# SERVICING & STORMWATER MANAGEMENT IMPLEMENTATION REPORT

## PARKBRIDGE CRAIGLEITH RIDGE RESIDENTIAL DEVELOPMENT TOWN OF THE BLUE MOUNTAINS

## PARKBRIDGE LIFESTYLE COMMUNITIES INC.


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CROZIER
CONSULTING ENGINEERS

| Identification | Date | Comments |
|---|---|---|
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## 1.0 INTRODUCTION

CF Crozier & Associates Inc. (Crozier) was retained by Parkbridge Lifestyle Communities Inc. (Parkbridge) to prepare a Servicing & Stormwater Management Implementation Report and detailed engineering drawings for the proposed Parkbridge Craigleith Ridge Development in support of Site Plan Approval. Located within the Village of Craigleith south of Highway 26, the property is bounded by Lakeshore Road to the north, adjacent privately-owned lands to the south and east, and Grey Road 19 to the west. Refer to **Figure 1** for the Site Location Plan.

Crozier had previously prepared a Functional Servicing and Stormwater Management (FSRSWM) Report in support of Draft Plan Approval, complete with preliminary design figures. Following the submission of the FSRSWM Report in April 2018, subsequent meetings for this development have occurred between Parkbridge and the Town of The Blue Mountains (TOBM), Grey Sauble Conservation Authority (GSCA), and Ministry of Transportation (MTO) to advance discussions on drainage design. The Subject Lands were granted Draft Plan Approval by Grey County Council on September 13, 2018. Following the Draft Plan Approval of the Subject Lands, a Local Planning Appeal Tribunal (LPAT) case was brought forth and subsequently settled. Through this process, modified Draft Plan Conditions and Minutes of Settlement were produced for the proposed development. A Hazard zoning designation is respected along Watercourses 9, 10 and 7, as well as along the Nipissing Ridge. Open Space designations have been proposed for archaeological areas and stormwater management facility area on site, and a Residential designation has been proposed for the remainder of the site.

The proposed Site Plan prepared by SvN Architects (August 14, 2020) is illustrated in **Figure 2.** The development will consist of a total of 211 residential units comprised of a mixture of 1 and 2-storey single detached homes, back-to-back and loft townhome units as well as a series of private roads, environmental / archaeological protection areas, open space and stormwater management facility areas. A Storage Facility and Clubhouse are also proposed. Parkbridge proposes the Subject Lands be developed as a Land Lease Community geared towards the adult lifestyle and recreation markets.

This report provides information about the proposed water and sanitary sewer servicing and stormwater management (SWM) systems designed to service the Land Lease Community. This report has been prepared based on the design framework established in the Functional Servicing and Stormwater Management Report dated December 2016 and revised April 2018 to satisfy the conditions of Draft Plan Approval.

## 2.0 SITE DESCRIPTION

The Parkbridge Craigleith Ridge development is comprised of three separate property parcels. The largest 25 ha (62 acre) property is located south of Lakeshore Road and is legally described as Plan 529, Part Lot 161, Town of The Blue Mountains, County of Grey. A smaller 1.2 ha (3 acre) property is located south of Lakeshore Road and is legally described as Plan 529, Lot 172 and Part Lot 173 as Part 2 RP 16R-6640, Town of The Blue Mountains, County of Grey. Finally, the third parcel is an approximately 0.6ha undeveloped parcel located north of Lakeshore Road, bounded by Lakeshore Road and Georgian Trail. This parcel is legally described as Plan 529 Part Lot 169, Town of The Blue Mountains, County of Grey.

The Craigleith Ridge development traverses the Nipissing Ridge with a portion of development lands on the upper terrace above the ridge, as well as below the ridge on the lower terrace lands. Existing vegetation across the subject lands consists of cultural meadows and clusters of trees. There are four (4) Watercourses that traverse the subject lands; Watercourse 7, 8, 9 and 10. Watercourse 9 is the most significant of the four to consider in the design as it traverses through the central portion of the site,

while Watercourses 7 and 8 are limited to the east end of the site and Watercourse 10 is located along the west limits of the site. The Watercourse corridors and the Nipissing Ridge are densely treed.

The Nipissing Ridge possesses slopes of approximately 25-50%, save and except a portion of the Ridge immediately to the east of the Watercourse 9 valley corridor in the central portion of the site. Previous excavation works have lessened the slope of the Ridge in this area. Consequently, the Nipissing Ridge within the altered portion is generally open and vegetated with clusters of younger trees as compared to the balance of the ridge, which is more densely forested.

The surficial soils of the site are characterized by the Soil Survey of Grey County (1954). Below the Nipissing Ridge towards the north end of the site, the soil is primarily Granby sand which is generally considered as Hydrologic Soil Group B and is imperfectly drained. The soils traversing the Nipissing Ridge are characterized as Waterloo sandy loam (Group A) and is considered to be well draining. Above the Nipissing Ridge at the south end of the site, the soils are characterized as Kemble silty clay (Group C) and are considered to be poor draining. Refer to **Figure 3** for the Site Soil Map, based on the 'Soils of Grey County, Ontario (North Sheet, Soil Survey Report No. 17).

## 2.1 Natural Hazards and Archaeological Features

Crozier historically provided engineering services with respect to the subject property for a previous owner. Although previous planning applications were not formally finalized, we have completed natural hazards assessments, functional servicing and stormwater management designs for previous design concepts on the property. The results of the natural hazards assessments were presented and refined with the Town and the Grey Sauble Conservation Authority (GSCA). Through this process, a settlement was reached with the Town and the GSCA that confirmed the hazard land limits for the subject lands. Further, the LPAT settlement concluded with an updated set of Draft Plan Conditions and site zoning, including lands designated as hazard lands which have been respected through the design process.

Existing on-site archeological features and environmental constraints including watercourses, butternut trees and woodland bat habitat are present and therefore have been accorded appropriate buffer zones and/or setbacks. Refer to **Drawing C111,** the Site Preparation and Protection Plan for details.

### 2.1.1. Watercourse 9 Erosion Hazard and Meander Belt Width Delineation

GEO Morphix Ltd. prepared a report titled Geomorphological Assessment and Stabilization Recommendations (September 2020), referred to herein as the Geomorphology Study, in support of the proposed development. This study assessed the geomorphic properties of Watercourse 9. Through erosion and meander belt analyses, the report concluded that a 17m meander belt width (8.5m on either side) is required for the portion of Watercourse 9 located below the ridge where the watercourse exhibits an unconfined valley system. An erosion setback analysis was applied to Watercourse 9 above the ridge as this area exhibits a confined valley system. The results of the meander belt width and erosion analyses provide setbacks that are within the zoned hazard lands adjacent to proposed development.

The Geomorphology Study also proposed recommendations for erosion protection and bank stability at the proposed Watercourse 9 crossing locations. As the design progresses, the recommendations will be incorporated into the proposed engineering design to minimize impacts to the Watercourse.

### 2.1.2. Butternut Trees

A Butternut Health Assessment was completed by Azimuth Environmental Consulting Inc. and provided to The Ministry of Natural Resources and Forestry (MNRF) for agreement on the recommended buffer areas and compensation for encroachment as required. **Drawing C111** indicates 25m buffers around identified healthy Butternut trees on site.

### 2.1.3. Archaeological Sites

Stage 1 to 4 Archaeological Assessments were completed on the property, and specific archaeological protection areas have been identified. Three key archaeological areas were identified:

**Plater-Fleming Area** – Archaeological site at the west end of the site. The archaeological area and buffers are shown.
**P2 Dog Bone Area** – Archaeological site at the northern end of the site. The 'X' shows the location of the site, and a designated buffer zone is shown.
**P6 Archaeological Area** – Archaeological site at the east end of the site. The archaeological area and buffers are shown.

There are registered archaeological sites within the area to be protected that fall under the provisions of the Ontario Heritage Act. The area to be protected cannot be subject to any soil disturbing activities without the Ministry of Tourism, Culture and Sport (MTCS) approval or an archaeological assessment conducted by a licensed archaeologist. Restricted activities include grading, the installation of utilities, the importation of soils, the installation of features, or any other activities that may potentially impact the archaeological site.

These archaeological sites require avoidance and protection measures during construction, as well as long-term protection measures. The following strategies are required to protect these sites, and are also outlined in **Drawing C111** Site Preparation and Protection Plan:

- Prior to construction commencing, temporary protective fencing will be erected around the portion of the site to be avoided;
- The protected area will be considered a restricted zone for construction purposes and this will be communicated to all individuals working on site and to any individuals involved in construction planning;
- The location of the protected area will be explicitly labeled on all pertinent contract drawings;
- Prior to the commencement of construction, a licensed consultant archaeologist will be hired to supervise the erection of the temporary protective fencing;
- During grading and other soil disturbing activities, the protected site area will be inspected and monitored by a licensed consultant archaeologist to verify the effectiveness of the avoidance and protection strategies and ensure there are no incidental impacts to the site;
- If alteration of the archaeological site is observed at any time during construction, MTCS will be notified immediately and appropriate measures will be taken under guidance from a licensed consultant archaeologist;
- After completion of grading and other soil disturbing activities, a licensed consultant archaeologist will inspect and report to the MTCS on the effectiveness of the avoidance and protection strategies through a site visit to observe conditions and final reporting and;
- If new archaeological remains are uncovered during construction, the licensed consultant archaeologist will stop construction and conduct any required follow-up archaeological assessment as deemed appropriate by MTCS.

The hazard limits and archaeological and environmental setbacks are to be respected in the current development application and are illustrated on **Drawing C111.**

#### 2.1.4. Regional Stormwater Hazards

Under existing conditions, flows spill from Watercourse 9 to Watercourse 8 across the lower portion of the site adjacent Lakeshore Road when water surface elevations exceed the east bank elevations, which occurs in major storm events. The existing site topography directs flows that overtop the east bank of Watercourse 9 across the site via sheet flow towards Watercourse 8.

### 2.2 Existing Watercourses

The site is located within the study area of the Craigleith Camperdown Subwatershed Study (prepared for GSCA by Gore & Storrie, November 1993) and the watercourse naming in this report has been adopted to be consistent with that study. Watercourses 7, 8, 9 and 10 traverse the subject lands in varying fashions as described below. The Regional Drainage Plan for Watershed 9 is illustrated in **Figure 4**. Refer to **Figure 5** for pre-development drainage patterns and existing site topography.

Crozier has completed a comprehensive analysis of Watercourses 7, 8, 9 and 10 to assess the existing flooding conditions of the watercourses and make recommendations to improve upon the existing downstream flood conveyance infrastructure of Lakeshore Road and Highway 26 to mitigate the impact of future flood events. This analysis was completed to support the development applications of the Parkbridge Craigleith Ridge development and the neighboring MacPherson Home Farm development. The reader is directed to the draft report titled Regional Stormwater Management Plan (Crozier, Draft April 2018) for further analysis of the regional storm drainage infrastructure, as well as the Regional Spill Management Letter (Crozier, February 2019) that was submitted to the Town of The Blue Mountains. Subsequent work and updates to the initial draft report are underway and will be addressed under separate cover.

*Watercourse 7* traverses the subject lands along the east edge of the property through the former Keith parcel. This watercourse is located in a defined channel and passes between existing residential units adjacent to Lakeshore Road. The outlet of this watercourse is downstream of Highway 26 and has been identified as a potential flood damage area in the original Gore & Storrie report, due to channel constrictions imposed by existing residences. As a response to the constricted outlet, MTO implemented a diversion to direct a portion of the Watercourse 7 flows to Watercourse 8 via the south ditch of Highway 26. Watercourse 7 was previously studied by Crozier as part of the "Eden Oak" development to determine the development limits adjacent Watercourse 7. A 30m watercourse setback has been respected in the site plan as indicated on **Drawing C111** as a high constraint area. Formal floodlines for Watercourse 7 are contained within this setback across the site.

*Watercourse 8* is a relatively small subwatershed which originates in the central portion of the site above the Nipissing Ridge. Flow from Watercourse 8 becomes diffuse below the ridge and infiltrates into the native soil structure and shallow bedrock. A defined channel is intermittent between the bottom of the Nipissing Ridge and Lakeshore Road. Downstream of Lakeshore Road Watercourse 8 re-develops into a small stream before crossing under Lakeshore Road, Georgian Trail, and Highway 26.

The *Watercourse* 9 valley corridor bisects the upper and lower terrace lands into west and east portions. Watercourse 9 is located within a deeply incised ravine across the upper terrace lands and within a defined channel but unconfined valley setting across the lower terrace lands. Watercourse 9 has an upstream drainage area of approximately 145 ha. Regulatory floodlines were established for this watercourse (Crozier, 2006) which were subsequently incorporated into natural hazard mapping

by the GSCA on behalf of the former client. Above the ridge flows are contained within the existing incised valley corridor. Downstream of the ridge the watercourse is in an unconfined valley feature. Existing spill conditions whereby spill flows from Watercourse 9 to Watercourse 8 and Georgian Bay are to be safely addressed through the Regional Drainage Plan for the Development. Erosion and meander belt setbacks as determined by the Geomorphology Study prepared by GEO Morphix (September 2020), and proposed formal floodlines are contained within the watercourse natural hazard setback adjacent to proposed development as defined by the zoning for the site.

The Regional Drainage Area Plan for Watershed 9 is available in **Figure 4**.

An existing man-made pond is located in the central portion of the site adjacent to the bottom of the Nipissing Ridge. This pond intercepts sheet flow from the ridge and stores the water with an existing outlet structure discharging to *Watercourse 9*.

The *Watercourse 10* valley corridor is located along the western limits of the lower terrace lands of the subject property. Along the lower terrace lands, Watercourse 10 is located within a defined channel but unconfined valley setting. An incised drainage draw, located in the western portion of the upper terrace lands, connects into the Watercourse 10 valley corridor. The drainage area for the watercourse is relatively small, however regulatory setbacks of 15m (min) will be maintained consistent with the requirements of the GSCA and Town for Watercourse 9.

The capacity of the Watercourse 9 culverts crossing Lakeshore Road, the Georgian Trail and Highway 26 were assessed and shown to have insufficient capacity to convey major storm events to Georgian Bay. Further analysis completed in the Draft Regional SWM Plan (Crozier, Draft April 2018) and the Regional Spill Management Letter (Crozier, February 2019) determined that under existing conditions, Watercourse 9 spills to Watercourse 8 via the south ditches of Lakeshore Road, the Georgian Trail, and Highway 26. Flows from Watercourse 7 also spill to Watercourse 8. Under existing conditions, Watercourse 8 does not have sufficient capacity to convey the spill flows to Georgian Bay. The Regional SWM Plan that will be completed prior to construction of the subject lands is proposing to control existing spills to Watercourse 8, and to upgrade the capacity of the Watercourse 8 culverts to provide capacity to convey major storm events to Georgian Bay. The detailed design of the proposed watercourse and culvert improvements downstream of the Subject Site will be completed as part of an addendum to the Draft Regional SWM Plan and submitted at a later date. The proposed stormwater management strategy for the Subject Site is to meet or reduce existing peak flows at the downstream end of the site (Lakeshore Road) for all of the on-site Watercourses (7, 8, 9 and 10). The Regional SWM Plan design will accommodate the existing flows from each of the watercourses, and as such the pre- to post peak flow approach is appropriate for the stormwater management design of the Subject Site.

## 3.0 DEVELOPMENT BACKGROUND

As shown in the Site Plan, **Figure 2**, the proposed development consists of the following units:

**Table 1: Proposed Unit Type**

| **Unit Type** | **# Units** | **Footprint** |
|---|---|---|
| Clubhouse | 1 | 5,000 sq.ft |
| Storage Facility | 1 | 3,945 sq. ft |
| | | **Population*** |
| Type A – Back-to-back Towns | 45 | 104 |
| Type B – 1-Storey Towns | 28 | 64 |
| Type C – Loft Towns | 92 | 212 |
| Type D & E – 1-Storey Single & 2-Storey Single | 46 | 106 |
| **Total** | **211** | **486** |

*Population based off TOBM standards of 2.30 persons per unit

Access to the site will be through one private road entrance from Grey Road 19 and Craigleith Road. An emergency access is also proposed at Lakeshore Road.

The site will be fully serviced by municipal sewer and water. As illustrated in the detailed design drawing set, an urban standard has been utilized for the roadway drainage system consisting of semi-mountable concrete curb and gutter complete with storm sewers. Overland flow routes have been provided to the SWM Facilities and designated outlets. The servicing and road standards are discussed in more detail within the following sections of this report.

## 4.0 ROAD STANDARD

Access to the property is proposed via single access at the intersection of Grey Road 19 and Craigleith Road, with an emergency access entrance provided from Lakeshore Road. The operations of the site access have been assessed in the Traffic Assessment (Crozier, 2018).

The emergency access at Lakeshore Road will be regulated with knockdown bollards.

The internal roadway and entrances within the property are proposed to be privately owned and maintained. The internal private roadways will consist of a 14.0 m roadway service corridor containing a minimum 6.0 m wide, super elevated paved asphalt platform, semi-mountable curb on one side, sanitary sewers, storm sewers, watermain, utilities and streetlights.

The upper and lower portions of the site will be connected by a road that will traverse the Nipissing Ridge and cross Watercourse 9. In total, three (3) watercourse crossings are to be constructed in order to cross Watercourse 9 both above and below the ridge. The culverts have been designed to convey flows up to and including the 100-year and Regional events. In the event that the culverts are blocked, the water will spill onto the roadway and will be directed to Watercourse 9 via an overland flow route.

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). Refer to **Appendix F** for the Geotechnical Report and addendum completed by Peto MacCallum Ltd.

## 5.0 SANITARY SERVICING

### 5.1 Existing Sanitary Infrastructure

Existing sanitary infrastructure near the site includes:

- 525mm diameter trunk sewer along Lakeshore Road
- 525mm diameter trunk sewer directing flows from Lakeshore Road to Highway 26
- 250mm diameter sewer along Grey Road 19

The Craigleith Wastewater Treatment Plant (WWTP) can accommodate wastewater flows from the proposed development. Existing capacity is available in the system and was confirmed by the Town of The Blue Mountains during the pre-consultation meeting. The Craigleith WWTP currently has approximately 4,704 units free for allocation (2013 TOBM Water & Wastewater Capacity Assessment).

### 5.2 Proposed Sanitary Servicing Strategy

The sanitary sewer systems will consist of two (2) connections to the existing 525mm trunk sanitary sewer along Lakeshore Road. The first connection will service 148 residential units, the clubhouse and the storage facility and is proposing to connect to an existing manhole approximately 95m west of Watercourse 9. The second connection will service 63 residential units and will connect to an existing manhole adjacent to the proposed Lower Pond, approximately 130m east of Watercourse 9. From these connections, sanitary flows will drain via gravity towards the existing Lakeshore Road Sewage Pumping Station, pumping wastewater to the Craigleith WWTP.

Internally, sanitary sewers will follow the alignment of the internal roadway network and will drain via gravity towards the proposed connection locations along Lakeshore Road. Rock breaking may be required to install sanitary sewers and services in a portion of the lower terrace lands due to high bedrock levels. Refer to **Drawings C106.A-D** for the proposed sanitary sewer network and sanitary drainage areas.

Preliminary sanitary flows for the 211 proposed residential units, clubhouse (assumed equivalent to 5 residential units) and storage facility (217 units total) across 13 ha were estimated using the following values, per the Town of The Blue Mountains Standards:

- Average Flow Rate – 450 L/cap/day
- Infiltration – 0.23 L/s/ha
- Peaking Factor – 4.0 (Harmon)
- Population Density – 2.3 Persons/Unit

Based on these values it is estimated that peak sanitary flow from the site will be 13.3 L/s. Refer to **Appendix A** for the sanitary demand calculations and the sanitary sewer design sheet.

The sanitary sewer system between the proposed connection points to the Lakeshore Road Sewage Pumping Station has residual capacity to accept proposed flows from the Development as confirmed through update of the TOBM sanitary sewer model.

## 6.0 WATER SERVICING

### 6.1 Existing Potable Water Supply Infrastructure

Existing water infrastructure near the site includes:

- 350mm diameter watermain along Grey Road 19
- 200mm diameter watermain along Grey Road 19
- 200mm diameter watermain along Lakeshore Road

The potable water supply for the subject development will be provided by way of two connections to the existing TOBM water distribution network. The Town of The Blue Mountains has commented on water supply capacity, confirming in comments to 1st Submission Detailed Design that capacity exists at the Water Treatment Plant for the proposed development.

Following confirmation from TOBM that the system was functional, a hydrant flow test was coordinated to confirm available flows and pressures in the TOBM's distribution system to serve the Craigleith Ridge Development. The flow test was undertaken August 28th, 2018 by Vipond Inc. Detailed results from the hydrant flow test have been included in **Appendix B.**

## 6.2 Proposed Water Servicing Strategy

The development will be serviced via two dedicated connections to the municipal distribution network; the primary connection is proposed at the site access via Grey County Road 19 (350mm dia. watermain) and an additional connection has been proposed to the 200mm diameter watermain along Lakeshore Road via a servicing corridor approximately 90m west of Watercourse 9. Two watermain connections to the municipal distribution network will satisfy the TOBM and Ministry of the Environment requirements for a looped water distribution system. Therefore, there should be no issue with respect to providing adequate water circulation and preventing the potential for stagnant potable water.

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 350 mm diameter watermain along Grey Road 19 and the 200 mm diameter watermain along Lakeshore Road are located in different pressure zones within the Town. Pressure Reducing Valves (PRVs) are required given that the internal system is connecting to two pressure zones as well as the large range of elevation across the site. Fire hydrant spacing has been set to provide adequate fire coverage for all units. All units are within 50m of a fire hydrant. The watermain will be owned and operated by the Town of the Blue Mountains.

Domestic water demands for the site were estimated using the following criteria as specified in the Town of the Blue Mountains Standards:

- Average Flow Rate – 450 L/cap/day
- Peak Factors: Peak Day/ Peak Hour – 2.0/4.5
- Population Density – 2.3 Persons/Unit

Based on these values it is estimated that water demands for the site are as follows:

- Average Day – 2.6 L/s
- Max Day – 5.2 L/s
- Peak Hour – 11.7 L/s

Maximum fire flows required to service the site were determined to be 133 L/s per the Fire Underwriter's Survey and 45 L/s per Ontario Building Code (OBC). The total design flow (peak residential + fire flow) for the water distribution system is 144.7 L/s. Refer to **Appendix B** for potable water servicing demand and fire flow calculations and **Drawings C101.A-D** for the proposed Water Distribution Plan.

### 6.2.1. Potable Water Modelling

A detailed WaterCAD model was completed using the boundary conditions outlined in the preliminary modelling results provided by J.L. Richards (February 2021). The model results yielded two possible options to provide the required fire flows, peak hour and max day flows throughout the development. The model was completed to meet the required pressures per the TOBM Standards as summarized below:

- Average Day Pressure = 350 – 550 kPa
- Peak Hour Pressure = 275 – 700 kPa
- Max Day + Fire Flow = 140 – 700 kPa

The model results showed that two methods of pressure reduction were necessary to meet the Town's design pressure ranges for Average Day, Peak Hour and Max Day + Fire Flow. For each option,

appropriate watermain sizes and PRV settings were determined to achieve required pressures and flow rates throughout the site.

Option 1 proposes the combination of one Pressure Reducing Valve (PRV) located on the lower side of the ridge just north of the second watercourse crossing, and individual pressure reducing values for each residential unit and the clubhouse in the upper zone (above the ridge / south portion of the development).

Option 2 proposes two Pressure Reducing Valves (PRVs) with a valve located on the lower side of the ridge just north of the second watercourse crossing, and the second valve located along the roadway fronting the clubhouse. Option 2 has been reflected on the design drawings. Refer to **Drawings C101.A-D** for the locations of the proposed PRVs. A Water Modelling Memo has been prepared to outline the modelling results for the two Options. Refer to **Appendix B** for the Water Modelling Memo which includes water demands at each node of the model, the J.L. Richards model output and summary email with the boundary conditions, model input and results.

## 7.0 UTILITIES

The proposed development will be serviced with natural gas, telephone, cable TV and hydro. All such utilities are currently available on the boundary roadways. Given the development is proposed as a land lease community, potential exists to service many units through rear yard utility connections. Hydro One has confirmed there are existing overhead 3-phase 4.8/8.32kV primary along Lakeshore Road East and overhead 16/27.6kV primary along Grey Road 19. Coordination with the aforementioned utilities is being initiated to confirm utility design and connection locations.

A Composite Utility Plan will follow in future submissions which outlines the proposed utility alignments throughout the development.

## 8.0 STORMWATER MANAGEMENT & DRAINAGE

### 8.1 Stormwater Management Criteria

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

The stormwater management criteria for the Subject Development include:

- 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

- 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

In response to comments received from the Town and the GSCA, Crozier has also authored a Draft Regional Stormwater Management Plan for Watercourses 7, 8, 9, & 10 (Crozier, Draft April 2018). This report includes a detailed investigation of existing conveyance capacities with the aforementioned watersheds and includes recommendations for improvements downstream to Georgian Bay to protect existing flood-susceptible properties.

Further to the Regional SWM Plan, *Watercourse* 9 has been identified as the primary outlet for the subject lands considering the majority of the site drains to this watercourse and the associated large upstream drainage area. As such, the sections on Stormwater Management and Drainage below explore this scheme in detail. Stormwater discharge from developed areas to Watercourses 7, 8 & 10 from the subject lands is not proposed.

### 8.2 Site Grading Criteria

The grading criteria that will be applied to the proposed Land Lease Community include the following:

- All dwelling basements/crawl spaces have been sited above the existing bedrock surface;
- There is a minimum 0.5m separation of sample seasonally high groundwater level (recorded May 2018) from underside of footing;
- Site grading must enable all proposed residential dwellings to be serviced by gravity sanitary services;
- 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.

### 8.3 Existing Drainage Conditions

As previously noted, the site lies within multiple subwatersheds as identified in the Craigleith Camperdown Subwatershed Study prepared by Gore & Storrie (1993) for the GSCA. Refer to **Figure 5** for the pre-development drainage plan, which includes existing storm catchments, subwatershed delineations, and existing culvert locations and sizes.

Watercourse 9 collects and conveys flow from approximately 145 ha upstream of Lakeshore Road and Highway 26, as shown on **Figure 4**. The 25 ha subject property is located at the downstream end near the ultimate receiving body, Georgian Bay. Given its downstream location within the subwatershed, it is reasonable to assume that site runoff enters the Watercourse 9 system and discharges to Georgian Bay in advance of the hydrograph peak of the entire subwatershed.

Watercourse 9 originates above the Niagara Escarpment. Upon traversing the escarpment, the watercourse bisects a number of ski hills before crossing Grey Road 19 just south of Craigleith Road. The watercourse makes its way through private lands prior to traversing the subject lands.

Drainage in subwatershed 9 within the subject property is generally by way of sheet flow in a northeast direction. Watercourse 9 drainage is conveyed under Lakeshore Road, Georgian Trail and Highway 26 by a series of existing culverts as depicted on **Figure 5**. An existing pond is located on-site at the base of the ridge and east of Watercourse 9, as shown on **Figure 5**, which has a contributing drainage area of approximately 2.0 ha.

The original subwatershed delineations in the site area were developed as part of the Craigleith Camperdown Subwatershed Study. An existing residential development exists west of Grey Road 19 and south of Craigleith Road. This development is known as the "Orchards" development and was designed by Higgins Engineering, which included the construction of a SWM facility.

Crozier undertook a review of the final Functional Servicing and Stormwater Management Report (Higgins Engineering, January 2005) for the "Orchards" development. The 116.6 ha external drainage area upstream of Grey Road 19 was studied and modeled in the aforementioned report, of which 101.8 ha was considered external drainage and 14.8 ha was considered the "Orchards" development site area. Accordingly, this external drainage area and "Orchards" SWM modeling has been implemented for the Parkbridge Craigleith study area in both pre and post-development conditions, which accounts for the existing SWM facility that services the "Orchards" development. These areas are depicted on **Figure 5** as catchments EXT-9A and EXT-9B.

#### 8.3.1. Regional SWM Existing Conditions

Per the Draft Regional SWM Plan (Crozier, Draft April 2018), the existing Watercourse 9 culverts under Lakeshore Road, Georgian Trail and Highway 26 do not have sufficient capacity to convey the Regional flow to Georgian Bay without backing up and spilling to Watercourse 8.

Through analysis of the existing elevations, and watercourse and culvert capacities it was determined that during a Regional storm event, stormwater from Watercourse 9 spills east towards Watercourse 8 via the ditch on the south side of Lakeshore Road, the ditch along the south side of the Georgian Trail and the ditch along the south side of Highway 26. Prior to spilling, water will backup and pond upstream of each of the culverts. This was demonstrated through the analysis completed for the Regional Spill Management Letter (Crozier, February 2019), which depicts a hydrograph showing the proportion of surplus volume that cannot be conveyed by the culverts that contributes to storage upstream of Lakeshore Road prior to spill. This storage onsite was found to have a negligible impact on overall peak flows in the downstream system.

Stormwater from Watercourse 7 has also been determined to spill towards Watercourse 8 during the Regional storm event. Under existing conditions, the Watercourse 8 culverts do not have sufficient capacity to handle the existing spill flows from Watercourse 7 and 9.

### 8.4 Proposed Drainage Conditions

Proposed post-development drainage conditions are depicted on **Figure 6**, which include proposed storm catchments, sub-watershed delineations, preliminary grading, swales, existing and proposed culvert locations and sizes.

The development has been designed to respect Watercourse 9 by implementing a zoning hazard setback, and a 30m average structure setback from both sides of the Watercourse.

#### 8.4.1. Major / Minor Drainage Systems

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 a 14.0m road servicing corridor with semi-mountable curbs on one side, storm sewers and catchbasins. Minor system flows will be collected by a series of catchbasins and lot drainage swales and conveyed to the SWM facilities 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 a low point in the roadway and into the proposed SWM Facilities.

### 8.4.2. Drainage Catchment Areas

**Figure 6** depicts the post-development internal and external drainage areas as well as the intermediate and final outlets.

Catchments denoted with '9' drain directly to Watercourse 9. Catchments 9A, 9B, 9C, 9E, and 9F sheet uncontrolled to Watercourse 9 and consist of pervious areas and clean impervious areas (i.e. rooftops). Catchment 9D consists of a majority of impervious area and will undergo quality treatment prior to discharging to Watercourse 9. The external catchment areas draining to Watercourse 9 include EXT-9A (101.8 ha uncontrolled drainage), EXT-9B (14.8 ha of controlled drainage through the Orchard Development Stormwater Management Pond), EXT-9C (0.65 ha of land), and EXT-9D (0.78 ha of land).

Catchments denoted with '1' and '2' will be directed to SWM Facility #1 and SWM Facility #2, respectively, for quality and quantity treatment prior to discharging to Watercourse 9. **Drawings C107.A-D** show the internal storm sewer network catchment areas. The proposed Stormwater Management Facilities have been sized to provide residual quantity control to supplement the increased flows to Watercourse 9 from the uncontrolled developed portions of the site. The proposed ponds have been sized for quality control for the areas directed to each pond.

The existing on-site pond located at the bottom of the ridge is proposed to be converted into a proper Stormwater Management Pond (SWM Facility #1), also referred to as the "Upper Pond". The southern portion of the pond adjacent the ridge is proposed to be maintained as a naturalized wetland. The northern portion of the pond has been designed as a wetland SWM Facility complete with a forebay and main cell to provide water quality and quantity controls for the areas draining to it. The natural wetland adjacent to the pond will be utilized to provide additional quantity control in the 100-year and Regional storm events. Catchment areas draining to Stormwater Management Facility #1 consist of a mix of pervious (1B) and impervious (1A) areas. External drainage from Catchment EXT-1A is directed into the storm sewer network in Catchment Area 1A and piped to SWM Facility #1. Flows generated in Catchment Area 1B sheet directly into SWM Facility #1.

The Lower Pond (Stormwater Management Facility #2) is a proposed wet pond at the north end of the site, directly east of Watercourse 9. Catchment areas draining to Stormwater Management Facility #2 consist of both pervious and impervious drainage areas. SWM Facility #2 has been designed with a forebay and main cell, and sized to provide quality treatment for Catchment Areas 2A through 2E. Due to grading restrictions, Catchment Area 2C has pipes sized for the 100-year storm event in order to capture and convey major overland flows from Catchment Areas 2A, 2B and 2C across Watercourse 9 and to the pond.

In the event of a major storm or if catchbasins clog, stormwater flows generated in the internal catchment areas (depicted on **Drawings C107.A-D**) will be directed to SWMF#1 or SWMF#2 via overland flow routes along the roadway. An overland flow route analysis has been presented in **Section 8.6**.

Catchment areas draining to Watercourse 8 include EXT-8A, EXT-8B, 8A, and 8B. Drainage of EXT-8A and 8A will be captured into a stormwater pipe that bypasses Catchment Area 2D and outlets downstream of the development to Watercourse 8. Drainage from Catchment Area 8B will be directed by a swale and EXT-8B will sheet to the ditch along Lakeshore Road and will be directed to Watercourse 8.

Catchment Areas 7A and 10A are pervious, undeveloped areas that have reduced in size from pre-development conditions, and therefore do not require specific stormwater management controls.

### 8.4.3. Stormwater Management Facilities

Runoff generated from the proposed development will be collected, attenuated and treated by two (2) stormwater management (SWM) "end-of-pipe" facilities. The locations of the SWM Facilities are shown on **Figure 6** and **Drawings C107.A-D**. Detailed drawings of the SWM Facilities are shown on **Drawings C108.A-C** (SWM Facility #1) and **Drawings C109.A-C** (SWM Facility #2).

A portion of the existing constructed pond located at the base of the Nipissing Ridge is proposed to be converted to a wetland SWM Facility, herein referred to as SWM Facility #1. The remaining area of the existing constructed pond, located along the southern limits, will be maintained as habitat, as recommended by Azimuth Environmental. This configuration also provides a buffer between the existing butternut trees and SWM Facility #1. This configuration will involve constructing a berm as shown on **Drawings C108.A** to split the existing pond into the main future SWM Facility #1 consisting of the forebay and main cell, and the southern naturalized area. The existing berms will need to be reconstructed to ensure appropriate structural integrity as per an investigation conducted by Peto MacCallum.

The Lower Pond, SWM Facility #2 is proposed to be constructed as a wet pond and will be located to the east of Watercourse 9 and to the south of Lakeshore Road. A large portion of the lower terrace lands situated west of Watercourse 9 will be serviced by SWM Facility #2, with approximately 4.8 ha being piped eastward across Watercourse 9 to SWM Facility #2.

There is additionally approximately 1.3 ha of development land to the west of Watercourse 9 at the north end of the development that will discharge to Watercourse 9 following quality treatment by a Filter.

### 8.4.4. Spill Management & Grading

As mentioned in Section 2.1.4, onsite natural hazards are contained within approved hazard zones throughout the site. However, post development hydraulic modelling was prepared using HEC-RAS to ensure spill flows and headwater impacts at future watercourse crossings are contained. The MNRF Technical Guide - River & Stream Systems: Flooding Hazard Limit (MNR, 2002) provides direction on flood hazard identification and implementation of Provincial Policy Statement (PPS) policies. Unlike a floodway, the preferred floodplain management approach in spill areas, such as those identified on the Subject Lands adjacent Lakeshore Road, is to eliminate spill flooding risk where feasible. This is commonly achieved by placing fill in the spill area to create a height of land that contains spill flows within the Regulatory Floodplain or by re-channelization of the offending watercourse. This is consistent with the approach recommended in the Regional SWM Report to deal with spill flows across Parkbridge Craigleith. In this case, fill placement is proposed to ensure that spill flow is contained within the approved watercourse corridors, consistent with the recommendations of the Regional Stormwater Management Report to formalize flow routes for existing spill flows and upgrade existing conveyance channels and culverts to the Regional Storm standard. These recommendations effectively improve conveyance to Georgian Bay and eliminate flood risk to existing flood susceptible properties downstream of the subject lands, in the flood damage center of Watercourse 7.

The proposed grading ensures all developed lands (i.e. roads, residential lots) will be above the post-development Regional water levels with 0.3m of freeboard provided at a minimum. The Regional floodline is contained within the zoning hazard limits throughout the site, or within the property setbacks upstream of Lakeshore Road where existing spill conditions occur. The Regional SWM Report

addresses the management of these spill flows, however the proposed grading of the Subject Lands directs spill flows away from proposed road and residential lots. The post-development HEC-RAS cross section locations, flood elevations and Regional floodline are depicted on **Figure 7**. The Regional floodline has also been shown on **Drawings C102.A-D** and **C111** in conjunction with the proposed grading and constraints. Refer to **Appendix C** for the post-development HEC-RAS modelling output.

#### 8.4.5. Regional SWM Proposed Conditions

The Regional SWM Report will propose controlled spill conveyance downstream of the site from Watercourse 9 to 8 such that the proposed development will not negatively impact existing backwater and inundation conditions. Controlled spill conveyance from Watercourse 7 to 8 will also be proposed. To accommodate the increased flows to Watercourse 8, culvert improvements will be proposed as part of the Regional Stormwater Management solution.

Upgrading the capacity of the downstream conveyance network will improve existing drainage conditions and will free up additional capacity within the downstream network. The existing flood storage identified upstream of Lakeshore Road per the Regional Spill Management Letter (Crozier, February 2019) will be rendered insignificant due to the increased capacity downstream.

### 8.5 Stormwater Quality Control

#### 8.5.1. SWM Ponds

SWM Facility #1 and SWM Facility #2 both consist 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 9 (Table 3.2 MOE SWM Planning & Design Manual). Refer to **Drawings C108.A-C** for the design of Stormwater Management Facility #1 (Upper Pond) and **Drawings C109.A-C** for the design of Stormwater Management Facility #2 (Lower Pond).

The greater of the MECP water quality control volume (40m$^3$/ha) and the runoff volume generated during the 4-hour Chicago 25mm storm event was used to determine the minimum required extended detention volumes for each SWM Facility. In each case, the 25mm runoff volume governed the required extended detention volume. 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, assessing SWMF#1 as a wetland and SWMF#2 as a wet pond. Refer to **Table 2** below for a summary of the required water quality volumes for each pond. Detailed calculations are included in **Appendix D**.

**Table 2: SWM Facility Required Quality Volumes**

| Pond | SWMF Type | Contributing Area (ha) | Contributing Area Percent Impervious (%) | Required Extended Detention Storage Volume (m$^3$) | Required Permanent Pool Storage Volume (m$^3$) |
|---|---|---|---|---|---|
| SWMF#1 | Wetland | 13.1 | 13.1* | 540 | 525 |
| SWMF#2 | Wet Pond | 9.6 | 35.8 | 618 | 979 |

* Note: Contributing Area Percent Impervious for SWMF#1 is low due to a large (8.4 ha) undeveloped external area that is directed to the SWM Facility. Quality volumes were assessed for the developed contributing area (2.95 ha) at a higher percent impervious value. The required quality volumes produced using the total (13.1 ha) area at a low impervious were greater than the volumes required for the 2.95 ha developed area and were used in further calculations for the SWM Facility design.

The minimum water quality volumes for both permanent pool and extended detention were calculated and the SWM Facilities were designed to exceed the required volumes, as shown in **Table 8**. Water Quality requirement calculations and SWM Facility sizing are available in **Appendix D.** SWM Facility Design Details are further outlined in **Section 8.7**.

#### 8.5.2. Jellyfish Filter

Catchment Area 9D is to be developed complete with roadway and dwellings and will require quality treatment prior to discharging to Watercourse 9. To provide an enhanced level of protection for water quality control, a filter has been provided. The Filter will be located immediately downstream of the storm sewer system in Catchment 9D in order to ensure all stormwater from impervious areas of the catchment are routed through the treatment unit before discharging to the roadside ditch / Watercourse 9.

To achieve an "enhanced" treatment level for the filter, the unit is required to provide an annual total suspended solids (TSS) removal of 80% or greater and treat 90% of the total annual runoff volume. Crozier based their evaluation on Jellyfish Filter, which is a highly recognized filter manufactured by Imbrium Systems. As determined by the "Standard Offline Jellyfish Filter Sizing Report", the JF6-5-1 will provide the necessary water quality treatment for the site. Refer to **Table 3** for a detailed breakdown of proposed filter performance. Refer to **Appendix E** for the proposed Jellyfish Filter water quality treatment unit sizing report.

**Table 3: Jellyfish Filter Sizing Criteria**

| Catchment | Contributing Drainage Area (ha)* | Contributing Area Percent Impervious (%) ** | Jellyfish Filter Unit | Total Suspended Solids Removal (%) | Total Annual Runoff Volume Treated (%) |
|---|---|---|---|---|---|
| 9D | 1.32 | 75 | JF6-5-1 | 89 | >90 |

*Note: The contributing drainage area includes 100% of the impervious paved area.
**Note: The actual percent impervious is 71.3%. The unit was sized with 75% to provide design resilience.

### 8.6 Stormwater Quantity Control

Pre-development and post-development hydrologic modeling was completed using the latest version of the Stormwater Management Hydrologic Model (SWMHYMO) to determine the peak flows throughout the development. For both pre and post-development modeling and consistent with the Craigleith Camperdown Subwatershed Study, rainfall distributions for the array of design storms (i.e. 2 to 100-Year) were simulated using a 6-hour Keifer-Chu distribution. Additionally, the 4-Hour Chicago Storm was modelled using rainfall data retrieved from the MTO online IDF curve lookup tool, and the 2 through 100-year storms were also modelled with the 12-hour and 24-hour SCS Storm Distributions. The Timmins Storm event was used as the Regional storm for the study area. Pre and post-development hydrologic parameters and IDF data are included in **Appendix C**, soil mapping is available in **Figure 3** and full model input and output files are included in **Appendix C**.

The proposed SWM Facilities have been designed and included in the hydrologic model using the 'ROUTE RESERVOIR' command to provide the quantity control required to maintain or reduce peak flows at the downstream end of Watercourse 9 based on pre-development conditions.

As several catchments drain to Watercourse 9 uncontrolled, the proposed Stormwater Management Facilities have been designed to provide sufficient storage to ensure the post-development flows at the downstream end of the site (Watercourse 9 at Lakeshore Road) do not exceed pre-development flows. **Table 4** 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 4: Summary of Peak Flows in and out of the SWM Facilities (6-Hour Keifer Chu)**

| Pond ID | Parameter | Return Period | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 2-Year | 5-Year | 10-Year | 25-Year | 50-Year | 100-Year | Regional |
| SWMF #1 (upper) | Peak Flow In ($m^3/s$) | 0.21 | 0.37 | 0.56 | 0.73 | 0.82 | 1.02 | 1.05 |
| | Peak Flow Out ($m^3/s$) | 0.02 | 0.03 | 0.03 | 0.05 | 0.07 | 0.12 | 0.65 |
| | % Difference | -91% | -93% | -94% | -93% | -91% | -88% | -38% |
| | Storage Used ($m^3$) | 960 | 1820 | 2760 | 3630 | 3990 | 4660 | 8110 |
| | | | | | | | | |
| SWMF #2 (lower) | Peak Flow In ($m^3/s$) | 0.22 | 0.35 | 0.49 | 0.62 | 0.69 | 0.83 | 0.72 |
| | Peak Flow Out ($m^3/s$) | 0.02 | 0.03 | 0.04 | 0.07 | 0.09 | 0.13 | 0.67 |
| | % Difference | -91% | -93% | -92% | -89% | -87% | -84% | -8% |
| | Storage Used ($m^3$) | 870 | 1430 | 1960 | 2350 | 2530 | 2930 | 3760 |

A summary and comparison of pre and post-development peak flows of Watercourse 9 at Lakeshore Road is provided in **Table 5**.

**Table 5: Summary of Peak Flows for Pre and Post-Development Conditions (6-Hour Keifer Chu)**

| Location | Return Period | Peak Flow ($m^3/s$) | | % Difference |
|---|---|---|---|---|
| | | Pre-Development | Post-Development | |
| Lakeshore Road (Watercourse 9) | 2-Year | 1.36 | 1.33 | -2.6% |
| | 5-Year | 2.60 | 2.49 | -4.2% |
| | 10-Year | 3.98 | 3.77 | -5.2% |
| | 25-Year | 5.22 | 4.94 | -5.3% |
| | 50-Year | 5.87 | 5.56 | -5.4% |
| | 100-Year | 7.26 | 6.88 | -5.2% |
| | Regional | 9.01 | 8.93 | -0.8% |

As shown in **Table 5** post-development peak flows at the Watercourse 9 crossing at Lakeshore Road (and downstream) will be reduced from pre-development levels, thereby improving the existing flood conditions downstream of the subject site between Lakeshore Road and Georgian Bay. Refer to **Appendix C** for flow hydrographs comparing pre- and post-development flows of Watercourse 9 at Lakeshore Road.

Detailed analyses were completed for the pre- and post-development Regional hydrographs to determine the duration and volume of inundation upstream of Watercourse 9 prior to spill as governed by the culvert capacity and local spill elevation. Calculations were completed to determine the volume of flow exceeding the culvert capacity, and using the storage provided upstream of Lakeshore Road the volume of spill over Lakeshore Road was determined. A comparison of these

values in pre- and post-development conditions is summarized in **Table 6**.

**Table 6: Watercourse 9 at Lakeshore Road – Regional Hydrograph Assessment**

| | Culvert Capacity ($m^3/s$) | Total Volume Exceeding Culvert Capacity ($m^3$) | Storage Volume Upstream of Lakeshore Rd ($m^3$) | Volume of Spill over Lakeshore Rd ($m^3$) |
|---|---|---|---|---|
| **Pre-Development** | 2.63 | 86,200 | 1320 | 84,880 |
| **Post-Development** | 2.63 | 85,700 | 670 | 85,030 |

The reduction in the total volume exceeding the culvert capacity from pre-devleopment to post-development acts to offset the reduced storage provided on the Craigleith Ridge site upstream of Lakeshore Road. Post-development conditions yield approximately 150 $m^3$ of additional spill over Lakeshore Road which is equivalent to 0.2% of the total pre-development spill volume. Given the scale of the spill, the additional volume is inconsequential and equates to an additional spill duration of less than 2 minutes. As shown in the hydrographs, the peak flow is decreased in post-development conditions and will not exacerbate conditions downstream. Additionally, the proposed Regional Stormwater Management Plan will provide increased capacity for these spill flows to safely outlet all flows exceeding the downstream capacity to Georgian Bay, thus improving conditions downstream.

Detailed hydrographs showing the culvert capacity, storage upstream of Lakeshore Road, and pre- and post-development comparison can be found in **Appendix B.**

Comparing the pre and post-development drainage plans (**Figures 5 & 6**) confirms that the total areas draining to Watercourses 7, 8 and 10 will be reduced in post-development conditions due to proposed on-site re-grading and resulting drainage patterns. Therefore, the existing flood conditions of Watercourses 7 will also be improved by the proposed Craigleith Ridge development.

**Table 7** below summarizes the contributing catchments for watercourses 7, 8 and 10 that pass through the site to demonstrate that the areas and/or percent imperviousness for each catchment is reduced in post-development conditions.

**Table 7: Watercourse 7, 8 and 10 Area Comparison**

| Watercourse | Pre-development | | | Post-development | | |
|---|---|---|---|---|---|---|
| | Area ID | Area | % imp | Area ID | Area | % imp |
| **7** | 7A | 1.91 | 1% | 7A | 0.82 | 0% |
| **8** | 8A | 12.1 | 1% | EXT8A,8A,8B,EXT8B | 11.05 | 1% |
| **10** | 10A | 2.08 | 0% | 10A | 1.99 | 3% |

Watercourse 7 reduces in both area and percent impervious, Watercourse 8 is reduced in area, and Watercourse 10 is reduced in total area with a small increase in impervious area.

### 8.7 SWM Facility Design

As discussed in **Section 8.4**, the minor storm (sewer) and major storm (overland) drainage systems outlet to SWM Facility #1 and SWM Facility #2. This section consists of additional details regarding the design and operation of the proposed facilities.

As previously mentioned, the southern portion of the existing pond which is proposed to be converted

to SWM Facility #1 is to be maintained as a naturalized area. The pond has been designed such that this area will provide additional quantity storage in the Regional storm event. Flows will spill over the access road between the main cell and the naturalized area and will fill the naturalized area. Pipes sized for the 100-year flow, complete with backflow prevention, have been proposed under the access road between the two cells to allow water to return to the main cell as pond elevations drop.

SWM Facility #1 has been designed as a wetland, with a main cell permanent pool depth of 0.30 m. SWM Facility #2 has been designed as a wet pond with a main cell permanent pool depth of 0.80 m. A summary of the operating characteristics of the proposed SWM Facilities are provided in **Table 8**.

**Table 8: SWM Facility Operating Characteristics**

| Operating Level | SWMF #1 Upper – Wetland 13.1 ha | | SWMF #2 Lower – Wet Pond 9.6 ha | |
|---|---|---|---|---|
| | **Elevation (m)** | **Volume ($m^3$)** | **Elevation (m)** | **Volume ($m^3$)** |
| Bottom of Forebay | 188.40 | 0 | 180.20 | 0 |
| Bottom of Main Cell | 189.10 | 0 | 180.20 | 0 |
| Permanent Pool[1,2] | 189.40 | 1130 (525) | 181.00 | 1060 (979) |
| Extended Detention[2] | 189.70 | 830 (540) | 181.40 | 790 (618) |
| 2-Year WSE | 189.74 | 960 | 181.43 | 870 |
| 5-Year WSE | 190.01 | 1820 | 181.66 | 1430 |
| 10-Year WSE | 190.26 | 2760 | 181.86 | 1960 |
| 25-Year WSE | 190.48 | 3630 | 181.99 | 2350 |
| 50-Year WSE | 190.56 | 3990 | 182.05 | 2530 |
| 100-Year WSE | 190.72 | 4660 | 182.17 | 2930 |
| Regional WSE | 191.01 | 8110 | 182.41 | 3760 |
| Top of Berm | 191.40 | 11220 | 182.80 | 5300 |

[1] Permanent Pool represents dead storage; all other volumes represent active storage.
[2] Required Permanent Pool and Extended Detention volumes have been shown in brackets per the values outlined in Table 2.

The internal grading of the SWM Facilities consists of a maximum of 5:1 H:V side slopes, which adhere to the MOE SWM Guidelines and Municipal Guidelines. Per **Table 8**, adequate Permanent Pool and Extended Detention volumes have been provided in the design of both SWM Facilities.

The operating regime of the proposed SWM Facilities are summarized in **Table 8** above. The quality sizing, stage-storage-discharge relationship, forebay and extended detention calculations for the ponds are included in **Appendix D.**

### 8.7.1. Sediment Forebay Design

The sediment forebay provides a concentrated sediment settling area for incoming runoff. Sizing of the sediment forebay is based on the MECP Stormwater Management Planning and Design Manual (MECP SWMPD). **Table 9** summarizes the required and proposed forebay dimensions. Refer to **Appendix D** for detailed sizing calculations.

**Table 9: SWM Facility Operating Characteristics Summary**

| Pond | Forebay Settling Length (m) | | Dispersion Length (m) | |
|---|---|---|---|---|
| | Required | Provided | Required | Provided |
| SWMF#1 | 8.2 | 28.9 (14.2m wide) | 6.0 | 35.0 |
| SWMF#2 | 10.7 | 22.5 (8.5m wide) | 7.0 | 30.0 |

### 8.7.2. Outlet Structure Design

Per the MECP SWMPD Manual, a minimum 24-hour drawdown of the extended detention volume is required. For SWM Facilities #1 and #2, control orifices with diameters of 130mm and 120mm, respectively, have been incorporated into the outlet structures to achieve a detention time greater than 24-hours. Extended detention drawdown calculations are available in **Appendix D.**

The water quality outlet for both SWM Facilities consists of a 300mm diameter reverse slope pipe complete with an orifice plate controlling flows that enter an outlet control structure. The double ditch inlet catchbasin control structures for both ponds are equipped with a 0.25m wide x 0.5m tall rectangular weir which provides a secondary outlet in larger storm events. Flows exiting the pond via the control orifice and the weir enter the control catchbasin and continue through storm pipes to the designated outlets at Watercourse 9. The SWM Facility outlet structures have been designed to enable flows up to the Regional event to be piped to the respective outlets at Watercourse 9.

An emergency spillway will be used for each pond to convey all flows greater than the 100-year event or in the case of blockage of the primary outlet structure. The spillways will be constructed with a material suitable for the proposed loading, flow rates and discharge to the Watercourse. For SWM Facility #1, the pond is designed to spill into the existing naturalized wetland area to the south during the Regional event prior to spilling to Watercourse 9. This area provides an additional 2020$m^3$ of storage. Equalizer pipes with backflow prevention have been proposed under the berm separating the main cell from the naturalized area to allow flows to return to the main cell prior to discharging from the pond.

The minimum riprap size at the emergency spillway for each pond and in Watercourse 9 has been determined using the Size of Riprap chart from the MOE Sewer and Watermain Design Course (found in Appendix D). The required and provided riprap sizes are summarized in **Table 10**.

**Table 10: Spillway Riprap Sizing**

| Location | Peak Flow ($m^3/s$) (Regional Storm) | Velocity (m/s) | Riprap Size (mm) Minimum Size Required | Riprap Size Provided (mm) |
|---|---|---|---|---|
| Upper Pond Emergency Spillway | 1.91 | 1.83 | 125 | 300[1] |
| Lower Pond Emergency Spillway | 1.91 | 2.09 | 175 | 300[1] |
| Watercourse 9 (HEC-RAS Section 177) | 8.90 | 1.53 | 90 | 300 |
| Watercourse 9 (HEC-RAS Section 394) | 8.90 | 2.10 | 175 | 300 |

Note 1: Emergency Spillways are equipped with Nilex-Armorflex Class 50 Erosion Protection Matting over the pond berm prior to joining with the 300mm diameter riprap. The proposed matting is sufficient to protect against velocities up to 4.6 m/s.

Refer to **Appendix D** for supporting information, and **Drawings C108.A-C** for the Stormwater Management Facility #1 (Upper Pond) and **Drawings C109.A-C** for the Stormwater Management Facility #2 (Lower Pond).

## 8.8 Stormwater Conveyance Analysis

### 8.8.1. Overland Conveyance Analysis

In the event of a major storm or if catchbasins clog, stormwater flows generated in the internal catchment areas (depicted on **Drawings C107.A-D**) will be directed to designated outlets via overland flow routes. Capacity analysis calculations were completed to assess the overland flow routes through the site and can be found in **Appendix E**.

Overland flow from Drainage Area 1A will be directed to the proposed Council Way and will continue north towards SWM Facility #1. As the roadway descends the ridge, grading has been transitioned to have a reverse slope on the east boulevard to allow overland flow to spill off the super-elevated roadway into the naturalized pond area south of the main cell of SWM Facility #1. Overland flow will enter the main cell of the pond through pipes under the berm separating the naturalized area from the main cell. Upstream of the transitioned grading, a road section has been assessed using Flowmaster to confirm there is capacity to convey overland flow to this area. The results of this analysis are summarized in **Table 11**.

Major and minor flow from Drainage Area EXT-1A (8.37 ha) will enter the internal storm sewer system via an inlet headwall at the south property line. Drainage Area EXT-1A has been assessed with a 15-minute time of concentration (TOC) and to capture the 5-year storm event on the storm sewer design sheet. This is a conservative estimate, as the time of concentration for this area was calculated as 42-minutes per the hydrologic parameter sheet. The flow determined by SWMHYMO produced in the 100-year event was less than the 5-year 15-minute TOC flow, however the Regional flow was slightly higher. The storm sewer has been adequately sized to convey the 100-year and Regional flow from this area to the sewer outlet at SWM Facility #1. The 42-minute TOC was not applied to the design sheet as it would not accurately portray the design of the storm sewer downstream of this catchment. The flow analysis has been summarized in **Table 11**.

Overland flow from Drainage Areas 2A and 2B, consisting of the ridge, archaeological area and environmental area will be captured in a proposed double catchbasin inlet (DCB #12), and will be conveyed via storm pipes to SWM Facility #2. This inlet has been assessed with 50% blockage to ensure

that the 100-year and Regional flow will be captured into the storm sewer system from this location. The sewer from this location to SWM Facility #2 has been sized for the 100-year event. A summary of flows and the available capture capacity is included in **Table 11**.

The storm pipes for Drainage Area 2C have been sized to convey the 100-year event so that these flows can be directed across Watercourse 9 to SWM Facility #2. A catchbasin capture analysis was completed to demonstrate that at 50% blockage the structures have sufficient capacity to capture the 100-year event to convey flows to SWM Facility #2. Refer to **Appendix D** for FlowMaster calculations, MTO capture curves and a summary sheet for the capture analysis. In the event that catchbasins clog beyond 50% or in a Regional event, overland flow from Drainage Area 2C will be directed north to Drainage Area 9D and will follow the flow route noted in the following paragraph.

Overland flow from Drainage Area 9D will be directed north along Festoon Crescent and will spill north over the sidewalk to the south ditch of Lakeshore Road. This ditch will convey flows east to Watercourse 9. In the event that the Watercourse 9 Lakeshore Road culvert is at capacity, flows will spill over Lakeshore Road at a low point near the location where water spills from Festoon Crescent. This spill was identified in the Regional Spill Letter (Crozier, 2019) as an existing condition in the 100-year and Regional storm events.

Overland flow from Drainage Area 2D will be conveyed along Rally Trail to the access road for SWM Facility #2. The access road has been designed with berms on either side to act as an overland flow route to convey flows from the roadway to the pond. A FlowMaster calculation was completed to confirm that the access road has sufficient capacity to convey the flows from Drainage Area 2D. The result of this analysis is summarized in **Table 11**.

Flows from Drainage Area 8A and EXT-8A are captured in an inlet structure located at the north end of Area 8A directing flows into a culvert that passes under Rally Trail and the SWM Facility #2 access road. The culvert, which has been sized to convey the 100-year and Regional event from the upstream area outlets to a ditch that directs flows to the south Lakeshore Road ditch towards Watercourse 8. Culvert sizing and ditch sizing have been completed using CulvertMaster and FlowMaster and an inlet flow curve calculation has been provided for the inlet structure to the culvert. The results have been summarized in **Table 11**. Refer to **Drawing C112.C** for the storm inlet structure detail.

Overland flow from Drainage Area 1B sheets directly into SWM Facility #1. Overland flow from Drainage Area 2E sheets directly into SWM Facility #2. All other drainage areas identified on the site sheet directly to the Lakeshore Road south ditch, or directly to their respective outlets at Watercourse 7, 8, 9 or 10.

**Table 11: Overland Flow Conveyance Capacity Analysis**

| **Description Location** | **Contributing Drainage Area ID** | **Contributing Drainage Area (ha)** | **Required Capacity* ($m^3/s$)** | **Provided Capacity ($m^3/s$)** | **Analysis** |
|---|---|---|---|---|---|
| Council Way Upstream of SWMF #1 | 1A | 2.95 | 0.38 (100-year) 0.30 (Regional) | 4.36 (full flow) *0.08m normal depth* | FlowMaster |
| Storm Sewer Upstream of SWMF #1 | EXT-1A | 8.37 | 0.64 (100-year) 0.68 (Regional) | 0.79 (limiting sewer leg) | Storm Sewer Design Sheet |
| DCB #12 Ridge & environmental area | 2A & 2B | 2.86 | 0.08 (100-year) 0.10 (Regional) | 0.20 (50% blockage) | Inlet Curve |
| Access Road SWMF #2 | 2D | 3.28 | 0.36 (100-year) 0.30 (Regional) | 1.37 (full flow) *0.14m normal depth* | FlowMaster |
| WC 8 Culvert North end of 8A | 8A & EXT-8A | 9.41 | 0.55 (100-year) 0.62 (Regional) | 0.66 (full flow) | CulvertMaster |
| WC 8 Ditch Downstream of Culvert | 8A & EXT-8A | 9.41 | 0.55 (100-year) 0.62 (Regional) | 2.17 (full flow) | FlowMaster |
| WC 8 Inlet Structure | 8A & EXT-8A | 9.41 | 0.55 (100-year) 0.62 (Regional) | 0.73 (50% blockage) | Inlet Curve |

*Note: Flows are from 6-Hour Keifer Chu SWMHYMO model

The analyses determined that the above overland flow routes provide sufficient capacity to convey flows from the 100-year and Regional storm events safely to an outlet. Refer to **Appendix E** for FlowMaster and inlet curve calculations, and the storm sewer design sheet.

### 8.8.2. Culvert Design

Concrete Box Culverts are required for the three identified crossings over Watercourse #9. The culverts were designed to meet the following criteria:

- Conveyance of all storm events through the culvert without overtopping the roadway
- Must convey the Regional flow rates
- Conveyance of flows along overland flow routes in the event the culverts are blocked

CSP culverts were designed for the emergency access crossings per the following criteria:

- Conveyance of the 25-year storm through the culvert and safe access in all storm events

Culvert design details are available in **Table 12**.

**Table 12: Culvert Details**

| Culvert ID | Span (m) | Rise (m) | Proposed Slope (%) | Design Discharge Flow Rate[1] ($m^3/s$) | Full Flow Capacity ($m^3/s$) | Inlet Control Headwater Elevation Elev. (masl) |
|---|---|---|---|---|---|---|
| *Culvert #1 (Downstream end of Catchment 9A)* | 3.05 | 1.22 | 6.99 | 7.94 | 11.48 | 211.66 |
| *Culvert #2 (Downstream end of Catchment 9B)* | 3.05 | 1.22 | 1.99 | 8.01 | 10.56 | 193.46 |
| *Culvert #3 (Downstream end of Catchment 9C)* | 3.05 | 1.22 | 2.44 | 8.36 | 11.32 | 186.96 |
| *Emergency Access Culvert #1 (internal to site – Area 9F)* | 500mm Ø | | 1.00% | 0.02 | 0.25 | 184.99 |
| *Emergency Access Culvert #2 (Lakeshore Rd Ditch – Area EXT 9D)* | 500mm Ø | | 0.60% | 0.07 | 0.19 | 184.00 |

[1] Regional flow per SWMHYMO Model (greater than 100-year flow). Regional flow is shown for emergency access culverts to demonstrate surplus capacity

CulvertMaster was used to design the three (3) culverts at the proposed Watercourse 9 crossings and the two (2) culverts at the emergency access. The results are available in **Appendix E.** As shown in **Table 12**, the full flow capacity of the Watercourse 9 cross culverts is sufficient to pass all storm events including the 100-year and Regional events. In the event that the culverts are blocked, flows from Watercourse 9 will spill onto the roadway and will be directed back to Watercourse 9 via an overland flow route. The proposed Watercourse 9 culverts were also included in the post-development HEC-RAS hydraulic modelling to confirm that the Regional flow passes through without overtopping the roadway. Refer to **Appendix E** for the post-development HEC-RAS modelling output.

The emergency access culverts have sufficient capacity to pass the 25-year flow, as well as the Regional flow (per design flows shown in **Table 12** . In the event that the culverts become blocked, water will spill over the emergency access where it connects to Lakeshore Road and will continue east in the ditch.

Details for each of the Watercourse 9 culvert crossings can be found on **Drawings C114.A-D.**

The three proposed culverts for the Watercourse 9 crossings were assessed in each storm event (2-year through 100-year) to determine the flow regime that would occur. All three culverts, in all storm events, produced a supercritical flow regime. The Watercourse 9 culverts were designed to match the existing slope of the watercourse and for hydraulic conveyance. DFO self-assessment and consultation is also underway as required for the proposed three watercourse crossings to ensure proper sizing and fish passage. Scour protection at the crossings will be considered as the design progresses which will assist with fish passage at the proposed culverts. Appropriate erosion and sediment controls have been proposed to protect the watercourse during construction to minimize the extent of impacts to fish habitat and alleviate the risk of sediment entering the watercourse.

## 9.0 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 sediment basins, interceptor ditches, silt fencing, dust suppression, mud mats, and sediment traps. The need for additional controls will be based on the field conditions, at the discretion of the Engineer and implemented as necessary. Refer to **Drawings C110.A-D** for the Sediment & Erosion Control Plan.

- Silt fencing

Heavy Duty Silt Fence will be constructed in accordance with OPSD 219.130. 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. Certain areas of the site will have a double row of silt fence as specified on **Drawings C110.A-D** to provide additional protection to sensitive features.

- Flow Check Dams

Temporary straw bale (OPSD 219.180) and rock check dams (OPSDs 219.210 & 219.211) will be utilized on-site in order 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.

- Temporary Sediment Basin

Excavated sediment trap(s) or basins will be installed to remove sediment from runoff prior to outletting to receiving conveyance routes.

## 10.0 CONCLUSIONS

Based on the foregoing we conclude that the proposed Parkbridge Craigleith development can be adequately serviced.

1. The servicing and stormwater management strategy presented herein is consistent with the design criteria of the Town, GSCA, MTO and MECP.

2. Access to the site will be provided from Grey Road 19 into the proposed development. Emergency access will be provided from Lakeshore Road and regulated with knock-down bollards. The internal roadway will be privately owned and maintained.

3. The development will be serviced by a private sanitary gravity sewer system. Two connections to the existing municipal sewer system in the Lakeshore Road right-of-way will be made, into the existing 525mm dia. sewer upstream of the Lakeshore Road Sanitary Sewage Pumping Station.

4. Domestic water supply will be provided via a looped system through two (2) connections to the existing municipal system at Grey Road 19 and Lakeshore Road. Two PRVs are proposed to maintain the pressure zones across the site. The internal watermain will be owned and operated by the Town of the Blue Mountains.

5. All major utilities are available to the development, located in the boundary roadways.

6. Stormwater Management will be accomplished via the use of two SWM Facilities and one Filter. The two SWM Facilities will provide quality control and will reduce peak flows at the Lakeshore Road site outlet from pre-development conditions. The SWM Facilities and Filter will provide the required quantity and quality control for storm runoff. The development will be serviced by a private storm sewer system which will route minor storm flows (5-year event) into the SWM Facilities. Major storm flows will be routed to the SWM Facilities via the proposed road corridors which provide positive drainage to each SWM Facility, and through a pipe sized to convey the 100-year storm event where grading an overland flow route is not possible.

Given the above noted conclusions, we support the development of the subject lands from the perspective of engineering service requirements.

Respectfully submitted,

**C.F. CROZIER & ASSOCIATES INC.**

Jessie Elder, E.I.T.

**C.F. CROZIER & ASSOCIATES INC.**

Jonathan M. Proctor, P.Eng.
Associate

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# APPENDIX A

## Sanitary Servicing Design Calculations

Sanitary Demand Calculations
Sanitary Sewer Design Sheet

File: 1046-4031
Project: Parkbridge Craigleith
Date: June 16, 2020
By: JE
Check By: JP

# Parkbridge Craigleith - Sanitary Design Criteria

| | | | |
|---|---|---|---|
| Developed Site Area | | 13.00 | ha |
| Number of Residential Units (211 Residential + Clubhouse (5 units) & 1 Storage Facility) | | 217 | units |
| Person Per Residential Unit | (as per Town Standards) | 2.30 | persons/unit |
| Residential Population | | 500 | persons |
| **Unit Sewage Flows** | | | |
| Residential | (as per Town Standards) | 450 | L/C-day |
| Infiltration (typical) | | 0.23 | L/s/ha |
| **Total Design Sewage Flows** | | | |
| Infiltration/Inflow Residential | | 2.99 | L/sec |
| Average Daily Residential Flow | | 2.60 | L/sec |
| Residential Peak Factor | (Harmon Formula) | 4.0 | |
| **Total Peak Daily Flow** | | **13.34** | **L/sec** |

# PARKBRIDGE CRAIGLEITH

**1046-4031**

SANITARY SEWER DESIGN SHEET

CROZIER CONSULTING ENGINEERS

| Unit Type | PPU |
|---|---|
| Single & Semi Detached | 2.3 |
| Townhome | 2.3 |

| | |
|---|---|
| Mannings "n": | 0.013 |
| Peak Factor (M): | 1+(14/4+(P/1000)^0.5) |
| Residential Avg. Daily/Capita Flow (L/cap.d): | 450 |
| Infiltration Q (L/ha.s): | 0.23 |

DESIGNED BY: JE
CHECKED BY: RW
DATE: 2020-06-16
REVISION NO.: 2
REVISED BY: JE
DATE: 2021-05-14

| CATCHMENT I.D. | STREET | FROM MH NO | TO MH NO | AREA (Ha) | UNITS | POP. | TOTAL TRIB. POP. | RESIDENTIAL PEAK FACTOR | RESIDENTIAL AVG. FLOW (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. | UPPER OBV. EL. | LOWER OBV. EL. | SLOPE (%) | CAP. (l/s) | CAP. (%) | FULL FLOW VELOCITY (m/s) | MH DROP (m) | GROUND UPPER | GROUND LOWER | COVER UPPER | COVER LOWER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SANITARY SYSTEM TO NORTHWEST OUTLET** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Council Way | SAMH27 | SAMH26 | 0.36 | 6 | 14 | 14.0 | 4.40 | 0.07 | 0.32 | 0.08 | 0.08 | **0.40** | 42.8 | 200 | 214.10 | 212.39 | 214.30 | 212.59 | 4.0% | **65.60** | **0.62%** | 2.09 | | 217.40 | 215.26 | 3.10 | 2.67 |
| 2 | Council Way | SAMH26 | SAMH24 | 0.32 | 5 | 12 | 26.0 | 4.36 | 0.14 | 0.59 | 0.07 | 0.16 | **0.75** | 20.3 | 200 | 211.77 | 211.07 | 211.97 | 211.27 | 3.5% | **61.36** | **1.22%** | 1.95 | 0.62 | 215.26 | 214.27 | 3.29 | 3.00 |
| 3 | Council Way | SAMH24 | SAMH23 | 0.07 | 0 | 0 | 26.0 | 4.36 | 0.14 | 0.59 | 0.02 | 0.17 | **0.76** | 42.1 | 200 | 210.34 | 208.82 | 210.54 | 209.02 | 4.0% | **65.60** | **1.16%** | 2.09 | 0.73 | 214.27 | 212.33 | 3.73 | 3.31 |
| 4 | Council Way | SAMH23 | SAMH21 | 0.03 | 0 | 0 | 26.0 | 4.36 | 0.14 | 0.59 | 0.01 | 0.18 | **0.77** | 18.8 | 200 | 208.10 | 207.87 | 208.30 | 208.07 | 1.0% | **32.80** | **2.35%** | 1.04 | 0.72 | 212.33 | 211.16 | 4.03 | 3.09 |
| 6 | Copper Lane | SAMH52 | SAMH50 | 0.26 | 7 | 17 | 17.0 | 4.39 | 0.09 | 0.39 | 0.06 | 0.06 | **0.45** | 39.0 | 200 | 209.89 | 208.72 | 210.09 | 208.92 | 3.0% | **56.81** | **0.79%** | 1.81 | | 212.66 | 211.29 | 2.57 | 2.37 |
| 5 | Copper Lane | SAMH50 | SAMH21 | 0.03 | 0 | 0 | 17.0 | 4.39 | 0.09 | 0.39 | 0.01 | 0.07 | **0.46** | 17.0 | 200 | 208.67 | 208.33 | 208.87 | 208.53 | 2.0% | **46.38** | **0.98%** | 1.48 | 0.05 | 211.29 | 211.16 | 2.42 | 2.63 |
| 9 | Council Way | SAMH21 | SAMH19 | 0.05 | 0 | 0 | 43.0 | 4.33 | 0.22 | 0.97 | 0.01 | 0.26 | **1.23** | 34.5 | 200 | 207.77 | 206.04 | 207.97 | 206.24 | 5.0% | **73.34** | **1.67%** | 2.33 | 0.56 | 211.16 | 209.14 | 3.19 | 2.90 |
| 7 | Copper Lane | SAMH49 | SAMH48 | 0.22 | 7 | 17 | 17.0 | 4.39 | 0.09 | 0.39 | 0.05 | 0.05 | **0.44** | 37.6 | 200 | 207.38 | 206.04 | 207.58 | 206.24 | 3.6% | **61.97** | **0.71%** | 1.97 | | 211.02 | 209.74 | 3.44 | 3.50 |
| 8 | Copper Lane | SAMH48 | SAMH19 | 0.13 | 6 | 14 | 31.0 | 4.35 | 0.16 | 0.70 | 0.03 | 0.08 | **0.78** | 39.0 | 200 | 205.96 | 205.47 | 206.16 | 205.67 | 1.3% | **36.67** | **2.14%** | 1.17 | 0.08 | 209.74 | 209.14 | 3.58 | 3.47 |
| 10 | Council Way | SAMH19 | SAMH18 | 0.07 | 0 | 0 | 74.0 | 4.28 | 0.39 | 1.65 | 0.02 | 0.35 | **2.00** | 42.9 | 200 | 205.39 | 203.25 | 205.59 | 203.45 | 5.0% | **73.34** | **2.73%** | 2.33 | 0.08 | 209.14 | 206.64 | 3.55 | 3.19 |
| 11 | Coltsfoot Crescent | SAMH47 | SAMH46 | 0.33 | 9 | 21 | 21.0 | 4.38 | 0.11 | 0.48 | 0.08 | 0.08 | **0.55** | 70.1 | 200 | 203.51 | 202.81 | 203.71 | 203.01 | 1.0% | **32.80** | **1.69%** | 1.04 | | 207.30 | 206.64 | 3.59 | 3.63 |
| 12 | Coltsfoot Crescent | SAMH46 | SAMH18 | 0.01 | 0 | 0 | 21.0 | 4.38 | 0.11 | 0.48 | 0.00 | 0.08 | **0.56** | 6.4 | 200 | 202.76 | 202.73 | 202.96 | 202.93 | 0.5% | **23.19** | **2.40%** | 0.74 | 0.05 | 206.64 | 206.64 | 3.68 | 3.71 |
| 13 | Council Way | SAMH18 | SAMH17 | 0.03 | 0 | 0 | 95.0 | 4.25 | 0.49 | 2.10 | 0.01 | 0.44 | **2.54** | 33.1 | 200 | 202.65 | 200.99 | 202.85 | 201.19 | 5.0% | **73.34** | **3.47%** | 2.33 | 0.08 | 206.64 | 204.69 | 3.79 | 3.50 |
| 17 | Coltsfoot Crescent | SAMH45 | SAMH44 | 0.16 | 4 | 10 | 10.0 | 4.41 | 0.05 | 0.23 | 0.04 | 0.04 | **0.27** | 29.5 | 200 | 204.50 | 202.47 | 204.70 | 202.67 | 6.9% | **86.09** | **0.31%** | 2.74 | | 207.58 | 206.54 | 2.88 | 3.87 |
| 16 | Coltsfoot Crescent | SAMH44 | SAMH43 | 0.11 | 4 | 10 | 20.0 | 4.38 | 0.10 | 0.46 | 0.03 | 0.06 | **0.52** | 37.5 | 200 | 202.41 | 201.10 | 202.61 | 201.30 | 3.5% | **61.45** | **0.84%** | 1.96 | 0.06 | 206.54 | 205.22 | 3.93 | 3.92 |
| 15 | Coltsfoot Crescent | SAMH43 | SAMH42 | 0.10 | 1 | 3 | 23.0 | 4.37 | 0.12 | 0.52 | 0.02 | 0.09 | **0.61** | 27.4 | 200 | 201.05 | 200.59 | 201.25 | 200.79 | 1.7% | **42.76** | **1.42%** | 1.36 | 0.05 | 205.22 | 204.72 | 3.97 | 3.93 |
| 14 | Coltsfoot Crescent | SAMH42 | SAMH17 | 0.01 | 0 | 0 | 23.0 | 4.37 | 0.12 | 0.52 | 0.00 | 0.09 | **0.61** | 6.8 | 200 | 200.54 | 200.47 | 200.74 | 200.67 | 1.0% | **32.80** | **1.86%** | 1.04 | 0.05 | 204.72 | 204.69 | 3.98 | 4.02 |
| 21 | Council Way | SAMH17 | SAMH16 | 0.06 | 0 | 0 | 118.0 | 4.22 | 0.61 | 2.60 | 0.01 | 0.54 | **3.14** | 47.4 | 200 | 200.39 | 198.49 | 200.59 | 198.69 | 4.0% | **65.60** | **4.78%** | 2.09 | 0.08 | 204.69 | 201.86 | 4.10 | 3.17 |
| 18 | Cottontail Crescent | SAMH41 | SAMH40 | 0.27 | 5 | 12 | 12.0 | 4.41 | 0.06 | 0.28 | 0.06 | 0.06 | **0.34** | 35.9 | 200 | 204.70 | 203.11 | 204.90 | 203.31 | 4.4% | **69.11** | **0.49%** | 2.20 | | 208.38 | 206.13 | 3.48 | 2.82 |
| 19 | Cottontail Crescent | SAMH40 | SAMH39 | 0.30 | 14 | 33 | 45.0 | 4.32 | 0.23 | 1.01 | 0.07 | 0.13 | **1.14** | 50.8 | 200 | 201.60 | 199.73 | 201.80 | 199.93 | 3.7% | **63.00** | **1.82%** | 2.01 | **1.51** | 206.13 | 202.29 | 4.33 | 2.36 |
| 20 | Cottontail Crescent | SAMH39 | SAMH38 | 0.10 | 3 | 7 | 52.0 | 4.31 | 0.27 | 1.17 | 0.02 | 0.15 | **1.32** | 21.5 | 200 | 199.68 | 198.82 | 199.88 | 199.02 | 4.0% | **65.60** | **2.01%** | 2.09 | 0.05 | 202.29 | 201.85 | 2.41 | 2.83 |
| 22 | Cottontail Crescent | SAMH38 | SAMH16 | 0.01 | 0 | 0 | 52.0 | 4.31 | 0.27 | 1.17 | 0.00 | 0.16 | **1.32** | 7.7 | 200 | 198.18 | 198.10 | 198.38 | 198.30 | 1.0% | **32.80** | **4.04%** | 1.04 | 0.64 | 201.85 | 201.86 | 3.47 | 3.56 |
| 23 | Council Way | SAMH16 | SAMH15 | 0.05 | 0 | 0 | 170.0 | 4.17 | 0.89 | 3.69 | 0.01 | 0.71 | **4.40** | 43.3 | 200 | 198.02 | 196.29 | 198.22 | 196.49 | 4.0% | **65.60** | **6.71%** | 2.09 | 0.08 | 201.86 | 198.62 | 3.64 | 2.13 |
| 24 | Council Way | SAMH15 | SAMH12 | 0.07 | 0 | 0 | 170.0 | 4.17 | 0.89 | 3.69 | 0.02 | 0.72 | **4.42** | 47.1 | 200 | 194.57 | 192.69 | 194.77 | 192.89 | 4.0% | **65.60** | **6.74%** | 2.09 | **1.72** | 198.62 | 194.85 | 3.85 | 1.96 |
| 25 | Council Way | SAMH12 | SAMH10 | 0.13 | 2 | 5 | 175.0 | 4.17 | 0.91 | 3.80 | 0.03 | 0.75 | **4.55** | 60.5 | 200 | 191.06 | 187.80 | 191.26 | 188.00 | 5.4% | **76.15** | **5.98%** | 2.42 | **1.63** | 194.85 | 190.66 | 3.59 | 2.66 |
| 26 | Council Way | SAMH10 | SAMH9 | 0.13 | 4 | 10 | 185.0 | 4.16 | 0.96 | 4.01 | 0.03 | 0.78 | **4.79** | 20.5 | 200 | 186.93 | 186.21 | 187.13 | 186.41 | 3.5% | **61.36** | **7.81%** | 1.95 | 0.87 | 190.66 | 189.89 | 3.53 | 3.48 |
| 27 | Council Way | SAMH9 | SAMH8 | 0.19 | 6 | 14 | 199.0 | 4.15 | 1.04 | 4.30 | 0.04 | 0.83 | **5.13** | 24.4 | 200 | 186.16 | 185.31 | 186.36 | 185.51 | 3.5% | **61.36** | **8.36%** | 1.95 | 0.05 | 189.89 | 189.00 | 3.53 | 3.49 |
| 28 | Council Way | SAMH8 | SAMH7 | 0.45 | 15 | 35 | 234.0 | 4.12 | 1.22 | 5.02 | 0.10 | 0.93 | **5.96** | 58.2 | 200 | 185.26 | 183.54 | 185.46 | 183.74 | 3.0% | **56.43** | **10.55%** | 1.80 | 0.05 | 189.00 | 187.02 | 3.54 | 3.28 |
| 29 | Council Way | SAMH7 | SAMH5 | 0.28 | 3 | 7 | 241.0 | 4.12 | 1.26 | 5.17 | 0.06 | 1.00 | **6.16** | 37.1 | 200 | 183.14 | 182.95 | 183.34 | 183.15 | 0.5% | **23.19** | **26.58%** | 0.74 | 0.40 | 187.02 | 186.19 | 3.68 | 3.04 |
| 34 | Rally Trail | SAMH36 | SAMH35 | 0.42 | 3 | 7 | 7.0 | 4.43 | 0.04 | 0.16 | 0.10 | 0.10 | **0.26** | 30.0 | 200 | 185.15 | 184.59 | 185.35 | 184.79 | 1.9% | **44.97** | **0.57%** | 1.43 | | 188.65 | 188.12 | 3.30 | 3.33 |
| 33 | Rally Trail | SAMH35 | SAMH33 | 0.32 | 5 | 12 | 19.0 | 4.38 | 0.10 | 0.43 | 0.07 | 0.17 | **0.60** | 46.0 | 200 | 184.54 | 184.22 | 184.74 | 184.42 | 0.7% | **27.24** | **2.22%** | 0.87 | 0.05 | 188.12 | 187.35 | 3.38 | 2.93 |
| 32 | Rally Trail | SAMH33 | SAMH32 | 0.27 | 8 | 19 | 38.0 | 4.34 | 0.20 | 0.86 | 0.06 | 0.23 | **1.09** | 36.0 | 200 | 184.17 | 183.99 | 184.37 | 184.19 | 0.5% | **23.19** | **4.70%** | 0.74 | 0.05 | 187.35 | 187.16 | 2.98 | 2.97 |
| 31 | Rally Trail | SAMH32 | SAMH31 | 0.23 | 6 | 14 | 52.0 | 4.31 | 0.27 | 1.17 | 0.05 | 0.29 | **1.45** | 31.4 | 200 | 183.94 | 183.78 | 184.14 | 183.98 | 0.5% | **23.19** | **6.26%** | 0.74 | 0.05 | 187.16 | 187.00 | 3.02 | 3.02 |
| 30 | Rally Trail | SAMH31 | SAMH30 | 0.13 | 2 | 5 | 57.0 | 4.30 | 0.30 | 1.28 | 0.03 | 0.32 | **1.59** | 30.2 | 200 | 183.73 | 183.58 | 183.93 | 183.78 | 0.5% | **23.19** | **6.87%** | 0.74 | 0.05 | 187.00 | 186.86 | 3.07 | 3.08 |
| - | Rally Trail | SAMH30 | SAMH5 | 0.00 | 0 | 0 | 57.0 | 4.30 | 0.30 | 1.28 | 0.00 | 0.32 | **1.59** | 28.9 | 200 | 183.53 | 183.39 | 183.73 | 183.59 | 0.5% | **23.19** | **6.87%** | 0.74 | 0.05 | 186.86 | 186.19 | 3.13 | 2.60 |
| 38 | Festoon Crescent | SAMH5 | SAMH4 | 0.25 | 7 | 17 | 315.0 | 4.07 | 1.64 | 6.68 | 0.06 | 1.37 | **8.04** | 35.9 | 200 | 182.90 | 182.36 | 183.10 | 182.56 | 1.5% | **40.17** | **20.03%** | 1.28 | 0.49 | 186.19 | 184.98 | 3.09 | 2.42 |
| 37 | Festoon Crescent | SAMH4 | SAMH3 | 0.34 | 9 | 21 | 336.0 | 4.06 | 1.75 | 7.10 | 0.08 | 1.45 | **8.55** | 42.4 | 200 | 182.31 | 181.20 | 182.51 | 181.40 | 2.6% | **52.99** | **16.13%** | 1.69 | 0.05 | 184.98 | 183.94 | 2.47 | 2.54 |
| 36 | Festoon Crescent | SAMH3 | SAMH1 | 0.11 | 2 | 5 | 341.0 | 4.05 | 1.78 | 7.20 | 0.03 | 1.47 | **8.67** | 24.8 | 200 | 181.15 | 180.46 | 181.35 | 180.66 | 2.8% | **54.69** | **15.86%** | 1.74 | 0.05 | 183.94 | 183.99 | 2.59 | 3.33 |
| 35 | Festoon Crescent | SAMH29 | SAMH1 | 0.52 | 9 | 21 | 21.0 | 4.38 | 0.11 | 0.48 | 0.12 | 0.12 | **0.60** | 95.2 | 200 | 181.72 | 180.56 | 181.92 | 180.76 | 1.2% | **36.23** | **1.65%** | 1.15 | | 184.46 | 183.99 | 2.54 | 3.23 |
| N/A | N/A | SAMH1 | EX SAMH2 | 0.00 | 0 | 0 | 362.0 | 4.04 | 1.89 | 7.62 | 0.00 | 1.59 | **9.21** | 28.4 | 200 | 180.38 | 178.96 | 180.58 | 179.16 | 5.0% | **73.34** | **12.56%** | 2.33 | 0.18 | 183.99 | 181.71 | 3.41 | 2.55 |

# PARKBRIDGE CRAIGLEITH

**1046-4031**

SANITARY SEWER DESIGN SHEET

CROZIER CONSULTING ENGINEERS

| Unit Type | PPU |
|---|---|
| Single & Semi Detached | 2.3 |
| Townhome | 2.3 |

| | |
|---|---|
| Mannings "n": | 0.013 |
| Peak Factor (M): | 1+(14/4+(P/1000)^0.5) |
| Residential Avg. Daily/Capita Flow (L/cap.d): | 450 |
| Infiltration Q (L/ha.s): | 0.23 |

DESIGNED BY: JE
CHECKED BY: RW
DATE: 2020-06-16
REVISION NO.: 2
REVISED BY: JE
DATE: 2021-05-14

| CATCHMENT I.D. | STREET | FROM MH NO | TO MH NO | AREA (Ha) | UNITS | POP. | TOTAL TRIB. POP. | RESIDENTIAL PEAK FACTOR | RESIDENTIAL AVG. FLOW (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. | UPPER OBV. EL. | LOWER OBV. EL. | SLOPE (%) | CAP. (l/s) | CAP. (%) | FULL FLOW VELOCITY (m/s) | MH DROP (m) | GROUND UPPER | GROUND LOWER | COVER UPPER | COVER LOWER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SANITARY SYSTEM TO NORTHEAST OUTLET** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | Rally Trail | SAMH74 | SAMH73 | 0.16 | 4 | 10 | 10.0 | 4.41 | 0.05 | 0.23 | 0.04 | 0.04 | **0.27** | 30.7 | 200 | 183.09 | 182.13 | 183.29 | 182.33 | 3.1% | **58.03** | **0.46%** | 1.85 | | 186.49 | 185.62 | 3.20 | 3.29 |
| 39 | Butternut Court | SAMH75 | SAMH73 | 0.38 | 12 | 28 | 28.0 | 4.36 | 0.15 | 0.64 | 0.09 | 0.09 | **0.72** | 47.2 | 200 | 184.44 | 182.13 | 184.64 | 182.33 | 4.9% | **72.60** | **1.00%** | 2.31 | | 188.07 | 185.62 | 3.43 | 3.29 |
| 41 | Rally Trail | SAMH73 | SAMH72 | 0.17 | 4 | 10 | 48.0 | 4.32 | 0.25 | 1.08 | 0.04 | 0.16 | **1.24** | 31.7 | 200 | 182.08 | 181.26 | 182.28 | 181.46 | 2.6% | **52.89** | **2.35%** | 1.68 | 0.05 | 185.62 | 184.70 | 3.34 | 3.24 |
| 42 | Rally Trail | SAMH72 | SAMH56 | 0.24 | 6 | 14 | 62.0 | 4.29 | 0.32 | 1.39 | 0.06 | 0.22 | **1.61** | 57.2 | 200 | 181.21 | 179.95 | 181.41 | 180.15 | 2.2% | **48.65** | **3.30%** | 1.55 | 0.05 | 184.70 | 183.47 | 3.29 | 3.32 |
| 45 | Rally Trail | SAMH69A | SAMH68 | 0.28 | 4 | 10 | 10.0 | 4.41 | 0.05 | 0.23 | 0.06 | 0.06 | **0.29** | 53.1 | 200 | 182.07 | 181.48 | 182.27 | 181.68 | 1.1% | **34.56** | **0.85%** | 1.10 | | 185.65 | 185.03 | 3.38 | 3.35 |
| 44 | Rally Trail | SAMH68 | SAMH66 | 0.08 | 0 | 0 | 10.0 | 4.41 | 0.05 | 0.23 | 0.02 | 0.08 | **0.31** | 36.2 | 200 | 181.43 | 180.64 | 181.63 | 180.84 | 2.2% | **48.43** | **0.65%** | 1.54 | 0.05 | 185.03 | 184.21 | 3.40 | 3.37 |
| 43 | Rally Trail | SAMH66 | SAMH56 | 0.05 | 0 | 0 | 10.0 | 4.41 | 0.05 | 0.23 | 0.01 | 0.09 | **0.32** | 32.7 | 200 | 180.59 | 179.82 | 180.79 | 180.02 | 2.4% | **50.39** | **0.64%** | 1.60 | 0.05 | 184.21 | 183.47 | 3.42 | 3.45 |
| 46 | Rally Trail | SAMH69B | SAMH70 | 0.14 | 2 | 5 | 5.0 | 4.44 | 0.03 | 0.12 | 0.03 | 0.03 | **0.15** | 23.1 | 200 | 182.08 | 181.85 | 182.28 | 182.05 | 1.0% | **32.80** | **0.45%** | 1.04 | | 185.65 | 185.46 | 3.37 | 3.41 |
| 47 | Rally Trail | SAMH70 | SAMH71 | 0.16 | 2 | 5 | 10.0 | 4.41 | 0.05 | 0.23 | 0.04 | 0.07 | **0.30** | 24.7 | 200 | 181.80 | 181.68 | 182.00 | 181.88 | 0.5% | **22.49** | **1.33%** | 0.72 | 0.05 | 185.46 | 185.29 | 3.46 | 3.41 |
| 48 | Rally Trail | SAMH71 | SAMH64 | 0.08 | 0 | 0 | 10.0 | 4.41 | 0.05 | 0.23 | 0.02 | 0.09 | **0.32** | 22.0 | 200 | 181.63 | 181.53 | 181.83 | 181.73 | 0.5% | **22.49** | **1.41%** | 0.72 | 0.05 | 185.29 | 185.17 | 3.46 | 3.44 |
| 49 | Rally Trail | SAMH64 | SAMH63 | 0.23 | 4 | 10 | 20.0 | 4.38 | 0.10 | 0.46 | 0.05 | 0.14 | **0.60** | 27.0 | 200 | 181.48 | 181.35 | 181.68 | 181.55 | 0.5% | **22.96** | **2.60%** | 0.73 | 0.05 | 185.17 | 184.97 | 3.49 | 3.42 |
| 50 | Rally Trail | SAMH63 | SAMH62 | 0.12 | 2 | 5 | 25.0 | 4.37 | 0.13 | 0.57 | 0.03 | 0.17 | **0.74** | 20.7 | 200 | 181.29 | 181.17 | 181.49 | 181.37 | 0.6% | **25.41** | **2.90%** | 0.81 | 0.06 | 184.97 | 184.83 | 3.48 | 3.46 |
| 51 | Rally Trail | SAMH62 | SAMH61 | 0.11 | 2 | 5 | 30.0 | 4.35 | 0.16 | 0.68 | 0.03 | 0.19 | **0.87** | 13.1 | 200 | 181.12 | 181.04 | 181.32 | 181.24 | 0.6% | **24.98** | **3.50%** | 0.80 | 0.05 | 184.83 | 184.74 | 3.51 | 3.50 |
| 52 | Rally Trail | SAMH61 | SAMH60 | 0.22 | 2 | 5 | 35.0 | 4.34 | 0.18 | 0.79 | 0.05 | 0.24 | **1.04** | 16.7 | 200 | 180.99 | 180.91 | 181.19 | 181.11 | 0.5% | **22.72** | **4.56%** | 0.72 | 0.05 | 184.74 | 184.62 | 3.55 | 3.51 |
| 53 | Rally Trail | SAMH60 | SAMH59 | 0.45 | 7 | 17 | 52.0 | 4.31 | 0.27 | 1.17 | 0.10 | 0.35 | **1.51** | 62.0 | 200 | 180.86 | 180.54 | 181.06 | 180.74 | 0.5% | **23.42** | **6.47%** | 0.75 | 0.05 | 184.62 | 184.21 | 3.56 | 3.47 |
| 54 | Rally Trail | SAMH59 | SAMH58 | 0.33 | 5 | 12 | 64.0 | 4.29 | 0.33 | 1.43 | 0.08 | 0.42 | **1.85** | 35.4 | 200 | 180.49 | 180.32 | 180.69 | 180.52 | 0.5% | **23.19** | **7.99%** | 0.74 | 0.05 | 184.21 | 183.97 | 3.52 | 3.45 |
| 55 | Rally Trail | SAMH58 | SAMH57 | 0.18 | 3 | 7 | 71.0 | 4.28 | 0.37 | 1.58 | 0.04 | 0.46 | **2.05** | 24.0 | 200 | 180.27 | 180.15 | 180.47 | 180.35 | 0.5% | **23.19** | **8.83%** | 0.74 | 0.05 | 183.97 | 183.81 | 3.50 | 3.46 |
| 56 | Rally Trail | SAMH57 | SAMH56 | 0.29 | 6 | 14 | 85.0 | 4.26 | 0.44 | 1.89 | 0.07 | 0.53 | **2.42** | 51.7 | 200 | 180.10 | 179.85 | 180.30 | 180.05 | 0.5% | **22.72** | **10.64%** | 0.72 | 0.05 | 183.81 | 183.47 | 3.51 | 3.42 |
| N/A | SWMF Access Road | SAMH56 | SAMH55 | 0.00 | 0 | 0 | 157.0 | 4.18 | 0.82 | 3.42 | 0.00 | 0.84 | **4.27** | 36.7 | 200 | 179.77 | 179.57 | 179.97 | 179.77 | 0.5% | **24.10** | **17.70%** | 0.77 | 0.08 | 183.47 | 183.25 | 3.50 | 3.48 |
| N/A | SWMF Access Road | SAMH55 | EX SAMH4 | 0.00 | 0 | 0 | 157.0 | 4.18 | 0.82 | 3.42 | 0.00 | 0.84 | **4.27** | 104.1 | 200 | 179.52 | 179.02 | 179.72 | 179.22 | 0.5% | **22.72** | **18.77%** | 0.72 | 0.05 | 183.25 | 181.49 | 3.53 | 2.27 |
| | **Totals** | | | **10.59** | **217** | **(211 Residential, Club House - counted as 5 units, 1 Storage Center)** | | | | | | | | | | | | | | | | | | | | | | |

# APPENDIX B

## Potable Water Demand Calculations

Water Demand Calculations
Fire Flow Calculations
Hydrant Flow Test Results
Water Modelling Memo
J.L. Richards Water Modelling Results (included in Water Modelling Memo)

CROZIER
CONSULTING ENGINEERS

File: 1046-4031
Project: Parkbridge Craigleith
Date: 16-Jun-20
By: JE
Check By: JP

# Parkbridge Craigleith - Water Design Criteria

| | | | |
|---|---|---|---|
| Developed Site Area | | 13.00 | ha |
| Number of Residential Units (211 Residential + Clubhouse (5 units) & 1 Storage Facility) | | 217 | units |
| Person Per Residential Unit | (as per Town Standards) | 2.3 | persons/unit |
| Residential Population | | 500 | persons |

**Domestic Water Design Flows**

| | | |
|---|---|---|
| Residential (per MOE Design Guidelines 2008 and Town Standards) | 450 | L/C-day |

**Total Domestic Water Design Flows**

| | | |
|---|---|---|
| Average Residential Daily Flow (per MOE Design Guidelines 2008 and Town Standards) | 2.60 | L/sec |
| Max Day Peak Factor (per Town Standards) | 2.00 | |
| **Max Day Demand Flow** | 5.21 | L/sec |
| Peak Hour Factor (per Town Standards) | 4.50 | |
| **Peak Hour Flow** | 11.72 | L/sec |

CROZIER & ASSOCIATES
Consulting Engineers

Project.: Parkbridge Craigleith
Project No.: 1046-4031
File.: Fire Flow Calcs
Date.: June 22, 2020
Design: JE

**Fire Protection Volume Calculation Summary**
**Parkbridge Craigleith**

## WATER SUPPLY FOR PUBLIC FIRE PROTECTION (1999)
## FIRE UNDERWRITER'S SURVEY

| Unit Block # | Total Floor Area (m²) | Flow (L/min) | Reduction (L/min) | Exposure Surcharge (L/min) | Required Flow (L/min) | Required Storage Volume (m³) | Required Flow (L/s) |
|---|---|---|---|---|---|---|---|
| Type A | 234 | 5,000 | -750 | 1,700 | 6,000 | 720 | 100 |
| Type B | 159 | 4,000 | -600 | 1,530 | 5,000 | 525 | 83 |
| Type C | 252 | 5,000 | -750 | 1,913 | 6,000 | 720 | 100 |
| Type D | 163 | 4,000 | -600 | 2,380 | 6,000 | 720 | 100 |
| Type E | 225 | 5,000 | -750 | 2,125 | 6,000 | 720 | 100 |
| Clubhouse | 465 | 7,000 | -1,050 | 2,083 | 8,000 | 960 | 133 |
| Storage Facility | 366 | 6,000 | 0 | 1,200 | 7,000 | 840 | 117 |

## OFFICE OF FIRE MARSHAL
## Part 3 of OBC

| Unit Block # | | K | Volume (m³) | S Tot | Required Flow (L/min) | Required Storage (OBC) (m³) | Required Flow (L/s) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| Type A | | 18 | 881 | 2.00 | 2,700 | 32 | 45 |
| Type B | | 18 | 1,145 | 2.00 | 2,700 | 41 | 45 |
| Type C | | 18 | 1,247 | 2.00 | 2,700 | 45 | 45 |
| Type D | | 18 | 571 | 2.00 | 2,700 | 21 | 45 |
| Type E | | 18 | 1,052 | 1.75 | 2,700 | 33 | 45 |
| Clubhouse | | 18 | 2,976 | 1.00 | 2,700 | 54 | 45 |
| Storage Facility | | 31 | 2,342 | 1.00 | 2,700 | 73 | 45 |

SUMMARY:

1) Fire Flow required per FUS **133** L/s
2) Fire flow required per Fire Marshal (OBC) 45 L/s

# Craigleith: Type A (Unit 16)
# Fire Protection Volume Calculation
# CFCA File: 1046-4031



**Water Supply for Public Fire Protection - 1999**
**Fire Underwriters Survey**

**Part II - Guide for Determination of Required Fire Flow**

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

$$F = 220 * C * \sqrt{A}$$

where

F = the required fire flow in litres per minute
C = coefficient related to the type of construction
= 1.5 for wood frame construction (structure essentially all combustible)
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
= 0.8 for non-combustible construction (unprotected metal structural components)
= 0.6 for fire-resistive construction (fully protected frame, floors, roof)
A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building considered.

| Proposed Buildings | | Ordinary construction |
|---|---|---|
| 3 | number of floors | 1.5 C |
| 78 | sq.m. floor area | |
| 234 | sq.m. total floor area | |

**Therefore F= 5,000 L/min (rounded to nearest 1000 L/min)**
**("Value obtained in No. 1")**

Fire flow determined above shall not exceed:
30,000 L/min for wood frame construction
30,000 L/min for ordinary construction
25,000 L/min for non-combustible construction
25,000 L/min for fire-resistive construction

2. Values obtained in No. 1 may be reduced by as much as 25% for occupancies having low contents fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

| | | | |
|---|---|---|---|
| Non-Combustible | -25% | Free Burning | 15% |
| Limited Combustible | -15% | Rapid Buring | 25% |
| Combustible | No Charge | | |

| | |
|---|---|
| Low fire Hazard occupancy for dwellings | -15% reduction |

**-750 L/min reduction**

**"Value obtained in No. 2" 4,250**

Note: Flow determined shall not be less than 2,000 L/min

3. Sprinklers - The value obtained in No. 2 above maybe reduce by up to 50% for complete automatic sprinkler protection.

**Buildings not will have sprinklers (typical 30% reduction)**
**0 L/min reduction**

**Water Supply for Public Fire Protection - 1999**
**Fire Underwriters Survey**

**Part II - Guide for Determination of Required Fire Flow**

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 45 metres by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) esposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

| Separation | Charge | Separation | Charge |
|---|---|---|---|
| 0 to 3 m | 25% | 20.1 to 30 m | 10% |
| 3.1 to 10 m | 20% | 30.1 to 45 m | 5% |
| 10.1 to 20 m | 15% | | |

**Exposed buildings**

| **Name** | | **Distance** | | |
|---|---|---|---|---|
| North | Adjacent Dwelling | Fire Wall | 10% | 425 |
| South | Adjacent Dwelling | Fire Wall | 10% | 425 |
| East | Adjacent Dwelling | Fire Wall | 10% | 425 |
| West | Adjacent Dwelling | 22 | 10% | 425 |

**1,700 L/min Surcharge**

Note: Fire wall surcharge calculated per Note E of FUS

**Determine Required Fire Flow**

| | | | |
|---|---|---|---|
| No. 2 | 4,250 | | |
| No. 3 | 0 | reduction | |
| No. 4 | 1,700 | surcharge | |
| **Required Flow:** | **5,950** | **L/min** | |
| **Rounded to nearest 1000l/min:** | **6,000** | **L/min** | or 100.0 L/s |
| | | | 1,585 USGPM |

**Determine Required Fire Storage Volume**

| | | | |
|---|---|---|---|
| Flow from above | 6,000 | L/min | |
| Required duration | 2.00 | hours | |
| Therefore: | 720,000 | Litres or | |
| | 720 | cu.m. | is the required storage volume |

Required Duration of Fire Flow

| Flow Required L/min | Duration (hours) |
|---|---|
| 2,000 or less | 1.0 |
| 3,000 | 1.25 |
| 4,000 | 1.5 |
| 5,000 | 1.75 |
| 6,000 | 2.0 |
| 8,000 | 2.0 |
| 10,000 | 2.0 |
| 12,000 | 2.5 |
| 14,000 | 3.0 |
| 16,000 | 3.5 |
| 18,000 | 4.0 |
| 20,000 | 4.5 |
| 22,000 | 5.0 |
| 24,000 | 5.5 |
| 26,000 | 6.0 |
| 28,000 | 6.5 |
| 30,000 | 7.0 |
| 32,000 | 7.5 |
| 34,000 | 8.0 |
| 36,000 | 8.5 |
| 38,000 | 9.0 |
| 40,000 and over | 9.5 |

**Fire Protection Water Supply Guideline**
**Part 3 of the Ontario Building Code (2006)**

$$Q = KVS_{TOT}$$

Q = minimum supply of water in litres (L)
K = water supply coefficient
V = total building volume in cubic metres
$S_{TOT}$ = total of spatial coefficient values from property line exposures on all sides

| | | |
|---|---|---|
| K = | 18 | Group C building with non-combustible construction (Table 1) |
| V = | 881 | Total building volume in cubic meters (11.3m tall) |
| $S_{TOT}$ = | 2 | $S_{TOT}$ Need Not Exceed 2.0 |

**Q = 31730 L**

Based on ranges listed in Table 2, the required minimum water supply flow rate is **2700 L/min**

**45 L/s**

# Craigleith: Type B (Unit 96)
# Fire Protection Volume Calculation
# CFCA File: 1046-4031



**Water Supply for Public Fire Protection - 1999**
**Fire Underwriters Survey**

**Part II - Guide for Determination of Required Fire Flow**

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

$$F = 220 * C * \sqrt{A}$$

where

F = the required fire flow in litres per minute
C = coefficient related to the type of construction
= 1.5 for wood frame construction (structure essentially all combustible)
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
= 0.8 for non-combustible construction (unprotected metal structural components)
= 0.6 for fire-resistive construction (fully protected frame, floors, roof)
A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building considered.

| Proposed Buildings | | Ordinary Construction |
|---|---|---|
| 1 | number of floors | 1.5 C |
| 159 | sq.m. floor area | |
| 159 | sq.m. total floor area | |

**Therefore F= 4,000 L/min (rounded to nearest 1000 L/min)**
**("Value obtained in No. 1")**

Fire flow determined above shall not exceed:
30,000 L/min for wood frame construction
30,000 L/min for ordinary construction
25,000 L/min for non-combustible construction
25,000 L/min for fire-resistive construction

2. Values obtained in No. 1 may be reduced by as much as 25% for occupancies having low contents fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

| | | | |
|---|---|---|---|
| Non-Combustible | -25% | Free Burning | 15% |
| Limited Combustible | -15% | Rapid Buring | 25% |
| Combustible | No Charge | | |

| | |
|---|---|
| Low fire Hazard occupancy for dwellings | -15% reduction |

**-600 L/min reduction**

**"Value obtained in No. 2" 3,400 L/min**

Note: Flow determined shall not be less than 2,000 L/min

3. Sprinklers - The value obtained in No. 2 above maybe reduce by up to 50% for complete automatic sprinkler protection.

**Buildings not will have sprinklers (typical 30% reduction)**
**0 L/min reduction**

**Water Supply for Public Fire Protection - 1999**
**Fire Underwriters Survey**

**Part II - Guide for Determination of Required Fire Flow**

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 45 metres by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) esposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

| Separation | Charge | Separation | Charge |
|---|---|---|---|
| 0 to 3 m | 25% | 20.1 to 30 m | 10% |
| 3.1 to 10 m | 20% | 30.1 to 45 m | 5% |
| 10.1 to 20 m | 15% | | |

**Exposed buildings**

| **Name** | | **Distance** | | |
|---|---|---|---|---|
| North | Adjacent Dwelling | Fire Wall | 10% | 340 |
| South | Adjacent Dwelling | Fire Wall | 10% | 340 |
| East | Adjacent Dwelling | 25 | 10% | 340 |
| West | Adjacent Dwelling | 12 | 15% | 510 |

**1,530 L/min Surcharge**

Note: Fire wall surcharge calculated per Note E of FUS

**Determine Required Fire Flow**

| | | | |
|---|---|---|---|
| No. 2 | 3,400 | | |
| No. 3 | 0 | reduction | |
| No. 4 | 1,530 | surcharge | |
| **Required Flow:** | **4,930 L/min** | | |
| **Rounded to nearest 1000l/min:** | **5,000 L/min** | or | 83.3 L/s |
| | | | 1,321 USGPM |

**Determine Required Fire Storage Volume**

Flow from above 5,000 L/min

Required duration 1.75 hours

Therefore: 525,000 Litres or
525 cu.m. is the required storage volume

Required Duration of Fire Flow

| Flow Required L/min | Duration (hours) |
|---|---|
| 2,000 or less | 1.0 |
| 3,000 | 1.25 |
| 4,000 | 1.5 |
| 5,000 | 1.75 |
| 6,000 | 2.0 |
| 8,000 | 2.0 |
| 10,000 | 2.0 |
| 12,000 | 2.5 |
| 14,000 | 3.0 |
| 16,000 | 3.5 |
| 18,000 | 4.0 |
| 20,000 | 4.5 |
| 22,000 | 5.0 |
| 24,000 | 5.5 |
| 26,000 | 6.0 |
| 28,000 | 6.5 |
| 30,000 | 7.0 |
| 32,000 | 7.5 |
| 34,000 | 8.0 |
| 36,000 | 8.5 |
| 38,000 | 9.0 |
| 40,000 and over | 9.5 |

**Fire Protection Water Supply Guideline**
**Part 3 of the Ontario Building Code (2006)**

$$Q = KVS_{TOT}$$

Q = minimum supply of water in litres (L)
K = water supply coefficient
V = total building volume in cubic metres
$S_{TOT}$ = total of spatial coefficient values from property line exposures on all sides

| | | |
|---|---|---|
| K = | 18 | Group C building with combustible construction (Table 1) |
| V = | 1145 | Total building volume in cubic meters (7.2m height) |
| $S_{TOT}$ = | 2 | $S_{TOT}$ Need Not Exceed 2.0 |

**Q = 41213 L**

Based on ranges listed in Table 2, the required minimum water supply flow rate is **2700 L/min**

**45 L/s**

# Craigleith: Type C (Unit 100)
# Fire Protection Volume Calculation
# CFCA File: 1046-4031



**Water Supply for Public Fire Protection - 1999**
**Fire Underwriters Survey**

**Part II - Guide for Determination of Required Fire Flow**

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

$$F = 220 * C * \sqrt{A}$$

where

F = the required fire flow in litres per minute
C = coefficient related to the type of construction
= 1.5 for wood frame construction (structure essentially all combustible)
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
= 0.8 for non-combustible construction (unprotected metal structural components)
= 0.6 for fire-resistive construction (fully protected frame, floors, roof)
A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building considered.

| Proposed Buildings | | Ordinary Construction |
|---|---|---|
| 2 | number of floors | 1.5 C |
| 126 | sq.m. floor area | |
| 252 | sq.m. total floor area | |

**Therefore F= 5,000 L/min (rounded to nearest 1000 L/min)**
**("Value obtained in No. 1")**

Fire flow determined above shall not exceed:
30,000 L/min for wood frame construction
30,000 L/min for ordinary construction
25,000 L/min for non-combustible construction
25,000 L/min for fire-resistive construction

2. Values obtained in No. 1 may be reduced by as much as 25% for occupancies having low contents fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

| | | | |
|---|---|---|---|
| Non-Combustible | -25% | Free Burning | 15% |
| Limited Combustible | -15% | Rapid Buring | 25% |
| Combustible | No Charge | | |

| | |
|---|---|
| Low fire Hazard occupancy for dwellings | -15% reduction |

**-750 L/min reduction**

**"Value obtained in No. 2" 4,250**

Note: Flow determined shall not be less than 2,000 L/min

3. Sprinklers - The value obtained in No. 2 above maybe reduce by up to 50% for complete automatic sprinkler protection.

**Buildings not will have sprinklers (typical 30% reduction)**
**0 L/min reduction**

**Water Supply for Public Fire Protection - 1999**
**Fire Underwriters Survey**

**Part II - Guide for Determination of Required Fire Flow**

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 45 metres by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) esposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

| Separation | Charge | Separation | Charge |
|---|---|---|---|
| 0 to 3 m | 25% | 20.1 to 30 m | 10% |
| 3.1 to 10 m | 20% | 30.1 to 45 m | 5% |
| 10.1 to 20 m | 15% | | |

**Exposed buildings**

| **Name** | | **Distance** | | |
|---|---|---|---|---|
| North | Adjacent Dwelling | Fire Wall | 10% | 425 |
| South | Adjacent Dwelling | Fire Wall | 10% | 425 |
| East | Adjacent Dwelling | 11 | 15% | 638 |
| West | Adjacent Dwelling | 26 | 10% | 425 |

**1,913 L/min Surcharge**

Note: Fire wall surcharge calculated per Note E of FUS

**Determine Required Fire Flow**

| | | | |
|---|---|---|---|
| No. 2 | 4,250 | | |
| No. 3 | 0 | reduction | |
| No. 4 | 1,913 | surcharge | |
| **Required Flow:** | **6,163 L/min** | | |
| **Rounded to nearest 1000l/min:** | **6,000 L/min** | or | 100.0 L/s |
| | | | 1,585 USGPM |

**Determine Required Fire Storage Volume**

Flow from above 6,000 L/min

Required duration 2.00 hours

Therefore: 720,000 Litres or
720 cu.m. is the required storage volume

Required Duration of Fire Flow

| Flow Required L/min | Duration (hours) |
|---|---|
| 2,000 or less | 1.0 |
| 3,000 | 1.25 |
| 4,000 | 1.5 |
| 5,000 | 1.75 |
| 6,000 | 2.0 |
| 8,000 | 2.0 |
| 10,000 | 2.0 |
| 12,000 | 2.5 |
| 14,000 | 3.0 |
| 16,000 | 3.5 |
| 18,000 | 4.0 |
| 20,000 | 4.5 |
| 22,000 | 5.0 |
| 24,000 | 5.5 |
| 26,000 | 6.0 |
| 28,000 | 6.5 |
| 30,000 | 7.0 |
| 32,000 | 7.5 |
| 34,000 | 8.0 |
| 36,000 | 8.5 |
| 38,000 | 9.0 |
| 40,000 and over | 9.5 |

**Fire Protection Water Supply Guideline**
**Part 3 of the Ontario Building Code (2006)**

$$Q = KVS_{TOT}$$

Q = minimum supply of water in litres (L)
K = water supply coefficient
V = total building volume in cubic metres
$S_{TOT}$ = total of spatial coefficient values from property line exposures on all sides

| | | |
|---|---|---|
| K = | 18 | Group C building with non-combustible construction (Table 1) |
| V = | 1247 | Total building volume in cubic meters (9.9m tall) |
| $S_{TOT}$ = | 2 | $S_{TOT}$ Need Not Exceed 2.0 |

**Q = 44906 L**

Based on ranges listed in Table 2, the required minimum water supply flow rate is **2700 L/min**

**45 L/s**

# Craigleith: Type D (Unit 185)
# Fire Protection Volume Calculation
# CFCA File: 1046-4031



## Water Supply for Public Fire Protection - 1999
## Fire Underwriters Survey

**Part II - Guide for Determination of Required Fire Flow**

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

$$F = 220 * C * \sqrt{A}$$

where

F = the required fire flow in litres per minute

C = coefficient related to the type of construction
- = 1.5 for wood frame construction (structure essentially all combustible)
- = 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
- = 0.8 for non-combustible construction (unprotected metal structural components)
- = 0.6 for fire-resistive construction (fully protected frame, floors, roof)

A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building considered.

| Proposed Buildings | | Ordinary Construction |
|---|---|---|
| 1 | number of floors | 1.5 C |
| 163 | sq.m. floor area | |
| 163 | sq.m. total floor area | |

**Therefore F= 4,000 L/min (rounded to nearest 1000 L/min)**
**("Value obtained in No. 1")**

Fire flow determined above shall not exceed:
- 30,000 L/min for wood frame construction
- 30,000 L/min for ordinary construction
- 25,000 L/min for non-combustible construction
- 25,000 L/min for fire-resistive construction

2. Values obtained in No. 1 may be reduced by as much as 25% for occupancies having low contents fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

| | | | |
|---|---|---|---|
| Non-Combustible | -25% | Free Burning | 15% |
| Limited Combustible | -15% | Rapid Buring | 25% |
| Combustible | No Charge | | |

| | |
|---|---|
| Low fire Hazard occupancy for dwellings | -15% reduction |

**-600 L/min reduction**

**"Value obtained in No. 2" 3,400**

Note: Flow determined shall not be less than 2,000 L/min

3. Sprinklers - The value obtained in No. 2 above maybe reduce by up to 50% for complete automatic sprinkler protection.

**Buildings not will have sprinklers (typical 30% reduction)**
**0 L/min reduction**

**Water Supply for Public Fire Protection - 1999**
**Fire Underwriters Survey**

**Part II - Guide for Determination of Required Fire Flow**

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 45 metres by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) esposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

| Separation | Charge | Separation | Charge |
|---|---|---|---|
| 0 to 3 m | 25% | 20.1 to 30 m | 10% |
| 3.1 to 10 m | 20% | 30.1 to 45 m | 5% |
| 10.1 to 20 m | 15% | | |

**Exposed buildings**

| **Name** | | **Distance** | | |
|---|---|---|---|---|
| North | Adjacent Dwelling | 15 | 15% | 510 |
| South | Adjacent Dwelling | 22 | 10% | 340 |
| East | Adjacent Dwelling | 4.5 | 20% | 680 |
| West | Adjacent Dwelling | 2.7 | 25% | 850 |
| | | | | **2,380 L/min Surcharge** |

**Determine Required Fire Flow**

| | | | |
|---|---|---|---|
| No. 2 | 3,400 | | |
| No. 3 | 0 | reduction | |
| No. 4 | 2,380 | surcharge | |
| **Required Flow:** | **5,780** | **L/min** | |
| **Rounded to nearest 1000l/min:** | **6,000** | **L/min** | or 100.0 L/s |
| | | | 1,585 USGPM |

**Determine Required Fire Storage Volume**

| | | |
|---|---|---|
| Flow from above | 6,000 | L/min |
| Required duration | 2.00 | hours |
| Therefore: | 720,000 | Litres or |
| | 720 | cu.m. is the required storage volume |

Required Duration of Fire Flow

| Flow Required L/min | Duration (hours) |
|---|---|
| 2,000 or less | 1.0 |
| 3,000 | 1.25 |
| 4,000 | 1.5 |
| 5,000 | 1.75 |
| 6,000 | 2.0 |
| 8,000 | 2.0 |
| 10,000 | 2.0 |
| 12,000 | 2.5 |
| 14,000 | 3.0 |
| 16,000 | 3.5 |
| 18,000 | 4.0 |
| 20,000 | 4.5 |
| 22,000 | 5.0 |
| 24,000 | 5.5 |
| 26,000 | 6.0 |
| 28,000 | 6.5 |
| 30,000 | 7.0 |
| 32,000 | 7.5 |
| 34,000 | 8.0 |
| 36,000 | 8.5 |
| 38,000 | 9.0 |
| 40,000 and over | 9.5 |

**Fire Protection Water Supply Guideline**
**Part 3 of the Ontario Building Code (2006)**

$$Q = KVS_{TOT}$$

Q = minimum supply of water in litres (L)
K = water supply coefficient
V = total building volume in cubic metres
$S_{TOT}$ = total of spatial coefficient values from property line exposures on all sides

| | | |
|---|---|---|
| K = | 18 | Group C building with non-combustible construction (Table 1) |
| V = | 571 | Total building volume in cubic meters (3.5m tall) |
| $S_{TOT}$ = | 2 | $S_{TOT}$ Need Not Exceed 2.0 |

**Q = 20538 L**

Based on ranges listed in Table 2, the required minimum water supply flow rate is **2700 L/min**

**45 L/s**

# Craigleith: Type E (Unit 176)
# Fire Protection Volume Calculation
# CFCA File: 1046-4031



**Water Supply for Public Fire Protection - 1999**
**Fire Underwriters Survey**

**Part II - Guide for Determination of Required Fire Flow**

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

$$F = 220 * C * \sqrt{A}$$

where

F = the required fire flow in litres per minute
C = coefficient related to the type of construction
= 1.5 for wood frame construction (structure essentially all combustible)
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
= 0.8 for non-combustible construction (unprotected metal structural components)
= 0.6 for fire-resistive construction (fully protected frame, floors, roof)
A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building considered.

| Proposed Buildings | | Ordinary Construction |
|---|---|---|
| 1 | number of floors | 1.5 C |
| 225 | sq.m. floor area | |
| 225 | sq.m. total floor area | |

**Therefore F= 5,000 L/min (rounded to nearest 1000 L/min)**
**("Value obtained in No. 1")**

Fire flow determined above shall not exceed:
30,000 L/min for wood frame construction
30,000 L/min for ordinary construction
25,000 L/min for non-combustible construction
25,000 L/min for fire-resistive construction

2. Values obtained in No. 1 may be reduced by as much as 25% for occupancies having low contents fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

| | | | |
|---|---|---|---|
| Non-Combustible | -25% | Free Burning | 15% |
| Limited Combustible | -15% | Rapid Buring | 25% |
| Combustible | No Charge | | |

| | |
|---|---|
| Low fire Hazard occupancy for dwellings | -15% reduction |

**-750 L/min reduction**

**"Value obtained in No. 2" 4,250**

Note: Flow determined shall not be less than 2,000 L/min

3. Sprinklers - The value obtained in No. 2 above maybe reduce by up to 50% for complete automatic sprinkler protection.

**Buildings not will have sprinklers (typical 30% reduction)**
**0 L/min reduction**

**Water Supply for Public Fire Protection - 1999**
**Fire Underwriters Survey**

**Part II - Guide for Determination of Required Fire Flow**

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 45 metres by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) esposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

| Separation | Charge | Separation | Charge |
|---|---|---|---|
| 0 to 3 m | 25% | 20.1 to 30 m | 10% |
| 3.1 to 10 m | 20% | 30.1 to 45 m | 5% |
| 10.1 to 20 m | 15% | | |

**Exposed buildings**

| **Name** | | **Distance** | | |
|---|---|---|---|---|
| North | Adjacent Dwelling | 6.5 | 20% | 850 |
| South | Adjacent Dwelling | 5 | 20% | 850 |
| East | Adjacent Dwelling | 50 | 0% | 0 |
| West | Adjacent Dwelling | 21 | 10% | 425 |
| | | | | **2,125 L/min Surcharge** |

**Determine Required Fire Flow**

| | | | |
|---|---|---|---|
| No. 2 | 4,250 | | |
| No. 3 | 0 | reduction | |
| No. 4 | 2,125 | surcharge | |
| **Required Flow:** | **6,375** | **L/min** | |
| **Rounded to nearest 1000l/min:** | **6,000** | **L/min** | or 100.0 L/s |
| | | | 1,585 USGPM |

**Determine Required Fire Storage Volume**

| | | |
|---|---|---|
| Flow from above | 6,000 | L/min |
| Required duration | 2.00 | hours |
| Therefore: | 720,000 | Litres or |
| | 720 | cu.m. is the required storage volume |

| Required Duration of Fire Flow | |
|---|---|
| Flow Required L/min | Duration (hours) |
| 2,000 or less | 1.0 |
| 3,000 | 1.25 |
| 4,000 | 1.5 |
| 5,000 | 1.75 |
| 6,000 | 2.0 |
| 8,000 | 2.0 |
| 10,000 | 2.0 |
| 12,000 | 2.5 |
| 14,000 | 3.0 |
| 16,000 | 3.5 |
| 18,000 | 4.0 |
| 20,000 | 4.5 |
| 22,000 | 5.0 |
| 24,000 | 5.5 |
| 26,000 | 6.0 |
| 28,000 | 6.5 |
| 30,000 | 7.0 |
| 32,000 | 7.5 |
| 34,000 | 8.0 |
| 36,000 | 8.5 |
| 38,000 | 9.0 |
| 40,000 and over | 9.5 |

**Fire Protection Water Supply Guideline**
**Part 3 of the Ontario Building Code (2006)**

$$Q = KVS_{TOT}$$

Q = minimum supply of water in litres (L)
K = water supply coefficient
V = total building volume in cubic metres
$S_{TOT}$ = total of spatial coefficient values from property line exposures on all sides

| | | |
|---|---|---|
| K = | 18 | Group C building with non-combustible construction (Table 1) |
| V = | 1052 | Total building volume in cubic meters (5.9m tall) |
| $S_{TOT}$ = | 1.75 | $S_{TOT}$ Need Not Exceed 2.0 |

**Q = 33134 L**

Based on ranges listed in Table 2, the required minimum water supply flow rate is **2700 L/min**

**45 L/s**

# Craigleith: Clubhouse
# Fire Protection Volume Calculation
# CFCA File: 1046-4031



## Water Supply for Public Fire Protection - 1999
## Fire Underwriters Survey

**Part II - Guide for Determination of Required Fire Flow**

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

$$F = 220 * C * \sqrt{A}$$

where

F = the required fire flow in litres per minute

C = coefficient related to the type of construction
- = 1.5 for wood frame construction (structure essentially all combustible)
- = 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
- = 0.8 for non-combustible construction (unprotected metal structural components)
- = 0.6 for fire-resistive construction (fully protected frame, floors, roof)

A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building considered.

| Proposed Buildings | | Ordinary construction |
|---|---|---|
| 1 | number of floors | 1.5 C |
| 465 | sq.m. floor area | |
| 465 | sq.m. total floor area | |

**Therefore F= 7,000 L/min (rounded to nearest 1000 L/min)**
**("Value obtained in No. 1")**

Fire flow determined above shall not exceed:

30,000 L/min for wood frame construction
30,000 L/min for ordinary construction
25,000 L/min for non-combustible construction
25,000 L/min for fire-resistive construction

2. Values obtained in No. 1 may be reduced by as much as 25% for occupancies having low contents fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

| | | | |
|---|---|---|---|
| Non-Combustible | -25% | Free Burning | 15% |
| Limited Combustible | -15% | Rapid Buring | 25% |
| Combustible | No Charge | | |

| | |
|---|---|
| Low fire Hazard occupancy for dwellings | -15% reduction |

**-1,050 L/min reduction**

**"Value obtained in No. 2" 5,950**

Note: Flow determined shall not be less than 2,000 L/min

3. Sprinklers - The value obtained in No. 2 above maybe reduce by up to 50% for complete automatic sprinkler protection.

**Buildings not will have sprinklers (typical 30% reduction)**
**0 L/min reduction**

## Water Supply for Public Fire Protection - 1999
## Fire Underwriters Survey

**Part II - Guide for Determination of Required Fire Flow**

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 45 metres by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) esposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

| Separation | Charge | Separation | Charge |
|---|---|---|---|
| 0 to 3 m | 25% | 20.1 to 30 m | 10% |
| 3.1 to 10 m | 20% | 30.1 to 45 m | 5% |
| 10.1 to 20 m | 15% | | |

**Exposed buildings**

| **Name** | | **Distance** | | | |
|---|---|---|---|---|---|
| North | Adjacent Dwelling | 0 | 25% | 1,488 | (deck) |
| South | Adjacent Dwelling | 25 | 10% | 595 | |
| East | Adjacent Dwelling | 50 | 0% | 0 | |
| West | Adjacent Dwelling | 50 | 0% | 0 | |
| | | | | **2,083** | **L/min Surcharge** |

**Determine Required Fire Flow**

| | | | | |
|---|---|---|---|---|
| No. 2 | 5,950 | | | |
| No. 3 | 0 | reduction | | |
| No. 4 | 2,083 | surcharge | | |
| **Required Flow:** | **8,033** | **L/min** | | |
| **Rounded to nearest 1000l/min:** | **8,000** | **L/min** | or | 133.3 L/s |
| | | | | 2,113 USGPM |

**Determine Required Fire Storage Volume**

Flow from above 8,000 L/min

Required duration 2.00 hours

Therefore: 960,000 Litres or
960 cu.m. is the required storage volume

| Required Duration of Fire Flow | |
|---|---|
| Flow Required L/min | Duration (hours) |
| 2,000 or less | 1.0 |
| 3,000 | 1.25 |
| 4,000 | 1.5 |
| 5,000 | 1.75 |
| 6,000 | 2.0 |
| 8,000 | 2.0 |
| 10,000 | 2.0 |
| 12,000 | 2.5 |
| 14,000 | 3.0 |
| 16,000 | 3.5 |
| 18,000 | 4.0 |
| 20,000 | 4.5 |
| 22,000 | 5.0 |
| 24,000 | 5.5 |
| 26,000 | 6.0 |
| 28,000 | 6.5 |
| 30,000 | 7.0 |
| 32,000 | 7.5 |
| 34,000 | 8.0 |
| 36,000 | 8.5 |
| 38,000 | 9.0 |
| 40,000 and over | 9.5 |

**Fire Protection Water Supply Guideline**
**Part 3 of the Ontario Building Code (2006)**

$$Q = KVS_{TOT}$$

Q = minimum supply of water in litres (L)
K = water supply coefficient
V = total building volume in cubic metres
$S_{TOT}$ = total of spatial coefficient values from property line exposures on all sides

| | | |
|---|---|---|
| K = | 18 | Group C building with non-combustible construction (Table 1) |
| V = | 2976 | Total building volume in cubic meters (6.4m tall) |
| $S_{TOT}$ = | 1 | $S_{TOT}$ Need Not Exceed 2.0 |

**Q = 53568 L**

Based on ranges listed in Table 2, the required minimum water supply flow rate is **2700 L/min**

**45 L/s**

# Craigleith: Storage Facility
# Fire Protection Volume Calculation
# CFCA File: 1046-4031



## Water Supply for Public Fire Protection - 1999
## Fire Underwriters Survey

**Part II - Guide for Determination of Required Fire Flow**

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

$$F = 220 * C * \sqrt{A}$$

where

F = the required fire flow in litres per minute

C = coefficient related to the type of construction
- = 1.5 for wood frame construction (structure essentially all combustible)
- = 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
- = 0.8 for non-combustible construction (unprotected metal structural components)
- = 0.6 for fire-resistive construction (fully protected frame, floors, roof)

A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building considered.

| Proposed Buildings | | Ordinary construction |
|---|---|---|
| 1 | number of floors | 1.5 C |
| 366 | sq.m. floor area | |
| 366 | sq.m. total floor area | |

**Therefore F= 6,000 L/min (rounded to nearest 1000 L/min)**
**("Value obtained in No. 1")**

Fire flow determined above shall not exceed:

30,000 L/min for wood frame construction
30,000 L/min for ordinary construction
25,000 L/min for non-combustible construction
25,000 L/min for fire-resistive construction

2. Values obtained in No. 1 may be reduced by as much as 25% for occupancies having low contents fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

| | | | |
|---|---|---|---|
| Non-Combustible | -25% | Free Burning | 15% |
| Limited Combustible | -15% | Rapid Buring | 25% |
| Combustible | No Charge | | |

| | |
|---|---|
| Low fire Hazard occupancy for dwellings | 0% reduction |

**0 L/min reduction**

**"Value obtained in No. 2" 6,000**

Note: Flow determined shall not be less than 2,000 L/min

3. Sprinklers - The value obtained in No. 2 above maybe reduce by up to 50% for complete automatic sprinkler protection.

**Buildings not will have sprinklers (typical 30% reduction)**
**0 L/min reduction**

## Water Supply for Public Fire Protection - 1999
## Fire Underwriters Survey

**Part II - Guide for Determination of Required Fire Flow**

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 45 metres by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) esposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

| Separation | Charge | Separation | Charge |
|---|---|---|---|
| 0 to 3 m | 25% | 20.1 to 30 m | 10% |
| 3.1 to 10 m | 20% | 30.1 to 45 m | 5% |
| 10.1 to 20 m | 15% | | |

**Exposed buildings**

| **Name** | | **Distance** | | |
|---|---|---|---|---|
| North | Adjacent Dwelling | 50 | 0% | 0 |
| South | Adjacent Dwelling | 22 | 10% | 600 |
| East | Adjacent Dwelling | 25 | 10% | 600 |
| West | Adjacent Dwelling | 50 | 0% | 0 |
| | | | | **1,200 L/min Surcharge** |

**Determine Required Fire Flow**

| | | | |
|---|---|---|---|
| No. 2 | 6,000 | | |
| No. 3 | 0 | reduction | |
| No. 4 | 1,200 | surcharge | |
| **Required Flow:** | **7,200** | **L/min** | |
| **Rounded to nearest 1000l/min:** | **7,000** | **L/min** | or 116.7 L/s |
| | | | 1,849 USGPM |

**Determine Required Fire Storage Volume**

| | | |
|---|---|---|
| Flow from above | 7,000 | L/min |
| Required duration | 2.00 | hours |
| Therefore: | 840,000 | Litres or |
| | 840 | cu.m. is the required storage volume |

| Required Duration of Fire Flow | |
|---|---|
| Flow Required L/min | Duration (hours) |
| 2,000 or less | 1.0 |
| 3,000 | 1.25 |
| 4,000 | 1.5 |
| 5,000 | 1.75 |
| 6,000 | 2.0 |
| 8,000 | 2.0 |
| 10,000 | 2.0 |
| 12,000 | 2.5 |
| 14,000 | 3.0 |
| 16,000 | 3.5 |
| 18,000 | 4.0 |
| 20,000 | 4.5 |
| 22,000 | 5.0 |
| 24,000 | 5.5 |
| 26,000 | 6.0 |
| 28,000 | 6.5 |
| 30,000 | 7.0 |
| 32,000 | 7.5 |
| 34,000 | 8.0 |
| 36,000 | 8.5 |
| 38,000 | 9.0 |
| 40,000 and over | 9.5 |

**Fire Protection Water Supply Guideline**
**Part 3 of the Ontario Building Code (2006)**

$$Q = KVS_{TOT}$$

Q = minimum supply of water in litres (L)
K = water supply coefficient
V = total building volume in cubic metres
$S_{TOT}$ = total of spatial coefficient values from property line exposures on all sides

| | | |
|---|---|---|
| K = | 31 | Group F-2 building with non-combustible construction (Table 1) |
| V = | 2342 | Total building volume in cubic meters (6.4m tall) |
| $S_{TOT}$ = | 1 | $S_{TOT}$ Need Not Exceed 2.0 |

**Q = 72614 L**

Based on ranges listed in Table 2, the required minimum water supply flow rate is **2700 L/min**

**45 L/s**

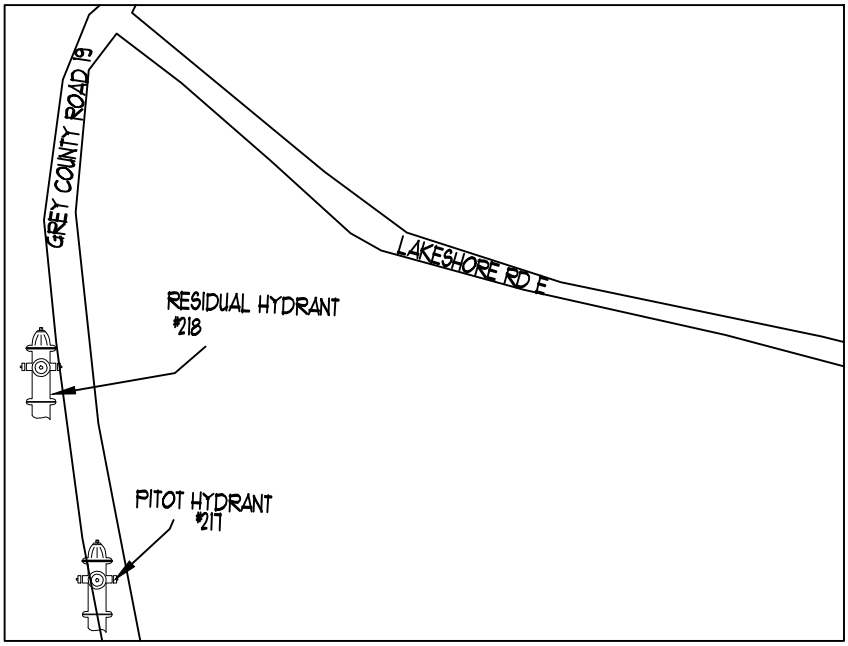
# FLOW TEST RESULTS

FIRST FOR FIRE, LIFE SAFETY & SECURITY
VIPOND INC
est. 1945

DATE : TUESDAY AUGUST, 28TH 2018 TIME : 9:30 AM

LOCATION : LAKESHORE & GREY COUNTY RD 19
CRAIGLEITH, ONTARIO

TEST BY : VIPOND FIRE PROTECTION AND LOCAL PUC




STATIC PRESSURE : 58 PSI UNDERGROUND TYPE & SIZE : 6" P.V.C

| TEST NO. | NO. OF NOZZLES | NOZZLE DIAMETER (INCHES) | DISCHARGE CO-EFFICIENT | RESIDUAL PRESSURE (PSI) | PITOT PRESSURE (PSI) | DISCHARGE (U.S.G.P.M) |
|---|---|---|---|---|---|---|
| 1 | 1 | 1 3/4" | 0.995 | 40 | 34 | 517 |
| 2 | 2 | 2 1/2" | 0.90 | 36 | 30 | 919 |
| 3 | 2 | 2 1/2" | 0.90 | 30 | 22 | 1574 |

FIRST FOR FIRE, LIFE SAFETY & SECURITY

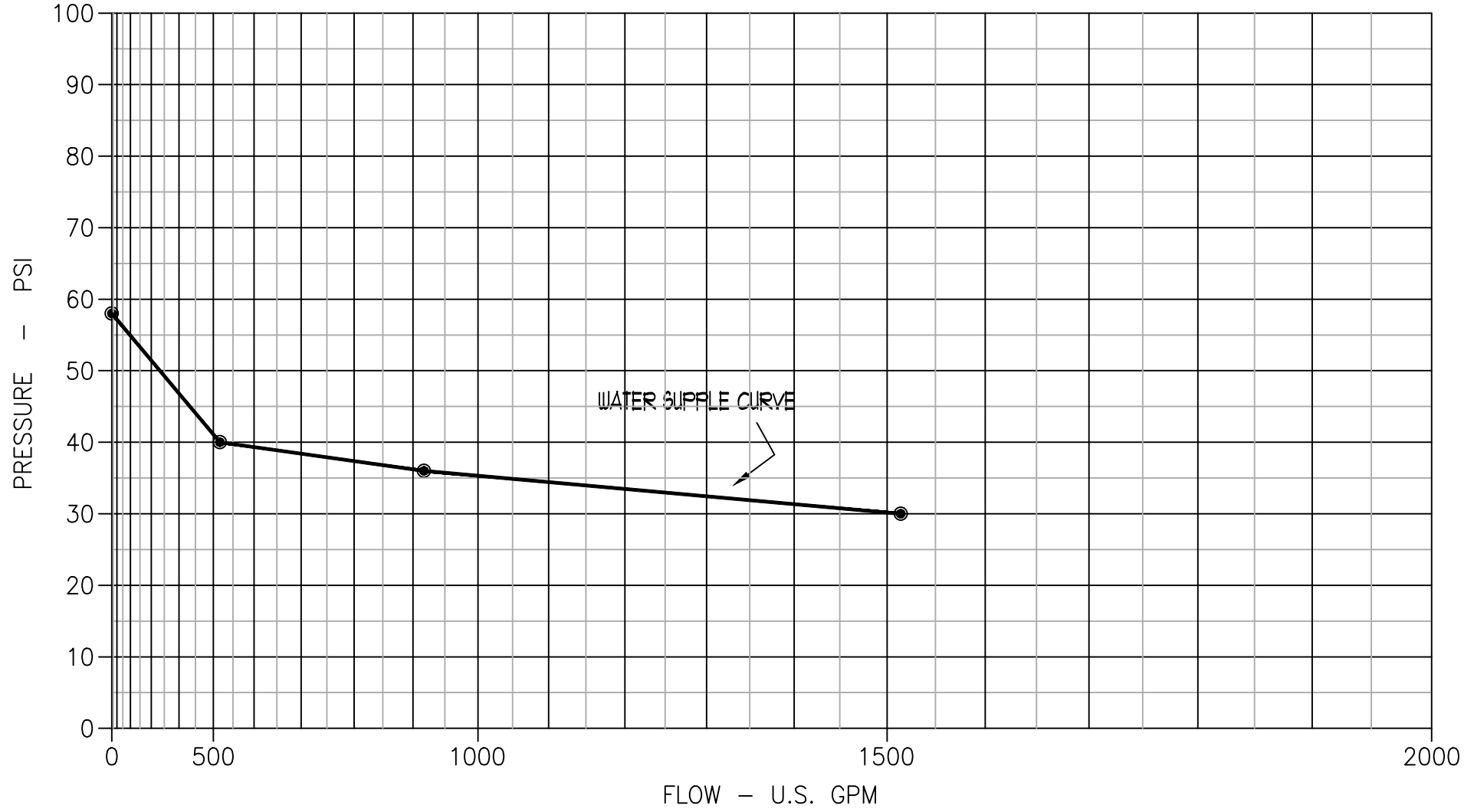
VIPOND INC

est. 1945

| | |
|---|---|
| CRIAGLEITH | |
| GREY COUNTY RD 19 | |
| ONTARIO | |

| | |
|---|---|
| BY : | LEN K. |
| VIPOND OFFICE : | BARRIE |
| TEST BY : | VIPOND & PUC |
| DATE : | 28 - AUGUST - 2018 |

| STATIC: | | RESIDUAL: | | FLOW: |
|---|---|---|---|---|
| 58 PSI | TEST#1 | 40 PSI | @ | 517 GPM |
| | TEST#2 | 36 PSI | @ | 919 GPM |
| | TEST#3 | 30 PSI | @ | 1574 GPM |



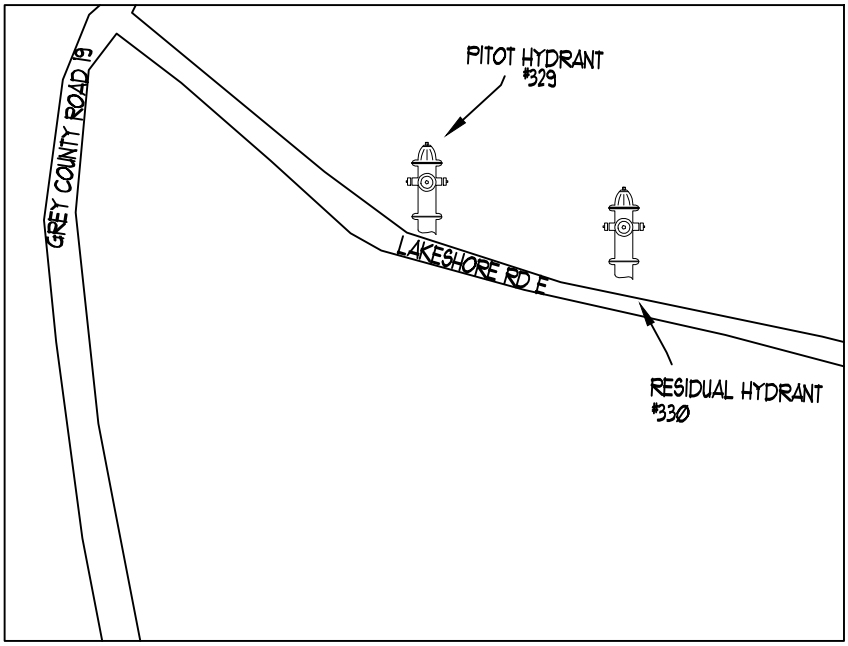
# FLOW TEST RESULTS

DATE : TUESDAY AUGUST, 28TH 2018 TIME : 8:30 AM

LOCATION : LAKESHORE & GREY COUNTY RD 19

CRIAGLEITH, ONTARIO

TEST BY : VIPOND FIRE PROTECTION AND LOCAL PUC




STATIC PRESSURE : 80 PSI UNDERGROUND TYPE & SIZE : 200mm DUC. IRON

| TEST NO. | NO. OF NOZZLES | NOZZLE DIAMETER (INCHES) | DISCHARGE CO-EFFICIENT | RESIDUAL PRESSURE (PSI) | PITOT PRESSURE (PSI) | DISCHARGE (U.S.G.P.M) |
|---|---|---|---|---|---|---|
| 1 | 1 | 1 3/4" | 0.995 | 50 | 42 | 574 |
| 2 | 2 | 2 1/2" | 0.90 | 40 | 26 | 856 |
| 3 | 2 | 2 1/2" | 0.90 | 20 | 14 | 1256 |

FIRST FOR FIRE, LIFE SAFETY & SECURITY

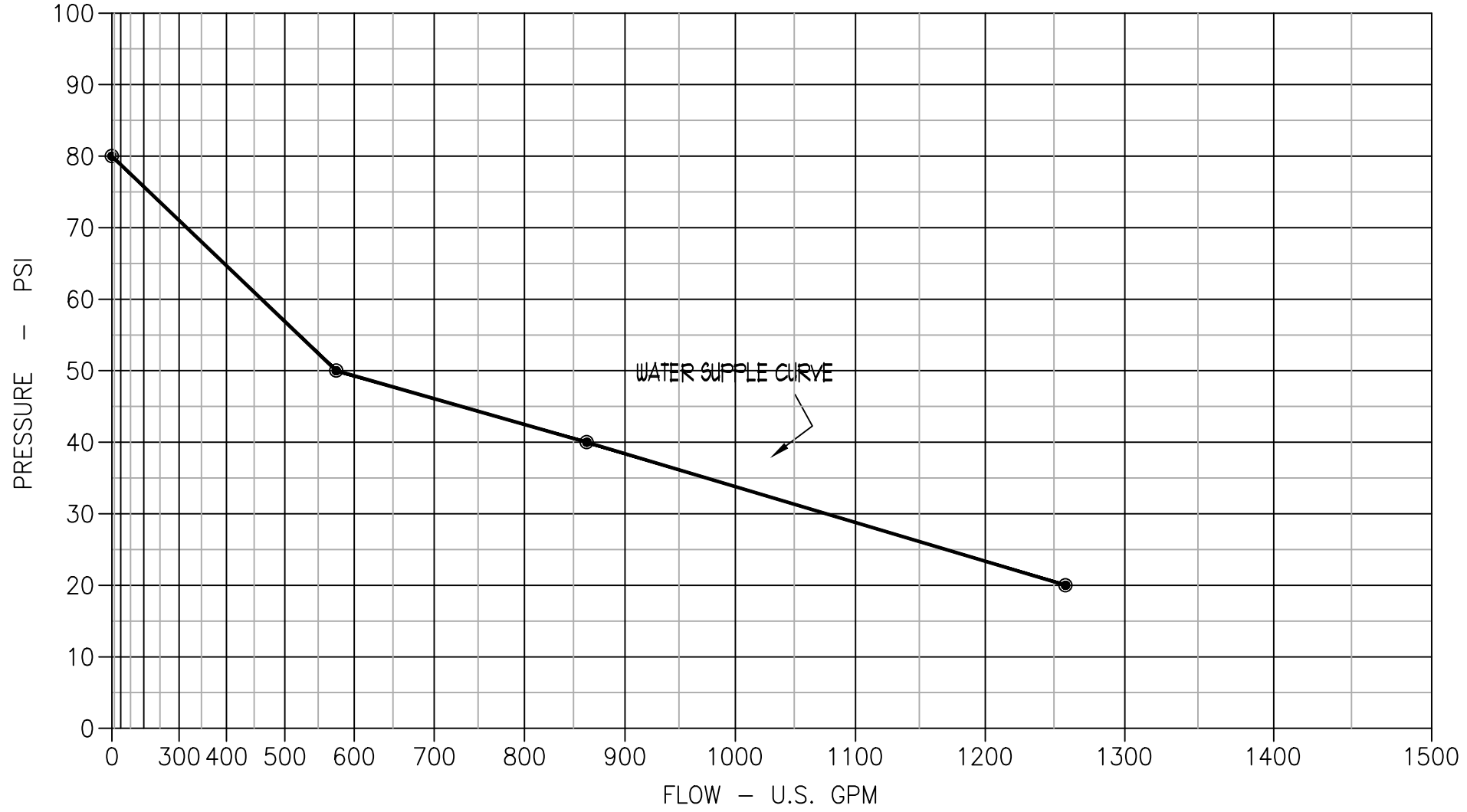
VIPOND INC

est. 1945

| | |
|---|---|
| CRIAGLEITH | |
| LAKESHORE ROAD EAST | |
| ONTARIO | |

| | |
|---|---|
| BY : | LEN K. |
| VIPOND OFFICE : | BARRIE |
| TEST BY : | VIPOND & PUC |
| DATE : | 28 - AUGUST - 2018 |

| STATIC: | | RESIDUAL: | | FLOW: |
|---|---|---|---|---|
| 80 PSI | TEST#1 | 50 PSI | @ | 574 GPM |
| | TEST#2 | 40 PSI | @ | 856 GPM |
| | TEST#3 | 20 PSI | @ | 1256 GPM |



**MAY 14, 2021**

**PROJECT NO: 1046-4031**

**SENT VIA: EMAIL**
**BWORSLEY@THEBLUEMOUNTAINS.CA**

Town of The Blue Mountains
32 Mill Street
Box 310
Thornbury, ON N0H 2P0

**Attention:** **Mr. Brian Worsley, P.Eng.**
**Manager, Development Engineering**

**RE:** **WATER DISTRIBUTION SYSTEM – MODELLING AND SIZING REVIEW**
**PARKBRIDGE CRAIGLEITH RIDGE RESIDENTIAL DEVELOPMENT**
**TOWN OF THE BLUE MOUNTAINS**

Dear Brian,

C.F. Crozier & Associates Inc. (Crozier) has been retained by Parkbridge Lifestyle Communities Inc. to prepare a water model using Bentley WaterCAD to confirm the watermain system for the proposed Parkbridge Craigleith Ridge Residential Development is sized adequately to service the ultimate buildout of the Site. The proposed watermain system has been designed to provide minimum mandated domestic pressures, domestic flows and fire flows in accordance with the Ministry of Environment, Conservation and Parks (MECP) Design Guidelines for Drinking-Water Systems (2008) and the Town of The Blue Mountains (TOBM) Engineering Standards (Revised April 2009).

