-------------|-----------------|----------------|----------------|---------------|---------------------|----------------------|------------|----------------|-----------|-----------------|-----------|-----------------|-----------|----------------|----------|------------------------------|--------------|-----------|-----------|-----------|
|                                                 |           |           |           |           | UNITS       | POP. | TOTAL TRIB. POP. | PEAK FACTOR | AVG. FLOW (L/s) | MAX FLOW (L/s) |                |               |                     |                      |            |                |           | UPPER END       | LOWER END | UPPER END       | LOWER END |                |          |                              | UPPER END    | LOWER END | UPPER END | LOWER END |
| TOWN & RENTAL BLOCK                             |           |           |           |           |             |      |                  |             |                 |                |                |               |                     |                      |            |                |           |                 |           |                 |           |                |          |                              |              |           |           |           |
| 310, 300                                        | Street Y  | SAMH50A   | SAMH51A   | 0.55      | 24          | 52   | 52               | 4.31        | 0.21            | 0.90           | 0.90           | 0.15          | 0.15                | 1.06                 | 45.0       | 200            | 1.00%     | 215.93          | 215.48    | 216.13          | 215.68    | 32.80          | 3.22%    | 1.04                         | 219.08       | 218.85    | 2.95      | 3.17      |
| 301                                             | Street Y  | SAMH51A   | SAMH52A   | 0.47      | 34          | 73   | 125              | 4.22        | 0.51            | 2.13           | 2.13           | 0.13          | 0.29                | 2.42                 | 83.8       | 200            | 0.50%     | 215.45          | 215.03    | 215.65          | 215.23    | 23.19          | 10.41%   | 0.74                         | 218.85       | 218.45    | 3.20      | 3.22      |
| LTC, 311                                        | Street X  | SAMH53A   | SAMH52A   | 1.42      | 115         | 247  | 247              | 4.11        | 1.00            | 4.12           | 4.12           | 0.40          | 0.40                | 4.52                 | 29.0       | 200            | 1.00%     | 215.27          | 214.98    | 215.47          | 215.18    | 32.80          | 13.77%   | 1.04                         | 218.63       | 218.45    | 3.16      | 3.27      |
| 302                                             | Street X  | SAMH52A   | SAMH54A   | 0.08      | 8           | 17   | 389              | 4.03        | 1.58            | 6.35           | 6.35           | 0.02          | 0.71                | 7.06                 | 23.6       | 200            | 0.50%     | 214.95          | 214.83    | 215.15          | 215.03    | 23.19          | 30.42%   | 0.74                         | 218.45       | 218.30    | 3.30      | 3.27      |
| 303                                             | Street X  | SAMH54A   | SAMH55A   | 0.07      | 6           | 13   | 402              | 4.02        | 1.63            | 6.55           | 6.55           | 0.02          | 0.73                | 7.27                 | 12.6       | 200            | 0.50%     | 214.78          | 214.72    | 214.98          | 214.92    | 23.19          | 31.37%   | 0.74                         | 218.30       | 218.22    | 3.32      | 3.30      |
| 304                                             | Street X  | SAMH55A   | SAMH56A   | 0.03      | 0           | 0    | 402              | 4.02        | 1.63            | 6.55           | 6.55           | 0.01          | 0.73                | 7.28                 | 23.0       | 200            | 0.50%     | 214.67          | 214.55    | 214.87          | 214.75    | 23.19          | 31.40%   | 0.74                         | 218.22       | 218.07    | 3.35      | 3.32      |
| 305                                             | Street X  | SAMH56A   | SAMH57A   | 0.05      | 0           | 0    | 402              | 4.02        | 1.63            | 6.55           | 6.55           | 0.01          | 0.75                | 7.30                 | 13.1       | 200            | 0.50%     | 214.50          | 214.44    | 214.70          | 214.64    | 23.19          | 31.46%   | 0.74                         | 218.07       | 217.99    | 3.37      | 3.35      |
| 306                                             | Street X  | SAMH57A   | SAMH58A   | 0.04      | 0           | 0    | 402              | 4.02        | 1.63            | 6.55           | 6.55           | 0.01          | 0.76                | 7.31                 | 85.5       | 200            | 0.51%     | 214.39          | 213.95    | 214.59          | 214.15    | 23.42          | 31.20%   | 0.75                         | 217.99       | 217.39    | 3.40      | 3.24      |
| 307                                             | Street X  | SAMH58A   | SAMH43A   | 0.45      | 40          | 86   | 488              | 3.98        | 1.98            | 7.87           | 7.87           | 0.13          | 0.88                | 8.75                 | 15.0       | 200            | 0.50%     | 213.87          | 213.79    | 214.07          | 213.99    | 23.19          | 37.74%   | 0.74                         | 217.39       | 217.48    | 3.32      | 3.49      |
| 308                                             | Street X  | SAMH43A   | SAMH59A   | 0.02      | 0           | 0    | 533              | 3.96        | 2.16            | 8.55           | 8.55           | 0.01          | 1.30                | 9.85                 | 24.9       | 200            | 1.28%     | 211.80          | 211.48    | 212.00          | 211.68    | 37.11          | 26.56%   | 1.18                         | 217.48       | 216.48    | 5.48      | 4.80      |
| 309                                             | Street X  | SAMH60A   | SAMH59A   | 0.03      | 0           | 0    | 0                | 4.50        | 0.00            | 0.00           | 0.00           | 0.01          | 0.01                | 0.01                 | 25.6       | 200            | 0.50%     | 211.64          | 211.51    | 211.84          | 211.71    | 23.19          | 0.04%    | 0.74                         | 214.60       | 216.48    | 2.76      | 4.77      |
| 201A                                            | Street X  | SAMH59A   | SAN STUB2 | 0.20      | 0           | 0    | 533              | 3.96        | 2.16            | 8.55           | 8.55           | 0.06          | 1.37                | 9.92                 | 8.1        | 200            | 0.89%     | 211.43          | 211.36    | 211.63          | 211.56    | 30.94          | 32.06%   | 0.98                         | 216.48       | 211.57    | 4.85      | 0.01      |
|                                                 | SPS Block | SAN STUB2 | MH1       | 0.00      | 0           | 0    | 533              | 3.96        | 2.16            | 8.55           | 8.55           | 0.00          | 1.37                | 9.92                 | 22.4       | 200            | 0.89%     | 211.36          | 211.16    | 211.56          | 211.36    | 30.94          | 32.06%   | 0.98                         | 211.57       | 215.68    | 0.01      | 4.32      |
|                                                 | SPS Block | MH1       | Wet Well  | 0.00      | 0           | 0    | 963              | 3.81        | 3.90            | 14.87          | 14.87          | 0.00          | 5.32                | 20.19                | 3.5        | 200            | 2.00%     | 210.60          | 210.53    | 210.80          | 210.73    | 46.38          | 43.52%   | 1.48                         | 215.68       | 210.75    | 4.88      | 0.02      |
| * - Includes flows from Long Term Care Facility |           |           |           |           |             |      |                  |             |                 |                |                |               |                     |                      |            |                |           |                 |           |                 |           |                |          |                              |              |           |           |           |

Downstream Sanitary Capacity Analysis  
Home Farm  
721-3464



PPU: 2.15  
L/C\*D 350  
Infiltration (L/ha\*s) 0.28

Harmon Formula:  $(14/4+(P/1000)^{0.5})$

DESIGNED BY: TM

CHECKED BY: JE

DATE: 2026-06-26

REVISION NO.: 3

| CATCHMENT DESCRIPTION                                                        | STREET                       | FROM MH NO          | TO MH NO            | Pop. | Total Trib Pop. | Residential Peaking Factor | Residential Avg Flows (L/s) | Max Flow (L/s) | INFILT. (L/s) | TOTAL INFILT. (L/s) | TOTAL FLOW (l/s) | LENGTH (m) | PIPE DIAM. (mm) | UPPER INV. EL. | LOWER INV. EL. | SLOPE (%) | CAP. (l/s) | CAP. (%) |
|------------------------------------------------------------------------------|------------------------------|---------------------|---------------------|------|-----------------|----------------------------|-----------------------------|----------------|---------------|---------------------|------------------|------------|-----------------|----------------|----------------|-----------|------------|----------|
| Orchards Development                                                         | EXT-1-2                      | MHF_27              | WWSTR873            | 271  | 271             | 4.10                       | 1.10                        | 4.49           | 3.91          | 3.91                | 8.40             | 19.2       | 200             | 221.36         | 220.68         | 3.54%     | 61.72      | 13.60%   |
| Home Farm Site & Town Block                                                  | N/A                          | Home Farm Forcemain | WWSTR873            | 963  | 963             | 3.81                       | 3.90                        | 14.86          | 5.32          | 5.32                | 20.18            | Forcemain  |                 |                |                |           |            |          |
| Along Grey Rd 19                                                             | Grey Road 19                 | WWSTR873            | WWSTR872            | 4    | 1238            | 3.74                       | 5.01                        | 18.74          | 0.17          | 9.39                | 28.14            | 94.3       | 200             | 220.66         | 219.1          | 1.65%     | 42.19      | 66.70%   |
|                                                                              | Grey Road 19                 | WWSTR872            | WWSTR871            | 4    | 1242            | 3.74                       | 5.03                        | 18.80          | 0.18          | 9.58                | 28.38            | 85.9       | 200             | 219.08         | 217.54         | 1.79%     | 43.93      | 64.61%   |
|                                                                              | Grey Road 19                 | WWSTR871            | WWSTR870            | 4    | 1246            | 3.74                       | 5.05                        | 18.86          | 0.23          | 9.80                | 28.67            | 85.97      | 200             | 217.5          | 215.07         | 2.83%     | 55.14      | 51.98%   |
| Upstream of WWSTR939 (Craigleith Rd)                                         | Grey Road 19                 | WWSTR939            | WWSTR870            | 92   | 92              | 4.25                       | 0.37                        | 1.58           | 2.24          | 2.24                | 3.82             | 96.4       | 200             | 218.05         | 215.08         | 3.08%     | 57.58      | 6.63%    |
|                                                                              | Grey Road 19                 | WWSTR870            | WWSTR869            | 0    | 1338            | 3.71                       | 5.42                        | 20.13          | 0.00          | 12.04               | 32.18            | 107.4      | 250             | 214.50         | 212.69         | 1.69%     | 77.21      | 41.67%   |
| Upstream of WWSTR879 (Alexandra Way)                                         | Grey Road 19                 | WWSTR879            | WWSTR869            | 4    | 4               | 4.45                       | 0.02                        | 0.07           | 1.10          | 1.10                | 1.17             | 21.1       | 200             | 213.14         | 213.04         | 0.47%     | 22.57      | 5.18%    |
|                                                                              | Grey Road 19                 | WWSTR869            | WWSTR868            | 1    | 1343            | 3.71                       | 5.44                        | 20.21          | 0.36          | 13.50               | 33.71            | 101.2      | 250             | 212.69         | 209.57         | 3.08%     | 104.42     | 32.28%   |
|                                                                              | Grey Road 19                 | WWSTR868            | WWSTR867            | 11   | 1354            | 3.71                       | 5.48                        | 20.35          | 0.47          | 13.97               | 34.33            | 96.6       | 250             | 209.53         | 206.12         | 3.53%     | 111.71     | 30.73%   |
|                                                                              | Grey Road 19                 | WWSTR867            | WWSTR878            | 4    | 1358            | 3.71                       | 5.50                        | 20.41          | 0.30          | 14.27               | 34.68            | 100.7      | 250             | 206.08         | 202.45         | 3.60%     | 112.91     | 30.72%   |
|                                                                              | Grey Road 19                 | WWSTR878            | WWSTR877            | 4    | 1362            | 3.71                       | 5.52                        | 20.47          | 0.39          | 14.67               | 35.14            | 89.7       | 250             | 201.34         | 197.03         | 4.81%     | 130.36     | 26.95%   |
|                                                                              | Grey Road 19                 | WWSTR877            | WWSTR876            | 4    | 1367            | 3.71                       | 5.54                        | 20.53          | 0.22          | 14.88               | 35.41            | 71.2       | 250             | 195.03         | 191.31         | 5.23%     | 135.94     | 26.05%   |
|                                                                              | Grey Road 19                 | WWSTR876            | WWSTR875            | 3    | 1370            | 3.71                       | 5.55                        | 20.57          | 0.29          | 15.18               | 35.75            | 43.6       | 250             | 189.44         | 186.80         | 6.06%     | 146.40     | 24.42%   |
|                                                                              | Grey Road 19                 | WWSTR875            | WWSTR839            | 4    | 1374            | 3.71                       | 5.57                        | 20.63          | 0.25          | 15.43               | 36.06            | 100.9      | 250             | 186.58         | 182.60         | 3.95%     | 118.12     | 30.53%   |
| Upstream of WWSTR8383 (Sleepy Hollow Rd)                                     | Grey Road 19                 | WWSTR838            | WWSTR839            | 731  | 731             | 3.88                       | 2.96                        | 11.49          | 27.03         | 27.03               | 38.52            | 50.0       | 200             | 184.59         | 182.64         | 3.90%     | 64.78      | 59.46%   |
|                                                                              | Lakeshore Road               | WWSTR839            | WWSTR866            | 17   | 2122            | 3.57                       | 8.59                        | 30.65          | 0.61          | 43.07               | 73.72            | 34.4       | 400             | 182.56         | 181.13         | 4.15%     | 424.42     | 17.37%   |
| Upstream of WWSTR8365 (Blueski George / Aspen Way etc)<br>S_RES_WWSTR866_1   | Lakeshore Road               | WWSTR865            | WWSTR866            | 622  | 622             | 3.92                       | 2.52                        | 9.89           | 17.09         | 17.09               | 26.98            | 11.9       | 450             | 179.99         | 179.98         | 0.08%     | 83         | 32.68%   |
|                                                                              | Lakeshore Road               | WWSTR866            | WWSTR832            | 9    | 2752            | 3.47                       | 11.15                       | 38.73          | 0.30          | 60.46               | 99.19            | 124.0      | 525             | 179.92         | 179.54         | 0.31%     | 238        | 41.66%   |
|                                                                              | Lakeshore Road               | WWSTR832            | WWSTR831            | 13   | 2765            | 3.47                       | 11.20                       | 38.89          | 0.33          | 60.80               | 99.69            | 113.0      | 525             | 179.52         | 179.28         | 0.21%     | 198        | 50.29%   |
| Upstream of WWSTR836 (Schoolhouse Ct)                                        | Lakeshore Road               | WWSTR836            | WWSTR831            | 9    | 9               | 4.42                       | 0.03                        | 0.15           | 0.43          | 0.43                | 0.59             | 21.2       | 200             | 182.89         | 182.77         | 0.57%     | 25         | 2.38%    |
|                                                                              | Lakeshore Road               | WWSTR831            | WWSTR830            | 43   | 2816            | 3.47                       | 11.41                       | 39.53          | 0.61          | 61.84               | 101.37           | 162.8      | 525             | 179.28         | 178.98         | 0.18%     | 185        | 54.90%   |
| Craigleith Ridge Site (WEST)                                                 | Lakeshore Road               | WWSTR830            | EX SAMH2 (WWSTR829) | 2816 | 2816            | 3.47                       | 7.51                        | 26.02          | 62.45         | 62.45               | 88.46            | 100.0      | 525             | 178.94         | 178.31         | 0.63%     | 341.35     | 25.92%   |
|                                                                              | Lakeshore Road               | SANMH1              | EX SAMH2 (WWSTR829) | 341  | 341             | 4.05                       | 1.38                        | 5.60           | 1.94          | 1.94                | 7.54             | 28.40      | 200             | 180.17         | 178.75         | 5.00%     | 73.34      | 10.28%   |
|                                                                              | Lakeshore Road               | EX SAMH2 (WWSTR829) | WWSRE828            | 0    | 3157            | 3.42                       | 12.79                       | 43.78          | 0.00          | 64.39               | 108.17           | 104.18     | 525             | 178.3          | 178.08         | 0.21%     | 197.63     | 54.73%   |
| Lakeshore Road (east of Craigleith Ridge)                                    | Lakeshore Road               | WWSTR828            | WWSTR833            | 0    | 3157            | 3.42                       | 12.79                       | 43.78          | 0.00          | 64.39               | 108.17           | 115.2      | 525             | 178.07         | 176.66         | 1.22%     | 475.79     | 22.73%   |
|                                                                              | Lakeshore Road               | XXXX000003          | SAMH77              | 6    | 6               | 4.43                       | 0.03                        | 0.11           | 0.16          | 0.16                | 0.27             | 83.38      | 525             | 177.26         | 176.93         | 0.40%     | 270.56     | 0.10%    |
| Craigleith Ridge Site (EAST)                                                 | SWM Pond Access Road         | SAMH76              | SAMH77              | 147  | 147             | 4.19                       | 0.60                        | 2.50           | 1.03          | 1.03                | 3.53             | 55.8       | 200             | 179.24         | 178.96         | 0.50%     | 23.23      | 15.17%   |
|                                                                              | Connection to Lakeshore Rd   | SAMH77              | WWSTR833            | 0    | 153             | 4.19                       | 0.62                        | 2.60           | 0.00          | 1.19                | 3.79             | 11.3       | 525             |                |                | 1.00%     | 430.06     | 0.88%    |
| Lakeshore to Hwy 26                                                          | Between Lakeshore and HWY 26 | WWSTR833            | WWSTR827            | 0    | 3310            | 3.41                       | 13.41                       | 45.67          | 0.00          | 65.57               | 111.24           | 53.61      | 525             | 176.59         | 176.38         | 0.39%     | 269.16     | 41.33%   |
| Hwy 26 (west of cross from Lakeshore)                                        | HWY 26                       | XXXX000063          | WWSTR827            | 45   | 45              | 4.32                       | 0.18                        | 0.78           | 0.77          | 0.77                | 1.55             | 88.32      | 200             | 177.52         | 176.75         | 0.87%     | 30.62      | 0.59%    |
| S_RES_WWSTR827_1<br>S_RES_WWSTR825_1<br>S_RES_WWSTR824_1<br>S_RES_WWSTR823_1 | HWY 26                       | WWSTR827            | WWSTR826            | 15   | 3370            | 3.40                       | 13.65                       | 46.41          | 0.17          | 66.51               | 112.92           | 139.83     | 525             | 176.36         | 176.27         | 0.10%     | 136.00     | 83.03%   |
|                                                                              | HWY 26                       | WWSTR826            | WWSTR825            | 0    | 3370            | 3.40                       | 13.65                       | 46.41          | 0.00          | 66.51               | 112.92           | 5.54       | 525             | 176.27         | 176.26         | 0.18%     | 182.72     | 61.80%   |
|                                                                              | HWY 26                       | WWSTR825            | WWSTR824            | 7    | 3377            | 3.40                       | 13.68                       | 46.49          | 0.13          | 66.64               | 113.13           | 130.44     | 525             | 176.25         | 176.01         | 0.18%     | 184.47     | 61.33%   |
|                                                                              | HWY 26                       | WWSTR824            | WWSTR823            | 13   | 3390            | 3.40                       | 13.73                       | 46.65          | 0.16          | 66.80               | 113.45           | 113.57     | 525             | 175.99         | 175.77         | 0.19%     | 189.28     | 59.94%   |
|                                                                              | HWY 26                       | WWSTR823            | WWSTR822            | 7    | 3397            | 3.40                       | 13.76                       | 46.74          | 0.16          | 66.96               | 113.70           | 88.17      | 525             | 175.76         | 175.56         | 0.23%     | 204.83     | 55.51%   |
|                                                                              | HWY 26                       | WWSTR822            | WWSTR821            | 0    | 3397            | 3.40                       | 13.76                       | 46.74          | 0.00          | 66.96               | 113.70           | 86.44      | 525             | 175.54         | 175.4          | 0.16%     | 173.08     | 65.69%   |
|                                                                              | HWY 26                       | WWSTR821            | WWSTR820            | 3    | 3400            | 3.40                       | 13.77                       | 46.77          | 0.00          | 66.96               | 113.74           | 22.32      | 525             | 175.34         | 175.31         | 0.13%     | 157.67     | 72.14%   |
|                                                                              | EXT-2                        | WWSTR813            | WWSTR820            | 4804 | 4804            | 3.26                       | 19.46                       | 63.46          | 62.03         | 62.03               | 125.49           | 77.49      | 750             | 174.41         | 174.17         | 0.31%     | 619.56     | 20.25%   |
| Pumping Station                                                              | N/A                          | WWSTR820            | Craigleith Main SPS | 0    | 8204            | 3.04                       | 33.23                       | 101.02         | 0.00          | 128.99              | 230.01           | 27.59      | 750             | 174.17         | 174.12         | 0.18%     | 473.93     | 48.53%   |

# **APPENDIX B**

## Potable Water Demand Calculations

Water Demand Calculations  
Fire Flow Calculations



File: 721-3464-2  
Date: 2026-06-26  
By: NS  
Check By: JE

Home Farm (Total) - Water Design Criteria

Note: This Scenario uses a projected demand for a future Long Term Care Facility as well as 112 Affordable Housing Units.  
\*Fire station flows based on Town of The Blue Mountains Fire Station 2 Replacement Final Design Report

|                                                                                              | Home Farm | Fire Station* | Rental | LTC    | Total  |                        |
|----------------------------------------------------------------------------------------------|-----------|---------------|--------|--------|--------|------------------------|
| Developed Site Area                                                                          | 15.59     | 2.60          | 1.99   | 1.42   | 19.00  | ha                     |
| Population Calculation                                                                       |           |               |        |        |        |                        |
| Number of Residential Units                                                                  | 221       | -             | 112    |        | 333    | units                  |
| Person Per Residential Unit (Town Development Standards)                                     | 2.15      | -             | 2.15   |        | 2.15   | persons/unit           |
| Residential Population                                                                       | 475       | -             | 241    | 0      | 716    | persons                |
| Long Term Care Population                                                                    | -         | -             |        | 192    | 192    | beds                   |
| Total                                                                                        | 475       | -             | 241    | 192    | 908    | persons                |
| Total Population                                                                             |           |               |        |        |        |                        |
| Total Population                                                                             | 475       | -             | 241    | 192    | 908    | people                 |
| Equivalent Total Population (Used in Harmon Formula)                                         | 475       | -             | 241    | 247    | 963    | people                 |
| Domestic Water Design Flows                                                                  |           |               |        |        |        |                        |
| Residential (Town Development Standards)                                                     | 350       | -             | 350    | -      | 350    | L/C-day                |
| Long Term Care Homes (per Bed)                                                               | -         | -             | -      | 450    | 450    | L/C-day                |
| Institutional/Commercial Demand Rate (per MECP Design Guidelines for Drinking Water Systems) | 28        | -             | 28     | 28     | 28     | m <sup>3</sup> /ha/day |
| Total Domestic Water Design Flows                                                            |           |               |        |        |        |                        |
| Average Daily Residential Demand                                                             | 1.92      | -             | 0.98   | 1.00   | 3.90   | L/sec                  |
| Average Daily Institutional/Commercial Demand                                                | 0.00      | -             | 0.00   | 0.00   | 0.00   | L/sec                  |
| Average Daily Flow                                                                           | 1.92      | 2.50          | 0.98   | 1.00   | 3.90   | L/sec                  |
| Max Day Peak Factor (MECP Design Guidelines for Drinking Water Systems)                      | 2.95      | 1.50          | 4.08   | 4.54   | 2.75   |                        |
| Max Day Demand Flow                                                                          | 5.68      | 3.75          | 3.98   | 4.54   | 10.73  | L/sec                  |
| Peak Hour Factor (MECP Design Guidelines for Drinking Water Systems)                         | 4.40      | 2.70          | 6.13   | 6.84   | 4.13   |                        |
| Peak Hour Flow                                                                               | 8.47      | 6.75          | 5.98   | 6.84   | 16.11  | L/sec                  |
| Fire Flow Demand (per FUS and OBC)                                                           | 133.00    | 200.00        | 133.00 | 150.00 | 200.00 | L/sec                  |
| Total Design Flow                                                                            | 138.68    | 203.75        | 136.98 | 154.54 | 210.73 | L/sec                  |



Fire Flow Determination Per Fire Underwriters Survey (2020)

Water Supply for Public Fire Protection - 2020  
Fire Underwriters Survey  
Part II - Guide for Determination of Fire Flows for Public Fire Protection in Canada

An estimate of fire flow required for a given area may be determined by the formula:

where:

**RFF = 220 \* C \* sqrt A**

**RFF** = the required fire flow in litres per minute (L/min)  
**C** = the construction coefficient is related to the type of construction of the building  
= 1.5 for Type V Wood Frame Construction  
= 0.8 for Type IV-A Mass Timber Construction  
= 0.9 for Type IV-B Mass Timber Construction  
= 1.0 for Type IV-C Mass Timber Construction  
= 1.5 for Type IV-D Mass Timber Construction  
= 1.0 for Type III Ordinary Construction  
= 0.8 for Type II Non-combustible Construction  
= 0.6 for Type I Fire Resistive Construction  
**A** = the total effective floor area (effective building area) in square metres (excluding basements at least 50 percent below grade) in the building considered

|                                      |     |                                        |
|--------------------------------------|-----|----------------------------------------|
| STEP A: Construction Coefficient (C) | 1.0 | Type III Ordinary Construction Assumed |
|--------------------------------------|-----|----------------------------------------|

STEP B: Total Effective Floor Area  
Proposed Building

8 Unit Townhouse In Central-West Portion of Development, Assume 2 Floors

Is basement at least 50% below grade?  
Vertical openings protected?

Yes  
No

If yes, basement floor area excluded  
\*For consideration for effective area calculations

Calculate Effective Floor Area based on the highlighted cell

-C value from 1.0 to 1.5: 100% of all floor areas are used

-C value below 1 and vertical openings are not protected: Consider two largest floors plus 50% of all floor above to a max of eight

-C value below 1 and vertical openings are protected: Consider single largest floor plus 25% of the two immediately adjoining floors

\*A building may be subdivided if there is a vertical firewall with a fire-resistance rating greater than 2 hours, and meets the requirements of the National Building Code.

| Floors Above Grade | Total Floor Area<br>(m <sup>2</sup> ) | % of Area Considered | Effective Floor Area<br>(m <sup>2</sup> ) |
|--------------------|---------------------------------------|----------------------|-------------------------------------------|
| Basement           | 404                                   | 0%                   | 0.0                                       |
| Ground Floor       | 404                                   | 100%                 | 404.0                                     |
| Level 2            | 404                                   | 100%                 | 404.0                                     |
| Level 3            |                                       | 100%                 | 0.0                                       |
| Level 4            |                                       | 100%                 | 0.0                                       |
| Level 5            |                                       | 100%                 | 0.0                                       |
| Level 6            |                                       | 100%                 | 0.0                                       |
| Level 7            |                                       | 100%                 | 0.0                                       |
| Level 8            |                                       | 100%                 | 0.0                                       |
| Total              | 2424                                  |                      | 808.0                                     |

Total Effective Floor Area808 m<sup>2</sup>

|         |                 |                                             |
|---------|-----------------|---------------------------------------------|
| STEP C: | Therefore RFF = | 6,000 L/min (rounded to nearest 1000 L/min) |
|---------|-----------------|---------------------------------------------|

STEP D: Occupancy Contents Adjustment Factor

The required fire flow may be reduced by as much as -25% for occupancies having contents with very low fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

Occupancy and Contents Adjustment Factor

|                     |      |
|---------------------|------|
| Non-Combustible     | -25% |
| Limited Combustible | -15% |
| Combustible         | 0%   |
| Free Burning        | 15%  |
| Rapid Burning       | 25%  |

\*Refer to Table 3 for recommended Occupancy and Contents Charges by major occupancy examples.

| Type of Occupancy     | Adjustment Factor        |
|-----------------------|--------------------------|
| Residential Occupancy | Limited Combustible -15% |

Total Reduction %-900 L/min (reduction)

RFF =5,100 L/min (not rounded)

Note: The RFF flow 5100 L/min is used in Step E and F.



Fire Flow Determination Per Fire Underwriters Survey (2020)

STEP E: Automatic Sprinkler Protection

Sprinklers - The required fire flow may be reduced by up to 50% for complete automatic sprinkler protection depending upon adequacy of system.

|                                                                                   | Yes/No/Unknown | *Possible Reduction Available | Actual Reduction Provided |
|-----------------------------------------------------------------------------------|----------------|-------------------------------|---------------------------|
| Automatic sprinkler protection designed and installed in accordance with NFPA 13? | No             | -30%                          | 0%                        |
| Water supply is standard for both the system and Fire Department hose lines?      | No             | -10%                          | 0%                        |
| Fully supervised system?                                                          | No             | -10%                          | 0%                        |

\*Reduction available assumes complete building coverage

\*30% reduction typical for building requiring sprinkler system

Total Reduction %

0% (reduction)

Total Reduced Flow

0 L/min (reduction, not rounded)

STEP F: Exposure Adjustment Charge

Exposure - A percentage of water for the exposures should be added to the required fire flow for the subject building to provide adequate flow rates for hose streams used to reduce the spreading of fire from the subject building to exposed risks. The required fire flow of a subject building may be increased depending on the severity of exposed risks to the subject building and the distance between the exposed risks and the subject building. This charge considers the usage of water supplies to prevent exposed risks from igniting or being damaged during a major fire incident in the subject building.

| Separation Distance | Maximum Exposure Adjustment Charge |
|---------------------|------------------------------------|
| 0 to 3m             | 25%                                |
| 3.1 to 10m          | 20%                                |
| 10.1 to 20m         | 15%                                |
| 20.1 to 30m         | 10%                                |
| Greater than 30m    | 0%                                 |

\*If a vertical fire wall is properly constructed and has a rating of no less than 2 hours, then the boundary can be treated as protected with no exposure charge

\*The maximum exposure adjustment charge to be applied to a subject building is 75%

\*The distance in metres from the subject building facing wall to the exposed building facing wall, measured to the nearest metre, between the nearest points of the buildings. Where either the subject building or the exposed building is at a diagonal to the other building, the shortest distance should be increased by 3 metres and this adjusted value used as exposure distance.

| Exposed buildings | Distance          | Surcharge Factor | Surcharge (L/min) |
|-------------------|-------------------|------------------|-------------------|
| North             | Adjacent Dwelling | 0%               | 0                 |
| East              | Adjacent Dwelling | 15%              | 765               |
| South             | Adjacent Dwelling | 20%              | 1020              |
| West              | Adjacent Dwelling | 15%              | 765               |

Total Reduced Flow

2,550 L/min Surcharge (not rounded)

STEP G: Final Required Fire Flow

Step D - Occupancy Adjusted Fire Flow Demand

5,100 L/min

Step E - Sprinkler (Reduction)

0 L/min

Step F - Exposure Charge

2,550 L/min

Final Fire Flow:

7,650 L/min

or

8,000 L/min (rounded to nearest 1000L/min)

or

133 L/s

or

2,113 USGPM

Required duration:

2.00 hours

\*Refer to Table 1 for Duration

Table 1 - FUS 2020

| Required Duration of Fire Flow |                  |
|--------------------------------|------------------|
| Flow Required (L/min)          | Duration (hours) |
| 2,000 or less                  | 1.00             |
| 3,000                          | 1.25             |
| 4,000                          | 1.50             |
| 5,000                          | 1.75             |
| 6,000                          | 2.00             |
| 8,000                          | 2.00             |
| 10,000                         | 2.00             |
| 12,000                         | 2.50             |
| 14,000                         | 3.00             |
| 16,000                         | 3.50             |
| 18,000                         | 4.00             |
| 20,000                         | 4.50             |
| 22,000                         | 5.00             |
| 24,000                         | 5.50             |
| 26,000                         | 6.00             |
| 28,000                         | 6.50             |
| 30,000                         | 7.00             |
| 32,000                         | 7.50             |
| 34,000                         | 8.00             |
| 36,000                         | 8.50             |
| 38,000                         | 9.00             |
| 40,000 and over                | 9.50             |

\*Interpolate for intermediate figures

# APPENDIX C

## Hydrologic Modelling

MTO IDF Curve  
Pre-Development Hydrologic Parameter Sheets  
Post-Development Hydrologic Parameter Sheets  
Output Summary Tables  
SWMHYMO Modelling

## Active coordinate

44° 30' 45" N, 80° 19' 14" W (44.512500,-80.320833)

Retrieved: Mon, 30 Aug 2021 18:05:42 GMT



## Location summary

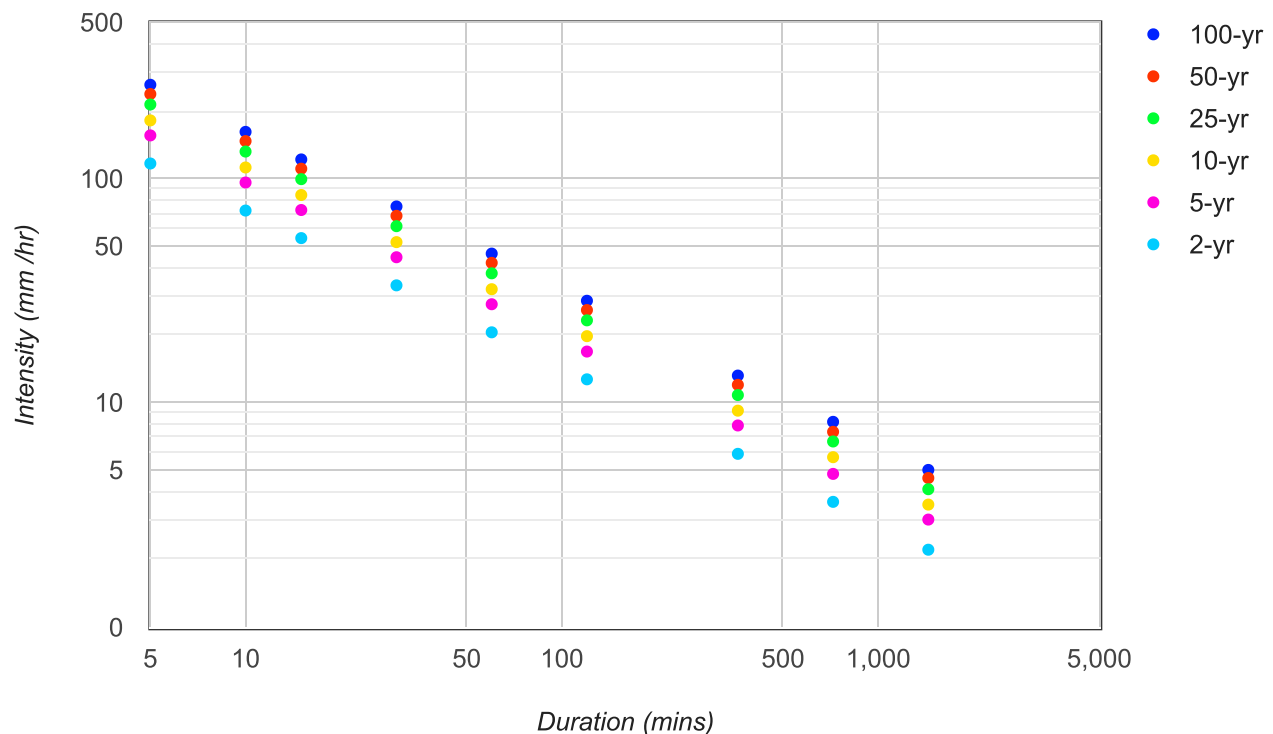
These are the locations in the selection.