## 1.0 Background

The proposed development is located south of Highway 26 within the Village of Craigleith and is bound by Lakeshore Road to the north, privately owned lands to the south and east, and Grey Road 19 to the west.

The Site Plan proposes a total of 211 residential units, a clubhouse, storage facility, a series of private roads, environmental spaces, archaeological areas, open space, and stormwater management facility areas. Access to the Site will be provided from Grey Road 19 with an additional entrance for emergency access from Lakeshore Road. The Nipissing Ridge runs through the Site.

## 2.0 Proposed Water Distribution System

The proposed development is located between two existing pressure zones – PZ 4 / PZ 4aEast and PZ 4e. The development proposes one connection along Grey Road 19 and one connection along Lakeshore Road and will maintain the two pressure zones within the Site.

The distribution watermain for the proposed Craigleith Ridge Development is located along all internal roadways. Connections to the existing TOBM water distribution network will be to the existing 350 mm diameter watermain on Grey Road 19 at the southwest limits of the proposed main Site access (Council Way) and one connection to the 200 mm diameter watermain on Lakeshore Road off Festoon Crescent. Note, the connection at Grey Road 19 is in PZ 4 and the connection to Lakeshore Road is in PZ 4e. For the purposes of this memo, the portion of the Site within PZ 4 will be referred to as the upper zone and the portion of the Site in PZ 4e will be the lower zone.

Internal watermain of 200 mm and 250 mm diameter piping will be installed within the paved shoulder of the roadway at sufficient depth to achieve frost protection (minimum 1.7 m cover typical). Fire hydrants and valves have been proposed at spacing that meets the requirements of the TOBM standards. As per TOBM standards, the watermain will be PVC DR18 with all associated appurtenances required.

## 3.0 WaterCAD Model

A WaterCAD was set up to confirm the watermain system for the proposed development is sized adequately to service the ultimate buildout of the Site.

### 3.1 Design Parameters

The following design parameters were used in the WaterCAD model:

- Water system elevations were based on centreline of roadway elevations taken from the Grading Plans.
- Population of the development is based on a unit density of 2.3 persons/unit per TOBM Standards.
- The average daily demand for the proposed development is based on 450 L/cap/day per TOBM Standards.
- A maximum daily demand and peak hour demand factor of 2.00 and 4.50, respectively, were used in accordance with MECP guidelines and TOBM standards.
- Friction factors for piping are based on TOBM standards using C=130 for 250 mm, C=120 for 200 mm and C=110 for 150 mm watermain.
- Minor loss coefficients for pipe appurtenances were used as per Bentley Engineering Libraries in WaterCAD.
- Maximum allowable velocity for a pipe was set at 5.0 m/s per the TOBM standards.
- Required pressure for average day and peak hour is 350-550 kPa and 275-700 kPa, respectively, as per TOBM standards.
- The required pressure for maximum day plus fire flow is 140 kPa – 700 kPa as per TOBM standards.

### 3.2 Water Demand & Boundary Conditions

Total domestic flows required by the watermain network for the proposed development (211 units, community club house and storage facility total) have been calculated based on the criteria listed above. The water modelling was completed using the demands listed in the tables below. Calculations demonstrating these demands are included in Appendix A.

**Table 1: Domestic Water Demands**

| Scenario | Upper Demand (L/s) | Lower Demand (L/s) |
|---|---|---|
| Average Day | 0.89 | 1.73 |
| Maximum Day | 1.73 | 3.45 |
| Peak Hour | 3.88 | 7.76 |

**Table 2: Fire Flow Calculations**

| FUS (L/s) | OBC (L/s) |
|---|---|
| 133 | 45 |

The TOBM requested that J.L. Richards model the water demands using the Town's current hydraulic water model to determine boundary conditions. The boundary conditions provided by J.L. Richards are included in Appendix A. The boundary conditions account for many different scenarios, each of which was modelled in WaterCAD.

### 3.3 Modelling Results

The WaterCAD model setup begins with the connection to the existing 350 mm watermain on Grey Road 19. This connection follows along Council Way to supply Cooper Crescent, Coltsfoot Lane and Cottontail Crescent until reaching the end of PZ 4. The water model then continues into PZ 4e along Council Way where it branches off to supply Rally Trail, Festoon Crescent, and Butternut Court. The connection to the existing 200 mm watermain on Lakeshore Road connects to the proposed watermain along Festoon Crescent. A schematic of the model is shown in Appendix A. Drawings C101.A-D show the detailed watermain layout.

Minor losses in pipes were calculated based on the proposed watermain design, which includes minor losses due to bends, tees and valves. Hazen-Williams (C) value has been applied to each pipe length based on TOBM standards. Minor losses calculated for each pipe length are included in Appendix A.

Junctions were placed at major grade changes (i.e. low and high points), watermain intersections and dead ends. Demands for each junction were assigned based on the dwellings closest to the specified junction. Junction demands for each scenario were calculated using TOBM standards. Required fire flow was calculated using both the Fire Underwriter's Survey (FUS) and the Ontario Building Code (OBC). Refer to Appendix A for the calculated demands and fire flows.

Multiple scenarios were computed using the model. The scenario runs were dedicated by the boundary condition information provided by J.L. Richards. For each scenario that was run, the boundary conditions within the model were altered to suit. Boundary conditions were represented by a fixed reservoir, in which the Hydraulic Grade Line (HGL) was set to represent the scenario.

Two Options were determined to meet the Town's criteria while maintaining the two pressure zones through the Site. Option 1 proposes one Pressure Reducing Valve located at the ridge. Option 2 proposes two Pressure Reducing Valves, one at the ridge and one in the upper zone near the clubhouse. These Options are described in detail in the following subsections.

### 3.3.1 Model Option 1

As previously stated, the two pressure zones within the Site will be maintained. To maintain the pressure zones, a Pressure Reducing Valve (PRV) is required at the location of the ridge, between the upper and lower zones on the Site. The PRV was set to have an initial HGL of 240 m, as dictated in the boundary condition information provided by J.L. Richards. The following table outlines the results from the model for the upper zone in the Site.

**Table 3: Internal System Pressures – Upper Zone (Option 1)**

| Scenario | Min. Available Flow (L/s) | Pressure (kPa) | Meets TOBM Standard (Y/N) |
|---|---|---|---|
| Average Day | - | max = 783.7 | N |
| Peak Hour | - | max = 779.8 | N |
| Fire Flow (FUS) - Lower | 182.46 | min = 353.1 | Y |
| Fire Flow (FUS) - Upper | 243.71 | min = 304.2 | Y |
| Fire Flow (OBC) – Lower | 220.1 | min = 396.6 | Y |
| Fire Flow (OBC) - Upper | 243.71 | min = 391.3 | Y |

As shown in the table above, the Town's criteria are achieved during both the FUS and OBC fire flow scenarios, however the pressures in the system during average day and peak hour exceed the maximum allowable based on the Town's criteria. Based on these results, individual pressure reducing valves are required at the lots in the upper zone to ensure the pressures within the system are reduced to an acceptable level. The following table outlines the results from the model for the lower zone in the Site.

**Table 4: Internal System Pressures – Lower Zone (Option 1)**

| Scenario | Min. Available Flow (L/s) | Pressure (kPa) | Meets TOBM Standard (Y/N) |
|---|---|---|---|
| Average Day | - | max = 590.0 | N |
| Peak Hour | - | max = 563.5 | Y |
| Fire Flow (FUS) - Lower | 139.04 | min = 140 | Y |
| Fire Flow (FUS) - Upper | 153.9 | min =147.09 | Y |
| Fire Flow (OBC) – Lower | 145.75 | min = 147.6 | Y |
| Fire Flow (OBC) - Upper | 147.04 | min = 153.9 | Y |

As shown in Table 4, the Town's criteria are achieved during all scenarios in the lower zone, except for average day. The pressures during average day exceed the allowable based on the Town's criteria, by a maximum of 40 kPa. This is a marginal overage, therefore we don't expect individual pressure reducing valves are required.

The Option 1 WaterCAD modelling results confirm that one PRV and a combination of 200 mm and 250 mm internal watermain along with individual pressure reducing valves in the upper zone will provide acceptable flows and pressures to all units. Detailed WaterCAD model output results are included in Appendix A.

### 3.3.2 Model Option 2

To reduce or remove the amount of individual pressure reducing valves required at the lots in the upper zone, Option 2 of the model was created. Option 2 includes the same PRV at the ridge as Option 1, but also includes a second PRV. The second PRV is located near the clubhouse and has an initial HGL of 260 m. The following table outlines the results from this model for the upper zone in the Site.

**Table 5: Internal System Pressures – Upper Zone (Option 2)**

| Scenario | Min. Available Flow (L/s) | Pressure (kPa) | Meets TOBM Standard (Y/N) |
|---|---|---|---|
| Average Day | - | max = 541.2 | Y |
| Peak Hour | - | max = 569 | Y |
| Fire Flow (FUS) - Lower | 182.46 | min = 336.9 | Y |
| Fire Flow (FUS) - Upper | 243.71 | min = 299.4 | Y |
| Fire Flow (OBC) - Lower | 220.1 | min = 328.8 | Y |
| Fire Flow (OBC) - Upper | 243.71 | min = 322.6 | Y |

As shown in the table above, the Town's criteria are achieved during all scenarios in the upper zone. The following table outlines the results from the model for the lower zone in the Site.

**Table 6: Internal System Pressures – Lower Zone (Option 2)**

| Scenario | Min. Available Flow (L/s) | Pressure (kPa) | Meets TOBM Standard (Y/N) |
|---|---|---|---|
| Average Day | - | max = 590 | N |
| Peak Hour | - | max = 563.5 | Y |
| Fire Flow (FUS) - Lower | 139.04 | min = 140 | Y |
| Fire Flow (FUS) - Upper | 147.09 | min = 148.6 | Y |
| Fire Flow (OBC) - Lower | 145.75 | min = 140 | Y |
| Fire Flow (OBC) - Upper | 147.04 | min = 148.6 | Y |

As shown in Table 6, the Town's criteria are achieved during all scenarios in the lower zone, except for average day. The pressures during average day exceed the allowable based on the Town's criteria, by a maximum of 40 kPa. This is a marginal overage, therefore we don't expect individual pressure reducing valves are required.

The Option 2 WaterCAD modelling results confirm that two PRVs and a combination of 200 mm and 250 mm internal watermain will provide acceptable flows and pressures to all units. Detailed WaterCAD model output results are included in Appendix A.

Note, both Options 1 and 2 presented through the WaterCAD modeling will achieve the Town's criteria. We will finalize the Option once we understand the Town's preference.

## 4.0 Conclusion

Based on the foregoing analysis we conclude:

1) The subdivision water distribution system will consist of 200 mm and 250 mm diameter watermains to provide adequate demands and pressures for the calculated demands and fire flows.

2) Option 1 of the modelling has one PRV proposed to maintain the existing pressures within the two pressure zones that the Site spans. In this Option to achieve the Town's criteria for all scenarios, individual pressure reducing valves are required in the upper zone.

3) Option 2 of the modelling has two PRVs proposed. The first to maintain the existing pressures within the two pressure zones that the Site spans and the second to reduce the pressures in the upper zone. This Option achieves the Town's criteria for all scenarios without requiring individual pressure reducing valves.

We trust that the above modelling results are satisfactory and address the Town's requirements specifically related to the water distribution design. Should you have any questions or require any further information, please do not hesitate to contact the undersigned.

Sincerely,

I:\\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Reports\Water Model\2021.05.14 Craigleith Water Model Memo.docx

# APPENDIX A

CROZIER
CONSULTING ENGINEERS

Project: Parkbridge Craigleith
Project No.: 1046-4031
File: Junction Demand
Design by: JE
Date: 07-Sep-18
Updated by JS
Updated: 09-Apr-21

| Junction (ID) | Elevation (m) | Units (#) | Population (persons) | ADD (L/s) | MDD (L/s) | PF (L/s) |
|---|---|---|---|---|---|---|
| **J1** | 211.14 | 15 | 35 | 0.180 | 0.359 | 0.809 |
| **J2** | 212.96 | 4 | 9 | 0.048 | 0.096 | 0.216 |
| **J3** | 209.14 | 7 | 16 | 0.084 | 0.168 | 0.377 |
| **J4** | 210.95 | 6 | 14 | 0.072 | 0.144 | 0.323 |
| **J5** | 206.75 | 4 | 9 | 0.048 | 0.096 | 0.216 |
| **J6** | 207.47 | 5 | 12 | 0.060 | 0.120 | 0.270 |
| **J7** | 204.72 | 6 | 14 | 0.072 | 0.144 | 0.323 |
| **J8** | 206.87 | 15 | 35 | 0.180 | 0.359 | 0.809 |
| **J9** | 201.87 | 10 | 23 | 0.120 | 0.240 | 0.539 |
| **J10** | 186.80 | 46 | 106 | 0.551 | 1.102 | 2.480 |
| **J11** | 183.93 | 14 | 32 | 0.168 | 0.335 | 0.755 |
| **J13** | 187.61 | 16 | 37 | 0.192 | 0.383 | 0.863 |
| **J14** | 188.95 | 4 | 9 | 0.048 | 0.096 | 0.216 |
| **J15** | 185.70 | 15 | 35 | 0.180 | 0.359 | 0.809 |
| **J16** | 187.56 | 5 | 12 | 0.060 | 0.120 | 0.270 |
| **J17** | 183.46 | 24 | 55 | 0.288 | 0.575 | 1.294 |
| **J18** | 185.01 | 20 | 46 | 0.240 | 0.479 | 1.078 |
| **Total** | | **216** | **497** | **2.59** | **5.18** | **11.64** |

## Julie Scott

**From:** Austin Spencer
**Sent:** March 11, 2021 8:17 AM
**To:** Jessie Elder; Julie Scott
**Cc:** Jon Proctor
**Subject:** FW: Hydraulic Boundary Conditions for Parkbridge Craigleith (Feb 2021)
**Attachments:** TOBM Parkbridge Feb2021_Rev1.pdf; Parkbridge Craigleith - water modelling update

Jessie,

Wondering if you have time this week (or early next) to discuss water modelling for Craigleith/Eden Oak sites. I believe that you may have Julie completing water model for Craigleith (correct me if I'm wrong).

Maybe we can have a chat regarding Eden Oak and water modelling associated with same. Let me know what time/date works for you.

Thanks,

Austin

**Austin Spencer** P.Eng. | Construction Services
DID: 705.719.3434

---

**From:** Annie Williams <awilliams@jlrichards.ca>
**Sent:** February 24, 2021 2:53 PM
**To:** Mason Bellamy <mbellamy@thebluemountains.ca>
**Cc:** Deanna Vickery <dvickery@thebluemountains.ca>; Mark Buchanan <mbuchanan@jlrichards.ca>; Sarah O'Neill <soneill@cfcrozier.ca>; Jon Proctor <jproctor@cfcrozier.ca>; Austin Spencer <aspencer@cfcrozier.ca>
**Subject:** Hydraulic Boundary Conditions for Parkbridge Craigleith (Feb 2021)

Hello Mason,

The proposed Development ("Parkbridge Craigleith"), located east of Grey Road 19 and south of Lakeshore Road in the Town of the Blue Mountains (Town), was simulated using the Town's updated hydraulic water model (2020) to determine hydraulic boundary conditions based on theoretical water demands and fire flows provided by the Developer's Engineer (refer to attached). The proposed site is located between two existing pressure zones – PZ 4 / PZ 4aEast and PZ 4e. One (1) watermain connection is proposed on Grey Road 19 and one (1) other watermain connection is proposed on Lakeshore Road, with a pressure reducing valve (PRV) proposed in the middle of the site to maintain two separate pressure zones. Two proposed connection locations were modelled on Grey Road 19 – one on the south side of the existing PRV at Craigleith Road (within PZ 4) and the other on the north side of the existing PRV at Craigleith Road (within PZ 4aEast). Hydraulic boundary conditions were previously provided for this development on April 18, 2019. The

information provided below was requested as an update to the 2019 boundary conditions in order to eliminate a second eastern watermain connection to Lakeshore Road, and to increase the FUS fire flow to 133 L/s.

Table 1 summarizes the theoretical water demands that were included in the model at junction nodes PB-02 and PB-03. Table 2 summarizes the required fire flows as calculated by the Developer's Engineer.

**Table 1: Theoretical Water Demands**

| Scenario | PB-02 Upper Elevation Side – Demand (L/s) | PB-03 Lower Elevation Side – Demand (L/s) |
|---|---|---|
| Average Day | 0.89 | 1.71 |
| Maximum Day | 1.78 | 3.43 |
| Peak Hour* | 5.00 | 8.54 |

*Note the peak hour demand is greater than specified in the request email, based on the demands provided in the attachment.

**Table 2: Fire Flow Calculations**

| FUS (L/s) | OBC (L/s) |
|---|---|
| 133 | 45 |

The Town also confirmed the operational settings for the PRVs at Lakeshore Road and Monterra Road in a previous email dated September 2020, as shown in Table 3.

**Table 3: PRV Settings**

| **Scenario** | **PRV at Lakeshore** | **PRV at Monterra** |
|---|---|---|
| Average Day | Closed | 317 kPa (46 psi) |
| Max Day + Fire Flow | 538 kPa (78 psi) | 269 kPa (39 psi) |
| Peak Hour | Closed | 317 kPa (46 psi) |

The hydraulic boundary conditions have been generated at the requested connection locations labelled as junction nodes CR-449, J-783 and PB-05 in the model and are summarized in Table 4 and Table 5 (refer to attached WaterCAD model outputs). The average day and peak hour demand scenarios assume that the proposed PRV is closed. The maximum day plus fire flow scenarios are modelled with a PRV hydraulic grade setting of 240.00 m, which was found to maintain similar pressures along Lakeshore Road under average day conditions.

It should be noted that there are three (3) junction nodes near the Happy Valley Reservoir that were removed from pressure zone (PZ 4): CR-205, CR-206 and CR-450. This was similarly done in the 2017 water model for the Town-wide Water Master Plan and was approved by the Town. In the model, these junction nodes continually experience low pressure based on the corresponding water level of the Happy Valley Reservoir. The resulting low pressure severely limits the simulated fire flow availability throughout the Craigleith area. In practice, the Town advised that the model be adjusted to reflect that this area does not actually limit the available fire flow throughout Craigleith as the Happy Valley Reservoir is sized in support of municipal fire water supply.

**Table 4: Parkbridge Craigleith Boundary Conditions – Connection to PZ 4**

| Demand Scenario | Connection 1A Junction Node CR-449 (Elev 220.00 m) | | Connection 2 Junction Node PB-05 (Elev 181.55 m) | |
|---|---|---|---|---|
| | Pressure (kPa) | HGL (m) | Pressure (kPa) | HGL (m) |
| Average Day (0.89 + 1.71 L/s) | 606 | 281.95 | 609 | 243.75 |
| Lower Elevation Side - Max Day (1.78 + 3.43 L/s) + FUS Fire Flow (133 L/s) | 534 | 274.58 | 504 | 233.06 |
| Lower Elevation Side - Max Day (1.78 + 3.43 L/s) + OBC Fire Flow (45 L/s) | 591 | 280.37 | 562 | 238.94 |
| Upper Elevation Side - Max Day (1.78 + 3.43 L/s) + FUS Fire Flow (133 L/s) | 500 | 271.06 | 575 | 240.34 |

| | | | | |
|---|---|---|---|---|
| Upper Elevation Side - Max Day (1.78 + 3.43 L/s) + OBC Fire Flow (45 L/s) | 587 | 279.96 | 575 | 240.34 |
| Peak Hour (5.00 + 8.54 L/s) | 602 | 281.56 | 583 | 241.14 |

**Table 5: Parkbridge Craigleith Boundary Conditions – Connection to PZ 4aEast**

| Demand Scenario | Connection 1B | | Connection 2 | |
|---|---|---|---|---|
| | Junction Node J-783 (Elev 219.96 m) | | Junction Node PB-05 (Elev 181.55 m) | |
| | Pressure (kPa) | HGL (m) | Pressure (kPa) | HGL (m) |
| Average Day (0.89 + 1.71 L/s) | 387 | 259.46 | 609 | 243.75 |
| Lower Elevation Side - Max Day (1.78 + 3.43 L/s) + FUS Fire Flow (133 L/s) | 285 | 249.12 | 435 | 225.97 |
| Lower Elevation Side - Max Day (1.78 + 3.43 L/s) + OBC Fire Flow (45 L/s) | 373 | 258.06 | 562 | 238.94 |
| Upper Elevation Side - Max Day (1.78 + 3.43 L/s) + FUS Fire Flow (133 L/s) | 98* | 229.95 | 575 | 240.34 |
| Upper Elevation Side - Max Day (1.78 + 3.43 L/s) + OBC Fire Flow (45 L/s) | 373 | 258.06 | 575 | 240.34 |
| Peak Hour (5.00 + 8.54 L/s) | 387 | 259.46 | 583 | 241.14 |

on Grey Road 19.

The model pressures internal to the development have also been provided within the model schematic attachments (as previously requested by the Town) and do not represent a complete detailed design of the proposed watermain network, which remains the responsibility of the design engineer. The hydraulic boundary conditions provided in Table 4 and Table 5 above remain available to assist in the completion of the detailed watermain design.

It was noticed that the pressures on the high elevation side of the development are anticipated to be significantly higher than 550 kPa or even 700 kPa under certain scenarios, which are the maximum operating pressures under average/maximum day and minimum/peak hour demand, respectively, as recommended by *The Blue Mountains Engineering Standards (April 2009)*. The detailed design should confirm the proposed PRV location and setting, and any units expected to experience high pressures may require individual pressure reduction measures.

Note that the foregoing model results are for current conditions and are based on computer model simulation. We have not reviewed the adequacy of the domestic demand nor the fire flow requirements for the proposed development, which remains the responsibility of the Developer's Engineer.

Disclaimer: The model results are based on current simulated operation of the Town's water distribution system. The computer model simulation is based on the best information available at this time. The operation of the water distribution system can change on a regular basis, resulting in a variation in the boundary conditions. It is further noted that the operational characteristics of the water supply system and physical properties of the watermains can change and/or deteriorate over time. These changes may affect the supply characteristics of the system and the assumptions made in developing the model, which in turn could lead to variations in the simulation results. This should be considered by any third party undertaking simulation of system upgrades.

Please do not hesitate to contact me should you have any questions regarding the foregoing.

Sincerely,
Annie

**Annie Williams**, P.Eng.
Civil Engineer

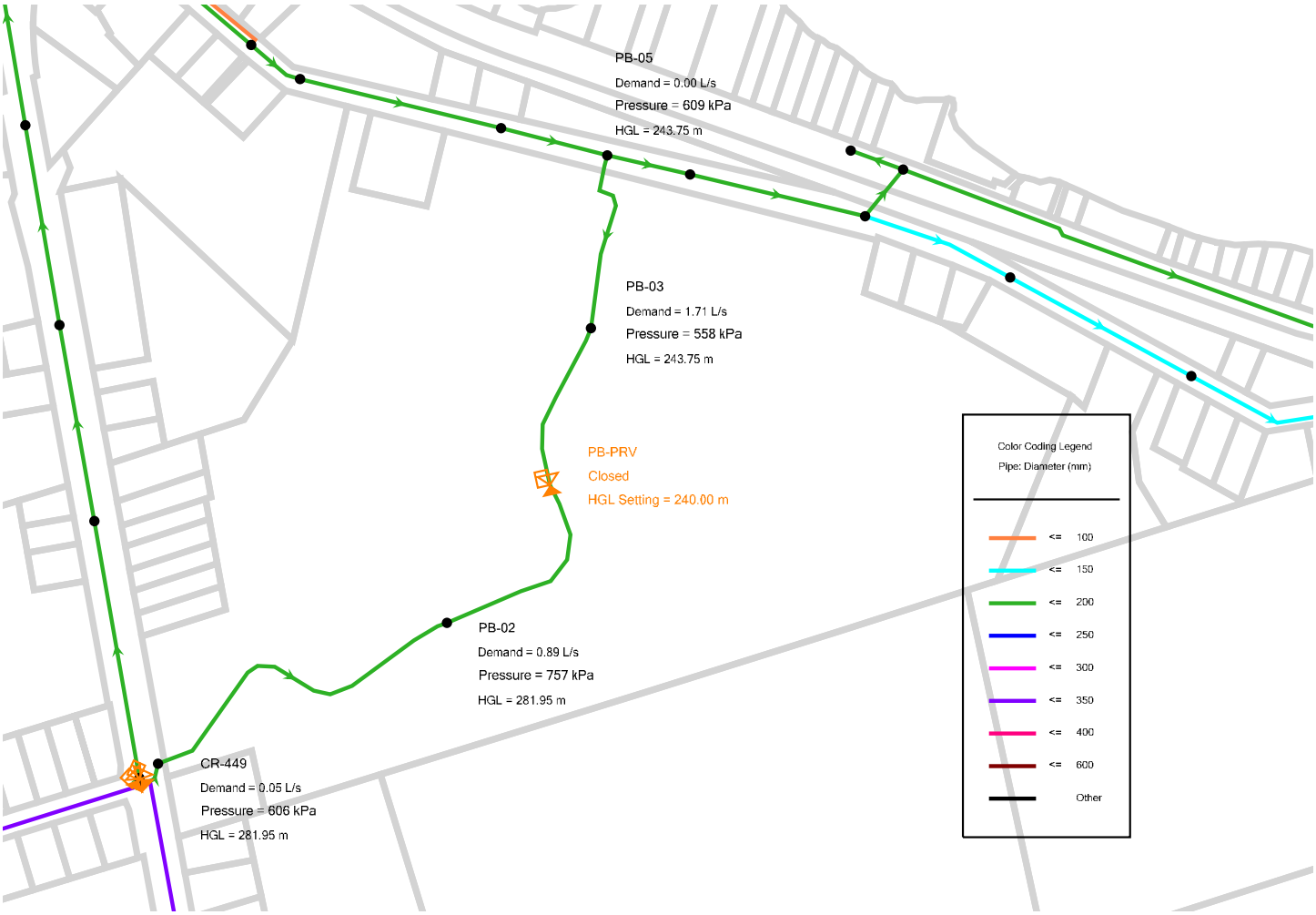
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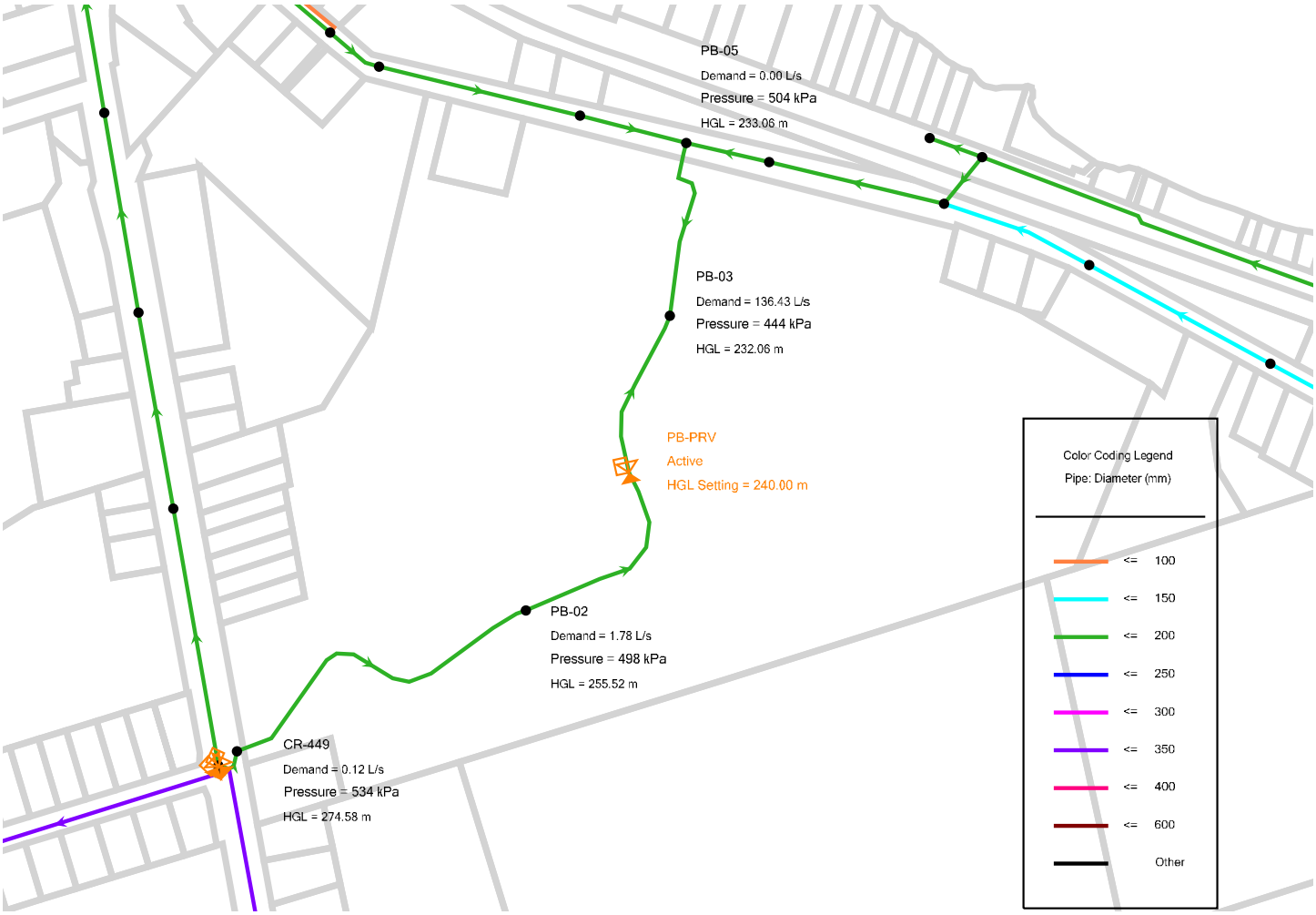
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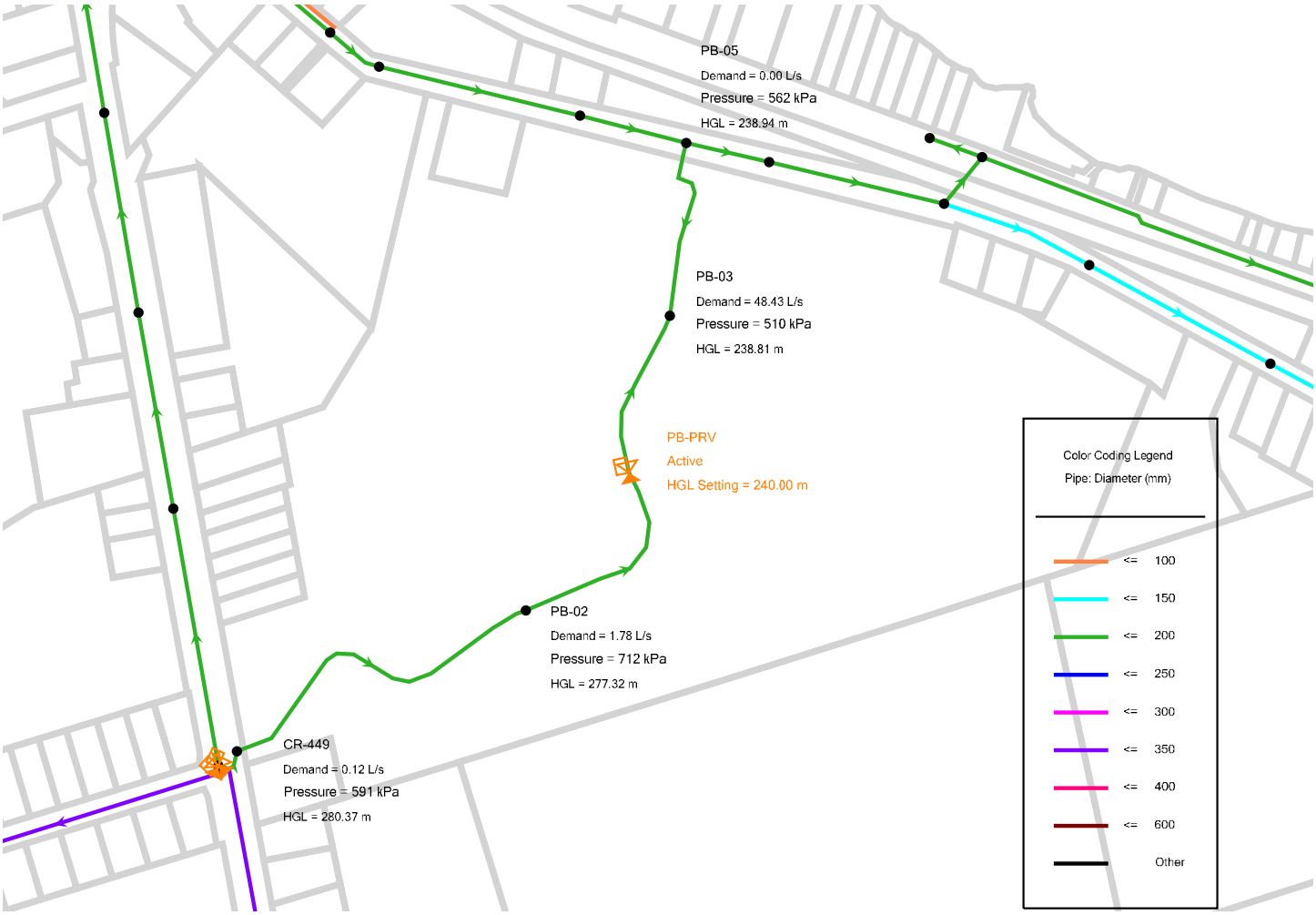
# Parkbridge Craigleith
# Average Day Demand
# Connection to PZ 4



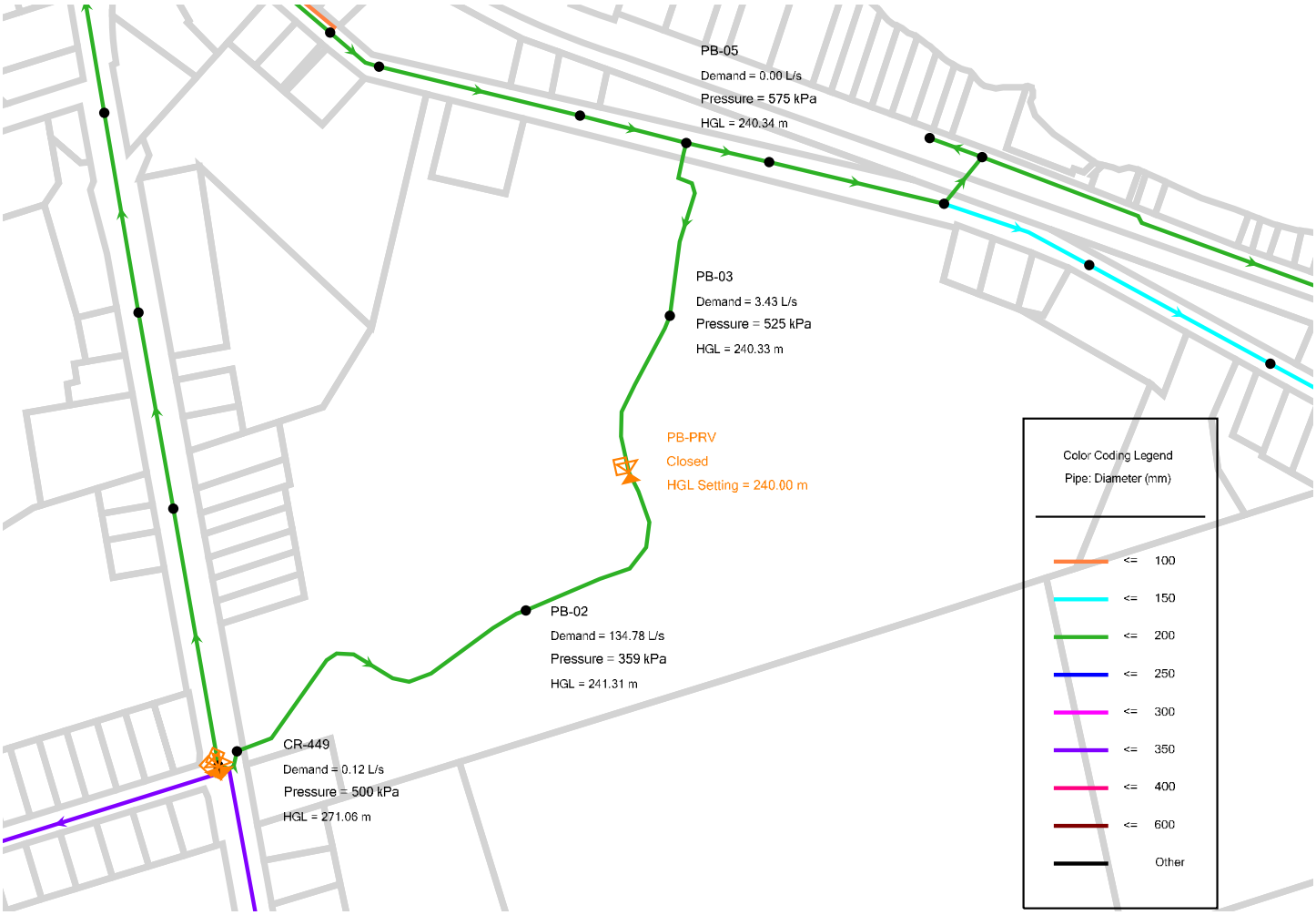
# Parkbridge Craigleith
# Maximum Day Demand + Fire Flow (FUS 133 L/s - Lower Side)
# Connection to PZ 4



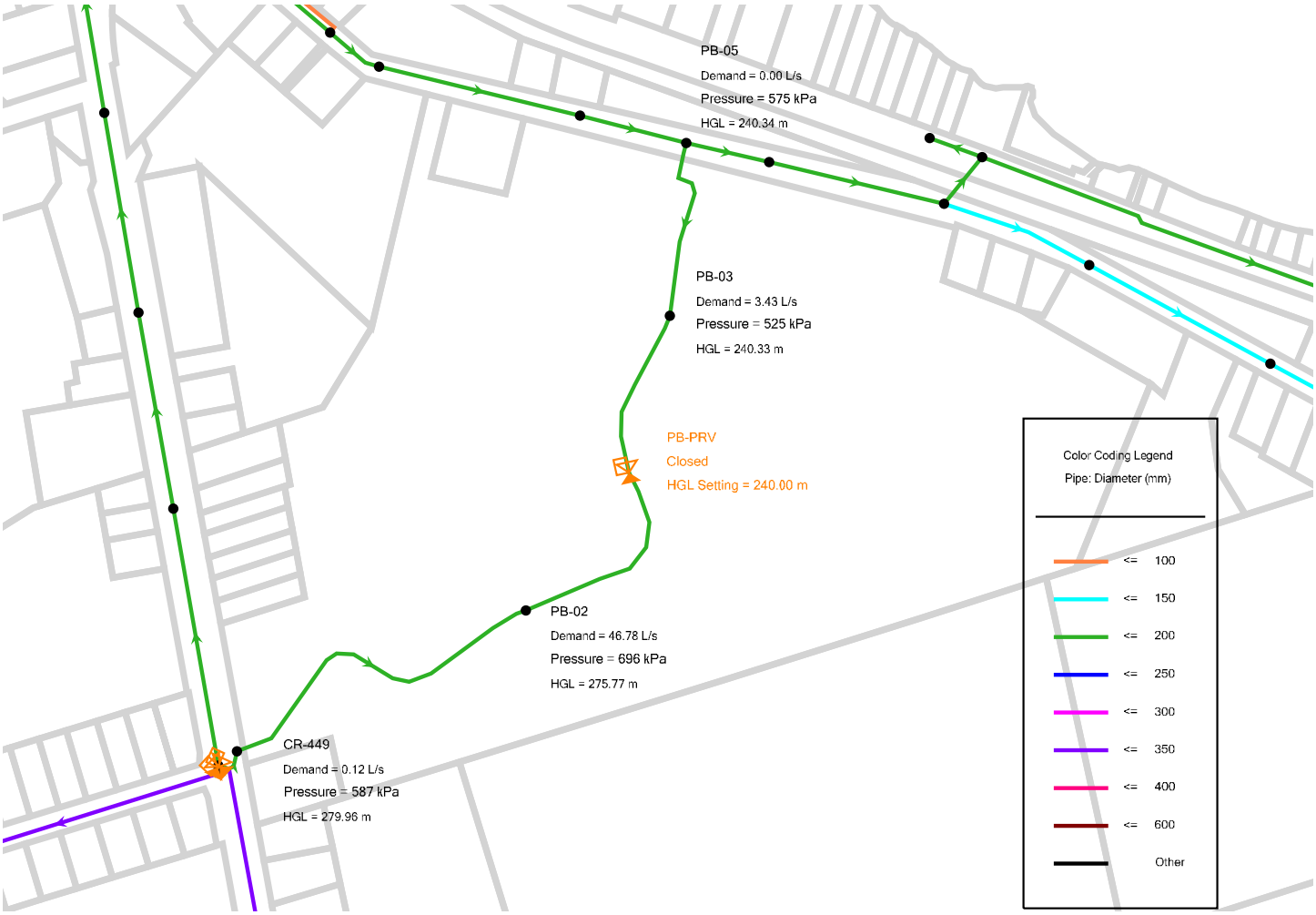
# Parkbridge Craigleith
# Maximum Day Demand + Fire Flow (OBC 45 L/s - Lower Side)
# Connection to PZ 4



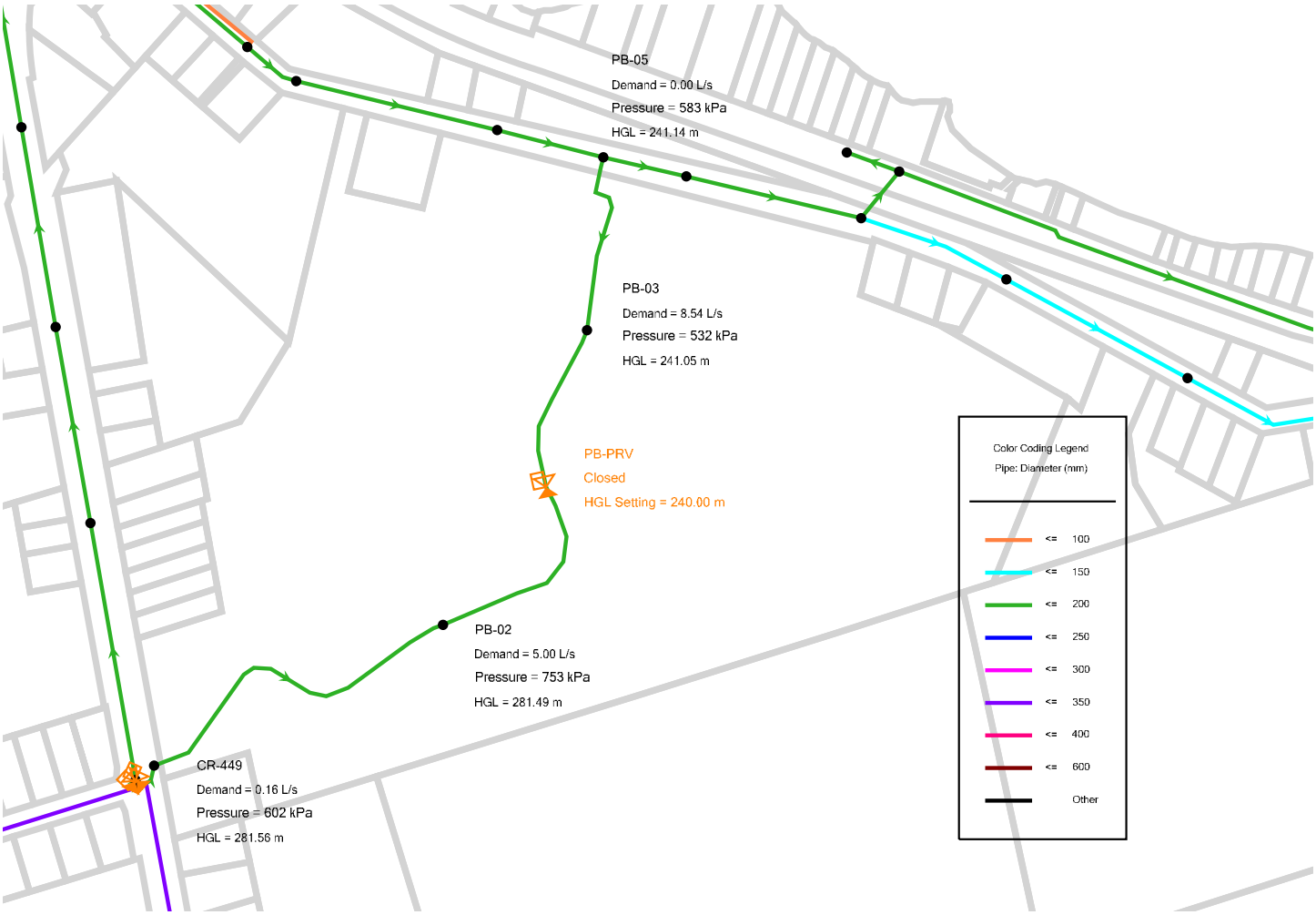
# Parkbridge Craigleith
# Maximum Day Demand + Fire Flow (FUS 133 L/s - Upper Side)
# Connection to PZ 4



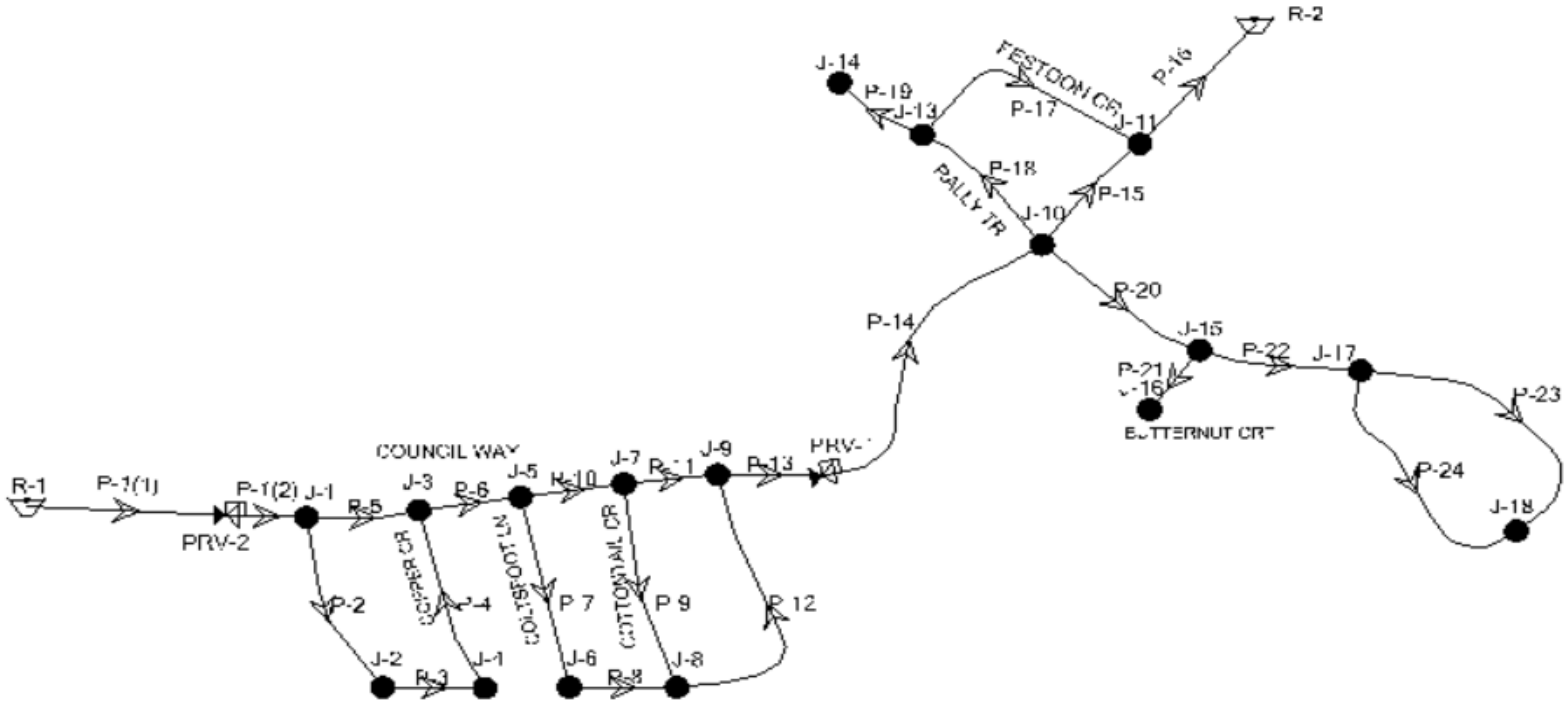
# Parkbridge Craigleith
# Maximum Day Demand + Fire Flow (OBC 45 L/s - Upper Side)
# Connection to PZ 4



# Parkbridge Craigleith
# Peak Hour Demand
# Connection to PZ 4



**Water Model Schematic - Parkbridge Craigleith (May 2021)**



CROZIER CONSULTING ENGINEERS

Project: Parkbridge Craigleith
Project No.: 1046-4031
File: Pipe Loss Summary
Design by: JE
Date: 07-Sep-18
Updated by JS
Updated: 10-May-21

## PIPE LOSS SUMMARY

| | |
|---|---|
| **Pipe ID** | P1 |
| Location | Plater-Fleming Way |
| Size (mm) | 250 |
| Material | PVC |
| Length (m) | 197 |

| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | **SubTotal** |
|---|---|---|---|
| Gate Valve (Open) | 1 | 0.39 | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | 0.00 |
| 45° Bend (Mitered) | 3 | 0.20 | 0.60 |
| 30° Bend (Mitered) | 4 | 0.10 | 0.40 |
| Tee (Line Flow) | 1 | 0.35 | 0.35 |
| Tee (Branch Flow) | 1 | 1.28 | 1.28 |
| **Total** | | | 3.02 |

| | |
|---|---|
| **Pipe ID** | P2 |
| Location | Copper Crescent |
| Size (mm) | 200 |
| Material | PVC |
| Length (m) | 72 |

| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | **SubTotal** |
|---|---|---|---|
| Gate Valve (Open) | 1 | 0.39 | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | 0.00 |
| 45° Bend (Mitered) | 0 | 0.20 | 0.00 |
| 30° Bend (Mitered) | 3 | 0.10 | 0.30 |
| Tee (Line Flow) | 0 | 0.35 | 0.00 |
| Tee (Branch Flow) | 1 | 1.28 | 1.28 |
| **Total** | | | 1.97 |

| | |
|---|---|
| **Pipe ID** | P3 |
| Location | Copper Crescent |
| Size (mm) | 200 |
| Material | PVC |
| Length (m) | 54 |

| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | **SubTotal** |
|---|---|---|---|
| Gate Valve (Open) | 1 | 0.39 | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | 0.00 |
| 45° Bend (Mitered) | 4 | 0.20 | 0.80 |
| 30° Bend (Mitered) | 0 | 0.10 | 0.00 |
| Tee (Line Flow) | 0 | 0.35 | 0.00 |
| Tee (Branch Flow) | 0 | 1.28 | 0.00 |
| **Total** | | | 1.19 |

CROZIER CONSULTING ENGINEERS

Project: Parkbridge Craigleith
Project No.: 1046-4031
File: Pipe Loss Summary
Design by: JE
Date: 07-Sep-18
Updated by JS
Updated: 10-May-21

| **Pipe ID** | P4 | | | |
|---|---|---|---|---|
| Location | Copper Crescent | | | |
| Size (mm) | 200 | | | |
| Material | PVC | | | |
| Length (m) | 68 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
| Gate Valve (Open) | 1 | 0.39 | | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | | 0.00 |
| 45° Bend (Mitered) | 0 | 0.20 | | 0.00 |
| 30° Bend (Mitered) | 1 | 0.10 | | 0.10 |
| Tee (Line Flow) | 0 | 0.35 | | 0.00 |
| Tee (Branch Flow) | 1 | 1.28 | | 1.28 |
| **Total** | | | | 1.77 |

| **Pipe ID** | P5 | | | |
|---|---|---|---|---|
| Location | Plater-Fleming Way | | | |
| Size (mm) | 250 | | | |
| Material | PVC | | | |
| Length (m) | 33 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
| Gate Valve (Open) | 1 | 0.39 | | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | | 0.00 |
| 45° Bend (Mitered) | 0 | 0.20 | | 0.00 |
| 30° Bend (Mitered) | 2 | 0.10 | | 0.20 |
| Tee (Line Flow) | 1 | 0.35 | | 0.35 |
| Tee (Branch Flow) | 0 | 1.28 | | 0.00 |
| **Total** | | | | 0.94 |

| **Pipe ID** | P6 | | | |
|---|---|---|---|---|
| Location | Plater-Fleming Way | | | |
| Size (mm) | 250 | | | |
| Material | PVC | | | |
| Length (m) | 42 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
| Gate Valve (Open) | 1 | 0.39 | | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | | 0.00 |
| 45° Bend (Mitered) | 0 | 0.20 | | 0.00 |
| 30° Bend (Mitered) | 1 | 0.10 | | 0.10 |
| Tee (Line Flow) | 1 | 0.35 | | 0.35 |
| Tee (Branch Flow) | 0 | 1.28 | | 0.00 |
| **Total** | | | | 0.84 |

CROZIER CONSULTING ENGINEERS

Project: Parkbridge Craigleith
Project No.: 1046-4031
File: Pipe Loss Summary
Design by: JE
Date: 07-Sep-18
Updated by JS
Updated: 10-May-21

| **Pipe ID** | P7 | | | |
|---|---|---|---|---|
| Location | Coltsfoot Lane | | | |
| Size (mm) | 200 | | | |
| Material | PVC | | | |
| Length (m) | 98 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | **SubTotal** | |
| Gate Valve (Open) | 1 | 0.39 | 0.39 | |
| 90° Bend (R/D=1) | 0 | 0.37 | 0.00 | |
| 45° Bend (Mitered) | 1 | 0.20 | 0.20 | |
| 30° Bend (Mitered) | 2 | 0.10 | 0.20 | |
| Tee (Line Flow) | 0 | 0.35 | 0.00 | |
| Tee (Branch Flow) | 1 | 1.28 | 1.28 | |
| **Total** | | | 2.07 | |

| **Pipe ID** | P8 | | | |
|---|---|---|---|---|
| Location | Coltsfoot Lane | | | |
| Size (mm) | 200 | | | |
| Material | PVC | | | |
| Length (m) | 26 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | **SubTotal** | |
| Gate Valve (Open) | 1 | 0.39 | 0.39 | |
| 90° Bend (R/D=1) | 0 | 0.37 | 0.00 | |
| 45° Bend (Mitered) | 0 | 0.20 | 0.00 | |
| 30° Bend (Mitered) | 3 | 0.10 | 0.30 | |
| Tee (Line Flow) | 0 | 0.35 | 0.00 | |
| Tee (Branch Flow) | 1 | 1.28 | 1.28 | |
| **Total** | | | 1.97 | |

| **Pipe ID** | P9 | | | |
|---|---|---|---|---|
| Location | Cottontail Crescent | | | |
| Size (mm) | 200 | | | |
| Material | PVC | | | |
| Length (m) | 110 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | **SubTotal** | |
| Gate Valve (Open) | 1 | 0.39 | 0.39 | |
| 90° Bend (R/D=1) | 0 | 0.37 | 0.00 | |
| 45° Bend (Mitered) | 1 | 0.20 | 0.20 | |
| 30° Bend (Mitered) | 2 | 0.10 | 0.20 | |
| Tee (Line Flow) | 0 | 0.35 | 0.00 | |
| Tee (Branch Flow) | 1 | 1.28 | 1.28 | |
| **Total** | | | 2.07 | |

CROZIER CONSULTING ENGINEERS

Project: Parkbridge Craigleith
Project No.: 1046-4031
File: Pipe Loss Summary
Design by: JE
Date: 07-Sep-18
Updated by JS
Updated: 10-May-21

| **Pipe ID** | P10 | | | |
|---|---|---|---|---|
| Location | Plater-Fleming Way | | | |
| Size (mm) | 250 | | | |
| Material | PVC | | | |
| Length (m) | 34 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
| Gate Valve (Open) | 1 | 0.39 | | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | | 0.00 |
| 45° Bend (Mitered) | 0 | 0.20 | | 0.00 |
| 30° Bend (Mitered) | 0 | 0.10 | | 0.00 |
| Tee (Line Flow) | 1 | 0.35 | | 0.35 |
| Tee (Branch Flow) | 0 | 1.28 | | 0.00 |
| **Total** | | | | 0.74 |

| **Pipe ID** | P11 | | | |
|---|---|---|---|---|
| Location | Plater-Fleming Way | | | |
| Size (mm) | 250 | | | |
| Material | PVC | | | |
| Length (m) | 47 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
| Gate Valve (Open) | 1 | 0.39 | | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | | 0.00 |
| 45° Bend (Mitered) | 0 | 0.20 | | 0.00 |
| 30° Bend (Mitered) | 1 | 0.10 | | 0.10 |
| Tee (Line Flow) | 1 | 0.35 | | 0.35 |
| Tee (Branch Flow) | 0 | 1.28 | | 0.00 |
| **Total** | | | | 0.84 |

| **Pipe ID** | P12 | | | |
|---|---|---|---|---|
| Location | Cottontail Crescent | | | |
| Size (mm) | 200 | | | |
| Material | PVC | | | |
| Length (m) | 175 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
| Gate Valve (Open) | 2 | 0.39 | | 0.78 |
| 90° Bend (R/D=1) | 0 | 0.37 | | 0.00 |
| 45° Bend (Mitered) | 4 | 0.20 | | 0.80 |
| 30° Bend (Mitered) | 3 | 0.10 | | 0.30 |
| Tee (Line Flow) | 0 | 0.35 | | 0.00 |
| Tee (Branch Flow) | 1 | 1.28 | | 1.28 |
| **Total** | | | | 3.16 |

| **Pipe ID** | P13 | | | |
|---|---|---|---|---|
| Location | Plater-Fleming Way | | | |
| Size (mm) | 200 | | | |
| Material | PVC | | | |
| Length (m) | 127 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
| Gate Valve (Open) | 1 | 0.39 | | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | | 0.00 |
| 45° Bend (Mitered) | 0 | 0.20 | | 0.00 |
| 30° Bend (Mitered) | 6 | 0.10 | | 0.60 |
| Tee (Line Flow) | 1 | 0.35 | | 0.35 |
| Tee (Branch Flow) | 0 | 1.28 | | 0.00 |
| **Total** | | | | 1.34 |

CROZIER CONSULTING ENGINEERS

Project: Parkbridge Craigleith
Project No.: 1046-4031
File: Pipe Loss Summary
Design by: JE
Date: 07-Sep-18
Updated by JS
Updated: 10-May-21

| **Pipe ID** | P14 | | | |
|---|---|---|---|---|
| Location | Plater-Fleming Way | | | |
| Size (mm) | 200 | | | |
| Material | PVC | | | |
| Length (m) | 143 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
| Gate Valve (Open) | 1 | 0.39 | | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | | 0.00 |
| 45° Bend (Mitered) | 0 | 0.20 | | 0.00 |
| 30° Bend (Mitered) | 5 | 0.10 | | 0.50 |
| Tee (Line Flow) | 0 | 0.35 | | 0.00 |
| Tee (Branch Flow) | 0 | 1.28 | | 0.00 |
| **Total** | | | | 0.89 |

| **Pipe ID** | P15 | | | |
|---|---|---|---|---|
| Location | Festoon Crescent | | | |
| Size (mm) | 200 | | | |
| Material | PVC | | | |
| Length (m) | 111 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
| Gate Valve (Open) | 1 | 0.39 | | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | | 0.00 |
| 45° Bend (Mitered) | 1 | 0.20 | | 0.20 |
| 30° Bend (Mitered) | 1 | 0.10 | | 0.10 |
| Tee (Line Flow) | 1 | 0.35 | | 0.35 |
| Tee (Branch Flow) | 1 | 1.28 | | 1.28 |
| **Total** | | | | 2.32 |

| **Pipe ID** | P16 | | | |
|---|---|---|---|---|
| Location | Festoon Crescent | | | |
| Size (mm) | 200 | | | |
| Material | PVC | | | |
| Length (m) | 110 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
| Gate Valve (Open) | 1 | 0.39 | | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | | 0.00 |
| 45° Bend (Mitered) | 1 | 0.20 | | 0.20 |
| 30° Bend (Mitered) | 0 | 0.10 | | 0.00 |
| Tee (Line Flow) | 2 | 0.35 | | 0.70 |
| Tee (Branch Flow) | 0 | 1.28 | | 0.00 |
| **Total** | | | | 1.29 |

| **Pipe ID** | P17 | | | |
|---|---|---|---|---|
| Location | Festoon Crescent | | | |
| Size (mm) | 200 | | | |
| Material | PVC | | | |
| Length (m) | 199 | | | |
| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
| Gate Valve (Open) | 2 | 0.39 | | 0.78 |
| 90° Bend (R/D=1) | 0 | 0.37 | | 0.00 |
| 45° Bend (Mitered) | 3 | 0.20 | | 0.60 |
| 30° Bend (Mitered) | 2 | 0.10 | | 0.20 |
| Tee (Line Flow) | 1 | 0.35 | | 0.35 |
| Tee (Branch Flow) | 1 | 1.28 | | 1.28 |
| **Total** | | | | 3.21 |

CROZIER CONSULTING ENGINEERS

Project: Parkbridge Craigleith
Project No.: 1046-4031
File: Pipe Loss Summary
Design by: JE
Date: 07-Sep-18
Updated by JS
Updated: 10-May-21

| | |
|---|---|
| **Pipe ID** | P18 |
| Location | Nipissing Trail |
| Size (mm) | 200 |
| Material | PVC |
| Length (m) | 137 |

| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
|---|---|---|---|---|
| Gate Valve (Open) | | 1 | 0.39 | 0.39 |
| 90° Bend (R/D=1) | | 0 | 0.37 | 0.00 |
| 45° Bend (Mitered) | | 0 | 0.20 | 0.00 |
| 30° Bend (Mitered) | | 4 | 0.10 | 0.40 |
| Tee (Line Flow) | | 1 | 0.35 | 0.35 |
| Tee (Branch Flow) | | 1 | 1.28 | 1.28 |
| **Total** | | | | 2.42 |

| | |
|---|---|
| **Pipe ID** | P19 |
| Location | Nipissing Trail |
| Size (mm) | 200 |
| Material | PVC |
| Length (m) | 69 |

| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
|---|---|---|---|---|
| Gate Valve (Open) | | 1 | 0.39 | 0.39 |
| 90° Bend (R/D=1) | | 0 | 0.37 | 0.00 |
| 45° Bend (Mitered) | | 0 | 0.20 | 0.00 |
| 30° Bend (Mitered) | | 1 | 0.10 | 0.10 |
| Tee (Line Flow) | | 1 | 0.35 | 0.35 |
| Tee (Branch Flow) | | 0 | 1.28 | 0.00 |
| **Total** | | | | 0.84 |

| | |
|---|---|
| **Pipe ID** | P20 |
| Location | Nipissing Trail |
| Size (mm) | 200 |
| Material | PVC |
| Length (m) | 134 |

| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
|---|---|---|---|---|
| Gate Valve (Open) | | 1 | 0.39 | 0.39 |
| 90° Bend (R/D=1) | | 0 | 0.37 | 0.00 |
| 45° Bend (Mitered) | | 0 | 0.20 | 0.00 |
| 30° Bend (Mitered) | | 1 | 0.10 | 0.10 |
| Tee (Line Flow) | | 1 | 0.35 | 0.35 |
| Tee (Branch Flow) | | 0 | 1.28 | 0.00 |
| **Total** | | | | 0.84 |

| | |
|---|---|
| **Pipe ID** | P21 |
| Location | Butternut Court |
| Size (mm) | 200 |
| Material | PVC |
| Length (m) | 49 |

| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | | **SubTotal** |
|---|---|---|---|---|
| Gate Valve (Open) | | 1 | 0.39 | 0.39 |
| 90° Bend (R/D=1) | | 0 | 0.37 | 0.00 |
| 45° Bend (Mitered) | | 0 | 0.20 | 0.00 |
| 30° Bend (Mitered) | | 0 | 0.10 | 0.00 |
| Tee (Line Flow) | | 0 | 0.35 | 0.00 |
| Tee (Branch Flow) | | 1 | 1.28 | 1.28 |
| **Total** | | | | 1.67 |

CROZIER CONSULTING ENGINEERS

Project: Parkbridge Craigleith
Project No.: 1046-4031
File: Pipe Loss Summary
Design by: JE
Date: 07-Sep-18
Updated by JS
Updated: 10-May-21

| | |
|---|---|
| **Pipe ID** | P22 |
| Location | Nipissing Trail |
| Size (mm) | 200 |
| Material | PVC |
| Length (m) | 103 |

| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | **SubTotal** |
|---|---|---|---|
| Gate Valve (Open) | 1 | 0.39 | 0.39 |
| 90° Bend (R/D=1) | 0 | 0.37 | 0.00 |
| 45° Bend (Mitered) | 0 | 0.20 | 0.00 |
| 30° Bend (Mitered) | 1 | 0.10 | 0.10 |
| Tee (Line Flow) | 1 | 0.35 | 0.35 |
| Tee (Branch Flow) | 0 | 1.28 | 0.00 |
| **Total** | | | 0.84 |

| | |
|---|---|
| **Pipe ID** | P23 |
| Location | Nipissing Trail |
| Size (mm) | 200 |
| Material | PVC |
| Length (m) | 208 |

| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | **SubTotal** |
|---|---|---|---|
| Gate Valve (Open) | 3 | 0.39 | 1.17 |
| 90° Bend (R/D=1) | 0 | 0.37 | 0.00 |
| 45° Bend (Mitered) | 3 | 0.20 | 0.60 |
| 30° Bend (Mitered) | 4 | 0.10 | 0.40 |
| Tee (Line Flow) | 1 | 0.35 | 0.35 |
| Tee (Branch Flow) | 0 | 1.28 | 0.00 |
| **Total** | | | 2.52 |

| | |
|---|---|
| **Pipe ID** | P24 |
| Location | Nipissing Trail |
| Size (mm) | 200 |
| Material | PVC |
| Length (m) | 207 |

| **Minor Loss** | **Number of Fittings** | **Loss Coef. (K)** | **SubTotal** |
|---|---|---|---|
| Gate Valve (Open) | 2 | 0.39 | 0.78 |
| 90° Bend (R/D=1) | 0 | 0.37 | 0.00 |
| 45° Bend (Mitered) | 4 | 0.20 | 0.80 |
| 30° Bend (Mitered) | 4 | 0.10 | 0.40 |
| Tee (Line Flow) | 0 | 0.35 | 0.00 |
| Tee (Branch Flow) | 1 | 1.28 | 1.28 |
| **Total** | | | 3.26 |

CROZIER CONSULTING ENGINEERS

**OPTION 1: 1 PRV**

**Project:** Parkbridge Craigleith
**Project No.:** 1046-4031
**Design By:** J Scott
**Date:** April 9 2021
**Revision Date:** May 7 2021
**Revised By:** J Scott

## Junction Table - Average Day Demand - (PZ 4)

**Grey Rd 19 Boundary HGL = 281.95m** **Lakeshore Boundary HGL = 243.75m**

| Label | Demand (L/s) | Elevation (m) | Zone | Hydraulic Grade (m) | Pressure (kPa) |
|---|---|---|---|---|---|
| J-1 | 0.18 | 211.14 | UpperZone | 281.9495 | 693 |
| J-2 | 0.05 | 212.96 | UpperZone | 281.9495 | 675.2 |
| J-3 | 0.08 | 209.14 | UpperZone | 281.9495 | 712.6 |
| J-4 | 0.07 | 210.95 | UpperZone | 281.9495 | 694.9 |
| J-5 | 0.05 | 206.75 | UpperZone | 281.9494 | 736 |
| J-6 | 0.06 | 207.47 | UpperZone | 281.9494 | 728.9 |
| J-7 | 0.07 | 204.72 | UpperZone | 281.9494 | 755.8 |
| J-8 | 0.18 | 206.87 | UpperZone | 281.9494 | 734.8 |
| J-9 | 0.12 | 201.87 | UpperZone | 281.9494 | 783.7 |
| J-10 | 0.55 | 186.8 | Lower Zone | 243.7451 | 557.3 |
| J-11 | 0.17 | 183.93 | Lower Zone | 243.7463 | 585.4 |
| J-13 | 0.19 | 187.61 | Lower Zone | 243.7454 | 549.4 |
| J-14 | 0.05 | 188.95 | Lower Zone | 243.7454 | 536.3 |
| J-15 | 0.18 | 185.7 | Lower Zone | 243.7442 | 568.1 |
| J-16 | 0.07 | 187.56 | Lower Zone | 243.7442 | 549.9 |
| J-17 | 0.29 | 183.46 | Lower Zone | 243.7439 | 590 |
| J-18 | 0.24 | 185.01 | Lower Zone | 243.7438 | 574.8 |

CROZIER CONSULTING ENGINEERS

**OPTION 1: 1 PRV**

**Project:** Parkbridge Craigleith
**Project No.:** 1046-4031
**Design By:** J Scott
**Date:** April 9 2021
**Revision Date:** May 7 2021
**Revised By:** J Scott

## Junction Table - Peak Hour Demand - (PZ 4)

**Grey Rd 19 Boundary HGL = 281.56m** **Lakeshore Boundary HGL = 241.14m**

| Label | Demand (L/s) | Elevation (m) | Zone | Hydraulic Grade (m) | Pressure (kPa) |
|---|---|---|---|---|---|
| J-1 | 0.81 | 211.14 | UpperZone | 281.5514 | 689.1 |
| J-2 | 0.22 | 212.96 | UpperZone | 281.5509 | 671.3 |
| J-3 | 0.38 | 209.14 | UpperZone | 281.5508 | 708.7 |
| J-4 | 0.32 | 210.95 | UpperZone | 281.5508 | 691 |
| J-5 | 0.22 | 206.75 | UpperZone | 281.5501 | 732.1 |
| J-6 | 0.27 | 207.47 | UpperZone | 281.5498 | 725 |
| J-7 | 0.32 | 204.72 | UpperZone | 281.5499 | 751.9 |
| J-8 | 0.81 | 206.87 | UpperZone | 281.5497 | 730.9 |
| J-9 | 0.54 | 201.87 | UpperZone | 281.5498 | 779.8 |
| J-10 | 2.48 | 186.8 | Lower Zone | 241.0599 | 531 |
| J-11 | 0.75 | 183.93 | Lower Zone | 241.0793 | 559.3 |
| J-13 | 0.86 | 187.61 | Lower Zone | 241.0641 | 523.1 |
| J-14 | 0.22 | 188.95 | Lower Zone | 241.0641 | 510 |
| J-15 | 0.81 | 185.7 | Lower Zone | 241.0453 | 541.7 |
| J-16 | 0.27 | 187.56 | Lower Zone | 241.0452 | 523.5 |
| J-17 | 1.29 | 183.46 | Lower Zone | 241.0397 | 563.5 |
| J-18 | 1.08 | 185.01 | Lower Zone | 241.0389 | 548.3 |

CROZIER CONSULTING ENGINEERS

**OPTION 1: 1**
**PRV**

**Project:** Parkbridge Craigleith
**Project No.:** 1046-4031
**Design By:** J Scott
**Date:** April 9 2021
**Revision Date:** May 7 2021
**Revised By:** J Scott

# Junction Table - Max Day + FUS Fire Demand Upper Side - (PZ 4)

**Grey Rd 19 Boundary HGL = 271.06m** **Lakeshore Boundary HGL = 240.34m**

| Label | Elevation (m) | Zone | Pressure (Calculated Lower Limit) (kPa) | Fire Flow Available (L/s) |
|---|---|---|---|---|
| J-1 | 211.14 | UpperZone | 371.3 | 243.71 |
| J-2 | 212.96 | UpperZone | 336.2 | 243.71 |
| J-3 | 209.14 | UpperZone | 361.4 | 243.71 |
| J-4 | 210.95 | UpperZone | 316.9 | 243.71 |
| J-5 | 206.75 | UpperZone | 354.6 | 243.71 |
| J-6 | 207.47 | UpperZone | 312.9 | 243.71 |
| J-7 | 204.72 | UpperZone | 340.5 | 243.71 |
| J-8 | 206.87 | UpperZone | 304.2 | 243.71 |
| J-9 | 201.87 | UpperZone | 337 | 243.71 |
| J-10 | 186.8 | Lower Zone | 315.3 | 299.25 |
| J-11 | 183.93 | Lower Zone | 366 | 276.09 |
| J-13 | 187.61 | Lower Zone | 153.9 | 287.37 |
| J-14 | 188.95 | Lower Zone | 401.2 | 156.98 |
| J-15 | 185.7 | Lower Zone | 284 | 155.55 |
| J-16 | 187.56 | Lower Zone | 302.2 | 155.55 |
| J-17 | 183.46 | Lower Zone | 174.3 | 155.55 |
| J-18 | 185.01 | Lower Zone | 225.2 | 147.09 |

CROZIER CONSULTING ENGINEERS

**OPTION 1: 1 PRV**

**Project:** Parkbridge Craigleith
**Project No.:** 1046-4031
**Design By:** J Scott
**Date:** April 9 2021
**Revision Date:** May 7 2021
**Revised By:** J Scott

# Junction Table - Max Day + FUS Fire Demand Lower Side - (PZ 4)

**Grey Rd 19 Boundary HGL = 274.58m** **Lakeshore Boundary HGL = 233.06m**

| Label | Elevation (m) | Zone | Pressure (Calculated Lower Limit) (kPa) | Fire Flow Available (L/s) |
|---|---|---|---|---|
| J-1 | 211.14 | UpperZone | 405 | 182.46 |
| J-2 | 212.96 | UpperZone | 388.1 | 182.46 |
| J-3 | 209.14 | UpperZone | 395.8 | 182.46 |
| J-4 | 210.95 | UpperZone | 370.8 | 182.46 |
| J-5 | 206.75 | UpperZone | 387.8 | 182.46 |
| J-6 | 207.47 | UpperZone | 358.2 | 182.46 |
| J-7 | 204.72 | UpperZone | 374.6 | 182.46 |
| J-8 | 206.87 | UpperZone | 353.1 | 182.46 |
| J-9 | 201.87 | UpperZone | 371.4 | 187.18 |
| J-10 | 186.8 | Lower Zone | 328.8 | 262.35 |
| J-11 | 183.93 | Lower Zone | 306.3 | 302.89 |
| J-13 | 187.61 | Lower Zone | 140 | 276.2 |
| J-14 | 188.95 | Lower Zone | 359.6 | 156.98 |
| J-15 | 185.7 | Lower Zone | 245.7 | 155.55 |
| J-16 | 187.56 | Lower Zone | 263.9 | 155.55 |
| J-17 | 183.46 | Lower Zone | 140 | 154.6 |
| J-18 | 185.01 | Lower Zone | 218.3 | 139.04 |

CROZIER CONSULTING ENGINEERS

**OPTION 1: 1**
**PRV**

**Project:** Parkbridge Craigleith
**Project No.:** 1046-4031
**Design By:** J Scott
**Date:** April 9 2021
**Revision Date:** May 7 2021
**Revised By:** J Scott

# Junction Table - Max Day + OBC Fire Demand Upper Side - (PZ 4)

**Grey Rd 19 Boundary HGL = 279.96** **Lakeshore Boundary HGL = 240.34m**

| Label | Elevation (m) | Zone | Pressure (Calculated Lower Limit) (kPa) | Fire Flow Available (L/s) |
|---|---|---|---|---|
| J-1 | 211.14 | UpperZone | 458.4 | 243.71 |
| J-2 | 212.96 | UpperZone | 423.3 | 243.71 |
| J-3 | 209.14 | UpperZone | 448.5 | 243.71 |
| J-4 | 210.95 | UpperZone | 404 | 243.71 |
| J-5 | 206.75 | UpperZone | 441.7 | 243.71 |
| J-6 | 207.47 | UpperZone | 400 | 243.71 |
| J-7 | 204.72 | UpperZone | 427.6 | 243.71 |
| J-8 | 206.87 | UpperZone | 391.3 | 243.71 |
| J-9 | 201.87 | UpperZone | 424.1 | 243.71 |
| J-10 | 186.8 | Lower Zone | 328.8 | 293.94 |
| J-11 | 183.93 | Lower Zone | 366 | 276.09 |
| J-13 | 187.61 | Lower Zone | 153.9 | 287.36 |
| J-14 | 188.95 | Lower Zone | 401.2 | 156.98 |
| J-15 | 185.7 | Lower Zone | 284 | 155.55 |
| J-16 | 187.56 | Lower Zone | 302.2 | 155.55 |
| J-17 | 183.46 | Lower Zone | 174.3 | 155.55 |
| J-18 | 185.01 | Lower Zone | 225.4 | 147.04 |

CROZIER CONSULTING ENGINEERS

**OPTION 1: 1**
**PRV**

**Project:** Parkbridge Craigleith
**Project No.:** 1046-4031
**Design By:** J Scott
**Date:** April 9 2021
**Revision Date:** May 7 2021
**Revised By:** J Scott

# Junction Table - Max Day + OBC Fire Demand Lower Side - (PZ 4)

**Grey Rd 19 Boundary HGL = 280.37** **Lakeshore Boundary HGL = 238.94**

| Label | Elevation (m) | Zone | Pressure (Calculated Lower Limit) (kPa) | Fire Flow Available (L/s) |
|---|---|---|---|---|
| J-1 | 211.14 | UpperZone | 457.5 | 220.1 |
| J-2 | 212.96 | UpperZone | 429.9 | 220.1 |
| J-3 | 209.14 | UpperZone | 447.6 | 220.1 |
| J-4 | 210.95 | UpperZone | 411.3 | 220.1 |
| J-5 | 206.75 | UpperZone | 440.6 | 220.1 |
| J-6 | 207.47 | UpperZone | 403.9 | 220.1 |
| J-7 | 204.72 | UpperZone | 426.7 | 220.1 |
| J-8 | 206.87 | UpperZone | 396.6 | 220.1 |
| J-9 | 201.87 | UpperZone | 423.2 | 220.1 |
| J-10 | 186.8 | Lower Zone | 328.8 | 288.37 |
| J-11 | 183.93 | Lower Zone | 354.5 | 281.62 |
| J-13 | 187.61 | Lower Zone | 147.6 | 287.04 |
| J-14 | 188.95 | Lower Zone | 394 | 156.98 |
| J-15 | 185.7 | Lower Zone | 277.4 | 155.55 |
| J-16 | 187.56 | Lower Zone | 295.6 | 155.55 |
| J-17 | 183.46 | Lower Zone | 167.7 | 155.55 |
| J-18 | 185.01 | Lower Zone | 224.2 | 145.75 |

CROZIER CONSULTING ENGINEERS

**OTPION 2: 2 PRVs**

**Project:** Parkbridge Craigleith
**Project No.:** 1046-4031
**Design By:** J Scott
**Date:** April 9 2021
**Revision Date:** May 10 2021
**Revised By:** J Scott

## Junction Table - Average Day Demand - (PZ 4)

**Grey Rd 19 Boundary HGL = 281.95m** **Lakeshore Boundary HGL = 243.75m**

| Label | Demand (L/s) | Elevation (m) | Zone | Hydraulic Grade (m) | Pressure (kPa) |
|---|---|---|---|---|---|
| J-1 | 0.18 | 211.14 | UpperZone | 260.0161 | 478.3 |
| J-2 | 0.05 | 212.96 | UpperZone | 260.0161 | 460.5 |
| J-3 | 0.08 | 209.14 | UpperZone | 260.0161 | 497.9 |
| J-4 | 0.07 | 210.95 | UpperZone | 260.0161 | 480.2 |
| J-5 | 0.05 | 206.75 | UpperZone | 260.0161 | 521.3 |
| J-6 | 0.06 | 207.47 | UpperZone | 260.016 | 514.3 |
| J-7 | 0.07 | 204.72 | UpperZone | 260.016 | 541.2 |
| J-8 | 0.18 | 206.87 | UpperZone | 260.016 | 520.1 |
| J-9 | 0.12 | 201.87 | UpperZone | 260.016 | 569.1 |
| J-10 | 0.55 | 186.8 | Lower Zone | 243.7451 | 557.3 |
| J-11 | 0.17 | 183.93 | Lower Zone | 243.7463 | 585.4 |
| J-13 | 0.19 | 187.61 | Lower Zone | 243.7454 | 549.4 |
| J-14 | 0.05 | 188.95 | Lower Zone | 243.7454 | 536.3 |
| J-15 | 0.18 | 185.7 | Lower Zone | 243.7442 | 568.1 |
| J-16 | 0.07 | 187.56 | Lower Zone | 243.7442 | 549.9 |
| J-17 | 0.29 | 183.46 | Lower Zone | 243.7439 | 590 |
| J-18 | 0.24 | 185.01 | Lower Zone | 243.7438 | 574.8 |

CROZIER CONSULTING ENGINEERS

**OTPION 2: 2 PRVs**

**Project:** Parkbridge Craigleith
**Project No.:** 1046-4031
**Design By:** J Scott
**Date:** April 9 2021
**Revision Date:** May 10 2021
**Revised By:** J Scott

## Junction Table - Peak Hour Demand - (PZ 4)

**Grey Rd 19 Boundary HGL = 281.56m** **Lakeshore Boundary HGL = 241.14m**

| Label | Demand (L/s) | Elevation (m) | Zone | Hydraulic Grade (m) | Pressure (kPa) |
|---|---|---|---|---|---|
| J-1 | 0.81 | 211.14 | UpperZone | 260.0132 | 478.3 |
| J-2 | 0.22 | 212.96 | UpperZone | 260.0128 | 460.5 |
| J-3 | 0.38 | 209.14 | UpperZone | 260.0126 | 497.9 |
| J-4 | 0.32 | 210.95 | UpperZone | 260.0127 | 480.2 |
| J-5 | 0.22 | 206.75 | UpperZone | 260.012 | 521.3 |
| J-6 | 0.27 | 207.47 | UpperZone | 260.0116 | 514.2 |
| J-7 | 0.32 | 204.72 | UpperZone | 260.0118 | 541.1 |
| J-8 | 0.81 | 206.87 | UpperZone | 260.0116 | 520.1 |
| J-9 | 0.54 | 201.87 | UpperZone | 260.0117 | 569 |
| J-10 | 2.48 | 186.8 | Lower Zone | 241.0599 | 531 |
| J-11 | 0.75 | 183.93 | Lower Zone | 241.0793 | 559.3 |
| J-13 | 0.86 | 187.61 | Lower Zone | 241.0641 | 523.1 |
| J-14 | 0.22 | 188.95 | Lower Zone | 241.0641 | 510 |
| J-15 | 0.81 | 185.7 | Lower Zone | 241.0453 | 541.7 |
| J-16 | 0.27 | 187.56 | Lower Zone | 241.0452 | 523.5 |
| J-17 | 1.29 | 183.46 | Lower Zone | 241.0397 | 563.5 |
| J-18 | 1.08 | 185.01 | Lower Zone | 241.0389 | 548.3 |

CROZIER CONSULTING ENGINEERS

**OTPION 2: 2 PRVs**

**Project:** Parkbridge Craigleith
**Project No.:** 1046-4031
**Design By:** J Scott
**Date:** April 9 2021
**Revision Date:** May 10 2021
**Revised By:** J Scott

# Junction Table - Max Day + FUS Fire Demand Upper Side - (PZ 4)

**Grey Rd 19 Boundary HGL = 271.06m** **Lakeshore Boundary HGL = 240.34m**

| Label | Elevation (m) | Zone | Pressure (Calculated Lower Limit) (kPa) | Fire Flow Available (L/s) |
|---|---|---|---|---|
| J-1 | 211.14 | UpperZone | 366.5 | 243.71 |
| J-2 | 212.96 | UpperZone | 331.3 | 243.71 |
| J-3 | 209.14 | UpperZone | 356.5 | 243.71 |
| J-4 | 210.95 | UpperZone | 312.1 | 243.71 |
| J-5 | 206.75 | UpperZone | 349.8 | 243.71 |
| J-6 | 207.47 | UpperZone | 308 | 243.71 |
| J-7 | 204.72 | UpperZone | 335.6 | 243.71 |
| J-8 | 206.87 | UpperZone | 299.4 | 243.71 |
| J-9 | 201.87 | UpperZone | 332.1 | 243.71 |
| J-10 | 186.8 | Lower Zone | 284.6 | 306.58 |
| J-11 | 183.93 | Lower Zone | 366 | 276.09 |
| J-13 | 187.61 | Lower Zone | 148.6 | 287.62 |
| J-14 | 188.95 | Lower Zone | 401.2 | 156.98 |
| J-15 | 185.7 | Lower Zone | 284 | 155.55 |
| J-16 | 187.56 | Lower Zone | 302.2 | 155.55 |
| J-17 | 183.46 | Lower Zone | 174.3 | 155.55 |
| J-18 | 185.01 | Lower Zone | 225.2 | 147.09 |

CROZIER CONSULTING ENGINEERS

**OTPION 2: 2 PRVs**

**Project:** Parkbridge Craigleith
**Project No.:** 1046-4031
**Design By:** J Scott
**Date:** April 9 2021
**Revision Date:** May 10 2021
**Revised By:** J Scott

# Junction Table - Max Day + FUS Fire Demand Lower Side - (PZ 4)

**Grey Rd 19 Boundary HGL = 274.58m** **Lakeshore Boundary HGL = 233.06m**

| Label | Elevation (m) | Zone | Pressure (Calculated Lower Limit) (kPa) | Fire Flow Available (L/s) |
|---|---|---|---|---|
| J-1 | 211.14 | UpperZone | 389 | 182.46 |
| J-2 | 212.96 | UpperZone | 372 | 182.46 |
| J-3 | 209.14 | UpperZone | 379.8 | 182.46 |
| J-4 | 210.95 | UpperZone | 354.8 | 182.46 |
| J-5 | 206.75 | UpperZone | 371.8 | 182.44 |
| J-6 | 207.47 | UpperZone | 342.1 | 182.46 |
| J-7 | 204.72 | UpperZone | 358.5 | 183.04 |
| J-8 | 206.87 | UpperZone | 336.9 | 183.55 |
| J-9 | 201.87 | UpperZone | 355.4 | 193.07 |
| J-10 | 186.8 | Lower Zone | 263 | 291.75 |
| J-11 | 183.93 | Lower Zone | 302.9 | 295.57 |
| J-13 | 187.61 | Lower Zone | 140 | 270.86 |
| J-14 | 188.95 | Lower Zone | 359.6 | 156.98 |
| J-15 | 185.7 | Lower Zone | 245.7 | 155.55 |
| J-16 | 187.56 | Lower Zone | 263.9 | 155.55 |
| J-17 | 183.46 | Lower Zone | 140 | 154.6 |
| J-18 | 185.01 | Lower Zone | 218.3 | 139.04 |

CROZIER CONSULTING ENGINEERS

**OTPION 2: 2 PRVs**

**Project:** Parkbridge Craigleith
**Project No.:** 1046-4031
**Design By:** J Scott
**Date:** April 9 2021
**Revision Date:** May 10 2021
**Revised By:** J Scott

# Junction Table - Max Day + OBC Fire Demand Upper Side - (PZ 4)

**Grey Rd 19 Boundary HGL = 279.96** **Lakeshore Boundary HGL = 240.34m**

| Label | Elevation (m) | Zone | Pressure (Calculated Lower Limit) (kPa) | Fire Flow Available (L/s) |
|---|---|---|---|---|
| J-1 | 211.14 | UpperZone | 389.8 | 243.71 |
| J-2 | 212.96 | UpperZone | 354.6 | 243.71 |
| J-3 | 209.14 | UpperZone | 379.8 | 243.71 |
| J-4 | 210.95 | UpperZone | 335.4 | 243.71 |
| J-5 | 206.75 | UpperZone | 373 | 243.71 |
| J-6 | 207.47 | UpperZone | 331.3 | 243.71 |
| J-7 | 204.72 | UpperZone | 358.9 | 243.71 |
| J-8 | 206.87 | UpperZone | 322.6 | 243.71 |
| J-9 | 201.87 | UpperZone | 355.4 | 243.71 |
| J-10 | 186.8 | Lower Zone | 284.6 | 306.58 |
| J-11 | 183.93 | Lower Zone | 366 | 276.09 |
| J-13 | 187.61 | Lower Zone | 148.6 | 287.62 |
| J-14 | 188.95 | Lower Zone | 401.2 | 156.98 |
| J-15 | 185.7 | Lower Zone | 284 | 155.55 |
| J-16 | 187.56 | Lower Zone | 302.2 | 155.55 |
| J-17 | 183.46 | Lower Zone | 174.3 | 155.55 |
| J-18 | 185.01 | Lower Zone | 225.4 | 147.04 |

CROZIER CONSULTING ENGINEERS

**OTPION 2: 2 PRVs**

**Project:** Parkbridge Craigleith
**Project No.:** 1046-4031
**Design By:** J Scott
**Date:** April 9 2021
**Revision Date:** May 10 2021
**Revised By:** J Scott

# Junction Table - Max Day + OBC Fire Demand Lower Side - (PZ 4)

**Grey Rd 19 Boundary HGL = 280.37** **Lakeshore Boundary HGL = 238.94**

| Label | Elevation (m) | Zone | Pressure (Calculated Lower Limit) (kPa) | Fire Flow Available (L/s) |
|---|---|---|---|---|
| J-1 | 211.14 | UpperZone | 389.6 | 220.1 |
| J-2 | 212.96 | UpperZone | 362 | 220.1 |
| J-3 | 209.14 | UpperZone | 379.8 | 220.1 |
| J-4 | 210.95 | UpperZone | 343.5 | 220.1 |
| J-5 | 206.75 | UpperZone | 372.8 | 220.1 |
| J-6 | 207.47 | UpperZone | 336.1 | 220.1 |
| J-7 | 204.72 | UpperZone | 358.8 | 220.1 |
| J-8 | 206.87 | UpperZone | 328.8 | 220.1 |
| J-9 | 201.87 | UpperZone | 355.4 | 224.12 |
| J-10 | 186.8 | Lower Zone | 270.9 | 309.19 |
| J-11 | 183.93 | Lower Zone | 354.5 | 281.62 |
| J-13 | 187.61 | Lower Zone | 140 | 287.22 |
| J-14 | 188.95 | Lower Zone | 394 | 156.98 |
| J-15 | 185.7 | Lower Zone | 277.4 | 155.55 |
| J-16 | 187.56 | Lower Zone | 295.6 | 155.55 |
| J-17 | 183.46 | Lower Zone | 167.7 | 155.55 |
| J-18 | 185.01 | Lower Zone | 224.2 | 145.75 |

# APPENDIX C

## Hydrologic & Hydraulic Modelling

MTO IDF Curve
Pre-Development Hydrologic Parameter Sheets
Post-Development Hydrologic Parameter Sheets
6-Hour Keifer Chu Modelling
4-Hour Chicago Modelling
24-Hour SCS Modelling
12-Hour SCS Modelling
Flow Hydrographs
Regional Spill Hydrographs
Post-Development HEC-RAS Output

Ontario IDF CURVE LOOKUP

# Active coordinate

44° 31' 15" N, 80° 19' 14" W (44.520833,-80.320833)

Retrieved: Wed, 18 Apr 2018 17:54:54 GMT



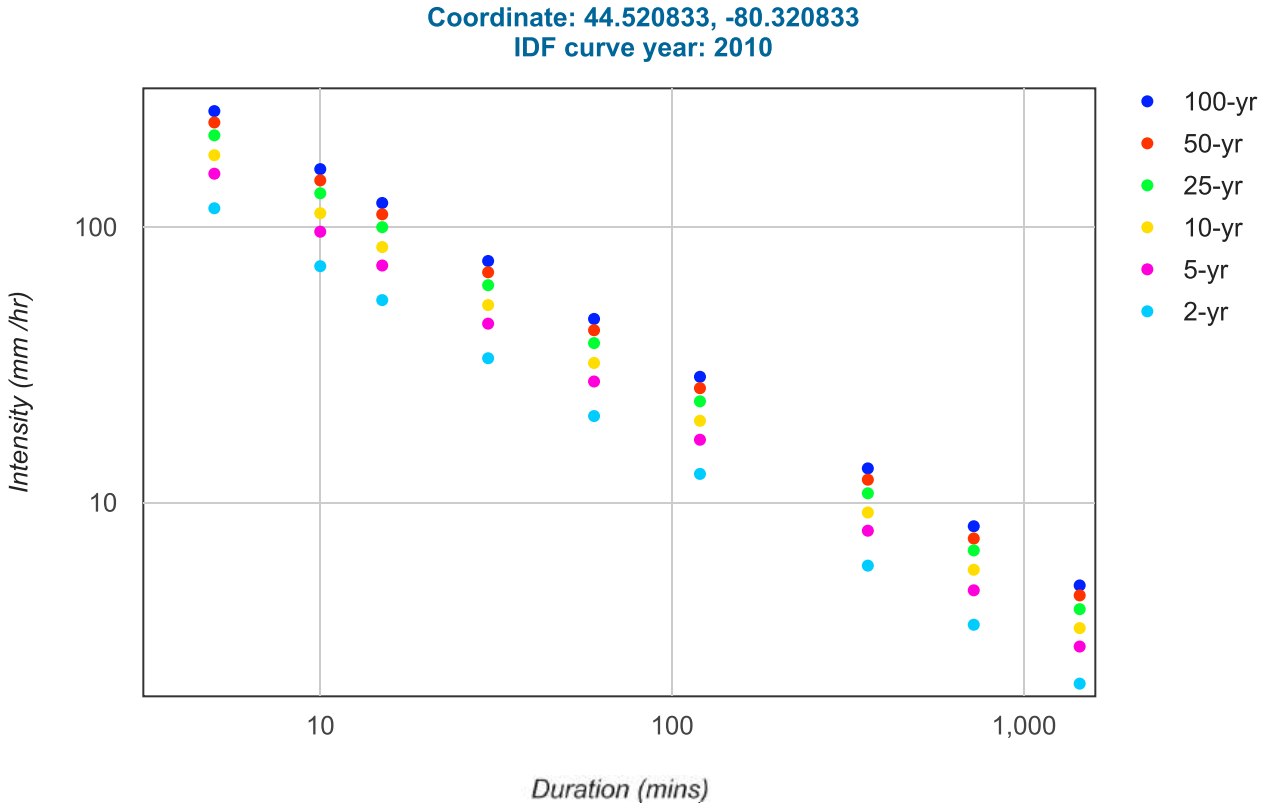

## Location summary

These are the locations in the selection.

**IDF Curve:** 44° 31' 15" N, 80° 19' 14" W (44.520833,-80.320833)

## Results

An IDF curve was found.



## Coefficient summary

**IDF Curve:** 44° 31' 15" N, 80° 19' 14" W (44.520833,-80.320833)

Retrieved: Wed, 18 Apr 2018 17:54:54 GMT

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

| Return period | 2-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr |
|---|---|---|---|---|---|---|
| **A** | 20.6 | 27.5 | 32.1 | 37.9 | 42.2 | 46.4 |
| **B** | -0.699 | -0.699 | -0.699 | -0.699 | -0.699 | -0.699 |

## Statistics

### Rainfall intensity (mm $hr^{-1}$)

| Duration | 5-min | 10-min | 15-min | 30-min | 1-hr | 2-hr | 6-hr | 12-hr | 24-hr |
|---|---|---|---|---|---|---|---|---|---|
| **2-yr** | 117.0 | 72.1 | 54.3 | 33.4 | 20.6 | 12.7 | 5.9 | 3.6 | 2.2 |
| **5-yr** | 156.2 | 96.2 | 72.5 | 44.6 | 27.5 | 16.9 | 7.9 | 4.8 | 3.0 |
| **10-yr** | 182.3 | 112.3 | 84.6 | 52.1 | 32.1 | 19.8 | 9.2 | 5.7 | 3.5 |
| **25-yr** | 215.3 | 132.6 | 99.9 | 61.5 | 37.9 | 23.3 | 10.8 | 6.7 | 4.1 |
| **50-yr** | 239.7 | 147.7 | 111.2 | 68.5 | 42.2 | 26.0 | 12.1 | 7.4 | 4.6 |
| **100-yr** | 263.6 | 162.3 | 122.3 | 75.3 | 46.4 | 28.6 | 13.3 | 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 |
|---|---|---|---|---|---|---|---|---|---|
| **2-yr** | 9.8 | 12.0 | 13.6 | 16.7 | 20.6 | 25.4 | 35.3 | 43.5 | 53.6 |
| **5-yr** | 13.0 | 16.0 | 18.1 | 22.3 | 27.5 | 33.9 | 47.2 | 58.1 | 71.6 |
| **10-yr** | 15.2 | 18.7 | 21.1 | 26.1 | 32.1 | 39.5 | 55.0 | 67.8 | 83.6 |
| **25-yr** | 17.9 | 22.1 | 25.0 | 30.8 | 37.9 | 46.7 | 65.0 | 80.1 | 98.6 |
| **50-yr** | 20.0 | 24.6 | 27.8 | 34.3 | 42.2 | 52.0 | 72.4 | 89.2 | 109.8 |
| **100-yr** | 22.0 | 27.1 | 30.6 | 37.7 | 46.4 | 57.2 | 79.6 | 98.0 | 120.8 |

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Ontario Ministry of Transportation | Terms and Conditions | About
Last Modified: September 2016

| | | | |
|---|---|---|---|
| Project Name: | Parkbridge Craigleith | **D.A. NAME** | **9A** |
| Project Number: | 1046-4031 | **D.A. AREA** | **2.57** |
| Date: | 2018-09-17 | | |
| By: | JE | | |

**Hydrologic Parameters: CALIB NASHYD Command**
**Pre Development Drainage Area: 9A**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Kemble silty clay | Ksc | C | 30 | 0.77 |
| Waterloo sandy loam | Wsl | A | 70 | 1.80 |
| Granby sand | Gs | B | | 0 |
| | | | | 0 |
| Total Area | | | | 2.57 |

| 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 |
| Wsl | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Gs | | 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 | 0.15 | 73 | 0.62 | 76 | 0.00 | 50 | 0.00 | 79 | 0.00 | 82 | 0.77 | 58.13 |
| Wsl | 0.36 | 32 | 1.44 | 38 | 0.00 | 50 | 0.00 | 49 | 0.00 | 62 | 1.80 | 66.20 |
| Gs | 0.00 | 60 | 0.00 | 65 | 0.00 | 50 | 0.00 | 69 | 0.00 | 74 | 0.00 | 0.00 |
| 0 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 |
| Subtotal | 0.51 | | 2.06 | | 0.00 | | 0.00 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| Composite Area Calculations | Total Pervious Area | 2.57 | |
| | Total Impervious Area | 0 | |
| | % Impervious | 0.00% | |
| | **Composite Curve Number** | **48.4** | |
| | Total Area Check | 2.57 | |

**Initial Abstraction and Tp Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Kemble silty clay | | Waterloo sandy | | Granby sand | | 0 | | |
| Landuse | IA (mm) | Area (ha) | A * IA | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.51 | 5.14 | 0.38 | 0.15 | 0.10 | 0.36 | 0.28 | 0.00 | | 0 | 0.09 |
| Meadow | 8 | 2.06 | 16.45 | 0.43 | 0.62 | 0.13 | 1.44 | 0.31 | 0.00 | | 0 | 0.45 |
| Wetland | 16 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Lawn | 5 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Cultivated | 7 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Impervious | 2 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Composite | | 2.57 | **8.40** | Composite Runoff Coefficient | | | | | | | | 0.21 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| MEADOW | 150 | 4 | 2.67% | 2.3 | 0.38 | 0.11 | 0.07 | 0.07 | | | | |
| FOREST | 100 | 9 | 9.00% | 0.6 | 0.18 | 0.15 | 0.10 | 0.10 | 0.25 | 0.17 | 0.56 | 0.37 |
| CHANNEL | 150 | 8 | 5.33% | 4.6 | 1.06 | 0.04 | 0.03 | 0.13 | | | | |

| | | | |
|---|---|---|---|
| Appropriate calculated time to peak: | **0.37** | Appropriate Method: | Airport |

| | | | |
|---|---|---|---|
| Project Name: | Parkbridge Craigleith | **D.A. NAME** | **PRE-9B** |
| Project Number: | 1046-4031 | **D.A. AREA** | **11.63** |
| Date: | 2018-09-17 | | |
| By: | JE | | |

**Hydrologic Parameters: CALIB NASHYD Command**
**Pre Development Drainage Area: PRE-9B**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Kemble silty clay | Ksc | C | 80 | 9.30 |
| Waterloo sandy loam | Wsl | A | 20 | 2.33 |
| Granby sand | Gs | B | | 0 |
| | | | | 0 |
| Total Area | | | | 11.63 |

| 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 | 0.03 | 98 | | 98 | 0.01 | 98 | 0.07 | 98 | | 98 | 0.11 | 10.78 |
| Wsl | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Gs | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Subtotal | 0.03 | | 0 | | 0.01 | | 0.07 | | 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 | 0.00 | 73 | 9.19 | 76 | 0.00 | 50 | 0.00 | 79 | 0.00 | 82 | 9.19 | 698.74 |
| Wsl | 0.23 | 32 | 2.09 | 38 | 0.00 | 50 | 0.00 | 49 | 0.00 | 62 | 2.33 | 86.99 |
| Gs | 0.00 | 60 | 0.00 | 65 | 0.00 | 50 | 0.00 | 69 | 0.00 | 74 | 0.00 | 0.00 |
| 0 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 |
| Subtotal | 0.23 | | 11.29 | | 0.00 | | 0.00 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| Composite Area Calculations | Total Pervious Area | 11.52 | |
| | Total Impervious Area | 0.11 | |
| | % Impervious | 0.95% | |
| | **Composite Curve Number** | **68.5** | |
| | Total Area Check | 11.63 | |

**Initial Abstraction and Tp Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Kemble silty clay | | Waterloo sandy | | Granby sand | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.23 | 2.33 | 0.38 | 0.00 | 0.10 | 0.23 | 0.28 | 0.00 | | 0 | 0.02 |
| Meadow | 8 | 11.29 | 90.30 | 0.43 | 9.19 | 0.13 | 2.09 | 0.31 | 0.00 | | 0 | 4.23 |
| Wetland | 16 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Lawn | 5 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Cultivated | 7 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Impervious | 2 | 0.11 | 0.22 | 0.50 | 0 | | 0 | | 0 | | 0 | 0.06 |
| Composite | | 11.63 | **7.98** | Composite Runoff Coefficient | | | | | | | | 0.37 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| MEADOW | 725 | 2 | 0.28% | 2.3 | 0.12 | 1.67 | 1.12 | 1.12 | 0.70 | 0.47 | 1.63 | 1.09 |

| | | | |
|---|---|---|---|
| Appropriate calculated time to peak: | **1.09** | Appropriate Method: | Airport |

| | | | |
|---|---|---|---|
| Project Name: | Parkbridge Craigleith | **D.A. NAME** | **PRE-9C** |
| Project Number: | 1046-4031 | **D.A. AREA** | **1.19** |
| Date: | 2018-09-17 | | |
| By: | JE | | |

**Hydrologic Parameters: CALIB NASHYD Command**
**Pre Development Drainage Area: PRE-9C**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Kemble silty clay | Ksc | C | | 0 |
| Waterloo sandy loam | Wsl | A | 100 | 1.19 |
| Granby sand | Gs | B | | 0 |
| | | | | 0 |
| Total Area | | | | 1.19 |

| 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 |
| Wsl | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Gs | | 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 | 0.00 | 73 | 0.00 | 76 | 0.00 | 50 | 0.00 | 79 | 0.00 | 82 | 0.00 | 0.00 |
| Wsl | 0.95 | 32 | 0.24 | 38 | 0.00 | 50 | 0.00 | 49 | 0.00 | 62 | 1.19 | 39.51 |
| Gs | 0.00 | 60 | 0.00 | 65 | 0.00 | 50 | 0.00 | 69 | 0.00 | 74 | 0.00 | 0.00 |
| 0 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 |
| Subtotal | 0.95 | | 0.24 | | 0.00 | | 0.00 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| Composite Area Calculations | Total Pervious Area | 1.19 | |
| | Total Impervious Area | 0 | |
| | % Impervious | 0.00% | |
| | **Composite Curve Number** | **33.2** | |
| | Total Area Check | 1.19 | |

**Initial Abstraction and Tp Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Kemble silty clay | | Waterloo sandy | | Granby sand | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.95 | 9.52 | 0.38 | 0.00 | 0.10 | 0.95 | 0.28 | 0.00 | | 0 | 0.10 |
| Meadow | 8 | 0.24 | 1.90 | 0.43 | 0.00 | 0.13 | 0.24 | 0.31 | 0.00 | | 0 | 0.03 |
| Wetland | 16 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Lawn | 5 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Cultivated | 7 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Impervious | 2 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Composite | | 1.19 | **9.60** | Composite Runoff Coefficient | | | | | | | | 0.11 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | 101 | 18.9 | 18.71% | 0.6 | 0.26 | 0.11 | 0.07 | 0.07 | 0.05 | 0.04 | 0.21 | 0.14 |

| | | | |
|---|---|---|---|
| Appropriate calculated time to peak: | **0.14** | Appropriate Method: | Airport |

| | | | |
|---|---|---|---|
| Project Name: | Parkbridge Craigleith | **D.A. NAME** | **PRE-9B** |
| Project Number: | 1046-4031 | **D.A. AREA (ha)** | **2.02** |
| Date: | 2018-09-17 | | |
| By: | JE | | |

**Hydrologic Parameters: CALIB NASHYD Command**
**Pre Development Drainage Area: PRE-9B**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Kemble silty clay | Ksc | C | | 0 |
| Waterloo sandy loam | Wsl | A | 100 | 2.02 |
| Granby sand | Gs | B | | 0 |
| | | | | 0 |
| Total Area | | | | 2.02 |

| 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 | 0.00 | 0 |
| Wsl | | 98 | | 98 | | 98 | | 98 | 0.21 | 98 | 0.21 | 20.09 |
| Gs | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Subtotal | 0 | | 0 | | 0 | | 0 | | 0.21 | | | |

| 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 | 0.00 | 73 | 0.00 | 76 | 0.00 | 50 | 0.00 | 79 | 0.00 | 82 | 0.00 | 0.00 |
| Wsl | 0.73 | 32 | 1.09 | 38 | 0.00 | 50 | 0.00 | 49 | 0.00 | 62 | 1.82 | 64.61 |
| Gs | 0.00 | 60 | 0.00 | 65 | 0.00 | 50 | 0.00 | 69 | 0.00 | 74 | 0.00 | 0.00 |
| 0 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 |
| Subtotal | 0.73 | | 1.09 | | 0.00 | | 0.00 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| Composite Area Calculations | Total Pervious Area | 1.815 | |
| | Total Impervious Area | 0.21 | |
| | % Impervious | 10.1% | |
| | **Composite Curve Number** | **41.9** | |
| | Total Area Check | 2.02 | |

**Initial Abstraction and Tp Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Kemble silty clay | | Waterloo sandy | | Granby sand | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.73 | 7.26 | 0.38 | 0.00 | 0.10 | 0.73 | 0.28 | 0.00 | | 0 | 0.07 |
| Meadow | 8 | 1.09 | 8.71 | 0.43 | 0.00 | 0.13 | 1.09 | 0.31 | 0.00 | | 0 | 0.14 |
| Wetland | 16 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Lawn | 5 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Cultivated | 7 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Impervious | 2 | 0.21 | 0.41 | | 0 | 0.95 | 0 | | 0 | | 0 | 0.19 |
| Composite | | 2.02 | **8.11** | Composite Runoff Coefficient | | | | | | | | 0.20 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| MEADOW | 70 | 2.9 | 4.14% | | | | | | | | | |
| FOREST | 60 | 18 | 30% | | | | | | 0.07 | 0.04 | 0.22 | 0.15 |

| | | | |
|---|---|---|---|
| Appropriate calculated time to peak: | **0.15** | Appropriate Method: | Airport |

| | | | |
|---|---|---|---|
| Project Name: | Parkbridge Craigleith | **D.A. NAME** | **PRE-9E** |
| Project Number: | 1046-4031 | **D.A. AREA** | **7.60** |
| Date: | 2018-09-17 | | |
| By: | JE | | |

**Hydrologic Parameters: CALIB NASHYD Command**
**Pre Development Drainage Area: PRE-9E**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Kemble silty clay | Ksc | C | | 0 |
| Waterloo sandy loam | Wsl | A | 60 | 4.56 |
| Granby sand | Gs | B | 40 | 3.04 |
| | | | | 0 |
| Total Area | | | | 7.6 |

| 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 |
| Wsl | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Gs | | 98 | | 98 | 0.11 | 98 | | 98 | | 98 | 0.11 | 10.78 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Subtotal | 0 | | 0 | | 0.11 | | 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 | 0.00 | 73 | 0.00 | 76 | 0.00 | 50 | 0.00 | 79 | 0.00 | 82 | 0.00 | 0.00 |
| Wsl | 1.82 | 32 | 2.74 | 38 | 0.00 | 50 | 0.00 | 49 | 0.00 | 62 | 4.56 | 162.34 |
| Gs | 1.17 | 60 | 1.76 | 65 | 0.00 | 50 | 0.00 | 69 | 0.00 | 74 | 2.93 | 184.59 |
| 0 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 |
| Subtotal | 3.00 | | 4.49 | | 0.00 | | 0.00 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| Composite Area Calculations | Total Pervious Area | 7.49 | |
| | Total Impervious Area | 0.11 | |
| | % Impervious | 1.45% | |
| | **Composite Curve Number** | **47.1** | |
| | Total Area Check | 7.6 | |

**Initial Abstraction and Tp Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Kemble silty clay | | Waterloo sandy | | Granby sand | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 3.00 | 29.96 | 0.38 | 0.00 | 0.10 | 1.82 | 0.28 | 1.17 | | 0 | 0.51 |
| Meadow | 8 | 4.49 | 35.95 | 0.43 | 0.00 | 0.13 | 2.74 | 0.31 | 1.76 | | 0 | 0.90 |
| Wetland | 16 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Lawn | 5 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Cultivated | 7 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Impervious | 2 | 0.11 | 0.22 | | 0 | 0.95 | 0 | 0.95 | 0 | | 0 | 0.10 |
| Composite | | 7.6 | **8.70** | Composite Runoff Coefficient | | | | | | | | 0.20 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| FOREST | 100 | 8.0 | 8.00% | 0.6 | 0.17 | 0.16 | 0.11 | 0.11 | | | | |
| MEADOW | 130 | 8.0 | 6.15% | 2.3 | 0.57 | 0.06 | 0.04 | 0.15 | 0.30 | 0.20 | 0.72 | 0.48 |
| CHANNEL | 270 | 1.5 | 0.56% | 4.6 | 0.34 | 0.22 | 0.15 | 0.30 | | | | |

| | | | |
|---|---|---|---|
| Appropriate calculated time to peak: | **0.48** | Appropriate Method: | Airport |

| | | | |
|---|---|---|---|
| Project Name: | Parkbridge Craigleith | **D.A. NAME** | **PRE-9F** |
| Project Number: | 1046-4031 | **D.A. AREA** | **3.35** |
| Date: | 2018-09-17 | | |
| By: | JE | | |

**Hydrologic Parameters: CALIB NASHYD Command**
**Pre Development Drainage Area: PRE-9F**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Kemble silty clay | Ksc | C | | 0 |
| Waterloo sandy loam | Wsl | A | 50 | 1.68 |
| Granby sand | Gs | B | 50 | 1.68 |
| | | | | 0 |
| Total Area | | | | 3.35 |

| 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 |
| Wsl | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Gs | | 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 | 0.00 | 73 | 0.00 | 76 | 0.00 | 50 | 0.00 | 79 | 0.00 | 82 | 0.00 | 0.00 |
| Wsl | 0.34 | 32 | 1.34 | 38 | 0.00 | 50 | 0.00 | 49 | 0.00 | 62 | 1.68 | 61.64 |
| Gs | 0.34 | 60 | 1.34 | 65 | 0.00 | 50 | 0.00 | 69 | 0.00 | 74 | 1.68 | 107.20 |
| 0 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 |
| Subtotal | 0.67 | | 2.68 | | 0.00 | | 0.00 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| Composite Area Calculations | Total Pervious Area | 3.35 | |
| | Total Impervious Area | 0 | |
| | % Impervious | 0.00% | |
| | **Composite Curve Number** | **50.4** | |
| | Total Area Check | 3.35 | |

**Initial Abstraction and Tp Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Kemble silty clay | | Waterloo sandy | | Granby sand | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.67 | 6.70 | 0.38 | 0.00 | 0.10 | 0.34 | 0.28 | 0.34 | | 0 | 0.13 |
| Meadow | 8 | 2.68 | 21.44 | 0.43 | 0.00 | 0.13 | 1.34 | 0.31 | 1.34 | | 0 | 0.59 |
| Wetland | 16 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Lawn | 5 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Cultivated | 7 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Impervious | 2 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Composite | | 3.35 | **8.4** | Composite Runoff Coefficient | | | | | | | | 0.21 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| MEADOW | 200 | 4.0 | 2.00% | 2.3 | 0.33 | 0.17 | 0.11 | 0.11 | 0.40 | 0.27 | 1.06 | 0.71 |
| CHANNEL | 270 | 0.5 | 0% | 4.6 | 0.20 | 0.38 | 0.25 | 0.37 | | | | |

| | | | |
|---|---|---|---|
| Appropriate calculated time to peak: | **0.71** | Appropriate Method: | Airport |

| | | | |
|---|---|---|---|
| Project Name: | Parkbridge Craigleith | **D.A. NAME** | **PRE-8A** |
| Project Number: | 1046-4031 | **D.A. AREA** | **12.13** |
| Date: | 2018-09-17 | | |
| By: | JE | | |

**Hydrologic Parameters: CALIB NASHYD Command**
**Pre Development Drainage Area: PRE-8A**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Kemble silty clay | Ksc | C | 50 | 6.07 |
| Waterloo sandy loam | Wsl | A | 35 | 4.25 |
| Granby sand | Gs | B | 15 | 1.82 |
| | | | | 0 |
| Total Area | | | | 12.13 |

| 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 |
| Wsl | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Gs | 0.09 | 98 | | 98 | | 98 | 0.07 | 98 | | 98 | 0.16 | 15.48 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Subtotal | 0.09 | | 0 | | 0 | | 0.07 | | 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 | 2.43 | 73 | 3.03 | 76 | 0.00 | 50 | 0.61 | 79 | 0.00 | 82 | 6.07 | 455.48 |
| Wsl | 1.70 | 32 | 2.12 | 38 | 0.00 | 50 | 0.42 | 49 | 0.00 | 62 | 4.25 | 155.81 |
| Gs | 0.66 | 60 | 0.83 | 65 | 0.00 | 50 | 0.17 | 69 | 0.00 | 74 | 1.66 | 105.34 |
| 0 | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 |
| Subtotal | 4.79 | | 5.99 | | 0.00 | | 1.20 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| Composite Area Calculations | Total Pervious Area | 11.972 | |
| | Total Impervious Area | 0.16 | |
| | % Impervious | 1.30% | |
| | **Composite Curve Number** | **60.4** | |
| | Total Area Check | 12.13 | |

**Initial Abstraction and Tp Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Kemble silty clay | | Waterloo sandy | | Granby sand | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 4.79 | 47.89 | 0.38 | 2.43 | 0.10 | 1.70 | 0.28 | 0.66 | | 0 | 1.28 |
| Meadow | 8 | 5.99 | 47.89 | 0.43 | 3.03 | 0.13 | 2.12 | 0.31 | 0.83 | | 0 | 1.84 |
| Wetland | 16 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Lawn | 5 | 1.20 | 5.99 | 0.17 | 1 | 0.10 | 0 | 0.15 | 0 | | 0 | 0.17 |
| Cultivated | 7 | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| Impervious | 2 | 0.16 | 0.32 | 0.95 | 0 | 0.95 | 0 | 0.95 | 0 | | 0 | 0.15 |
| Composite | | 12.13 | **8.42** | Composite Runoff Coefficient | | | | | | | | 0.28 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| SHEET | 100 | 2 | 2.00% | | | | | | 0.57 | 0.38 | 0.84 | 0.56 |
| CHANNEL | 980 | 56 | 6% | | | | | | | | | |

| | | | |
|---|---|---|---|
| Appropriate calculated time to peak: | **0.56** | Appropriate Method: | Airport |

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST EXT-1A**
Project Number: 1046-4031 **D.A. AREA (ha)** **8.37**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST EXT-1A**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Kemble Silty Clay | Ksc | C | 100 | 8.37 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 8.37 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Ksc | | 98 | | 98 | | 98 | | 98 | | 98 | 0.00 | 0.00 |
| 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 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland/SWMF | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Ksc | 3.01 | 73 | 5.36 | 76 | 0.00 | 50 | 0.00 | 79 | 0.00 | | 8.37 | 627.08 |
| 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 Area | 3.01 | | 5.36 | | 0.00 | | 0.00 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| | Composite Area Calculations | Total Pervious Area | 8.37 |
| | | Total Impervious Area | 0.00 |
| | | % Impervious | 0.0% |
| | | **Composite Curve Number** | **74.9** |
| | | Total Area Check | 8.37 |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Kemble Silty Clay | | 0 | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 3.01 | 30.13 | 0.35 | 3.01 | | 0 | | 0 | | 0 | 1.05 |
| Meadow | 8 | 5.36 | 42.85 | 0.40 | 5.36 | | 0 | | 0 | | 0 | 2.14 |
| Wetland/SWM | 12 | 0.00 | 0.00 | 0.05 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.00 | 0.00 | | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.00 | 0.00 | 0.95 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| **Composite IA** | | 8.37 | **8.72** | Composite Runoff Coefficient | | | | | | | | 0.38 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **100** | **2.6** | 2.60% | | | | | | 0.37 | 0.25 | 0.70 | 0.47 |
| | **480** | **11.5** | 2.40% | | | | | | | | | |

| Appropriate calculated time to peak: | **0.47** | Appropriate Method: | Airport |
|---|---|---|---|

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 1A**
Project Number: 1046-4031 **D.A. AREA (ha)** **2.95**
Date: 2018-09-17
By: JE

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

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Kemble Silty Clay | Ksc | C | 60 | 1.77 |
| Waterloo Sandy Loam | Wsl | A | 40 | 1.18 |
| | | | | 0.00 |
| | | | | 0.00 |
| Total Area Check | | | | 2.95 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Ksc | 0.31 | 98 | | 98 | 0.24 | 98 | 0.35 | 98 | | 98 | 0.91 | 89.22 |
| Wsl | 0.21 | 98 | | 98 | 0.16 | 98 | 0.24 | 98 | | 98 | 0.61 | 59.48 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Subtotal Area | 0.52 | | 0 | | 0.41 | | 0.59 | | 0 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Ksc | 0 | | 0 | | 0 | | 0.86 | 79 | 0 | | 0.86 | 67.91 |
| Wsl | 0 | | 0 | | 0 | | 0.57 | 49 | 0 | | 0.57 | 28.08 |
| 0 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0.00 |
| 0 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0.00 |
| Subtotal Area | 0 | | 0 | | 0 | | 1.43 | | 0 | | | |

| | | | |
|---|---|---|---|
| | Pervious Area Calculations | Total Pervious Area | 1.43 |
| | | **Composite Pervious Curve Number** | **67.0** |
| | Impervious Area Calculations | Total Directly Connected Area | 0.93 |
| | | Total Indirectly Connected Area | 0.59 |
| | | Total Impervious Area | 1.52 |
| | | **% X imp** | **31.5** |
| | | **% T imp** | **51.4** |
| | | Total Area Check | 2.95 |

**Initial Abstraction and Hydraulics Calculations**

| Landuse | IA (mm) | Area (ha) | A * IA |
|---|---|---|---|
| Woodland | 10 | 0 | 0 |
| Meadow | 8 | 0 | 0 |
| Wetland | 16 | 0 | 0 |
| Lawn | 5 | 1.43 | 7.16 |
| Cultivated | 7 | 0 | 0 |

| Land Use | IA (mm) | Slope (%) | Travel Length (m) | Manning's n |
|---|---|---|---|---|
| Pervious | **5.0** | **3.0** | **30** | **0.250** |
| Impervious | **2.0** | **5.5** | **44** | **0.013** |

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 1B**
Project Number: 1046-4031 **D.A. AREA (ha)** **1.81**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST 1B**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Waterloo Sandy Loam | Wsl | A | 100 | 1.81 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 1.81 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | | 98 | | 98 | | 98 | | 98 | 0.21 | 98 | 0.21 | 20.09 |
| 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 | | 0.00 | | 0.00 | | 0.00 | | 0.21 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland/SWMF | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | 1.11 | 32 | 0.00 | 38 | 0.22 | 50 | 0.28 | 49 | 0.00 | | 1.61 | 60.01 |
| 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 Area | 1.11 | | 0.00 | | 0.22 | | 0.28 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| Composite Area Calculations | Total Pervious Area | 1.61 | |
| | Total Impervious Area | 0.21 | |
| | % Impervious | 11.3% | |
| | **Composite Curve Number** | **44.3** | |
| | Total Area Check | 1.81 | |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Waterloo Sandy | | 0 | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 1.11 | 11.09 | 0.12 | 1.11 | | 0 | | 0 | | 0 | 0.13 |
| Meadow | 8 | 0.00 | 0.00 | | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Wetland/SWM | 12 | 0.22 | 2.63 | 0.05 | 0.22 | | 0 | | 0 | | 0 | 0.01 |
| Lawn | 5 | 0.28 | 1.39 | 0.25 | 0.28 | | 0 | | 0 | | 0 | 0.07 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.21 | 0.41 | 0.95 | 0.21 | | 0 | | 0 | | 0 | 0.19 |
| **Composite IA** | | 1.81 | **8.57** | Composite Runoff Coefficient | | | | | | | | 0.23 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **95** | **19.8** | 20.84% | | | | | | 0.05 | 0.03 | 0.17 | 0.11 |

| Appropriate calculated time to peak: | **0.11** | Appropriate Method: | Airport |
|---|---|---|---|

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design_2019 Detailed Design 2nd Sub\SWM\Hydrology\Hydrologic Parameters\2018.09.17_Post Development Parameters

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST EXT-9C**
Project Number: 1046-4031 **D.A. AREA (ha)** **0.65**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST EXT-9C**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Kemble Silty Clay | Ksc | C | 100 | 0.65 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 0.65 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Ksc | 0.06 | 98 | | 98 | 0.04 | 98 | 0.04 | 98 | | 98 | 0.13 | 12.25 |
| 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 | 0.06 | | 0.00 | | 0.04 | | 0.04 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland/SWMF | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Ksc | 0.00 | 73 | 0.00 | 76 | 0.00 | 50 | 0.53 | 79 | 0.00 | | 0.53 | 41.48 |
| 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 Area | 0.00 | | 0.00 | | 0.00 | | 0.53 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| Composite Area Calculations | Total Pervious Area | 0.53 |
| | Total Impervious Area | 0.13 |
| | % Impervious | 19.2% |
| | **Composite Curve Number** | **82.7** |
| | Total Area Check | 0.65 |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Kemble Silty Clay | | 0 | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.00 | 0.00 | 0.35 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Meadow | 8 | 0.00 | 0.00 | 0.40 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Wetland/SWM | 12 | 0.00 | 0.00 | 0.05 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.53 | 2.63 | 0.17 | 0.53 | | 0 | | 0 | | 0 | 0.09 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.13 | 0.25 | 0.95 | 0.13 | | 0 | | 0 | | 0 | 0.12 |
| **Composite IA** | | 0.65 | **4.42** | Composite Runoff Coefficient | | | | | | | | 0.32 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **134** | **3.3** | 2.46% | | | | | | 0.11 | 0.07 | 0.36 | 0.24 |

| | | | |
|---|---|---|---|
| Appropriate calculated time to peak: | **0.24** | Appropriate Method: | Airport |

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 9A**
Project Number: 1046-4031 **D.A. AREA (ha)** **0.58**
Date: 2019-04-08
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST 9A**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Waterloo Sandy Loam | Wsl | A | | 0 |
| Kemble Silty Clay | Ksc | C | 100 | 0.58 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 0.58 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Ksc | | 98 | | 98 | | 98 | 0.06 | 98 | | 98 | 0.058 | 5.70 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Subtotal Area | 0.00 | | 0.00 | | 0.00 | | 0.06 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | 0.00 | 32 | 0.00 | 38 | 0.00 | 50 | 0.00 | 49 | 0.00 | | 0.00 | 0.00 |
| Ksc | 0.00 | 73 | 0.37 | 76 | 0.00 | 50 | 0.16 | 79 | 0.00 | | 0.52 | 40.13 |
| 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 Area | 0.00 | | 0.37 | | 0.00 | | 0.16 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| Composite Area Calculations | Total Pervious Area | 0.52 | |
| | Total Impervious Area | 0.06 | |
| | % Impervious | 10.0% | |
| | **Composite Curve Number** | **79.0** | |
| | Total Area Check | 0.58 | |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Waterloo Sandy | | Kemble Silty Clay | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.00 | 0.00 | 0.12 | 0.00 | 0.35 | 0.00 | | 0 | | 0 | 0.00 |
| Meadow | 8 | 0.37 | 2.92 | 0.15 | 0.00 | 0.40 | 0.37 | | 0 | | 0 | 0.15 |
| Wetland | 12 | 0.00 | 0.00 | 0.05 | 0.00 | 0.05 | 0.00 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.16 | 0.78 | | 0.00 | 0.17 | 0.16 | | 0 | | 0 | 0.03 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.06 | 0.12 | 0.95 | 0.00 | 0.95 | 0.06 | | 0 | | 0 | 0.06 |
| **Composite IA** | | 0.58 | **6.59** | Composite Runoff Coefficient | | | | | | | | 0.39 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **21.5** | **2** | 9.30% | | | | | | 0.01 | 0.01 | 0.09 | 0.06 |

| | | | |
|---|---|---|---|
| Appropriate calculated time to peak: | **0.06** | Appropriate Method: | Airport |

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 9B**
Project Number: 1046-4031 **D.A. AREA (ha)** **2.10**
Date: 2019-04-08
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST 9B**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Waterloo Sandy Loam | Wsl | A | 60 | 1.26 |
| Kemble Silty Clay | Ksc | C | 40 | 0.84 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 2.10 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Ksc | | 98 | | 98 | | 98 | 0.02 | 98 | | 98 | 0.022 | 2.18 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Subtotal Area | 0.00 | | 0.00 | | 0.00 | | 0.02 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | 0.57 | 32 | 0.69 | 38 | 0.00 | 50 | 0.00 | 49 | 0.00 | | 1.26 | 44.48 |
| Ksc | 0.33 | 73 | 0.41 | 76 | 0.00 | 50 | 0.08 | 79 | 0.00 | | 0.82 | 61.42 |
| 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 Area | 0.89 | | 1.10 | | 0.00 | | 0.08 | | 0.00 | | | |

| Composite Area Calculations | | |
|---|---|---|
| | Total Pervious Area | 2.08 |
| | Total Impervious Area | 0.02 |
| | % Impervious | 1.1% |
| | **Composite Curve Number** | **51.5** |
| | Total Area Check | 2.10 |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Waterloo Sandy RC | Waterloo Sandy Area | Kemble Silty Clay RC | Kemble Silty Clay Area | 0 RC | 0 Area | 0 RC | 0 Area | A*RC |
| Woodland | 10 | 0.89 | 8.94 | 0.12 | 0.57 | 0.35 | 0.33 | | 0 | | 0 | 0.18 |
| Meadow | 8 | 1.10 | 8.82 | 0.15 | 0.69 | 0.40 | 0.41 | | 0 | | 0 | 0.27 |
| Wetland | 12 | 0.00 | 0.00 | 0.05 | 0.00 | 0.05 | 0.00 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.08 | 0.41 | | 0.00 | 0.17 | 0.08 | | 0 | | 0 | 0.01 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.02 | 0.04 | 0.95 | 0.00 | 0.95 | 0.02 | | 0 | | 0 | 0.02 |
| **Composite IA** | | 2.10 | **8.67** | Composite Runoff Coefficient | | | | | | | | 0.23 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **270** | **17** | 6.30% | | | | | | 0.16 | 0.11 | 0.42 | 0.28 |

| Appropriate calculated time to peak: | **0.28** | Appropriate Method: | Airport |
|---|---|---|---|

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 9C**
Project Number: 1046-4031 **D.A. AREA (ha)** **0.82**
Date: 2019-04-08
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST 9C**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Waterloo Sandy Loam | Wsl | A | 100 | 0.82 |
| Granby Sand | Gs | B | | 0 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 0.82 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | | 98 | | 98 | | 98 | 0.08 | 98 | | 98 | 0.08 | 8.23 |
| Gs | | 98 | | 98 | | 98 | | 98 | | 98 | 0.00 | 0.00 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Subtotal Area | 0.00 | | 0.00 | | 0.00 | | 0.08 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland/SWMF | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | 0.44 | 32 | 0.29 | 38 | 0.00 | 50 | 0.00 | 49 | 0.00 | | 0.74 | 25.32 |
| Gs | 0.00 | 60 | 0.00 | 65 | 0.00 | | 0.00 | 69 | 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 Area | 0.44 | | 0.29 | | 0.00 | | 0.00 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| Composite Area Calculations | Total Pervious Area | 0.74 | |
| | Total Impervious Area | 0.08 | |
| | % Impervious | 10.2% | |
| | **Composite Curve Number** | **40.9** | |
| | Total Area Check | 0.82 | |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Waterloo Sandy | | Granby Sand | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.44 | 4.42 | 0.08 | 0.44 | 0.25 | 0.00 | | 0 | | 0 | 0.04 |
| Meadow | 8 | 0.29 | 2.36 | 0.10 | 0.29 | 0.28 | 0.00 | | 0 | | 0 | 0.03 |
| Wetland/SWM | 12 | 0.00 | 0.00 | 0.05 | 0.00 | | 0.00 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.00 | 0.00 | | 0.00 | 0.15 | 0.00 | | 0 | | 0 | 0.00 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.08 | 0.17 | 0.95 | 0.08 | 0.95 | 0.00 | | 0 | | 0 | 0.08 |
| **Composite IA** | | 0.82 | **8.46** | Composite Runoff Coefficient | | | | | | | | 0.18 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **140** | **5.6** | 4.00% | | | | | | 0.10 | 0.07 | 0.38 | 0.25 |

| Appropriate calculated time to peak: | **0.25** | Appropriate Method: | Airport |
|---|---|---|---|

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 9E**
Project Number: 1046-4031 **D.A. AREA (ha)** **1.24**
Date: 2019-04-08
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST 9E**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Waterloo Sandy Loam | Wsl | A | 15 | 0.19 |
| Granby Sand | Gs | B | 85 | 1.05 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 1.24 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | | 98 | | 98 | | 98 | 0.03 | 98 | | 98 | 0.03 | 2.63 |
| Gs | | 98 | | 98 | | 98 | 0.15 | 98 | | 98 | 0.15 | 14.91 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Subtotal Area | 0.00 | | 0.00 | | 0.00 | | 0.18 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland/SWMF | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | 0.10 | 32 | 0.06 | 38 | 0.00 | 50 | 0.00 | 49 | 0.00 | | 0.16 | 5.47 |
| Gs | 0.18 | 60 | 0.36 | 65 | 0.00 | | 0.36 | 69 | 0.00 | | 0.90 | 59.16 |
| 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 Area | 0.28 | | 0.42 | | 0.00 | | 0.36 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| Composite Area Calculations | Total Pervious Area | 1.06 | |
| | Total Impervious Area | 0.18 | |
| | % Impervious | 14.4% | |
| | **Composite Curve Number** | **66.3** | |
| | Total Area Check | 1.24 | |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Waterloo Sandy | | Granby Sand | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.28 | 2.76 | 0.08 | 0.10 | 0.25 | 0.18 | | 0 | | 0 | 0.05 |
| Meadow | 8 | 0.42 | 3.40 | 0.10 | 0.06 | 0.28 | 0.36 | | 0 | | 0 | 0.11 |
| Wetland/SWM | 12 | 0.00 | 0.00 | 0.05 | 0.00 | | 0.00 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.36 | 1.80 | | 0.00 | 0.15 | 0.36 | | 0 | | 0 | 0.05 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.18 | 0.36 | 0.95 | 0.03 | 0.95 | 0.15 | | 0 | | 0 | 0.17 |
| **Composite IA** | | 1.24 | **6.71** | Composite Runoff Coefficient | | | | | | | | 0.31 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **139** | **4.3** | 3.09% | | | | | | 0.10 | 0.07 | 0.35 | 0.23 |

| Appropriate calculated time to peak: | **0.23** | Appropriate Method: | Airport |
|---|---|---|---|

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 9D**
Project Number: 1046-4031 **D.A. AREA (ha)** **1.32**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: STANDHYD Command**
**Post Development Drainage Area: POST 9D**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Granby Sand | Gs | B | 90 | 1.19 |
| Waterloo sandy loam | Wsl | A | 10 | 0.13 |
| | | | | 0.00 |
| | | | | 0.00 |
| Total Area Check | | | | 1.32 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Gs | 0.35 | 98 | | 98 | 0.09 | 98 | 0.43 | 98 | | 98 | 0.86 | 84.67 |
| Wsl | 0.02 | 98 | | 98 | 0.01 | 98 | 0.05 | 98 | | 98 | 0.08 | 7.53 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Subtotal Area | 0.36 | | 0 | | 0.10 | | 0.48 | | 0 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Gs | 0 | 60 | 0 | 65 | 0 | | 0.32 | 69 | 0 | | 0.32 | 22.36 |
| Wsl | 0 | 32 | 0 | 38 | 0 | | 0.06 | 49 | 0 | | 0.06 | 2.70 |
| 0 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0.00 |
| 0 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0.00 |
| Subtotal Area | 0 | | 0 | | 0 | | 0.38 | | 0 | | | |

| | | | |
|---|---|---|---|
| Pervious Area Calculations | Total Pervious Area | | 0.38 |
| | **Composite Pervious Curve Number** | | **66.1** |
| Impervious Area Calculations | Total Directly Connected Area | | 0.46 |
| | Total Indirectly Connected Area | | 0.48 |
| | Total Impervious Area | | 0.94 |
| | **% X imp** | | **34.9** |
| | **% T imp** | | **71.3** |
| | Total Area Check | | 1.32 |

**Initial Abstraction and Hydraulics Calculations**

| Landuse | IA (mm) | Area (ha) | A * IA |
|---|---|---|---|
| Woodland | 10 | 0 | 0 |
| Meadow | 8 | 0 | 0 |
| Wetland | 16 | 0 | 0 |
| Lawn | 5 | 0.38 | 1.90 |
| Cultivated | 7 | 0 | 0 |

| Land Use | IA (mm) | Slope (%) | Travel Length (m) | Manning's n |
|---|---|---|---|---|
| Pervious | **5.0** | **2.0** | **30** | **0.250** |
| Impervious | **2.0** | **2.0** | **94** | **0.013** |

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 9F**
Project Number: 1046-4031 **D.A. AREA (ha)** **0.38**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST 9F**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Granby Sand | Gs | B | 50 | 0.19 |
| Waterloo sandy loam | Wsl | A | 50 | 0.19 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 0.38 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Gs | | 98 | | 98 | | 98 | | 98 | | 98 | 0.00 | 0.00 |
| Wsl | | 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 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland/SWMF | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Gs | 0.02 | 60 | 0.00 | 65 | 0.00 | 50 | 0.17 | 69 | 0.00 | | 0.19 | 12.94 |
| Wsl | 0.06 | 32 | 0.13 | 38 | 0.00 | 50 | 0.00 | 49 | 0.00 | | 0.19 | 6.88 |
| 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 Area | 0.08 | | 0.13 | | 0.00 | | 0.17 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| | Composite Area Calculations | Total Pervious Area | 0.38 |
| | | Total Impervious Area | 0.00 |
| | | % Impervious | 0.0% |
| | | **Composite Curve Number** | **52.2** |
| | | Total Area Check | 0.38 |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Granby Sand | | Waterloo sandy | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.08 | 0.76 | 0.25 | 0.02 | 0.08 | 0.06 | | 0 | | 0 | 0.01 |
| Meadow | 8 | 0.13 | 1.06 | 0.28 | 0.00 | 0.10 | 0.13 | | 0 | | 0 | 0.01 |
| Wetland/SWM | 12 | 0.00 | 0.00 | 0.05 | 0.00 | 0.05 | 0.00 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.17 | 0.86 | 0.10 | 0.17 | 0.10 | 0.00 | | 0 | | 0 | 0.02 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.00 | 0.00 | 0.95 | 0.00 | 0.95 | 0.00 | | 0 | | 0 | 0.00 |
| **Composite IA** | | 0.38 | **7.05** | Composite Runoff Coefficient | | | | | | | | 0.10 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **200** | **8** | 4.00% | | | | | | 0.16 | 0.11 | 0.48 | 0.32 |

| | | | |
|---|---|---|---|
| Appropriate calculated time to peak: | **0.32** | Appropriate Method: | Airport |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design_2019 Detailed Design 2nd Sub\SWM\Hydrology\Hydrologic Parameters\2018.09.17_Post Development Parameters

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST EXT-9D**
Project Number: 1046-4031 **D.A. AREA (ha)** **0.78**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST EXT-9D**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Granby Sand | Gs | B | 100 | 0.78 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 0.78 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Gs | | 98 | | 98 | 0.11 | 98 | | 98 | | 98 | 0.11 | 10.78 |
| 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 | | 0.00 | | 0.11 | | 0.00 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland/SWMF | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Gs | 0.00 | 60 | 0.78 | 65 | 0.00 | 50 | 0.00 | | 0.00 | | 0.78 | 50.70 |
| 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 Area | 0.00 | | 0.78 | | 0.00 | | 0.00 | | 0.00 | | | |

| Composite Area Calculations | | |
|---|---|---|
| | Total Pervious Area | 0.78 |
| | Total Impervious Area | 0.11 |
| | % Impervious | 14.1% |
| | **Composite Curve Number** | **78.8** |
| | Total Area Check | 0.89 |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Granby Sand | | 0 | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.00 | 0.00 | 0.25 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Meadow | 8 | 0.78 | 6.24 | 0.28 | 0.78 | | 0 | | 0 | | 0 | 0.22 |
| Wetland/SWM | 12 | 0.00 | 0.00 | 0.05 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.00 | 0.00 | 0.15 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.11 | 0.22 | 0.95 | 0.11 | | 0 | | 0 | | 0 | 0.10 |
| **Composite IA** | | 0.89 | **7.26** | Composite Runoff Coefficient | | | | | | | | 0.41 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **420** | **4.1** | 0.98% | | | | | | 0.41 | 0.28 | 0.77 | 0.52 |

| Appropriate calculated time to peak: | **0.52** | Appropriate Method: | Bransby Williams |
|---|---|---|---|

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 2A**
Project Number: 1046-4031 **D.A. AREA (ha)** **1.19**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST 2A**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Waterloo Sandy Loam | Wsl | A | 100 | 1.19 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 1.19 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | | 98 | | 98 | | 98 | | 98 | | 98 | 0.00 | 0.00 |
| 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 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | 0.95 | 32 | 0.24 | 38 | 0.00 | | 0.00 | | 0.00 | | 1.19 | 39.51 |
| 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 Area | 0.95 | | 0.24 | | 0.00 | | 0.00 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| | Composite Area Calculations | Total Pervious Area | 1.19 |
| | | Total Impervious Area | 0.00 |
| | | % Impervious | 0.0% |
| | | **Composite Curve Number** | **33.2** |
| | | Total Area Check | 1.19 |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Waterloo Sandy | | 0 | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.95 | 9.52 | 0.12 | 0.95 | | 0 | | 0 | | 0 | 0.11 |
| Meadow | 8 | 0.24 | 1.90 | 0.10 | 0.24 | | 0 | | 0 | | 0 | 0.02 |
| Wetland | 12 | 0.00 | 0.00 | 0.05 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.00 | 0.00 | | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.00 | 0.00 | 0.95 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| **Composite IA** | | 1.19 | **9.60** | Composite Runoff Coefficient | | | | | | | | 0.12 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **101** | **18.9** | 18.71% | | | | | | 0.05 | 0.04 | 0.20 | 0.14 |

| | | | |
|---|---|---|---|
| Appropriate calculated time to peak: | **0.14** | Appropriate Method: | Airport |

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Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 2B**
Project Number: 1046-4031 **D.A. AREA (ha)** **1.67**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST 2B**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Waterloo Sandy Loam | Wsl | A | 100 | 1.67 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 1.67 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | | 98 | | 98 | | 98 | | 98 | | 98 | 0.00 | 0.00 |
| 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 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | 0.92 | 32 | 0.75 | 38 | 0.00 | | 0.00 | | 0.00 | | 1.67 | 57.95 |
| 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 Area | 0.92 | | 0.75 | | 0.00 | | 0.00 | | 0.00 | | | |

| Composite Area Calculations | | |
|---|---|---|
| | Total Pervious Area | 1.67 |
| | Total Impervious Area | 0.00 |
| | % Impervious | 0.0% |
| | **Composite Curve Number** | **34.7** |
| | Total Area Check | 1.67 |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Waterloo Sandy | | 0 | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.92 | 9.19 | 0.12 | 0.92 | | 0 | | 0 | | 0 | 0.11 |
| Meadow | 8 | 0.75 | 6.01 | 0.10 | 0.75 | | 0 | | 0 | | 0 | 0.08 |
| Wetland | 12 | 0.00 | 0.00 | 0.05 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.00 | 0.00 | | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.00 | 0.00 | 0.95 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| **Composite IA** | | 1.67 | **9.10** | Composite Runoff Coefficient | | | | | | | | 0.11 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **150** | **4** | 2.67% | | | | | | 0.11 | 0.07 | 0.48 | 0.32 |

| Appropriate calculated time to peak: | **0.32** | Appropriate Method: | Airport |
|---|---|---|---|

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Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 2C**
Project Number: 1046-4031 **D.A. AREA (ha)** **1.96**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: STANDHYD Command**
**Post Development Drainage Area: POST 2C**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Waterloo Sandy Loam | Wsl | A | 100 | 1.96 |
| | | | | 0.00 |
| | | | | 0.00 |
| | | | | 0.00 |
| Total Area Check | | | | 1.96 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | 0.47 | 98 | | 98 | 0.12 | 98 | 0.59 | 98 | | 98 | 1.18 | 115.25 |
| 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 | | 0.12 | | 0.59 | | 0 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | 0 | | 0 | | 0 | | 0.78 | 49 | 0 | | 0.78 | 38.42 |
| 0 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0.00 |
| 0 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0.00 |
| 0 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0.00 |
| Subtotal Area | 0 | | 0 | | 0 | | 0.78 | | 0 | | | |

| | | | |
|---|---|---|---|
| | Pervious Area Calculations | Total Pervious Area | 0.78 |
| | | **Composite Pervious Curve Number** | **49.0** |
| | Impervious Area Calculations | Total Directly Connected Area | 0.59 |
| | | Total Indirectly Connected Area | 0.59 |
| | | Total Impervious Area | 1.18 |
| | | **% X imp** | **30.0** |
| | | **% T imp** | **60.0** |
| | | Total Area Check | 1.96 |

**Initial Abstraction and Hydraulics Calculations**

| Landuse | IA (mm) | Area (ha) | A * IA |
|---|---|---|---|
| Woodland | 10 | 0 | 0 |
| Meadow | 8 | 0 | 0 |
| Wetland | 16 | 0 | 0 |
| Lawn | 5 | 0.78 | 3.92 |
| Cultivated | 7 | 0 | 0 |

| Land Use | IA (mm) | Slope (%) | Travel Length (m) | Manning's n |
|---|---|---|---|---|
| Pervious | **5.0** | **2.0** | **30** | **0.250** |
| Impervious | **2.0** | **1.0** | **114** | **0.013** |

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 2D**
Project Number: 1046-4031 **D.A. AREA (ha)** **3.28**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: STANDHYD Command**
**Post Development Drainage Area: POST 2D**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Granby Sand | Gs | B | 50 | 1.64 |
| Waterloo sandy loam | Wsl | A | 50 | 1.64 |
| | | | | 0.00 |
| | | | | 0.00 |
| Total Area Check | | | | 3.28 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Gs | 0.30 | 98 | | 98 | 0.11 | 98 | 0.40 | 98 | | 98 | 0.82 | 79.92 |
| Wsl | 0.30 | 98 | | 98 | 0.11 | 98 | 0.40 | 98 | | 98 | 1 | 80 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| 0 | | 98 | | 98 | | 98 | | 98 | | 98 | 0 | 0 |
| Subtotal Area | 0.60 | | 0 | | 0.23 | | 0.80 | | 0 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Gs | 0 | | 0 | | 0 | | 0.82 | 69 | 0 | | 0.82 | 56.89 |
| Wsl | 0 | | 0 | | 0 | | 0.82 | 49 | 0 | | 0.82 | 40.40 |
| 0 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0.00 |
| 0 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0.00 |
| Subtotal Area | 0 | | 0 | | 0 | | 1.65 | | 0 | | | |

| | | | |
|---|---|---|---|
| Pervious Area Calculations | Total Pervious Area | | 1.65 |
| | **Composite Pervious Curve Number** | | **59.0** |
| Impervious Area Calculations | Total Directly Connected Area | | 0.83 |
| | Total Indirectly Connected Area | | 0.80 |
| | Total Impervious Area | | 1.63 |
| | **% X imp** | | **25.3** |
| | **% T imp** | | **49.7** |
| | Total Area Check | | 3.28 |

**Initial Abstraction and Hydraulics Calculations**

| Landuse | IA (mm) | Area (ha) | A * IA |
|---|---|---|---|
| Woodland | 10 | 0 | 0 |
| Meadow | 8 | 0 | 0 |
| Wetland | 16 | 0 | 0 |
| Lawn | 5 | 1.649 | 8.245 |
| Cultivated | 7 | 0 | 0 |

| Land Use | IA (mm) | Slope (%) | Travel Length (m) | Manning's n |
|---|---|---|---|---|
| Pervious | **5.0** | **2.0** | **30** | **0.250** |
| Impervious | **2.0** | **1.0** | **148** | **0.013** |

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 2E**
Project Number: 1046-4031 **D.A. AREA (ha)** **1.49**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: STANDHYD Command**
**Post Development Drainage Area: POST 2E**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Granby Sand | Gs | B | 100 | 1.49 |
| | | | | 0.00 |
| | | | | 0.00 |
| | | | | 0.00 |
| Total Area Check | | | | 1.49 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Gs | | 98 | | 98 | | 98 | 0.08 | 98 | 0.55 | 98 | 0.631 | 61.86 |
| 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 | | 0 | | 0 | | 0.08 | | 0.55 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Gs | 0 | | 0 | | 0 | | 0.86 | 69 | 0 | | 0.86 | 59.25 |
| 0 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0.00 |
| 0 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0.00 |
| 0 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0.00 |
| Subtotal Area | 0 | | 0 | | 0 | | 0.86 | | 0 | | | |

| | | | |
|---|---|---|---|
| | Pervious Area Calculations | Total Pervious Area | 0.86 |
| | | **Composite Pervious Curve Number** | **69.0** |
| | Impervious Area Calculations | Total Directly Connected Area | 0.55 |
| | | Total Indirectly Connected Area | 0.08 |
| | | Total Impervious Area | 0.63 |
| | | **% X imp** | **36.8** |
| | | **% T imp** | **42.4** |
| | | Total Area Check | 1.49 |

**Initial Abstraction and Hydraulics Calculations**

| Landuse | IA (mm) | Area (ha) | A * IA |
|---|---|---|---|
| Woodland | 10 | 0 | 0 |
| Meadow | 8 | 0 | 0 |
| Wetland | 16 | 0 | 0 |
| Lawn | 5 | 0.86 | 4.29 |
| Cultivated | 7 | 0 | 0 |

| Land Use | IA (mm) | Slope (%) | Travel Length (m) | Manning's n |
|---|---|---|---|---|
| Pervious | **5.0** | **2.0** | **30** | **0.250** |
| Impervious | **2.0** | **2.0** | **100** | **0.013** |

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 8A**
Project Number: 1046-4031 **D.A. AREA (ha)** **2.27**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST 8A**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Waterloo Sandy Loam | Wsl | A | 100 | 2.27 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 2.27 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | | 98 | | 98 | | 98 | | 98 | | 98 | 0.00 | 0.00 |
| 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 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland/SWMF | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | 0.68 | 32 | 1.59 | 38 | 0.00 | 50 | 0.00 | 49 | 0.00 | | 2.27 | 82.17 |
| 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 Area | 0.68 | | 1.59 | | 0.00 | | 0.00 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| | Composite Area Calculations | Total Pervious Area | 2.27 |
| | | Total Impervious Area | 0.00 |
| | | % Impervious | 0.0% |
| | | **Composite Curve Number** | **36.2** |
| | | Total Area Check | 2.27 |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Waterloo Sandy | | 0 | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.68 | 6.81 | 0.27 | 0.68 | | 0 | | 0 | | 0 | 0.18 |
| Meadow | 8 | 1.59 | 12.71 | 0.30 | 1.59 | | 0 | | 0 | | 0 | 0.48 |
| Wetland/SWM | 12 | 0.00 | 0.00 | 0.05 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.00 | 0.00 | | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.00 | 0.00 | 0.95 | 0.00 | | 0 | | 0 | | 0 | 0.00 |
| **Composite IA** | | 2.27 | **8.60** | Composite Runoff Coefficient | | | | | | | | 0.29 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **180** | **7.5** | 4.17% | | | | | | 0.14 | 0.10 | 0.34 | 0.23 |
| | **75** | **15** | 20.00% | | | | | | | | | |

| Appropriate calculated time to peak: | **0.23** | Appropriate Method: | Airport |
|---|---|---|---|

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design_2019 Detailed Design 2nd Sub\SWM\Hydrology\Hydrologic Parameters\2018.09.17_Post Development Parameters

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST 8B**
Project Number: 1046-4031 **D.A. AREA (ha)** **0.60**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST 8B**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Granby Sand | Gs | B | 100 | 0.60 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 0.6 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Gs | | 98 | | 98 | | 98 | 0.10 | 98 | | 98 | 0.10 | 9.76 |
| 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 | | 0.00 | | 0.00 | | 0.10 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland/SWMF | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Gs | 0.00 | 60 | 0.25 | 65 | 0.00 | 50 | 0.25 | 69 | 0.00 | | 0.50 | 33.53 |
| 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 Area | 0.00 | | 0.25 | | 0.00 | | 0.25 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| | Composite Area Calculations | Total Pervious Area | 0.50 |
| | | Total Impervious Area | 0.10 |
| | | % Impervious | 16.6% |
| | | **Composite Curve Number** | **72.1** |
| | | Total Area Check | 0.60 |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Granby Sand | | 0 | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 0.00 | 0.00 | 0.25 | 0.00 | 0.08 | 0.00 | | 0 | | 0 | 0.00 |
| Meadow | 8 | 0.25 | 2.00 | 0.28 | 0.25 | 0.10 | 0.00 | | 0 | | 0 | 0.07 |
| Wetland/SWM | 12 | 0.00 | 0.00 | 0.05 | 0.00 | 0.05 | 0.00 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.25 | 1.25 | 0.10 | 0.25 | 0.10 | 0.00 | | 0 | | 0 | 0.03 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.10 | 0.20 | 0.95 | 0.10 | 0.95 | 0.00 | | 0 | | 0 | 0.09 |
| **Composite IA** | | 0.60 | **5.75** | Composite Runoff Coefficient | | | | | | | | 0.32 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **210** | **2.2** | 1.05% | | | | | | 0.21 | 0.14 | 0.61 | 0.41 |

| Appropriate calculated time to peak: | **0.41** | Appropriate Method: | Airport |
|---|---|---|---|

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design_2019 Detailed Design 2nd Sub\SWM\Hydrology\Hydrologic Parameters\2018.09.17_Post Development Parameters

Project Name: PARKBRIDGE CRAIGLEITH **D.A. NAME** **POST EXT-8A**
Project Number: 1046-4031 **D.A. AREA (ha)** **7.14**
Date: 2018-09-17
By: JE

**Hydrologic Parameters: NASHYD Command**
**Post Development Drainage Area: POST EXT-8A**

**Curve Number Calculation**

| Soil Types Present: | | | | |
|---|---|---|---|---|
| Type | ID | Hydrologic Group | % Area | Area |
| Waterloo sandy loam | Wsl | A | 15 | 1.07 |
| Kemble silty clay | Ksc | C | 85 | 6.07 |
| | | | | 0 |
| | | | | 0 |
| Total Area | | | | 7.14 |

| Impervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roadway | | Sidewalk | | Driveway | | Building | | SWMF | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | | 98 | | 98 | | 98 | | 98 | | 98 | 0.00 | 0.00 |
| Ksc | | 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 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | | |

| Pervious Landuses Present: | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Woodland | | Meadow | | Wetland/SWMF | | Lawn | | Cultivated | | Subtotals | |
| Soils | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area (ha) | CN | Area | A*CN |
| Wsl | 0.43 | 32 | 0.64 | 38 | 0.00 | 50 | 0.00 | | 0.00 | | 1.07 | 38.13 |
| Ksc | 2.43 | 73 | 3.64 | 76 | 0.00 | | 0.00 | | 0.00 | | 6.07 | 453.96 |
| 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 Area | 2.86 | | 4.28 | | 0.00 | | 0.00 | | 0.00 | | | |

| | | | |
|---|---|---|---|
| | Composite Area Calculations | Total Pervious Area | 7.14 |
| | | Total Impervious Area | 0.00 |
| | | % Impervious | 0.0% |
| | | **Composite Curve Number** | **68.9** |
| | | Total Area Check | 7.14 |

**Initial Abstraction and Hydraulics Calculations**

| Initial Abstraction | | | | Composite Runoff Coefficient | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landuse | IA (mm) | Area (ha) | A * IA | Waterloo sandy | | Kemble silty clay | | 0 | | 0 | | |
| | | | | RC | Area | RC | Area | RC | Area | RC | Area | A*RC |
| Woodland | 10 | 2.86 | 28.56 | 0.08 | 0.43 | 0.35 | 2.43 | | 0 | | 0 | 0.88 |
| Meadow | 8 | 4.28 | 34.27 | 0.10 | 0.64 | 0.40 | 3.64 | | 0 | | 0 | 1.52 |
| Wetland/SWM | 12 | 0.00 | 0.00 | 0.05 | 0.00 | | 0.00 | | 0 | | 0 | 0.00 |
| Lawn | 5 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0 | | 0 | 0.00 |
| Cultivated | 7 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0 | | 0 | 0.00 |
| Impervious | 2 | 0.00 | 0.00 | 0.95 | 0.00 | | 0.00 | | 0 | | 0 | 0.00 |
| **Composite IA** | | 7.14 | **8.80** | Composite Runoff Coefficient | | | | | | | | 0.34 |

| Time to Peak Inputs | | | | | | Uplands | | | Bransby Williams | | Airport | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Path Description | Length (m) | Drop (m) | Slope (%) | $V/S^{0.5}$ | Velocity (m/s) | Tc (hr) | Tp(hr) | TOTAL Tp (hr) | Tc (hr) | Tp(hr) | Tc (hr) | Tp(hr) |
| | **650** | **18.5** | 2.85% | | | | | | 0.40 | 0.27 | 0.66 | 0.44 |
| | 60 | 16 | 26.67% | | | | | | | | | |

| Appropriate calculated time to peak: | **0.44** | Appropriate Method: | Airport |
|---|---|---|---|

```
00001> 2     Metric units
00002> *#************************************************************************
00003> *#  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00004> *#  Date        : 2018-09-19
00005> *#  Modeller    : [OD,BD,BH,JE - ADAPTED FROM NM 2009 MODEL]
00006> *#  Company     : C.F. Crozier & Associates Inc.
00007> *#  License #   : 3737016
00008> *#************************************************************************
00009> START              TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[1]
00010> *%                   ["2yr.stm"] <--storm filename, one per line for NSTORM time
00011> *#************************************************************************
00012> *%-----------------|-------------------------------------------------------|
00013> READ STORM          STORM_FILENAME=["STORM.001"]
00014> *%-----------------|-------------------------------------------------------|
00015> *%-----------------|-------------------------------------------------------|
00016> *#-----------------|-------------------------------------------------------|
00017> *#-----------------|-PRE-DEVELOPMENT---------------------------------------|
00018> *#-----------------|-------------------------------------------------------|
00019> *#-----------------|-------------------------------------------------------|
00020> *#-----------------|-Subwatershed 9 External Drainage Area-----------------|
00021> *#-----------------|-Per 'The Orchards' FSSWM Report-----------------------|
00022> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)-----------|
00023> *#-'EXT-9A' Total Area 11.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00024> *#-----------------|-------------------------------------------------------|
00025> *%-----------------|-------------------------------------------------------|
00026> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00027>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00028>                     N=[3], TP=[1.00]hrs,
00029>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00030> *%-----------------|-------------------------------------------------------|
00031> ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
00032>                     RDT=[1](min),
00033>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00034>                                       FPSLOPE=[2](%),
00035>                     SECNUM=[1],       NSEG=[3]
00036>                     ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
00037>                     ( DISTANCE (m), ELEVATION (m))= [0,102]
00038>                                                     [8,100]
00039>                                                     [12,100]
00040>                                                     [20,102]
00041> *%-----------------|-------------------------------------------------------|
00042> CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00043>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00044>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00045>                             DCAY=[2](/hr), F=[0](mm),
00046>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00047>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00048>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00049>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00050>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00051> *%-----------------|-------------------------------------------------------|
00052> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00053>                     RDT=[1](min),
00054>                          TABLE of ( OUTFLOW-STORAGE ) values
00055>                                     (cms) - (ha-m)
00056>                                   [   0.0 ,  0.0 ]
00057>                                   [   0.0100 ,  0.0610 ]
00058>                                   [   0.0400 ,  0.1310 ]
00059>                                   [   0.0700 ,  0.2110 ]
00060>                                   [   0.2600 ,  0.3000 ]
00061>                                   [   0.6000 ,  0.3940 ]
00062>                                   [   1.0200 ,  0.4950 ]
00063>                                   [   1.5200 ,  0.6020 ]
00064>                                   [   2.0800 ,  0.7160 ]
00065>                                   [   2.6900 ,  0.8370 ]
00066>                                   [   -1  ,  -1  ]  (max twenty pts)
00067>                          IDovf=[   ], NHYDovf=[   ]
00068> *%-----------------|-------------------------------------------------------|
00069> *#-----------------|-------------------------------------------------------|
00070> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-----|
00071> *#-----------------|-------------------------------------------------------|
00072> *%-----------------|-------------------------------------------------------|
00073> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00074> *%-----------------|-------------------------------------------------------|
00075> *#-----------------|-------------------------------------------------------|
00076> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands-----------|
00077> *#-----------------|-------------------------------------------------------|
00078> *%-----------------|-------------------------------------------------------|
00079> CALIB NASHYD       ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
00080>                     DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
00081>                     N=[3], TP=[0.37]hrs,
00082>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00083> *%-----------------|-------------------------------------------------------|
00084> CALIB NASHYD       ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
00085>                     DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
00086>                     N=[3], TP=[1.09]hrs,
00087>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00088> *%-----------------|-------------------------------------------------------|
00089> ADD HYD            IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00090> *%-----------------|-------------------------------------------------------|
00091> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00092>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00093>                     N=[3], TP=[0.14]hrs,
00094>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00095> *%-----------------|-------------------------------------------------------|
00096> CALIB NASHYD       ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00097>                     DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00098>                     N=[3], TP=[0.15]hrs,
00099>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00100> *%-----------------|-------------------------------------------------------|
00101> *#-----------------|-------------------------------------------------------|
00102> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00103> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00104> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00105> *#-----------------|-------------------------------------------------------|
00106> *%-----------------|-------------------------------------------------------|
00107> ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00108>                     RDT=[1](min),
00109>                          TABLE of ( OUTFLOW-STORAGE ) values
00110>                                     (cms) - (ha-m)
00111>                                   [   0.0 ,  0.0 ]
00112>                                   [   0.00 ,  0.479 ]
00113>                                   [   0.00 ,  1.249 ]
00114>                                   [   -1  ,  -1  ]  (max twenty pts)
00115>                          IDovf=[   ], NHYDovf=[   ]
00116> *%-----------------|-------------------------------------------------------|
00117> ADD HYD            IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
00118> *%-----------------|-------------------------------------------------------|
00119> *#-----------------|-------------------------------------------------------|
00120> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands-----------|
00121> *#-----------------|-------------------------------------------------------|
00122> *%-----------------|-------------------------------------------------------|
00123> CALIB NASHYD       ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
00124>                     DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
00125>                     N=[3], TP=[0.48]hrs,
00126>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00127> *%-----------------|-------------------------------------------------------|
00128> CALIB NASHYD       ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
00129>                     DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
00130>                     N=[3], TP=[0.71]hrs,
00131>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00132> *%-----------------|-------------------------------------------------------|
00133> *#-----------------|-------------------------------------------------------|
00134> *#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
00135> *#-----------------|-------------------------------------------------------|
00136> *%-----------------|-------------------------------------------------------|
00137> ADD HYD            IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
00138> *%-----------------|-------------------------------------------------------|
00139> SAVE HYD           ID=[1],   # OF PCYCLES=[10],  ICASESh=[1]
00140>                     HYD_COMMENT=["PRE Lakeshore Road Hydrograph"]
00141> *%-----------------|-------------------------------------------------------|
00142> *%-----------------|-------------------------------------------------------|
00143> START              TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[2]
00144> *                  ["5yr.stm"] <--storm filename, one per line for NSTORM time
00145> *%-----------------|-------------------------------------------------------|
00146> *%-----------------|-------------------------------------------------------|
00147> START              TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[3]
00148> *                  ["10yr.stm"] <--storm filename, one per line for NSTORM time
00149> *%-----------------|-------------------------------------------------------|
00150> *%-----------------|-------------------------------------------------------|
00151> START              TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[4]
00152> *                  ["25yr.stm"] <--storm filename, one per line for NSTORM time
00153> *%-----------------|-------------------------------------------------------|
00154> *%-----------------|-------------------------------------------------------|
00155> START              TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[5]
00156> *                  ["50yr.stm"] <--storm filename, one per line for NSTORM time
00157> *%-----------------|-------------------------------------------------------|
00158> *%-----------------|-------------------------------------------------------|
00159> START              TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[6]
00160> *                  ["100yr.stm"] <--storm filename, one per line for NSTORM tim
00161> *%-----------------|-------------------------------------------------------|
00162> *%-----------------|-------------------------------------------------------|
00163> START              TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[7]
00164> *                  ["tim.stm"] <--storm filename, one per line for NSTORM time
00165> *%-----------------|-------------------------------------------------------|
00166> FINISH
00167>
00168>
00169>
00170>
00171>
```

```
 ================================================================================
 SSSSS   W   W   M   M   H   H   Y   Y   M   M    OOO        222     000    11   77777 =========
 S       W W W   MM MM   H   H    Y Y    MM MM   O   O         2   0   0   11   7   7
 SSSSS   W W W   M M M   HHHHH     Y     M M M   O   O         2   0   0   11       7 Ver4.05.0
     S    W W    M   M   H   H     Y     M   M   O   O    222    0   0   11      7  APR 2017
 SSSSS     W W    M   M   H   H     Y     M   M    OOO     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: 2020-06-10     TIME: 14:02:16     RUN COUNTER: 000001          *
 ********************************************************************************
 * Input   file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2019 SWM*
 *                HYMO\KCpond\PRE_KCHU.dat                                                *
 * Output  file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2019 SWM*
 *                HYMO\KCpond\PRE_KCHU.out                                                *
 * Summary file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2019 SWM*
 *                HYMO\KCpond\PRE_KCHU.sum                                                *
 * User comments:                                                                         *
 * 1:_____________________________________________________________________________________*
 * 2:_____________________________________________________________________________________*
 * 3:_____________________________________________________________________________________*
 ********************************************************************************


 #*******************************************************************************
 #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
 #  Date        : 2018-09-19
 #  Modeller    : [OD,BD,BH,JE - ADAPTED FROM NM 2009 MODEL]
 #  Company     : C.F. Crozier & Associates Inc.
 #  License #   : 3737016
 #*******************************************************************************
  RUN#:COMMAND#
 R0001:C00001------------------------------------------------------------------------------------------------------------
       START
          [TZERO =    .00 hrs on       0]
          [METOUT=   2   (1=imperial, 2=metric output)]
          [NSTORM=   1 ]
          [NRUN  = 0001 ]
 #*******************************************************************************
 R0001: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-----------------------------------------------|
 #-----------------|-------------------------------------------------------------|
 #-----------------|-Subwatershed 9 External Drainage Area-------------------------|
 #-----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
 #-----------------|-Prepared by Higgins Engineering (Jan. 2005)-------------------|
 #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
 #-----------------|-------------------------------------------------------------|
 R0001:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 01:EXT-9A       101.80    1.200 No_date    3:51   11.23 .296     .000
        [CN= 80.0: N= 3.00: Tp= 1.00]
 R0001:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ROUTE CHANNEL    ->     1.0 01:EXT-9A       101.80    1.200 No_date    3:51   11.23  n/a     .000
        [RDT= 1.00] out<-      1.0 02:Channel      101.80    1.195 No_date    3:54   11.23  n/a     .000
          [L/S/n=  550./2.000/.035]
          {Vmax= 1.224:Dmax=  .193}
 R0001:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB STANDHYD          1.0 03:EXT-9B        14.80     .439 No_date    3:01   15.55 .410     .000
        [XIMP=.35:TIMP=.35]
        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
        [Pervious   area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
 R0001:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ROUTE RESERVOIR ->      1.0 03:EXT-9B        14.80     .439 No_date    3:01   15.55  n/a     .000
                    out <=    1.0 04:Orchards      14.80     .439 No_date    4:13   15.55  n/a     .000
        {MxStoUsed=.1807E+00  m3}
 #-----------------|-------------------------------------------------------------|
 #-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-------------|
 #-----------------|-------------------------------------------------------------|
 R0001:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ADD HYD                 1.0 02:Channel      101.80    1.195 No_date    3:54   11.23  n/a     .000
                         +    1.0 04:Orchards      14.80     .059 No_date    4:13   15.55  n/a     .000
                    SUM=      1.0 05:RD19         116.60    1.253 No_date    3:54   11.78  n/a     .000
 #-----------------|-------------------------------------------------------------|
 #-----------------|-Parkbridge Craigleith - Upper Terrace Lands-------------------|
 #-----------------|-------------------------------------------------------------|
 R0001:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 01:9A            2.57     .015 No_date    3:12    2.90 .076     .000
        [CN= 48.4: N= 3.00: Tp=  .37]
 R0001:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 02:9B           11.63     .068 No_date    4:04    6.10 .161     .000
        [CN= 68.5: N= 3.00: Tp= 1.09]
 R0001:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ADD HYD                 1.0 01:9A            2.57     .015 No_date    3:12    2.90  n/a     .000
                         +    1.0 02:9B           11.63     .068 No_date    4:04    6.10  n/a     .000
                    SUM=      1.0 10:9A9B         14.20     .073 No_date    3:59    5.52  n/a     .000
 R0001:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 01:9C            1.19     .005 No_date    3:02    1.48 .039     .000
        [CN= 33.2: N= 3.00: Tp=  .14]
 R0001:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 02:9D            2.02     .013 No_date    3:02    2.32 .061     .000
        [CN= 41.9: N= 3.00: Tp=  .15]
 #-----------------|-------------------------------------------------------------|
 #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
 #-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
 #-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
 #-----------------|-------------------------------------------------------------|
 R0001:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ROUTE RESERVOIR ->      1.0 02:9D            2.02     .013 No_date    3:02    2.32  n/a     .000
                    out <=    1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
        {MxStoUsed=.4693E-02  m3}
 R0001:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ADD HYD                 1.0 01:9C            1.19     .005 No_date    3:02    1.48  n/a     .000
                         +    1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
                    SUM=      1.0 09:9C9D          3.21     .005 No_date    3:02     .55  n/a     .000
 #-----------------|-------------------------------------------------------------|
 #-----------------|-Parkbridge Craigleith - Lower Terrace Lands-------------------|
 #-----------------|-------------------------------------------------------------|
 R0001:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 07:9E            7.60     .035 No_date    3:18    2.71 .072     .000
        [CN= 47.1: N= 3.00: Tp=  .48]
 R0001:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 08:9F            3.35     .013 No_date    3:34    3.11 .082     .000
        [CN= 50.4: N= 3.00: Tp=  .71]
 #-----------------|-------------------------------------------------------------|
 #-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD---------------|
 #-----------------|-------------------------------------------------------------|
 R0001:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ADD HYD                 1.0 05:RD19         116.60    1.253 No_date    3:54   11.78  n/a     .000
                         +    1.0 10:9A9B          14.20     .073 No_date    3:59    5.52  n/a     .000
                         +    1.0 09:9C9D           3.21     .005 No_date    3:02     .55  n/a     .000
                         +    1.0 07:9E             7.60     .035 No_date    3:18    2.71  n/a     .000
                         +    1.0 08:9F             3.35     .013 No_date    3:34    3.11  n/a     .000
                    SUM=      1.0 01:WC9LS        144.96    1.361 No_date    3:53   10.24  n/a     .000
 R0001:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      SAVE HYD                1.0 01:WC9LS        144.96    1.361 No_date    3:53   10.24  n/a     .000
        fname :WC9LS.0001
        remark:PRE Lakeshore Road Hydrograph
  ** END OF RUN :    1
 ********************************************************************************
```

```
 #*******************************************************************************
 #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
 #  Date        : 2018-09-19
 #  Modeller    : [OD,BD,BH,JE - ADAPTED FROM NM 2009 MODEL]
 #  Company     : C.F. Crozier & Associates Inc.
 #  License #   : 3737016
 #*******************************************************************************
  RUN#:COMMAND#
 R0002:C00001------------------------------------------------------------------------------------------------------------
       START
          [TZERO =    .00 hrs on       0]
          [METOUT=   2   (1=imperial, 2=metric output)]
          [NSTORM=   1 ]
          [NRUN  = 0002 ]
 #*******************************************************************************
 R0002: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-----------------------------------------------|
 #-----------------|-------------------------------------------------------------|
 #-----------------|-Subwatershed 9 External Drainage Area-------------------------|
 #-----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
 #-----------------|-Prepared by Higgins Engineering (Jan. 2005)-------------------|
 #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
 #-----------------|-------------------------------------------------------------|
 R0002:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 01:EXT-9A       101.80    2.169 No_date    3:49   20.46 .388     .000
        [CN= 80.0: N= 3.00: Tp= 1.00]
 R0002:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ROUTE CHANNEL    ->     1.0 01:EXT-9A       101.80    2.169 No_date    3:49   20.46  n/a     .000
        [RDT= 1.00] out<-      1.0 02:Channel      101.80    2.160 No_date    3:53   20.46  n/a     .000
          [L/S/n=  550./2.000/.035]
          {Vmax= 1.515:Dmax=  .268}
 R0002:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB STANDHYD          1.0 03:EXT-9B        14.80     .867 No_date    3:01   26.69 .506     .000
        [XIMP=.35:TIMP=.35]
        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
        [Pervious   area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
 R0002:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ROUTE RESERVOIR ->      1.0 03:EXT-9B        14.80     .867 No_date    3:01   26.69  n/a     .000
                    out <=    1.0 04:Orchards      14.80     .226 No_date    3:36   26.69  n/a     .000
        {MxStoUsed=.2842E+00  m3}
 #-----------------|-------------------------------------------------------------|
 #-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-------------|
 #-----------------|-------------------------------------------------------------|
 R0002:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ADD HYD                 1.0 02:Channel      101.80    2.160 No_date    3:53   20.46  n/a     .000
                         +    1.0 04:Orchards      14.80     .226 No_date    3:36   26.69  n/a     .000
                    SUM=      1.0 05:RD19         116.60    2.377 No_date    3:51   21.25  n/a     .000
 #-----------------|-------------------------------------------------------------|
 #-----------------|-Parkbridge Craigleith - Upper Terrace Lands-------------------|
 #-----------------|-------------------------------------------------------------|
 R0002:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 01:9A            2.57     .031 No_date    3:11    6.23 .118     .000
        [CN= 48.4: N= 3.00: Tp=  .37]
 R0002:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 02:9B           11.63     .137 No_date    4:01   12.38 .235     .000
        [CN= 68.5: N= 3.00: Tp= 1.09]
 R0002:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ADD HYD                 1.0 01:9A            2.57     .031 No_date    3:11    6.23  n/a     .000
                         +    1.0 02:9B           11.63     .137 No_date    4:01   12.38  n/a     .000
                    SUM=      1.0 10:9A9B         14.20     .149 No_date    3:54   11.27  n/a     .000
 R0002:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 01:9C            1.19     .011 No_date    3:02    3.35 .064     .000
        [CN= 33.2: N= 3.00: Tp=  .14]
 R0002:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 02:9D            2.02     .027 No_date    3:02    5.01 .095     .000
        [CN= 41.9: N= 3.00: Tp=  .15]
 #-----------------|-------------------------------------------------------------|
 #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
 #-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
 #-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
 #-----------------|-------------------------------------------------------------|
 R0002:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ROUTE RESERVOIR ->      1.0 02:9D            2.02     .027 No_date    3:02    5.01  n/a     .000
                    out <=    1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
        {MxStoUsed=.1012E-01  m3}
 R0002:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ADD HYD                 1.0 01:9C            1.19     .011 No_date    3:02    3.35  n/a     .000
                         +    1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
                    SUM=      1.0 09:9C9D          3.21     .011 No_date    3:02    1.24  n/a     .000
 #-----------------|-------------------------------------------------------------|
 #-----------------|-Parkbridge Craigleith - Lower Terrace Lands-------------------|
 #-----------------|-------------------------------------------------------------|
 R0002:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 07:9E            7.60     .074 No_date    3:17    5.88 .112     .000
        [CN= 47.1: N= 3.00: Tp=  .48]
 R0002:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 08:9F            3.35     .028 No_date    3:32    6.67 .127     .000
        [CN= 50.4: N= 3.00: Tp=  .71]
 #-----------------|-------------------------------------------------------------|
 #-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD---------------|
 #-----------------|-------------------------------------------------------------|
 R0002:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ADD HYD                 1.0 05:RD19         116.60    2.377 No_date    3:51   21.25  n/a     .000
                         +    1.0 10:9A9B          14.20     .149 No_date    3:54   11.27  n/a     .000
                         +    1.0 09:9C9D           3.21     .011 No_date    3:02    1.24  n/a     .000
                         +    1.0 07:9E             7.60     .074 No_date    3:17    5.88  n/a     .000
                         +    1.0 08:9F             3.35     .028 No_date    3:32    6.67  n/a     .000
                    SUM=      1.0 01:WC9LS        144.96    2.601 No_date    3:50   18.69  n/a     .000
 R0002:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      SAVE HYD                1.0 01:WC9LS        144.96    2.601 No_date    3:50   18.69  n/a     .000
        fname :WC9LS.0002
        remark:PRE Lakeshore Road Hydrograph
  ** END OF RUN :    2
 ********************************************************************************
```

```
 #*******************************************************************************
 #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
 #  Date        : 2018-09-19
 #  Modeller    : [OD,BD,BH,JE - ADAPTED FROM NM 2009 MODEL]
 #  Company     : C.F. Crozier & Associates Inc.
 #  License #   : 3737016
 #*******************************************************************************
  RUN#:COMMAND#
 R0003:C00001------------------------------------------------------------------------------------------------------------
       START
          [TZERO =    .00 hrs on       0]
          [METOUT=   2   (1=imperial, 2=metric output)]
          [NSTORM=   1 ]
          [NRUN  = 0003 ]
 #*******************************************************************************
 R0003: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-----------------------------------------------|
 #-----------------|-------------------------------------------------------------|
 #-----------------|-Subwatershed 9 External Drainage Area-------------------------|
 #-----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
 #-----------------|-Prepared by Higgins Engineering (Jan. 2005)-------------------|
 #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
 #-----------------|-------------------------------------------------------------|
 R0003:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB NASHYD            1.0 01:EXT-9A       101.80    3.210 No_date    3:47   29.89 .453     .000
        [CN= 80.0: N= 3.00: Tp= 1.00]
 R0003:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      ROUTE CHANNEL    ->     1.0 01:EXT-9A       101.80    3.210 No_date    3:47   29.89  n/a     .000
        [RDT= 1.00] out<-      1.0 02:Channel      101.80    3.198 No_date    3:51   29.89  n/a     .000
          [L/S/n=  550./2.000/.035]
          {Vmax= 1.754:Dmax=  .336}
 R0003:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
      CALIB STANDHYD          1.0 03:EXT-9B        14.80    1.268 No_date    3:01   37.69 .571     .000
        [XIMP=.35:TIMP=.35]
        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
        [Pervious   area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
```

```
00329>       [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00330> R0003:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00331>      ROUTE RESERVOIR ->    1.0 03:EXT-9B        14.80    1.268 No_date    3:01   37.69  n/a     .000
00332>                    out <=    1.0 04:Orchards      14.80     .515 No_date    3:22   37.69  n/a     .000
00333>       {MxStoUsed=.3704E+00  m3}
00334> #----------------|----------------------------------------------------------------|
00335> #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00336> #----------------|----------------------------------------------------------------|
00337> R0003:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00338>      ADD HYD               1.0 02:Channel      101.80    3.198 No_date    3:51   29.89  n/a     .000
00339>                       +     1.0 04:Orchards      14.80     .515 No_date    3:22   37.69  n/a     .000
00340>                    SUM=     1.0 05:RD19         116.60    3.614 No_date    3:46   30.88  n/a     .000
00341> #----------------|----------------------------------------------------------------|
00342> #----------------|-Parkbridge Craigleith - Upper Terrace Lands----------------|
00343> #----------------|----------------------------------------------------------------|
00344> R0003:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00345>      CALIB NASHYD          1.0 01:9A            2.57     .050 No_date    3:10   10.10 .153     .000
00346>        [CN= 48.4: N= 3.00: Tp=  .37]
00347> R0003:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00348>      CALIB NASHYD          1.0 02:9B           11.63     .217 No_date    3:58   19.26 .292     .000
00349>        [CN= 68.5: N= 3.00: Tp= 1.09]
00350> R0003:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00351>      ADD HYD               1.0 01:9A            2.57     .050 No_date    3:10   10.10  n/a     .000
00352>                       +     1.0 02:9B           11.63     .217 No_date    3:58   19.26  n/a     .000
00353>                    SUM=     1.0 10:9A9B         14.20     .236 No_date    3:50   17.60  n/a     .000
00354> R0003:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00355>      CALIB NASHYD          1.0 01:9C            1.19     .018 No_date    3:02    5.61 .085     .000
00356>        [CN= 33.2: N= 3.00: Tp=  .14]
00357> R0003:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00358>      CALIB NASHYD          1.0 02:9D            2.02     .043 No_date    3:02    8.17 .124     .000
00359>        [CN= 41.9: N= 3.00: Tp=  .15]
00360> #----------------|----------------------------------------------------------------|
00361> #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00362> #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00363> #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00364> #----------------|----------------------------------------------------------------|
00365> R0003:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00366>      ROUTE RESERVOIR ->    1.0 02:9D            2.02     .043 No_date    3:02    8.17  n/a     .000
00367>  *                 out <=    1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00368>       {MxStoUsed=.1651E-01  m3}
00369> R0003:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00370>      ADD HYD               1.0 01:9C            1.19     .018 No_date    3:02    5.61  n/a     .000
00371>                       +     1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00372>                    SUM=     1.0 09:9C9D          3.21     .018 No_date    3:02    2.08  n/a     .000
00373> #----------------|----------------------------------------------------------------|
00374> #----------------|-Parkbridge Craigleith - Lower Terrace Lands----------------|
00375> #----------------|----------------------------------------------------------------|
00376> R0003:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00377>      CALIB NASHYD          1.0 07:9E            7.60     .122 No_date    3:16    9.58 .145     .000
00378>        [CN= 47.1: N= 3.00: Tp=  .48]
00379> R0003:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00380>      CALIB NASHYD          1.0 08:9F            3.35     .047 No_date    3:31   10.79 .163     .000
00381>        [CN= 50.4: N= 3.00: Tp=  .71]
00382> #----------------|----------------------------------------------------------------|
00383> #----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
00384> #----------------|----------------------------------------------------------------|
00385> R0003:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00386>      ADD HYD               1.0 05:RD19        116.60    3.614 No_date    3:46   30.88  n/a     .000
00387>                       +     1.0 10:9A9B         14.20     .236 No_date    3:50   17.60  n/a     .000
00388>                       +     1.0 09:9C9D          3.21     .018 No_date    3:02    2.08  n/a     .000
00389>                       +     1.0 07:9E            7.60     .122 No_date    3:16    9.58  n/a     .000
00390>                       +     1.0 08:9F            3.35     .047 No_date    3:31   10.79  n/a     .000
00391>                    SUM=     1.0 01:WC9LS       144.96    3.981 No_date    3:45   27.36  n/a     .000
00392> R0003:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00393>      SAVE HYD              1.0 01:WC9LS       144.96    3.981 No_date    3:45   27.36  n/a     .000
00394>        fname :WC9LS.0003
00395>        remark:PRE Lakeshore Road Hydrograph
00396>   ** END OF RUN :    3
00397> ************************************************************************************************************
00398> ************************************************************************************************************
00399>
00400>
00401>
00402>
00403>
00404>  RUN#:COMMAND#
00405> R0004:C00001------------------------------------------------------------------------------------------------
00406>       START
00407>       [TZERO =    .00 hrs on       0]
00408>       [METOUT=   2   (1=imperial, 2=metric output)]
00409>       [NSTORM=   1 ]
00410>       [NRUN  = 0004 ]
00411> #**********************************************************************
00412> #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00413> #  Date        : 2018-09-19
00414> #  Modeller    : [OD,BD,BH,JE - ADAPTED FROM NM 2009 MODEL]
00415> #  Company     : C.F. Crozier & Associates Inc.
00416> #  License #   : 3737016
00417> #**********************************************************************
00418> #**********************************************************************
00419> R0004:C00002------------------------------------------------------------------------------------------------
00420>       READ STORM
00421>        Filename = STORM.001
00422>        Comment  = 25-Year 6 hr Kifer Chu Chicago Storm Event
00423>        [SDT=60.00:SDUR=   6.00:PTOT=  77.90]
00424> #----------------|----------------------------------------------------------------|
00425> #----------------|-PRE-DEVELOPMENT--------------------------------------------|
00426> #----------------|----------------------------------------------------------------|
00427> #----------------|----------------------------------------------------------------|
00428> #----------------|-Subwatershed 9 External Drainage Area----------------------|
00429> #----------------|-Per 'The Orchards' FSSWM Report----------------------------|
00430> #----------------|-Prepared by Higgins Engineering (Jan. 2005)----------------|
00431> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00432> #----------------|----------------------------------------------------------------|
00433> R0004:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00434>      CALIB NASHYD          1.0 01:EXT-9A      101.80    4.139 No_date    3:46   38.96 .500     .000
00435>        [CN= 80.0: N= 3.00: Tp= 1.00]
00436> R0004:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00437>      ROUTE CHANNEL   ->    1.0 01:EXT-9A      101.80    4.139 No_date    3:46   38.96  n/a     .000
00438>       [RDT= 1.00] out<-    1.0 02:Channel     101.80    4.128 No_date    3:50   38.96  n/a     .000
00439>         [L/S/n=  550./2.000/.035]
00440>         {Vmax= 1.895:Dmax=  .385}
00441> R0004:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00442>      CALIB STANDHYD        1.0 03:EXT-9B        14.80    1.607 No_date    3:00   47.92 .615     .000
00443>        [XIMP=.35:TIMP=.35]
00444>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00445>        [Pervious    area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00446>        [Impervious  area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00447> R0004:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00448>      ROUTE RESERVOIR ->    1.0 03:EXT-9B        14.80    1.607 No_date    3:00   47.92  n/a     .000
00449>                    out <=    1.0 04:Orchards      14.80     .796 No_date    3:17   47.91  n/a     .000
00450>       {MxStoUsed=.4411E+00  m3}
00451> #----------------|----------------------------------------------------------------|
00452> #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00453> #----------------|----------------------------------------------------------------|
00454> R0004:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00455>      ADD HYD               1.0 02:Channel     101.80    4.128 No_date    3:50   38.96  n/a     .000
00456>                       +     1.0 04:Orchards      14.80     .796 No_date    3:17   47.91  n/a     .000
00457>                    SUM=     1.0 05:RD19        116.60    4.714 No_date    3:46   40.10  n/a     .000
00458> #----------------|----------------------------------------------------------------|
00459> #----------------|-Parkbridge Craigleith - Upper Terrace Lands----------------|
00460> #----------------|----------------------------------------------------------------|
00461> R0004:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00462>      CALIB NASHYD          1.0 01:9A            2.57     .069 No_date    3:10   14.19 .182     .000
00463>        [CN= 48.4: N= 3.00: Tp=  .37]
00464> R0004:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00465>      CALIB NASHYD          1.0 02:9B           11.63     .292 No_date    3:57   26.18 .336     .000
00466>        [CN= 68.5: N= 3.00: Tp= 1.09]
00467> R0004:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00468>      ADD HYD               1.0 01:9A            2.57     .069 No_date    3:10   14.19  n/a     .000
00469>                       +     1.0 02:9B           11.63     .292 No_date    3:57   26.18  n/a     .000
00470>                    SUM=     1.0 10:9A9B         14.20     .320 No_date    3:49   24.01  n/a     .000
00471> R0004:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00472>      CALIB NASHYD          1.0 01:9C            1.19     .025 No_date    3:02    8.05 .103     .000
00473>        [CN= 33.2: N= 3.00: Tp=  .14]
00474> R0004:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00475>      CALIB NASHYD          1.0 02:9D            2.02     .059 No_date    3:02   11.54 .148     .000
00476>        [CN= 41.9: N= 3.00: Tp=  .15]
00477> #----------------|----------------------------------------------------------------|
00478> #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00479> #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00480> #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00481> #----------------|----------------------------------------------------------------|
00482> R0004:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00483>      ROUTE RESERVOIR ->    1.0 02:9D            2.02     .059 No_date    3:02   11.54  n/a     .000
00484>  *                 out <=    1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00485>       {MxStoUsed=.2332E-01  m3}
00486> R0004:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00487>      ADD HYD               1.0 01:9C            1.19     .025 No_date    3:02    8.05  n/a     .000
00488>                       +     1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00489>                    SUM=     1.0 09:9C9D          3.21     .025 No_date    3:02    2.98  n/a     .000
00490> #----------------|----------------------------------------------------------------|
00491> #----------------|-Parkbridge Craigleith - Lower Terrace Lands----------------|
00492> #----------------|----------------------------------------------------------------|
00493> R0004:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00494>      CALIB NASHYD          1.0 07:9E            7.60     .168 No_date    3:16   13.51 .173     .000
00495>        [CN= 47.1: N= 3.00: Tp=  .48]
00496> R0004:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00497>      CALIB NASHYD          1.0 08:9F            3.35     .064 No_date    3:30   15.12 .194     .000
00498>        [CN= 50.4: N= 3.00: Tp=  .71]
00499> #----------------|----------------------------------------------------------------|
00500> #----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
00501> #----------------|----------------------------------------------------------------|
00502> R0004:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00503>      ADD HYD               1.0 05:RD19        116.60    4.714 No_date    3:46   40.10  n/a     .000
00504>                       +     1.0 10:9A9B         14.20     .320 No_date    3:49   24.01  n/a     .000
00505>                       +     1.0 09:9C9D          3.21     .025 No_date    3:02    2.98  n/a     .000
00506>                       +     1.0 07:9E            7.60     .168 No_date    3:16   13.51  n/a     .000
00507>                       +     1.0 08:9F            3.35     .064 No_date    3:30   15.12  n/a     .000
00508>                    SUM=     1.0 01:WC9LS       144.96    5.220 No_date    3:42   35.73  n/a     .000
00509> R0004:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00510>      SAVE HYD              1.0 01:WC9LS       144.96    5.220 No_date    3:42   35.73  n/a     .000
00511>        fname :WC9LS.0004
00512>        remark:PRE Lakeshore Road Hydrograph
00513>   ** END OF RUN :    4
00514>
00515> ************************************************************************************************************
00516>
00517>
00518>
00519>
00520>
00521>  RUN#:COMMAND#
00522> R0005:C00001------------------------------------------------------------------------------------------------
00523>       START
00524>       [TZERO =    .00 hrs on       0]
00525>       [METOUT=   2   (1=imperial, 2=metric output)]
00526>       [NSTORM=   1 ]
00527>       [NRUN  = 0005 ]
00528> #**********************************************************************
00529> #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00530> #  Date        : 2018-09-19
00531> #  Modeller    : [OD,BD,BH,JE - ADAPTED FROM NM 2009 MODEL]
00532> #  Company     : C.F. Crozier & Associates Inc.
00533> #  License #   : 3737016
00534> #**********************************************************************
00535> #**********************************************************************
00536> R0005:C00002------------------------------------------------------------------------------------------------
00537>       READ STORM
00538>        Filename = STORM.001
00539>        Comment  = 50-Year 6 hr Kifer Chu Chicago Storm Event
00540>        [SDT=60.00:SDUR=   6.00:PTOT=  83.90]
00541> #----------------|----------------------------------------------------------------|
00542> #----------------|-PRE-DEVELOPMENT--------------------------------------------|
00543> #----------------|----------------------------------------------------------------|
00544> #----------------|----------------------------------------------------------------|
00545> #----------------|-Subwatershed 9 External Drainage Area----------------------|
00546> #----------------|-Per 'The Orchards' FSSWM Report----------------------------|
00547> #----------------|-Prepared by Higgins Engineering (Jan. 2005)----------------|
00548> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00549> #----------------|----------------------------------------------------------------|
00550> R0005:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00551>      CALIB NASHYD          1.0 01:EXT-9A      101.80    4.631 No_date    3:46   43.72 .521     .000
00552>        [CN= 80.0: N= 3.00: Tp= 1.00]
00553> R0005:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00554>      ROUTE CHANNEL   ->    1.0 01:EXT-9A      101.80    4.631 No_date    3:46   43.72  n/a     .000
00555>       [RDT= 1.00] out<-    1.0 02:Channel     101.80    4.621 No_date    3:49   43.72  n/a     .000
00556>         [L/S/n=  550./2.000/.035]
00557>         {Vmax= 1.979:Dmax=  .411}
00558> R0005:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00559>      CALIB STANDHYD        1.0 03:EXT-9B        14.80    1.769 No_date    3:00   52.72 .628     .000
00560>        [XIMP=.35:TIMP=.35]
00561>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00562>        [Pervious    area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00563>        [Impervious  area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00564> R0005:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00565>      ROUTE RESERVOIR ->    1.0 03:EXT-9B        14.80    1.769 No_date    3:00   52.72  n/a     .000
00566>                    out <=    1.0 04:Orchards      14.80     .927 No_date    3:16   52.72  n/a     .000
00567>       {MxStoUsed=.4726E+00  m3}
00568> #----------------|----------------------------------------------------------------|
00569> #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00570> #----------------|----------------------------------------------------------------|
00571> R0005:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00572>      ADD HYD               1.0 02:Channel     101.80    4.621 No_date    3:49   43.72  n/a     .000
00573>                       +     1.0 04:Orchards      14.80     .927 No_date    3:16   52.72  n/a     .000
00574>                    SUM=     1.0 05:RD19        116.60    5.289 No_date    3:41   44.86  n/a     .000
00575> #----------------|----------------------------------------------------------------|
00576> #----------------|-Parkbridge Craigleith - Upper Terrace Lands----------------|
00577> #----------------|----------------------------------------------------------------|
00578> R0005:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00579>      CALIB NASHYD          1.0 01:9A            2.57     .079 No_date    3:10   16.46 .196     .000
00580>        [CN= 48.4: N= 3.00: Tp=  .37]
00581> R0005:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00582>      CALIB NASHYD          1.0 02:9B           11.63     .333 No_date    3:57   29.91 .356     .000
00583>        [CN= 68.5: N= 3.00: Tp= 1.09]
00584> R0005:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00585>      ADD HYD               1.0 01:9A            2.57     .079 No_date    3:10   16.46  n/a     .000
00586>                       +     1.0 02:9B           11.63     .333 No_date    3:57   29.91  n/a     .000
00587>                    SUM=     1.0 10:9A9B         14.20     .365 No_date    3:48   27.47  n/a     .000
00588> R0005:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00589>      CALIB NASHYD          1.0 01:9C            1.19     .029 No_date    3:01    9.43 .112     .000
00590>        [CN= 33.2: N= 3.00: Tp=  .14]
00591> R0005:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00592>      CALIB NASHYD          1.0 02:9D            2.02     .068 No_date    3:02   13.42 .160     .000
00593>        [CN= 41.9: N= 3.00: Tp=  .15]
00594> #----------------|----------------------------------------------------------------|
00595> #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00596> #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00597> #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00598> #----------------|----------------------------------------------------------------|
00599> R0005:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00600>      ROUTE RESERVOIR ->    1.0 02:9D            2.02     .068 No_date    3:02   13.42  n/a     .000
00601>  *                 out <=    1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00602>       {MxStoUsed=.2711E-01  m3}
00603> R0005:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00604>      ADD HYD               1.0 01:9C            1.19     .029 No_date    3:01    9.43  n/a     .000
00605>                       +     1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00606>                    SUM=     1.0 09:9C9D          3.21     .029 No_date    3:01    3.50  n/a     .000
00607> #----------------|----------------------------------------------------------------|
00608> #----------------|-Parkbridge Craigleith - Lower Terrace Lands----------------|
00609> #----------------|----------------------------------------------------------------|
00610> R0005:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00611>      CALIB NASHYD          1.0 07:9E            7.60     .194 No_date    3:16   15.69 .187     .000
00612>        [CN= 47.1: N= 3.00: Tp=  .48]
00613> R0005:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00614>      CALIB NASHYD          1.0 08:9F            3.35     .074 No_date    3:30   17.51 .209     .000
00615>        [CN= 50.4: N= 3.00: Tp=  .71]
00616> #----------------|----------------------------------------------------------------|
00617> #----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
00618> #----------------|----------------------------------------------------------------|
00619> R0005:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00620>      ADD HYD               1.0 05:RD19        116.60    5.289 No_date    3:41   44.86  n/a     .000
00621>                       +     1.0 10:9A9B         14.20     .365 No_date    3:48   27.47  n/a     .000
00622>                       +     1.0 09:9C9D          3.21     .029 No_date    3:01    3.50  n/a     .000
00623>                       +     1.0 07:9E            7.60     .194 No_date    3:16   15.69  n/a     .000
00624>                       +     1.0 08:9F            3.35     .074 No_date    3:30   17.51  n/a     .000
00625>                    SUM=     1.0 01:WC9LS       144.96    5.872 No_date    3:41   40.08  n/a     .000
00626> R0005:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00627>      SAVE HYD              1.0 01:WC9LS       144.96    5.872 No_date    3:41   40.08  n/a     .000
00628>        fname :WC9LS.0005
00629>        remark:PRE Lakeshore Road Hydrograph
00630>   ** END OF RUN :    5
00631>
00632> ************************************************************************************************************
00633>
00634>
00635>
00636>
00637>
00638>  RUN#:COMMAND#
00639> R0006:C00001------------------------------------------------------------------------------------------------
00640>       START
00641>       [TZERO =    .00 hrs on       0]
00642>       [METOUT=   2   (1=imperial, 2=metric output)]
00643>       [NSTORM=   1 ]
00644>       [NRUN  = 0006 ]
00645> #**********************************************************************
00646> #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00647> #  Date        : 2018-09-19
00648> #  Modeller    : [OD,BD,BH,JE - ADAPTED FROM NM 2009 MODEL]
00649> #  Company     : C.F. Crozier & Associates Inc.
00650> #  License #   : 3737016
00651> #**********************************************************************
00652> #**********************************************************************
00653> R0006:C00002------------------------------------------------------------------------------------------------
00654>       READ STORM
00655>        Filename = STORM.001
00656>        Comment  = 100-Year 6 hr Kifer Chu Chicago Storm Event
```

```
00657>       [SDT=60.00:SDUR=   6.00:PTOT=  96.00]
00658> #-----------------|-------------------------------------------------------|
00659> #-----------------|-PRE-DEVELOPMENT---------------------------------------|
00660> #-----------------|-------------------------------------------------------|
00661> #-----------------|-------------------------------------------------------|
00662> #-----------------|-Subwatershed 9 External Drainage Area-----------------|
00663> #-----------------|-Per 'The Orchards' FSSWM Report-----------------------|
00664> #-----------------|-Prepared by Higgins Engineering (Jan. 2005)-----------|
00665> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha------|
00666> #-----------------|-------------------------------------------------------|
00667> R0006:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00668>      CALIB NASHYD            1.0 01:EXT-9A       101.80    5.697 No_date    3:45   53.60 .558     .000
00669>        [CN= 80.0: N= 3.00: Tp= 1.00]
00670> R0006:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00671>      ROUTE CHANNEL   ->      1.0 01:EXT-9A       101.80    5.697 No_date    3:45   53.60  n/a     .000
00672>       [RDT= 1.00] out<-      1.0 02:Channel      101.80    5.683 No_date    3:48   53.60  n/a     .000
00673>        [L/S/n=  550./2.000/.035]
00674>        {Vmax= 2.100:Dmax=  .458}
00675> R0006:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00676>      CALIB STANDHYD          1.0 03:EXT-9B        14.80    2.107 No_date    3:00   63.33 .660     .000
00677>        [XIMP=.35:TIMP=.35]
00678>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00679>        [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00680>        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00681> R0006:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00682>      ROUTE RESERVOIR ->      1.0 03:EXT-9B        14.80    2.107 No_date    3:00   63.33  n/a     .000
00683>                     out <-     1.0 04:Orchards      14.80    1.213 No_date    3:13   63.33  n/a     .000
00684>        {MxStoUsed=.5363E+00  m3}
00685> #-----------------|-------------------------------------------------------|
00686> #-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-----|
00687> #-----------------|-------------------------------------------------------|
00688> R0006:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00689>      ADD HYD                 1.0 02:Channel      101.80    5.683 No_date    3:48   53.60  n/a     .000
00690>                        +     1.0 04:Orchards      14.80    1.213 No_date    3:13   63.33  n/a     .000
00691>                      SUM=    1.0 05:RD19         116.60    6.508 No_date    3:43   54.83  n/a     .000
00692> #-----------------|-------------------------------------------------------|
00693> #-----------------|-Parkbridge Craigleith - Upper Terrace Lands-----------|
00694> #-----------------|-------------------------------------------------------|
00695> R0006:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00696>      CALIB NASHYD            1.0 01:9A            2.57     .103 No_date    3:09   21.41 .223     .000
00697>        [CN= 48.4: N= 3.00: Tp=  .37]
00698> R0006:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00699>      CALIB NASHYD            1.0 02:9B           11.63     .423 No_date    3:56   37.83 .394     .000
00700>        [CN= 68.5: N= 3.00: Tp= 1.09]
00701> R0006:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00702>      ADD HYD                 1.0 01:9A            2.57     .103 No_date    3:09   21.41  n/a     .000
00703>                        +     1.0 02:9B           11.63     .423 No_date    3:56   37.83  n/a     .000
00704>                      SUM=    1.0 10:9A9B         14.20     .466 No_date    3:47   34.85  n/a     .000
00705> R0006:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00706>      CALIB NASHYD            1.0 01:9C            1.19     .038 No_date    3:01   12.49 .130     .000
00707>        [CN= 33.2: N= 3.00: Tp=  .14]
00708> R0006:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00709>      CALIB NASHYD            1.0 02:9D            2.02     .087 No_date    3:02   17.55 .183     .000
00710>        [CN= 41.9: N= 3.00: Tp=  .15]
00711> #-----------------|-------------------------------------------------------|
00712> #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00713> #-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00714> #-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00715> #-----------------|-------------------------------------------------------|
00716> R0006:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00717>      ROUTE RESERVOIR ->      1.0 02:9D            2.02     .087 No_date    3:02   17.55  n/a     .000
00718>  *                  out <-     1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00719>        {MxStoUsed=.3546E-01  m3}
00720> R0006:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00721>      ADD HYD                 1.0 01:9C            1.19     .038 No_date    3:01   12.49  n/a     .000
00722>                        +     1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00723>                      SUM=    1.0 09:9C9D          3.21     .038 No_date    3:01    4.63  n/a     .000
00724> #-----------------|-------------------------------------------------------|
00725> #-----------------|-Parkbridge Craigleith - Lower Terrace Lands-----------|
00726> #-----------------|-------------------------------------------------------|
00727> R0006:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00728>      CALIB NASHYD            1.0 07:9E            7.60     .253 No_date    3:15   20.46 .213     .000
00729>        [CN= 47.1: N= 3.00: Tp=  .48]
00730> R0006:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00731>      CALIB NASHYD            1.0 08:9F            3.35     .097 No_date    3:29   22.73 .237     .000
00732>        [CN= 50.4: N= 3.00: Tp=  .71]
00733> #-----------------|-------------------------------------------------------|
00734> #-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD--------|
00735> #-----------------|-------------------------------------------------------|
00736> R0006:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00737>      ADD HYD                 1.0 05:RD19        116.60    6.508 No_date    3:43   54.83  n/a     .000
00738>                        +     1.0 10:9A9B         14.20     .466 No_date    3:47   34.85  n/a     .000
00739>                        +     1.0 09:9C9D          3.21     .038 No_date    3:01    4.63  n/a     .000
00740>                        +     1.0 07:9E            7.60     .253 No_date    3:15   20.46  n/a     .000
00741>                        +     1.0 08:9F            3.35     .097 No_date    3:29   22.73  n/a     .000
00742>                      SUM=    1.0 01:WC9LS       144.96    7.259 No_date    3:40   49.22  n/a     .000
00743> R0006:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00744>      SAVE HYD                1.0 01:WC9LS       144.96    7.259 No_date    3:40   49.22  n/a     .000
00745>        fname :WC9LS.0006
00746>        remark:PRE Lakeshore Road Hydrograph
00747>   ** END OF RUN :   6
00748>
00749> ************************************************************************************************************
00750>
00751>
00752>
00753>
00754>
00755>  RUN#:COMMAND#
00756> R0007:C00001------------------------------------------------------------------------------------------------
00757>       START
00758>        [TZERO =    .00 hrs on        0]
00759>        [METOUT=   2    (1=imperial, 2=metric output)]
00760>        [NSTORM=   1 ]
00761>        [NRUN  = 0007 ]
00762> #*********************************************************************************
00763> #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00764> #  Date        : 2018-09-19
00765> #  Modeller    : [OD,BD,BH,JE - ADAPTED FROM NM 2009 MODEL]
00766> #  Company     : C.F. Crozier & Associates Inc.
00767> #  License #   : 3737016
00768> #*********************************************************************************
00769> #*********************************************************************************
00770> R0007:C00002------------------------------------------------------------------------------------------------
00771>       READ STORM
00772>        Filename = STORM.001
00773>        Comment  = Timmins Storm Event
00774>        [SDT=60.00:SDUR=  12.00:PTOT= 193.00]
00775> #-----------------|-------------------------------------------------------|
00776> #-----------------|-PRE-DEVELOPMENT---------------------------------------|
00777> #-----------------|-------------------------------------------------------|
00778> #-----------------|-------------------------------------------------------|
00779> #-----------------|-Subwatershed 9 External Drainage Area-----------------|
00780> #-----------------|-Per 'The Orchards' FSSWM Report-----------------------|
00781> #-----------------|-Prepared by Higgins Engineering (Jan. 2005)-----------|
00782> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha------|
00783> #-----------------|-------------------------------------------------------|
00784> R0007:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00785>      CALIB NASHYD            1.0 01:EXT-9A       101.80    6.900 No_date    7:46  140.53 .728     .000
00786>        [CN= 80.0: N= 3.00: Tp= 1.00]
00787> R0007:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00788>      ROUTE CHANNEL   ->      1.0 01:EXT-9A       101.80    6.900 No_date    7:46  140.53  n/a     .000
00789>       [RDT= 1.00] out<-      1.0 02:Channel      101.80    6.895 No_date    7:49  140.53  n/a     .000
00790>        [L/S/n=  550./2.000/.035]
00791>        {Vmax= 2.233:Dmax=  .508}
00792> R0007:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00793>      CALIB STANDHYD          1.0 03:EXT-9B        14.80    1.529 No_date    7:00  127.41 .660     .000
00794>        [XIMP=.35:TIMP=.35]
00795>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00796>        [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00797>        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00798> R0007:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00799>      ROUTE RESERVOIR ->      1.0 03:EXT-9B        14.80    1.529 No_date    7:00  127.41  n/a     .000
00800>                     out <-     1.0 04:Orchards      14.80    1.187 No_date    7:13  127.40  n/a     .000
00801>        {MxStoUsed=.5307E+00  m3}
00802> #-----------------|-------------------------------------------------------|
00803> #-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-----|
00804> #-----------------|-------------------------------------------------------|
00805> R0007:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00806>      ADD HYD                 1.0 02:Channel      101.80    6.895 No_date    7:49  140.53  n/a     .000
00807>                        +     1.0 04:Orchards      14.80    1.187 No_date    7:13  127.40  n/a     .000
00808>                      SUM=    1.0 05:RD19         116.60    7.880 No_date    7:44  138.86  n/a     .000
00809> #-----------------|-------------------------------------------------------|
00810> #-----------------|-Parkbridge Craigleith - Upper Terrace Lands-----------|
00811> #-----------------|-------------------------------------------------------|
00812> R0007:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00813>      CALIB NASHYD            1.0 01:9A            2.57     .127 No_date    7:07   74.83 .388     .000
00814>        [CN= 48.4: N= 3.00: Tp=  .37]
00815> R0007:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00816>      CALIB NASHYD            1.0 02:9B           11.63     .614 No_date    8:00  113.42 .588     .000
00817>        [CN= 68.5: N= 3.00: Tp= 1.09]
00818> R0007:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00819>      ADD HYD                 1.0 01:9A            2.57     .127 No_date    7:07   74.83  n/a     .000
00820>                        +     1.0 02:9B           11.63     .614 No_date    8:00  113.42  n/a     .000
00821>                      SUM=    1.0 10:9A9B         14.20     .694 No_date    7:54  106.44  n/a     .000
00822> R0007:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00823>      CALIB NASHYD            1.0 01:9C            1.19     .042 No_date    7:01   48.43 .251     .000
00824>        [CN= 33.2: N= 3.00: Tp=  .14]
00825> R0007:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00826>      CALIB NASHYD            1.0 02:9D            2.02     .094 No_date    7:01   63.65 .330     .000
00827>        [CN= 41.9: N= 3.00: Tp=  .15]
00828> #-----------------|-------------------------------------------------------|
00829> #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00830> #-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00831> #-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00832> #-----------------|-------------------------------------------------------|
00833> R0007:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00834>      ROUTE RESERVOIR ->      1.0 02:9D            2.02     .094 No_date    7:01   63.65  n/a     .000
00835>  *                  out <-     1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00836>        {MxStoUsed=.1286E+00  m3}
00837> R0007:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00838>      ADD HYD                 1.0 01:9C            1.19     .042 No_date    7:01   48.43  n/a     .000
00839>                        +     1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00840>                      SUM=    1.0 09:9C9D          3.21     .042 No_date    7:01   17.96  n/a     .000
00841> #-----------------|-------------------------------------------------------|
00842> #-----------------|-Parkbridge Craigleith - Lower Terrace Lands-----------|
00843> #-----------------|-------------------------------------------------------|
00844> R0007:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00845>      CALIB NASHYD            1.0 07:9E            7.60     .338 No_date    7:13   72.33 .375     .000
00846>        [CN= 47.1: N= 3.00: Tp=  .48]
00847> R0007:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00848>      CALIB NASHYD            1.0 08:9F            3.35     .141 No_date    7:28   78.42 .406     .000
00849>        [CN= 50.4: N= 3.00: Tp=  .71]
00850> #-----------------|-------------------------------------------------------|
00851> #-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD--------|
00852> #-----------------|-------------------------------------------------------|
00853> R0007:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00854>      ADD HYD                 1.0 05:RD19        116.60    7.880 No_date    7:44  138.86  n/a     .000
00855>                        +     1.0 10:9A9B         14.20     .694 No_date    7:54  106.44  n/a     .000
00856>                        +     1.0 09:9C9D          3.21     .042 No_date    7:01   17.96  n/a     .000
00857>                        +     1.0 07:9E            7.60     .338 No_date    7:13   72.33  n/a     .000
00858>                        +     1.0 08:9F            3.35     .141 No_date    7:28   78.42  n/a     .000
00859>                      SUM=    1.0 01:WC9LS       144.96    9.005 No_date    7:44  128.12  n/a     .000
00860> R0007:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00861>      SAVE HYD                1.0 01:WC9LS       144.96    9.005 No_date    7:44  128.12  n/a     .000
00862>        fname :WC9LS.0007
00863>        remark:PRE Lakeshore Road Hydrograph
00864> R0007:C00002------------------------------------------------------------------------------------------------
00865>       FINISH
00866> ------------------------------------------------------------------------------------------------------------
00867> ************************************************************************************************************
00868>       WARNINGS / ERRORS / NOTES
00869>       -------------------------
00870> R0001:C00013  ROUTE RESERVOIR
00871> *** WARNING: Outflow volume is less than inflow volume.
00872> *** WARNING: Outflow volume is less than inflow volume.
00873> *** WARNING: Outflow volume is less than inflow volume.
00874> *** WARNING: Outflow volume is less than inflow volume.
00875> *** WARNING: Outflow volume is less than inflow volume.
00876> *** WARNING: Outflow volume is less than inflow volume.
00877> *** WARNING: Outflow volume is less than inflow volume.
00878>    Simulation ended on 2020-06-10     at 14:02:35
00879> ============================================================================================================
00880>
00881>
```

```
00001> 2     Metric units
00002> *#************************************************************************
00003> *#  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00004> *#  Date        : 2018-09-18 [UPDATED 2020-06-15]
00005> *#  Modeller    : [OD - UPDATED BY BD/BH - UPDATED BY JE]
00006> *#  Company     : C.F. Crozier & Associates Inc.
00007> *#  License #   : 3737016
00008> *#************************************************************************
00009> START              TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[1]
00010> *%                ["25mm.stm"] <--storm filename, one per line for NSTORM time
00011> *#************************************************************************
00012> *%-----------------|-------------------------------------------------------|
00013> *%-----------------|-------------------------------------------------------|
00014> READ STORM          STORM_FILENAME=["STORM.001"]
00015> *%-----------------|-------------------------------------------------------|
00016> *#-----------------|-------------------------------------------------------|
00017> *#-----------------|-POST-DEVELOPMENT------------------------------------|
00018> *#-----------------|-------------------------------------------------------|
00019> *#-----------------|-------------------------------------------------------|
00020> *#-----------------|-Subwatershed 9 External Drainage Area---------------|
00021> *#-----------------|-Per 'The Orchards' FSSWM Report---------------------|
00022> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)----------|
00023> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00024> *#-----------------|-------------------------------------------------------|
00025> *%-----------------|-------------------------------------------------------|
00026> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00027>                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00028>                    N=[3], TP=[1.00]hrs,
00029>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00030> *%-----------------|-------------------------------------------------------|
00031> ROUTE CHANNEL      IDout=[2], NHYD=["Channel"], IDin=[1],
00032>                    RDT=[1](min),
00033>                    CHLGTH=[550](m),  CHSLOPE=[2](%),
00034>                                      FPSLOPE=[2](%),
00035>                    SECNUM=[1],       NSEG=[3]
00036>                    ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
00037>                    ( DISTANCE (m), ELEVATION (m))=[0,102]
00038>                                                  [8,100]
00039>                                                  [12,100]
00040>                                                  [20,102]
00041> *%-----------------|-------------------------------------------------------|
00042> CALIB STANDHYD     ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00043>                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00044>                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00045>                            DCAY=[2](/hr), F=[0](mm),
00046>                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00047>                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00048>                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00049>                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00050>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00051> *%-----------------|-------------------------------------------------------|
00052> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00053>                    RDT=[1](min),
00054>                          TABLE of ( OUTFLOW-STORAGE ) values
00055>                                     (cms) - (ha-m)
00056>                                   [   0.0 ,  0.0 ]
00057>                                   [   0.0100 ,  0.0610 ]
00058>                                   [   0.0400 ,  0.1310 ]
00059>                                   [   0.0700 ,  0.2110 ]
00060>                                   [   0.2600 ,  0.3000 ]
00061>                                   [   0.6000 ,  0.3940 ]
00062>                                   [   1.0200 ,  0.4950 ]
00063>                                   [   1.5200 ,  0.6020 ]
00064>                                   [   2.0800 ,  0.7160 ]
00065>                                   [   2.6900 ,  0.8370 ]
00066>                          IDovf=[ ], NHYDovf=[  ]
00067> *%-----------------|-------------------------------------------------------|
00068> *#-----------------|-------------------------------------------------------|
00069> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing----|
00070> *#-----------------|-------------------------------------------------------|
00071> *%-----------------|-------------------------------------------------------|
00072> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00073> *%-----------------|-------------------------------------------------------|
00074> *#-----------------|-------------------------------------------------------|
00075> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands----------|
00076> *#-----------------|-------------------------------------------------------|
00077> *%-----------------|-------------------------------------------------------|
00078> CALIB NASHYD       ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
00079>                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
00080>                    N=[3], TP=[0.24]hrs,
00081>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00082> *%-----------------|-------------------------------------------------------|
00083> CALIB NASHYD       ID=[2], NHYD=["9A"], DT=[1]min, AREA=[0.58](ha),
00084>                    DWF=[0](cms),  CN/C=[79], IA=[6.59](mm),
00085>                    N=[3], TP=[0.06]hrs,
00086>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00087> *#-----------------|-----------------------CULVERT #1----------------------|
00088> ADD HYD            IDsum=[3], NHYD=["CULV1"], IDs to add=[1,2,5]
00089> *%-----------------|-------------------------------------------------------|
00090> CALIB NASHYD       ID=[1], NHYD=["9B"], DT=[1]min, AREA=[2.10](ha),
00091>                    DWF=[0](cms),  CN/C=[51.5], IA=[8.67](mm),
00092>                    N=[3], TP=[0.28]hrs,
00093>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00094> *#-----------------|-----------------------CULVERT #2----------------------|
00095> ADD HYD            IDsum=[4], NHYD=["WC9a"], IDs to add=[1,3]
00096> *%-----------------|-------------------------------------------------------|
00097> *#-----------------|-------------------------------------------------------|
00098> *#-----------------|-AREAS TO SWM FACILITY 1-----------------------------|
00099> *#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT----------|
00100> *#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-------------------|
00101> *#-----------------|-------------------------------------------------------|
00102> *%-----------------|-------------------------------------------------------|
00103> CALIB NASHYD       ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
00104>                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
00105>                    N=[3], TP=[0.47]hrs,
00106>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00107> *%-----------------|-------------------------------------------------------|
00108> CALIB STANDHYD     ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
00109>                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
00110>                    SCS curve number CN=[67.0],
00111>                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
00112>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00113>                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
00114>                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
00115>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00116> *%-----------------|-------------------------------------------------------|
00117> ADD HYD            IDsum=[6], NHYD=["NODE"], IDs to add=[1,3]
00118> *%-----------------|-------------------------------------------------------|
00119> CALIB NASHYD       ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
00120>                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
00121>                    N=[3], TP=[0.11]hrs,
00122>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00123> *%-----------------|-------------------------------------------------------|
00124> ADD HYD            IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
00125> *%-----------------|-------------------------------------------------------|
00126> *#-----------------|-------------------------------------------------------|
00127> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-----|
00128> *#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT---------|
00129> *#-----------------|-------------------------------------------------------|
00130> *%-----------------|-------------------------------------------------------|
00131> ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
00132>                    RDT=[1](min),
00133>                          TABLE of ( OUTFLOW-STORAGE ) values
00134>                                     (cms) - (ha-m)
00135>                                   [   0.0   ,  0.0   ]
00136>                                   [   0.007 ,  0.026 ]
00137>                                   [   0.018 ,  0.083 ]
00138>                                   [   0.025 ,  0.146 ]
00139>                                   [   0.029 ,  0.197 ]
00140>                                   [   0.032 ,  0.251 ]
00141>                                   [   0.036 ,  0.330 ]
00142>                                   [   0.078 ,  0.414 ]
00143>                                   [   0.151 ,  0.505 ]
00144>                                   [   0.325 ,  0.578 ]
00145>                                   [   0.340 ,  0.807 ]
00146>                                   [   5.368 ,  0.876 ]
00147>                                   [   7.563 ,  1.038 ]
00148>                                   [   9.145 ,  1.122 ]
00149>                                   [   -1  ,  -1  ]  (max twenty pts)
00150>                          IDovf=[   ], NHYDovf=[   ]
00151> *%-----------------|-------------------------------------------------------|
00152> ADD HYD            IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
00153> *%-----------------|-------------------------------------------------------|
00154> *#-----------------|-------------------------------------------------------|
00155> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands----------|
00156> *#-----------------|-------------------------------------------------------|
00157> *%-----------------|-------------------------------------------------------|
00158> *#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
00159> *#-----------------|-------------------------------------------------------|
00160> CALIB STANDHYD     ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.32](ha),
00161>                    XIMP=[0.349], TIMP=[0.713], DWF=[0](cms), LOSS=[2],
00162>                    SCS curve number CN=[66.1],
00163>                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00164>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00165>                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
00166>                                         LGI=[96](m), MNI=[0.013], SCI=[0](min),
00167>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00168> *%-----------------|-------------------------------------------------------|
00169> *#-----------------|-------------------------------------------------------|
00170> *#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------|
00171> *#-----------------|-------------------------------------------------------|
00172> *%-----------------|-------------------------------------------------------|
00173> *%-----------------|-------------------------------------------------------|
00174> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[0.82](ha),
00175>                    DWF=[0](cms),  CN/C=[40.9], IA=[8.46](mm),
00176>                    N=[3], TP=[0.25]hrs,
00177>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00178> *#-----------------|-----------------------CULVERT #3----------------------|
00179> ADD HYD            IDsum=[4], NHYD=["CULV3"], IDs to add=[7,1]
00180> *%-----------------|-------------------------------------------------------|
00181> CALIB NASHYD       ID=[1],  NHYD=["9F"], DT=[1]min, AREA=[0.38](ha),
00182>                    DWF=[0](cms),  CN/C=[52.2], IA=[7.05](mm),
00183>                    N=[3], TP=[0.32]hrs,
00184>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00185> *%-----------------|-------------------------------------------------------|
00186> CALIB NASHYD       ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.78](ha),
00187>                    DWF=[0](cms),  CN/C=[78.8], IA=[7.26](mm),
00188>                    N=[3], TP=[0.52]hrs,
00189>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00190> *%-----------------|-------------------------------------------------------|
00191> CALIB NASHYD       ID=[3], NHYD=["9E"], DT=[1]min, AREA=[1.24](ha),
00192>                    DWF=[0](cms),  CN/C=[66.3], IA=[6.71](mm),
00193>                    N=[3], TP=[0.23]hrs,
00194>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00195> *%-----------------|-------------------------------------------------------|
00196> ADD HYD            IDsum=[5], NHYD=["NODE"], IDs to add=[1,2,3,10]
00197> *%-----------------|-------------------------------------------------------|
00198> ADD HYD            IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,4,10]
00199> *%-----------------|-------------------------------------------------------|
00200> *#-----------------|-------------------------------------------------------|
00201> *#-----------------|-LANDS DRAINING TO SWM FACILITY 2---------------------|
00202> *#-----------------|-------------------------------------------------------|
00203> CALIB NASHYD       ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
00204>                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00205>                    N=[3], TP=[0.14]hrs,
00206>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00207> *%-----------------|-------------------------------------------------------|
00208> CALIB NASHYD       ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
00209>                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
00210>                    N=[3], TP=[0.32]hrs,
00211>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00212> *%-----------------|-------------------------------------------------------|
00213> ADD HYD            IDsum=[10], NHYD=["2A2B"], IDs to add=[1,2]
00214> *%-----------------|-------------------------------------------------------|
00215> CALIB STANDHYD     ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
00216>                    XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
00217>                    SCS curve number CN=[49],
00218>                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00219>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00220>                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00221>                                         LGI=[114](m), MNI=[0.013], SCI=[0](min)
00222>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00223> *%-----------------|-------------------------------------------------------|
00224> CALIB STANDHYD     ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
00225>                    XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
00226>                    SCS curve number CN=[59],
00227>                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00228>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00229>                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00230>                                         LGI=[148](m), MNI=[0.013], SCI=[0](min)
00231>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00232> *%-----------------|-------------------------------------------------------|
00233> CALIB STANDHYD     ID=[4], NHYD=["2E"], DT=[1](min), AREA=[1.49](ha),
00234>                    XIMP=[0.368], TIMP=[0.424], DWF=[0](cms), LOSS=[2],
00235>                    SCS curve number CN=[69],
00236>                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00237>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00238>                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00239>                                         LGI=[100](m), MNI=[0.013], SCI=[0](min)
00240>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00241> *%-----------------|-------------------------------------------------------|
00242> ADD HYD            IDsum=[6], NHYD=["SWMF2"], IDs to add=[10,3,4,7]
00243> *%-----------------|-------------------------------------------------------|
00244> *#-----------------|-------------------------------------------------------|
00245> *#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-----|
00246> *#-----------------|-------------------------------------------------------|
00247> *%-----------------|-------------------------------------------------------|
00248> ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
00249>                    RDT=[1](min),
00250>                          TABLE of ( OUTFLOW-STORAGE ) values
00251>                                     (cms) - (ha-m)
00252>                                   [   0.0 ,  0.0 ]
00253>                                   [   0.006 ,  0.018 ]
00254>                                   [   0.016 ,  0.057 ]
00255>                                   [   0.021 ,  0.102 ]
00256>                                   [   0.025 ,  0.139 ]
00257>                                   [   0.028 ,  0.179 ]
00258>                                   [   0.069 ,  0.238 ]
00259>                                   [   0.142 ,  0.303 ]
00260>                                   [   0.332 ,  0.373 ]
00261>                                   [   5.359 ,  0.410 ]
00262>                                   [   7.554 ,  0.489 ]
00263>                                   [   8.632 ,  0.530 ]
00264>                                   [   -1  ,  -1  ]  (max twenty pts)
00265>                          IDovf=[   ], NHYDovf=[   ]
00266> *%-----------------|-------------------------------------------------------|
00267> *#-----------------|-------------------------------------------------------|
00268> *#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-------------|
00269> *#-----------------|-------------------------------------------------------|
00270> *%-----------------|-------------------------------------------------------|
```

```
00271> ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
00272> *%-----------------|-------------------------------------------------------------|
00273> SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
00274>                     HYD_COMMENT=["POST-DEV LAKESHORE"]
00275> *%-----------------|-------------------------------------------------------------|
00276> *#-----------------|-------------------------------------------------------------|
00277> *#-----------------|--WATERCOURSE 8 CATCHMENTS-------------------------------|
00278> *#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8--------------------|
00279> *#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
00280> *#-----------------|-------------------------------------------------------------|
00281> *%-----------------|-------------------------------------------------------------|
00282> CALIB NASHYD       ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
00283>                     DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
00284>                     N=[3], TP=[0.23]hrs,
00285>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00286> *%-----------------|-------------------------------------------------------------|
00287> CALIB NASHYD       ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
00288>                     DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
00289>                     N=[3], TP=[0.44]hrs,
00290>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00291> *%-----------------|-------------------------------------------------------------|
00292> *#-----------------|-------------------------------------------------------------|
00293> *#-----------------|--WATERCOURSE 8 TOTAL------------------------------------|
00294> *#-----------------|-------------------------------------------------------------|
00295> *%-----------------|-------------------------------------------------------------|
00296> ADD HYD             IDsum=[3], NHYD=["WC8"], IDs to add=[1,2]
00297> *%-----------------|-------------------------------------------------------------|
00298> *%-----------------|-------------------------------------------------------------|
00299> START               TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[2]
00300> *                   ["2yr.stm"] <--storm filename, one per line for NSTORM time
00301> *%-----------------|-------------------------------------------------------------|
00302> *%-----------------|-------------------------------------------------------------|
00303> START               TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[3]
00304> *                   ["5yr.stm"] <--storm filename, one per line for NSTORM time
00305> *%-----------------|-------------------------------------------------------------|
00306> *%-----------------|-------------------------------------------------------------|
00307> START               TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[4]
00308> *                   ["10yr.stm"] <--storm filename, one per line for NSTORM time
00309> *%-----------------|-------------------------------------------------------------|
00310> *%-----------------|-------------------------------------------------------------|
00311> START               TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[5]
00312> *                   ["25yr.stm"] <--storm filename, one per line for NSTORM time
00313> *%-----------------|-------------------------------------------------------------|
00314> *%-----------------|-------------------------------------------------------------|
00315> START               TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[6]
00316> *                   ["50yr.stm"] <--storm filename, one per line for NSTORM time
00317> *%-----------------|-------------------------------------------------------------|
00318> *%-----------------|-------------------------------------------------------------|
00319> START               TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[7]
00320> *                   ["100yr.stm"] <--storm filename, one per line for NSTORM tim
00321> *%-----------------|-------------------------------------------------------------|
00322> *%-----------------|-------------------------------------------------------------|
00323> START               TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[8]
00324> *                   ["tim.stm"] <--storm filename, one per line for NSTORM time
00325> *%-----------------|-------------------------------------------------------------|
00326> FINISH
00327>
00328>
00329>
```

```
00001> ================================================================================
00002>
00003>  SSSSS   W   W   M   M   H   H   Y   Y   M   M    OOO       222     000    11   77777 =========
00004>  S       W W W   MM MM   H   H    Y Y    MM MM   O   O        2   2   0  0   11      7   7
00005>  SSSSS   W W W   M M M   HHHHH     Y     M M M   O   O        2   2   0  0   11      7    7 Ver4.05.0
00006>      S    W W    M   M   H   H     Y     M   M   O   O      222     0  0   11     7     7  APR 2017
00007>  SSSSS    W W    M   M   H   H     Y     M   M    OOO       2       0  0   11    7      =========
00008>                                                             2       0  0   11   7       # 3737016
00009>        StormWater Management HYdrologic Model                222     000    11  7        =========
00010>
00011>  ***************************************************************************
00012>  ********************  SWMHYMO Ver4.05.0  ********************************
00013>  ******************  A single event and continuous hydrologic simulation model  ******************
00014>  ******************     based on the principles of HYMO and its successors      ******************
00015>  ******************               OTTHYMO-83 and OTTHYMO-89.                    ******************
00016>  ***************************************************************************
00017>  ****************** Distributed by:  J.F. Sabourin and Associates Inc.          ******************
00018>  ******************                  Ottawa,  Ontario: (613) 836-3884          ******************
00019>  ******************                  Gatineau, Quebec: (819) 243-6858          ******************
00020>  ******************                  E-Mail: swmhymo@jfsa.com                  ******************
00021>  ***************************************************************************
00022>
00023>  +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00024>  ++++++++++++++++++ Licensed user: C.F. Crozier & Associates Inc.      ++++++++++++++++++++
00025>  ++++++++++++++++++                 Collingwood          SERIAL#:3737016          ++++++++++++++++++++
00026>  +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>  ***************************************************************************
00029>  ******************          ++++++ PROGRAM ARRAY DIMENSIONS ++++++          ******************
00030>  ******************          Maximum value for ID numbers  :     11         ******************
00031>  ******************          Max. number of rainfall points: 105408         ******************
00032>  ******************          Max. number of flow points    : 105408         ******************
00033>  ***************************************************************************
00034>
00035>
00036>  ***************************************  S U M M A R Y   O U T P U T  ***************************************
00037>  ***************************************************************************************************
00038>  *                  RUN DATE: 2020-06-15     TIME: 12:04:00     RUN COUNTER: 000002                  *
00039>  ***************************************************************************************************
00040>  * Input   file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2019 SWM*
00041>  *               HYMO\KCpond\POST_KCHU.DAT                                                         *
00042>  * Output  file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2019 SWM*
00043>  *               HYMO\KCpond\POST_KCHU.out                                                         *
00044>  * Summary file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2019 SWM*
00045>  *               HYMO\KCpond\POST_KCHU.sum                                                         *
00046>  * User comments:                                                                                 *
00047>  * 1:_____________________________________________________________________________________________*
00048>  * 2:_____________________________________________________________________________________________*
00049>  * 3:_____________________________________________________________________________________________*
00050>  ***************************************************************************************************
00051>
00052>
00053> #*************************************************************************
00054> #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00055> #  Date        : 2018-09-18 [UPDATED 2020-06-15]
00056> #  Modeller    : [OD - UPDATED BY BD/BH - UPDATED BY JE]
00057> #  Company     : C.F. Crozier & Associates Inc.
00058> #  License #   : 3737016
00059> #*************************************************************************
00060>  RUN#:COMMAND#
00061> R0001:C00001-------------------------------------------------------------------------------------------------
00062>       START
00063>         [TZERO =    .00 hrs on       0]
00064>         [METOUT=   2   (1=imperial, 2=metric output)]
00065>         [NSTORM=    1 ]
00066>         [NRUN  = 0001 ]
00067> #*************************************************************************
00068> R0001:C00002-------------------------------------------------------------------------------------------------
00069>       READ STORM
00070>         Filename = STORM.001
00071>         Comment  = 25mm 6 hr Kifer Chu Chicago Storm Event
00072>         [SDT=60.00:SDUR=   6.00:PTOT=  25.00]
00073> #-----------------|-------------------------------------------------------------|
00074> #-----------------|-POST-DEVELOPMENT-----------------------------------------------|
00075> #-----------------|-------------------------------------------------------------|
00076> #-----------------|-------------------------------------------------------------|
00077> #-----------------|-Subwatershed 9 External Drainage Area-------------------------|
00078> #-----------------|-Per 'The Orchards' FSSWM Report--------------------------------|
00079> #-----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------------|
00080> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00081> #-----------------|-------------------------------------------------------------|
00082> R0001:C00003-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00083>      CALIB NASHYD            1.0 01:EXT-9A      101.80     .496 No_date    3:55    4.79 .192     .000
00084>        [CN= 80.0: N= 3.00: Tp= 1.00]
00085> R0001:C00004-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00086>      ROUTE CHANNEL    ->     1.0 01:EXT-9A      101.80     .496 No_date    3:55    4.79  n/a     .000
00087>        [RDT= 1.00] out<-     1.0 02:Channel     101.80     .488 No_date    4:05    4.79  n/a     .000
00088>        [L/S/n=  550./2.000/.035]
00089>        [Vmax=  .898:Dmax=  .115]
00090> R0001:C00005-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00091> *   CALIB STANDHYD           1.0 03:EXT-9B      14.80     .241 No_date    3:00    8.40 .336     .000
00092>        [XIMP=.35:TIMP=.35]
00093>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00094>        [Pervious   area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00095>        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00096> R0001:C00006-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00097>      ROUTE RESERVOIR ->     1.0 03:EXT-9B      14.80     .241 No_date    3:00    8.40  n/a     .000
00098>                  out <-     1.0 04:Orchards    14.80     .026 No_date    4:13    8.40  n/a     .000
00099>       {MxStoUsed=.9900E-01  m3}
00100> #-----------------|-------------------------------------------------------------|
00101> #-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing--------|
00102> #-----------------|-------------------------------------------------------------|
00103> R0001:C00007-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00104>      ADD HYD                 1.0 02:Channel     101.80     .488 No_date    4:05    4.79  n/a     .000
00105>                        +     1.0 04:Orchards    14.80     .026 No_date    4:13    8.40  n/a     .000
00106>                      SUM=    1.0 05:RD19        116.60     .514 No_date    4:05    5.25  n/a     .000
00107> #-----------------|-------------------------------------------------------------|
00108> #-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00109> #-----------------|-------------------------------------------------------------|
00110> R0001:C00008-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00111>      CALIB NASHYD            1.0 01:EXT-9C       .65     .009 No_date    3:04    5.75 .230     .000
00112>        [CN= 82.7: N= 3.00: Tp=  .24]
00113> R0001:C00009-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00114>      CALIB NASHYD            1.0 02:9A          .58     .008 No_date    3:00    3.94 .158     .000
00115>        [CN= 79.0: N= 3.00: Tp=  .06]
00116> #-----------------|-----------------------CULVERT #1-----------------------|
00117> R0001:C00010-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00118>      ADD HYD                 1.0 01:EXT-9C       .65     .009 No_date    3:04    5.75  n/a     .000
00119>                        +     1.0 02:9A          .58     .008 No_date    3:00    3.94  n/a     .000
00120>                        +     1.0 05:RD19        116.60     .514 No_date    4:05    5.25  n/a     .000
00121>                      SUM=    1.0 03:CULV1       117.83     .517 No_date    4:05    5.24  n/a     .000
00122> R0001:C00011-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00123>      CALIB NASHYD            1.0 01:9B          2.10     .005 No_date    3:08    1.04 .042     .000
00124>        [CN= 51.5: N= 3.00: Tp=  .28]
00125> #-----------------|-----------------------CULVERT #2-----------------------|
00126> R0001:C00012-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00127>      ADD HYD                 1.0 01:9B          2.10     .005 No_date    3:08    1.04  n/a     .000
00128>                        +     1.0 03:CULV1       117.83     .517 No_date    4:05    5.24  n/a     .000
00129>                      SUM=    1.0 04:WC9a        119.93     .518 No_date    4:04    5.17  n/a     .000
00130> #-----------------|-------------------------------------------------------------|
00131> #-----------------|-AREAS TO SWM FACILITY 1----------------------------------|
00132> #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
00133> #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
00134> #-----------------|-------------------------------------------------------------|
00135> R0001:C00013-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00136>      CALIB NASHYD            1.0 01:EXT-1A      8.37     .037 No_date    3:20    2.71 .108     .000
00137>        [CN= 74.9: N= 3.00: Tp=  .47]
00138> R0001:C00014-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00139>      CALIB STANDHYD          1.0 03:1A          2.95     .060 No_date    3:00   10.11 .404     .000
00140>        [XIMP=.31:TIMP=.51]
00141>        [LOSS= 2 :CN= 67.0]
00142>        [Pervious   area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
00143>        [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
00144> R0001:C00015-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00145>      ADD HYD                 1.0 01:EXT-1A      8.37     .037 No_date    3:20    2.71  n/a     .000
00146>                        +     1.0 03:1A          2.95     .060 No_date    3:00   10.11  n/a     .000
00147>                      SUM=    1.0 06:NODE        11.32     .084 No_date    3:00    4.64  n/a     .000
00148> R0001:C00016-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00149>      CALIB NASHYD            1.0 05:1B          1.81     .005 No_date    3:01     .80 .032     .000
00150>        [CN= 44.3: N= 3.00: Tp=  .11]
00151> R0001:C00017-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00152>      ADD HYD                 1.0 01:EXT-1A      8.37     .037 No_date    3:20    2.71  n/a     .000
00153>                        +     1.0 03:1A          2.95     .060 No_date    3:00   10.11  n/a     .000
00154>                        +     1.0 05:1B          1.81     .005 No_date    3:01     .80  n/a     .000
00155>                      SUM=    1.0 06:SWMF1       13.13     .088 No_date    3:00    4.11  n/a     .000
00156> #-----------------|-------------------------------------------------------------|
00157> #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE------|
00158> #-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
00159> #-----------------|-------------------------------------------------------------|
00160> R0001:C00018-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00161>      ROUTE RESERVOIR ->     1.0 06:SWMF1       13.13     .088 No_date    3:00    4.11  n/a     .000
00162>                  out <-     1.0 01:SWMF-1      13.13     .010 No_date    6:02    4.11  n/a     .000
00163>       {MxStoUsed=.4141E-01  m3}
00164> R0001:C00019-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00165>      ADD HYD                 1.0 01:SWMF-1      13.13     .010 No_date    6:02    4.11  n/a     .000
00166>                        +     1.0 04:WC9a        119.93     .518 No_date    4:04    5.17  n/a     .000
00167>                      SUM=    1.0 07:WC9b        133.06     .527 No_date    4:05    5.07  n/a     .000
00168> #-----------------|-------------------------------------------------------------|
00169> #-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00170> #-----------------|-------------------------------------------------------------|
00171> #-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS------|
00172> #-----------------|-------------------------------------------------------------|
00173> R0001:C00020-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00174>      CALIB STANDHYD          1.0 10:9D          1.32     .033 No_date    3:00   12.24 .490     .000
00175>        [XIMP=.35:TIMP=.71]
00176>        [LOSS= 2 :CN= 66.1]
00177>        [Pervious   area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00178>        [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
00179> #-----------------|-------------------------------------------------------------|
00180> #-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
00181> #-----------------|-------------------------------------------------------------|
00182> R0001:C00021-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00183>      CALIB NASHYD            1.0 01:9C           .82     .001 No_date    3:07     .71 .029     .000
00184>        [CN= 40.9: N= 3.00: Tp=  .25]
00185> #-----------------|-----------------------CULVERT #3-----------------------|
00186> R0001:C00022-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00187>      ADD HYD                 1.0 07:WC9b        133.06     .527 No_date    4:05    5.07  n/a     .000
00188>                        +     1.0 01:9C           .82     .001 No_date    3:07     .71  n/a     .000
00189>                      SUM=    1.0 04:CULV3       133.88     .528 No_date    4:05    5.04  n/a     .000
00190> R0001:C00023-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00191>      CALIB NASHYD            1.0 01:9F           .38     .001 No_date    3:10    1.29 .051     .000
00192>        [CN= 52.2: N= 3.00: Tp=  .32]
00193> R0001:C00024-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00194>      CALIB NASHYD            1.0 02:EXT-9D       .78     .005 No_date    3:22    3.66 .146     .000
00195>        [CN= 78.8: N= 3.00: Tp=  .52]
00196> R0001:C00025-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00197>      CALIB NASHYD            1.0 03:9E          1.24     .007 No_date    3:05    2.27 .091     .000
00198>        [CN= 66.3: N= 3.00: Tp=  .23]
00199> R0001:C00026-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00200>      ADD HYD                 1.0 01:9F           .38     .001 No_date    3:10    1.29  n/a     .000
00201>                        +     1.0 02:EXT-9D       .78     .005 No_date    3:22    3.66  n/a     .000
00202>                        +     1.0 03:9E          1.24     .007 No_date    3:05    2.27  n/a     .000
00203>                        +     1.0 10:9D          1.32     .033 No_date    3:00   12.24  n/a     .000
00204>                      SUM=    1.0 05:NODE        3.72     .043 No_date    3:00    6.00  n/a     .000
00205> R0001:C00027-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00206>      ADD HYD                 1.0 01:9F           .38     .001 No_date    3:10    1.29  n/a     .000
00207>                        +     1.0 02:EXT-9D       .78     .005 No_date    3:22    3.66  n/a     .000
00208>                        +     1.0 03:9E          1.24     .007 No_date    3:05    2.27  n/a     .000
00209>                        +     1.0 04:CULV3       133.88     .528 No_date    4:05    5.04  n/a     .000
00210>                        +     1.0 10:9D          1.32     .033 No_date    3:00   12.24  n/a     .000
00211>                      SUM=    1.0 05:WC9LOWER    137.60     .538 No_date    4:03    5.07  n/a     .000
00212> #-----------------|-------------------------------------------------------------|
00213> #-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
00214> #-----------------|-------------------------------------------------------------|
00215> R0001:C00028-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00216>      CALIB NASHYD            1.0 01:2A          1.19     .002 No_date    3:02     .45 .018     .000
00217>        [CN= 33.2: N= 3.00: Tp=  .14]
00218> R0001:C00029-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00219>      CALIB NASHYD            1.0 02:2B          1.67     .002 No_date    3:11     .51 .020     .000
00220>        [CN= 34.7: N= 3.00: Tp=  .32]
00221> R0001:C00030-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00222>      ADD HYD                 1.0 01:2A          1.19     .002 No_date    3:02     .45  n/a     .000
00223>                        +     1.0 02:2B          1.67     .002 No_date    3:11     .51  n/a     .000
00224>                      SUM=    1.0 10:2A2B        2.86     .003 No_date    3:04     .49  n/a     .000
00225> R0001:C00031-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00226>      CALIB STANDHYD          1.0 03:2C          1.96     .033 No_date    3:00    8.88 .355     .000
00227>        [XIMP=.30:TIMP=.60]
00228>        [LOSS= 2 :CN= 49.0]
00229>        [Pervious   area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00230>        [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
00231> R0001:C00032-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00232>      CALIB STANDHYD          1.0 07:2D          3.28     .051 No_date    3:00    8.31 .332     .000
00233>        [XIMP=.25:TIMP=.50]
00234>        [LOSS= 2 :CN= 59.0]
00235>        [Pervious   area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00236>        [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
00237> R0001:C00033-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00238>      CALIB STANDHYD          1.0 04:2E          1.49     .030 No_date    3:00   10.59 .423     .000
00239>        [XIMP=.37:TIMP=.42]
00240>        [LOSS= 2 :CN= 69.0]
00241>        [Pervious   area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00242>        [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
00243> R0001:C00034-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00244>      ADD HYD                 1.0 10:2A2B        2.86     .003 No_date    3:04     .49  n/a     .000
00245>                        +     1.0 03:2C          1.96     .033 No_date    3:00    8.88  n/a     .000
00246>                        +     1.0 04:2E          1.49     .030 No_date    3:00   10.59  n/a     .000
00247>                        +     1.0 07:2D          3.28     .051 No_date    3:00    8.31  n/a     .000
00248>                      SUM=    1.0 06:SWMF2       9.59     .117 No_date    3:00    6.45  n/a     .000
00249> #-----------------|-------------------------------------------------------------|
00250> #-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
00251> #-----------------|-------------------------------------------------------------|
00252> R0001:C00035-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00253>      ROUTE RESERVOIR ->     1.0 06:SWMF2       9.59     .117 No_date    3:00    6.45  n/a     .000
00254>                  out <-     1.0 09:SWMF-2      9.59     .013 No_date    4:51    6.45  n/a     .000
00255>       {MxStoUsed=.4633E-01  m3}
00256> #-----------------|-------------------------------------------------------------|
00257> #-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
00258> #-----------------|-------------------------------------------------------------|
00259> R0001:C00036-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00260>      ADD HYD                 1.0 09:SWMF-2      9.59     .013 No_date    4:51    6.45  n/a     .000
00261>                        +     1.0 05:WC9LOWER    137.60     .538 No_date    4:03    5.07  n/a     .000
00262>                      SUM=    1.0 01:WC9c        147.19     .551 No_date    4:03    5.16  n/a     .000
00263> R0001:C00037-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00264>      SAVE HYD                1.0 01:WC9c        147.19     .551 No_date    4:03    5.16  n/a     .000
00265>        fname :WC9c.0001
00266>        remark:POST-DEV LAKESHORE
00267> #-----------------|-------------------------------------------------------------|
00268> #-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
00269> #-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
00270> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
00271> #-----------------|-------------------------------------------------------------|
00272> R0001:C00038-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00273>      CALIB NASHYD            1.0 01:8A          2.27     .003 No_date    3:06     .58 .023     .000
00274>        [CN= 36.2: N= 3.00: Tp=  .23]
00275> R0001:C00039-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00276>      CALIB NASHYD            1.0 02:EXT-8A      7.14     .030 No_date    3:17    2.41 .097     .000
00277>        [CN= 68.9: N= 3.00: Tp=  .44]
00278> #-----------------|-------------------------------------------------------------|
00279> #-----------------|--WATERCOURSE 8 TOTAL-------------------------------------|
00280> #-----------------|-------------------------------------------------------------|
00281> R0001:C00040-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00282>      ADD HYD                 1.0 01:8A          2.27     .003 No_date    3:06     .58  n/a     .000
00283>                        +     1.0 02:EXT-8A      7.14     .030 No_date    3:17    2.41  n/a     .000
00284>                      SUM=    1.0 03:WC8         9.41     .033 No_date    3:15    1.97  n/a     .000
00285>   ** END OF RUN :    1
00286>
00287> ***************************************************************************************************
00288>
00289>
00290>
00291>
00292>
00293>  RUN#:COMMAND#
00294> R0002:C00001-------------------------------------------------------------------------------------------------
00295>       START
00296>         [TZERO =    .00 hrs on       0]
00297>         [METOUT=   2   (1=imperial, 2=metric output)]
00298>         [NSTORM=    1 ]
00299>         [NRUN  = 0002 ]
00300> #*************************************************************************
00301> #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00302> #  Date        : 2018-09-18 [UPDATED 2020-06-15]
00303> #  Modeller    : [OD - UPDATED BY BD/BH - UPDATED BY JE]
00304> #  Company     : C.F. Crozier & Associates Inc.
00305> #  License #   : 3737016
00306> #*************************************************************************
00307> #*************************************************************************
00308> R0002:C00002-------------------------------------------------------------------------------------------------
00309>       READ STORM
00310>         Filename = STORM.001
00311>         Comment  = 2-Year 6 hr Kefer Chu Chicago Storm Event
00312>         [SDT=60.00:SDUR=   6.00:PTOT=  37.90]
00313> #-----------------|-------------------------------------------------------------|
00314> #-----------------|-POST-DEVELOPMENT-----------------------------------------------|
00315> #-----------------|-------------------------------------------------------------|
00316> #-----------------|-------------------------------------------------------------|
00317> #-----------------|-Subwatershed 9 External Drainage Area-------------------------|
00318> #-----------------|-Per 'The Orchards' FSSWM Report--------------------------------|
00319> #-----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------------|
00320> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00321> #-----------------|-------------------------------------------------------------|
00322> R0002:C00003-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00323>      CALIB NASHYD            1.0 01:EXT-9A      101.80    1.200 No_date    3:51   11.23 .296     .000
00324>        [CN= 80.0: N= 3.00: Tp= 1.00]
00325> R0002:C00004-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00326>      ROUTE CHANNEL    ->     1.0 01:EXT-9A      101.80    1.200 No_date    3:51   11.23  n/a     .000
00327>        [RDT= 1.00] out<-     1.0 02:Channel     101.80    1.195 No_date    3:54   11.23  n/a     .000
00328>        [L/S/n=  550./2.000/.035]
```

```
       {Vmax= 1.224:Dmax=  .193}
R0002:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:EXT-9B        14.80     .439 No_date    3:01   15.55 .410      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0002:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 03:EXT-9B        14.80     .439 No_date    3:01   15.55  n/a      .000
                out <=   1.0 04:Orchards      14.80     .059 No_date    4:13   15.55  n/a      .000
     {MxStoUsed=.1807E+00  m3}
#-----------------|------------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|------------------------------------------------------------|
R0002:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 02:Channel      101.80    1.195 No_date    3:54   11.23  n/a      .000
                  +      1.0 04:Orchards      14.80     .059 No_date    4:13   15.55  n/a      .000
               SUM=      1.0 05:RD19         116.60    1.253 No_date    3:54   11.78  n/a      .000
#-----------------|------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|------------------------------------------------------------|
R0002:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9C          .65     .020 No_date    3:04   12.94 .341      .000
      [CN= 82.7: N= 3.00: Tp=  .24]
R0002:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:9A              .58     .018 No_date    3:00    9.92 .262      .000
      [CN= 79.0: N= 3.00: Tp=  .06]
#-----------------|-----------------------CULVERT #1-------------------------|
R0002:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-9C          .65     .020 No_date    3:04   12.94  n/a      .000
                  +      1.0 02:9A              .58     .018 No_date    3:00    9.92  n/a      .000
                  +      1.0 05:RD19         116.60    1.253 No_date    3:54   11.78  n/a      .000
               SUM=      1.0 03:CULV1        117.83    1.260 No_date    3:54   11.77  n/a      .000
R0002:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9B             2.10     .015 No_date    3:07    3.18 .084      .000
      [CN= 51.5: N= 3.00: Tp=  .28]
#-----------------|-----------------------CULVERT #2-------------------------|
R0002:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9B             2.10     .015 No_date    3:07    3.18  n/a      .000
                  +      1.0 03:CULV1        117.83    1.260 No_date    3:54   11.77  n/a      .000
               SUM=      1.0 04:WC9a         119.93    1.265 No_date    3:54   11.62  n/a      .000
#-----------------|------------------------------------------------------------|
#-----------------|-AREAS TO SWM FACILITY 1-----------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
#-----------------|------------------------------------------------------------|
R0002:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-1A         8.37     .111 No_date    3:17    7.59 .200      .000
      [CN= 74.9: N= 3.00: Tp=  .47]
R0002:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:1A             2.95     .111 No_date    3:00   17.87 .472      .000
      [XIMP=.31:TIMP=.51]
      [LOSS= 2 :CN= 67.0]
      [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0002:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-1A         8.37     .111 No_date    3:17    7.59  n/a      .000
                  +      1.0 03:1A             2.95     .111 No_date    3:00   17.87  n/a      .000
               SUM=      1.0 06:NODE          11.32     .193 No_date    3:00   10.27  n/a      .000
R0002:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 05:1B             1.81     .014 No_date    3:01    2.47 .065      .000
      [CN= 44.3: N= 3.00: Tp=  .11]
R0002:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-1A         8.37     .111 No_date    3:17    7.59  n/a      .000
                  +      1.0 03:1A             2.95     .111 No_date    3:00   17.87  n/a      .000
                  +      1.0 05:1B             1.81     .014 No_date    3:01    2.47  n/a      .000
               SUM=      1.0 06:SWMF1         13.13     .207 No_date    3:00    9.20  n/a      .000
#-----------------|------------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
#-----------------|------------------------------------------------------------|
R0002:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 06:SWMF1         13.13     .207 No_date    3:00    9.20  n/a      .000
                out <=   1.0 01:SWMF-1        13.13     .019 No_date    6:03    9.20  n/a      .000
     {MxStoUsed=.9604E-01  m3}
R0002:C00019------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:SWMF-1        13.13     .019 No_date    6:03    9.20  n/a      .000
                  +      1.0 04:WC9a         119.93    1.265 No_date    3:54   11.62  n/a      .000
               SUM=      1.0 07:WC9b         133.06    1.282 No_date    3:54   11.38  n/a      .000
#-----------------|------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|------------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|------------------------------------------------------------|
R0002:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 10:9D             1.32     .060 No_date    3:00   21.44 .566      .000
      [XIMP=.35:TIMP=.71]
      [LOSS= 2 :CN= 66.1]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#-----------------|------------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
#-----------------|------------------------------------------------------------|
R0002:C00021------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9C              .82     .004 No_date    3:06    2.19 .058      .000
      [CN= 40.9: N= 3.00: Tp=  .25]
#-----------------|-----------------------CULVERT #3-------------------------|
R0002:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 07:WC9b         133.06    1.282 No_date    3:54   11.38  n/a      .000
                  +      1.0 01:9C              .82     .004 No_date    3:06    2.19  n/a      .000
               SUM=      1.0 04:CULV3        133.88    1.283 No_date    3:54   11.33  n/a      .000
R0002:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9F              .38     .003 No_date    3:08    3.61 .095      .000
      [CN= 52.2: N= 3.00: Tp=  .32]
R0002:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:EXT-9D          .78     .012 No_date    3:19    9.49 .250      .000
      [CN= 78.8: N= 3.00: Tp=  .52]
R0002:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 03:9E             1.24     .019 No_date    3:04    6.07 .160      .000
      [CN= 66.3: N= 3.00: Tp=  .23]
R0002:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9F              .38     .003 No_date    3:08    3.61  n/a      .000
                  +      1.0 02:EXT-9D          .78     .012 No_date    3:19    9.49  n/a      .000
                  +      1.0 03:9E             1.24     .019 No_date    3:04    6.07  n/a      .000
                  +      1.0 10:9D             1.32     .060 No_date    3:00   21.44  n/a      .000
               SUM=      1.0 05:NODE           3.72     .089 No_date    3:00   11.99  n/a      .000
R0002:C00027------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9F              .38     .003 No_date    3:08    3.61  n/a      .000
                  +      1.0 02:EXT-9D          .78     .012 No_date    3:19    9.49  n/a      .000
                  +      1.0 03:9E             1.24     .019 No_date    3:04    6.07  n/a      .000
                  +      1.0 04:CULV3        133.88    1.283 No_date    3:54   11.33  n/a      .000
                  +      1.0 10:9D             1.32     .060 No_date    3:00   21.44  n/a      .000
               SUM=      1.0 05:WC9LOWER     137.60    1.307 No_date    3:53   11.35  n/a      .000
#-----------------|------------------------------------------------------------|
#-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
#-----------------|------------------------------------------------------------|
R0002:C00028------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:2A             1.19     .005 No_date    3:02    1.48 .039      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0002:C00029------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:2B             1.67     .006 No_date    3:09    1.64 .043      .000
      [CN= 34.7: N= 3.00: Tp=  .32]
R0002:C00030------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:2A             1.19     .005 No_date    3:02    1.48  n/a      .000
                  +      1.0 02:2B             1.67     .006 No_date    3:09    1.64  n/a      .000
               SUM=      1.0 10:2A2B           2.86     .011 No_date    3:04    1.57  n/a      .000
R0002:C00031------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:2C             1.96     .059 No_date    3:00   15.39 .406      .000
      [XIMP=.30:TIMP=.60]
      [LOSS= 2 :CN= 49.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
R0002:C00032------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 07:2D             3.28     .095 No_date    3:00   14.89 .393      .000
      [XIMP=.25:TIMP=.50]
      [LOSS= 2 :CN= 59.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
R0002:C00033------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 04:2E             1.49     .053 No_date    3:00   18.33 .484      .000
      [XIMP=.37:TIMP=.42]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
R0002:C00034------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 10:2A2B           2.86     .011 No_date    3:04    1.57  n/a      .000
                  +      1.0 03:2C             1.96     .059 No_date    3:00   15.39  n/a      .000
                  +      1.0 04:2E             1.49     .053 No_date    3:00   18.33  n/a      .000
                  +      1.0 07:2D             3.28     .095 No_date    3:00   14.89  n/a      .000
               SUM=      1.0 06:SWMF2          9.59     .218 No_date    3:00   11.55  n/a      .000
#-----------------|------------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
#-----------------|------------------------------------------------------------|
R0002:C00035------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 06:SWMF2          9.59     .218 No_date    3:00   11.55  n/a      .000
                out <=   1.0 09:SWMF-2         9.59     .019 No_date    5:08   11.55  n/a      .000
     {MxStoUsed=.8655E-01  m3}
#-----------------|------------------------------------------------------------|
#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
#-----------------|------------------------------------------------------------|
R0002:C00036------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 09:SWMF-2         9.59     .019 No_date    5:08   11.55  n/a      .000
                  +      1.0 05:WC9LOWER     137.60    1.307 No_date    3:53   11.35  n/a      .000
               SUM=      1.0 01:WC9c         147.19    1.325 No_date    3:54   11.36  n/a      .000
R0002:C00037------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD             1.0 01:WC9c         147.19    1.325 No_date    3:54   11.36  n/a      .000
      fname :WC9c.0002
      remark:POST-DEV LAKESHORE
#-----------------|------------------------------------------------------------|
#-----------------|--WATERCOURSE 8 CATCHMENTS---------------------------------|
#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8--------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
#-----------------|------------------------------------------------------------|
R0002:C00038------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:8A             2.27     .010 No_date    3:05    1.80 .047      .000
      [CN= 36.2: N= 3.00: Tp=  .23]
R0002:C00039------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:EXT-8A         7.14     .085 No_date    3:14    6.52 .172      .000
      [CN= 68.9: N= 3.00: Tp=  .44]
#-----------------|------------------------------------------------------------|
#-----------------|--WATERCOURSE 8 TOTAL--------------------------------------|
#-----------------|------------------------------------------------------------|
R0002:C00040------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:8A             2.27     .010 No_date    3:05    1.80  n/a      .000
                  +      1.0 02:EXT-8A         7.14     .085 No_date    3:14    6.52  n/a      .000
               SUM=      1.0 03:WC8            9.41     .093 No_date    3:13    5.38  n/a      .000
  ** 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: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
#  Date         : 2018-09-18 [UPDATED 2020-06-15]
#  Modeller     : [OD - UPDATED BY BD/BH - UPDATED BY JE]
#  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]
#-----------------|------------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT------------------------------------------|
#-----------------|------------------------------------------------------------|
#-----------------|------------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area--------------------|
#-----------------|-Per 'The Orchards' FSSWM Report-------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|------------------------------------------------------------|
R0003:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9A       101.80    2.169 No_date    3:49   20.46 .388      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0003:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->   1.0 01:EXT-9A       101.80    2.169 No_date    3:49   20.46  n/a      .000
     [RDT= 1.00] out<-   1.0 02:Channel      101.80    2.160 No_date    3:53   20.46  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.515:Dmax=  .268}
R0003:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:EXT-9B        14.80     .867 No_date    3:01   26.69 .506      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0003:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 03:EXT-9B        14.80     .867 No_date    3:01   26.69  n/a      .000
                out <=   1.0 04:Orchards      14.80     .226 No_date    3:36   26.69  n/a      .000
     {MxStoUsed=.2842E+00  m3}
#-----------------|------------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|------------------------------------------------------------|
R0003:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 02:Channel      101.80    2.160 No_date    3:53   20.46  n/a      .000
                  +      1.0 04:Orchards      14.80     .226 No_date    3:36   26.69  n/a      .000
               SUM=      1.0 05:RD19         116.60    2.377 No_date    3:51   21.25  n/a      .000
#-----------------|------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|------------------------------------------------------------|
R0003:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9C          .65     .034 No_date    3:03   22.98 .436      .000
      [CN= 82.7: N= 3.00: Tp=  .24]
R0003:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:9A              .58     .031 No_date    3:00   18.71 .355      .000
      [CN= 79.0: N= 3.00: Tp=  .06]
#-----------------|-----------------------CULVERT #1-------------------------|
R0003:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-9C          .65     .034 No_date    3:03   22.98  n/a      .000
                  +      1.0 02:9A              .58     .031 No_date    3:00   18.71  n/a      .000
                  +      1.0 05:RD19         116.60    2.377 No_date    3:51   21.25  n/a      .000
               SUM=      1.0 03:CULV1        117.83    2.390 No_date    3:51   21.25  n/a      .000
R0003:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9B             2.10     .032 No_date    3:06    6.84 .130      .000
      [CN= 51.5: N= 3.00: Tp=  .28]
#-----------------|-----------------------CULVERT #2-------------------------|
R0003:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9B             2.10     .032 No_date    3:06    6.84  n/a      .000
                  +      1.0 03:CULV1        117.83    2.390 No_date    3:51   21.25  n/a      .000
               SUM=      1.0 04:WC9a         119.93    2.399 No_date    3:51   21.00  n/a      .000
#-----------------|------------------------------------------------------------|
#-----------------|-AREAS TO SWM FACILITY 1-----------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
#-----------------|------------------------------------------------------------|
R0003:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-1A         8.37     .219 No_date    3:15   15.16 .288      .000
      [CN= 74.9: N= 3.00: Tp=  .47]
R0003:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:1A             2.95     .173 No_date    3:00   27.97 .531      .000
      [XIMP=.31:TIMP=.51]
      [LOSS= 2 :CN= 67.0]
      [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0003:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-1A         8.37     .219 No_date    3:15   15.16  n/a      .000
                  +      1.0 03:1A             2.95     .173 No_date    3:00   27.97  n/a      .000
               SUM=      1.0 06:NODE          11.32     .347 No_date    3:00   18.50  n/a      .000
R0003:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 05:1B             1.81     .028 No_date    3:01    5.36 .102      .000
      [CN= 44.3: N= 3.00: Tp=  .11]
R0003:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-1A         8.37     .219 No_date    3:15   15.16  n/a      .000
                  +      1.0 03:1A             2.95     .173 No_date    3:00   27.97  n/a      .000
                  +      1.0 05:1B             1.81     .028 No_date    3:01    5.36  n/a      .000
               SUM=      1.0 06:SWMF1         13.13     .374 No_date    3:00   16.69  n/a      .000
#-----------------|------------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
#-----------------|------------------------------------------------------------|
R0003:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 06:SWMF1         13.13     .374 No_date    3:00   16.69  n/a      .000
                out <=   1.0 01:SWMF-1        13.13     .028 No_date    6:15   16.69  n/a      .000
     {MxStoUsed=.1819E+00  m3}
R0003:C00019------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:SWMF-1        13.13     .028 No_date    6:15   16.69  n/a      .000
                  +      1.0 04:WC9a         119.93    2.399 No_date    3:51   21.00  n/a      .000
               SUM=      1.0 07:WC9b         133.06    2.424 No_date    3:51   20.57  n/a      .000
#-----------------|------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|------------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|------------------------------------------------------------|
R0003:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 10:9D             1.32     .091 No_date    3:00   33.07 .628      .000
      [XIMP=.35:TIMP=.71]
      [LOSS= 2 :CN= 66.1]
```

```
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#-----------------|---------------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
#-----------------|---------------------------------------------------------------|
R0003:C00021------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9C            .82      .009 No_date    3:05    4.76 .090      .000
      [CN= 40.9: N= 3.00: Tp=  .25]
#-----------------|----------------------CULVERT #3-------------------------|
R0003:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 07:WC9b        133.06    2.424 No_date    3:51   20.57  n/a      .000
                    +     1.0 01:9C            .82      .009 No_date    3:05    4.76  n/a      .000
                 SUM=     1.0 04:CULV3       133.88    2.426 No_date    3:51   20.47  n/a      .000
R0003:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9F            .38      .006 No_date    3:08    7.49 .142      .000
      [CN= 52.2: N= 3.00: Tp=  .32]
R0003:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:EXT-9D        .78      .023 No_date    3:17   18.15 .344      .000
      [CN= 78.8: N= 3.00: Tp=  .52]
R0003:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 03:9E           1.24      .035 No_date    3:04   12.08 .229      .000
      [CN= 66.3: N= 3.00: Tp=  .23]
R0003:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F            .38      .006 No_date    3:08    7.49  n/a      .000
                    +     1.0 02:EXT-9D        .78      .023 No_date    3:17   18.15  n/a      .000
                    +     1.0 03:9E           1.24      .035 No_date    3:04   12.08  n/a      .000
                    +     1.0 10:9D           1.32      .091 No_date    3:00   33.07  n/a      .000
                 SUM=     1.0 05:NODE         3.72      .149 No_date    3:00   20.33  n/a      .000
R0003:C00027------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F            .38      .006 No_date    3:08    7.49  n/a      .000
                    +     1.0 02:EXT-9D        .78      .023 No_date    3:17   18.15  n/a      .000
                    +     1.0 03:9E           1.24      .035 No_date    3:04   12.08  n/a      .000
                    +     1.0 04:CULV3       133.88    2.426 No_date    3:51   20.47  n/a      .000
                    +     1.0 10:9D           1.32      .091 No_date    3:00   33.07  n/a      .000
                 SUM=     1.0 05:WC9LOWER    137.60    2.468 No_date    3:50   20.47  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-LANDS DRAINING TO SWM FACILITY 2------------------------|
#-----------------|---------------------------------------------------------------|
R0003:C00028------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:2A           1.19      .011 No_date    3:02    3.35 .064      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0003:C00029------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:2B           1.67      .013 No_date    3:08    3.64 .069      .000
      [CN= 34.7: N= 3.00: Tp=  .32]
R0003:C00030------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:2A           1.19      .011 No_date    3:02    3.35  n/a      .000
                    +     1.0 02:2B           1.67      .013 No_date    3:08    3.64  n/a      .000
                 SUM=     1.0 10:2A2B         2.86      .023 No_date    3:03    3.52  n/a      .000
R0003:C00031------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:2C           1.96      .092 No_date    3:00   23.87 .453      .000
      [XIMP=.30:TIMP=.60]
      [LOSS= 2 :CN= 49.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
R0003:C00032------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 07:2D           3.28      .153 No_date    3:00   23.64 .449      .000
      [XIMP=.25:TIMP=.50]
      [LOSS= 2 :CN= 59.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
R0003:C00033------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 04:2E           1.49      .083 No_date    3:00   28.29 .537      .000
      [XIMP=.37:TIMP=.42]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
R0003:C00034------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 10:2A2B         2.86      .023 No_date    3:03    3.52  n/a      .000
                    +     1.0 03:2C           1.96      .092 No_date    3:00   23.87  n/a      .000
                    +     1.0 04:2E           1.49      .083 No_date    3:00   28.29  n/a      .000
                    +     1.0 07:2D           3.28      .153 No_date    3:00   23.64  n/a      .000
                 SUM=     1.0 06:SWMF2        9.59      .350 No_date    3:00   18.41  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
#-----------------|---------------------------------------------------------------|
R0003:C00035------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 06:SWMF2        9.59      .350 No_date    3:00   18.41  n/a      .000
                out <=    1.0 09:SWMF-2       9.59      .025 No_date    6:02   18.41  n/a      .000
     {MxStoUsed=.1428E+00  m3}
#-----------------|---------------------------------------------------------------|
#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
#-----------------|---------------------------------------------------------------|
R0003:C00036------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 09:SWMF-2       9.59      .025 No_date    6:02   18.41  n/a      .000
                    +     1.0 05:WC9LOWER    137.60    2.468 No_date    3:50   20.47  n/a      .000
                 SUM=     1.0 01:WC9c        147.19    2.492 No_date    3:50   20.34  n/a      .000
R0003:C00037------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD              1.0 01:WC9c        147.19    2.492 No_date    3:50   20.34  n/a      .000
      fname :WC9c.0003
      remark:POST-DEV LAKESHORE
#-----------------|---------------------------------------------------------------|
#-----------------|--WATERCOURSE 8 CATCHMENTS---------------------------------|
#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8--------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
#-----------------|---------------------------------------------------------------|
R0003:C00038------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:8A           2.27      .021 No_date    3:04    3.95 .075      .000
      [CN= 36.2: N= 3.00: Tp=  .23]
R0003:C00039------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:EXT-8A       7.14      .165 No_date    3:13   12.97 .246      .000
      [CN= 68.9: N= 3.00: Tp=  .44]
#-----------------|---------------------------------------------------------------|
#-----------------|--WATERCOURSE 8 TOTAL------------------------------------------|
#-----------------|---------------------------------------------------------------|
R0003:C00040------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:8A           2.27      .021 No_date    3:04    3.95  n/a      .000
                    +     1.0 02:EXT-8A       7.14      .165 No_date    3:13   12.97  n/a      .000
                 SUM=     1.0 03:WC8          9.41      .183 No_date    3:11   10.80  n/a      .000
  ** 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: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
#  Date        : 2018-09-18 [UPDATED 2020-06-15]
#  Modeller    : [OD - UPDATED BY BD/BH - UPDATED BY JE]
#  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]
#-----------------|---------------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT----------------------------------------------|
#-----------------|---------------------------------------------------------------|
#-----------------|---------------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|---------------------------------------------------------------|
R0004:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9A      101.80    3.210 No_date    3:47   29.89 .453      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0004:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->    1.0 01:EXT-9A      101.80    3.210 No_date    3:47   29.89  n/a      .000
     [RDT= 1.00] out<-    1.0 02:Channel     101.80    3.198 No_date    3:51   29.89  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.754:Dmax=  .336}
R0004:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:EXT-9B       14.80    1.268 No_date    3:01   37.69 .571      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0004:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 03:EXT-9B       14.80    1.268 No_date    3:01   37.69  n/a      .000
                out <=    1.0 04:Orchards     14.80     .515 No_date    3:22   37.69  n/a      .000
     {MxStoUsed=.3704E+00  m3}
#-----------------|---------------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|---------------------------------------------------------------|
R0004:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 02:Channel     101.80    3.198 No_date    3:51   29.89  n/a      .000
                    +     1.0 04:Orchards     14.80     .515 No_date    3:22   37.69  n/a      .000
                 SUM=     1.0 05:RD19        116.60    3.614 No_date    3:46   30.88  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|---------------------------------------------------------------|
R0004:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9C        .65      .049 No_date    3:03   33.06 .501      .000
      [CN= 82.7: N= 3.00: Tp=  .24]
R0004:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:9A            .58      .044 No_date    3:00   27.81 .421      .000
      [CN= 79.0: N= 3.00: Tp=  .06]
#-----------------|----------------------CULVERT #1-------------------------|
R0004:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-9C        .65      .049 No_date    3:03   33.06  n/a      .000
                    +     1.0 02:9A            .58      .044 No_date    3:00   27.81  n/a      .000
                    +     1.0 05:RD19        116.60    3.614 No_date    3:46   30.88  n/a      .000
                 SUM=     1.0 03:CULV1       117.83    3.632 No_date    3:46   30.87  n/a      .000
R0004:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9B           2.10      .052 No_date    3:06   11.08 .168      .000
      [CN= 51.5: N= 3.00: Tp=  .28]
#-----------------|----------------------CULVERT #2-------------------------|
R0004:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9B           2.10      .052 No_date    3:06   11.08  n/a      .000
                    +     1.0 03:CULV1       117.83    3.632 No_date    3:46   30.87  n/a      .000
                 SUM=     1.0 04:WC9a        119.93    3.648 No_date    3:45   30.53  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-AREAS TO SWM FACILITY 1-----------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1------------------------|
#-----------------|---------------------------------------------------------------|
R0004:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-1A       8.37      .341 No_date    3:14   23.25 .352      .000
      [CN= 74.9: N= 3.00: Tp=  .47]
R0004:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:1A           2.95      .239 No_date    3:00   37.83 .573      .000
      [XIMP=.31:TIMP=.51]
      [LOSS= 2 :CN= 67.0]
      [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0004:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-1A       8.37      .341 No_date    3:14   23.25  n/a      .000
                    +     1.0 03:1A           2.95      .239 No_date    3:00   37.83  n/a      .000
                 SUM=     1.0 06:NODE        11.32      .519 No_date    3:00   27.05  n/a      .000
R0004:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 05:1B           1.81      .044 No_date    3:01    8.75 .133      .000
      [CN= 44.3: N= 3.00: Tp=  .11]
R0004:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-1A       8.37      .341 No_date    3:14   23.25  n/a      .000
                    +     1.0 03:1A           2.95      .239 No_date    3:00   37.83  n/a      .000
                    +     1.0 05:1B           1.81      .044 No_date    3:01    8.75  n/a      .000
                 SUM=     1.0 06:SWMF1       13.13      .563 No_date    3:00   24.52  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
#-----------------|---------------------------------------------------------------|
R0004:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 06:SWMF1       13.13      .563 No_date    3:00   24.52  n/a      .000
                out <=    1.0 01:SWMF-1      13.13      .033 No_date    6:20   24.52  n/a      .000
     {MxStoUsed=.2756E+00  m3}
R0004:C00019------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:SWMF-1      13.13      .033 No_date    6:20   24.52  n/a      .000
                    +     1.0 04:WC9a        119.93    3.648 No_date    3:45   30.53  n/a      .000
                 SUM=     1.0 07:WC9b        133.06    3.678 No_date    3:46   29.93  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|---------------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|---------------------------------------------------------------|
R0004:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 10:9D           1.32      .123 No_date    3:00   44.19 .670      .000
      [XIMP=.35:TIMP=.71]
      [LOSS= 2 :CN= 66.1]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#-----------------|---------------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
#-----------------|---------------------------------------------------------------|
R0004:C00021------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9C            .82      .015 No_date    3:05    7.80 .118      .000
      [CN= 40.9: N= 3.00: Tp=  .25]
#-----------------|----------------------CULVERT #3-------------------------|
R0004:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 07:WC9b        133.06    3.678 No_date    3:46   29.93  n/a      .000
                    +     1.0 01:9C            .82      .015 No_date    3:05    7.80  n/a      .000
                 SUM=     1.0 04:CULV3       133.88    3.682 No_date    3:46   29.80  n/a      .000
R0004:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9F            .38      .009 No_date    3:07   11.92 .181      .000
      [CN= 52.2: N= 3.00: Tp=  .32]
R0004:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:EXT-9D        .78      .035 No_date    3:16   27.15 .411      .000
      [CN= 78.8: N= 3.00: Tp=  .52]
R0004:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 03:9E           1.24      .054 No_date    3:04   18.66 .283      .000
      [CN= 66.3: N= 3.00: Tp=  .23]
R0004:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F            .38      .009 No_date    3:07   11.92  n/a      .000
                    +     1.0 02:EXT-9D        .78      .035 No_date    3:16   27.15  n/a      .000
                    +     1.0 03:9E           1.24      .054 No_date    3:04   18.66  n/a      .000
                    +     1.0 10:9D           1.32      .123 No_date    3:00   44.19  n/a      .000
                 SUM=     1.0 05:NODE         3.72      .212 No_date    3:00   28.81  n/a      .000
R0004:C00027------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F            .38      .009 No_date    3:07   11.92  n/a      .000
                    +     1.0 02:EXT-9D        .78      .035 No_date    3:16   27.15  n/a      .000
                    +     1.0 03:9E           1.24      .054 No_date    3:04   18.66  n/a      .000
                    +     1.0 04:CULV3       133.88    3.682 No_date    3:46   29.80  n/a      .000
                    +     1.0 10:9D           1.32      .123 No_date    3:00   44.19  n/a      .000
                 SUM=     1.0 05:WC9LOWER    137.60    3.744 No_date    3:45   29.77  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-LANDS DRAINING TO SWM FACILITY 2------------------------|
#-----------------|---------------------------------------------------------------|
R0004:C00028------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:2A           1.19      .018 No_date    3:02    5.61 .085      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0004:C00029------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:2B           1.67      .021 No_date    3:08    6.05 .092      .000
      [CN= 34.7: N= 3.00: Tp=  .32]
R0004:C00030------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:2A           1.19      .018 No_date    3:02    5.61  n/a      .000
                    +     1.0 02:2B           1.67      .021 No_date    3:08    6.05  n/a      .000
                 SUM=     1.0 10:2A2B         2.86      .038 No_date    3:03    5.87  n/a      .000
R0004:C00031------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:2C           1.96      .128 No_date    3:00   32.23 .488      .000
      [XIMP=.30:TIMP=.60]
      [LOSS= 2 :CN= 49.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
R0004:C00032------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 07:2D           3.28      .216 No_date    3:00   32.34 .490      .000
      [XIMP=.25:TIMP=.50]
      [LOSS= 2 :CN= 59.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
R0004:C00033------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 04:2E           1.49      .114 No_date    3:00   37.97 .575      .000
      [XIMP=.37:TIMP=.42]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
R0004:C00034------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 10:2A2B         2.86      .038 No_date    3:03    5.87  n/a      .000
                    +     1.0 03:2C           1.96      .128 No_date    3:00   32.23  n/a      .000
                    +     1.0 04:2E           1.49      .114 No_date    3:00   37.97  n/a      .000
                    +     1.0 07:2D           3.28      .216 No_date    3:00   32.34  n/a      .000
                 SUM=     1.0 06:SWMF2        9.59      .494 No_date    3:00   25.30  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
#-----------------|---------------------------------------------------------------|
R0004:C00035------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 06:SWMF2        9.59      .494 No_date    3:00   25.30  n/a      .000
                out <=    1.0 09:SWMF-2       9.59      .040 No_date    5:18   25.30  n/a      .000
     {MxStoUsed=.1959E+00  m3}
#-----------------|---------------------------------------------------------------|
#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
#-----------------|---------------------------------------------------------------|
R0004:C00036------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 09:SWMF-2       9.59      .040 No_date    5:18   25.30  n/a      .000
                    +     1.0 05:WC9LOWER    137.60    3.744 No_date    3:45   29.77  n/a      .000
                 SUM=     1.0 01:WC9c        147.19    3.774 No_date    3:45   29.48  n/a      .000
R0004:C00037------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD              1.0 01:WC9c        147.19    3.774 No_date    3:45   29.48  n/a      .000
```

```
      fname :WC9c.0004
      remark:POST-DEV LAKESHORE
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 8 CATCHMENTS---------------------------------|
#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8--------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
#-----------------|-----------------------------------------------------------|
R0004:C00038------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:8A            2.27     .035 No_date    3:04    6.52 .099     .000
      [CN= 36.2: N= 3.00: Tp=  .23]
R0004:C00039------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:EXT-8A        7.14     .257 No_date    3:13   19.98 .303     .000
      [CN= 68.9: N= 3.00: Tp=  .44]
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 8 TOTAL--------------------------------------|
#-----------------|-----------------------------------------------------------|
R0004:C00040------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:8A            2.27     .035 No_date    3:04    6.52  n/a     .000
                   +      1.0 02:EXT-8A        7.14     .257 No_date    3:13   19.98  n/a     .000
                SUM=      1.0 03:WC8           9.41     .287 No_date    3:11   16.74  n/a     .000
  ** 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: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
#  Date        : 2018-09-18 [UPDATED 2020-06-15]
#  Modeller    : [OD - UPDATED BY BD/BH - UPDATED BY JE]
#  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]
#-----------------|-----------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT------------------------------------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|-----------------------------------------------------------|
R0005:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9A      101.80    4.139 No_date    3:46   38.96 .500     .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0005:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->    1.0 01:EXT-9A      101.80    4.139 No_date    3:46   38.96  n/a     .000
     [RDT= 1.00] out<-    1.0 02:Channel     101.80    4.128 No_date    3:50   38.96  n/a     .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.895:Dmax=  .385}
R0005:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:EXT-9B       14.80    1.607 No_date    3:00   47.92 .615     .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0005:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 03:EXT-9B       14.80    1.607 No_date    3:00   47.92  n/a     .000
               out <=     1.0 04:Orchards     14.80     .796 No_date    3:17   47.91  n/a     .000
     {MxStoUsed=.4411E+00  m3}
#-----------------|-----------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|-----------------------------------------------------------|
R0005:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 02:Channel     101.80    4.128 No_date    3:50   38.96  n/a     .000
                   +      1.0 04:Orchards     14.80     .796 No_date    3:17   47.91  n/a     .000
                SUM=      1.0 05:RD19        116.60    4.714 No_date    3:46   40.10  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
R0005:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9C         .65     .061 No_date    3:03   42.64 .547     .000
      [CN= 82.7: N= 3.00: Tp=  .24]
R0005:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:9A             .58     .055 No_date    3:00   36.63 .470     .000
      [CN= 79.0: N= 3.00: Tp=  .06]
#-----------------|----------------------CULVERT #1------------------------|
R0005:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-9C         .65     .061 No_date    3:03   42.64  n/a     .000
                   +      1.0 02:9A             .58     .055 No_date    3:00   36.63  n/a     .000
                   +      1.0 05:RD19        116.60    4.714 No_date    3:46   40.10  n/a     .000
                SUM=      1.0 03:CULV1       117.83    4.738 No_date    3:42   40.09  n/a     .000
R0005:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9B            2.10     .070 No_date    3:06   15.54 .199     .000
      [CN= 51.5: N= 3.00: Tp=  .28]
#-----------------|----------------------CULVERT #2------------------------|
R0005:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9B            2.10     .070 No_date    3:06   15.54  n/a     .000
                   +      1.0 03:CULV1       117.83    4.738 No_date    3:42   40.09  n/a     .000
                SUM=      1.0 04:WC9a        119.93    4.762 No_date    3:42   39.66  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-AREAS TO SWM FACILITY 1-----------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1------------------------|
#-----------------|-----------------------------------------------------------|
R0005:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-1A        8.37     .449 No_date    3:14   31.24 .401     .000
      [CN= 74.9: N= 3.00: Tp=  .47]
R0005:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:1A            2.95     .291 No_date    3:00   47.12 .605     .000
      [XIMP=.31:TIMP=.51]
      [LOSS= 2 :CN= 67.0]
      [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0005:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-1A        8.37     .449 No_date    3:14   31.24  n/a     .000
                   +      1.0 03:1A            2.95     .291 No_date    3:00   47.12  n/a     .000
                SUM=      1.0 06:NODE         11.32     .669 No_date    3:00   35.38  n/a     .000
R0005:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 05:1B            1.81     .060 No_date    3:01   12.37 .159     .000
      [CN= 44.3: N= 3.00: Tp=  .11]
R0005:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-1A        8.37     .449 No_date    3:14   31.24  n/a     .000
                   +      1.0 03:1A            2.95     .291 No_date    3:00   47.12  n/a     .000
                   +      1.0 05:1B            1.81     .060 No_date    3:01   12.37  n/a     .000
                SUM=      1.0 06:SWMF1        13.13     .728 No_date    3:00   32.21  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
#-----------------|-----------------------------------------------------------|
R0005:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 06:SWMF1        13.13     .728 No_date    3:00   32.21  n/a     .000
               out <=     1.0 01:SWMF-1       13.13     .052 No_date    6:14   32.21  n/a     .000
     {MxStoUsed=.3626E+00  m3}
R0005:C00019------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:SWMF-1       13.13     .052 No_date    6:14   32.21  n/a     .000
                   +      1.0 04:WC9a        119.93    4.762 No_date    3:42   39.66  n/a     .000
                SUM=      1.0 07:WC9b        133.06    4.795 No_date    3:42   38.93  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|-----------------------------------------------------------|
R0005:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 10:9D            1.32     .148 No_date    3:00   54.51 .700     .000
      [XIMP=.35:TIMP=.71]
      [LOSS= 2 :CN= 66.1]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
#-----------------|-----------------------------------------------------------|
R0005:C00021------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9C             .82     .020 No_date    3:05   11.05 .142     .000
      [CN= 40.9: N= 3.00: Tp=  .25]
#-----------------|----------------------CULVERT #3------------------------|
R0005:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 07:WC9b        133.06    4.795 No_date    3:42   38.93  n/a     .000
                   +      1.0 01:9C             .82     .020 No_date    3:05   11.05  n/a     .000
                SUM=      1.0 04:CULV3       133.88    4.801 No_date    3:42   38.76  n/a     .000
R0005:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9F             .38     .013 No_date    3:07   16.54 .212     .000
      [CN= 52.2: N= 3.00: Tp=  .32]
R0005:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:EXT-9D         .78     .046 No_date    3:16   35.91 .461     .000
      [CN= 78.8: N= 3.00: Tp=  .52]
R0005:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 03:9E            1.24     .071 No_date    3:03   25.30 .325     .000
      [CN= 66.3: N= 3.00: Tp=  .23]
R0005:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F             .38     .013 No_date    3:07   16.54  n/a     .000
                   +      1.0 02:EXT-9D         .78     .046 No_date    3:16   35.91  n/a     .000
                   +      1.0 03:9E            1.24     .071 No_date    3:03   25.30  n/a     .000
                   +      1.0 10:9D            1.32     .148 No_date    3:00   54.51  n/a     .000
                SUM=      1.0 05:NODE          3.72     .267 No_date    3:00   36.99  n/a     .000
R0005:C00027------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F             .38     .013 No_date    3:07   16.54  n/a     .000
                   +      1.0 02:EXT-9D         .78     .046 No_date    3:16   35.91  n/a     .000
                   +      1.0 03:9E            1.24     .071 No_date    3:03   25.30  n/a     .000
                   +      1.0 04:CULV3       133.88    4.801 No_date    3:42   38.76  n/a     .000
                   +      1.0 10:9D            1.32     .148 No_date    3:00   54.51  n/a     .000
                SUM=      1.0 05:WC9LOWER    137.60    4.885 No_date    3:42   38.71  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-LANDS DRAINING TO SWM FACILITY 2--------------------------|
#-----------------|-----------------------------------------------------------|
R0005:C00028------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:2A            1.19     .025 No_date    3:02    8.05 .103     .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0005:C00029------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:2B            1.67     .029 No_date    3:08    8.66 .111     .000
      [CN= 34.7: N= 3.00: Tp=  .32]
R0005:C00030------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:2A            1.19     .025 No_date    3:02    8.05  n/a     .000
                   +      1.0 02:2B            1.67     .029 No_date    3:08    8.66  n/a     .000
                SUM=      1.0 10:2A2B          2.86     .052 No_date    3:03    8.41  n/a     .000
R0005:C00031------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:2C            1.96     .158 No_date    3:00   40.20 .516     .000
      [XIMP=.30:TIMP=.60]
      [LOSS= 2 :CN= 49.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
R0005:C00032------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 07:2D            3.28     .269 No_date    3:00   40.66 .522     .000
      [XIMP=.25:TIMP=.50]
      [LOSS= 2 :CN= 59.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
R0005:C00033------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 04:2E            1.49     .139 No_date    3:00   47.10 .605     .000
      [XIMP=.37:TIMP=.42]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
R0005:C00034------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 10:2A2B          2.86     .052 No_date    3:03    8.41  n/a     .000
                   +      1.0 03:2C            1.96     .158 No_date    3:00   40.20  n/a     .000
                   +      1.0 04:2E            1.49     .139 No_date    3:00   47.10  n/a     .000
                   +      1.0 07:2D            3.28     .269 No_date    3:00   40.66  n/a     .000
                SUM=      1.0 06:SWMF2         9.59     .617 No_date    3:00   31.95  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
#-----------------|-----------------------------------------------------------|
R0005:C00035------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 06:SWMF2         9.59     .617 No_date    3:00   31.95  n/a     .000
               out <=     1.0 09:SWMF-2        9.59     .067 No_date    5:00   31.95  n/a     .000
     {MxStoUsed=.2345E+00  m3}
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD----------------|
#-----------------|-----------------------------------------------------------|
R0005:C00036------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 09:SWMF-2        9.59     .067 No_date    5:00   31.95  n/a     .000
                   +      1.0 05:WC9LOWER    137.60    4.885 No_date    3:42   38.71  n/a     .000
                SUM=      1.0 01:WC9c        147.19    4.943 No_date    3:42   38.27  n/a     .000
R0005:C00037------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD              1.0 01:WC9c        147.19    4.943 No_date    3:42   38.27  n/a     .000
      fname :WC9c.0005
      remark:POST-DEV LAKESHORE
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 8 CATCHMENTS---------------------------------|
#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8--------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
#-----------------|-----------------------------------------------------------|
R0005:C00038------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:8A            2.27     .048 No_date    3:04    9.29 .119     .000
      [CN= 36.2: N= 3.00: Tp=  .23]
R0005:C00039------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:EXT-8A        7.14     .340 No_date    3:12   27.02 .347     .000
      [CN= 68.9: N= 3.00: Tp=  .44]
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 8 TOTAL--------------------------------------|
#-----------------|-----------------------------------------------------------|
R0005:C00040------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:8A            2.27     .048 No_date    3:04    9.29  n/a     .000
                   +      1.0 02:EXT-8A        7.14     .340 No_date    3:12   27.02  n/a     .000
                SUM=      1.0 03:WC8           9.41     .382 No_date    3:10   22.75  n/a     .000
  ** 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: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
#  Date        : 2018-09-18 [UPDATED 2020-06-15]
#  Modeller    : [OD - UPDATED BY BD/BH - UPDATED BY JE]
#  Company     : C.F. Crozier & Associates Inc.
#  License #   : 3737016
#**************************************************************************
#**************************************************************************
R0006:C00002---------------------------------------------------------------------------------------
     READ STORM
      Filename = STORM.001
      Comment  = 50-Year 6 hr Kifer Chu Chicago Storm Event
      [SDT=60.00:SDUR=   6.00:PTOT=  83.90]
#-----------------|-----------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT------------------------------------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|-----------------------------------------------------------|
R0006:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9A      101.80    4.631 No_date    3:46   43.72 .521     .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0006:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->    1.0 01:EXT-9A      101.80    4.631 No_date    3:46   43.72  n/a     .000
     [RDT= 1.00] out<-    1.0 02:Channel     101.80    4.621 No_date    3:49   43.72  n/a     .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.979:Dmax=  .411}
R0006:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:EXT-9B       14.80    1.769 No_date    3:00   52.72 .628     .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0006:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 03:EXT-9B       14.80    1.769 No_date    3:00   52.72  n/a     .000
               out <=     1.0 04:Orchards     14.80     .927 No_date    3:16   52.72  n/a     .000
     {MxStoUsed=.4726E+00  m3}
#-----------------|-----------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|-----------------------------------------------------------|
R0006:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 02:Channel     101.80    4.621 No_date    3:49   43.72  n/a     .000
                   +      1.0 04:Orchards     14.80     .927 No_date    3:16   52.72  n/a     .000
                SUM=      1.0 05:RD19        116.60    5.289 No_date    3:41   44.86  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
R0006:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9C         .65     .067 No_date    3:03   47.63 .568     .000
      [CN= 82.7: N= 3.00: Tp=  .24]
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R0006:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:9A              .58     .061 No_date    3:00   41.27 .492      .000
      [CN= 79.0: N= 3.00: Tp=  .06]
#-----------------|----------------------CULVERT #1-------------------------|
R0006:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-9C          .65     .067 No_date    3:03   47.63  n/a      .000
                    +     1.0 02:9A              .58     .061 No_date    3:00   41.27  n/a      .000
                    +     1.0 05:RD19         116.60    5.289 No_date    3:41   44.86  n/a      .000
                 SUM=     1.0 03:CULV1        117.83    5.317 No_date    3:41   44.86  n/a      .000
R0006:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9B             2.10     .080 No_date    3:06   18.00 .215      .000
      [CN= 51.5: N= 3.00: Tp=  .28]
#-----------------|----------------------CULVERT #2-------------------------|
R0006:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9B             2.10     .080 No_date    3:06   18.00  n/a      .000
                    +     1.0 03:CULV1        117.83    5.317 No_date    3:41   44.86  n/a      .000
                 SUM=     1.0 04:WC9a         119.93    5.345 No_date    3:41   44.39  n/a      .000
#-----------------|---------------------------------------------------------|
#-----------------|-AREAS TO SWM FACILITY 1---------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1----------------------|
#-----------------|---------------------------------------------------------|
R0006:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-1A         8.37     .508 No_date    3:13   35.49 .423      .000
      [CN= 74.9: N= 3.00: Tp=  .47]
R0006:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:1A             2.95     .320 No_date    3:00   51.95 .619      .000
      [XIMP=.31:TIMP=.51]
      [LOSS= 2 :CN= 67.0]
      [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0006:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-1A         8.37     .508 No_date    3:13   35.49  n/a      .000
                    +     1.0 03:1A             2.95     .320 No_date    3:00   51.95  n/a      .000
                 SUM=     1.0 06:NODE          11.32     .751 No_date    3:00   39.78  n/a      .000
R0006:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 05:1B             1.81     .068 No_date    3:01   14.38 .171      .000
      [CN= 44.3: N= 3.00: Tp=  .11]
R0006:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-1A         8.37     .508 No_date    3:13   35.49  n/a      .000
                    +     1.0 03:1A             2.95     .320 No_date    3:00   51.95  n/a      .000
                    +     1.0 05:1B             1.81     .068 No_date    3:01   14.38  n/a      .000
                 SUM=     1.0 06:SWMF1         13.13     .820 No_date    3:00   36.28  n/a      .000
#-----------------|---------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
#-----------------|---------------------------------------------------------|
R0006:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 06:SWMF1         13.13     .820 No_date    3:00   36.28  n/a      .000
                out <=    1.0 01:SWMF-1        13.13     .071 No_date    6:09   36.28  n/a      .000
     {MxStoUsed=.3993E+00  m3}
R0006:C00019------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:SWMF-1        13.13     .071 No_date    6:09   36.28  n/a      .000
                    +     1.0 04:WC9a         119.93    5.345 No_date    3:41   44.39  n/a      .000
                 SUM=     1.0 07:WC9b         133.06    5.379 No_date    3:41   43.58  n/a      .000
#-----------------|---------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|---------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|---------------------------------------------------------|
R0006:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 10:9D             1.32     .162 No_date    3:00   59.81 .713      .000
      [XIMP=.35:TIMP=.71]
      [LOSS= 2 :CN= 66.1]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#-----------------|---------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
#-----------------|---------------------------------------------------------|
R0006:C00021------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9C              .82     .023 No_date    3:05   12.86 .153      .000
      [CN= 40.9: N= 3.00: Tp=  .25]
#-----------------|----------------------CULVERT #3-------------------------|
R0006:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 07:WC9b         133.06    5.379 No_date    3:41   43.58  n/a      .000
                    +     1.0 01:9C              .82     .023 No_date    3:05   12.86  n/a      .000
                 SUM=     1.0 04:CULV3        133.88    5.387 No_date    3:41   43.40  n/a      .000
R0006:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9F              .38     .015 No_date    3:07   19.09 .227      .000
      [CN= 52.2: N= 3.00: Tp=  .32]
R0006:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:EXT-9D          .78     .051 No_date    3:15   40.52 .483      .000
      [CN= 78.8: N= 3.00: Tp=  .52]
R0006:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 03:9E             1.24     .081 No_date    3:03   28.88 .344      .000
      [CN= 66.3: N= 3.00: Tp=  .23]
R0006:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F              .38     .015 No_date    3:07   19.09  n/a      .000
                    +     1.0 02:EXT-9D          .78     .051 No_date    3:15   40.52  n/a      .000
                    +     1.0 03:9E             1.24     .081 No_date    3:03   28.88  n/a      .000
                    +     1.0 10:9D             1.32     .162 No_date    3:00   59.81  n/a      .000
                 SUM=     1.0 05:NODE           3.72     .296 No_date    3:00   41.30  n/a      .000
R0006:C00027------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F              .38     .015 No_date    3:07   19.09  n/a      .000
                    +     1.0 02:EXT-9D          .78     .051 No_date    3:15   40.52  n/a      .000
                    +     1.0 03:9E             1.24     .081 No_date    3:03   28.88  n/a      .000
                    +     1.0 04:CULV3        133.88    5.387 No_date    3:41   43.40  n/a      .000
                    +     1.0 10:9D             1.32     .162 No_date    3:00   59.81  n/a      .000
                 SUM=     1.0 05:WC9LOWER     137.60    5.481 No_date    3:41   43.34  n/a      .000
#-----------------|---------------------------------------------------------|
#-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
#-----------------|---------------------------------------------------------|
R0006:C00028------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:2A             1.19     .029 No_date    3:01    9.43 .112      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0006:C00029------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:2B             1.67     .034 No_date    3:08   10.12 .121      .000
      [CN= 34.7: N= 3.00: Tp=  .32]
R0006:C00030------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:2A             1.19     .029 No_date    3:01    9.43  n/a      .000
                    +     1.0 02:2B             1.67     .034 No_date    3:08   10.12  n/a      .000
                 SUM=     1.0 10:2A2B           2.86     .061 No_date    3:03    9.83  n/a      .000
R0006:C00031------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:2C             1.96     .174 No_date    3:00   44.38 .529      .000
      [XIMP=.30:TIMP=.60]
      [LOSS= 2 :CN= 49.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
R0006:C00032------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 07:2D             3.28     .299 No_date    3:00   45.02 .537      .000
      [XIMP=.25:TIMP=.50]
      [LOSS= 2 :CN= 59.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
R0006:C00033------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 04:2E             1.49     .154 No_date    3:00   51.84 .618      .000
      [XIMP=.37:TIMP=.42]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
R0006:C00034------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 10:2A2B           2.86     .061 No_date    3:03    9.83  n/a      .000
                    +     1.0 03:2C             1.96     .174 No_date    3:00   44.38  n/a      .000
                    +     1.0 04:2E             1.49     .154 No_date    3:00   51.84  n/a      .000
                    +     1.0 07:2D             3.28     .299 No_date    3:00   45.02  n/a      .000
                 SUM=     1.0 06:SWMF2          9.59     .685 No_date    3:00   35.45  n/a      .000
#-----------------|---------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
#-----------------|---------------------------------------------------------|
R0006:C00035------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 06:SWMF2          9.59     .685 No_date    3:00   35.45  n/a      .000
                out <=    1.0 09:SWMF-2         9.59     .086 No_date    4:21   35.45  n/a      .000
     {MxStoUsed=.2534E+00  m3}
#-----------------|---------------------------------------------------------|
#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD----------------|
#-----------------|---------------------------------------------------------|
R0006:C00036------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 09:SWMF-2         9.59     .086 No_date    4:21   35.45  n/a      .000
                    +     1.0 05:WC9LOWER     137.60    5.481 No_date    3:41   43.34  n/a      .000
                 SUM=     1.0 01:WC9c         147.19    5.556 No_date    3:41   42.83  n/a      .000
R0006:C00037------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD              1.0 01:WC9c         147.19    5.556 No_date    3:41   42.83  n/a      .000
      fname :WC9c.0006
      remark:POST-DEV LAKESHORE
#-----------------|---------------------------------------------------------|
#-----------------|--WATERCOURSE 8 CATCHMENTS-------------------------------|
#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8---------------|
#-----------------|---------------------------------------------------------|
R0006:C00038------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:8A             2.27     .056 No_date    3:04   10.84 .129      .000
      [CN= 36.2: N= 3.00: Tp=  .23]
R0006:C00039------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:EXT-8A         7.14     .386 No_date    3:12   30.80 .367      .000
      [CN= 68.9: N= 3.00: Tp=  .44]
#-----------------|---------------------------------------------------------|
#-----------------|--WATERCOURSE 8 TOTAL--------------------------------------|
#-----------------|---------------------------------------------------------|
R0006:C00040------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:8A             2.27     .056 No_date    3:04   10.84  n/a      .000
                    +     1.0 02:EXT-8A         7.14     .386 No_date    3:12   30.80  n/a      .000
                 SUM=     1.0 03:WC8            9.41     .435 No_date    3:10   25.99  n/a      .000
  ** 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: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
#  Date         : 2018-09-18 [UPDATED 2020-06-15]
#  Modeller     : [OD - UPDATED BY BD/BH - UPDATED BY JE]
#  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]
#-----------------|---------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT------------------------------------------|
#-----------------|---------------------------------------------------------|
#-----------------|---------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|---------------------------------------------------------|
R0007:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9A       101.80    5.697 No_date    3:45   53.60 .558      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0007:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->    1.0 01:EXT-9A       101.80    5.697 No_date    3:45   53.60  n/a      .000
     [RDT= 1.00] out<-    1.0 02:Channel      101.80    5.683 No_date    3:48   53.60  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 2.100:Dmax=  .458}
R0007:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:EXT-9B        14.80    2.107 No_date    3:00   63.33 .660      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0007:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 03:EXT-9B        14.80    2.107 No_date    3:00   63.33  n/a      .000
                out <=    1.0 04:Orchards      14.80    1.213 No_date    3:13   63.33  n/a      .000
     {MxStoUsed=.5363E+00  m3}
#-----------------|---------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|---------------------------------------------------------|
R0007:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 02:Channel      101.80    5.683 No_date    3:48   53.60  n/a      .000
                    +     1.0 04:Orchards      14.80    1.213 No_date    3:13   63.33  n/a      .000
                 SUM=     1.0 05:RD19         116.60    6.508 No_date    3:43   54.83  n/a      .000
#-----------------|---------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|---------------------------------------------------------|
R0007:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9C          .65     .081 No_date    3:02   57.95 .604      .000
      [CN= 82.7: N= 3.00: Tp=  .24]
R0007:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:9A              .58     .073 No_date    3:00   50.94 .531      .000
      [CN= 79.0: N= 3.00: Tp=  .06]
#-----------------|----------------------CULVERT #1-------------------------|
R0007:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-9C          .65     .081 No_date    3:02   57.95  n/a      .000
                    +     1.0 02:9A              .58     .073 No_date    3:00   50.94  n/a      .000
                    +     1.0 05:RD19         116.60    6.508 No_date    3:43   54.83  n/a      .000
                 SUM=     1.0 03:CULV1        117.83    6.540 No_date    3:43   54.83  n/a      .000
R0007:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9B             2.10     .104 No_date    3:05   23.36 .243      .000
      [CN= 51.5: N= 3.00: Tp=  .28]
#-----------------|----------------------CULVERT #2-------------------------|
R0007:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9B             2.10     .104 No_date    3:05   23.36  n/a      .000
                    +     1.0 03:CULV1        117.83    6.540 No_date    3:43   54.83  n/a      .000
                 SUM=     1.0 04:WC9a         119.93    6.577 No_date    3:40   54.28  n/a      .000
#-----------------|---------------------------------------------------------|
#-----------------|-AREAS TO SWM FACILITY 1---------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1----------------------|
#-----------------|---------------------------------------------------------|
R0007:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-1A         8.37     .636 No_date    3:13   44.43 .463      .000
      [CN= 74.9: N= 3.00: Tp=  .47]
R0007:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:1A             2.95     .380 No_date    3:00   61.92 .645      .000
      [XIMP=.31:TIMP=.51]
      [LOSS= 2 :CN= 67.0]
      [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0007:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-1A         8.37     .636 No_date    3:13   44.43  n/a      .000
                    +     1.0 03:1A             2.95     .380 No_date    3:00   61.92  n/a      .000
                 SUM=     1.0 06:NODE          11.32     .928 No_date    3:00   48.99  n/a      .000
R0007:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 05:1B             1.81     .088 No_date    3:01   18.79 .196      .000
      [CN= 44.3: N= 3.00: Tp=  .11]
R0007:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-1A         8.37     .636 No_date    3:13   44.43  n/a      .000
                    +     1.0 03:1A             2.95     .380 No_date    3:00   61.92  n/a      .000
                    +     1.0 05:1B             1.81     .088 No_date    3:01   18.79  n/a      .000
                 SUM=     1.0 06:SWMF1         13.13    1.016 No_date    3:00   44.82  n/a      .000
#-----------------|---------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
#-----------------|---------------------------------------------------------|
R0007:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 06:SWMF1         13.13    1.016 No_date    3:00   44.82  n/a      .000
                out <=    1.0 01:SWMF-1        13.13     .120 No_date    5:35   44.82  n/a      .000
     {MxStoUsed=.4662E+00  m3}
R0007:C00019------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:SWMF-1        13.13     .120 No_date    5:35   44.82  n/a      .000
                    +     1.0 04:WC9a         119.93    6.577 No_date    3:40   54.28  n/a      .000
                 SUM=     1.0 07:WC9b         133.06    6.635 No_date    3:43   53.35  n/a      .000
#-----------------|---------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|---------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|---------------------------------------------------------|
R0007:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 10:9D             1.32     .190 No_date    3:00   70.68 .736      .000
      [XIMP=.35:TIMP=.71]
      [LOSS= 2 :CN= 66.1]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#-----------------|---------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
#-----------------|---------------------------------------------------------|
R0007:C00021------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9C              .82     .030 No_date    3:05   16.86 .176      .000
      [CN= 40.9: N= 3.00: Tp=  .25]
#-----------------|----------------------CULVERT #3-------------------------|
R0007:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 07:WC9b         133.06    6.635 No_date    3:43   53.35  n/a      .000
                    +     1.0 01:9C              .82     .030 No_date    3:05   16.86  n/a      .000
                 SUM=     1.0 04:CULV3        133.88    6.644 No_date    3:43   53.12  n/a      .000
R0007:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9F              .38     .019 No_date    3:07   24.61 .256      .000
      [CN= 52.2: N= 3.00: Tp=  .32]
R0007:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:EXT-9D          .78     .063 No_date    3:15   50.13 .522      .000
      [CN= 78.8: N= 3.00: Tp=  .52]
R0007:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 03:9E             1.24     .101 No_date    3:03   36.51 .380      .000
      [CN= 66.3: N= 3.00: Tp=  .23]
R0007:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F              .38     .019 No_date    3:07   24.61  n/a      .000
```