**IDF Curve:** 44° 30' 45" N, 80° 19' 14" W (44.512500,-80.320833)

## Results

An IDF curve was found.

**Coordinate: 44.512500, -80.320833**  
**IDF curve year: 2010**



**Coefficient summary****IDF Curve:** 44° 30' 45" N, 80° 19' 14" W (44.512500,-80.320833)

Retrieved: Mon, 30 Aug 2021 18:05:42 GMT

**Data year:** 2010**IDF curve year:** 2010

| Return period | 2-yr   | 5-yr   | 10-yr  | 25-yr  | 50-yr  | 100-yr |
|---------------|--------|--------|--------|--------|--------|--------|
| <b>A</b>      | 20.6   | 27.5   | 32.1   | 37.8   | 42.1   | 46.3   |
| <b>B</b>      | -0.699 | -0.699 | -0.699 | -0.699 | -0.699 | -0.699 |

**Statistics****Rainfall intensity (mm hr<sup>-1</sup>)**

| Duration      | 5-min | 10-min | 15-min | 30-min | 1-hr | 2-hr | 6-hr | 12-hr | 24-hr |
|---------------|-------|--------|--------|--------|------|------|------|-------|-------|
| <b>2-yr</b>   | 117.0 | 72.1   | 54.3   | 33.4   | 20.6 | 12.7 | 5.9  | 3.6   | 2.2   |
| <b>5-yr</b>   | 156.2 | 96.2   | 72.5   | 44.6   | 27.5 | 16.9 | 7.9  | 4.8   | 3.0   |
| <b>10-yr</b>  | 182.3 | 112.3  | 84.6   | 52.1   | 32.1 | 19.8 | 9.2  | 5.7   | 3.5   |
| <b>25-yr</b>  | 214.7 | 132.3  | 99.6   | 61.4   | 37.8 | 23.3 | 10.8 | 6.7   | 4.1   |
| <b>50-yr</b>  | 239.1 | 147.3  | 110.9  | 68.3   | 42.1 | 25.9 | 12.0 | 7.4   | 4.6   |
| <b>100-yr</b> | 263.0 | 162.0  | 122.0  | 75.2   | 46.3 | 28.5 | 13.2 | 8.2   | 5.0   |

**Rainfall depth (mm)**

| Duration      | 5-min | 10-min | 15-min | 30-min | 1-hr | 2-hr | 6-hr | 12-hr | 24-hr |
|---------------|-------|--------|--------|--------|------|------|------|-------|-------|
| <b>2-yr</b>   | 9.8   | 12.0   | 13.6   | 16.7   | 20.6 | 25.4 | 35.3 | 43.5  | 53.6  |
| <b>5-yr</b>   | 13.0  | 16.0   | 18.1   | 22.3   | 27.5 | 33.9 | 47.2 | 58.1  | 71.6  |
| <b>10-yr</b>  | 15.2  | 18.7   | 21.1   | 26.1   | 32.1 | 39.5 | 55.0 | 67.8  | 83.6  |
| <b>25-yr</b>  | 17.9  | 22.0   | 24.9   | 30.7   | 37.8 | 46.6 | 64.8 | 79.9  | 98.4  |
| <b>50-yr</b>  | 19.9  | 24.6   | 27.7   | 34.2   | 42.1 | 51.9 | 72.2 | 88.9  | 109.6 |
| <b>100-yr</b> | 21.9  | 27.0   | 30.5   | 37.6   | 46.3 | 57.0 | 79.4 | 97.8  | 120.5 |

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Last Modified: September 2016



Project Name: Home Farm  
Project Number: 0721-3464  
Date: 2023-01-17  
By: AC/JE

D.A. NAME 1A-Pre  
D.A. AREA (ha) 8.2

Hydrologic Parameters: CALIB NASHYD Command  
Pre Development Drainage Area: Catchment 1A-Pre

Curve Number Calculation

| Soil Types Present: |     |            |        |      |
|---------------------|-----|------------|--------|------|
| Type                | ID  | Hydrologic | % Area | Area |
| Kemble Silt Clay    | KSc | C          | 100    | 8.2  |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
| Total Area          |     |            |        | 8.2  |

| Impervious Landuses Present: |   |          |    |          |                             |          |    |                        |    |            |    |           |        |
|------------------------------|---|----------|----|----------|-----------------------------|----------|----|------------------------|----|------------|----|-----------|--------|
|                              |   | Roadway  |    | Sidewalk |                             | Driveway |    | Building               |    | SWMF       |    | Subtotals |        |
| Soils                        |   | Area     | CN | Area     | CN                          | Area     | CN | Area (ha)              | CN | Area       | CN | Area      | A*CN   |
| KSc                          |   | 0.15     | 98 |          | 98                          |          | 98 |                        | 98 |            | 98 | 0.15      | 14.31  |
|                              | 0 |          | 98 |          | 98                          |          | 98 |                        | 98 |            | 98 | 0         | 0      |
|                              | 0 |          | 98 |          | 98                          |          | 98 |                        | 98 |            | 98 | 0         | 0      |
|                              | 0 |          | 98 |          | 98                          |          | 98 |                        | 98 |            | 98 | 0         | 0      |
| Subtotal                     |   | 0.146    |    | 0        |                             | 0        |    | 0                      |    | 0          |    |           |        |
| Pervious Landuses Present:   |   |          |    |          |                             |          |    |                        |    |            |    |           |        |
|                              |   | Woodland |    | Meadow   |                             | Wetland  |    | Lawn                   |    | Cultivated |    | Subtotals |        |
| Soils                        |   | Area     | CN | Area     | CN                          | Area     | CN | Area (ha)              | CN | Area       | CN | Area      | A*CN   |
| KSc                          |   | 5.64     | 73 | 2.42     | 76                          | 0.000    | 50 | 0.00                   | 79 | 0          | 82 | 8.05      | 595.19 |
|                              | 0 | 0.00     |    | 0.00     |                             | 0.00     |    | 0.00                   |    | 0.00       |    | 0.00      | 0.00   |
|                              | 0 | 0.00     |    | 0.00     |                             | 0.00     |    | 0.00                   |    | 0.00       |    | 0.00      | 0.00   |
|                              | 0 | 0.00     |    | 0.00     |                             | 0.00     |    | 0.00                   |    | 0.00       |    | 0.00      | 0.00   |
| Subtotal                     |   | 5.64     |    | 2.42     |                             | 0.00     |    | 0.00                   |    | 0.00       |    |           |        |
|                              |   |          |    |          | Composite Area Calculations |          |    | Total Pervious Area    |    |            |    | 8.05      |        |
|                              |   |          |    |          |                             |          |    | Total Impervious Area  |    |            |    | 0.15      |        |
|                              |   |          |    |          |                             |          |    | % Impervious           |    |            |    | 1.78%     |        |
|                              |   |          |    |          |                             |          |    | Composite Curve Number |    |            |    | 74.3      |        |
|                              |   |          |    |          |                             |          |    | Total Area Check       |    |            |    | 8.2       |        |

Initial Abstraction and Tp Calculations

| Initial Abstraction |         |           |        | Composite Runoff Coefficient |      |    |      |    |      |    |      |      |
|---------------------|---------|-----------|--------|------------------------------|------|----|------|----|------|----|------|------|
| Landuse             | IA (mm) | Area (ha) | A * IA | Kemble Silt Clay             |      |    | 0    |    |      | 0  |      |      |
|                     |         |           |        | RC                           | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland            | 10      | 5.64      | 56.38  | 0.35                         | 6    |    | 0    |    | 0    |    | 0    | 1.97 |
| Meadow              | 8       | 2.42      | 19.33  | 0.40                         | 2    |    | 0    |    | 0    |    | 0    | 0.97 |
| Wetland             | 16      | 0         | 0      |                              | 0    |    | 0    |    | 0    |    | 0    | 0    |
| Lawn                | 5       | 0         | 0      | 0.15                         | 0    |    | 0    |    | 0    |    | 0    | 0.00 |
| Cultivated          | 7       | 0         | 0      | 0.55                         | 0    |    | 0    |    | 0    |    | 0    | 0.00 |
| Impervious          | 2       | 0.15      | 0.29   | 0.90                         | 0    |    | 0    |    | 0    |    | 0    | 0.13 |
| Composite           |         | 8.2       | 9.27   | Composite Runoff Coefficient |      |    |      |    |      |    |      | 0.37 |

| Time to Peak Inputs   |            |          |           |                    |                | Uplands |         |               | Bransby Williams |         | Airport |         |
|-----------------------|------------|----------|-----------|--------------------|----------------|---------|---------|---------------|------------------|---------|---------|---------|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | V/S <sup>0.5</sup> | Velocity (m/s) | Tc (hr) | Tp (hr) | TOTAL Tp (hr) | Tc (hr)          | Tp (hr) | Tc (hr) | Tp (hr) |
| SHEET                 | 100        | 2.75     | 2.8%      |                    | 0.00           |         |         |               | 0.31             | 0.21    | 0.63    | 0.42    |
| CHANNEL               | 400        | 11       | 2.8%      |                    | 0              |         |         |               |                  |         |         |         |

Appropriate calculated time to peak: 0.42 Appropriate Method: Airport



Project Name: Home Farm  
 Project Number: 0721-3464  
 Date: May 19-2021  
 By: AC/JE

**D.A. NAME 2A-Pre**  
**D.A. AREA (ha) 4.56**

**Hydrologic Parameters: CALIB NASHYD Command**  
**Pre Development Drainage Area: Catchment 2A-Pre**

**Curve Number Calculation**

| Soil Types Present: |     |            |        |      |
|---------------------|-----|------------|--------|------|
| Type                | ID  | Hydrologic | % Area | Area |
| Kemble Silt Clay    | KSc | C          | 100    | 4.56 |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
| Total Area          |     |            |        | 4.56 |

| Impervious Landuses Present: |  |         |    |          |    |          |    |           |    |      |    |           |      |
|------------------------------|--|---------|----|----------|----|----------|----|-----------|----|------|----|-----------|------|
|                              |  | Roadway |    | Sidewalk |    | Driveway |    | Building  |    | SWMF |    | Subtotals |      |
| Soils                        |  | Area    | CN | Area     | CN | Area     | CN | Area (ha) | CN | Area | CN | Area      | A*CN |
| KSc                          |  |         | 98 |          | 98 |          | 98 |           | 98 |      | 98 | 0         | 0    |
| 0                            |  |         | 98 |          | 98 |          | 98 |           | 98 |      | 98 | 0         | 0    |
| 0                            |  |         | 98 |          | 98 |          | 98 |           | 98 |      | 98 | 0         | 0    |
| 0                            |  |         | 98 |          | 98 |          | 98 |           | 98 |      | 98 | 0         | 0    |
| Subtotal                     |  | 0       |    | 0        |    | 0        |    | 0         |    | 0    |    |           |      |

| Pervious Landuses Present: |  |          |    |        |    |         |    |           |    |            |    |           |        |
|----------------------------|--|----------|----|--------|----|---------|----|-----------|----|------------|----|-----------|--------|
|                            |  | Woodland |    | Meadow |    | Wetland |    | Lawn      |    | Cultivated |    | Subtotals |        |
| Soils                      |  | Area     | CN | Area   | CN | Area    | CN | Area (ha) | CN | Area       | CN | Area      | A*CN   |
| KSc                        |  | 3.876    | 73 | 0.684  | 76 | 0       |    | 0.00      | 79 | 0          | 82 | 4.56      | 334.93 |
| 0                          |  | 0.00     |    | 0.00   |    | 0.00    |    | 0.00      |    | 0.00       |    | 0.00      | 0.00   |
| 0                          |  | 0.00     |    | 0.00   |    | 0.00    |    | 0.00      |    | 0.00       |    | 0.00      | 0.00   |
| 0                          |  | 0.00     |    | 0.00   |    | 0.00    |    | 0.00      |    | 0.00       |    | 0.00      | 0.00   |
| Subtotal                   |  | 3.88     |    | 0.68   |    | 0.00    |    | 0.00      |    | 0.00       |    |           |        |

|  |  |  |  |  |  |                             |  |                        |  |  |  |       |  |
|--|--|--|--|--|--|-----------------------------|--|------------------------|--|--|--|-------|--|
|  |  |  |  |  |  | Composite Area Calculations |  | Total Pervious Area    |  |  |  | 4.56  |  |
|  |  |  |  |  |  |                             |  | Total Impervious Area  |  |  |  | 0.00  |  |
|  |  |  |  |  |  |                             |  | % Impervious           |  |  |  | 0.00% |  |
|  |  |  |  |  |  |                             |  | Composite Curve Number |  |  |  | 73.5  |  |
|  |  |  |  |  |  |                             |  | Total Area Check       |  |  |  | 4.56  |  |

**Initial Abstraction and Tp Calculations**

| Initial Abstraction |         |           |             | Composite Runoff Coefficient |      |  |    |      |  |    |      |        |
|---------------------|---------|-----------|-------------|------------------------------|------|--|----|------|--|----|------|--------|
| Landuse             | IA (mm) | Area (ha) | A * IA      | Kemble Silt Clay             |      |  |    |      |  |    |      |        |
|                     |         |           |             | RC                           | Area |  | RC | Area |  | RC | Area | A*RC   |
| Woodland            | 10      | 3.876     | 38.76       | 0.35                         | 4    |  |    | 0    |  |    | 0    | 1.36   |
| Meadow              | 8       | 0.684     | 5.472       | 0.40                         | 1    |  |    | 0    |  |    | 0    | 0.2736 |
| Wetland             | 16      | 0         | 0           |                              | 0    |  |    | 0    |  |    | 0    | 0      |
| Lawn                | 5       | 0         | 0           | 0.15                         | 0    |  |    | 0    |  |    | 0    | 0.00   |
| Cultivated          | 7       | 0         | 0           | 0.55                         | 0    |  |    | 0    |  |    | 0    | 0      |
| Impervious          | 2       | 0         | 0           | 0.90                         | 0    |  |    | 0    |  |    | 0    | 0.00   |
| Composite           |         | 4.56      | <b>9.70</b> | Composite Runoff Coefficient |      |  |    |      |  |    |      | 0.36   |

| Time to Peak Inputs |        |      |       |                    |          | Uplands |         |               | Bransby Williams |         | Airport |         |
|---------------------|--------|------|-------|--------------------|----------|---------|---------|---------------|------------------|---------|---------|---------|
| Flow Path           | Length | Drop | Slope | V/S <sup>0.5</sup> | Velocity | Tc (hr) | Tp (hr) | TOTAL Tp (hr) | Tc (hr)          | Tp (hr) | Tc (hr) | Tp (hr) |
| Description         | (m)    | (m)  | (%)   |                    | (m/s)    |         |         |               |                  |         |         |         |
| SHEET               | 100    | 1.25 | 1.3%  |                    | 0.00     |         |         |               | 0.25             | 0.16    | 0.57    | 0.38    |
| CHANNEL             | 260    | 7.5  | 2.9%  |                    | 0        |         |         |               |                  |         |         |         |

Appropriate calculated time to peak: **0.38** Appropriate Method: **Airport**



Project Name: Home Farm  
 Project Number: 0721-3464  
 Date: May 19-2021  
 By: AC/JE

**D.A. NAME 2B-Pre**  
**D.A. AREA (ha) 0.87**

**Hydrologic Parameters: CALIB NASHYD Command**  
**Pre Development Drainage Area: Catchment 2B-Pre**

**Curve Number Calculation**

| Soil Types Present: |     |            |        |      |
|---------------------|-----|------------|--------|------|
| Type                | ID  | Hydrologic | % Area | Area |
| Kemble Silt Clay    | KSc | C          | 100    | 0.87 |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
| Total Area          |     |            |        | 0.87 |

| Impervious Landuses Present: |  |          |    |          |    |                             |    |                        |    |            |    |             |       |
|------------------------------|--|----------|----|----------|----|-----------------------------|----|------------------------|----|------------|----|-------------|-------|
|                              |  | Roadway  |    | Sidewalk |    | Driveway                    |    | Building               |    | SWMF       |    | Subtotals   |       |
| Soils                        |  | Area     | CN | Area     | CN | Area                        | CN | Area (ha)              | CN | Area       | CN | Area        | A*CN  |
| KSc                          |  |          | 98 |          | 98 |                             | 98 |                        | 98 |            | 98 | 0           | 0     |
| 0                            |  |          | 98 |          | 98 |                             | 98 |                        | 98 |            | 98 | 0           | 0     |
| 0                            |  |          | 98 |          | 98 |                             | 98 |                        | 98 |            | 98 | 0           | 0     |
| 0                            |  |          | 98 |          | 98 |                             | 98 |                        | 98 |            | 98 | 0           | 0     |
| Subtotal                     |  | 0        |    | 0        |    | 0                           |    | 0                      |    | 0          |    |             |       |
| Pervious Landuses Present:   |  |          |    |          |    |                             |    |                        |    |            |    |             |       |
|                              |  | Woodland |    | Meadow   |    | Wetland                     |    | Lawn                   |    | Cultivated |    | Subtotals   |       |
| Soils                        |  | Area     | CN | Area     | CN | Area                        | CN | Area (ha)              | CN | Area       | CN | Area        | A*CN  |
| KSc                          |  | 0.609    | 73 | 0.261    | 76 | 0                           |    | 0.00                   | 79 | 0          | 82 | 0.87        | 64.29 |
| 0                            |  | 0.00     |    | 0.00     |    | 0.00                        |    | 0.00                   |    | 0.00       |    | 0.00        | 0.00  |
| 0                            |  | 0.00     |    | 0.00     |    | 0.00                        |    | 0.00                   |    | 0.00       |    | 0.00        | 0.00  |
| 0                            |  | 0.00     |    | 0.00     |    | 0.00                        |    | 0.00                   |    | 0.00       |    | 0.00        | 0.00  |
| Subtotal                     |  | 0.61     |    | 0.26     |    | 0.00                        |    | 0.00                   |    | 0.00       |    |             |       |
|                              |  |          |    |          |    | Composite Area Calculations |    | Total Pervious Area    |    |            |    | 0.87        |       |
|                              |  |          |    |          |    |                             |    | Total Impervious Area  |    |            |    | 0.00        |       |
|                              |  |          |    |          |    |                             |    | % Impervious           |    |            |    | 0.00%       |       |
|                              |  |          |    |          |    |                             |    | Composite Curve Number |    |            |    | <b>73.9</b> |       |
|                              |  |          |    |          |    |                             |    | Total Area Check       |    |            |    | 0.87        |       |

**Initial Abstraction and Tp Calculations**

| Initial Abstraction |         |           |             | Composite Runoff Coefficient |      |  |    |      |   |    |      |        |
|---------------------|---------|-----------|-------------|------------------------------|------|--|----|------|---|----|------|--------|
| Landuse             | IA (mm) | Area (ha) | A * IA      | Kemble Silt Clay             |      |  |    |      |   |    |      |        |
|                     |         |           |             | RC                           | Area |  | RC | Area |   | RC | Area | A*RC   |
| Woodland            | 10      | 0.609     | 6.09        | 0.35                         | 1    |  | 0  |      | 0 |    | 0    | 0.21   |
| Meadow              | 8       | 0.261     | 2.088       | 0.40                         | 0    |  | 0  |      | 0 |    | 0    | 0.1044 |
| Wetland             | 16      | 0         | 0           |                              | 0    |  | 0  |      | 0 |    | 0    | 0      |
| Lawn                | 5       | 0         | 0           | 0.15                         | 0    |  | 0  |      | 0 |    | 0    | 0.00   |
| Cultivated          | 7       | 0         | 0           | 0.55                         | 0    |  | 0  |      | 0 |    | 0    | 0      |
| Impervious          | 2       | 0         | 0           | 0.90                         | 0    |  | 0  |      | 0 |    | 0    | 0.00   |
| Composite           |         | 0.87      | <b>9.40</b> | Composite Runoff Coefficient |      |  |    |      |   |    |      | 0.37   |

| Time to Peak Inputs   |            |          |           |                    |                | Uplands |         |               | Bransby Williams |         | Airport |         |
|-----------------------|------------|----------|-----------|--------------------|----------------|---------|---------|---------------|------------------|---------|---------|---------|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | V/S <sup>0.5</sup> | Velocity (m/s) | Tc (hr) | Tp (hr) | TOTAL Tp (hr) | Tc (hr)          | Tp (hr) | Tc (hr) | Tp (hr) |
| SHEET                 | 100        | 1.9      | 1.90%     |                    | 0.00           |         |         |               | 0.12             | 0.08    | 0.38    | 0.26    |
| CHANNEL               | 35         | 0.55     | 2%        |                    | 0              |         |         |               |                  |         |         |         |

Appropriate calculated time to peak: **0.26** Appropriate Method: **Airport**



Project Name: Home Farm  
 Project Number: 0721-3464  
 Date: May 19-2021  
 By: AC/JE

**D.A. NAME 2C- Pre**  
**D.A. AREA (ha) 5.91**

**Hydrologic Parameters: CALIB NASHYD Command**  
**Pre Development Drainage Area: Catchment 2C- Pre**

**Curve Number Calculation**

| Soil Types Present: |     |            |        |      |
|---------------------|-----|------------|--------|------|
| Type                | ID  | Hydrologic | % Area | Area |
| Kemble Silt Clay    | KSc | C          | 100    | 5.91 |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
| Total Area          |     |            |        | 5.91 |

| Impervious Landuses Present: |  |          |    |          |    |                             |    |                        |    |            |    |             |        |
|------------------------------|--|----------|----|----------|----|-----------------------------|----|------------------------|----|------------|----|-------------|--------|
|                              |  | Roadway  |    | Sidewalk |    | Driveway                    |    | Building               |    | SWMF       |    | Subtotals   |        |
| Soils                        |  | Area     | CN | Area     | CN | Area                        | CN | Area (ha)              | CN | Area       | CN | Area        | A*CN   |
| KSc                          |  | 0.02     | 98 |          | 98 |                             | 98 |                        | 98 |            | 98 | 0.02        | 2.35   |
| 0                            |  |          | 98 |          | 98 |                             | 98 |                        | 98 |            | 98 | 0           | 0      |
| 0                            |  |          | 98 |          | 98 |                             | 98 |                        | 98 |            | 98 | 0           | 0      |
| 0                            |  |          | 98 |          | 98 |                             | 98 |                        | 98 |            | 98 | 0           | 0      |
| Subtotal                     |  | 0.024    |    | 0        |    | 0                           |    | 0                      |    | 0          |    |             |        |
| Pervious Landuses Present:   |  |          |    |          |    |                             |    |                        |    |            |    |             |        |
|                              |  | Woodland |    | Meadow   |    | Wetland                     |    | Lawn                   |    | Cultivated |    | Subtotals   |        |
| Soils                        |  | Area     | CN | Area     | CN | Area                        | CN | Area (ha)              | CN | Area       | CN | Area        | A*CN   |
| KSc                          |  | 2.943    | 73 | 2.943    | 76 | 0                           |    | 0.00                   | 79 | 0          | 82 | 5.89        | 438.51 |
| 0                            |  | 0.00     |    | 0.00     |    | 0.00                        |    | 0.00                   |    | 0.00       |    | 0.00        | 0.00   |
| 0                            |  | 0.00     |    | 0.00     |    | 0.00                        |    | 0.00                   |    | 0.00       |    | 0.00        | 0.00   |
| 0                            |  | 0.00     |    | 0.00     |    | 0.00                        |    | 0.00                   |    | 0.00       |    | 0.00        | 0.00   |
| Subtotal                     |  | 2.94     |    | 2.94     |    | 0.00                        |    | 0.00                   |    | 0.00       |    |             |        |
|                              |  |          |    |          |    | Composite Area Calculations |    | Total Pervious Area    |    |            |    | 5.89        |        |
|                              |  |          |    |          |    |                             |    | Total Impervious Area  |    |            |    | 0.02        |        |
|                              |  |          |    |          |    |                             |    | % Impervious           |    |            |    | 0.41%       |        |
|                              |  |          |    |          |    |                             |    | Composite Curve Number |    |            |    | <b>74.6</b> |        |
|                              |  |          |    |          |    |                             |    | Total Area Check       |    |            |    | 5.91        |        |

**Initial Abstraction and Tp Calculations**

| Initial Abstraction |         |           |             | Composite Runoff Coefficient |      |    |      |    |      |    |      |      |
|---------------------|---------|-----------|-------------|------------------------------|------|----|------|----|------|----|------|------|
| Landuse             | IA (mm) | Area (ha) | A * IA      | Kemble Silt Clay             |      |    |      |    |      |    |      |      |
|                     |         |           |             | RC                           | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland            | 10      | 2.943     | 29.43       | 0.35                         | 3    |    | 0    |    | 0    |    | 0    | 1.03 |
| Meadow              | 8       | 2.943     | 23.544      | 0.40                         | 3    |    | 0    |    | 0    |    | 0    | 1.18 |
| Wetland             | 16      | 0         | 0           |                              | 0    |    | 0    |    | 0    |    | 0    | 0    |
| Lawn                | 5       | 0         | 0           | 0.15                         | 0    |    | 0    |    | 0    |    | 0    | 0.00 |
| Cultivated          | 7       | 0         | 0           | 0.55                         | 0    |    | 0    |    | 0    |    | 0    | 0    |
| Impervious          | 2       | 0.024     | 0.048       | 0.90                         | 0    |    | 0    |    | 0    |    | 0    | 0.02 |
| Composite           |         | 5.91      | <b>8.97</b> | Composite Runoff Coefficient |      |    |      |    |      |    |      | 0.38 |

| Time to Peak Inputs |        |      |       |                    |          | Uplands |         |               | Bransby Williams |         | Airport |         |
|---------------------|--------|------|-------|--------------------|----------|---------|---------|---------------|------------------|---------|---------|---------|
| Flow Path           | Length | Drop | Slope | V/S <sup>0.5</sup> | Velocity | Tc (hr) | Tp (hr) | TOTAL Tp (hr) | Tc (hr)          | Tp (hr) | Tc (hr) | Tp (hr) |
| Description         | (m)    | (m)  | (%)   |                    | (m/s)    |         |         |               |                  |         |         |         |
| SHEET               | 100    | 2.25 | 2.3%  |                    | 0.00     |         |         |               | 0.21             | 0.14    | 0.51    | 0.34    |
| CHANNEL             | 230    | 7    | 3.0%  |                    | 0        |         |         |               |                  |         |         |         |

Appropriate calculated time to peak: **0.34** Appropriate Method: **Airport**





Project Name: Home Farm  
 Project Number: 0721-3464  
 Date: May 19-2021  
 By: AC/JE

D.A. NAME 1A  
 D.A. AREA (ha) 8.2

**Hydrologic Parameters: CALIB STANDHYD Command**  
**Post Development Drainage Area: Catchment 1A**

**Curve Number Calculation**

| Soil Types Present: |     |            |        |      |
|---------------------|-----|------------|--------|------|
| Type                | ID  | Hydrologic | % Area | Area |
| Kemble Silt Clay    | KSc | C          | 100    | 8.2  |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
| Total Area Check    |     |            |        | 8.2  |

| Impervious Landuses Present: |           |    |           |    |           |    |           |    |           |    |           |        |
|------------------------------|-----------|----|-----------|----|-----------|----|-----------|----|-----------|----|-----------|--------|
| Soils                        | Roadway   |    | Sidewalk  |    | Driveway  |    | Building  |    | SWMF      |    | Subtotals |        |
|                              | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area      | A*CN   |
| KSc                          | 1.53      | 98 | 0.26      | 98 | 1.05      | 98 | 1.89      | 98 | 0.23      | 98 | 4.96      | 486.08 |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0      |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0      |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0      |
| Subtotal Area                | 1.53      |    | 0.26      |    | 1.05      |    | 1.89      |    | 0.23      |    |           |        |

| Pervious Landuses Present: |           |    |           |    |           |    |           |    |            |    |           |        |
|----------------------------|-----------|----|-----------|----|-----------|----|-----------|----|------------|----|-----------|--------|
| Soils                      | Woodland  |    | Meadow    |    | Wetland   |    | Lawn      |    | Cultivated |    | Subtotals |        |
|                            | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha)  | CN | Area      | A*CN   |
| KSc                        | 0         |    | 0         |    | 0         |    | 3.24      | 79 | 0          |    | 3.24      | 255.96 |
|                            | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0      |
|                            | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0      |
|                            | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0      |
| Subtotal Area              | 0         |    | 0         |    | 0         |    | 3.24      |    | 0          |    |           |        |

|                  |  |  |  |                              |                                 |      |
|------------------|--|--|--|------------------------------|---------------------------------|------|
|                  |  |  |  | Pervious Area Calculations   | Total Pervious Area             | 3.24 |
|                  |  |  |  |                              | Composite Pervious Curve Number | 79   |
|                  |  |  |  | Impervious Area Calculations | Total Directly Connected Area   | 3.07 |
|                  |  |  |  |                              | Total Indirectly Connected Area | 1.89 |
|                  |  |  |  |                              | Total Impervious Area           | 4.96 |
|                  |  |  |  |                              | % X imp                         | 37.4 |
|                  |  |  |  |                              | % T imp                         | 60.5 |
| Total Area Check |  |  |  |                              |                                 | 8.2  |

**Initial Abstraction and Tp Calculations**

| Landuse    | IA (mm) | Area (ha) | A * IA |
|------------|---------|-----------|--------|
| Woodland   | 10      | 0         | 0      |
| Meadow     | 8       | 0         | 0      |
| Wetland    | 16      | 0         | 0      |
| Lawn       | 5       | 3.24      | 16.20  |
| Cultivated | 7       | 0         | 0      |

| Land Use   | IA (mm) | Slope (%) | Travel Length (m) | Manning's n |
|------------|---------|-----------|-------------------|-------------|
| Pervious   | 5.0     | 2         | 17                | 0.25        |
| Impervious | 2.0     | 2         | 234               | 0.013       |



Project Name: Home Farm  
 Project Number: 0721-3464  
 Date: 2023-09-26  
 By: HR

D.A. NAME 2A-1  
 D.A. AREA (ha) 3.85

**Hydrologic Parameters: CALIB STANDHYD Command**  
**Post Development Drainage Area: Catchment 2A-1**

**Curve Number Calculation**

| Soil Types Present: |     |            |        |      |
|---------------------|-----|------------|--------|------|
| Type                | ID  | Hydrologic | % Area | Area |
| Kemble Silt Clay    | KSc | C          | 100    | 3.85 |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
| Total Area Check    |     |            |        | 3.85 |

| Impervious Landuses Present: |           |    |           |    |           |    |           |    |           |    |           |       |
|------------------------------|-----------|----|-----------|----|-----------|----|-----------|----|-----------|----|-----------|-------|
| Soils                        | Roadway   |    | Sidewalk  |    | Driveway  |    | Building  |    | SWMF      |    | Subtotals |       |
|                              | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area      | A*CN  |
| KSc                          | 1.21      | 98 | 0.13      | 98 | 0.43      | 98 | 0.58      | 98 | 0         | 98 | 2.35      | 230.3 |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0     |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0     |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0     |
| Subtotal Area                | 1.21      |    | 0.13      |    | 0.43      |    | 0.58      |    | 0         |    |           |       |

| Pervious Landuses Present: |           |    |           |    |           |    |           |    |            |    |           |       |
|----------------------------|-----------|----|-----------|----|-----------|----|-----------|----|------------|----|-----------|-------|
| Soils                      | Woodland  |    | Meadow    |    | Wetland   |    | Lawn      |    | Cultivated |    | Subtotals |       |
|                            | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha)  | CN | Area      | A*CN  |
| KSc                        | 0         |    | 0         |    | 0         |    | 1.50      | 79 | 0          |    | 1.50      | 118.5 |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0     |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0     |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0     |
| Subtotal Area              | 0         |    | 0         |    | 0         |    | 1.50      |    | 0          |    |           |       |

|  |  |  |  |  |                              |  |                                 |  |      |  |
|--|--|--|--|--|------------------------------|--|---------------------------------|--|------|--|
|  |  |  |  |  | Pervious Area Calculations   |  | Total Pervious Area             |  | 1.5  |  |
|  |  |  |  |  |                              |  | Composite Pervious Curve Number |  | 79   |  |
|  |  |  |  |  | Impervious Area Calculations |  | Total Directly Connected Area   |  | 1.77 |  |
|  |  |  |  |  |                              |  | Total Indirectly Connected Area |  | 0.58 |  |
|  |  |  |  |  |                              |  | Total Impervious Area           |  | 2.35 |  |
|  |  |  |  |  |                              |  | % X imp                         |  | 46.0 |  |
|  |  |  |  |  |                              |  | % T imp                         |  | 61.0 |  |
|  |  |  |  |  |                              |  | Total Area Check                |  | 3.85 |  |

**Initial Abstraction and Tp Calculations**

| Landuse    | IA (mm) | Area (ha) | A * IA |
|------------|---------|-----------|--------|
| Woodland   | 10      | 0         | 0      |
| Meadow     | 8       | 0         | 0      |
| Wetland    | 16      | 0         | 0      |
| Lawn       | 5       | 1.50      | 7.50   |
| Cultivated | 7       | 0         | 0      |

| Land Use   | IA (mm) | Slope (%) | Travel Length (m) | Manning's n |
|------------|---------|-----------|-------------------|-------------|
| Pervious   | 5.0     | 2         | 17                | 0.25        |
| Impervious | 2.0     | 2         | 160               | 0.013       |



Project Name: Home Farm  
 Project Number: 0721-3464  
 Date: 2023-01-17  
 By: AC/JE/TM

D.A. NAME **2A-4**  
 D.A. AREA (ha) **0.70**

**Hydrologic Parameters: CALIB STANDHYD Command**  
**Post Development Drainage Area: Catchment 2A-4**

**Curve Number Calculation**

| Soil Types Present: |     |            |        |      |
|---------------------|-----|------------|--------|------|
| Type                | ID  | Hydrologic | % Area | Area |
| Kemble Silt Clay    | KSc | C          | 100    | 0.7  |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
| Total Area Check    |     |            |        | 0.7  |

| Impervious Landuses Present: |           |    |           |    |           |    |           |    |           |    |           |        |
|------------------------------|-----------|----|-----------|----|-----------|----|-----------|----|-----------|----|-----------|--------|
| Soils                        | Roadway   |    | Sidewalk  |    | Driveway  |    | Building  |    | SWMF      |    | Subtotals |        |
|                              | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area      | A*CN   |
| KSc                          |           | 98 |           | 98 | 0.08      | 98 | 0.002     | 98 | 0.17      | 98 | 0.25      | 24.735 |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0      |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0      |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0      |
| Subtotal Area                | 0.00      |    | 0         |    | 0.08      |    | 0.00      |    | 0.17      |    |           |        |

| Pervious Landuses Present: |           |    |           |    |           |    |           |    |            |    |           |       |
|----------------------------|-----------|----|-----------|----|-----------|----|-----------|----|------------|----|-----------|-------|
| Soils                      | Woodland  |    | Meadow    |    | Wetland   |    | Lawn      |    | Cultivated |    | Subtotals |       |
|                            | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha)  | CN | Area      | A*CN  |
| KSc                        | 0         |    | 0         |    | 0         |    | 0.45      | 79 | 0          |    | 0.45      | 35.36 |
|                            | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0     |
|                            | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0     |
|                            | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0     |
| Subtotal Area              | 0         |    | 0         |    | 0         |    | 0.45      |    | 0          |    |           |       |

|                  |  |  |  |                              |                                 |       |
|------------------|--|--|--|------------------------------|---------------------------------|-------|
|                  |  |  |  | Pervious Area Calculations   | Total Pervious Area             | 0.448 |
|                  |  |  |  |                              | Composite Pervious Curve Number | 79    |
|                  |  |  |  | Impervious Area Calculations | Total Directly Connected Area   | 0.25  |
|                  |  |  |  |                              | Total Indirectly Connected Area | 0.00  |
|                  |  |  |  |                              | Total Impervious Area           | 0.25  |
|                  |  |  |  |                              | % X imp                         | 35.7  |
|                  |  |  |  |                              | % T imp                         | 36.1  |
| Total Area Check |  |  |  |                              |                                 | 0.7   |

**Initial Abstraction and Tp Calculations**

| Landuse    | IA (mm) | Area (ha) | A * IA |
|------------|---------|-----------|--------|
| Woodland   | 10      | 0         | 0      |
| Meadow     | 8       | 0         | 0      |
| Wetland    | 16      | 0         | 0      |
| Lawn       | 5       | 0.45      | 2.24   |
| Cultivated | 7       | 0         | 0      |

| Land Use   | IA (mm) | Slope (%) | Travel Length (m) | Manning's n |
|------------|---------|-----------|-------------------|-------------|
| Pervious   | 5.0     | 2         | 17                | 0.25        |
| Impervious | 2.0     | 2         | 68                | 0.013       |



Project Name: Home Farm  
 Project Number: 0721-3464  
 Date: May 19-2021  
 By: AC/JE

D.A. NAME 2B  
 D.A. AREA (ha) **0.87**

**Hydrologic Parameters: CALIB NASHYD Command**  
**Pre Development Drainage Area: Catchment 2B**

**Curve Number Calculation**

| Soil Types Present: |     |            |        |      |
|---------------------|-----|------------|--------|------|
| Type                | ID  | Hydrologic | % Area | Area |
| Kemble Silt Clay    | KSc | C          | 100    | 0.87 |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
| Total Area          |     |            |        | 0.87 |

| Impervious Landuses Present: |  |         |    |          |    |          |    |           |    |      |    |           |      |
|------------------------------|--|---------|----|----------|----|----------|----|-----------|----|------|----|-----------|------|
|                              |  | Roadway |    | Sidewalk |    | Driveway |    | Building  |    | SWMF |    | Subtotals |      |
| Soils                        |  | Area    | CN | Area     | CN | Area     | CN | Area (ha) | CN | Area | CN | Area      | A*CN |
| KSc                          |  | 0.05    | 98 |          | 98 |          | 98 | 0.10      | 98 | 0    | 98 | 0.15      | 14.7 |
| 0                            |  |         | 98 |          | 98 |          | 98 |           | 98 |      | 98 | 0         | 0    |
| 0                            |  |         | 98 |          | 98 |          | 98 |           | 98 |      | 98 | 0         | 0    |
| 0                            |  |         | 98 |          | 98 |          | 98 |           | 98 |      | 98 | 0         | 0    |
| Subtotal                     |  | 0.05    |    | 0        |    | 0        |    | 0.1       |    | 0    |    |           |      |

| Pervious Landuses Present: |  |          |    |        |    |         |    |           |    |            |    |           |       |
|----------------------------|--|----------|----|--------|----|---------|----|-----------|----|------------|----|-----------|-------|
|                            |  | Woodland |    | Meadow |    | Wetland |    | Lawn      |    | Cultivated |    | Subtotals |       |
| Soils                      |  | Area     | CN | Area   | CN | Area    | CN | Area (ha) | CN | Area       | CN | Area      | A*CN  |
| KSc                        |  | 0.144    |    | 0      |    | 0       |    | 0.58      | 79 | 0          |    | 0.72      | 45.50 |
| 0                          |  | 0.00     |    | 0.00   |    | 0.00    |    | 0.00      |    | 0.00       |    | 0.00      | 0.00  |
| 0                          |  | 0.00     |    | 0.00   |    | 0.00    |    | 0.00      |    | 0.00       |    | 0.00      | 0.00  |
| 0                          |  | 0.00     |    | 0.00   |    | 0.00    |    | 0.00      |    | 0.00       |    | 0.00      | 0.00  |
| Subtotal                   |  | 0.14     |    | 0.00   |    | 0.00    |    | 0.58      |    | 0.00       |    |           |       |

|  |  |  |  |  |  |                             |  |                        |  |  |  |        |  |
|--|--|--|--|--|--|-----------------------------|--|------------------------|--|--|--|--------|--|
|  |  |  |  |  |  | Composite Area Calculations |  | Total Pervious Area    |  |  |  | 0.72   |  |
|  |  |  |  |  |  |                             |  | Total Impervious Area  |  |  |  | 0.15   |  |
|  |  |  |  |  |  |                             |  | % Impervious           |  |  |  | 17.24% |  |
|  |  |  |  |  |  |                             |  | Composite Curve Number |  |  |  | 69.2   |  |
|  |  |  |  |  |  |                             |  | Total Area Check       |  |  |  | 0.87   |  |

**Initial Abstraction and Tp Calculations**

| Initial Abstraction |         |           |        | Composite Runoff Coefficient |      |    |      |    |      |    |      |      |
|---------------------|---------|-----------|--------|------------------------------|------|----|------|----|------|----|------|------|
| Landuse             | IA (mm) | Area (ha) | A * IA | Kemble Silt Clay             |      |    |      |    |      |    |      |      |
|                     |         |           |        | RC                           | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland            | 10      | 0.144     | 1.44   | 0.35                         | 0    |    | 0    |    | 0    |    | 0    | 0.05 |
| Meadow              | 8       | 0         | 0      |                              | 0    |    | 0    |    | 0    |    | 0    | 0    |
| Wetland             | 16      | 0         | 0      |                              | 0    |    | 0    |    | 0    |    | 0    | 0    |
| Lawn                | 5       | 0.576     | 2.88   | 0.15                         | 1    |    | 0    |    | 0    |    | 0    | 0.09 |
| Cultivated          | 7       | 0         | 0      |                              | 0    |    | 0    |    | 0    |    | 0    | 0    |
| Impervious          | 2       | 0.15      | 0.3    | 0.90                         | 0    |    | 0    |    | 0    |    | 0    | 0.14 |
| Composite           |         | 0.87      | 5.31   | Composite Runoff Coefficient |      |    |      |    |      |    |      | 0.31 |

| Time to Peak Inputs |        |      |       |                    |          | Uplands |         |               | Bransby Williams |         | Airport |         |
|---------------------|--------|------|-------|--------------------|----------|---------|---------|---------------|------------------|---------|---------|---------|
| Flow Path           | Length | Drop | Slope | V/S <sup>0.5</sup> | Velocity | Tc (hr) | Tp (hr) | TOTAL Tp (hr) | Tc (hr)          | Tp (hr) | Tc (hr) | Tp (hr) |
| Description         | (m)    | (m)  | (%)   |                    | (m/s)    |         |         |               |                  |         |         |         |
| SHEET               | 100    | 1.5  | 1.50% |                    | 0.00     |         |         |               | 0.12             | 0.08    | 0.43    | 0.29    |
| CHANNEL             | 35     | 0.6  | 2%    |                    | 0        |         |         |               |                  |         |         |         |

Appropriate calculated time to peak: **0.29** Appropriate Method: **Airport**



Project Name: Home Farm  
 Project Number: 0721-3464  
 Date: May 19-2021  
 By: AC/JE

**D.A. NAME 3A**  
**D.A. AREA (ha) 0.49**

**Hydrologic Parameters: CALIB STANDHYD Command**  
**Post Development Drainage Area: Catchment 3A**

**Curve Number Calculation**

| Soil Types Present: |     |            |        |      |
|---------------------|-----|------------|--------|------|
| Type                | ID  | Hydrologic | % Area | Area |
| Waterloo Sandy Loam | Wsl | A          | 100    | 0.49 |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
| Total Area Check    |     |            |        | 0.49 |

| Impervious Landuses Present: |           |    |           |    |           |    |           |    |           |    |           |       |
|------------------------------|-----------|----|-----------|----|-----------|----|-----------|----|-----------|----|-----------|-------|
| Soils                        | Roadway   |    | Sidewalk  |    | Driveway  |    | Building  |    | SWMF      |    | Subtotals |       |
|                              | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area      | A*CN  |
| Wsl                          | 0.21      | 98 |           | 98 |           | 98 | 0.106     | 98 |           | 98 | 0.32      | 30.97 |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0     |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0     |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0     |
| Subtotal Area                | 0.21      |    | 0         |    | 0.00      |    | 0.106     |    | 0         |    |           |       |

| Pervious Landuses Present: |           |    |           |    |           |    |           |    |            |    |           |      |
|----------------------------|-----------|----|-----------|----|-----------|----|-----------|----|------------|----|-----------|------|
| Soils                      | Woodland  |    | Meadow    |    | Wetland   |    | Lawn      |    | Cultivated |    | Subtotals |      |
|                            | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha)  | CN | Area      | A*CN |
| Wsl                        | 0         |    | 0         |    | 0         |    | 0.17      | 49 | 0          |    | 0.17      | 8.53 |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0    |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0    |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0    |
| Subtotal Area              | 0         |    | 0         |    | 0         |    | 0.17      |    | 0          |    |           |      |

|  |  |  |  |  |                              |  |                                 |  |       |  |
|--|--|--|--|--|------------------------------|--|---------------------------------|--|-------|--|
|  |  |  |  |  | Pervious Area Calculations   |  | Total Pervious Area             |  | 0.17  |  |
|  |  |  |  |  |                              |  | Composite Pervious Curve Number |  | 49    |  |
|  |  |  |  |  | Impervious Area Calculations |  | Total Directly Connected Area   |  | 0.21  |  |
|  |  |  |  |  |                              |  | Total Indirectly Connected Area |  | 0.106 |  |
|  |  |  |  |  |                              |  | Total Impervious Area           |  | 0.32  |  |
|  |  |  |  |  |                              |  | % X imp                         |  | 42.9  |  |
|  |  |  |  |  |                              |  | % T imp                         |  | 64.5  |  |
|  |  |  |  |  |                              |  | Total Area Check                |  | 0.49  |  |

**Initial Abstraction and Tp Calculations**

| Landuse    | IA (mm) | Area (ha) | A * IA |
|------------|---------|-----------|--------|
| Woodland   | 10      | 0         | 0      |
| Meadow     | 8       | 0         | 0      |
| Wetland    | 16      | 0         | 0      |
| Lawn       | 5       | 0.17      | 0.87   |
| Cultivated | 7       | 0         | 0      |

| Land Use   | IA (mm) | Slope (%) | Travel Length (m) | Manning's n |
|------------|---------|-----------|-------------------|-------------|
| Pervious   | 5.0     | 2         | 17                | 0.25        |
| Impervious | 2.0     | 2         | 57                | 0.013       |



Project Name: Home Farm  
 Project Number: 0721-3464  
 Date: 2026-06-17  
 By: NS

**D.A. NAME 2C-1**  
**D.A. AREA (ha) 2.64**

**Hydrologic Parameters: CALIB STANDHYD Command**  
**Post Development Drainage Area: Catchment 2C-1**  
**Firehall**

**Curve Number Calculation**

| Soil Types Present: |     |            |        |      |
|---------------------|-----|------------|--------|------|
| Type                | ID  | Hydrologic | % Area | Area |
| Kemble Silt Clay    | KSc | C          | 100    | 2.64 |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
| Total Area Check    |     |            |        | 2.64 |

| Impervious Landuses Present: |           |    |           |    |           |    |           |    |           |    |           |       |
|------------------------------|-----------|----|-----------|----|-----------|----|-----------|----|-----------|----|-----------|-------|
| Soils                        | Roadway   |    | Sidewalk  |    | Driveway  |    | Building  |    | SWMF      |    | Subtotals |       |
|                              | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area      | A*CN  |
| KSc                          |           | 98 | 0.09      | 98 | 0.75      | 85 | 0.18      | 98 |           | 98 | 1.02      | 90.21 |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0     |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0     |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0     |
| Subtotal Area                | 0.00      |    | 0.09      |    | 0.75      |    | 0.18      |    | 0         |    |           |       |

| Pervious Landuses Present: |           |    |           |    |           |    |           |    |            |    |           |        |
|----------------------------|-----------|----|-----------|----|-----------|----|-----------|----|------------|----|-----------|--------|
| Soils                      | Woodland  |    | Meadow    |    | Wetland   |    | Lawn      |    | Cultivated |    | Subtotals |        |
|                            | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha)  | CN | Area      | A*CN   |
| KSc                        | 0         |    | 0         |    | 0         |    | 1.62      | 79 | 0          |    | 1.62      | 127.98 |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0      |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0      |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0      |
| Subtotal Area              | 0         |    | 0         |    | 0         |    | 1.62      |    | 0          |    |           |        |

|  |  |  |  |  |                              |  |                                 |  |      |  |
|--|--|--|--|--|------------------------------|--|---------------------------------|--|------|--|
|  |  |  |  |  | Pervious Area Calculations   |  | Total Pervious Area             |  | 1.62 |  |
|  |  |  |  |  |                              |  | Composite Pervious Curve Number |  | 79   |  |
|  |  |  |  |  | Impervious Area Calculations |  | Total Directly Connected Area   |  | 1.02 |  |
|  |  |  |  |  |                              |  | Total Indirectly Connected Area |  | 0.00 |  |
|  |  |  |  |  |                              |  | Total Impervious Area           |  | 1.02 |  |
|  |  |  |  |  |                              |  | % X imp                         |  | 38.6 |  |
|  |  |  |  |  |                              |  | % T imp                         |  | 38.6 |  |
|  |  |  |  |  |                              |  | Total Area Check                |  | 2.64 |  |

**Initial Abstraction and Tp Calculations**

| Landuse    | IA (mm) | Area (ha) | A * IA |
|------------|---------|-----------|--------|
| Woodland   | 10      | 0         | 0      |
| Meadow     | 8       | 0         | 0      |
| Wetland    | 16      | 0         | 0      |
| Lawn       | 5       | 1.62      | 8.10   |
| Cultivated | 7       | 0         | 0      |

| Land Use   | IA (mm) | Slope (%) | Travel Length (m) | Manning's n |
|------------|---------|-----------|-------------------|-------------|
| Pervious   | 5.0     | 2         | 80                | 0.25        |
| Impervious | 2.0     | 2         | 133               | 0.013       |



Project Name: Home Farm  
 Project Number: 0721-3464  
 Date: 2026-05-07  
 By: NS

**D.A. NAME 2C-2**  
**D.A. AREA (ha) 1.3**

**Hydrologic Parameters: CALIB STANDHYD Command**  
**Post Development Drainage Area: Catchment 2C-2**  
 Long Term Care Facility

**Curve Number Calculation**

| Soil Types Present: |     |            |        |      |
|---------------------|-----|------------|--------|------|
| Type                | ID  | Hydrologic | % Area | Area |
| Kemble Silt Clay    | KSc | C          | 100    | 1.3  |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
| Total Area Check    |     |            |        | 1.3  |

| Impervious Landuses Present: |           |    |           |    |           |    |           |    |           |    |           |       |  |
|------------------------------|-----------|----|-----------|----|-----------|----|-----------|----|-----------|----|-----------|-------|--|
| Soils                        | Roadway   |    | Sidewalk  |    | Driveway  |    | Building  |    | SWMF      |    | Subtotals |       |  |
|                              | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area      | A*CN  |  |
| KSc                          |           | 98 |           | 98 | 0.68      | 85 | 0.30      | 98 |           | 98 | 0.98      | 86.78 |  |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0     |  |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0     |  |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0     |  |
| Subtotal Area                | 0.00      |    | 0         |    | 0.68      |    | 0.30      |    | 0         |    |           |       |  |

| Pervious Landuses Present: |           |    |           |    |           |    |           |    |            |    |           |       |  |
|----------------------------|-----------|----|-----------|----|-----------|----|-----------|----|------------|----|-----------|-------|--|
| Soils                      | Woodland  |    | Meadow    |    | Wetland   |    | Lawn      |    | Cultivated |    | Subtotals |       |  |
|                            | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha)  | CN | Area      | A*CN  |  |
| KSc                        | 0         |    | 0         |    | 0         |    | 0.33      | 79 | 0          |    | 0.33      | 25.68 |  |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0     |  |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0     |  |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0     |  |
| Subtotal Area              | 0         |    | 0         |    | 0         |    | 0.33      |    | 0          |    |           |       |  |

|                  |  |  |  |                              |  |                                 |  |      |  |
|------------------|--|--|--|------------------------------|--|---------------------------------|--|------|--|
|                  |  |  |  | Pervious Area Calculations   |  | Total Pervious Area             |  | 0.33 |  |
|                  |  |  |  |                              |  | Composite Pervious Curve Number |  | 79   |  |
|                  |  |  |  | Impervious Area Calculations |  | Total Directly Connected Area   |  | 0.98 |  |
|                  |  |  |  |                              |  | Total Indirectly Connected Area |  | 0.00 |  |
|                  |  |  |  |                              |  | Total Impervious Area           |  | 0.98 |  |
|                  |  |  |  |                              |  | % X imp                         |  | 75.0 |  |
|                  |  |  |  |                              |  | % T imp                         |  | 75.0 |  |
| Total Area Check |  |  |  |                              |  |                                 |  | 1.3  |  |

**Initial Abstraction and Tp Calculations**

| Landuse    | IA (mm) | Area (ha) | A * IA |
|------------|---------|-----------|--------|
| Woodland   | 10      | 0         | 0      |
| Meadow     | 8       | 0         | 0      |
| Wetland    | 16      | 0         | 0      |
| Lawn       | 5       | 0.33      | 1.63   |
| Cultivated | 7       | 0         | 0      |

| Land Use   | IA (mm) | Slope (%) | Travel Length (m) | Manning's n |
|------------|---------|-----------|-------------------|-------------|
| Pervious   | 5.0     | 2         | 30                | 0.25        |
| Impervious | 2.0     | 2         | 93                | 0.013       |



Project Name: Home Farm  
 Project Number: 0721-3464  
 Date: 2026-05-07  
 By: NS

**D.A. NAME 2C-3**  
**D.A. AREA (ha) 1.97**

**Hydrologic Parameters: CALIB STANDHYD Command**  
**Post Development Drainage Area: Catchment 2C-3**  
 Rental Housing Development

**Curve Number Calculation**

| Soil Types Present: |     |            |        |      |
|---------------------|-----|------------|--------|------|
| Type                | ID  | Hydrologic | % Area | Area |
| Kemble Silt Clay    | KSc | C          | 100    | 1.97 |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
|                     |     |            |        | 0    |
| Total Area Check    |     |            |        | 1.97 |

| Impervious Landuses Present: |           |    |           |    |           |    |           |    |           |    |           |        |
|------------------------------|-----------|----|-----------|----|-----------|----|-----------|----|-----------|----|-----------|--------|
| Soils                        | Roadway   |    | Sidewalk  |    | Driveway  |    | Building  |    | SWMF      |    | Subtotals |        |
|                              | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area      | A*CN   |
| KSc                          | 0.47      | 98 | 0.06      | 98 | 0.23      | 85 | 0.61      | 98 |           | 98 | 1.37      | 131.27 |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0      |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0      |
| 0                            |           | 98 |           | 98 |           | 98 |           | 98 |           | 98 | 0         | 0      |
| Subtotal Area                | 0.47      |    | 0.06      |    | 0.23      |    | 0.61      |    | 0         |    |           |        |

| Pervious Landuses Present: |           |    |           |    |           |    |           |    |            |    |           |       |
|----------------------------|-----------|----|-----------|----|-----------|----|-----------|----|------------|----|-----------|-------|
| Soils                      | Woodland  |    | Meadow    |    | Wetland   |    | Lawn      |    | Cultivated |    | Subtotals |       |
|                            | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha)  | CN | Area      | A*CN  |
| KSc                        | 0         |    | 0         |    | 0         |    | 0.60      | 79 | 0          |    | 0.60      | 47.40 |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0     |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0     |
| 0                          | 0         |    | 0         |    | 0         |    | 0         |    | 0          |    | 0         | 0     |
| Subtotal Area              | 0         |    | 0         |    | 0         |    | 0.60      |    | 0          |    |           |       |

|  |  |  |  |  |                              |  |                                 |  |      |  |
|--|--|--|--|--|------------------------------|--|---------------------------------|--|------|--|
|  |  |  |  |  | Pervious Area Calculations   |  | Total Pervious Area             |  | 0.60 |  |
|  |  |  |  |  |                              |  | Composite Pervious Curve Number |  | 79   |  |
|  |  |  |  |  | Impervious Area Calculations |  | Total Directly Connected Area   |  | 0.76 |  |
|  |  |  |  |  |                              |  | Total Indirectly Connected Area |  | 0.61 |  |
|  |  |  |  |  |                              |  | Total Impervious Area           |  | 1.37 |  |
|  |  |  |  |  |                              |  | % X imp                         |  | 38.6 |  |
|  |  |  |  |  |                              |  | % T imp                         |  | 69.5 |  |
|  |  |  |  |  |                              |  | Total Area Check                |  | 1.97 |  |