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                     +     1.0 02:EXT-9D          .78     .063 No_date    3:15   50.13  n/a     .000
                     +     1.0 03:9E             1.24     .101 No_date    3:03   36.51  n/a     .000
                     +     1.0 10:9D             1.32     .190 No_date    3:00   70.68  n/a     .000
                   SUM=    1.0 05:NODE           3.72     .360 No_date    3:00   50.27  n/a     .000
R0007:C00027-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---RVmm-R.C.---DWFcms
     ADD HYD           1.0 01:9F              .38     .019 No_date    3:07   24.61  n/a     .000
                     +     1.0 02:EXT-9D          .78     .063 No_date    3:15   50.13  n/a     .000
                     +     1.0 03:9E             1.24     .101 No_date    3:03   36.51  n/a     .000
                     +     1.0 04:CULV3        133.88    6.644 No_date    3:43   53.12  n/a     .000
                     +     1.0 10:9D             1.32     .190 No_date    3:00   70.68  n/a     .000
                   SUM=    1.0 05:WC9LOWER     137.60    6.759 No_date    3:40   53.05  n/a     .000
#----------------|-------------------------------------------------------------|
#-LANDS DRAINING TO SWM FACILITY 2-----------------------------------------|
#----------------|-------------------------------------------------------------|
R0007:C00028-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 01:2A              1.19     .038 No_date    3:01   12.49 .130      .000
       [CN= 33.2: N= 3.00: Tp=  .14]
R0007:C00029-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 02:2B              1.67     .044 No_date    3:07   13.37 .139      .000
       [CN= 34.7: N= 3.00: Tp=  .32]
R0007:C00030-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 01:2A              1.19     .038 No_date    3:01   12.49  n/a     .000
                     +     1.0 02:2B              1.67     .044 No_date    3:07   13.37  n/a     .000
                   SUM=    1.0 10:2A2B            2.86     .080 No_date    3:03   13.00  n/a     .000
R0007:C00031-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB STANDHYD    1.0 03:2C              1.96     .209 No_date    3:00   53.07 .553      .000
       [XIMP=.30:TIMP=.60]
       [LOSS= 2 :CN= 49.0]
       [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
       [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
R0007:C00032-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB STANDHYD    1.0 07:2D              3.28     .360 No_date    3:00   54.09 .563      .000
       [XIMP=.75:TIMP=.50]
       [LOSS= 2 :CN= 59.0]
       [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
       [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
R0007:C00033-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB STANDHYD    1.0 04:2E              1.49     .183 No_date    3:00   61.63 .642      .000
       [XIMP=.37:TIMP=.42]
       [LOSS= 2 :CN= 69.0]
       [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
       [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
R0007:C00034-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 10:2A2B            2.86     .080 No_date    3:03   13.00  n/a     .000
                     +     1.0 03:2C              1.96     .209 No_date    3:00   53.07  n/a     .000
                     +     1.0 04:2E              1.49     .183 No_date    3:00   61.63  n/a     .000
                     +     1.0 07:2D              3.28     .360 No_date    3:00   54.09  n/a     .000
                   SUM=    1.0 06:SWMF2           9.59     .830 No_date    3:00   42.80  n/a     .000
#----------------|-------------------------------------------------------------|
#-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)------------------------|
#----------------|-------------------------------------------------------------|
R0007:C00035-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ROUTE RESERVOIR ->    1.0 06:SWMF2           9.59     .830 No_date    3:00   42.80  n/a     .000
                     out <=    1.0 09:SWMF-2      9.59     .131 No_date    4:09   42.80  n/a     .000
      {MxStoUsed=.2932E+00  m3}
#----------------|-------------------------------------------------------------|
#--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD--------------------------------|
#----------------|-------------------------------------------------------------|
R0007:C00036-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 09:SWMF-2          9.59     .131 No_date    4:09   42.80  n/a     .000
                     +     1.0 05:WC9LOWER     137.60    6.759 No_date    3:40   53.05  n/a     .000
                   SUM=    1.0 01:WC9c          147.19    6.883 No_date    3:40   52.38  n/a     .000
R0007:C00037-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     SAVE HYD          1.0 01:WC9c            147.19    6.883 No_date    3:40   52.38  n/a     .000
       fname :WC9c.0007
       remark:POST-DEV LAKESHORE
#----------------|-------------------------------------------------------------|
#--WATERCOURSE 8 CATCHMENTS-----------------------------------------------|
#-WC 8 CATCHMENTS TO BE DIRECTED TO WC9------------------------------------|
#-EQUIVALENT TO EXISTING CONDITIONS OF WC 8--------------------------------|
#----------------|-------------------------------------------------------------|
R0007:C00038-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 01:8A              2.27     .073 No_date    3:04   14.28 .149      .000
       [CN= 36.2: N= 3.00: Tp=  .23]
R0007:C00039-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 02:EXT-8A          7.14     .485 No_date    3:12   38.82 .404      .000
       [CN= 68.9: N= 3.00: Tp=  .44]
#----------------|-------------------------------------------------------------|
#--WATERCOURSE 8 TOTAL----------------------------------------------------|
#----------------|-------------------------------------------------------------|
R0007:C00040-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 01:8A              2.27     .073 No_date    3:04   14.28  n/a     .000
                     +     1.0 02:EXT-8A          7.14     .485 No_date    3:12   38.82  n/a     .000
                   SUM=    1.0 03:WC8             9.41     .550 No_date    3:10   32.90  n/a     .000
  ** END OF RUN :    7
 ************************************************************************************************************
 ************************************************************************************************************
 ************************************************************************************************************
 ************************************************************************************************************
 ************************************************************************************************************
 RUN#:COMMAND#
R0008:C00001-----------------------------------------------------------------------------------------------------
     START
       [TZERO =    .00 hrs on      0]
       [METOUT=   2   (1=imperial, 2=metric output)]
       [NSTORM=   1 ]
       [NRUN  = 0008 ]
#*************************************************************************
#  Project Name: [PARKBRIDGE CRAIGLEITH]     Project Number: [1046-4031]
#  Date        : 2018-09-18 [UPDATED 2020-06-15]
#  Modeller    : [OD - UPDATED BY BD/BH - UPDATED BY JE]
#  Company     : C.F. Crozier & Associates Inc.
#  License #   : 3737016
#*************************************************************************
#*************************************************************************
R0008:C00002-----------------------------------------------------------------------------------------------------
     READ STORM
       Filename = STORM.001
       Comment  = Timmins Storm Event
       [SDT=60.00:SDUR=  12.00:PTOT= 193.00]
#----------------|-------------------------------------------------------------|
#----------------|-POST-DEVELOPMENT----------------------------------------|
#----------------|-------------------------------------------------------------|
#----------------|-Subwatershed 9 External Drainage Area-------------------|
#----------------|-Per 'The Orchards' FSSWM Report-------------------------|
#----------------|-Prepared by Higgins Engineering (Jan. 2005)-------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha------|
#----------------|-------------------------------------------------------------|
R0008:C00003-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 01:EXT-9A        101.80    6.900 No_date    7:46  140.53 .728      .000
       [CN= 80.0: N= 3.00: Tp= 1.00]
R0008:C00004-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ROUTE CHANNEL  ->     1.0 01:EXT-9A        101.80    6.900 No_date    7:46  140.53  n/a     .000
       [RD= 1.00] out<-    1.0 02:Channel       101.80    6.895 No_date    7:49  140.53  n/a     .000
       [L/S/n=  550./2.000/.035]
       {Vmax= 2.233:Dmax=  .508}
R0008:C00005-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB STANDHYD    1.0 03:EXT-9B          14.80    1.529 No_date    7:00  127.41 .660      .000
       [XIMP=.35:TIMP=.35]
       [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
       [Pervious    area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0008:C00006-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ROUTE RESERVOIR ->    1.0 03:EXT-9B          14.80    1.529 No_date    7:00  127.41  n/a     .000
                     out <=    1.0 04:Orchards    14.80    1.187 No_date    7:13  127.40  n/a     .000
      {MxStoUsed=.5307E+00  m3}
#----------------|-------------------------------------------------------------|
#-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing------------------------|
#----------------|-------------------------------------------------------------|
R0008:C00007-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 02:Channel       101.80    6.895 No_date    7:49  140.53  n/a     .000
                     +     1.0 04:Orchards      14.80    1.187 No_date    7:13  127.40  n/a     .000
                   SUM=    1.0 05:RD19          116.60    7.880 No_date    7:44  138.86  n/a     .000
#----------------|-------------------------------------------------------------|
#-Parkbridge Craigleith - Upper Terrace Lands------------------------------|
#----------------|-------------------------------------------------------------|
R0008:C00008-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 01:EXT-9C          .65     .067 No_date    7:01  147.13 .762      .000
       [CN= 82.7: N= 3.00: Tp=  .24]
R0008:C00009-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 02:9A              .58     .059 No_date    7:00  136.84 .709      .000
       [CN= 79.0: N= 3.00: Tp=  .06]
#----------------|-------------------------CULVERT #1-------------------------|
R0008:C00010-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 01:EXT-9C          .65     .067 No_date    7:01  147.13  n/a     .000
                     +     1.0 02:9A              .58     .059 No_date    7:00  136.84  n/a     .000
                     +     1.0 05:RD19          116.60    7.880 No_date    7:44  138.86  n/a     .000
                   SUM=    1.0 03:CULV1         117.83    7.942 No_date    7:44  138.90  n/a     .000
R0008:C00011-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 01:9B              2.10     .118 No_date    7:04   80.22 .416      .000
       [CN= 51.5: N= 3.00: Tp=  .28]
#----------------|-------------------------CULVERT #2-------------------------|
R0008:C00012-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 01:9B              2.10     .118 No_date    7:04   80.22  n/a     .000
                     +     1.0 03:CULV1         117.83    7.942 No_date    7:44  138.90  n/a     .000
                   SUM=    1.0 04:WC9a          119.93    8.012 No_date    7:44  137.87  n/a     .000
#----------------|-------------------------------------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1---------------------|
#----------------|-------------------------------------------------------------|
R0008:C00013-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 01:EXT-1A          8.37     .684 No_date    7:10  126.34 .655      .000
       [CN= 74.9: N= 3.00: Tp=  .47]
R0008:C00014-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB STANDHYD    1.0 03:1A              2.95     .301 No_date    7:00  148.53 .770      .000
       [XIMP=.31:TIMP=.51]
       [LOSS= 2 :CN= 67.0]
       [Pervious    area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
       [Impervious  area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0008:C00015-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 01:EXT-1A          8.37     .684 No_date    7:10  126.34  n/a     .000
                     +     1.0 03:1A              2.95     .301 No_date    7:00  148.53  n/a     .000
                   SUM=    1.0 06:NODE           11.32     .956 No_date    7:00  132.13  n/a     .000
R0008:C00016-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 05:1B              1.81     .091 No_date    7:00   67.52 .350      .000
       [CN= 44.3: N= 3.00: Tp=  .11]
R0008:C00017-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 01:EXT-1A          8.37     .684 No_date    7:10  126.34  n/a     .000
                     +     1.0 03:1A              2.95     .301 No_date    7:00  148.53  n/a     .000
                     +     1.0 05:1B              1.81     .091 No_date    7:00   67.52  n/a     .000
                   SUM=    1.0 06:SWMF1          13.13    1.047 No_date    7:00  123.22  n/a     .000
#----------------|-------------------------------------------------------------|
#-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE---------------------|
#-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-----------------------------|
#----------------|-------------------------------------------------------------|
R0008:C00018-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ROUTE RESERVOIR ->    1.0 06:SWMF1          13.13    1.047 No_date    7:00  123.22  n/a     .000
                     out <=    1.0 01:SWMF-1      13.13     .646 No_date    9:04  123.22  n/a     .000
      {MxStoUsed=.8112E+00  m3}
R0008:C00019-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 01:SWMF-1          13.13     .646 No_date    9:04  123.22  n/a     .000
                     +     1.0 04:WC9a          119.93    8.012 No_date    7:44  137.87  n/a     .000
                   SUM=    1.0 07:WC9b          133.06    8.343 No_date    7:44  136.43  n/a     .000
#----------------|-------------------------------------------------------------|
#-Parkbridge Craigleith - Lower Terrace Lands------------------------------|
#----------------|-------------------------------------------------------------|
#-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS---------------------|
#----------------|-------------------------------------------------------------|
R0008:C00020-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB STANDHYD    1.0 10:9D              1.32     .145 No_date    7:00  162.13 .840      .000
       [XIMP=.35:TIMP=.71]
       [LOSS= 2 :CN= 66.1]
       [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
       [Impervious  area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#----------------|-------------------------------------------------------------|
#-LANDS DRAINING TO WC 9 UNCONTROLLED--------------------------------------|
#----------------|-------------------------------------------------------------|
R0008:C00021-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 01:9C               .82     .035 No_date    7:03   61.74 .320      .000
       [CN= 40.9: N= 3.00: Tp=  .25]
#----------------|-------------------------CULVERT #3-------------------------|
R0008:C00022-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 07:WC9b          133.06    8.343 No_date    7:44  136.43  n/a     .000
                     +     1.0 01:9C               .82     .035 No_date    7:03   61.74  n/a     .000
                   SUM=    1.0 04:CULV3         133.88    8.363 No_date    7:44  135.97  n/a     .000
R0008:C00023-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 01:9F              .38     .021 No_date    7:05   82.61 .428      .000
       [CN= 52.2: N= 3.00: Tp=  .32]
R0008:C00024-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 02:EXT-9D          .78     .066 No_date    7:12  135.78 .704      .000
       [CN= 78.8: N= 3.00: Tp=  .52]
R0008:C00025-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 03:9E             1.24     .099 No_date    7:02  110.03 .570      .000
       [CN= 66.3: N= 3.00: Tp=  .23]
R0008:C00026-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 01:9F              .38     .021 No_date    7:05   82.61  n/a     .000
                     +     1.0 02:EXT-9D          .78     .066 No_date    7:12  135.78  n/a     .000
                     +     1.0 03:9E             1.24     .099 No_date    7:02  110.03  n/a     .000
                     +     1.0 10:9D             1.32     .145 No_date    7:00  162.13  n/a     .000
                   SUM=    1.0 05:NODE           3.72     .327 No_date    7:00  131.12  n/a     .000
R0008:C00027-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 01:9F              .38     .021 No_date    7:05   82.61  n/a     .000
                     +     1.0 02:EXT-9D          .78     .066 No_date    7:12  135.78  n/a     .000
                     +     1.0 03:9E             1.24     .099 No_date    7:02  110.03  n/a     .000
                     +     1.0 04:CULV3         133.88    8.363 No_date    7:44  135.97  n/a     .000
                     +     1.0 10:9D             1.32     .145 No_date    7:00  162.13  n/a     .000
                   SUM=    1.0 05:WC9LOWER     137.60    8.552 No_date    7:44  135.84  n/a     .000
#----------------|-------------------------------------------------------------|
#-LANDS DRAINING TO SWM FACILITY 2-----------------------------------------|
#----------------|-------------------------------------------------------------|
R0008:C00028-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 01:2A              1.19     .042 No_date    7:01   48.43 .251      .000
       [CN= 33.2: N= 3.00: Tp=  .14]
R0008:C00029-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 02:2B              1.67     .057 No_date    7:06   51.10 .265      .000
       [CN= 34.7: N= 3.00: Tp=  .32]
R0008:C00030-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 01:2A              1.19     .042 No_date    7:01   48.43  n/a     .000
                     +     1.0 02:2B              1.67     .057 No_date    7:06   51.10  n/a     .000
                   SUM=    1.0 10:2A2B            2.86     .098 No_date    7:02   49.99  n/a     .000
R0008:C00031-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB STANDHYD    1.0 03:2C              1.96     .174 No_date    7:00  131.47 .681      .000
       [XIMP=.30:TIMP=.60]
       [LOSS= 2 :CN= 49.0]
       [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
       [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
R0008:C00032-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB STANDHYD    1.0 07:2D              3.28     .303 No_date    7:00  135.40 .702      .000
       [XIMP=.25:TIMP=.50]
       [LOSS= 2 :CN= 59.0]
       [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
       [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
R0008:C00033-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB STANDHYD    1.0 04:2E              1.49     .147 No_date    7:00  147.03 .762      .000
       [XIMP=.37:TIMP=.42]
       [LOSS= 2 :CN= 69.0]
       [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
       [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
R0008:C00034-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 10:2A2B            2.86     .098 No_date    7:02   49.99  n/a     .000
                     +     1.0 03:2C              1.96     .174 No_date    7:00  131.47  n/a     .000
                     +     1.0 04:2E              1.49     .147 No_date    7:00  147.03  n/a     .000
                     +     1.0 07:2D              3.28     .303 No_date    7:00  135.40  n/a     .000
                   SUM=    1.0 06:SWMF2           9.59     .722 No_date    7:00  110.93  n/a     .000
#----------------|-------------------------------------------------------------|
#-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)------------------------|
#----------------|-------------------------------------------------------------|
R0008:C00035-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ROUTE RESERVOIR ->    1.0 06:SWMF2           9.59     .722 No_date    7:00  110.93  n/a     .000
                     out <=    1.0 09:SWMF-2      9.59     .665 No_date    7:04  110.93  n/a     .000
      {MxStoUsed=.3755E+00  m3}
#----------------|-------------------------------------------------------------|
#--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD--------------------------------|
#----------------|-------------------------------------------------------------|
R0008:C00036-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 09:SWMF-2          9.59     .665 No_date    7:04  110.93  n/a     .000
                     +     1.0 05:WC9LOWER     137.60    8.552 No_date    7:44  135.84  n/a     .000
                   SUM=    1.0 01:WC9c          147.19    8.931 No_date    7:38  134.21  n/a     .000
R0008:C00037-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     SAVE HYD          1.0 01:WC9c            147.19    8.931 No_date    7:38  134.21  n/a     .000
       fname :WC9c.0008
       remark:POST-DEV LAKESHORE
#----------------|-------------------------------------------------------------|
#--WATERCOURSE 8 CATCHMENTS-----------------------------------------------|
#--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-----------------------------------|
#--EQUIVALENT TO EXISTING CONDITIONS OF WC 8-------------------------------|
#----------------|-------------------------------------------------------------|
R0008:C00038-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 01:8A              2.27     .086 No_date    7:03   53.80 .279      .000
       [CN= 36.2: N= 3.00: Tp=  .23]
R0008:C00039-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     CALIB NASHYD      1.0 02:EXT-8A          7.14     .536 No_date    7:09  114.98 .596      .000
       [CN= 68.9: N= 3.00: Tp=  .44]
#----------------|-------------------------------------------------------------|
#--WATERCOURSE 8 TOTAL----------------------------------------------------|
#----------------|-------------------------------------------------------------|
R0008:C00040-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
     ADD HYD           1.0 01:8A              2.27     .086 No_date    7:03   53.80  n/a     .000
                     +     1.0 02:EXT-8A          7.14     .536 No_date    7:09  114.98  n/a     .000
                   SUM=    1.0 03:WC8             9.41     .618 No_date    7:07  100.22  n/a     .000
R0008:C00002-----------------------------------------------------------------------------------------------------
     FINISH
-------------------------------------------------------------------------------------------------------------
 ************************************************************************************************************
```

```
01969>     WARNINGS / ERRORS / NOTES
01970>     ------------------------
01971> R0001:C00005  CALIB STANDHYD
01972> *** NOTE: The pervious area has no runoff.
01973>    Simulation ended on 2020-06-15     at 12:04:10
01974> ================================================================================
01975>
01976>
```

```
00001> 2     Metric units
00002> *#************************************************************************
00003> *#  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00004> *#  Date        : 2018-09-20
00005> *#  Modeller    : [OD - UPDATED BY JM/BD - UPDATED BY JE]
00006> *#  Company     : C.F. Crozier & Associates Inc.
00007> *#  License #   : 3737016
00008> *#************************************************************************
00009> START              TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[1]
00010> *%                   ["25mm.stm"] <--storm filename, one per line for NSTORM tim
00011> *%-----------------|------------------------------------------------------|
00012>
00013> *#************************************************************************
00014> *#*****************************25mm storm*********************************
00015> *#************************************************************************
00016>
00017> READ STORM          STORM_FILENAME=["25mm.stm"]
00018>
00019> *%-----------------|------------------------------------------------------|
00020> *%-----------------|------------------------------------------------------|
00021> *#-----------------|------------------------------------------------------|
00022> *#-----------------|-PRE-DEVELOPMENT------------------------------------|
00023> *#-----------------|------------------------------------------------------|
00024> *#-----------------|------------------------------------------------------|
00025> *#-----------------|-Subwatershed 9 External Drainage Area--------------------|
00026> *#-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
00027> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
00028> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00029> *#-----------------|------------------------------------------------------|
00030> *%-----------------|------------------------------------------------------|
00031> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00032>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00033>                     N=[3], TP=[1.00]hrs,
00034>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00035> *%-----------------|------------------------------------------------------|
00036> ROUTE CHANNEL      IDout=[2], NHYD=["Channel"], IDin=[1],
00037>                     RDT=[1](min),
00038>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00039>                                       FPSLOPE=[2](%),
00040>                     SECNUM=[1],       NSEG=[3]
00041>                     ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
00042>                     ( DISTANCE (m), ELEVATION (m))= [0,102]
00043>                                                     [8,100]
00044>                                                     [12,100]
00045>                                                     [20,102]
00046> *%-----------------|------------------------------------------------------|
00047> CALIB STANDHYD     ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00048>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00049>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00050>                             DCAY=[2](/hr), F=[0](mm),
00051>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00052>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00053>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00054>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00055>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00056> *%-----------------|------------------------------------------------------|
00057> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00058>                     RDT=[1](min),
00059>                           TABLE of ( OUTFLOW-STORAGE ) values
00060>                                      (cms) - (ha-m)
00061>                                    [   0.0 ,  0.0 ]
00062>                                    [   0.0100 ,  0.0610 ]
00063>                                    [   0.0400 ,  0.1310 ]
00064>                                    [   0.0700 ,  0.2110 ]
00065>                                    [   0.2600 ,  0.3000 ]
00066>                                    [   0.6000 ,  0.3940 ]
00067>                                    [   1.0200 ,  0.4950 ]
00068>                                    [   1.5200 ,  0.6020 ]
00069>                                    [   2.0800 ,  0.7160 ]
00070>                                    [   2.6900 ,  0.8370 ]
00071>                                    [   -1  ,  -1  ]  (max twenty pts)
00072>                           IDovf=[   ], NHYDovf=[   ]
00073> *%-----------------|------------------------------------------------------|
00074> *#-----------------|------------------------------------------------------|
00075> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00076> *#-----------------|------------------------------------------------------|
00077> *%-----------------|------------------------------------------------------|
00078> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00079> *%-----------------|------------------------------------------------------|
00080> *#-----------------|------------------------------------------------------|
00081> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00082> *#-----------------|------------------------------------------------------|
00083> *%-----------------|------------------------------------------------------|
00084> CALIB NASHYD       ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
00085>                     DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
00086>                     N=[3], TP=[0.37]hrs,
00087>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00088> *%-----------------|------------------------------------------------------|
00089> CALIB NASHYD       ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
00090>                     DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
00091>                     N=[3], TP=[1.09]hrs,
00092>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00093> *%-----------------|------------------------------------------------------|
00094> ADD HYD            IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00095> *%-----------------|------------------------------------------------------|
00096> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00097>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00098>                     N=[3], TP=[0.14]hrs,
00099>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00100> *%-----------------|------------------------------------------------------|
00101> CALIB NASHYD       ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00102>                     DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00103>                     N=[3], TP=[0.15]hrs,
00104>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00105> *%-----------------|------------------------------------------------------|
00106> *#-----------------|------------------------------------------------------|
00107> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00108> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00109> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00110> *#-----------------|------------------------------------------------------|
00111> *%-----------------|------------------------------------------------------|
00112> ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00113>                     RDT=[1](min),
00114>                           TABLE of ( OUTFLOW-STORAGE ) values
00115>                                      (cms) - (ha-m)
00116>                                    [   0.0 ,  0.0 ]
00117>                                    [   0.00 ,  0.479 ]
00118>                                    [   0.00 ,  1.249 ]
00119>                                    [   -1  ,  -1  ]  (max twenty pts)
00120>                           IDovf=[   ], NHYDovf=[   ]
00121> *%-----------------|------------------------------------------------------|
00122> ADD HYD            IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
00123> *%-----------------|------------------------------------------------------|
00124> *#-----------------|------------------------------------------------------|
00125> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00126> *#-----------------|------------------------------------------------------|
00127> *%-----------------|------------------------------------------------------|
00128> CALIB NASHYD       ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
00129>                     DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
00130>                     N=[3], TP=[0.48]hrs,
00131>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00132> *%-----------------|------------------------------------------------------|
00133> CALIB NASHYD       ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
00134>                     DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
00135>                     N=[3], TP=[0.71]hrs,
00136>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00137> *%-----------------|------------------------------------------------------|
00138> *#-----------------|------------------------------------------------------|
00139> *#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD-----------|
00140> *#-----------------|------------------------------------------------------|
00141> *%-----------------|------------------------------------------------------|
00142> ADD HYD            IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
00143> *%-----------------|------------------------------------------------------|
00144> SAVE HYD           ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
00145>                     HYD_COMMENT=["Lakeshore Road Hydrograph"]
00146> *%-----------------|------------------------------------------------------|
00147> *#************************************************************************
00148> *#*****************************Chicago 2yr 4-hr storm*********************
00149> *#************************************************************************
00150> *%-----------------|------------------------------------------------------|
00151>
00152> CHICAGO STORM      IUNITS=[2],  TD=[4.0](hrs), TPRAT=[0.33],  CSDT=[5](min),
00153>                     ICASEcs=[2],
00154>                     Enter ordinates of IDF curve below, at least seven points
00155>                         TIME (min)    Intensity(mm/hr)
00156>                           [   5    ]       [  117.0  ]
00157>                           [   10   ]       [  72.1   ]
00158>                           [   15   ]       [  54.3   ]
00159>                           [   30   ]       [  33.4   ]
00160>                           [   60   ]       [  20.6   ]
00161>                           [   120  ]       [  12.7   ]
00162>                           [   360  ]       [  5.9    ]
00163>                           [   720  ]       [  3.6    ]
00164>                           [   1440 ]       [  2.2    ]
00165>                              -1               -1
00166> *%-----------------|------------------------------------------------------|
00167>
00168> *%-----------------|------------------------------------------------------|
00169> *%-----------------|------------------------------------------------------|
00170> *#-----------------|------------------------------------------------------|
00171> *#-----------------|-PRE-DEVELOPMENT------------------------------------|
00172> *#-----------------|------------------------------------------------------|
00173> *#-----------------|------------------------------------------------------|
00174> *#-----------------|-Subwatershed 9 External Drainage Area--------------------|
00175> *#-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
00176> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
00177> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00178> *#-----------------|------------------------------------------------------|
00179> *%-----------------|------------------------------------------------------|
00180> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00181>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00182>                     N=[3], TP=[1.00]hrs,
00183>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00184> *%-----------------|------------------------------------------------------|
00185> ROUTE CHANNEL      IDout=[2], NHYD=["Channel"], IDin=[1],
00186>                     RDT=[1](min),
00187>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00188>                                       FPSLOPE=[2](%),
00189>                     SECNUM=[1],       NSEG=[3]
00190>                     ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
00191>                     ( DISTANCE (m), ELEVATION (m))= [0,102]
00192>                                                     [8,100]
00193>                                                     [12,100]
00194>                                                     [20,102]
00195> *%-----------------|------------------------------------------------------|
00196> CALIB STANDHYD     ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00197>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00198>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00199>                             DCAY=[2](/hr), F=[0](mm),
00200>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00201>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00202>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00203>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00204>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00205> *%-----------------|------------------------------------------------------|
00206> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00207>                     RDT=[1](min),
00208>                           TABLE of ( OUTFLOW-STORAGE ) values
00209>                                      (cms) - (ha-m)
00210>                                    [   0.0 ,  0.0 ]
00211>                                    [   0.0100 ,  0.0610 ]
00212>                                    [   0.0400 ,  0.1310 ]
00213>                                    [   0.0700 ,  0.2110 ]
00214>                                    [   0.2600 ,  0.3000 ]
00215>                                    [   0.6000 ,  0.3940 ]
00216>                                    [   1.0200 ,  0.4950 ]
00217>                                    [   1.5200 ,  0.6020 ]
00218>                                    [   2.0800 ,  0.7160 ]
00219>                                    [   2.6900 ,  0.8370 ]
00220>                                    [   -1  ,  -1  ]  (max twenty pts)
00221>                           IDovf=[   ], NHYDovf=[   ]
00222> *%-----------------|------------------------------------------------------|
00223> *#-----------------|------------------------------------------------------|
00224> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00225> *#-----------------|------------------------------------------------------|
00226> *%-----------------|------------------------------------------------------|
00227> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00228> *%-----------------|------------------------------------------------------|
00229> *#-----------------|------------------------------------------------------|
00230> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00231> *#-----------------|------------------------------------------------------|
00232> *%-----------------|------------------------------------------------------|
00233> CALIB NASHYD       ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
00234>                     DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
00235>                     N=[3], TP=[0.37]hrs,
00236>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00237> *%-----------------|------------------------------------------------------|
00238> CALIB NASHYD       ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
00239>                     DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
00240>                     N=[3], TP=[1.09]hrs,
00241>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00242> *%-----------------|------------------------------------------------------|
00243> ADD HYD            IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00244> *%-----------------|------------------------------------------------------|
00245> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00246>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00247>                     N=[3], TP=[0.14]hrs,
00248>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00249> *%-----------------|------------------------------------------------------|
00250> CALIB NASHYD       ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00251>                     DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00252>                     N=[3], TP=[0.15]hrs,
00253>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00254> *%-----------------|------------------------------------------------------|
00255> *#-----------------|------------------------------------------------------|
00256> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00257> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00258> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00259> *#-----------------|------------------------------------------------------|
00260> *%-----------------|------------------------------------------------------|
00261> ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00262>                     RDT=[1](min),
00263>                           TABLE of ( OUTFLOW-STORAGE ) values
00264>                                      (cms) - (ha-m)
00265>                                    [   0.0 ,  0.0 ]
00266>                                    [   0.00 ,  0.479 ]
00267>                                    [   0.00 ,  1.249 ]
00268>                                    [   -1  ,  -1  ]  (max twenty pts)
00269>                           IDovf=[   ], NHYDovf=[   ]
00270> *%-----------------|------------------------------------------------------|
```

```
ADD HYD             IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
                    DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
                    N=[3], TP=[0.48]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
                    DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
*%------------------|-------------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
                    HYD_COMMENT=["Lakeshore Road Hydrograph"]
*%------------------|-------------------------------------------------------------|
*#*****************************************************************************
*#*************************Chicago 5yr 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    ]       [  156.2  ]
                           [   10   ]       [  96.2   ]
                           [   15   ]       [  72.5   ]
                           [   30   ]       [  44.6   ]
                           [   60   ]       [  27.5   ]
                           [   120  ]       [  16.9   ]
                           [   360  ]       [  7.9    ]
                           [   720  ]       [  4.8    ]
                           [   1440 ]       [  3.0    ]
                              -1               -1
*%------------------|-------------------------------------------------------------|

*%------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
*#------------------|-PRE-DEVELOPMENT-------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-Subwatershed 9 External Drainage Area---------------------|
*#------------------|-Per 'The Orchards' FSSWM Report---------------------------|
*#------------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
                    ( DISTANCE (m), ELEVATION (m))= [0,102]
                                                    [8,100]
                                                    [12,100]
                                                    [20,102]
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                         TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                  [   0.0 ,  0.0 ]
                                  [   0.0100 ,  0.0610 ]
                                  [   0.0400 ,  0.1310 ]
                                  [   0.0700 ,  0.2110 ]
                                  [   0.2600 ,  0.3000 ]
                                  [   0.6000 ,  0.3940 ]
                                  [   1.0200 ,  0.4950 ]
                                  [   1.5200 ,  0.6020 ]
                                  [   2.0800 ,  0.7160 ]
                                  [   2.6900 ,  0.8370 ]
                                  [   -1  ,  -1  ]  (max twenty pts)
                         IDovf=[   ], NHYDovf=[   ]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
                    DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
                    N=[3], TP=[0.37]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
                    DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
                    N=[3], TP=[1.09]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
                    DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
                    N=[3], TP=[0.15]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|

*#------------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
*#------------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
                    RDT=[1](min),
                         TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                  [   0.0 ,  0.0 ]
                                  [   0.00 ,  0.479 ]
                                  [   0.00 ,  1.249 ]
                                  [   -1  ,  -1  ]  (max twenty pts)
                         IDovf=[   ], NHYDovf=[   ]
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
                    DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
                    N=[3], TP=[0.48]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
                    DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
*%------------------|-------------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
                    HYD_COMMENT=["Lakeshore Road Hydrograph"]
*%------------------|-------------------------------------------------------------|
*#*****************************************************************************
*#*************************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-------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-Subwatershed 9 External Drainage Area---------------------|
*#------------------|-Per 'The Orchards' FSSWM Report---------------------------|
*#------------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
                    ( DISTANCE (m), ELEVATION (m))= [0,102]
                                                    [8,100]
                                                    [12,100]
                                                    [20,102]
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                         TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                  [   0.0 ,  0.0 ]
                                  [   0.0100 ,  0.0610 ]
                                  [   0.0400 ,  0.1310 ]
                                  [   0.0700 ,  0.2110 ]
                                  [   0.2600 ,  0.3000 ]
                                  [   0.6000 ,  0.3940 ]
                                  [   1.0200 ,  0.4950 ]
                                  [   1.5200 ,  0.6020 ]
                                  [   2.0800 ,  0.7160 ]
                                  [   2.6900 ,  0.8370 ]
                                  [   -1  ,  -1  ]  (max twenty pts)
                         IDovf=[   ], NHYDovf=[   ]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
                    DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
                    N=[3], TP=[0.37]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
                    DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
                    N=[3], TP=[1.09]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
```

```
00541> ADD HYD             IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00542> *%-----------------|-------------------------------------------------------|
00543> CALIB NASHYD        ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00544>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00545>                     N=[3], TP=[0.14]hrs,
00546>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00547> *%-----------------|-------------------------------------------------------|
00548> CALIB NASHYD        ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00549>                     DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00550>                     N=[3], TP=[0.15]hrs,
00551>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00552> *%-----------------|-------------------------------------------------------|
00553> *#-----------------|-------------------------------------------------------|
00554> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00555> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN-------|
00556> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND-----|
00557> *#-----------------|-------------------------------------------------------|
00558> *%-----------------|-------------------------------------------------------|
00559> ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00560>                     RDT=[1](min),
00561>                           TABLE of ( OUTFLOW-STORAGE ) values
00562>                                    (cms) - (ha-m)
00563>                                 [   0.0 ,  0.0 ]
00564>                                 [   0.00 ,  0.479 ]
00565>                                 [   0.00 ,  1.249 ]
00566>                                 [   -1  ,  -1  ]  (max twenty pts)
00567>                           IDovf=[   ], NHYDovf=[   ]
00568> *%-----------------|-------------------------------------------------------|
00569> ADD HYD             IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
00570> *%-----------------|-------------------------------------------------------|
00571> *#-----------------|-------------------------------------------------------|
00572> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
00573> *#-----------------|-------------------------------------------------------|
00574> *%-----------------|-------------------------------------------------------|
00575> CALIB NASHYD        ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
00576>                     DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
00577>                     N=[3], TP=[0.48]hrs,
00578>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00579> *%-----------------|-------------------------------------------------------|
00580> CALIB NASHYD        ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
00581>                     DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
00582>                     N=[3], TP=[0.71]hrs,
00583>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00584> *%-----------------|-------------------------------------------------------|
00585> *#-----------------|-------------------------------------------------------|
00586> *#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD-----------|
00587> *#-----------------|-------------------------------------------------------|
00588> *%-----------------|-------------------------------------------------------|
00589> ADD HYD             IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
00590> *%-----------------|-------------------------------------------------------|
00591> SAVE HYD            ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
00592>                     HYD_COMMENT=["Lakeshore Road Hydrograph"]
00593> *%-----------------|-------------------------------------------------------|
00594> *#*************************************************************************
00595> *#**************************Chicago 25yr 4-hr storm**************************
00596> *#*************************************************************************
00597> *%-----------------|-------------------------------------------------------|
00598>
00599> CHICAGO STORM       IUNITS=[2],  TD=[4.0](hrs), TPRAT=[0.33],  CSDT=[5](min),
00600>                     ICASEcs=[2],
00601>                     Enter ordinates of IDF curve below, at least seven points
00602>                         TIME (min)    Intensity(mm/hr)
00603>                           [   5    ]       [  215.3  ]
00604>                           [   10   ]       [  132.6   ]
00605>                           [   15   ]       [  99.9   ]
00606>                           [   30   ]       [  61.5   ]
00607>                           [   60   ]       [  37.9   ]
00608>                           [   120  ]       [  23.3   ]
00609>                           [   360  ]       [  10.8    ]
00610>                           [   720  ]       [  6.7    ]
00611>                           [   1440 ]       [  4.1    ]
00612>                             -1               -1
00613> *%-----------------|-------------------------------------------------------|
00614>
00615> *%-----------------|-------------------------------------------------------|
00616> *%-----------------|-------------------------------------------------------|
00617> *#-----------------|-------------------------------------------------------|
00618> *#-----------------|-PRE-DEVELOPMENT-------------------------------------------|
00619> *#-----------------|-------------------------------------------------------|
00620> *#-----------------|-------------------------------------------------------|
00621> *#-----------------|-Subwatershed 9 External Drainage Area---------------------|
00622> *#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
00623> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
00624> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00625> *#-----------------|-------------------------------------------------------|
00626> *%-----------------|-------------------------------------------------------|
00627> CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00628>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00629>                     N=[3], TP=[1.00]hrs,
00630>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00631> *%-----------------|-------------------------------------------------------|
00632> ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
00633>                     RDT=[1](min),
00634>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00635>                                       FPSLOPE=[2](%),
00636>                     SECNUM=[1],       NSEG=[3]
00637>                     ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
00638>                     ( DISTANCE (m), ELEVATION (m))= [0,102]
00639>                                                     [8,100]
00640>                                                     [12,100]
00641>                                                     [20,102]
00642> *%-----------------|-------------------------------------------------------|
00643> CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00644>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00645>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00646>                             DCAY=[2](/hr), F=[0](mm),
00647>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00648>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00649>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00650>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00651>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00652> *%-----------------|-------------------------------------------------------|
00653> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00654>                     RDT=[1](min),
00655>                           TABLE of ( OUTFLOW-STORAGE ) values
00656>                                    (cms) - (ha-m)
00657>                                 [   0.0 ,  0.0 ]
00658>                                 [   0.0100 ,  0.0610 ]
00659>                                 [   0.0400 ,  0.1310 ]
00660>                                 [   0.0700 ,  0.2110 ]
00661>                                 [   0.2600 ,  0.3000 ]
00662>                                 [   0.6000 ,  0.3940 ]
00663>                                 [   1.0200 ,  0.4950 ]
00664>                                 [   1.5200 ,  0.6020 ]
00665>                                 [   2.0800 ,  0.7160 ]
00666>                                 [   2.6900 ,  0.8370 ]
00667>                                 [   -1  ,  -1  ]  (max twenty pts)
00668>                           IDovf=[   ], NHYDovf=[   ]
00669> *%-----------------|-------------------------------------------------------|
00670> *#-----------------|-------------------------------------------------------|
00671> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00672> *#-----------------|-------------------------------------------------------|
00673> *%-----------------|-------------------------------------------------------|
00674> ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00675> *%-----------------|-------------------------------------------------------|
00676> *#-----------------|-------------------------------------------------------|
00677> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
00678> *#-----------------|-------------------------------------------------------|
00679> *%-----------------|-------------------------------------------------------|
00680> CALIB NASHYD        ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
00681>                     DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
00682>                     N=[3], TP=[0.37]hrs,
00683>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00684> *%-----------------|-------------------------------------------------------|
00685> CALIB NASHYD        ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
00686>                     DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
00687>                     N=[3], TP=[1.09]hrs,
00688>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00689> *%-----------------|-------------------------------------------------------|
00690> ADD HYD             IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00691> *%-----------------|-------------------------------------------------------|
00692> CALIB NASHYD        ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00693>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00694>                     N=[3], TP=[0.14]hrs,
00695>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00696> *%-----------------|-------------------------------------------------------|
00697> CALIB NASHYD        ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00698>                     DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00699>                     N=[3], TP=[0.15]hrs,
00700>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00701> *%-----------------|-------------------------------------------------------|
00702> *#-----------------|-------------------------------------------------------|
00703> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00704> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN-------|
00705> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND-----|
00706> *#-----------------|-------------------------------------------------------|
00707> *%-----------------|-------------------------------------------------------|
00708> ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00709>                     RDT=[1](min),
00710>                           TABLE of ( OUTFLOW-STORAGE ) values
00711>                                    (cms) - (ha-m)
00712>                                 [   0.0 ,  0.0 ]
00713>                                 [   0.00 ,  0.479 ]
00714>                                 [   0.00 ,  1.249 ]
00715>                                 [   -1  ,  -1  ]  (max twenty pts)
00716>                           IDovf=[   ], NHYDovf=[   ]
00717> *%-----------------|-------------------------------------------------------|
00718> ADD HYD             IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
00719> *%-----------------|-------------------------------------------------------|
00720> *#-----------------|-------------------------------------------------------|
00721> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
00722> *#-----------------|-------------------------------------------------------|
00723> *%-----------------|-------------------------------------------------------|
00724> CALIB NASHYD        ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
00725>                     DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
00726>                     N=[3], TP=[0.48]hrs,
00727>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00728> *%-----------------|-------------------------------------------------------|
00729> CALIB NASHYD        ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
00730>                     DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
00731>                     N=[3], TP=[0.71]hrs,
00732>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00733> *%-----------------|-------------------------------------------------------|
00734> *#-----------------|-------------------------------------------------------|
00735> *#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD-----------|
00736> *#-----------------|-------------------------------------------------------|
00737> *%-----------------|-------------------------------------------------------|
00738> ADD HYD             IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
00739> *%-----------------|-------------------------------------------------------|
00740> SAVE HYD            ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
00741>                     HYD_COMMENT=["Lakeshore Road Hydrograph"]
00742> *%-----------------|-------------------------------------------------------|
00743> *#*************************************************************************
00744> *#**************************Chicago 50yr 4-hr storm**************************
00745> *#*************************************************************************
00746> *%-----------------|-------------------------------------------------------|
00747>
00748> CHICAGO STORM       IUNITS=[2],  TD=[4.0](hrs), TPRAT=[0.33],  CSDT=[5](min),
00749>                     ICASEcs=[2],
00750>                     Enter ordinates of IDF curve below, at least seven points
00751>                         TIME (min)    Intensity(mm/hr)
00752>                           [   5    ]       [  239.7  ]
00753>                           [   10   ]       [  147.7  ]
00754>                           [   15   ]       [  111.2  ]
00755>                           [   30   ]       [  68.5   ]
00756>                           [   60   ]       [  42.2   ]
00757>                           [   120  ]       [  26.0   ]
00758>                           [   360  ]       [  12.1   ]
00759>                           [   720  ]       [  7.4    ]
00760>                           [   1440 ]       [  4.6    ]
00761>                             -1               -1
00762> *%-----------------|-------------------------------------------------------|
00763>
00764> *%-----------------|-------------------------------------------------------|
00765> *%-----------------|-------------------------------------------------------|
00766> *#-----------------|-------------------------------------------------------|
00767> *#-----------------|-PRE-DEVELOPMENT-------------------------------------------|
00768> *#-----------------|-------------------------------------------------------|
00769> *#-----------------|-------------------------------------------------------|
00770> *#-----------------|-Subwatershed 9 External Drainage Area---------------------|
00771> *#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
00772> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
00773> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00774> *#-----------------|-------------------------------------------------------|
00775> *%-----------------|-------------------------------------------------------|
00776> CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00777>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00778>                     N=[3], TP=[1.00]hrs,
00779>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00780> *%-----------------|-------------------------------------------------------|
00781> ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
00782>                     RDT=[1](min),
00783>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00784>                                       FPSLOPE=[2](%),
00785>                     SECNUM=[1],       NSEG=[3]
00786>                     ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
00787>                     ( DISTANCE (m), ELEVATION (m))= [0,102]
00788>                                                     [8,100]
00789>                                                     [12,100]
00790>                                                     [20,102]
00791> *%-----------------|-------------------------------------------------------|
00792> CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00793>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00794>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00795>                             DCAY=[2](/hr), F=[0](mm),
00796>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00797>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00798>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00799>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00800>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00801> *%-----------------|-------------------------------------------------------|
00802> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00803>                     RDT=[1](min),
00804>                           TABLE of ( OUTFLOW-STORAGE ) values
00805>                                    (cms) - (ha-m)
00806>                                 [   0.0 ,  0.0 ]
00807>                                 [   0.0100 ,  0.0610 ]
00808>                                 [   0.0400 ,  0.1310 ]
00809>                                 [   0.0700 ,  0.2110 ]
00810>                                 [   0.2600 ,  0.3000 ]
```

```
                                    [   0.6000 ,  0.3940 ]
                                    [   1.0200 ,  0.4950 ]
                                    [   1.5200 ,  0.6020 ]
                                    [   2.0800 ,  0.7160 ]
                                    [   2.6900 ,  0.8370 ]
                                    [   -1  ,  -1  ]  (max twenty pts)
                              IDovf=[   ], NHYDovf=[   ]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
                    DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
                    N=[3], TP=[0.37]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
                    DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
                    N=[3], TP=[1.09]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
                    DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
                    N=[3], TP=[0.15]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
*#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
*#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                              [   0.0 ,  0.0 ]
                              [   0.00 ,  0.479 ]
                              [   0.00 ,  1.249 ]
                              [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
                    DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
                    N=[3], TP=[0.48]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
                    DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
*%-----------------|---------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
                    HYD_COMMENT=["Lakeshore Road Hydrograph"]
*%-----------------|---------------------------------------------------------|
*#*************************************************************************
*#**************************Chicago 100yr 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    ]       [  263.3  ]
                          [   10   ]       [  162.3  ]
                          [   15   ]       [  122.3  ]
                          [   30   ]       [  75.3   ]
                          [   60   ]       [  46.4   ]
                          [   120  ]       [  28.6   ]
                          [   360  ]       [  13.3   ]
                          [   720  ]       [  8.2    ]
                          [   1440 ]       [  5.0    ]
                             -1                -1
*%-----------------|---------------------------------------------------------|

*%-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-PRE-DEVELOPMENT-------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-Subwatershed 9 External Drainage Area---------------------|
*#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
*#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                        FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
                    ( DISTANCE (m), ELEVATION (m))= [0,102]
                                                    [8,100]
                                                    [12,100]
                                                    [20,102]
*%-----------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                           DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                        LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                        LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|---------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                              [   0.0 ,  0.0 ]
                              [   0.0100 ,  0.0610 ]
                              [   0.0400 ,  0.1310 ]
                              [   0.0700 ,  0.2110 ]
                              [   0.2600 ,  0.3000 ]
                              [   0.6000 ,  0.3940 ]
                              [   1.0200 ,  0.4950 ]
                              [   1.5200 ,  0.6020 ]
                              [   2.0800 ,  0.7160 ]
                              [   2.6900 ,  0.8370 ]
                              [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
                    DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
                    N=[3], TP=[0.37]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
                    DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
                    N=[3], TP=[1.09]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
                    DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
                    N=[3], TP=[0.15]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
*#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
*#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                              [   0.0 ,  0.0 ]
                              [   0.00 ,  0.479 ]
                              [   0.00 ,  1.249 ]
                              [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
                    DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
                    N=[3], TP=[0.48]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
                    DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
*%-----------------|---------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
                    HYD_COMMENT=["Lakeshore Road Hydrograph"]
*%-----------------|---------------------------------------------------------|
FINISH
```

```
00001>  ================================================================================
00002>
00003>  SSSSS   W   W   M   M   H   H   Y   Y   M   M    OOO         222     000    11   77777 =========
00004>  S       W W W   MM MM   H   H    Y Y    MM MM   O   O       2   2   0   0   11     7   7
00005>  SSSSS   W W W   M M M   HHHHH     Y     M M M   O   O         2     0   0   11    7    =========
00006>      S    W W    M   M   H   H     Y     M   M   O   O     222     0   0   11   7       7 Ver4.05.0
00007>  SSSSS     W W    M   M   H   H     Y     M   M    OOO      2       0   0   11   7        # 3737016
00008>         StormWater Management HYdrologic Model              222     000    11   7     =========
00009>
00010>
00011>  ************************************************************************************
00012>  ************************  SWMHYMO Ver4.05.0  ************************************
00013>  ******************  A single event and continuous hydrologic simulation model  ******
00014>  ******************     based on the principles of HYMO and its successors      ******
00015>  ******************                OTTHYMO-83 and OTTHYMO-89.                   ******
00016>  ************************************************************************************
00017>  ******************  Distributed by:  J.F. Sabourin and Associates Inc.          ******
00018>  ******************                  Ottawa,  Ontario: (613) 836-3884            ******
00019>  ******************                  Gatineau, Quebec: (819) 243-6858            ******
00020>  ******************                  E-Mail: swmhymo@jfsa.com                    ******
00021>  ************************************************************************************
00022>
00023>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00024>  ++++++++++++++++++ Licensed user: C.F. Crozier & Associates Inc.      ++++++++++++++++++
00025>  ++++++++++++++++++                 Collingwood          SERIAL#:3737016 ++++++++++++++++++
00026>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>  ************************************************************************************
00029>  ******************          ++++++ PROGRAM ARRAY DIMENSIONS ++++++          ******************
00030>  ******************          Maximum value for ID numbers  :     11          ******************
00031>  ******************          Max. number of rainfall points: 105408          ******************
00032>  ******************          Max. number of flow points    : 105408          ******************
00033>  ************************************************************************************
00034>
00035>
00036>  ***************************  S U M M A R Y   O U T P U T  ***************************
00037>  ************************************************************************************
00038>  *                  RUN DATE: 2020-06-15     TIME: 12:06:20     RUN COUNTER: 000003     *
00039>  ************************************************************************************
00040>  * Input   file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2019 SWM*
00041>  *               HYMO\CHI\PRE_CHI.DAT                                                 *
00042>  * Output  file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2019 SWM*
00043>  *               HYMO\CHI\PRE_CHI.out                                                 *
00044>  * Summary file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2019 SWM*
00045>  *               HYMO\CHI\PRE_CHI.sum                                                 *
00046>  * User comments:                                                                    *
00047>  * 1:_____________________________________________________________________________*
00048>  * 2:_____________________________________________________________________________*
00049>  * 3:_____________________________________________________________________________*
00050>  ************************************************************************************
00051>
00052>
00053>  #*********************************************************************************
00054>  #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00055>  #  Date        : 2018-09-20
00056>  #  Modeller    : [OD - UPDATED BY JM/BD - UPDATED BY JE]
00057>  #  Company     : C.F. Crozier & Associates Inc.
00058>  #  License #   : 3737016
00059>  #*********************************************************************************
00060>  RUN#:COMMAND#
00061>  R0001:C00001-------------------------------------------------------------------------
00062>       START
00063>         [TZERO =    .00 hrs on       0]
00064>         [METOUT=   2   (1=imperial, 2=metric output)]
00065>         [NSTORM=    1 ]
00066>         [NRUN  = 0001 ]
00067>  #*********************************************************************************
00068>  #*********************************25mm storm**************************************
00069>  #*********************************************************************************
00070>  R0001:C00002-------------------------------------------------------------------------
00071>       READ STORM
00072>         Filename = 25mm.stm
00073>         Comment  = 25mm Event
00074>         [SDT= 5.00:SDUR=   4.00:PTOT=  24.99]
00075>  #----------------|-------------------------------------------------------------|
00076>  #----------------|-PRE-DEVELOPMENT-----------------------------------------------|
00077>  #----------------|-------------------------------------------------------------|
00078>  #----------------|-------------------------------------------------------------|
00079>  #----------------|-Subwatershed 9 External Drainage Area-------------------------|
00080>  #----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
00081>  #----------------|-Prepared by Higgins Engineering (Jan. 2005)-------------------|
00082>  #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-----------|
00083>  #----------------|-------------------------------------------------------------|
00084>  R0001:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00085>      CALIB NASHYD           1.0 01:EXT-9A       101.80     .507 No_date    2:46    4.79 .192     .000
00086>        [CN= 80.0: N= 3.00: Tp= 1.00]
00087>  R0001:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00088>      ROUTE CHANNEL   ->     1.0 01:EXT-9A       101.80     .507 No_date    2:46    4.79 n/a      .000
00089>       [RDT= 1.00] out<-     1.0 02:Channel      101.80     .500 No_date    2:56    4.79 n/a      .000
00090>        [L/S/n=  550./2.000/.035]
00091>        {Vmax=  .902:Dmax=  .117}
00092>  R0001:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00093>      CALIB STANDHYD         1.0 03:EXT-9B        14.80     .713 No_date    1:24   10.39 .416     .000
00094>        [XIMP=.35:TIMP=.35]
00095>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00096>        [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00097>        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00098>  R0001:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00099>      ROUTE RESERVOIR ->     1.0 03:EXT-9B        14.80     .713 No_date    1:24   10.39 n/a      .000
00100>                   out <=    1.0 04:Orchards      14.80     .038 No_date    2:58   10.39 n/a      .000
00101>       {MxStoUsed=.1255E+00  m3}
00102>  #----------------|-------------------------------------------------------------|
00103>  #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-------------|
00104>  #----------------|-------------------------------------------------------------|
00105>  R0001:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00106>      ADD HYD                1.0 02:Channel      101.80     .500 No_date    2:56    4.79 n/a      .000
00107>                       +     1.0 04:Orchards     14.80     .038 No_date    2:58   10.39 n/a      .000
00108>                   SUM=      1.0 05:RD19         116.60     .538 No_date    2:56    5.50 n/a      .000
00109>  #----------------|-------------------------------------------------------------|
00110>  #----------------|-Parkbridge Craigleith - Upper Terrace Lands-------------------|
00111>  #----------------|-------------------------------------------------------------|
00112>  R0001:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00113>      CALIB NASHYD           1.0 01:9A            2.57     .004 No_date    1:59     .96 .038     .000
00114>        [CN= 48.4: N= 3.00: Tp=  .37]
00115>  R0001:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00116>      CALIB NASHYD           1.0 02:9B           11.63     .024 No_date    3:04    2.16 .087     .000
00117>        [CN= 68.5: N= 3.00: Tp= 1.09]
00118>  R0001:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00119>      ADD HYD                1.0 01:9A            2.57     .004 No_date    1:59     .96 n/a      .000
00120>                       +     1.0 02:9B           11.63     .024 No_date    3:04    2.16 n/a      .000
00121>                   SUM=      1.0 10:9A9B         14.20     .026 No_date    2:58    1.94 n/a      .000
00122>  R0001:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00123>      CALIB NASHYD           1.0 01:9C            1.19     .001 No_date    1:38     .45 .018     .000
00124>        [CN= 33.2: N= 3.00: Tp=  .14]
00125>  R0001:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00126>      CALIB NASHYD           1.0 02:9D            2.02     .004 No_date    1:37     .77 .031     .000
00127>        [CN= 41.9: N= 3.00: Tp=  .15]
00128>  #----------------|-------------------------------------------------------------|
00129>  #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00130>  #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00131>  #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00132>  #----------------|-------------------------------------------------------------|
00133>  R0001:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00134>      ROUTE RESERVOIR ->     1.0 02:9D            2.02     .004 No_date    1:37     .77 n/a      .000
00135>   *                  out <=    1.0 04:ExPond        2.02     .000 No_date    0:00     .00 n/a      .000
00136>       {MxStoUsed=.1560E-02  m3}
00137>  R0001:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00138>      ADD HYD                1.0 01:9C            1.19     .001 No_date    1:38     .45 n/a      .000
00139>                       +     1.0 04:ExPond        2.02     .000 No_date    0:00     .00 n/a      .000
00140>                   SUM=      1.0 09:9C9D          3.21     .001 No_date    1:38     .17 n/a      .000
00141>  #----------------|-------------------------------------------------------------|
00142>  #----------------|-Parkbridge Craigleith - Lower Terrace Lands-------------------|
00143>  #----------------|-------------------------------------------------------------|
00144>  R0001:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00145>      CALIB NASHYD           1.0 07:9E            7.60     .010 No_date    2:11     .88 .035     .000
00146>        [CN= 47.1: N= 3.00: Tp=  .48]
00147>  R0001:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00148>      CALIB NASHYD           1.0 08:9F            3.35     .004 No_date    2:31    1.03 .041     .000
00149>        [CN= 50.4: N= 3.00: Tp=  .71]
00150>  #----------------|-------------------------------------------------------------|
00151>  #----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD----------------|
00152>  #----------------|-------------------------------------------------------------|
00153>  R0001:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00154>      ADD HYD                1.0 05:RD19         116.60     .538 No_date    2:56    5.50 n/a      .000
00155>                       +     1.0 10:9A9B         14.20     .026 No_date    2:58    1.94 n/a      .000
00156>                       +     1.0 09:9C9D          3.21     .001 No_date    1:38     .17 n/a      .000
00157>                       +     1.0 07:9E            7.60     .010 No_date    2:11     .88 n/a      .000
00158>                       +     1.0 08:9F            3.35     .004 No_date    2:31    1.03 n/a      .000
00159>                   SUM=      1.0 01:WC9LS        144.96     .574 No_date    2:55    4.69 n/a      .000
00160>  R0001:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00161>      SAVE HYD               1.0 01:WC9LS        144.96     .574 No_date    2:55    4.69 n/a      .000
00162>         fname :WC9LS.0001
00163>         remark:Lakeshore Road Hydrograph
00164>  #*********************************************************************************
00165>  #*********************************Chicago 2yr 4-hr storm**************************
00166>  #*********************************************************************************
00167>  R0001:C00019-------------------------------------------------------------------------
00168>       CHICAGO STORM
00169>         [SDT= 5.00:SDUR=   4.00:PTOT=  31.55]
00170>         {A/B/C= 425.976/   1.500/    .727: R=.9997}
00171>  #----------------|-------------------------------------------------------------|
00172>  #----------------|-PRE-DEVELOPMENT-----------------------------------------------|
00173>  #----------------|-------------------------------------------------------------|
00174>  #----------------|-------------------------------------------------------------|
00175>  #----------------|-Subwatershed 9 External Drainage Area-------------------------|
00176>  #----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
00177>  #----------------|-Prepared by Higgins Engineering (Jan. 2005)-------------------|
00178>  #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-----------|
00179>  #----------------|-------------------------------------------------------------|
00180>  R0001:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00181>      CALIB NASHYD           1.0 01:EXT-9A       101.80     .779 No_date    2:48    7.83 .248     .000
00182>        [CN= 80.0: N= 3.00: Tp= 1.00]
00183>  R0001:C00021------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00184>      ROUTE CHANNEL   ->     1.0 01:EXT-9A       101.80     .779 No_date    2:48    7.83 n/a      .000
00185>       [RDT= 1.00] out<-     1.0 02:Channel      101.80     .773 No_date    2:55    7.83 n/a      .000
00186>        [L/S/n=  550./2.000/.035]
00187>        {Vmax= 1.006:Dmax=  .147}
00188>  R0001:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00189>      CALIB STANDHYD         1.0 03:EXT-9B        14.80    1.089 No_date    1:23   14.58 .462     .000
00190>        [XIMP=.35:TIMP=.35]
00191>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00192>        [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00193>        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00194>  R0001:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00195>      ROUTE RESERVOIR ->     1.0 03:EXT-9B        14.80    1.089 No_date    1:23   14.58 n/a      .000
00196>                   out <=    1.0 04:Orchards      14.80     .055 No_date    2:51   14.58 n/a      .000
00197>       {MxStoUsed=.1723E+00  m3}
00198>  #----------------|-------------------------------------------------------------|
00199>  #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-------------|
00200>  #----------------|-------------------------------------------------------------|
00201>  R0001:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00202>      ADD HYD                1.0 02:Channel      101.80     .773 No_date    2:55    7.83 n/a      .000
00203>                       +     1.0 04:Orchards     14.80     .055 No_date    2:51   14.58 n/a      .000
00204>                   SUM=      1.0 05:RD19         116.60     .829 No_date    2:55    8.69 n/a      .000
00205>  #----------------|-------------------------------------------------------------|
00206>  #----------------|-Parkbridge Craigleith - Upper Terrace Lands-------------------|
00207>  #----------------|-------------------------------------------------------------|
00208>  R0001:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00209>      CALIB NASHYD           1.0 01:9A            2.57     .007 No_date    1:56    1.82 .058     .000
00210>        [CN= 48.4: N= 3.00: Tp=  .37]
00211>  R0001:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00212>      CALIB NASHYD           1.0 02:9B           11.63     .041 No_date    3:07    3.96 .125     .000
00213>        [CN= 68.5: N= 3.00: Tp= 1.09]
00214>  R0001:C00027------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00215>      ADD HYD                1.0 01:9A            2.57     .007 No_date    1:56    1.82 n/a      .000
00216>                       +     1.0 02:9B           11.63     .041 No_date    3:07    3.96 n/a      .000
00217>                   SUM=      1.0 10:9A9B         14.20     .045 No_date    3:02    3.57 n/a      .000
00218>  R0001:C00028------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00219>      CALIB NASHYD           1.0 01:9C            1.19     .002 No_date    1:33     .90 .029     .000
00220>        [CN= 33.2: N= 3.00: Tp=  .14]
00221>  R0001:C00029------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00222>      CALIB NASHYD           1.0 02:9D            2.02     .007 No_date    1:33    1.46 .046     .000
00223>        [CN= 41.9: N= 3.00: Tp=  .15]
00224>  #----------------|-------------------------------------------------------------|
00225>  #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00226>  #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00227>  #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00228>  #----------------|-------------------------------------------------------------|
00229>  R0001:C00030------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00230>      ROUTE RESERVOIR ->     1.0 02:9D            2.02     .007 No_date    1:33    1.46 n/a      .000
00231>   *                  out <=    1.0 04:ExPond        2.02     .000 No_date    0:00     .00 n/a      .000
00232>       {MxStoUsed=.2955E-02  m3}
00233>  R0001:C00031------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00234>      ADD HYD                1.0 01:9C            1.19     .002 No_date    1:33     .90 n/a      .000
00235>                       +     1.0 04:ExPond        2.02     .000 No_date    0:00     .00 n/a      .000
00236>                   SUM=      1.0 09:9C9D          3.21     .002 No_date    1:33     .34 n/a      .000
00237>  #----------------|-------------------------------------------------------------|
00238>  #----------------|-Parkbridge Craigleith - Lower Terrace Lands-------------------|
00239>  #----------------|-------------------------------------------------------------|
00240>  R0001:C00032------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00241>      CALIB NASHYD           1.0 07:9E            7.60     .017 No_date    2:08    1.69 .054     .000
00242>        [CN= 47.1: N= 3.00: Tp=  .48]
00243>  R0001:C00033------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00244>      CALIB NASHYD           1.0 08:9F            3.35     .007 No_date    2:31    1.96 .062     .000
00245>        [CN= 50.4: N= 3.00: Tp=  .71]
00246>  #----------------|-------------------------------------------------------------|
00247>  #----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD----------------|
00248>  #----------------|-------------------------------------------------------------|
00249>  R0001:C00034------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00250>      ADD HYD                1.0 05:RD19         116.60     .829 No_date    2:55    8.69 n/a      .000
00251>                       +     1.0 10:9A9B         14.20     .045 No_date    3:02    3.57 n/a      .000
00252>                       +     1.0 09:9C9D          3.21     .002 No_date    1:33     .34 n/a      .000
00253>                       +     1.0 07:9E            7.60     .017 No_date    2:08    1.69 n/a      .000
00254>                       +     1.0 08:9F            3.35     .007 No_date    2:31    1.96 n/a      .000
00255>                   SUM=      1.0 01:WC9LS        144.96     .893 No_date    2:54    7.48 n/a      .000
00256>  R0001:C00035------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00257>      SAVE HYD               1.0 01:WC9LS        144.96     .893 No_date    2:54    7.48 n/a      .000
00258>         fname :WC9LS.0001
00259>         remark:Lakeshore Road Hydrograph
00260>  #*********************************************************************************
00261>  #*********************************Chicago 5yr 4-hr storm**************************
00262>  #*********************************************************************************
00263>  R0001:C00036-------------------------------------------------------------------------
00264>       CHICAGO STORM
00265>         [SDT= 5.00:SDUR=   4.00:PTOT=  42.28]
00266>         {A/B/C= 564.587/   1.500/    .725: R=.9997}
00267>  #----------------|-------------------------------------------------------------|
00268>  #----------------|-PRE-DEVELOPMENT-----------------------------------------------|
00269>  #----------------|-------------------------------------------------------------|
00270>  #----------------|-------------------------------------------------------------|
00271>  #----------------|-Subwatershed 9 External Drainage Area-------------------------|
00272>  #----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
00273>  #----------------|-Prepared by Higgins Engineering (Jan. 2005)-------------------|
00274>  #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-----------|
00275>  #----------------|-------------------------------------------------------------|
00276>  R0001:C00037------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00277>      CALIB NASHYD           1.0 01:EXT-9A       101.80    1.403 No_date    2:44   13.79 .326     .000
00278>        [CN= 80.0: N= 3.00: Tp= 1.00]
00279>  R0001:C00038------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00280>      ROUTE CHANNEL   ->     1.0 01:EXT-9A       101.80    1.403 No_date    2:44   13.79 n/a      .000
00281>       [RDT= 1.00] out<-     1.0 02:Channel      101.80    1.398 No_date    2:49   13.79 n/a      .000
00282>        [L/S/n=  550./2.000/.035]
00283>        {Vmax= 1.343:Dmax=  .214}
00284>  R0001:C00039------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00285>      CALIB STANDHYD         1.0 03:EXT-9B        14.80    1.648 No_date    1:22   21.16 .500     .000
00286>        [XIMP=.35:TIMP=.35]
00287>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00288>        [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00289>        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00290>  R0001:C00040------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00291>      ROUTE RESERVOIR ->     1.0 03:EXT-9B        14.80    1.648 No_date    1:22   21.16 n/a      .000
00292>                   out <=    1.0 04:Orchards      14.80     .133 No_date    2:16   21.16 n/a      .000
00293>       {MxStoUsed=.2403E+00  m3}
00294>  #----------------|-------------------------------------------------------------|
00295>  #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-------------|
00296>  #----------------|-------------------------------------------------------------|
00297>  R0001:C00041------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00298>      ADD HYD                1.0 02:Channel      101.80    1.398 No_date    2:49   13.79 n/a      .000
00299>                       +     1.0 04:Orchards     14.80     .133 No_date    2:16   21.16 n/a      .000
00300>                   SUM=      1.0 05:RD19         116.60    1.517 No_date    2:46   14.73 n/a      .000
00301>  #----------------|-------------------------------------------------------------|
00302>  #----------------|-Parkbridge Craigleith - Upper Terrace Lands-------------------|
00303>  #----------------|-------------------------------------------------------------|
00304>  R0001:C00042------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00305>      CALIB NASHYD           1.0 01:9A            2.57     .016 No_date    1:53    3.77 .089     .000
00306>        [CN= 48.4: N= 3.00: Tp=  .37]
00307>  R0001:C00043------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00308>      CALIB NASHYD           1.0 02:9B           11.63     .082 No_date    3:00    7.79 .184     .000
00309>        [CN= 68.5: N= 3.00: Tp= 1.09]
00310>  R0001:C00044------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00311>      ADD HYD                1.0 01:9A            2.57     .016 No_date    1:53    3.77 n/a      .000
00312>                       +     1.0 02:9B           11.63     .082 No_date    3:00    7.79 n/a      .000
00313>                   SUM=      1.0 10:9A9B         14.20     .090 No_date    2:55    7.06 n/a      .000
00314>  R0001:C00045------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00315>      CALIB NASHYD           1.0 01:9C            1.19     .006 No_date    1:32    1.96 .046     .000
00316>        [CN= 33.2: N= 3.00: Tp=  .14]
00317>  R0001:C00046------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00318>      CALIB NASHYD           1.0 02:9D            2.02     .017 No_date    1:32    3.02 .071     .000
00319>        [CN= 41.9: N= 3.00: Tp=  .15]
00320>  #----------------|-------------------------------------------------------------|
00321>  #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00322>  #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00323>  #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00324>  #----------------|-------------------------------------------------------------|
00325>  R0001:C00047------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00326>      ROUTE RESERVOIR ->     1.0 02:9D            2.02     .017 No_date    1:32    3.02 n/a      .000
00327>   *                  out <=    1.0 04:ExPond        2.02     .000 No_date    0:00     .00 n/a      .000
00328>       {MxStoUsed=.6105E-02  m3}
```

```
R0001:C00048------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9C           1.19      .006 No_date    1:32    1.96  n/a      .000
                     +   1.0 04:ExPond       2.02      .000 No_date    0:00     .00  n/a      .000
                  SUM=   1.0 09:9C9D         3.21      .006 No_date    1:32     .73  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|---------------------------------------------------------------|
R0001:C00049------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 07:9E           7.60      .038 No_date    2:04    3.54 .084      .000
      [CN= 47.1: N= 3.00: Tp=  .48]
R0001:C00050------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 08:9F           3.35      .015 No_date    2:26    4.04 .096      .000
      [CN= 50.4: N= 3.00: Tp=  .71]
#-----------------|---------------------------------------------------------------|
#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
#-----------------|---------------------------------------------------------------|
R0001:C00051------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 05:RD19       116.60     1.517 No_date    2:46   14.73  n/a      .000
                     +   1.0 10:9A9B        14.20      .090 No_date    2:55    7.06  n/a      .000
                     +   1.0 09:9C9D         3.21      .006 No_date    1:32     .73  n/a      .000
                     +   1.0 07:9E           7.60      .038 No_date    2:04    3.54  n/a      .000
                     +   1.0 08:9F           3.35      .015 No_date    2:26    4.04  n/a      .000
                  SUM=   1.0 01:WC9LS      144.96     1.649 No_date    2:46   12.83  n/a      .000
R0001:C00052------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD             1.0 01:WC9LS      144.96     1.649 No_date    2:46   12.83  n/a      .000
      fname :WC9LS.0001
      remark:Lakeshore Road Hydrograph
#*******************************************************************************
#***************************Chicago 10yr 4-hr storm***************************
#*******************************************************************************
R0001:C00053------------------------------------------------------------------------------------
     CHICAGO STORM
      [SDT= 5.00:SDUR=   4.00:PTOT=  49.47]
      {A/B/C= 656.948/   1.500/    .724: R=.9997}
#-----------------|---------------------------------------------------------------|
#-----------------|-PRE-DEVELOPMENT-----------------------------------------------|
#-----------------|---------------------------------------------------------------|
#-----------------|---------------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|---------------------------------------------------------------|
R0001:C00054------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9A     101.80     1.883 No_date    2:42   18.32 .370      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00055------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->   1.0 01:EXT-9A     101.80     1.883 No_date    2:42   18.32  n/a      .000
     [RDT= 1.00] out<-   1.0 02:Channel    101.80     1.875 No_date    2:47   18.32  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.446:Dmax=  .248}
R0001:C00056------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:EXT-9B      14.80     2.042 No_date    1:22   25.78 .521      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00057------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 03:EXT-9B      14.80     2.042 No_date    1:22   25.78  n/a      .000
                out <=   1.0 04:Orchards    14.80      .221 No_date    2:04   25.78  n/a      .000
     {MxStoUsed=.2816E+00  m3}
#-----------------|---------------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|---------------------------------------------------------------|
R0001:C00058------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 02:Channel    101.80     1.875 No_date    2:47   18.32  n/a      .000
                     +   1.0 04:Orchards    14.80      .221 No_date    2:04   25.78  n/a      .000
                  SUM=   1.0 05:RD19       116.60     2.056 No_date    2:44   19.26  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|---------------------------------------------------------------|
R0001:C00059------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9A           2.57      .024 No_date    1:52    5.41 .109      .000
      [CN= 48.4: N= 3.00: Tp=  .37]
R0001:C00060------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:9B          11.63      .116 No_date    2:57   10.87 .220      .000
      [CN= 68.5: N= 3.00: Tp= 1.09]
R0001:C00061------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9A           2.57      .024 No_date    1:52    5.41  n/a      .000
                     +   1.0 02:9B          11.63      .116 No_date    2:57   10.87  n/a      .000
                  SUM=   1.0 10:9A9B        14.20      .127 No_date    2:52    9.89  n/a      .000
R0001:C00062------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9C           1.19      .010 No_date    1:31    2.89 .058      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0001:C00063------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:9D           2.02      .025 No_date    1:31    4.35 .088      .000
      [CN= 41.9: N= 3.00: Tp=  .15]
#-----------------|---------------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
#-----------------|---------------------------------------------------------------|
R0001:C00064------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 02:9D           2.02      .025 No_date    1:31    4.35  n/a      .000
 *              out <=   1.0 04:ExPond       2.02      .000 No_date    0:00     .00  n/a      .000
     {MxStoUsed=.8780E-02  m3}
R0001:C00065------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9C           1.19      .010 No_date    1:31    2.89  n/a      .000
                     +   1.0 04:ExPond       2.02      .000 No_date    0:00     .00  n/a      .000
                  SUM=   1.0 09:9C9D         3.21      .010 No_date    1:31    1.07  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|---------------------------------------------------------------|
R0001:C00066------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 07:9E           7.60      .056 No_date    2:03    5.10 .103      .000
      [CN= 47.1: N= 3.00: Tp=  .48]
R0001:C00067------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 08:9F           3.35      .023 No_date    2:24    5.80 .117      .000
      [CN= 50.4: N= 3.00: Tp=  .71]
#-----------------|---------------------------------------------------------------|
#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
#-----------------|---------------------------------------------------------------|
R0001:C00068------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 05:RD19       116.60     2.056 No_date    2:44   19.26  n/a      .000
                     +   1.0 10:9A9B        14.20      .127 No_date    2:52    9.89  n/a      .000
                     +   1.0 09:9C9D         3.21      .010 No_date    1:31    1.07  n/a      .000
                     +   1.0 07:9E           7.60      .056 No_date    2:03    5.10  n/a      .000
                     +   1.0 08:9F           3.35      .023 No_date    2:24    5.80  n/a      .000
                  SUM=   1.0 01:WC9LS      144.96     2.245 No_date    2:44   16.89  n/a      .000
R0001:C00069------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD             1.0 01:WC9LS      144.96     2.245 No_date    2:44   16.89  n/a      .000
      fname :WC9LS.0001
      remark:Lakeshore Road Hydrograph
#*******************************************************************************
#***************************Chicago 25yr 4-hr storm***************************
#*******************************************************************************
R0001:C00070------------------------------------------------------------------------------------
     CHICAGO STORM
      [SDT= 5.00:SDUR=   4.00:PTOT=  58.02]
      {A/B/C= 778.937/   1.500/    .726: R=.9997}
#-----------------|---------------------------------------------------------------|
#-----------------|-PRE-DEVELOPMENT-----------------------------------------------|
#-----------------|---------------------------------------------------------------|
#-----------------|---------------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|---------------------------------------------------------------|
R0001:C00071------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9A     101.80     2.512 No_date    2:41   24.12 .416      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00072------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->   1.0 01:EXT-9A     101.80     2.512 No_date    2:41   24.12  n/a      .000
     [RDT= 1.00] out<-   1.0 02:Channel    101.80     2.508 No_date    2:44   24.12  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.607:Dmax=  .293}
R0001:C00073------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:EXT-9B      14.80     2.732 No_date    1:23   32.10 .553      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00074------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 03:EXT-9B      14.80     2.732 No_date    1:23   32.10  n/a      .000
                out <=   1.0 04:Orchards    14.80      .395 No_date    1:54   32.10  n/a      .000
     {MxStoUsed=.3373E+00  m3}
#-----------------|---------------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|---------------------------------------------------------------|
R0001:C00075------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 02:Channel    101.80     2.508 No_date    2:44   24.12  n/a      .000
                     +   1.0 04:Orchards    14.80      .395 No_date    1:54   32.10  n/a      .000
                  SUM=   1.0 05:RD19       116.60     2.755 No_date    2:44   25.13  n/a      .000
```

```
#-----------------|---------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|---------------------------------------------------------------|
R0001:C00076------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9A           2.57      .035 No_date    1:51    7.68 .132      .000
      [CN= 48.4: N= 3.00: Tp=  .37]
R0001:C00077------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:9B          11.63      .162 No_date    2:54   15.01 .259      .000
      [CN= 68.5: N= 3.00: Tp= 1.09]
R0001:C00078------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9A           2.57      .035 No_date    1:51    7.68  n/a      .000
                     +   1.0 02:9B          11.63      .162 No_date    2:54   15.01  n/a      .000
                  SUM=   1.0 10:9A9B        14.20      .178 No_date    2:49   13.68  n/a      .000
R0001:C00079------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9C           1.19      .015 No_date    1:30    4.19 .072      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0001:C00080------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:9D           2.02      .038 No_date    1:31    6.19 .107      .000
      [CN= 41.9: N= 3.00: Tp=  .15]
#-----------------|---------------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
#-----------------|---------------------------------------------------------------|
R0001:C00081------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 02:9D           2.02      .038 No_date    1:31    6.19  n/a      .000
 *              out <=   1.0 04:ExPond       2.02      .000 No_date    0:00     .00  n/a      .000
     {MxStoUsed=.1251E-01  m3}
R0001:C00082------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9C           1.19      .015 No_date    1:30    4.19  n/a      .000
                     +   1.0 04:ExPond       2.02      .000 No_date    0:00     .00  n/a      .000
                  SUM=   1.0 09:9C9D         3.21      .015 No_date    1:30    1.55  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|---------------------------------------------------------------|
R0001:C00083------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 07:9E           7.60      .082 No_date    2:01    7.27 .125      .000
      [CN= 47.1: N= 3.00: Tp=  .48]
R0001:C00084------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 08:9F           3.35      .033 No_date    2:22    8.22 .142      .000
      [CN= 50.4: N= 3.00: Tp=  .71]
#-----------------|---------------------------------------------------------------|
#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
#-----------------|---------------------------------------------------------------|
R0001:C00085------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 05:RD19       116.60     2.755 No_date    2:44   25.13  n/a      .000
                     +   1.0 10:9A9B        14.20      .178 No_date    2:49   13.68  n/a      .000
                     +   1.0 09:9C9D         3.21      .015 No_date    1:30    1.55  n/a      .000
                     +   1.0 07:9E           7.60      .082 No_date    2:01    7.27  n/a      .000
                     +   1.0 08:9F           3.35      .033 No_date    2:22    8.22  n/a      .000
                  SUM=   1.0 01:WC9LS      144.96     3.021 No_date    2:44   22.16  n/a      .000
R0001:C00086------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD             1.0 01:WC9LS      144.96     3.021 No_date    2:44   22.16  n/a      .000
      fname :WC9LS.0001
      remark:Lakeshore Road Hydrograph
#*******************************************************************************
#***************************Chicago 50yr 4-hr storm***************************
#*******************************************************************************
R0001:C00087------------------------------------------------------------------------------------
     CHICAGO STORM
      [SDT= 5.00:SDUR=   4.00:PTOT=  64.88]
      {A/B/C= 866.281/   1.500/    .725: R=.9997}
#-----------------|---------------------------------------------------------------|
#-----------------|-PRE-DEVELOPMENT-----------------------------------------------|
#-----------------|---------------------------------------------------------------|
#-----------------|---------------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|---------------------------------------------------------------|
R0001:C00088------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9A     101.80     3.045 No_date    2:40   29.06 .448      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00089------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->   1.0 01:EXT-9A     101.80     3.045 No_date    2:40   29.06  n/a      .000
     [RDT= 1.00] out<-   1.0 02:Channel    101.80     3.036 No_date    2:44   29.06  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.731:Dmax=  .327}
R0001:C00090------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:EXT-9B      14.80     3.312 No_date    1:23   37.37 .576      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00091------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 03:EXT-9B      14.80     3.312 No_date    1:23   37.37  n/a      .000
                out <=   1.0 04:Orchards    14.80      .553 No_date    1:51   37.37  n/a      .000
     {MxStoUsed=.3809E+00  m3}
#-----------------|---------------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|---------------------------------------------------------------|
R0001:C00092------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 02:Channel    101.80     3.036 No_date    2:44   29.06  n/a      .000
                     +   1.0 04:Orchards    14.80      .553 No_date    1:51   37.37  n/a      .000
                  SUM=   1.0 05:RD19       116.60     3.349 No_date    2:40   30.11  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|---------------------------------------------------------------|
R0001:C00093------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9A           2.57      .045 No_date    1:50    9.75 .150      .000
      [CN= 48.4: N= 3.00: Tp=  .37]
R0001:C00094------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:9B          11.63      .203 No_date    2:53   18.64 .287      .000
      [CN= 68.5: N= 3.00: Tp= 1.09]
R0001:C00095------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9A           2.57      .045 No_date    1:50    9.75  n/a      .000
                     +   1.0 02:9B          11.63      .203 No_date    2:53   18.64  n/a      .000
                  SUM=   1.0 10:9A9B        14.20      .223 No_date    2:47   17.03  n/a      .000
R0001:C00096------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9C           1.19      .020 No_date    1:30    5.40 .083      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0001:C00097------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:9D           2.02      .049 No_date    1:31    7.88 .121      .000
      [CN= 41.9: N= 3.00: Tp=  .15]
#-----------------|---------------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
#-----------------|---------------------------------------------------------------|
R0001:C00098------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 02:9D           2.02      .049 No_date    1:31    7.88  n/a      .000
 *              out <=   1.0 04:ExPond       2.02      .000 No_date    0:00     .00  n/a      .000
     {MxStoUsed=.1592E-01  m3}
R0001:C00099------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9C           1.19      .020 No_date    1:30    5.40  n/a      .000
                     +   1.0 04:ExPond       2.02      .000 No_date    0:00     .00  n/a      .000
                  SUM=   1.0 09:9C9D         3.21      .020 No_date    1:30    2.00  n/a      .000
#-----------------|---------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|---------------------------------------------------------------|
R0001:C00100------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 07:9E           7.60      .106 No_date    2:01    9.24 .142      .000
      [CN= 47.1: N= 3.00: Tp=  .48]
R0001:C00101------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 08:9F           3.35      .042 No_date    2:21   10.41 .160      .000
      [CN= 50.4: N= 3.00: Tp=  .71]
#-----------------|---------------------------------------------------------------|
#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
#-----------------|---------------------------------------------------------------|
R0001:C00102------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 05:RD19       116.60     3.349 No_date    2:40   30.11  n/a      .000
                     +   1.0 10:9A9B        14.20      .223 No_date    2:47   17.03  n/a      .000
                     +   1.0 09:9C9D         3.21      .020 No_date    1:30    2.00  n/a      .000
                     +   1.0 07:9E           7.60      .106 No_date    2:01    9.24  n/a      .000
                     +   1.0 08:9F           3.35      .042 No_date    2:21   10.41  n/a      .000
                  SUM=   1.0 01:WC9LS      144.96     3.688 No_date    2:39   26.66  n/a      .000
R0001:C00103------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD             1.0 01:WC9LS      144.96     3.688 No_date    2:39   26.66  n/a      .000
      fname :WC9LS.0001
      remark:Lakeshore Road Hydrograph
#*******************************************************************************
#***************************Chicago 100yr 4-hr storm**************************
#*******************************************************************************
R0001:C00104------------------------------------------------------------------------------------
     CHICAGO STORM
      [SDT= 5.00:SDUR=   4.00:PTOT=  71.43]
      {A/B/C= 953.793/   1.500/    .725: R=.9997}
#-----------------|---------------------------------------------------------------|
#-----------------|-PRE-DEVELOPMENT-----------------------------------------------|
#-----------------|---------------------------------------------------------------|
#-----------------|---------------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
```

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00657> #----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------|
00658> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00659> #----------------|-----------------------------------------------------------|
00660> R0001:C00105------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00661>     CALIB NASHYD           1.0 01:EXT-9A       101.80    3.581 No_date    2:39   33.96 .475     .000
00662>       [CN= 80.0: N= 3.00: Tp= 1.00]
00663> R0001:C00106------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00664>     ROUTE CHANNEL    ->    1.0 01:EXT-9A       101.80    3.581 No_date    2:39   33.96  n/a     .000
00665>       [RDT= 1.00] out<-    1.0 02:Channel      101.80    3.570 No_date    2:43   33.96  n/a     .000
00666>       [L/S/n=  550./2.000/.035]
00667>       {Vmax= 1.807:Dmax=  .356}
00668> R0001:C00107------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00669>     CALIB STANDHYD         1.0 03:EXT-9B       14.80    3.763 No_date    1:23   42.71 .598     .000
00670>       [XIMP=.35:TIMP=.35]
00671>       [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00672>       [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00673>       [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00674> R0001:C00108------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00675>     ROUTE RESERVOIR ->    1.0 03:EXT-9B       14.80    3.763 No_date    1:23   42.71  n/a     .000
00676>                   out <=    1.0 04:Orchards     14.80     .713 No_date    1:50   42.70  n/a     .000
00677>      {MxStoUsed=.4213E+00  m3}
00678> #----------------|-----------------------------------------------------------|
00679> #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00680> #----------------|-----------------------------------------------------------|
00681> R0001:C00109------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00682>     ADD HYD                1.0 02:Channel      101.80    3.570 No_date    2:43   33.96  n/a     .000
00683>                      +     1.0 04:Orchards      14.80     .713 No_date    1:50   42.70  n/a     .000
00684>                    SUM=    1.0 05:RD19         116.60    3.964 No_date    2:37   35.07  n/a     .000
00685> #----------------|-----------------------------------------------------------|
00686> #----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
00687> #----------------|-----------------------------------------------------------|
00688> R0001:C00110------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00689>     CALIB NASHYD           1.0 01:9A            2.57     .055 No_date    1:50   11.90 .167     .000
00690>       [CN= 48.4: N= 3.00: Tp=  .37]
00691> R0001:C00111------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00692>     CALIB NASHYD           1.0 02:9B           11.63     .245 No_date    2:52   22.33 .313     .000
00693>       [CN= 68.5: N= 3.00: Tp= 1.09]
00694> R0001:C00112------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00695>     ADD HYD                1.0 01:9A            2.57     .055 No_date    1:50   11.90  n/a     .000
00696>                      +     1.0 02:9B           11.63     .245 No_date    2:52   22.33  n/a     .000
00697>                    SUM=    1.0 10:9A9B         14.20     .269 No_date    2:46   20.45  n/a     .000
00698> R0001:C00113------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00699>     CALIB NASHYD           1.0 01:9C            1.19     .025 No_date    1:30    6.67 .093     .000
00700>       [CN= 33.2: N= 3.00: Tp=  .14]
00701> R0001:C00114------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00702>     CALIB NASHYD           1.0 02:9D            2.02     .061 No_date    1:30    9.65 .135     .000
00703>       [CN= 41.9: N= 3.00: Tp=  .15]
00704> #----------------|-----------------------------------------------------------|
00705> #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00706> #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00707> #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00708> #----------------|-----------------------------------------------------------|
00709> R0001:C00115------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00710>     ROUTE RESERVOIR ->    1.0 02:9D            2.02     .061 No_date    1:30    9.65  n/a     .000
00711>  *                 out <=    1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00712>       {MxStoUsed=.1949E-01  m3}
00713> R0001:C00116------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00714>     ADD HYD                1.0 01:9C            1.19     .025 No_date    1:30    6.67  n/a     .000
00715>                      +     1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00716>                    SUM=    1.0 09:9C9D          3.21     .025 No_date    1:30    2.47  n/a     .000
00717> #----------------|-----------------------------------------------------------|
00718> #----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
00719> #----------------|-----------------------------------------------------------|
00720> R0001:C00117------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00721>     CALIB NASHYD           1.0 07:9E            7.60     .132 No_date    2:00   11.31 .158     .000
00722>       [CN= 47.1: N= 3.00: Tp=  .48]
00723> R0001:C00118------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00724>     CALIB NASHYD           1.0 08:9F            3.35     .051 No_date    2:21   12.69 .178     .000
00725>       [CN= 50.4: N= 3.00: Tp=  .71]
00726> #----------------|-----------------------------------------------------------|
00727> #----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
00728> #----------------|-----------------------------------------------------------|
00729> R0001:C00119------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00730>     ADD HYD                1.0 05:RD19         116.60    3.964 No_date    2:37   35.07  n/a     .000
00731>                      +     1.0 10:9A9B         14.20     .269 No_date    2:46   20.45  n/a     .000
00732>                      +     1.0 09:9C9D          3.21     .025 No_date    1:30    2.47  n/a     .000
00733>                      +     1.0 07:9E            7.60     .132 No_date    2:00   11.31  n/a     .000
00734>                      +     1.0 08:9F            3.35     .051 No_date    2:21   12.69  n/a     .000
00735>                    SUM=    1.0 01:WC9LS        144.96    4.378 No_date    2:37   31.15  n/a     .000
00736> R0001:C00120------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00737>     SAVE HYD               1.0 01:WC9LS        144.96    4.378 No_date    2:37   31.15  n/a     .000
00738>       fname :WC9LS.0001
00739>       remark:Lakeshore Road Hydrograph
00740> R0001:C00121-------------------------------------------------------------------------------------------------
00741>     FINISH
00742> -------------------------------------------------------------------------------------------------------------
00743> *************************************************************************************************************
00744>      WARNINGS / ERRORS / NOTES
00745>      -------------------------
00746> R0001:C00013  ROUTE RESERVOIR
00747> *** WARNING: Outflow volume is less than inflow volume.
00748> R0001:C00030  ROUTE RESERVOIR
00749> *** WARNING: Outflow volume is less than inflow volume.
00750> R0001:C00047  ROUTE RESERVOIR
00751> *** WARNING: Outflow volume is less than inflow volume.
00752> R0001:C00064  ROUTE RESERVOIR
00753> *** WARNING: Outflow volume is less than inflow volume.
00754> R0001:C00081  ROUTE RESERVOIR
00755> *** WARNING: Outflow volume is less than inflow volume.
00756> R0001:C00098  ROUTE RESERVOIR
00757> *** WARNING: Outflow volume is less than inflow volume.
00758> R0001:C00115  ROUTE RESERVOIR
00759> *** WARNING: Outflow volume is less than inflow volume.
00760>    Simulation ended on 2020-06-15     at 12:06:27
00761> =============================================================================================================
00762>
00763>
```

```
00001> 2     Metric units
00002> *#************************************************************************
00003> *#  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00004> *#  Date        : 2018-09-20 [UPDATED 2020-06-15]
00005> *#  Modeller    : [OD - UPDATED BY JM/BD - UPDATED BY JE]
00006> *#  Company     : C.F. Crozier & Associates Inc.
00007> *#  License #   : 3737016
00008> *#************************************************************************
00009> START              TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[1]
00010> *%                   ["25mm.stm"] <--storm filename, one per line for NSTORM tim
00011> *%-----------------|---------------------------------------------------------|
00012>
00013> *#************************************************************************
00014> *#*****************************25mm storm*********************************
00015> *#************************************************************************
00016>
00017> READ STORM          STORM_FILENAME=["25mm.stm"]
00018>
00019> *%-----------------|---------------------------------------------------------|
00020> *%-----------------|---------------------------------------------------------|
00021> *#-----------------|---------------------------------------------------------|
00022> *#-----------------|-POST-DEVELOPMENT--------------------------------------|
00023> *#-----------------|---------------------------------------------------------|
00024> *#-----------------|---------------------------------------------------------|
00025> *#-----------------|-Subwatershed 9 External Drainage Area-----------------|
00026> *#-----------------|-Per 'The Orchards' FSSWM Report-----------------------|
00027> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)------------|
00028> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00029> *#-----------------|---------------------------------------------------------|
00030> *%-----------------|---------------------------------------------------------|
00031> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00032>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00033>                     N=[3], TP=[1.00]hrs,
00034>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00035> *%-----------------|---------------------------------------------------------|
00036> ROUTE CHANNEL      IDout=[2], NHYD=["Channel"], IDin=[1],
00037>                     RDT=[1](min),
00038>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00039>                                       FPSLOPE=[2](%),
00040>                     SECNUM=[1],       NSEG=[3]
00041>                     ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
00042>                     ( DISTANCE (m), ELEVATION (m))=[0,102]
00043>                                                   [8,100]
00044>                                                   [12,100]
00045>                                                   [20,102]
00046> *%-----------------|---------------------------------------------------------|
00047> CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00048>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00049>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00050>                             DCAY=[2](/hr), F=[0](mm),
00051>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00052>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00053>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00054>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00055>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00056> *%-----------------|---------------------------------------------------------|
00057> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00058>                     RDT=[1](min),
00059>                           TABLE of ( OUTFLOW-STORAGE ) values
00060>                                    (cms) - (ha-m)
00061>                                  [   0.0 ,  0.0 ]
00062>                                  [   0.0100 ,  0.0610 ]
00063>                                  [   0.0400 ,  0.1310 ]
00064>                                  [   0.0700 ,  0.2110 ]
00065>                                  [   0.2600 ,  0.3000 ]
00066>                                  [   0.6000 ,  0.3940 ]
00067>                                  [   1.0200 ,  0.4950 ]
00068>                                  [   1.5200 ,  0.6020 ]
00069>                                  [   2.0800 ,  0.7160 ]
00070>                                  [   2.6900 ,  0.8370 ]
00071>                           IDovf=[ ], NHYDovf=[  ]
00072> *%-----------------|---------------------------------------------------------|
00073> *#-----------------|---------------------------------------------------------|
00074> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing------|
00075> *#-----------------|---------------------------------------------------------|
00076> *%-----------------|---------------------------------------------------------|
00077> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00078> *%-----------------|---------------------------------------------------------|
00079> *#-----------------|---------------------------------------------------------|
00080> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands------------|
00081> *#-----------------|---------------------------------------------------------|
00082> *%-----------------|---------------------------------------------------------|
00083> CALIB NASHYD       ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
00084>                     DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
00085>                     N=[3], TP=[0.24]hrs,
00086>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00087> *%-----------------|---------------------------------------------------------|
00088> CALIB NASHYD       ID=[2], NHYD=["9A"], DT=[1]min, AREA=[0.58](ha),
00089>                     DWF=[0](cms),  CN/C=[79], IA=[6.59](mm),
00090>                     N=[3], TP=[0.06]hrs,
00091>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00092> *#-----------------|-----------------------CULVERT #1--------------------------|
00093> ADD HYD            IDsum=[3], NHYD=["CULV1"], IDs to add=[1,2,5]
00094> *%-----------------|---------------------------------------------------------|
00095> CALIB NASHYD       ID=[1], NHYD=["9B"], DT=[1]min, AREA=[2.10](ha),
00096>                     DWF=[0](cms),  CN/C=[51.5], IA=[8.67](mm),
00097>                     N=[3], TP=[0.28]hrs,
00098>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00099> *#-----------------|-----------------------CULVERT #2--------------------------|
00100> ADD HYD            IDsum=[4], NHYD=["WC9a"], IDs to add=[1,3]
00101> *%-----------------|---------------------------------------------------------|
00102> *#-----------------|---------------------------------------------------------|
00103> *#-----------------|-AREAS TO SWM FACILITY 1-------------------------------|
00104> *#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT-----------|
00105> *#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-------------------|
00106> *#-----------------|---------------------------------------------------------|
00107> *%-----------------|---------------------------------------------------------|
00108> CALIB NASHYD       ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
00109>                     DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
00110>                     N=[3], TP=[0.47]hrs,
00111>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00112> *%-----------------|---------------------------------------------------------|
00113> CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
00114>                     XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
00115>                     SCS curve number CN=[67.0],
00116>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
00117>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00118>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
00119>                                          LGI=[44](m), MNI=[0.013], SCI=[0](min),
00120>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00121> *%-----------------|---------------------------------------------------------|
00122> ADD HYD            IDsum=[6], NHYD=["NODE"], IDs to add=[1,3]
00123> *%-----------------|---------------------------------------------------------|
00124> CALIB NASHYD       ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
00125>                     DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
00126>                     N=[3], TP=[0.11]hrs,
00127>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00128> *%-----------------|---------------------------------------------------------|
00129> ADD HYD            IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
00130> *%-----------------|---------------------------------------------------------|
00131> *#-----------------|---------------------------------------------------------|
00132> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
00133> *#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
00134> *#-----------------|---------------------------------------------------------|
00135> *%-----------------|---------------------------------------------------------|
00136> ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
00137>                     RDT=[1](min),
00138>                           TABLE of ( OUTFLOW-STORAGE ) values
00139>                                    (cms) - (ha-m)
00140>                                  [   0.0   ,  0.0   ]
00141>                                  [   0.007 ,  0.026 ]
00142>                                  [   0.018 ,  0.083 ]
00143>                                  [   0.025 ,  0.146 ]
00144>                                  [   0.029 ,  0.197 ]
00145>                                  [   0.032 ,  0.251 ]
00146>                                  [   0.036 ,  0.330 ]
00147>                                  [   0.078 ,  0.414 ]
00148>                                  [   0.151 ,  0.505 ]
00149>                                  [   0.325 ,  0.578 ]
00150>                                  [   0.340 ,  0.807 ]
00151>                                  [   5.368 ,  0.876 ]
00152>                                  [   7.563 ,  1.038 ]
00153>                                  [   9.145 ,  1.122 ]
00154>                                  [   -1  ,  -1  ]  (max twenty pts)
00155>                           IDovf=[   ], NHYDovf=[   ]
00156> *%-----------------|---------------------------------------------------------|
00157> ADD HYD            IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
00158> *%-----------------|---------------------------------------------------------|
00159> *#-----------------|---------------------------------------------------------|
00160> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands------------|
00161> *#-----------------|---------------------------------------------------------|
00162> *%-----------------|---------------------------------------------------------|
00163> *#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
00164> *#-----------------|---------------------------------------------------------|
00165> CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.32](ha),
00166>                     XIMP=[0.349], TIMP=[0.713], DWF=[0](cms), LOSS=[2],
00167>                     SCS curve number CN=[66.1],
00168>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00169>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00170>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
00171>                                          LGI=[96](m), MNI=[0.013], SCI=[0](min),
00172>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00173> *%-----------------|---------------------------------------------------------|
00174> *#-----------------|---------------------------------------------------------|
00175> *#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
00176> *#-----------------|---------------------------------------------------------|
00177> *%-----------------|---------------------------------------------------------|
00178> *%-----------------|---------------------------------------------------------|
00179> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[0.82](ha),
00180>                     DWF=[0](cms),  CN/C=[40.9], IA=[8.46](mm),
00181>                     N=[3], TP=[0.25]hrs,
00182>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00183> *#-----------------|-----------------------CULVERT #3--------------------------|
00184> ADD HYD            IDsum=[4], NHYD=["CULV3"], IDs to add=[7,1]
00185> *%-----------------|---------------------------------------------------------|
00186> CALIB NASHYD       ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.38](ha),
00187>                     DWF=[0](cms),  CN/C=[52.2], IA=[7.05](mm),
00188>                     N=[3], TP=[0.32]hrs,
00189>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00190> *%-----------------|---------------------------------------------------------|
00191> CALIB NASHYD       ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.78](ha),
00192>                     DWF=[0](cms),  CN/C=[78.8], IA=[7.26](mm),
00193>                     N=[3], TP=[0.52]hrs,
00194>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00195> *%-----------------|---------------------------------------------------------|
00196> CALIB NASHYD       ID=[3], NHYD=["9E"], DT=[1]min, AREA=[1.24](ha),
00197>                     DWF=[0](cms),  CN/C=[66.3], IA=[6.71](mm),
00198>                     N=[3], TP=[0.23]hrs,
00199>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00200> *%-----------------|---------------------------------------------------------|
00201> ADD HYD            IDsum=[5], NHYD=["NODE"], IDs to add=[1,2,3,10]
00202> *%-----------------|---------------------------------------------------------|
00203> ADD HYD            IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,4,10]
00204> *%-----------------|---------------------------------------------------------|
00205> *#-----------------|---------------------------------------------------------|
00206> *#-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
00207> *#-----------------|---------------------------------------------------------|
00208> CALIB NASHYD       ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
00209>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00210>                     N=[3], TP=[0.14]hrs,
00211>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00212> *%-----------------|---------------------------------------------------------|
00213> CALIB NASHYD       ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
00214>                     DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
00215>                     N=[3], TP=[0.32]hrs,
00216>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00217> *%-----------------|---------------------------------------------------------|
00218> ADD HYD            IDsum=[10], NHYD=["2A2B"], IDs to add=[1,2]
00219> *%-----------------|---------------------------------------------------------|
00220> CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
00221>                     XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
00222>                     SCS curve number CN=[49],
00223>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00224>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00225>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00226>                                          LGI=[114](m), MNI=[0.013], SCI=[0](min)
00227>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00228> *%-----------------|---------------------------------------------------------|
00229> CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
00230>                     XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
00231>                     SCS curve number CN=[59],
00232>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00233>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00234>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00235>                                          LGI=[148](m), MNI=[0.013], SCI=[0](min)
00236>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00237> *%-----------------|---------------------------------------------------------|
00238> CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[1.49](ha),
00239>                     XIMP=[0.368], TIMP=[0.424], DWF=[0](cms), LOSS=[2],
00240>                     SCS curve number CN=[69],
00241>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00242>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00243>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00244>                                          LGI=[100](m), MNI=[0.013], SCI=[0](min)
00245>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00246> *%-----------------|---------------------------------------------------------|
00247> ADD HYD            IDsum=[6], NHYD=["SWMF2"], IDs to add=[10,3,4,7]
00248> *%-----------------|---------------------------------------------------------|
00249> *#-----------------|---------------------------------------------------------|
00250> *#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
00251> *#-----------------|---------------------------------------------------------|
00252> *%-----------------|---------------------------------------------------------|
00253> ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
00254>                     RDT=[1](min),
00255>                           TABLE of ( OUTFLOW-STORAGE ) values
00256>                                    (cms) - (ha-m)
00257>                                  [   0.0 ,  0.0 ]
00258>                                  [   0.006 ,  0.018 ]
00259>                                  [   0.016 ,  0.057 ]
00260>                                  [   0.021 ,  0.102 ]
00261>                                  [   0.025 ,  0.139 ]
00262>                                  [   0.028 ,  0.179 ]
00263>                                  [   0.069 ,  0.238 ]
00264>                                  [   0.142 ,  0.303 ]
00265>                                  [   0.332 ,  0.373 ]
00266>                                  [   5.359 ,  0.410 ]
00267>                                  [   7.554 ,  0.489 ]
00268>                                  [   8.632 ,  0.530 ]
00269>                                  [   -1  ,  -1  ]  (max twenty pts)
00270>                           IDovf=[   ], NHYDovf=[   ]
```

```
00271> *%-----------------|-------------------------------------------------------------|
00272> *#-----------------|-------------------------------------------------------------|
00273> *#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD---------------------|
00274> *#-----------------|-------------------------------------------------------------|
00275> *%-----------------|-------------------------------------------------------------|
00276> ADD HYD            IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
00277> *%-----------------|-------------------------------------------------------------|
00278> SAVE HYD           ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
00279>                     HYD_COMMENT=["POST-DEV LAKESHORE"]
00280> *%-----------------|-------------------------------------------------------------|
00281> *#-----------------|-------------------------------------------------------------|
00282> *#-----------------|--WATERCOURSE 8 CATCHMENTS-------------------------------------|
00283> *#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8------------------------|
00284> *#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8--------------------|
00285> *#-----------------|-------------------------------------------------------------|
00286> *%-----------------|-------------------------------------------------------------|
00287> CALIB NASHYD       ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
00288>                     DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
00289>                     N=[3], TP=[0.23]hrs,
00290>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00291> *%-----------------|-------------------------------------------------------------|
00292> CALIB NASHYD       ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
00293>                     DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
00294>                     N=[3], TP=[0.44]hrs,
00295>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00296> *%-----------------|-------------------------------------------------------------|
00297> *#-----------------|-------------------------------------------------------------|
00298> *#-----------------|--WATERCOURSE 8 TOTAL------------------------------------------|
00299> *#-----------------|-------------------------------------------------------------|
00300> *%-----------------|-------------------------------------------------------------|
00301> ADD HYD            IDsum=[3], NHYD=["WC8"], IDs to add=[1,2]
00302> *%-----------------|-------------------------------------------------------------|
00303> *%-----------------|-------------------------------------------------------------|
00304> *#*************************************************************************
00305> *#**************************Chicago 2yr 4-hr storm**************************
00306> *#*************************************************************************
00307> *%-----------------|-------------------------------------------------------------|
00308>
00309> CHICAGO STORM      IUNITS=[2],  TD=[4.0](hrs), TPRAT=[0.33],  CSDT=[5](min),
00310>                     ICASEcs=[2],
00311>                     Enter ordinates of IDF curve below, at least seven points
00312>                         TIME (min)    Intensity(mm/hr)
00313>                           [   5    ]       [  117.0  ]
00314>                           [   10   ]       [  72.1   ]
00315>                           [   15   ]       [  54.3   ]
00316>                           [   30   ]       [  33.4   ]
00317>                           [   60   ]       [  20.6   ]
00318>                           [   120  ]       [  12.7   ]
00319>                           [   360  ]       [  5.9    ]
00320>                           [   720  ]       [  3.6    ]
00321>                           [   1440 ]       [  2.2    ]
00322>                              -1               -1
00323> *%-----------------|-------------------------------------------------------------|
00324>
00325> *%-----------------|-------------------------------------------------------------|
00326> *%-----------------|-------------------------------------------------------------|
00327> *#-----------------|-------------------------------------------------------------|
00328> *#-----------------|-POST-DEVELOPMENT----------------------------------------------|
00329> *#-----------------|-------------------------------------------------------------|
00330> *#-----------------|-------------------------------------------------------------|
00331> *#-----------------|-Subwatershed 9 External Drainage Area-------------------------|
00332> *#-----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
00333> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------------|
00334> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00335> *#-----------------|-------------------------------------------------------------|
00336> *%-----------------|-------------------------------------------------------------|
00337> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00338>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00339>                     N=[3], TP=[1.00]hrs,
00340>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00341> *%-----------------|-------------------------------------------------------------|
00342> ROUTE CHANNEL      IDout=[2], NHYD=["Channel"], IDin=[1],
00343>                     RDT=[1](min),
00344>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00345>                                       FPSLOPE=[2](%),
00346>                     SECNUM=[1],       NSEG=[3]
00347>                     ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
00348>                     ( DISTANCE (m), ELEVATION (m))=[0,102]
00349>                                                   [8,100]
00350>                                                   [12,100]
00351>                                                   [20,102]
00352> *%-----------------|-------------------------------------------------------------|
00353> CALIB STANDHYD     ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00354>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00355>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00356>                             DCAY=[2](/hr), F=[0](mm),
00357>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00358>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00359>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00360>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00361>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00362> *%-----------------|-------------------------------------------------------------|
00363> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00364>                     RDT=[1](min),
00365>                          TABLE of ( OUTFLOW-STORAGE ) values
00366>                                     (cs) - (ha-m)
00367>                                   [   0.0 ,  0.0 ]
00368>                                   [   0.0100 ,  0.0610 ]
00369>                                   [   0.0400 ,  0.1310 ]
00370>                                   [   0.0700 ,  0.2110 ]
00371>                                   [   0.2600 ,  0.3000 ]
00372>                                   [   0.6000 ,  0.3940 ]
00373>                                   [   1.0200 ,  0.4950 ]
00374>                                   [   1.5200 ,  0.6020 ]
00375>                                   [   2.0800 ,  0.7160 ]
00376>                                   [   2.6900 ,  0.8370 ]
00377>                          IDovf=[ ], NHYDovf=[  ]
00378> *%-----------------|-------------------------------------------------------------|
00379> *#-----------------|-------------------------------------------------------------|
00380> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00381> *#-----------------|-------------------------------------------------------------|
00382> *%-----------------|-------------------------------------------------------------|
00383> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00384> *%-----------------|-------------------------------------------------------------|
00385> *#-----------------|-------------------------------------------------------------|
00386> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands-------------------|
00387> *#-----------------|-------------------------------------------------------------|
00388> *%-----------------|-------------------------------------------------------------|
00389> CALIB NASHYD       ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
00390>                     DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
00391>                     N=[3], TP=[0.24]hrs,
00392>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00393> *%-----------------|-------------------------------------------------------------|
00394> CALIB NASHYD       ID=[2], NHYD=["9A"], DT=[1]min, AREA=[0.58](ha),
00395>                     DWF=[0](cms),  CN/C=[79], IA=[6.59](mm),
00396>                     N=[3], TP=[0.06]hrs,
00397>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00398> *#-----------------|----------------------CULVERT #1-----------------------------|
00399> ADD HYD            IDsum=[3], NHYD=["CULV1"], IDs to add=[1,2,5]
00400> *%-----------------|-------------------------------------------------------------|
00401> CALIB NASHYD       ID=[1], NHYD=["9B"], DT=[1]min, AREA=[2.10](ha),
00402>                     DWF=[0](cms),  CN/C=[51.5], IA=[8.67](mm),
00403>                     N=[3], TP=[0.28]hrs,
00404>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00405> *#-----------------|----------------------CULVERT #2-----------------------------|
00406> ADD HYD            IDsum=[4], NHYD=["WC9a"], IDs to add=[1,3]
00407> *%-----------------|-------------------------------------------------------------|
00408> *#-----------------|-------------------------------------------------------------|
00409> *#-----------------|-AREAS TO SWM FACILITY 1---------------------------------------|
00410> *#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
00411> *#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1----------------------|
00412> *#-----------------|-------------------------------------------------------------|
00413> *%-----------------|-------------------------------------------------------------|
00414> CALIB NASHYD       ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
00415>                     DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
00416>                     N=[3], TP=[0.47]hrs,
00417>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00418> *%-----------------|-------------------------------------------------------------|
00419> CALIB STANDHYD     ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
00420>                     XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
00421>                     SCS curve number CN=[67.0],
00422>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
00423>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00424>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
00425>                                          LGI=[44](m), MNI=[0.013], SCI=[0](min),
00426>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00427> *%-----------------|-------------------------------------------------------------|
00428> ADD HYD            IDsum=[6], NHYD=["NODE"], IDs to add=[1,3]
00429> *%-----------------|-------------------------------------------------------------|
00430> CALIB NASHYD       ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
00431>                     DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
00432>                     N=[3], TP=[0.11]hrs,
00433>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00434> *%-----------------|-------------------------------------------------------------|
00435> ADD HYD            IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
00436> *%-----------------|-------------------------------------------------------------|
00437> *#-----------------|-------------------------------------------------------------|
00438> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
00439> *#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
00440> *#-----------------|-------------------------------------------------------------|
00441> *%-----------------|-------------------------------------------------------------|
00442> ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
00443>                     RDT=[1](min),
00444>                          TABLE of ( OUTFLOW-STORAGE ) values
00445>                                     (cms) - (ha-m)
00446>                                   [   0.0   ,  0.0   ]
00447>                                   [   0.007 ,  0.026 ]
00448>                                   [   0.018 ,  0.083 ]
00449>                                   [   0.025 ,  0.146 ]
00450>                                   [   0.029 ,  0.197 ]
00451>                                   [   0.032 ,  0.251 ]
00452>                                   [   0.036 ,  0.330 ]
00453>                                   [   0.078 ,  0.414 ]
00454>                                   [   0.151 ,  0.505 ]
00455>                                   [   0.325 ,  0.578 ]
00456>                                   [   0.340 ,  0.807 ]
00457>                                   [   5.368 ,  0.876 ]
00458>                                   [   7.563 ,  1.038 ]
00459>                                   [   9.145 ,  1.122 ]
00460>                                   [   -1  ,  -1  ]  (max twenty pts)
00461>                          IDovf=[   ], NHYDovf=[   ]
00462> *%-----------------|-------------------------------------------------------------|
00463> ADD HYD            IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
00464> *%-----------------|-------------------------------------------------------------|
00465> *#-----------------|-------------------------------------------------------------|
00466> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00467> *#-----------------|-------------------------------------------------------------|
00468> *%-----------------|-------------------------------------------------------------|
00469> *#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
00470> *#-----------------|-------------------------------------------------------------|
00471> CALIB STANDHYD     ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.32](ha),
00472>                     XIMP=[0.349], TIMP=[0.713], DWF=[0](cms), LOSS=[2],
00473>                     SCS curve number CN=[66.1],
00474>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00475>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00476>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
00477>                                          LGI=[96](m), MNI=[0.013], SCI=[0](min),
00478>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00479> *%-----------------|-------------------------------------------------------------|
00480> *#-----------------|-------------------------------------------------------------|
00481> *#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
00482> *#-----------------|-------------------------------------------------------------|
00483> *%-----------------|-------------------------------------------------------------|
00484> *%-----------------|-------------------------------------------------------------|
00485> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[0.82](ha),
00486>                     DWF=[0](cms),  CN/C=[40.9], IA=[8.46](mm),
00487>                     N=[3], TP=[0.25]hrs,
00488>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00489> *#-----------------|----------------------CULVERT #3-----------------------------|
00490> ADD HYD            IDsum=[4], NHYD=["CULV3"], IDs to add=[7,1]
00491> *%-----------------|-------------------------------------------------------------|
00492> CALIB NASHYD       ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.38](ha),
00493>                     DWF=[0](cms),  CN/C=[52.2], IA=[7.05](mm),
00494>                     N=[3], TP=[0.32]hrs,
00495>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00496> *%-----------------|-------------------------------------------------------------|
00497> CALIB NASHYD       ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.78](ha),
00498>                     DWF=[0](cms),  CN/C=[78.8], IA=[7.26](mm),
00499>                     N=[3], TP=[0.52]hrs,
00500>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00501> *%-----------------|-------------------------------------------------------------|
00502> CALIB NASHYD       ID=[3], NHYD=["9E"], DT=[1]min, AREA=[1.24](ha),
00503>                     DWF=[0](cms),  CN/C=[66.3], IA=[6.71](mm),
00504>                     N=[3], TP=[0.23]hrs,
00505>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00506> *%-----------------|-------------------------------------------------------------|
00507> ADD HYD            IDsum=[5], NHYD=["NODE"], IDs to add=[1,2,3,10]
00508> *%-----------------|-------------------------------------------------------------|
00509> ADD HYD            IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,4,10]
00510> *%-----------------|-------------------------------------------------------------|
00511> *#-----------------|-------------------------------------------------------------|
00512> *#-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
00513> *#-----------------|-------------------------------------------------------------|
00514> CALIB NASHYD       ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
00515>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00516>                     N=[3], TP=[0.14]hrs,
00517>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00518> *%-----------------|-------------------------------------------------------------|
00519> CALIB NASHYD       ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
00520>                     DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
00521>                     N=[3], TP=[0.32]hrs,
00522>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00523> *%-----------------|-------------------------------------------------------------|
00524> ADD HYD            IDsum=[10], NHYD=["2A2B"], IDs to add=[1,2]
00525> *%-----------------|-------------------------------------------------------------|
00526> CALIB STANDHYD     ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
00527>                     XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
00528>                     SCS curve number CN=[49],
00529>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00530>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00531>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00532>                                          LGI=[114](m), MNI=[0.013], SCI=[0](min)
00533>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00534> *%-----------------|-------------------------------------------------------------|
00535> CALIB STANDHYD     ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
00536>                     XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
00537>                     SCS curve number CN=[59],
00538>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00539>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00540>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
```

```
                                        LGI=[148](m), MNI=[0.013], SCI=[0](min)
                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD       ID=[4], NHYD=["2E"], DT=[1](min), AREA=[1.49](ha),
                     XIMP=[0.368], TIMP=[0.424], DWF=[0](cms), LOSS=[2],
                     SCS curve number CN=[69],
                     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=[1.0](%),
                                        LGI=[100](m), MNI=[0.013], SCI=[0](min)
                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD              IDsum=[6], NHYD=["SWMF2"], IDs to add=[10,3,4,7]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-----------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ROUTE RESERVOIR      IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
                     RDT=[1](min),
                           TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                           [   0.0 ,  0.0 ]
                           [   0.006 ,  0.018 ]
                           [   0.016 ,  0.057 ]
                           [   0.021 ,  0.102 ]
                           [   0.025 ,  0.139 ]
                           [   0.028 ,  0.179 ]
                           [   0.069 ,  0.238 ]
                           [   0.142 ,  0.303 ]
                           [   0.332 ,  0.373 ]
                           [   5.359 ,  0.410 ]
                           [   7.554 ,  0.489 ]
                           [   8.632 ,  0.530 ]
                           [   -1  ,  -1  ]  (max twenty pts)
                     IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD--------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ADD HYD              IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
*%-----------------|-------------------------------------------------------------|
SAVE HYD             ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
                     HYD_COMMENT=["POST-DEV LAKESHORE"]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|--WATERCOURSE 8 CATCHMENTS------------------------------------|
*#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-----------------------|
*#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8-------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD         ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
                     DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
                     N=[3], TP=[0.23]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD         ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
                     DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
                     N=[3], TP=[0.44]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|--WATERCOURSE 8 TOTAL-----------------------------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ADD HYD              IDsum=[3], NHYD=["WC8"], IDs to add=[1,2]
*%-----------------|-------------------------------------------------------------|
*#*****************************************************************************
*#*************************Chicago 5yr 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    ]       [  156.2  ]
                           [   10   ]       [  96.2   ]
                           [   15   ]       [  72.5   ]
                           [   30   ]       [  44.6   ]
                           [   60   ]       [  27.5   ]
                           [   120  ]       [  16.9   ]
                           [   360  ]       [  7.9    ]
                           [   720  ]       [  4.8    ]
                           [   1440 ]       [  3.0    ]
                              -1               -1
*%-----------------|-------------------------------------------------------------|

*%-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-POST-DEVELOPMENT----------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Subwatershed 9 External Drainage Area------------------------|
*#-----------------|-Per 'The Orchards' FSSWM Report------------------------------|
*#-----------------|-Prepared by Higgins Engineering (Jan. 2005)------------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha--------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD         ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                     N=[3], TP=[1.00]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ROUTE CHANNEL        IDout=[2], NHYD=["Channel"], IDin=[1],
                     RDT=[1](min),
                     CHLGTH=[550](m),  CHSLOPE=[2](%),
                                        FPSLOPE=[2](%),
                     SECNUM=[1],       NSEG=[3]
                     ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
                     ( DISTANCE (m), ELEVATION (m))=[0,102]
                                                   [8,100]
                                                   [12,100]
                                                   [20,102]
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD       ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                             DCAY=[2](/hr), F=[0](mm),
                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                        LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                        LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
ROUTE RESERVOIR      IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                     RDT=[1](min),
                           TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                           [   0.0 ,  0.0 ]
                           [   0.0100 ,  0.0610 ]
                           [   0.0400 ,  0.1310 ]
                           [   0.0700 ,  0.2110 ]
                           [   0.2600 ,  0.3000 ]
                           [   0.6000 ,  0.3940 ]
                           [   1.0200 ,  0.4950 ]
                           [   1.5200 ,  0.6020 ]
                           [   2.0800 ,  0.7160 ]
                           [   2.6900 ,  0.8370 ]
                     IDovf=[ ], NHYDovf=[  ]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ADD HYD              IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Upper Terrace Lands------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD         ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
                     DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
                     N=[3], TP=[0.24]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD         ID=[2], NHYD=["9A"], DT=[1]min, AREA=[0.58](ha),
                     DWF=[0](cms),  CN/C=[79], IA=[6.59](mm),
                     N=[3], TP=[0.06]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#-----------------|-----------------------CULVERT #1----------------------------|
ADD HYD              IDsum=[3], NHYD=["CULV1"], IDs to add=[1,2,5]
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD         ID=[1], NHYD=["9B"], DT=[1]min, AREA=[2.10](ha),
                     DWF=[0](cms),  CN/C=[51.5], IA=[8.67](mm),
                     N=[3], TP=[0.28]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#-----------------|-----------------------CULVERT #2----------------------------|
ADD HYD              IDsum=[4], NHYD=["WC9a"], IDs to add=[1,3]
*%-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-AREAS TO SWM FACILITY 1--------------------------------------|
*#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT----------------|
*#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-------------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD         ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
                     DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
                     N=[3], TP=[0.47]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD       ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
                     XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
                     SCS curve number CN=[67.0],
                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
                                        LGP=[30](m), MNP=[0.25], SCP=[0](min),
                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
                                        LGI=[44](m), MNI=[0.013], SCI=[0](min),
                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD              IDsum=[6], NHYD=["NODE"], IDs to add=[1,3]
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD         ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
                     DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
                     N=[3], TP=[0.11]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD              IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE----------|
*#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-----------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ROUTE RESERVOIR      IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                     RDT=[1](min),
                           TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                           [   0.0   ,  0.0   ]
                           [   0.007 ,  0.026 ]
                           [   0.018 ,  0.083 ]
                           [   0.025 ,  0.146 ]
                           [   0.029 ,  0.197 ]
                           [   0.032 ,  0.251 ]
                           [   0.036 ,  0.330 ]
                           [   0.078 ,  0.414 ]
                           [   0.151 ,  0.505 ]
                           [   0.325 ,  0.578 ]
                           [   0.340 ,  0.807 ]
                           [   5.368 ,  0.876 ]
                           [   7.563 ,  1.038 ]
                           [   9.145 ,  1.122 ]
                           [   -1  ,  -1  ]  (max twenty pts)
                     IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------------|
ADD HYD              IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
*#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS----------|
*#-----------------|-------------------------------------------------------------|
CALIB STANDHYD       ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.32](ha),
                     XIMP=[0.349], TIMP=[0.713], DWF=[0](cms), LOSS=[2],
                     SCS curve number CN=[66.1],
                     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=[96](m), MNI=[0.013], SCI=[0](min),
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED--------------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD         ID=[1], NHYD=["9C"], DT=[1]min, AREA=[0.82](ha),
                     DWF=[0](cms),  CN/C=[40.9], IA=[8.46](mm),
                     N=[3], TP=[0.25]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#-----------------|-----------------------CULVERT #3----------------------------|
ADD HYD              IDsum=[4], NHYD=["CULV3"], IDs to add=[7,1]
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD         ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.38](ha),
                     DWF=[0](cms),  CN/C=[52.2], IA=[7.05](mm),
                     N=[3], TP=[0.32]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD         ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.78](ha),
                     DWF=[0](cms),  CN/C=[78.8], IA=[7.26](mm),
                     N=[3], TP=[0.52]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD         ID=[3], NHYD=["9E"], DT=[1]min, AREA=[1.24](ha),
                     DWF=[0](cms),  CN/C=[66.3], IA=[6.71](mm),
                     N=[3], TP=[0.23]hrs,
                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
```

```
00811> *%-----------------|-------------------------------------------------------|
00812> ADD HYD            IDsum=[5], NHYD=["NODE"], IDs to add=[1,2,3,10]
00813> *%-----------------|-------------------------------------------------------|
00814> ADD HYD            IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,4,10]
00815> *%-----------------|-------------------------------------------------------|
00816> *#----------------|-------------------------------------------------------|
00817> *#----------------|-LANDS DRAINING TO SWM FACILITY 2--------------------|
00818> *#----------------|-------------------------------------------------------|
00819> CALIB NASHYD       ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
00820>                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00821>                    N=[3], TP=[0.14]hrs,
00822>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00823> *%-----------------|-------------------------------------------------------|
00824> CALIB NASHYD       ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
00825>                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
00826>                    N=[3], TP=[0.32]hrs,
00827>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00828> *%-----------------|-------------------------------------------------------|
00829> ADD HYD            IDsum=[10], NHYD=["2A2B"], IDs to add=[1,2]
00830> *%-----------------|-------------------------------------------------------|
00831> CALIB STANDHYD     ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
00832>                    XIMP=[0.3],  TIMP=[0.6], DWF=[0](cms), LOSS=[2],
00833>                    SCS curve number CN=[49],
00834>                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00835>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00836>                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00837>                                         LGI=[114](m), MNI=[0.013], SCI=[0](min)
00838>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00839> *%-----------------|-------------------------------------------------------|
00840> CALIB STANDHYD     ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
00841>                    XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
00842>                    SCS curve number CN=[59],
00843>                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00844>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00845>                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00846>                                         LGI=[148](m), MNI=[0.013], SCI=[0](min)
00847>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00848> *%-----------------|-------------------------------------------------------|
00849> CALIB STANDHYD     ID=[4], NHYD=["2E"], DT=[1](min), AREA=[1.49](ha),
00850>                    XIMP=[0.368], TIMP=[0.424], DWF=[0](cms), LOSS=[2],
00851>                    SCS curve number CN=[69],
00852>                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00853>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00854>                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00855>                                         LGI=[100](m), MNI=[0.013], SCI=[0](min)
00856>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00857> *%-----------------|-------------------------------------------------------|
00858> ADD HYD            IDsum=[6], NHYD=["SWMF2"], IDs to add=[10,3,4,7]
00859> *%-----------------|-------------------------------------------------------|
00860> *#----------------|-------------------------------------------------------|
00861> *#----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
00862> *#----------------|-------------------------------------------------------|
00863> *%-----------------|-------------------------------------------------------|
00864> ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
00865>                    RDT=[1](min),
00866>                         TABLE of ( OUTFLOW-STORAGE ) values
00867>                                  (cms) - (ha-m)
00868>                               [   0.0 ,  0.0 ]
00869>                               [   0.006 ,  0.018 ]
00870>                               [   0.016 ,  0.057 ]
00871>                               [   0.021 ,  0.102 ]
00872>                               [   0.025 ,  0.139 ]
00873>                               [   0.028 ,  0.179 ]
00874>                               [   0.069 ,  0.238 ]
00875>                               [   0.142 ,  0.303 ]
00876>                               [   0.332 ,  0.373 ]
00877>                               [   5.359 ,  0.410 ]
00878>                               [   7.554 ,  0.489 ]
00879>                               [   8.632 ,  0.530 ]
00880>                               [   -1  ,  -1  ]  (max twenty pts)
00881>                         IDovf=[   ], NHYDovf=[   ]
00882> *%-----------------|-------------------------------------------------------|
00883> *#----------------|-------------------------------------------------------|
00884> *#----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
00885> *#----------------|-------------------------------------------------------|
00886> *%-----------------|-------------------------------------------------------|
00887> ADD HYD            IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
00888> *%-----------------|-------------------------------------------------------|
00889> SAVE HYD           ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
00890>                    HYD_COMMENT=["POST-DEV LAKESHORE"]
00891> *%-----------------|-------------------------------------------------------|
00892> *#----------------|-------------------------------------------------------|
00893> *#----------------|--WATERCOURSE 8 CATCHMENTS---------------------------|
00894> *#----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8---------------|
00895> *#----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8-----------|
00896> *#----------------|-------------------------------------------------------|
00897> *%-----------------|-------------------------------------------------------|
00898> CALIB NASHYD       ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
00899>                    DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
00900>                    N=[3], TP=[0.23]hrs,
00901>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00902> *%-----------------|-------------------------------------------------------|
00903> CALIB NASHYD       ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
00904>                    DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
00905>                    N=[3], TP=[0.44]hrs,
00906>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00907> *%-----------------|-------------------------------------------------------|
00908> *#----------------|-------------------------------------------------------|
00909> *#----------------|--WATERCOURSE 8 TOTAL--------------------------------|
00910> *#----------------|-------------------------------------------------------|
00911> *%-----------------|-------------------------------------------------------|
00912> ADD HYD            IDsum=[3], NHYD=["WC8"], IDs to add=[1,2]
00913> *%-----------------|-------------------------------------------------------|
00914> *#*************************************************************************
00915> *#**************************Chicago 10yr 4-hr storm**************************
00916> *#*************************************************************************
00917> *%-----------------|-------------------------------------------------------|
00918>
00919> CHICAGO STORM      IUNITS=[2],  TD=[4.0](hrs), TPRAT=[0.33],  CSDT=[5](min),
00920>                    ICASEcs=[2],
00921>                    Enter ordinates of IDF curve below, at least seven points
00922>                        TIME (min)    Intensity(mm/hr)
00923>                          [   5    ]       [  182.3  ]
00924>                          [   10   ]       [  112.3   ]
00925>                          [   15   ]       [  84.6   ]
00926>                          [   30   ]       [  52.1   ]
00927>                          [   60   ]       [  32.1   ]
00928>                          [   120  ]       [  19.8   ]
00929>                          [   360  ]       [  9.2    ]
00930>                          [   720  ]       [  5.7    ]
00931>                          [   1440 ]       [  3.5    ]
00932>                            -1               -1
00933> *%-----------------|-------------------------------------------------------|
00934>
00935> *%-----------------|-------------------------------------------------------|
00936> *%-----------------|-------------------------------------------------------|
00937> *#----------------|-------------------------------------------------------|
00938> *#----------------|-POST-DEVELOPMENT------------------------------------|
00939> *#----------------|-------------------------------------------------------|
00940> *#----------------|-------------------------------------------------------|
00941> *#----------------|-Subwatershed 9 External Drainage Area---------------|
00942> *#----------------|-Per 'The Orchards' FSSWM Report----------------------|
00943> *#----------------|-Prepared by Higgins Engineering (Jan. 2005)----------|
00944> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00945> *#----------------|-------------------------------------------------------|

00946> *%-----------------|-------------------------------------------------------|
00947> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00948>                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00949>                    N=[3], TP=[1.00]hrs,
00950>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00951> *%-----------------|-------------------------------------------------------|
00952> ROUTE CHANNEL      IDout=[2], NHYD=["Channel"], IDin=[1],
00953>                    RDT=[1](min),
00954>                    CHLGTH=[550](m),  CHSLOPE=[2](%),
00955>                                      FPSLOPE=[2](%),
00956>                    SECNUM=[1],       NSEG=[3]
00957>                    ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
00958>                    ( DISTANCE (m), ELEVATION (m))=[0,102]
00959>                                                  [8,100]
00960>                                                  [12,100]
00961>                                                  [20,102]
00962> *%-----------------|-------------------------------------------------------|
00963> CALIB STANDHYD     ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00964>                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00965>                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00966>                            DCAY=[2](/hr), F=[0](mm),
00967>                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00968>                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00969>                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00970>                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00971>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00972> *%-----------------|-------------------------------------------------------|
00973> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00974>                    RDT=[1](min),
00975>                         TABLE of ( OUTFLOW-STORAGE ) values
00976>                                  (cms) - (ha-m)
00977>                               [   0.0 ,  0.0 ]
00978>                               [   0.0100 ,  0.0610 ]
00979>                               [   0.0400 ,  0.1310 ]
00980>                               [   0.0700 ,  0.2110 ]
00981>                               [   0.2600 ,  0.3000 ]
00982>                               [   0.6000 ,  0.3940 ]
00983>                               [   1.0200 ,  0.4950 ]
00984>                               [   1.5200 ,  0.6020 ]
00985>                               [   2.0800 ,  0.7160 ]
00986>                               [   2.6900 ,  0.8370 ]
00987>                         IDovf=[ ], NHYDovf=[  ]
00988> *%-----------------|-------------------------------------------------------|
00989> *#----------------|-------------------------------------------------------|
00990> *#----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00991> *#----------------|-------------------------------------------------------|
00992> *%-----------------|-------------------------------------------------------|
00993> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00994> *%-----------------|-------------------------------------------------------|
00995> *#----------------|-------------------------------------------------------|
00996> *#----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
00997> *#----------------|-------------------------------------------------------|
00998> *%-----------------|-------------------------------------------------------|
00999> CALIB NASHYD       ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
01000>                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
01001>                    N=[3], TP=[0.24]hrs,
01002>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01003> *%-----------------|-------------------------------------------------------|
01004> CALIB NASHYD       ID=[2], NHYD=["9A"], DT=[1]min, AREA=[0.58](ha),
01005>                    DWF=[0](cms),  CN/C=[79], IA=[6.59](mm),
01006>                    N=[3], TP=[0.06]hrs,
01007>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01008> *#----------------|----------------------CULVERT #1-------------------------|
01009> ADD HYD            IDsum=[3], NHYD=["CULV1"], IDs to add=[1,2,5]
01010> *%-----------------|-------------------------------------------------------|
01011> CALIB NASHYD       ID=[1], NHYD=["9B"], DT=[1]min, AREA=[2.10](ha),
01012>                    DWF=[0](cms),  CN/C=[51.5], IA=[8.67](mm),
01013>                    N=[3], TP=[0.28]hrs,
01014>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01015> *#----------------|----------------------CULVERT #2-------------------------|
01016> ADD HYD            IDsum=[4], NHYD=["WC9a"], IDs to add=[1,3]
01017> *%-----------------|-------------------------------------------------------|
01018> *#----------------|-------------------------------------------------------|
01019> *#----------------|-AREAS TO SWM FACILITY 1-----------------------------|
01020> *#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------|
01021> *#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------|
01022> *#----------------|-------------------------------------------------------|
01023> *%-----------------|-------------------------------------------------------|
01024> CALIB NASHYD       ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
01025>                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
01026>                    N=[3], TP=[0.47]hrs,
01027>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01028> *%-----------------|-------------------------------------------------------|
01029> CALIB STANDHYD     ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
01030>                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
01031>                    SCS curve number CN=[67.0],
01032>                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
01033>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
01034>                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
01035>                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
01036>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
01037> *%-----------------|-------------------------------------------------------|
01038> ADD HYD            IDsum=[6], NHYD=["NODE"], IDs to add=[1,3]
01039> *%-----------------|-------------------------------------------------------|
01040> CALIB NASHYD       ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
01041>                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
01042>                    N=[3], TP=[0.11]hrs,
01043>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01044> *%-----------------|-------------------------------------------------------|
01045> ADD HYD            IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
01046> *%-----------------|-------------------------------------------------------|
01047> *#----------------|-------------------------------------------------------|
01048> *#----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
01049> *#----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT---------|
01050> *#----------------|-------------------------------------------------------|
01051> *%-----------------|-------------------------------------------------------|
01052> ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
01053>                    RDT=[1](min),
01054>                         TABLE of ( OUTFLOW-STORAGE ) values
01055>                                  (cms) - (ha-m)
01056>                               [   0.0   ,  0.0   ]
01057>                               [   0.007 ,  0.026 ]
01058>                               [   0.018 ,  0.083 ]
01059>                               [   0.025 ,  0.146 ]
01060>                               [   0.029 ,  0.197 ]
01061>                               [   0.032 ,  0.251 ]
01062>                               [   0.036 ,  0.330 ]
01063>                               [   0.078 ,  0.414 ]
01064>                               [   0.151 ,  0.505 ]
01065>                               [   0.325 ,  0.578 ]
01066>                               [   0.340 ,  0.807 ]
01067>                               [   5.368 ,  0.876 ]
01068>                               [   7.563 ,  1.038 ]
01069>                               [   9.145 ,  1.122 ]
01070>                               [   -1  ,  -1  ]  (max twenty pts)
01071>                         IDovf=[   ], NHYDovf=[   ]
01072> *%-----------------|-------------------------------------------------------|
01073> ADD HYD            IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
01074> *%-----------------|-------------------------------------------------------|
01075> *#----------------|-------------------------------------------------------|
01076> *#----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
01077> *#----------------|-------------------------------------------------------|
01078> *%-----------------|-------------------------------------------------------|
01079> *#----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
01080> *#----------------|-------------------------------------------------------|
```