**Initial Abstraction and Tp Calculations**

| Landuse    | IA (mm) | Area (ha) | A * IA |
|------------|---------|-----------|--------|
| Woodland   | 10      | 0         | 0      |
| Meadow     | 8       | 0         | 0      |
| Wetland    | 16      | 0         | 0      |
| Lawn       | 5       | 0.60      | 3.00   |
| Cultivated | 7       | 0         | 0      |

| Land Use   | IA (mm) | Slope (%) | Travel Length (m) | Manning's n |
|------------|---------|-----------|-------------------|-------------|
| Pervious   | 5.0     | 2         | 30                | 0.25        |
| Impervious | 2.0     | 2         | 115               | 0.013       |

| 6 Hr Kefer Chu                                                  |               | Original Model   | Updated Model              |                      |
|-----------------------------------------------------------------|---------------|------------------|----------------------------|----------------------|
| Location                                                        | Return Period | Peak Flow (m³/s) | Peak Flow (m³/s)           | % Difference         |
|                                                                 |               | Pre-Development  | Post-Development (Altered) | From Pre-Development |
| Catchment 1<br>(South Pond)<br><br>Hydrologic POI #1            | 2-Year        | 0.11             | 0.06                       | -44%                 |
|                                                                 | 5-Year        | 0.22             | 0.22                       | 1%                   |
|                                                                 | 10-Year       | 0.34             | 0.25                       | -27%                 |
|                                                                 | 25-Year       | 0.45             | 0.27                       | -40%                 |
|                                                                 | 50-Year       | 0.51             | 0.28                       | -45%                 |
|                                                                 | 100-Year      | 0.64             | 0.30                       | -53%                 |
| Catchment 2<br>(North Pond)<br><br>Hydrologic POI #2            | 2-Year        | 0.17             | 0.09                       | -44%                 |
|                                                                 | 5-Year        | 0.33             | 0.33                       | -1%                  |
|                                                                 | 10-Year       | 0.51             | 0.38                       | -25%                 |
|                                                                 | 25-Year       | 0.68             | 0.43                       | -37%                 |
|                                                                 | 50-Year       | 0.77             | 0.45                       | -42%                 |
|                                                                 | 100-Year      | 0.96             | 0.49                       | -49%                 |
| Catchment 3<br>(Bioretention Facility)<br><br>Hydrologic POI #3 | 2-Year        | 0.003            | 0.000                      | -100%                |
|                                                                 | 5-Year        | 0.01             | 0.01                       | -17%                 |
|                                                                 | 10-Year       | 0.01             | 0.01                       | -11%                 |
|                                                                 | 25-Year       | 0.01             | 0.01                       | -31%                 |
|                                                                 | 50-Year       | 0.01             | 0.01                       | -29%                 |
| Watercourse 7                                                   | 100-Year      | 0.02             | 0.01                       | -42%                 |
|                                                                 | 2-Year        | 1.41             | 1.23                       | -13%                 |
|                                                                 | 5-Year        | 2.66             | 2.46                       | -7%                  |
|                                                                 | 10-Year       | 4.01             | 3.92                       | -2%                  |
|                                                                 | 25-Year       | 5.25             | 5.13                       | -2%                  |
|                                                                 | 50-Year       | 5.91             | 5.75                       | -3%                  |
|                                                                 | 100-Year      | 7.33             | 7.10                       | -3%                  |

| Pond ID              | Parameter         | Return Period |        |         |         |         |          |
|----------------------|-------------------|---------------|--------|---------|---------|---------|----------|
|                      |                   | 2-Year        | 5-Year | 10-Year | 25-Year | 50-Year | 100-Year |
| SWMF #1 (South Pond) | Peak Flow In      | 0.40          | 0.61   | 0.82    | 0.98    | 1.06    | 1.24     |
|                      | Peak Flow Out     | 0.06          | 0.22   | 0.25    | 0.27    | 0.28    | 0.30     |
|                      | % Difference      | -85%          | -64%   | -70%    | -72%    | -74%    | -76%     |
|                      | Storage Used (m³) | 1387          | 1821   | 2388    | 2909    | 3191    | 3803     |
| SWMF #2 (North Pond) | Peak Flow In      | 0.51          | 0.78   | 1.04    | 1.25    | 1.37    | 1.60     |
|                      | Peak Flow Out     | 0.09          | 0.33   | 0.38    | 0.43    | 0.45    | 0.49     |
|                      | % Difference      | -82%          | -58%   | -63%    | -66%    | -67%    | -70%     |
|                      | Storage Used (m³) | 1852          | 2341   | 2998    | 3622    | 3966    | 4714     |

| SWMF ID                 | Parameter                   | Return Period |        |         |         |         |          |
|-------------------------|-----------------------------|---------------|--------|---------|---------|---------|----------|
|                         |                             | 2-Year        | 5-Year | 10-Year | 25-Year | 50-Year | 100-Year |
| Bioretention / Dry Pond | Peak Flow In (m³/s)         | 0.02          | 0.03   | 0.04    | 0.05    | 0.06    | 0.06     |
|                         | Peak Flow Out               | 0             | 0.005  | 0.008   | 0.009   | 0.010   | 0.011    |
|                         | % Difference                | -100%         | -85%   | -81%    | -82%    | -82%    | -83%     |
|                         | Storage Used (Bioretention) | 66            | 90     | 90      | 90      | 90      | 90       |
|                         | Storage Used (Dry Pond)     | 0             | 13     | 23      | 43      | 54      | 80       |

| 4-Hour Chicago                                                  |               | Original Model   | Updated Model              |                      |
|-----------------------------------------------------------------|---------------|------------------|----------------------------|----------------------|
| Location                                                        | Return Period | Peak Flow (m³/s) | Peak Flow (m³/s)           | % Difference         |
|                                                                 |               | Pre-Development  | Post-Development (Altered) | From Pre-Development |
| Catchment 1<br>(South Pond)<br><br>Hydrologic POI #1            | 2-Year        | 0.05             | 0.04                       | -31%                 |
|                                                                 | 5-Year        | 0.12             | 0.10                       | -15%                 |
|                                                                 | 10-Year       | 0.17             | 0.16                       | -5%                  |
|                                                                 | 25-Year       | 0.25             | 0.23                       | -8%                  |
|                                                                 | 50-Year       | 0.31             | 0.24                       | -22%                 |
|                                                                 | 100-Year      | 0.38             | 0.25                       | -32%                 |
| Catchment 2<br>(North Pond)<br><br>Hydrologic POI #2            | 2-Year        | 0.08             | 0.04                       | -51%                 |
|                                                                 | 5-Year        | 0.18             | 0.15                       | -17%                 |
|                                                                 | 10-Year       | 0.26             | 0.24                       | -8%                  |
|                                                                 | 25-Year       | 0.38             | 0.34                       | -9%                  |
|                                                                 | 50-Year       | 0.48             | 0.37                       | -23%                 |
|                                                                 | 100-Year      | 0.58             | 0.40                       | -32%                 |
| Catchment 3<br>(Bioretention Facility)<br><br>Hydrologic POI #3 | 2-Year        | 0.001            | 0.000                      | -100%                |
|                                                                 | 5-Year        | 0.00             | 0.00                       | -100%                |
|                                                                 | 10-Year       | 0.01             | 0.00                       | -100%                |
|                                                                 | 25-Year       | 0.01             | 0.01                       | -14%                 |
|                                                                 | 50-Year       | 0.01             | 0.01                       | -11%                 |
|                                                                 | 100-Year      | 0.01             | 0.01                       | -18%                 |
| Watercourse 7                                                   | 2-Year        | 0.92             | 0.77                       | -16%                 |
|                                                                 | 5-Year        | 1.72             | 1.57                       | -9%                  |
|                                                                 | 10-Year       | 2.35             | 2.17                       | -7%                  |
|                                                                 | 25-Year       | 3.16             | 2.97                       | -6%                  |
|                                                                 | 50-Year       | 3.86             | 3.73                       | -3%                  |
|                                                                 | 100-Year      | 4.57             | 4.46                       | -2%                  |

| Pond ID              | Parameter         | Return Period |        |         |         |         |          |
|----------------------|-------------------|---------------|--------|---------|---------|---------|----------|
|                      |                   | 2-Year        | 5-Year | 10-Year | 25-Year | 50-Year | 100-Year |
| SWMF #1 (South Pond) | Peak Flow In      | 0.78          | 1.18   | 1.50    | 1.97    | 2.29    | 2.58     |
|                      | Peak Flow Out     | 0.04          | 0.10   | 0.16    | 0.23    | 0.24    | 0.25     |
|                      | % Difference      | -95%          | -92%   | -89%    | -89%    | -90%    | -90%     |
|                      | Storage Used (m³) | 1131          | 1492   | 1668    | 1930    | 2226    | 2537     |
|                      |                   |               |        |         |         |         |          |
| SWMF #2 (North Pond) | Peak Flow In      | 1.30          | 1.87   | 2.27    | 2.82    | 3.23    | 3.74     |
|                      | Peak Flow Out     | 0.04          | 0.15   | 0.24    | 0.34    | 0.37    | 0.40     |
|                      | % Difference      | -97%          | -92%   | -89%    | -88%    | -89%    | -89%     |
|                      | Storage Used (m³) | 1623          | 1956   | 2161    | 2448    | 2792    | 3168     |

| SWMF ID                 | Parameter                   | Return Period |        |         |         |         |          |
|-------------------------|-----------------------------|---------------|--------|---------|---------|---------|----------|
|                         |                             | 2-Year        | 5-Year | 10-Year | 25-Year | 50-Year | 100-Year |
| Bioretention / Dry Pond | Peak Flow In (m³/s)         | 0.09          | 0.13   | 0.15    | 0.18    | 0.20    | 0.22     |
|                         | Peak Flow Out               | 0             | 0.000  | 0.000   | 0.006   | 0.008   | 0.009    |
|                         | % Difference                | -100%         | -100%  | -100%   | -97%    | -96%    | -96%     |
|                         | Storage Used (Bioretention) | 52            | 72     | 85      | 90      | 90      | 90       |
|                         | Storage Used (Dry Pond)     | 0             | 0.0    | 0       | 7       | 19      | 32       |

| 12 hr SCS                                                       |               | Original Model                | Updated Model                 |                      |
|-----------------------------------------------------------------|---------------|-------------------------------|-------------------------------|----------------------|
| Location                                                        | Return Period | Peak Flow (m <sup>3</sup> /s) | Peak Flow (m <sup>3</sup> /s) | % Difference         |
|                                                                 |               | Pre-Development               | Post-Development              | From Pre-Development |
| Catchment 1<br>(South Pond)<br><br>Hydrologic POI #1            | 2-Year        | 0.14                          | 0.10                          | -31%                 |
|                                                                 | 5-Year        | 0.24                          | 0.22                          | -10%                 |
|                                                                 | 10-Year       | 0.32                          | 0.24                          | -25%                 |
|                                                                 | 25-Year       | 0.42                          | 0.26                          | -39%                 |
|                                                                 | 50-Year       | 0.50                          | 0.27                          | -46%                 |
|                                                                 | 100-Year      | 0.59                          | 0.29                          | -51%                 |
| Catchment 2<br>(North Pond)<br><br>Hydrologic POI #2            | 2-Year        | 0.22                          | 0.15                          | -33%                 |
|                                                                 | 5-Year        | 0.38                          | 0.33                          | -13%                 |
|                                                                 | 10-Year       | 0.50                          | 0.37                          | -27%                 |
|                                                                 | 25-Year       | 0.66                          | 0.41                          | -38%                 |
|                                                                 | 50-Year       | 0.78                          | 0.44                          | -44%                 |
|                                                                 | 100-Year      | 0.91                          | 0.46                          | -50%                 |
| Catchment 3<br>(Bioretention Facility)<br><br>Hydrologic POI #3 | 2-Year        | 0.004                         | 0.000                         | -100%                |
|                                                                 | 5-Year        | 0.01                          | 0.00                          | -100%                |
|                                                                 | 10-Year       | 0.01                          | 0.01                          | -33%                 |
|                                                                 | 25-Year       | 0.01                          | 0.01                          | -25%                 |
|                                                                 | 50-Year       | 0.02                          | 0.01                          | -40%                 |
|                                                                 | 100-Year      | 0.02                          | 0.01                          | -44%                 |
| Watercourse 7                                                   | 2-Year        | 1.76                          | 1.56                          | -11%                 |
|                                                                 | 5-Year        | 2.80                          | 2.58                          | -8%                  |
|                                                                 | 10-Year       | 3.55                          | 3.38                          | -5%                  |
|                                                                 | 25-Year       | 4.56                          | 4.48                          | -2%                  |
|                                                                 | 50-Year       | 5.35                          | 5.25                          | -2%                  |
|                                                                 | 100-Year      | 6.17                          | 6.03                          | -2%                  |

| Pond ID              | Parameter                      | Return Period |        |         |         |         |          |
|----------------------|--------------------------------|---------------|--------|---------|---------|---------|----------|
|                      |                                | 2-Year        | 5-Year | 10-Year | 25-Year | 50-Year | 100-Year |
| SWMF #1 (South Pond) | Peak Flow In                   | 0.82          | 1.17   | 1.39    | 1.70    | 1.93    | 2.15     |
|                      | Peak Flow Out                  | 0.10          | 0.22   | 0.24    | 0.26    | 0.27    | 0.29     |
|                      | % Difference                   | -88%          | -81%   | -83%    | -85%    | -86%    | -87%     |
|                      | Storage Used (m <sup>3</sup> ) | 1491          | 1838   | 2168    | 2628    | 2991    | 3360     |
|                      |                                |               |        |         |         |         |          |
| SWMF #2 (North Pond) | Peak Flow In                   | 1.07          | 1.48   | 1.76    | 2.13    | 2.41    | 2.70     |
|                      | Peak Flow Out                  | 0.15          | 0.33   | 0.37    | 0.41    | 0.44    | 0.46     |
|                      | % Difference                   | -86%          | -77%   | -79%    | -81%    | -82%    | -83%     |
|                      | Storage Used (m <sup>3</sup> ) | 1971          | 2358   | 2753    | 3322    | 3774    | 4238     |

| SWMF ID                 | Parameter                        | Return Period |        |         |         |         |          |
|-------------------------|----------------------------------|---------------|--------|---------|---------|---------|----------|
|                         |                                  | 2-Year        | 5-Year | 10-Year | 25-Year | 50-Year | 100-Year |
| Bioretention / Dry Pond | Peak Flow In (m <sup>3</sup> /s) | 0.05          | 0.07   | 0.08    | 0.10    | 0.11    | 0.12     |
|                         | Peak Flow Out                    | 0             | 0.000  | 0.006   | 0.009   | 0.009   | 0.010    |
|                         | % Difference                     | -100%         | -100%  | -93%    | -91%    | -92%    | -92%     |
|                         | Storage Used (Bioretention)      | 69            | 89     | 90      | 90      | 90      | 90       |
|                         | Storage Used (Dry Pond)          | 0             | 0.0    | 11      | 28      | 41      | 55       |

| 24 hr SCS                                                       |               | Original Model   | Updated Model              |                      |
|-----------------------------------------------------------------|---------------|------------------|----------------------------|----------------------|
| Location                                                        | Return Period | Peak Flow (m³/s) | Peak Flow (m³/s)           | % Difference         |
|                                                                 |               | Pre-Development  | Post-Development (Altered) | From Pre-Development |
| Catchment 1<br>(South Pond)<br><br>Hydrologic POI #1            | 2-Year        | 0.19             | 0.14                       | -25%                 |
|                                                                 | 5-Year        | 0.30             | 0.23                       | -24%                 |
|                                                                 | 10-Year       | 0.39             | 0.25                       | -35%                 |
|                                                                 | 25-Year       | 0.50             | 0.27                       | -46%                 |
|                                                                 | 50-Year       | 0.59             | 0.28                       | -51%                 |
|                                                                 | 100-Year      | 0.68             | 0.30                       | -56%                 |
|                                                                 | Regional      | 0.68             | 0.62                       | -9%                  |
| Catchment 2<br>(North Pond)<br><br>Hydrologic POI #2            | 2-Year        | 0.29             | 0.21                       | -27%                 |
|                                                                 | 5-Year        | 0.47             | 0.36                       | -25%                 |
|                                                                 | 10-Year       | 0.60             | 0.39                       | -35%                 |
|                                                                 | 25-Year       | 0.77             | 0.43                       | -44%                 |
|                                                                 | 50-Year       | 0.91             | 0.46                       | -50%                 |
|                                                                 | 100-Year      | 1.05             | 0.48                       | -54%                 |
|                                                                 | Regional      | 0.99             | 0.84                       | -15%                 |
| Catchment 3<br>(Bioretention Facility)<br><br>Hydrologic POI #3 | 2-Year        | 0.005            | 0.000                      | -100%                |
|                                                                 | 5-Year        | 0.01             | 0.01                       | -44%                 |
|                                                                 | 10-Year       | 0.01             | 0.01                       | -36%                 |
|                                                                 | 25-Year       | 0.02             | 0.01                       | -40%                 |
|                                                                 | 50-Year       | 0.02             | 0.01                       | -50%                 |
|                                                                 | 100-Year      | 0.02             | 0.01                       | -52%                 |
|                                                                 | Regional      | 0.02             | 0.01                       | -55%                 |
| Watercourse 7                                                   | 2-Year        | 2.19             | 2.00                       | -9%                  |
|                                                                 | 5-Year        | 3.36             | 3.18                       | -5%                  |
|                                                                 | 10-Year       | 4.18             | 4.13                       | -1%                  |
|                                                                 | 25-Year       | 5.26             | 5.19                       | -1%                  |
|                                                                 | 50-Year       | 6.12             | 6.02                       | -2%                  |

| Pond ID              | Parameter         | Return Period |        |         |         |         |          |          |
|----------------------|-------------------|---------------|--------|---------|---------|---------|----------|----------|
|                      |                   | 2-Year        | 5-Year | 10-Year | 25-Year | 50-Year | 100-Year | Regional |
| SWMF #1 (South Pond) | Peak Flow In      | 0.89          | 1.23   | 1.45    | 1.76    | 1.99    | 2.21     | 0.93     |
|                      | Peak Flow Out     | 0.14          | 0.23   | 0.25    | 0.27    | 0.28    | 0.30     | 0.62     |
|                      | % Difference      | -84%          | -81%   | -83%    | -85%    | -86%    | -87%     | -33%     |
|                      | Storage Used (m³) | 1606          | 2051   | 2418    | 2907    | 3289    | 3673     | 4152     |
|                      |                   |               |        |         |         |         |          |          |
| SWMF #2 (North Pond) | Peak Flow In      | 1.15          | 1.56   | 1.85    | 2.22    | 2.50    | 2.80     | 1.23     |
|                      | Peak Flow Out     | 0.21          | 0.36   | 0.39    | 0.43    | 0.46    | 0.48     | 0.84     |
|                      | % Difference      | -81%          | -77%   | -79%    | -81%    | -82%    | -83%     | -31%     |
|                      | Storage Used (m³) | 2105          | 2626   | 3081    | 3691    | 4170    | 4654     | 5052     |

| SWMF ID                 | Parameter                   |        |        |         |         |         |          |          |
|-------------------------|-----------------------------|--------|--------|---------|---------|---------|----------|----------|
|                         |                             | 2-Year | 5-Year | 10-Year | 25-Year | 50-Year | 100-Year | Regional |
| Bioretention / Dry Pond | Peak Flow In (m³/s)         | 0.06   | 0.07   | 0.09    | 0.10    | 0.11    | 0.12     | 0.05     |
|                         | Peak Flow Out               | 0      | 0.005  | 0.007   | 0.009   | 0.009   | 0.010    | 0.010    |
|                         | % Difference                | -100%  | -93%   | -92%    | -91%    | -92%    | -92%     | -79%     |
|                         | Storage Used (Bioretention) | 72     | 90     | 90      | 90      | 90      | 90       | 90       |
|                         | Storage Used (Dry Pond)     | 0      | 1.0    | 14      | 30      | 45      | 61       | 67       |

```
Metric units
*****
Project Name:[MACPHERSON HOME FARM]      Project Number:[721-3464]
Date       : 2021.11.18
Modeller   : [BH - ADAPTED FROM Higgins 2014 MODEL][JE-UPDATE 2021]
Company    : C.F. Crozier & Associates Inc.
License #  : 3737016
*****
PART          TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1]
%             ["25mm.stm"] <--storm filename, one per line for NSTORM time
*****
-----|
AD STORM     |STORM_FILENAME=["STORM.001"]
-----|
*****|
-----|
-----|
-----|
-----|
-----|
-----|
-----|
PRE-DEVELOPMENT
OVERALL WC 7 FLOWS
-----|
-----|
PRE-LAND SWAP
LANDS UPSTREAM OF SITE
-----|
LIB NASHYD   ID=[1], NHYD=["701"], DT=[1]min, AREA=[146.70](ha),
              DWF=[0](cms), CN/C=[79.9], IA=[6.7](mm),
              N=[3], TP=[1.35]hrs,
              RAINFALL=[ , , , ](mm/hr), END=-1
              SITE AND SURROUNDING AREA
-----|
LIB NASHYD   ID=[3], NHYD=["702"], DT=[1]min, AREA=[34.5](ha),
              DWF=[0](cms), CN/C=[69.1], IA=[7.4](mm),
              N=[3], TP=[0.7]hrs,
              RAINFALL=[ , , , ](mm/hr), END=-1
-----|
IFT HYD      IDout=[2], NHYD=[701Shift], IDin=[1], TLAG=[24](min)
-----|
-----|
WC7 TOTAL AT LAKESHORE RD--PRE DEV
-----|
ID HYD       IDsum=[4], NHYD=["PreWC7"], IDs to add=[2,3]
-----|
VE HYD       ID=[4], # OF PCYCLES=[1], ICASEsh=[1]
HYD_COMMENT=["PRE WC7"]
-----|
```

|                |                                                                                                                                                                  |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| *#-----        | -PRE-DEVELOPMENT QUANTITY CONTROL MODEL-----                                                                                                                     |
| *#-----        | -PRE-DEVELOPMENT SWM QUANTITY-----                                                                                                                               |
| *%-----        |                                                                                                                                                                  |
| CALIB NASHYD   | ID=[1], NHYD=["1A-Pre"], DT=[1]min, AREA=[8.2](ha),<br>DWF=[0](cms), CN/C=[74.3], IA=[9.27](mm),<br>N=[3], TP=[0.42]hrs,<br>RAINFALL=[ , , , , ](mm/hr), END=-1  |
| *%-----        |                                                                                                                                                                  |
| CALIB NASHYD   | ID=[2], NHYD=["2A-Pre"], DT=[1]min, AREA=[4.56](ha),<br>DWF=[0](cms), CN/C=[73.5], IA=[9.7](mm),<br>N=[3], TP=[0.38]hrs,<br>RAINFALL=[ , , , , ](mm/hr), END=-1  |
| *%-----        |                                                                                                                                                                  |
| CALIB NASHYD   | ID=[3], NHYD=["2B-Pre"], DT=[1]min, AREA=[0.87](ha),<br>DWF=[0](cms), CN/C=[73.9], IA=[9.4](mm),<br>N=[3], TP=[0.26]hrs,<br>RAINFALL=[ , , , , ](mm/hr), END=-1  |
| *%-----        |                                                                                                                                                                  |
| CALIB NASHYD   | ID=[5], NHYD=["2C-Pre"], DT=[1]min, AREA=[5.91](ha),<br>DWF=[0](cms), CN/C=[74.6], IA=[8.97](mm),<br>N=[3], TP=[0.34]hrs,<br>RAINFALL=[ , , , , ](mm/hr), END=-1 |
| *%-----        |                                                                                                                                                                  |
| *#-----        | -North (Catchment 2) Internal-----                                                                                                                               |
| *%-----        |                                                                                                                                                                  |
| ADD HYD        | IDsum=[4], NHYD=["2A2B"], IDs to add=[2,3]                                                                                                                       |
| *%-----        |                                                                                                                                                                  |
| *#-----        | -North (Catchment 2) Total-----                                                                                                                                  |
| *%-----        |                                                                                                                                                                  |
| ADD HYD        | IDsum=[4], NHYD=["2-Pre"], IDs to add=[2,3,5]                                                                                                                    |
| *%-----        |                                                                                                                                                                  |
| *%-----        |                                                                                                                                                                  |
| CALIB NASHYD   | ID=[6], NHYD=["3A-Pre"], DT=[1]min, AREA=[.49](ha),<br>DWF=[0](cms), CN/C=[43.3], IA=[7.72](mm),<br>N=[3], TP=[0.29]hrs,<br>RAINFALL=[ , , , , ](mm/hr), END=-1  |
| *%-----        |                                                                                                                                                                  |
| *#-----        |                                                                                                                                                                  |
| *#-----        |                                                                                                                                                                  |
| *#-----        | -POST-DEVELOPMENT QUANTITY CONTROL MODEL-----                                                                                                                    |
| *#-----        |                                                                                                                                                                  |
| *#-----        | -LANDS DRAINING TO NORTH SWM POND-----                                                                                                                           |
| *#-----        | -NORTH INLET-----                                                                                                                                                |
| *%-----        |                                                                                                                                                                  |
| CALIB STANDHYD | ID=[1], NHYD=["2A-1"], DT=[1](min), AREA=[3.85](ha),                                                                                                             |

```

XIMP=[0.460], TIMP=[0.610], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                    LGP=[17](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                    LGI=[160](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , , ](mm/hr), END=-1
*%------|-----
CALIB STANDHYD ID=[3], NHYD=["2C-1"], DT=[1](min), AREA=[2.64](ha),
XIMP=[0.386], TIMP=[0.386], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                    LGP=[80](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                    LGI=[133](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , , ](mm/hr), END=-1
*%------|-----
CALIB STANDHYD ID=[8], NHYD=["2C-2"], DT=[1](min), AREA=[1.3](ha),
XIMP=[0.750], TIMP=[0.750], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                    LGP=[30](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                    LGI=[93](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , , ](mm/hr), END=-1
*%------|-----
CALIB STANDHYD ID=[9], NHYD=["2C-3"], DT=[1](min), AREA=[1.97](ha),
XIMP=[0.386], TIMP=[0.695], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                    LGP=[30](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                    LGI=[115](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , , ](mm/hr), END=-1
*%------|-----
CALIB STANDHYD ID=[5], NHYD=["2A-4"], DT=[1](min), AREA=[0.7](ha),
XIMP=[0.357], TIMP=[0.361], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                    LGP=[17](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                    LGI=[68](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , , ](mm/hr), END=-1
*%------|-----
CALIB NASHYD ID=[6], NHYD=["2B"], DT=[1]min, AREA=[0.87](ha),
DWF=[0](cms), CN/C=[69.2], IA=[5.31](mm),
N=[3], TP=[0.29]hrs,
RAINFALL=[ , , , , ](mm/hr), END=-1

```

```

*#-----|-----NORTH SWMP NORTH INLET TOTAL-QUALITY CONTROL-----|
ADD HYD IDsum=[7], NHYD=["NSWM1"], IDs to add=[1,3,8,9,6]
*#-----|-----
*#-----|-----NORTH SWMP NORTH TOTAL-----|
ADD HYD IDsum=[4], NHYD=["NSWM1"], IDs to add=[1,3,8,9,5,6]
*#-----|-----
ROUTE RESERVOIR IDout=[3], NHYD=["SWMF-N"], IDin=[4],
RDT=[1](min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[ 0.008 , 0.021 ]
[ 0.024 , 0.066 ]
[ 0.033 , 0.116 ]
[ 0.040 , 0.174 ]
[ 0.334 , 0.236 ]
[ 0.384 , 0.300 ]
[ 0.429 , 0.367 ]
[ 0.469 , 0.437 ]
[ 0.488 , 0.473 ]
[ 1.316 , 0.548 ]
[ 2.305 , 0.587 ]
[ 3.749 , 0.630 ]
[ -1 , -1 ] (max twenty pts)
IDovf=[5], NHYDovf=["NOvf"]
*%------|-----
*#-----|-----NORTH CATCHMENT TOTAL-----|
ADD HYD IDsum=[6], NHYD=["NORTH"], IDs to add=[3,5]
*#-----|-----
*#-----|-----
*#-----|-----SOUTHERN CATCHMENT-----|
*#-----|-----LANDS DRAINING TO SOUTH SWM POND-----|
*%------|-----
CALIB STANDHYD ID=[5], NHYD=["1A"], DT=[1](min), AREA=[8.2](ha),
XIMP=[0.373], TIMP=[0.605], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                    LGP=[17](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                    LGI=[234](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , , ](mm/hr), END=-1
*#-----|-----SOUTH SWM POND-----|
*%------|-----
ROUTE RESERVOIR IDout=[3], NHYD=["SWMF-S"], IDin=[5],
RDT=[1](min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[ 0.008 , 0.015 ]
[ 0.024 , 0.048 ]

```



```

*          ["5yr.stm"] <--storm filename, one per line for NSTORM time
*%------|-----|
*%------|-----|
START      TZERO=[0.0]hrs or date, METOUT=[2], NSTORM=[1], NRUN=[4]
*          ["10yr.stm"] <--storm filename, one per line for NSTORM time
*%------|-----|
*%------|-----|
START      TZERO=[0.0]hrs or date, METOUT=[2], NSTORM=[1], NRUN=[5]
*          ["25yr.stm"] <--storm filename, one per line for NSTORM time
*%------|-----|
*%------|-----|
START      TZERO=[0.0]hrs or date, METOUT=[2], NSTORM=[1], NRUN=[6]
*          ["50yr.stm"] <--storm filename, one per line for NSTORM time
*%------|-----|
*%------|-----|
START      TZERO=[0.0]hrs or date, METOUT=[2], NSTORM=[1], NRUN=[7]
*          ["100yr.stm"] <--storm filename, one per line for NSTORM time
*%------|-----|
*%------|-----|
FINISH

```

Kifer Chu Output File

```
=====
=====
SSSSS  W  W  M  M  H  H  Y  Y  M  M  000      222      000      11
77777  =====
S      W  W  W  MM MM  H  H  Y  Y  MM MM  0  0      2      0      0      11
7  7
SSSSS  W  W  W  M  M  M  HHHHH  Y      M  M  M  0  0      2      0      0      11
7  Ver4.05.0
S      W  W  M  M  H  H  Y      M  M  M  0  0      222      0      0      11
7  APR 2017
SSSSS  W  W  M  M  H  H  Y      M  M  000      2      0      0      11
7  =====
2      0      0      11
7  # 3737016
StormWater Management HYdrologic Model      222      000      11
7  =====

*****
*****
***** SWMHYMO Ver4.05.0
*****
***** A single event and continuous hydrologic simulation model
*****
***** based on the principles of HYMO and its successors
*****
***** OTTHYMO-83 and OTTHYMO-89.
*****

*****
*****
***** Distributed by: J.F. Sabourin and Associates Inc.
*****
***** Ottawa, Ontario: (613) 836-3884
*****
***** Gatineau, Quebec: (819) 243-6858
*****
***** E-Mail: swmhymo@jfsa.com
*****

*****
*****

+++++
+++++
+++++ Licensed user: C.F. Crozier & Associates Inc.
+++++
```

```
+++++ Collingwood SERIAL#:3737016
+++++

+++++

*****
*****
***** +++++ PROGRAM ARRAY DIMENSIONS +++++
*****
***** Maximum value for ID numbers : 11
*****
***** Max. number of rainfall points: 105408
*****
***** Max. number of flow points : 105408
*****

*****
*****

***** S U M M A R Y O U T P U T
*****

*****
*****
***** RUN DATE: 2026-06-25 TIME: 14:36:48 RUN COUNTER: 000002
*****
*****

*****
*****
***** * Input file: J:\700\721 - MacPherson Builders\3464 - Home Farm
TIS\Design\_Rental\Civil_Water\*
***** SWM\SWMHYMO\KCHU\KCHU.dat
*****
***** * Output file: J:\700\721 - MacPherson Builders\3464 - Home Farm
TIS\Design\_Rental\Civil_Water\*
***** SWM\SWMHYMO\KCHU\KCHU.out
*****
***** * Summary file: J:\700\721 - MacPherson Builders\3464 - Home Farm
TIS\Design\_Rental\Civil_Water\*
***** SWM\SWMHYMO\KCHU\KCHU.sum
*****
***** * User comments:
*****
*****
1: _____
*****
```

2: \_\_\_\_\_  
\*  
\*  
3: \_\_\_\_\_  
\*

\*\*\*\*\*  
\*\*\*\*\*

#\*\*\*\*\*

# Project Name: [MACPHERSON HOME FARM] Project Number: [721-3464]

# Date : 2021.11.18

# Modeller : [BH - ADAPTED FROM Higgins 2014 MODEL][JE-UPDATE 2021]

# Company : C.F. Crozier & Associates Inc.

# License # : 3737016

#\*\*\*\*\*

RUN#:COMMAND#  
R0001:C0001-----  
-----  
START  
[TZERO = .00 hrs on 0]  
[METOUT= 2 (1=imperial, 2=metric output)]  
[NSTORM= 1 ]  
[NRUN = 0001 ]  
#\*\*\*\*\*

R0001:C0002-----  
-----

READ STORM  
Filename = STORM.001

Comment = 25mm 6 hr Kifer Chu Chicago Storm Event

[SDT=60.00:SDUR= 6.00:PTOT= 25.00]

#\*\*\*\*\*

#-----|-----|

#-----|-----PRE-DEVELOPMENT-----|

#-----|-----OVERALL WC 7 FLOWS-----|

#-----|-----|

#-----|-----PRE-LAND SWAP-----|

#-----|-----LANDS UPSTREAM OF SITE-----|

R0001:C0003-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:701 146.70 .482 No\_date 4:26  
4.07 .163 .000  
[CN= 79.9: N= 3.00: Tp= 1.35]  
#-----|-----SITE AND SURROUNDING AREA-----|

R0001:C0004-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:702 34.50 .102 No\_date 3:35  
2.36 .094 .000  
[CN= 69.1: N= 3.00: Tp= .70]

R0001:C00005-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
SHIFT HYD -> 1.0 01:701 146.70 .482 No\_date 4:26  
4.07 n/a .000  
[LAG= 24.0 min]<- 1.0 02: 701 146.70 .482 No\_date 4:48  
4.07 n/a .000  
#-----|WC7 TOTAL AT LAKESHORE RD--PRE DEV-----|

R0001:C00006-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02: 701 146.70 .482 No\_date 4:48  
4.07 n/a .000 + 1.0 03:702 34.50 .102 No\_date 3:35  
2.36 n/a .000  
SUM= 1.0 04:PreWC7 181.20 .537 No\_date 4:42  
3.75 n/a .000  
R0001:C00007-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
SAVE HYD 1.0 04:PreWC7 181.20 .537 No\_date 4:42  
3.75 n/a .000  
fname :PreWC7.0001  
  
remark:PRE WC7

#-----|-----|

#-----|-----|

#-----|PRE-DEVELOPMENT QUANTITY CONTROL MODEL-----|

#-----|-----|

#-----|PRE-DEVELOPMENT SWM QUANTITY-----|

R0001:C00008-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:1A-Pre 8.20 .034 No\_date 3:17  
2.39 .096 .000

[CN= 74.3: N= 3.00: Tp= .42]  
R0001:C00009-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 02:2A-Pre 4.56 .019 No\_date 3:15  
2.19 .088 .000  
[CN= 73.5: N= 3.00: Tp= .38]  
R0001:C00010-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:2B-Pre .87 .005 No\_date 3:08  
2.31 .092 .000  
[CN= 73.9: N= 3.00: Tp= .26]  
R0001:C00011-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 05:2C-Pre 5.91 .030 No\_date 3:12  
2.51 .100 .000  
[CN= 74.6: N= 3.00: Tp= .34]  
#-----|North (Catchment 2) Internal-----|