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01081> CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.32](ha),
01082>                     XIMP=[0.349], TIMP=[0.713], DWF=[0](cms), LOSS=[2],
01083>                     SCS curve number CN=[66.1],
01084>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
01085>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
01086>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
01087>                                          LGI=[96](m), MNI=[0.013], SCI=[0](min),
01088>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01089> *%-----------------|-------------------------------------------------------|
01090> *#-----------------|-------------------------------------------------------|
01091> *#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-------------------|
01092> *#-----------------|-------------------------------------------------------|
01093> *%-----------------|-------------------------------------------------------|
01094> *%-----------------|-------------------------------------------------------|
01095> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[0.82](ha),
01096>                     DWF=[0](cms),  CN/C=[40.9], IA=[8.46](mm),
01097>                     N=[3], TP=[0.25]hrs,
01098>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01099> *#-----------------|----------------------CULVERT #3-------------------------|
01100> ADD HYD            IDsum=[4], NHYD=["CULV3"], IDs to add=[7,1]
01101> *%-----------------|-------------------------------------------------------|
01102> CALIB NASHYD       ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.38](ha),
01103>                     DWF=[0](cms),  CN/C=[52.2], IA=[7.05](mm),
01104>                     N=[3], TP=[0.32]hrs,
01105>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01106> *%-----------------|-------------------------------------------------------|
01107> CALIB NASHYD       ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.78](ha),
01108>                     DWF=[0](cms),  CN/C=[78.8], IA=[7.26](mm),
01109>                     N=[3], TP=[0.52]hrs,
01110>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01111> *%-----------------|-------------------------------------------------------|
01112> CALIB NASHYD       ID=[3], NHYD=["9E"], DT=[1]min, AREA=[1.24](ha),
01113>                     DWF=[0](cms),  CN/C=[66.3], IA=[6.71](mm),
01114>                     N=[3], TP=[0.23]hrs,
01115>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01116> *%-----------------|-------------------------------------------------------|
01117> ADD HYD            IDsum=[5], NHYD=["NODE"], IDs to add=[1,2,3,10]
01118> *%-----------------|-------------------------------------------------------|
01119> ADD HYD            IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,4,10]
01120> *%-----------------|-------------------------------------------------------|
01121> *#-----------------|-------------------------------------------------------|
01122> *#-----------------|-LANDS DRAINING TO SWM FACILITY 2----------------------|
01123> *#-----------------|-------------------------------------------------------|
01124> CALIB NASHYD       ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
01125>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
01126>                     N=[3], TP=[0.14]hrs,
01127>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01128> *%-----------------|-------------------------------------------------------|
01129> CALIB NASHYD       ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
01130>                     DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
01131>                     N=[3], TP=[0.32]hrs,
01132>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01133> *%-----------------|-------------------------------------------------------|
01134> ADD HYD            IDsum=[10], NHYD=["2A2B"], IDs to add=[1,2]
01135> *%-----------------|-------------------------------------------------------|
01136> CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
01137>                     XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
01138>                     SCS curve number CN=[49],
01139>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
01140>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
01141>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
01142>                                          LGI=[114](m), MNI=[0.013], SCI=[0](min)
01143>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
01144> *%-----------------|-------------------------------------------------------|
01145> CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
01146>                     XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
01147>                     SCS curve number CN=[59],
01148>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
01149>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
01150>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
01151>                                          LGI=[148](m), MNI=[0.013], SCI=[0](min)
01152>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
01153> *%-----------------|-------------------------------------------------------|
01154> CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[1.49](ha),
01155>                     XIMP=[0.368], TIMP=[0.424], DWF=[0](cms), LOSS=[2],
01156>                     SCS curve number CN=[69],
01157>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
01158>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
01159>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
01160>                                          LGI=[100](m), MNI=[0.013], SCI=[0](min)
01161>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
01162> *%-----------------|-------------------------------------------------------|
01163> ADD HYD            IDsum=[6], NHYD=["SWMF2"], IDs to add=[10,3,4,7]
01164> *%-----------------|-------------------------------------------------------|
01165> *#-----------------|-------------------------------------------------------|
01166> *#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-----|
01167> *#-----------------|-------------------------------------------------------|
01168> *%-----------------|-------------------------------------------------------|
01169> ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
01170>                     RDT=[1](min),
01171>                          TABLE of ( OUTFLOW-STORAGE ) values
01172>                                   (cms) - (ha-m)
01173>                               [   0.0 ,  0.0 ]
01174>                               [   0.006 ,  0.018 ]
01175>                               [   0.016 ,  0.057 ]
01176>                               [   0.021 ,  0.102 ]
01177>                               [   0.025 ,  0.139 ]
01178>                               [   0.028 ,  0.179 ]
01179>                               [   0.069 ,  0.238 ]
01180>                               [   0.142 ,  0.303 ]
01181>                               [   0.332 ,  0.373 ]
01182>                               [   5.359 ,  0.410 ]
01183>                               [   7.554 ,  0.489 ]
01184>                               [   8.632 ,  0.530 ]
01185>                               [  -1  ,  -1  ]  (max twenty pts)
01186>                          IDovf=[   ], NHYDovf=[   ]
01187> *%-----------------|-------------------------------------------------------|
01188> *#-----------------|-------------------------------------------------------|
01189> *#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD--------------|
01190> *#-----------------|-------------------------------------------------------|
01191> *%-----------------|-------------------------------------------------------|
01192> ADD HYD            IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
01193> *%-----------------|-------------------------------------------------------|
01194> SAVE HYD           ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
01195>                     HYD_COMMENT=["POST-DEV LAKESHORE"]
01196> *%-----------------|-------------------------------------------------------|
01197> *#-----------------|-------------------------------------------------------|
01198> *#-----------------|--WATERCOURSE 8 CATCHMENTS------------------------------|
01199> *#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-----------------|
01200> *#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8-------------|
01201> *#-----------------|-------------------------------------------------------|
01202> *%-----------------|-------------------------------------------------------|
01203> CALIB NASHYD       ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
01204>                     DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
01205>                     N=[3], TP=[0.23]hrs,
01206>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01207> *%-----------------|-------------------------------------------------------|
01208> CALIB NASHYD       ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
01209>                     DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
01210>                     N=[3], TP=[0.44]hrs,
01211>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01212> *%-----------------|-------------------------------------------------------|
01213> *#-----------------|-------------------------------------------------------|
01214> *#-----------------|--WATERCOURSE 8 TOTAL-----------------------------------|
01215> *#-----------------|-------------------------------------------------------|
01216> *%-----------------|-------------------------------------------------------|
01217> ADD HYD            IDsum=[3], NHYD=["WC8"], IDs to add=[1,2]
01218> *%-----------------|-------------------------------------------------------|
01219> *##################################################################
01220> *#########################Chicago 25yr 4-hr storm##################
01221> *##################################################################
01222> *%-----------------|-------------------------------------------------------|
01223>
01224> CHICAGO STORM      IUNITS=[2],  TD=[4.0](hrs), TPRAT=[0.33],  CSDT=[5](min),
01225>                     ICASEcs=[2],
01226>                     Enter ordinates of IDF curve below, at least seven points
01227>                         TIME (min)    Intensity(mm/hr)
01228>                             [   5   ]       [  215.3  ]
01229>                             [   10  ]       [  132.6  ]
01230>                             [   15  ]       [  99.9   ]
01231>                             [   30  ]       [  61.5   ]
01232>                             [   60  ]       [  37.9   ]
01233>                             [   120 ]       [  23.3   ]
01234>                             [   360 ]       [  10.8   ]
01235>                             [   720 ]       [  6.7    ]
01236>                             [   1440 ]      [  4.1    ]
01237>                            -1              -1
01238> *%-----------------|-------------------------------------------------------|
01239>
01240> *%-----------------|-------------------------------------------------------|
01241> *%-----------------|-------------------------------------------------------|
01242> *#-----------------|-------------------------------------------------------|
01243> *#-----------------|-POST-DEVELOPMENT---------------------------------------|
01244> *#-----------------|-------------------------------------------------------|
01245> *#-----------------|-------------------------------------------------------|
01246> *#-----------------|-Subwatershed 9 External Drainage Area------------------|
01247> *#-----------------|-Per 'The Orchards' FSSWM Report------------------------|
01248> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)------------|
01249> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-----|
01250> *#-----------------|-------------------------------------------------------|
01251> *%-----------------|-------------------------------------------------------|
01252> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
01253>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
01254>                     N=[3], TP=[1.00]hrs,
01255>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01256> *%-----------------|-------------------------------------------------------|
01257> ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
01258>                     RDT=[1](min),
01259>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
01260>                                       FPSLOPE=[2](%),
01261>                     SECNUM=[1],       NSEG=[3]
01262>                     ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
01263>                     ( DISTANCE (m), ELEVATION (m))=[0,102]
01264>                                                   [8,100]
01265>                                                   [12,100]
01266>                                                   [20,102]
01267> *%-----------------|-------------------------------------------------------|
01268> CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
01269>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
01270>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
01271>                             DCAY=[2](/hr), F=[0](mm),
01272>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
01273>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
01274>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
01275>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
01276>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
01277> *%-----------------|-------------------------------------------------------|
01278> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
01279>                     RDT=[1](min),
01280>                          TABLE of ( OUTFLOW-STORAGE ) values
01281>                                   (cms) - (ha-m)
01282>                               [   0.0 ,  0.0 ]
01283>                               [   0.0100 ,  0.0610 ]
01284>                               [   0.0400 ,  0.1310 ]
01285>                               [   0.0700 ,  0.2110 ]
01286>                               [   0.2600 ,  0.3000 ]
01287>                               [   0.6000 ,  0.3940 ]
01288>                               [   1.0200 ,  0.4950 ]
01289>                               [   1.5200 ,  0.6020 ]
01290>                               [   2.0800 ,  0.7160 ]
01291>                               [   2.6900 ,  0.8370 ]
01292>                          IDovf=[ ], NHYDovf=[  ]
01293> *%-----------------|-------------------------------------------------------|
01294> *#-----------------|-------------------------------------------------------|
01295> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing------|
01296> *#-----------------|-------------------------------------------------------|
01297> *%-----------------|-------------------------------------------------------|
01298> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
01299> *%-----------------|-------------------------------------------------------|
01300> *#-----------------|-------------------------------------------------------|
01301> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands------------|
01302> *#-----------------|-------------------------------------------------------|
01303> *%-----------------|-------------------------------------------------------|
01304> CALIB NASHYD       ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
01305>                     DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
01306>                     N=[3], TP=[0.24]hrs,
01307>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01308> *%-----------------|-------------------------------------------------------|
01309> CALIB NASHYD       ID=[2], NHYD=["9A"], DT=[1]min, AREA=[0.58](ha),
01310>                     DWF=[0](cms),  CN/C=[79], IA=[6.59](mm),
01311>                     N=[3], TP=[0.06]hrs,
01312>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01313> *#-----------------|----------------------CULVERT #1-------------------------|
01314> ADD HYD            IDsum=[3], NHYD=["CULV1"], IDs to add=[1,2,5]
01315> *%-----------------|-------------------------------------------------------|
01316> CALIB NASHYD       ID=[1], NHYD=["9B"], DT=[1]min, AREA=[2.10](ha),
01317>                     DWF=[0](cms),  CN/C=[51.5], IA=[8.67](mm),
01318>                     N=[3], TP=[0.28]hrs,
01319>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01320> *#-----------------|----------------------CULVERT #2-------------------------|
01321> ADD HYD            IDsum=[4], NHYD=["WC9a"], IDs to add=[1,3]
01322> *%-----------------|-------------------------------------------------------|
01323> *#-----------------|-------------------------------------------------------|
01324> *#-----------------|-AREAS TO SWM FACILITY 1--------------------------------|
01325> *#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
01326> *#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1----------------------|
01327> *#-----------------|-------------------------------------------------------|
01328> *%-----------------|-------------------------------------------------------|
01329> CALIB NASHYD       ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
01330>                     DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
01331>                     N=[3], TP=[0.47]hrs,
01332>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01333> *%-----------------|-------------------------------------------------------|
01334> CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
01335>                     XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
01336>                     SCS curve number CN=[67.0],
01337>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
01338>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
01339>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
01340>                                          LGI=[44](m), MNI=[0.013], SCI=[0](min),
01341>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
01342> *%-----------------|-------------------------------------------------------|
01343> ADD HYD            IDsum=[6], NHYD=["NODE"], IDs to add=[1,3]
01344> *%-----------------|-------------------------------------------------------|
01345> CALIB NASHYD       ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
01346>                     DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
01347>                     N=[3], TP=[0.11]hrs,
01348>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01349> *%-----------------|-------------------------------------------------------|
01350> ADD HYD            IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
```

```
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
*#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                               [   0.0   ,   0.0   ]
                               [   0.007 ,   0.026 ]
                               [   0.018 ,   0.083 ]
                               [   0.025 ,   0.146 ]
                               [   0.029 ,   0.197 ]
                               [   0.032 ,   0.251 ]
                               [   0.036 ,   0.330 ]
                               [   0.078 ,   0.414 ]
                               [   0.151 ,   0.505 ]
                               [   0.325 ,   0.578 ]
                               [   0.340 ,   0.807 ]
                               [   5.368 ,   0.876 ]
                               [   7.563 ,   1.038 ]
                               [   9.145 ,   1.122 ]
                               [   -1  ,   -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
*#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
*#-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.32](ha),
                    XIMP=[0.349], TIMP=[0.713], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66.1],
                    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=[96](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9C"], DT=[1]min, AREA=[0.82](ha),
                    DWF=[0](cms),  CN/C=[40.9], IA=[8.46](mm),
                    N=[3], TP=[0.25]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#-----------------|----------------------CULVERT #3-----------------------|
ADD HYD             IDsum=[4], NHYD=["CULV3"], IDs to add=[7,1]
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.38](ha),
                    DWF=[0](cms),  CN/C=[52.2], IA=[7.05](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.78](ha),
                    DWF=[0](cms),  CN/C=[78.8], IA=[7.26](mm),
                    N=[3], TP=[0.52]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["9E"], DT=[1]min, AREA=[1.24](ha),
                    DWF=[0](cms),  CN/C=[66.3], IA=[6.71](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["NODE"], IDs to add=[1,2,3,10]
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,4,10]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-LANDS DRAINING TO SWM FACILITY 2--------------------------|
*#-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[10], NHYD=["2A2B"], IDs to add=[1,2]
*%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
                    XIMP=[0.3],  TIMP=[0.6], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[49],
                    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=[1.0](%),
                                         LGI=[114](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
                    XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[59],
                    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=[1.0](%),
                                         LGI=[148](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[1.49](ha),
                    XIMP=[0.368], TIMP=[0.424], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    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=[1.0](%),
                                         LGI=[100](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[10,3,4,7]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                               [   0.0 ,   0.0 ]
                               [   0.006 ,   0.018 ]
                               [   0.016 ,   0.057 ]
                               [   0.021 ,   0.102 ]
                               [   0.025 ,   0.139 ]
                               [   0.028 ,   0.179 ]
                               [   0.069 ,   0.238 ]
                               [   0.142 ,   0.303 ]
                               [   0.332 ,   0.373 ]
                               [   5.359 ,   0.410 ]
                               [   7.554 ,   0.489 ]
                               [   8.632 ,   0.530 ]
                               [   -1  ,   -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
*%-----------------|-------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
                    HYD_COMMENT=["POST-DEV LAKESHORE"]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|--WATERCOURSE 8 CATCHMENTS---------------------------------|
*#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8--------------------|
*#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
                    DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
                    DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
                    N=[3], TP=[0.44]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|--WATERCOURSE 8 TOTAL--------------------------------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[3], NHYD=["WC8"], IDs to add=[1,2]
*%-----------------|-------------------------------------------------------|
*#*****************************************************************************
*#************************Chicago 50yr 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   ]       [  239.7  ]
                            [   10  ]       [  147.7  ]
                            [   15  ]       [  111.2  ]
                            [   30  ]       [  68.5   ]
                            [   60  ]       [  42.2   ]
                            [   120 ]       [  26.0   ]
                            [   360 ]       [  12.1   ]
                            [   720 ]       [  7.4    ]
                            [   1440 ]      [  4.6    ]
                                -1              -1
*%-----------------|-------------------------------------------------------|

*%-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-POST-DEVELOPMENT------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Subwatershed 9 External Drainage Area---------------------|
*#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
*#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
*#-'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha---------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
                    ( DISTANCE (m), ELEVATION (m))=[0,102]
                                                  [8,100]
                                                  [12,100]
                                                  [20,102]
*%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                               [   0.0 ,   0.0 ]
                               [   0.0100 ,   0.0610 ]
                               [   0.0400 ,   0.1310 ]
                               [   0.0700 ,   0.2110 ]
                               [   0.2600 ,   0.3000 ]
                               [   0.6000 ,   0.3940 ]
                               [   1.0200 ,   0.4950 ]
                               [   1.5200 ,   0.6020 ]
                               [   2.0800 ,   0.7160 ]
                               [   2.6900 ,   0.8370 ]
                          IDovf=[ ], NHYDovf=[  ]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
                    N=[3], TP=[0.24]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9A"], DT=[1]min, AREA=[0.58](ha),
                    DWF=[0](cms),  CN/C=[79], IA=[6.59](mm),
                    N=[3], TP=[0.06]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#-----------------|----------------------CULVERT #1-----------------------|
ADD HYD             IDsum=[3], NHYD=["CULV1"], IDs to add=[1,2,5]
*%-----------------|-------------------------------------------------------|
```

```
CALIB NASHYD        ID=[1], NHYD=["9B"], DT=[1]min, AREA=[2.10](ha),
                    DWF=[0](cms),  CN/C=[51.5], IA=[8.67](mm),
                    N=[3], TP=[0.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#------------------|-----------------------CULVERT #2--------------------------|
ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,3]
*%------------------|-----------------------------------------------------------|
*#------------------|-----------------------------------------------------------|
*#------------------|-AREAS TO SWM FACILITY 1-------------------------------------|
*#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT----------------|
*#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1------------------------|
*#------------------|-----------------------------------------------------------|
*%------------------|-----------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
                    N=[3], TP=[0.47]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-----------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[67.0],
                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-----------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["NODE"], IDs to add=[1,3]
*%------------------|-----------------------------------------------------------|
CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
                    N=[3], TP=[0.11]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-----------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
*%------------------|-----------------------------------------------------------|
*#------------------|-----------------------------------------------------------|
*#------------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
*#------------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
*#------------------|-----------------------------------------------------------|
*%------------------|-----------------------------------------------------------|
ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                        (cms) - (ha-m)
                                   [   0.0  ,   0.0   ]
                                   [   0.007 ,  0.026 ]
                                   [   0.018 ,  0.083 ]
                                   [   0.025 ,  0.146 ]
                                   [   0.029 ,  0.197 ]
                                   [   0.032 ,  0.251 ]
                                   [   0.036 ,  0.330 ]
                                   [   0.078 ,  0.414 ]
                                   [   0.151 ,  0.505 ]
                                   [   0.325 ,  0.578 ]
                                   [   0.340 ,  0.807 ]
                                   [   5.368 ,  0.876 ]
                                   [   7.563 ,  1.038 ]
                                   [   9.145 ,  1.122 ]
                                   [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%------------------|-----------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
*%------------------|-----------------------------------------------------------|
*#------------------|-----------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Lower Terrace Lands----------------|
*#------------------|-----------------------------------------------------------|
*%------------------|-----------------------------------------------------------|
*#------------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS--------|
*#------------------|-----------------------------------------------------------|
CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.32](ha),
                    XIMP=[0.349], TIMP=[0.713], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66.1],
                    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=[96](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-----------------------------------------------------------|
*#------------------|-----------------------------------------------------------|
*#------------------|-LANDS DRAINING TO WC 9 UNCONTROLLED------------------------|
*#------------------|-----------------------------------------------------------|
*%------------------|-----------------------------------------------------------|
*%------------------|-----------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9C"], DT=[1]min, AREA=[0.82](ha),
                    DWF=[0](cms),  CN/C=[40.9], IA=[8.46](mm),
                    N=[3], TP=[0.25]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#------------------|-----------------------CULVERT #3--------------------------|
ADD HYD             IDsum=[4], NHYD=["CULV3"], IDs to add=[7,1]
*%------------------|-----------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.38](ha),
                    DWF=[0](cms),  CN/C=[52.2], IA=[7.05](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-----------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.78](ha),
                    DWF=[0](cms),  CN/C=[78.8], IA=[7.26](mm),
                    N=[3], TP=[0.52]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-----------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["9E"], DT=[1]min, AREA=[1.24](ha),
                    DWF=[0](cms),  CN/C=[66.3], IA=[6.71](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-----------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["NODE"], IDs to add=[1,2,3,10]
*%------------------|-----------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,4,10]
*%------------------|-----------------------------------------------------------|
*#------------------|-----------------------------------------------------------|
*#------------------|-LANDS DRAINING TO SWM FACILITY 2---------------------------|
*#------------------|-----------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-----------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-----------------------------------------------------------|
ADD HYD             IDsum=[10], NHYD=["2A2B"], IDs to add=[1,2]
*%------------------|-----------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
                    XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[49],
                    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=[1.0](%),
                                         LGI=[114](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-----------------------------------------------------------|
CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
                    XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[59],
                    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=[1.0](%),
                                         LGI=[148](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-----------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[1.49](ha),
                    XIMP=[0.368], TIMP=[0.424], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    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=[1.0](%),
                                         LGI=[100](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-----------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[10,3,4,7]
*%------------------|-----------------------------------------------------------|
*#------------------|-----------------------------------------------------------|
*#------------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)----------|
*#------------------|-----------------------------------------------------------|
*%------------------|-----------------------------------------------------------|
ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                        (cms) - (ha-m)
                                   [   0.0  ,   0.0   ]
                                   [   0.006 ,  0.018 ]
                                   [   0.016 ,  0.057 ]
                                   [   0.021 ,  0.102 ]
                                   [   0.025 ,  0.139 ]
                                   [   0.028 ,  0.179 ]
                                   [   0.069 ,  0.238 ]
                                   [   0.142 ,  0.303 ]
                                   [   0.332 ,  0.373 ]
                                   [   5.359 ,  0.410 ]
                                   [   7.554 ,  0.489 ]
                                   [   8.632 ,  0.530 ]
                                   [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%------------------|-----------------------------------------------------------|
*#------------------|-----------------------------------------------------------|
*#------------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD------------------|
*#------------------|-----------------------------------------------------------|
*%------------------|-----------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
*%------------------|-----------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASESh=[1]
                    HYD_COMMENT=["POST-DEV LAKESHORE"]
*%------------------|-----------------------------------------------------------|
*#------------------|-----------------------------------------------------------|
*#------------------|--WATERCOURSE 8 CATCHMENTS----------------------------------|
*#------------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8---------------------|
*#------------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8-----------------|
*#------------------|-----------------------------------------------------------|
*%------------------|-----------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
                    DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-----------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
                    DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
                    N=[3], TP=[0.44]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-----------------------------------------------------------|
*#------------------|-----------------------------------------------------------|
*#------------------|--WATERCOURSE 8 TOTAL---------------------------------------|
*#------------------|-----------------------------------------------------------|
*%------------------|-----------------------------------------------------------|
ADD HYD             IDsum=[3], NHYD=["WC8"], IDs to add=[1,2]
*%------------------|-----------------------------------------------------------|
*#*******************************************************************************
*#************************Chicago 100yr 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   ]       [  263.3  ]
                             [   10  ]       [  162.3  ]
                             [   15  ]       [  122.3  ]
                             [   30  ]       [  75.3   ]
                             [   60  ]       [  46.4   ]
                             [   120 ]       [  28.6   ]
                             [   360 ]       [  13.3   ]
                             [   720 ]       [  8.2    ]
                             [   1440 ]      [  5.0    ]
                                  -1              -1
*%------------------|-----------------------------------------------------------|
*%------------------|-----------------------------------------------------------|
*%------------------|-----------------------------------------------------------|
*#------------------|-----------------------------------------------------------|
*#------------------|-POST-DEVELOPMENT-------------------------------------------|
*#------------------|-----------------------------------------------------------|
*#------------------|-----------------------------------------------------------|
*#------------------|-Subwatershed 9 External Drainage Area----------------------|
*#------------------|-Per 'The Orchards' FSSWM Report----------------------------|
*#------------------|-Prepared by Higgins Engineering (Jan. 2005)----------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha---------|
*#------------------|-----------------------------------------------------------|
*%------------------|-----------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-----------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
                    ( DISTANCE (m), ELEVATION (m))=[0,102]
                                                  [8,100]
                                                  [12,100]
                                                  [20,102]
*%------------------|-----------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-----------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
```

```
                                    (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.0100 ,  0.0610 ]
                                [   0.0400 ,  0.1310 ]
                                [   0.0700 ,  0.2110 ]
                                [   0.2600 ,  0.3000 ]
                                [   0.6000 ,  0.3940 ]
                                [   1.0200 ,  0.4950 ]
                                [   1.5200 ,  0.6020 ]
                                [   2.0800 ,  0.7160 ]
                                [   2.6900 ,  0.8370 ]
                        IDovf=[ ], NHYDovf=[  ]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing--------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
                    N=[3], TP=[0.24]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9A"], DT=[1]min, AREA=[0.58](ha),
                    DWF=[0](cms),  CN/C=[79], IA=[6.59](mm),
                    N=[3], TP=[0.06]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#-----------------|----------------------CULVERT #1-------------------------|
ADD HYD             IDsum=[3], NHYD=["CULV1"], IDs to add=[1,2,5]
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9B"], DT=[1]min, AREA=[2.10](ha),
                    DWF=[0](cms),  CN/C=[51.5], IA=[8.67](mm),
                    N=[3], TP=[0.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#-----------------|----------------------CULVERT #2-------------------------|
ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,3]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-AREAS TO SWM FACILITY 1-----------------------------------|
*#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
*#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
                    N=[3], TP=[0.47]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[67.0],
                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["NODE"], IDs to add=[1,3]
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
                    N=[3], TP=[0.11]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
*#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                [   0.0   ,  0.0   ]
                                [   0.007 ,  0.026 ]
                                [   0.018 ,  0.083 ]
                                [   0.025 ,  0.146 ]
                                [   0.029 ,  0.197 ]
                                [   0.032 ,  0.251 ]
                                [   0.036 ,  0.330 ]
                                [   0.078 ,  0.414 ]
                                [   0.151 ,  0.505 ]
                                [   0.325 ,  0.578 ]
                                [   0.340 ,  0.807 ]
                                [   5.368 ,  0.876 ]
                                [   7.563 ,  1.038 ]
                                [   9.145 ,  1.122 ]
                                [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
*#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
*#-----------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.32](ha),
                    XIMP=[0.349], TIMP=[0.713], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66.1],
                    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=[96](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9C"], DT=[1]min, AREA=[0.82](ha),
                    DWF=[0](cms),  CN/C=[40.9], IA=[8.46](mm),
                    N=[3], TP=[0.25]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#-----------------|----------------------CULVERT #3-------------------------|
ADD HYD             IDsum=[4], NHYD=["CULV3"], IDs to add=[7,1]
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.38](ha),
                    DWF=[0](cms),  CN/C=[52.2], IA=[7.05](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.78](ha),
                    DWF=[0](cms),  CN/C=[78.8], IA=[7.26](mm),
                    N=[3], TP=[0.52]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["9E"], DT=[1]min, AREA=[1.24](ha),
                    DWF=[0](cms),  CN/C=[66.3], IA=[6.71](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["NODE"], IDs to add=[1,2,3,10]
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,4,10]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-LANDS DRAINING TO SWM FACILITY 2--------------------------|
*#-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[10], NHYD=["2A2B"], IDs to add=[1,2]
*%-----------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
                    XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[49],
                    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=[1.0](%),
                                         LGI=[114](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
                    XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[59],
                    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=[1.0](%),
                                         LGI=[148](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[1.49](ha),
                    XIMP=[0.368], TIMP=[0.424], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    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=[1.0](%),
                                         LGI=[100](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[10,3,4,7]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.006 ,  0.018 ]
                                [   0.016 ,  0.057 ]
                                [   0.021 ,  0.102 ]
                                [   0.025 ,  0.139 ]
                                [   0.028 ,  0.179 ]
                                [   0.069 ,  0.238 ]
                                [   0.142 ,  0.303 ]
                                [   0.332 ,  0.373 ]
                                [   5.359 ,  0.410 ]
                                [   7.554 ,  0.489 ]
                                [   8.632 ,  0.530 ]
                                [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
*%-----------------|---------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASESh=[1]
                    HYD_COMMENT=["POST-DEV LAKESHORE"]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|--WATERCOURSE 8 CATCHMENTS---------------------------------|
*#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8--------------------|
*#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
                    DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
                    DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
                    N=[3], TP=[0.44]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|--WATERCOURSE 8 TOTAL--------------------------------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[3], NHYD=["WC8"], IDs to add=[1,2]
*%-----------------|---------------------------------------------------------|

FINISH
```

```
00001>  ================================================================================================================
00002>
00003>  SSSSS   W   W   M   M   H   H   Y   Y   M   M    OOO         222     000    11   77777 ========
00004>  S       W W W   MM MM   H   H    Y Y    MM MM   O   O       2   2   0   0   11     7   7
00005>  SSSSS   W W W   M M M   HHHHH     Y     M M M   O   O         2     0   0   11       7  Ver4.05.0
00006>      S   W W W   M   M   H   H     Y     M   M   O   O     222     0   0   11     7     APR 2017
00007>  SSSSS    W W    M   M   H   H     Y     M   M    OOO      2       0   0   11     7     =========
00008>                                                            2       0   0   11     7     # 3737016
00009>        StormWater Management HYdrologic Model                222     000    11     7     =========
00010>
00011>  ********************************************************************************************************
00012>  ********************  SWMHYMO Ver4.05.0  ***********************************************************
00013>  ******************  A single event and continuous hydrologic simulation model  *************************
00014>  ******************     based on the principles of HYMO and its successors      *************************
00015>  ******************                OTTHYMO-83 and OTTHYMO-89.                  *************************
00016>  ********************************************************************************************************
00017>  ****************** Distributed by:  J.F. Sabourin and Associates Inc.          *************************
00018>  ******************                 Ottawa,  Ontario: (613) 836-3884            *************************
00019>  ******************                 Gatineau, Quebec: (819) 243-6858            *************************
00020>  ******************                 E-Mail: swmhymo@jfsa.com                    *************************
00021>  ********************************************************************************************************
00022>
00023>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00024>  ++++++++++++++++++ Licensed user: C.F. Crozier & Associates Inc.          ++++++++++++++++++++
00025>  ++++++++++++++++++                 Collingwood          SERIAL#:3737016   ++++++++++++++++++++
00026>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>  ********************************************************************************************************
00028>  ******************           ++++++ PROGRAM ARRAY DIMENSIONS ++++++              ********************
00029>  ******************           Maximum value for ID numbers  :     11             ********************
00030>  ******************           Max. number of rainfall points: 105408             ********************
00031>  ******************           Max. number of flow points    : 105408             ********************
00032>  ********************************************************************************************************
00033>
00034>
00035>
00036>  ***************************  S U M M A R Y   O U T P U T  ****************************************
00037>  ********************************************************************************************************
00038>  *                RUN DATE: 2020-06-15     TIME: 12:02:53     RUN COUNTER: 000001                      *
00039>  ********************************************************************************************************
00040>  * Input   file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2019 SWM*
00041>  *               HYMO\CHI\POST_CHI.DAT                                                            *
00042>  * Output  file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2019 SWM*
00043>  *               HYMO\CHI\POST_CHI.out                                                            *
00044>  * Summary file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2019 SWM*
00045>  *               HYMO\CHI\POST_CHI.sum                                                            *
00046>  * User comments:                                                                                 *
00047>  * 1:_____________________________________________________________________________________________*
00048>  * 2:_____________________________________________________________________________________________*
00049>  * 3:_____________________________________________________________________________________________*
00050>  ********************************************************************************************************
00051>
00052>
00053>  #*******************************************************************************
00054>  #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00055>  #  Date        : 2018-09-20 [UPDATED 2020-06-15]
00056>  #  Modeller    : [OD - UPDATED BY JM/BD - UPDATED BY JE]
00057>  #  Company     : C.F. Crozier & Associates Inc.
00058>  #  License #   : 3737016
00059>  #*******************************************************************************
00060>   RUN#:COMMAND#
00061>  R0001:C00001------------------------------------------------------------------------------------------
00062>        START
00063>        [TZERO =    .00 hrs on      0]
00064>        [METOUT=   2   (1=imperial, 2=metric output)]
00065>        [NSTORM=   1 ]
00066>        [NRUN  = 0001 ]
00067>  #*******************************************************************************
00068>  #*************************25mm storm*********************************************
00069>  #*******************************************************************************
00070>  R0001:C00002------------------------------------------------------------------------------------------
00071>       READ STORM
00072>        Filename = 25mm.stm
00073>        Comment  = 25mm Event
00074>        [SDT= 5.00:SDUR=   4.00:PTOT=  24.99]
00075>  #----------------|-----------------------------------------------------------|
00076>  #----------------|-POST-DEVELOPMENT--------------------------------------------|
00077>  #----------------|-----------------------------------------------------------|
00078>  #----------------|-----------------------------------------------------------|
00079>  #----------------|-Subwatershed 9 External Drainage Area-----------------------|
00080>  #----------------|-Per 'The Orchards' FSSWM Report-----------------------------|
00081>  #----------------|-Prepared by Higgins Engineering (Jan. 2005)------------------|
00082>  #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00083>  #----------------|-----------------------------------------------------------|
00084>  R0001:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00085>      CALIB NASHYD            1.0 01:EXT-9A       101.80     .507 No_date    2:46    4.79 .192     .000
00086>        [CN= 80.0: N= 3.00: Tp=  1.00]
00087>  R0001:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00088>      ROUTE CHANNEL   ->      1.0 01:EXT-9A       101.80     .507 No_date    2:46    4.79  n/a     .000
00089>       [RDT= 1.00] out<-      1.0 02:Channel      101.80     .500 No_date    2:56    4.79  n/a     .000
00090>        [L/S/n=  550./2.000/.035]
00091>        {Vmax=  .902:Dmax=  .117}
00092>  R0001:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00093>      CALIB STANDHYD          1.0 03:EXT-9B        14.80     .713 No_date    1:24   10.39 .416     .000
00094>        [XIMP=.35:TIMP=.35]
00095>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00096>        [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00097>        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00098>  R0001:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00099>      ROUTE RESERVOIR ->      1.0 03:EXT-9B        14.80     .713 No_date    1:24   10.39  n/a     .000
00100>                    out <=    1.0 04:Orchards      14.80     .038 No_date    2:58   10.39  n/a     .000
00101>       {MxStoUsed=.1255E+00  m3}
00102>  #----------------|-----------------------------------------------------------|
00103>  #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00104>  #----------------|-----------------------------------------------------------|
00105>  R0001:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00106>      ADD HYD                 1.0 02:Channel      101.80     .500 No_date    2:56    4.79  n/a     .000
00107>                        +     1.0 04:Orchards     14.80     .038 No_date    2:58   10.39  n/a     .000
00108>                      SUM=    1.0 05:RD19         116.60     .538 No_date    2:56    5.50  n/a     .000
00109>  #----------------|-----------------------------------------------------------|
00110>  #----------------|-Parkbridge Craigleith - Upper Terrace Lands-----------------|
00111>  #----------------|-----------------------------------------------------------|
00112>  R0001:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00113>      CALIB NASHYD            1.0 01:EXT-9C          .65     .010 No_date    1:41    5.74 .230     .000
00114>        [CN= 82.7: N= 3.00: Tp=  .24]
00115>  R0001:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00116>      CALIB NASHYD            1.0 02:9A              .58     .010 No_date    1:26    3.94 .158     .000
00117>        [CN= 79.0: N= 3.00: Tp=  .06]
00118>  #----------------|-----------------------------------------------------------|
00119>  R0001:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00120>      ADD HYD                 1.0 01:EXT-9C          .65     .010 No_date    1:41    5.74  n/a     .000
00121>                        +     1.0 02:9A              .58     .010 No_date    1:26    3.94  n/a     .000
00122>                      SUM=    1.0 05:RD10         116.60     .538 No_date    2:56    5.50  n/a     .000
00123>                        +     1.0 03:CULV1        117.83     .541 No_date    2:56    5.49  n/a     .000
00124>  R0001:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00125>      CALIB NASHYD            1.0 01:9B             2.10     .004 No_date    1:51    1.04 .042     .000
00126>        [CN= 51.5: N= 3.00: Tp=  .28]
00127>  #----------------|-----------------------CULVERT #2-----------------------|
00128>  R0001:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00129>      ADD HYD                 1.0 01:9B             2.10     .004 No_date    1:51    1.04  n/a     .000
00130>                        +     1.0 03:CULV1        117.83     .541 No_date    2:56    5.49  n/a     .000
00131>                      SUM=    1.0 04:WC9a         119.93     .543 No_date    2:56    5.41  n/a     .000
00132>  #----------------|-----------------------------------------------------------|
00133>  #----------------|-AREAS TO SWM FACILITY 1-------------------------------------|
00134>  #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
00135>  #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
00136>  #----------------|-----------------------------------------------------------|
00137>  R0001:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00138>      CALIB NASHYD            1.0 01:EXT-1A         8.37     .035 No_date    2:08    2.71 .108     .000
00139>        [CN= 74.9: N= 3.00: Tp=  .47]
00140>  R0001:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00141>      CALIB STANDHYD          1.0 03:1A             2.95     .198 No_date    1:20   10.10 .404     .000
00142>        [XIMP=.31:TIMP=.51]
00143>        [LOSS= 2 :CN= 67.0]
00144>        [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
00145>        [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
00146>  R0001:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00147>      ADD HYD                 1.0 01:EXT-1A         8.37     .035 No_date    2:08    2.71  n/a     .000
00148>                        +     1.0 03:1A             2.95     .198 No_date    1:20   10.10  n/a     .000
00149>                      SUM=    1.0 06:NODE          11.32     .198 No_date    1:20    4.63  n/a     .000
00150>  R0001:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00151>      CALIB NASHYD            1.0 05:1B             1.81     .004 No_date    1:33     .80 .032     .000
00152>        [CN= 44.3: N= 3.00: Tp=  .11]
00153>  R0001:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00154>      ADD HYD                 1.0 01:EXT-1A         8.37     .035 No_date    2:08    2.71  n/a     .000
00155>                        +     1.0 03:1A             2.95     .198 No_date    1:20   10.10  n/a     .000
00156>                        +     1.0 05:1B             1.81     .004 No_date    1:33     .80  n/a     .000
00157>                      SUM=    1.0 06:SWMF1         13.13     .198 No_date    1:20    4.11  n/a     .000
00158>  #----------------|-----------------------------------------------------------|
00159>  #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE--------|
00160>  #----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT----------------|
00161>  #----------------|-----------------------------------------------------------|
00162>  R0001:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00163>      ROUTE RESERVOIR ->      1.0 06:SWMF1         13.13     .198 No_date    1:20    4.11  n/a     .000
00164>                    out <=    1.0 01:SWMF-1        13.13     .010 No_date    4:18    4.10  n/a     .000
00165>       {MxStoUsed=.4342E-01  m3}
00166>  R0001:C00019------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00167>      ADD HYD                 1.0 01:SWMF-1        13.13     .010 No_date    4:18    4.10  n/a     .000
00168>                        +     1.0 04:WC9a         119.93     .543 No_date    2:56    5.41  n/a     .000
00169>                      SUM=    1.0 07:WC9b         133.06     .552 No_date    2:56    5.28  n/a     .000
00170>  #----------------|-----------------------------------------------------------|
00171>  #----------------|-Parkbridge Craigleith - Lower Terrace Lands-----------------|
00172>  #----------------|-----------------------------------------------------------|
00173>  #----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
00174>  #----------------|-----------------------------------------------------------|
00175>  R0001:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00176>      CALIB STANDHYD          1.0 10:9D             1.32     .091 No_date    1:20   12.24 .490     .000
00177>        [XIMP=.35:TIMP=.71]
00178>        [LOSS= 2 :CN= 66.1]
00179>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00180>        [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
00181>  #----------------|-----------------------------------------------------------|
00182>  #----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-------------------------|
00183>  #----------------|-----------------------------------------------------------|
00184>  R0001:C00021------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00185>      CALIB NASHYD            1.0 01:9C              .82     .001 No_date    1:48     .71 .029     .000
00186>        [CN= 40.9: N= 3.00: Tp=  .25]
00187>  #----------------|-----------------------CULVERT #3-----------------------|
00188>  R0001:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00189>      ADD HYD                 1.0 07:WC9b         133.06     .552 No_date    2:56    5.28  n/a     .000
00190>                        +     1.0 01:9C              .82     .001 No_date    1:48     .71  n/a     .000
00191>                      SUM=    1.0 04:CULV3        133.88     .552 No_date    2:56    5.26  n/a     .000
00192>  R0001:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00193>      CALIB NASHYD            1.0 01:9F              .38     .001 No_date    1:52    1.28 .051     .000
00194>        [CN= 52.2: N= 3.00: Tp=  .32]
00195>  R0001:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00196>      CALIB NASHYD            1.0 02:EXT-9D          .78     .004 No_date    2:10    3.65 .146     .000
00197>        [CN= 78.8: N= 3.00: Tp=  .52]
00198>  R0001:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00199>      CALIB NASHYD            1.0 03:9E             1.24     .007 No_date    1:43    2.27 .091     .000
00200>        [CN= 66.3: N= 3.00: Tp=  .23]
00201>  R0001:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00202>      ADD HYD                 1.0 01:9F              .38     .001 No_date    1:52    1.28  n/a     .000
00203>                        +     1.0 02:EXT-9D          .78     .004 No_date    2:10    3.65  n/a     .000
00204>                        +     1.0 03:9E             1.24     .007 No_date    1:43    2.27  n/a     .000
00205>                        +     1.0 10:9D             1.32     .091 No_date    1:20   12.24  n/a     .000
00206>                      SUM=    1.0 05:NODE           3.72     .092 No_date    1:20    6.00  n/a     .000
00207>  R0001:C00027------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00208>      ADD HYD                 1.0 01:9F              .38     .001 No_date    1:52    1.28  n/a     .000
00209>                        +     1.0 02:EXT-9D          .78     .004 No_date    2:10    3.65  n/a     .000
00210>                        +     1.0 03:9E             1.24     .007 No_date    1:43    2.27  n/a     .000
00211>                        +     1.0 04:CULV3        133.88     .552 No_date    2:56    5.26  n/a     .000
00212>                        +     1.0 10:9D             1.32     .091 No_date    1:20   12.24  n/a     .000
00213>                      SUM=    1.0 05:WC9LOWER     137.60     .563 No_date    2:55    5.28  n/a     .000
00214>  #----------------|-----------------------------------------------------------|
00215>  #----------------|-LANDS DRAINING TO SWM FACILITY 2-----------------------------|
00216>  #----------------|-----------------------------------------------------------|
00217>  R0001:C00028------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00218>      CALIB NASHYD            1.0 01:2A             1.19     .001 No_date    1:38     .45 .018     .000
00219>        [CN= 33.2: N= 3.00: Tp=  .14]
00220>  R0001:C00029------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00221>      CALIB NASHYD            1.0 02:2B             1.67     .002 No_date    1:56     .51 .020     .000
00222>        [CN= 34.7: N= 3.00: Tp=  .32]
00223>  R0001:C00030------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00224>      ADD HYD                 1.0 01:2A             1.19     .001 No_date    1:38     .45  n/a     .000
00225>                        +     1.0 02:2B             1.67     .002 No_date    1:56     .51  n/a     .000
00226>                      SUM=    1.0 10:2A2B           2.86     .003 No_date    1:47     .49  n/a     .000
00227>  R0001:C00031------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00228>      CALIB STANDHYD          1.0 03:2C             1.96     .102 No_date    1:21    8.88 .355     .000
00229>        [XIMP=.30:TIMP=.60]
00230>        [LOSS= 2 :CN= 49.0]
00231>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00232>        [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
00233>  R0001:C00032------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00234>      CALIB STANDHYD          1.0 07:2D             3.28     .134 No_date    1:22    8.30 .332     .000
00235>        [XIMP=.25:TIMP=.50]
00236>        [LOSS= 2 :CN= 59.0]
00237>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00238>        [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
00239>  R0001:C00033------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00240>      CALIB STANDHYD          1.0 04:2E             1.49     .096 No_date    1:21   10.58 .423     .000
00241>        [XIMP=.37:TIMP=.42]
00242>        [LOSS= 2 :CN= 69.0]
00243>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00244>        [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
00245>  R0001:C00034------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00246>      ADD HYD                 1.0 10:2A2B           2.86     .003 No_date    1:47     .49  n/a     .000
00247>                        +     1.0 03:2C             1.96     .102 No_date    1:21    8.88  n/a     .000
00248>                        +     1.0 04:2E             1.49     .096 No_date    1:21   10.58  n/a     .000
00249>                        +     1.0 07:2D             3.28     .134 No_date    1:22    8.30  n/a     .000
00250>                      SUM=    1.0 06:SWMF2          9.59     .331 No_date    1:21    6.44  n/a     .000
00251>  #----------------|-----------------------------------------------------------|
00252>  #----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-----------|
00253>  #----------------|-----------------------------------------------------------|
00254>  R0001:C00035------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00255>      ROUTE RESERVOIR ->      1.0 06:SWMF2          9.59     .331 No_date    1:21    6.44  n/a     .000
00256>                    out <=    1.0 09:SWMF-2         9.59     .014 No_date    3:52    6.44  n/a     .000
00257>       {MxStoUsed=.4864E-01  m3}
00258>  #----------------|-----------------------------------------------------------|
00259>  #----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-------------------|
00260>  #----------------|-----------------------------------------------------------|
00261>  R0001:C00036------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00262>      ADD HYD                 1.0 09:SWMF-2         9.59     .014 No_date    3:52    6.44  n/a     .000
00263>                        +     1.0 05:WC9LOWER     137.60     .563 No_date    2:55    5.28  n/a     .000
00264>                      SUM=    1.0 01:WC9c         147.19     .576 No_date    2:55    5.35  n/a     .000
00265>  R0001:C00037------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00266>      SAVE HYD                1.0 01:WC9c         147.19     .576 No_date    2:55    5.35  n/a     .000
00267>        fname :WC9c.0001
00268>        remark:POST-DEV LAKESHORE
00269>  #----------------|-----------------------------------------------------------|
00270>  #----------------|--WATERCOURSE 8 CATCHMENTS-----------------------------------|
00271>  #----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8----------------------|
00272>  #----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8------------------|
00273>  #----------------|-----------------------------------------------------------|
00274>  R0001:C00038------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00275>      CALIB NASHYD            1.0 01:8A             2.27     .003 No_date    1:46     .58 .023     .000
00276>        [CN= 36.2: N= 3.00: Tp=  .23]
00277>  R0001:C00039------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00278>      CALIB NASHYD            1.0 02:EXT-8A         7.14     .028 No_date    2:03    2.41 .097     .000
00279>        [CN= 68.9: N= 3.00: Tp=  .44]
00280>  #----------------|-----------------------------------------------------------|
00281>  #----------------|--WATERCOURSE 8 TOTAL----------------------------------------|
00282>  #----------------|-----------------------------------------------------------|
00283>  R0001:C00040------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00284>      ADD HYD                 1.0 01:8A             2.27     .003 No_date    1:46     .58  n/a     .000
00285>                        +     1.0 02:EXT-8A         7.14     .028 No_date    2:03    2.41  n/a     .000
00286>                      SUM=    1.0 03:WC8            9.41     .030 No_date    2:01    1.97  n/a     .000
00287>  #*******************************************************************************
00288>  #*************************Chicago 2yr 4-hr storm**********************************
00289>  #*******************************************************************************
00290>  R0001:C00041------------------------------------------------------------------------------------------
00291>       CHICAGO STORM
00292>        [SDT= 5.00:SDUR=   4.00:PTOT=  31.55]
00293>        {A/B/C= 425.976/   1.500/    .727: R=.9997}
00294>  #----------------|-----------------------------------------------------------|
00295>  #----------------|-POST-DEVELOPMENT---------------------------------------------|
00296>  #----------------|-----------------------------------------------------------|
00297>  #----------------|-----------------------------------------------------------|
00298>  #----------------|-Subwatershed 9 External Drainage Area-----------------------|
00299>  #----------------|-Per 'The Orchards' FSSWM Report-----------------------------|
00300>  #----------------|-Prepared by Higgins Engineering (Jan. 2005)------------------|
00301>  #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00302>  #----------------|-----------------------------------------------------------|
00303>  R0001:C00042------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00304>      CALIB NASHYD            1.0 01:EXT-9A       101.80     .779 No_date    2:48    7.83 .248     .000
00305>        [CN= 80.0: N= 3.00: Tp= 1.00]
00306>  R0001:C00043------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00307>      ROUTE CHANNEL   ->      1.0 01:EXT-9A       101.80     .779 No_date    2:48    7.83  n/a     .000
00308>       [RDT= 1.00] out<-      1.0 02:Channel      101.80     .773 No_date    2:55    7.83  n/a     .000
00309>        [L/S/n=  550./2.000/.035]
00310>        {Vmax= 1.006:Dmax=  .147}
00311>  R0001:C00044------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00312>      CALIB STANDHYD          1.0 03:EXT-9B        14.80    1.089 No_date    1:23   14.58 .462     .000
00313>        [XIMP=.35:TIMP=.35]
00314>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00315>        [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00316>        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00317>  R0001:C00045------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00318>      ROUTE RESERVOIR ->      1.0 03:EXT-9B        14.80    1.089 No_date    1:23   14.58  n/a     .000
00319>                    out <=    1.0 04:Orchards      14.80     .055 No_date    2:51   14.58  n/a     .000
00320>       {MxStoUsed=.1723E+00  m3}
00321>  #----------------|-----------------------------------------------------------|
00322>  #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00323>  #----------------|-----------------------------------------------------------|
00324>  R0001:C00046------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00325>      ADD HYD                 1.0 02:Channel      101.80     .773 No_date    2:55    7.83  n/a     .000
00326>                        +     1.0 04:Orchards      14.80     .055 No_date    2:51   14.58  n/a     .000
00327>                      SUM=    1.0 05:RD19         116.60     .829 No_date    2:55    8.69  n/a     .000
00328>  #----------------|-----------------------------------------------------------|
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#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
R0001:C00047------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9C            .65     .015 No_date    1:38    9.17 .291      .000
      [CN= 82.7: N= 3.00: Tp=  .24]
R0001:C00048------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:9A                .58     .019 No_date    1:23    6.74 .214      .000
      [CN= 79.0: N= 3.00: Tp=  .06]
#-----------------|----------------------CULVERT #1-------------------------|
R0001:C00049------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-9C            .65     .015 No_date    1:38    9.17  n/a      .000
                     +    1.0 02:9A                .58     .019 No_date    1:23    6.74  n/a      .000
                     +    1.0 05:RD19           116.60     .829 No_date    2:55    8.69  n/a      .000
                  SUM=    1.0 03:CULV1          117.83     .835 No_date    2:54    8.68  n/a      .000
R0001:C00050------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9B               2.10     .007 No_date    1:47    2.00 .063      .000
      [CN= 51.5: N= 3.00: Tp=  .28]
#-----------------|----------------------CULVERT #2-------------------------|
R0001:C00051------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9B               2.10     .007 No_date    1:47    2.00  n/a      .000
                     +    1.0 03:CULV1          117.83     .835 No_date    2:54    8.68  n/a      .000
                  SUM=    1.0 04:WC9a           119.93     .838 No_date    2:54    8.56  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-AREAS TO SWM FACILITY 1-----------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00052------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-1A           8.37     .058 No_date    2:05    4.95 .157      .000
      [CN= 74.9: N= 3.00: Tp=  .47]
R0001:C00053------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:1A               2.95     .289 No_date    1:20   13.91 .441      .000
      [XIMP=.31:TIMP=.51]
      [LOSS= 2 :CN= 67.0]
      [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0001:C00054------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-1A           8.37     .058 No_date    2:05    4.95  n/a      .000
                     +    1.0 03:1A               2.95     .289 No_date    1:20   13.91  n/a      .000
                  SUM=    1.0 06:NODE            11.32     .290 No_date    1:20    7.29  n/a      .000
R0001:C00055------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 05:1B               1.81     .008 No_date    1:29    1.54 .049      .000
      [CN= 44.3: N= 3.00: Tp=  .11]
R0001:C00056------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-1A           8.37     .058 No_date    2:05    4.95  n/a      .000
                     +    1.0 03:1A               2.95     .289 No_date    1:20   13.91  n/a      .000
                     +    1.0 05:1B               1.81     .008 No_date    1:29    1.54  n/a      .000
                  SUM=    1.0 06:SWMF1           13.13     .292 No_date    1:20    6.49  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
#-----------------|-----------------------------------------------------------|
R0001:C00057------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 06:SWMF1           13.13     .292 No_date    1:20    6.49  n/a      .000
                 out <=   1.0 01:SWMF-1          13.13     .015 No_date    4:28    6.49  n/a      .000
     {MxStoUsed=.6962E-01  m3}
R0001:C00058------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:SWMF-1          13.13     .015 No_date    4:28    6.49  n/a      .000
                     +    1.0 04:WC9a           119.93     .838 No_date    2:54    8.56  n/a      .000
                  SUM=    1.0 07:WC9b           133.06     .851 No_date    2:55    8.36  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|-----------------------------------------------------------|
R0001:C00059------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 10:9D               1.32     .137 No_date    1:20   16.78 .532      .000
      [XIMP=.35:TIMP=.71]
      [LOSS= 2 :CN= 66.1]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00060------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9C                .82     .002 No_date    1:44    1.37 .043      .000
      [CN= 40.9: N= 3.00: Tp=  .25]
#-----------------|----------------------CULVERT #3-------------------------|
R0001:C00061------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 07:WC9b           133.06     .851 No_date    2:55    8.36  n/a      .000
                     +    1.0 01:9C                .82     .002 No_date    1:44    1.37  n/a      .000
                  SUM=    1.0 04:CULV3          133.88     .852 No_date    2:55    8.32  n/a      .000
R0001:C00062------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9F                .38     .002 No_date    1:49    2.34 .074      .000
      [CN= 52.2: N= 3.00: Tp=  .32]
R0001:C00063------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:EXT-9D            .78     .007 No_date    2:07    6.37 .202      .000
      [CN= 78.8: N= 3.00: Tp=  .52]
R0001:C00064------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 03:9E               1.24     .011 No_date    1:40    4.01 .127      .000
      [CN= 66.3: N= 3.00: Tp=  .23]
R0001:C00065------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F                .38     .002 No_date    1:49    2.34  n/a      .000
                     +    1.0 02:EXT-9D            .78     .007 No_date    2:07    6.37  n/a      .000
                     +    1.0 03:9E               1.24     .011 No_date    1:40    4.01  n/a      .000
                     +    1.0 10:9D               1.32     .137 No_date    1:20   16.78  n/a      .000
                  SUM=    1.0 05:NODE             3.72     .138 No_date    1:20    8.86  n/a      .000
R0001:C00066------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F                .38     .002 No_date    1:49    2.34  n/a      .000
                     +    1.0 02:EXT-9D            .78     .007 No_date    2:07    6.37  n/a      .000
                     +    1.0 03:9E               1.24     .011 No_date    1:40    4.01  n/a      .000
                     +    1.0 04:CULV3          133.88     .852 No_date    2:55    8.32  n/a      .000
                     +    1.0 10:9D               1.32     .137 No_date    1:20   16.78  n/a      .000
                  SUM=    1.0 05:WC9LOWER       137.60     .869 No_date    2:54    8.33  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00067------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:2A               1.19     .002 No_date    1:33     .90 .029      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0001:C00068------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:2B               1.67     .003 No_date    1:52    1.01 .032      .000
      [CN= 34.7: N= 3.00: Tp=  .32]
R0001:C00069------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:2A               1.19     .002 No_date    1:33     .90  n/a      .000
                     +    1.0 02:2B               1.67     .003 No_date    1:52    1.01  n/a      .000
                  SUM=    1.0 10:2A2B             2.86     .005 No_date    1:42     .96  n/a      .000
R0001:C00070------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:2C               1.96     .147 No_date    1:21   12.07 .383      .000
      [XIMP=.30:TIMP=.60]
      [LOSS= 2 :CN= 49.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
R0001:C00071------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 07:2D               3.28     .200 No_date    1:21   11.51 .365      .000
      [XIMP=.25:TIMP=.50]
      [LOSS= 2 :CN= 59.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
R0001:C00072------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 04:2E               1.49     .145 No_date    1:20   14.39 .456      .000
      [XIMP=.37:TIMP=.42]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
R0001:C00073------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 10:2A2B             2.86     .005 No_date    1:42     .96  n/a      .000
                     +    1.0 03:2C               1.96     .147 No_date    1:21   12.07  n/a      .000
                     +    1.0 04:2E               1.49     .145 No_date    1:20   14.39  n/a      .000
                     +    1.0 07:2D               3.28     .200 No_date    1:21   11.51  n/a      .000
                  SUM=    1.0 06:SWMF2            9.59     .486 No_date    1:20    8.93  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
#-----------------|-----------------------------------------------------------|
R0001:C00074------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 06:SWMF2            9.59     .486 No_date    1:20    8.93  n/a      .000
                 out <=   1.0 09:SWMF-2           9.59     .017 No_date    4:03    8.93  n/a      .000
     {MxStoUsed=.6855E-01  m3}
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD----------------|
#-----------------|-----------------------------------------------------------|
R0001:C00075------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 09:SWMF-2           9.59     .017 No_date    4:03    8.93  n/a      .000
                     +    1.0 05:WC9LOWER       137.60     .869 No_date    2:54    8.33  n/a      .000
                  SUM=    1.0 01:WC9c           147.19     .886 No_date    2:54    8.37  n/a      .000
R0001:C00076------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD              1.0 01:WC9c           147.19     .886 No_date    2:54    8.37  n/a      .000
      fname :WC9c.0001
      remark:POST-DEV LAKESHORE
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8---------------|
#-----------------|-----------------------------------------------------------|
R0001:C00077------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:8A               2.27     .005 No_date    1:42    1.12 .035      .000
      [CN= 36.2: N= 3.00: Tp=  .23]
R0001:C00078------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:EXT-8A           7.14     .046 No_date    2:00    4.30 .136      .000
      [CN= 68.9: N= 3.00: Tp=  .44]
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 8 TOTAL-------------------------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00079------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:8A               2.27     .005 No_date    1:42    1.12  n/a      .000
                     +    1.0 02:EXT-8A           7.14     .046 No_date    2:00    4.30  n/a      .000
                  SUM=    1.0 03:WC8              9.41     .050 No_date    1:59    3.53  n/a      .000
#*****************************************************************************
#***************************Chicago 5yr 4-hr storm***************************
#*****************************************************************************
R0001:C00080--------------------------------------------------------------------------------------
     CHICAGO STORM
      [SDT= 5.00:SDUR=   4.00:PTOT=  42.28]
      {A/B/C= 564.587/   1.500/    .725: R=.9997}
#-----------------|-----------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT-----------------------------------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|-----------------------------------------------------------|
R0001:C00081------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9A         101.80    1.403 No_date    2:44   13.79 .326      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00082------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->    1.0 01:EXT-9A         101.80    1.403 No_date    2:44   13.79  n/a      .000
     [RDT= 1.00] out<-    1.0 02:Channel        101.80    1.398 No_date    2:49   13.79  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.343:Dmax=  .214}
R0001:C00083------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:EXT-9B          14.80    1.648 No_date    1:22   21.16 .500      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00084------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 03:EXT-9B          14.80    1.648 No_date    1:22   21.16  n/a      .000
                 out <=   1.0 04:Orchards        14.80     .133 No_date    2:16   21.16  n/a      .000
     {MxStoUsed=.2403E+00  m3}
#-----------------|-----------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|-----------------------------------------------------------|
R0001:C00085------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 02:Channel        101.80    1.398 No_date    2:49   13.79  n/a      .000
                     +    1.0 04:Orchards        14.80     .133 No_date    2:16   21.16  n/a      .000
                  SUM=    1.0 05:RD19           116.60    1.517 No_date    2:46   14.73  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
R0001:C00086------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9C            .65     .027 No_date    1:37   15.75 .373      .000
      [CN= 82.7: N= 3.00: Tp=  .24]
R0001:C00087------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:9A                .58     .039 No_date    1:22   12.34 .292      .000
      [CN= 79.0: N= 3.00: Tp=  .06]
#-----------------|----------------------CULVERT #1-------------------------|
R0001:C00088------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-9C            .65     .027 No_date    1:37   15.75  n/a      .000
                     +    1.0 02:9A                .58     .039 No_date    1:22   12.34  n/a      .000
                     +    1.0 05:RD19           116.60    1.517 No_date    2:46   14.73  n/a      .000
                  SUM=    1.0 03:CULV1          117.83    1.527 No_date    2:46   14.72  n/a      .000
R0001:C00089------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9B               2.10     .017 No_date    1:44    4.14 .098      .000
      [CN= 51.5: N= 3.00: Tp=  .28]
#-----------------|----------------------CULVERT #2-------------------------|
R0001:C00090------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9B               2.10     .017 No_date    1:44    4.14  n/a      .000
                     +    1.0 03:CULV1          117.83    1.527 No_date    2:46   14.72  n/a      .000
                  SUM=    1.0 04:WC9a           119.93    1.534 No_date    2:46   14.53  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-AREAS TO SWM FACILITY 1-----------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00091------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-1A           8.37     .122 No_date    2:01    9.65 .228      .000
      [CN= 74.9: N= 3.00: Tp=  .47]
R0001:C00092------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:1A               2.95     .403 No_date    1:20   20.75 .491      .000
      [XIMP=.31:TIMP=.51]
      [LOSS= 2 :CN= 67.0]
      [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0001:C00093------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-1A           8.37     .122 No_date    2:01    9.65  n/a      .000
                     +    1.0 03:1A               2.95     .403 No_date    1:20   20.75  n/a      .000
                  SUM=    1.0 06:NODE            11.32     .406 No_date    1:20   12.54  n/a      .000
R0001:C00094------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 05:1B               1.81     .019 No_date    1:28    3.22 .076      .000
      [CN= 44.3: N= 3.00: Tp=  .11]
R0001:C00095------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:EXT-1A           8.37     .122 No_date    2:01    9.65  n/a      .000
                     +    1.0 03:1A               2.95     .403 No_date    1:20   20.75  n/a      .000
                     +    1.0 05:1B               1.81     .019 No_date    1:28    3.22  n/a      .000
                  SUM=    1.0 06:SWMF1           13.13     .411 No_date    1:20   11.26  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
#-----------------|-----------------------------------------------------------|
R0001:C00096------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 06:SWMF1           13.13     .411 No_date    1:20   11.26  n/a      .000
                 out <=   1.0 01:SWMF-1          13.13     .023 No_date    4:32   11.26  n/a      .000
     {MxStoUsed=.1237E+00  m3}
R0001:C00097------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:SWMF-1          13.13     .023 No_date    4:32   11.26  n/a      .000
                     +    1.0 04:WC9a           119.93    1.534 No_date    2:46   14.53  n/a      .000
                  SUM=    1.0 07:WC9b           133.06    1.554 No_date    2:46   14.21  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|-----------------------------------------------------------|
R0001:C00098------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 10:9D               1.32     .198 No_date    1:20   24.78 .586      .000
      [XIMP=.35:TIMP=.71]
      [LOSS= 2 :CN= 66.1]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00099------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9C                .82     .005 No_date    1:42    2.85 .067      .000
      [CN= 40.9: N= 3.00: Tp=  .25]
#-----------------|----------------------CULVERT #3-------------------------|
R0001:C00100------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 07:WC9b           133.06    1.554 No_date    2:46   14.21  n/a      .000
                     +    1.0 01:9C                .82     .005 No_date    1:42    2.85  n/a      .000
                  SUM=    1.0 04:CULV3          133.88    1.555 No_date    2:46   14.14  n/a      .000
R0001:C00101------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9F                .38     .003 No_date    1:47    4.63 .110      .000
      [CN= 52.2: N= 3.00: Tp=  .32]
R0001:C00102------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:EXT-9D            .78     .014 No_date    2:04   11.87 .281      .000
      [CN= 78.8: N= 3.00: Tp=  .52]
R0001:C00103------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 03:9E               1.24     .023 No_date    1:38    7.68 .182      .000
      [CN= 66.3: N= 3.00: Tp=  .23]
R0001:C00104------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F                .38     .003 No_date    1:47    4.63  n/a      .000
                     +    1.0 02:EXT-9D            .78     .014 No_date    2:04   11.87  n/a      .000
                     +    1.0 03:9E               1.24     .023 No_date    1:38    7.68  n/a      .000
                     +    1.0 10:9D               1.32     .198 No_date    1:20   24.78  n/a      .000
                  SUM=    1.0 05:NODE             3.72     .201 No_date    1:20   14.32  n/a      .000
R0001:C00105------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9F                .38     .003 No_date    1:47    4.63  n/a      .000
                     +    1.0 02:EXT-9D            .78     .014 No_date    2:04   11.87  n/a      .000
                     +    1.0 03:9E               1.24     .023 No_date    1:38    7.68  n/a      .000
                     +    1.0 04:CULV3          133.88    1.555 No_date    2:46   14.14  n/a      .000
                     +    1.0 10:9D               1.32     .198 No_date    1:20   24.78  n/a      .000
                  SUM=    1.0 05:WC9LOWER       137.60    1.586 No_date    2:46   14.15  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00106------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:2A               1.19     .006 No_date    1:32    1.96 .046      .000
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00657>       [CN= 33.2: N= 3.00: Tp=  .14]
00658> R0001:C00107------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00659>     CALIB NASHYD          1.0 02:2B             1.67     .006 No_date    1:49    2.15 .051      .000
00660>       [CN= 34.7: N= 3.00: Tp=  .32]
00661> R0001:C00108------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00662>     ADD HYD               1.0 01:2A             1.19     .006 No_date    1:32    1.96  n/a      .000
00663>                     +     1.0 02:2B             1.67     .006 No_date    1:49    2.15  n/a      .000
00664>                  SUM=     1.0 10:2A2B           2.86     .011 No_date    1:38    2.08  n/a      .000
00665> R0001:C00109------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00666>     CALIB STANDHYD        1.0 03:2C             1.96     .214 No_date    1:20   17.80 .421      .000
00667>       [XIMP=.30:TIMP=.60]
00668>       [LOSS= 2 :CN= 49.0]
00669>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00670>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
00671> R0001:C00110------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00672>     CALIB STANDHYD        1.0 07:2D             3.28     .286 No_date    1:21   17.36 .411      .000
00673>       [XIMP=.25:TIMP=.50]
00674>       [LOSS= 2 :CN= 59.0]
00675>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00676>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
00677> R0001:C00111------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00678>     CALIB STANDHYD        1.0 04:2E             1.49     .202 No_date    1:20   21.17 .501      .000
00679>       [XIMP=.37:TIMP=.42]
00680>       [LOSS= 2 :CN= 69.0]
00681>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00682>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
00683> R0001:C00112------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00684>     ADD HYD               1.0 10:2A2B           2.86     .011 No_date    1:38    2.08  n/a      .000
00685>                     +     1.0 03:2C             1.96     .214 No_date    1:20   17.80  n/a      .000
00686>                     +     1.0 04:2E             1.49     .202 No_date    1:20   21.17  n/a      .000
00687>                     +     1.0 07:2D             3.28     .286 No_date    1:21   17.36  n/a      .000
00688>                  SUM=     1.0 06:SWMF2          9.59     .697 No_date    1:20   13.48  n/a      .000
00689> #-----------------|-----------------------------------------------------------|
00690> #-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
00691> #-----------------|-----------------------------------------------------------|
00692> R0001:C00113------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00693>     ROUTE RESERVOIR ->    1.0 06:SWMF2          9.59     .697 No_date    1:20   13.48  n/a      .000
00694>                 out <=    1.0 09:SWMF-2         9.59     .022 No_date    4:05   13.48  n/a      .000
00695>      {MxStoUsed=.1077E+00  m3}
00696> #-----------------|-----------------------------------------------------------|
00697> #-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
00698> #-----------------|-----------------------------------------------------------|
00699> R0001:C00114------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00700>     ADD HYD               1.0 09:SWMF-2         9.59     .022 No_date    4:05   13.48  n/a      .000
00701>                     +     1.0 05:WC9LOWER     137.60    1.586 No_date    2:46   14.15  n/a      .000
00702>                  SUM=     1.0 01:WC9c         147.19    1.607 No_date    2:46   14.10  n/a      .000
00703> R0001:C00115------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00704>     SAVE HYD              1.0 01:WC9c         147.19    1.607 No_date    2:46   14.10  n/a      .000
00705>       fname :WC9c.0001
00706>       remark:POST-DEV LAKESHORE
00707> #-----------------|-----------------------------------------------------------|
00708> #-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
00709> #-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
00710> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
00711> #-----------------|-----------------------------------------------------------|
00712> R0001:C00116------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00713>     CALIB NASHYD          1.0 01:8A             2.27     .011 No_date    1:40    2.36 .056      .000
00714>       [CN= 36.2: N= 3.00: Tp=  .23]
00715> R0001:C00117------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00716>     CALIB NASHYD          1.0 02:EXT-8A         7.14     .094 No_date    1:58    8.26 .195      .000
00717>       [CN= 68.9: N= 3.00: Tp=  .44]
00718> #-----------------|-----------------------------------------------------------|
00719> #-----------------|--WATERCOURSE 8 TOTAL-------------------------------------|
00720> #-----------------|-----------------------------------------------------------|
00721> R0001:C00118------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00722>     ADD HYD               1.0 01:8A             2.27     .011 No_date    1:40    2.36  n/a      .000
00723>                     +     1.0 02:EXT-8A         7.14     .094 No_date    1:58    8.26  n/a      .000
00724>                  SUM=     1.0 03:WC8            9.41     .102 No_date    1:56    6.83  n/a      .000
00725> #*****************************************************************************
00726> #***************************Chicago 10yr 4-hr storm***************************
00727> #*****************************************************************************
00728> R0001:C00119-----------------------------------------------------------------------------------------
00729>      CHICAGO STORM
00730>       [SDT= 5.00:SDUR=   4.00:PTOT=  49.47]
00731>       {A/B/C= 656.948/   1.500/    .724: R=.9997}
00732> #-----------------|-----------------------------------------------------------|
00733> #-----------------|-POST-DEVELOPMENT------------------------------------------|
00734> #-----------------|-----------------------------------------------------------|
00735> #-----------------|-----------------------------------------------------------|
00736> #-----------------|-Subwatershed 9 External Drainage Area--------------------|
00737> #-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
00738> #-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
00739> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00740> #-----------------|-----------------------------------------------------------|
00741> R0001:C00120------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00742>     CALIB NASHYD          1.0 01:EXT-9A       101.80    1.883 No_date    2:42   18.32 .370      .000
00743>       [CN= 80.0: N= 3.00: Tp= 1.00]
00744> R0001:C00121------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00745>     ROUTE CHANNEL   ->    1.0 01:EXT-9A       101.80    1.883 No_date    2:42   18.32  n/a      .000
00746>      [RDT= 1.00] out<-    1.0 02:Channel      101.80    1.875 No_date    2:47   18.32  n/a      .000
00747>       [L/S/n=  550./2.000/.035]
00748>       {Vmax= 1.446:Dmax=  .248}
00749> R0001:C00122------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00750>     CALIB STANDHYD        1.0 03:EXT-9B        14.80    2.042 No_date    1:22   25.78 .521      .000
00751>       [XIMP=.35:TIMP=.35]
00752>       [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00753>       [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00754>       [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00755> R0001:C00123------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00756>     ROUTE RESERVOIR ->    1.0 03:EXT-9B        14.80    2.042 No_date    1:22   25.78  n/a      .000
00757>                 out <=    1.0 04:Orchards      14.80     .221 No_date    2:04   25.78  n/a      .000
00758>      {MxStoUsed=.2816E+00  m3}
00759> #-----------------|-----------------------------------------------------------|
00760> #-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00761> #-----------------|-----------------------------------------------------------|
00762> R0001:C00124------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00763>     ADD HYD               1.0 02:Channel      101.80    1.875 No_date    2:47   18.32  n/a      .000
00764>                     +     1.0 04:Orchards      14.80     .221 No_date    2:04   25.78  n/a      .000
00765>                  SUM=     1.0 05:RD19         116.60    2.056 No_date    2:44   19.26  n/a      .000
00766> #-----------------|-----------------------------------------------------------|
00767> #-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00768> #-----------------|-----------------------------------------------------------|
00769> R0001:C00125------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00770>     CALIB NASHYD          1.0 01:EXT-9C          .65     .036 No_date    1:37   20.67 .418      .000
00771>       [CN= 82.7: N= 3.00: Tp=  .24]
00772> R0001:C00126------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00773>     CALIB NASHYD          1.0 02:9A              .58     .055 No_date    1:22   16.65 .337      .000
00774>       [CN= 79.0: N= 3.00: Tp=  .06]
00775> #-----------------|----------------------CULVERT #1-------------------------|
00776> R0001:C00127------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00777>     ADD HYD               1.0 01:EXT-9C          .65     .036 No_date    1:37   20.67  n/a      .000
00778>                     +     1.0 02:9A              .58     .055 No_date    1:22   16.65  n/a      .000
00779>                     +     1.0 05:RD19         116.60    2.056 No_date    2:44   19.26  n/a      .000
00780>                  SUM=     1.0 03:CULV1        117.83    2.069 No_date    2:44   19.26  n/a      .000
00781> R0001:C00128------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00782>     CALIB NASHYD          1.0 01:9B             2.10     .025 No_date    1:43    5.94 .120      .000
00783>       [CN= 51.5: N= 3.00: Tp=  .28]
00784> #-----------------|----------------------CULVERT #2-------------------------|
00785> R0001:C00129------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00786>     ADD HYD               1.0 01:9B             2.10     .025 No_date    1:43    5.94  n/a      .000
00787>                     +     1.0 03:CULV1        117.83    2.069 No_date    2:44   19.26  n/a      .000
00788>                  SUM=     1.0 04:WC9a         119.93    2.079 No_date    2:44   19.02  n/a      .000
00789> #-----------------|-----------------------------------------------------------|
00790> #-----------------|-AREAS TO SWM FACILITY 1-----------------------------------|
00791> #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
00792> #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1----------------------|
00793> #-----------------|-----------------------------------------------------------|
00794> R0001:C00130------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00795>     CALIB NASHYD          1.0 01:EXT-1A         8.37     .175 No_date    2:00   13.37 .270      .000
00796>       [CN= 74.9: N= 3.00: Tp=  .47]
00797> R0001:C00131------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00798>     CALIB STANDHYD        1.0 03:1A             2.95     .486 No_date    1:20   25.68 .519      .000
00799>       [XIMP=.31:TIMP=.51]
00800>       [LOSS= 2 :CN= 67.0]
00801>       [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
00802>       [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
00803> R0001:C00132------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00804>     ADD HYD               1.0 01:EXT-1A         8.37     .175 No_date    2:00   13.37  n/a      .000
00805>                     +     1.0 03:1A             2.95     .486 No_date    1:20   25.68  n/a      .000
00806>                  SUM=     1.0 06:NODE          11.32     .491 No_date    1:20   16.57  n/a      .000
00807> R0001:C00133------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00808>     CALIB NASHYD          1.0 05:1B             1.81     .028 No_date    1:28    4.64 .094      .000
00809>       [CN= 44.3: N= 3.00: Tp=  .11]
00810> R0001:C00134------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00811>     ADD HYD               1.0 01:EXT-1A         8.37     .175 No_date    2:00   13.37  n/a      .000
00812>                     +     1.0 03:1A             2.95     .486 No_date    1:20   25.68  n/a      .000
00813>                     +     1.0 05:1B             1.81     .028 No_date    1:28    4.64  n/a      .000
00814>                  SUM=     1.0 06:SWMF1         13.13     .501 No_date    1:20   14.93  n/a      .000
00815> #-----------------|-----------------------------------------------------------|
00816> #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
00817> #-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
00818> #-----------------|-----------------------------------------------------------|
00819> R0001:C00135------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00820>     ROUTE RESERVOIR ->    1.0 06:SWMF1         13.13     .501 No_date    1:20   14.93  n/a      .000
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00821>                 out <=    1.0 01:SWMF-1        13.13     .027 No_date    4:35   14.93  n/a      .000
00822>      {MxStoUsed=.1668E+00  m3}
00823> R0001:C00136------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00824>     ADD HYD               1.0 01:SWMF-1        13.13     .027 No_date    4:35   14.93  n/a      .000
00825>                     +     1.0 04:WC9a         119.93    2.079 No_date    2:44   19.02  n/a      .000
00826>                  SUM=     1.0 07:WC9b         133.06    2.102 No_date    2:44   18.62  n/a      .000
00827> #-----------------|-----------------------------------------------------------|
00828> #-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00829> #-----------------|-----------------------------------------------------------|
00830> #-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
00831> #-----------------|-----------------------------------------------------------|
00832> R0001:C00137------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00833>     CALIB STANDHYD        1.0 10:9D             1.32     .244 No_date    1:20   30.46 .616      .000
00834>       [XIMP=.35:TIMP=.71]
00835>       [LOSS= 2 :CN= 66.1]
00836>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00837>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
00838> #-----------------|-----------------------------------------------------------|
00839> #-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
00840> #-----------------|-----------------------------------------------------------|
00841> R0001:C00138------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00842>     CALIB NASHYD          1.0 01:9C              .82     .007 No_date    1:41    4.12 .083      .000
00843>       [CN= 40.9: N= 3.00: Tp=  .25]
00844> #-----------------|----------------------CULVERT #3-------------------------|
00845> R0001:C00139------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00846>     ADD HYD               1.0 07:WC9b         133.06    2.102 No_date    2:44   18.62  n/a      .000
00847>                     +     1.0 01:9C              .82     .007 No_date    1:41    4.12  n/a      .000
00848>                  SUM=     1.0 04:CULV3        133.88    2.105 No_date    2:44   18.53  n/a      .000
00849> R0001:C00140------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00850>     CALIB NASHYD          1.0 01:9F              .38     .005 No_date    1:46    6.54 .132      .000
00851>       [CN= 52.2: N= 3.00: Tp=  .32]
00852> R0001:C00141------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00853>     CALIB NASHYD          1.0 02:EXT-9D          .78     .019 No_date    2:03   16.12 .326      .000
00854>       [CN= 78.8: N= 3.00: Tp=  .52]
00855> R0001:C00142------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00856>     CALIB NASHYD          1.0 03:9E             1.24     .032 No_date    1:38   10.64 .215      .000
00857>       [CN= 66.3: N= 3.00: Tp=  .23]
00858> R0001:C00143------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00859>     ADD HYD               1.0 01:9F              .38     .005 No_date    1:46    6.54  n/a      .000
00860>                     +     1.0 02:EXT-9D          .78     .019 No_date    2:03   16.12  n/a      .000
00861>                     +     1.0 03:9E             1.24     .032 No_date    1:38   10.64  n/a      .000
00862>                     +     1.0 10:9D             1.32     .244 No_date    1:20   30.46  n/a      .000
00863>                  SUM=     1.0 05:NODE           3.72     .250 No_date    1:20   18.40  n/a      .000
00864> R0001:C00144------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00865>     ADD HYD               1.0 01:9F              .38     .005 No_date    1:46    6.54  n/a      .000
00866>                     +     1.0 02:EXT-9D          .78     .019 No_date    2:03   16.12  n/a      .000
00867>                     +     1.0 03:9E             1.24     .032 No_date    1:38   10.64  n/a      .000
00868>                     +     1.0 04:CULV3        133.88    2.105 No_date    2:44   18.53  n/a      .000
00869>                     +     1.0 10:9D             1.32     .244 No_date    1:20   30.46  n/a      .000
00870>                  SUM=     1.0 05:WC9LOWER     137.60    2.145 No_date    2:44   18.53  n/a      .000
00871> #-----------------|-----------------------------------------------------------|
00872> #-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
00873> #-----------------|-----------------------------------------------------------|
00874> R0001:C00145------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00875>     CALIB NASHYD          1.0 01:2A             1.19     .010 No_date    1:31    2.89 .058      .000
00876>       [CN= 33.2: N= 3.00: Tp=  .14]
00877> R0001:C00146------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00878>     CALIB NASHYD          1.0 02:2B             1.67     .009 No_date    1:48    3.14 .064      .000
00879>       [CN= 34.7: N= 3.00: Tp=  .32]
00880> R0001:C00147------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00881>     ADD HYD               1.0 01:2A             1.19     .010 No_date    1:31    2.89  n/a      .000
00882>                     +     1.0 02:2B             1.67     .009 No_date    1:48    3.14  n/a      .000
00883>                  SUM=     1.0 10:2A2B           2.86     .017 No_date    1:37    3.04  n/a      .000
00884> R0001:C00148------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00885>     CALIB STANDHYD        1.0 03:2C             1.96     .259 No_date    1:20   21.93 .443      .000
00886>       [XIMP=.30:TIMP=.60]
00887>       [LOSS= 2 :CN= 49.0]
00888>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00889>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
00890> R0001:C00149------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00891>     CALIB STANDHYD        1.0 07:2D             3.28     .347 No_date    1:21   21.63 .437      .000
00892>       [XIMP=.25:TIMP=.50]
00893>       [LOSS= 2 :CN= 59.0]
00894>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00895>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
00896> R0001:C00150------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00897>     CALIB STANDHYD        1.0 04:2E             1.49     .242 No_date    1:20   26.03 .526      .000
00898>       [XIMP=.37:TIMP=.42]
00899>       [LOSS= 2 :CN= 69.0]
00900>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00901>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
00902> R0001:C00151------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00903>     ADD HYD               1.0 10:2A2B           2.86     .017 No_date    1:37    3.04  n/a      .000
00904>                     +     1.0 03:2C             1.96     .259 No_date    1:20   21.93  n/a      .000
00905>                     +     1.0 04:2E             1.49     .242 No_date    1:20   26.03  n/a      .000
00906>                     +     1.0 07:2D             3.28     .347 No_date    1:21   21.63  n/a      .000
00907>                  SUM=     1.0 06:SWMF2          9.59     .843 No_date    1:20   16.83  n/a      .000
00908> #-----------------|-----------------------------------------------------------|
00909> #-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
00910> #-----------------|-----------------------------------------------------------|
00911> R0001:C00152------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00912>     ROUTE RESERVOIR ->    1.0 06:SWMF2          9.59     .843 No_date    1:20   16.83  n/a      .000
00913>                 out <=    1.0 09:SWMF-2         9.59     .025 No_date    4:07   16.83  n/a      .000
00914>      {MxStoUsed=.1368E+00  m3}
00915> #-----------------|-----------------------------------------------------------|
00916> #-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
00917> #-----------------|-----------------------------------------------------------|
00918> R0001:C00153------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00919>     ADD HYD               1.0 09:SWMF-2         9.59     .025 No_date    4:07   16.83  n/a      .000
00920>                     +     1.0 05:WC9LOWER     137.60    2.145 No_date    2:44   18.53  n/a      .000
00921>                  SUM=     1.0 01:WC9c         147.19    2.168 No_date    2:44   18.42  n/a      .000
00922> R0001:C00154------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00923>     SAVE HYD              1.0 01:WC9c         147.19    2.168 No_date    2:44   18.42  n/a      .000
00924>       fname :WC9c.0001
00925>       remark:POST-DEV LAKESHORE
00926> #-----------------|-----------------------------------------------------------|
00927> #-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
00928> #-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
00929> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
00930> #-----------------|-----------------------------------------------------------|
00931> R0001:C00155------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00932>     CALIB NASHYD          1.0 01:8A             2.27     .017 No_date    1:39    3.42 .069      .000
00933>       [CN= 36.2: N= 3.00: Tp=  .23]
00934> R0001:C00156------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00935>     CALIB NASHYD          1.0 02:EXT-8A         7.14     .133 No_date    1:57   11.43 .231      .000
00936>       [CN= 68.9: N= 3.00: Tp=  .44]
00937> #-----------------|-----------------------------------------------------------|
00938> #-----------------|--WATERCOURSE 8 TOTAL-------------------------------------|
00939> #-----------------|-----------------------------------------------------------|
00940> R0001:C00157------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00941>     ADD HYD               1.0 01:8A             2.27     .017 No_date    1:39    3.42  n/a      .000
00942>                     +     1.0 02:EXT-8A         7.14     .133 No_date    1:57   11.43  n/a      .000
00943>                  SUM=     1.0 03:WC8            9.41     .146 No_date    1:55    9.50  n/a      .000
00944> #*****************************************************************************
00945> #***************************Chicago 25yr 4-hr storm***************************
00946> #*****************************************************************************
00947> R0001:C00158-----------------------------------------------------------------------------------------
00948>      CHICAGO STORM
00949>       [SDT= 5.00:SDUR=   4.00:PTOT=  58.02]
00950>       {A/B/C= 778.937/   1.500/    .726: R=.9997}
00951> #-----------------|-----------------------------------------------------------|
00952> #-----------------|-POST-DEVELOPMENT------------------------------------------|
00953> #-----------------|-----------------------------------------------------------|
00954> #-----------------|-----------------------------------------------------------|
00955> #-----------------|-Subwatershed 9 External Drainage Area--------------------|
00956> #-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
00957> #-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
00958> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00959> #-----------------|-----------------------------------------------------------|
00960> R0001:C00159------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00961>     CALIB NASHYD          1.0 01:EXT-9A       101.80    2.512 No_date    2:41   24.12 .416      .000
00962>       [CN= 80.0: N= 3.00: Tp= 1.00]
00963> R0001:C00160------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00964>     ROUTE CHANNEL   ->    1.0 01:EXT-9A       101.80    2.512 No_date    2:41   24.12  n/a      .000
00965>      [RDT= 1.00] out<-    1.0 02:Channel      101.80    2.508 No_date    2:44   24.12  n/a      .000
00966>       [L/S/n=  550./2.000/.035]
00967>       {Vmax= 1.607:Dmax=  .293}
00968> R0001:C00161------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00969>     CALIB STANDHYD        1.0 03:EXT-9B        14.80    2.732 No_date    1:23   32.10 .553      .000
00970>       [XIMP=.35:TIMP=.35]
00971>       [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00972>       [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00973>       [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00974> R0001:C00162------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00975>     ROUTE RESERVOIR ->    1.0 03:EXT-9B        14.80    2.732 No_date    1:23   32.10  n/a      .000
00976>                 out <=    1.0 04:Orchards      14.80     .395 No_date    1:54   32.10  n/a      .000
00977>      {MxStoUsed=.3373E+00  m3}
00978> #-----------------|-----------------------------------------------------------|
00979> #-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00980> #-----------------|-----------------------------------------------------------|
00981> R0001:C00163------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00982>     ADD HYD               1.0 02:Channel      101.80    2.508 No_date    2:44   24.12  n/a      .000
00983>                     +     1.0 04:Orchards      14.80     .395 No_date    1:54   32.10  n/a      .000
00984>                  SUM=     1.0 05:RD19         116.60    2.755 No_date    2:44   25.13  n/a      .000
```

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00985> #-----------------|----------------------------------------------------------|
00986> #-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
00987> #-----------------|----------------------------------------------------------|
00988> R0001:C00164------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00989>     CALIB NASHYD          1.0 01:EXT-9C           .65      .048 No_date    1:36   26.91 .464      .000
00990>       [CN= 82.7: N= 3.00: Tp=  .24]
00991> R0001:C00165------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00992>     CALIB NASHYD          1.0 02:9A               .58      .078 No_date    1:22   22.23 .383      .000
00993>       [CN= 79.0: N= 3.00: Tp=  .06]
00994> #-----------------|----------------------CULVERT #1-------------------------|
00995> R0001:C00166------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00996>     ADD HYD               1.0 01:EXT-9C           .65      .048 No_date    1:36   26.91  n/a      .000
00997>                     +     1.0 02:9A               .58      .078 No_date    1:22   22.23  n/a      .000
00998>                     +     1.0 05:RD19          116.60     2.755 No_date    2:44   25.13  n/a      .000
00999>                  SUM=     1.0 03:CULV1         117.83     2.772 No_date    2:44   25.13  n/a      .000
01000> R0001:C00167------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01001>     CALIB NASHYD          1.0 01:9B              2.10      .037 No_date    1:43    8.44 .145      .000
01002>       [CN= 51.5: N= 3.00: Tp=  .28]
01003> #-----------------|----------------------CULVERT #2-------------------------|
01004> R0001:C00168------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01005>     ADD HYD               1.0 01:9B              2.10      .037 No_date    1:43    8.44  n/a      .000
01006>                     +     1.0 03:CULV1         117.83     2.772 No_date    2:44   25.13  n/a      .000
01007>                  SUM=     1.0 04:WC9a          119.93     2.785 No_date    2:44   24.84  n/a      .000
01008> #-----------------|----------------------------------------------------------|
01009> #-----------------|-AREAS TO SWM FACILITY 1----------------------------------|
01010> #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
01011> #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
01012> #-----------------|----------------------------------------------------------|
01013> R0001:C00169------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01014>     CALIB NASHYD          1.0 01:EXT-1A          8.37      .247 No_date    1:58   18.27 .315      .000
01015>       [CN= 74.9: N= 3.00: Tp=  .47]
01016> R0001:C00170------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01017>     CALIB STANDHYD        1.0 03:1A              2.95      .602 No_date    1:20   31.83 .549      .000
01018>       [XIMP=.31:TIMP=.51]
01019>       [LOSS= 2 :CN= 67.0]
01020>       [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
01021>       [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
01022> R0001:C00171------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01023>     ADD HYD               1.0 01:EXT-1A          8.37      .247 No_date    1:58   18.27  n/a      .000
01024>                     +     1.0 03:1A              2.95      .602 No_date    1:20   31.83  n/a      .000
01025>                  SUM=     1.0 06:NODE           11.32      .611 No_date    1:20   21.81  n/a      .000
01026> R0001:C00172------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01027>     CALIB NASHYD          1.0 05:1B              1.81      .043 No_date    1:27    6.63 .114      .000
01028>       [CN= 44.3: N= 3.00: Tp=  .11]
01029> R0001:C00173------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01030>     ADD HYD               1.0 01:EXT-1A          8.37      .247 No_date    1:58   18.27  n/a      .000
01031>                     +     1.0 03:1A              2.95      .602 No_date    1:20   31.83  n/a      .000
01032>                     +     1.0 05:1B              1.81      .043 No_date    1:27    6.63  n/a      .000
01033>                  SUM=     1.0 06:SWMF1          13.13      .628 No_date    1:20   19.71  n/a      .000
01034> #-----------------|----------------------------------------------------------|
01035> #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
01036> #-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
01037> #-----------------|----------------------------------------------------------|
01038> R0001:C00174------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01039>     ROUTE RESERVOIR ->    1.0 06:SWMF1          13.13      .628 No_date    1:20   19.71  n/a      .000
01040>                 out <=    1.0 01:SWMF-1         13.13      .031 No_date    4:38   19.71  n/a      .000
01041>      {MxStoUsed=.2242E+00  m3}
01042> R0001:C00175------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01043>     ADD HYD               1.0 01:SWMF-1         13.13      .031 No_date    4:38   19.71  n/a      .000
01044>                     +     1.0 04:WC9a          119.93     2.785 No_date    2:44   24.84  n/a      .000
01045>                  SUM=     1.0 07:WC9b          133.06     2.812 No_date    2:44   24.33  n/a      .000
01046> #-----------------|----------------------------------------------------------|
01047> #-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
01048> #-----------------|----------------------------------------------------------|
01049> #-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
01050> #-----------------|----------------------------------------------------------|
01051> R0001:C00176------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01052>     CALIB STANDHYD        1.0 10:9D              1.32      .310 No_date    1:20   37.46 .646      .000
01053>       [XIMP=.35:TIMP=.71]
01054>       [LOSS= 2 :CN= 66.1]
01055>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01056>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
01057> #-----------------|----------------------------------------------------------|
01058> #-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
01059> #-----------------|----------------------------------------------------------|
01060> R0001:C00177------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01061>     CALIB NASHYD          1.0 01:9C               .82      .011 No_date    1:40    5.89 .102      .000
01062>       [CN= 40.9: N= 3.00: Tp=  .25]
01063> #-----------------|----------------------CULVERT #3-------------------------|
01064> R0001:C00178------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01065>     ADD HYD               1.0 07:WC9b          133.06     2.812 No_date    2:44   24.33  n/a      .000
01066>                     +     1.0 01:9C               .82      .011 No_date    1:40    5.89  n/a      .000
01067>                  SUM=     1.0 04:CULV3         133.88     2.816 No_date    2:44   24.22  n/a      .000
01068> R0001:C00179------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01069>     CALIB NASHYD          1.0 01:9F               .38      .007 No_date    1:46    9.16 .158      .000
01070>       [CN= 52.2: N= 3.00: Tp=  .32]
01071> R0001:C00180------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01072>     CALIB NASHYD          1.0 02:EXT-9D           .78      .026 No_date    2:02   21.63 .373      .000
01073>       [CN= 78.8: N= 3.00: Tp=  .52]
01074> R0001:C00181------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01075>     CALIB NASHYD          1.0 03:9E              1.24      .046 No_date    1:37   14.59 .251      .000
01076>       [CN= 66.3: N= 3.00: Tp=  .23]
01077> R0001:C00182------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01078>     ADD HYD               1.0 01:9F               .38      .007 No_date    1:46    9.16  n/a      .000
01079>                     +     1.0 02:EXT-9D           .78      .026 No_date    2:02   21.63  n/a      .000
01080>                     +     1.0 03:9E              1.24      .046 No_date    1:37   14.59  n/a      .000
01081>                     +     1.0 10:9D              1.32      .310 No_date    1:20   37.46  n/a      .000
01082>                  SUM=     1.0 05:NODE            3.72      .319 No_date    1:20   23.63  n/a      .000
01083> R0001:C00183------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01084>     ADD HYD               1.0 01:9F               .38      .007 No_date    1:46    9.16  n/a      .000
01085>                     +     1.0 02:EXT-9D           .78      .026 No_date    2:02   21.63  n/a      .000
01086>                     +     1.0 03:9E              1.24      .046 No_date    1:37   14.59  n/a      .000
01087>                     +     1.0 04:CULV3         133.88     2.816 No_date    2:44   24.22  n/a      .000
01088>                     +     1.0 10:9D              1.32      .310 No_date    1:20   37.46  n/a      .000
01089>                  SUM=     1.0 05:WC9LOWER      137.60     2.868 No_date    2:40   24.20  n/a      .000
01090> #-----------------|----------------------------------------------------------|
01091> #-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
01092> #-----------------|----------------------------------------------------------|
01093> R0001:C00184------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01094>     CALIB NASHYD          1.0 01:2A              1.19      .015 No_date    1:30    4.19 .072      .000
01095>       [CN= 33.2: N= 3.00: Tp=  .14]
01096> R0001:C00185------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01097>     CALIB NASHYD          1.0 02:2B              1.67      .014 No_date    1:47    4.54 .078      .000
01098>       [CN= 34.7: N= 3.00: Tp=  .32]
01099> R0001:C00186------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01100>     ADD HYD               1.0 01:2A              1.19      .015 No_date    1:30    4.19  n/a      .000
01101>                     +     1.0 02:2B              1.67      .014 No_date    1:47    4.54  n/a      .000
01102>                  SUM=     1.0 10:2A2B            2.86      .025 No_date    1:36    4.39  n/a      .000
01103> R0001:C00187------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01104>     CALIB STANDHYD        1.0 03:2C              1.96      .317 No_date    1:20   27.13 .468      .000
01105>       [XIMP=.30:TIMP=.60]
01106>       [LOSS= 2 :CN= 49.0]
01107>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01108>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
01109> R0001:C00188------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01110>     CALIB STANDHYD        1.0 07:2D              3.28      .445 No_date    1:20   27.03 .466      .000
01111>       [XIMP=.25:TIMP=.50]
01112>       [LOSS= 2 :CN= 59.0]
01113>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01114>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
01115> R0001:C00189------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01116>     CALIB STANDHYD        1.0 04:2E              1.49      .295 No_date    1:20   32.08 .553      .000
01117>       [XIMP=.37:TIMP=.42]
01118>       [LOSS= 2 :CN= 69.0]
01119>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01120>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
01121> R0001:C00190------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01122>     ADD HYD               1.0 10:2A2B            2.86      .025 No_date    1:36    4.39  n/a      .000
01123>                     +     1.0 03:2C              1.96      .317 No_date    1:20   27.13  n/a      .000
01124>                     +     1.0 04:2E              1.49      .295 No_date    1:20   32.08  n/a      .000
01125>                     +     1.0 07:2D              3.28      .445 No_date    1:20   27.03  n/a      .000
01126>                  SUM=     1.0 06:SWMF2           9.59     1.061 No_date    1:20   21.09  n/a      .000
01127> #-----------------|----------------------------------------------------------|
01128> #-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
01129> #-----------------|----------------------------------------------------------|
01130> R0001:C00191------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01131>     ROUTE RESERVOIR ->    1.0 06:SWMF2           9.59     1.061 No_date    1:20   21.09  n/a      .000
01132>                 out <=    1.0 09:SWMF-2          9.59      .028 No_date    4:08   21.09  n/a      .000
01133>      {MxStoUsed=.1744E+00  m3}
01134> #-----------------|----------------------------------------------------------|
01135> #-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD----------------|
01136> #-----------------|----------------------------------------------------------|
01137> R0001:C00192------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01138>     ADD HYD               1.0 09:SWMF-2          9.59      .028 No_date    4:08   21.09  n/a      .000
01139>                     +     1.0 05:WC9LOWER      137.60     2.868 No_date    2:40   24.20  n/a      .000
01140>                  SUM=     1.0 01:WC9c          147.19     2.894 No_date    2:40   24.00  n/a      .000
01141> R0001:C00193------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01142>     SAVE HYD              1.0 01:WC9c          147.19     2.894 No_date    2:40   24.00  n/a      .000
01143>       fname :WC9c.0001
01144>       remark:POST-DEV LAKESHORE
01145> #-----------------|----------------------------------------------------------|
01146> #-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
01147> #-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
01148> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8---------------|
01149> #-----------------|----------------------------------------------------------|
01150> R0001:C00194------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01151>     CALIB NASHYD          1.0 01:8A              2.27      .026 No_date    1:38    4.91 .085      .000
01152>       [CN= 36.2: N= 3.00: Tp=  .23]
01153> R0001:C00195------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01154>     CALIB NASHYD          1.0 02:EXT-8A          7.14      .188 No_date    1:56   15.65 .270      .000
01155>       [CN= 68.9: N= 3.00: Tp=  .44]
01156> #-----------------|----------------------------------------------------------|
01157> #-----------------|--WATERCOURSE 8 TOTAL-------------------------------------|
01158> #-----------------|----------------------------------------------------------|
01159> R0001:C00196------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01160>     ADD HYD               1.0 01:8A              2.27      .026 No_date    1:38    4.91  n/a      .000
01161>                     +     1.0 02:EXT-8A          7.14      .188 No_date    1:56   15.65  n/a      .000
01162>                  SUM=     1.0 03:WC8             9.41      .207 No_date    1:54   13.06  n/a      .000
01163> #****************************************************************************
01164> #***************************Chicago 50yr 4-hr storm***************************
01165> #****************************************************************************
01166> R0001:C00197------------------------------------------------------------------------------------------
01167>      CHICAGO STORM
01168>       [SDT= 5.00:SDUR=   4.00:PTOT=  64.88]
01169>       {A/B/C= 866.281/   1.500/    .725: R=.9997}
01170> #-----------------|----------------------------------------------------------|
01171> #-----------------|-POST-DEVELOPMENT-----------------------------------------|
01172> #-----------------|----------------------------------------------------------|
01173> #-----------------|----------------------------------------------------------|
01174> #-----------------|-Subwatershed 9 External Drainage Area--------------------|
01175> #-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
01176> #-----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------|
01177> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
01178> #-----------------|----------------------------------------------------------|
01179> R0001:C00198------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01180>     CALIB NASHYD          1.0 01:EXT-9A        101.80     3.045 No_date    2:40   29.06 .448      .000
01181>       [CN= 80.0: N= 3.00: Tp= 1.00]
01182> R0001:C00199------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01183>     ROUTE CHANNEL   ->    1.0 01:EXT-9A        101.80     3.045 No_date    2:40   29.06  n/a      .000
01184>      [RDT= 1.00] out<-    1.0 02:Channel       101.80     3.036 No_date    2:44   29.06  n/a      .000
01185>       [L/S/n=  550./2.000/.035]
01186>       {Vmax= 1.731:Dmax=  .327}
01187> R0001:C00200------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01188>     CALIB STANDHYD        1.0 03:EXT-9B         14.80     3.312 No_date    1:23   37.37 .576      .000
01189>       [XIMP=.35:TIMP=.35]
01190>       [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
01191>       [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
01192>       [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
01193> R0001:C00201------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01194>     ROUTE RESERVOIR ->    1.0 03:EXT-9B         14.80     3.312 No_date    1:23   37.37  n/a      .000
01195>                 out <=    1.0 04:Orchards       14.80      .553 No_date    1:51   37.37  n/a      .000
01196>      {MxStoUsed=.3809E+00  m3}
01197> #-----------------|----------------------------------------------------------|
01198> #-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
01199> #-----------------|----------------------------------------------------------|
01200> R0001:C00202------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01201>     ADD HYD               1.0 02:Channel       101.80     3.036 No_date    2:44   29.06  n/a      .000
01202>                     +     1.0 04:Orchards       14.80      .553 No_date    1:51   37.37  n/a      .000
01203>                  SUM=     1.0 05:RD19          116.60     3.349 No_date    2:40   30.11  n/a      .000
01204> #-----------------|----------------------------------------------------------|
01205> #-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
01206> #-----------------|----------------------------------------------------------|
01207> R0001:C00203------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01208>     CALIB NASHYD          1.0 01:EXT-9C           .65      .059 No_date    1:36   32.18 .496      .000
01209>       [CN= 82.7: N= 3.00: Tp=  .24]
01210> R0001:C00204------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01211>     CALIB NASHYD          1.0 02:9A               .58      .096 No_date    1:22   27.00 .416      .000
01212>       [CN= 79.0: N= 3.00: Tp=  .06]
01213> #-----------------|----------------------CULVERT #1-------------------------|
01214> R0001:C00205------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01215>     ADD HYD               1.0 01:EXT-9C           .65      .059 No_date    1:36   32.18  n/a      .000
01216>                     +     1.0 02:9A               .58      .096 No_date    1:22   27.00  n/a      .000
01217>                     +     1.0 05:RD19          116.60     3.349 No_date    2:40   30.11  n/a      .000
01218>                  SUM=     1.0 03:CULV1         117.83     3.370 No_date    2:40   30.11  n/a      .000
01219> R0001:C00206------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01220>     CALIB NASHYD          1.0 01:9B              2.10      .048 No_date    1:42   10.69 .165      .000
01221>       [CN= 51.5: N= 3.00: Tp=  .28]
01222> #-----------------|----------------------CULVERT #2-------------------------|
01223> R0001:C00207------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01224>     ADD HYD               1.0 01:9B              2.10      .048 No_date    1:42   10.69  n/a      .000
01225>                     +     1.0 03:CULV1         117.83     3.370 No_date    2:40   30.11  n/a      .000
01226>                  SUM=     1.0 04:WC9a          119.93     3.388 No_date    2:40   29.77  n/a      .000
01227> #-----------------|----------------------------------------------------------|
01228> #-----------------|-AREAS TO SWM FACILITY 1----------------------------------|
01229> #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
01230> #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
01231> #-----------------|----------------------------------------------------------|
01232> R0001:C00208------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01233>     CALIB NASHYD          1.0 01:EXT-1A          8.37      .310 No_date    1:58   22.53 .347      .000
01234>       [CN= 74.9: N= 3.00: Tp=  .47]
01235> R0001:C00209------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01236>     CALIB STANDHYD        1.0 03:1A              2.95      .708 No_date    1:20   36.97 .570      .000
01237>       [XIMP=.31:TIMP=.51]
01238>       [LOSS= 2 :CN= 67.0]
01239>       [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
01240>       [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
01241> R0001:C00210------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01242>     ADD HYD               1.0 01:EXT-1A          8.37      .310 No_date    1:58   22.53  n/a      .000
01243>                     +     1.0 03:1A              2.95      .708 No_date    1:20   36.97  n/a      .000
01244>                  SUM=     1.0 06:NODE           11.32      .722 No_date    1:20   26.29  n/a      .000
01245> R0001:C00211------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01246>     CALIB NASHYD          1.0 05:1B              1.81      .056 No_date    1:27    8.44 .130      .000
01247>       [CN= 44.3: N= 3.00: Tp=  .11]
01248> R0001:C00212------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01249>     ADD HYD               1.0 01:EXT-1A          8.37      .310 No_date    1:58   22.53  n/a      .000
01250>                     +     1.0 03:1A              2.95      .708 No_date    1:20   36.97  n/a      .000
01251>                     +     1.0 05:1B              1.81      .056 No_date    1:27    8.44  n/a      .000
01252>                  SUM=     1.0 06:SWMF1          13.13      .745 No_date    1:20   23.83  n/a      .000
01253> #-----------------|----------------------------------------------------------|
01254> #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
01255> #-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
01256> #-----------------|----------------------------------------------------------|
01257> R0001:C00213------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01258>     ROUTE RESERVOIR ->    1.0 06:SWMF1          13.13      .745 No_date    1:20   23.83  n/a      .000
01259>                 out <=    1.0 01:SWMF-1         13.13      .033 No_date    4:40   23.83  n/a      .000
01260>      {MxStoUsed=.2745E+00  m3}
01261> R0001:C00214------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01262>     ADD HYD               1.0 01:SWMF-1         13.13      .033 No_date    4:40   23.83  n/a      .000
01263>                     +     1.0 04:WC9a          119.93     3.388 No_date    2:40   29.77  n/a      .000
01264>                  SUM=     1.0 07:WC9b          133.06     3.417 No_date    2:40   29.18  n/a      .000
01265> #-----------------|----------------------------------------------------------|
01266> #-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
01267> #-----------------|----------------------------------------------------------|
01268> #-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
01269> #-----------------|----------------------------------------------------------|
01270> R0001:C00215------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01271>     CALIB STANDHYD        1.0 10:9D              1.32      .362 No_date    1:20   43.23 .666      .000
01272>       [XIMP=.35:TIMP=.71]
01273>       [LOSS= 2 :CN= 66.1]
01274>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01275>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
01276> #-----------------|----------------------------------------------------------|
01277> #-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
01278> #-----------------|----------------------------------------------------------|
01279> R0001:C00216------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01280>     CALIB NASHYD          1.0 01:9C               .82      .014 No_date    1:40    7.52 .116      .000
01281>       [CN= 40.9: N= 3.00: Tp=  .25]
01282> #-----------------|----------------------CULVERT #3-------------------------|
01283> R0001:C00217------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01284>     ADD HYD               1.0 07:WC9b          133.06     3.417 No_date    2:40   29.18  n/a      .000
01285>                     +     1.0 01:9C               .82      .014 No_date    1:40    7.52  n/a      .000
01286>                  SUM=     1.0 04:CULV3         133.88     3.422 No_date    2:40   29.05  n/a      .000
01287> R0001:C00218------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01288>     CALIB NASHYD          1.0 01:9F               .38      .009 No_date    1:45   11.51 .177      .000
01289>       [CN= 52.2: N= 3.00: Tp=  .32]
01290> R0001:C00219------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01291>     CALIB NASHYD          1.0 02:EXT-9D           .78      .033 No_date    2:01   26.36 .406      .000
01292>       [CN= 78.8: N= 3.00: Tp=  .52]
01293> R0001:C00220------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01294>     CALIB NASHYD          1.0 03:9E              1.24      .058 No_date    1:37   18.07 .278      .000
01295>       [CN= 66.3: N= 3.00: Tp=  .23]
01296> R0001:C00221------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01297>     ADD HYD               1.0 01:9F               .38      .009 No_date    1:45   11.51  n/a      .000
01298>                     +     1.0 02:EXT-9D           .78      .033 No_date    2:01   26.36  n/a      .000
01299>                     +     1.0 03:9E              1.24      .058 No_date    1:37   18.07  n/a      .000
01300>                     +     1.0 10:9D              1.32      .362 No_date    1:20   43.23  n/a      .000
01301>                  SUM=     1.0 05:NODE            3.72      .374 No_date    1:20   28.07  n/a      .000
01302> R0001:C00222------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01303>     ADD HYD               1.0 01:9F               .38      .009 No_date    1:45   11.51  n/a      .000
01304>                     +     1.0 02:EXT-9D           .78      .033 No_date    2:01   26.36  n/a      .000
01305>                     +     1.0 03:9E              1.24      .058 No_date    1:37   18.07  n/a      .000
01306>                     +     1.0 04:CULV3         133.88     3.422 No_date    2:40   29.05  n/a      .000
01307>                     +     1.0 10:9D              1.32      .362 No_date    1:20   43.23  n/a      .000
01308>                  SUM=     1.0 05:WC9LOWER      137.60     3.486 No_date    2:39   29.02  n/a      .000
01309> #-----------------|----------------------------------------------------------|
01310> #-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
01311> #-----------------|----------------------------------------------------------|
01312> R0001:C00223------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
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01313>     CALIB NASHYD          1.0 01:2A             1.19     .020 No_date    1:30    5.40 .083     .000
01314>       [CN= 33.2: N= 3.00: Tp=  .14]
01315> R0001:C00224------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01316>     CALIB NASHYD          1.0 02:2B             1.67     .018 No_date    1:46    5.83 .090     .000
01317>       [CN= 34.7: N= 3.00: Tp=  .32]
01318> R0001:C00225------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01319>     ADD HYD               1.0 01:2A             1.19     .020 No_date    1:30    5.40  n/a     .000
01320>                     +     1.0 02:2B             1.67     .018 No_date    1:46    5.83  n/a     .000
01321>                   SUM=    2.86     .033 No_date    1:36    5.65  n/a     .000
01322> R0001:C00226------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01323>     CALIB STANDHYD        1.0 03:2C             1.96     .364 No_date    1:20   31.50 .486     .000
01324>       [XIMP=.30:TIMP=.60]
01325>       [LOSS= 2 :CN= 49.0]
01326>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01327>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
01328> R0001:C00227------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01329>     CALIB STANDHYD        1.0 07:2D             3.28     .518 No_date    1:20   31.58 .487     .000
01330>       [XIMP=.25:TIMP=.50]
01331>       [LOSS= 2 :CN= 59.0]
01332>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01333>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
01334> R0001:C00228------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01335>     CALIB STANDHYD        1.0 04:2E             1.49     .337 No_date    1:20   37.13 .572     .000
01336>       [XIMP=.37:TIMP=.42]
01337>       [LOSS= 2 :CN= 69.0]
01338>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01339>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
01340> R0001:C00229------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01341>     ADD HYD               1.0 10:2A2B           2.86     .033 No_date    1:36    5.65  n/a     .000
01342>                     +     1.0 03:2C             1.96     .364 No_date    1:20   31.50  n/a     .000
01343>                     +     1.0 04:2E             1.49     .337 No_date    1:20   37.13  n/a     .000
01344>                     +     1.0 07:2D             3.28     .518 No_date    1:20   31.58  n/a     .000
01345>                   SUM=    1.0 06:SWMF2          9.59    1.225 No_date    1:20   24.69  n/a     .000
01346> #----------------|-------------------------------------------------------|
01347> #----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-------|
01348> #----------------|-------------------------------------------------------|
01349> R0001:C00230------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01350>     ROUTE RESERVOIR ->    1.0 06:SWMF2          9.59    1.225 No_date    1:20   24.69  n/a     .000
01351>                   out <=    1.0 09:SWMF-2       9.59     .044 No_date    4:04   24.69  n/a     .000
01352>       {MxStoUsed=.2020E+00  m3}
01353> #----------------|-------------------------------------------------------|
01354> #----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-------------|
01355> #----------------|-------------------------------------------------------|
01356> R0001:C00231------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01357>     ADD HYD               1.0 09:SWMF-2         9.59     .044 No_date    4:04   24.69  n/a     .000
01358>                     +     1.0 05:WC9LOWER     137.60    3.486 No_date    2:39   29.02  n/a     .000
01359>                   SUM=    1.0 01:WC9c         147.19    3.514 No_date    2:39   28.74  n/a     .000
01360> R0001:C00232------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01361>     SAVE HYD              1.0 01:WC9c         147.19    3.514 No_date    2:39   28.74  n/a     .000
01362>       fname :WC9c.0001
01363>       remark:POST-DEV LAKESHORE
01364> #----------------|-------------------------------------------------------|
01365> #----------------|--WATERCOURSE 8 CATCHMENTS-----------------------------|
01366> #----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8----------------|
01367> #----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8------------|
01368> #----------------|-------------------------------------------------------|
01369> R0001:C00233------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01370>     CALIB NASHYD          1.0 01:8A             2.27     .033 No_date    1:38    6.28 .097     .000
01371>       [CN= 36.2: N= 3.00: Tp=  .23]
01372> R0001:C00234------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01373>     CALIB NASHYD          1.0 02:EXT-8A         7.14     .236 No_date    1:55   19.35 .298     .000
01374>       [CN= 68.9: N= 3.00: Tp=  .44]
01375> #----------------|-------------------------------------------------------|
01376> #----------------|--WATERCOURSE 8 TOTAL----------------------------------|
01377> #----------------|-------------------------------------------------------|
01378> R0001:C00235------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01379>     ADD HYD               1.0 01:8A             2.27     .033 No_date    1:38    6.28  n/a     .000
01380>                     +     1.0 02:EXT-8A         7.14     .236 No_date    1:55   19.35  n/a     .000
01381>                   SUM=    1.0 03:WC8            9.41     .261 No_date    1:53   16.20  n/a     .000
01382> #**************************************************************************
01383> #**************************Chicago 100yr 4-hr storm************************
01384> #**************************************************************************
01385> R0001:C00236------------------------------------------------------------------------------------------------
01386>     CHICAGO STORM
01387>       [SDT= 5.00:SDUR=   4.00:PTOT=  71.43]
01388>       {A/B/C= 953.793/   1.500/    .725: R=.9997}
01389> #----------------|-------------------------------------------------------|
01390> #----------------|-POST-DEVELOPMENT--------------------------------------|
01391> #----------------|-------------------------------------------------------|
01392> #----------------|-------------------------------------------------------|
01393> #----------------|-Subwatershed 9 External Drainage Area-----------------|
01394> #----------------|-Per 'The Orchards' FSSWM Report- 1.50 ha--------------|
01395> #----------------|-Prepared by Higgins Engineering (Jan. 2005)-----------|
01396> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-----|
01397> #----------------|-------------------------------------------------------|
01398> R0001:C00237------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01399>     CALIB NASHYD          1.0 01:EXT-9A       101.80    3.581 No_date    2:39   33.96 .475     .000
01400>       [CN= 80.0: N= 3.00: Tp= 1.00]
01401> R0001:C00238------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01402>     ROUTE CHANNEL         1.0 01:EXT-9A       101.80    3.581 No_date    2:39   33.96  n/a     .000
01403>       [RDT= 1.00] out<-   1.0 02:Channel      101.80    3.570 No_date    2:43   33.96  n/a     .000
01404>       [L/S/n=  550./2.000/.035]
01405>       {Vmax= 1.807:Dmax=  .356}
01406> R0001:C00239------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01407>     CALIB STANDHYD        1.0 03:EXT-9B        14.80    3.763 No_date    1:23   42.71 .598     .000
01408>       [XIMP=.35:TIMP=.35]
01409>       [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
01410>       [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
01411>       [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
01412> R0001:C00240------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01413>     ROUTE RESERVOIR ->    1.0 03:EXT-9B        14.80    3.763 No_date    1:23   42.71  n/a     .000
01414>                   out <=    1.0 04:Orchards     14.80     .713 No_date    1:50   42.70  n/a     .000
01415>       {MxStoUsed=.4213E+00  m3}
01416> #----------------|-------------------------------------------------------|
01417> #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-----|
01418> #----------------|-------------------------------------------------------|
01419> R0001:C00241------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01420>     ADD HYD               1.0 02:Channel      101.80    3.570 No_date    2:43   33.96  n/a     .000
01421>                     +     1.0 04:Orchards      14.80     .713 No_date    1:50   42.70  n/a     .000
01422>                   SUM=    1.0 05:RD19         116.60    3.964 No_date    2:37   35.07  n/a     .000
01423> #----------------|-------------------------------------------------------|
01424> #----------------|-Parkbridge Craigleith - Upper Terrace Lands-----------|
01425> #----------------|-------------------------------------------------------|
01426> R0001:C00242------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01427>     CALIB NASHYD          1.0 01:EXT-9C           .65     .069 No_date    1:36   37.37 .523     .000
01428>       [CN= 82.7: N= 3.00: Tp=  .24]
01429> R0001:C00243------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01430>     CALIB NASHYD          1.0 02:OA               .58     .116 No_date    1:22   31.76 .445     .000
01431>       [CN= 79.0: N= 3.00: Tp=  .06]
01432> #----------------|-------------------------CULVERT #1-------------------|
01433> R0001:C00244------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01434>     ADD HYD               1.0 01:EXT-9C           .65     .069 No_date    1:36   37.37  n/a     .000
01435>                     +     1.0 02:OA               .58     .116 No_date    1:22   31.76  n/a     .000
01436>                     +     1.0 05:RD19         116.60    3.964 No_date    2:37   35.07  n/a     .000
01437>                   SUM=    1.0 03:CULV1        117.83    3.989 No_date    2:37   35.07  n/a     .000
01438> R0001:C00245------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01439>     CALIB NASHYD          1.0 01:9B             2.10     .059 No_date    1:42   13.04 .183     .000
01440>       [CN= 51.5: N= 3.00: Tp=  .28]
01441> #----------------|-----------------------CULVERT #2-----------------------|
01442> R0001:C00246------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01443>     ADD HYD               1.0 01:9B             2.10     .059 No_date    1:42   13.04  n/a     .000
01444>                     +     1.0 03:CULV1        117.83    3.989 No_date    2:37   35.07  n/a     .000
01445>                   SUM=    1.0 04:WC9a         119.93    4.010 No_date    2:37   34.68  n/a     .000
01446> #----------------|-------------------------------------------------------|
01447> #----------------|-AREAS TO SWM FACILITY 1-------------------------------|
01448> #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT-----------|
01449> #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-------------------|
01450> #----------------|-------------------------------------------------------|
01451> R0001:C00247------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01452>     CALIB NASHYD          1.0 01:EXT-1A           8.37     .375 No_date    1:57   26.82 .375     .000
01453>       [CN= 74.9: N= 3.00: Tp=  .47]
01454> R0001:C00248------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01455>     CALIB STANDHYD        1.0 03:1A             2.95     .799 No_date    1:20   42.02 .588     .000
01456>       [XIMP=.31:TIMP=.51]
01457>       [LOSS= 2 :CN= 67.0]
01458>       [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
01459>       [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
01460> R0001:C00249------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01461>     ADD HYD               1.0 01:EXT-1A           8.37     .375 No_date    1:57   26.82  n/a     .000
01462>                     +     1.0 03:1A             2.95     .799 No_date    1:20   42.02  n/a     .000
01463>                   SUM=    1.0 06:NODE          11.32     .818 No_date    1:20   30.78  n/a     .000
01464> R0001:C00250------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01465>     CALIB NASHYD          1.0 05:1B             1.81     .070 No_date    1:27   10.34 .145     .000
01466>       [CN= 44.3: N= 3.00: Tp=  .11]
01467> R0001:C00251------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01468>     ADD HYD               1.0 01:EXT-1A           8.37     .375 No_date    1:57   26.82  n/a     .000
01469>                     +     1.0 03:1A             2.95     .799 No_date    1:20   42.02  n/a     .000
01470>                     +     1.0 05:1B             1.81     .070 No_date    1:27   10.34  n/a     .000
01471>                   SUM=    1.0 06:SWMF1         13.13     .848 No_date    1:20   27.96  n/a     .000
01472> #----------------|-------------------------------------------------------|
01473> #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE---|
01474> #----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT----------|
01475> #----------------|-------------------------------------------------------|
01476> R0001:C00252------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01477>     ROUTE RESERVOIR ->    1.0 06:SWMF1         13.13     .848 No_date    1:20   27.96  n/a     .000
01478>                   out <=    1.0 01:SWMF-1       13.13     .036 No_date    4:42   27.96  n/a     .000
01479>       {MxStoUsed=.3253E+00  m3}
01480> R0001:C00253------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
01481>     ADD HYD               1.0 01:SWMF-1        13.13     .036 No_date    4:42   27.96  n/a     .000
01482>                     +     1.0 04:WC9a         119.93    4.010 No_date    2:37   34.68  n/a     .000
01483>                   SUM=    1.0 07:WC9b         133.06    4.041 No_date    2:37   34.02  n/a     .000
01484> #----------------|-------------------------------------------------------|
01485> #----------------|-Parkbridge Craigleith - Lower Terrace Lands------------|
01486> #----------------|-------------------------------------------------------|
01487> #----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS----|
01488> #----------------|-------------------------------------------------------|
01489> R0001:C00254------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01490>     CALIB STANDHYD        1.0 10:9D             1.32     .431 No_date    1:20   48.86 .684     .000
01491>       [XIMP=.35:TIMP=.71]
01492>       [LOSS= 2 :CN= 66.1]
01493>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01494>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
01495> #----------------|-------------------------------------------------------|
01496> #----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED--------------------|
01497> #----------------|-------------------------------------------------------|
01498> R0001:C00255------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01499>     CALIB NASHYD          1.0 01:9C              .82     .017 No_date    1:39    9.22 .129     .000
01500>       [CN= 40.9: N= 3.00: Tp=  .25]
01501> #----------------|-----------------------CULVERT #3-----------------------|
01502> R0001:C00256------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01503>     ADD HYD               1.0 07:WC9b         133.06    4.041 No_date    2:37   34.02  n/a     .000
01504>                     +     1.0 01:9C              .82     .017 No_date    1:39    9.22  n/a     .000
01505>                   SUM=    1.0 04:CULV3        133.88    4.047 No_date    2:37   33.87  n/a     .000
01506> R0001:C00257------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01507>     CALIB NASHYD          1.0 01:9F              .38     .011 No_date    1:45   13.96 .195     .000
01508>       [CN= 52.2: N= 3.00: Tp=  .32]
01509> R0001:C00258------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01510>     CALIB NASHYD          1.0 02:EXT-9D          .78     .039 No_date    2:00   31.08 .435     .000
01511>       [CN= 78.8: N= 3.00: Tp=  .52]
01512> R0001:C00259------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01513>     CALIB NASHYD          1.0 03:9E             1.24     .070 No_date    1:37   21.61 .303     .000
01514>       [CN= 66.3: N= 3.00: Tp=  .23]
01515> R0001:C00260------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01516>     ADD HYD               1.0 01:9F              .38     .011 No_date    1:45   13.96  n/a     .000
01517>                     +     1.0 02:EXT-9D          .78     .039 No_date    2:00   31.08  n/a     .000
01518>                     +     1.0 03:9E             1.24     .070 No_date    1:37   21.61  n/a     .000
01519>                     +     1.0 10:9D             1.32     .431 No_date    1:20   48.86  n/a     .000
01520>                   SUM=    1.0 05:NODE           3.72     .447 No_date    1:20   32.48  n/a     .000
01521> R0001:C00261------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01522>     ADD HYD               1.0 01:9F              .38     .011 No_date    1:45   13.96  n/a     .000
01523>                     +     1.0 02:EXT-9D          .78     .039 No_date    2:00   31.08  n/a     .000
01524>                     +     1.0 03:9E             1.24     .070 No_date    1:37   21.61  n/a     .000
01525>                     +     1.0 04:CULV3        133.88    4.047 No_date    2:37   33.87  n/a     .000
01526>                     +     1.0 10:9D             1.32     .431 No_date    1:20   48.86  n/a     .000
01527>                   SUM=    1.0 05:WC9LOWER     137.60    4.124 No_date    2:37   33.83  n/a     .000
01528> #----------------|-------------------------------------------------------|
01529> #----------------|-LANDS DRAINING TO SWM FACILITY 2-----------------------|
01530> #----------------|-------------------------------------------------------|
01531> R0001:C00262------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01532>     CALIB NASHYD          1.0 01:2A             1.19     .025 No_date    1:30    6.67 .093     .000
01533>       [CN= 33.2: N= 3.00: Tp=  .14]
01534> R0001:C00263------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01535>     CALIB NASHYD          1.0 02:2B             1.67     .023 No_date    1:46    7.19 .101     .000
01536>       [CN= 34.7: N= 3.00: Tp=  .32]
01537> R0001:C00264------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01538>     ADD HYD               1.0 01:2A             1.19     .025 No_date    1:30    6.67  n/a     .000
01539>                     +     1.0 02:2B             1.67     .023 No_date    1:46    7.19  n/a     .000
01540>                   SUM=    1.0 10:2A2B           2.86     .041 No_date    1:35    6.97  n/a     .000
01541> R0001:C00265------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01542>     CALIB STANDHYD        1.0 03:2C             1.96     .414 No_date    1:20   35.81 .501     .000
01543>       [XIMP=.30:TIMP=.60]
01544>       [LOSS= 2 :CN= 49.0]
01545>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01546>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
01547> R0001:C00266------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01548>     CALIB STANDHYD        1.0 07:2D             3.28     .585 No_date    1:20   36.08 .505     .000
01549>       [XIMP=.25:TIMP=.50]
01550>       [LOSS= 2 :CN= 59.0]
01551>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01552>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
01553> R0001:C00267------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01554>     CALIB STANDHYD        1.0 04:2E             1.49     .381 No_date    1:20   42.09 .589     .000
01555>       [XIMP=.37:TIMP=.42]
01556>       [LOSS= 2 :CN= 69.0]
01557>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01558>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 100.:MNI=.013:SCI=   .0]
01559> R0001:C00268------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01560>     ADD HYD               1.0 10:2A2B           2.86     .041 No_date    1:35    6.97  n/a     .000
01561>                     +     1.0 03:2C             1.96     .414 No_date    1:20   35.81  n/a     .000
01562>                     +     1.0 04:2E             1.49     .381 No_date    1:20   42.09  n/a     .000
01563>                     +     1.0 07:2D             3.28     .585 No_date    1:20   36.08  n/a     .000
01564>                   SUM=    1.0 06:SWMF2          9.59    1.390 No_date    1:20   28.28  n/a     .000
01565> #----------------|-------------------------------------------------------|
01566> #----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)------|
01567> #----------------|-------------------------------------------------------|
01568> R0001:C00269------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01569>     ROUTE RESERVOIR ->    1.0 06:SWMF2          9.59    1.390 No_date    1:20   28.28  n/a     .000
01570>                   out <=    1.0 09:SWMF-2       9.59     .060 No_date    4:02   28.28  n/a     .000
01571>       {MxStoUsed=.2248E+00  m3}
01572> #----------------|-------------------------------------------------------|
01573> #----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD--------------|
01574> #----------------|-------------------------------------------------------|
01575> R0001:C00270------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01576>     ADD HYD               1.0 09:SWMF-2         9.59     .060 No_date    4:02   28.28  n/a     .000
01577>                     +     1.0 05:WC9LOWER     137.60    4.124 No_date    2:37   33.83  n/a     .000
01578>                   SUM=    1.0 01:WC9c         147.19    4.169 No_date    2:37   33.47  n/a     .000
01579> R0001:C00271------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01580>     SAVE HYD              1.0 01:WC9c         147.19    4.169 No_date    2:37   33.47  n/a     .000
01581>       fname :WC9c.0001
01582>       remark:POST-DEV LAKESHORE
01583> #----------------|-------------------------------------------------------|
01584> #----------------|--WATERCOURSE 8 CATCHMENTS-----------------------------|
01585> #----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8----------------|
01586> #----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8------------|
01587> #----------------|-------------------------------------------------------|
01588> R0001:C00272------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01589>     CALIB NASHYD          1.0 01:8A             2.27     .042 No_date    1:38    7.73 .108     .000
01590>       [CN= 36.2: N= 3.00: Tp=  .23]
01591> R0001:C00273------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01592>     CALIB NASHYD          1.0 02:EXT-8A         7.14     .285 No_date    1:55   23.12 .324     .000
01593>       [CN= 68.9: N= 3.00: Tp=  .44]
01594> #----------------|-------------------------------------------------------|
01595> #----------------|--WATERCOURSE 8 TOTAL----------------------------------|
01596> #----------------|-------------------------------------------------------|
01597> R0001:C00274------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01598>     ADD HYD               1.0 01:8A             2.27     .042 No_date    1:38    7.73  n/a     .000
01599>                     +     1.0 02:EXT-8A         7.14     .285 No_date    1:55   23.12  n/a     .000
01600>                   SUM=    1.0 03:WC8            9.41     .316 No_date    1:52   19.40  n/a     .000
01601> R0001:C00275------------------------------------------------------------------------------------------------
01602>     FINISH
01603> ------------------------------------------------------------------------------------------------
01604> ************************************************************************************************
01605>      WARNINGS / ERRORS / NOTES
01606>      -------------------------
01607>    Simulation ended on 2020-06-15     at 12:03:00
01608> ================================================================================================
01609>
01610>
```

```
00001> 2     Metric units
00002> *#************************************************************************
00003> *#  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00004> *#  Date        : 2021-04-29
00005> *#  Modeller    : [JE - ADAPTED FROM NM 2009 MODEL]
00006> *#  Company     : C.F. Crozier & Associates Inc.
00007> *#  License #   : 3737016
00008> *#************************************************************************
00009> START              TZERO=[0.0],  METOUT=[2],  NSTORM=[0],  NRUN=[0]
00010> *%                   [ ] <--storm filename, one per line for NSTORM time
00011> *#************************************************************************
00012> *%-----------------|------------------------------------------------------|
00013> *#-----------------|------------------------------------------------------|
00014> *#-----------------|-PRE-DEVELOPMENT---12hr SCS STORMS----------------------|
00015> *#-----------------|------------------------------------------------------|
00016>
00017> *#************************************************************************
00018> *#                              2yr SCS Storm (12hr)
00019> *#************************************************************************
00020> *#************************************************************************
00021> MASS STORM          PTOTAL=[39.6](mm), CSDT=[1](min),
00022>                     CURVE_FILENAME=["SCS12HII.mst"]
00023> *#************************************************************************
00024> *#-----------------|------------------------------------------------------|
00025> *#-----------------|------------------------------------------------------|
00026> *#-----------------|-Subwatershed 9 External Drainage Area------------------|
00027> *#-----------------|-Per 'The Orchards' FSSWM Report------------------------|
00028> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)------------|
00029> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00030> *#-----------------|------------------------------------------------------|
00031> *%-----------------|------------------------------------------------------|
00032> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00033>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00034>                     N=[3], TP=[1.00]hrs,
00035>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00036> *%-----------------|------------------------------------------------------|
00037> ROUTE CHANNEL      IDout=[2], NHYD=["Channel"], IDin=[1],
00038>                     RDT=[1](min),
00039>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00040>                                       FPSLOPE=[2](%),
00041>                     SECNUM=[1],       NSEG=[3]
00042>                     ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
00043>                     ( DISTANCE (m), ELEVATION (m))= [0,102]
00044>                                                     [8,100]
00045>                                                     [12,100]
00046>                                                     [20,102]
00047> *%-----------------|------------------------------------------------------|
00048> CALIB STANDHYD     ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00049>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00050>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00051>                             DCAY=[2](/hr), F=[0](mm),
00052>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00053>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00054>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00055>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00056>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00057> *%-----------------|------------------------------------------------------|
00058> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00059>                     RDT=[1](min),
00060>                           TABLE of ( OUTFLOW-STORAGE ) values
00061>                                      (cms) - (ha-m)
00062>                                    [   0.0 ,  0.0 ]
00063>                                    [   0.0100 ,  0.0610 ]
00064>                                    [   0.0400 ,  0.1310 ]
00065>                                    [   0.0700 ,  0.2110 ]
00066>                                    [   0.2600 ,  0.3000 ]
00067>                                    [   0.6000 ,  0.3940 ]
00068>                                    [   1.0200 ,  0.4950 ]
00069>                                    [   1.5200 ,  0.6020 ]
00070>                                    [   2.0800 ,  0.7160 ]
00071>                                    [   2.6900 ,  0.8370 ]
00072>                                    [   -1  ,  -1  ]  (max twenty pts)
00073>                           IDovf=[   ], NHYDovf=[   ]
00074> *%-----------------|------------------------------------------------------|
00075> *#-----------------|------------------------------------------------------|
00076> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00077> *#-----------------|------------------------------------------------------|
00078> *%-----------------|------------------------------------------------------|
00079> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00080> *%-----------------|------------------------------------------------------|
00081> *#-----------------|------------------------------------------------------|
00082> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00083> *#-----------------|------------------------------------------------------|
00084> *%-----------------|------------------------------------------------------|
00085> CALIB NASHYD       ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
00086>                     DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
00087>                     N=[3], TP=[0.37]hrs,
00088>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00089> *%-----------------|------------------------------------------------------|
00090> CALIB NASHYD       ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
00091>                     DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
00092>                     N=[3], TP=[1.09]hrs,
00093>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00094> *%-----------------|------------------------------------------------------|
00095> ADD HYD            IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00096> *%-----------------|------------------------------------------------------|
00097> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00098>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00099>                     N=[3], TP=[0.14]hrs,
00100>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00101> *%-----------------|------------------------------------------------------|
00102> CALIB NASHYD       ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00103>                     DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00104>                     N=[3], TP=[0.15]hrs,
00105>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00106> *%-----------------|------------------------------------------------------|
00107> *#-----------------|------------------------------------------------------|
00108> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00109> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00110> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00111> *#-----------------|------------------------------------------------------|
00112> *%-----------------|------------------------------------------------------|
00113> ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00114>                     RDT=[1](min),
00115>                           TABLE of ( OUTFLOW-STORAGE ) values
00116>                                      (cms) - (ha-m)
00117>                                    [   0.0 ,  0.0 ]
00118>                                    [   0.00 ,  0.479 ]
00119>                                    [   0.00 ,  1.249 ]
00120>                                    [   -1  ,  -1  ]  (max twenty pts)
00121>                           IDovf=[   ], NHYDovf=[   ]
00122> *%-----------------|------------------------------------------------------|
00123> ADD HYD            IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
00124> *%-----------------|------------------------------------------------------|
00125> *#-----------------|------------------------------------------------------|
00126> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00127> *#-----------------|------------------------------------------------------|
00128> *%-----------------|------------------------------------------------------|
00129> CALIB NASHYD       ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
00130>                     DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
00131>                     N=[3], TP=[0.48]hrs,
00132>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00133> *%-----------------|------------------------------------------------------|
00134> CALIB NASHYD       ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
00135>                     DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
00136>                     N=[3], TP=[0.71]hrs,
00137>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00138> *%-----------------|------------------------------------------------------|
00139> *#-----------------|------------------------------------------------------|
00140> *#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD-----------|
00141> *#-----------------|------------------------------------------------------|
00142> *%-----------------|------------------------------------------------------|
00143> ADD HYD            IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
00144> *%-----------------|------------------------------------------------------|
00145> SAVE HYD           ID=[1],   # OF PCYCLES=[10],   ICASESh=[1]
00146>                     HYD_COMMENT=["Lakeshore Road Hydrograph"]
00147> *%-----------------|------------------------------------------------------|
00148> *#-----------------|------------------------------------------------------|
00149> *#-----------------|----------WATERCOURSE 8----------------------------------|
00150> *#-----------------|------------------------------------------------------|
00151> *%-----------------|------------------------------------------------------|
00152> CALIB NASHYD       ID=[7], NHYD=["8A"], DT=[1]min, AREA=[12.13](ha),
00153>                     DWF=[0](cms),  CN/C=[60.4], IA=[8.42](mm),
00154>                     N=[3], TP=[0.56]hrs,
00155>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00156> *%-----------------|------------------------------------------------------|
00157> *#-----------------|------------------------------------------------------|
00158> *#-----------------|----------WATERCOURSE 10---------------------------------|
00159> *#-----------------|------------------------------------------------------|
00160> *%-----------------|------------------------------------------------------|
00161> CALIB NASHYD       ID=[7], NHYD=["10A"], DT=[1]min, AREA=[2.08](ha),
00162>                     DWF=[0](cms),  CN/C=[67.3], IA=[8.6](mm),
00163>                     N=[3], TP=[0.21]hrs,
00164>
00165>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00166> *%-----------------|------------------------------------------------------|
00167>
00168> *#************************************************************************
00169> *#************************************************************************
00170> *#                              5yr SCS Storm (12hr)
00171> *#************************************************************************
00172> *#************************************************************************
00173> MASS STORM          PTOTAL=[55.2](mm), CSDT=[1](min),
00174>                     CURVE_FILENAME=["SCS12HII.mst"]
00175> *#************************************************************************
00176> *#-----------------|------------------------------------------------------|
00177> *#-----------------|------------------------------------------------------|
00178> *#-----------------|-Subwatershed 9 External Drainage Area------------------|
00179> *#-----------------|-Per 'The Orchards' FSSWM Report------------------------|
00180> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)------------|
00181> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00182> *#-----------------|------------------------------------------------------|
00183> *%-----------------|------------------------------------------------------|
00184> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00185>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00186>                     N=[3], TP=[1.00]hrs,
00187>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00188> *%-----------------|------------------------------------------------------|
00189> ROUTE CHANNEL      IDout=[2], NHYD=["Channel"], IDin=[1],
00190>                     RDT=[1](min),
00191>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00192>                                       FPSLOPE=[2](%),
00193>                     SECNUM=[1],       NSEG=[3]
00194>                     ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
00195>                     ( DISTANCE (m), ELEVATION (m))= [0,102]
00196>                                                     [8,100]
00197>                                                     [12,100]
00198>                                                     [20,102]
00199> *%-----------------|------------------------------------------------------|
00200> CALIB STANDHYD     ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00201>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00202>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00203>                             DCAY=[2](/hr),  F=[0](mm),
00204>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00205>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00206>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00207>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00208>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00209> *%-----------------|------------------------------------------------------|
00210> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00211>                     RDT=[1](min),
00212>                           TABLE of ( OUTFLOW-STORAGE ) values
00213>                                      (cms) - (ha-m)
00214>                                    [   0.0 ,  0.0 ]
00215>                                    [   0.0100 ,  0.0610 ]
00216>                                    [   0.0400 ,  0.1310 ]
00217>                                    [   0.0700 ,  0.2110 ]
00218>                                    [   0.2600 ,  0.3000 ]
00219>                                    [   0.6000 ,  0.3940 ]
00220>                                    [   1.0200 ,  0.4950 ]
00221>                                    [   1.5200 ,  0.6020 ]
00222>                                    [   2.0800 ,  0.7160 ]
00223>                                    [   2.6900 ,  0.8370 ]
00224>                                    [   -1  ,  -1  ]  (max twenty pts)
00225>                           IDovf=[   ], NHYDovf=[   ]
00226> *%-----------------|------------------------------------------------------|
00227> *#-----------------|------------------------------------------------------|
00228> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00229> *#-----------------|------------------------------------------------------|
00230> *%-----------------|------------------------------------------------------|
00231> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00232> *%-----------------|------------------------------------------------------|
00233> *#-----------------|------------------------------------------------------|
00234> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00235> *#-----------------|------------------------------------------------------|
00236> *%-----------------|------------------------------------------------------|
00237> CALIB NASHYD       ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
00238>                     DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
00239>                     N=[3], TP=[0.37]hrs,
00240>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00241> *%-----------------|------------------------------------------------------|
00242> CALIB NASHYD       ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
00243>                     DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
00244>                     N=[3], TP=[1.09]hrs,
00245>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00246> *%-----------------|------------------------------------------------------|
00247> ADD HYD            IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00248> *%-----------------|------------------------------------------------------|
00249> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00250>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00251>                     N=[3], TP=[0.14]hrs,
00252>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00253> *%-----------------|------------------------------------------------------|
00254> CALIB NASHYD       ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00255>                     DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00256>                     N=[3], TP=[0.15]hrs,
00257>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00258> *%-----------------|------------------------------------------------------|
00259> *#-----------------|------------------------------------------------------|
00260> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00261> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00262> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00263> *#-----------------|------------------------------------------------------|
00264> *%-----------------|------------------------------------------------------|
00265> ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00266>                     RDT=[1](min),
00267>                           TABLE of ( OUTFLOW-STORAGE ) values
00268>                                      (cms) - (ha-m)
00269>                                    [   0.0 ,  0.0 ]
00270>                                    [   0.00 ,  0.479 ]
```

```
                                    [   0.00 ,  1.249 ]
                                    [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands-----------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
                    DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
                    N=[3], TP=[0.48]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
                    DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD--------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
*%-----------------|-------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
                    HYD_COMMENT=["Lakeshore Road Hydrograph"]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|----------WATERCOURSE 8----------------------------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["8A"], DT=[1]min, AREA=[12.13](ha),
                    DWF=[0](cms),  CN/C=[60.4], IA=[8.42](mm),
                    N=[3], TP=[0.56]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|----------WATERCOURSE 10---------------------------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["10A"], DT=[1]min, AREA=[2.08](ha),
                    DWF=[0](cms),  CN/C=[67.3], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,

                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|


*#**************************************************************************
*#**************************************************************************
*#                        10yr SCS Storm (12hr)
*#**************************************************************************
*#**************************************************************************
MASS STORM          PTOTAL=[66](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS12HII.mst"]
*#**************************************************************************
*#-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Subwatershed 9 External Drainage Area-----------------|
*#-----------------|-Per 'The Orchards' FSSWM Report-----------------------|
*#-----------------|-Prepared by Higgins Engineering (Jan. 2005)-----------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                        FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
                    ( DISTANCE (m), ELEVATION (m))= [0,102]
                                                    [8,100]
                                                    [12,100]
                                                    [20,102]
*%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                  [   0.0 ,  0.0 ]
                                  [   0.0100 ,  0.0610 ]
                                  [   0.0400 ,  0.1310 ]
                                  [   0.0700 ,  0.2110 ]
                                  [   0.2600 ,  0.3000 ]
                                  [   0.6000 ,  0.3940 ]
                                  [   1.0200 ,  0.4950 ]
                                  [   1.5200 ,  0.6020 ]
                                  [   2.0800 ,  0.7160 ]
                                  [   2.6900 ,  0.8370 ]
                                  [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-----|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Upper Terrace Lands-----------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
                    DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
                    N=[3], TP=[0.37]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
                    DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
                    N=[3], TP=[1.09]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
                    DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
                    N=[3], TP=[0.15]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
*#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN-------|
*#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                  [   0.0 ,  0.0 ]
                                  [   0.00 ,  0.479 ]
                                  [   0.00 ,  1.249 ]
                                  [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands-----------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
                    DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
                    N=[3], TP=[0.48]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
                    DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD--------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
*%-----------------|-------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
                    HYD_COMMENT=["Lakeshore Road Hydrograph"]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|----------WATERCOURSE 8----------------------------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["8A"], DT=[1]min, AREA=[12.13](ha),
                    DWF=[0](cms),  CN/C=[60.4], IA=[8.42](mm),
                    N=[3], TP=[0.56]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|----------WATERCOURSE 10---------------------------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["10A"], DT=[1]min, AREA=[2.08](ha),
                    DWF=[0](cms),  CN/C=[67.3], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,

                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|


*#**************************************************************************
*#**************************************************************************
*#                        25yr SCS Storm (12hr)
*#**************************************************************************
*#**************************************************************************
MASS STORM          PTOTAL=[79.2](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS12HII.mst"]
*#**************************************************************************
*#-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Subwatershed 9 External Drainage Area-----------------|
*#-----------------|-Per 'The Orchards' FSSWM Report-----------------------|
*#-----------------|-Prepared by Higgins Engineering (Jan. 2005)-----------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                        FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
                    ( DISTANCE (m), ELEVATION (m))= [0,102]
                                                    [8,100]
                                                    [12,100]
                                                    [20,102]
*%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                  [   0.0 ,  0.0 ]
                                  [   0.0100 ,  0.0610 ]
                                  [   0.0400 ,  0.1310 ]
                                  [   0.0700 ,  0.2110 ]
                                  [   0.2600 ,  0.3000 ]
                                  [   0.6000 ,  0.3940 ]
                                  [   1.0200 ,  0.4950 ]
                                  [   1.5200 ,  0.6020 ]
                                  [   2.0800 ,  0.7160 ]
                                  [   2.6900 ,  0.8370 ]
                                  [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-----|
*#-----------------|-------------------------------------------------------|
```

```
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
                    DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
                    N=[3], TP=[0.37]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
                    DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
                    N=[3], TP=[1.09]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
                    DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
                    N=[3], TP=[0.15]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
*#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
*#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                  [   0.0 ,  0.0 ]
                                  [   0.00 ,  0.479 ]
                                  [   0.00 ,  1.249 ]
                                  [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
                    DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
                    N=[3], TP=[0.48]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
                    DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
*%-----------------|-------------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
                    HYD_COMMENT=["Lakeshore Road Hydrograph"]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|----------WATERCOURSE 8----------------------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["8A"], DT=[1]min, AREA=[12.13](ha),
                    DWF=[0](cms),  CN/C=[60.4], IA=[8.42](mm),
                    N=[3], TP=[0.56]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|----------WATERCOURSE 10---------------------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["10A"], DT=[1]min, AREA=[2.08](ha),
                    DWF=[0](cms),  CN/C=[67.3], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,

                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|


*#**************************************************************************
*#**************************************************************************
*#                          50yr SCS Storm (12hr)
*#**************************************************************************
*#**************************************************************************
MASS STORM          PTOTAL=[88.8](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS12HII.mst"]
*#**************************************************************************
*#-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Subwatershed 9 External Drainage Area---------------------|
*#-----------------|-Per 'The Orchards' FSSWM Report----------------------------|
*#-----------------|-Prepared by Higgins Engineering (Jan. 2005)----------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
                    ( DISTANCE (m), ELEVATION (m))= [0,102]
                                                    [8,100]
                                                    [12,100]
                                                    [20,102]
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
```

```
*%-----------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                  [   0.0 ,  0.0 ]
                                  [   0.0100 ,  0.0610 ]
                                  [   0.0400 ,  0.1310 ]
                                  [   0.0700 ,  0.2110 ]
                                  [   0.2600 ,  0.3000 ]
                                  [   0.6000 ,  0.3940 ]
                                  [   1.0200 ,  0.4950 ]
                                  [   1.5200 ,  0.6020 ]
                                  [   2.0800 ,  0.7160 ]
                                  [   2.6900 ,  0.8370 ]
                                  [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing----------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
                    DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
                    N=[3], TP=[0.37]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
                    DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
                    N=[3], TP=[1.09]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
                    DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
                    N=[3], TP=[0.15]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
*#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
*#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                  [   0.0 ,  0.0 ]
                                  [   0.00 ,  0.479 ]
                                  [   0.00 ,  1.249 ]
                                  [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
                    DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
                    N=[3], TP=[0.48]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
                    DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
*%-----------------|-------------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
                    HYD_COMMENT=["Lakeshore Road Hydrograph"]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|----------WATERCOURSE 8----------------------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["8A"], DT=[1]min, AREA=[12.13](ha),
                    DWF=[0](cms),  CN/C=[60.4], IA=[8.42](mm),
                    N=[3], TP=[0.56]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|----------WATERCOURSE 10---------------------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["10A"], DT=[1]min, AREA=[2.08](ha),
                    DWF=[0](cms),  CN/C=[67.3], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,

                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|


*#**************************************************************************
*#**************************************************************************
*#                          100yr SCS Storm (12hr)
*#**************************************************************************
*#**************************************************************************
MASS STORM          PTOTAL=[98.4](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS12HII.mst"]
*#**************************************************************************
*#-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Subwatershed 9 External Drainage Area---------------------|
*#-----------------|-Per 'The Orchards' FSSWM Report----------------------------|
*#-----------------|-Prepared by Higgins Engineering (Jan. 2005)----------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
```

```
00811> *%-----------------|-------------------------------------------------------|
00812> ROUTE CHANNEL      IDout=[2], NHYD=["Channel"], IDin=[1],
00813>                    RDT=[1](min),
00814>                    CHLGTH=[550](m),  CHSLOPE=[2](%),
00815>                                      FPSLOPE=[2](%),
00816>                    SECNUM=[1],       NSEG=[3]
00817>                    ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
00818>                    ( DISTANCE (m), ELEVATION (m))= [0,102]
00819>                                                    [8,100]
00820>                                                    [12,100]
00821>                                                    [20,102]
00822> *%-----------------|-------------------------------------------------------|
00823> CALIB STANDHYD     ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00824>                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00825>                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00826>                            DCAY=[2](/hr), F=[0](mm),
00827>                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00828>                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00829>                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00830>                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00831>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00832> *%-----------------|-------------------------------------------------------|
00833> ROUTE RESERVOIR    IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00834>                    RDT=[1](min),
00835>                          TABLE of ( OUTFLOW-STORAGE ) values
00836>                                     (cms) - (ha-m)
00837>                                [   0.0 ,  0.0 ]
00838>                                [   0.0100 ,  0.0610 ]
00839>                                [   0.0400 ,  0.1310 ]
00840>                                [   0.0700 ,  0.2110 ]
00841>                                [   0.2600 ,  0.3000 ]
00842>                                [   0.6000 ,  0.3940 ]
00843>                                [   1.0200 ,  0.4950 ]
00844>                                [   1.5200 ,  0.6020 ]
00845>                                [   2.0800 ,  0.7160 ]
00846>                                [   2.6900 ,  0.8370 ]
00847>                                [   -1  ,  -1  ]  (max twenty pts)
00848>                          IDovf=[   ], NHYDovf=[   ]
00849> *%-----------------|-------------------------------------------------------|
00850> *#-----------------|-------------------------------------------------------|
00851> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00852> *#-----------------|-------------------------------------------------------|
00853> *%-----------------|-------------------------------------------------------|
00854> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00855> *%-----------------|-------------------------------------------------------|
00856> *#-----------------|-------------------------------------------------------|
00857> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00858> *#-----------------|-------------------------------------------------------|
00859> *%-----------------|-------------------------------------------------------|
00860> CALIB NASHYD       ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
00861>                    DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
00862>                    N=[3], TP=[0.37]hrs,
00863>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00864> *%-----------------|-------------------------------------------------------|
00865> CALIB NASHYD       ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
00866>                    DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
00867>                    N=[3], TP=[1.09]hrs,
00868>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00869> *%-----------------|-------------------------------------------------------|
00870> ADD HYD            IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00871> *%-----------------|-------------------------------------------------------|
00872> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00873>                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00874>                    N=[3], TP=[0.14]hrs,
00875>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00876> *%-----------------|-------------------------------------------------------|
00877> CALIB NASHYD       ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00878>                    DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00879>                    N=[3], TP=[0.15]hrs,
00880>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00881> *%-----------------|-------------------------------------------------------|
00882> *#-----------------|-------------------------------------------------------|
00883> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00884> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00885> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00886> *#-----------------|-------------------------------------------------------|
00887> *%-----------------|-------------------------------------------------------|
00888> ROUTE RESERVOIR    IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00889>                    RDT=[1](min),
00890>                          TABLE of ( OUTFLOW-STORAGE ) values
00891>                                     (cms) - (ha-m)
00892>                                [   0.0 ,  0.0 ]
00893>                                [   0.00 ,  0.479 ]
00894>                                [   0.00 ,  1.249 ]
00895>                                [   -1  ,  -1  ]  (max twenty pts)
00896>                          IDovf=[   ], NHYDovf=[   ]
00897> *%-----------------|-------------------------------------------------------|
00898> ADD HYD            IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
00899> *%-----------------|-------------------------------------------------------|
00900> *#-----------------|-------------------------------------------------------|
00901> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00902> *#-----------------|-------------------------------------------------------|
00903> *%-----------------|-------------------------------------------------------|
00904> CALIB NASHYD       ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
00905>                    DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
00906>                    N=[3], TP=[0.48]hrs,
00907>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00908> *%-----------------|-------------------------------------------------------|
00909> CALIB NASHYD       ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
00910>                    DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
00911>                    N=[3], TP=[0.71]hrs,
00912>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00913> *%-----------------|-------------------------------------------------------|
00914> *#-----------------|-------------------------------------------------------|
00915> *#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD-----------|
00916> *#-----------------|-------------------------------------------------------|
00917> *%-----------------|-------------------------------------------------------|
00918> ADD HYD            IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
00919> *%-----------------|-------------------------------------------------------|
00920> SAVE HYD           ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
00921>                    HYD_COMMENT=["Lakeshore Road Hydrograph"]
00922> *%-----------------|-------------------------------------------------------|
00923> *#-----------------|-------------------------------------------------------|
00924> *#-----------------|----------WATERCOURSE 8-----------------------------------|
00925> *#-----------------|-------------------------------------------------------|
00926> *%-----------------|-------------------------------------------------------|
00927> CALIB NASHYD       ID=[7], NHYD=["8A"], DT=[1]min, AREA=[12.13](ha),
00928>                    DWF=[0](cms),  CN/C=[60.4], IA=[8.42](mm),
00929>                    N=[3], TP=[0.56]hrs,
00930>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00931> *%-----------------|-------------------------------------------------------|
00932> *#-----------------|-------------------------------------------------------|
00933> *#-----------------|----------WATERCOURSE 10----------------------------------|
00934> *#-----------------|-------------------------------------------------------|
00935> *%-----------------|-------------------------------------------------------|
00936> CALIB NASHYD       ID=[7], NHYD=["10A"], DT=[1]min, AREA=[2.08](ha),
00937>                    DWF=[0](cms),  CN/C=[67.3], IA=[8.6](mm),
00938>                    N=[3], TP=[0.21]hrs,
00939>
00940>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00941> *%-----------------|-------------------------------------------------------|
00942>
00943>
00944> FINISH
00945>
00946>
00947>
00948>
00949>
```

```
00001> ================================================================================
00002>
00003>  SSSSS   W   W   M   M   H   H   Y   Y   M   M    OOO        222     000    11   77777 =========
00004>  S       W W W   MM MM   H   H    Y Y    MM MM   O   O         2   0   0   11       7  7
00005>  SSSSS   W W W   M M M   HHHHH     Y     M M M   O   O         2   0   0   11      7   7 Ver4.05.0
00006>      S   W W W   M   M   H   H     Y     M   M   O   O       2     0   0   11     7    APR 2017
00007>  SSSSS    W W    M   M   H   H     Y     M   M    OOO        2      0   0  11     7     =========
00008>                                                             2       0   0  11    7     # 3737016
00009>        StormWater Management HYdrologic Model                222     000    11   7     =========
00010>
00011>  ************************************************************************
00012>  *****************************  SWMHYMO Ver4.05.0  ************************
00013>  *****************  A single event and continuous hydrologic simulation model  ****************
00014>  *****************      based on the principles of HYMO and its successors      ****************
00015>  *****************                 OTTHYMO-83 and OTTHYMO-89.                   ****************
00016>  ************************************************************************
00017>  *****************  Distributed by:  J.F. Sabourin and Associates Inc.           ****************
00018>  *****************                  Ottawa,  Ontario: (613) 836-3884            ****************
00019>  *****************                  Gatineau, Quebec: (819) 243-6858            ****************
00020>  *****************                  E-Mail: swmhymo@jfsa.com                    ****************
00021>  ************************************************************************
00022>
00023>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00024>  ++++++++++++++++++ Licensed user: C.F. Crozier & Associates Inc.      ++++++++++++++++++
00025>  ++++++++++++++++++                 Collingwood          SERIAL#:3737016      ++++++++++++++++++
00026>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>  ************************************************************************
00029>  *****************           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            ****************
00030>  *****************           Maximum value for ID numbers  :     11           ****************
00031>  *****************           Max. number of rainfall points: 105408           ****************
00032>  *****************           Max. number of flow points    : 105408           ****************
00033>  ************************************************************************
00034>
00035>
00036>  ****************************   S U M M A R Y   O U T P U T   ********************************
00037>  ************************************************************************
00038>  *                RUN DATE: 2021-04-29     TIME: 14:33:11     RUN COUNTER: 000004                *
00039>  ************************************************************************
00040>  * Input   file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2021 Det*
00041>  *                Desn 3rd Sub\SWM\SWMHYMO\SCS12\PRE_SCS12.dat                                    *
00042>  * Output  file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2021 Det*
00043>  *                Desn 3rd Sub\SWM\SWMHYMO\SCS12\PRE_SCS12.out                                    *
00044>  * Summary file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2021 Det*
00045>  *                Desn 3rd Sub\SWM\SWMHYMO\SCS12\PRE_SCS12.sum                                    *
00046>  * User comments:                                                                               *
00047>  * 1:_____________________________________________________________________________________________*
00048>  * 2:_____________________________________________________________________________________________*
00049>  * 3:_____________________________________________________________________________________________*
00050>  ************************************************************************
00051>
00052>
00053> #************************************************************************
00054> #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00055> #  Date        : 2021-04-29
00056> #  Modeller    : [JE - ADAPTED FROM NM 2009 MODEL]
00057> #  Company     : C.F. Crozier & Associates Inc.
00058> #  License #   : 3737016
00059> #************************************************************************
00060>  RUN#:COMMAND#
00061> R0001:C00001------------------------------------------------------------------------------
00062>       START
00063>         [TZERO =    .00 hrs on       0]
00064>         [METOUT=   2   (1=imperial, 2=metric output)]
00065>         [NSTORM=   0 ]
00066>         [NRUN  = 0001 ]
00067> #*****************************************************************************
00068> #----------------|-----------------------------------------------------------|
00069> #----------------|-PRE-DEVELOPMENT---12hr SCS STORMS---------------------------|
00070> #----------------|-----------------------------------------------------------|
00071> #*****************************************************************************
00072> #                          2yr SCS Storm (12hr)
00073> #*****************************************************************************
00074> #*****************************************************************************
00075> R0001:C00002------------------------------------------------------------------------------
00076>       MASS STORM
00077>         Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
00078>         Comment  = 12 hour SCS II storm mass curve
00079>         [SDT= 1.00:SDUR=  12.00:PTOT=  39.60]
00080> #************************************************************************
00081> #----------------|-----------------------------------------------------------|
00082> #----------------|-[TZERO = .00]-----------------------------------------------|
00083> #----------------|-Subwatershed 9 External Drainage Area-----------------------|
00084> #----------------|-Per 'The Orchards' FSSWM Report-----------------------------|
00085> #----------------|-Prepared by Higgins Engineering (Jan. 2005)-----------------|
00086> #-'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00087> #----------------|-----------------------------------------------------------|
00088> R0001:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00089>      CALIB NASHYD            1.0 01:EXT-9A       101.80    1.144 No_date    7:04   12.20 .308     .000
00090>        [CN= 80.0: N= 3.00: Tp=  1.00]
00091> R0001:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00092>      ROUTE CHANNEL   ->    1.0 01:EXT-9A       101.80    1.144 No_date    7:04   12.20 n/a      .000
00093>        [RD= 1.00] out<-    1.0 02:Channel      101.80    1.139 No_date    7:07   12.20 n/a      .000
00094>         [L/S/n=  550./2.000/.035]
00095>         {Vmax= 1.190:Dmax=  .187}
00096> R0001:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00097>      CALIB STANDHYD          1.0 03:EXT-9B       14.80     .842 No_date    6:03   18.09 .457     .000
00098>        [XIMP=.35:TIMP=.35]
00099>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F=  .00]
00100>        [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00101>        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00102> R0001:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00103>      ROUTE RESERVOIR ->    1.0 03:EXT-9B       14.80     .842 No_date    6:03   18.09 n/a      .000
00104>                      out <=  1.0 04:Orchards   14.80     .066 No_date    7:07   18.09 n/a      .000
00105>      {MxStoUsed=.2008E+00  m3}
00106> #----------------|-----------------------------------------------------------|
00107> #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00108> #----------------|-----------------------------------------------------------|
00109> R0001:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00110>      ADD HYD                 1.0 02:Channel      101.80    1.139 No_date    7:07   12.20 n/a      .000
00111>                        +     1.0 04:Orchards     14.80     .066 No_date    7:07   18.09 n/a      .000
00112>                      SUM=    1.0 05:RD19         116.60    1.205 No_date    7:07   12.95 n/a      .000
00113> #----------------|-----------------------------------------------------------|
00114> #----------------|-Parkbridge Craigleith - Upper Terrace Lands-----------------|
00115> #----------------|-----------------------------------------------------------|
00116> R0001:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00117>      CALIB NASHYD            1.0 01:9A           2.57     .014 No_date    6:20    3.22 .081     .000
00118>        [CN= 48.4: N= 3.00: Tp=  .37]
00119> R0001:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00120>      CALIB NASHYD            1.0 02:9B           11.63     .064 No_date    7:15    6.74 .170     .000
00121>        [CN= 68.5: N= 3.00: Tp= 1.09]
00122> R0001:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00123>      ADD HYD                 1.0 01:9A           2.57     .014 No_date    6:20    3.22 n/a      .000
00124>                        +     1.0 02:9B           11.63     .064 No_date    7:15    6.74 n/a      .000
00125>                      SUM=    1.0 10:9A9B         14.20     .069 No_date    7:08    6.10 n/a      .000
00126> R0001:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00127>      CALIB NASHYD            1.0 01:9C           1.19     .006 No_date    6:04    1.66 .042     .000
00128>        [CN= 33.2: N= 3.00: Tp=  .14]
00129> R0001:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00130>      CALIB NASHYD            1.0 02:9D           2.02     .016 No_date    6:04    2.58 .065     .000
00131>        [CN= 41.9: N= 3.00: Tp=  .15]
00132> #----------------|-----------------------------------------------------------|
00133> #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00134> #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00135> #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00136> #----------------|-----------------------------------------------------------|
00137> R0001:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00138>      ROUTE RESERVOIR ->    1.0 02:9D           2.02     .016 No_date    6:04    2.58 n/a      .000
00139> *                    out <=  1.0 04:ExPond     2.02     .000 No_date    0:00     .00 n/a      .000
00140>      {MxStoUsed=.5220E-02  m3}
00141> R0001:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00142>      ADD HYD                 1.0 01:9C           1.19     .006 No_date    6:04    1.66 n/a      .000
00143>                        +     1.0 04:ExPond       2.02     .000 No_date    0:00     .00 n/a      .000
00144>                      SUM=    1.0 09:9C9D         3.21     .006 No_date    6:04     .62 n/a      .000
00145> #----------------|-----------------------------------------------------------|
00146> #----------------|-Parkbridge Craigleith - Lower Terrace Lands-----------------|
00147> #----------------|-----------------------------------------------------------|
00148> R0001:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00149>      CALIB NASHYD            1.0 07:9E           7.60     .032 No_date    6:30    3.02 .076     .000
00150>        [CN= 47.1: N= 3.00: Tp=  .48]
00151> R0001:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00152>      CALIB NASHYD            1.0 08:9F           3.35     .013 No_date    6:47    3.46 .087     .000
00153>        [CN= 50.4: N= 3.00: Tp=  .71]
00154> #----------------|-----------------------------------------------------------|
00155> #----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD-------------|
00156> #----------------|-----------------------------------------------------------|
00157> R0001:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00158>      ADD HYD                 1.0 05:RD19         116.60    1.205 No_date    7:07   12.95 n/a      .000
00159>                        +     1.0 10:9A9B         14.20     .069 No_date    7:08    6.10 n/a      .000
00160>                        +     1.0 09:9C9D         3.21      .006 No_date    6:04     .62 n/a      .000
00161>                        +     1.0 07:9E           7.60      .032 No_date    6:30    3.02 n/a      .000
00162>                        +     1.0 08:9F           3.35      .013 No_date    6:47    3.46 n/a      .000
00163>                      SUM=    1.0 01:WC9LS        144.96    1.306 No_date    7:06   11.27 n/a      .000
00164> R0001:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00165>      SAVE HYD                1.0 01:WC9LS        144.96    1.306 No_date    7:06   11.27 n/a      .000
00166>        fname :WC9LS.0001
00167>        remark:Lakeshore Road Hydrograph
00168> #----------------|-----------------------------------------------------------|
00169> #----------------|-WATERCOURSE 8-----------------------------------------------|
00170> #----------------|-----------------------------------------------------------|
00171> R0001:C00019------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00172>      CALIB NASHYD            1.0 07:8A           12.13     .077 No_date    6:36    4.92 .124     .000
00173>        [CN= 60.4: N= 3.00: Tp=  .56]
00174> #----------------|-----------------------------------------------------------|
00175> #----------------|-WATERCOURSE 10----------------------------------------------|
00176> #----------------|-----------------------------------------------------------|
00177> R0001:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00178>      CALIB NASHYD            1.0 07:10A          2.08      .034 No_date    6:08    6.22 .157     .000
00179>        [CN= 67.3: N= 3.00: Tp=  .21]
00180> #*****************************************************************************
00181> #*****************************************************************************
00182> #                          5yr SCS Storm (12hr)
00183> #*****************************************************************************
00184> #*****************************************************************************
00185> R0001:C00021------------------------------------------------------------------------------
00186>       MASS STORM
00187>         Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
00188>         Comment  = 12 hour SCS II storm mass curve
00189>         [SDT= 1.00:SDUR=  12.00:PTOT=  55.20]
00190> #************************************************************************
00191> #----------------|-----------------------------------------------------------|
00192> #----------------|-----------------------------------------------------------|
00193> #----------------|-Subwatershed 9 External Drainage Area-----------------------|
00194> #----------------|-Per 'The Orchards' FSSWM Report-----------------------------|
00195> #----------------|-Prepared by Higgins Engineering (Jan. 2005)-----------------|
00196> #-'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00197> #----------------|-----------------------------------------------------------|
00198> R0001:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00199>      CALIB NASHYD            1.0 01:EXT-9A       101.80    2.126 No_date    7:02   22.16 .402     .000
00200>        [CN= 80.0: N= 3.00: Tp= 1.00]
00201> R0001:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00202>      ROUTE CHANNEL   ->    1.0 01:EXT-9A       101.80    2.126 No_date    7:02   22.16 n/a      .000
00203>        [RD= 1.00] out<-    1.0 02:Channel      101.80    2.116 No_date    7:06   22.16 n/a      .000
00204>         [L/S/n=  550./2.000/.035]
00205>         {Vmax= 1.504:Dmax=  .265}
00206> R0001:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00207>      CALIB STANDHYD          1.0 03:EXT-9B       14.80     1.558 No_date    6:02   27.84 .504     .000
00208>        [XIMP=.35:TIMP=.35]
00209>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F=  .00]
00210>        [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00211>        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00212> R0001:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00213>      ROUTE RESERVOIR ->    1.0 03:EXT-9B       14.80     1.558 No_date    6:02   27.84 n/a      .000
00214>                      out <=  1.0 04:Orchards   14.80     .242 No_date    6:37   27.84 n/a      .000
00215>      {MxStoUsed=.2913E+00  m3}
00216> #----------------|-----------------------------------------------------------|
00217> #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00218> #----------------|-----------------------------------------------------------|
00219> R0001:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00220>      ADD HYD                 1.0 02:Channel      101.80    2.116 No_date    7:06   22.16 n/a      .000
00221>                        +     1.0 04:Orchards     14.80     .242 No_date    6:37   27.84 n/a      .000
00222>                      SUM=    1.0 05:RD19         116.60    2.325 No_date    7:03   22.88 n/a      .000
00223> #----------------|-----------------------------------------------------------|
00224> #----------------|-Parkbridge Craigleith - Upper Terrace Lands-----------------|
00225> #----------------|-----------------------------------------------------------|
00226> R0001:C00027------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00227>      CALIB NASHYD            1.0 01:9A           2.57      .032 No_date    6:18    6.90 .125     .000
00228>        [CN= 48.4: N= 3.00: Tp=  .37]
00229> R0001:C00028------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00230>      CALIB NASHYD            1.0 02:9B           11.63     .134 No_date    7:11   13.59 .246     .000
00231>        [CN= 68.5: N= 3.00: Tp= 1.09]
00232> R0001:C00029------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00233>      ADD HYD                 1.0 01:9A           2.57      .032 No_date    6:18    6.90 n/a      .000
00234>                        +     1.0 02:9B           11.63     .134 No_date    7:11   13.59 n/a      .000
00235>                      SUM=    1.0 10:9A9B         14.20     .145 No_date    7:04   12.38 n/a      .000
00236> R0001:C00030------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00237>      CALIB NASHYD            1.0 01:9C           1.19      .015 No_date    6:04    3.74 .068     .000
00238>        [CN= 33.2: N= 3.00: Tp=  .14]
00239> R0001:C00031------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00240>      CALIB NASHYD            1.0 02:9D           2.02      .036 No_date    6:04    5.55 .101     .000
00241>        [CN= 41.9: N= 3.00: Tp=  .15]
00242> #----------------|-----------------------------------------------------------|
00243> #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00244> #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00245> #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00246> #----------------|-----------------------------------------------------------|
00247> R0001:C00032------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00248>      ROUTE RESERVOIR ->    1.0 02:9D           2.02      .036 No_date    6:04    5.55 n/a      .000
00249> *                    out <=  1.0 04:ExPond     2.02      .000 No_date    0:00     .00 n/a      .000
00250>      {MxStoUsed=.1122E-01  m3}
00251> R0001:C00033------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00252>      ADD HYD                 1.0 01:9C           1.19      .015 No_date    6:04    3.74 n/a      .000
00253>                        +     1.0 04:ExPond       2.02      .000 No_date    0:00     .00 n/a      .000
00254>                      SUM=    1.0 09:9C9D         3.21      .015 No_date    6:04    1.38 n/a      .000
00255> #----------------|-----------------------------------------------------------|
00256> #----------------|-Parkbridge Craigleith - Lower Terrace Lands-----------------|
00257> #----------------|-----------------------------------------------------------|
00258> R0001:C00034------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00259>      CALIB NASHYD            1.0 07:9E           7.60      .073 No_date    6:28    6.52 .118     .000
00260>        [CN= 47.1: N= 3.00: Tp=  .48]
00261> R0001:C00035------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00262>      CALIB NASHYD            1.0 08:9F           3.35      .028 No_date    6:45    7.38 .134     .000
00263>        [CN= 50.4: N= 3.00: Tp=  .71]
00264> #----------------|-----------------------------------------------------------|
00265> #----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD-------------|
00266> #----------------|-----------------------------------------------------------|
00267> R0001:C00036------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00268>      ADD HYD                 1.0 05:RD19         116.60    2.325 No_date    7:03   22.88 n/a      .000
00269>                        +     1.0 10:9A9B         14.20     .145 No_date    7:04   12.38 n/a      .000
00270>                        +     1.0 09:9C9D         3.21      .015 No_date    6:04    1.38 n/a      .000
00271>                        +     1.0 07:9E           7.60      .073 No_date    6:28    6.52 n/a      .000
00272>                        +     1.0 08:9F           3.35      .028 No_date    6:45    7.38 n/a      .000
00273>                      SUM=    1.0 01:WC9LS        144.96    2.543 No_date    7:03   20.16 n/a      .000
00274> R0001:C00037------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00275>      SAVE HYD                1.0 01:WC9LS        144.96    2.543 No_date    7:03   20.16 n/a      .000
00276>        fname :WC9LS.0001
00277>        remark:Lakeshore Road Hydrograph
00278> #----------------|-----------------------------------------------------------|
00279> #----------------|-WATERCOURSE 8-----------------------------------------------|
00280> #----------------|-----------------------------------------------------------|
00281> R0001:C00038------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00282>      CALIB NASHYD            1.0 07:8A           12.13     .169 No_date    6:34   10.26 .186     .000
00283>        [CN= 60.4: N= 3.00: Tp=  .56]
00284> #----------------|-----------------------------------------------------------|
00285> #----------------|-WATERCOURSE 10----------------------------------------------|
00286> #----------------|-----------------------------------------------------------|
00287> R0001:C00039------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00288>      CALIB NASHYD            1.0 07:10A          2.08      .073 No_date    6:07   12.77 .231     .000
00289>        [CN= 67.3: N= 3.00: Tp=  .21]
00290> #*****************************************************************************
00291> #*****************************************************************************
00292> #                          10yr SCS Storm (12hr)
00293> #*****************************************************************************
00294> #*****************************************************************************
00295> R0001:C00040------------------------------------------------------------------------------
00296>       MASS STORM
00297>         Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
00298>         Comment  = 12 hour SCS II storm mass curve
00299>         [SDT= 1.00:SDUR=  12.00:PTOT=  66.00]
00300> #************************************************************************
00301> #----------------|-----------------------------------------------------------|
00302> #----------------|-----------------------------------------------------------|
00303> #----------------|-Subwatershed 9 External Drainage Area-----------------------|
00304> #----------------|-Per 'The Orchards' FSSWM Report-----------------------------|
00305> #----------------|-Prepared by Higgins Engineering (Jan. 2005)-----------------|
00306> #-'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00307> #----------------|-----------------------------------------------------------|
00308> R0001:C00041------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00309>      CALIB NASHYD            1.0 01:EXT-9A       101.80    2.893 No_date    7:01   29.89 .453     .000
00310>        [CN= 80.0: N= 3.00: Tp= 1.00]
00311> R0001:C00042------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00312>      ROUTE CHANNEL   ->    1.0 01:EXT-9A       101.80    2.893 No_date    7:01   29.89 n/a      .000
00313>        [RD= 1.00] out<-    1.0 02:Channel      101.80    2.883 No_date    7:05   29.89 n/a      .000
00314>         [L/S/n=  550./2.000/.035]
00315>         {Vmax= 1.710:Dmax=  .319}
00316> R0001:C00043------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00317>      CALIB STANDHYD          1.0 03:EXT-9B       14.80     2.078 No_date    6:02   35.32 .535     .000
00318>        [XIMP=.35:TIMP=.35]
00319>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F=  .00]
00320>        [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00321>        [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00322> R0001:C00044------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00323>      ROUTE RESERVOIR ->    1.0 03:EXT-9B       14.80     2.078 No_date    6:02   35.32 n/a      .000
00324>                      out <=  1.0 04:Orchards   14.80     .446 No_date    6:29   35.32 n/a      .000
00325>      {MxStoUsed=.3514E+00  m3}
00326> #----------------|-----------------------------------------------------------|
00327> #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00328> #----------------|-----------------------------------------------------------|
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R0001:C00045------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD             1.0 02:Channel      101.80    2.883 No_date    7:05   29.89  n/a      .000
                    +   1.0 04:Orchards      14.80     .446 No_date    6:29   35.32  n/a      .000
                 SUM=   1.0 05:RD19         116.60    3.198 No_date    7:00   30.58  n/a      .000
#-----------------|----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|----------------------------------------------------------|
R0001:C00046------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 01:9A             2.57     .047 No_date    6:18   10.10 .153      .000
      [CN= 48.4: N= 3.00: Tp=  .37]
R0001:C00047------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 02:9B            11.63     .192 No_date    7:10   19.26 .292      .000
      [CN= 68.5: N= 3.00: Tp= 1.09]
R0001:C00048------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD             1.0 01:9A             2.57     .047 No_date    6:18   10.10  n/a      .000
                    +   1.0 02:9B            11.63     .192 No_date    7:10   19.26  n/a      .000
                 SUM=   1.0 10:9A9B          14.20     .210 No_date    7:03   17.60  n/a      .000
R0001:C00049------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 01:9C             1.19     .022 No_date    6:04    5.61 .085      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0001:C00050------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 02:9D             2.02     .054 No_date    6:04    8.17 .124      .000
      [CN= 41.9: N= 3.00: Tp=  .15]
#-----------------|----------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
#-----------------|----------------------------------------------------------|
R0001:C00051------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 02:9D           2.02     .054 No_date    6:04    8.17  n/a      .000
 *                out <=  1.0 04:ExPond       2.02     .000 No_date    0:00     .00  n/a      .000
     {MxStoUsed=.1651E-01  m3}
R0001:C00052------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD             1.0 01:9C             1.19     .022 No_date    6:04    5.61  n/a      .000
                    +   1.0 04:ExPond         2.02     .000 No_date    0:00     .00  n/a      .000
                 SUM=   1.0 09:9C9D           3.21     .022 No_date    6:04    2.08  n/a      .000
#-----------------|----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|----------------------------------------------------------|
R0001:C00053------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 07:9E             7.60     .109 No_date    6:27    9.58 .145      .000
      [CN= 47.1: N= 3.00: Tp=  .48]
R0001:C00054------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 08:9F             3.35     .042 No_date    6:44   10.79 .163      .000
      [CN= 50.4: N= 3.00: Tp=  .71]
#-----------------|----------------------------------------------------------|
#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
#-----------------|----------------------------------------------------------|
R0001:C00055------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD             1.0 05:RD19         116.60    3.198 No_date    7:00   30.58  n/a      .000
                    +   1.0 10:9A9B          14.20     .210 No_date    7:03   17.60  n/a      .000
                    +   1.0 09:9C9D           3.21     .022 No_date    6:04    2.08  n/a      .000
                    +   1.0 07:9E             7.60     .109 No_date    6:27    9.58  n/a      .000
                    +   1.0 08:9F             3.35     .042 No_date    6:44   10.79  n/a      .000
                 SUM=   1.0 01:WC9LS        144.96    3.521 No_date    6:56   27.12  n/a      .000
R0001:C00056------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD            1.0 01:WC9LS        144.96    3.521 No_date    6:56   27.12  n/a      .000
      fname :WC9LS.0001
      remark:Lakeshore Road Hydrograph
#-----------------|----------------------------------------------------------|
#-----------------|-----------WATERCOURSE 8-----------------------------------|
#-----------------|----------------------------------------------------------|
R0001:C00057------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 07:8A            12.13     .248 No_date    6:33   14.79 .224      .000
      [CN= 60.4: N= 3.00: Tp=  .56]
#-----------------|----------------------------------------------------------|
#-----------------|-----------WATERCOURSE 10----------------------------------|
#-----------------|----------------------------------------------------------|
R0001:C00058------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 07:10A            2.08     .105 No_date    6:07   18.22 .276      .000
      [CN= 67.3: N= 3.00: Tp=  .21]
#*****************************************************************************
#*****************************************************************************
#                              25yr SCS Storm (12hr)
#*****************************************************************************
#*****************************************************************************
R0001:C00059-----------------------------------------------------------------------------------------
     MASS STORM
      Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
      Comment  = 12 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  12.00:PTOT=  79.20]
#*****************************************************************************
#-----------------|----------------------------------------------------------|
#-----------------|----------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area--------------------|
#-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|----------------------------------------------------------|
R0001:C00060------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 01:EXT-9A       101.80    3.899 No_date    7:00   39.98 .505      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00061------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->    1.0 01:EXT-9A     101.80    3.899 No_date    7:00   39.98  n/a      .000
     [RDT= 1.00] out<-    1.0 02:Channel    101.80    3.889 No_date    7:03   39.98  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.856:Dmax=  .372}
R0001:C00062------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD      1.0 03:EXT-9B        14.80    2.847 No_date    6:01   46.22 .584      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00063------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 03:EXT-9B      14.80    2.847 No_date    6:01   46.22  n/a      .000
                out <=    1.0 04:Orchards    14.80     .760 No_date    6:23   46.22  n/a      .000
     {MxStoUsed=.4324E+00  m3}
#-----------------|----------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|----------------------------------------------------------|
R0001:C00064------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD             1.0 02:Channel      101.80    3.889 No_date    7:03   39.98  n/a      .000
                    +   1.0 04:Orchards      14.80     .760 No_date    6:23   46.22  n/a      .000
                 SUM=   1.0 05:RD19         116.60    4.376 No_date    6:57   40.77  n/a      .000
#-----------------|----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|----------------------------------------------------------|
R0001:C00065------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 01:9A             2.57     .069 No_date    6:18   14.67 .185      .000
      [CN= 48.4: N= 3.00: Tp=  .37]
R0001:C00066------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 02:9B            11.63     .273 No_date    7:09   26.98 .341      .000
      [CN= 68.5: N= 3.00: Tp= 1.09]
R0001:C00067------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD             1.0 01:9A             2.57     .069 No_date    6:18   14.67  n/a      .000
                    +   1.0 02:9B            11.63     .273 No_date    7:09   26.98  n/a      .000
                 SUM=   1.0 10:9A9B          14.20     .299 No_date    7:01   24.75  n/a      .000
R0001:C00068------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 01:9C             1.19     .033 No_date    6:03    8.34 .105      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0001:C00069------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 02:9D             2.02     .079 No_date    6:04   11.94 .151      .000
      [CN= 41.9: N= 3.00: Tp=  .15]
#-----------------|----------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
#-----------------|----------------------------------------------------------|
R0001:C00070------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 02:9D           2.02     .079 No_date    6:04   11.94  n/a      .000
 *                out <=  1.0 04:ExPond       2.02     .000 No_date    0:00     .00  n/a      .000
     {MxStoUsed=.2412E-01  m3}
R0001:C00071------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD             1.0 01:9C             1.19     .033 No_date    6:03    8.34  n/a      .000
                    +   1.0 04:ExPond         2.02     .000 No_date    0:00     .00  n/a      .000
                 SUM=   1.0 09:9C9D           3.21     .033 No_date    6:03    3.09  n/a      .000
#-----------------|----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|----------------------------------------------------------|
R0001:C00072------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 07:9E             7.60     .161 No_date    6:26   13.97 .176      .000
      [CN= 47.1: N= 3.00: Tp=  .48]
R0001:C00073------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 08:9F             3.35     .061 No_date    6:43   15.63 .197      .000
      [CN= 50.4: N= 3.00: Tp=  .71]
#-----------------|----------------------------------------------------------|
#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
#-----------------|----------------------------------------------------------|
R0001:C00074------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD             1.0 05:RD19         116.60    4.376 No_date    6:57   40.77  n/a      .000
                    +   1.0 10:9A9B          14.20     .299 No_date    7:01   24.75  n/a      .000
                    +   1.0 09:9C9D           3.21     .033 No_date    6:03    3.09  n/a      .000
                    +   1.0 07:9E             7.60     .161 No_date    6:26   13.97  n/a      .000
                    +   1.0 08:9F             3.35     .061 No_date    6:43   15.63  n/a      .000
                 SUM=   1.0 01:WC9LS        144.96    4.845 No_date    6:57   36.38  n/a      .000
R0001:C00075------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD            1.0 01:WC9LS        144.96    4.845 No_date    6:57   36.38  n/a      .000
      fname :WC9LS.0001
      remark:Lakeshore Road Hydrograph
#-----------------|----------------------------------------------------------|
#-----------------|-----------WATERCOURSE 8-----------------------------------|
#-----------------|----------------------------------------------------------|
R0001:C00076------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 07:8A            12.13     .359 No_date    6:32   21.11 .267      .000
      [CN= 60.4: N= 3.00: Tp=  .56]
#-----------------|----------------------------------------------------------|
#-----------------|-----------WATERCOURSE 10----------------------------------|
#-----------------|----------------------------------------------------------|
R0001:C00077------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 07:10A            2.08     .150 No_date    6:07   25.69 .324      .000
      [CN= 67.3: N= 3.00: Tp=  .21]
#*****************************************************************************
#*****************************************************************************
#                              50yr SCS Storm (12hr)
#*****************************************************************************
#*****************************************************************************
R0001:C00078-----------------------------------------------------------------------------------------
     MASS STORM
      Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
      Comment  = 12 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  12.00:PTOT=  88.80]
#*****************************************************************************
#-----------------|----------------------------------------------------------|
#-----------------|----------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area--------------------|
#-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|----------------------------------------------------------|
R0001:C00079------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 01:EXT-9A       101.80    4.667 No_date    6:59   47.67 .537      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00080------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->    1.0 01:EXT-9A     101.80    4.667 No_date    6:59   47.67  n/a      .000
     [RDT= 1.00] out<-    1.0 02:Channel    101.80    4.660 No_date    7:02   47.67  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.985:Dmax=  .413}
R0001:C00081------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD      1.0 03:EXT-9B        14.80    3.300 No_date    6:01   53.23 .599      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00082------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 03:EXT-9B      14.80    3.300 No_date    6:01   53.23  n/a      .000
                out <=    1.0 04:Orchards    14.80     .969 No_date    6:21   53.22  n/a      .000
     {MxStoUsed=.4829E+00  m3}
#-----------------|----------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|----------------------------------------------------------|
R0001:C00083------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD             1.0 02:Channel      101.80    4.660 No_date    7:02   47.67  n/a      .000
                    +   1.0 04:Orchards      14.80     .969 No_date    6:21   53.22  n/a      .000
                 SUM=   1.0 05:RD19         116.60    5.259 No_date    6:56   48.38  n/a      .000
#-----------------|----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|----------------------------------------------------------|
R0001:C00084------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 01:9A             2.57     .087 No_date    6:17   18.41 .207      .000
      [CN= 48.4: N= 3.00: Tp=  .37]
R0001:C00085------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 02:9B            11.63     .337 No_date    7:08   33.05 .372      .000
      [CN= 68.5: N= 3.00: Tp= 1.09]
R0001:C00086------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD             1.0 01:9A             2.57     .087 No_date    6:17   18.41  n/a      .000
                    +   1.0 02:9B            11.63     .337 No_date    7:08   33.05  n/a      .000
                 SUM=   1.0 10:9A9B          14.20     .369 No_date    7:00   30.40  n/a      .000
R0001:C00087------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 01:9C             1.19     .043 No_date    6:03   10.63 .120      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0001:C00088------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 02:9D             2.02     .100 No_date    6:04   15.04 .169      .000
      [CN= 41.9: N= 3.00: Tp=  .15]
#-----------------|----------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
#-----------------|----------------------------------------------------------|
R0001:C00089------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 02:9D           2.02     .100 No_date    6:04   15.04  n/a      .000
 *                out <=  1.0 04:ExPond       2.02     .000 No_date    0:00     .00  n/a      .000
     {MxStoUsed=.3038E-01  m3}
R0001:C00090------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD             1.0 01:9C             1.19     .043 No_date    6:03   10.63  n/a      .000
                    +   1.0 04:ExPond         2.02     .000 No_date    0:00     .00  n/a      .000
                 SUM=   1.0 09:9C9D           3.21     .043 No_date    6:03    3.94  n/a      .000
#-----------------|----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|----------------------------------------------------------|
R0001:C00091------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 07:9E             7.60     .204 No_date    6:26   17.56 .198      .000
      [CN= 47.1: N= 3.00: Tp=  .48]
R0001:C00092------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 08:9F             3.35     .077 No_date    6:43   19.57 .220      .000
      [CN= 50.4: N= 3.00: Tp=  .71]
#-----------------|----------------------------------------------------------|
#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
#-----------------|----------------------------------------------------------|
R0001:C00093------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD             1.0 05:RD19         116.60    5.259 No_date    6:56   48.38  n/a      .000
                    +   1.0 10:9A9B          14.20     .369 No_date    7:00   30.40  n/a      .000
                    +   1.0 09:9C9D           3.21     .043 No_date    6:03    3.94  n/a      .000
                    +   1.0 07:9E             7.60     .204 No_date    6:26   17.56  n/a      .000
                    +   1.0 08:9F             3.35     .077 No_date    6:43   19.57  n/a      .000
                 SUM=   1.0 01:WC9LS        144.96    5.847 No_date    6:56   43.35  n/a      .000
R0001:C00094------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD            1.0 01:WC9LS        144.96    5.847 No_date    6:56   43.35  n/a      .000
      fname :WC9LS.0001
      remark:Lakeshore Road Hydrograph
#-----------------|----------------------------------------------------------|
#-----------------|-----------WATERCOURSE 8-----------------------------------|
#-----------------|----------------------------------------------------------|
R0001:C00095------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 07:8A            12.13     .448 No_date    6:32   26.17 .295      .000
      [CN= 60.4: N= 3.00: Tp=  .56]
#-----------------|----------------------------------------------------------|
#-----------------|-----------WATERCOURSE 10----------------------------------|
#-----------------|----------------------------------------------------------|
R0001:C00096------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 07:10A            2.08     .186 No_date    6:07   31.59 .356      .000
      [CN= 67.3: N= 3.00: Tp=  .21]
#*****************************************************************************
#*****************************************************************************
#                              100yr SCS Storm (12hr)
#*****************************************************************************
#*****************************************************************************
R0001:C00097-----------------------------------------------------------------------------------------
     MASS STORM
      Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
      Comment  = 12 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  12.00:PTOT=  98.40]
#*****************************************************************************
#-----------------|----------------------------------------------------------|
#-----------------|----------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area--------------------|
#-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|----------------------------------------------------------|
R0001:C00098------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD        1.0 01:EXT-9A       101.80    5.459 No_date    6:59   55.60 .565      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00099------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->    1.0 01:EXT-9A     101.80    5.459 No_date    6:59   55.60  n/a      .000
     [RDT= 1.00] out<-    1.0 02:Channel    101.80    5.446 No_date    7:02   55.60  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 2.076:Dmax=  .448}
R0001:C00100------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD      1.0 03:EXT-9B        14.80    3.868 No_date    6:01   61.12 .621      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00101------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 03:EXT-9B      14.80    3.868 No_date    6:01   61.12  n/a      .000
                out <=    1.0 04:Orchards    14.80    1.227 No_date    6:19   61.11  n/a      .000
     {MxStoUsed=.5393E+00  m3}
#-----------------|----------------------------------------------------------|
```

```
00657> #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing--------|
00658> #----------------|-----------------------------------------------------------|
00659> R0001:C00102-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00660>     ADD HYD              1.0 02:Channel      101.80    5.446 No_date    7:02   55.60  n/a     .000
00661>                    +     1.0 04:Orchards      14.80    1.227 No_date    6:19   61.11  n/a     .000
00662>                SUM=      1.0 05:RD19         116.60    6.162 No_date    6:56   56.30  n/a     .000
00663> #----------------|-----------------------------------------------------------|
00664> #----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00665> #----------------|-----------------------------------------------------------|
00666> R0001:C00103-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00667>     CALIB NASHYD         1.0 01:9A             2.57     .107 No_date    6:17   22.45 .228     .000
00668>       [CN= 48.4: N= 3.00: Tp=  .37]
00669> R0001:C00104-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00670>     CALIB NASHYD         1.0 02:9B            11.63     .404 No_date    7:08   39.45 .401     .000
00671>       [CN= 68.5: N= 3.00: Tp= 1.09]
00672> R0001:C00105-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00673>     ADD HYD              1.0 01:9A             2.57     .107 No_date    6:17   22.45  n/a     .000
00674>                    +     1.0 02:9B            11.63     .404 No_date    7:08   39.45  n/a     .000
00675>                SUM=      1.0 10:9A9B          14.20     .444 No_date    6:59   36.38  n/a     .000
00676> R0001:C00106-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00677>     CALIB NASHYD         1.0 01:9C             1.19     .053 No_date    6:03   13.15 .134     .000
00678>       [CN= 33.2: N= 3.00: Tp=  .14]
00679> R0001:C00107-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00680>     CALIB NASHYD         1.0 02:9D             2.02     .123 No_date    6:04   18.42 .187     .000
00681>       [CN= 41.9: N= 3.00: Tp=  .15]
00682> #----------------|-----------------------------------------------------------|
00683> #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00684> #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00685> #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00686> #----------------|-----------------------------------------------------------|
00687> R0001:C00108-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00688>     ROUTE RESERVOIR ->   1.0 02:9D             2.02     .123 No_date    6:04   18.42  n/a     .000
00689>  *              out <=   1.0 04:ExPond         2.02     .000 No_date    0:00     .00  n/a     .000
00690>      {MxStoUsed=.3722E-01  m3}
00691> R0001:C00109-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00692>     ADD HYD              1.0 01:9C             1.19     .053 No_date    6:03   13.15  n/a     .000
00693>                    +     1.0 04:ExPond         2.02     .000 No_date    0:00     .00  n/a     .000
00694>                SUM=      1.0 09:9C9D           3.21     .053 No_date    6:03    4.87  n/a     .000
00695> #----------------|-----------------------------------------------------------|
00696> #----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00697> #----------------|-----------------------------------------------------------|
00698> R0001:C00110-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00699>     CALIB NASHYD         1.0 07:9E             7.60     .251 No_date    6:26   21.46 .218     .000
00700>       [CN= 47.1: N= 3.00: Tp=  .48]
00701> R0001:C00111-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00702>     CALIB NASHYD         1.0 08:9F             3.35     .094 No_date    6:43   23.83 .242     .000
00703>       [CN= 50.4: N= 3.00: Tp=  .71]
00704> #----------------|-----------------------------------------------------------|
00705> #----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
00706> #----------------|-----------------------------------------------------------|
00707> R0001:C00112-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00708>     ADD HYD              1.0 05:RD19         116.60    6.162 No_date    6:56   56.30  n/a     .000
00709>                    +     1.0 10:9A9B          14.20     .444 No_date    6:59   36.38  n/a     .000
00710>                    +     1.0 09:9C9D           3.21     .053 No_date    6:03    4.87  n/a     .000
00711>                    +     1.0 07:9E             7.60     .251 No_date    6:26   21.46  n/a     .000
00712>                    +     1.0 08:9F             3.35     .094 No_date    6:43   23.83  n/a     .000
00713>                SUM=      1.0 01:WC9LS        144.96    6.874 No_date    6:55   50.63  n/a     .000
00714> R0001:C00113-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00715>     SAVE HYD             1.0 01:WC9LS        144.96    6.874 No_date    6:55   50.63  n/a     .000
00716>       fname :WC9LS.0001
00717>       remark:Lakeshore Road Hydrograph
00718> #----------------|-----------------------------------------------------------|
00719> #----------------|-----------WATERCOURSE 8-----------------------------------|
00720> #----------------|-----------------------------------------------------------|
00721> R0001:C00114-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00722>     CALIB NASHYD         1.0 07:8A            12.13     .543 No_date    6:31   31.56 .321     .000
00723>       [CN= 60.4: N= 3.00: Tp=  .56]
00724> #----------------|-----------------------------------------------------------|
00725> #----------------|-----------WATERCOURSE 10----------------------------------|
00726> #----------------|-----------------------------------------------------------|
00727> R0001:C00115-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00728>     CALIB NASHYD         1.0 07:10A            2.08     .224 No_date    6:07   37.82 .384     .000
00729>       [CN= 67.3: N= 3.00: Tp=  .21]
00730> R0001:C00116-------------------------------------------------------------------------------------------
00731>     FINISH
00732> -------------------------------------------------------------------------------------------------------
00733> *******************************************************************************************************
00734>      WARNINGS / ERRORS / NOTES
00735>      -------------------------
00736> R0001:C00013  ROUTE RESERVOIR
00737> *** WARNING: Outflow volume is less than inflow volume.
00738> R0001:C00032  ROUTE RESERVOIR
00739> *** WARNING: Outflow volume is less than inflow volume.
00740> R0001:C00051  ROUTE RESERVOIR
00741> *** WARNING: Outflow volume is less than inflow volume.
00742> R0001:C00070  ROUTE RESERVOIR
00743> *** WARNING: Outflow volume is less than inflow volume.
00744> R0001:C00089  ROUTE RESERVOIR
00745> *** WARNING: Outflow volume is less than inflow volume.
00746> R0001:C00108  ROUTE RESERVOIR
00747> *** WARNING: Outflow volume is less than inflow volume.
00748>    Simulation ended on 2021-04-29     at 14:33:20
00749> ===================================================================================================
00750>
00751>
```

```
00001> 2     Metric units
00002> *#************************************************************************
00003> *#  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00004> *#  Date        : 2021.04.29
00005> *#  Modeller    : [JE]
00006> *#  Company     : C.F. Crozier & Associates Inc.
00007> *#  License #   : 3737016
00008> *#************************************************************************
00009> START               TZERO=[0.0],  METOUT=[2],  NSTORM=[0],  NRUN=[0]
00010> *%                    [ ] <--storm filename, one per line for NSTORM time
00011> *#************************************************************************
00012> *%-----------------|------------------------------------------------------|
00013> *#-----------------|------------------------------------------------------|
00014> *#-----------------|-POST-DEVELOPMENT----12 hr SCS STORMS-----------------|
00015> *#-----------------|------------------------------------------------------|
00016>
00017> *#************************************************************************
00018> *#                              2yr SCS Storm (12hr)
00019> *#************************************************************************
00020> *#************************************************************************
00021> MASS STORM           PTOTAL=[39.6](mm), CSDT=[1](min),
00022>                      CURVE_FILENAME=["SCS12HII.mst"]
00023> *#************************************************************************
00024> *#-----------------|------------------------------------------------------|
00025> *#-----------------|-Subwatershed 9 External Drainage Area----------------|
00026> *#-----------------|-Per 'The Orchards' FSSWM Report----------------------|
00027> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)----------|
00028> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00029> *#-----------------|------------------------------------------------------|
00030> *%-----------------|------------------------------------------------------|
00031> CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00032>                      DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00033>                      N=[3], TP=[1.00]hrs,
00034>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00035> *%-----------------|------------------------------------------------------|
00036> ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
00037>                      RDT=[1](min),
00038>                      CHLGTH=[550](m),  CHSLOPE=[2](%),
00039>                                        FPSLOPE=[2](%),
00040>                      SECNUM=[1],       NSEG=[3]
00041>                      ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
00042>                      ( DISTANCE (m), ELEVATION (m))=[0,102]
00043>                                                    [8,100]
00044>                                                    [12,100]
00045>                                                    [20,102]
00046> *%-----------------|------------------------------------------------------|
00047> CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00048>                      XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00049>                      Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00050>                              DCAY=[2](/hr), F=[0](mm),
00051>                      Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00052>                                           LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00053>                      Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00054>                                           LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00055>                      RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00056> *%-----------------|------------------------------------------------------|
00057> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00058>                      RDT=[1](min),
00059>                           TABLE of ( OUTFLOW-STORAGE ) values
00060>                                    (cms) - (ha-m)
00061>                                  [   0.0 ,  0.0 ]
00062>                                  [   0.0100 ,  0.0610 ]
00063>                                  [   0.0400 ,  0.1310 ]
00064>                                  [   0.0700 ,  0.2110 ]
00065>                                  [   0.2600 ,  0.3000 ]
00066>                                  [   0.6000 ,  0.3940 ]
00067>                                  [   1.0200 ,  0.4950 ]
00068>                                  [   1.5200 ,  0.6020 ]
00069>                                  [   2.0800 ,  0.7160 ]
00070>                                  [   2.6900 ,  0.8370 ]
00071>                           IDovf=[ ], NHYDovf=[  ]
00072> *%-----------------|------------------------------------------------------|
00073> *#-----------------|------------------------------------------------------|
00074> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-----|
00075> *#-----------------|------------------------------------------------------|
00076> *%-----------------|------------------------------------------------------|
00077> ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00078> *%-----------------|------------------------------------------------------|
00079> CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
00080>                      DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
00081>                      N=[3], TP=[0.24]hrs,
00082>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00083> *%-----------------|------------------------------------------------------|
00084> *#-----------------|------------------------------------------------------|
00085> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands----------|
00086> *#-----------------|------------------------------------------------------|
00087> *%-----------------|------------------------------------------------------|
00088> CALIB NASHYD        ID=[2], NHYD=["9A9B"], DT=[1]min, AREA=[2.68](ha),
00089>                      DWF=[0](cms),  CN/C=[55.9], IA=[8.0](mm),
00090>                      N=[3], TP=[0.30]hrs,
00091>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00092> *%-----------------|------------------------------------------------------|
00093> ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,2,5]
00094> *%-----------------|------------------------------------------------------|
00095> *#-----------------|------------------------------------------------------|
00096> *#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
00097> *#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1----------------------|
00098> *#-----------------|------------------------------------------------------|
00099> *%-----------------|------------------------------------------------------|
00100> CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
00101>                      DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
00102>                      N=[3], TP=[0.47]hrs,
00103>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00104> *%-----------------|------------------------------------------------------|
00105> CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
00106>                      XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
00107>                      SCS curve number CN=[67.0],
00108>                      Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
00109>                                           LGP=[30](m), MNP=[0.25], SCP=[0](min),
00110>                      Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
00111>                                           LGI=[44](m), MNI=[0.013], SCI=[0](min),
00112>                      RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00113> *%-----------------|------------------------------------------------------|
00114> CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
00115>                      DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
00116>                      N=[3], TP=[0.11]hrs,
00117>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00118> *%-----------------|------------------------------------------------------|
00119> ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
00120> *%-----------------|------------------------------------------------------|
00121> *#-----------------|------------------------------------------------------|
00122> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
00123> *#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
00124> *#-----------------|------------------------------------------------------|
00125> *%-----------------|------------------------------------------------------|
00126> ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
00127>                      RDT=[1](min),
00128>                           TABLE of ( OUTFLOW-STORAGE ) values
00129>                                    (cms) - (ha-m)
00130>                                  [   0.0 ,  0.0 ]
00131>                                  [   0.005 ,  0.018 ]
00132>                                  [   0.011 ,  0.058 ]
00133>                                  [   0.015 ,  0.104 ]
00134>                                  [   0.017 ,  0.141 ]
00135>                                  [   0.019 ,  0.182 ]
00136>                                  [   0.024 ,  0.303 ]
00137>                                  [   0.028 ,  0.443 ]
00138>                                  [   0.031 ,  0.601 ]
00139>                                  [   0.032 ,  1.119 ]
00140>                                  [   0.033 ,  1.163 ]
00141>                                  [   0.359 ,  1.207 ]
00142>                                  [   1.054 ,  1.253 ]
00143>                                  [   -1  ,  -1  ]  (max twenty pts)
00144>                           IDovf=[   ], NHYDovf=[   ]
00145> *%-----------------|------------------------------------------------------|
00146> ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
00147> *%-----------------|------------------------------------------------------|
00148> *#-----------------|------------------------------------------------------|
00149> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands----------|
00150> *#-----------------|------------------------------------------------------|
00151> *%-----------------|------------------------------------------------------|
00152> *#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
00153> *#-----------------|------------------------------------------------------|
00154> CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.38](ha),
00155>                      XIMP=[0.334], TIMP=[0.682], DWF=[0](cms), LOSS=[2],
00156>                      SCS curve number CN=[66.2],
00157>                      Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00158>                                           LGP=[30](m), MNP=[0.25], SCP=[0](min),
00159>                      Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
00160>                                           LGI=[96](m), MNI=[0.013], SCI=[0](min),
00161>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00162> *%-----------------|------------------------------------------------------|
00163> *#-----------------|------------------------------------------------------|
00164> *#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED------------------|
00165> *#-----------------|------------------------------------------------------|
00166> *%-----------------|------------------------------------------------------|
00167> CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.73](ha),
00168>                      DWF=[0](cms),  CN/C=[56.7], IA=[6.52](mm),
00169>                      N=[3], TP=[0.28]hrs,
00170>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00171> *%-----------------|------------------------------------------------------|
00172> CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.41](ha),
00173>                      DWF=[0](cms),  CN/C=[65.0], IA=[8.0](mm),
00174>                      N=[3], TP=[0.62]hrs,
00175>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00176> *%-----------------|------------------------------------------------------|
00177> CALIB NASHYD        ID=[3], NHYD=["9C9E"], DT=[1]min, AREA=[2.06](ha),
00178>                      DWF=[0](cms),  CN/C=[58.2], IA=[7.32](mm),
00179>                      N=[3], TP=[0.33]hrs,
00180>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00181> *%-----------------|------------------------------------------------------|
00182> ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,7,10]
00183> *%-----------------|------------------------------------------------------|
00184> *#-----------------|------------------------------------------------------|
00185> *#-----------------|-LANDS DRAINING TO SWM FACILITY 2---------------------|
00186> *#-----------------|------------------------------------------------------|
00187> CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
00188>                      DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00189>                      N=[3], TP=[0.14]hrs,
00190>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00191> *%-----------------|------------------------------------------------------|
00192> CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
00193>                      DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
00194>                      N=[3], TP=[0.32]hrs,
00195>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00196> *%-----------------|------------------------------------------------------|
00197> CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
00198>                      XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
00199>                      SCS curve number CN=[49],
00200>                      Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00201>                                           LGP=[30](m), MNP=[0.25], SCP=[0](min),
00202>                      Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00203>                                           LGI=[114](m), MNI=[0.013], SCI=[0](min)
00204>                      RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00205> *%-----------------|------------------------------------------------------|
00206> CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
00207>                      XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
00208>                      SCS curve number CN=[59],
00209>                      Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00210>                                           LGP=[30](m), MNP=[0.25], SCP=[0](min),
00211>                      Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00212>                                           LGI=[148](m), MNI=[0.013], SCI=[0](min)
00213>                      RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00214> *%-----------------|------------------------------------------------------|
00215> CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[2.09](ha),
00216>                      XIMP=[0.262], TIMP=[0.35], DWF=[0](cms), LOSS=[2],
00217>                      SCS curve number CN=[69],
00218>                      Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00219>                                           LGP=[30](m), MNP=[0.25], SCP=[0](min),
00220>                      Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00221>                                           LGI=[118](m), MNI=[0.013], SCI=[0](min)
00222>                      RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00223> *%-----------------|------------------------------------------------------|
00224> ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[1,2,3,4,7]
00225> *%-----------------|------------------------------------------------------|
00226> *#-----------------|------------------------------------------------------|
00227> *#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
00228> *#-----------------|------------------------------------------------------|
00229> *%-----------------|------------------------------------------------------|
00230> ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
00231>                      RDT=[1](min),
00232>                           TABLE of ( OUTFLOW-STORAGE ) values
00233>                                    (cms) - (ha-m)
00234>                                  [   0.0 ,  0.0 ]
00235>                                  [   0.004 ,  0.016 ]
00236>                                  [   0.009 ,  0.053 ]
00237>                                  [   0.011 ,  0.074 ]
00238>                                  [   0.013 ,  0.119 ]
00239>                                  [   0.014 ,  0.132 ]
00240>                                  [   0.016 ,  0.171 ]
00241>                                  [   0.017 ,  0.199 ]
00242>                                  [   0.018 ,  0.228 ]
00243>                                  [   0.344 ,  0.259 ]
00244>                                  [   1.040 ,  0.291 ]
00245>                                  [   2.076 ,  0.325 ]
00246>                                  [   -1  ,  -1  ]  (max twenty pts)
00247>                           IDovf=[   ], NHYDovf=[   ]
00248> *%-----------------|------------------------------------------------------|
00249> *#-----------------|------------------------------------------------------|
00250> *#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD------------|
00251> *#-----------------|------------------------------------------------------|
00252> *%-----------------|------------------------------------------------------|
00253> ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
00254> *%-----------------|------------------------------------------------------|
00255> SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
00256>                      HYD_COMMENT=["POST-DEV LAKESHORE"]
00257> *%-----------------|------------------------------------------------------|
00258> *#-----------------|------------------------------------------------------|
00259> *#-----------------|--WATERCOURSE 8 CATCHMENTS----------------------------|
00260> *#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8---------------|
00261> *#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8-----------|
00262> *#-----------------|------------------------------------------------------|
00263> *%-----------------|------------------------------------------------------|
00264> CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
00265>                      DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
00266>                      N=[3], TP=[0.23]hrs,
00267>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00268> *%-----------------|------------------------------------------------------|
00269> CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
00270>                      DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
```

```
                      N=[3], TP=[0.41]hrs,
                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["EXT-8B"], DT=[1]min, AREA=[1.04](ha),
                    DWF=[0](cms),  CN/C=[58.6], IA=[6.75](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|----------WATERCOURSE 8-----------------------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC8"], IDs to add=[1,2,3]
*%-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|--WATERCOURSE 10 CATCHMENT-------------------------------|
*#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10---------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["10A"], DT=[1]min, AREA=[1.99](ha),
                    DWF=[0](cms),  CN/C=[59.4], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|


*#**********************************************************************
*#**********************************************************************
*#                          5yr SCS Storm (12hr)
*#**********************************************************************
*#**********************************************************************
MASS STORM          PTOTAL=[55.2](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS12HII.mst"]
*#**********************************************************************
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Subwatershed 9 External Drainage Area--------------------|
*#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
*#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
                    ( DISTANCE (m), ELEVATION (m))=[0,102]
                                                   [8,100]
                                                   [12,100]
                                                   [20,102]
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                               [   0.0 ,  0.0 ]
                               [   0.0100 ,  0.0610 ]
                               [   0.0400 ,  0.1310 ]
                               [   0.0700 ,  0.2110 ]
                               [   0.2600 ,  0.3000 ]
                               [   0.6000 ,  0.3940 ]
                               [   1.0200 ,  0.4950 ]
                               [   1.5200 ,  0.6020 ]
                               [   2.0800 ,  0.7160 ]
                               [   2.6900 ,  0.8370 ]
                         IDovf=[ ], NHYDovf=[  ]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
                    N=[3], TP=[0.24]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9A9B"], DT=[1]min, AREA=[2.68](ha),
                    DWF=[0](cms),  CN/C=[55.9], IA=[8.0](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,2,5]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
*#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
                    N=[3], TP=[0.47]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[67.0],
                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
                    N=[3], TP=[0.11]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
*#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                               [   0.0 ,  0.0 ]
                               [   0.005 ,  0.018 ]
                               [   0.011 ,  0.058 ]
                               [   0.015 ,  0.104 ]
                               [   0.017 ,  0.141 ]
                               [   0.019 ,  0.182 ]
                               [   0.024 ,  0.303 ]
                               [   0.028 ,  0.443 ]
                               [   0.031 ,  0.601 ]
                               [   0.032 ,  1.119 ]
                               [   0.033 ,  1.163 ]
                               [   0.359 ,  1.207 ]
                               [   1.054 ,  1.253 ]
                               [   -1  ,  -1  ]  (max twenty pts)
                         IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
*#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
*#-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.38](ha),
                    XIMP=[0.334], TIMP=[0.682], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66.2],
                    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=[96](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.73](ha),
                    DWF=[0](cms),  CN/C=[56.7], IA=[6.52](mm),
                    N=[3], TP=[0.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.41](ha),
                    DWF=[0](cms),  CN/C=[65.0], IA=[8.0](mm),
                    N=[3], TP=[0.62]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["9C9E"], DT=[1]min, AREA=[2.06](ha),
                    DWF=[0](cms),  CN/C=[58.2], IA=[7.32](mm),
                    N=[3], TP=[0.33]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,7,10]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-LANDS DRAINING TO SWM FACILITY 2--------------------------|
*#-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
                    XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[49],
                    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=[1.0](%),
                                         LGI=[114](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
                    XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[59],
                    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=[1.0](%),
                                         LGI=[148](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[2.09](ha),
                    XIMP=[0.262], TIMP=[0.35], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    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=[1.0](%),
                                         LGI=[118](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[1,2,3,4,7]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                               [   0.0 ,  0.0 ]
                               [   0.004 ,  0.016 ]
                               [   0.009 ,  0.053 ]
                               [   0.011 ,  0.074 ]
                               [   0.013 ,  0.119 ]
                               [   0.014 ,  0.132 ]
                               [   0.016 ,  0.171 ]
                               [   0.017 ,  0.199 ]
                               [   0.018 ,  0.228 ]
                               [   0.344 ,  0.259 ]
                               [   1.040 ,  0.291 ]
                               [   2.076 ,  0.325 ]
                               [   -1  ,  -1  ]  (max twenty pts)
                         IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
*%-----------------|-------------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
                    HYD_COMMENT=["POST-DEV LAKESHORE"]
*%-----------------|-------------------------------------------------------------|
```

```
00541> *#-----------------|-------------------------------------------------------|
00542> *#-----------------|--WATERCOURSE 8 CATCHMENTS-----------------------------|
00543> *#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-----------------|
00544> *#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8-------------|
00545> *#-----------------|-------------------------------------------------------|
00546> *%-----------------|-------------------------------------------------------|
00547> CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
00548>                     DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
00549>                     N=[3], TP=[0.23]hrs,
00550>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00551> *%-----------------|-------------------------------------------------------|
00552> CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
00553>                     DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
00554>                     N=[3], TP=[0.41]hrs,
00555>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00556> *%-----------------|-------------------------------------------------------|
00557> CALIB NASHYD        ID=[3], NHYD=["EXT-8B"], DT=[1]min, AREA=[1.04](ha),
00558>                     DWF=[0](cms),  CN/C=[58.6], IA=[6.75](mm),
00559>                     N=[3], TP=[0.41]hrs,
00560>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00561> *%-----------------|-------------------------------------------------------|
00562> *#-----------------|-------------------------------------------------------|
00563> *#-----------------|----------WATERCOURSE 8--------------------------------|
00564> *#-----------------|-------------------------------------------------------|
00565> *%-----------------|-------------------------------------------------------|
00566> ADD HYD             IDsum=[4], NHYD=["WC8"], IDs to add=[1,2,3]
00567> *%-----------------|-------------------------------------------------------|
00568> *%-----------------|-------------------------------------------------------|
00569> *#-----------------|-------------------------------------------------------|
00570> *#-----------------|--WATERCOURSE 10 CATCHMENT-----------------------------|
00571> *#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10------------|
00572> *#-----------------|-------------------------------------------------------|
00573> *%-----------------|-------------------------------------------------------|
00574> CALIB NASHYD        ID=[1], NHYD=["10A"], DT=[1]min, AREA=[1.99](ha),
00575>                     DWF=[0](cms),  CN/C=[59.4], IA=[8.6](mm),
00576>                     N=[3], TP=[0.21]hrs,
00577>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00578> *%-----------------|-------------------------------------------------------|
00579>
00580>
00581>
00582>
00583> *#**************************************************************************
00584> *#**************************************************************************
00585> *#                          10yr SCS Storm (12hr)
00586> *#**************************************************************************
00587> *#**************************************************************************
00588> MASS STORM          PTOTAL=[66](mm), CSDT=[1](min),
00589>                     CURVE_FILENAME=["SCS12HII.mst"]
00590> *#**************************************************************************
00591> *#-----------------|-------------------------------------------------------|
00592> *#-----------------|-Subwatershed 9 External Drainage Area-------------------|
00593> *#-----------------|-Per 'The Orchards' FSSWM Report-------------------------|
00594> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)-------------|
00595> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00596> *#-----------------|-------------------------------------------------------|
00597> *%-----------------|-------------------------------------------------------|
00598> CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00599>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00600>                     N=[3], TP=[1.00]hrs,
00601>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00602> *%-----------------|-------------------------------------------------------|
00603> ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
00604>                     RDT=[1](min),
00605>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00606>                                       FPSLOPE=[2](%),
00607>                     SECNUM=[1],       NSEG=[3]
00608>                     ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
00609>                     ( DISTANCE (m), ELEVATION (m))=[0,102]
00610>                                                   [8,100]
00611>                                                   [12,100]
00612>                                                   [20,102]
00613> *%-----------------|-------------------------------------------------------|
00614> CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00615>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00616>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00617>                             DCAY=[2](/hr), F=[0](mm),
00618>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00619>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00620>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00621>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00622>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00623> *%-----------------|-------------------------------------------------------|
00624> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00625>                     RDT=[1](min),
00626>                           TABLE of ( OUTFLOW-STORAGE ) values
00627>                                      (cms) - (ha-m)
00628>                                    [   0.0 ,  0.0 ]
00629>                                    [   0.0100 ,  0.0610 ]
00630>                                    [   0.0400 ,  0.1310 ]
00631>                                    [   0.0700 ,  0.2110 ]
00632>                                    [   0.2600 ,  0.3000 ]
00633>                                    [   0.6000 ,  0.3940 ]
00634>                                    [   1.0200 ,  0.4950 ]
00635>                                    [   1.5200 ,  0.6020 ]
00636>                                    [   2.0800 ,  0.7160 ]
00637>                                    [   2.6900 ,  0.8370 ]
00638>                           IDovf=[ ], NHYDovf=[  ]
00639> *%-----------------|-------------------------------------------------------|
00640> *#-----------------|-------------------------------------------------------|
00641> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00642> *#-----------------|-------------------------------------------------------|
00643> *%-----------------|-------------------------------------------------------|
00644> ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00645> *%-----------------|-------------------------------------------------------|
00646> CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
00647>                     DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
00648>                     N=[3], TP=[0.24]hrs,
00649>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00650> *%-----------------|-------------------------------------------------------|
00651> *#-----------------|-------------------------------------------------------|
00652> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00653> *#-----------------|-------------------------------------------------------|
00654> *%-----------------|-------------------------------------------------------|
00655> CALIB NASHYD        ID=[2], NHYD=["9A9B"], DT=[1]min, AREA=[2.68](ha),
00656>                     DWF=[0](cms),  CN/C=[55.9], IA=[8.0](mm),
00657>                     N=[3], TP=[0.30]hrs,
00658>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00659> *%-----------------|-------------------------------------------------------|
00660> ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,2,5]
00661> *%-----------------|-------------------------------------------------------|
00662> *#-----------------|-------------------------------------------------------|
00663> *#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
00664> *#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1----------------------|
00665> *#-----------------|-------------------------------------------------------|
00666> *%-----------------|-------------------------------------------------------|
00667> CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
00668>                     DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
00669>                     N=[3], TP=[0.47]hrs,
00670>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00671> *%-----------------|-------------------------------------------------------|
00672> CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
00673>                     XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
00674>                     SCS curve number CN=[67.0],
00675>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
00676>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00677>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
00678>                                          LGI=[44](m), MNI=[0.013], SCI=[0](min),
00679>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00680> *%-----------------|-------------------------------------------------------|
00681> CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
00682>                     DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
00683>                     N=[3], TP=[0.11]hrs,
00684>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00685> *%-----------------|-------------------------------------------------------|
00686> ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
00687> *%-----------------|-------------------------------------------------------|
00688> *#-----------------|-------------------------------------------------------|
00689> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE------|
00690> *#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
00691> *#-----------------|-------------------------------------------------------|
00692> *%-----------------|-------------------------------------------------------|
00693> ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
00694>                     RDT=[1](min),
00695>                           TABLE of ( OUTFLOW-STORAGE ) values
00696>                                      (cms) - (ha-m)
00697>                                    [   0.0 ,  0.0 ]
00698>                                    [   0.005 ,  0.018 ]
00699>                                    [   0.011 ,  0.058 ]
00700>                                    [   0.015 ,  0.104 ]
00701>                                    [   0.017 ,  0.141 ]
00702>                                    [   0.019 ,  0.182 ]
00703>                                    [   0.024 ,  0.303 ]
00704>                                    [   0.028 ,  0.443 ]
00705>                                    [   0.031 ,  0.601 ]
00706>                                    [   0.032 ,  1.119 ]
00707>                                    [   0.033 ,  1.163 ]
00708>                                    [   0.359 ,  1.207 ]
00709>                                    [   1.054 ,  1.253 ]
00710>                                    [   -1    ,  -1  ]  (max twenty pts)
00711>                           IDovf=[   ], NHYDovf=[   ]
00712> *%-----------------|-------------------------------------------------------|
00713> ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
00714> *%-----------------|-------------------------------------------------------|
00715> *#-----------------|-------------------------------------------------------|
00716> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00717> *#-----------------|-------------------------------------------------------|
00718> *%-----------------|-------------------------------------------------------|
00719> *#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
00720> *#-----------------|-------------------------------------------------------|
00721> CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.38](ha),
00722>                     XIMP=[0.334], TIMP=[0.682], DWF=[0](cms), LOSS=[2],
00723>                     SCS curve number CN=[66.2],
00724>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00725>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00726>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
00727>                                          LGI=[96](m), MNI=[0.013], SCI=[0](min),
00728>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00729> *%-----------------|-------------------------------------------------------|
00730> *#-----------------|-------------------------------------------------------|
00731> *#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
00732> *#-----------------|-------------------------------------------------------|
00733> *%-----------------|-------------------------------------------------------|
00734> CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.73](ha),
00735>                     DWF=[0](cms),  CN/C=[56.7], IA=[6.52](mm),
00736>                     N=[3], TP=[0.28]hrs,
00737>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00738> *%-----------------|-------------------------------------------------------|
00739> CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.41](ha),
00740>                     DWF=[0](cms),  CN/C=[65.0], IA=[8.0](mm),
00741>                     N=[3], TP=[0.62]hrs,
00742>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00743> *%-----------------|-------------------------------------------------------|
00744> CALIB NASHYD        ID=[3], NHYD=["9C9E"], DT=[1]min, AREA=[2.06](ha),
00745>                     DWF=[0](cms),  CN/C=[58.2], IA=[7.32](mm),
00746>                     N=[3], TP=[0.33]hrs,
00747>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00748> *%-----------------|-------------------------------------------------------|
00749> ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,7,10]
00750> *%-----------------|-------------------------------------------------------|
00751> *#-----------------|-------------------------------------------------------|
00752> *#-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
00753> *#-----------------|-------------------------------------------------------|
00754> CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
00755>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00756>                     N=[3], TP=[0.14]hrs,
00757>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00758> *%-----------------|-------------------------------------------------------|
00759> CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
00760>                     DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
00761>                     N=[3], TP=[0.32]hrs,
00762>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00763> *%-----------------|-------------------------------------------------------|
00764> CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
00765>                     XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
00766>                     SCS curve number CN=[49],
00767>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00768>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00769>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00770>                                          LGI=[114](m), MNI=[0.013], SCI=[0](min)
00771>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00772> *%-----------------|-------------------------------------------------------|
00773> CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
00774>                     XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
00775>                     SCS curve number CN=[59],
00776>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00777>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00778>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00779>                                          LGI=[148](m), MNI=[0.013], SCI=[0](min)
00780>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00781> *%-----------------|-------------------------------------------------------|
00782> CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[2.09](ha),
00783>                     XIMP=[0.262], TIMP=[0.35], DWF=[0](cms), LOSS=[2],
00784>                     SCS curve number CN=[69],
00785>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00786>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00787>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00788>                                          LGI=[118](m), MNI=[0.013], SCI=[0](min)
00789>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00790> *%-----------------|-------------------------------------------------------|
00791> ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[1,2,3,4,7]
00792> *%-----------------|-------------------------------------------------------|
00793> *#-----------------|-------------------------------------------------------|
00794> *#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
00795> *#-----------------|-------------------------------------------------------|
00796> *%-----------------|-------------------------------------------------------|
00797> ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
00798>                     RDT=[1](min),
00799>                           TABLE of ( OUTFLOW-STORAGE ) values
00800>                                      (cms) - (ha-m)
00801>                                    [   0.0 ,  0.0 ]
00802>                                    [   0.004 ,  0.016 ]
00803>                                    [   0.009 ,  0.053 ]
00804>                                    [   0.011 ,  0.074 ]
00805>                                    [   0.013 ,  0.119 ]
00806>                                    [   0.014 ,  0.132 ]
00807>                                    [   0.016 ,  0.171 ]
00808>                                    [   0.017 ,  0.199 ]
00809>                                    [   0.018 ,  0.228 ]
00810>                                    [   0.344 ,  0.259 ]
```

```
                                    [   1.040 ,  0.291 ]
                                    [   2.076 ,  0.325 ]
                                    [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
*%------------------|-------------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
                    HYD_COMMENT=["POST-DEV LAKESHORE"]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#--WATERCOURSE 8 CATCHMENTS---------------------------------------------------|
*#--WC 8 CATCHMENTS TO BE DIRECTED TO WC8--------------------------------------|
*#--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
                    DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
                    DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["EXT-8B"], DT=[1]min, AREA=[1.04](ha),
                    DWF=[0](cms),  CN/C=[58.6], IA=[6.75](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|----------WATERCOURSE 8----------------------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC8"], IDs to add=[1,2,3]
*%------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#--WATERCOURSE 10 CATCHMENT---------------------------------------------------|
*#--EQUIVALENT TO EXISTING CONDITIONS OF WC 10---------------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["10A"], DT=[1]min, AREA=[1.99](ha),
                    DWF=[0](cms),  CN/C=[59.4], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|


*#*************************************************************************
*#*************************************************************************
*#                            25yr SCS Storm (12hr)
*#*************************************************************************
*#*************************************************************************
MASS STORM          PTOTAL=[79.2](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS12HII.mst"]
*#*************************************************************************
*#------------------|-------------------------------------------------------------|
*#--Subwatershed 9 External Drainage Area--------------------------------------|
*#--Per 'The Orchards' FSSWM Report--------------------------------------------|
*#--Prepared by Higgins Engineering (Jan. 2005)--------------------------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m)=[0.035,8,-0.035,12,0.035,20] NSEG t
                    ( DISTANCE (m), ELEVATION (m))=[0,102]
                                                  [8,100]
                                                  [12,100]
                                                  [20,102]
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                  [   0.0 ,   0.0 ]
                                  [   0.0100 ,  0.0610 ]
                                  [   0.0400 ,  0.1310 ]
                                  [   0.0700 ,  0.2110 ]
                                  [   0.2600 ,  0.3000 ]
                                  [   0.6000 ,  0.3940 ]
                                  [   1.0200 ,  0.4950 ]
                                  [   1.5200 ,  0.6020 ]
                                  [   2.0800 ,  0.7160 ]
                                  [   2.6900 ,  0.8370 ]
                          IDovf=[ ], NHYDovf=[  ]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-----------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
                    N=[3], TP=[0.24]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Upper Terrace Lands-----------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9A9B"], DT=[1]min, AREA=[2.68](ha),
                    DWF=[0](cms),  CN/C=[55.9], IA=[8.0](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,2,5]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
*#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
                    N=[3], TP=[0.47]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[67.0],
                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
                    N=[3], TP=[0.11]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE--------|
*#------------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT----------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                  [   0.0 ,  0.0 ]
                                  [   0.005 ,  0.018 ]
                                  [   0.011 ,  0.058 ]
                                  [   0.015 ,  0.104 ]
                                  [   0.017 ,  0.141 ]
                                  [   0.019 ,  0.182 ]
                                  [   0.024 ,  0.303 ]
                                  [   0.028 ,  0.443 ]
                                  [   0.031 ,  0.601 ]
                                  [   0.032 ,  1.119 ]
                                  [   0.033 ,  1.163 ]
                                  [   0.359 ,  1.207 ]
                                  [   1.054 ,  1.253 ]
                                  [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Lower Terrace Lands-----------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
*#------------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS---------|
*#------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.38](ha),
                    XIMP=[0.334], TIMP=[0.682], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66.2],
                    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=[96](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.73](ha),
                    DWF=[0](cms),  CN/C=[56.7], IA=[6.52](mm),
                    N=[3], TP=[0.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.41](ha),
                    DWF=[0](cms),  CN/C=[65.0], IA=[8.0](mm),
                    N=[3], TP=[0.62]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["9C9E"], DT=[1]min, AREA=[2.06](ha),
                    DWF=[0](cms),  CN/C=[58.2], IA=[7.32](mm),
                    N=[3], TP=[0.33]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,7,10]
*%------------------|-------------------------------------------------------------|
*#------------------|-LANDS DRAINING TO SWM FACILITY 2----------------------------|
*#------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
                    XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[49],
                    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=[1.0](%),
                                         LGI=[114](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
                    XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[59],
                    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=[1.0](%),
                                         LGI=[148](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[2.09](ha),
                    XIMP=[0.262], TIMP=[0.35], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    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=[1.0](%),
                                         LGI=[118](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[1,2,3,4,7]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-----------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
```

```
ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.004 ,  0.016 ]
                                [   0.009 ,  0.053 ]
                                [   0.011 ,  0.074 ]
                                [   0.013 ,  0.119 ]
                                [   0.014 ,  0.132 ]
                                [   0.016 ,  0.171 ]
                                [   0.017 ,  0.199 ]
                                [   0.018 ,  0.228 ]
                                [   0.344 ,  0.259 ]
                                [   1.040 ,  0.291 ]
                                [   2.076 ,  0.325 ]
                                [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD----------------|
*#----------------|-------------------------------------------------------------|
*%----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
*%----------------|-------------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
                    HYD_COMMENT=["POST-DEV LAKESHORE"]
*%----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
*#----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
*#----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8---------------|
*#----------------|-------------------------------------------------------------|
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
                    DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
                    DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["EXT-8B"], DT=[1]min, AREA=[1.04](ha),
                    DWF=[0](cms),  CN/C=[58.6], IA=[6.75](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#----------------|----------WATERCOURSE 8-----------------------------------|
*#----------------|-------------------------------------------------------------|
*%----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC8"], IDs to add=[1,2,3]
*%----------------|-------------------------------------------------------------|
*%----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#----------------|--WATERCOURSE 10 CATCHMENT--------------------------------|
*#----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10--------------|
*#----------------|-------------------------------------------------------------|
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["10A"], DT=[1]min, AREA=[1.99](ha),
                    DWF=[0](cms),  CN/C=[59.4], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|


*#**************************************************************************
*#**************************************************************************
*#                          50yr SCS Storm (12hr)
*#**************************************************************************
*#**************************************************************************
MASS STORM          PTOTAL=[88.8](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS12HII.mst"]
*#**************************************************************************
*#----------------|-------------------------------------------------------------|
*#----------------|-Subwatershed 9 External Drainage Area--------------------|
*#----------------|-Per 'The Orchards' FSSWM Report--------------------------|
*#----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha------|
*#----------------|-------------------------------------------------------------|
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH,  SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
                    ( DISTANCE (m), ELEVATION (m))=[0,102]
                                                  [8,100]
                                                  [12,100]
                                                  [20,102]
*%----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%----------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.0100 ,  0.0610 ]
                                [   0.0400 ,  0.1310 ]
                                [   0.0700 ,  0.2110 ]
                                [   0.2600 ,  0.3000 ]
                                [   0.6000 ,  0.3940 ]
                                [   1.0200 ,  0.4950 ]
                                [   1.5200 ,  0.6020 ]
                                [   2.0800 ,  0.7160 ]
                                [   2.6900 ,  0.8370 ]
                          IDovf=[ ], NHYDovf=[  ]
*%----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
*#----------------|-------------------------------------------------------------|
*%----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
                    N=[3], TP=[0.24]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#----------------|-------------------------------------------------------------|
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9A9B"], DT=[1]min, AREA=[2.68](ha),
                    DWF=[0](cms),  CN/C=[55.9], IA=[8.0](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,2,5]
*%----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
*#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
*#----------------|-------------------------------------------------------------|
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
                    N=[3], TP=[0.47]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[67.0],
                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
                    N=[3], TP=[0.11]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
*%----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
*#----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
*#----------------|-------------------------------------------------------------|
*%----------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.005 ,  0.018 ]
                                [   0.011 ,  0.058 ]
                                [   0.015 ,  0.104 ]
                                [   0.017 ,  0.141 ]
                                [   0.019 ,  0.182 ]
                                [   0.024 ,  0.303 ]
                                [   0.028 ,  0.443 ]
                                [   0.031 ,  0.601 ]
                                [   0.032 ,  1.119 ]
                                [   0.033 ,  1.163 ]
                                [   0.359 ,  1.207 ]
                                [   1.054 ,  1.253 ]
                                [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
*%----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#----------------|-Parkbridge Craigleith - Lower Terrace Lands----------------|
*#----------------|-------------------------------------------------------------|
*%----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
*#----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.38](ha),
                    XIMP=[0.334], TIMP=[0.682], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66.2],
                    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=[96](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
*#----------------|-------------------------------------------------------------|
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.73](ha),
                    DWF=[0](cms),  CN/C=[56.7], IA=[6.52](mm),
                    N=[3], TP=[0.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.41](ha),
                    DWF=[0](cms),  CN/C=[65.0], IA=[8.0](mm),
                    N=[3], TP=[0.62]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["9C9E"], DT=[1]min, AREA=[2.06](ha),
                    DWF=[0](cms),  CN/C=[58.2], IA=[7.32](mm),
                    N=[3], TP=[0.33]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,7,10]
*%----------------|-------------------------------------------------------------|
*#----------------|-------------------------------------------------------------|
*#----------------|-LANDS DRAINING TO SWM FACILITY 2--------------------------|
*#----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
                    XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[49],
                    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=[1.0](%),
                                         LGI=[114](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
                    XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[59],
                    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=[1.0](%),
                                         LGI=[148](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[2.09](ha),
```