R0001:C00012-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:2A-Pre 4.56 .019 No\_date 3:15  
2.19 n/a .000 + 1.0 03:2B-Pre .87 .005 No\_date 3:08  
2.31 n/a .000  
SUM= 1.0 04:2A2B 5.43 .023 No\_date 3:13  
2.21 n/a .000  
#-----|North (Catchment 2) Total-----|

R0001:C00013-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:2A-Pre 4.56 .019 No\_date 3:15  
2.19 n/a .000 + 1.0 03:2B-Pre .87 .005 No\_date 3:08  
2.31 n/a .000 + 1.0 05:2C-Pre 5.91 .030 No\_date 3:12  
2.51 n/a .000  
SUM= 1.0 04:2-Pre 11.34 .053 No\_date 3:12  
2.36 n/a .000  
R0001:C00014-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 06:3A-Pre .49 .001 No\_date 3:09  
.85 .034 .000  
[CN= 43.3: N= 3.00: Tp= .29]  
#-----|-----|

#-----|-----|

#-----|---POST-DEVELOPMENT QUANTITY CONTROL MODEL-----|

#-----|-----|

#-----|---LANDS DRAINING TO NORTH SWM POND-----|

#-----|---NORTH INLET-----|

R0001:C00015-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

CALIB STANDHYD 1.0 01:2A-1 3.85 .112 No\_date 3:00

14.10 .564 .000

[XIMP=.46:TIMP=.61]

[LOSS= 2 :CN= 79.0]

[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]

[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 160.:MNI=.013:SCI= .0]

R0001:C00016-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

CALIB STANDHYD 1.0 03:2C-1 2.64 .053 No\_date 3:00

11.68 .467 .000

[XIMP=.39:TIMP=.39]

[LOSS= 2 :CN= 79.0]

[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 80.:MNP=.250:SCP= .0]

[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 133.:MNI=.013:SCI= .0]

R0001:C00017-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

CALIB STANDHYD 1.0 08:2C-2 1.30 .048 No\_date 3:00

18.39 .736 .000

[XIMP=.75:TIMP=.75]

[LOSS= 2 :CN= 79.0]

[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]

[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 93.:MNI=.013:SCI= .0]

R0001:C00018-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

CALIB STANDHYD 1.0 09:2C-3 1.97 .059 No\_date 3:00

14.43 .577 .000

[XIMP=.39:TIMP=.69]

[LOSS= 2 :CN= 79.0]

[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]

[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 115.:MNI=.013:SCI= .0]

R0001:C00019-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

CALIB STANDHYD 1.0 05:2A-4 .70 .016 No\_date 3:00

11.17 .447 .000

[XIMP=.36:TIMP=.36]

[LOSS= 2 :CN= 79.0]

[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]

[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 68.:MNI=.013:SCI= .0]

R0001:C00020-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

CALIB NASHYD 1.0 06:2B .87 .006 No\_date 3:07

2.92 .117 .000

[CN= 69.2: N= 3.00: Tp= .29]

#-----|---NORTH SWMP NORTH INLET TOTAL-QUALITY CONTROL-----|

R0001:C00021-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

ADD HYD 1.0 01:2A-1 3.85 .112 No\_date 3:00

14.10 n/a .000

+

1.0 03:2C-1 2.64 .053 No\_date 3:00

11.68 n/a .000

+

1.0 08:2C-2 1.30 .048 No\_date 3:00

18.39 n/a .000

+

1.0 09:2C-3 1.97 .059 No\_date 3:00

14.43 n/a .000

+

1.0 06:2B .87 .006 No\_date 3:07

2.92 n/a .000

SUM=

1.0 07:2C-1 10.63 .277 No\_date 3:00

#-----|-----|

#-----|---NORTH SWMP NORTH TOTAL-----|

R0001:C00022-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

ADD HYD 1.0 01:2A-1 3.85 .112 No\_date 3:00

14.10 n/a .000

+

1.0 03:2C-1 2.64 .053 No\_date 3:00

11.68 n/a .000

+

1.0 08:2C-2 1.30 .048 No\_date 3:00

18.39 n/a .000

|       |     |      |              |       |      |         |      |
|-------|-----|------|--------------|-------|------|---------|------|
| 14.43 | n/a | +    | 1.0 09:2C-3  | 1.97  | .059 | No_date | 3:00 |
| 11.17 | n/a | +    | 1.0 05:2A-4  | .70   | .016 | No_date | 3:00 |
| 2.92  | n/a | +    | 1.0 06:2B    | .87   | .006 | No_date | 3:07 |
| 13.05 | n/a | SUM= | 1.0 04:NSWM1 | 11.33 | .293 | No_date | 3:00 |

#-----|

R0001:C00023-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 04:NSWM1 11.33 .293 No\_date 3:00  
13.05 n/a .000  
out <= 1.0 03:SWMF-N 11.33 .032 No\_date 4:38  
13.05 n/a .000  
overflow <= 1.0 05:NOvf .00 .000 No\_date 0:00  
.00 n/a .000  
{MxStoUsed=.1100E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf= 0.hrs}  
#-----|---NORTH CATCHMENT TOTAL-----|

R0001:C00024-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 03:SWMF-N 11.33 .032 No\_date 4:38  
13.05 n/a .000  
+ 1.0 05:NOvf .00 .000 No\_date 0:00  
SUM= 1.0 06:NORTH 11.33 .032 No\_date 4:38  
13.05 n/a .000  
#-----|-----|

#-----|-----|

#-----|---SOUTHERN CATCHMENT-----|

#-----|---LANDS DRAINING TO SOUTH SWM POND-----|

R0001:C00025-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 05:1A 8.20 .223 No\_date 3:00  
13.23 .529 .000  
[XIMP=.37:TIMP=.61]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 234.:MNI=.013:SCI= .0]  
#-----|---SOUTH SWM POND-----|

R0001:C00026-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 05:1A 8.20 .223 No\_date 3:00  
13.23 n/a .000  
out <= 1.0 03:SWMF-S 8.20 .030 No\_date 4:15  
13.23 n/a .000  
overflow <= 1.0 07:S0vf .00 .000 No\_date 0:00  
.00 n/a .000  
{MxStoUsed=.7667E-01 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf= 0.hrs}  
#-----|-----|

#-----|---SOUTHEASTERN CATCHMENT-----|

R0001:C00027-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 08:3A .49 .015 No\_date 3:00  
15.33 .613 .000  
[XIMP=.64:TIMP=.64]  
[LOSS= 2 :CN= 49.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 57.:MNI=.013:SCI= .0]  
R0001:C00028-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 08:3A .49 .015 No\_date 3:00  
15.33 n/a .000  
out <= 1.0 09:BIORET .49 .007 No\_date 3:04  
15.33 n/a .000  
overflow <= 1.0 05:BI00vf .00 .000 No\_date 0:00  
.00 n/a .000  
{MxStoUsed=.4102E-02 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf= 0.hrs}  
R0001:C00029-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

```
ROUTE RESERVOIR -> 1.0 05:BIOOvf      .00      .000 No_date  0:00
.00 n/a      .000
* out <= 1.0 09:DRYPOND      .00      .000 No_date  0:00
.00 n/a      .000
overflow <= 1.0 01:DRYOvf      3.85      .000 No_date  0:00
.00 n/a      .000
{MxStoUsed=.0000E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf=
0.hrs}
#-----|-----SITE TOTAL-----|
```

```
R0001:C00030-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
ADD HYD 1.0 06:NORTH 11.33 .032 No_date 4:38
13.05 n/a .000 + 1.0 03:SWMF-S 8.20 .030 No_date 4:15
13.23 n/a .000 + 1.0 07:SOvf .00 .000 No_date 0:00
.00 n/a .000 + 1.0 09:DRYPOND .00 .000 No_date 0:00
.00 n/a .000 + 1.0 01:DRYOvf 3.85 .000 No_date 0:00
.00 n/a .000 SUM= 1.0 10:POSTSITE 23.38 .062 No_date 4:21
10.96 n/a .000
#-----|-----
```

#-----|-----

#-----|-----

#-----|-----POST-DEVELOPMENT-----|

#-----|-----OVERALL WC 7 FLOWS-----|

#-----|-----

#-----|-----POST-LAND SWAP-----|

#-----|-----LANDS UPSTREAM OF SITE-----|

```
R0001:C00031-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
CALIB NASHYD 1.0 01:701 137.80 .336 No_date 4:34
3.11 .124 .000
[CN= 79.9: N= 3.00: Tp= 1.35]
R0001:C00032-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
SHIFT HYD -> 1.0 01:701 137.80 .336 No_date 4:34
3.11 n/a .000
[LAG= 24.0 min]<- 1.0 02:701Shift 137.80 .336 No_date 4:57
3.11 n/a .000
#-----|-----
```

#-----|-----POST DEV UNDEVELOPED AREA-----|

```
R0001:C00033-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
CALIB NASHYD 1.0 03:7021 22.98 .071 No_date 3:35
2.44 .097 .000
[CN= 69.1: N= 3.00: Tp= .70]
#-----|-----
```

#-----|-----WC7 TOTAL AT DOWNSTREAM END--POST DEV-----|

```
R0001:C00034-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
ADD HYD 1.0 02:701Shift 137.80 .336 No_date 4:57
3.11 n/a .000 + 1.0 03:7021 22.98 .071 No_date 3:35
2.44 n/a .000 + 1.0 10:POSTSITE 23.38 .062 No_date 4:21
10.96 n/a .000 SUM= 1.0 04:PosWC7 184.16 .432 No_date 4:50
4.02 n/a .000
```

R0001:C00035-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
SAVE HYD 1.0 04:PosWC7 184.16 .432 No\_date 4:50  
4.02 n/a .000  
fname :PosWC7.0001  
  
remark:POST WC7  
  
#-----|-----|

\*\* END OF RUN : 1  
  
\*\*\*\*\*  
\*\*\*\*\*

RUN#:COMMAND#  
R0002:C00001-----  
-----  
START  
[TZERO = .00 hrs on 0]  
[METOUT= 2 (1=imperial, 2=metric output)]  
[NSTORM= 1 ]  
[NRUN = 0002 ]  
#\*\*\*\*\*

# Project Name: [MACPHERSON HOME FARM] Project Number: [721-3464]

# Date : 2021.11.18

# Modeller : [BH - ADAPTED FROM Higgins 2014 MODEL][JE-UPDATE 2021]

# Company : C.F. Crozier & Associates Inc.

# License # : 3737016

\*\*\*\*\*

\*\*\*\*\*

R0002:C00002-----  
-----  
READ STORM  
Filename = STORM.001  
  
Comment = 2-Year 6 hr Kefer Chu Chicago Storm Event  
  
[SDT=60.00:SDUR= 6.00:PTOT= 37.90]  
#\*\*\*\*\*

#-----|-----|

#-----| -PRE-DEVELOPMENT-----|

#-----| -OVERALL WC 7 FLOWS-----|

#-----|-----|

#-----| -PRE-LAND SWAP-----|

#-----| -LANDS UPSTREAM OF SITE-----|

R0002:C00003-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:701 146.70 1.255 No\_date 4:20

10.24 .270 .000  
[CN= 79.9: N= 3.00: Tp= 1.35]  
#-----| -SITE AND SURROUNDING AREA-----|

R0002:C00004-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:702 34.50 .295 No\_date 3:32  
6.46 .170 .000  
[CN= 69.1: N= 3.00: Tp= .70]  
R0002:C00005-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
SHIFT HYD -> 1.0 01:701 146.70 1.255 No\_date 4:20  
10.24 n/a .000  
[LAG= 24.0 min]<- 1.0 02: 701 146.70 1.255 No\_date 4:43  
10.24 n/a .000  
#-----| -WC7 TOTAL AT LAKESHORE RD--PRE DEV-----|

R0002:C00006-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02: 701 146.70 1.255 No\_date 4:43  
10.24 n/a .000  
+ 1.0 03:702 34.50 .295 No\_date 3:32  
6.46 n/a .000  
SUM= 1.0 04:PreWC7 181.20 1.408 No\_date 4:34  
9.52 n/a .000  
R0002:C00007-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
SAVE HYD 1.0 04:PreWC7 181.20 1.408 No\_date 4:34  
9.52 n/a .000  
fname :PreWC7.0002  
  
remark:PRE WC7

#-----| -----|

#-----| -----|

#-----| -PRE-DEVELOPMENT QUANTITY CONTROL MODEL-----|

#-----| -----|

#-----| -PRE-DEVELOPMENT SWM QUANTITY-----|

R0002:C00008-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:1A-Pre 8.20 .108 No\_date 3:14  
7.04 .186 .000  
[CN= 74.3: N= 3.00: Tp= .42]  
R0002:C00009-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 02:2A-Pre 4.56 .060 No\_date 3:12  
6.64 .175 .000  
[CN= 73.5: N= 3.00: Tp= .38]  
R0002:C00010-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:2B-Pre .87 .015 No\_date 3:06  
6.87 .181 .000  
[CN= 73.9: N= 3.00: Tp= .26]  
R0002:C00011-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 05:2C-Pre 5.91 .091 No\_date 3:10  
7.25 .191 .000  
[CN= 74.6: N= 3.00: Tp= .34]  
#-----| -North (Catchment 2) Internal-----|

R0002:C00012-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:2A-Pre 4.56 .060 No\_date 3:12  
6.64 n/a .000  
+ 1.0 03:2B-Pre .87 .015 No\_date 3:06  
6.87 n/a .000  
SUM= 1.0 04:2A2B 5.43 .074 No\_date 3:10  
6.68 n/a .000  
#-----| -North (Catchment 2) Total-----|

R0002:C00013-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:2A-Pre 4.56 .060 No\_date 3:12  
6.64 n/a .000  
+ 1.0 03:2B-Pre .87 .015 No\_date 3:06  
6.87 n/a .000  
+ 1.0 05:2C-Pre 5.91 .091 No\_date 3:10

7.25 n/a .000  
SUM= 1.0 04:2-Pre 11.34 .165 No\_date 3:10  
6.98 n/a .000  
R0002:C00014-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 06:3A-Pre .49 .003 No\_date 3:07  
2.51 .066 .000  
[CN= 43.3: N= 3.00: Tp= .29]  
#-----|-----  
  
#-----|-----  
  
#-----|-----POST-DEVELOPMENT QUANTITY CONTROL MODEL-----|  
  
#-----|-----  
  
#-----|-----LANDS DRAINING TO NORTH SWM POND-----|  
  
#-----|-----NORTH INLET-----|

R0002:C00015-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 01:2A-1 3.85 .195 No\_date 3:00  
24.16 .637 .000  
[XIMP=.46:TIMP=.61]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 160.:MNI=.013:SCI= .0]  
R0002:C00016-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 03:2C-1 2.64 .095 No\_date 3:00  
20.48 .540 .000  
[XIMP=.39:TIMP=.39]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 80.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 133.:MNI=.013:SCI= .0]  
R0002:C00017-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

CALIB STANDHYD 1.0 08:2C-2 1.30 .076 No\_date 3:00  
29.62 .782 .000  
[XIMP=.75:TIMP=.75]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 93.:MNI=.013:SCI= .0]  
R0002:C00018-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 09:2C-3 1.97 .105 No\_date 3:00  
25.03 .660 .000  
[XIMP=.39:TIMP=.69]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 115.:MNI=.013:SCI= .0]  
R0002:C00019-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 05:2A-4 .70 .029 No\_date 3:00  
19.79 .522 .000  
[XIMP=.36:TIMP=.36]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 68.:MNI=.013:SCI= .0]  
R0002:C00020-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 06:2B .87 .014 No\_date 3:06  
7.29 .192 .000  
[CN= 69.2: N= 3.00: Tp= .29]  
#-----|-----NORTH SWMP NORTH INLET TOTAL-QUALITY CONTROL-----|

R0002:C00021-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 01:2A-1 3.85 .195 No\_date 3:00  
24.16 n/a .000 + 1.0 03:2C-1 2.64 .095 No\_date 3:00  
20.48 n/a .000 + 1.0 08:2C-2 1.30 .076 No\_date 3:00  
29.62 n/a .000 + 1.0 09:2C-3 1.97 .105 No\_date 3:00  
25.03 n/a .000 + 1.0 06:2B .87 .014 No\_date 3:06  
7.29 n/a .000  
SUM= 1.0 07:NSWM1 10.63 .485 No\_date 3:00  
22.69 n/a .000  
#-----|-----  
  
#-----|-----NORTH SWMP NORTH TOTAL-----|

```
R0002:C00022-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  ADD HYD          1.0 01:2A-1          3.85      .195 No_date    3:00
24.16  n/a        .000
      +          1.0 03:2C-1          2.64      .095 No_date    3:00
20.48  n/a        .000
      +          1.0 08:2C-2          1.30      .076 No_date    3:00
29.62  n/a        .000
      +          1.0 09:2C-3          1.97      .105 No_date    3:00
25.03  n/a        .000
      +          1.0 05:2A-4          .70       .029 No_date    3:00
19.79  n/a        .000
      +          1.0 06:2B           .87       .014 No_date    3:06
7.29   n/a        .000
      SUM=        1.0 04:NSWM1        11.33     .514 No_date    3:00
22.51  n/a        .000
#-----|-----
```

```
R0002:C00023-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  ROUTE RESERVOIR -> 1.0 04:NSWM1        11.33     .514 No_date    3:00
22.51  n/a        .000
      out <=      1.0 03:SWMF-N        11.33     .093 No_date    4:02
22.51  n/a        .000
      overflow <= 1.0 05:NOvf          .00       .000 No_date    0:00
.00   n/a        .000
      {MxStoUsed=.1852E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf=
0.hrs}
#-----|-----NORTH CATCHMENT TOTAL-----|-----
```

```
R0002:C00024-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  ADD HYD          1.0 03:SWMF-N        11.33     .093 No_date    4:02
22.51  n/a        .000
      +          1.0 05:NOvf          .00       .000 No_date    0:00
.00   n/a        .000
      SUM=        1.0 06:NORTH        11.33     .093 No_date    4:02
22.51  n/a        .000
#-----|-----

#-----|-----
```

#-----|-----SOUTHERN CATCHMENT-----|-----

#-----|-----LANDS DRAINING TO SOUTH SWM POND-----|-----

```
R0002:C00025-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  CALIB STANDHYD    1.0 05:1A          8.20      .404 No_date    3:00
23.19  .612      .000
      [XIMP=.37:TIMP=.61]
      [LOSS= 2 :CN= 79.0]
      [Pervious   area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]
      [Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 234.:MNI=.013:SCI= .0]
#-----|-----SOUTH SWM POND-----|-----
```

```
R0002:C00026-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  ROUTE RESERVOIR -> 1.0 05:1A          8.20      .404 No_date    3:00
23.19  n/a        .000
      out <=      1.0 03:SWMF-S        8.20      .061 No_date    4:06
23.19  n/a        .000
      overflow <= 1.0 07:SOfv          .00       .000 No_date    0:00
.00   n/a        .000
      {MxStoUsed=.1387E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf=
0.hrs}
#-----|-----
```

#-----|-----SOUTHEASTERN CATCHMENT-----|-----

```
R0002:C00027-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  CALIB STANDHYD    1.0 08:3A          .49       .024 No_date    3:00
24.45  .645      .000
      [XIMP=.64:TIMP=.64]
      [LOSS= 2 :CN= 49.0]
      [Pervious   area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]
      [Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 57.:MNI=.013:SCI= .0]
R0002:C00028-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
```

```
mm-R.C.---DWFcms
  ROUTE RESERVOIR -> 1.0 08:3A .49 .024 No_date 3:00
24.45 n/a .000
  out <= 1.0 09:BIORET .49 .010 No_date 3:04
24.45 n/a .000
  overflow <= 1.0 05:BI00vf .00 .000 No_date 0:00
.00 n/a .000
  {MxStoUsed=.6567E-02 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf=
0.hrs}
R0002:C00029-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  ROUTE RESERVOIR -> 1.0 05:BI00vf .00 .000 No_date 0:00
.00 n/a .000
  * out <= 1.0 09:DRYPOND .00 .000 No_date 0:00
.00 n/a .000
  overflow <= 1.0 01:DRY0vf 3.85 .000 No_date 0:00
.00 n/a .000
  {MxStoUsed=.0000E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf=
0.hrs}
#-----|-----SITE TOTAL-----|

R0002:C00030-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  ADD HYD 1.0 06:NORTH 11.33 .093 No_date 4:02
22.51 n/a .000
  + 1.0 03:SWMF-S 8.20 .061 No_date 4:06
23.19 n/a .000
  + 1.0 07:SOvf .00 .000 No_date 0:00
.00 n/a .000
  + 1.0 09:DRYPOND .00 .000 No_date 0:00
.00 n/a .000
  + 1.0 01:DRY0vf 3.85 .000 No_date 0:00
.00 n/a .000
  SUM= 1.0 10:POSTSITE 23.38 .153 No_date 4:03
19.04 n/a .000
#-----|-----

#-----|-----

#-----|-----

#-----|-----POST-DEVELOPMENT-----|
```

#-----|-----OVERALL WC 7 FLOWS-----|

#-----|-----

#-----|-----POST-LAND SWAP-----|

#-----|-----LANDS UPSTREAM OF SITE-----|

```
R0002:C00031-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  CALIB NASHYD 1.0 01:701 137.80 1.008 No_date 4:24
8.86 .234 .000
  [CN= 79.9: N= 3.00: Tp= 1.35]
```

```
R0002:C00032-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  SHIFT HYD -> 1.0 01:701 137.80 1.008 No_date 4:24
8.86 n/a .000
  [LAG= 24.0 min]<- 1.0 02:701Shift 137.80 1.008 No_date 4:46
8.86 n/a .000
#-----|-----
```

#-----|-----POST DEV UNDEVELOPED AREA-----|

```
R0002:C00033-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  CALIB NASHYD 1.0 03:7021 22.98 .200 No_date 3:31
6.57 .173 .000
  [CN= 69.1: N= 3.00: Tp= .70]
```

#-----|-----

#-----|-----WC7 TOTAL AT DOWNSTREAM END--POST DEV-----|

R0002:C00034-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:701Shift 137.80 1.008 No\_date 4:46  
8.86 n/a .000 + 1.0 03:7021 22.98 .200 No\_date 3:31  
6.57 n/a .000 + 1.0 10:POSTSITE 23.38 .153 No\_date 4:03  
19.04 n/a .000  
SUM= 1.0 04:PosWC7 184.16 1.228 No\_date 4:35  
9.87 n/a .000  
R0002:C00035-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
SAVE HYD 1.0 04:PosWC7 184.16 1.228 No\_date 4:35  
9.87 n/a .000  
fname :PosWC7.0002  
  
remark:POST WC7  
  
#-----|-----|  
  
\*\* END OF RUN : 2  
  
\*\*\*\*\*  
\*\*\*\*\*  
  
RUN#:COMMAND#  
R0003:C00001-----  
-----  
START  
[TZERO = .00 hrs on 0]  
[METOUT= 2 (1=imperial, 2=metric output)]  
[NSTORM= 1 ]  
[NRUN = 0003 ]  
#\*\*\*\*\*  
  
# Project Name: [MACPHERSON HOME FARM] Project Number: [721-3464]  
  
# Date : 2021.11.18

# Modeller : [BH - ADAPTED FROM Higgins 2014 MODEL][JE-UPDATE 2021]  
  
# Company : C.F. Crozier & Associates Inc.  
  
# License # : 3737016  
  
#\*\*\*\*\*  
  
#\*\*\*\*\*  
  
R0003:C00002-----  
-----  
READ STORM  
Filename = STORM.001  
  
Comment = 5-Year 6 hr KiFer Chu Chicago Storm Event  
  
[SDT=60.00:SDUR= 6.00:PTOT= 52.70]  
#\*\*\*\*\*  
  
#-----|-----|  
  
#-----|-----PRE-DEVELOPMENT-----|  
  
#-----|-----OVERALL WC 7 FLOWS-----|  
  
#-----|-----|

#-----| -PRE-LAND SWAP-----|

#-----| -LANDS UPSTREAM OF SITE-----|

R0003:C00003-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:701 146.70 2.349 No\_date 4:17  
19.25 .365 .000  
[CN= 79.9: N= 3.00: Tp= 1.35]  
#-----| -SITE AND SURROUNDING AREA-----|

R0003:C00004-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:702 34.50 .585 No\_date 3:30  
12.92 .245 .000  
[CN= 69.1: N= 3.00: Tp= .70]  
R0003:C00005-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
SHIFT HYD -> 1.0 01:701 146.70 2.349 No\_date 4:17  
19.25 n/a .000  
[LAG= 24.0 min]<- 1.0 02: 701 146.70 2.349 No\_date 4:40  
19.25 n/a .000  
#-----| -WC7 TOTAL AT LAKESHORE RD--PRE DEV-----|

R0003:C00006-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02: 701 146.70 2.349 No\_date 4:40  
19.25 n/a .000  
+ 1.0 03:702 34.50 .585 No\_date 3:30  
12.92 n/a .000  
SUM= 1.0 04:PreWC7 181.20 2.655 No\_date 4:30  
18.05 n/a .000  
R0003:C00007-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
SAVE HYD 1.0 04:PreWC7 181.20 2.655 No\_date 4:30  
18.05 n/a .000  
fname :PreWC7.0003  
  
remark:PRE WC7  
#-----| -----|

#-----| -----|

#-----| -PRE-DEVELOPMENT QUANTITY CONTROL MODEL-----|

#-----| -----|

#-----| -PRE-DEVELOPMENT SWM QUANTITY-----|

R0003:C00008-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:1A-Pre 8.20 .217 No\_date 3:13  
14.37 .273 .000  
[CN= 74.3: N= 3.00: Tp= .42]  
R0003:C00009-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 02:2A-Pre 4.56 .122 No\_date 3:11  
13.74 .261 .000  
[CN= 73.5: N= 3.00: Tp= .38]  
R0003:C00010-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:2B-Pre .87 .029 No\_date 3:05  
14.10 .267 .000  
[CN= 73.9: N= 3.00: Tp= .26]  
R0003:C00011-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 05:2C-Pre 5.91 .180 No\_date 3:08  
14.69 .279 .000  
[CN= 74.6: N= 3.00: Tp= .34]  
#-----| -North (Catchment 2) Internal-----|

R0003:C00012-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:2A-Pre 4.56 .122 No\_date 3:11  
13.74 n/a .000  
+ 1.0 03:2B-Pre .87 .029 No\_date 3:05  
14.10 n/a .000  
SUM= 1.0 04:2A2B 5.43 .149 No\_date 3:09  
13.80 n/a .000

#-----| -North (Catchment 2) Total-----|

R0003:C00013-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:2A-Pre 4.56 .122 No\_date 3:11  
13.74 n/a .000 + 1.0 03:2B-Pre .87 .029 No\_date 3:05  
14.10 n/a .000 + 1.0 05:2C-Pre 5.91 .180 No\_date 3:08  
14.69 n/a .000 SUM= 1.0 04:2-Pre 11.34 .329 No\_date 3:09  
14.26 n/a .000  
R0003:C00014-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 06:3A-Pre .49 .006 No\_date 3:07  
5.36 .102 .000  
[CN= 43.3: N= 3.00: Tp= .29]

#-----|-----|

#-----|-----|

#-----| -POST-DEVELOPMENT QUANTITY CONTROL MODEL-----|

#-----|-----|

#-----| -LANDS DRAINING TO NORTH SWM POND-----|

#-----| -NORTH INLET-----|

R0003:C00015-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 01:2A-1 3.85 .290 No\_date 3:00  
36.62 .695 .000  
[XIMP=.46:TIMP=.61]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]

[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 160.:MNI=.013:SCI= .0]  
R0003:C00016-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 03:2C-1 2.64 .150 No\_date 3:00  
31.70 .601 .000  
[XIMP=.39:TIMP=.39]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 80.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 133.:MNI=.013:SCI= .0]

R0003:C00017-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 08:2C-2 1.30 .108 No\_date 3:00  
42.96 .815 .000  
[XIMP=.75:TIMP=.75]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 93.:MNI=.013:SCI= .0]

R0003:C00018-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 09:2C-3 1.97 .156 No\_date 3:00  
38.06 .722 .000  
[XIMP=.39:TIMP=.69]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 115.:MNI=.013:SCI= .0]

R0003:C00019-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 05:2A-4 .70 .046 No\_date 3:00  
30.86 .586 .000  
[XIMP=.36:TIMP=.36]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 68.:MNI=.013:SCI= .0]

R0003:C00020-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 06:2B .87 .026 No\_date 3:06  
14.00 .266 .000  
[CN= 69.2: N= 3.00: Tp= .29]

#-----| -NORTH SWMP NORTH INLET TOTAL-QUALITY CONTROL-----|

R0003:C00021-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 01:2A-1 3.85 .290 No\_date 3:00  
36.62 n/a .000 + 1.0 03:2C-1 2.64 .150 No\_date 3:00  
31.70 n/a .000 + 1.0 08:2C-2 1.30 .108 No\_date 3:00  
42.96 n/a .000

|       |       |      |     |          |       |      |         |      |
|-------|-------|------|-----|----------|-------|------|---------|------|
|       |       | +    | 1.0 | 09:2C-3  | 1.97  | .156 | No_date | 3:00 |
| 38.06 | n/a   | .000 |     |          |       |      |         |      |
|       |       | +    | 1.0 | 06:2B    | .87   | .026 | No_date | 3:06 |
| 14.00 | n/a   | .000 |     |          |       |      |         |      |
|       |       | SUM= | 1.0 | 07:NSWM1 | 10.63 | .729 | No_date | 3:00 |
| 34.59 | n/a   | .000 |     |          |       |      |         |      |
| #     | ----- |      |     |          |       |      |         |      |

#-----| -NORTH SWMP NORTH TOTAL-----|

R0003:C00022-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

|       |       |         |     |          |       |      |         |      |
|-------|-------|---------|-----|----------|-------|------|---------|------|
|       |       | ADD HYD | 1.0 | 01:2A-1  | 3.85  | .290 | No_date | 3:00 |
| 36.62 | n/a   | .000    |     |          |       |      |         |      |
|       |       | +       | 1.0 | 03:2C-1  | 2.64  | .150 | No_date | 3:00 |
| 31.70 | n/a   | .000    |     |          |       |      |         |      |
|       |       | +       | 1.0 | 08:2C-2  | 1.30  | .108 | No_date | 3:00 |
| 42.96 | n/a   | .000    |     |          |       |      |         |      |
|       |       | +       | 1.0 | 09:2C-3  | 1.97  | .156 | No_date | 3:00 |
| 38.06 | n/a   | .000    |     |          |       |      |         |      |
|       |       | +       | 1.0 | 05:2A-4  | .70   | .046 | No_date | 3:00 |
| 30.86 | n/a   | .000    |     |          |       |      |         |      |
|       |       | +       | 1.0 | 06:2B    | .87   | .026 | No_date | 3:06 |
| 14.00 | n/a   | .000    |     |          |       |      |         |      |
|       |       | SUM=    | 1.0 | 04:NSWM1 | 11.33 | .775 | No_date | 3:00 |
| 34.36 | n/a   | .000    |     |          |       |      |         |      |
| #     | ----- |         |     |          |       |      |         |      |

R0003:C00023-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

|                                                                              |                                    |                    |     |           |       |      |         |      |
|------------------------------------------------------------------------------|------------------------------------|--------------------|-----|-----------|-------|------|---------|------|
|                                                                              |                                    | ROUTE RESERVOIR -> | 1.0 | 04:NSWM1  | 11.33 | .775 | No_date | 3:00 |
| 34.36                                                                        | n/a                                | .000               |     |           |       |      |         |      |
|                                                                              |                                    | out <=             | 1.0 | 03:SWMF-N | 11.33 | .325 | No_date | 3:13 |
| 34.36                                                                        | n/a                                | .000               |     |           |       |      |         |      |
|                                                                              |                                    | overflow <=        | 1.0 | 05:NOvf   | .00   | .000 | No_date | 0:00 |
| .00                                                                          | n/a                                | .000               |     |           |       |      |         |      |
| {MxStoUsed=.2341E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf= 0.hrs} |                                    |                    |     |           |       |      |         |      |
| #                                                                            | -----  -NORTH CATCHMENT TOTAL----- |                    |     |           |       |      |         |      |

R0003:C00024-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

|       |       |         |     |           |       |      |         |      |
|-------|-------|---------|-----|-----------|-------|------|---------|------|
|       |       | ADD HYD | 1.0 | 03:SWMF-N | 11.33 | .325 | No_date | 3:13 |
| 34.36 | n/a   | .000    |     |           |       |      |         |      |
|       |       | +       | 1.0 | 05:NOvf   | .00   | .000 | No_date | 0:00 |
| .00   | n/a   | .000    |     |           |       |      |         |      |
|       |       | SUM=    | 1.0 | 06:NORTH  | 11.33 | .325 | No_date | 3:13 |
| 34.36 | n/a   | .000    |     |           |       |      |         |      |
| #     | ----- |         |     |           |       |      |         |      |

#-----|

#-----| -SOUTHERN CATCHMENT-----|

#-----| -LANDS DRAINING TO SOUTH SWM POND-----|

R0003:C00025-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

|                                                                     |                             |                |     |       |      |      |         |      |
|---------------------------------------------------------------------|-----------------------------|----------------|-----|-------|------|------|---------|------|
|                                                                     |                             | CALIB STANDHYD | 1.0 | 05:1A | 8.20 | .610 | No_date | 3:00 |
| 35.63                                                               | .676                        | .000           |     |       |      |      |         |      |
| [XIMP=.37:TIMP=.61]                                                 |                             |                |     |       |      |      |         |      |
| [LOSS= 2 :CN= 79.0]                                                 |                             |                |     |       |      |      |         |      |
| [Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]    |                             |                |     |       |      |      |         |      |
| [Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 234.:MNI=.013:SCI= .0] |                             |                |     |       |      |      |         |      |
| #                                                                   | -----  -SOUTH SWM POND----- |                |     |       |      |      |         |      |

R0003:C00026-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms

|                                                                              |       |                    |     |           |      |      |         |      |
|------------------------------------------------------------------------------|-------|--------------------|-----|-----------|------|------|---------|------|
|                                                                              |       | ROUTE RESERVOIR -> | 1.0 | 05:1A     | 8.20 | .610 | No_date | 3:00 |
| 35.63                                                                        | n/a   | .000               |     |           |      |      |         |      |
|                                                                              |       | out <=             | 1.0 | 03:SWMF-S | 8.20 | .219 | No_date | 3:17 |
| 35.63                                                                        | n/a   | .000               |     |           |      |      |         |      |
|                                                                              |       | overflow <=        | 1.0 | 07:S0vf   | .00  | .000 | No_date | 0:00 |
| .00                                                                          | n/a   | .000               |     |           |      |      |         |      |
| {MxStoUsed=.1821E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf= 0.hrs} |       |                    |     |           |      |      |         |      |
| #                                                                            | ----- |                    |     |           |      |      |         |      |

#-----| -SOUTHEASTERN CATCHMENT-----|

R0003:C00027-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV

mm-R.C.---DWFcms

CALIB STANDHYD 1.0 08:3A .49 .033 No\_date 3:00

35.29 .670 .000

[XIMP=.64:TIMP=.64]

[LOSS= 2 :CN= 49.0]

[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]

[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 57.:MNI=.013:SCI= .0]

R0003:C00028-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV

mm-R.C.---DWFcms

ROUTE RESERVOIR -> 1.0 08:3A .49 .033 No\_date 3:00

35.29 n/a .000

out <= 1.0 09:BIORET .48 .016 No\_date 3:00

35.29 n/a .000

overflow <= 1.0 05:BI00vf .01 .017 No\_date 3:00

35.29 n/a .000

{MxStoUsed=.8992E-02 m3, TotOvfVol=.1951E-03 m3, N-Ovf= 1, TotDurOvf= 0.hrs}

R0003:C00029-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV

mm-R.C.---DWFcms

ROUTE RESERVOIR -> 1.0 05:BI00vf .01 .017 No\_date 3:00

35.29 n/a .000

\* out <= 1.0 09:DRYPOND .01 .005 No\_date 3:02

37.39 n/a .000

overflow <= 1.0 01:DRY0vf .00 .000 No\_date 0:00

.00 n/a .000

{MxStoUsed=.1339E-03 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf= 0.hrs}

#-----|-----SITE TOTAL-----|

R0003:C00030-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV

mm-R.C.---DWFcms

ADD HYD 1.0 06:NORTH 11.33 .325 No\_date 3:13

34.36 n/a .000

+ 1.0 03:SWMF-S 8.20 .219 No\_date 3:17

35.63 n/a .000

+ 1.0 07:S0vf .00 .000 No\_date 0:00

.00 n/a .000

+ 1.0 09:DRYPOND .01 .005 No\_date 3:02

37.39 n/a .000

+ 1.0 01:DRY0vf .00 .000 No\_date 0:00

.00 n/a .000

SUM= 1.0 10:POSTSITE 19.54 .543 No\_date 3:15

34.89 n/a .000

#-----|-----

#-----|-----

#-----|-----

#-----|-----POST-DEVELOPMENT-----|

#-----|-----OVERALL WC 7 FLOWS-----|

#-----|-----

#-----|-----POST-LAND SWAP-----|

#-----|-----LANDS UPSTREAM OF SITE-----|

R0003:C00031-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV

mm-R.C.---DWFcms

CALIB NASHYD 1.0 01:701 137.80 1.998 No\_date 4:20

17.57 .333 .000

[CN= 79.9: N= 3.00: Tp= 1.35]

R0003:C00032-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV

mm-R.C.---DWFcms

SHIFT HYD -> 1.0 01:701 137.80 1.998 No\_date 4:20

17.57 n/a .000

[LAG= 24.0 min]<- 1.0 02:701Shift 137.80 1.998 No\_date 4:43

17.57 n/a .000

#-----|-----

#-----|-----POST DEV UNDEVELOPED AREA-----|

R0003:C00033-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV

```
mm-R.C.---DWFcms
  CALIB NASHYD      1.0 03:7021      22.98      .395 No_date    3:30
13.06 .248      .000
  [CN= 69.1: N= 3.00: Tp= .70]
#-----|-----|

#-----|-----WC7 TOTAL AT DOWNSTREAM END--POST DEV-----|

R0003:C00034-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  ADD HYD      1.0 02:701Shift      137.80      1.998 No_date    4:43
17.57 n/a      .000
      +      1.0 03:7021      22.98      .395 No_date    3:30
13.06 n/a      .000
      +      1.0 10:POSTSITE      19.54      .543 No_date    3:15
34.89 n/a      .000
      SUM=      1.0 04:PosWC7      180.32      2.456 No_date    4:27
18.87 n/a      .000
R0003:C00035-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
  SAVE HYD      1.0 04:PosWC7      180.32      2.456 No_date    4:27
18.87 n/a      .000
  fname :PosWC7.0003

  remark:POST WC7
#-----|-----|

** END OF RUN :      3

*****
*****

RUN#:COMMAND#
R0004:C00001-----|-----|
START
  [TZERO =      .00 hrs on      0]
  [METOUT= 2      (1=imperial, 2=metric output)]
  [NSTORM= 1 ]
```

```
[NRUN = 0004 ]
#*****

# Project Name: [MACPHERSON HOME FARM]      Project Number: [721-3464]

# Date      : 2021.11.18

# Modeller      : [BH - ADAPTED FROM Higgins 2014 MODEL][JE-UPDATE 2021]

# Company      : C.F. Crozier & Associates Inc.

# License #      : 3737016

#*****

#*****

R0004:C00002-----|-----|
READ STORM
  Filename = STORM.001

  Comment = 10yr 6 hr Kifer Chu Chicago Storm Event

  [SDT=60.00:SDUR= 6.00:PTOT= 66.00]
#*****

#-----|-----|

#-----|-----PRE-DEVELOPMENT-----|
```

#-----| -OVERALL WC 7 FLOWS-----|

#-----|-----|

#-----| -PRE-LAND SWAP-----|

#-----| -LANDS UPSTREAM OF SITE-----|

R0004:C00003-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:701 146.70 3.528 No\_date 4:14  
28.54 .432 .000  
[CN= 79.9: N= 3.00: Tp= 1.35]  
#-----| -SITE AND SURROUNDING AREA-----|

R0004:C00004-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:702 34.50 .919 No\_date 3:28  
19.94 .302 .000  
[CN= 69.1: N= 3.00: Tp= .70]  
R0004:C00005-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
SHIFT HYD -> 1.0 01:701 146.70 3.528 No\_date 4:14  
28.54 n/a .000  
[LAG= 24.0 min]<- 1.0 02: 701 146.70 3.528 No\_date 4:37  
28.54 n/a .000  
#-----| -WC7 TOTAL AT LAKESHORE RD--PRE DEV-----|

R0004:C00006-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02: 701 146.70 3.528 No\_date 4:37  
28.54 n/a .000  
+ 1.0 03:702 34.50 .919 No\_date 3:28  
19.94 n/a .000  
SUM= 1.0 04:PrewC7 181.20 4.007 No\_date 4:27

26.91 n/a .000  
R0004:C00007-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
SAVE HYD 1.0 04:PrewC7 181.20 4.007 No\_date 4:27  
26.91 n/a .000  
fname :PrewC7.0004

remark:PRE WC7

#-----|-----|

#-----|-----|

#-----| -PRE-DEVELOPMENT QUANTITY CONTROL MODEL-----|

#-----|-----|

#-----| -PRE-DEVELOPMENT SWM QUANTITY-----|

R0004:C00008-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:1A-Pre 8.20 .341 No\_date 3:12  
22.26 .337 .000  
[CN= 74.3: N= 3.00: Tp= .42]  
R0004:C00009-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 02:2A-Pre 4.56 .193 No\_date 3:10  
21.43 .325 .000  
[CN= 73.5: N= 3.00: Tp= .38]  
R0004:C00010-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:2B-Pre .87 .044 No\_date 3:05  
21.90 .332 .000  
[CN= 73.9: N= 3.00: Tp= .26]  
R0004:C00011-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 05:2C-Pre 5.91 .278 No\_date 3:08  
22.66 .343 .000  
[CN= 74.6: N= 3.00: Tp= .34]  
#-----| -North (Catchment 2) Internal-----|

R0004:C00012-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:2A-Pre 4.56 .193 No\_date 3:10  
21.43 n/a .000  
+ 1.0 03:2B-Pre .87 .044 No\_date 3:05  
21.90 n/a .000  
SUM= 1.0 04:2A2B 5.43 .235 No\_date 3:08  
21.51 n/a .000  
#-----|North (Catchment 2) Total-----|

R0004:C00013-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:2A-Pre 4.56 .193 No\_date 3:10  
21.43 n/a .000  
+ 1.0 03:2B-Pre .87 .044 No\_date 3:05  
21.90 n/a .000  
+ 1.0 05:2C-Pre 5.91 .278 No\_date 3:08  
22.66 n/a .000  
SUM= 1.0 04:2-Pre 11.34 .513 No\_date 3:08  
22.11 n/a .000

R0004:C00014-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 06:3A-Pre .49 .009 No\_date 3:06  
8.69 .132 .000  
[CN= 43.3: N= 3.00: Tp= .29]  
#-----|-----|

#-----|-----|

#-----|POST-DEVELOPMENT QUANTITY CONTROL MODEL-----|

#-----|-----|

#-----|LANDS DRAINING TO NORTH SWM POND-----|

#-----|NORTH INLET-----|

R0004:C00015-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 01:2A-1 3.85 .385 No\_date 3:00  
48.35 .733 .000  
[XIMP=.46:TIMP=.61]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 160.:MNI=.013:SCI= .0]

R0004:C00016-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 03:2C-1 2.64 .208 No\_date 3:00  
42.48 .644 .000  
[XIMP=.39:TIMP=.39]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 80.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 133.:MNI=.013:SCI= .0]

R0004:C00017-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 08:2C-2 1.30 .139 No\_date 3:00  
55.24 .837 .000  
[XIMP=.75:TIMP=.75]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 93.:MNI=.013:SCI= .0]

R0004:C00018-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 09:2C-3 1.97 .206 No\_date 3:00  
50.23 .761 .000  
[XIMP=.39:TIMP=.69]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 115.:MNI=.013:SCI= .0]

R0004:C00019-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 05:2A-4 .70 .062 No\_date 3:00  
41.54 .629 .000  
[XIMP=.36:TIMP=.36]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 68.:MNI=.013:SCI= .0]

R0004:C00020-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 06:2B .87 .040 No\_date 3:05  
21.20 .321 .000  
[CN= 69.2: N= 3.00: Tp= .29]  
#-----|NORTH SWMP NORTH INLET TOTAL-QUALITY CONTROL-----|

R0004:C00021-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 01:2A-1 3.85 .385 No\_date 3:00  
48.35 n/a .000  
+ 1.0 03:2C-1 2.64 .208 No\_date 3:00  
42.48 n/a .000  
+ 1.0 08:2C-2 1.30 .139 No\_date 3:00  
55.24 n/a .000  
+ 1.0 09:2C-3 1.97 .206 No\_date 3:00  
50.23 n/a .000  
+ 1.0 06:2B .87 .040 No\_date 3:05  
21.20 n/a .000  
SUM= 1.0 07:NSWM1 10.63 .976 No\_date 3:00  
45.86 n/a .000  
#-----|

#-----|-NORTH SWMP NORTH TOTAL-----|

R0004:C00022-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 01:2A-1 3.85 .385 No\_date 3:00  
48.35 n/a .000  
+ 1.0 03:2C-1 2.64 .208 No\_date 3:00  
42.48 n/a .000  
+ 1.0 08:2C-2 1.30 .139 No\_date 3:00  
55.24 n/a .000  
+ 1.0 09:2C-3 1.97 .206 No\_date 3:00  
50.23 n/a .000  
+ 1.0 05:2A-4 .70 .062 No\_date 3:00  
41.54 n/a .000  
+ 1.0 06:2B .87 .040 No\_date 3:05  
21.20 n/a .000  
SUM= 1.0 04:NSWM1 11.33 1.038 No\_date 3:00  
45.59 n/a .000  
#-----|

R0004:C00023-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 04:NSWM1 11.33 1.038 No\_date 3:00  
45.59 n/a .000  
out <= 1.0 03:SWMF-N 11.33 .384 No\_date 3:15

45.59 n/a .000  
overflow <= 1.0 05:NOvf .00 .000 No\_date 0:00  
.00 n/a .000  
{MxStoUsed=.2998E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf= 0.hrs}  
#-----|-NORTH CATCHMENT TOTAL-----|

R0004:C00024-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 03:SWMF-N 11.33 .384 No\_date 3:15  
45.59 n/a .000  
+ 1.0 05:NOvf .00 .000 No\_date 0:00  
.00 n/a .000  
SUM= 1.0 06:NORTH 11.33 .384 No\_date 3:15  
45.59 n/a .000  
#-----|

#-----|

#-----|-SOUTHERN CATCHMENT-----|

#-----|-LANDS DRAINING TO SOUTH SWM POND-----|

R0004:C00025-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 05:1A 8.20 .815 No\_date 3:00  
47.37 .718 .000  
[XIMP=.37:TIMP=.61]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 234.:MNI=.013:SCI= .0]  
#-----|-SOUTH SWM POND-----|

R0004:C00026-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 05:1A 8.20 .815 No\_date 3:00  
47.37 n/a .000  
out <= 1.0 03:SWMF-S 8.20 .248 No\_date 3:19

47.37 n/a .000  
overflow <= 1.0 07:S0vf .00 .000 No\_date 0:00  
.00 n/a .000  
{MxStoUsed=.2388E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf=  
0.hrs}  
#-----|-----|

#-----|-----SOUTHEASTERN CATCHMENT-----|

R0004:C00027-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 08:3A .49 .043 No\_date 3:00  
45.34 .687 .000  
[XIMP=.64:TIMP=.64]  
[LOSS= 2 :CN= 49.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 57.:MNI=.013:SCI= .0]

R0004:C00028-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 08:3A .49 .043 No\_date 3:00  
45.34 n/a .000  
out <= 1.0 09:BIORET .42 .016 No\_date 2:43  
45.34 n/a .000  
overflow <= 1.0 05:BI00vf .07 .027 No\_date 3:00  
45.34 n/a .000  
{MxStoUsed=.8980E-02 m3, TotOvfVol=.3057E-02 m3, N-Ovf= 1, TotDurOvf=  
0.hrs}

R0004:C00029-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 05:BI00vf .07 .027 No\_date 3:00  
45.34 n/a .000  
out <= 1.0 09:DRYPOND .07 .008 No\_date 3:03  
45.39 n/a .000  
overflow <= 1.0 01:DRY0vf .00 .000 No\_date 0:00  
.00 n/a .000  
{MxStoUsed=.2268E-02 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf=  
0.hrs}  
#-----|-----SITE TOTAL-----|

R0004:C00030-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 06:NORTH 11.33 .384 No\_date 3:15  
45.59 n/a .000  
+ 1.0 03:SWMF-S 8.20 .248 No\_date 3:19

47.37 n/a .000  
+ 1.0 07:S0vf .00 .000 No\_date 0:00  
.00 n/a .000  
+ 1.0 09:DRYPOND .07 .008 No\_date 3:03  
45.39 n/a .000  
+ 1.0 01:DRY0vf .00 .000 No\_date 0:00  
.00 n/a .000  
SUM= 1.0 10:POSTSITE 19.60 .639 No\_date 3:16  
46.34 n/a .000  
#-----|-----|

#-----|-----|

#-----|-----|

#-----|-----POST-DEVELOPMENT-----|

#-----|-----OVERALL WC 7 FLOWS-----|

#-----|-----|

#-----|-----POST-LAND SWAP-----|

#-----|-----LANDS UPSTREAM OF SITE-----|

R0004:C00031-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:701 137.80 3.083 No\_date 4:16  
26.68 .404 .000  
[CN= 79.9: N= 3.00: Tp= 1.35]  
R0004:C00032-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
SHIFT HYD -> 1.0 01:701 137.80 3.083 No\_date 4:16  
26.68 n/a .000

[LAG= 24.0 min]<- 1.0 02:701Shift 137.80 3.083 No\_date 4:39  
26.68 n/a .000  
#-----|-----

#-----|-----POST DEV UNDEVELOPED AREA-----|

R0004:C00033-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:7021 22.98 .618 No\_date 3:28  
20.11 .305 .000  
[CN= 69.1: N= 3.00: Tp= .70]  
#-----|-----

#-----|-----WC7 TOTAL AT DOWNSTREAM END--POST DEV-----|

R0004:C00034-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:701Shift 137.80 3.083 No\_date 4:39  
26.68 n/a .000  
+ 1.0 03:7021 22.98 .618 No\_date 3:28  
20.11 n/a .000  
+ 1.0 10:POSTSITE 19.60 .639 No\_date 3:16  
46.34 n/a .000  
SUM= 1.0 04:PosWC7 180.38 3.921 No\_date 4:23  
27.98 n/a .000  
R0004:C00035-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
SAVE HYD 1.0 04:PosWC7 180.38 3.921 No\_date 4:23  
27.98 n/a .000  
fname :PosWC7.0004  
  
remark:POST WC7  
#-----|-----

\*\* END OF RUN : 4

\*\*\*\*\*  
\*\*\*\*\*

RUN#:COMMAND#  
R0005:C00001-----  
-----

START  
[TZERO = .00 hrs on 0]  
[METOUT= 2 (1=imperial, 2=metric output)]  
[NSTORM= 1 ]  
[NRUN = 0005 ]  
#\*\*\*\*\*

# Project Name: [MACPHERSON HOME FARM] Project Number: [721-3464]

# Date : 2021.11.18

# Modeller : [BH - ADAPTED FROM Higgins 2014 MODEL][JE-UPDATE 2021]

# Company : C.F. Crozier & Associates Inc.

# License # : 3737016

#\*\*\*\*\*

#\*\*\*\*\*

R0005:C00002-----  
-----

READ STORM  
Filename = STORM.001  
  
Comment = 25-Year 6 hr Kifer Chu Chicago Storm Event

[SDT=60.00:SDUR= 6.00:PTOT= 77.90]  
#####

#-----|-----|

#-----| -PRE-DEVELOPMENT-----|

#-----| -OVERALL WC 7 FLOWS-----|

#-----|-----|

#-----| -PRE-LAND SWAP-----|

#-----| -LANDS UPSTREAM OF SITE-----|

R0005:C00003-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:701 146.70 4.603 No\_date 4:14  
37.52 .482 .000  
[CN= 79.9: N= 3.00: Tp= 1.35]  
#-----| -SITE AND SURROUNDING AREA-----|

R0005:C00004-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:702 34.50 1.227 No\_date 3:28  
27.00 .347 .000  
[CN= 69.1: N= 3.00: Tp= .70]  
R0005:C00005-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
SHIFT HYD -> 1.0 01:701 146.70 4.603 No\_date 4:14  
37.52 n/a .000  
[LAG= 24.0 min]<- 1.0 02: 701 146.70 4.603 No\_date 4:37  
37.52 n/a .000

#-----| -WC7 TOTAL AT LAKESHORE RD--PRE DEV-----|

R0005:C00006-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02: 701 146.70 4.603 No\_date 4:37  
37.52 n/a .000  
+ 1.0 03:702 34.50 1.227 No\_date 3:28  
27.00 n/a .000  
SUM= 1.0 04:PreWC7 181.20 5.251 No\_date 4:26  
35.52 n/a .000  
R0005:C00007-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
SAVE HYD 1.0 04:PreWC7 181.20 5.251 No\_date 4:26  
35.52 n/a .000  
fname :PreWC7.0005  
  
remark:PRE WC7

#-----|-----|

#-----|-----|

#-----| -PRE-DEVELOPMENT QUANTITY CONTROL MODEL-----|

#-----|-----|

#-----| -PRE-DEVELOPMENT SWM QUANTITY-----|

R0005:C00008-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:1A-Pre 8.20 .451 No\_date 3:11  
30.10 .386 .000  
[CN= 74.3: N= 3.00: Tp= .42]  
R0005:C00009-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 02:2A-Pre 4.56 .255 No\_date 3:09  
29.11 .374 .000  
[CN= 73.5: N= 3.00: Tp= .38]

R0005:C00010-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:2B-Pre .87 .058 No\_date 3:04  
29.66 .381 .000  
[CN= 73.9: N= 3.00: Tp= .26]  
R0005:C00011-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 05:2C-Pre 5.91 .365 No\_date 3:07  
30.57 .392 .000  
[CN= 74.6: N= 3.00: Tp= .34]  
#-----|North (Catchment 2) Internal-----|

R0005:C00012-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:2A-Pre 4.56 .255 No\_date 3:09  
29.11 n/a .000 + 1.0 03:2B-Pre .87 .058 No\_date 3:04  
29.66 n/a .000  
SUM= 1.0 04:2A2B 5.43 .311 No\_date 3:08  
29.20 n/a .000  
#-----|North (Catchment 2) Total-----|

R0005:C00013-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:2A-Pre 4.56 .255 No\_date 3:09  
29.11 n/a .000 + 1.0 03:2B-Pre .87 .058 No\_date 3:04  
29.66 n/a .000 + 1.0 05:2C-Pre 5.91 .365 No\_date 3:07  
30.57 n/a .000  
SUM= 1.0 04:2-Pre 11.34 .676 No\_date 3:08  
29.91 n/a .000  
R0005:C00014-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 06:3A-Pre .49 .013 No\_date 3:06  
12.23 .157 .000  
[CN= 43.3: N= 3.00: Tp= .29]  
#-----|-----|

#-----|-----|

#-----|POST-DEVELOPMENT QUANTITY CONTROL MODEL-----|

#-----|-----|

#-----|LANDS DRAINING TO NORTH SWM POND-----|

#-----|NORTH INLET-----|

R0005:C00015-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 01:2A-1 3.85 .460 No\_date 3:00  
59.13 .759 .000  
[XIMP=.46:TIMP=.61]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 160.:MNI=.013:SCI= .0]  
R0005:C00016-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 03:2C-1 2.64 .257 No\_date 3:00  
52.54 .674 .000  
[XIMP=.39:TIMP=.39]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 80.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 133.:MNI=.013:SCI= .0]  
R0005:C00017-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 08:2C-2 1.30 .164 No\_date 3:00  
66.39 .852 .000  
[XIMP=.75:TIMP=.75]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 93.:MNI=.013:SCI= .0]  
R0005:C00018-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 09:2C-3 1.97 .245 No\_date 3:00  
61.35 .788 .000  
[XIMP=.39:TIMP=.69]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 115.:MNI=.013:SCI= .0]  
R0005:C00019-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 05:2A-4 .70 .075 No\_date 3:00

51.52 .661 .000  
[XIMP=.36:TIMP=.36]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 68.:MNI=.013:SCI= .0]  
R0005:C00020-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 06:2B .87 .052 No\_date 3:05  
28.38 .364 .000  
[CN= 69.2: N= 3.00: Tp= .29]  
#-----| -NORTH SWMP NORTH INLET TOTAL-QUALITY CONTROL-----|

R0005:C00021-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 01:2A-1 3.85 .460 No\_date 3:00  
59.13 n/a .000 + 1.0 03:2C-1 2.64 .257 No\_date 3:00  
52.54 n/a .000 + 1.0 08:2C-2 1.30 .164 No\_date 3:00  
66.39 n/a .000 + 1.0 09:2C-3 1.97 .245 No\_date 3:00  
61.35 n/a .000 + 1.0 06:2B .87 .052 No\_date 3:05  
28.38 n/a .000 SUM= 1.0 07:NSWM1 10.63 1.176 No\_date 3:00  
56.28 n/a .000  
#-----|

#-----| -NORTH SWMP NORTH TOTAL-----|

R0005:C00022-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 01:2A-1 3.85 .460 No\_date 3:00  
59.13 n/a .000 + 1.0 03:2C-1 2.64 .257 No\_date 3:00  
52.54 n/a .000 + 1.0 08:2C-2 1.30 .164 No\_date 3:00  
66.39 n/a .000 + 1.0 09:2C-3 1.97 .245 No\_date 3:00  
61.35 n/a .000 + 1.0 05:2A-4 .70 .075 No\_date 3:00  
51.52 n/a .000 + 1.0 06:2B .87 .052 No\_date 3:05  
28.38 n/a .000

SUM= 1.0 04:NSWM1 11.33 1.252 No\_date 3:00  
55.98 n/a .000  
#-----|

R0005:C00023-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 04:NSWM1 11.33 1.252 No\_date 3:00  
55.98 n/a .000 out <= 1.0 03:SWMF-N 11.33 .426 No\_date 3:17  
55.98 n/a .000 overflow <= 1.0 05:NOvf .00 .000 No\_date 0:00  
.00 n/a .000 {MxStoUsed=.3622E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf= 0.hrs}  
#-----| -NORTH CATCHMENT TOTAL-----|

R0005:C00024-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 03:SWMF-N 11.33 .426 No\_date 3:17  
55.98 n/a .000 + 1.0 05:NOvf .00 .000 No\_date 0:00  
.00 n/a .000 SUM= 1.0 06:NORTH 11.33 .426 No\_date 3:17  
55.98 n/a .000  
#-----|

#-----|

#-----| -SOUTHERN CATCHMENT-----|

#-----| -LANDS DRAINING TO SOUTH SWM POND-----|

R0005:C00025-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 05:1A 8.20 .975 No\_date 3:00  
58.18 .747 .000  
[XIMP=.37:TIMP=.61]  
[LOSS= 2 :CN= 79.0]

[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 234.:MNI=.013:SCI= .0]  
#-----|-----SOUTH SWM POND-----|

R0005:C00026-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 05:1A 8.20 .975 No\_date 3:00  
58.18 n/a .000  
out <= 1.0 03:SWMF-S 8.20 .270 No\_date 3:20  
58.18 n/a .000  
overflow <= 1.0 07:S0vf .00 .000 No\_date 0:00  
.00 n/a .000  
{MxStoUsed=.2909E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf=  
0.hrs}  
#-----|-----|

#-----|-----SOUTHEASTERN CATCHMENT-----|

R0005:C00027-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 08:3A .49 .050 No\_date 3:00  
54.55 .700 .000  
[XIMP=.64:TIMP=.64]  
[LOSS= 2 :CN= 49.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 57.:MNI=.013:SCI= .0]  
R0005:C00028-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 08:3A .49 .050 No\_date 3:00  
54.55 n/a .000  
out <= 1.0 09:BIORET .39 .016 No\_date 2:34  
54.55 n/a .000  
overflow <= 1.0 05:BI00vf .10 .034 No\_date 3:00  
54.55 n/a .000  
{MxStoUsed=.9000E-02 m3, TotOvfVol=.5633E-02 m3, N-Ovf= 3, TotDurOvf=  
1.hrs}  
R0005:C00029-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 05:BI00vf .10 .034 No\_date 3:00  
54.55 n/a .000  
out <= 1.0 09:DRYPOND .10 .009 No\_date 3:02  
54.63 n/a .000  
overflow <= 1.0 01:DRY0vf .00 .000 No\_date 0:00  
.00 n/a .000

{MxStoUsed=.4251E-02 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf=  
0.hrs}

#-----|-----SITE TOTAL-----|

R0005:C00030-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 06:NORTH 11.33 .426 No\_date 3:17  
55.98 n/a .000  
+ 1.0 03:SWMF-S 8.20 .270 No\_date 3:20  
58.18 n/a .000  
+ 1.0 07:S0vf .00 .000 No\_date 0:00  
.00 n/a .000  
+ 1.0 09:DRYPOND .10 .009 No\_date 3:02  
54.63 n/a .000  
+ 1.0 01:DRY0vf .00 .000 No\_date 0:00  
.00 n/a .000  
SUM= 1.0 10:POSTSITE 19.63 .705 No\_date 3:18  
56.89 n/a .000  
#-----|-----|

#-----|-----|

#-----|-----|

#-----|-----POST-DEVELOPMENT-----|

#-----|-----OVERALL WC 7 FLOWS-----|

#-----|-----|

#-----|-----POST-LAND SWAP-----|

#-----|-----LANDS UPSTREAM OF SITE-----|

R0005:C00031-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:701 137.80 4.083 No\_date 4:15  
35.54 .456 .000  
[CN= 79.9: N= 3.00: Tp= 1.35]  
R0005:C00032-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
SHIFT HYD -> 1.0 01:701 137.80 4.083 No\_date 4:15  
35.54 n/a .000  
[LAG= 24.0 min]<- 1.0 02:701Shift 137.80 4.083 No\_date 4:37  
35.54 n/a .000  
#-----|-----|

#-----|-----|-----POST DEV UNDEVELOPED AREA-----|-----|

R0005:C00033-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:7021 22.98 .823 No\_date 3:28  
27.19 .349 .000  
[CN= 69.1: N= 3.00: Tp= .70]  
#-----|-----|

#-----|-----|-----WC7 TOTAL AT DOWNSTREAM END--POST DEV-----|-----|

R0005:C00034-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:701Shift 137.80 4.083 No\_date 4:37  
35.54 n/a .000  
+ 1.0 03:7021 22.98 .823 No\_date 3:28  
27.19 n/a .000  
+ 1.0 10:POSTSITE 19.63 .705 No\_date 3:18  
56.89 n/a .000  
SUM= 1.0 04:PosWC7 180.41 5.129 No\_date 4:29  
36.80 n/a .000  
R0005:C00035-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
SAVE HYD 1.0 04:PosWC7 180.41 5.129 No\_date 4:29  
36.80 n/a .000  
fname :PosWC7.0005

remark:POST WC7

#-----|-----|-----|

\*\* END OF RUN : 5

\*\*\*\*\*  
\*\*\*\*\*

RUN#:COMMAND#

R0006:C00001-----|-----|

START  
[TZERO = .00 hrs on 0]  
[METOUT= 2 (1=imperial, 2=metric output)]  
[NSTORM= 1]  
[NRUN = 0006]