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                    XIMP=[0.262], TIMP=[0.35], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    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=[1.0](%),
                                         LGI=[118](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|---------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[1,2,3,4,7]
*%------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
*#------------------|---------------------------------------------------------|
*%------------------|---------------------------------------------------------|
ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.004 ,  0.016 ]
                                [   0.009 ,  0.053 ]
                                [   0.011 ,  0.074 ]
                                [   0.013 ,  0.119 ]
                                [   0.014 ,  0.132 ]
                                [   0.016 ,  0.171 ]
                                [   0.017 ,  0.199 ]
                                [   0.018 ,  0.228 ]
                                [   0.344 ,  0.259 ]
                                [   1.040 ,  0.291 ]
                                [   2.076 ,  0.325 ]
                                [  -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
*#------------------|---------------------------------------------------------|
*%------------------|---------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
*%------------------|---------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
                    HYD_COMMENT=["POST-DEV LAKESHORE"]
*%------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|--WATERCOURSE 8 CATCHMENTS---------------------------------|
*#------------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8--------------------|
*#------------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
*#------------------|---------------------------------------------------------|
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
                    DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
                    DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["EXT-8B"], DT=[1]min, AREA=[1.04](ha),
                    DWF=[0](cms),  CN/C=[58.6], IA=[6.75](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|----------WATERCOURSE 8-----------------------------------|
*#------------------|---------------------------------------------------------|
*%------------------|---------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC8"], IDs to add=[1,2,3]
*%------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|--WATERCOURSE 10 CATCHMENT---------------------------------|
*#------------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10---------------|
*#------------------|---------------------------------------------------------|
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["10A"], DT=[1]min, AREA=[1.99](ha),
                    DWF=[0](cms),  CN/C=[59.4], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|


*#*************************************************************************
*#*************************************************************************
*#                          100yr SCS Storm (12hr)
*#*************************************************************************
*#*************************************************************************
MASS STORM          PTOTAL=[98.4](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS12HII.mst"]
*#*************************************************************************
*#------------------|---------------------------------------------------------|
*#------------------|-Subwatershed 9 External Drainage Area---------------------|
*#------------------|-Per 'The Orchards' FSSWM Report---------------------------|
*#------------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#------------------|---------------------------------------------------------|
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
                    ( DISTANCE (m), ELEVATION (m))=[0,102]
                                                   [8,100]
                                                   [12,100]
                                                   [20,102]
*%------------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|---------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.0100 ,  0.0610 ]
                                [   0.0400 ,  0.1310 ]
                                [   0.0700 ,  0.2110 ]
                                [   0.2600 ,  0.3000 ]
                                [   0.6000 ,  0.3940 ]
                                [   1.0200 ,  0.4950 ]
                                [   1.5200 ,  0.6020 ]
                                [   2.0800 ,  0.7160 ]
                                [   2.6900 ,  0.8370 ]
                          IDovf=[ ], NHYDovf=[  ]
*%------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
*#------------------|---------------------------------------------------------|
*%------------------|---------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
                    N=[3], TP=[0.24]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#------------------|---------------------------------------------------------|
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9A9B"], DT=[1]min, AREA=[2.68](ha),
                    DWF=[0](cms),  CN/C=[55.9], IA=[8.0](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,2,5]
*%------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------
*#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------
*#------------------|---------------------------------------------------------|
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
                    N=[3], TP=[0.47]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[67.0],
                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
                    N=[3], TP=[0.11]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
*%------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
*#------------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
*#------------------|---------------------------------------------------------|
*%------------------|---------------------------------------------------------|
ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.005 ,  0.018 ]
                                [   0.011 ,  0.058 ]
                                [   0.015 ,  0.104 ]
                                [   0.017 ,  0.141 ]
                                [   0.019 ,  0.182 ]
                                [   0.024 ,  0.303 ]
                                [   0.028 ,  0.443 ]
                                [   0.031 ,  0.601 ]
                                [   0.032 ,  1.119 ]
                                [   0.033 ,  1.163 ]
                                [   0.359 ,  1.207 ]
                                [   1.054 ,  1.253 ]
                                [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%------------------|---------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
*%------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
*#------------------|---------------------------------------------------------|
*%------------------|---------------------------------------------------------|
*#------------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
*#------------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.38](ha),
                    XIMP=[0.334], TIMP=[0.682], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66.2],
                    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=[96](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
*#------------------|---------------------------------------------------------|
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.73](ha),
                    DWF=[0](cms),  CN/C=[56.7], IA=[6.52](mm),
                    N=[3], TP=[0.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.41](ha),
                    DWF=[0](cms),  CN/C=[65.0], IA=[8.0](mm),
                    N=[3], TP=[0.62]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["9C9E"], DT=[1]min, AREA=[2.06](ha),
                    DWF=[0](cms),  CN/C=[58.2], IA=[7.32](mm),
                    N=[3], TP=[0.33]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,7,10]
*%------------------|---------------------------------------------------------|
*#------------------|---------------------------------------------------------|
*#------------------|-LANDS DRAINING TO SWM FACILITY 2--------------------------|
*#------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
                    XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[49],
                    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=[1.0](%),
```

```
01621>                                        LGI=[114](m), MNI=[0.013], SCI=[0](min)
01622>                      RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
01623> *%-----------------|-------------------------------------------------------------|
01624> CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
01625>                      XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
01626>                      SCS curve number CN=[59],
01627>                      Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
01628>                                           LGP=[30](m), MNP=[0.25], SCP=[0](min),
01629>                      Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
01630>                                           LGI=[148](m), MNI=[0.013], SCI=[0](min)
01631>                      RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
01632> *%-----------------|-------------------------------------------------------------|
01633> CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[2.09](ha),
01634>                      XIMP=[0.262], TIMP=[0.35], DWF=[0](cms), LOSS=[2],
01635>                      SCS curve number CN=[69],
01636>                      Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
01637>                                           LGP=[30](m), MNP=[0.25], SCP=[0](min),
01638>                      Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
01639>                                           LGI=[118](m), MNI=[0.013], SCI=[0](min)
01640>                      RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
01641> *%-----------------|-------------------------------------------------------------|
01642> ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[1,2,3,4,7]
01643> *%-----------------|-------------------------------------------------------------|
01644> *#-----------------|-------------------------------------------------------------|
01645> *#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-----------|
01646> *#-----------------|-------------------------------------------------------------|
01647> *%-----------------|-------------------------------------------------------------|
01648> ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
01649>                      RDT=[1](min),
01650>                           TABLE of ( OUTFLOW-STORAGE ) values
01651>                                      (cms) - (ha-m)
01652>                                    [   0.0 ,  0.0 ]
01653>                                    [   0.004 ,  0.016 ]
01654>                                    [   0.009 ,  0.053 ]
01655>                                    [   0.011 ,  0.074 ]
01656>                                    [   0.013 ,  0.119 ]
01657>                                    [   0.014 ,  0.132 ]
01658>                                    [   0.016 ,  0.171 ]
01659>                                    [   0.017 ,  0.199 ]
01660>                                    [   0.018 ,  0.228 ]
01661>                                    [   0.344 ,  0.259 ]
01662>                                    [   1.040 ,  0.291 ]
01663>                                    [   2.076 ,  0.325 ]
01664>                                    [   -1  ,  -1  ]  (max twenty pts)
01665>                           IDovf=[   ], NHYDovf=[   ]
01666> *%-----------------|-------------------------------------------------------------|
01667> *#-----------------|-------------------------------------------------------------|
01668> *#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
01669> *#-----------------|-------------------------------------------------------------|
01670> *%-----------------|-------------------------------------------------------------|
01671> ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
01672> *%-----------------|-------------------------------------------------------------|
01673> SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
01674>                      HYD_COMMENT=["POST-DEV LAKESHORE"]
01675> *%-----------------|-------------------------------------------------------------|
01676> *#-----------------|-------------------------------------------------------------|
01677> *#-----------------|--WATERCOURSE 8 CATCHMENTS----------------------------------|
01678> *#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8---------------------|
01679> *#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8-----------------|
01680> *#-----------------|-------------------------------------------------------------|
01681> *%-----------------|-------------------------------------------------------------|
01682> CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
01683>                      DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
01684>                      N=[3], TP=[0.23]hrs,
01685>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01686> *%-----------------|-------------------------------------------------------------|
01687> CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
01688>                      DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
01689>                      N=[3], TP=[0.41]hrs,
01690>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01691> *%-----------------|-------------------------------------------------------------|
01692> CALIB NASHYD        ID=[3], NHYD=["EXT-8B"], DT=[1]min, AREA=[1.04](ha),
01693>                      DWF=[0](cms),  CN/C=[58.6], IA=[6.75](mm),
01694>                      N=[3], TP=[0.41]hrs,
01695>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01696> *%-----------------|-------------------------------------------------------------|
01697> *#-----------------|-------------------------------------------------------------|
01698> *#-----------------|----------WATERCOURSE 8----------------------------------|
01699> *#-----------------|-------------------------------------------------------------|
01700> *%-----------------|-------------------------------------------------------------|
01701> ADD HYD             IDsum=[4], NHYD=["WC8"], IDs to add=[1,2,3]
01702> *%-----------------|-------------------------------------------------------------|
01703> *%-----------------|-------------------------------------------------------------|
01704> *#-----------------|-------------------------------------------------------------|
01705> *#-----------------|--WATERCOURSE 10 CATCHMENT----------------------------------|
01706> *#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10----------------|
01707> *#-----------------|-------------------------------------------------------------|
01708> *%-----------------|-------------------------------------------------------------|
01709> CALIB NASHYD        ID=[1], NHYD=["10A"], DT=[1]min, AREA=[1.99](ha),
01710>                      DWF=[0](cms),  CN/C=[59.4], IA=[8.6](mm),
01711>                      N=[3], TP=[0.21]hrs,
01712>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01713> *%-----------------|-------------------------------------------------------------|
01714>
01715>
01716> FINISH
01717>
01718>
01719>
01720>
```

```
00001>  ================================================================================
00002>
00003>  SSSSS   W   W   M   M   H   H   Y   Y   M   M    OOO       222     000    11   77777 =========
00004>  S       W W W   MM MM   H   H    Y Y    MM MM   O   O        2   2   0  0   11      7   7
00005>  SSSSS   W W W   M M M   HHHHH     Y     M M M   O   O        2     0   0   11     7     7 Ver4.05.0
00006>      S    W W    M   M   H   H     Y     M   M   O   O      222     0   0   11    7      APR 2017
00007>  SSSSS     W W    M   M   H   H     Y     M   M    OOO      2       0   0   11    7      =========
00008>                                                             2       0   0   11    7     # 3737016
00009>         StormWater Management HYdrologic Model                222     000    11    7     =========
00010>
00011>  ********************************************************************************
00012>  **********************************  SWMHYMO Ver4.05.0  ***************************
00013>  ******************  A single event and continuous hydrologic simulation model  ******
00014>  ******************      based on the principles of HYMO and its successors     ******
00015>  ******************                 OTTHYMO-83 and OTTHYMO-89.                   ******
00016>  ********************************************************************************
00017>  ******************  Distributed by:  J.F. Sabourin and Associates Inc.          ******
00018>  ******************                  Ottawa,  Ontario: (613) 836-3884            ******
00019>  ******************                  Gatineau, Quebec: (819) 243-6858            ******
00020>  ******************                  E-Mail: swmhymo@jfsa.com                    ******
00021>  ********************************************************************************
00022>
00023>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00024>  ++++++++++++++++++ Licensed user: C.F. Crozier & Associates Inc.      ++++++++++++++++++
00025>  ++++++++++++++++++                 Collingwood                      ++++++++++++++++++
00026>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>  ********************************************************************************
00029>  ******************          ++++++ PROGRAM ARRAY DIMENSIONS ++++++             ******
00030>  ******************          Maximum value for ID numbers  :     11            ******
00031>  ******************          Max. number of rainfall points: 105408            ******
00032>  ******************          Max. number of flow points    : 105408            ******
00033>  ********************************************************************************
00034>
00035>
00036>  **********************  S U M M A R Y   O U T P U T  **************************
00037>  ********************************************************************************
00038>  *                  RUN DATE: 2021-04-29     TIME: 14:33:39     RUN COUNTER: 000005              *
00039>  ********************************************************************************
00040>  * Input   file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2021 Det*
00041>  *                Desn 3rd Sub\SWM\SWMHYMO\SCS12\POST_SCS12.DAT                 *
00042>  * Output  file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2021 Det*
00043>  *                Desn 3rd Sub\SWM\SWMHYMO\SCS12\POST_SCS12.out                 *
00044>  * Summary file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2021 Det*
00045>  *                Desn 3rd Sub\SWM\SWMHYMO\SCS12\POST_SCS12.sum                 *
00046>  * User comments:                                                              *
00047>  * 1:_____________________________________________________________________________*
00048>  * 2:_____________________________________________________________________________*
00049>  * 3:_____________________________________________________________________________*
00050>  ********************************************************************************
00051>
00052>
00053>  #*******************************************************************************
00054>  #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00055>  #  Date        : 2021.04.29
00056>  #  Modeller    : [JE]
00057>  #  Company     : C.F. Crozier & Associates Inc.
00058>  #  License #   : 3737016
00059>  #*******************************************************************************
00060>   RUN#:COMMAND#
00061>  R0001:C00001------------------------------------------------------------------------
00062>       START
00063>         [TZERO =    .00 hrs on       0]
00064>         [METOUT=   2   (1=imperial, 2=metric output)]
00065>         [NSTORM=   0 ]
00066>         [NRUN  = 0001 ]
00067>  #*******************************************************************************
00068>  #----------------|-------------------------------------------------------------|
00069>  #----------------|-POST-DEVELOPMENT----12 hr SCS STORMS--------------------------|
00070>  #----------------|-------------------------------------------------------------|
00071>  #*******************************************************************************
00072>  #                          2yr SCS Storm (12hr)
00073>  #*******************************************************************************
00074>  #*******************************************************************************
00075>  R0001:C00002------------------------------------------------------------------------
00076>       MASS STORM
00077>         Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
00078>         Comment  = 12 hour SCS II storm mass curve
00079>         [SDT= 1.00:SDUR=  12.00:PTOT=  39.60]
00080>  #*******************************************************************************
00081>  #----------------|-------------------------------------------------------------|
00082>  #----------------|-Subwatershed 9 External Drainage Area-------------------------|
00083>  #----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
00084>  #----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------------|
00085>  #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00086>  #----------------|-------------------------------------------------------------|
00087>  R0001:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00088>       CALIB STANDHYD          1.0 01:EXT-9A      101.80    1.144 No_date    7:04   12.20 .308     .000
00089>         [CN= 80.0: N= 3.00: Tp= 1.00]
00090>  R0001:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00091>       ROUTE CHANNEL   ->     1.0 01:EXT-9A      101.80    1.144 No_date    7:04   12.20  n/a     .000
00092>        [RDT= 1.00] out<-     1.0 02:Channel     101.80    1.139 No_date    7:07   12.20  n/a     .000
00093>         [L/S/n=  550./2.000/.035]
00094>         {Vmax= 1.190:Dmax=  .187}
00095>  R0001:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00096>       CALIB STANDHYD          1.0 03:EXT-9B       14.80     .842 No_date    6:03   18.09 .457     .000
00097>         [XIMP=.35:TIMP=.35]
00098>         [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00099>         [Pervious    area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00100>         [Impervious  area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00101>  R0001:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00102>       ROUTE RESERVOIR ->     1.0 03:EXT-9B       14.80     .842 No_date    6:03   18.09  n/a     .000
00103>                     out <=   1.0 04:Orchards     14.80     .066 No_date    7:07   18.09  n/a     .000
00104>       {MxStoUsed=.2008E+00  m3}
00105>  #----------------|-------------------------------------------------------------|
00106>  #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-------------|
00107>  #----------------|-------------------------------------------------------------|
00108>  R0001:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00109>       ADD HYD                 1.0 02:Channel     101.80    1.139 No_date    7:07   12.20  n/a     .000
00110>                           +     1.0 04:Orchards    14.80     .066 No_date    7:07   18.09  n/a     .000
00111>                       SUM=      1.0 05:RD19       116.60    1.205 No_date    7:07   12.95  n/a     .000
00112>  R0001:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00113>       CALIB NASHYD            1.0 01:EXT-9C        .65     .024 No_date    6:09   14.01 .354     .000
00114>         [CN= 82.7: N= 3.00: Tp=  .24]
00115>  #----------------|-------------------------------------------------------------|
00116>  #----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------------|
00117>  #----------------|-------------------------------------------------------------|
00118>  R0001:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00119>       CALIB NASHYD            1.0 02:9A9B         2.68     .023 No_date    6:14    4.30 .109     .000
00120>         [CN= 55.9: N= 3.00: Tp=  .30]
00121>  R0001:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00122>       ADD HYD                 1.0 01:EXT-9C        .65     .024 No_date    6:09   14.01  n/a     .000
00123>                           +     1.0 02:9A9B         2.68     .023 No_date    6:14    4.30  n/a     .000
00124>                           +     1.0 05:RD19       116.60    1.205 No_date    7:07   12.95  n/a     .000
00125>                       SUM=      1.0 04:WC9a       119.93    1.215 No_date    7:07   12.76  n/a     .000
00126>  #----------------|-------------------------------------------------------------|
00127>  #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT------------------
00128>  #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------
00129>  #----------------|-------------------------------------------------------------|
00130>  R0001:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00131>       CALIB NASHYD            1.0 01:EXT-1A        8.37     .106 No_date    6:27    8.37 .211     .000
00132>         [CN= 74.9: N= 3.00: Tp=  .47]
00133>  R0001:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00134>       CALIB STANDHYD          1.0 03:1A           2.95     .192 No_date    6:00   18.98 .479     .000
00135>         [XIMP=.31:TIMP=.51]
00136>         [LOSS= 2 :CN= 67.0]
00137>         [Pervious    area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
00138>         [Impervious  area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
00139>  R0001:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00140>       CALIB NASHYD            1.0 05:1B           1.81     .018 No_date    6:02    2.75 .069     .000
00141>         [CN= 44.3: N= 3.00: Tp=  .11]
00142>  R0001:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00143>       ADD HYD                 1.0 01:EXT-1A        8.37     .106 No_date    6:27    8.37  n/a     .000
00144>                           +     1.0 03:1A           2.95     .192 No_date    6:00   18.98  n/a     .000
00145>                           +     1.0 05:1B           1.81     .018 No_date    6:02    2.75  n/a     .000
00146>                       SUM=      1.0 06:SWMF1       13.13     .243 No_date    6:00    9.98  n/a     .000
00147>  #----------------|-------------------------------------------------------------|
00148>  #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-----------|
00149>  #----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------------|
00150>  #----------------|-------------------------------------------------------------|
00151>  R0001:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00152>       ROUTE RESERVOIR ->     1.0 06:SWMF1        13.13     .243 No_date    6:00    9.98  n/a     .000
00153>                     out <=   1.0 01:SWMF-1       13.13     .015 No_date   10:58    9.98  n/a     .000
00154>       {MxStoUsed=.9846E-01  m3}
00155>  R0001:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00156>       ADD HYD                 1.0 01:SWMF-1       13.13     .015 No_date   10:58    9.98  n/a     .000
00157>                           +     1.0 04:WC9a       119.93    1.215 No_date    7:07   12.76  n/a     .000
00158>                       SUM=      1.0 07:WC9b       133.06    1.228 No_date    7:07   12.49  n/a     .000
00159>  #----------------|-------------------------------------------------------------|
00160>  #----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------------|
00161>  #----------------|-------------------------------------------------------------|
00162>  #----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-----------|
00163>  #----------------|-------------------------------------------------------------|
00164>  R0001:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00165>       CALIB STANDHYD          1.0 10:9D           1.38     .101 No_date    6:00   21.86 .552     .000
00166>         [XIMP=.33:TIMP=.68]
00167>         [LOSS= 2 :CN= 66.2]
00168>         [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00169>         [Impervious  area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
00170>  #----------------|-------------------------------------------------------------|
00171>  #----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------------|
00172>  #----------------|-------------------------------------------------------------|
00173>  R0001:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00174>       CALIB NASHYD            1.0 01:9F            .73     .008 No_date    6:12    4.82 .122     .000
00175>         [CN= 56.7: N= 3.00: Tp=  .28]
00176>  R0001:C00019------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00177>       CALIB NASHYD            1.0 02:EXT-9D        .41     .003 No_date    6:40    5.93 .150     .000
00178>         [CN= 65.0: N= 3.00: Tp=  .62]
00179>  R0001:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00180>       CALIB NASHYD            1.0 03:9C9E         2.06     .019 No_date    6:16    4.85 .123     .000
00181>         [CN= 58.2: N= 3.00: Tp=  .33]
00182>  R0001:C00021------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00183>       ADD HYD                 1.0 01:9F            .73     .008 No_date    6:12    4.82  n/a     .000
00184>                           +     1.0 02:EXT-9D        .41     .003 No_date    6:40    5.93  n/a     .000
00185>                           +     1.0 03:9C9E         2.06     .019 No_date    6:16    4.85  n/a     .000
00186>                           +     1.0 07:WC9b       133.06    1.228 No_date    7:07   12.49  n/a     .000
00187>                           +     1.0 10:9D           1.38     .101 No_date    6:00   21.86  n/a     .000
00188>                       SUM=      1.0 05:WC9LOWER   137.64    1.246 No_date    7:05   12.41  n/a     .000
00189>  #----------------|-------------------------------------------------------------|
00190>  #----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------------|
00191>  #----------------|-------------------------------------------------------------|
00192>  R0001:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00193>       CALIB NASHYD            1.0 01:2A           1.19     .006 No_date    6:04    1.66 .042     .000
00194>         [CN= 33.2: N= 3.00: Tp=  .14]
00195>  R0001:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00196>       CALIB NASHYD            1.0 02:2B           1.67     .006 No_date    6:16    1.83 .046     .000
00197>         [CN= 34.7: N= 3.00: Tp=  .32]
00198>  R0001:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00199>       CALIB STANDHYD          1.0 03:2C           1.96     .101 No_date    6:00   16.31 .412     .000
00200>         [XIMP=.30:TIMP=.60]
00201>         [LOSS= 2 :CN= 49.0]
00202>         [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00203>         [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
00204>  R0001:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00205>       CALIB STANDHYD          1.0 07:2D           3.28     .150 No_date    6:00   15.84 .400     .000
00206>         [XIMP=.25:TIMP=.50]
00207>         [LOSS= 2 :CN= 59.0]
00208>         [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00209>         [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
00210>  R0001:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00211>       CALIB STANDHYD          1.0 04:2E           2.09     .100 No_date    6:00   16.59 .419     .000
00212>         [XIMP=.26:TIMP=.35]
00213>         [LOSS= 2 :CN= 69.0]
00214>         [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00215>         [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
00216>  R0001:C00027------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00217>       ADD HYD                 1.0 01:2A           1.19     .006 No_date    6:04    1.66  n/a     .000
00218>                           +     1.0 02:2B           1.67     .006 No_date    6:16    1.83  n/a     .000
00219>                           +     1.0 03:2C           1.96     .101 No_date    6:00   16.31  n/a     .000
00220>                           +     1.0 04:2E           2.09     .100 No_date    6:00   16.59  n/a     .000
00221>                           +     1.0 07:2D           3.28     .150 No_date    6:00   15.84  n/a     .000
00222>                       SUM=      1.0 06:SWMF2       10.19     .358 No_date    6:00   12.13  n/a     .000
00223>  #----------------|-------------------------------------------------------------|
00224>  #----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)--------------|
00225>  #----------------|-------------------------------------------------------------|
00226>  R0001:C00028------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00227>       ROUTE RESERVOIR ->     1.0 06:SWMF2        10.19     .358 No_date    6:00   12.13  n/a     .000
00228>                     out <=   1.0 09:SWMF-2       10.19     .012 No_date   10:18   12.13  n/a     .000
00229>       {MxStoUsed=.9622E-01  m3}
00230>  #----------------|-------------------------------------------------------------|
00231>  #----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD----------------------|
00232>  #----------------|-------------------------------------------------------------|
00233>  R0001:C00029------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00234>       ADD HYD                 1.0 09:SWMF-2       10.19     .012 No_date   10:18   12.13  n/a     .000
00235>                           +     1.0 05:WC9LOWER   137.64    1.246 No_date    7:05   12.41  n/a     .000
00236>                       SUM=      1.0 01:WC9c       147.83    1.257 No_date    7:05   12.39  n/a     .000
00237>  R0001:C00030------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00238>       SAVE HYD                1.0 01:WC9c         147.83    1.257 No_date    7:05   12.39  n/a     .000
00239>         fname :WC9c.0001
00240>         remark:POST-DEV LAKESHORE
00241>  #----------------|-------------------------------------------------------------|
00242>  #----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------------|
00243>  #----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------------|
00244>  #----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8---------------------|
00245>  #----------------|-------------------------------------------------------------|
00246>  R0001:C00031------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00247>       CALIB NASHYD            1.0 01:8A           2.27     .011 No_date    6:09    2.01 .051     .000
00248>         [CN= 36.2: N= 3.00: Tp=  .23]
00249>  R0001:C00032------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00250>       CALIB NASHYD            1.0 02:EXT-8A        7.14     .086 No_date    6:22    7.17 .181     .000
00251>         [CN= 68.9: N= 3.00: Tp=  .41]
00252>  R0001:C00033------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00253>       CALIB NASHYD            1.0 03:EXT-8B        1.04     .009 No_date    6:22    5.08 .128     .000
00254>         [CN= 58.6: N= 3.00: Tp=  .41]
00255>  #----------------|-------------------------------------------------------------|
00256>  #----------------|----------WATERCOURSE 8----------------------------------------|
00257>  #----------------|-------------------------------------------------------------|
00258>  R0001:C00034------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00259>       ADD HYD                 1.0 01:8A           2.27     .011 No_date    6:09    2.01  n/a     .000
00260>                           +     1.0 02:EXT-8A        7.14     .086 No_date    6:22    7.17  n/a     .000
00261>                           +     1.0 03:EXT-8B        1.04     .009 No_date    6:22    5.08  n/a     .000
00262>                       SUM=      1.0 04:WC8          10.45     .103 No_date    6:20    5.84  n/a     .000
00263>  #----------------|-------------------------------------------------------------|
00264>  #----------------|--WATERCOURSE 10 CATCHMENT--------------------------------------|
00265>  #----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10--------------------|
00266>  #----------------|-------------------------------------------------------------|
00267>  R0001:C00035------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00268>       CALIB NASHYD            1.0 01:10A          1.99     .024 No_date    6:08    4.70 .119     .000
00269>         [CN= 59.4: N= 3.00: Tp=  .21]
00270>  #*******************************************************************************
00271>  #*******************************************************************************
00272>  #                             5yr SCS Storm (12hr)
00273>  #*******************************************************************************
00274>  #*******************************************************************************
00275>  R0001:C00036------------------------------------------------------------------------
00276>       MASS STORM
00277>         Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
00278>         Comment  = 12 hour SCS II storm mass curve
00279>         [SDT= 1.00:SDUR=  12.00:PTOT=  55.20]
00280>  #*******************************************************************************
00281>  #----------------|-------------------------------------------------------------|
00282>  #----------------|-Subwatershed 9 External Drainage Area-------------------------|
00283>  #----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
00284>  #----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------------|
00285>  #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00286>  #----------------|-------------------------------------------------------------|
00287>  R0001:C00037------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00288>       CALIB NASHYD            1.0 01:EXT-9A      101.80    2.126 No_date    7:02   22.16 .402     .000
00289>         [CN= 80.0: N= 3.00: Tp= 1.00]
00290>  R0001:C00038------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00291>       ROUTE CHANNEL   ->     1.0 01:EXT-9A      101.80    2.126 No_date    7:02   22.16  n/a     .000
00292>        [RDT= 1.00] out<-     1.0 02:Channel     101.80    2.116 No_date    7:06   22.16  n/a     .000
00293>         [L/S/n=  550./2.000/.035]
00294>         {Vmax= 1.504:Dmax=  .265}
00295>  R0001:C00039------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00296>       CALIB STANDHYD          1.0 03:EXT-9B       14.80    1.558 No_date    6:02   27.84 .504     .000
00297>         [XIMP=.35:TIMP=.35]
00298>         [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00299>         [Pervious    area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00300>         [Impervious  area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00301>  R0001:C00040------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00302>       ROUTE RESERVOIR ->     1.0 03:EXT-9B       14.80    1.558 No_date    6:02   27.84  n/a     .000
00303>                     out <=   1.0 04:Orchards     14.80     .242 No_date    6:37   27.84  n/a     .000
00304>       {MxStoUsed=.2913E+00  m3}
00305>  #----------------|-------------------------------------------------------------|
00306>  #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-------------|
00307>  #----------------|-------------------------------------------------------------|
00308>  R0001:C00041------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00309>       ADD HYD                 1.0 02:Channel     101.80    2.116 No_date    7:06   22.16  n/a     .000
00310>                           +     1.0 04:Orchards    14.80     .242 No_date    6:37   27.84  n/a     .000
00311>                       SUM=      1.0 05:RD19       116.60    2.325 No_date    7:03   22.88  n/a     .000
00312>  R0001:C00042------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00313>       CALIB NASHYD            1.0 01:EXT-9C        .65     .043 No_date    6:08   24.81 .450     .000
00314>         [CN= 82.7: N= 3.00: Tp=  .24]
00315>  #----------------|-------------------------------------------------------------|
00316>  #----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------------|
00317>  #----------------|-------------------------------------------------------------|
00318>  R0001:C00043------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00319>       CALIB NASHYD            1.0 02:9A9B         2.68     .051 No_date    6:13    9.00 .163     .000
00320>         [CN= 55.9: N= 3.00: Tp=  .30]
00321>  R0001:C00044------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00322>       ADD HYD                 1.0 01:EXT-9C        .65     .043 No_date    6:08   24.81  n/a     .000
00323>                           +     1.0 02:9A9B         2.68     .051 No_date    6:13    9.00  n/a     .000
00324>                           +     1.0 05:RD19       116.60    2.325 No_date    7:03   22.88  n/a     .000
00325>                       SUM=      1.0 04:WC9a       119.93    2.345 No_date    7:03   22.58  n/a     .000
00326>  #----------------|-------------------------------------------------------------|
00327>  #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT------------------
00328>  #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------
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00329> #-----------------|-------------------------------------------------------------|
00330> R0001:C00045------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00331>     CALIB NASHYD         1.0 01:EXT-1A         8.37     .221 No_date    6:25   16.60 .301     .000
00332>       [CN= 74.9: N= 3.00: Tp=  .47]
00333> R0001:C00046------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00334>     CALIB STANDHYD       1.0 03:1A             2.95     .314 No_date    6:00   29.77 .539     .000
00335>       [XIMP=.31:TIMP=.51]
00336>       [LOSS= 2 :CN= 67.0]
00337>       [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
00338>       [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
00339> R0001:C00047------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00340>     CALIB NASHYD         1.0 05:1B             1.81     .041 No_date    6:02    5.94 .108     .000
00341>       [CN= 44.3: N= 3.00: Tp=  .11]
00342> R0001:C00048------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00343>     ADD HYD              1.0 01:EXT-1A         8.37     .221 No_date    6:25   16.60  n/a     .000
00344>                    +     1.0 03:1A             2.95     .314 No_date    6:00   29.77  n/a     .000
00345>                    +     1.0 05:1B             1.81     .041 No_date    6:02    5.94  n/a     .000
00346>                 SUM=     1.0 06:SWMF1         13.13     .439 No_date    6:00   18.09  n/a     .000
00347> #-----------------|-------------------------------------------------------------|
00348> #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
00349> #-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
00350> #-----------------|-------------------------------------------------------------|
00351> R0001:C00049------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00352>     ROUTE RESERVOIR ->    1.0 06:SWMF1         13.13     .439 No_date    6:00   18.09  n/a     .000
00353>                 out <=    1.0 01:SWMF-1        13.13     .019 No_date   12:04   18.09  n/a     .000
00354>      {MxStoUsed=.1920E+00  m3}
00355> R0001:C00050------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00356>     ADD HYD              1.0 01:SWMF-1        13.13     .019 No_date   12:04   18.09  n/a     .000
00357>                    +     1.0 04:WC9a         119.93    2.345 No_date    7:03   22.58  n/a     .000
00358>                 SUM=     1.0 07:WC9b         133.06    2.362 No_date    7:03   22.14  n/a     .000
00359> #-----------------|-------------------------------------------------------------|
00360> #-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00361> #-----------------|-------------------------------------------------------------|
00362> #-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
00363> #-----------------|-------------------------------------------------------------|
00364> R0001:C00051------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00365>     CALIB STANDHYD       1.0 10:9D             1.38     .164 No_date    6:00   33.96 .615     .000
00366>       [XIMP=.33:TIMP=.68]
00367>       [LOSS= 2 :CN= 66.2]
00368>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00369>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
00370> #-----------------|-------------------------------------------------------------|
00371> #-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
00372> #-----------------|-------------------------------------------------------------|
00373> R0001:C00052------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00374>     CALIB NASHYD         1.0 01:9F              .73     .016 No_date    6:12    9.77 .177     .000
00375>       [CN= 56.7: N= 3.00: Tp=  .28]
00376> R0001:C00053------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00377>     CALIB NASHYD         1.0 02:EXT-9D          .41     .006 No_date    6:38   12.11 .219     .000
00378>       [CN= 65.0: N= 3.00: Tp=  .62]
00379> R0001:C00054------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00380>     CALIB NASHYD         1.0 03:9C9E           2.06     .041 No_date    6:15    9.95 .180     .000
00381>       [CN= 58.2: N= 3.00: Tp=  .33]
00382> R0001:C00055------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00383>     ADD HYD              1.0 01:9F              .73     .016 No_date    6:12    9.77  n/a     .000
00384>                    +     1.0 02:EXT-9D          .41     .006 No_date    6:38   12.11  n/a     .000
00385>                    +     1.0 03:9C9E           2.06     .041 No_date    6:15    9.95  n/a     .000
00386>                    +     1.0 07:WC9b         133.06    2.362 No_date    7:03   22.14  n/a     .000
00387>                    +     1.0 10:9D             1.38     .164 No_date    6:00   33.96  n/a     .000
00388>                 SUM=     1.0 05:WC9LOWER     137.64    2.397 No_date    7:03   21.98  n/a     .000
00389> #-----------------|-------------------------------------------------------------|
00390> #-----------------|-LANDS DRAINING TO SWM FACILITY 2------------------------|
00391> #-----------------|-------------------------------------------------------------|
00392> R0001:C00056------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00393>     CALIB NASHYD         1.0 01:2A             1.19     .015 No_date    6:04    3.74 .068     .000
00394>       [CN= 33.2: N= 3.00: Tp=  .14]
00395> R0001:C00057------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00396>     CALIB NASHYD         1.0 02:2B             1.67     .013 No_date    6:15    4.06 .073     .000
00397>       [CN= 34.7: N= 3.00: Tp=  .32]
00398> R0001:C00058------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00399>     CALIB STANDHYD       1.0 03:2C             1.96     .161 No_date    6:00   25.39 .460     .000
00400>       [XIMP=.30:TIMP=.60]
00401>       [LOSS= 2 :CN= 49.0]
00402>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00403>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
00404> R0001:C00059------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00405>     CALIB STANDHYD       1.0 07:2D             3.28     .249 No_date    6:01   25.22 .457     .000
00406>       [XIMP=.25:TIMP=.50]
00407>       [LOSS= 2 :CN= 59.0]
00408>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00409>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
00410> R0001:C00060------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00411>     CALIB STANDHYD       1.0 04:2E             2.09     .167 No_date    6:00   26.52 .481     .000
00412>       [XIMP=.26:TIMP=.35]
00413>       [LOSS= 2 :CN= 69.0]
00414>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00415>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
00416> R0001:C00061------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00417>     ADD HYD              1.0 01:2A             1.19     .015 No_date    6:04    3.74  n/a     .000
00418>                    +     1.0 02:2B             1.67     .013 No_date    6:15    4.06  n/a     .000
00419>                    +     1.0 03:2C             1.96     .161 No_date    6:00   25.39  n/a     .000
00420>                    +     1.0 04:2E             2.09     .167 No_date    6:00   26.52  n/a     .000
00421>                    +     1.0 07:2D             3.28     .249 No_date    6:01   25.22  n/a     .000
00422>                 SUM=     1.0 06:SWMF2         10.19     .596 No_date    6:00   19.54  n/a     .000
00423> #-----------------|-------------------------------------------------------------|
00424> #-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
00425> #-----------------|-------------------------------------------------------------|
00426> R0001:C00062------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00427>     ROUTE RESERVOIR ->    1.0 06:SWMF2         10.19     .596 No_date    6:00   19.54  n/a     .000
00428>                 out <=    1.0 09:SWMF-2        10.19     .016 No_date   12:01   19.54  n/a     .000
00429>      {MxStoUsed=.1618E+00  m3}
00430> #-----------------|-------------------------------------------------------------|
00431> #-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD----------------|
00432> #-----------------|-------------------------------------------------------------|
00433> R0001:C00063------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00434>     ADD HYD              1.0 09:SWMF-2        10.19     .016 No_date   12:01   19.54  n/a     .000
00435>                    +     1.0 05:WC9LOWER     137.64    2.397 No_date    7:03   21.98  n/a     .000
00436>                 SUM=     1.0 01:WC9c         147.83    2.411 No_date    7:03   21.81  n/a     .000
00437> R0001:C00064------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00438>     SAVE HYD             1.0 01:WC9c         147.83    2.411 No_date    7:03   21.81  n/a     .000
00439>       fname :WC9c.0001
00440>       remark:POST-DEV LAKESHORE
00441> #-----------------|-------------------------------------------------------------|
00442> #-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
00443> #-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
00444> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8---------------|
00445> #-----------------|-------------------------------------------------------------|
00446> R0001:C00065------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00447>     CALIB NASHYD         1.0 01:8A             2.27     .024 No_date    6:09    4.39 .080     .000
00448>       [CN= 36.2: N= 3.00: Tp=  .23]
00449> R0001:C00066------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00450>     CALIB NASHYD         1.0 02:EXT-8A         7.14     .176 No_date    6:21   14.21 .257     .000
00451>       [CN= 68.9: N= 3.00: Tp=  .41]
00452> R0001:C00067------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00453>     CALIB NASHYD         1.0 03:EXT-8B         1.04     .018 No_date    6:21   10.30 .187     .000
00454>       [CN= 58.6: N= 3.00: Tp=  .41]
00455> #-----------------|-------------------------------------------------------------|
00456> #-----------------|----------WATERCOURSE 8---------------------------------|
00457> #-----------------|-------------------------------------------------------------|
00458> R0001:C00068------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00459>     ADD HYD              1.0 01:8A             2.27     .024 No_date    6:09    4.39  n/a     .000
00460>                    +     1.0 02:EXT-8A         7.14     .176 No_date    6:21   14.21  n/a     .000
00461>                    +     1.0 03:EXT-8B         1.04     .018 No_date    6:21   10.30  n/a     .000
00462>                 SUM=     1.0 04:WC8           10.45     .213 No_date    6:19   11.69  n/a     .000
00463> #-----------------|-------------------------------------------------------------|
00464> #-----------------|--WATERCOURSE 10 CATCHMENT---------------------------------|
00465> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10--------------|
00466> #-----------------|-------------------------------------------------------------|
00467> R0001:C00069------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00468>     CALIB NASHYD         1.0 01:10A            1.99     .053 No_date    6:07    9.86 .179     .000
00469>       [CN= 59.4: N= 3.00: Tp=  .21]
00470> #******************************************************************************
00471> #******************************************************************************
00472> #                              10yr SCS Storm (12hr)
00473> #******************************************************************************
00474> #******************************************************************************
00475> R0001:C00070----------------------------------------------------------------------------------
00476>      MASS STORM
00477>       Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
00478>       Comment  = 12 hour SCS II storm mass curve
00479>       [SDT= 1.00:SDUR=  12.00:PTOT=  66.00]
00480> #******************************************************************************
00481> #-----------------|-------------------------------------------------------------|
00482> #-----------------|-Subwatershed 9 External Drainage Area--------------------|
00483> #-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
00484> #-----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------|
00485> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00486> #-----------------|-------------------------------------------------------------|
00487> R0001:C00071------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00488>     CALIB NASHYD         1.0 01:EXT-9A       101.80    2.893 No_date    7:01   29.89 .453     .000
00489>       [CN= 80.0: N= 3.00: Tp= 1.00]
00490> R0001:C00072------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00491>     ROUTE CHANNEL   ->    1.0 01:EXT-9A       101.80    2.893 No_date    7:01   29.89  n/a     .000
00492>      [RDT= 1.00] out<-    1.0 02:Channel      101.80    2.883 No_date    7:05   29.89  n/a     .000
00493>       [L/S/n=  550./2.000/.035]
00494>       {Vmax= 1.710:Dmax=  .319}
00495> R0001:C00073------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00496>     CALIB STANDHYD       1.0 03:EXT-9B        14.80    2.078 No_date    6:02   35.32 .535     .000
00497>       [XIMP=.35:TIMP=.35]
00498>       [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00499>       [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00500>       [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00501> R0001:C00074------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00502>     ROUTE RESERVOIR ->    1.0 03:EXT-9B        14.80    2.078 No_date    6:02   35.32  n/a     .000
00503>                 out <=    1.0 04:Orchards      14.80     .446 No_date    6:29   35.32  n/a     .000
00504>      {MxStoUsed=.3514E+00  m3}
00505> #-----------------|-------------------------------------------------------------|
00506> #-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00507> #-----------------|-------------------------------------------------------------|
00508> R0001:C00075------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00509>     ADD HYD              1.0 02:Channel      101.80    2.883 No_date    7:05   29.89  n/a     .000
00510>                    +     1.0 04:Orchards      14.80     .446 No_date    6:29   35.32  n/a     .000
00511>                 SUM=     1.0 05:RD19         116.60    3.198 No_date    7:00   30.58  n/a     .000
00512> R0001:C00076------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00513>     CALIB NASHYD         1.0 01:EXT-9C          .65     .057 No_date    6:08   33.06 .501     .000
00514>       [CN= 82.7: N= 3.00: Tp=  .24]
00515> #-----------------|-------------------------------------------------------------|
00516> #-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00517> #-----------------|-------------------------------------------------------------|
00518> R0001:C00077------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00519>     CALIB NASHYD         1.0 02:9A9B           2.68     .074 No_date    6:13   13.02 .197     .000
00520>       [CN= 55.9: N= 3.00: Tp=  .30]
00521> R0001:C00078------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00522>     ADD HYD              1.0 01:EXT-9C          .65     .057 No_date    6:08   33.06  n/a     .000
00523>                    +     1.0 02:9A9B           2.68     .074 No_date    6:13   13.02  n/a     .000
00524>                    +     1.0 05:RD19         116.60    3.198 No_date    7:00   30.58  n/a     .000
00525>                 SUM=     1.0 04:WC9a         119.93    3.229 No_date    7:00   30.20  n/a     .000
00526> #-----------------|-------------------------------------------------------------|
00527> #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
00528> #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
00529> #-----------------|-------------------------------------------------------------|
00530> R0001:C00079------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00531>     CALIB NASHYD         1.0 01:EXT-1A         8.37     .316 No_date    6:25   23.25 .352     .000
00532>       [CN= 74.9: N= 3.00: Tp=  .47]
00533> R0001:C00080------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00534>     CALIB STANDHYD       1.0 03:1A             2.95     .410 No_date    6:00   37.83 .573     .000
00535>       [XIMP=.31:TIMP=.51]
00536>       [LOSS= 2 :CN= 67.0]
00537>       [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
00538>       [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
00539> R0001:C00081------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00540>     CALIB NASHYD         1.0 05:1B             1.81     .060 No_date    6:02    8.75 .133     .000
00541>       [CN= 44.3: N= 3.00: Tp=  .11]
00542> R0001:C00082------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00543>     ADD HYD              1.0 01:EXT-1A         8.37     .316 No_date    6:25   23.25  n/a     .000
00544>                    +     1.0 03:1A             2.95     .410 No_date    6:00   37.83  n/a     .000
00545>                    +     1.0 05:1B             1.81     .060 No_date    6:02    8.75  n/a     .000
00546>                 SUM=     1.0 06:SWMF1         13.13     .599 No_date    6:00   24.53  n/a     .000
00547> #-----------------|-------------------------------------------------------------|
00548> #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
00549> #-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
00550> #-----------------|-------------------------------------------------------------|
00551> R0001:C00083------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00552>     ROUTE RESERVOIR ->    1.0 06:SWMF1         13.13     .599 No_date    6:00   24.53  n/a     .000
00553>                 out <=    1.0 01:SWMF-1        13.13     .023 No_date   12:09   24.52  n/a     .000
00554>      {MxStoUsed=.2685E+00  m3}
00555> R0001:C00084------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00556>     ADD HYD              1.0 01:SWMF-1        13.13     .023 No_date   12:09   24.52  n/a     .000
00557>                    +     1.0 04:WC9a         119.93    3.229 No_date    7:00   30.20  n/a     .000
00558>                 SUM=     1.0 07:WC9b         133.06    3.249 No_date    7:00   29.64  n/a     .000
00559> #-----------------|-------------------------------------------------------------|
00560> #-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00561> #-----------------|-------------------------------------------------------------|
00562> #-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
00563> #-----------------|-------------------------------------------------------------|
00564> R0001:C00085------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00565>     CALIB STANDHYD       1.0 10:9D             1.38     .213 No_date    6:00   42.84 .649     .000
00566>       [XIMP=.33:TIMP=.68]
00567>       [LOSS= 2 :CN= 66.2]
00568>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00569>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
00570> #-----------------|-------------------------------------------------------------|
00571> #-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
00572> #-----------------|-------------------------------------------------------------|
00573> R0001:C00086------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00574>     CALIB NASHYD         1.0 01:9F              .73     .023 No_date    6:11   13.96 .211     .000
00575>       [CN= 56.7: N= 3.00: Tp=  .28]
00576> R0001:C00087------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00577>     CALIB NASHYD         1.0 02:EXT-9D          .41     .009 No_date    6:37   17.27 .262     .000
00578>       [CN= 65.0: N= 3.00: Tp=  .62]
00579> R0001:C00088------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00580>     CALIB NASHYD         1.0 03:9C9E           2.06     .059 No_date    6:15   14.28 .216     .000
00581>       [CN= 58.2: N= 3.00: Tp=  .33]
00582> R0001:C00089------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00583>     ADD HYD              1.0 01:9F              .73     .023 No_date    6:11   13.96  n/a     .000
00584>                    +     1.0 02:EXT-9D          .41     .009 No_date    6:37   17.27  n/a     .000
00585>                    +     1.0 03:9C9E           2.06     .059 No_date    6:15   14.28  n/a     .000
00586>                    +     1.0 07:WC9b         133.06    3.249 No_date    7:00   29.64  n/a     .000
00587>                    +     1.0 10:9D             1.38     .213 No_date    6:00   42.84  n/a     .000
00588>                 SUM=     1.0 05:WC9LOWER     137.64    3.300 No_date    6:56   29.42  n/a     .000
00589> #-----------------|-------------------------------------------------------------|
00590> #-----------------|-LANDS DRAINING TO SWM FACILITY 2------------------------|
00591> #-----------------|-------------------------------------------------------------|
00592> R0001:C00090------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00593>     CALIB NASHYD         1.0 01:2A             1.19     .022 No_date    6:04    5.61 .085     .000
00594>       [CN= 33.2: N= 3.00: Tp=  .14]
00595> R0001:C00091------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00596>     CALIB NASHYD         1.0 02:2B             1.67     .020 No_date    6:15    6.05 .092     .000
00597>       [CN= 34.7: N= 3.00: Tp=  .32]
00598> R0001:C00092------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00599>     CALIB STANDHYD       1.0 03:2C             1.96     .207 No_date    6:00   32.23 .488     .000
00600>       [XIMP=.30:TIMP=.60]
00601>       [LOSS= 2 :CN= 49.0]
00602>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00603>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
00604> R0001:C00093------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00605>     CALIB STANDHYD       1.0 07:2D             3.28     .334 No_date    6:00   32.34 .490     .000
00606>       [XIMP=.25:TIMP=.50]
00607>       [LOSS= 2 :CN= 59.0]
00608>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00609>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
00610> R0001:C00094------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00611>     CALIB STANDHYD       1.0 04:2E             2.09     .224 No_date    6:00   34.04 .516     .000
00612>       [XIMP=.26:TIMP=.35]
00613>       [LOSS= 2 :CN= 69.0]
00614>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00615>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
00616> R0001:C00095------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00617>     ADD HYD              1.0 01:2A             1.19     .022 No_date    6:04    5.61  n/a     .000
00618>                    +     1.0 02:2B             1.67     .020 No_date    6:15    6.05  n/a     .000
00619>                    +     1.0 03:2C             1.96     .207 No_date    6:00   32.23  n/a     .000
00620>                    +     1.0 04:2E             2.09     .224 No_date    6:00   34.04  n/a     .000
00621>                    +     1.0 07:2D             3.28     .334 No_date    6:00   32.34  n/a     .000
00622>                 SUM=     1.0 06:SWMF2         10.19     .796 No_date    6:00   25.24  n/a     .000
00623> #-----------------|-------------------------------------------------------------|
00624> #-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
00625> #-----------------|-------------------------------------------------------------|
00626> R0001:C00096------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00627>     ROUTE RESERVOIR ->    1.0 06:SWMF2         10.19     .796 No_date    6:00   25.24  n/a     .000
00628>                 out <=    1.0 09:SWMF-2        10.19     .018 No_date   12:03   25.24  n/a     .000
00629>      {MxStoUsed=.2144E+00  m3}
00630> #-----------------|-------------------------------------------------------------|
00631> #-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD----------------|
00632> #-----------------|-------------------------------------------------------------|
00633> R0001:C00097------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00634>     ADD HYD              1.0 09:SWMF-2        10.19     .018 No_date   12:03   25.24  n/a     .000
00635>                    +     1.0 05:WC9LOWER     137.64    3.300 No_date    6:56   29.42  n/a     .000
00636>                 SUM=     1.0 01:WC9c         147.83    3.317 No_date    6:56   29.13  n/a     .000
00637> R0001:C00098------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00638>     SAVE HYD             1.0 01:WC9c         147.83    3.317 No_date    6:56   29.13  n/a     .000
00639>       fname :WC9c.0001
00640>       remark:POST-DEV LAKESHORE
00641> #-----------------|-------------------------------------------------------------|
00642> #-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
00643> #-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
00644> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8---------------|
00645> #-----------------|-------------------------------------------------------------|
00646> R0001:C00099------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00647>     CALIB NASHYD         1.0 01:8A             2.27     .037 No_date    6:09    6.52 .099     .000
00648>       [CN= 36.2: N= 3.00: Tp=  .23]
00649> R0001:C00100------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00650>     CALIB NASHYD         1.0 02:EXT-8A         7.14     .251 No_date    6:20   19.98 .303     .000
00651>       [CN= 68.9: N= 3.00: Tp=  .41]
00652> R0001:C00101------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00653>     CALIB NASHYD         1.0 03:EXT-8B         1.04     .026 No_date    6:20   14.71 .223     .000
00654>       [CN= 58.6: N= 3.00: Tp=  .41]
00655> #-----------------|-------------------------------------------------------------|
00656> #-----------------|----------WATERCOURSE 8---------------------------------|
```