#\*\*\*\*\*

# Project Name: [MACPHERSON HOME FARM] Project Number: [721-3464]

# Date : 2021.11.18

# Modeller : [BH - ADAPTED FROM Higgins 2014 MODEL][JE-UPDATE 2021]

# Company : C.F. Crozier & Associates Inc.

# License # : 3737016

#\*\*\*\*\*

```
#-----| -PRE-DEVELOPMENT SWM QUANTITY-----|
```

R0006:C00008-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:1A-Pre 8.20 .511 No\_date 3:11  
34.28 .409 .000  
[CN= 74.3: N= 3.00: Tp= .42]  
R0006:C00009-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 02:2A-Pre 4.56 .290 No\_date 3:09  
33.21 .396 .000  
[CN= 73.5: N= 3.00: Tp= .38]  
R0006:C00010-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:2B-Pre .87 .065 No\_date 3:04  
33.80 .403 .000  
[CN= 73.9: N= 3.00: Tp= .26]  
R0006:C00011-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 05:2C-Pre 5.91 .413 No\_date 3:07  
34.78 .415 .000  
[CN= 74.6: N= 3.00: Tp= .34]  
#-----|-North (Catchment 2) Internal-----|

R0006:C00012-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:2A-Pre 4.56 .290 No\_date 3:09  
33.21 n/a .000  
+ 1.0 03:2B-Pre .87 .065 No\_date 3:04  
33.80 n/a .000  
SUM= 1.0 04:2A2B 5.43 .352 No\_date 3:08  
33.31 n/a .000  
#-----|-North (Catchment 2) Total-----|

R0006:C00013-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:2A-Pre 4.56 .290 No\_date 3:09  
33.21 n/a .000  
+ 1.0 03:2B-Pre .87 .065 No\_date 3:04  
33.80 n/a .000  
+ 1.0 05:2C-Pre 5.91 .413 No\_date 3:07  
34.78 n/a .000  
SUM= 1.0 04:2-Pre 11.34 .765 No\_date 3:07  
34.08 n/a .000  
R0006:C00014-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 06:3A-Pre .49 .014 No\_date 3:06

14.20 .169 .000  
[CN= 43.3: N= 3.00: Tp= .29]

#-----|-----|

#-----|-----|

#-----|-POST-DEVELOPMENT QUANTITY CONTROL MODEL-----|

#-----|-----|

#-----|-LANDS DRAINING TO NORTH SWM POND-----|

#-----|-NORTH INLET-----|

R0006:C00015-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 01:2A-1 3.85 .500 No\_date 3:00  
64.65 .771 .000  
[XIMP=.46:TIMP=.61]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 160.:MNI=.013:SCI= .0]  
R0006:C00016-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 03:2C-1 2.64 .284 No\_date 3:00  
57.72 .688 .000  
[XIMP=.39:TIMP=.39]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 80.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 133.:MNI=.013:SCI= .0]  
R0006:C00017-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 08:2C-2 1.30 .177 No\_date 3:00  
72.05 .859 .000  
[XIMP=.75:TIMP=.75]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 93.:MNI=.013:SCI= .0]

```
R0006:C00018-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
CALIB STANDHYD          1.0 09:2C-3          1.97      .266 No_date    3:00
67.02 .799      .000
[XIMP=.39:TIMP=.69]
[LOSS= 2 :CN= 79.0]
[Pervious   area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 115.:MNI=.013:SCI= .0]
R0006:C00019-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
CALIB STANDHYD          1.0 05:2A-4          .70      .083 No_date    3:00
56.67 .675      .000
[XIMP=.36:TIMP=.36]
[LOSS= 2 :CN= 79.0]
[Pervious   area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 68.:MNI=.013:SCI= .0]
R0006:C00020-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
CALIB NASHYD            1.0 06:2B          .87      .059 No_date    3:05
32.23 .384      .000
[CN= 69.2: N= 3.00: Tp= .29]
#-----|NORTH SWMP NORTH INLET TOTAL-QUALITY CONTROL-----|

R0006:C00021-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
ADD HYD                  1.0 01:2A-1          3.85      .500 No_date    3:00
64.65 n/a      .000
+ 1.0 03:2C-1          2.64      .284 No_date    3:00
57.72 n/a      .000
+ 1.0 08:2C-2          1.30      .177 No_date    3:00
72.05 n/a      .000
+ 1.0 09:2C-3          1.97      .266 No_date    3:00
67.02 n/a      .000
+ 1.0 06:2B            .87      .059 No_date    3:05
32.23 n/a      .000
SUM= 1.0 07:NSWM1      10.63     1.282 No_date    3:00
61.62 n/a      .000
#-----|NORTH SWMP NORTH TOTAL-----|

R0006:C00022-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
ADD HYD                  1.0 01:2A-1          3.85      .500 No_date    3:00
```

```
64.65 n/a      .000
+ 1.0 03:2C-1          2.64      .284 No_date    3:00
57.72 n/a      .000
+ 1.0 08:2C-2          1.30      .177 No_date    3:00
72.05 n/a      .000
+ 1.0 09:2C-3          1.97      .266 No_date    3:00
67.02 n/a      .000
+ 1.0 05:2A-4          .70      .083 No_date    3:00
56.67 n/a      .000
+ 1.0 06:2B            .87      .059 No_date    3:05
32.23 n/a      .000
SUM= 1.0 04:NSWM1      11.33     1.365 No_date    3:00
61.31 n/a      .000
#-----|
```

```
R0006:C00023-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
ROUTE RESERVOIR ->      1.0 04:NSWM1          11.33     1.365 No_date    3:00
61.31 n/a      .000
out <= 1.0 03:SWMF-N      11.33     .446 No_date    3:18
61.31 n/a      .000
overflow <= 1.0 05:NOvf          .00      .000 No_date    0:00
.00 n/a      .000
{MxStoUsed=.3966E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf=
0.hrs}
#-----|NORTH CATCHMENT TOTAL-----|
```

```
R0006:C00024-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm---RV
mm-R.C.---DWFcms
ADD HYD                  1.0 03:SWMF-N          11.33     .446 No_date    3:18
61.31 n/a      .000
+ 1.0 05:NOvf          .00      .000 No_date    0:00
.00 n/a      .000
SUM= 1.0 06:NORTH      11.33     .446 No_date    3:18
61.31 n/a      .000
#-----|
```

```
#-----|
```

```
#-----|SOUTHERN CATCHMENT-----|
```

#-----|LANDS DRAINING TO SOUTH SWM POND-----|

R0006:C00025-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 05:1A 8.20 1.062 No\_date 3:00  
63.71 .759 .000  
[XIMP=.37:TIMP=.61]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 234.:MNI=.013:SCI= .0]  
#-----|SOUTH SWM POND-----|

R0006:C00026-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 05:1A 8.20 1.062 No\_date 3:00  
63.71 n/a .000  
out <= 1.0 03:SWMF-S 8.20 .281 No\_date 3:20  
63.71 n/a .000  
overflow <= 1.0 07:Sovf .00 .000 No\_date 0:00  
.00 n/a .000  
{MxStoUsed=.3191E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf= 0.hrs}  
#-----|-----|

#-----|SOUTHEASTERN CATCHMENT-----|

R0006:C00027-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 08:3A .49 .055 No\_date 3:00  
59.26 .706 .000  
[XIMP=.64:TIMP=.64]  
[LOSS= 2 :CN= 49.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 57.:MNI=.013:SCI= .0]  
R0006:C00028-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 08:3A .49 .055 No\_date 3:00  
59.26 n/a .000  
out <= 1.0 09:BIORET .37 .016 No\_date 2:31  
59.26 n/a .000  
overflow <= 1.0 05:BI00vf .12 .039 No\_date 3:00

59.26 n/a .000  
{MxStoUsed=.8996E-02 m3, TotOvfVol=.7085E-02 m3, N-Ovf= 2, TotDurOvf= 1.hrs}  
R0006:C00029-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 05:BI00vf .12 .039 No\_date 3:00  
59.26 n/a .000  
out <= 1.0 09:DRYPOND .12 .010 No\_date 3:03  
59.30 n/a .000  
overflow <= 1.0 01:DRY0vf .00 .000 No\_date 0:00  
.00 n/a .000  
{MxStoUsed=.5439E-02 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf= 0.hrs}  
#-----|-----SITE TOTAL-----|

R0006:C00030-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 06:NORTH 11.33 .446 No\_date 3:18  
61.31 n/a .000  
+ 1.0 03:SWMF-S 8.20 .281 No\_date 3:20  
63.71 n/a .000  
+ 1.0 07:Sovf .00 .000 No\_date 0:00  
.00 n/a .000  
+ 1.0 09:DRYPOND .12 .010 No\_date 3:03  
59.30 n/a .000  
+ 1.0 01:DRY0vf .00 .000 No\_date 0:00  
.00 n/a .000  
SUM= 1.0 10:POSTSITE 19.65 .736 No\_date 3:19  
62.30 n/a .000  
#-----|-----|

#-----|-----|

#-----|-----|

#-----|POST-DEVELOPMENT-----|

#-----|OVERALL WC 7 FLOWS-----|

#-----|-----|

#-----| -POST-LAND SWAP-----|

#-----| -LANDS UPSTREAM OF SITE-----|

R0006:C00031-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:701 137.80 4.608 No\_date 4:15  
40.21 .479 .000  
[CN= 79.9: N= 3.00: Tp= 1.35]  
R0006:C00032-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
SHIFT HYD -> 1.0 01:701 137.80 4.608 No\_date 4:15  
40.21 n/a .000  
[LAG= 24.0 min]<- 1.0 02:701Shift 137.80 4.608 No\_date 4:37  
40.21 n/a .000  
#-----|-----|

#-----| -POST DEV UNDEVELOPED AREA-----|

R0006:C00033-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:7021 22.98 .936 No\_date 3:27  
30.98 .369 .000  
[CN= 69.1: N= 3.00: Tp= .70]  
#-----|-----|

#-----| -WC7 TOTAL AT DOWNSTREAM END--POST DEV-----|

R0006:C00034-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:701Shift 137.80 4.608 No\_date 4:37  
40.21 n/a .000  
+ 1.0 03:7021 22.98 .936 No\_date 3:27

30.98 n/a .000  
+ 1.0 10:POSTSITE 19.65 .736 No\_date 3:19  
62.30 n/a .000  
SUM= 1.0 04:PosWC7 180.43 5.749 No\_date 4:28  
41.44 n/a .000  
R0006:C00035-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
SAVE HYD 1.0 04:PosWC7 180.43 5.749 No\_date 4:28  
41.44 n/a .000  
fname :PosWC7.0006  
remark:POST WC7

#-----|-----|

\*\* END OF RUN : 6

\*\*\*\*\*  
\*\*\*\*\*

RUN#:COMMAND#  
R0007:C00001-----  
-----  
START  
[TZERO = .00 hrs on 0]  
[METOUT= 2 (1=imperial, 2=metric output)]  
[NSTORM= 1 ]  
[NRUN = 0007 ]  
#\*\*\*\*\*

# Project Name: [MACPHERSON HOME FARM] Project Number: [721-3464]

# Date : 2021.11.18

# Modeller : [BH - ADAPTED FROM Higgins 2014 MODEL][JE-UPDATE 2021]

# Company : C.F. Crozier & Associates Inc.

# License # : 3737016

#####

#####

R0007:C00002-----

-----

READ STORM

Filename = STORM.001

Comment = 100-Year 6 hr Kifer Chu Chicago Storm Event

[SDT=60.00:SDUR= 6.00:PTOT= 96.00]

#####

#-----|-----

#-----|-----PRE-DEVELOPMENT-----

#-----|-----OVERALL WC 7 FLOWS-----

#-----|-----

#-----|-----PRE-LAND SWAP-----

#-----|-----LANDS UPSTREAM OF SITE-----

R0007:C00003-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV

mm-R.C.---DWFcms

CALIB NASHYD 1.0 01:701 146.70 6.396 No\_date 4:12

52.05 .542 .000

[CN= 79.9: N= 3.00: Tp= 1.35]

#-----|-----SITE AND SURROUNDING AREA-----

R0007:C00004-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV

mm-R.C.---DWFcms

CALIB NASHYD 1.0 03:702 34.50 1.767 No\_date 3:27

38.83 .404 .000

[CN= 69.1: N= 3.00: Tp= .70]

R0007:C00005-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV

mm-R.C.---DWFcms

SHIFT HYD -> 1.0 01:701 146.70 6.396 No\_date 4:12

52.05 n/a .000

[LAG= 24.0 min]<- 1.0 02: 701 146.70 6.396 No\_date 4:35

52.05 n/a .000

#-----|-----WC7 TOTAL AT LAKESHORE RD--PRE DEV-----

R0007:C00006-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV

mm-R.C.---DWFcms

ADD HYD 1.0 02: 701 146.70 6.396 No\_date 4:35

52.05 n/a .000

+ 1.0 03:702 34.50 1.767 No\_date 3:27

38.83 n/a .000

SUM= 1.0 04:PreWC7 181.20 7.333 No\_date 4:24

49.54 n/a .000

R0007:C00007-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV

mm-R.C.---DWFcms

SAVE HYD 1.0 04:PreWC7 181.20 7.333 No\_date 4:24

49.54 n/a .000

fname :PreWC7.0007

remark:PRE WC7

#-----|-----

#-----|-----

#-----| -PRE-DEVELOPMENT QUANTITY CONTROL MODEL-----|

#-----|-----|

#-----| -PRE-DEVELOPMENT SWM QUANTITY-----|

R0007:C00008-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV

mm-R.C.---DWFcms

CALIB NASHYD 1.0 01:1A-Pre 8.20 .641 No\_date 3:11

43.08 .449 .000

[CN= 74.3: N= 3.00: Tp= .42]

R0007:C00009-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV

mm-R.C.---DWFcms

CALIB NASHYD 1.0 02:2A-Pre 4.56 .364 No\_date 3:09

41.87 .436 .000

[CN= 73.5: N= 3.00: Tp= .38]

R0007:C00010-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV

mm-R.C.---DWFcms

CALIB NASHYD 1.0 03:2B-Pre .87 .081 No\_date 3:04

42.54 .443 .000

[CN= 73.9: N= 3.00: Tp= .26]

R0007:C00011-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV

mm-R.C.---DWFcms

CALIB NASHYD 1.0 05:2C-Pre 5.91 .515 No\_date 3:07

43.65 .455 .000

[CN= 74.6: N= 3.00: Tp= .34]

#-----| -North (Catchment 2) Internal-----|

R0007:C00012-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV

mm-R.C.---DWFcms

ADD HYD 1.0 02:2A-Pre 4.56 .364 No\_date 3:09

41.87 n/a .000

+ 1.0 03:2B-Pre .87 .081 No\_date 3:04

42.54 n/a .000

SUM= 1.0 04:2A2B 5.43 .442 No\_date 3:07

41.98 n/a .000

#-----| -North (Catchment 2) Total-----|

R0007:C00013-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV

mm-R.C.---DWFcms

ADD HYD 1.0 02:2A-Pre 4.56 .364 No\_date 3:09

41.87 n/a .000

+ 1.0 03:2B-Pre .87 .081 No\_date 3:04

42.54 n/a .000

+ 1.0 05:2C-Pre 5.91 .515 No\_date 3:07

43.65 n/a .000

SUM= 1.0 04:2-Pre 11.34 .957 No\_date 3:07

42.85 n/a .000

R0007:C00014-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV

mm-R.C.---DWFcms

CALIB NASHYD 1.0 06:3A-Pre .49 .019 No\_date 3:06

18.52 .193 .000

[CN= 43.3: N= 3.00: Tp= .29]

#-----|-----|

#-----|-----|

#-----| -POST-DEVELOPMENT QUANTITY CONTROL MODEL-----|

#-----|-----|

#-----| -LANDS DRAINING TO NORTH SWM POND-----|

#-----| -NORTH INLET-----|

R0007:C00015-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV

mm-R.C.---DWFcms

CALIB STANDHYD 1.0 01:2A-1 3.85 .583 No\_date 3:00

75.89 .791 .000

[XIMP=.46:TIMP=.61]

[LOSS= 2 :CN= 79.0]

[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]

[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 160.:MNI=.013:SCI= .0]

R0007:C00016-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm----RV

mm-R.C.---DWFcms

CALIB STANDHYD 1.0 03:2C-1 2.64 .339 No\_date 3:00

68.36 .712 .000

[XIMP=.39:TIMP=.39]

```
[LOSS= 2 :CN= 79.0]
[Pervious   area: IAper= 5.00:SLPP=2.00:LGP= 80.:MNP=.250:SCP= .0]
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 133.:MNI=.013:SCI= .0]
R0007:C00017-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
CALIB STANDHYD      1.0 08:2C-2      1.30      .204 No_date    3:00
83.56 .870      .000
[XIMP=.75:TIMP=.75]
[LOSS= 2 :CN= 79.0]
[Pervious   area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 93.:MNI=.013:SCI= .0]
R0007:C00018-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
CALIB STANDHYD      1.0 09:2C-3      1.97      .309 No_date    3:00
78.55 .818      .000
[XIMP=.39:TIMP=.69]
[LOSS= 2 :CN= 79.0]
[Pervious   area: IAper= 5.00:SLPP=2.00:LGP= 30.:MNP=.250:SCP= .0]
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 115.:MNI=.013:SCI= .0]
R0007:C00019-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
CALIB STANDHYD      1.0 05:2A-4      .70      .097 No_date    3:00
67.25 .701      .000
[XIMP=.36:TIMP=.36]
[LOSS= 2 :CN= 79.0]
[Pervious   area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 68.:MNI=.013:SCI= .0]
R0007:C00020-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
CALIB NASHYD        1.0 06:2B      .87      .073 No_date    3:05
40.37 .421      .000
[CN= 69.2: N= 3.00: Tp= .29]
#-----| -NORTH SWMP NORTH INLET TOTAL-QUALITY CONTROL-----|

R0007:C00021-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
ADD HYD              1.0 01:2A-1      3.85      .583 No_date    3:00
75.89 n/a      .000
+ 1.0 03:2C-1      2.64      .339 No_date    3:00
68.36 n/a      .000
+ 1.0 08:2C-2      1.30      .204 No_date    3:00
83.56 n/a      .000
+ 1.0 09:2C-3      1.97      .309 No_date    3:00
78.55 n/a      .000
+ 1.0 06:2B      .87      .073 No_date    3:05
40.37 n/a      .000
SUM= 1.0 07:NSWM1      10.63      1.505 No_date    3:00
72.54 n/a      .000
```

#-----|

#-----| -NORTH SWMP NORTH TOTAL-----|

```
R0007:C00022-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
ADD HYD              1.0 01:2A-1      3.85      .583 No_date    3:00
75.89 n/a      .000
+ 1.0 03:2C-1      2.64      .339 No_date    3:00
68.36 n/a      .000
+ 1.0 08:2C-2      1.30      .204 No_date    3:00
83.56 n/a      .000
+ 1.0 09:2C-3      1.97      .309 No_date    3:00
78.55 n/a      .000
+ 1.0 05:2A-4      .70      .097 No_date    3:00
67.25 n/a      .000
+ 1.0 06:2B      .87      .073 No_date    3:05
40.37 n/a      .000
SUM= 1.0 04:NSWM1      11.33      1.603 No_date    3:00
72.22 n/a      .000
#-----|
```

```
R0007:C00023-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
ROUTE RESERVOIR -> 1.0 04:NSWM1      11.33      1.603 No_date    3:00
72.22 n/a      .000
out <= 1.0 03:SWMF-N      11.33      .487 No_date    3:19
72.22 n/a      .000
overflow <= 1.0 05:NOvf      .00      .000 No_date    0:00
.00 n/a      .000
{MxStoUsed=.4714E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf=
0.hrs}
#-----| -NORTH CATCHMENT TOTAL-----|
```

```
R0007:C00024-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate_hh:mm----RV
mm-R.C.---DWFcms
ADD HYD              1.0 03:SWMF-N      11.33      .487 No_date    3:19
72.22 n/a      .000
+ 1.0 05:NOvf      .00      .000 No_date    0:00
.00 n/a      .000
SUM= 1.0 06:NORTH      11.33      .487 No_date    3:19
72.22 n/a      .000
```

#-----|-----|

#-----|-----|

#-----|-----SOUTHERN CATCHMENT-----|

#-----|-----LANDS DRAINING TO SOUTH SWM POND-----|

R0007:C00025-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 05:1A 8.20 1.240 No\_date 3:00  
74.99 .781 .000  
[XIMP=.37:TIMP=.61]  
[LOSS= 2 :CN= 79.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 234.:MNI=.013:SCI= .0]  
#-----|-----SOUTH SWM POND-----|

R0007:C00026-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 05:1A 8.20 1.240 No\_date 3:00  
74.99 n/a .000  
out <= 1.0 03:SWMF-S 8.20 .302 No\_date 3:22  
74.99 n/a .000  
overflow <= 1.0 07:SOvf .00 .000 No\_date 0:00  
.00 n/a .000  
{MxStoUsed=.3803E+00 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf= 0.hrs}  
#-----|-----|

#-----|-----SOUTHEASTERN CATCHMENT-----|

R0007:C00027-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB STANDHYD 1.0 08:3A .49 .063 No\_date 3:00  
68.90 .718 .000

[XIMP=.64:TIMP=.64]  
[LOSS= 2 :CN= 49.0]  
[Pervious area: IAper= 5.00:SLPP=2.00:LGP= 17.:MNP=.250:SCP= .0]  
[Impervious area: IAimp= 2.00:SLPI=2.00:LGI= 57.:MNI=.013:SCI= .0]  
R0007:C00028-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 08:3A .49 .063 No\_date 3:00  
68.90 n/a .000  
out <= 1.0 09:BIORET .34 .016 No\_date 2:25  
68.90 n/a .000  
overflow <= 1.0 05:BI00vf .15 .047 No\_date 3:00  
68.90 n/a .000  
{MxStoUsed=.8997E-02 m3, TotOvfVol=.1022E-01 m3, N-Ovf= 2, TotDurOvf= 1.hrs}  
R0007:C00029-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ROUTE RESERVOIR -> 1.0 05:BI00vf .15 .047 No\_date 3:00  
68.90 n/a .000  
out <= 1.0 09:DRYPOND .15 .011 No\_date 3:04  
68.90 n/a .000  
overflow <= 1.0 01:DRYOvf .00 .000 No\_date 0:00  
.00 n/a .000  
{MxStoUsed=.7964E-02 m3, TotOvfVol=.0000E+00 m3, N-Ovf= 0, TotDurOvf= 0.hrs}  
#-----|-----SITE TOTAL-----|

R0007:C00030-----DTmin-ID:NHYD-----AREAha-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 06:NORTH 11.33 .487 No\_date 3:19  
72.22 n/a .000  
+ 1.0 03:SWMF-S 8.20 .302 No\_date 3:22  
74.99 n/a .000  
+ 1.0 07:SOvf .00 .000 No\_date 0:00  
.00 n/a .000  
+ 1.0 09:DRYPOND .15 .011 No\_date 3:04  
68.90 n/a .000  
+ 1.0 01:DRYOvf .00 .000 No\_date 0:00  
.00 n/a .000  
SUM= 1.0 10:POSTSITE 19.68 .800 No\_date 3:20  
73.35 n/a .000  
#-----|-----|

#-----|-----|

#-----|-----|

#-----| -POST-DEVELOPMENT-----|

#-----| -OVERALL WC 7 FLOWS-----|

#-----|-----|

#-----| -POST-LAND SWAP-----|

#-----| -LANDS UPSTREAM OF SITE-----|

R0007:C00031-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 01:701 137.80 5.757 No\_date 4:13  
49.94 .520 .000  
[CN= 79.9: N= 3.00: Tp= 1.35]  
R0007:C00032-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
SHIFT HYD -> 1.0 01:701 137.80 5.757 No\_date 4:13  
49.94 n/a .000  
[LAG= 24.0 min]<- 1.0 02:701Shift 137.80 5.757 No\_date 4:35  
49.94 n/a .000  
#-----|-----|

#-----| -POST DEV UNDEVELOPED AREA-----|

R0007:C00033-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
CALIB NASHYD 1.0 03:7021 22.98 1.183 No\_date 3:27  
39.03 .407 .000  
[CN= 69.1: N= 3.00: Tp= .70]  
#-----|-----|

#-----| -WC7 TOTAL AT DOWNSTREAM END--POST DEV-----|

R0007:C00034-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
ADD HYD 1.0 02:701Shift 137.80 5.757 No\_date 4:35  
49.94 n/a .000  
+ 1.0 03:7021 22.98 1.183 No\_date 3:27  
39.03 n/a .000  
+ 1.0 10:POSTSITE 19.68 .800 No\_date 3:20  
73.35 n/a .000  
SUM= 1.0 04:PosWC7 180.46 7.101 No\_date 4:27  
51.10 n/a .000  
R0007:C00035-----DTmin-ID:NHYD-----AREAh-QPEAKcms-TpeakDate\_hh:mm---RV  
mm-R.C.---DWFcms  
SAVE HYD 1.0 04:PosWC7 180.46 7.101 No\_date 4:27  
51.10 n/a .000  
fname :PosWC7.0007  
  
remark:POST WC7

#-----|-----|

R0007:C00002-----  
-----  
FINISH  
-----  
-----  
\*\*\*\*\*  
\*\*\*\*\*  
WARNINGS / ERRORS / NOTES  
-----  
R0001:C00029 ROUTE RESERVOIR  
  
\*\*\* WARNING: Inflow hydrograph is dry.  
  
\*\*\* WARNING: Inflow hydrograph is dry.  
  
\*\*\* WARNING: Outflow volume is less than inflow volume.  
  
Simulation ended on 2026-06-25 at 14:36:53  
=====

```

2 Metric units
**
** Project Name: [PARKBRIDGE CRAIGLEITH] Project Number: [1046-4031]
** Date : 2018-09-20 [UPDATED 2020-06-15]
** Modeller : [OD - UPDATED BY JM/BD - UPDATED BY JE]
** Company : C.F. Crozier & Associates Inc.
** License # : 3737016
**
START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1]
**
** [ "25mm.stm" ] <--storm filename, one per line for NSTORM time
**
**
**
** Chicago 2yr 4-hr storm
**
**
CHICAGO STORM IUNITS=[2], TD=[4.0](hrs), TPRAT=[0.33], CSDT=[5](min),
ICASEcs=[2],
Enter ordinates of IDF curve below, at least seven points
TIME (min) Intensity(mm/hr)
[ 5 ] [ 117.0 ]
[ 10 ] [ 72.1 ]
[ 15 ] [ 54.3 ]
[ 30 ] [ 33.4 ]
[ 60 ] [ 20.6 ]
[ 120 ] [ 12.7 ]
[ 360 ] [ 5.9 ]
[ 720 ] [ 3.6 ]
[ 1440 ] [ 2.2 ]
-1 -1
**
**
**
**
** PRE-DEVELOPMENT
** OVERALL WC 7 FLOWS
**
** PRE-LAND SWAP
** LANDS UPSTREAM OF SITE
**
CALIB NASHYD ID=[1], NHYD=["701"], DT=[1]min, AREA=[146.70](ha),
DWF=[0](cms), CN/C=[79.9], IA=[6.7](mm),
N=[3], TP=[1.35]hrs,
RAINFALL=[ , , , ](mm/hr), END=-1
**
** SITE AND SURROUNDING AREA
**

```

|              |                                                                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CALIB NASHYD | ID=[3], NHYD=["702"], DT=[1]min, AREA=[34.5](ha),<br>DWF=[0](cms), CN/C=[69.1], IA=[7.4](mm),<br>N=[3], TP=[0.7]hrs,<br>RAINFALL=[ , , , ](mm/hr), END=-1      |
| SHIFT HYD    | IDout=[2], NHYD=[701Shift], IDin=[1], TLAG=[24](min)                                                                                                           |
| ##           | -WC7 TOTAL AT LAKESHORE RD--PRE DEV--                                                                                                                          |
| ADD HYD      | IDsum=[4], NHYD=["PreWC7"], IDs to add=[2,3]                                                                                                                   |
| SAVE HYD     | ID=[4], # OF PCYCLES=[1], ICASEsh=[1]<br>HYD_COMMENT=["PRE WC7"]                                                                                               |
| ##           |                                                                                                                                                                |
| ##           |                                                                                                                                                                |
| ##           |                                                                                                                                                                |
| ##           | -PRE-DEVELOPMENT QUANTITY CONTROL MODEL--                                                                                                                      |
| ##           |                                                                                                                                                                |
| ##           | -PRE-DEVELOPMENT SWM QUANTITY--                                                                                                                                |
| ##           |                                                                                                                                                                |
| CALIB NASHYD | ID=[1], NHYD=["1A-Pre"], DT=[1]min, AREA=[8.2](ha),<br>DWF=[0](cms), CN/C=[74.3], IA=[9.27](mm),<br>N=[3], TP=[0.42]hrs,<br>RAINFALL=[ , , , ](mm/hr), END=-1  |
| CALIB NASHYD | ID=[2], NHYD=["2A-Pre"], DT=[1]min, AREA=[4.56](ha),<br>DWF=[0](cms), CN/C=[73.5], IA=[9.7](mm),<br>N=[3], TP=[0.38]hrs,<br>RAINFALL=[ , , , ](mm/hr), END=-1  |
| CALIB NASHYD | ID=[3], NHYD=["2B-Pre"], DT=[1]min, AREA=[0.87](ha),<br>DWF=[0](cms), CN/C=[73.9], IA=[9.4](mm),<br>N=[3], TP=[0.26]hrs,<br>RAINFALL=[ , , , ](mm/hr), END=-1  |
| CALIB NASHYD | ID=[5], NHYD=["2C-Pre"], DT=[1]min, AREA=[5.91](ha),<br>DWF=[0](cms), CN/C=[74.6], IA=[8.97](mm),<br>N=[3], TP=[0.34]hrs,<br>RAINFALL=[ , , , ](mm/hr), END=-1 |
| ##           |                                                                                                                                                                |
| ##           | -North (Catchment 2) Internal--                                                                                                                                |
| ##           |                                                                                                                                                                |
| ADD HYD      | IDsum=[4], NHYD=["2A2B"], IDs to add=[2,3]                                                                                                                     |
| ##           |                                                                                                                                                                |
| ##           | -North (Catchment 2) Total--                                                                                                                                   |
| ##           |                                                                                                                                                                |

```

ADD HYD          IDsum=[4], NHYD=["2-Pre"], IDs to add=[2,3,5]
*%------|-----|
*%------|-----|
CALIB NASHYD     ID=[6], NHYD=["3A-Pre"], DT=[1](min), AREA=[.49](ha),
DWF=[0](cms), CN/C=[43.3], IA=[7.72](mm),
N=[3], TP=[0.29]hrs,
RAINFALL=[ , , , , ](mm/hr), END=-1
*%------|-----|

*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
CALIB STANDHYD  ID=[1], NHYD=["2A-1"], DT=[1](min), AREA=[3.85](ha),
XIMP=[0.460], TIMP=[0.610], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
LGP=[17](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
LGI=[160](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , , ](mm/hr), END=-1
*%------|-----|
CALIB STANDHYD  ID=[3], NHYD=["2C-1"], DT=[1](min), AREA=[2.64](ha),
XIMP=[0.386], TIMP=[0.386], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
LGP=[80](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
LGI=[133](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , , ](mm/hr), END=-1
*%------|-----|
CALIB STANDHYD  ID=[8], NHYD=["2C-2"], DT=[1](min), AREA=[1.3](ha),
XIMP=[0.750], TIMP=[0.750], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
LGP=[30](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
LGI=[93](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , , ](mm/hr), END=-1
*%------|-----|
CALIB STANDHYD  ID=[9], NHYD=["2C-3"], DT=[1](min), AREA=[1.97](ha),
XIMP=[0.386], TIMP=[0.695], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),

```

```

LGP=[30](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
LGI=[115](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , , ](mm/hr), END=-1

```

```

*%------|-----|
CALIB STANDHYD  ID=[5], NHYD=["2A-4"], DT=[1](min), AREA=[0.7](ha),
XIMP=[0.357], TIMP=[0.361], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
LGP=[17](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
LGI=[68](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , , ](mm/hr), END=-1
*%------|-----|
CALIB NASHYD     ID=[6], NHYD=["2B"], DT=[1](min), AREA=[0.87](ha),
DWF=[0](cms), CN/C=[69.2], IA=[5.31](mm),
N=[3], TP=[0.29]hrs,
RAINFALL=[ , , , , ](mm/hr), END=-1

*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
ROUTE RESERVOIR IDout=[3], NHYD=["SWMF-N"], IDin=[4],
RDT=[1](min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[ 0.008 , 0.021 ]
[ 0.024 , 0.066 ]
[ 0.033 , 0.116 ]
[ 0.040 , 0.174 ]
[ 0.334 , 0.236 ]
[ 0.384 , 0.300 ]
[ 0.429 , 0.367 ]
[ 0.469 , 0.437 ]
[ 0.488 , 0.473 ]
[ 1.316 , 0.548 ]
[ 2.305 , 0.587 ]
[ 3.749 , 0.630 ]
[ -1 , -1 ] (max twenty pts)
IDovf=[5], NHYDovf=["NOvf"]
*%------|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|

```

```

*#-----|-----SOUTHERN CATCHMENT-----|
*#-----|-----LANDS DRAINING TO SOUTH SWM POND-----|
*#-----|-----|
CALIB STANDHYD ID=[5], NHYD=["1A"], DT=[1](min), AREA=[8.2](ha),
XIMP=[0.373], TIMP=[0.605], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
LGP=[17](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
LGI=[234](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----SOUTH SWM POND-----|
*#-----|-----|
ROUTE RESERVOIR IDout=[3], NHYD=["SWMF-S"], IDin=[5],
RDT=[1](min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[ 0.008, 0.015]
[ 0.024 , 0.048]
[ 0.033 , 0.088]
[ 0.040 , 0.133]
[ 0.219 , 0.182]
[ 0.246 , 0.234]
[ 0.270 , 0.291]
[ 0.293 , 0.352]
[ 0.303 , 0.383]
[ 0.964 , 0.450]
[ 1.678 , 0.485]
[ -1 , -1 ] (max twenty pts)
IDovf=[7], NHYDovf=["SOvf"]
*#-----|-----|
*#-----|-----SOUTHEASTERN CATCHMENT-----|
*#-----|-----|
CALIB STANDHYD ID=[8], NHYD=["3A"], DT=[1](min), AREA=[0.49](ha),
XIMP=[0.645], TIMP=[0.645], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[49.0],
Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
LGP=[17](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
LGI=[57](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----Bioretention-----|
ROUTE RESERVOIR IDout=[9], NHYD=["BIORET"], IDin=[8],
RDT=[1](min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[ 0.002 ,0.001]
[ 0.007, 0.004]

```

```

[ 0.011, 0.007]
[ 0.016 ,0.009]
[ -1 , -1 ] (max twenty pts)
IDovf=[5], NHYDovf=["BIOOvf"]
*#-----|-----Dry Pond-----|
*#-----|-----|
ROUTE RESERVOIR IDout=[9], NHYD=["DRYPOND"], IDin=[5],
RDT=[1](min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[ 0.005, 0.000]
[ 0.009, 0.003]
[ 0.010 ,0.006]
[ 0.012 ,0.010]
[ 0.014 ,0.017]
[ 0.014 ,0.020]
[ 0.040 ,0.028]
[ 0.043 ,0.040]
[ -1 , -1 ] (max twenty pts)
IDovf=[1], NHYDovf=["DRYOvf"]
*#-----|-----|
*#-----|-----SITE TOTAL-----|
ADD HYD IDsum=[10], NHYD=["POSTSITE"], IDs to add=[6,3,7,9,1]
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----POST-DEVELOPMENT-----|
*#-----|-----OVERALL WC 7 FLOWS-----|
*#-----|-----|
*#-----|-----POST-LAND SWAP-----|
*#-----|-----LANDS UPSTREAM OF SITE-----|
*#-----|-----|
CALIB NASHYD ID=[1], NHYD=["701"], DT=[1]min, AREA=[137.8](ha),
DWF=[0](cms), CN/C=[79.9], IA=[9.27](mm),
N=[3], TP=[1.35]hrs,
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----|
SHIFT HYD IDout=[2], NHYD=["701Shift"], IDin=[1], TLAG=[24](min)
*#-----|-----|
*#-----|-----POST DEV UNDEVELOPED AREA-----|
*#-----|-----|
CALIB NASHYD ID=[3], NHYD=["7021"], DT=[1]min, AREA=[22.98](ha),
DWF=[0](cms), CN/C=[69.1], IA=[7.1](mm),
N=[3], TP=[0.7]hrs,

```

```
#####
##*****Chicago 5yr 4-hr storm*****
##*****
*%-----|-----
```

\*\*\*\*\*#\*\*\*\*\*

```
*#-----| -SITE AND SURROUNDING AREA-----|
```

|    |                                          |
|----|------------------------------------------|
| *% |                                          |
| *% |                                          |
| *# |                                          |
| *# | -PRE-DEVELOPMENT QUANTITY CONTROL MODEL- |
| *# |                                          |
| *# | -PRE-DEVELOPMENT SWM QUANTITY-           |
| *% |                                          |

```

CALIB NASHYD      ID=[3], NHYD=["2B-Pre"], DT=[1]min, AREA=[0.87](ha),
                   DWF=[0](cms), CN/C=[73.9], IA=[9.4](mm),
                   N=[3], TP=[0.26]hrs,
                   RAINFALL=[ , , , ](mm/hr),  END=-1

```

```
*#-----|North (Catchment 2) Total-----|
```

```

*%-----|-----|
ADD HYD      IDsum=[4], NHYD=["2-Pre"], IDs to add=[2,3,5]
*%-----|-----|
*%-----|-----|
CALIB NASHYD  ID=[6], NHYD=["3A-Pre"], DT=[1]min, AREA=[.49](ha),
               DWF=[0](cms), CN/C=[43.3], IA=[7.72](mm),
               N=[3], TP=[0.29]hrs,
               RAINFALL=[ , , , ](mm/hr), END=-1
*%-----|-----|

*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
CALIB STANDHYD ID=[1], NHYD=["2A-1"], DT=[1](min), AREA=[3.85](ha),
               XIMP=[0.460], TIMP=[0.610], DWF=[0](cms), LOSS=[2],
               SCS curve number CN=[79.0],
               Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                                   LGP=[17](m), MNP=[0.25], SCP=[0](min),
               Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                                   LGI=[160](m), MNI=[0.013], SCI=[0](min),
               RAINFALL=[ , , , ](mm/hr), END=-1
*%-----|-----|
CALIB STANDHYD ID=[3], NHYD=["2C-1"], DT=[1](min), AREA=[2.64](ha),
               XIMP=[0.386], TIMP=[0.386], DWF=[0](cms), LOSS=[2],
               SCS curve number CN=[79.0],
               Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                                   LGP=[80](m), MNP=[0.25], SCP=[0](min),
               Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                                   LGI=[133](m), MNI=[0.013], SCI=[0](min),
               RAINFALL=[ , , , ](mm/hr), END=-1
*%-----|-----|
CALIB STANDHYD ID=[8], NHYD=["2C-2"], DT=[1](min), AREA=[1.3](ha),
               XIMP=[0.750], TIMP=[0.750], DWF=[0](cms), LOSS=[2],
               SCS curve number CN=[79.0],
               Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                                   LGP=[30](m), MNP=[0.25], SCP=[0](min),
               Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                                   LGI=[93](m), MNI=[0.013], SCI=[0](min),
               RAINFALL=[ , , , ](mm/hr), END=-1
*%-----|-----|
CALIB STANDHYD ID=[9], NHYD=["2C-3"], DT=[1](min), AREA=[1.97](ha),
               XIMP=[0.386], TIMP=[0.695], DWF=[0](cms), LOSS=[2],
               SCS curve number CN=[79.0],

```

```

Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                  LGP=[30](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                  LGI=[115](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , ](mm/hr), END=-1

```

```

*%-----|-----|
CALIB STANDHYD ID=[5], NHYD=["2A-4"], DT=[1](min), AREA=[0.7](ha),
               XIMP=[0.357], TIMP=[0.361], DWF=[0](cms), LOSS=[2],
               SCS curve number CN=[79.0],
               Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                                   LGP=[17](m), MNP=[0.25], SCP=[0](min),
               Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                                   LGI=[68](m), MNI=[0.013], SCI=[0](min),
               RAINFALL=[ , , , ](mm/hr), END=-1
*%-----|-----|
CALIB NASHYD  ID=[6], NHYD=["2B"], DT=[1]min, AREA=[0.87](ha),
               DWF=[0](cms), CN/C=[69.2], IA=[5.31](mm),
               N=[3], TP=[0.29]hrs,
               RAINFALL=[ , , , ](mm/hr), END=-1

*#-----|-----|
-NORTH SWMP NORTH INLET TOTAL-QUALITY CONTROL-----|
ADD HYD      IDsum=[7], NHYD=["NSWM1"], IDs to add=[1,3,8,9,6]
*#-----|-----|
*#-----|-----|
-NORTH SWMP NORTH TOTAL-----|
ADD HYD      IDsum=[4], NHYD=["NSWM1"], IDs to add=[1,3,8,9,5,6]
*#-----|-----|
ROUTE RESERVOIR IDout=[3], NHYD=["SWMf-N"], IDin=[4],
                 RDT=[1](min),
                 TABLE of ( OUTFLOW-STORAGE ) values
                        (cms) - (ha-m)
                        [ 0.0 , 0.0 ]
                        [ 0.008 , 0.021 ]
                        [ 0.024 , 0.066 ]
                        [ 0.033 , 0.116 ]
                        [ 0.040 , 0.174 ]
                        [ 0.334 , 0.236 ]
                        [ 0.384 , 0.300 ]
                        [ 0.429 , 0.367 ]
                        [ 0.469 , 0.437 ]
                        [ 0.488 , 0.473 ]
                        [ 1.316 , 0.548 ]
                        [ 2.305 , 0.587 ]
                        [ 3.749 , 0.630 ]
                        [ -1 , -1 ] (max twenty pts)
                 IDovf=[5], NHYDovf=["NOvf"]
*%-----|-----|
*#-----|-----|
-NORTH CATCHMENT TOTAL-----|
ADD HYD      IDsum=[6], NHYD=["NORTH"], IDs to add=[3,5]
*#-----|-----|

```

```

*#-----|-----|
*#-----|-----SOUTHERN CATCHMENT-----|
*#-----|-----LANDS DRAINING TO SOUTH SWM POND-----|
*#-----|-----|
CALIB STANDHYD ID=[5], NHYD=["1A"], DT=[1](min), AREA=[8.2](ha),
XIMP=[0.373], TIMP=[0.605], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAPer=[5.0](mm), SLPP=[2.0](%),
LGP=[17](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
LGI=[234](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----SOUTH SWM POND-----|
*#-----|-----|
ROUTE RESERVOIR IDout=[3], NHYD=["SWMF-S"], IDin=[5],
RDT=[1](min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[ 0.008 , 0.015 ]
[ 0.024 , 0.048 ]
[ 0.033 , 0.088 ]
[ 0.040 , 0.133 ]
[ 0.219 , 0.182 ]
[ 0.246 , 0.234 ]
[ 0.270 , 0.291 ]
[ 0.293 , 0.352 ]
[ 0.303 , 0.383 ]
[ 0.964 , 0.450 ]
[ 1.678 , 0.485 ]
[ -1 , -1 ] (max twenty pts)
IDovf=[7], NHYDovf=["S0vf"]
*#-----|-----|
*#-----|-----SOUTHEASTERN CATCHMENT-----|
*#-----|-----|
CALIB STANDHYD ID=[8], NHYD=["3A"], DT=[1](min), AREA=[0.49](ha),
XIMP=[0.645], TIMP=[0.645], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[49.0],
Pervious surfaces: IAPer=[5.0](mm), SLPP=[2.0](%),
LGP=[17](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
LGI=[57](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----Bioretention-----|
ROUTE RESERVOIR IDout=[9], NHYD=["BIORET"], IDin=[8],
RDT=[1](min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[ 0.002 , 0.001 ]

```

```

[ 0.007 , 0.004 ]
[ 0.011 , 0.007 ]
[ 0.016 , 0.009 ]
[ -1 , -1 ] (max twenty pts)
IDovf=[5], NHYDovf=["BIO0vf"]
*#-----|-----|
*#-----|-----Dry Pond-----|
ROUTE RESERVOIR IDout=[9], NHYD=["DRYPOND"], IDin=[5],
RDT=[1](min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[ 0.005 , 0.000 ]
[ 0.009 , 0.003 ]
[ 0.010 , 0.006 ]
[ 0.012 , 0.010 ]
[ 0.014 , 0.017 ]
[ 0.014 , 0.020 ]
[ 0.040 , 0.028 ]
[ 0.043 , 0.040 ]
[ -1 , -1 ] (max twenty pts)
IDovf=[1], NHYDovf=["DRY0vf"]
*#-----|-----|
*#-----|-----SITE TOTAL-----|
ADD HYD IDsum=[10], NHYD=["POSTSITE"], IDs to add=[6,3,7,9,1]
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----POST-DEVELOPMENT-----|
*#-----|-----OVERALL WC 7 FLOWS-----|
*#-----|-----|
*#-----|-----POST-LAND SWAP-----|
*#-----|-----LANDS UPSTREAM OF SITE-----|
*#-----|-----|
CALIB NASHYD ID=[1], NHYD=["701"], DT=[1]min, AREA=[137.8](ha),
DWF=[0](cms), CN/C=[79.9], IA=[9.27](mm),
N=[3], TP=[1.35]hrs,
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----|
SHIFT HYD IDout=[2], NHYD=["701Shift"], IDin=[1], TLAG=[24](min)
*#-----|-----|
*#-----|-----POST DEV UNDEVELOPED AREA-----|
*#-----|-----|
CALIB NASHYD ID=[3], NHYD=["7021"], DT=[1]min, AREA=[22.98](ha),
DWF=[0](cms), CN/C=[69.1], IA=[7.1](mm),

```

```

N=[3], TP=[0.7]hrs,
RAINFALL=[ , , , , ](mm/hr), END=-1
*#-----|-----|
*#-----|WC7 TOTAL AT DOWNSTREAM END--POST DEV-----|
*#-----|-----|
ADD HYD IDsum=[4], NHYD=["PosWC7"], IDs to add=[2,3,10]
*#-----|-----|
*#-----|-----|
SAVE HYD ID=[4], # OF PCYCLES=[1], ICASEsh=[1]
HYD_COMMENT=["POST WC7"]
*#-----|-----|

*****
*****Chicago 10yr 4-hr storm*****
*****
*#-----|-----|

CHICAGO STORM IUNITS=[2], TD=[4.0](hrs), TPRAT=[0.33], CSDT=[5](min),
ICASEcs=[2],
Enter ordinates of IDF curve below, at least seven points
TIME (min) Intensity(mm/hr)
[ 5 ] [ 182.3 ]
[ 10 ] [ 112.3 ]
[ 15 ] [ 84.6 ]
[ 30 ] [ 52.1 ]
[ 60 ] [ 32.1 ]
[ 120 ] [ 19.8 ]
[ 360 ] [ 9.2 ]
[ 720 ] [ 5.7 ]
[ 1440 ] [ 3.5 ]
-1 -1
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|PRE-DEVELOPMENT-----|
*#-----|OVERALL WC 7 FLOWS-----|
*#-----|-----|
*#-----|PRE-LAND SWAP-----|
*#-----|LANDS UPSTREAM OF SITE-----|
*#-----|-----|
CALIB NASHYD ID=[1], NHYD=["701"], DT=[1]min, AREA=[146.70](ha),
DWF=[0](cms), CN/C=[79.9], IA=[6.7](mm),
N=[3], TP=[1.35]hrs,
RAINFALL=[ , , , , ](mm/hr), END=-1
*#-----|SITE AND SURROUNDING AREA-----|

```

```

*#-----|-----|
CALIB NASHYD ID=[3], NHYD=["702"], DT=[1]min, AREA=[34.5](ha),
DWF=[0](cms), CN/C=[69.1], IA=[7.4](mm),
N=[3], TP=[0.7]hrs,
RAINFALL=[ , , , , ](mm/hr), END=-1
*#-----|-----|
SHIFT HYD IDout=[2], NHYD=[701Shift], IDin=[1], TLAG=[24](min)
*#-----|-----|
*#-----|WC7 TOTAL AT LAKESHORE RD--PRE DEV-----|
*#-----|-----|
ADD HYD IDsum=[4], NHYD=["PreWC7"], IDs to add=[2,3]
*#-----|-----|
*#-----|-----|
SAVE HYD ID=[4], # OF PCYCLES=[1], ICASEsh=[1]
HYD_COMMENT=["PRE WC7"]
*#-----|-----|

*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|PRE-DEVELOPMENT QUANTITY CONTROL MODEL-----|
*#-----|-----|
*#-----|PRE-DEVELOPMENT SWM QUANTITY-----|
*#-----|-----|
CALIB NASHYD ID=[1], NHYD=["1A-Pre"], DT=[1]min, AREA=[8.2](ha),
DWF=[0](cms), CN/C=[74.3], IA=[9.27](mm),
N=[3], TP=[0.42]hrs,
RAINFALL=[ , , , , ](mm/hr), END=-1
*#-----|-----|
CALIB NASHYD ID=[2], NHYD=["2A-Pre"], DT=[1]min, AREA=[4.56](ha),
DWF=[0](cms), CN/C=[73.5], IA=[9.7](mm),
N=[3], TP=[0.38]hrs,
RAINFALL=[ , , , , ](mm/hr), END=-1
*#-----|-----|
CALIB NASHYD ID=[3], NHYD=["2B-Pre"], DT=[1]min, AREA=[0.87](ha),
DWF=[0](cms), CN/C=[73.9], IA=[9.4](mm),
N=[3], TP=[0.26]hrs,
RAINFALL=[ , , , , ](mm/hr), END=-1
*#-----|-----|
CALIB NASHYD ID=[5], NHYD=["2C-Pre"], DT=[1]min, AREA=[5.91](ha),
DWF=[0](cms), CN/C=[74.6], IA=[8.97](mm),
N=[3], TP=[0.34]hrs,
RAINFALL=[ , , , , ](mm/hr), END=-1
*#-----|-----|
*#-----|North (Catchment 2) Internal-----|
*#-----|-----|
ADD HYD IDsum=[4], NHYD=["2A2B"], IDs to add=[2,3]
*#-----|-----|
*#-----|North (Catchment 2) Total-----|

```

```

*%-----|-----|
ADD HYD      IDsum=[4], NHYD=["2-Pre"], IDs to add=[2,3,5]
*%-----|-----|
*%-----|-----|
CALIB NASHYD  ID=[6], NHYD=["3A-Pre"], DT=[1]min, AREA=[.49](ha),
               DWF=[0](cms), CN/C=[43.3], IA=[7.72](mm),
               N=[3], TP=[0.29]hrs,
               RAINFALL=[ , , , ](mm/hr), END=-1
*%-----|-----|

*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
CALIB STANDHYD ID=[1], NHYD=["2A-1"], DT=[1](min), AREA=[3.85](ha),
               XIMP=[0.460], TIMP=[0.610], DWF=[0](cms), LOSS=[2],
               SCS curve number CN=[79.0],
               Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                                   LGP=[17](m), MNP=[0.25], SCP=[0](min),
               Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                                   LGI=[160](m), MNI=[0.013], SCI=[0](min),
               RAINFALL=[ , , , ](mm/hr), END=-1
*%-----|-----|
CALIB STANDHYD ID=[3], NHYD=["2C-1"], DT=[1](min), AREA=[2.64](ha),
               XIMP=[0.386], TIMP=[0.386], DWF=[0](cms), LOSS=[2],
               SCS curve number CN=[79.0],
               Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                                   LGP=[80](m), MNP=[0.25], SCP=[0](min),
               Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                                   LGI=[133](m), MNI=[0.013], SCI=[0](min),
               RAINFALL=[ , , , ](mm/hr), END=-1
*%-----|-----|
CALIB STANDHYD ID=[8], NHYD=["2C-2"], DT=[1](min), AREA=[1.3](ha),
               XIMP=[0.750], TIMP=[0.750], DWF=[0](cms), LOSS=[2],
               SCS curve number CN=[79.0],
               Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                                   LGP=[30](m), MNP=[0.25], SCP=[0](min),
               Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                                   LGI=[93](m), MNI=[0.013], SCI=[0](min),
               RAINFALL=[ , , , ](mm/hr), END=-1
*%-----|-----|
CALIB STANDHYD ID=[9], NHYD=["2C-3"], DT=[1](min), AREA=[1.97](ha),
               XIMP=[0.386], TIMP=[0.695], DWF=[0](cms), LOSS=[2],
               SCS curve number CN=[79.0],

```

```

Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                  LGP=[30](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                  LGI=[115](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , ](mm/hr), END=-1

```

```

*%-----|-----|
CALIB STANDHYD ID=[5], NHYD=["2A-4"], DT=[1](min), AREA=[0.7](ha),
               XIMP=[0.357], TIMP=[0.361], DWF=[0](cms), LOSS=[2],
               SCS curve number CN=[79.0],
               Pervious surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
                                   LGP=[17](m), MNP=[0.25], SCP=[0](min),
               Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
                                   LGI=[68](m), MNI=[0.013], SCI=[0](min),
               RAINFALL=[ , , , ](mm/hr), END=-1
*%-----|-----|
CALIB NASHYD  ID=[6], NHYD=["2B"], DT=[1]min, AREA=[0.87](ha),
               DWF=[0](cms), CN/C=[69.2], IA=[5.31](mm),
               N=[3], TP=[0.29]hrs,
               RAINFALL=[ , , , ](mm/hr), END=-1

*#-----|-----|
-NORTH SWMP NORTH INLET TOTAL-QUALITY CONTROL-----|
ADD HYD      IDsum=[7], NHYD=["NSWM1"], IDs to add=[1,3,8,9,6]
*#-----|-----|
*#-----|-----|
-NORTH SWMP NORTH TOTAL-----|
ADD HYD      IDsum=[4], NHYD=["NSWM1"], IDs to add=[1,3,8,9,5,6]
*#-----|-----|
ROUTE RESERVOIR IDout=[3], NHYD=["SWMf-N"], IDin=[4],
                 RDT=[1](min),
                 TABLE of ( OUTFLOW-STORAGE ) values
                        (cms) - (ha-m)
                        [ 0.0 , 0.0 ]
                        [ 0.008 , 0.021 ]
                        [ 0.024 , 0.066 ]
                        [ 0.033 , 0.116 ]
                        [ 0.040 , 0.174 ]
                        [ 0.334 , 0.236 ]
                        [ 0.384 , 0.300 ]
                        [ 0.429 , 0.367 ]
                        [ 0.469 , 0.437 ]
                        [ 0.488 , 0.473 ]
                        [ 1.316 , 0.548 ]
                        [ 2.305 , 0.587 ]
                        [ 3.749 , 0.630 ]
                        [ -1 , -1 ] (max twenty pts)
                 IDovf=[5], NHYDovf=["NOvf"]
*%-----|-----|
*#-----|-----|
-NORTH CATCHMENT TOTAL-----|
ADD HYD      IDsum=[6], NHYD=["NORTH"], IDs to add=[3,5]
*#-----|-----|

```

```

*#-----|-----|
*#-----|-----SOUTHERN CATCHMENT-----|
*#-----|-----LANDS DRAINING TO SOUTH SWM POND-----|
*#-----|-----|
CALIB STANDHYD ID=[5], NHYD=["1A"], DT=[1](min), AREA=[8.2](ha),
XIMP=[0.373], TIMP=[0.605], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[79.0],
Pervious surfaces: IAPer=[5.0](mm), SLPP=[2.0](%),
LGP=[17](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
LGI=[234](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----SOUTH SWM POND-----|
*#-----|-----|
ROUTE RESERVOIR IDout=[3], NHYD=["SWMF-S"], IDin=[5],
RDT=[1](min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[ 0.008 , 0.015 ]
[ 0.024 , 0.048 ]
[ 0.033 , 0.088 ]
[ 0.040 , 0.133 ]
[ 0.219 , 0.182 ]
[ 0.246 , 0.234 ]
[ 0.270 , 0.291 ]
[ 0.293 , 0.352 ]
[ 0.303 , 0.383 ]
[ 0.964 , 0.450 ]
[ 1.678 , 0.485 ]
[ -1 , -1 ] (max twenty pts)
IDovf=[7], NHYDovf=["S0vf"]
*#-----|-----|
*#-----|-----SOUTHEASTERN CATCHMENT-----|
*#-----|-----|
CALIB STANDHYD ID=[8], NHYD=["3A"], DT=[1](min), AREA=[0.49](ha),
XIMP=[0.645], TIMP=[0.645], DWF=[0](cms), LOSS=[2],
SCS curve number CN=[49.0],
Pervious surfaces: IAPer=[5.0](mm), SLPP=[2.0](%),
LGP=[17](m), MNP=[0.25], SCP=[0](min),
Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
LGI=[57](m), MNI=[0.013], SCI=[0](min),
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----Bioretention-----|
ROUTE RESERVOIR IDout=[9], NHYD=["BIORET"], IDin=[8],
RDT=[1](min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[ 0.002 , 0.001 ]

```

```

[ 0.007 , 0.004 ]
[ 0.011 , 0.007 ]
[ 0.016 , 0.009 ]
[ -1 , -1 ] (max twenty pts)
IDovf=[5], NHYDovf=["BIO0vf"]
*#-----|-----|
*#-----|-----Dry Pond-----|
ROUTE RESERVOIR IDout=[9], NHYD=["DRYPOND"], IDin=[5],
RDT=[1](min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[ 0.005 , 0.000 ]
[ 0.009 , 0.003 ]
[ 0.010 , 0.006 ]
[ 0.012 , 0.010 ]
[ 0.014 , 0.017 ]
[ 0.014 , 0.020 ]
[ 0.040 , 0.028 ]
[ 0.043 , 0.040 ]
[ -1 , -1 ] (max twenty pts)
IDovf=[1], NHYDovf=["DRY0vf"]
*#-----|-----|
*#-----|-----SITE TOTAL-----|
ADD HYD IDsum=[10], NHYD=["POSTSITE"], IDs to add=[6,3,7,9,1]
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|-----POST-DEVELOPMENT-----|
*#-----|-----OVERALL WC 7 FLOWS-----|
*#-----|-----|
*#-----|-----POST-LAND SWAP-----|
*#-----|-----LANDS UPSTREAM OF SITE-----|
*#-----|-----|
CALIB NASHYD ID=[1], NHYD=["701"], DT=[1]min, AREA=[137.8](ha),
DWF=[0](cms), CN/C=[79.9], IA=[9.27](mm),
N=[3], TP=[1.35]hrs,
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----|
SHIFT HYD IDout=[2], NHYD=["701Shift"], IDin=[1], TLAG=[24](min)
*#-----|-----|
*#-----|-----POST DEV UNDEVELOPED AREA-----|
*#-----|-----|
CALIB NASHYD ID=[3], NHYD=["7021"], DT=[1]min, AREA=[22.98](ha),
DWF=[0](cms), CN/C=[69.1], IA=[7.1](mm),

```

```

N=[3], TP=[0.7]hrs,
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----|
*#-----|WC7 TOTAL AT DOWNSTREAM END--POST DEV-----|
*#-----|-----|
ADD HYD IDsum=[4], NHYD=["PosWC7"], IDs to add=[2,3,10]
*#-----|-----|
*#-----|-----|
SAVE HYD ID=[4], # OF PCYCLES=[1], ICASEsh=[1]
HYD_COMMENT=["POST WC7"]
*#-----|-----|

*****
*****Chicago 25yr 4-hr storm*****
*****
*#-----|-----|

CHICAGO STORM IUNITS=[2], TD=[4.0](hrs), TPRAT=[0.33], CSDT=[5](min),
ICASEcs=[2],
Enter ordinates of IDF curve below, at least seven points
TIME (min) Intensity(mm/hr)
[ 5 ] [ 215.3 ]
[ 10 ] [ 132.6 ]
[ 15 ] [ 99.9 ]
[ 30 ] [ 61.5 ]
[ 60 ] [ 37.9 ]
[ 120 ] [ 23.3 ]
[ 360 ] [ 10.8 ]
[ 720 ] [ 6.7 ]
[ 1440 ] [ 4.1 ]
-1 -1
*#-----|-----|
*****
*****
*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|PRE-DEVELOPMENT-----|
*#-----|OVERALL WC 7 FLOWS-----|
*#-----|-----|
*#-----|PRE-LAND SWAP-----|
*#-----|LANDS UPSTREAM OF SITE-----|
*#-----|-----|
CALIB NASHYD ID=[1], NHYD=["701"], DT=[1]min, AREA=[146.70](ha),
DWF=[0](cms), CN/C=[79.9], IA=[6.7](mm),
N=[3], TP=[1.35]hrs,
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|SITE AND SURROUNDING AREA-----|

```

```

*#-----|-----|
CALIB NASHYD ID=[3], NHYD=["702"], DT=[1]min, AREA=[34.5](ha),
DWF=[0](cms), CN/C=[69.1], IA=[7.4](mm),
N=[3], TP=[0.7]hrs,
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----|
SHIFT HYD IDout=[2], NHYD=[701Shift], IDin=[1], TLAG=[24](min)
*#-----|-----|
*#-----|WC7 TOTAL AT LAKESHORE RD--PRE DEV-----|
*#-----|-----|
ADD HYD IDsum=[4], NHYD=["PreWC7"], IDs to add=[2,3]
*#-----|-----|
*#-----|-----|
SAVE HYD ID=[4], # OF PCYCLES=[1], ICASEsh=[1]
HYD_COMMENT=["PRE WC7"]
*#-----|-----|

*#-----|-----|
*#-----|-----|
*#-----|-----|
*#-----|PRE-DEVELOPMENT QUANTITY CONTROL MODEL-----|
*#-----|-----|
*#-----|PRE-DEVELOPMENT SWM QUANTITY-----|
*#-----|-----|
CALIB NASHYD ID=[1], NHYD=["1A-Pre"], DT=[1]min, AREA=[8.2](ha),
DWF=[0](cms), CN/C=[74.3], IA=[9.27](mm),
N=[3], TP=[0.42]hrs,
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----|
CALIB NASHYD ID=[2], NHYD=["2A-Pre"], DT=[1]min, AREA=[4.56](ha),
DWF=[0](cms), CN/C=[73.5], IA=[9.7](mm),
N=[3], TP=[0.38]hrs,
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----|
CALIB NASHYD ID=[3], NHYD=["2B-Pre"], DT=[1]min, AREA=[0.87](ha),
DWF=[0](cms), CN/C=[73.9], IA=[9.4](mm),
N=[3], TP=[0.26]hrs,
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----|
CALIB NASHYD ID=[5], NHYD=["2C-Pre"], DT=[1]min, AREA=[5.91](ha),
DWF=[0](cms), CN/C=[74.6], IA=[8.97](mm),
N=[3], TP=[0.34]hrs,
RAINFALL=[ , , , ](mm/hr), END=-1
*#-----|-----|
*#-----|North (Catchment 2) Internal-----|
*#-----|-----|
ADD HYD IDsum=[4], NHYD=["2A2B"], IDs to add=[2,3]
*#-----|-----|
*#-----|North (Catchment 2) Total-----|

```