```
#-----------------|-----------------------------------------------------------|
R0001:C00102------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:8A            2.27      .037 No_date    6:09    6.52  n/a      .000
                    +    1.0 02:EXT-8A        7.14      .251 No_date    6:20   19.98  n/a      .000
                    +    1.0 03:EXT-8B        1.04      .026 No_date    6:20   14.71  n/a      .000
                 SUM=    1.0 04:WC8          10.45      .306 No_date    6:18   16.54  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 10 CATCHMENT---------------------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10---------------|
#-----------------|-----------------------------------------------------------|
R0001:C00103------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:10A           1.99      .078 No_date    6:07   14.26 .216      .000
      [CN= 59.4: N= 3.00: Tp=  .21]
#******************************************************************************
#******************************************************************************
#                              25yr SCS Storm (12hr)
#******************************************************************************
#******************************************************************************
R0001:C00104------------------------------------------------------------------------------------
     MASS STORM
      Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
      Comment  = 12 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  12.00:PTOT=  79.20]
#******************************************************************************
#-----------------|-----------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|-----------------------------------------------------------|
R0001:C00105------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9A      101.80     3.899 No_date    7:00   39.98 .505      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00106------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->   1.0 01:EXT-9A      101.80     3.899 No_date    7:00   39.98  n/a      .000
     [RDT= 1.00] out<-   1.0 02:Channel     101.80     3.889 No_date    7:03   39.98  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.856:Dmax=  .372}
R0001:C00107------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:EXT-9B       14.80     2.847 No_date    6:01   46.22 .584      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00108------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 03:EXT-9B       14.80     2.847 No_date    6:01   46.22  n/a      .000
                out <=   1.0 04:Orchards     14.80      .760 No_date    6:23   46.22  n/a      .000
     {MxStoUsed=.4324E+00  m3}
#-----------------|-----------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|-----------------------------------------------------------|
R0001:C00109------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 02:Channel     101.80     3.889 No_date    7:03   39.98  n/a      .000
                    +    1.0 04:Orchards     14.80      .760 No_date    6:23   46.22  n/a      .000
                 SUM=    1.0 05:RD19        116.60     4.376 No_date    6:57   40.77  n/a      .000
R0001:C00110------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9C         .65      .076 No_date    6:08   43.72 .552      .000
      [CN= 82.7: N= 3.00: Tp=  .24]
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
R0001:C00111------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:9A9B          2.68      .108 No_date    6:13   18.67 .236      .000
      [CN= 55.9: N= 3.00: Tp=  .30]
R0001:C00112------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-9C         .65      .076 No_date    6:08   43.72  n/a      .000
                    +    1.0 02:9A9B          2.68      .108 No_date    6:13   18.67  n/a      .000
                    +    1.0 05:RD19        116.60     4.376 No_date    6:57   40.77  n/a      .000
                 SUM=    1.0 04:WC9a        119.93     4.422 No_date    6:57   40.30  n/a      .000
#-----------------|-----------------------------------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1------------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00113------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-1A        8.37      .442 No_date    6:24   32.15 .406      .000
      [CN= 74.9: N= 3.00: Tp=  .47]
R0001:C00114------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:1A            2.95      .530 No_date    6:00   48.16 .608      .000
      [XIMP=.31:TIMP=.51]
      [LOSS= 2 :CN= 67.0]
      [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0001:C00115------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 05:1B            1.81      .089 No_date    6:02   12.79 .162      .000
      [CN= 44.3: N= 3.00: Tp=  .11]
R0001:C00116------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-1A        8.37      .442 No_date    6:24   32.15  n/a      .000
                    +    1.0 03:1A            2.95      .530 No_date    6:00   48.16  n/a      .000
                    +    1.0 05:1B            1.81      .089 No_date    6:02   12.79  n/a      .000
                 SUM=    1.0 06:SWMF1        13.13      .809 No_date    6:00   33.08  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
#-----------------|-----------------------------------------------------------|
R0001:C00117------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 06:SWMF1        13.13      .809 No_date    6:00   33.08  n/a      .000
                out <=   1.0 01:SWMF-1       13.13      .026 No_date   12:13   33.08  n/a      .000
     {MxStoUsed=.3716E+00  m3}
R0001:C00118------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:SWMF-1       13.13      .026 No_date   12:13   33.08  n/a      .000
                    +    1.0 04:WC9a        119.93     4.422 No_date    6:57   40.30  n/a      .000
                 SUM=    1.0 07:WC9b        133.06     4.444 No_date    6:57   39.58  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|-----------------------------------------------------------|
R0001:C00119------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 10:9D            1.38      .276 No_date    6:00   54.11 .683      .000
      [XIMP=.33:TIMP=.68]
      [LOSS= 2 :CN= 66.2]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00120------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9F             .73      .033 No_date    6:11   19.81 .250      .000
      [CN= 56.7: N= 3.00: Tp=  .28]
R0001:C00121------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:EXT-9D         .41      .013 No_date    6:36   24.38 .308      .000
      [CN= 65.0: N= 3.00: Tp=  .62]
R0001:C00122------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 03:9C9E          2.06      .085 No_date    6:14   20.32 .257      .000
      [CN= 58.2: N= 3.00: Tp=  .33]
R0001:C00123------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9F             .73      .033 No_date    6:11   19.81  n/a      .000
                    +    1.0 02:EXT-9D         .41      .013 No_date    6:36   24.38  n/a      .000
                    +    1.0 03:9C9E          2.06      .085 No_date    6:14   20.32  n/a      .000
                    +    1.0 07:WC9b        133.06     4.444 No_date    6:57   39.58  n/a      .000
                    +    1.0 10:9D            1.38      .276 No_date    6:00   54.11  n/a      .000
                 SUM=    1.0 05:WC9LOWER    137.64     4.515 No_date    6:57   39.29  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-LANDS DRAINING TO SWM FACILITY 2--------------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00124------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:2A            1.19      .033 No_date    6:03    8.34 .105      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0001:C00125------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:2B            1.67      .030 No_date    6:14    8.97 .113      .000
      [CN= 34.7: N= 3.00: Tp=  .32]
R0001:C00126------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:2C            1.96      .274 No_date    6:00   41.10 .519      .000
      [XIMP=.30:TIMP=.60]
      [LOSS= 2 :CN= 49.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
R0001:C00127------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 07:2D            3.28      .444 No_date    6:00   41.60 .525      .000
      [XIMP=.25:TIMP=.50]
      [LOSS= 2 :CN= 59.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
R0001:C00128------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 04:2E            2.09      .299 No_date    6:00   43.78 .553      .000
      [XIMP=.26:TIMP=.35]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
R0001:C00129------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:2A            1.19      .033 No_date    6:03    8.34  n/a      .000
                    +    1.0 02:2B            1.67      .030 No_date    6:14    8.97  n/a      .000
                    +    1.0 03:2C            1.96      .274 No_date    6:00   41.10  n/a      .000
                    +    1.0 04:2E            2.09      .299 No_date    6:00   43.78  n/a      .000
                    +    1.0 07:2D            3.28      .444 No_date    6:00   41.60  n/a      .000
                 SUM=    1.0 06:SWMF2        10.19     1.063 No_date    6:00   32.72  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
#-----------------|-----------------------------------------------------------|
R0001:C00130------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 06:SWMF2        10.19     1.063 No_date    6:00   32.72  n/a      .000
                out <=   1.0 09:SWMF-2       10.19      .085 No_date    7:13   32.72  n/a      .000
     {MxStoUsed=.2343E+00  m3}
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
#-----------------|-----------------------------------------------------------|
R0001:C00131------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 09:SWMF-2       10.19      .085 No_date    7:13   32.72  n/a      .000
                    +    1.0 05:WC9LOWER    137.64     4.515 No_date    6:57   39.29  n/a      .000
                 SUM=    1.0 01:WC9c        147.83     4.581 No_date    6:57   38.84  n/a      .000
R0001:C00132------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD             1.0 01:WC9c        147.83     4.581 No_date    6:57   38.84  n/a      .000
      fname :WC9c.0001
      remark:POST-DEV LAKESHORE
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
#-----------------|-----------------------------------------------------------|
R0001:C00133------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:8A            2.27      .055 No_date    6:08    9.62 .121      .000
      [CN= 36.2: N= 3.00: Tp=  .23]
R0001:C00134------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:EXT-8A        7.14      .354 No_date    6:20   27.83 .351      .000
      [CN= 68.9: N= 3.00: Tp=  .41]
R0001:C00135------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 03:EXT-8B        1.04      .038 No_date    6:20   20.84 .263      .000
      [CN= 58.6: N= 3.00: Tp=  .41]
#-----------------|-----------------------------------------------------------|
#-----------------|-----------WATERCOURSE 8-----------------------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00136------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:8A            2.27      .055 No_date    6:08    9.62  n/a      .000
                    +    1.0 02:EXT-8A        7.14      .354 No_date    6:20   27.83  n/a      .000
                    +    1.0 03:EXT-8B        1.04      .038 No_date    6:20   20.84  n/a      .000
                 SUM=    1.0 04:WC8          10.45      .435 No_date    6:18   23.18  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 10 CATCHMENT---------------------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10---------------|
#-----------------|-----------------------------------------------------------|
R0001:C00137------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:10A           1.99      .112 No_date    6:07   20.41 .258      .000
      [CN= 59.4: N= 3.00: Tp=  .21]
#******************************************************************************
#******************************************************************************
#                              50yr SCS Storm (12hr)
#******************************************************************************
#******************************************************************************
R0001:C00138------------------------------------------------------------------------------------
     MASS STORM
      Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
      Comment  = 12 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  12.00:PTOT=  88.80]
#******************************************************************************
#-----------------|-----------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|-----------------------------------------------------------|
R0001:C00139------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9A      101.80     4.667 No_date    6:59   47.67 .537      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00140------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->   1.0 01:EXT-9A      101.80     4.667 No_date    6:59   47.67  n/a      .000
     [RDT= 1.00] out<-   1.0 02:Channel     101.80     4.660 No_date    7:02   47.67  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.985:Dmax=  .413}
R0001:C00141------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:EXT-9B       14.80     3.300 No_date    6:01   53.23 .599      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00142------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 03:EXT-9B       14.80     3.300 No_date    6:01   53.23  n/a      .000
                out <=   1.0 04:Orchards     14.80      .969 No_date    6:21   53.22  n/a      .000
     {MxStoUsed=.4829E+00  m3}
#-----------------|-----------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|-----------------------------------------------------------|
R0001:C00143------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 02:Channel     101.80     4.660 No_date    7:02   47.67  n/a      .000
                    +    1.0 04:Orchards     14.80      .969 No_date    6:21   53.22  n/a      .000
                 SUM=    1.0 05:RD19        116.60     5.259 No_date    6:56   48.38  n/a      .000
R0001:C00144------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9C         .65      .090 No_date    6:08   51.78 .583      .000
      [CN= 82.7: N= 3.00: Tp=  .24]
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
R0001:C00145------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:9A9B          2.68      .135 No_date    6:12   23.22 .261      .000
      [CN= 55.9: N= 3.00: Tp=  .30]
R0001:C00146------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-9C         .65      .090 No_date    6:08   51.78  n/a      .000
                    +    1.0 02:9A9B          2.68      .135 No_date    6:12   23.22  n/a      .000
                    +    1.0 05:RD19        116.60     5.259 No_date    6:56   48.38  n/a      .000
                 SUM=    1.0 04:WC9a        119.93     5.317 No_date    6:56   47.83  n/a      .000
#-----------------|-----------------------------------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1------------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00147------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-1A        8.37      .541 No_date    6:24   39.05 .440      .000
      [CN= 74.9: N= 3.00: Tp=  .47]
R0001:C00148------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:1A            2.95      .629 No_date    6:00   55.95 .630      .000
      [XIMP=.31:TIMP=.51]
      [LOSS= 2 :CN= 67.0]
      [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0001:C00149------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 05:1B            1.81      .112 No_date    6:02   16.11 .181      .000
      [CN= 44.3: N= 3.00: Tp=  .11]
R0001:C00150------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-1A        8.37      .541 No_date    6:24   39.05  n/a      .000
                    +    1.0 03:1A            2.95      .629 No_date    6:00   55.95  n/a      .000
                    +    1.0 05:1B            1.81      .112 No_date    6:02   16.11  n/a      .000
                 SUM=    1.0 06:SWMF1        13.13      .980 No_date    6:00   39.69  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
#-----------------|-----------------------------------------------------------|
R0001:C00151------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 06:SWMF1        13.13      .980 No_date    6:00   39.69  n/a      .000
                out <=   1.0 01:SWMF-1       13.13      .028 No_date   12:16   39.69  n/a      .000
     {MxStoUsed=.4522E+00  m3}
R0001:C00152------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:SWMF-1       13.13      .028 No_date   12:16   39.69  n/a      .000
                    +    1.0 04:WC9a        119.93     5.317 No_date    6:56   47.83  n/a      .000
                 SUM=    1.0 07:WC9b        133.06     5.341 No_date    6:56   47.03  n/a      .000
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|-----------------------------------------------------------|
R0001:C00153------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 10:9D            1.38      .321 No_date    6:00   62.52 .704      .000
      [XIMP=.33:TIMP=.68]
      [LOSS= 2 :CN= 66.2]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00154------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9F             .73      .041 No_date    6:11   24.51 .276      .000
      [CN= 56.7: N= 3.00: Tp=  .28]
R0001:C00155------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:EXT-9D         .41      .016 No_date    6:36   30.01 .338      .000
      [CN= 65.0: N= 3.00: Tp=  .62]
R0001:C00156------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 03:9C9E          2.06      .106 No_date    6:14   25.16 .283      .000
      [CN= 58.2: N= 3.00: Tp=  .33]
R0001:C00157------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9F             .73      .041 No_date    6:11   24.51  n/a      .000
                    +    1.0 02:EXT-9D         .41      .016 No_date    6:36   30.01  n/a      .000
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00985>                    +     1.0 03:9C9E          2.06     .106 No_date    6:14   25.16  n/a     .000
00986>                    +     1.0 07:WC9b        133.06    5.341 No_date    6:56   47.03  n/a     .000
00987>                    +     1.0 10:9D            1.38     .321 No_date    6:00   62.52  n/a     .000
00988>                  SUM=    1.0 05:WC9LOWER    137.64    5.429 No_date    6:53   46.69  n/a     .000
00989> #-----------------|-------------------------------------------------------------|
00990> #-----------------|-LANDS DRAINING TO SWM FACILITY 2------------------------------|
00991> #-----------------|-------------------------------------------------------------|
00992> R0001:C00158------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00993>      CALIB NASHYD             1.0 01:2A            1.19     .043 No_date    6:03   10.63 .120     .000
00994>        [CN= 33.2: N= 3.00: Tp=  .14]
00995> R0001:C00159------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00996>      CALIB NASHYD             1.0 02:2B            1.67     .038 No_date    6:14   11.39 .128     .000
00997>        [CN= 34.7: N= 3.00: Tp=  .32]
00998> R0001:C00160------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00999>      CALIB STANDHYD           1.0 03:2C            1.96     .322 No_date    6:00   47.86 .539     .000
01000>        [XIMP=.30:TIMP=.60]
01001>        [LOSS= 2 :CN= 49.0]
01002>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01003>        [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
01004> R0001:C00161------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01005>      CALIB STANDHYD           1.0 07:2D            3.28     .535 No_date    6:00   48.65 .548     .000
01006>        [XIMP=.25:TIMP=.50]
01007>        [LOSS= 2 :CN= 59.0]
01008>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01009>        [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
01010> R0001:C00162------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01011>      CALIB STANDHYD           1.0 04:2E            2.09     .360 No_date    6:00   51.17 .576     .000
01012>        [XIMP=.26:TIMP=.35]
01013>        [LOSS= 2 :CN= 69.0]
01014>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01015>        [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
01016> R0001:C00163------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01017>      ADD HYD                  1.0 01:2A            1.19     .043 No_date    6:03   10.63  n/a     .000
01018>                    +     1.0 02:2B            1.67     .038 No_date    6:14   11.39  n/a     .000
01019>                    +     1.0 03:2C            1.96     .322 No_date    6:00   47.86  n/a     .000
01020>                    +     1.0 04:2E            2.09     .360 No_date    6:00   51.17  n/a     .000
01021>                    +     1.0 07:2D            3.28     .535 No_date    6:00   48.65  n/a     .000
01022>                  SUM=    1.0 06:SWMF2        10.19    1.276 No_date    6:00   38.47  n/a     .000
01023> #-----------------|-------------------------------------------------------------|
01024> #-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-------------|
01025> #-----------------|-------------------------------------------------------------|
01026> R0001:C00164------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01027>      ROUTE RESERVOIR ->       1.0 06:SWMF2        10.19    1.276 No_date    6:00   38.47  n/a     .000
01028>                       out <=    1.0 09:SWMF-2       10.19     .209 No_date    6:38   38.47  n/a     .000
01029>        {MxStoUsed=.2461E+00  m3}
01030> #-----------------|-------------------------------------------------------------|
01031> #-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD----------------------|
01032> #-----------------|-------------------------------------------------------------|
01033> R0001:C00165------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01034>      ADD HYD                  1.0 09:SWMF-2        10.19     .209 No_date    6:38   38.47  n/a     .000
01035>                    +     1.0 05:WC9LOWER    137.64    5.429 No_date    6:53   46.69  n/a     .000
01036>                  SUM=    1.0 01:WC9c        147.83    5.606 No_date    6:53   46.12  n/a     .000
01037> R0001:C00166------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01038>      SAVE HYD                 1.0 01:WC9c        147.83    5.606 No_date    6:53   46.12  n/a     .000
01039>        fname :WC9c.0001
01040>        remark:POST-DEV LAKESHORE
01041> #-----------------|-------------------------------------------------------------|
01042> #-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------------|
01043> #-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------------|
01044> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8---------------------|
01045> #-----------------|-------------------------------------------------------------|
01046> R0001:C00167------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01047>      CALIB NASHYD             1.0 01:8A            2.27     .070 No_date    6:08   12.19 .137     .000
01048>        [CN= 36.2: N= 3.00: Tp=  .23]
01049> R0001:C00168------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01050>      CALIB NASHYD             1.0 02:EXT-8A        7.14     .435 No_date    6:19   33.99 .383     .000
01051>        [CN= 68.9: N= 3.00: Tp=  .41]
01052> R0001:C00169------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01053>      CALIB NASHYD             1.0 03:EXT-8B        1.04     .047 No_date    6:20   25.75 .290     .000
01054>        [CN= 58.6: N= 3.00: Tp=  .41]
01055> #-----------------|-------------------------------------------------------------|
01056> #-----------------|-----------WATERCOURSE 8----------------------------------------|
01057> #-----------------|-------------------------------------------------------------|
01058> R0001:C00170------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01059>      ADD HYD                  1.0 01:8A            2.27     .070 No_date    6:08   12.19  n/a     .000
01060>                    +     1.0 02:EXT-8A        7.14     .435 No_date    6:19   33.99  n/a     .000
01061>                    +     1.0 03:EXT-8B        1.04     .047 No_date    6:20   25.75  n/a     .000
01062>                  SUM=    1.0 04:WC8          10.45     .537 No_date    6:18   28.43  n/a     .000
01063> #-----------------|-------------------------------------------------------------|
01064> #-----------------|--WATERCOURSE 10 CATCHMENT--------------------------------------|
01065> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10--------------------|
01066> #-----------------|-------------------------------------------------------------|
01067> R0001:C00171------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01068>      CALIB NASHYD             1.0 01:10A           1.99     .140 No_date    6:07   25.34 .285     .000
01069>        [CN= 59.4: N= 3.00: Tp=  .21]
01070> #**************************************************************************************
01071> #*
01072> #                          100yr SCS Storm (12hr)
01073> #*************************************************************************************
01074> #*
01075> R0001:C00172-------------------------------------------------------------------------------------------
01076>       MASS STORM
01077>         Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
01078>         Comment  = 12 hour SCS II storm mass curve
01079>         [SDT= 1.00:SDUR=  12.00:PTOT=  98.40]
01080> #**************************************************************************************
01081> #-----------------|-------------------------------------------------------------|
01082> #-----------------|-Subwatershed 9 External Drainage Area--------------------------|
01083> #-----------------|-Per 'The Orchards' FSSWM Report--------------------------------|
01084> #-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------------|
01085> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
01086> #-----------------|-------------------------------------------------------------|
01087> R0001:C00173------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01088>      CALIB NASHYD             1.0 01:EXT-9A      101.80    5.459 No_date    6:59   55.60 .565     .000
01089>        [CN= 80.0: N= 3.00: Tp= 1.00]
01090> R0001:C00174------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01091>      ROUTE CHANNEL    ->      1.0 01:EXT-9A      101.80    5.459 No_date    6:59   55.60  n/a     .000
01092>       [RDT= 1.00] out<-      1.0 02:Channel     101.80    5.446 No_date    7:02   55.60  n/a     .000
01093>        [L/S/n=  550./2.000/.035]
01094>        {Vmax= 2.076:Dmax=  .448}
01095> R0001:C00175------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01096>      CALIB STANDHYD           1.0 03:EXT-9B        14.80    3.868 No_date    6:01   61.12 .621     .000
01097>        [XIMP=.35:TIMP=.35]
01098>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
01099>        [Pervious    area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
01100>        [Impervious  area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
01101> R0001:C00176------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01102>      ROUTE RESERVOIR ->       1.0 03:EXT-9B        14.80    3.868 No_date    6:01   61.12  n/a     .000
01103>                       out <=    1.0 04:Orchards    14.80    1.227 No_date    6:19   61.11  n/a     .000
01104>        {MxStoUsed=.5393E+00  m3}
01105> #-----------------|-------------------------------------------------------------|
01106> #-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing--------------|
01107> #-----------------|-------------------------------------------------------------|
01108> R0001:C00177------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01109>      ADD HYD                  1.0 02:Channel     101.80    5.446 No_date    7:02   55.60  n/a     .000
01110>                    +     1.0 04:Orchards    14.80    1.227 No_date    6:19   61.11  n/a     .000
01111>                  SUM=    1.0 05:RD19        116.60    6.162 No_date    6:56   56.30  n/a     .000
01112> R0001:C00178------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01113>      CALIB NASHYD             1.0 01:EXT-9C          .65     .104 No_date    6:08   60.04 .610     .000
01114>        [CN= 82.7: N= 3.00: Tp=  .24]
01115> #-----------------|-------------------------------------------------------------|
01116> #-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------------|
01117> #-----------------|-------------------------------------------------------------|
01118> R0001:C00179------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01119>      CALIB NASHYD             1.0 02:9A9B          2.68     .164 No_date    6:12   28.10 .286     .000
01120>        [CN= 55.9: N= 3.00: Tp=  .30]
01121> R0001:C00180------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01122>      ADD HYD                  1.0 01:EXT-9C          .65     .104 No_date    6:08   60.04  n/a     .000
01123>                    +     1.0 02:9A9B          2.68     .164 No_date    6:12   28.10  n/a     .000
01124>                    +     1.0 05:RD19        116.60    6.162 No_date    6:56   56.30  n/a     .000
01125>                  SUM=    1.0 04:WC9a        119.93    6.230 No_date    6:56   55.69  n/a     .000
01126> #-----------------|-------------------------------------------------------------|
01127> #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------------|
01128> #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1---------------------------|
01129> #-----------------|-------------------------------------------------------------|
01130> R0001:C00181------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01131>      CALIB NASHYD             1.0 01:EXT-1A        8.37     .644 No_date    6:23   46.25 .470     .000
01132>        [CN= 74.9: N= 3.00: Tp=  .47]
01133> R0001:C00182------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01134>      CALIB STANDHYD           1.0 03:1A            2.95     .725 No_date    6:00   63.93 .650     .000
01135>        [XIMP=.31:TIMP=.51]
01136>        [LOSS= 2 :CN= 67.0]
01137>        [Pervious    area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
01138>        [Impervious  area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
01139> R0001:C00183------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01140>      CALIB NASHYD             1.0 05:1B            1.81     .137 No_date    6:02   19.72 .200     .000
01141>        [CN= 44.3: N= 3.00: Tp=  .11]
01142> R0001:C00184------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01143>      ADD HYD                  1.0 01:EXT-1A        8.37     .644 No_date    6:23   46.25  n/a     .000
01144>                    +     1.0 03:1A            2.95     .725 No_date    6:00   63.93  n/a     .000
01145>                    +     1.0 05:1B            1.81     .137 No_date    6:02   19.72  n/a     .000
01146>                  SUM=    1.0 06:SWMF1        13.13    1.153 No_date    6:00   46.57  n/a     .000
01147> #-----------------|-------------------------------------------------------------|
01148> #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-----------|
01149> #-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
01150> #-----------------|-------------------------------------------------------------|
01151> R0001:C00185------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01152>      ROUTE RESERVOIR ->       1.0 06:SWMF1        13.13    1.153 No_date    6:00   46.57  n/a     .000
01153>                       out <=    1.0 01:SWMF-1       13.13     .030 No_date   12:19   46.57  n/a     .000
01154>        {MxStoUsed=.5373E+00  m3}
01155> R0001:C00186------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01156>      ADD HYD                  1.0 01:SWMF-1        13.13     .030 No_date   12:19   46.57  n/a     .000
01157>                    +     1.0 04:WC9a        119.93    6.230 No_date    6:56   55.69  n/a     .000
01158>                  SUM=    1.0 07:WC9b        133.06    6.255 No_date    6:56   54.79  n/a     .000
01159> #-----------------|-------------------------------------------------------------|
01160> #-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------------|
01161> #-----------------|-------------------------------------------------------------|
01162> #-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS------------|
01163> #-----------------|-------------------------------------------------------------|
01164> R0001:C00187------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01165>      CALIB STANDHYD           1.0 10:9D            1.38     .372 No_date    6:00   71.07 .722     .000
01166>        [XIMP=.33:TIMP=.68]
01167>        [LOSS= 2 :CN= 66.2]
01168>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01169>        [Impervious  area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
01170> #-----------------|-------------------------------------------------------------|
01171> #-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------------|
01172> #-----------------|-------------------------------------------------------------|
01173> R0001:C00188------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01174>      CALIB NASHYD             1.0 01:9F             .73     .049 No_date    6:11   29.53 .300     .000
01175>        [CN= 56.7: N= 3.00: Tp=  .28]
01176> R0001:C00189------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01177>      CALIB NASHYD             1.0 02:EXT-9D         .41     .020 No_date    6:35   35.97 .366     .000
01178>        [CN= 65.0: N= 3.00: Tp=  .62]
01179> R0001:C00190------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01180>      CALIB NASHYD             1.0 03:9C9E          2.06     .128 No_date    6:14   30.33 .308     .000
01181>        [CN= 58.2: N= 3.00: Tp=  .33]
01182> R0001:C00191------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01183>      ADD HYD                  1.0 01:9F             .73     .049 No_date    6:11   29.53  n/a     .000
01184>                    +     1.0 02:EXT-9D         .41     .020 No_date    6:35   35.97  n/a     .000
01185>                    +     1.0 03:9C9E          2.06     .128 No_date    6:14   30.33  n/a     .000
01186>                    +     1.0 07:WC9b        133.06    6.255 No_date    6:56   54.79  n/a     .000
01187>                    +     1.0 10:9D            1.38     .372 No_date    6:00   71.07  n/a     .000
01188>                  SUM=    1.0 05:WC9LOWER    137.64    6.362 No_date    6:53   54.40  n/a     .000
01189> #-----------------|-------------------------------------------------------------|
01190> #-----------------|-LANDS DRAINING TO SWM FACILITY 2------------------------------|
01191> #-----------------|-------------------------------------------------------------|
01192> R0001:C00192------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01193>      CALIB NASHYD             1.0 01:2A            1.19     .053 No_date    6:03   13.15 .134     .000
01194>        [CN= 33.2: N= 3.00: Tp=  .14]
01195> R0001:C00193------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01196>      CALIB NASHYD             1.0 02:2B            1.67     .047 No_date    6:14   14.06 .143     .000
01197>        [CN= 34.7: N= 3.00: Tp=  .32]
01198> R0001:C00194------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01199>      CALIB STANDHYD           1.0 03:2C            1.96     .378 No_date    6:00   54.83 .557     .000
01200>        [XIMP=.30:TIMP=.60]
01201>        [LOSS= 2 :CN= 49.0]
01202>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01203>        [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
01204> R0001:C00195------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01205>      CALIB STANDHYD           1.0 07:2D            3.28     .621 No_date    6:00   55.93 .568     .000
01206>        [XIMP=.25:TIMP=.50]
01207>        [LOSS= 2 :CN= 59.0]
01208>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01209>        [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
01210> R0001:C00196------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01211>      CALIB STANDHYD           1.0 04:2E            2.09     .418 No_date    6:00   58.78 .597     .000
01212>        [XIMP=.26:TIMP=.35]
01213>        [LOSS= 2 :CN= 69.0]
01214>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01215>        [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
01216> R0001:C00197------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01217>      ADD HYD                  1.0 01:2A            1.19     .053 No_date    6:03   13.15  n/a     .000
01218>                    +     1.0 02:2B            1.67     .047 No_date    6:14   14.06  n/a     .000
01219>                    +     1.0 03:2C            1.96     .378 No_date    6:00   54.83  n/a     .000
01220>                    +     1.0 04:2E            2.09     .418 No_date    6:00   58.78  n/a     .000
01221>                    +     1.0 07:2D            3.28     .621 No_date    6:00   55.93  n/a     .000
01222>                  SUM=    1.0 06:SWMF2        10.19    1.491 No_date    6:00   44.44  n/a     .000
01223> #-----------------|-------------------------------------------------------------|
01224> #-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-------------|
01225> #-----------------|-------------------------------------------------------------|
01226> R0001:C00198------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01227>      ROUTE RESERVOIR ->       1.0 06:SWMF2        10.19    1.491 No_date    6:00   44.44  n/a     .000
01228>                       out <=    1.0 09:SWMF-2       10.19     .343 No_date    6:30   44.44  n/a     .000
01229>        {MxStoUsed=.2589E+00  m3}
01230> #-----------------|-------------------------------------------------------------|
01231> #-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD----------------------|
01232> #-----------------|-------------------------------------------------------------|
01233> R0001:C00199------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01234>      ADD HYD                  1.0 09:SWMF-2        10.19     .343 No_date    6:30   44.44  n/a     .000
01235>                    +     1.0 05:WC9LOWER    137.64    6.362 No_date    6:53   54.40  n/a     .000
01236>                  SUM=    1.0 01:WC9c        147.83    6.597 No_date    6:51   53.71  n/a     .000
01237> R0001:C00200------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01238>      SAVE HYD                 1.0 01:WC9c        147.83    6.597 No_date    6:51   53.71  n/a     .000
01239>        fname :WC9c.0001
01240>        remark:POST-DEV LAKESHORE
01241> #-----------------|-------------------------------------------------------------|
01242> #-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------------|
01243> #-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------------|
01244> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8---------------------|
01245> #-----------------|-------------------------------------------------------------|
01246> R0001:C00201------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01247>      CALIB NASHYD             1.0 01:8A            2.27     .086 No_date    6:08   15.00 .152     .000
01248>        [CN= 36.2: N= 3.00: Tp=  .23]
01249> R0001:C00202------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01250>      CALIB NASHYD             1.0 02:EXT-8A        7.14     .521 No_date    6:19   40.47 .411     .000
01251>        [CN= 68.9: N= 3.00: Tp=  .41]
01252> R0001:C00203------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01253>      CALIB NASHYD             1.0 03:EXT-8B        1.04     .057 No_date    6:20   30.98 .315     .000
01254>        [CN= 58.6: N= 3.00: Tp=  .41]
01255> #-----------------|-------------------------------------------------------------|
01256> #-----------------|-----------WATERCOURSE 8----------------------------------------|
01257> #-----------------|-------------------------------------------------------------|
01258> R0001:C00204------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01259>      ADD HYD                  1.0 01:8A            2.27     .086 No_date    6:08   15.00  n/a     .000
01260>                    +     1.0 02:EXT-8A        7.14     .521 No_date    6:19   40.47  n/a     .000
01261>                    +     1.0 03:EXT-8B        1.04     .057 No_date    6:20   30.98  n/a     .000
01262>                  SUM=    1.0 04:WC8          10.45     .646 No_date    6:17   33.99  n/a     .000
01263> #-----------------|-------------------------------------------------------------|
01264> #-----------------|--WATERCOURSE 10 CATCHMENT--------------------------------------|
01265> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10--------------------|
01266> #-----------------|-------------------------------------------------------------|
01267> R0001:C00205------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01268>      CALIB NASHYD             1.0 01:10A           1.99     .170 No_date    6:07   30.61 .311     .000
01269>        [CN= 59.4: N= 3.00: Tp=  .21]
01270> R0001:C00206-------------------------------------------------------------------------------------------
01271>       FINISH
01272> -------------------------------------------------------------------------------------------------------
01273> *******************************************************************************************************
01274>       WARNINGS / ERRORS / NOTES
01275>       ------------------------
01276>    Simulation ended on 2021-04-29     at 14:33:49
01277> =======================================================================================================
01278>
01279>
```

```
00001> 2     Metric units
00002> *#*************************************************************************
00003> *#  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00004> *#  Date        : 2021-04-29
00005> *#  Modeller    : [JE - ADAPTED FROM NM 2009 MODEL]
00006> *#  Company     : C.F. Crozier & Associates Inc.
00007> *#  License #   : 3737016
00008> *#*************************************************************************
00009> START              TZERO=[0.0],  METOUT=[2],  NSTORM=[0],  NRUN=[0]
00010> *%                   [ ] <--storm filename, one per line for NSTORM time
00011> *#*************************************************************************
00012> *%-----------------|-------------------------------------------------------|
00013> *#-----------------|-------------------------------------------------------|
00014> *#-----------------|-PRE-DEVELOPMENT---24hr SCS STORMS-----------------------|
00015> *#-----------------|-------------------------------------------------------|
00016>
00017> *#*************************************************************************
00018> *#                              2yr SCS Storm (24hr)
00019> *#*************************************************************************
00020> *#*************************************************************************
00021> MASS STORM          PTOTAL=[45.60](mm), CSDT=[1](min),
00022>                     CURVE_FILENAME=["SCS24HII.mst"]
00023> *#*************************************************************************
00024> *#-----------------|-------------------------------------------------------|
00025> *#-----------------|-------------------------------------------------------|
00026> *#-----------------|-Subwatershed 9 External Drainage Area---------------------|
00027> *#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
00028> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
00029> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00030> *#-----------------|-------------------------------------------------------|
00031> *%-----------------|-------------------------------------------------------|
00032> CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00033>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00034>                     N=[3], TP=[1.00]hrs,
00035>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00036> *%-----------------|-------------------------------------------------------|
00037> ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
00038>                     RDT=[1](min),
00039>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00040>                                       FPSLOPE=[2](%),
00041>                     SECNUM=[1],       NSEG=[3]
00042>                     ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
00043>                     ( DISTANCE (m), ELEVATION (m))= [0,102]
00044>                                                     [8,100]
00045>                                                     [12,100]
00046>                                                     [20,102]
00047> *%-----------------|-------------------------------------------------------|
00048> CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00049>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00050>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00051>                             DCAY=[2](/hr), F=[0](mm),
00052>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00053>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00054>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00055>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00056>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00057> *%-----------------|-------------------------------------------------------|
00058> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00059>                     RDT=[1](min),
00060>                           TABLE of ( OUTFLOW-STORAGE ) values
00061>                                      (cms) - (ha-m)
00062>                                    [   0.0 ,  0.0 ]
00063>                                    [   0.0100 ,  0.0610 ]
00064>                                    [   0.0400 ,  0.1310 ]
00065>                                    [   0.0700 ,  0.2110 ]
00066>                                    [   0.2600 ,  0.3000 ]
00067>                                    [   0.6000 ,  0.3940 ]
00068>                                    [   1.0200 ,  0.4950 ]
00069>                                    [   1.5200 ,  0.6020 ]
00070>                                    [   2.0800 ,  0.7160 ]
00071>                                    [   2.6900 ,  0.8370 ]
00072>                                    [   -1  ,  -1  ]  (max twenty pts)
00073>                           IDovf=[   ], NHYDovf=[   ]
00074> *%-----------------|-------------------------------------------------------|
00075> *#-----------------|-------------------------------------------------------|
00076> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00077> *#-----------------|-------------------------------------------------------|
00078> *%-----------------|-------------------------------------------------------|
00079> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00080> *%-----------------|-------------------------------------------------------|
00081> *#-----------------|-------------------------------------------------------|
00082> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
00083> *#-----------------|-------------------------------------------------------|
00084> *%-----------------|-------------------------------------------------------|
00085> CALIB NASHYD       ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
00086>                     DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
00087>                     N=[3], TP=[0.37]hrs,
00088>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00089> *%-----------------|-------------------------------------------------------|
00090> CALIB NASHYD       ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
00091>                     DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
00092>                     N=[3], TP=[1.09]hrs,
00093>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00094> *%-----------------|-------------------------------------------------------|
00095> ADD HYD            IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00096> *%-----------------|-------------------------------------------------------|
00097> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00098>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00099>                     N=[3], TP=[0.14]hrs,
00100>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00101> *%-----------------|-------------------------------------------------------|
00102> CALIB NASHYD       ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00103>                     DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00104>                     N=[3], TP=[0.15]hrs,
00105>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00106> *%-----------------|-------------------------------------------------------|
00107> *#-----------------|-------------------------------------------------------|
00108> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00109> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00110> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00111> *#-----------------|-------------------------------------------------------|
00112> *%-----------------|-------------------------------------------------------|
00113> ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00114>                     RDT=[1](min),
00115>                           TABLE of ( OUTFLOW-STORAGE ) values
00116>                                      (cms) - (ha-m)
00117>                                    [   0.0 ,  0.0 ]
00118>                                    [   0.00 ,  0.479 ]
00119>                                    [   0.00 ,  1.249 ]
00120>                                    [   -1  ,  -1  ]  (max twenty pts)
00121>                           IDovf=[   ], NHYDovf=[   ]
00122> *%-----------------|-------------------------------------------------------|
00123> ADD HYD            IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
00124> *%-----------------|-------------------------------------------------------|
00125> *#-----------------|-------------------------------------------------------|
00126> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
00127> *#-----------------|-------------------------------------------------------|
00128> *%-----------------|-------------------------------------------------------|
00129> CALIB NASHYD       ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
00130>                     DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
00131>                     N=[3], TP=[0.48]hrs,
00132>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00133> *%-----------------|-------------------------------------------------------|
00134> CALIB NASHYD       ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
00135>                     DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
00136>                     N=[3], TP=[0.71]hrs,
00137>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00138> *%-----------------|-------------------------------------------------------|
00139> *#-----------------|-------------------------------------------------------|
00140> *#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
00141> *#-----------------|-------------------------------------------------------|
00142> *%-----------------|-------------------------------------------------------|
00143> ADD HYD            IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
00144> *%-----------------|-------------------------------------------------------|
00145> SAVE HYD           ID=[1],   # OF PCYCLES=[10],   ICASEsh=[1]
00146>                     HYD_COMMENT=["Lakeshore Road Hydrograph"]
00147> *%-----------------|-------------------------------------------------------|
00148> *#-----------------|-------------------------------------------------------|
00149> *#-----------------|----------WATERCOURSE 8----------------------------------|
00150> *#-----------------|-------------------------------------------------------|
00151> *%-----------------|-------------------------------------------------------|
00152> CALIB NASHYD       ID=[7], NHYD=["8A"], DT=[1]min, AREA=[12.13](ha),
00153>                     DWF=[0](cms),  CN/C=[60.4], IA=[8.42](mm),
00154>                     N=[3], TP=[0.56]hrs,
00155>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00156> *%-----------------|-------------------------------------------------------|
00157> *#-----------------|-------------------------------------------------------|
00158> *#-----------------|----------WATERCOURSE 10---------------------------------|
00159> *#-----------------|-------------------------------------------------------|
00160> *%-----------------|-------------------------------------------------------|
00161> CALIB NASHYD       ID=[7], NHYD=["10A"], DT=[1]min, AREA=[2.08](ha),
00162>                     DWF=[0](cms),  CN/C=[67.3], IA=[8.6](mm),
00163>                     N=[3], TP=[0.21]hrs,
00164>
00165>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00166> *%-----------------|-------------------------------------------------------|
00167>
00168> *#*************************************************************************
00169> *#*************************************************************************
00170> *#                              5yr SCS Storm (24hr)
00171> *#*************************************************************************
00172> *#*************************************************************************
00173> MASS STORM          PTOTAL=[62.4](mm), CSDT=[1](min),
00174>                     CURVE_FILENAME=["SCS24HII.mst"]
00175> *#*************************************************************************
00176> *#-----------------|-------------------------------------------------------|
00177> *#-----------------|-------------------------------------------------------|
00178> *#-----------------|-Subwatershed 9 External Drainage Area---------------------|
00179> *#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
00180> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
00181> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00182> *#-----------------|-------------------------------------------------------|
00183> *%-----------------|-------------------------------------------------------|
00184> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00185>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00186>                     N=[3], TP=[1.00]hrs,
00187>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00188> *%-----------------|-------------------------------------------------------|
00189> ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
00190>                     RDT=[1](min),
00191>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00192>                                       FPSLOPE=[2](%),
00193>                     SECNUM=[1],       NSEG=[3]
00194>                     ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
00195>                     ( DISTANCE (m), ELEVATION (m))= [0,102]
00196>                                                     [8,100]
00197>                                                     [12,100]
00198>                                                     [20,102]
00199> *%-----------------|-------------------------------------------------------|
00200> CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00201>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00202>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00203>                             DCAY=[2](/hr),  F=[0](mm),
00204>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00205>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00206>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00207>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00208>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00209> *%-----------------|-------------------------------------------------------|
00210> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00211>                     RDT=[1](min),
00212>                           TABLE of ( OUTFLOW-STORAGE ) values
00213>                                      (cms) - (ha-m)
00214>                                    [   0.0 ,  0.0 ]
00215>                                    [   0.0100 ,  0.0610 ]
00216>                                    [   0.0400 ,  0.1310 ]
00217>                                    [   0.0700 ,  0.2110 ]
00218>                                    [   0.2600 ,  0.3000 ]
00219>                                    [   0.6000 ,  0.3940 ]
00220>                                    [   1.0200 ,  0.4950 ]
00221>                                    [   1.5200 ,  0.6020 ]
00222>                                    [   2.0800 ,  0.7160 ]
00223>                                    [   2.6900 ,  0.8370 ]
00224>                                    [   -1  ,  -1  ]  (max twenty pts)
00225>                           IDovf=[   ], NHYDovf=[   ]
00226> *%-----------------|-------------------------------------------------------|
00227> *#-----------------|-------------------------------------------------------|
00228> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00229> *#-----------------|-------------------------------------------------------|
00230> *%-----------------|-------------------------------------------------------|
00231> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00232> *%-----------------|-------------------------------------------------------|
00233> *#-----------------|-------------------------------------------------------|
00234> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
00235> *#-----------------|-------------------------------------------------------|
00236> *%-----------------|-------------------------------------------------------|
00237> CALIB NASHYD       ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
00238>                     DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
00239>                     N=[3], TP=[0.37]hrs,
00240>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00241> *%-----------------|-------------------------------------------------------|
00242> CALIB NASHYD       ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
00243>                     DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
00244>                     N=[3], TP=[1.09]hrs,
00245>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00246> *%-----------------|-------------------------------------------------------|
00247> ADD HYD            IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00248> *%-----------------|-------------------------------------------------------|
00249> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00250>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00251>                     N=[3], TP=[0.14]hrs,
00252>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00253> *%-----------------|-------------------------------------------------------|
00254> CALIB NASHYD       ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00255>                     DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00256>                     N=[3], TP=[0.15]hrs,
00257>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00258> *%-----------------|-------------------------------------------------------|
00259> *#-----------------|-------------------------------------------------------|
00260> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00261> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00262> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00263> *#-----------------|-------------------------------------------------------|
00264> *%-----------------|-------------------------------------------------------|
00265> ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00266>                     RDT=[1](min),
00267>                           TABLE of ( OUTFLOW-STORAGE ) values
00268>                                      (cms) - (ha-m)
00269>                                    [   0.0 ,  0.0 ]
00270>                                    [   0.00 ,  0.479 ]
```

```
                                    [   0.00 ,  1.249 ]
                                    [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands-----------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
                    DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
                    N=[3], TP=[0.48]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
                    DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD--------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
*%-----------------|-------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
                    HYD_COMMENT=["Lakeshore Road Hydrograph"]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|----------WATERCOURSE 8----------------------------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["8A"], DT=[1]min, AREA=[12.13](ha),
                    DWF=[0](cms),  CN/C=[60.4], IA=[8.42](mm),
                    N=[3], TP=[0.56]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|----------WATERCOURSE 10---------------------------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["10A"], DT=[1]min, AREA=[2.08](ha),
                    DWF=[0](cms),  CN/C=[67.3], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,

                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|


*#**************************************************************************
*#**************************************************************************
*#                          10yr SCS Storm (24hr)
*#**************************************************************************
*#**************************************************************************
MASS STORM          PTOTAL=[72.0](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS24HII.mst"]
*#**************************************************************************
*#-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Subwatershed 9 External Drainage Area-----------------|
*#-----------------|-Per 'The Orchards' FSSWM Report-----------------------|
*#-----------------|-Prepared by Higgins Engineering (Jan. 2005)-----------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                        FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
                    ( DISTANCE (m), ELEVATION (m))= [0,102]
                                                    [8,100]
                                                    [12,100]
                                                    [20,102]
*%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.0100 ,  0.0610 ]
                                [   0.0400 ,  0.1310 ]
                                [   0.0700 ,  0.2110 ]
                                [   0.2600 ,  0.3000 ]
                                [   0.6000 ,  0.3940 ]
                                [   1.0200 ,  0.4950 ]
                                [   1.5200 ,  0.6020 ]
                                [   2.0800 ,  0.7160 ]
                                [   2.6900 ,  0.8370 ]
                                [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-----|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Upper Terrace Lands-----------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
                    DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
                    N=[3], TP=[0.37]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
                    DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
                    N=[3], TP=[1.09]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
                    DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
                    N=[3], TP=[0.15]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
*#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN-------|
*#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.00 ,  0.479 ]
                                [   0.00 ,  1.249 ]
                                [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands-----------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
                    DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
                    N=[3], TP=[0.48]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
                    DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
                    N=[3], TP=[0.71]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD--------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
*%-----------------|-------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
                    HYD_COMMENT=["Lakeshore Road Hydrograph"]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|----------WATERCOURSE 8----------------------------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["8A"], DT=[1]min, AREA=[12.13](ha),
                    DWF=[0](cms),  CN/C=[60.4], IA=[8.42](mm),
                    N=[3], TP=[0.56]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|----------WATERCOURSE 10---------------------------------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[7], NHYD=["10A"], DT=[1]min, AREA=[2.08](ha),
                    DWF=[0](cms),  CN/C=[67.3], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,

                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|


*#**************************************************************************
*#**************************************************************************
*#                          25yr SCS Storm (24hr)
*#**************************************************************************
*#**************************************************************************
MASS STORM          PTOTAL=[86.4](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS24HII.mst"]
*#**************************************************************************
*#-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-Subwatershed 9 External Drainage Area-----------------|
*#-----------------|-Per 'The Orchards' FSSWM Report-----------------------|
*#-----------------|-Prepared by Higgins Engineering (Jan. 2005)-----------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#-----------------|-------------------------------------------------------|
*%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                        FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
                    ( DISTANCE (m), ELEVATION (m))= [0,102]
                                                    [8,100]
                                                    [12,100]
                                                    [20,102]
*%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.0100 ,  0.0610 ]
                                [   0.0400 ,  0.1310 ]
                                [   0.0700 ,  0.2110 ]
                                [   0.2600 ,  0.3000 ]
                                [   0.6000 ,  0.3940 ]
                                [   1.0200 ,  0.4950 ]
                                [   1.5200 ,  0.6020 ]
                                [   2.0800 ,  0.7160 ]
                                [   2.6900 ,  0.8370 ]
                                [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------|
*#-----------------|-------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-----|
*#-----------------|-------------------------------------------------------|
```

```
00541> *%-----------------|-------------------------------------------------------------|
00542> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00543> *%-----------------|-------------------------------------------------------------|
00544> *#-----------------|-------------------------------------------------------------|
00545> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
00546> *#-----------------|-------------------------------------------------------------|
00547> *%-----------------|-------------------------------------------------------------|
00548> CALIB NASHYD       ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
00549>                     DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
00550>                     N=[3], TP=[0.37]hrs,
00551>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00552> *%-----------------|-------------------------------------------------------------|
00553> CALIB NASHYD       ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
00554>                     DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
00555>                     N=[3], TP=[1.09]hrs,
00556>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00557> *%-----------------|-------------------------------------------------------------|
00558> ADD HYD            IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00559> *%-----------------|-------------------------------------------------------------|
00560> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00561>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00562>                     N=[3], TP=[0.14]hrs,
00563>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00564> *%-----------------|-------------------------------------------------------------|
00565> CALIB NASHYD       ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00566>                     DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00567>                     N=[3], TP=[0.15]hrs,
00568>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00569> *%-----------------|-------------------------------------------------------------|
00570> *#-----------------|-------------------------------------------------------------|
00571> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00572> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00573> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00574> *#-----------------|-------------------------------------------------------------|
00575> *%-----------------|-------------------------------------------------------------|
00576> ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00577>                     RDT=[1](min),
00578>                           TABLE of ( OUTFLOW-STORAGE ) values
00579>                                      (cms) - (ha-m)
00580>                                    [   0.0 ,  0.0 ]
00581>                                    [   0.00 ,  0.479 ]
00582>                                    [   0.00 ,  1.249 ]
00583>                                    [   -1  ,  -1  ]  (max twenty pts)
00584>                           IDovf=[   ], NHYDovf=[   ]
00585> *%-----------------|-------------------------------------------------------------|
00586> ADD HYD            IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
00587> *%-----------------|-------------------------------------------------------------|
00588> *#-----------------|-------------------------------------------------------------|
00589> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
00590> *#-----------------|-------------------------------------------------------------|
00591> *%-----------------|-------------------------------------------------------------|
00592> CALIB NASHYD       ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
00593>                     DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
00594>                     N=[3], TP=[0.48]hrs,
00595>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00596> *%-----------------|-------------------------------------------------------------|
00597> CALIB NASHYD       ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
00598>                     DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
00599>                     N=[3], TP=[0.71]hrs,
00600>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00601> *%-----------------|-------------------------------------------------------------|
00602> *#-----------------|-------------------------------------------------------------|
00603> *#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
00604> *#-----------------|-------------------------------------------------------------|
00605> *%-----------------|-------------------------------------------------------------|
00606> ADD HYD            IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
00607> *%-----------------|-------------------------------------------------------------|
00608> SAVE HYD           ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
00609>                     HYD_COMMENT=["Lakeshore Road Hydrograph"]
00610> *%-----------------|-------------------------------------------------------------|
00611> *#-----------------|-------------------------------------------------------------|
00612> *#-----------------|----------WATERCOURSE 8----------------------------------|
00613> *#-----------------|-------------------------------------------------------------|
00614> *%-----------------|-------------------------------------------------------------|
00615> CALIB NASHYD       ID=[7], NHYD=["8A"], DT=[1]min, AREA=[12.13](ha),
00616>                     DWF=[0](cms),  CN/C=[60.4], IA=[8.42](mm),
00617>                     N=[3], TP=[0.56]hrs,
00618>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00619> *%-----------------|-------------------------------------------------------------|
00620> *#-----------------|-------------------------------------------------------------|
00621> *#-----------------|----------WATERCOURSE 10---------------------------------|
00622> *#-----------------|-------------------------------------------------------------|
00623> *%-----------------|-------------------------------------------------------------|
00624> CALIB NASHYD       ID=[7], NHYD=["10A"], DT=[1]min, AREA=[2.08](ha),
00625>                     DWF=[0](cms),  CN/C=[67.3], IA=[8.6](mm),
00626>                     N=[3], TP=[0.21]hrs,
00627>
00628>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00629> *%-----------------|-------------------------------------------------------------|
00630>
00631>
00632>
00633>
00634>
00635> *#**************************************************************************
00636> *#**************************************************************************
00637> *#                              50yr SCS Storm (24hr)
00638> *#**************************************************************************
00639> *#**************************************************************************
00640> MASS STORM          PTOTAL=[96.0](mm), CSDT=[1](min),
00641>                     CURVE_FILENAME=["SCS24HII.mst"]
00642> *#**************************************************************************
00643> *#-----------------|-------------------------------------------------------------|
00644> *#-----------------|-------------------------------------------------------------|
00645> *#-----------------|-Subwatershed 9 External Drainage Area---------------------|
00646> *#-----------------|-Per 'The Orchards' FSSWM Report----------------------------|
00647> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)----------------|
00648> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00649> *#-----------------|-------------------------------------------------------------|
00650> *%-----------------|-------------------------------------------------------------|
00651> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00652>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00653>                     N=[3], TP=[1.00]hrs,
00654>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00655> *%-----------------|-------------------------------------------------------------|
00656> ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
00657>                     RDT=[1](min),
00658>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00659>                                       FPSLOPE=[2](%),
00660>                     SECNUM=[1],       NSEG=[3]
00661>                     ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
00662>                     ( DISTANCE (m), ELEVATION (m))= [0,102]
00663>                                                     [8,100]
00664>                                                     [12,100]
00665>                                                     [20,102]
00666> *%-----------------|-------------------------------------------------------------|
00667> CALIB STANDHYD     ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00668>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00669>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00670>                             DCAY=[2](/hr), F=[0](mm),
00671>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00672>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00673>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00674>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00675>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00676> *%-----------------|-------------------------------------------------------------|
00677> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00678>                     RDT=[1](min),
00679>                           TABLE of ( OUTFLOW-STORAGE ) values
00680>                                      (cms) - (ha-m)
00681>                                    [   0.0 ,  0.0 ]
00682>                                    [   0.0100 ,  0.0610 ]
00683>                                    [   0.0400 ,  0.1310 ]
00684>                                    [   0.0700 ,  0.2110 ]
00685>                                    [   0.2600 ,  0.3000 ]
00686>                                    [   0.6000 ,  0.3940 ]
00687>                                    [   1.0200 ,  0.4950 ]
00688>                                    [   1.5200 ,  0.6020 ]
00689>                                    [   2.0800 ,  0.7160 ]
00690>                                    [   2.6900 ,  0.8370 ]
00691>                                    [   -1  ,  -1  ]  (max twenty pts)
00692>                           IDovf=[   ], NHYDovf=[   ]
00693> *%-----------------|-------------------------------------------------------------|
00694> *#-----------------|-------------------------------------------------------------|
00695> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00696> *#-----------------|-------------------------------------------------------------|
00697> *%-----------------|-------------------------------------------------------------|
00698> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00699> *%-----------------|-------------------------------------------------------------|
00700> *#-----------------|-------------------------------------------------------------|
00701> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
00702> *#-----------------|-------------------------------------------------------------|
00703> *%-----------------|-------------------------------------------------------------|
00704> CALIB NASHYD       ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
00705>                     DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
00706>                     N=[3], TP=[0.37]hrs,
00707>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00708> *%-----------------|-------------------------------------------------------------|
00709> CALIB NASHYD       ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
00710>                     DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
00711>                     N=[3], TP=[1.09]hrs,
00712>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00713> *%-----------------|-------------------------------------------------------------|
00714> ADD HYD            IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00715> *%-----------------|-------------------------------------------------------------|
00716> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00717>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00718>                     N=[3], TP=[0.14]hrs,
00719>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00720> *%-----------------|-------------------------------------------------------------|
00721> CALIB NASHYD       ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00722>                     DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00723>                     N=[3], TP=[0.15]hrs,
00724>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00725> *%-----------------|-------------------------------------------------------------|
00726> *#-----------------|-------------------------------------------------------------|
00727> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00728> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00729> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00730> *#-----------------|-------------------------------------------------------------|
00731> *%-----------------|-------------------------------------------------------------|
00732> ROUTE RESERVOIR     IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00733>                     RDT=[1](min),
00734>                           TABLE of ( OUTFLOW-STORAGE ) values
00735>                                      (cms) - (ha-m)
00736>                                    [   0.0 ,  0.0 ]
00737>                                    [   0.00 ,  0.479 ]
00738>                                    [   0.00 ,  1.249 ]
00739>                                    [   -1  ,  -1  ]  (max twenty pts)
00740>                           IDovf=[   ], NHYDovf=[   ]
00741> *%-----------------|-------------------------------------------------------------|
00742> ADD HYD            IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
00743> *%-----------------|-------------------------------------------------------------|
00744> *#-----------------|-------------------------------------------------------------|
00745> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
00746> *#-----------------|-------------------------------------------------------------|
00747> *%-----------------|-------------------------------------------------------------|
00748> CALIB NASHYD       ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
00749>                     DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
00750>                     N=[3], TP=[0.48]hrs,
00751>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00752> *%-----------------|-------------------------------------------------------------|
00753> CALIB NASHYD       ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
00754>                     DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
00755>                     N=[3], TP=[0.71]hrs,
00756>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00757> *%-----------------|-------------------------------------------------------------|
00758> *#-----------------|-------------------------------------------------------------|
00759> *#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
00760> *#-----------------|-------------------------------------------------------------|
00761> *%-----------------|-------------------------------------------------------------|
00762> ADD HYD            IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
00763> *%-----------------|-------------------------------------------------------------|
00764> SAVE HYD           ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
00765>                     HYD_COMMENT=["Lakeshore Road Hydrograph"]
00766> *%-----------------|-------------------------------------------------------------|
00767> *#-----------------|-------------------------------------------------------------|
00768> *#-----------------|----------WATERCOURSE 8----------------------------------|
00769> *#-----------------|-------------------------------------------------------------|
00770> *%-----------------|-------------------------------------------------------------|
00771> CALIB NASHYD       ID=[7], NHYD=["8A"], DT=[1]min, AREA=[12.13](ha),
00772>                     DWF=[0](cms),  CN/C=[60.4], IA=[8.42](mm),
00773>                     N=[3], TP=[0.56]hrs,
00774>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00775> *%-----------------|-------------------------------------------------------------|
00776> *#-----------------|-------------------------------------------------------------|
00777> *#-----------------|----------WATERCOURSE 10---------------------------------|
00778> *#-----------------|-------------------------------------------------------------|
00779> *%-----------------|-------------------------------------------------------------|
00780> CALIB NASHYD       ID=[7], NHYD=["10A"], DT=[1]min, AREA=[2.08](ha),
00781>                     DWF=[0](cms),  CN/C=[67.3], IA=[8.6](mm),
00782>                     N=[3], TP=[0.21]hrs,
00783>
00784>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00785> *%-----------------|-------------------------------------------------------------|
00786>
00787>
00788>
00789>
00790>
00791> *#**************************************************************************
00792> *#**************************************************************************
00793> *#                              100yr SCS Storm (24hr)
00794> *#**************************************************************************
00795> *#**************************************************************************
00796> MASS STORM          PTOTAL=[108.0](mm), CSDT=[1](min),
00797>                     CURVE_FILENAME=["SCS24HII.mst"]
00798> *#**************************************************************************
00799> *#-----------------|-------------------------------------------------------------|
00800> *#-----------------|-------------------------------------------------------------|
00801> *#-----------------|-Subwatershed 9 External Drainage Area---------------------|
00802> *#-----------------|-Per 'The Orchards' FSSWM Report----------------------------|
00803> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)----------------|
00804> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00805> *#-----------------|-------------------------------------------------------------|
00806> *%-----------------|-------------------------------------------------------------|
00807> CALIB NASHYD       ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00808>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00809>                     N=[3], TP=[1.00]hrs,
00810>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
```

```
00811> *%-----------------|-------------------------------------------------------|
00812> ROUTE CHANNEL      IDout=[2], NHYD=["Channel"], IDin=[1],
00813>                    RDT=[1](min),
00814>                    CHLGTH=[550](m),  CHSLOPE=[2](%),
00815>                                      FPSLOPE=[2](%),
00816>                    SECNUM=[1],       NSEG=[3]
00817>                    ( SEGROUGH, SEGDIST (m))=[0.035,8  -0.035,12  0.035,20]
00818>                    ( DISTANCE (m), ELEVATION (m))= [0,102]
00819>                                                    [8,100]
00820>                                                    [12,100]
00821>                                                    [20,102]
00822> *%-----------------|-------------------------------------------------------|
00823> CALIB STANDHYD     ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00824>                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00825>                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00826>                            DCAY=[2](/hr), F=[0](mm),
00827>                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00828>                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00829>                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00830>                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00831>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00832> *%-----------------|-------------------------------------------------------|
00833> ROUTE RESERVOIR    IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00834>                    RDT=[1](min),
00835>                          TABLE of ( OUTFLOW-STORAGE ) values
00836>                                     (cms) - (ha-m)
00837>                                [   0.0 ,  0.0 ]
00838>                                [   0.0100 ,  0.0610 ]
00839>                                [   0.0400 ,  0.1310 ]
00840>                                [   0.0700 ,  0.2110 ]
00841>                                [   0.2600 ,  0.3000 ]
00842>                                [   0.6000 ,  0.3940 ]
00843>                                [   1.0200 ,  0.4950 ]
00844>                                [   1.5200 ,  0.6020 ]
00845>                                [   2.0800 ,  0.7160 ]
00846>                                [   2.6900 ,  0.8370 ]
00847>                                [   -1  ,  -1  ]  (max twenty pts)
00848>                          IDovf=[   ], NHYDovf=[   ]
00849> *%-----------------|-------------------------------------------------------|
00850> *#-----------------|-------------------------------------------------------|
00851> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00852> *#-----------------|-------------------------------------------------------|
00853> *%-----------------|-------------------------------------------------------|
00854> ADD HYD            IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00855> *%-----------------|-------------------------------------------------------|
00856> *#-----------------|-------------------------------------------------------|
00857> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00858> *#-----------------|-------------------------------------------------------|
00859> *%-----------------|-------------------------------------------------------|
00860> CALIB NASHYD       ID[1], NHYD=["9A"], DT=[1]min, AREA=[2.57](ha),
00861>                    DWF=[0](cms),  CN/C=[48.4], IA=[8.4](mm),
00862>                    N=[3], TP=[0.37]hrs,
00863>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00864> *%-----------------|-------------------------------------------------------|
00865> CALIB NASHYD       ID=[2], NHYD=["9B"], DT=[1]min, AREA=[11.63](ha),
00866>                    DWF=[0](cms),  CN/C=[68.5], IA=[7.98](mm),
00867>                    N=[3], TP=[1.09]hrs,
00868>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00869> *%-----------------|-------------------------------------------------------|
00870> ADD HYD            IDsum=[10], NHYD=["9A9B"], IDs to add=[1,2]
00871> *%-----------------|-------------------------------------------------------|
00872> CALIB NASHYD       ID=[1], NHYD=["9C"], DT=[1]min, AREA=[1.19](ha),
00873>                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00874>                    N=[3], TP=[0.14]hrs,
00875>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00876> *%-----------------|-------------------------------------------------------|
00877> CALIB NASHYD       ID=[2], NHYD=["9D"], DT=[1]min, AREA=[2.02](ha),
00878>                    DWF=[0](cms),  CN/C=[41.9], IA=[8.11](mm),
00879>                    N=[3], TP=[0.15]hrs,
00880>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00881> *%-----------------|-------------------------------------------------------|
00882> *#-----------------|-------------------------------------------------------|
00883> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00884> *#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00885> *#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00886> *#-----------------|-------------------------------------------------------|
00887> *%-----------------|-------------------------------------------------------|
00888> ROUTE RESERVOIR    IDout=[4],   NHYD=["ExPond"],  IDin=[2],
00889>                    RDT=[1](min),
00890>                          TABLE of ( OUTFLOW-STORAGE ) values
00891>                                     (cms) - (ha-m)
00892>                                [   0.0 ,  0.0 ]
00893>                                [   0.00 ,  0.479 ]
00894>                                [   0.00 ,  1.249 ]
00895>                                [   -1  ,  -1  ]  (max twenty pts)
00896>                          IDovf=[   ], NHYDovf=[   ]
00897> *%-----------------|-------------------------------------------------------|
00898> ADD HYD            IDsum=[9], NHYD=["9C9D"], IDs to add=[1,4]
00899> *%-----------------|-------------------------------------------------------|
00900> *#-----------------|-------------------------------------------------------|
00901> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00902> *#-----------------|-------------------------------------------------------|
00903> *%-----------------|-------------------------------------------------------|
00904> CALIB NASHYD       ID=[7], NHYD=["9E"], DT=[1]min, AREA=[7.6](ha),
00905>                    DWF=[0](cms),  CN/C=[47.1], IA=[8.7](mm),
00906>                    N=[3], TP=[0.48]hrs,
00907>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00908> *%-----------------|-------------------------------------------------------|
00909> CALIB NASHYD       ID=[8], NHYD=["9F"], DT=[1]min, AREA=[3.35](ha),
00910>                    DWF=[0](cms),  CN/C=[50.4], IA=[8.4](mm),
00911>                    N=[3], TP=[0.71]hrs,
00912>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00913> *%-----------------|-------------------------------------------------------|
00914> *#-----------------|-------------------------------------------------------|
00915> *#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD-----------|
00916> *#-----------------|-------------------------------------------------------|
00917> *%-----------------|-------------------------------------------------------|
00918> ADD HYD            IDsum=[1], NHYD=["WC9LS"], IDs to add=[5,10,9,7,8]
00919> *%-----------------|-------------------------------------------------------|
00920> SAVE HYD           ID=[1],   # OF PCYCLES=[10],  ICASEsh=[1]
00921>                    HYD_COMMENT=["Lakeshore Road Hydrograph"]
00922> *%-----------------|-------------------------------------------------------|
00923> *#-----------------|-------------------------------------------------------|
00924> *#-----------------|----------WATERCOURSE 8-----------------------------------|
00925> *#-----------------|-------------------------------------------------------|
00926> *%-----------------|-------------------------------------------------------|
00927> CALIB NASHYD       ID=[7], NHYD=["8A"], DT=[1]min, AREA=[12.13](ha),
00928>                    DWF=[0](cms),  CN/C=[60.4], IA=[8.42](mm),
00929>                    N=[3], TP=[0.56]hrs,
00930>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00931> *%-----------------|-------------------------------------------------------|
00932> *#-----------------|-------------------------------------------------------|
00933> *#-----------------|----------WATERCOURSE 10----------------------------------|
00934> *#-----------------|-------------------------------------------------------|
00935> *%-----------------|-------------------------------------------------------|
00936> CALIB NASHYD       ID=[7], NHYD=["10A"], DT=[1]min, AREA=[2.08](ha),
00937>                    DWF=[0](cms),  CN/C=[67.3], IA=[8.6](mm),
00938>                    N=[3], TP=[0.21]hrs,
00939>
00940>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00941> *%-----------------|-------------------------------------------------------|
00942>
00943>
00944> FINISH
00945>
00946>
00947>
00948>
00949>
```

```
00001>  ================================================================================
00002>
00003>  SSSSS   W   W   M   M   H   H   Y   Y   M   M    OOO        222     000    11   77777 =========
00004>  S       W W W   MM MM   H   H    Y Y    MM MM   O   O         2   0   0   11       7  7
00005>  SSSSS   W W W   M M M   HHHHH     Y     M M M   O   O         2   0   0   11      7   7 Ver4.05.0
00006>      S    W W    M   M   H   H     Y     M   M   O   O   222   0   0   11     7    APR 2017
00007>  SSSSS    W W    M   M   H   H     Y     M   M    OOO    2     0   0   11    7     =========
00008>                                                         2     0   0   11   7      # 3737016
00009>         StormWater Management HYdrologic Model          222    000    11  7       =========
00010>
00011>  ********************************************************************************
00012>  **********************  SWMHYMO Ver4.05.0  ***********************************
00013>  ******************  A single event and continuous hydrologic simulation model  ***
00014>  ******************      based on the principles of HYMO and its successors      ***
00015>  ******************                OTTHYMO-83 and OTTHYMO-89.                    ***
00016>  ********************************************************************************
00017>  ****************** Distributed by:  J.F. Sabourin and Associates Inc.            ***
00018>  ******************                 Ottawa,  Ontario: (613) 836-3884              ***
00019>  ******************                 Gatineau, Quebec: (819) 243-6858              ***
00020>  ******************                 E-Mail: swmhymo@jfsa.com                      ***
00021>  ********************************************************************************
00022>
00023>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00024>  ++++++++++++++++++ Licensed user: C.F. Crozier & Associates Inc.      ++++++++++++++++++
00025>  ++++++++++++++++++                Collingwood          SERIAL#:3737016      ++++++++++++++++++
00026>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>  ********************************************************************************
00029>  ******************          ++++++ PROGRAM ARRAY DIMENSIONS ++++++            ***
00030>  ******************          Maximum value for ID numbers  :     11           ***
00031>  ******************          Max. number of rainfall points: 105408           ***
00032>  ******************          Max. number of flow points    : 105408           ***
00033>  ********************************************************************************
00034>
00035>
00036>  ****************************  S U M M A R Y   O U T P U T  ************************
00037>  ********************************************************************************
00038>  *                RUN DATE: 2021-04-29     TIME: 12:00:24     RUN COUNTER: 000006          *
00039>  ********************************************************************************
00040>  * Input   file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2021 Det*
00041>  *                ailed Design 3rd Sub\SWM\SWMHYMO\SCS\PRE_SCS24.dat                    *
00042>  * Output  file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2021 Det*
00043>  *                ailed Design 3rd Sub\SWM\SWMHYMO\SCS\PRE_SCS24.out                    *
00044>  * Summary file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2021 Det*
00045>  *                ailed Design 3rd Sub\SWM\SWMHYMO\SCS\PRE_SCS24.sum                    *
00046>  * User comments:                                                                    *
00047>  * 1:_____________________________________________________________________________*
00048>  * 2:_____________________________________________________________________________*
00049>  * 3:_____________________________________________________________________________*
00050>  ********************************************************************************
00051>
00052>
00053>  #*******************************************************************************
00054>  #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00055>  #  Date        : 2021-04-29
00056>  #  Modeller    : [JE - ADAPTED FROM NM 2009 MODEL]
00057>  #  Company     : C.F. Crozier & Associates Inc.
00058>  #  License #   : 3737016
00059>  #*******************************************************************************
00060>   RUN#:COMMAND#
00061>  R0001:C00001------------------------------------------------------------------------
00062>        START
00063>          [TZERO =    .00 hrs on       0]
00064>          [METOUT=   2   (1=imperial, 2=metric output)]
00065>          [NSTORM=   0 ]
00066>          [NRUN  = 0001 ]
00067>  #*******************************************************************************
00068>  #----------------|-------------------------------------------------------------|
00069>  #----------------|-PRE-DEVELOPMENT---24hr SCS STORMS-----------------------------|
00070>  #----------------|-------------------------------------------------------------|
00071>  #*******************************************************************************
00072>  #                          2yr SCS Storm (24hr)
00073>  #*******************************************************************************
00074>  #*******************************************************************************
00075>  R0001:C00002------------------------------------------------------------------------
00076>        MASS STORM
00077>          Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
00078>          Comment  = 24 hour SCS II storm mass curve
00079>          [SDT= 1.00:SDUR=  24.00:PTOT=  45.60]
00080>  #*******************************************************************************
00081>  #----------------|-------------------------------------------------------------|
00082>  #----------------|-[TZERO = .00]-------------------------------------------------|
00083>  #----------------|-Subwatershed 9 External Drainage Area-------------------------|
00084>  #----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
00085>  #----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------------|
00086>  #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00087>  #----------------|-------------------------------------------------------------|
00088>  R0001:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00089>       CALIB NASHYD            1.0 01:EXT-9A       101.80    1.269 No_date   13:13   15.83 .347      .000
00090>         [CN= 80.0: N= 3.00: Tp=  1.00]
00091>  R0001:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00092>       ROUTE CHANNEL   ->     1.0 01:EXT-9A       101.80    1.269 No_date   13:13   15.83  n/a      .000
00093>         [RD= 1.00] out<-     1.0 02:Channel      101.80    1.266 No_date   13:15   15.83  n/a      .000
00094>          [L/S/n=  550./2.000/.035]
00095>          {Vmax= 1.269:Dmax=  .200}
00096>  R0001:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00097>       CALIB STANDHYD          1.0 03:EXT-9B        14.80     .832 No_date   12:15   20.46 .449      .000
00098>         [XIMP=.35:TIMP=.35]
00099>         [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00100>         [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00101>         [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00102>  R0001:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00103>       ROUTE RESERVOIR ->     1.0 03:EXT-9B        14.80     .832 No_date   12:15   20.46  n/a      .000
00104>                      out <=  1.0 04:Orchards     14.80     .069 No_date   13:16   20.46  n/a      .000
00105>       {MxStoUsed=.2095E+00  m3}
00106>  #----------------|-------------------------------------------------------------|
00107>  #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing--------|
00108>  #----------------|-------------------------------------------------------------|
00109>  R0001:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00110>       ADD HYD                 1.0 02:Channel      101.80    1.266 No_date   13:15   15.83  n/a      .000
00111>                         +     1.0 04:Orchards     14.80     .069 No_date   13:16   20.46  n/a      .000
00112>                       SUM=    1.0 05:RD19         116.60    1.336 No_date   13:15   16.42  n/a      .000
00113>  #----------------|-------------------------------------------------------------|
00114>  #----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00115>  #----------------|-------------------------------------------------------------|
00116>  R0001:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00117>       CALIB NASHYD            1.0 01:9A            2.57     .017 No_date   12:31    4.49 .099      .000
00118>         [CN= 48.4: N= 3.00: Tp=  .37]
00119>  R0001:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00120>       CALIB NASHYD            1.0 02:9B           11.63     .074 No_date   13:23    9.16 .201      .000
00121>         [CN= 68.5: N= 3.00: Tp= 1.09]
00122>  R0001:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00123>       ADD HYD                 1.0 01:9A            2.57     .017 No_date   12:31    4.49  n/a      .000
00124>                         +     1.0 02:9B           11.63     .074 No_date   13:23    9.16  n/a      .000
00125>                       SUM=    1.0 10:9A9B         14.20     .080 No_date   13:16    8.32  n/a      .000
00126>  R0001:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00127>       CALIB NASHYD            1.0 01:9C            1.19     .007 No_date   12:16    2.37 .052      .000
00128>         [CN= 33.2: N= 3.00: Tp=  .14]
00129>  R0001:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00130>       CALIB NASHYD            1.0 02:9D            2.02     .019 No_date   12:16    3.61 .079      .000
00131>         [CN= 41.9: N= 3.00: Tp=  .15]
00132>  #----------------|-------------------------------------------------------------|
00133>  #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00134>  #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00135>  #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00136>  #----------------|-------------------------------------------------------------|
00137>  R0001:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00138>       ROUTE RESERVOIR ->     1.0 02:9D            2.02     .019 No_date   12:16    3.61  n/a      .000
00139>  *                    out <=  1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a      .000
00140>       {MxStoUsed=.7286E-02  m3}
00141>  R0001:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00142>       ADD HYD                 1.0 01:9C            1.19     .007 No_date   12:16    2.37  n/a      .000
00143>                         +     1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a      .000
00144>                       SUM=    1.0 09:9C9D          3.21     .007 No_date   12:16     .88  n/a      .000
00145>  #----------------|-------------------------------------------------------------|
00146>  #----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00147>  #----------------|-------------------------------------------------------------|
00148>  R0001:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00149>       CALIB NASHYD            1.0 07:9E            7.60     .039 No_date   12:39    4.23 .093      .000
00150>         [CN= 47.1: N= 3.00: Tp=  .48]
00151>  R0001:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00152>       CALIB NASHYD            1.0 08:9F            3.35     .015 No_date   12:56    4.82 .106      .000
00153>         [CN= 50.4: N= 3.00: Tp=  .71]
00154>  #----------------|-------------------------------------------------------------|
00155>  #----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD-----------|
00156>  #----------------|-------------------------------------------------------------|
00157>  R0001:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00158>       ADD HYD                 1.0 05:RD19         116.60    1.336 No_date   13:15   16.42  n/a      .000
00159>                         +     1.0 10:9A9B         14.20     .080 No_date   13:16    8.32  n/a      .000
00160>                         +     1.0 09:9C9D          3.21     .007 No_date   12:16     .88  n/a      .000
00161>                         +     1.0 07:9E            7.60     .039 No_date   12:39    4.23  n/a      .000
00162>                         +     1.0 08:9F            3.35     .015 No_date   12:56    4.82  n/a      .000
00163>                       SUM=    1.0 01:WC9LS       144.96    1.454 No_date   13:15   14.38  n/a      .000
00164>  R0001:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00165>       SAVE HYD                1.0 01:WC9LS       144.96    1.454 No_date   13:15   14.38  n/a      .000
00166>         fname :WC9LS.0001
00167>         remark:Lakeshore Road Hydrograph
00168>  #----------------|-------------------------------------------------------------|
00169>  #----------------|-----------WATERCOURSE 8-------------------------------------|
00170>  #----------------|-------------------------------------------------------------|
00171>  R0001:C00019------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00172>       CALIB NASHYD            1.0 07:8A           12.13     .091 No_date   12:44    6.79 .149      .000
00173>         [CN= 60.4: N= 3.00: Tp=  .56]
00174>  #----------------|-------------------------------------------------------------|
00175>  #----------------|-----------WATERCOURSE 10------------------------------------|
00176>  #----------------|-------------------------------------------------------------|
00177>  R0001:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00178>       CALIB NASHYD            1.0 07:10A           2.08     .039 No_date   12:20    8.53 .187      .000
00179>         [CN= 67.3: N= 3.00: Tp=  .21]
00180>  #*******************************************************************************
00181>  #*******************************************************************************
00182>  #                            5yr SCS Storm (24hr)
00183>  #*******************************************************************************
00184>  #*******************************************************************************
00185>  R0001:C00021------------------------------------------------------------------------
00186>       MASS STORM
00187>         Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
00188>         Comment  = 24 hour SCS II storm mass curve
00189>         [SDT= 1.00:SDUR=  24.00:PTOT=  62.40]
00190>  #*******************************************************************************
00191>  #----------------|-------------------------------------------------------------|
00192>  #----------------|-------------------------------------------------------------|
00193>  #----------------|-Subwatershed 9 External Drainage Area-------------------------|
00194>  #----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
00195>  #----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------------|
00196>  #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00197>  #----------------|-------------------------------------------------------------|
00198>  R0001:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00199>       CALIB NASHYD            1.0 01:EXT-9A       101.80    2.230 No_date   13:11   27.25 .437      .000
00200>         [CN= 80.0: N= 3.00: Tp= 1.00]
00201>  R0001:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00202>       ROUTE CHANNEL   ->     1.0 01:EXT-9A       101.80    2.230 No_date   13:11   27.25  n/a      .000
00203>         [RDT= 1.00] out<-     1.0 02:Channel      101.80    2.221 No_date   13:15   27.25  n/a      .000
00204>          [L/S/n=  550./2.000/.035]
00205>          {Vmax= 1.530:Dmax=  .273}
00206>  R0001:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00207>       CALIB STANDHYD          1.0 03:EXT-9B        14.80    1.476 No_date   12:15   30.63 .491      .000
00208>         [XIMP=.35:TIMP=.35]
00209>         [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00210>         [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00211>         [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00212>  R0001:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00213>       ROUTE RESERVOIR ->     1.0 03:EXT-9B        14.80    1.476 No_date   12:15   30.63  n/a      .000
00214>                      out <=  1.0 04:Orchards     14.80     .249 No_date   12:47   30.63  n/a      .000
00215>       {MxStoUsed=.2950E+00  m3}
00216>  #----------------|-------------------------------------------------------------|
00217>  #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00218>  #----------------|-------------------------------------------------------------|
00219>  R0001:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00220>       ADD HYD                 1.0 02:Channel      101.80    2.221 No_date   13:15   27.25  n/a      .000
00221>                         +     1.0 04:Orchards     14.80     .249 No_date   12:47   30.63  n/a      .000
00222>                       SUM=    1.0 05:RD19         116.60    2.440 No_date   13:14   27.68  n/a      .000
00223>  #----------------|-------------------------------------------------------------|
00224>  #----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00225>  #----------------|-------------------------------------------------------------|
00226>  R0001:C00027------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00227>       CALIB NASHYD            1.0 01:9A            2.57     .035 No_date   12:30    8.98 .144      .000
00228>         [CN= 48.4: N= 3.00: Tp=  .37]
00229>  R0001:C00028------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00230>       CALIB NASHYD            1.0 02:9B           11.63     .145 No_date   13:21   17.30 .277      .000
00231>         [CN= 68.5: N= 3.00: Tp= 1.09]
00232>  R0001:C00029------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00233>       ADD HYD                 1.0 01:9A            2.57     .035 No_date   12:30    8.98  n/a      .000
00234>                         +     1.0 02:9B           11.63     .145 No_date   13:21   17.30  n/a      .000
00235>                       SUM=    1.0 10:9A9B         14.20     .158 No_date   13:13   15.79  n/a      .000
00236>  R0001:C00030------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00237>       CALIB NASHYD            1.0 01:9C            1.19     .016 No_date   12:16    4.94 .079      .000
00238>         [CN= 33.2: N= 3.00: Tp=  .14]
00239>  R0001:C00031------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00240>       CALIB NASHYD            1.0 02:9D            2.02     .038 No_date   12:16    7.25 .116      .000
00241>         [CN= 41.9: N= 3.00: Tp=  .15]
00242>  #----------------|-------------------------------------------------------------|
00243>  #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00244>  #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00245>  #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00246>  #----------------|-------------------------------------------------------------|
00247>  R0001:C00032------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00248>       ROUTE RESERVOIR ->     1.0 02:9D            2.02     .038 No_date   12:16    7.25  n/a      .000
00249>  *                    out <=  1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a      .000
00250>       {MxStoUsed=.1465E-01  m3}
00251>  R0001:C00033------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00252>       ADD HYD                 1.0 01:9C            1.19     .016 No_date   12:16    4.94  n/a      .000
00253>                         +     1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a      .000
00254>                       SUM=    1.0 09:9C9D          3.21     .016 No_date   12:16    1.83  n/a      .000
00255>  #----------------|-------------------------------------------------------------|
00256>  #----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00257>  #----------------|-------------------------------------------------------------|
00258>  R0001:C00034------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00259>       CALIB NASHYD            1.0 07:9E            7.60     .081 No_date   12:38    8.51 .136      .000
00260>         [CN= 47.1: N= 3.00: Tp=  .48]
00261>  R0001:C00035------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00262>       CALIB NASHYD            1.0 08:9F            3.35     .031 No_date   12:54    9.59 .154      .000
00263>         [CN= 50.4: N= 3.00: Tp=  .71]
00264>  #----------------|-------------------------------------------------------------|
00265>  #----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD-----------|
00266>  #----------------|-------------------------------------------------------------|
00267>  R0001:C00036------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00268>       ADD HYD                 1.0 05:RD19         116.60    2.440 No_date   13:14   27.68  n/a      .000
00269>                         +     1.0 10:9A9B         14.20     .158 No_date   13:13   15.79  n/a      .000
00270>                         +     1.0 09:9C9D          3.21     .016 No_date   12:16    1.83  n/a      .000
00271>                         +     1.0 07:9E            7.60     .081 No_date   12:38    8.51  n/a      .000
00272>                         +     1.0 08:9F            3.35     .031 No_date   12:54    9.59  n/a      .000
00273>                       SUM=    1.0 01:WC9LS       144.96    2.676 No_date   13:14   24.52  n/a      .000
00274>  R0001:C00037------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00275>       SAVE HYD                1.0 01:WC9LS       144.96    2.676 No_date   13:14   24.52  n/a      .000
00276>         fname :WC9LS.0001
00277>         remark:Lakeshore Road Hydrograph
00278>  #----------------|-------------------------------------------------------------|
00279>  #----------------|-----------WATERCOURSE 8-------------------------------------|
00280>  #----------------|-------------------------------------------------------------|
00281>  R0001:C00038------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00282>       CALIB NASHYD            1.0 07:8A           12.13     .185 No_date   12:43   13.21 .212      .000
00283>         [CN= 60.4: N= 3.00: Tp=  .56]
00284>  #----------------|-------------------------------------------------------------|
00285>  #----------------|-----------WATERCOURSE 10------------------------------------|
00286>  #----------------|-------------------------------------------------------------|
00287>  R0001:C00039------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00288>       CALIB NASHYD            1.0 07:10A           2.08     .077 No_date   12:19   16.33 .262      .000
00289>         [CN= 67.3: N= 3.00: Tp=  .21]
00290>  #*******************************************************************************
00291>  #*******************************************************************************
00292>  #                            10yr SCS Storm (24hr)
00293>  #*******************************************************************************
00294>  #*******************************************************************************
00295>  R0001:C00040------------------------------------------------------------------------
00296>       MASS STORM
00297>         Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
00298>         Comment  = 24 hour SCS II storm mass curve
00299>         [SDT= 1.00:SDUR=  24.00:PTOT=  72.80]
00300>  #*******************************************************************************
00301>  #----------------|-------------------------------------------------------------|
00302>  #----------------|-------------------------------------------------------------|
00303>  #----------------|-Subwatershed 9 External Drainage Area-------------------------|
00304>  #----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
00305>  #----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------------|
00306>  #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00307>  #----------------|-------------------------------------------------------------|
00308>  R0001:C00041------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00309>       CALIB NASHYD            1.0 01:EXT-9A       101.80    2.835 No_date   13:11   34.40 .478      .000
00310>         [CN= 80.0: N= 3.00: Tp= 1.00]
00311>  R0001:C00042------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00312>       ROUTE CHANNEL   ->     1.0 01:EXT-9A       101.80    2.835 No_date   13:11   34.40  n/a      .000
00313>         [RDT= 1.00] out<-     1.0 02:Channel      101.80    2.826 No_date   13:14   34.40  n/a      .000
00314>          [L/S/n=  550./2.000/.035]
00315>          {Vmax= 1.703:Dmax=  .316}
00316>  R0001:C00043------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00317>       CALIB STANDHYD          1.0 03:EXT-9B        14.80    1.903 No_date   12:15   37.43 .520      .000
00318>         [XIMP=.35:TIMP=.35]
00319>         [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00320>         [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00321>         [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00322>  R0001:C00044------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00323>       ROUTE RESERVOIR ->     1.0 03:EXT-9B        14.80    1.903 No_date   12:15   37.43  n/a      .000
00324>                      out <=  1.0 04:Orchards     14.80     .433 No_date   12:41   37.43  n/a      .000
00325>       {MxStoUsed=.3480E+00  m3}
00326>  #----------------|-------------------------------------------------------------|
00327>  #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00328>  #----------------|-------------------------------------------------------------|
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R0001:C00045------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 02:Channel      101.80    2.826 No_date   13:14   34.40  n/a      .000
                     +    1.0 04:Orchards      14.80     .433 No_date   12:41   37.43  n/a      .000
                  SUM=    1.0 05:RD19         116.60    3.148 No_date   13:08   34.78  n/a      .000
#-----------------|-------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|-------------------------------------------------------------|
R0001:C00046------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9A             2.57     .048 No_date   12:30   12.10 .168      .000
      [CN= 48.4: N= 3.00: Tp=  .37]
R0001:C00047------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:9B            11.63     .193 No_date   13:20   22.67 .315      .000
      [CN= 68.5: N= 3.00: Tp= 1.09]
R0001:C00048------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9A             2.57     .048 No_date   12:30   12.10  n/a      .000
                     +    1.0 02:9B            11.63     .193 No_date   13:20   22.67  n/a      .000
                  SUM=    1.0 10:9A9B          14.20     .210 No_date   13:12   20.75  n/a      .000
R0001:C00049------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9C             1.19     .022 No_date   12:16    6.79 .094      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0001:C00050------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:9D             2.02     .052 No_date   12:16    9.81 .136      .000
      [CN= 41.9: N= 3.00: Tp=  .15]
#-----------------|-------------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
#-----------------|-------------------------------------------------------------|
R0001:C00051------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 02:9D             2.02     .052 No_date   12:16    9.81  n/a      .000
 *                out <=  1.0 04:ExPond         2.02     .000 No_date    0:00     .00  n/a      .000
     {MxStoUsed=.1982E-01  m3}
R0001:C00052------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9C             1.19     .022 No_date   12:16    6.79  n/a      .000
                     +    1.0 04:ExPond         2.02     .000 No_date    0:00     .00  n/a      .000
                  SUM=    1.0 09:9C9D           3.21     .022 No_date   12:16    2.52  n/a      .000
#-----------------|-------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|-------------------------------------------------------------|
R0001:C00053------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 07:9E             7.60     .111 No_date   12:38   11.49 .160      .000
      [CN= 47.1: N= 3.00: Tp=  .48]
R0001:C00054------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 08:9F             3.35     .042 No_date   12:54   12.90 .179      .000
      [CN= 50.4: N= 3.00: Tp=  .71]
#-----------------|-------------------------------------------------------------|
#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
#-----------------|-------------------------------------------------------------|
R0001:C00055------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 05:RD19         116.60    3.148 No_date   13:08   34.78  n/a      .000
                     +    1.0 10:9A9B          14.20     .210 No_date   13:12   20.75  n/a      .000
                     +    1.0 09:9C9D           3.21     .022 No_date   12:16    2.52  n/a      .000
                     +    1.0 07:9E             7.60     .111 No_date   12:38   11.49  n/a      .000
                     +    1.0 08:9F             3.35     .042 No_date   12:54   12.90  n/a      .000
                  SUM=    1.0 01:WC9LS        144.96    3.474 No_date   13:08   30.97  n/a      .000
R0001:C00056------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD              1.0 01:WC9LS        144.96    3.474 No_date   13:08   30.97  n/a      .000
      fname :WC9LS.0001
      remark:Lakeshore Road Hydrograph
#-----------------|-------------------------------------------------------------|
#-----------------|-----------WATERCOURSE 8-----------------------------------|
#-----------------|-------------------------------------------------------------|
R0001:C00057------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 07:8A            12.13     .250 No_date   12:43   17.57 .244      .000
      [CN= 60.4: N= 3.00: Tp=  .56]
#-----------------|-------------------------------------------------------------|
#-----------------|-----------WATERCOURSE 10----------------------------------|
#-----------------|-------------------------------------------------------------|
R0001:C00058------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 07:10A            2.08     .103 No_date   12:19   21.52 .299      .000
      [CN= 67.3: N= 3.00: Tp=  .21]
#******************************************************************************
#******************************************************************************
#                              25yr SCS Storm (24hr)
#******************************************************************************
#******************************************************************************
R0001:C00059-----------------------------------------------------------------------------------------
     MASS STORM
      Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
      Comment  = 24 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  24.00:PTOT=  86.40]
#******************************************************************************
#-----------------|-------------------------------------------------------------|
#-----------------|-------------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|-------------------------------------------------------------|
R0001:C00060------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9A       101.80    3.796 No_date   13:10   45.73 .529      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00061------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->    1.0 01:EXT-9A       101.80    3.796 No_date   13:10   45.73  n/a      .000
     [RDT= 1.00] out<-    1.0 02:Channel      101.80    3.784 No_date   13:14   45.73  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.840:Dmax=  .367}
R0001:C00062------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:EXT-9B        14.80    2.516 No_date   12:14   47.83 .554      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00063------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 03:EXT-9B        14.80    2.516 No_date   12:14   47.83  n/a      .000
                  out <=  1.0 04:Orchards      14.80     .723 No_date   12:36   47.83  n/a      .000
     {MxStoUsed=.4236E+00  m3}
#-----------------|-------------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|-------------------------------------------------------------|
R0001:C00064------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 02:Channel      101.80    3.784 No_date   13:14   45.73  n/a      .000
                     +    1.0 04:Orchards      14.80     .723 No_date   12:36   47.83  n/a      .000
                  SUM=    1.0 05:RD19         116.60    4.258 No_date   13:08   45.99  n/a      .000
#-----------------|-------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|-------------------------------------------------------------|
R0001:C00065------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9A             2.57     .070 No_date   12:30   17.44 .202      .000
      [CN= 48.4: N= 3.00: Tp=  .37]
R0001:C00066------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:9B            11.63     .271 No_date   13:19   31.50 .365      .000
      [CN= 68.5: N= 3.00: Tp= 1.09]
R0001:C00067------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9A             2.57     .070 No_date   12:30   17.44  n/a      .000
                     +    1.0 02:9B            11.63     .271 No_date   13:19   31.50  n/a      .000
                  SUM=    1.0 10:9A9B          14.20     .297 No_date   13:10   28.96  n/a      .000
R0001:C00068------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9C             1.19     .032 No_date   12:16   10.03 .116      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0001:C00069------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:9D             2.02     .076 No_date   12:16   14.24 .165      .000
      [CN= 41.9: N= 3.00: Tp=  .15]
#-----------------|-------------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
#-----------------|-------------------------------------------------------------|
R0001:C00070------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 02:9D             2.02     .076 No_date   12:16   14.24  n/a      .000
 *                out <=  1.0 04:ExPond         2.02     .000 No_date    0:00     .00  n/a      .000
     {MxStoUsed=.2876E-01  m3}
R0001:C00071------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9C             1.19     .032 No_date   12:16   10.03  n/a      .000
                     +    1.0 04:ExPond         2.02     .000 No_date    0:00     .00  n/a      .000
                  SUM=    1.0 09:9C9D           3.21     .032 No_date   12:16    3.72  n/a      .000
#-----------------|-------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|-------------------------------------------------------------|
R0001:C00072------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 07:9E             7.60     .163 No_date   12:37   16.63 .193      .000
      [CN= 47.1: N= 3.00: Tp=  .48]
R0001:C00073------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 08:9F             3.35     .061 No_date   12:53   18.55 .215      .000
      [CN= 50.4: N= 3.00: Tp=  .71]
#-----------------|-------------------------------------------------------------|
#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
#-----------------|-------------------------------------------------------------|
R0001:C00074------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 05:RD19         116.60    4.258 No_date   13:08   45.99  n/a      .000
                     +    1.0 10:9A9B          14.20     .297 No_date   13:10   28.96  n/a      .000
                     +    1.0 09:9C9D           3.21     .032 No_date   12:16    3.72  n/a      .000
                     +    1.0 07:9E             7.60     .163 No_date   12:37   16.63  n/a      .000
                     +    1.0 08:9F             3.35     .061 No_date   12:53   18.55  n/a      .000
```

```
                  SUM=    1.0 01:WC9LS        144.96    4.726 No_date   13:07   41.21  n/a      .000
R0001:C00075------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD              1.0 01:WC9LS        144.96    4.726 No_date   13:07   41.21  n/a      .000
      fname :WC9LS.0001
      remark:Lakeshore Road Hydrograph
#-----------------|-------------------------------------------------------------|
#-----------------|-----------WATERCOURSE 8-----------------------------------|
#-----------------|-------------------------------------------------------------|
R0001:C00076------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 07:8A            12.13     .359 No_date   12:42   24.87 .288      .000
      [CN= 60.4: N= 3.00: Tp=  .56]
#-----------------|-------------------------------------------------------------|
#-----------------|-----------WATERCOURSE 10----------------------------------|
#-----------------|-------------------------------------------------------------|
R0001:C00077------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 07:10A            2.08     .145 No_date   12:19   30.08 .348      .000
      [CN= 67.3: N= 3.00: Tp=  .21]
#******************************************************************************
#******************************************************************************
#                              50yr SCS Storm (24hr)
#******************************************************************************
#******************************************************************************
R0001:C00078-----------------------------------------------------------------------------------------
     MASS STORM
      Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
      Comment  = 24 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  24.00:PTOT=  96.00]
#******************************************************************************
#-----------------|-------------------------------------------------------------|
#-----------------|-------------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|-------------------------------------------------------------|
R0001:C00079------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9A       101.80    4.464 No_date   13:10   53.60 .558      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00080------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->    1.0 01:EXT-9A       101.80    4.464 No_date   13:10   53.60  n/a      .000
     [RDT= 1.00] out<-    1.0 02:Channel      101.80    4.454 No_date   13:13   53.60  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.950:Dmax=  .402}
R0001:C00081------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:EXT-9B        14.80    2.942 No_date   12:14   54.37 .566      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00082------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 03:EXT-9B        14.80    2.942 No_date   12:14   54.37  n/a      .000
                  out <=  1.0 04:Orchards      14.80     .912 No_date   12:34   54.37  n/a      .000
     {MxStoUsed=.4691E+00  m3}
#-----------------|-------------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|-------------------------------------------------------------|
R0001:C00083------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 02:Channel      101.80    4.454 No_date   13:13   53.60  n/a      .000
                     +    1.0 04:Orchards      14.80     .912 No_date   12:34   54.37  n/a      .000
                  SUM=    1.0 05:RD19         116.60    5.020 No_date   13:06   53.69  n/a      .000
#-----------------|-------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|-------------------------------------------------------------|
R0001:C00084------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9A             2.57     .086 No_date   12:30   21.41 .223      .000
      [CN= 48.4: N= 3.00: Tp=  .37]
R0001:C00085------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:9B            11.63     .328 No_date   13:18   37.83 .394      .000
      [CN= 68.5: N= 3.00: Tp= 1.09]
R0001:C00086------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9A             2.57     .086 No_date   12:30   21.41  n/a      .000
                     +    1.0 02:9B            11.63     .328 No_date   13:18   37.83  n/a      .000
                  SUM=    1.0 10:9A9B          14.20     .360 No_date   13:10   34.85  n/a      .000
R0001:C00087------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:9C             1.19     .041 No_date   12:16   12.49 .130      .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0001:C00088------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 02:9D             2.02     .095 No_date   12:16   17.55 .183      .000
      [CN= 41.9: N= 3.00: Tp=  .15]
#-----------------|-------------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
#-----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
#-----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
#-----------------|-------------------------------------------------------------|
R0001:C00089------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 02:9D             2.02     .095 No_date   12:16   17.55  n/a      .000
 *                out <=  1.0 04:ExPond         2.02     .000 No_date    0:00     .00  n/a      .000
     {MxStoUsed=.3546E-01  m3}
R0001:C00090------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 01:9C             1.19     .041 No_date   12:16   12.49  n/a      .000
                     +    1.0 04:ExPond         2.02     .000 No_date    0:00     .00  n/a      .000
                  SUM=    1.0 09:9C9D           3.21     .041 No_date   12:16    4.63  n/a      .000
#-----------------|-------------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|-------------------------------------------------------------|
R0001:C00091------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 07:9E             7.60     .202 No_date   12:37   20.46 .213      .000
      [CN= 47.1: N= 3.00: Tp=  .48]
R0001:C00092------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 08:9F             3.35     .075 No_date   12:53   22.73 .237      .000
      [CN= 50.4: N= 3.00: Tp=  .71]
#-----------------|-------------------------------------------------------------|
#-----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
#-----------------|-------------------------------------------------------------|
R0001:C00093------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD               1.0 05:RD19         116.60    5.020 No_date   13:06   53.69  n/a      .000
                     +    1.0 10:9A9B          14.20     .360 No_date   13:10   34.85  n/a      .000
                     +    1.0 09:9C9D           3.21     .041 No_date   12:16    4.63  n/a      .000
                     +    1.0 07:9E             7.60     .202 No_date   12:37   20.46  n/a      .000
                     +    1.0 08:9F             3.35     .075 No_date   12:53   22.73  n/a      .000
                  SUM=    1.0 01:WC9LS        144.96    5.593 No_date   13:06   48.30  n/a      .000
R0001:C00094------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD              1.0 01:WC9LS        144.96    5.593 No_date   13:06   48.30  n/a      .000
      fname :WC9LS.0001
      remark:Lakeshore Road Hydrograph
#-----------------|-------------------------------------------------------------|
#-----------------|-----------WATERCOURSE 8-----------------------------------|
#-----------------|-------------------------------------------------------------|
R0001:C00095------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 07:8A            12.13     .438 No_date   12:42   30.18 .314      .000
      [CN= 60.4: N= 3.00: Tp=  .56]
#-----------------|-------------------------------------------------------------|
#-----------------|-----------WATERCOURSE 10----------------------------------|
#-----------------|-------------------------------------------------------------|
R0001:C00096------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 07:10A            2.08     .176 No_date   12:19   36.23 .377      .000
      [CN= 67.3: N= 3.00: Tp=  .21]
#******************************************************************************
#******************************************************************************
#                              100yr SCS Storm (24hr)
#******************************************************************************
#******************************************************************************
R0001:C00097-----------------------------------------------------------------------------------------
     MASS STORM
      Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
      Comment  = 24 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  24.00:PTOT= 108.00]
#******************************************************************************
#-----------------|-------------------------------------------------------------|
#-----------------|-------------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|-------------------------------------------------------------|
R0001:C00098------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD          1.0 01:EXT-9A       101.80    5.323 No_date   13:09   63.72 .590      .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00099------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->    1.0 01:EXT-9A       101.80    5.323 No_date   13:09   63.72  n/a      .000
     [RDT= 1.00] out<-    1.0 02:Channel      101.80    5.308 No_date   13:13   63.72  n/a      .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 2.062:Dmax=  .442}
R0001:C00100------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD        1.0 03:EXT-9B        14.80    3.462 No_date   12:14   62.70 .581      .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00101------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->    1.0 03:EXT-9B        14.80    3.462 No_date   12:14   62.70  n/a      .000
                  out <=  1.0 04:Orchards      14.80    1.155 No_date   12:32   62.69  n/a      .000
     {MxStoUsed=.5239E+00  m3}
#-----------------|-------------------------------------------------------------|
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00657> #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing--------|
00658> #----------------|-----------------------------------------------------------|
00659> R0001:C00102-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00660>     ADD HYD              1.0 02:Channel      101.80    5.308 No_date   13:13   63.72  n/a     .000
00661>                    +     1.0 04:Orchards      14.80    1.155 No_date   12:32   62.69  n/a     .000
00662>                SUM=      1.0 05:RD19         116.60    5.991 No_date   13:06   63.59  n/a     .000
00663> #----------------|-----------------------------------------------------------|
00664> #----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00665> #----------------|-----------------------------------------------------------|
00666> R0001:C00103-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00667>     CALIB NASHYD         1.0 01:9A             2.57     .108 No_date   12:29   26.78 .248     .000
00668>       [CN= 48.4: N= 3.00: Tp=  .37]
00669> R0001:C00104-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00670>     CALIB NASHYD         1.0 02:9B            11.63     .403 No_date   13:18   46.14 .427     .000
00671>       [CN= 68.5: N= 3.00: Tp= 1.09]
00672> R0001:C00105-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00673>     ADD HYD              1.0 01:9A             2.57     .108 No_date   12:29   26.78  n/a     .000
00674>                    +     1.0 02:9B            11.63     .403 No_date   13:18   46.14  n/a     .000
00675>                SUM=      1.0 10:9A9B          14.20     .443 No_date   13:09   42.64  n/a     .000
00676> R0001:C00106-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00677>     CALIB NASHYD         1.0 01:9C             1.19     .052 No_date   12:16   15.89 .147     .000
00678>       [CN= 33.2: N= 3.00: Tp=  .14]
00679> R0001:C00107-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00680>     CALIB NASHYD         1.0 02:9D             2.02     .119 No_date   12:16   22.07 .204     .000
00681>       [CN= 41.9: N= 3.00: Tp=  .15]
00682> #----------------|-----------------------------------------------------------|
00683> #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SITE UPPER LANDS---|
00684> #----------------|-REFER TO STAGE-STORAGE-DISCHARGE SHEET PROVIDED IN--------|
00685> #----------------|-PARKBRIDGE CRAIGLEITH FSSWM REPORT FOR EXISTING POND------|
00686> #----------------|-----------------------------------------------------------|
00687> R0001:C00108-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00688>     ROUTE RESERVOIR ->   1.0 02:9D             2.02     .119 No_date   12:16   22.07  n/a     .000
00689>  *                 out <=   1.0 04:ExPond        2.02     .000 No_date    0:00     .00  n/a     .000
00690>      {MxStoUsed=.4458E-01  m3}
00691> R0001:C00109-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00692>     ADD HYD              1.0 01:9C             1.19     .052 No_date   12:16   15.89  n/a     .000
00693>                    +     1.0 04:ExPond         2.02     .000 No_date    0:00     .00  n/a     .000
00694>                SUM=      1.0 09:9C9D           3.21     .052 No_date   12:16    5.89  n/a     .000
00695> #----------------|-----------------------------------------------------------|
00696> #----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00697> #----------------|-----------------------------------------------------------|
00698> R0001:C00110-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00699>     CALIB NASHYD         1.0 07:9E             7.60     .255 No_date   12:37   25.64 .237     .000
00700>       [CN= 47.1: N= 3.00: Tp=  .48]
00701> R0001:C00111-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00702>     CALIB NASHYD         1.0 08:9F             3.35     .094 No_date   12:52   28.38 .263     .000
00703>       [CN= 50.4: N= 3.00: Tp=  .71]
00704> #----------------|-----------------------------------------------------------|
00705> #----------------|-WATERCOURSE 9 TOTAL FLOW AT OLD LAKESHORE ROAD------------|
00706> #----------------|-----------------------------------------------------------|
00707> R0001:C00112-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00708>     ADD HYD              1.0 05:RD19         116.60    5.991 No_date   13:06   63.59  n/a     .000
00709>                    +     1.0 10:9A9B          14.20     .443 No_date   13:09   42.64  n/a     .000
00710>                    +     1.0 09:9C9D           3.21     .052 No_date   12:16    5.89  n/a     .000
00711>                    +     1.0 07:9E             7.60     .255 No_date   12:37   25.64  n/a     .000
00712>                    +     1.0 08:9F             3.35     .094 No_date   12:52   28.38  n/a     .000
00713>                SUM=      1.0 01:WC9LS        144.96    6.705 No_date   13:05   57.45  n/a     .000
00714> R0001:C00113-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00715>     SAVE HYD             1.0 01:WC9LS        144.96    6.705 No_date   13:05   57.45  n/a     .000
00716>       fname :WC9LS.0001
00717>       remark:Lakeshore Road Hydrograph
00718> #----------------|-----------------------------------------------------------|
00719> #----------------|-----------WATERCOURSE 8-----------------------------------|
00720> #----------------|-----------------------------------------------------------|
00721> R0001:C00114-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00722>     CALIB NASHYD         1.0 07:8A            12.13     .545 No_date   12:42   37.26 .345     .000
00723>       [CN= 60.4: N= 3.00: Tp=  .56]
00724> #----------------|-----------------------------------------------------------|
00725> #----------------|-----------WATERCOURSE 10----------------------------------|
00726> #----------------|-----------------------------------------------------------|
00727> R0001:C00115-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.----DWFcms
00728>     CALIB NASHYD         1.0 07:10A            2.08     .216 No_date   12:19   44.34 .411     .000
00729>       [CN= 67.3: N= 3.00: Tp=  .21]
00730> R0001:C00116-------------------------------------------------------------------------------------------
00731>     FINISH
00732> -------------------------------------------------------------------------------------------------------
00733> *******************************************************************************************************
00734>      WARNINGS / ERRORS / NOTES
00735>      -------------------------
00736> R0001:C00013  ROUTE RESERVOIR
00737> *** WARNING: Outflow volume is less than inflow volume.
00738> R0001:C00032  ROUTE RESERVOIR
00739> *** WARNING: Outflow volume is less than inflow volume.
00740> R0001:C00051  ROUTE RESERVOIR
00741> *** WARNING: Outflow volume is less than inflow volume.
00742> R0001:C00070  ROUTE RESERVOIR
00743> *** WARNING: Outflow volume is less than inflow volume.
00744> R0001:C00089  ROUTE RESERVOIR
00745> *** WARNING: Outflow volume is less than inflow volume.
00746> R0001:C00108  ROUTE RESERVOIR
00747> *** WARNING: Outflow volume is less than inflow volume.
00748>    Simulation ended on 2021-04-29     at 12:00:32
00749> ===================================================================================================
00750>
00751>
```

```
2     Metric units
*#************************************************************************
*#  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
*#  Date        : 2021.04.29
*#  Modeller    : [JE]
*#  Company     : C.F. Crozier & Associates Inc.
*#  License #   : 3737016
*#************************************************************************
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[0],  NRUN=[0]
%                     [ ] <--storm filename, one per line for NSTORM time
*#************************************************************************
%-----------------|-------------------------------------------------------|
#-----------------|-------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT----24 hr SCS STORMS---------------------|
#-----------------|-------------------------------------------------------|

*#************************************************************************
#                              2yr SCS Storm (24hr)
*#************************************************************************
*#************************************************************************
MASS STORM          PTOTAL=[45.60](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS24HII.mst"]
*#************************************************************************
#-----------------|-------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area--------------------|
#-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|-------------------------------------------------------|
%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
%-----------------|-------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
                    ( DISTANCE (m), ELEVATION (m))=[0,102]
                                                   [8,100]
                                                   [12,100]
                                                   [20,102]
%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
%-----------------|-------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                   [   0.0 ,  0.0 ]
                                   [   0.0100 ,  0.0610 ]
                                   [   0.0400 ,  0.1310 ]
                                   [   0.0700 ,  0.2110 ]
                                   [   0.2600 ,  0.3000 ]
                                   [   0.6000 ,  0.3940 ]
                                   [   1.0200 ,  0.4950 ]
                                   [   1.5200 ,  0.6020 ]
                                   [   2.0800 ,  0.7160 ]
                                   [   2.6900 ,  0.8370 ]
                          IDovf=[ ], NHYDovf=[  ]
%-----------------|-------------------------------------------------------|
#-----------------|-------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|-------------------------------------------------------|
%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
                    N=[3], TP=[0.24]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
%-----------------|-------------------------------------------------------|
#-----------------|-------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
#-----------------|-------------------------------------------------------|
%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9A9B"], DT=[1]min, AREA=[2.68](ha),
                    DWF=[0](cms),  CN/C=[55.9], IA=[8.0](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,2,5]
%-----------------|-------------------------------------------------------|
#-----------------|-------------------------------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
#-----------------|-------------------------------------------------------|
%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
                    N=[3], TP=[0.47]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[67.0],
                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
                    N=[3], TP=[0.11]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
%-----------------|-------------------------------------------------------|
#-----------------|-------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
#-----------------|-------------------------------------------------------|
%-----------------|-------------------------------------------------------|
ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                   [   0.0 ,  0.0 ]
                                   [   0.005 ,  0.018 ]
                                   [   0.011 ,  0.058 ]
                                   [   0.015 ,  0.104 ]
                                   [   0.017 ,  0.141 ]
                                   [   0.019 ,  0.182 ]
                                   [   0.024 ,  0.303 ]
                                   [   0.028 ,  0.443 ]
                                   [   0.031 ,  0.601 ]
                                   [   0.032 ,  1.119 ]
                                   [   0.033 ,  1.163 ]
                                   [   0.359 ,  1.207 ]
                                   [   1.054 ,  1.253 ]
                                   [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
%-----------------|-------------------------------------------------------|
#-----------------|-------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
#-----------------|-------------------------------------------------------|
%-----------------|-------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.38](ha),
                    XIMP=[0.334], TIMP=[0.682], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66.2],
                    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=[96](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
%-----------------|-------------------------------------------------------|
#-----------------|-------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
#-----------------|-------------------------------------------------------|
%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.73](ha),
                    DWF=[0](cms),  CN/C=[56.7], IA=[6.52](mm),
                    N=[3], TP=[0.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.41](ha),
                    DWF=[0](cms),  CN/C=[65.0], IA=[8.0](mm),
                    N=[3], TP=[0.62]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["9C9E"], DT=[1]min, AREA=[2.06](ha),
                    DWF=[0](cms),  CN/C=[58.2], IA=[7.32](mm),
                    N=[3], TP=[0.33]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,7,10]
%-----------------|-------------------------------------------------------|
#-----------------|-------------------------------------------------------|
#-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
#-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
                    XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[49],
                    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=[1.0](%),
                                         LGI=[114](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
                    XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[59],
                    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=[1.0](%),
                                         LGI=[148](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
%-----------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[2.09](ha),
                    XIMP=[0.262], TIMP=[0.35], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    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=[1.0](%),
                                         LGI=[118](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[1,2,3,4,7]
%-----------------|-------------------------------------------------------|
#-----------------|-------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
#-----------------|-------------------------------------------------------|
%-----------------|-------------------------------------------------------|
ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                   [   0.0 ,  0.0 ]
                                   [   0.004 ,  0.016 ]
                                   [   0.009 ,  0.053 ]
                                   [   0.011 ,  0.074 ]
                                   [   0.013 ,  0.119 ]
                                   [   0.014 ,  0.132 ]
                                   [   0.016 ,  0.171 ]
                                   [   0.017 ,  0.199 ]
                                   [   0.018 ,  0.228 ]
                                   [   0.344 ,  0.259 ]
                                   [   1.040 ,  0.291 ]
                                   [   2.076 ,  0.325 ]
                                   [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
%-----------------|-------------------------------------------------------|
#-----------------|-------------------------------------------------------|
#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
#-----------------|-------------------------------------------------------|
%-----------------|-------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
%-----------------|-------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
                    HYD_COMMENT=["POST-DEV LAKESHORE"]
%-----------------|-------------------------------------------------------|
#-----------------|-------------------------------------------------------|
#-----------------|--WATERCOURSE 8 CATCHMENTS---------------------------------|
#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8--------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
#-----------------|-------------------------------------------------------|
%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
                    DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
%-----------------|-------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
                    DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
```

```
                      N=[3], TP=[0.41]hrs,
                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["EXT-8B"], DT=[1]min, AREA=[1.04](ha),
                    DWF=[0](cms),  CN/C=[58.6], IA=[6.75](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|----------WATERCOURSE 8-----------------------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC8"], IDs to add=[1,2,3]
*%-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|--WATERCOURSE 10 CATCHMENT-------------------------------|
*#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10---------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["10A"], DT=[1]min, AREA=[1.99](ha),
                    DWF=[0](cms),  CN/C=[59.4], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|


*#**********************************************************************
*#**********************************************************************
*#                          5yr SCS Storm (24hr)
*#**********************************************************************
*#**********************************************************************
MASS STORM          PTOTAL=[62.4](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS24HII.mst"]
*#**********************************************************************
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Subwatershed 9 External Drainage Area--------------------|
*#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
*#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
                    ( DISTANCE (m), ELEVATION (m))=[0,102]
                                                   [8,100]
                                                   [12,100]
                                                   [20,102]
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                               [   0.0 ,  0.0 ]
                               [   0.0100 ,  0.0610 ]
                               [   0.0400 ,  0.1310 ]
                               [   0.0700 ,  0.2110 ]
                               [   0.2600 ,  0.3000 ]
                               [   0.6000 ,  0.3940 ]
                               [   1.0200 ,  0.4950 ]
                               [   1.5200 ,  0.6020 ]
                               [   2.0800 ,  0.7160 ]
                               [   2.6900 ,  0.8370 ]
                        IDovf=[ ], NHYDovf=[  ]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
                    N=[3], TP=[0.24]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9A9B"], DT=[1]min, AREA=[2.68](ha),
                    DWF=[0](cms),  CN/C=[55.9], IA=[8.0](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,2,5]
*%-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
*#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
*#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
                    N=[3], TP=[0.47]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[67.0],
                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
                    N=[3], TP=[0.11]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
*#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                               [   0.0 ,  0.0 ]
                               [   0.005 ,  0.018 ]
                               [   0.011 ,  0.058 ]
                               [   0.015 ,  0.104 ]
                               [   0.017 ,  0.141 ]
                               [   0.019 ,  0.182 ]
                               [   0.024 ,  0.303 ]
                               [   0.028 ,  0.443 ]
                               [   0.031 ,  0.601 ]
                               [   0.032 ,  1.119 ]
                               [   0.033 ,  1.163 ]
                               [   0.359 ,  1.207 ]
                               [   1.054 ,  1.253 ]
                               [   -1  ,  -1  ]  (max twenty pts)
                        IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
*#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
*#-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.38](ha),
                    XIMP=[0.334], TIMP=[0.682], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66.2],
                    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=[96](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.73](ha),
                    DWF=[0](cms),  CN/C=[56.7], IA=[6.52](mm),
                    N=[3], TP=[0.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.41](ha),
                    DWF=[0](cms),  CN/C=[65.0], IA=[8.0](mm),
                    N=[3], TP=[0.62]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["9C9E"], DT=[1]min, AREA=[2.06](ha),
                    DWF=[0](cms),  CN/C=[58.2], IA=[7.32](mm),
                    N=[3], TP=[0.33]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,7,10]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-LANDS DRAINING TO SWM FACILITY 2--------------------------|
*#-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
                    XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[49],
                    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=[1.0](%),
                                         LGI=[114](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
                    XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[59],
                    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=[1.0](%),
                                         LGI=[148](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[2.09](ha),
                    XIMP=[0.262], TIMP=[0.35], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    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=[1.0](%),
                                         LGI=[118](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[1,2,3,4,7]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                               [   0.0 ,  0.0 ]
                               [   0.004 ,  0.016 ]
                               [   0.009 ,  0.053 ]
                               [   0.011 ,  0.074 ]
                               [   0.013 ,  0.119 ]
                               [   0.014 ,  0.132 ]
                               [   0.016 ,  0.171 ]
                               [   0.017 ,  0.199 ]
                               [   0.018 ,  0.228 ]
                               [   0.344 ,  0.259 ]
                               [   1.040 ,  0.291 ]
                               [   2.076 ,  0.325 ]
                               [   -1  ,  -1  ]  (max twenty pts)
                        IDovf=[   ], NHYDovf=[   ]
*%-----------------|-------------------------------------------------------------|
*#-----------------|-------------------------------------------------------------|
*#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
*#-----------------|-------------------------------------------------------------|
*%-----------------|-------------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
*%-----------------|-------------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
                    HYD_COMMENT=["POST-DEV LAKESHORE"]
*%-----------------|-------------------------------------------------------------|
```

```
00541> *#-----------------|-------------------------------------------------------------|
00542> *#-----------------|--WATERCOURSE 8 CATCHMENTS-------------------------------|
00543> *#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8------------------|
00544> *#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8---------------|
00545> *#-----------------|-------------------------------------------------------------|
00546> *%-----------------|-------------------------------------------------------------|
00547> CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
00548>                     DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
00549>                     N=[3], TP=[0.23]hrs,
00550>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00551> *%-----------------|-------------------------------------------------------------|
00552> CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
00553>                     DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
00554>                     N=[3], TP=[0.41]hrs,
00555>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00556> *%-----------------|-------------------------------------------------------------|
00557> CALIB NASHYD        ID=[3], NHYD=["EXT-8B"], DT=[1]min, AREA=[1.04](ha),
00558>                     DWF=[0](cms),  CN/C=[58.6], IA=[6.75](mm),
00559>                     N=[3], TP=[0.41]hrs,
00560>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00561> *%-----------------|-------------------------------------------------------------|
00562> *#-----------------|-------------------------------------------------------------|
00563> *#-----------------|----------WATERCOURSE 8----------------------------------|
00564> *#-----------------|-------------------------------------------------------------|
00565> *%-----------------|-------------------------------------------------------------|
00566> ADD HYD             IDsum=[4], NHYD=["WC8"], IDs to add=[1,2,3]
00567> *%-----------------|-------------------------------------------------------------|
00568> *%-----------------|-------------------------------------------------------------|
00569> *#-----------------|-------------------------------------------------------------|
00570> *#-----------------|--WATERCOURSE 10 CATCHMENT-------------------------------|
00571> *#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10--------------|
00572> *#-----------------|-------------------------------------------------------------|
00573> *%-----------------|-------------------------------------------------------------|
00574> CALIB NASHYD        ID=[1], NHYD=["10A"], DT=[1]min, AREA=[1.99](ha),
00575>                     DWF=[0](cms),  CN/C=[59.4], IA=[8.6](mm),
00576>                     N=[3], TP=[0.21]hrs,
00577>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00578> *%-----------------|-------------------------------------------------------------|
00579>
00580>
00581>
00582>
00583> *#*****************************************************************************
00584> *#*****************************************************************************
00585> *#                          10yr SCS Storm (24hr)
00586> *#*****************************************************************************
00587> *#*****************************************************************************
00588> MASS STORM          PTOTAL=[72.0](mm), CSDT=[1](min),
00589>                     CURVE_FILENAME=["SCS24HII.mst"]
00590> *#*****************************************************************************
00591> *#-----------------|-------------------------------------------------------------|
00592> *#-----------------|-Subwatershed 9 External Drainage Area-----------------------|
00593> *#-----------------|-Per 'The Orchards' FSSWM Report-----------------------------|
00594> *#-----------------|-Prepared by Higgins Engineering (Jan. 2005)------------------|
00595> *#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00596> *#-----------------|-------------------------------------------------------------|
00597> *%-----------------|-------------------------------------------------------------|
00598> CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
00599>                     DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
00600>                     N=[3], TP=[1.00]hrs,
00601>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00602> *%-----------------|-------------------------------------------------------------|
00603> ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
00604>                     RDT=[1](min),
00605>                     CHLGTH=[550](m),  CHSLOPE=[2](%),
00606>                                       FPSLOPE=[2](%),
00607>                     SECNUM=[1],       NSEG=[3]
00608>                     ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
00609>                     ( DISTANCE (m), ELEVATION (m))=[0,102]
00610>                                                   [8,100]
00611>                                                   [12,100]
00612>                                                   [20,102]
00613> *%-----------------|-------------------------------------------------------------|
00614> CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
00615>                     XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
00616>                     Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
00617>                             DCAY=[2](/hr), F=[0](mm),
00618>                     Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
00619>                                          LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
00620>                     Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
00621>                                          LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
00622>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00623> *%-----------------|-------------------------------------------------------------|
00624> ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
00625>                     RDT=[1](min),
00626>                           TABLE of ( OUTFLOW-STORAGE ) values
00627>                                      (cms) - (ha-m)
00628>                                    [   0.0 ,  0.0 ]
00629>                                    [   0.0100 ,  0.0610 ]
00630>                                    [   0.0400 ,  0.1310 ]
00631>                                    [   0.0700 ,  0.2110 ]
00632>                                    [   0.2600 ,  0.3000 ]
00633>                                    [   0.6000 ,  0.3940 ]
00634>                                    [   1.0200 ,  0.4950 ]
00635>                                    [   1.5200 ,  0.6020 ]
00636>                                    [   2.0800 ,  0.7160 ]
00637>                                    [   2.6900 ,  0.8370 ]
00638>                           IDovf=[ ], NHYDovf=[  ]
00639> *%-----------------|-------------------------------------------------------------|
00640> *#-----------------|-------------------------------------------------------------|
00641> *#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00642> *#-----------------|-------------------------------------------------------------|
00643> *%-----------------|-------------------------------------------------------------|
00644> ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
00645> *%-----------------|-------------------------------------------------------------|
00646> CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
00647>                     DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
00648>                     N=[3], TP=[0.24]hrs,
00649>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00650> *%-----------------|-------------------------------------------------------------|
00651> *#-----------------|-------------------------------------------------------------|
00652> *#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
00653> *#-----------------|-------------------------------------------------------------|
00654> *%-----------------|-------------------------------------------------------------|
00655> CALIB NASHYD        ID=[2], NHYD=["9A9B"], DT=[1]min, AREA=[2.68](ha),
00656>                     DWF=[0](cms),  CN/C=[55.9], IA=[8.0](mm),
00657>                     N=[3], TP=[0.30]hrs,
00658>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00659> *%-----------------|-------------------------------------------------------------|
00660> ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,2,5]
00661> *%-----------------|-------------------------------------------------------------|
00662> *#-----------------|-------------------------------------------------------------|
00663> *#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
00664> *#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
00665> *#-----------------|-------------------------------------------------------------|
00666> *%-----------------|-------------------------------------------------------------|
00667> CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
00668>                     DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
00669>                     N=[3], TP=[0.47]hrs,
00670>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00671> *%-----------------|-------------------------------------------------------------|
00672> CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
00673>                     XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
00674>                     SCS curve number CN=[67.0],
00675>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
00676>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00677>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
00678>                                          LGI=[44](m), MNI=[0.013], SCI=[0](min),
00679>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00680> *%-----------------|-------------------------------------------------------------|
00681> CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
00682>                     DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
00683>                     N=[3], TP=[0.11]hrs,
00684>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00685> *%-----------------|-------------------------------------------------------------|
00686> ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
00687> *%-----------------|-------------------------------------------------------------|
00688> *#-----------------|-------------------------------------------------------------|
00689> *#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
00690> *#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
00691> *#-----------------|-------------------------------------------------------------|
00692> *%-----------------|-------------------------------------------------------------|
00693> ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
00694>                     RDT=[1](min),
00695>                           TABLE of ( OUTFLOW-STORAGE ) values
00696>                                      (cms) - (ha-m)
00697>                                    [   0.0 ,  0.0 ]
00698>                                    [   0.005 ,  0.018 ]
00699>                                    [   0.011 ,  0.058 ]
00700>                                    [   0.015 ,  0.104 ]
00701>                                    [   0.017 ,  0.141 ]
00702>                                    [   0.019 ,  0.182 ]
00703>                                    [   0.024 ,  0.303 ]
00704>                                    [   0.028 ,  0.443 ]
00705>                                    [   0.031 ,  0.601 ]
00706>                                    [   0.032 ,  1.119 ]
00707>                                    [   0.033 ,  1.163 ]
00708>                                    [   0.359 ,  1.207 ]
00709>                                    [   1.054 ,  1.253 ]
00710>                                    [   -1    ,  -1  ]  (max twenty pts)
00711>                           IDovf=[   ], NHYDovf=[   ]
00712> *%-----------------|-------------------------------------------------------------|
00713> ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
00714> *%-----------------|-------------------------------------------------------------|
00715> *#-----------------|-------------------------------------------------------------|
00716> *#-----------------|-Parkbridge Craigleith - Lower Terrace Lands----------------|
00717> *#-----------------|-------------------------------------------------------------|
00718> *%-----------------|-------------------------------------------------------------|
00719> *#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
00720> *#-----------------|-------------------------------------------------------------|
00721> CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.38](ha),
00722>                     XIMP=[0.334], TIMP=[0.682], DWF=[0](cms), LOSS=[2],
00723>                     SCS curve number CN=[66.2],
00724>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00725>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00726>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[2.0](%),
00727>                                          LGI=[96](m), MNI=[0.013], SCI=[0](min),
00728>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00729> *%-----------------|-------------------------------------------------------------|
00730> *#-----------------|-------------------------------------------------------------|
00731> *#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
00732> *#-----------------|-------------------------------------------------------------|
00733> *%-----------------|-------------------------------------------------------------|
00734> CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.73](ha),
00735>                     DWF=[0](cms),  CN/C=[56.7], IA=[6.52](mm),
00736>                     N=[3], TP=[0.28]hrs,
00737>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00738> *%-----------------|-------------------------------------------------------------|
00739> CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.41](ha),
00740>                     DWF=[0](cms),  CN/C=[65.0], IA=[8.0](mm),
00741>                     N=[3], TP=[0.62]hrs,
00742>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00743> *%-----------------|-------------------------------------------------------------|
00744> CALIB NASHYD        ID=[3], NHYD=["9C9E"], DT=[1]min, AREA=[2.06](ha),
00745>                     DWF=[0](cms),  CN/C=[58.2], IA=[7.32](mm),
00746>                     N=[3], TP=[0.33]hrs,
00747>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00748> *%-----------------|-------------------------------------------------------------|
00749> ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,7,10]
00750> *%-----------------|-------------------------------------------------------------|
00751> *#-----------------|-------------------------------------------------------------|
00752> *#-----------------|-LANDS DRAINING TO SWM FACILITY 2--------------------------|
00753> *#-----------------|-------------------------------------------------------------|
00754> CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
00755>                     DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
00756>                     N=[3], TP=[0.14]hrs,
00757>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00758> *%-----------------|-------------------------------------------------------------|
00759> CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
00760>                     DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
00761>                     N=[3], TP=[0.32]hrs,
00762>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00763> *%-----------------|-------------------------------------------------------------|
00764> CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
00765>                     XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
00766>                     SCS curve number CN=[49],
00767>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00768>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00769>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00770>                                          LGI=[114](m), MNI=[0.013], SCI=[0](min)
00771>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00772> *%-----------------|-------------------------------------------------------------|
00773> CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
00774>                     XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
00775>                     SCS curve number CN=[59],
00776>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00777>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00778>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00779>                                          LGI=[148](m), MNI=[0.013], SCI=[0](min)
00780>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00781> *%-----------------|-------------------------------------------------------------|
00782> CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[2.09](ha),
00783>                     XIMP=[0.262], TIMP=[0.35], DWF=[0](cms), LOSS=[2],
00784>                     SCS curve number CN=[69],
00785>                     Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
00786>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00787>                     Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
00788>                                          LGI=[118](m), MNI=[0.013], SCI=[0](min)
00789>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00790> *%-----------------|-------------------------------------------------------------|
00791> ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[1,2,3,4,7]
00792> *%-----------------|-------------------------------------------------------------|
00793> *#-----------------|-------------------------------------------------------------|
00794> *#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
00795> *#-----------------|-------------------------------------------------------------|
00796> *%-----------------|-------------------------------------------------------------|
00797> ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
00798>                     RDT=[1](min),
00799>                           TABLE of ( OUTFLOW-STORAGE ) values
00800>                                      (cms) - (ha-m)
00801>                                    [   0.0 ,  0.0 ]
00802>                                    [   0.004 ,  0.016 ]
00803>                                    [   0.009 ,  0.053 ]
00804>                                    [   0.011 ,  0.074 ]
00805>                                    [   0.013 ,  0.119 ]
00806>                                    [   0.014 ,  0.132 ]
00807>                                    [   0.016 ,  0.171 ]
00808>                                    [   0.017 ,  0.199 ]
00809>                                    [   0.018 ,  0.228 ]
00810>                                    [   0.344 ,  0.259 ]
```

```
                                    [   1.040 ,  0.291 ]
                                    [   2.076 ,  0.325 ]
                                    [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
*%------------------|-------------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
                    HYD_COMMENT=["POST-DEV LAKESHORE"]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#--WATERCOURSE 8 CATCHMENTS---------------------------------------------------|
*#--WC 8 CATCHMENTS TO BE DIRECTED TO WC8--------------------------------------|
*#--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
                    DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
                    DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["EXT-8B"], DT=[1]min, AREA=[1.04](ha),
                    DWF=[0](cms),  CN/C=[58.6], IA=[6.75](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|----------WATERCOURSE 8----------------------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC8"], IDs to add=[1,2,3]
*%------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#--WATERCOURSE 10 CATCHMENT---------------------------------------------------|
*#--EQUIVALENT TO EXISTING CONDITIONS OF WC 10---------------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["10A"], DT=[1]min, AREA=[1.99](ha),
                    DWF=[0](cms),  CN/C=[59.4], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|


*#*****************************************************************************
*#*****************************************************************************
*#                            25yr SCS Storm (24hr)
*#*****************************************************************************
*#*****************************************************************************
*#*****************************************************************************
MASS STORM          PTOTAL=[86.4](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS24HII.mst"]
*#*****************************************************************************
*#------------------|-------------------------------------------------------------|
*#------------------|-Subwatershed 9 External Drainage Area-----------------------|
*#------------------|-Per 'The Orchards' FSSWM Report-----------------------------|
*#------------------|-Prepared by Higgins Engineering (Jan. 2005)-----------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha---------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
                    ( DISTANCE (m), ELEVATION (m))=[0,102]
                                                   [8,100]
                                                   [12,100]
                                                   [20,102]
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                [   0.0 ,   0.0 ]
                                [   0.0100 ,  0.0610 ]
                                [   0.0400 ,  0.1310 ]
                                [   0.0700 ,  0.2110 ]
                                [   0.2600 ,  0.3000 ]
                                [   0.6000 ,  0.3940 ]
                                [   1.0200 ,  0.4950 ]
                                [   1.5200 ,  0.6020 ]
                                [   2.0800 ,  0.7160 ]
                                [   2.6900 ,  0.8370 ]
                          IDovf=[ ], NHYDovf=[  ]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-----------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
                    N=[3], TP=[0.24]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Upper Terrace Lands-----------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9A9B"], DT=[1]min, AREA=[2.68](ha),
                    DWF=[0](cms),  CN/C=[55.9], IA=[8.0](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,2,5]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
*#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
                    N=[3], TP=[0.47]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[67.0],
                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
                    N=[3], TP=[0.11]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE---------|
*#------------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT----------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.005 ,  0.018 ]
                                [   0.011 ,  0.058 ]
                                [   0.015 ,  0.104 ]
                                [   0.017 ,  0.141 ]
                                [   0.019 ,  0.182 ]
                                [   0.024 ,  0.303 ]
                                [   0.028 ,  0.443 ]
                                [   0.031 ,  0.601 ]
                                [   0.032 ,  1.119 ]
                                [   0.033 ,  1.163 ]
                                [   0.359 ,  1.207 ]
                                [   1.054 ,  1.253 ]
                                [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Lower Terrace Lands-----------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
*#------------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS---------|
*#------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.38](ha),
                    XIMP=[0.334], TIMP=[0.682], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66.2],
                    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=[96](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.73](ha),
                    DWF=[0](cms),  CN/C=[56.7], IA=[6.52](mm),
                    N=[3], TP=[0.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.41](ha),
                    DWF=[0](cms),  CN/C=[65.0], IA=[8.0](mm),
                    N=[3], TP=[0.62]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["9C9E"], DT=[1]min, AREA=[2.06](ha),
                    DWF=[0](cms),  CN/C=[58.2], IA=[7.32](mm),
                    N=[3], TP=[0.33]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,7,10]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-LANDS DRAINING TO SWM FACILITY 2----------------------------|
*#------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
                    XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[49],
                    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=[1.0](%),
                                         LGI=[114](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
                    XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[59],
                    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=[1.0](%),
                                         LGI=[148](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[2.09](ha),
                    XIMP=[0.262], TIMP=[0.35], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    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=[1.0](%),
                                         LGI=[118](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[1,2,3,4,7]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-----------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
```

```
ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                   (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.004 ,  0.016 ]
                                [   0.009 ,  0.053 ]
                                [   0.011 ,  0.074 ]
                                [   0.013 ,  0.119 ]
                                [   0.014 ,  0.132 ]
                                [   0.016 ,  0.171 ]
                                [   0.017 ,  0.199 ]
                                [   0.018 ,  0.228 ]
                                [   0.344 ,  0.259 ]
                                [   1.040 ,  0.291 ]
                                [   2.076 ,  0.325 ]
                                [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
*%-----------------|---------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
                    HYD_COMMENT=["POST-DEV LAKESHORE"]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|--WATERCOURSE 8 CATCHMENTS---------------------------------|
*#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8--------------------|
*#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
                    DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
                    DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["EXT-8B"], DT=[1]min, AREA=[1.04](ha),
                    DWF=[0](cms),  CN/C=[58.6], IA=[6.75](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|----------WATERCOURSE 8-----------------------------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC8"], IDs to add=[1,2,3]
*%-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|--WATERCOURSE 10 CATCHMENT---------------------------------|
*#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10---------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["10A"], DT=[1]min, AREA=[1.99](ha),
                    DWF=[0](cms),  CN/C=[59.4], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|


*#**************************************************************************
*#**************************************************************************
*#                          50yr SCS Storm (24hr)
*#**************************************************************************
*#**************************************************************************
MASS STORM          PTOTAL=[96.0](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS24HII.mst"]
*#**************************************************************************
*#-----------------|---------------------------------------------------------|
*#-----------------|-Subwatershed 9 External Drainage Area---------------------|
*#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
*#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
                    ( DISTANCE (m), ELEVATION (m))=[0,102]
                                                   [8,100]
                                                   [12,100]
                                                   [20,102]
*%-----------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|---------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                   (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.0100 ,  0.0610 ]
                                [   0.0400 ,  0.1310 ]
                                [   0.0700 ,  0.2110 ]
                                [   0.2600 ,  0.3000 ]
                                [   0.6000 ,  0.3940 ]
                                [   1.0200 ,  0.4950 ]
                                [   1.5200 ,  0.6020 ]
                                [   2.0800 ,  0.7160 ]
                                [   2.6900 ,  0.8370 ]
                          IDovf=[ ], NHYDovf=[  ]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
                    N=[3], TP=[0.24]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9A9B"], DT=[1]min, AREA=[2.68](ha),
                    DWF=[0](cms),  CN/C=[55.9], IA=[8.0](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,2,5]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
*#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-----------------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
                    N=[3], TP=[0.47]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[67.0],
                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
                    N=[3], TP=[0.11]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
*#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT--------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                   (cms) - (ha-m)
                                [   0.0 ,  0.0 ]
                                [   0.005 ,  0.018 ]
                                [   0.011 ,  0.058 ]
                                [   0.015 ,  0.104 ]
                                [   0.017 ,  0.141 ]
                                [   0.019 ,  0.182 ]
                                [   0.024 ,  0.303 ]
                                [   0.028 ,  0.443 ]
                                [   0.031 ,  0.601 ]
                                [   0.032 ,  1.119 ]
                                [   0.033 ,  1.163 ]
                                [   0.359 ,  1.207 ]
                                [   1.054 ,  1.253 ]
                                [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-Parkbridge Craigleith - Lower Terrace Lands----------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
*#-----------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.38](ha),
                    XIMP=[0.334], TIMP=[0.682], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66.2],
                    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=[96](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
*#-----------------|---------------------------------------------------------|
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.73](ha),
                    DWF=[0](cms),  CN/C=[56.7], IA=[6.52](mm),
                    N=[3], TP=[0.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.41](ha),
                    DWF=[0](cms),  CN/C=[65.0], IA=[8.0](mm),
                    N=[3], TP=[0.62]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["9C9E"], DT=[1]min, AREA=[2.06](ha),
                    DWF=[0](cms),  CN/C=[58.2], IA=[7.32](mm),
                    N=[3], TP=[0.33]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,7,10]
*%-----------------|---------------------------------------------------------|
*#-----------------|---------------------------------------------------------|
*#-----------------|-LANDS DRAINING TO SWM FACILITY 2--------------------------|
*#-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%-----------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
                    XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[49],
                    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=[1.0](%),
                                         LGI=[114](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
                    XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[59],
                    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=[1.0](%),
                                         LGI=[148](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%-----------------|---------------------------------------------------------|
CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[2.09](ha),
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                    XIMP=[0.262], TIMP=[0.35], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    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=[1.0](%),
                                         LGI=[118](m), MNI=[0.013], SCI=[0](min)
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[1,2,3,4,7]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                               [   0.0 ,  0.0 ]
                               [   0.004 ,  0.016 ]
                               [   0.009 ,  0.053 ]
                               [   0.011 ,  0.074 ]
                               [   0.013 ,  0.119 ]
                               [   0.014 ,  0.132 ]
                               [   0.016 ,  0.171 ]
                               [   0.017 ,  0.199 ]
                               [   0.018 ,  0.228 ]
                               [   0.344 ,  0.259 ]
                               [   1.040 ,  0.291 ]
                               [   2.076 ,  0.325 ]
                               [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD---------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
*%------------------|-------------------------------------------------------------|
SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
                    HYD_COMMENT=["POST-DEV LAKESHORE"]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|--WATERCOURSE 8 CATCHMENTS-------------------------------------|
*#------------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8------------------------|
*#------------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8--------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
                    DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
                    N=[3], TP=[0.23]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
                    DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["EXT-8B"], DT=[1]min, AREA=[1.04](ha),
                    DWF=[0](cms),  CN/C=[58.6], IA=[6.75](mm),
                    N=[3], TP=[0.41]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|----------WATERCOURSE 8----------------------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC8"], IDs to add=[1,2,3]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|--WATERCOURSE 10 CATCHMENT-------------------------------------|
*#------------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10-------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["10A"], DT=[1]min, AREA=[1.99](ha),
                    DWF=[0](cms),  CN/C=[59.4], IA=[8.6](mm),
                    N=[3], TP=[0.21]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|


*#*************************************************************************
*#*************************************************************************
*#                          100yr SCS Storm (24hr)
*#*************************************************************************
*#*************************************************************************
MASS STORM          PTOTAL=[108.0](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS24HII.mst"]
*#*************************************************************************
*#------------------|-------------------------------------------------------------|
*#------------------|-Subwatershed 9 External Drainage Area-------------------------|
*#------------------|-Per 'The Orchards' FSSWM Report-------------------------------|
*#------------------|-Prepared by Higgins Engineering (Jan. 2005)-------------------|
*#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9A"], DT=[1]min, AREA=[101.8](ha),
                    DWF=[0](cms),  CN/C=[80], IA=[5.0](mm),
                    N=[3], TP=[1.00]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ROUTE CHANNEL       IDout=[2], NHYD=["Channel"], IDin=[1],
                    RDT=[1](min),
                    CHLGTH=[550](m),  CHSLOPE=[2](%),
                                      FPSLOPE=[2](%),
                    SECNUM=[1],       NSEG=[3]
                    ( SEGROUGH, SEGDIST (m))=[0.035,8,-0.035,12,0.035,20] NSEG t
                    ( DISTANCE (m), ELEVATION (m))=[0,102]
                                                   [8,100]
                                                   [12,100]
                                                   [20,102]
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["EXT-9B"], DT=[1](min), AREA=[14.8](ha),
                    XIMP=[0.35], TIMP=[0.35], DWF=[0](cms), LOSS=[1],
                    Horton: Fo=[50](mm/hr), Fc=[7.5](mm/hr),
                            DCAY=[2](/hr), F=[0](mm),
                    Pervious   surfaces: IAper=[1.5](mm), SLPP=[2](%),
                                         LGP=[40.0](m), MNP=[0.25], SCP=[0](min)
                    Impervious surfaces: IAimp=[1.0](mm), SLPI=[1](%),
                                         LGI=[314.1](m), MNI=[0.013], SCI=[0](mi
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[4],   NHYD=["Orchards"],  IDin=[3],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                               [   0.0 ,  0.0 ]
                               [   0.0100 ,  0.0610 ]
                               [   0.0400 ,  0.1310 ]
                               [   0.0700 ,  0.2110 ]
                               [   0.2600 ,  0.3000 ]
                               [   0.6000 ,  0.3940 ]
                               [   1.0200 ,  0.4950 ]
                               [   1.5200 ,  0.6020 ]
                               [   2.0800 ,  0.7160 ]
                               [   2.6900 ,  0.8370 ]
                          IDovf=[ ], NHYDovf=[  ]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["RD19"], IDs to add=[2,4]
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-9C"], DT=[1]min, AREA=[0.65](ha),
                    DWF=[0](cms),  CN/C=[82.7], IA=[4.42](mm),
                    N=[3], TP=[0.24]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Upper Terrace Lands-------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["9A9B"], DT=[1]min, AREA=[2.68](ha),
                    DWF=[0](cms),  CN/C=[55.9], IA=[8.0](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[4], NHYD=["WC9a"], IDs to add=[1,2,5]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT-----------
*#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1--------------------
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["EXT-1A"], DT=[1]min, AREA=[8.37](ha),
                    DWF=[0](cms),  CN/C=[74.9], IA=[8.4](mm),
                    N=[3], TP=[0.47]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["1A"], DT=[1](min), AREA=[2.95](ha),
                    XIMP=[0.315], TIMP=[0.514], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[67.0],
                    Pervious   surfaces: IAper=[5.0](mm), SLPP=[3.0](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2.0](mm), SLPI=[5.5](%),
                                         LGI=[44](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[5], NHYD=["1B"], DT=[1]min, AREA=[1.81](ha),
                    DWF=[0](cms),  CN/C=[44.3], IA=[8.57](mm),
                    N=[3], TP=[0.11]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[6], NHYD=["SWMF1"], IDs to add=[1,3,5]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-----------|
*#------------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-----------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
ROUTE RESERVOIR     IDout=[1],   NHYD=["SWMF-1"],  IDin=[6],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                (cms) - (ha-m)
                               [   0.0 ,  0.0 ]
                               [   0.005 ,  0.018 ]
                               [   0.011 ,  0.058 ]
                               [   0.015 ,  0.104 ]
                               [   0.017 ,  0.141 ]
                               [   0.019 ,  0.182 ]
                               [   0.024 ,  0.303 ]
                               [   0.028 ,  0.443 ]
                               [   0.031 ,  0.601 ]
                               [   0.032 ,  1.119 ]
                               [   0.033 ,  1.163 ]
                               [   0.359 ,  1.207 ]
                               [   1.054 ,  1.253 ]
                               [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[   ], NHYDovf=[   ]
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[7], NHYD=["WC9b"], IDs to add=[1,4]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-Parkbridge Craigleith - Lower Terrace Lands-------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
*#------------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-----------|
*#------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[10], NHYD=["9D"], DT=[1](min), AREA=[1.38](ha),
                    XIMP=[0.334], TIMP=[0.682], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[66.2],
                    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=[96](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-LANDS DRAINING TO WC 9 UNCONTROLLED---------------------------|
*#------------------|-------------------------------------------------------------|
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["9F"], DT=[1]min, AREA=[0.73](ha),
                    DWF=[0](cms),  CN/C=[56.7], IA=[6.52](mm),
                    N=[3], TP=[0.28]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["EXT-9D"], DT=[1]min, AREA=[0.41](ha),
                    DWF=[0](cms),  CN/C=[65.0], IA=[8.0](mm),
                    N=[3], TP=[0.62]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[3], NHYD=["9C9E"], DT=[1]min, AREA=[2.06](ha),
                    DWF=[0](cms),  CN/C=[58.2], IA=[7.32](mm),
                    N=[3], TP=[0.33]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
ADD HYD             IDsum=[5], NHYD=["WC9LOWER"], IDs to add=[1,2,3,7,10]
*%------------------|-------------------------------------------------------------|
*#------------------|-------------------------------------------------------------|
*#------------------|-LANDS DRAINING TO SWM FACILITY 2------------------------------|
*#------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[1], NHYD=["2A"], DT=[1]min, AREA=[1.19](ha),
                    DWF=[0](cms),  CN/C=[33.2], IA=[9.6](mm),
                    N=[3], TP=[0.14]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB NASHYD        ID=[2], NHYD=["2B"], DT=[1]min, AREA=[1.67](ha),
                    DWF=[0](cms),  CN/C=[34.7], IA=[9.1](mm),
                    N=[3], TP=[0.32]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*%------------------|-------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["2C"], DT=[1](min), AREA=[1.96](ha),
                    XIMP=[0.3], TIMP=[0.6], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[49],
                    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=[1.0](%),
```

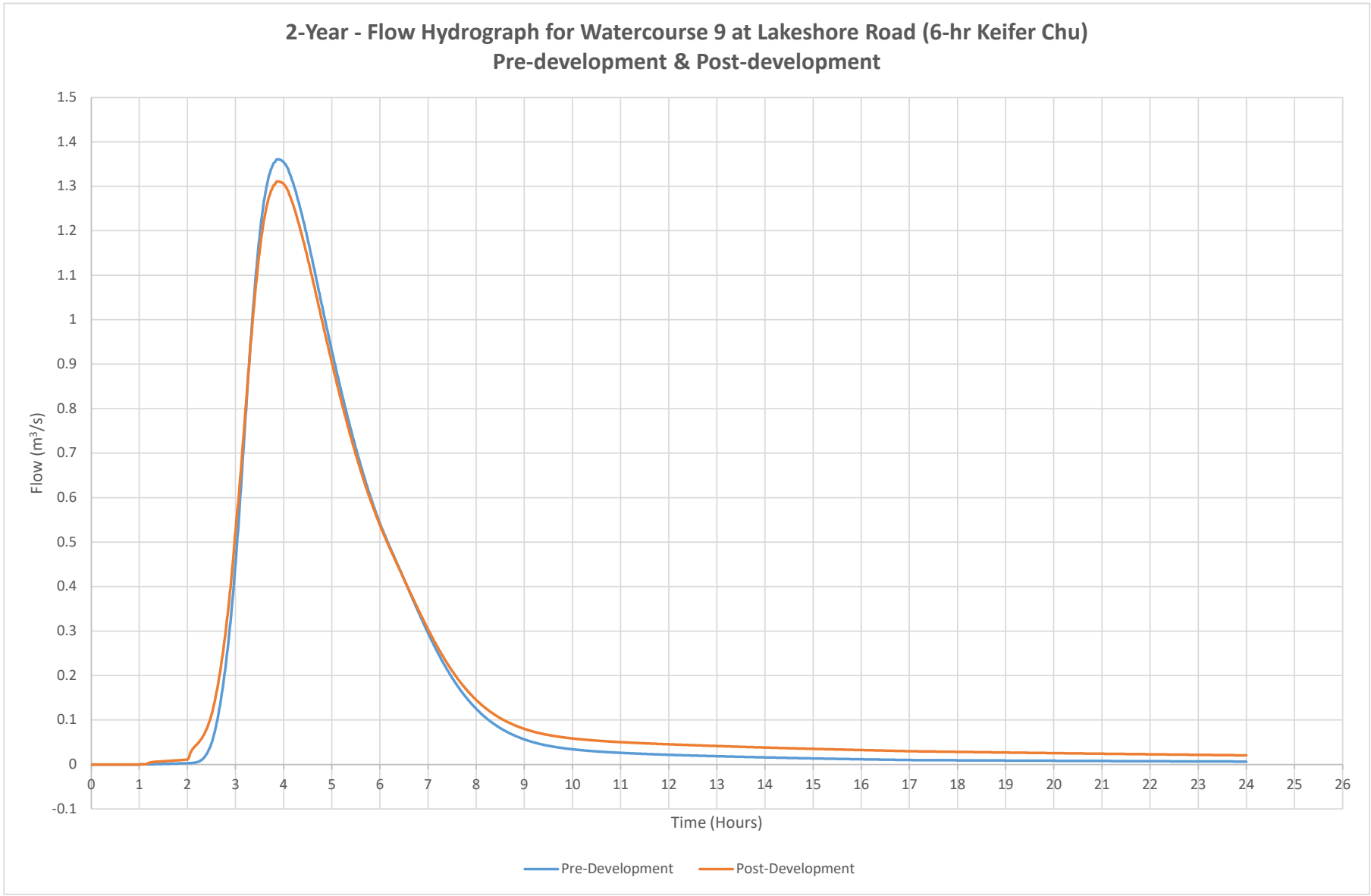
```
01621>                                      LGI=[114](m), MNI=[0.013], SCI=[0](min)
01622>                      RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
01623> *%-----------------|-------------------------------------------------------|
01624> CALIB STANDHYD      ID=[7], NHYD=["2D"], DT=[1](min), AREA=[3.28](ha),
01625>                      XIMP=[0.253], TIMP=[0.497], DWF=[0](cms), LOSS=[2],
01626>                      SCS curve number CN=[59],
01627>                      Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
01628>                                      LGP=[30](m), MNP=[0.25], SCP=[0](min),
01629>                      Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
01630>                                      LGI=[148](m), MNI=[0.013], SCI=[0](min)
01631>                      RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
01632> *%-----------------|-------------------------------------------------------|
01633> CALIB STANDHYD      ID=[4], NHYD=["2E"], DT=[1](min), AREA=[2.09](ha),
01634>                      XIMP=[0.262], TIMP=[0.35], DWF=[0](cms), LOSS=[2],
01635>                      SCS curve number CN=[69],
01636>                      Pervious   surfaces: IAper=[5.0](mm), SLPP=[2.0](%),
01637>                                      LGP=[30](m), MNP=[0.25], SCP=[0](min),
01638>                      Impervious surfaces: IAimp=[2.0](mm), SLPI=[1.0](%),
01639>                                      LGI=[118](m), MNI=[0.013], SCI=[0](min)
01640>                      RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
01641> *%-----------------|-------------------------------------------------------|
01642> ADD HYD             IDsum=[6], NHYD=["SWMF2"], IDs to add=[1,2,3,4,7]
01643> *%-----------------|-------------------------------------------------------|
01644> *#-----------------|-------------------------------------------------------|
01645> *#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-------|
01646> *#-----------------|-------------------------------------------------------|
01647> *%-----------------|-------------------------------------------------------|
01648> ROUTE RESERVOIR     IDout=[9],   NHYD=["SWMF-2"],  IDin=[6],
01649>                      RDT=[1](min),
01650>                           TABLE of ( OUTFLOW-STORAGE ) values
01651>                                     (cms) - (ha-m)
01652>                                    [   0.0 ,  0.0 ]
01653>                                    [   0.004 ,  0.016 ]
01654>                                    [   0.009 ,  0.053 ]
01655>                                    [   0.011 ,  0.074 ]
01656>                                    [   0.013 ,  0.119 ]
01657>                                    [   0.014 ,  0.132 ]
01658>                                    [   0.016 ,  0.171 ]
01659>                                    [   0.017 ,  0.199 ]
01660>                                    [   0.018 ,  0.228 ]
01661>                                    [   0.344 ,  0.259 ]
01662>                                    [   1.040 ,  0.291 ]
01663>                                    [   2.076 ,  0.325 ]
01664>                                    [   -1  ,  -1  ]  (max twenty pts)
01665>                           IDovf=[   ], NHYDovf=[   ]
01666> *%-----------------|-------------------------------------------------------|
01667> *#-----------------|-------------------------------------------------------|
01668> *#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-------------|
01669> *#-----------------|-------------------------------------------------------|
01670> *%-----------------|-------------------------------------------------------|
01671> ADD HYD             IDsum=[1], NHYD=["WC9c"], IDs to add=[9,5]
01672> *%-----------------|-------------------------------------------------------|
01673> SAVE HYD            ID=[1],   # OF PCYCLES=[50],  ICASEsh=[1]
01674>                      HYD_COMMENT=["POST-DEV LAKESHORE"]
01675> *%-----------------|-------------------------------------------------------|
01676> *#-----------------|-------------------------------------------------------|
01677> *#-----------------|--WATERCOURSE 8 CATCHMENTS-----------------------------|
01678> *#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-----------------|
01679> *#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8-------------|
01680> *#-----------------|-------------------------------------------------------|
01681> *%-----------------|-------------------------------------------------------|
01682> CALIB NASHYD       ID=[1], NHYD=["8A"], DT=[1]min, AREA=[2.27](ha),
01683>                      DWF=[0](cms),  CN/C=[36.2], IA=[8.6](mm),
01684>                      N=[3], TP=[0.23]hrs,
01685>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01686> *%-----------------|-------------------------------------------------------|
01687> CALIB NASHYD       ID=[2], NHYD=["EXT-8A"], DT=[1]min, AREA=[7.14](ha),
01688>                      DWF=[0](cms),  CN/C=[68.9], IA=[7.11](mm),
01689>                      N=[3], TP=[0.41]hrs,
01690>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01691> *%-----------------|-------------------------------------------------------|
01692> CALIB NASHYD       ID=[3], NHYD=["EXT-8B"], DT=[1]min, AREA=[1.04](ha),
01693>                      DWF=[0](cms),  CN/C=[58.6], IA=[6.75](mm),
01694>                      N=[3], TP=[0.41]hrs,
01695>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01696> *%-----------------|-------------------------------------------------------|
01697> *#-----------------|-------------------------------------------------------|
01698> *#-----------------|----------WATERCOURSE 8--------------------------------|
01699> *#-----------------|-------------------------------------------------------|
01700> *%-----------------|-------------------------------------------------------|
01701> ADD HYD             IDsum=[4], NHYD=["WC8"], IDs to add=[1,2,3]
01702> *%-----------------|-------------------------------------------------------|
01703> *%-----------------|-------------------------------------------------------|
01704> *#-----------------|-------------------------------------------------------|
01705> *#-----------------|--WATERCOURSE 10 CATCHMENT-----------------------------|
01706> *#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10------------|
01707> *#-----------------|-------------------------------------------------------|
01708> *%-----------------|-------------------------------------------------------|
01709> CALIB NASHYD       ID=[1], NHYD=["10A"], DT=[1]min, AREA=[1.99](ha),
01710>                      DWF=[0](cms),  CN/C=[59.4], IA=[8.6](mm),
01711>                      N=[3], TP=[0.21]hrs,
01712>                      RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
01713> *%-----------------|-------------------------------------------------------|
01714>
01715>
01716> FINISH
01717>
01718>
01719>
01720>
```

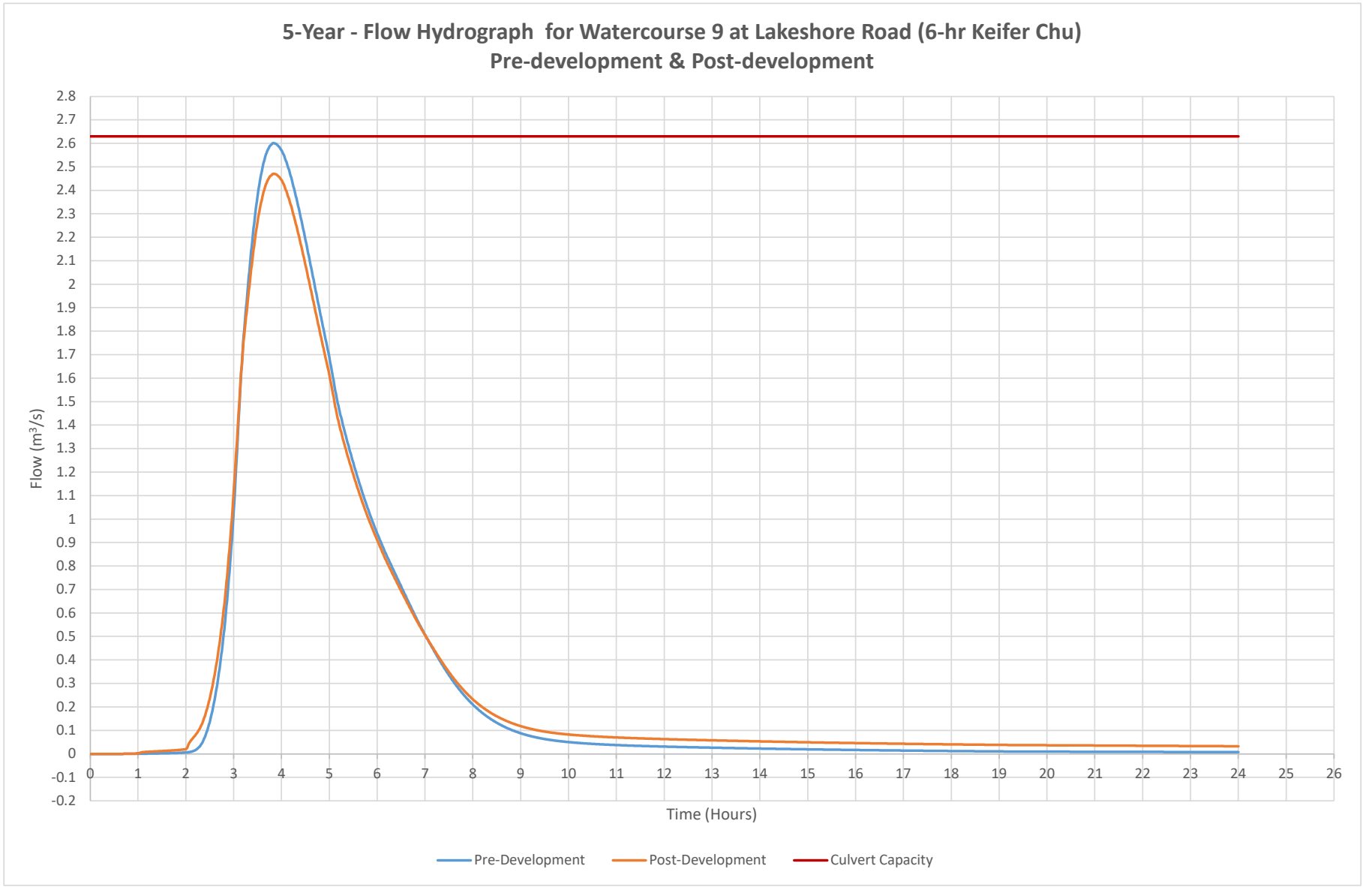
```
00001>  ================================================================================================================
00002>
00003>  SSSSS   W   W   M   M   H   H   Y   Y   M   M    OOO        222     000    11   77777 =========
00004>  S       W W W   MM MM   H   H    Y Y    MM MM   O   O         2   2   0  0   11      7   7
00005>  SSSSS   W W W   M M M   HHHHH     Y     M M M   O   O         2     0   0   11     7     7 Ver4.05.0
00006>      S    W W    M   M   H   H     Y     M   M   O   O       222     0   0   11    7      APR 2017
00007>  SSSSS     W W    M   M   H   H     Y     M   M    OOO       2       0   0   11   7       =========
00008>                                                              2       0   0   11   7     # 3737016
00009>         StormWater Management HYdrologic Model                222     000    11   7      =========
00010>
00011>  ********************************************************************************************************
00012>  **********************************  SWMHYMO Ver4.05.0  ***************************************************
00013>  ******************  A single event and continuous hydrologic simulation model  ******************************
00014>  ******************      based on the principles of HYMO and its successors      ******************************
00015>  ******************                 OTTHYMO-83 and OTTHYMO-89.                   ******************************
00016>  ********************************************************************************************************
00017>  ******************  Distributed by:  J.F. Sabourin and Associates Inc.           ******************************
00018>  ******************                  Ottawa,  Ontario: (613) 836-3884            ******************************
00019>  ******************                  Gatineau, Quebec: (819) 243-6858            ******************************
00020>  ******************                  E-Mail: swmhymo@jfsa.com                    ******************************
00021>  ********************************************************************************************************
00022>
00023>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00024>  ++++++++++++++++++ Licensed user: C.F. Crozier & Associates Inc.      ++++++++++++++++++
00025>  ++++++++++++++++++                 Collingwood                       ++++++++++++++++++
00026>  ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>  ********************************************************************************************************
00029>  ******************          ++++++ PROGRAM ARRAY DIMENSIONS ++++++              ******************************
00030>  ******************          Maximum value for ID numbers  :     11             ******************************
00031>  ******************          Max. number of rainfall points: 105408             ******************************
00032>  ******************          Max. number of flow points    : 105408             ******************************
00033>  ********************************************************************************************************
00034>
00035>
00036>  **********************  S U M M A R Y   O U T P U T  **********************************************************
00037>  ********************************************************************************************************
00038>  *                  RUN DATE: 2021-04-29     TIME: 12:03:51     RUN COUNTER: 000008                          *
00039>  ********************************************************************************************************
00040>  * Input   file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2021 Det*
00041>  *                ailed Design 3rd Sub\SWM\SWMHYMO\SCS\POST_SCS24.DAT                                    *
00042>  * Output  file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2021 Det*
00043>  *                ailed Design 3rd Sub\SWM\SWMHYMO\SCS\POST_SCS24.out                                    *
00044>  * Summary file: J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Design\_2021 Det*
00045>  *                ailed Design 3rd Sub\SWM\SWMHYMO\SCS\POST_SCS24.sum                                    *
00046>  * User comments:                                                                                        *
00047>  * 1:_____________________________________________________________________________________________________*
00048>  * 2:_____________________________________________________________________________________________________*
00049>  * 3:_____________________________________________________________________________________________________*
00050>  ********************************************************************************************************
00051>
00052>
00053>  #*******************************************************************************
00054>  #  Project Name: [PARKBRIDGE CRAIGLEITH]    Project Number: [1046-4031]
00055>  #  Date        : 2021.04.29
00056>  #  Modeller    : [JE]
00057>  #  Company     : C.F. Crozier & Associates Inc.
00058>  #  License #   : 3737016
00059>  #*******************************************************************************
00060>   RUN#:COMMAND#
00061>  R0001:C00001------------------------------------------------------------------------------------------------
00062>       START
00063>         [TZERO =    .00 hrs on       0]
00064>         [METOUT=   2   (1=imperial, 2=metric output)]
00065>         [NSTORM=   0 ]
00066>         [NRUN  = 0001 ]
00067>  #*******************************************************************************
00068>  #----------------|-------------------------------------------------------------|
00069>  #----------------|-POST-DEVELOPMENT----24 hr SCS STORMS------------------------|
00070>  #----------------|-------------------------------------------------------------|
00071>  #*******************************************************************************
00072>  #                          2yr SCS Storm (24hr)
00073>  #*******************************************************************************
00074>  #*******************************************************************************
00075>  R0001:C00002------------------------------------------------------------------------------------------------
00076>       MASS STORM
00077>         Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
00078>         Comment  = 24 hour SCS II storm mass curve
00079>         [SDT= 1.00:SDUR=  24.00:PTOT=  45.60]
00080>  #*******************************************************************************
00081>  #----------------|-------------------------------------------------------------|
00082>  #----------------|-Subwatershed 9 External Drainage Area-------------------------|
00083>  #----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
00084>  #----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------------|
00085>  #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00086>  #----------------|-------------------------------------------------------------|
00087>  R0001:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00088>       CALIB NASHYD           1.0 01:EXT-9A      101.80    1.269 No_date   13:13   15.83 .347     .000
00089>         [CN= 80.0: N= 3.00: Tp= 1.00]
00090>  R0001:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00091>       ROUTE CHANNEL   ->     1.0 01:EXT-9A      101.80    1.269 No_date   13:13   15.83  n/a     .000
00092>        [RDT= 1.00] out<-     1.0 02:Channel     101.80    1.266 No_date   13:15   15.83  n/a     .000
00093>         [L/S/n=  550./2.000/.035]
00094>         {Vmax= 1.269:Dmax=  .200}
00095>  R0001:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00096>       CALIB STANDHYD         1.0 03:EXT-9B      14.80     .832 No_date   12:15   20.46 .449     .000
00097>         [XIMP=.35:TIMP=.35]
00098>         [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00099>         [Pervious    area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00100>         [Impervious  area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00101>  R0001:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00102>       ROUTE RESERVOIR ->     1.0 03:EXT-9B      14.80     .832 No_date   12:15   20.46  n/a     .000
00103>                     out <=   1.0 04:Orchards    14.80     .069 No_date   13:16   20.46  n/a     .000
00104>        {MxStoUsed=.2095E+00  m3}
00105>  #----------------|-------------------------------------------------------------|
00106>  #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-------------|
00107>  #----------------|-------------------------------------------------------------|
00108>  R0001:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00109>       ADD HYD                1.0 02:Channel     101.80    1.266 No_date   13:15   15.83  n/a     .000
00110>                       +      1.0 04:Orchards    14.80     .069 No_date   13:16   20.46  n/a     .000
00111>                     SUM=     1.0 05:RD19        116.60    1.336 No_date   13:15   16.42  n/a     .000
00112>  R0001:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00113>       CALIB NASHYD           1.0 01:EXT-9C       .65     .025 No_date   12:21   17.98 .394     .000
00114>         [CN= 82.7: N= 3.00: Tp=  .24]
00115>  #----------------|-------------------------------------------------------------|
00116>  #----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------------|
00117>  #----------------|-------------------------------------------------------------|
00118>  R0001:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00119>       CALIB NASHYD           1.0 02:9A9B        2.68      .027 No_date   12:26    5.94 .130     .000
00120>         [CN= 55.9: N= 3.00: Tp=  .30]
00121>  R0001:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00122>       ADD HYD                1.0 01:EXT-9C       .65     .025 No_date   12:21   17.98  n/a     .000
00123>                       +      1.0 02:9A9B        2.68      .027 No_date   12:26    5.94  n/a     .000
00124>                       +      1.0 05:RD19        116.60    1.336 No_date   13:15   16.42  n/a     .000
00125>                     SUM=     1.0 04:WC9a        119.93    1.347 No_date   13:15   16.20  n/a     .000
00126>  #----------------|-------------------------------------------------------------|
00127>  #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT-----------------|
00128>  #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-------------------------|
00129>  #----------------|-------------------------------------------------------------|
00130>  R0001:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00131>       CALIB NASHYD           1.0 01:EXT-1A       8.37     .124 No_date   12:37   11.31 .248     .000
00132>         [CN= 74.9: N= 3.00: Tp=  .47]
00133>  R0001:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00134>       CALIB STANDHYD         1.0 03:1A          2.95      .193 No_date   12:12   22.99 .504     .000
00135>         [XIMP=.31:TIMP=.51]
00136>         [LOSS= 2 :CN= 67.0]
00137>         [Pervious    area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
00138>         [Impervious  area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
00139>  R0001:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00140>       CALIB NASHYD           1.0 05:1B          1.81      .021 No_date   12:14    3.85 .084     .000
00141>         [CN= 44.3: N= 3.00: Tp=  .11]
00142>  R0001:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00143>       ADD HYD                1.0 01:EXT-1A       8.37     .124 No_date   12:37   11.31  n/a     .000
00144>                       +      1.0 03:1A          2.95      .193 No_date   12:12   22.99  n/a     .000
00145>                       +      1.0 05:1B          1.81      .021 No_date   12:14    3.85  n/a     .000
00146>                     SUM=     1.0 06:SWMF1       13.13     .261 No_date   12:12   12.91  n/a     .000
00147>  #----------------|-------------------------------------------------------------|
00148>  #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE----------|
00149>  #----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-----------------|
00150>  #----------------|-------------------------------------------------------------|
00151>  R0001:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00152>       ROUTE RESERVOIR ->     1.0 06:SWMF1       13.13     .261 No_date   12:12   12.91  n/a     .000
00153>                     out <=   1.0 01:SWMF-1      13.13     .015 No_date   17:38   12.91  n/a     .000
00154>        {MxStoUsed=.1086E+00  m3}
00155>  R0001:C00016------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00156>       ADD HYD                1.0 01:SWMF-1      13.13     .015 No_date   17:38   12.91  n/a     .000
00157>                       +      1.0 04:WC9a        119.93    1.347 No_date   13:15   16.20  n/a     .000
00158>                     SUM=     1.0 07:WC9b        133.06    1.361 No_date   13:15   15.87  n/a     .000
00159>  #----------------|-------------------------------------------------------------|
00160>  #----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------------|
00161>  #----------------|-------------------------------------------------------------|
00162>  #----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-----------|
00163>  #----------------|-------------------------------------------------------------|
00164>  R0001:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00165>       CALIB STANDHYD         1.0 10:9D          1.38      .102 No_date   12:12   26.39 .579     .000
00166>         [XIMP=.33:TIMP=.68]
00167>         [LOSS= 2 :CN= 66.2]
00168>         [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00169>         [Impervious  area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
00170>  #----------------|-------------------------------------------------------------|
00171>  #----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED---------------------------|
00172>  #----------------|-------------------------------------------------------------|
00173>  R0001:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00174>       CALIB NASHYD           1.0 01:9F           .73      .009 No_date   12:24    6.55 .144     .000
00175>         [CN= 56.7: N= 3.00: Tp=  .28]
00176>  R0001:C00019------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00177>       CALIB NASHYD           1.0 02:EXT-9D       .41      .003 No_date   12:48    8.11 .178     .000
00178>         [CN= 65.0: N= 3.00: Tp=  .62]
00179>  R0001:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00180>       CALIB NASHYD           1.0 03:9C9E        2.06      .022 No_date   12:28    6.64 .146     .000
00181>         [CN= 58.2: N= 3.00: Tp=  .33]
00182>  R0001:C00021------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00183>       ADD HYD                1.0 01:9F           .73      .009 No_date   12:24    6.55  n/a     .000
00184>                       +      1.0 02:EXT-9D       .41      .003 No_date   12:48    8.11  n/a     .000
00185>                       +      1.0 03:9C9E        2.06      .022 No_date   12:28    6.64  n/a     .000
00186>                       +      1.0 07:WC9b        133.06   1.361 No_date   13:15   15.87  n/a     .000
00187>                       +      1.0 10:9D          1.38      .102 No_date   12:12   26.39  n/a     .000
00188>                     SUM=     1.0 05:WC9LOWER    137.64   1.381 No_date   13:15   15.77  n/a     .000
00189>  #----------------|-------------------------------------------------------------|
00190>  #----------------|-LANDS DRAINING TO SWM FACILITY 2------------------------------|
00191>  #----------------|-------------------------------------------------------------|
00192>  R0001:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00193>       CALIB NASHYD           1.0 01:2A          1.19      .007 No_date   12:16    2.37 .052     .000
00194>         [CN= 33.2: N= 3.00: Tp=  .14]
00195>  R0001:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00196>       CALIB NASHYD           1.0 02:2B          1.67      .007 No_date   12:28    2.59 .057     .000
00197>         [CN= 34.7: N= 3.00: Tp=  .32]
00198>  R0001:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00199>       CALIB STANDHYD         1.0 03:2C          1.96      .099 No_date   12:12   19.68 .432     .000
00200>         [XIMP=.30:TIMP=.60]
00201>         [LOSS= 2 :CN= 49.0]
00202>         [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00203>         [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
00204>  R0001:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00205>       CALIB STANDHYD         1.0 07:2D          3.28      .149 No_date   12:12   19.30 .423     .000
00206>         [XIMP=.25:TIMP=.50]
00207>         [LOSS= 2 :CN= 59.0]
00208>         [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00209>         [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
00210>  R0001:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00211>       CALIB STANDHYD         1.0 04:2E          2.09      .100 No_date   12:12   20.26 .444     .000
00212>         [XIMP=.26:TIMP=.35]
00213>         [LOSS= 2 :CN= 69.0]
00214>         [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00215>         [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
00216>  R0001:C00027------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00217>       ADD HYD                1.0 01:2A          1.19      .007 No_date   12:16    2.37  n/a     .000
00218>                       +      1.0 02:2B          1.67      .007 No_date   12:28    2.59  n/a     .000
00219>                       +      1.0 03:2C          1.96      .099 No_date   12:12   19.68  n/a     .000
00220>                       +      1.0 04:2E          2.09      .100 No_date   12:12   20.26  n/a     .000
00221>                       +      1.0 07:2D          3.28      .149 No_date   12:12   19.30  n/a     .000
00222>                     SUM=     1.0 06:SWMF2       10.19     .358 No_date   12:12   14.85  n/a     .000
00223>  #----------------|-------------------------------------------------------------|
00224>  #----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)-------------|
00225>  #----------------|-------------------------------------------------------------|
00226>  R0001:C00028------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00227>       ROUTE RESERVOIR ->     1.0 06:SWMF2       10.19     .358 No_date   12:12   14.85  n/a     .000
00228>                     out <=   1.0 09:SWMF-2      10.19     .012 No_date   17:07   14.85  n/a     .000
00229>        {MxStoUsed=.1023E+00  m3}
00230>  #----------------|-------------------------------------------------------------|
00231>  #----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD---------------------|
00232>  #----------------|-------------------------------------------------------------|
00233>  R0001:C00029------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00234>       ADD HYD                1.0 09:SWMF-2      10.19     .012 No_date   17:07   14.85  n/a     .000
00235>                       +      1.0 05:WC9LOWER    137.64   1.381 No_date   13:15   15.77  n/a     .000
00236>                     SUM=     1.0 01:WC9c        147.83   1.393 No_date   13:15   15.70  n/a     .000
00237>  R0001:C00030------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00238>       SAVE HYD               1.0 01:WC9c        147.83   1.393 No_date   13:15   15.70  n/a     .000
00239>         fname :WC9c.0001
00240>         remark:POST-DEV LAKESHORE
00241>  #----------------|-------------------------------------------------------------|
00242>  #----------------|--WATERCOURSE 8 CATCHMENTS-------------------------------------|
00243>  #----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8------------------------|
00244>  #----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8--------------------|
00245>  #----------------|-------------------------------------------------------------|
00246>  R0001:C00031------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00247>       CALIB NASHYD           1.0 01:8A          2.27      .013 No_date   12:21    2.82 .062     .000
00248>         [CN= 36.2: N= 3.00: Tp=  .23]
00249>  R0001:C00032------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00250>       CALIB NASHYD           1.0 02:EXT-8A       7.14      .099 No_date   12:33    9.67 .212     .000
00251>         [CN= 68.9: N= 3.00: Tp=  .41]
00252>  R0001:C00033------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00253>       CALIB NASHYD           1.0 03:EXT-8B       1.04      .010 No_date   12:33    6.91 .152     .000
00254>         [CN= 58.6: N= 3.00: Tp=  .14]
00255>  #----------------|-------------------------------------------------------------|
00256>  #----------------|----------WATERCOURSE 8----------------------------------------|
00257>  #----------------|-------------------------------------------------------------|
00258>  R0001:C00034------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00259>       ADD HYD                1.0 01:8A          2.27      .013 No_date   12:21    2.82  n/a     .000
00260>                       +      1.0 02:EXT-8A       7.14      .099 No_date   12:33    9.67  n/a     .000
00261>                       +      1.0 03:EXT-8B       1.04      .010 No_date   12:33    6.91  n/a     .000
00262>                     SUM=     1.0 04:WC8         10.45     .120 No_date   12:31    7.91  n/a     .000
00263>  #----------------|-------------------------------------------------------------|
00264>  #----------------|--WATERCOURSE 10 CATCHMENT-------------------------------------|
00265>  #----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10-------------------|
00266>  #----------------|-------------------------------------------------------------|
00267>  R0001:C00035------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00268>       CALIB NASHYD           1.0 01:10A         1.99      .028 No_date   12:20    6.50 .143     .000
00269>         [CN= 59.4: N= 3.00: Tp=  .21]
00270>  #*******************************************************************************
00271>  #*******************************************************************************
00272>  #                            5yr SCS Storm (24hr)
00273>  #*******************************************************************************
00274>  #*******************************************************************************
00275>  R0001:C00036------------------------------------------------------------------------------------------------
00276>       MASS STORM
00277>         Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
00278>         Comment  = 24 hour SCS II storm mass curve
00279>         [SDT= 1.00:SDUR=  24.00:PTOT=  62.40]
00280>  #*******************************************************************************
00281>  #----------------|-------------------------------------------------------------|
00282>  #----------------|-Subwatershed 9 External Drainage Area-------------------------|
00283>  #----------------|-Per 'The Orchards' FSSWM Report-------------------------------|
00284>  #----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------------|
00285>  #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00286>  #----------------|-------------------------------------------------------------|
00287>  R0001:C00037------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00288>       CALIB NASHYD           1.0 01:EXT-9A      101.80    2.230 No_date   13:11   27.25 .437     .000
00289>         [CN= 80.0: N= 3.00: Tp= 1.00]
00290>  R0001:C00038------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00291>       ROUTE CHANNEL   ->     1.0 01:EXT-9A      101.80    2.230 No_date   13:11   27.25  n/a     .000
00292>        [RDT= 1.00] out<-     1.0 02:Channel     101.80    2.221 No_date   13:15   27.25  n/a     .000
00293>         [L/S/n=  550./2.000/.035]
00294>         {Vmax= 1.530:Dmax=  .273}
00295>  R0001:C00039------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00296>       CALIB STANDHYD         1.0 03:EXT-9B      14.80     1.476 No_date   12:15   30.63 .491     .000
00297>         [XIMP=.35:TIMP=.35]
00298>         [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00299>         [Pervious    area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00300>         [Impervious  area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00301>  R0001:C00040------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00302>       ROUTE RESERVOIR ->     1.0 03:EXT-9B      14.80     1.476 No_date   12:15   30.63  n/a     .000
00303>                     out <=   1.0 04:Orchards    14.80     .249 No_date   12:47   30.63  n/a     .000
00304>        {MxStoUsed=.2950E+00  m3}
00305>  #----------------|-------------------------------------------------------------|
00306>  #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing-------------|
00307>  #----------------|-------------------------------------------------------------|
00308>  R0001:C00041------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00309>       ADD HYD                1.0 02:Channel     101.80    2.221 No_date   13:15   27.25  n/a     .000
00310>                       +      1.0 04:Orchards    14.80     .249 No_date   12:47   30.63  n/a     .000
00311>                     SUM=     1.0 05:RD19        116.60    2.440 No_date   13:14   27.68  n/a     .000
00312>  R0001:C00042------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00313>       CALIB NASHYD           1.0 01:EXT-9C       .65      .043 No_date   12:20   30.25 .485     .000
00314>         [CN= 82.7: N= 3.00: Tp=  .24]
00315>  #----------------|-------------------------------------------------------------|
00316>  #----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------------|
00317>  #----------------|-------------------------------------------------------------|
00318>  R0001:C00043------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00319>       CALIB NASHYD           1.0 02:9A9B        2.68      .055 No_date   12:25   11.62 .186     .000
00320>         [CN= 55.9: N= 3.00: Tp=  .30]
00321>  R0001:C00044------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00322>       ADD HYD                1.0 01:EXT-9C       .65      .043 No_date   12:20   30.25  n/a     .000
00323>                       +      1.0 02:9A9B        2.68      .055 No_date   12:25   11.62  n/a     .000
00324>                       +      1.0 05:RD19        116.60    2.440 No_date   13:14   27.68  n/a     .000
00325>                     SUM=     1.0 04:WC9a        119.93    2.461 No_date   13:14   27.34  n/a     .000
00326>  #----------------|-------------------------------------------------------------|
00327>  #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT-----------------|
00328>  #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1-------------------------|
```

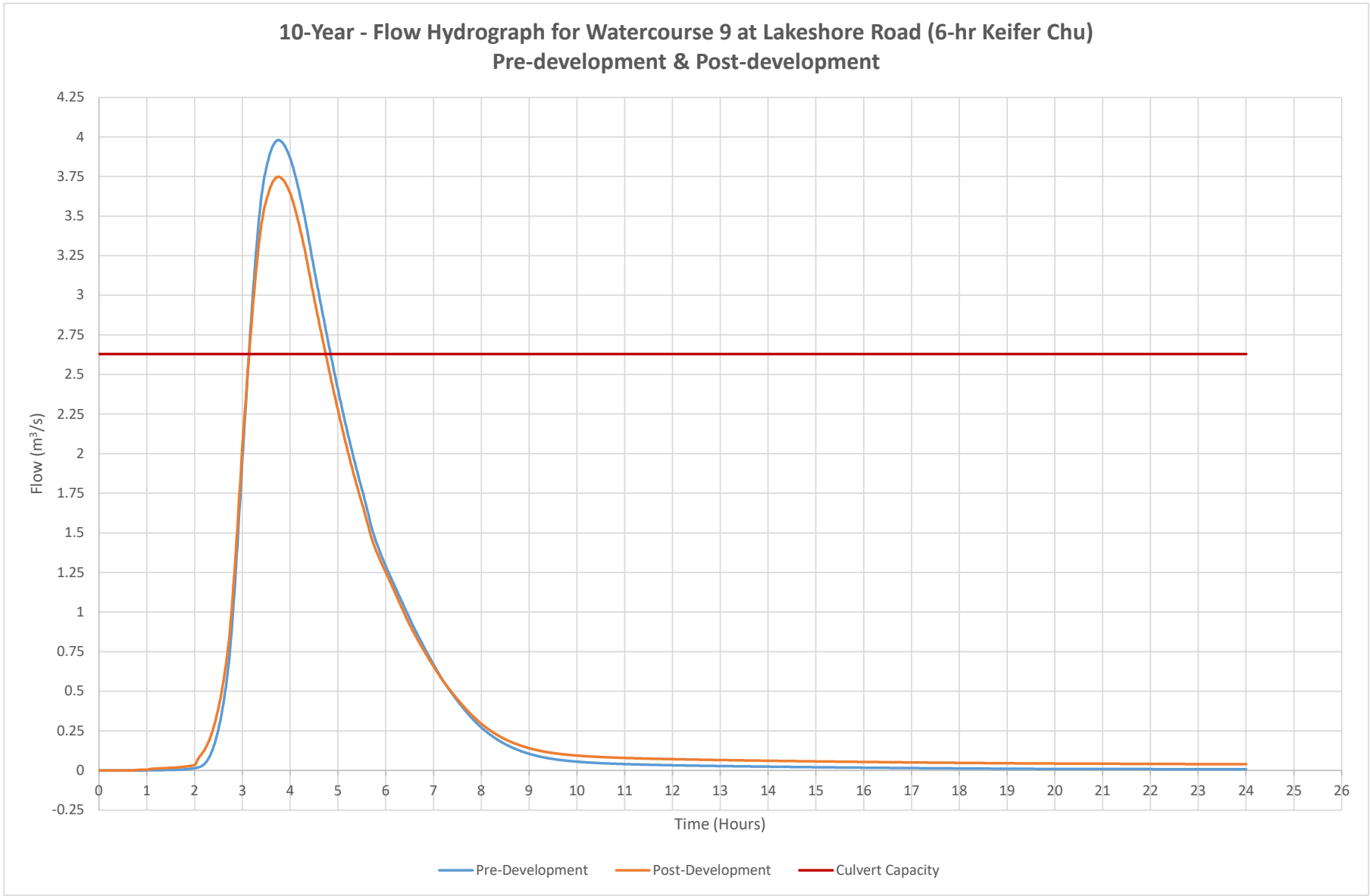
```
00329> #-----------------|-----------------------------------------------------------|
00330> R0001:C00045------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00331>     CALIB NASHYD          1.0 01:EXT-1A         8.37     .241 No_date   12:36   20.96 .336      .000
00332>       [CN= 74.9: N= 3.00: Tp=  .47]
00333> R0001:C00046------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00334>     CALIB STANDHYD        1.0 03:1A             2.95     .308 No_date   12:12   35.10 .562      .000
00335>       [XIMP=.31:TIMP=.51]
00336>       [LOSS= 2 :CN= 67.0]
00337>       [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
00338>       [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
00339> R0001:C00047------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00340>     CALIB NASHYD          1.0 05:1B             1.81     .043 No_date   12:14    7.76 .124      .000
00341>       [CN= 44.3: N= 3.00: Tp=  .11]
00342> R0001:C00048------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00343>     ADD HYD               1.0 01:EXT-1A         8.37     .241 No_date   12:36   20.96  n/a      .000
00344>                    +      1.0 03:1A             2.95     .308 No_date   12:12   35.10  n/a      .000
00345>                    +      1.0 05:1B             1.81     .043 No_date   12:14    7.76  n/a      .000
00346>                 SUM=      1.0 06:SWMF1         13.13     .454 No_date   12:12   22.32  n/a      .000
00347> #-----------------|-----------------------------------------------------------|
00348> #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
00349> #-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
00350> #-----------------|-----------------------------------------------------------|
00351> R0001:C00049------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00352>     ROUTE RESERVOIR ->    1.0 06:SWMF1         13.13     .454 No_date   12:12   22.32  n/a      .000
00353>                 out <=    1.0 01:SWMF-1        13.13     .020 No_date   20:45   22.32  n/a      .000
00354>      {MxStoUsed=.2055E+00  m3}
00355> R0001:C00050------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00356>     ADD HYD               1.0 01:SWMF-1        13.13     .020 No_date   20:45   22.32  n/a      .000
00357>                    +      1.0 04:WC9a         119.93    2.461 No_date   13:14   27.34  n/a      .000
00358>                 SUM=      1.0 07:WC9b         133.06    2.479 No_date   13:14   26.84  n/a      .000
00359> #-----------------|-----------------------------------------------------------|
00360> #-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00361> #-----------------|-----------------------------------------------------------|
00362> #-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
00363> #-----------------|-----------------------------------------------------------|
00364> R0001:C00051------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00365>     CALIB STANDHYD        1.0 10:9D             1.38     .159 No_date   12:12   39.85 .639      .000
00366>       [XIMP=.33:TIMP=.68]
00367>       [LOSS= 2 :CN= 66.2]
00368>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00369>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
00370> #-----------------|-----------------------------------------------------------|
00371> #-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
00372> #-----------------|-----------------------------------------------------------|
00373> R0001:C00052------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00374>     CALIB NASHYD          1.0 01:9F              .73     .017 No_date   12:24   12.50 .200      .000
00375>       [CN= 56.7: N= 3.00: Tp=  .28]
00376> R0001:C00053------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00377>     CALIB NASHYD          1.0 02:EXT-9D          .41     .007 No_date   12:47   15.48 .248      .000
00378>       [CN= 65.0: N= 3.00: Tp=  .62]
00379> R0001:C00054------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00380>     CALIB NASHYD          1.0 03:9C9E           2.06     .044 No_date   12:27   12.77 .205      .000
00381>       [CN= 58.2: N= 3.00: Tp=  .33]
00382> R0001:C00055------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00383>     ADD HYD               1.0 01:9F              .73     .017 No_date   12:24   12.50  n/a      .000
00384>                    +      1.0 02:EXT-9D          .41     .007 No_date   12:47   15.48  n/a      .000
00385>                    +      1.0 03:9C9E           2.06     .044 No_date   12:27   12.77  n/a      .000
00386>                    +      1.0 07:WC9b         133.06    2.479 No_date   13:14   26.84  n/a      .000
00387>                    +      1.0 10:9D             1.38     .159 No_date   12:12   39.85  n/a      .000
00388>                 SUM=      1.0 05:WC9LOWER     137.64    2.514 No_date   13:14   26.65  n/a      .000
00389> #-----------------|-----------------------------------------------------------|
00390> #-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
00391> #-----------------|-----------------------------------------------------------|
00392> R0001:C00056------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00393>     CALIB NASHYD          1.0 01:2A             1.19     .016 No_date   12:16    4.94 .079      .000
00394>       [CN= 33.2: N= 3.00: Tp=  .14]
00395> R0001:C00057------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00396>     CALIB NASHYD          1.0 02:2B             1.67     .015 No_date   12:27    5.35 .086      .000
00397>       [CN= 34.7: N= 3.00: Tp=  .32]
00398> R0001:C00058------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00399>     CALIB STANDHYD        1.0 03:2C             1.96     .156 No_date   12:12   29.90 .479      .000
00400>       [XIMP=.30:TIMP=.60]
00401>       [LOSS= 2 :CN= 49.0]
00402>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00403>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
00404> R0001:C00059------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00405>     CALIB STANDHYD        1.0 07:2D             3.28     .242 No_date   12:13   29.92 .479      .000
00406>       [XIMP=.25:TIMP=.50]
00407>       [LOSS= 2 :CN= 59.0]
00408>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00409>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
00410> R0001:C00060------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00411>     CALIB STANDHYD        1.0 04:2E             2.09     .163 No_date   12:12   31.49 .505      .000
00412>       [XIMP=.26:TIMP=.35]
00413>       [LOSS= 2 :CN= 69.0]
00414>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00415>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
00416> R0001:C00061------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00417>     ADD HYD               1.0 01:2A             1.19     .016 No_date   12:16    4.94  n/a      .000
00418>                    +      1.0 02:2B             1.67     .015 No_date   12:27    5.35  n/a      .000
00419>                    +      1.0 03:2C             1.96     .156 No_date   12:12   29.90  n/a      .000
00420>                    +      1.0 04:2E             2.09     .163 No_date   12:12   31.49  n/a      .000
00421>                    +      1.0 07:2D             3.28     .242 No_date   12:13   29.92  n/a      .000
00422>                 SUM=      1.0 06:SWMF2         10.19     .581 No_date   12:12   23.29  n/a      .000
00423> #-----------------|-----------------------------------------------------------|
00424> #-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
00425> #-----------------|-----------------------------------------------------------|
00426> R0001:C00062------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00427>     ROUTE RESERVOIR ->    1.0 06:SWMF2         10.19     .581 No_date   12:12   23.29  n/a      .000
00428>                 out <=    1.0 09:SWMF-2        10.19     .016 No_date   18:06   23.29  n/a      .000
00429>      {MxStoUsed=.1675E+00  m3}
00430> #-----------------|-----------------------------------------------------------|
00431> #-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
00432> #-----------------|-----------------------------------------------------------|
00433> R0001:C00063------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00434>     ADD HYD               1.0 09:SWMF-2        10.19     .016 No_date   18:06   23.29  n/a      .000
00435>                    +      1.0 05:WC9LOWER     137.64    2.514 No_date   13:14   26.65  n/a      .000
00436>                 SUM=      1.0 01:WC9c         147.83    2.529 No_date   13:14   26.42  n/a      .000
00437> R0001:C00064------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00438>     SAVE HYD              1.0 01:WC9c         147.83    2.529 No_date   13:14   26.42  n/a      .000
00439>       fname :WC9c.0001
00440>       remark:POST-DEV LAKESHORE
00441> #-----------------|-----------------------------------------------------------|
00442> #-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
00443> #-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
00444> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
00445> #-----------------|-----------------------------------------------------------|
00446> R0001:C00065------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00447>     CALIB NASHYD          1.0 01:8A             2.27     .027 No_date   12:21    5.77 .093      .000
00448>       [CN= 36.2: N= 3.00: Tp=  .23]
00449> R0001:C00066------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00450>     CALIB NASHYD          1.0 02:EXT-8A         7.14     .191 No_date   12:32   17.99 .288      .000
00451>       [CN= 68.9: N= 3.00: Tp=  .41]
00452> R0001:C00067------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00453>     CALIB NASHYD          1.0 03:EXT-8B         1.04     .020 No_date   12:32   13.17 .211      .000
00454>       [CN= 58.6: N= 3.00: Tp=  .41]
00455> #-----------------|-----------------------------------------------------------|
00456> #-----------------|----------WATERCOURSE 8----------------------------------|
00457> #-----------------|-----------------------------------------------------------|
00458> R0001:C00068------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00459>     ADD HYD               1.0 01:8A             2.27     .027 No_date   12:21    5.77  n/a      .000
00460>                    +      1.0 02:EXT-8A         7.14     .191 No_date   12:32   17.99  n/a      .000
00461>                    +      1.0 03:EXT-8B         1.04     .020 No_date   12:32   13.17  n/a      .000
00462>                 SUM=      1.0 04:WC8           10.45     .232 No_date   12:30   14.86  n/a      .000
00463> #-----------------|-----------------------------------------------------------|
00464> #-----------------|--WATERCOURSE 10 CATCHMENT--------------------------------|
00465> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10---------------|
00466> #-----------------|-----------------------------------------------------------|
00467> R0001:C00069------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00468>     CALIB NASHYD          1.0 01:10A            1.99     .056 No_date   12:20   12.73 .204      .000
00469>       [CN= 59.4: N= 3.00: Tp=  .21]
00470> #*****************************************************************************
00471> #*****************************************************************************
00472> #                              10yr SCS Storm (24hr)
00473> #*****************************************************************************
00474> #*****************************************************************************
00475> R0001:C00070-----------------------------------------------------------------------------------------
00476>      MASS STORM
00477>       Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
00478>       Comment  = 24 hour SCS II storm mass curve
00479>       [SDT= 1.00:SDUR=  24.00:PTOT=  72.00]
00480> #*****************************************************************************
00481> #-----------------|-----------------------------------------------------------|
00482> #-----------------|-Subwatershed 9 External Drainage Area---------------------|
00483> #-----------------|-Per 'The Orchards' FSSWM Report--------------------------|
00484> #-----------------|-Prepared by Higgins Engineering (Jan. 2005)--------------|
00485> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
00486> #-----------------|-----------------------------------------------------------|
00487> R0001:C00071------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00488>     CALIB NASHYD          1.0 01:EXT-9A       101.80    2.835 No_date   13:11   34.40 .478      .000
00489>       [CN= 80.0: N= 3.00: Tp= 1.00]
00490> R0001:C00072------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00491>     ROUTE CHANNEL   ->    1.0 01:EXT-9A       101.80    2.835 No_date   13:11   34.40  n/a      .000
00492>      [RDT= 1.00] out<-    1.0 02:Channel      101.80    2.826 No_date   13:14   34.40  n/a      .000
00493>       [L/S/n=  550./2.000/.035]
00494>       {Vmax= 1.703:Dmax=  .316}
00495> R0001:C00073------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00496>     CALIB STANDHYD        1.0 03:EXT-9B        14.80    1.903 No_date   12:15   37.43 .520      .000
00497>       [XIMP=.35:TIMP=.35]
00498>       [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
00499>       [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
00500>       [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
00501> R0001:C00074------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00502>     ROUTE RESERVOIR ->    1.0 03:EXT-9B        14.80    1.903 No_date   12:15   37.43  n/a      .000
00503>                 out <=    1.0 04:Orchards      14.80     .433 No_date   12:41   37.43  n/a      .000
00504>      {MxStoUsed=.3480E+00  m3}
00505> #-----------------|-----------------------------------------------------------|
00506> #-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
00507> #-----------------|-----------------------------------------------------------|
00508> R0001:C00075------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00509>     ADD HYD               1.0 02:Channel      101.80    2.826 No_date   13:14   34.40  n/a      .000
00510>                    +      1.0 04:Orchards      14.80     .433 No_date   12:41   37.43  n/a      .000
00511>                 SUM=      1.0 05:RD19         116.60    3.148 No_date   13:08   34.78  n/a      .000
00512> R0001:C00076------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00513>     CALIB NASHYD          1.0 01:EXT-9C          .65     .054 No_date   12:20   37.83 .525      .000
00514>       [CN= 82.7: N= 3.00: Tp=  .24]
00515> #-----------------|-----------------------------------------------------------|
00516> #-----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
00517> #-----------------|-----------------------------------------------------------|
00518> R0001:C00077------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00519>     CALIB NASHYD          1.0 02:9A9B           2.68     .074 No_date   12:25   15.49 .215      .000
00520>       [CN= 55.9: N= 3.00: Tp=  .30]
00521> R0001:C00078------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00522>     ADD HYD               1.0 01:EXT-9C          .65     .054 No_date   12:20   37.83  n/a      .000
00523>                    +      1.0 02:9A9B           2.68     .074 No_date   12:25   15.49  n/a      .000
00524>                    +      1.0 05:RD19         116.60    3.148 No_date   13:08   34.78  n/a      .000
00525>                 SUM=      1.0 04:WC9a         119.93    3.180 No_date   13:08   34.37  n/a      .000
00526> #-----------------|-----------------------------------------------------------|
00527> #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
00528> #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1------------------------|
00529> #-----------------|-----------------------------------------------------------|
00530> R0001:C00079------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00531>     CALIB NASHYD          1.0 01:EXT-1A         8.37     .316 No_date   12:36   27.20 .378      .000
00532>       [CN= 74.9: N= 3.00: Tp=  .47]
00533> R0001:C00080------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00534>     CALIB STANDHYD        1.0 03:1A             2.95     .376 No_date   12:12   42.47 .590      .000
00535>       [XIMP=.31:TIMP=.51]
00536>       [LOSS= 2 :CN= 67.0]
00537>       [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
00538>       [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
00539> R0001:C00081------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00540>     CALIB NASHYD          1.0 05:1B             1.81     .058 No_date   12:14   10.51 .146      .000
00541>       [CN= 44.3: N= 3.00: Tp=  .11]
00542> R0001:C00082------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00543>     ADD HYD               1.0 01:EXT-1A         8.37     .316 No_date   12:36   27.20  n/a      .000
00544>                    +      1.0 03:1A             2.95     .376 No_date   12:12   42.47  n/a      .000
00545>                    +      1.0 05:1B             1.81     .058 No_date   12:14   10.51  n/a      .000
00546>                 SUM=      1.0 06:SWMF1         13.13     .575 No_date   12:12   28.33  n/a      .000
00547> #-----------------|-----------------------------------------------------------|
00548> #-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
00549> #-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
00550> #-----------------|-----------------------------------------------------------|
00551> R0001:C00083------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00552>     ROUTE RESERVOIR ->    1.0 06:SWMF1         13.13     .575 No_date   12:12   28.33  n/a      .000
00553>                 out <=    1.0 01:SWMF-1        13.13     .023 No_date   21:19   28.33  n/a      .000
00554>      {MxStoUsed=.2705E+00  m3}
00555> R0001:C00084------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00556>     ADD HYD               1.0 01:SWMF-1        13.13     .023 No_date   21:19   28.33  n/a      .000
00557>                    +      1.0 04:WC9a         119.93    3.180 No_date   13:08   34.37  n/a      .000
00558>                 SUM=      1.0 07:WC9b         133.06    3.199 No_date   13:08   33.77  n/a      .000
00559> #-----------------|-----------------------------------------------------------|
00560> #-----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
00561> #-----------------|-----------------------------------------------------------|
00562> #-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
00563> #-----------------|-----------------------------------------------------------|
00564> R0001:C00085------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00565>     CALIB STANDHYD        1.0 10:9D             1.38     .196 No_date   12:12   47.92 .666      .000
00566>       [XIMP=.33:TIMP=.68]
00567>       [LOSS= 2 :CN= 66.2]
00568>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00569>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
00570> #-----------------|-----------------------------------------------------------|
00571> #-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
00572> #-----------------|-----------------------------------------------------------|
00573> R0001:C00086------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00574>     CALIB NASHYD          1.0 01:9F              .73     .023 No_date   12:24   16.53 .230      .000
00575>       [CN= 56.7: N= 3.00: Tp=  .28]
00576> R0001:C00087------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00577>     CALIB NASHYD          1.0 02:EXT-9D          .41     .009 No_date   12:46   20.40 .283      .000
00578>       [CN= 65.0: N= 3.00: Tp=  .62]
00579> R0001:C00088------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00580>     CALIB NASHYD          1.0 03:9C9E           2.06     .059 No_date   12:27   16.93 .235      .000
00581>       [CN= 58.2: N= 3.00: Tp=  .33]
00582> R0001:C00089------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00583>     ADD HYD               1.0 01:9F              .73     .023 No_date   12:24   16.53  n/a      .000
00584>                    +      1.0 02:EXT-9D          .41     .009 No_date   12:46   20.40  n/a      .000
00585>                    +      1.0 03:9C9E           2.06     .059 No_date   12:27   16.93  n/a      .000
00586>                    +      1.0 07:WC9b         133.06    3.199 No_date   13:08   33.77  n/a      .000
00587>                    +      1.0 10:9D             1.38     .196 No_date   12:12   47.92  n/a      .000
00588>                 SUM=      1.0 05:WC9LOWER     137.64    3.250 No_date   13:08   33.53  n/a      .000
00589> #-----------------|-----------------------------------------------------------|
00590> #-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
00591> #-----------------|-----------------------------------------------------------|
00592> R0001:C00090------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00593>     CALIB NASHYD          1.0 01:2A             1.19     .022 No_date   12:16    6.79 .094      .000
00594>       [CN= 33.2: N= 3.00: Tp=  .14]
00595> R0001:C00091------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00596>     CALIB NASHYD          1.0 02:2B             1.67     .020 No_date   12:27    7.31 .102      .000
00597>       [CN= 34.7: N= 3.00: Tp=  .32]
00598> R0001:C00092------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00599>     CALIB STANDHYD        1.0 03:2C             1.96     .192 No_date   12:12   36.20 .503      .000
00600>       [XIMP=.30:TIMP=.60]
00601>       [LOSS= 2 :CN= 49.0]
00602>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00603>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
00604> R0001:C00093------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00605>     CALIB STANDHYD        1.0 07:2D             3.28     .310 No_date   12:13   36.48 .507      .000
00606>       [XIMP=.25:TIMP=.50]
00607>       [LOSS= 2 :CN= 59.0]
00608>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00609>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
00610> R0001:C00094------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00611>     CALIB STANDHYD        1.0 04:2E             2.09     .204 No_date   12:12   38.40 .533      .000
00612>       [XIMP=.26:TIMP=.35]
00613>       [LOSS= 2 :CN= 69.0]
00614>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00615>       [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
00616> R0001:C00095------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00617>     ADD HYD               1.0 01:2A             1.19     .022 No_date   12:16    6.79  n/a      .000
00618>                    +      1.0 02:2B             1.67     .020 No_date   12:27    7.31  n/a      .000
00619>                    +      1.0 03:2C             1.96     .192 No_date   12:12   36.20  n/a      .000
00620>                    +      1.0 04:2E             2.09     .204 No_date   12:12   38.40  n/a      .000
00621>                    +      1.0 07:2D             3.28     .310 No_date   12:13   36.48  n/a      .000
00622>                 SUM=      1.0 06:SWMF2         10.19     .734 No_date   12:12   28.57  n/a      .000
00623> #-----------------|-----------------------------------------------------------|
00624> #-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
00625> #-----------------|-----------------------------------------------------------|
00626> R0001:C00096------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00627>     ROUTE RESERVOIR ->    1.0 06:SWMF2         10.19     .734 No_date   12:12   28.57  n/a      .000
00628>                 out <=    1.0 09:SWMF-2        10.19     .017 No_date   20:37   28.57  n/a      .000
00629>      {MxStoUsed=.2112E+00  m3}
00630> #-----------------|-----------------------------------------------------------|
00631> #-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
00632> #-----------------|-----------------------------------------------------------|
00633> R0001:C00097------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00634>     ADD HYD               1.0 09:SWMF-2        10.19     .017 No_date   20:37   28.57  n/a      .000
00635>                    +      1.0 05:WC9LOWER     137.64    3.250 No_date   13:08   33.53  n/a      .000
00636>                 SUM=      1.0 01:WC9c         147.83    3.267 No_date   13:08   33.19  n/a      .000
00637> R0001:C00098------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00638>     SAVE HYD              1.0 01:WC9c         147.83    3.267 No_date   13:08   33.19  n/a      .000
00639>       fname :WC9c.0001
00640>       remark:POST-DEV LAKESHORE
00641> #-----------------|-----------------------------------------------------------|
00642> #-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
00643> #-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
00644> #-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
00645> #-----------------|-----------------------------------------------------------|
00646> R0001:C00099------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00647>     CALIB NASHYD          1.0 01:8A             2.27     .036 No_date   12:21    7.87 .109      .000
00648>       [CN= 36.2: N= 3.00: Tp=  .23]
00649> R0001:C00100------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00650>     CALIB NASHYD          1.0 02:EXT-8A         7.14     .251 No_date   12:32   23.45 .326      .000
00651>       [CN= 68.9: N= 3.00: Tp=  .41]
00652> R0001:C00101------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00653>     CALIB NASHYD          1.0 03:EXT-8B         1.04     .026 No_date   12:32   17.40 .242      .000
00654>       [CN= 58.6: N= 3.00: Tp=  .41]
00655> #-----------------|-----------------------------------------------------------|
00656> #-----------------|----------WATERCOURSE 8----------------------------------|
```

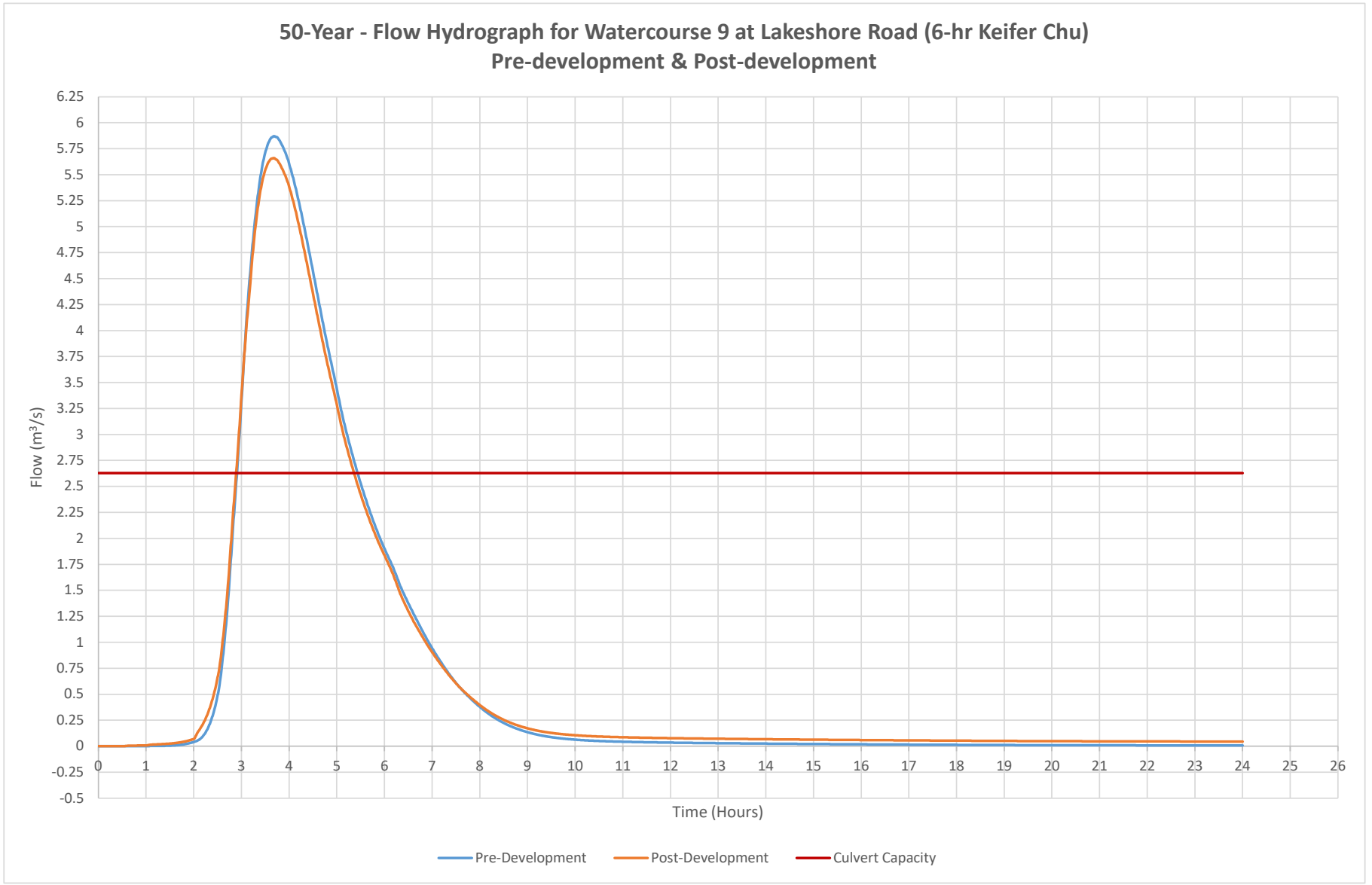
```
#-----------------|-----------------------------------------------------------|
R0001:C00102------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:8A             2.27     .036 No_date   12:21    7.87  n/a     .000
                    +    1.0 02:EXT-8A         7.14     .251 No_date   12:32   23.45  n/a     .000
                    +    1.0 03:EXT-8B         1.04     .026 No_date   12:32   17.40  n/a     .000
                 SUM=    1.0 04:WC8           10.45     .307 No_date   12:30   19.46  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 10 CATCHMENT---------------------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10---------------|
#-----------------|-----------------------------------------------------------|
R0001:C00103------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:10A            1.99     .076 No_date   12:19   16.96 .236     .000
      [CN= 59.4: N= 3.00: Tp=  .21]
#*****************************************************************************
#*****************************************************************************
#                              25yr SCS Storm (24hr)
#*****************************************************************************
#*****************************************************************************
R0001:C00104---------------------------------------------------------------------------------------
     MASS STORM
      Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
      Comment  = 24 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  24.00:PTOT=  86.40]
#*****************************************************************************
#-----------------|-----------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|-----------------------------------------------------------|
R0001:C00105------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9A       101.80    3.796 No_date   13:10   45.73 .529     .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00106------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->   1.0 01:EXT-9A       101.80    3.796 No_date   13:10   45.73  n/a     .000
     [RDT= 1.00] out<-   1.0 02:Channel      101.80    3.784 No_date   13:14   45.73  n/a     .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.840:Dmax=  .367}
R0001:C00107------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:EXT-9B        14.80    2.516 No_date   12:14   47.83 .554     .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00108------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 03:EXT-9B        14.80    2.516 No_date   12:14   47.83  n/a     .000
                out <=   1.0 04:Orchards      14.80     .723 No_date   12:36   47.83  n/a     .000
     {MxStoUsed=.4236E+00  m3}
#-----------------|-----------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|-----------------------------------------------------------|
R0001:C00109------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 02:Channel      101.80    3.784 No_date   13:14   45.73  n/a     .000
                    +    1.0 04:Orchards      14.80     .723 No_date   12:36   47.83  n/a     .000
                 SUM=    1.0 05:RD19         116.60    4.258 No_date   13:08   45.99  n/a     .000
R0001:C00110------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9C          .65     .071 No_date   12:20   49.74 .576     .000
      [CN= 82.7: N= 3.00: Tp=  .24]
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
R0001:C00111------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:9A9B           2.68     .107 No_date   12:25   22.05 .255     .000
      [CN= 55.9: N= 3.00: Tp=  .30]
R0001:C00112------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-9C          .65     .071 No_date   12:20   49.74  n/a     .000
                    +    1.0 02:9A9B           2.68     .107 No_date   12:25   22.05  n/a     .000
                    +    1.0 05:RD19         116.60    4.258 No_date   13:08   45.99  n/a     .000
                 SUM=    1.0 04:WC9a         119.93    4.304 No_date   13:07   45.48  n/a     .000
#-----------------|-----------------------------------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1------------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00113------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-1A         8.37     .439 No_date   12:35   37.30 .432     .000
      [CN= 74.9: N= 3.00: Tp=  .47]
R0001:C00114------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:1A             2.95     .492 No_date   12:12   53.99 .625     .000
      [XIMP=.31:TIMP=.51]
      [LOSS= 2 :CN= 67.0]
      [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0001:C00115------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 05:1B             1.81     .085 No_date   12:14   15.25 .177     .000
      [CN= 44.3: N= 3.00: Tp=  .11]
R0001:C00116------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-1A         8.37     .439 No_date   12:35   37.30  n/a     .000
                    +    1.0 03:1A             2.95     .492 No_date   12:12   53.99  n/a     .000
                    +    1.0 05:1B             1.81     .085 No_date   12:14   15.25  n/a     .000
                 SUM=    1.0 06:SWMF1         13.13     .781 No_date   12:12   38.01  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
#-----------------|-----------------------------------------------------------|
R0001:C00117------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 06:SWMF1         13.13     .781 No_date   12:12   38.01  n/a     .000
                out <=   1.0 01:SWMF-1        13.13     .026 No_date   24:05   38.01  n/a     .000
     {MxStoUsed=.3782E+00  m3}
R0001:C00118------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:SWMF-1        13.13     .026 No_date   24:05   38.01  n/a     .000
                    +    1.0 04:WC9a         119.93    4.304 No_date   13:07   45.48  n/a     .000
                 SUM=    1.0 07:WC9b         133.06    4.326 No_date   13:07   44.74  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|-----------------------------------------------------------|
R0001:C00119------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 10:9D             1.38     .255 No_date   12:12   60.40 .699     .000
      [XIMP=.33:TIMP=.68]
      [LOSS= 2 :CN= 66.2]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00120------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9F              .73     .032 No_date   12:24   23.30 .270     .000
      [CN= 56.7: N= 3.00: Tp=  .28]
R0001:C00121------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:EXT-9D          .41     .013 No_date   12:46   28.57 .331     .000
      [CN= 65.0: N= 3.00: Tp=  .62]
R0001:C00122------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 03:9C9E           2.06     .084 No_date   12:27   23.91 .277     .000
      [CN= 58.2: N= 3.00: Tp=  .33]
R0001:C00123------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9F              .73     .032 No_date   12:24   23.30  n/a     .000
                    +    1.0 02:EXT-9D          .41     .013 No_date   12:46   28.57  n/a     .000
                    +    1.0 03:9C9E           2.06     .084 No_date   12:27   23.91  n/a     .000
                    +    1.0 07:WC9b         133.06    4.326 No_date   13:07   44.74  n/a     .000
                    +    1.0 10:9D             1.38     .255 No_date   12:12   60.40  n/a     .000
                 SUM=    1.0 05:WC9LOWER     137.64    4.396 No_date   13:07   44.42  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-LANDS DRAINING TO SWM FACILITY 2-------------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00124------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:2A             1.19     .032 No_date   12:16   10.03 .116     .000
      [CN= 33.2: N= 3.00: Tp=  .14]
R0001:C00125------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:2B             1.67     .030 No_date   12:27   10.76 .125     .000
      [CN= 34.7: N= 3.00: Tp=  .32]
R0001:C00126------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:2C             1.96     .250 No_date   12:12   46.14 .534     .000
      [XIMP=.30:TIMP=.60]
      [LOSS= 2 :CN= 49.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
R0001:C00127------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 07:2D             3.28     .410 No_date   12:12   46.86 .542     .000
      [XIMP=.25:TIMP=.50]
      [LOSS= 2 :CN= 59.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 148.:MNI=.013:SCI=   .0]
R0001:C00128------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 04:2E             2.09     .276 No_date   12:12   49.30 .571     .000
      [XIMP=.26:TIMP=.35]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
R0001:C00129------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:2A             1.19     .032 No_date   12:16   10.03  n/a     .000
                    +    1.0 02:2B             1.67     .030 No_date   12:27   10.76  n/a     .000
                    +    1.0 03:2C             1.96     .250 No_date   12:12   46.14  n/a     .000
                    +    1.0 04:2E             2.09     .276 No_date   12:12   49.30  n/a     .000
                    +    1.0 07:2D             3.28     .410 No_date   12:12   46.86  n/a     .000
                 SUM=    1.0 06:SWMF2         10.19     .982 No_date   12:12   37.01  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)---------|
#-----------------|-----------------------------------------------------------|
R0001:C00130------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 06:SWMF2         10.19     .982 No_date   12:12   37.01  n/a     .000
                out <=   1.0 09:SWMF-2        10.19     .080 No_date   13:22   37.01  n/a     .000
     {MxStoUsed=.2339E+00  m3}
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD-----------------|
#-----------------|-----------------------------------------------------------|
R0001:C00131------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 09:SWMF-2        10.19     .080 No_date   13:22   37.01  n/a     .000
                    +    1.0 05:WC9LOWER     137.64    4.396 No_date   13:07   44.42  n/a     .000
                 SUM=    1.0 01:WC9c         147.83    4.458 No_date   13:08   43.91  n/a     .000
R0001:C00132------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    SAVE HYD             1.0 01:WC9c         147.83    4.458 No_date   13:08   43.91  n/a     .000
      fname :WC9c.0001
      remark:POST-DEV LAKESHORE
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
#-----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8----------------|
#-----------------|-----------------------------------------------------------|
R0001:C00133------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:8A             2.27     .054 No_date   12:21   11.52 .133     .000
      [CN= 36.2: N= 3.00: Tp=  .23]
R0001:C00134------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:EXT-8A         7.14     .351 No_date   12:32   32.42 .375     .000
      [CN= 68.9: N= 3.00: Tp=  .41]
R0001:C00135------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 03:EXT-8B         1.04     .038 No_date   12:32   24.49 .283     .000
      [CN= 58.6: N= 3.00: Tp=  .41]
#-----------------|-----------------------------------------------------------|
#-----------------|-----------WATERCOURSE 8----------------------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00136------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:8A             2.27     .054 No_date   12:21   11.52  n/a     .000
                    +    1.0 02:EXT-8A         7.14     .351 No_date   12:32   32.42  n/a     .000
                    +    1.0 03:EXT-8B         1.04     .038 No_date   12:32   24.49  n/a     .000
                 SUM=    1.0 04:WC8           10.45     .432 No_date   12:30   27.09  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|--WATERCOURSE 10 CATCHMENT---------------------------------|
#-----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10---------------|
#-----------------|-----------------------------------------------------------|
R0001:C00137------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:10A            1.99     .109 No_date   12:19   24.08 .279     .000
      [CN= 59.4: N= 3.00: Tp=  .21]
#*****************************************************************************
#*****************************************************************************
#                              50yr SCS Storm (24hr)
#*****************************************************************************
#*****************************************************************************
R0001:C00138---------------------------------------------------------------------------------------
     MASS STORM
      Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\De
      Comment  = 24 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  24.00:PTOT=  96.00]
#*****************************************************************************
#-----------------|-----------------------------------------------------------|
#-----------------|-Subwatershed 9 External Drainage Area---------------------|
#-----------------|-Per 'The Orchards' FSSWM Report---------------------------|
#-----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
#--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha-------|
#-----------------|-----------------------------------------------------------|
R0001:C00139------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9A       101.80    4.464 No_date   13:10   53.60 .558     .000
      [CN= 80.0: N= 3.00: Tp= 1.00]
R0001:C00140------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE CHANNEL   ->   1.0 01:EXT-9A       101.80    4.464 No_date   13:10   53.60  n/a     .000
     [RDT= 1.00] out<-   1.0 02:Channel      101.80    4.454 No_date   13:13   53.60  n/a     .000
      [L/S/n=  550./2.000/.035]
      {Vmax= 1.950:Dmax=  .402}
R0001:C00141------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:EXT-9B        14.80    2.942 No_date   12:14   54.37 .566     .000
      [XIMP=.35:TIMP=.35]
      [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
      [Pervious     area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
R0001:C00142------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 03:EXT-9B        14.80    2.942 No_date   12:14   54.37  n/a     .000
                out <=   1.0 04:Orchards      14.80     .912 No_date   12:34   54.37  n/a     .000
     {MxStoUsed=.4691E+00  m3}
#-----------------|-----------------------------------------------------------|
#-----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing---------|
#-----------------|-----------------------------------------------------------|
R0001:C00143------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 02:Channel      101.80    4.454 No_date   13:13   53.60  n/a     .000
                    +    1.0 04:Orchards      14.80     .912 No_date   12:34   54.37  n/a     .000
                 SUM=    1.0 05:RD19         116.60    5.020 No_date   13:06   53.69  n/a     .000
R0001:C00144------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-9C          .65     .083 No_date   12:20   57.95 .604     .000
      [CN= 82.7: N= 3.00: Tp=  .24]
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Upper Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
R0001:C00145------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:9A9B           2.68     .131 No_date   12:25   26.85 .280     .000
      [CN= 55.9: N= 3.00: Tp=  .30]
R0001:C00146------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-9C          .65     .083 No_date   12:20   57.95  n/a     .000
                    +    1.0 02:9A9B           2.68     .131 No_date   12:25   26.85  n/a     .000
                    +    1.0 05:RD19         116.60    5.020 No_date   13:06   53.69  n/a     .000
                 SUM=    1.0 04:WC9a         119.93    5.076 No_date   13:06   53.12  n/a     .000
#-----------------|-----------------------------------------------------------|
#--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT---------------|
#--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1------------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00147------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:EXT-1A         8.37     .526 No_date   12:35   44.43 .463     .000
      [CN= 74.9: N= 3.00: Tp=  .47]
R0001:C00148------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 03:1A             2.95     .577 No_date   12:12   61.92 .645     .000
      [XIMP=.31:TIMP=.51]
      [LOSS= 2 :CN= 67.0]
      [Pervious     area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
R0001:C00149------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 05:1B             1.81     .105 No_date   12:14   18.79 .196     .000
      [CN= 44.3: N= 3.00: Tp=  .11]
R0001:C00150------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:EXT-1A         8.37     .526 No_date   12:35   44.43  n/a     .000
                    +    1.0 03:1A             2.95     .577 No_date   12:12   61.92  n/a     .000
                    +    1.0 05:1B             1.81     .105 No_date   12:14   18.79  n/a     .000
                 SUM=    1.0 06:SWMF1         13.13     .931 No_date   12:12   44.82  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
#-----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
#-----------------|-----------------------------------------------------------|
R0001:C00151------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ROUTE RESERVOIR ->   1.0 06:SWMF1         13.13     .931 No_date   12:12   44.82  n/a     .000
                out <=   1.0 01:SWMF-1        13.13     .028 No_date   24:07   44.82  n/a     .000
     {MxStoUsed=.4569E+00  m3}
R0001:C00152------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:SWMF-1        13.13     .028 No_date   24:07   44.82  n/a     .000
                    +    1.0 04:WC9a         119.93    5.076 No_date   13:06   53.12  n/a     .000
                 SUM=    1.0 07:WC9b         133.06    5.100 No_date   13:06   52.30  n/a     .000
#-----------------|-----------------------------------------------------------|
#-----------------|-Parkbridge Craigleith - Lower Terrace Lands---------------|
#-----------------|-----------------------------------------------------------|
#-----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS-------|
#-----------------|-----------------------------------------------------------|
R0001:C00153------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB STANDHYD       1.0 10:9D             1.38     .293 No_date   12:12   68.92 .718     .000
      [XIMP=.33:TIMP=.68]
      [LOSS= 2 :CN= 66.2]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
#-----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED-----------------------|
#-----------------|-----------------------------------------------------------|
R0001:C00154------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 01:9F              .73     .039 No_date   12:23   28.25 .294     .000
      [CN= 56.7: N= 3.00: Tp=  .28]
R0001:C00155------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 02:EXT-9D          .41     .016 No_date   12:46   34.45 .359     .000
      [CN= 65.0: N= 3.00: Tp=  .62]
R0001:C00156------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    CALIB NASHYD         1.0 03:9C9E           2.06     .103 No_date   12:27   29.01 .302     .000
      [CN= 58.2: N= 3.00: Tp=  .33]
R0001:C00157------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
    ADD HYD              1.0 01:9F              .73     .039 No_date   12:23   28.25  n/a     .000
                    +    1.0 02:EXT-9D          .41     .016 No_date   12:46   34.45  n/a     .000
```

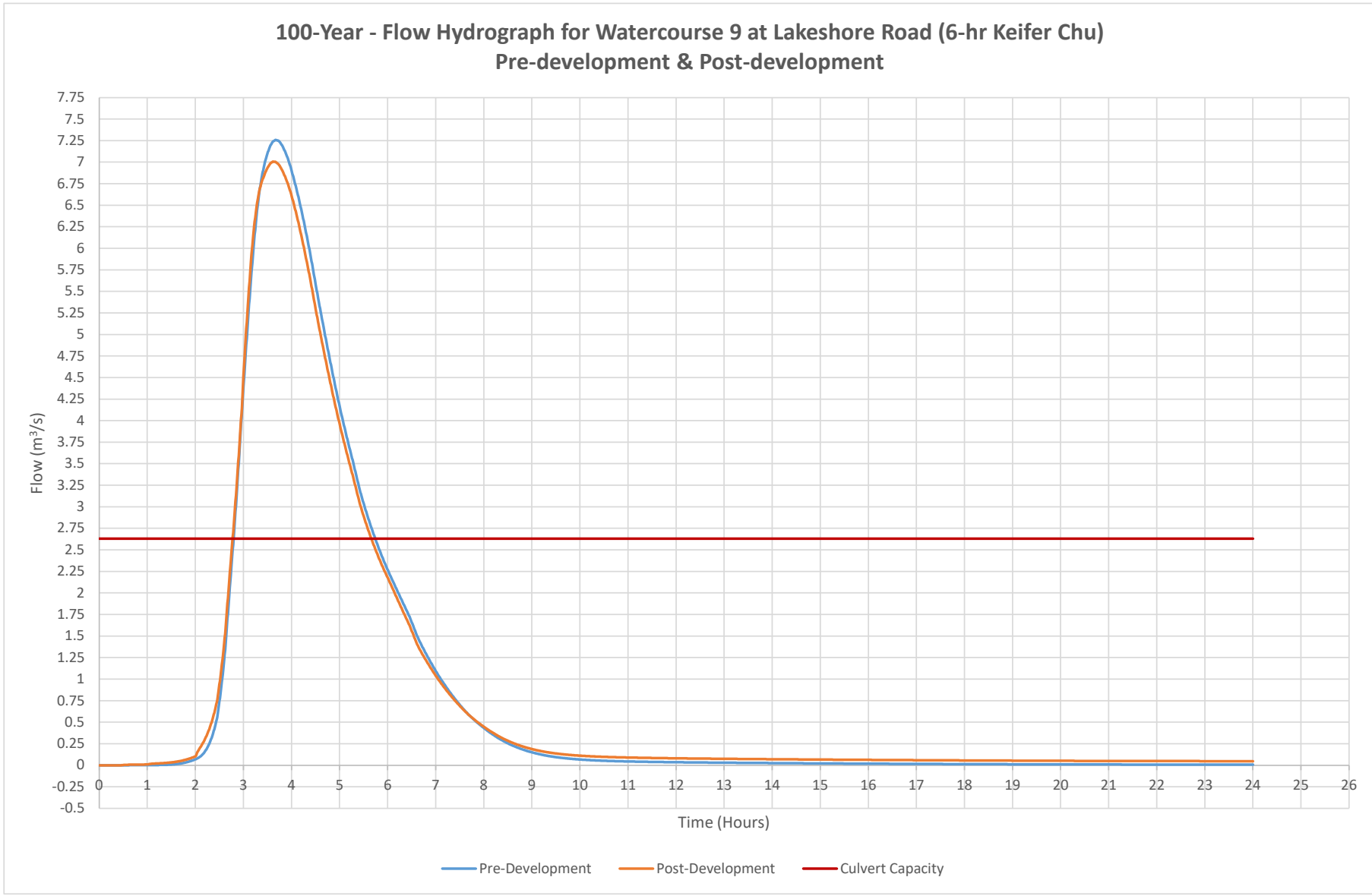
```
00985>                    +     1.0 03:9C9E          2.06     .103 No_date   12:27   29.01  n/a     .000
00986>                    +     1.0 07:WC9b        133.06    5.100 No_date   13:06   52.30  n/a     .000
00987>                    +     1.0 10:9D            1.38     .293 No_date   12:12   68.92  n/a     .000
00988>                  SUM=    1.0 05:WC9LOWER    137.64    5.185 No_date   13:06   51.94  n/a     .000
00989> #----------------|-------------------------------------------------------|
00990> #----------------|-LANDS DRAINING TO SWM FACILITY 2-----------------------|
00991> #----------------|-------------------------------------------------------|
00992> R0001:C00158------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00993>      CALIB NASHYD             1.0 01:2A            1.19     .041 No_date   12:16   12.49 .130     .000
00994>        [CN= 33.2: N= 3.00: Tp=  .14]
00995> R0001:C00159------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00996>      CALIB NASHYD             1.0 02:2B            1.67     .037 No_date   12:27   13.37 .139     .000
00997>        [CN= 34.7: N= 3.00: Tp=  .32]
00998> R0001:C00160------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
00999>      CALIB STANDHYD           1.0 03:2C            1.96     .295 No_date   12:12   53.07 .553     .000
01000>        [XIMP=.30:TIMP=.60]
01001>        [LOSS= 2 :CN= 49.0]
01002>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01003>        [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
01004> R0001:C00161------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01005>      CALIB STANDHYD           1.0 07:2D            3.28     .478 No_date   12:12   54.09 .563     .000
01006>        [XIMP=.25:TIMP=.50]
01007>        [LOSS= 2 :CN= 59.0]
01008>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01009>        [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
01010> R0001:C00162------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01011>      CALIB STANDHYD           1.0 04:2E            2.09     .322 No_date   12:12   56.86 .592     .000
01012>        [XIMP=.26:TIMP=.35]
01013>        [LOSS= 2 :CN= 69.0]
01014>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01015>        [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
01016> R0001:C00163------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01017>      ADD HYD                  1.0 01:2A            1.19     .041 No_date   12:16   12.49  n/a     .000
01018>                    +     1.0 02:2B            1.67     .037 No_date   12:27   13.37  n/a     .000
01019>                    +     1.0 03:2C            1.96     .295 No_date   12:12   53.07  n/a     .000
01020>                    +     1.0 04:2E            2.09     .322 No_date   12:12   56.86  n/a     .000
01021>                    +     1.0 07:2D            3.28     .478 No_date   12:12   54.09  n/a     .000
01022>                  SUM=    1.0 06:SWMF2        10.19    1.152 No_date   12:12   42.93  n/a     .000
01023> #----------------|-------------------------------------------------------|
01024> #----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)------|
01025> #----------------|-------------------------------------------------------|
01026> R0001:C00164------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01027>      ROUTE RESERVOIR ->       1.0 06:SWMF2        10.19    1.152 No_date   12:12   42.93  n/a     .000
01028>                       out <=    1.0 09:SWMF-2       10.19     .186 No_date   12:50   42.93  n/a     .000
01029>        {MxStoUsed=.2439E+00  m3}
01030> #----------------|-------------------------------------------------------|
01031> #----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD----------------|
01032> #----------------|-------------------------------------------------------|
01033> R0001:C00165------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01034>      ADD HYD                  1.0 09:SWMF-2        10.19     .186 No_date   12:50   42.93  n/a     .000
01035>                    +     1.0 05:WC9LOWER    137.64    5.185 No_date   13:06   51.94  n/a     .000
01036>                  SUM=    1.0 01:WC9c        147.83    5.353 No_date   13:03   51.32  n/a     .000
01037> R0001:C00166------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01038>      SAVE HYD                 1.0 01:WC9c        147.83    5.353 No_date   13:03   51.32  n/a     .000
01039>        fname :WC9c.0001
01040>        remark:POST-DEV LAKESHORE
01041> #----------------|-------------------------------------------------------|
01042> #----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
01043> #----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
01044> #----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8---------------|
01045> #----------------|-------------------------------------------------------|
01046> R0001:C00167------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01047>      CALIB NASHYD             1.0 01:8A            2.27     .067 No_date   12:21   14.28 .149     .000
01048>        [CN= 36.2: N= 3.00: Tp=  .23]
01049> R0001:C00168------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01050>      CALIB NASHYD             1.0 02:EXT-8A        7.14     .423 No_date   12:31   38.82 .404     .000
01051>        [CN= 68.9: N= 3.00: Tp=  .41]
01052> R0001:C00169------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01053>      CALIB NASHYD             1.0 03:EXT-8B        1.04     .046 No_date   12:32   29.64 .309     .000
01054>        [CN= 58.6: N= 3.00: Tp=  .41]
01055> #----------------|-------------------------------------------------------|
01056> #----------------|-----------WATERCOURSE 8----------------------------------|
01057> #----------------|-------------------------------------------------------|
01058> R0001:C00170------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01059>      ADD HYD                  1.0 01:8A            2.27     .067 No_date   12:21   14.28  n/a     .000
01060>                    +     1.0 02:EXT-8A        7.14     .423 No_date   12:31   38.82  n/a     .000
01061>                    +     1.0 03:EXT-8B        1.04     .046 No_date   12:32   29.64  n/a     .000
01062>                  SUM=    1.0 04:WC8          10.45     .523 No_date   12:30   32.58  n/a     .000
01063> #----------------|-------------------------------------------------------|
01064> #----------------|--WATERCOURSE 10 CATCHMENT--------------------------------|
01065> #----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10--------------|
01066> #----------------|-------------------------------------------------------|
01067> R0001:C00171------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01068>      CALIB NASHYD             1.0 01:10A           1.99     .133 No_date   12:19   29.27 .305     .000
01069>        [CN= 59.4: N= 3.00: Tp=  .21]
01070> #*************************************************************************
01071> #*************************************************************************
01072> #                          100yr SCS Storm (24hr)
01073> #*************************************************************************
01074> #*************************************************************************
01075> R0001:C00172-------------------------------------------------------------------------------------------
01076>       MASS STORM
01077>         Filename = J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\Oe
01078>         Comment  = 24 hour SCS II storm mass curve
01079>         [SDT= 1.00:SDUR=  24.00:PTOT= 108.00]
01080> #*************************************************************************
01081> #----------------|-------------------------------------------------------|
01082> #----------------|-Subwatershed 9 External Drainage Area--------------------|
01083> #----------------|-Per 'The Orchards' FSSWM Report--------------------------|
01084> #----------------|-Prepared by Higgins Engineering (Jan. 2005)---------------|
01085> #--'EXT-9A' Total Area 116.6 ha less 'Orchards' 14.8 ha equals 101.8 ha------|
01086> #----------------|-------------------------------------------------------|
01087> R0001:C00173------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01088>      CALIB NASHYD             1.0 01:EXT-9A      101.80    5.323 No_date   13:09   63.72 .590     .000
01089>        [CN= 80.0: N= 3.00: Tp= 1.00]
01090> R0001:C00174------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01091>      ROUTE CHANNEL    ->      1.0 01:EXT-9A      101.80    5.323 No_date   13:09   63.72  n/a     .000
01092>       [RDT= 1.00] out<-      1.0 02:Channel     101.80    5.308 No_date   13:13   63.72  n/a     .000
01093>        [L/S/n=  550./2.000/.035]
01094>        {Vmax= 2.062:Dmax=  .442}
01095> R0001:C00175------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01096>      CALIB STANDHYD           1.0 03:EXT-9B       14.80    3.462 No_date   12:14   62.70 .581     .000
01097>        [XIMP=.35:TIMP=.35]
01098>        [Horton parameters: Fo= 50.00:Fc=  7.50:DCAY=2.00:  F= .00]
01099>        [Pervious    area: IAper= 1.50:SLPP=2.00:LGP=  40.:MNP=.250:SCP=   .0]
01100>        [Impervious  area: IAimp= 1.00:SLPI=1.00:LGI= 314.:MNI=.013:SCI=   .0]
01101> R0001:C00176------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01102>      ROUTE RESERVOIR ->       1.0 03:EXT-9B       14.80    3.462 No_date   12:14   62.70  n/a     .000
01103>                       out <=    1.0 04:Orchards     14.80    1.155 No_date   12:32   62.69  n/a     .000
01104>        {MxStoUsed=.5239E+00  m3}
01105> #----------------|-------------------------------------------------------|
01106> #----------------|-TOTAL FLOW at Watercourse 9 Grey Road 19 Crossing--------|
01107> #----------------|-------------------------------------------------------|
01108> R0001:C00177------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01109>      ADD HYD                  1.0 02:Channel     101.80    5.308 No_date   13:13   63.72  n/a     .000
01110>                    +     1.0 04:Orchards     14.80    1.155 No_date   12:32   62.69  n/a     .000
01111>                  SUM=    1.0 05:RD19        116.60    5.991 No_date   13:06   63.59  n/a     .000
01112> R0001:C00178------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01113>      CALIB NASHYD             1.0 01:EXT-9C         .65     .098 No_date   12:20   68.46 .634     .000
01114>        [CN= 82.7: N= 3.00: Tp=  .24]
01115> #----------------|-------------------------------------------------------|
01116> #----------------|-Parkbridge Craigleith - Upper Terrace Lands--------------|
01117> #----------------|-------------------------------------------------------|
01118> R0001:C00179------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01119>      CALIB NASHYD             1.0 02:9A9B          2.68     .163 No_date   12:25   33.29 .308     .000
01120>        [CN= 55.9: N= 3.00: Tp=  .30]
01121> R0001:C00180------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01122>      ADD HYD                  1.0 01:EXT-9C         .65     .098 No_date   12:20   68.46  n/a     .000
01123>                    +     1.0 02:9A9B          2.68     .163 No_date   12:25   33.29  n/a     .000
01124>                    +     1.0 05:RD19        116.60    5.991 No_date   13:06   63.59  n/a     .000
01125>                  SUM=    1.0 04:WC9a        119.93    6.060 No_date   13:05   62.94  n/a     .000
01126> #----------------|-------------------------------------------------------|
01127> #--CATCHMENT EXT-1A DIRECTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
01128> #--CATCHMENT EXT-1A TO BE CONTROLLED BY SWM FACILITY 1---------------------|
01129> #----------------|-------------------------------------------------------|
01130> R0001:C00181------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01131>      CALIB NASHYD             1.0 01:EXT-1A        8.37     .639 No_date   12:35   53.70 .497     .000
01132>        [CN= 74.9: N= 3.00: Tp=  .47]
01133> R0001:C00182------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01134>      CALIB STANDHYD           1.0 03:1A            2.95     .678 No_date   12:12   72.07 .667     .000
01135>        [XIMP=.31:TIMP=.51]
01136>        [LOSS= 2 :CN= 67.0]
01137>        [Pervious    area: IAper= 5.00:SLPP=3.00:LGP=  30.:MNP=.250:SCP=   .0]
01138>        [Impervious  area: IAimp= 2.00:SLPI=5.50:LGI=  44.:MNI=.013:SCI=   .0]
01139> R0001:C00183------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01140>      CALIB NASHYD             1.0 05:1B            1.81     .133 No_date   12:14   23.61 .219     .000
01141>        [CN= 44.3: N= 3.00: Tp=  .11]
01142> R0001:C00184------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01143>      ADD HYD                  1.0 01:EXT-1A        8.37     .639 No_date   12:35   53.70  n/a     .000
01144>                    +     1.0 03:1A            2.95     .678 No_date   12:12   72.07  n/a     .000
01145>                    +     1.0 05:1B            1.81     .133 No_date   12:14   23.61  n/a     .000
01146>                  SUM=    1.0 06:SWMF1        13.13    1.119 No_date   12:12   53.68  n/a     .000
01147> #----------------|-------------------------------------------------------|
01148> #----------------|-EXISTING POND ON PARKBRIDGE CRAIGLEITH SUBJECT SITE-------|
01149> #----------------|-CONVERTED TO SWM FACILITY 1 POST-DEVELOPMENT-------------|
01150> #----------------|-------------------------------------------------------|
01151> R0001:C00185------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01152>      ROUTE RESERVOIR ->       1.0 06:SWMF1        13.13    1.119 No_date   12:12   53.68  n/a     .000
01153>                       out <=    1.0 01:SWMF-1       13.13     .030 No_date   24:10   53.68  n/a     .000
01154>        {MxStoUsed=.5621E+00  m3}
01155> R0001:C00186------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01156>      ADD HYD                  1.0 01:SWMF-1        13.13     .030 No_date   24:10   53.68  n/a     .000
01157>                    +     1.0 04:WC9a        119.93    6.060 No_date   13:05   62.94  n/a     .000
01158>                  SUM=    1.0 07:WC9b        133.06    6.086 No_date   13:05   62.02  n/a     .000
01159> #----------------|-------------------------------------------------------|
01160> #----------------|-Parkbridge Craigleith - Lower Terrace Lands--------------|
01161> #----------------|-------------------------------------------------------|
01162> #----------------|-CATCHMENT 9D DISCHARGING TO WATERCOURSE 9 AFTER OGS------|
01163> #----------------|-------------------------------------------------------|
01164> R0001:C00187------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01165>      CALIB STANDHYD           1.0 10:9D            1.38     .346 No_date   12:12   79.74 .738     .000
01166>        [XIMP=.33:TIMP=.68]
01167>        [LOSS= 2 :CN= 66.2]
01168>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01169>        [Impervious  area: IAimp= 2.00:SLPI=2.00:LGI=  96.:MNI=.013:SCI=   .0]
01170> #----------------|-------------------------------------------------------|
01171> #----------------|-LANDS DRAINING TO WC 9 UNCONTROLLED----------------------|
01172> #----------------|-------------------------------------------------------|
01173> R0001:C00188------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01174>      CALIB NASHYD             1.0 01:9F             .73     .049 No_date   12:23   34.86 .323     .000
01175>        [CN= 56.7: N= 3.00: Tp=  .28]
01176> R0001:C00189------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01177>      CALIB NASHYD             1.0 02:EXT-9D         .41     .020 No_date   12:45   42.24 .391     .000
01178>        [CN= 65.0: N= 3.00: Tp=  .62]
01179> R0001:C00190------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01180>      CALIB NASHYD             1.0 03:9C9E          2.06     .128 No_date   12:26   35.80 .332     .000
01181>        [CN= 58.2: N= 3.00: Tp=  .33]
01182> R0001:C00191------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01183>      ADD HYD                  1.0 01:9F             .73     .049 No_date   12:23   34.86  n/a     .000
01184>                    +     1.0 02:EXT-9D         .41     .020 No_date   12:45   42.24  n/a     .000
01185>                    +     1.0 03:9C9E          2.06     .128 No_date   12:26   35.80  n/a     .000
01186>                    +     1.0 07:WC9b        133.06    6.086 No_date   13:05   62.02  n/a     .000
01187>                    +     1.0 10:9D            1.38     .346 No_date   12:12   79.74  n/a     .000
01188>                  SUM=    1.0 05:WC9LOWER    137.64    6.191 No_date   13:05   61.61  n/a     .000
01189> #----------------|-------------------------------------------------------|
01190> #----------------|-LANDS DRAINING TO SWM FACILITY 2-----------------------|
01191> #----------------|-------------------------------------------------------|
01192> R0001:C00192------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01193>      CALIB NASHYD             1.0 01:2A            1.19     .052 No_date   12:16   15.89 .147     .000
01194>        [CN= 33.2: N= 3.00: Tp=  .14]
01195> R0001:C00193------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01196>      CALIB NASHYD             1.0 02:2B            1.67     .048 No_date   12:26   16.96 .157     .000
01197>        [CN= 34.7: N= 3.00: Tp=  .32]
01198> R0001:C00194------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01199>      CALIB STANDHYD           1.0 03:2C            1.96     .353 No_date   12:12   62.00 .574     .000
01200>        [XIMP=.30:TIMP=.60]
01201>        [LOSS= 2 :CN= 49.0]
01202>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01203>        [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 114.:MNI=.013:SCI=   .0]
01204> R0001:C00195------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01205>      CALIB STANDHYD           1.0 07:2D            3.28     .578 No_date   12:12   63.41 .587     .000
01206>        [XIMP=.25:TIMP=.50]
01207>        [LOSS= 2 :CN= 59.0]
01208>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01209>        [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
01210> R0001:C00196------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01211>      CALIB STANDHYD           1.0 04:2E            2.09     .389 No_date   12:12   66.58 .616     .000
01212>        [XIMP=.26:TIMP=.35]
01213>        [LOSS= 2 :CN= 69.0]
01214>        [Pervious    area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
01215>        [Impervious  area: IAimp= 2.00:SLPI=1.00:LGI= 118.:MNI=.013:SCI=   .0]
01216> R0001:C00197------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01217>      ADD HYD                  1.0 01:2A            1.19     .052 No_date   12:16   15.89  n/a     .000
01218>                    +     1.0 02:2B            1.67     .048 No_date   12:26   16.96  n/a     .000
01219>                    +     1.0 03:2C            1.96     .353 No_date   12:12   62.00  n/a     .000
01220>                    +     1.0 04:2E            2.09     .389 No_date   12:12   66.58  n/a     .000
01221>                    +     1.0 07:2D            3.28     .578 No_date   12:12   63.41  n/a     .000
01222>                  SUM=    1.0 06:SWMF2        10.19    1.394 No_date   12:12   50.63  n/a     .000
01223> #----------------|-------------------------------------------------------|
01224> #----------------|-POST-DEVELOPMENT SWM FACILITY 2 (LOWER EAST POND)--------|
01225> #----------------|-------------------------------------------------------|
01226> R0001:C00198------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01227>      ROUTE RESERVOIR ->       1.0 06:SWMF2        10.19    1.394 No_date   12:12   50.63  n/a     .000
01228>                       out <=    1.0 09:SWMF-2       10.19     .372 No_date   12:35   50.63  n/a     .000
01229>        {MxStoUsed=.2603E+00  m3}
01230> #----------------|-------------------------------------------------------|
01231> #----------------|--WATERCOURSE 9 TOTAL FLOW AT LAKESHORE RD----------------|
01232> #----------------|-------------------------------------------------------|
01233> R0001:C00199------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01234>      ADD HYD                  1.0 09:SWMF-2        10.19     .372 No_date   12:35   50.63  n/a     .000
01235>                    +     1.0 05:WC9LOWER    137.64    6.191 No_date   13:05   61.61  n/a     .000
01236>                  SUM=    1.0 01:WC9c        147.83    6.424 No_date   13:02   60.85  n/a     .000
01237> R0001:C00200------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01238>      SAVE HYD                 1.0 01:WC9c        147.83    6.424 No_date   13:02   60.85  n/a     .000
01239>        fname :WC9c.0001
01240>        remark:POST-DEV LAKESHORE
01241> #----------------|-------------------------------------------------------|
01242> #----------------|--WATERCOURSE 8 CATCHMENTS--------------------------------|
01243> #----------------|--WC 8 CATCHMENTS TO BE DIRECTED TO WC8-------------------|
01244> #----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 8---------------|
01245> #----------------|-------------------------------------------------------|
01246> R0001:C00201------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01247>      CALIB NASHYD             1.0 01:8A            2.27     .085 No_date   12:21   18.06 .167     .000
01248>        [CN= 36.2: N= 3.00: Tp=  .23]
01249> R0001:C00202------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01250>      CALIB NASHYD             1.0 02:EXT-8A        7.14     .517 No_date   12:31   47.22 .437     .000
01251>        [CN= 68.9: N= 3.00: Tp=  .41]
01252> R0001:C00203------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01253>      CALIB NASHYD             1.0 03:EXT-8B        1.04     .057 No_date   12:32   36.52 .338     .000
01254>        [CN= 58.6: N= 3.00: Tp=  .41]
01255> #----------------|-------------------------------------------------------|
01256> #----------------|-----------WATERCOURSE 8----------------------------------|
01257> #----------------|-------------------------------------------------------|
01258> R0001:C00204------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01259>      ADD HYD                  1.0 01:8A            2.27     .085 No_date   12:21   18.06  n/a     .000
01260>                    +     1.0 02:EXT-8A        7.14     .517 No_date   12:31   47.22  n/a     .000
01261>                    +     1.0 03:EXT-8B        1.04     .057 No_date   12:32   36.52  n/a     .000
01262>                  SUM=    1.0 04:WC8          10.45     .644 No_date   12:29   39.82  n/a     .000
01263> #----------------|-------------------------------------------------------|
01264> #----------------|--WATERCOURSE 10 CATCHMENT--------------------------------|
01265> #----------------|--EQUIVALENT TO EXISTING CONDITIONS OF WC 10--------------|
01266> #----------------|-------------------------------------------------------|
01267> R0001:C00205------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm----RVmm-R.C.---DWFcms
01268>      CALIB NASHYD             1.0 01:10A           1.99     .166 No_date   12:19   36.19 .335     .000
01269>        [CN= 59.4: N= 3.00: Tp=  .21]
01270> R0001:C00206-------------------------------------------------------------------------------------------
01271>       FINISH
01272> -------------------------------------------------------------------------------------------------------
01273> *******************************************************************************************************
01274>       WARNINGS / ERRORS / NOTES
01275>       -------------------------
01276>    Simulation ended on 2021-04-29     at 12:04:01
01277> =======================================================================================================
01278>
01279>
```

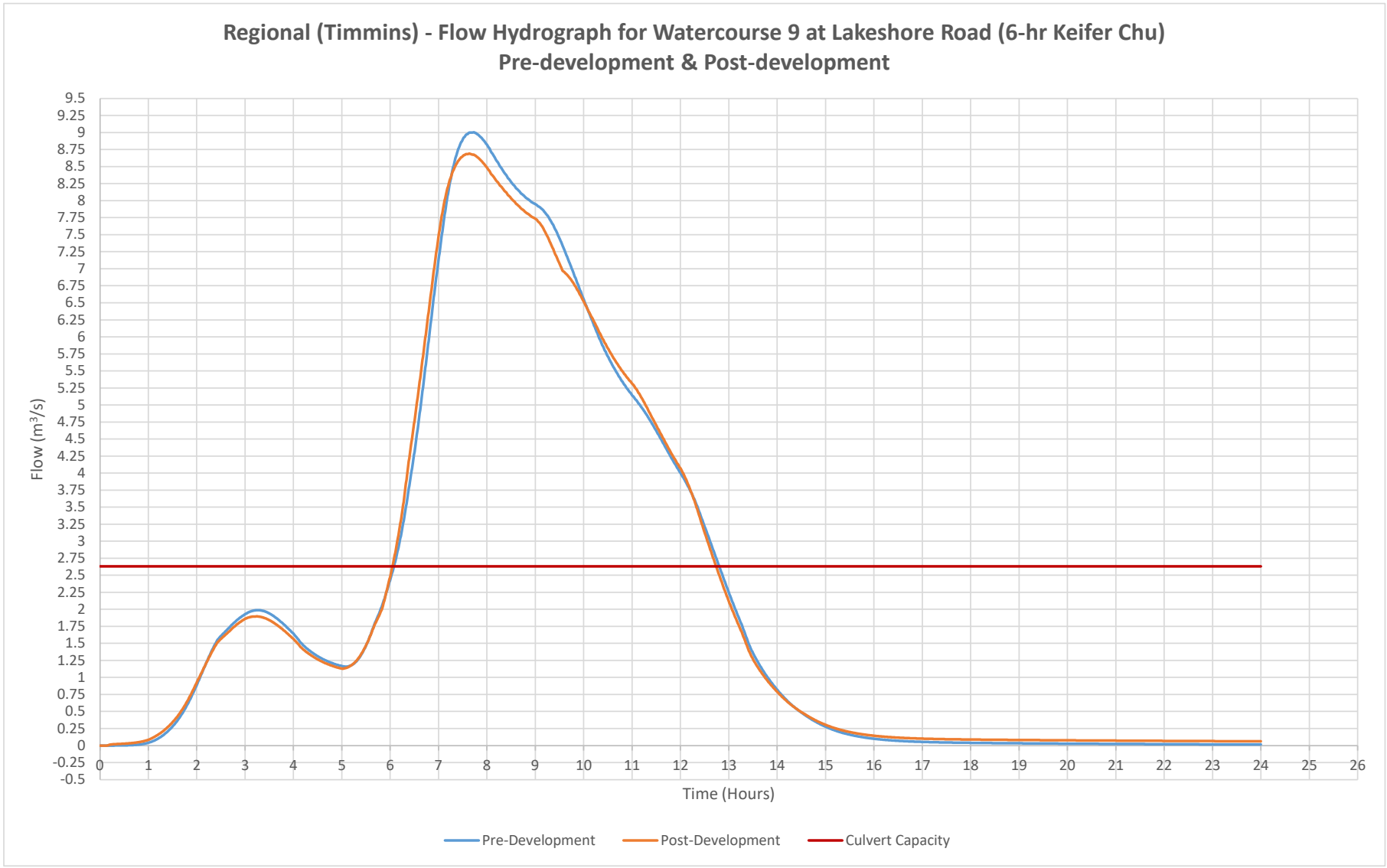

2-Year - Flow Hydrograph for Watercourse 9 at Lakeshore Road (6-hr Keifer Chu)
Pre-development & Post-development
Flow (m³/s)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (Hours)
Pre-Development
Post-Development


5-Year - Flow Hydrograph for Watercourse 9 at Lakeshore Road (6-hr Keifer Chu)
Pre-development & Post-development
Flow (m³/s)
Time (Hours)
Pre-Development
Post-Development
Culvert Capacity


10-Year - Flow Hydrograph for Watercourse 9 at Lakeshore Road (6-hr Keifer Chu)
Pre-development & Post-development
Flow (m3/s)
4.25
4
3.75
3.5
3.25
3
2.75
2.5
2.25
2
1.75
1.5
1.25
1
0.75
0.5
0.25
0
-0.25
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (Hours)
Pre-Development
Post-Development
Culvert Capacity


50-Year - Flow Hydrograph for Watercourse 9 at Lakeshore Road (6-hr Keifer Chu)
Pre-development & Post-development
Flow (m³/s)
6.25
6
5.75
5.5
5.25
5
4.75
4.5
4.25
4
3.75
3.5
3.25
3
2.75
2.5
2.25
2
1.75
1.5
1.25
1
0.75
0.5
0.25
0
-0.25
-0.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (Hours)
Pre-Development
Post-Development
Culvert Capacity


100-Year - Flow Hydrograph for Watercourse 9 at Lakeshore Road (6-hr Keifer Chu)
Pre-development & Post-development
Flow (m³/s)
Time (Hours)
Pre-Development
Post-Development
Culvert Capacity


Regional (Timmins) - Flow Hydrograph for Watercourse 9 at Lakeshore Road (6-hr Keifer Chu)
Pre-development & Post-development
Flow (m³/s)
Time (Hours)
Pre-Development
Post-Development
Culvert Capacity

CROZIER CONSULTING ENGINEERS

**Watercourse 9 at Lakeshore Road - Pre-Development Regional Hydrograph**

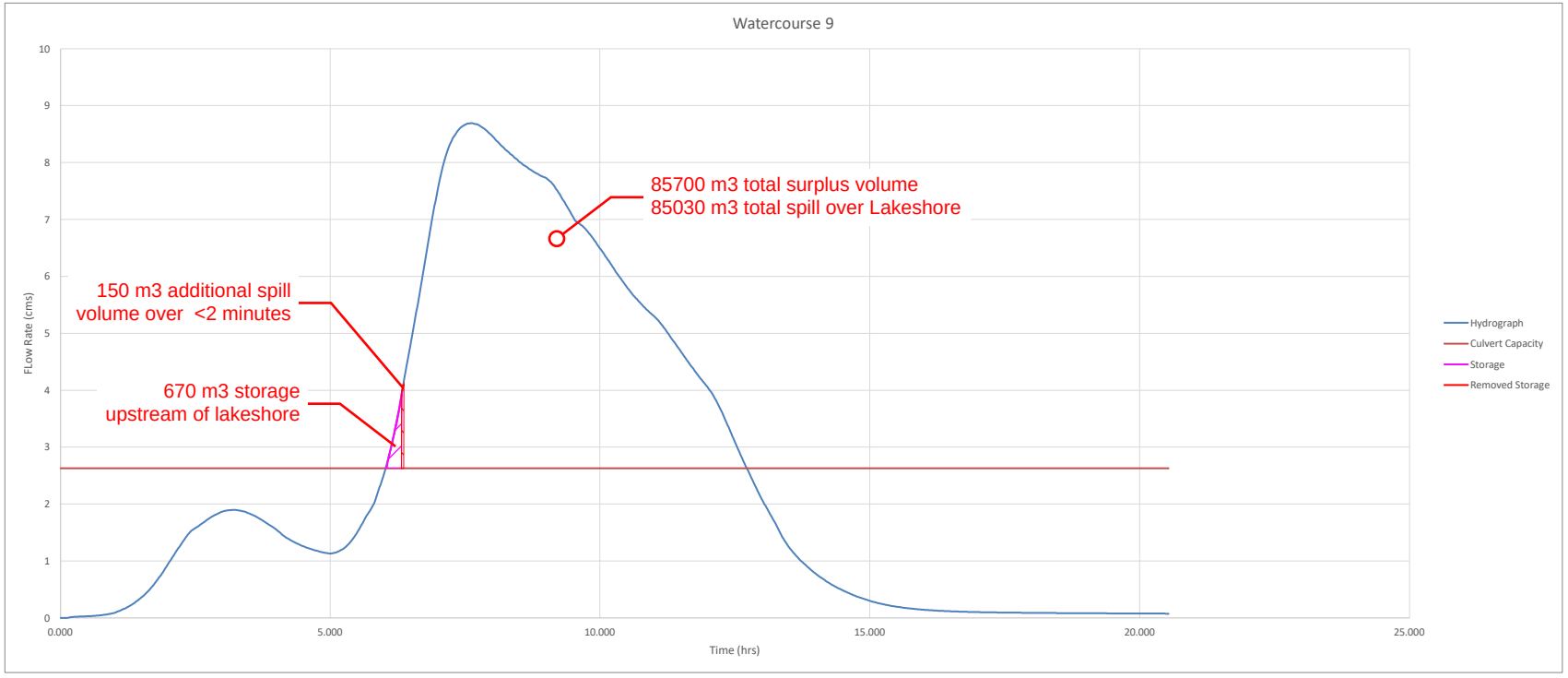
| | | |
|---|---|---|
| Culvert Capacity | 2.63 $m^3/s$ | (Lakeshore Road Culvert) |
| Storage Volume Upstream of Lakeshore | 1320 $m^3$ | (per existing grades and spill elevation of 181.70) |
| Total Surplus Volume | 86212 $m^3$ | |
| Total Volume of Spill Over Lakeshore | 84892 $m^3$ | |

PROJ. NO: 1046-4031
PROJECT: Parkbridge Craigleith
DESIGN: J. Elder
FILE: Hydrographs
DATE: May 7, 2021

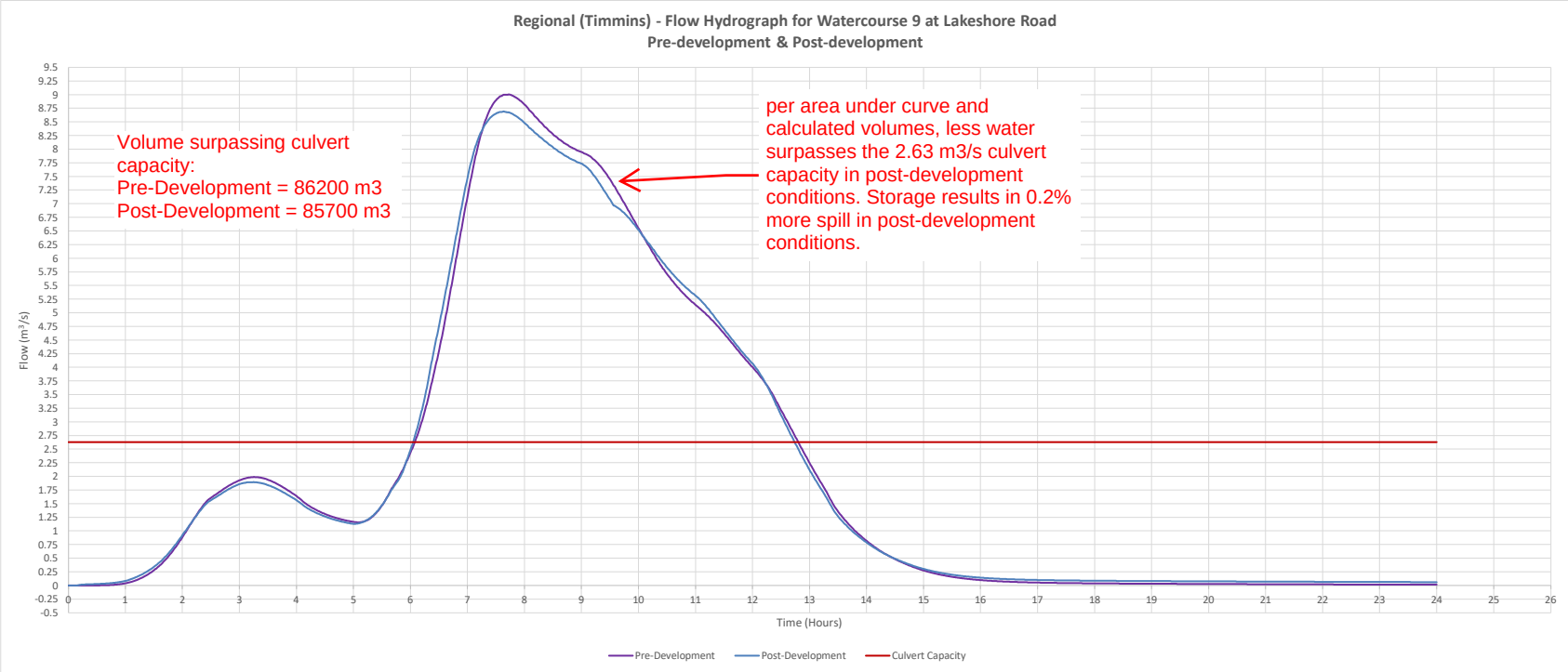


**Watercourse 9 at Lakeshore Road - Post-Development Regional Hydrograph**

| | | | |
|---|---|---|---|
| Culvert Capacity | 2.63 $m^3/s$ | | (Lakeshore Road Culvert) |
| Storage Volume Upstream of Lakeshore | 670 $m^3$ | | (per proposed grades and spill elevation of 181.70) |
| Total Surplus Volume | 85717 $m^3$ | | |
| Total Volume of Spill Over Lakeshore | 85047 $m^3$ | | |
| Change in Spill Volume | 155 $m^3$ | or | 0.2% increase in spill volume during the Regional Event |



**Watercourse 9 at Lakeshore Road - Pre-development vs. Post-development**

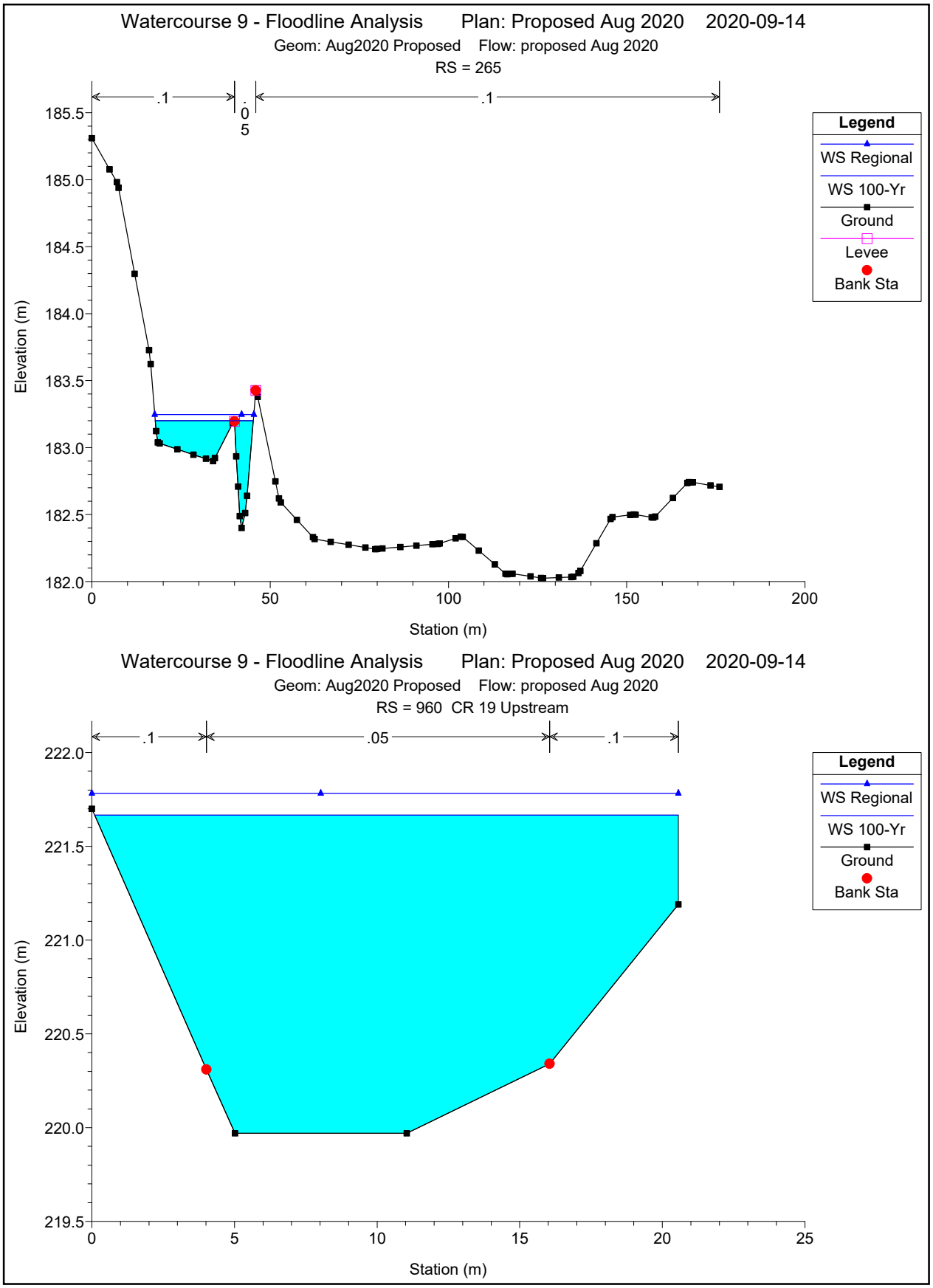


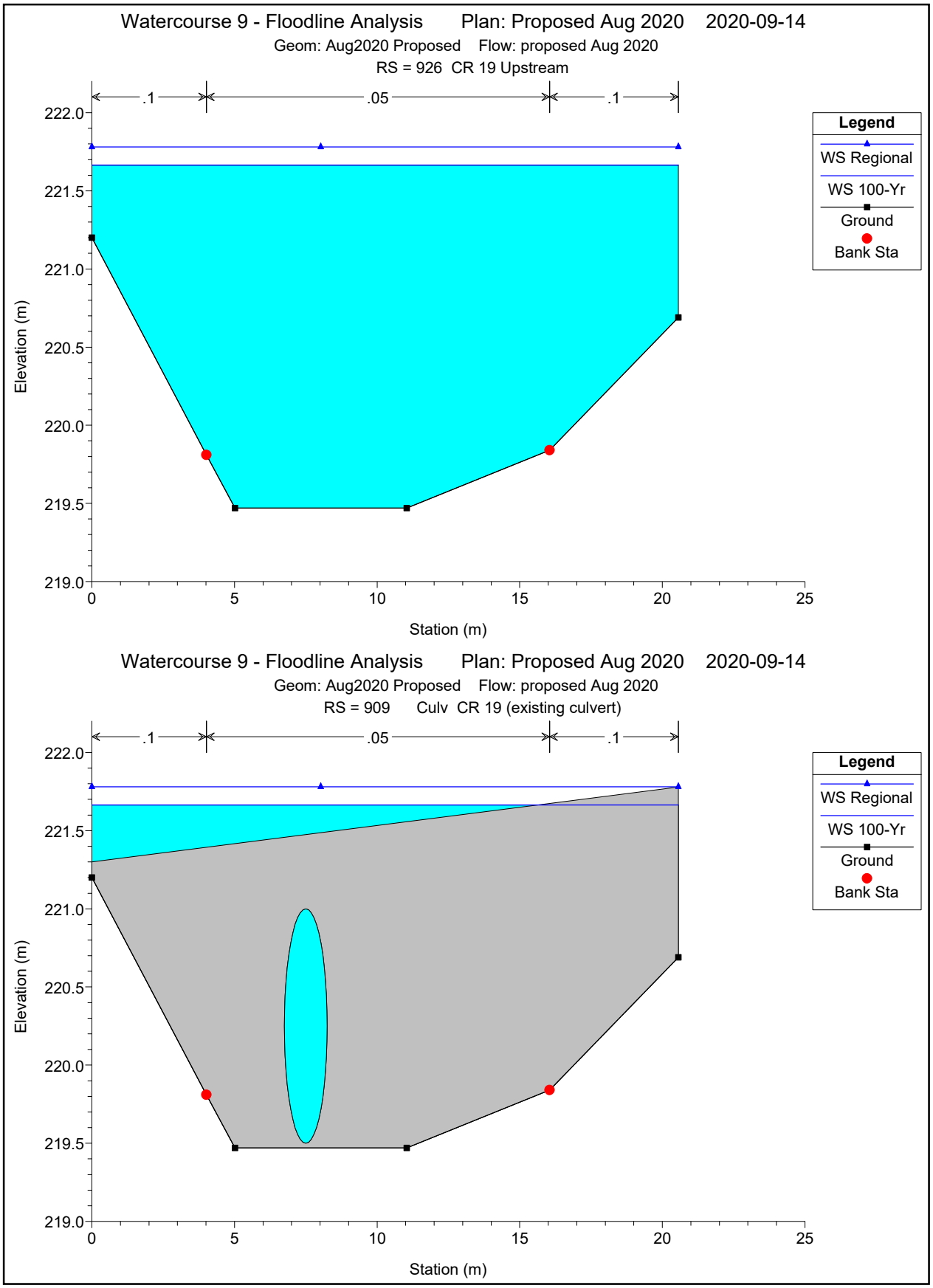
HEC-RAS Plan: PR2020 River: WATERCOURSE 9 Reach: WATERCOURSE 9

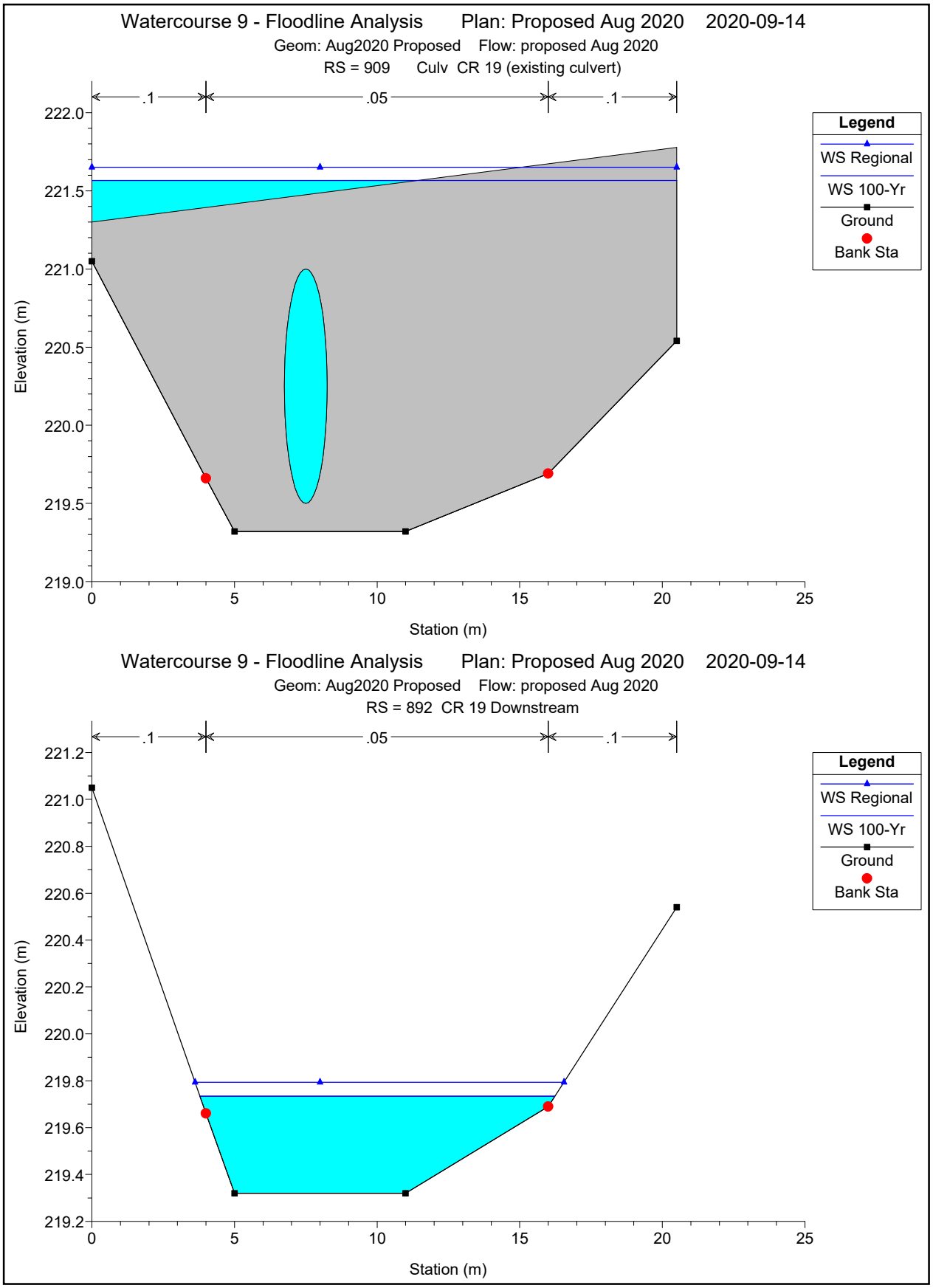
| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (m3/s) | (m) | (m) | (m) | (m) | (m/m) | (m/s) | (m2) | (m) | |
| WATERCOURSE 9 | 960 | 100-Yr | 6.90 | 219.97 | 221.67 | | 221.67 | 0.000140 | 0.32 | 26.04 | 20.47 | 0.08 |
| WATERCOURSE 9 | 960 | Regional | 8.90 | 219.97 | 221.78 | | 221.79 | 0.000182 | 0.39 | 28.44 | 20.56 | 0.09 |
| WATERCOURSE 9 | 926 | 100-Yr | 6.90 | 219.47 | 221.66 | 219.88 | 221.67 | 0.000054 | 0.24 | 36.30 | 20.56 | 0.05 |
| WATERCOURSE 9 | 926 | Regional | 8.90 | 219.47 | 221.78 | 219.94 | 221.78 | 0.000074 | 0.29 | 38.68 | 20.56 | 0.06 |
| WATERCOURSE 9 | 909 | | Culvert | | | | | | | | | |
| WATERCOURSE 9 | 892 | 100-Yr | 6.90 | 219.32 | 219.73 | 219.73 | 219.90 | 0.036031 | 1.78 | 3.89 | 12.45 | 1.00 |
| WATERCOURSE 9 | 892 | Regional | 8.90 | 219.32 | 219.79 | 219.79 | 219.98 | 0.033994 | 1.94 | 4.64 | 12.93 | 1.00 |
| WATERCOURSE 9 | 780 | 100-Yr | 6.90 | 211.97 | 212.34 | 212.34 | 212.49 | 0.038040 | 1.71 | 4.02 | 13.64 | 1.01 |
| WATERCOURSE 9 | 780 | Regional | 8.90 | 211.97 | 212.39 | 212.39 | 212.57 | 0.035872 | 1.85 | 4.80 | 13.84 | 1.00 |
| WATERCOURSE 9 | 758 | 100-Yr | 6.90 | 210.44 | 211.22 | 210.94 | 211.28 | 0.006358 | 1.12 | 6.18 | 10.29 | 0.46 |
| WATERCOURSE 9 | 758 | Regional | 8.90 | 210.44 | 211.59 | 211.02 | 211.63 | 0.002250 | 0.86 | 10.29 | 12.37 | 0.29 |
| WATERCOURSE 9 | 753 | 100-Yr | 6.90 | 209.90 | 210.92 | 210.72 | 211.18 | 0.012608 | 2.27 | 3.04 | 3.75 | 0.72 |
| WATERCOURSE 9 | 753 | Regional | 8.90 | 209.90 | 211.34 | 210.87 | 211.55 | 0.006682 | 2.07 | 4.29 | 7.22 | 0.55 |
| WATERCOURSE 9 | 740 | | Culvert | | | | | | | | | |
| WATERCOURSE 9 | 733 | 100-Yr | 6.90 | 208.12 | 208.94 | 208.94 | 209.30 | 0.039308 | 2.67 | 2.58 | 3.58 | 1.00 |
| WATERCOURSE 9 | 733 | Regional | 8.90 | 208.12 | 209.08 | 209.08 | 209.50 | 0.038616 | 2.87 | 3.10 | 3.68 | 1.00 |
| WATERCOURSE 9 | 722 | 100-Yr | 6.90 | 206.05 | 206.97 | 206.97 | 207.19 | 0.036084 | 2.08 | 3.31 | 7.64 | 1.01 |
| WATERCOURSE 9 | 722 | Regional | 8.90 | 206.05 | 207.07 | 207.07 | 207.31 | 0.035406 | 2.16 | 4.13 | 8.95 | 1.01 |
| WATERCOURSE 9 | 669 | 100-Yr | 6.90 | 203.57 | 204.38 | 204.38 | 204.57 | 0.035748 | 1.93 | 3.58 | 9.67 | 1.01 |
| WATERCOURSE 9 | 669 | Regional | 8.90 | 203.57 | 204.46 | 204.46 | 204.67 | 0.034666 | 2.03 | 4.41 | 12.58 | 1.01 |
| WATERCOURSE 9 | 629 | 100-Yr | 6.90 | 200.95 | 201.78 | 201.78 | 201.96 | 0.026806 | 1.94 | 3.91 | 14.38 | 0.91 |
| WATERCOURSE 9 | 629 | Regional | 8.90 | 200.95 | 201.86 | 201.86 | 202.06 | 0.024195 | 2.05 | 5.18 | 16.15 | 0.89 |
| WATERCOURSE 9 | 587 | 100-Yr | 6.90 | 197.99 | 199.01 | 199.01 | 199.23 | 0.034406 | 2.08 | 3.32 | 7.55 | 1.00 |
| WATERCOURSE 9 | 587 | Regional | 8.90 | 197.99 | 199.11 | 199.11 | 199.34 | 0.033063 | 2.16 | 4.12 | 8.59 | 1.00 |
| WATERCOURSE 9 | 546 | 100-Yr | 6.90 | 196.07 | 196.97 | 196.97 | 197.21 | 0.033234 | 2.14 | 3.22 | 6.91 | 1.00 |
| WATERCOURSE 9 | 546 | Regional | 8.90 | 196.07 | 197.07 | 197.07 | 197.33 | 0.031959 | 2.27 | 3.93 | 7.50 | 1.00 |
| WATERCOURSE 9 | 510 | 100-Yr | 6.90 | 192.98 | 193.90 | 193.90 | 194.15 | 0.033453 | 2.20 | 3.13 | 6.42 | 1.01 |
| WATERCOURSE 9 | 510 | Regional | 8.90 | 192.98 | 194.01 | 194.01 | 194.28 | 0.031772 | 2.31 | 3.85 | 7.04 | 1.00 |
| WATERCOURSE 9 | 487 | 100-Yr | 6.90 | 191.61 | 192.98 | 192.38 | 193.03 | 0.002232 | 1.05 | 8.90 | 14.79 | 0.30 |
| WATERCOURSE 9 | 487 | Regional | 8.90 | 191.61 | 193.38 | 192.49 | 193.42 | 0.001234 | 0.94 | 13.39 | 18.08 | 0.24 |
| WATERCOURSE 9 | 481 | 100-Yr | 6.90 | 191.65 | 192.70 | 192.47 | 192.95 | 0.011394 | 2.19 | 3.15 | 3.61 | 0.68 |
| WATERCOURSE 9 | 481 | Regional | 8.90 | 191.65 | 193.16 | 192.62 | 193.36 | 0.005679 | 1.97 | 4.52 | 3.87 | 0.51 |
| WATERCOURSE 9 | 470 | | Culvert | | | | | | | | | |
| WATERCOURSE 9 | 463 | 100-Yr | 6.90 | 190.93 | 191.67 | 191.60 | 191.85 | 0.022431 | 1.90 | 3.64 | 6.83 | 0.83 |
| WATERCOURSE 9 | 463 | Regional | 8.90 | 190.93 | 191.70 | 191.70 | 191.97 | 0.032105 | 2.33 | 3.82 | 6.88 | 1.00 |
| WATERCOURSE 9 | 452 | 100-Yr | 6.90 | 190.41 | 191.29 | 191.29 | 191.54 | 0.032918 | 2.22 | 3.11 | 6.17 | 1.00 |
| WATERCOURSE 9 | 452 | Regional | 8.90 | 190.41 | 191.37 | 191.37 | 191.57 | 0.027859 | 2.10 | 5.53 | 14.49 | 0.93 |
| WATERCOURSE 9 | 394 | 100-Yr | 6.90 | 188.51 | 189.36 | 189.36 | 189.50 | 0.020462 | 1.86 | 5.92 | 19.60 | 0.78 |
| WATERCOURSE 9 | 394 | Regional | 8.90 | 188.51 | 189.41 | 189.41 | 189.58 | 0.023349 | 2.10 | 6.90 | 19.84 | 0.85 |
| WATERCOURSE 9 | 370 | 100-Yr | 6.90 | 187.51 | 188.38 | 188.38 | 188.51 | 0.024120 | 1.83 | 5.84 | 21.03 | 0.85 |
| WATERCOURSE 9 | 370 | Regional | 8.90 | 187.51 | 188.43 | 188.43 | 188.59 | 0.025041 | 1.99 | 7.06 | 21.36 | 0.88 |
| WATERCOURSE 9 | 352 | 100-Yr | 6.90 | 186.97 | 187.78 | 187.78 | 187.95 | 0.022653 | 1.82 | 4.36 | 22.74 | 0.84 |
| WATERCOURSE 9 | 352 | Regional | 8.90 | 186.97 | 187.87 | 187.87 | 188.03 | 0.020590 | 1.86 | 6.34 | 23.51 | 0.81 |
| WATERCOURSE 9 | 336 | 100-Yr | 6.90 | 186.51 | 187.30 | 187.13 | 187.37 | 0.009478 | 1.25 | 7.39 | 26.26 | 0.55 |
| WATERCOURSE 9 | 336 | Regional | 8.90 | 186.51 | 187.67 | 187.21 | 187.69 | 0.001482 | 0.68 | 22.12 | 42.75 | 0.24 |
| WATERCOURSE 9 | 327 | 100-Yr | 6.90 | 185.12 | 186.43 | 186.43 | 187.07 | 0.022372 | 3.55 | 1.94 | 5.61 | 1.00 |
| WATERCOURSE 9 | 327 | Regional | 8.90 | 185.12 | 186.67 | 186.67 | 187.43 | 0.021175 | 3.87 | 2.30 | 8.24 | 1.00 |
| WATERCOURSE 9 | 320 | | Culvert | | | | | | | | | |
| WATERCOURSE 9 | 310 | 100-Yr | 6.90 | 184.56 | 185.32 | 185.32 | 185.66 | 0.037562 | 2.58 | 2.68 | 3.99 | 1.01 |
| WATERCOURSE 9 | 310 | Regional | 8.90 | 184.56 | 185.45 | 185.45 | 185.85 | 0.037134 | 2.78 | 3.20 | 4.09 | 1.01 |
| WATERCOURSE 9 | 300 | 100-Yr | 6.90 | 184.07 | 184.88 | 184.88 | 185.13 | 0.032743 | 2.22 | 3.11 | 6.23 | 1.00 |
| WATERCOURSE 9 | 300 | Regional | 8.90 | 184.07 | 184.99 | 184.99 | 185.27 | 0.031304 | 2.34 | 3.80 | 6.75 | 1.00 |

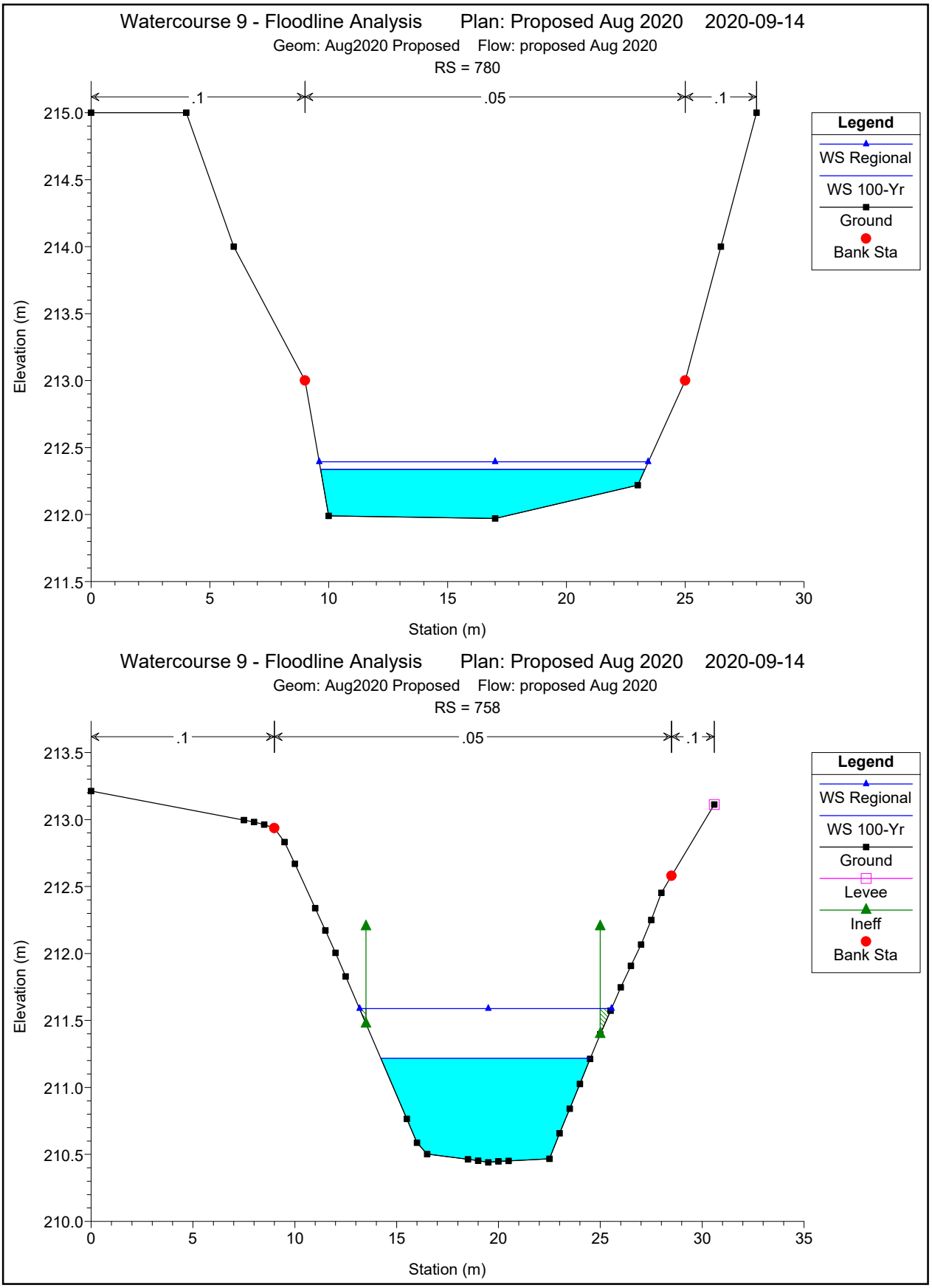
HEC-RAS Plan: PR2020 River: WATERCOURSE 9 Reach: WATERCOURSE 9 (Continued)

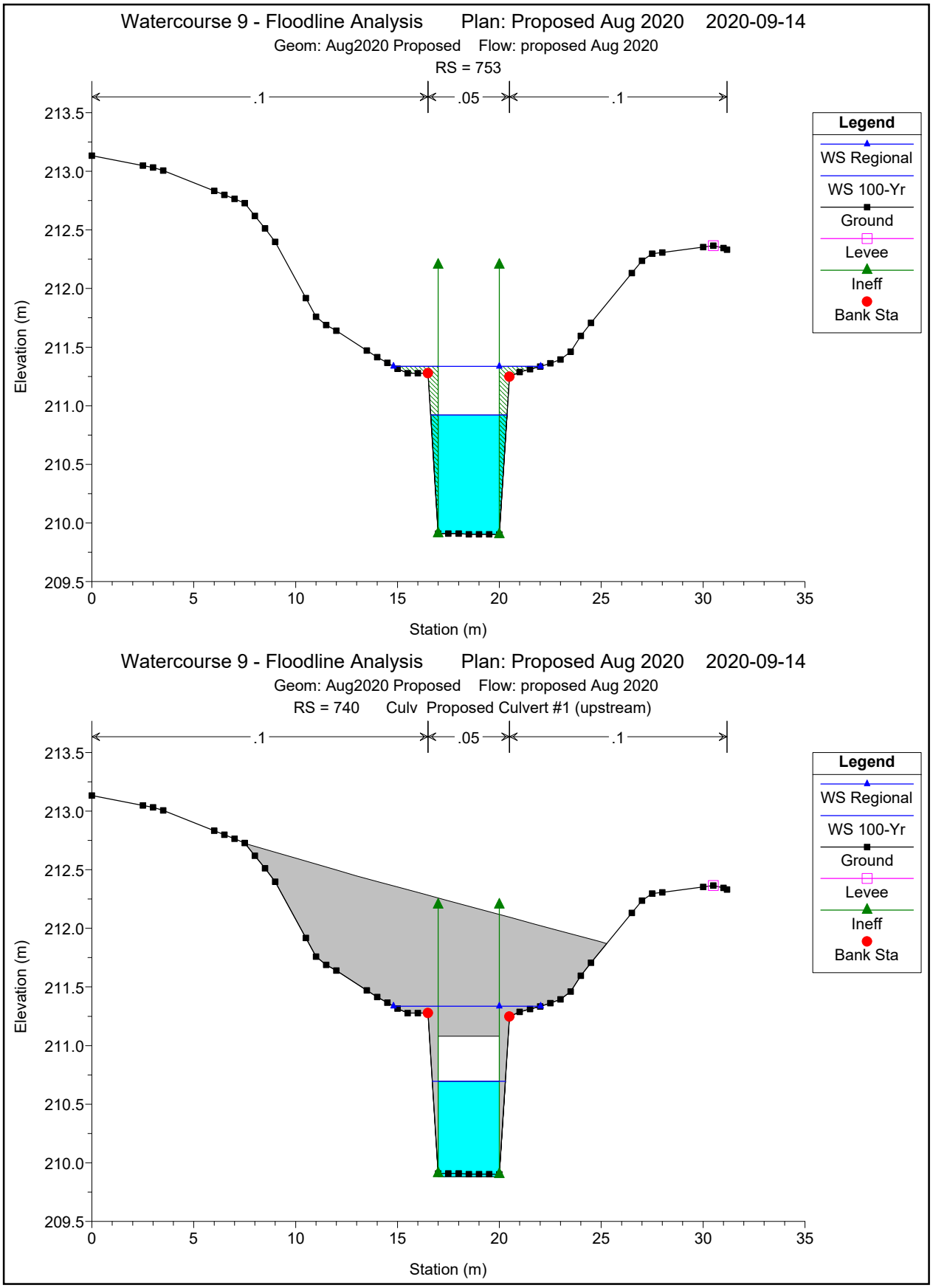
| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (m3/s) | (m) | (m) | (m) | (m) | (m/m) | (m/s) | (m2) | (m) | |
| WATERCOURSE 9 | 285 | 100-Yr | 6.90 | 183.11 | 183.98 | 183.98 | 184.24 | 0.032648 | 2.26 | 3.06 | 5.87 | 1.00 |
| WATERCOURSE 9 | 285 | Regional | 8.90 | 183.11 | 184.09 | 184.09 | 184.38 | 0.031457 | 2.41 | 3.69 | 6.18 | 1.00 |
| WATERCOURSE 9 | 265 | 100-Yr | 6.90 | 182.40 | 183.20 | 183.20 | 183.31 | 0.023462 | 1.79 | 7.05 | 27.51 | 0.83 |
| WATERCOURSE 9 | 265 | Regional | 8.90 | 182.40 | 183.25 | 183.25 | 183.37 | 0.025399 | 1.95 | 8.34 | 27.80 | 0.88 |
| WATERCOURSE 9 | 250 | 100-Yr | 6.90 | 182.01 | 182.48 | 182.40 | 182.53 | 0.020568 | 1.48 | 8.98 | 30.13 | 0.77 |
| WATERCOURSE 9 | 250 | Regional | 8.90 | 182.01 | 182.58 | 182.44 | 182.63 | 0.013437 | 1.41 | 12.06 | 30.63 | 0.65 |
| WATERCOURSE 9 | 237 | 100-Yr | 6.90 | 181.69 | 182.26 | 182.13 | 182.30 | 0.015698 | 1.21 | 9.51 | 28.43 | 0.66 |
| WATERCOURSE 9 | 237 | Regional | 8.90 | 181.69 | 182.17 | 182.17 | 182.29 | 0.066806 | 2.14 | 7.08 | 27.45 | 1.31 |
| WATERCOURSE 9 | 219 | 100-Yr | 6.90 | 181.28 | 182.11 | 181.92 | 182.14 | 0.005728 | 1.02 | 11.86 | 27.82 | 0.43 |
| WATERCOURSE 9 | 219 | Regional | 8.90 | 181.28 | 182.14 | 181.97 | 182.19 | 0.007463 | 1.20 | 12.91 | 28.05 | 0.49 |
| WATERCOURSE 9 | 199 | 100-Yr | 6.90 | 180.89 | 182.08 | 181.68 | 182.09 | 0.001047 | 0.53 | 24.25 | 45.08 | 0.19 |
| WATERCOURSE 9 | 199 | Regional | 8.90 | 180.89 | 182.11 | 181.72 | 182.12 | 0.001515 | 0.66 | 25.43 | 45.20 | 0.23 |
| WATERCOURSE 9 | 177 | 100-Yr | 6.90 | 180.47 | 181.97 | 181.24 | 182.04 | 0.003542 | 1.13 | 6.25 | 11.62 | 0.33 |
| WATERCOURSE 9 | 177 | Regional | 8.90 | 180.47 | 181.92 | 181.37 | 182.04 | 0.006870 | 1.53 | 5.80 | 5.38 | 0.45 |
| WATERCOURSE 9 | 172 | | Culvert | | | | | | | | | |
| WATERCOURSE 9 | 162 | 100-Yr | 6.90 | 180.33 | 181.10 | 181.10 | 181.43 | 0.035656 | 2.55 | 2.70 | 4.06 | 1.00 |
| WATERCOURSE 9 | 162 | Regional | 8.90 | 180.33 | 181.23 | 181.23 | 181.61 | 0.035089 | 2.74 | 3.24 | 4.24 | 1.00 |
| WATERCOURSE 9 | 139 | 100-Yr | 6.90 | 179.12 | 180.70 | 179.95 | 180.73 | 0.001419 | 0.84 | 10.24 | 26.01 | 0.24 |
| WATERCOURSE 9 | 139 | Regional | 8.90 | 179.12 | 180.83 | 180.06 | 180.87 | 0.001668 | 0.97 | 11.50 | 26.01 | 0.26 |
| WATERCOURSE 9 | 134 | | Culvert | | | | | | | | | |
| WATERCOURSE 9 | 124 | 100-Yr | 6.90 | 178.11 | 179.96 | 179.17 | 179.96 | 0.000501 | 0.61 | 24.93 | 64.28 | 0.15 |
| WATERCOURSE 9 | 124 | Regional | 8.90 | 178.11 | 180.07 | 179.27 | 180.07 | 0.000203 | 0.41 | 59.88 | 64.28 | 0.10 |
| WATERCOURSE 9 | 115.5 | | Culvert | | | | | | | | | |
| WATERCOURSE 9 | 105 | 100-Yr | 6.90 | 178.18 | 179.77 | | 179.80 | 0.000737 | 0.89 | 21.42 | 50.00 | 0.23 |
| WATERCOURSE 9 | 105 | Regional | 8.90 | 178.18 | 180.05 | | 180.06 | 0.000359 | 0.69 | 35.36 | 50.00 | 0.17 |
| WATERCOURSE 9 | 98 | 100-Yr | 6.90 | 177.83 | 179.26 | 179.26 | 179.74 | 0.036947 | 3.13 | 2.38 | 15.72 | 0.97 |
| WATERCOURSE 9 | 98 | Regional | 8.90 | 177.83 | 179.44 | 179.44 | 180.00 | 0.035594 | 3.41 | 2.82 | 15.72 | 0.98 |
| WATERCOURSE 9 | 54 | 100-Yr | 6.90 | 177.30 | 178.66 | 178.66 | 178.91 | 0.008466 | 2.41 | 4.90 | 60.00 | 0.71 |
| WATERCOURSE 9 | 54 | Regional | 8.90 | 177.30 | 178.77 | 178.77 | 179.04 | 0.009079 | 2.64 | 6.02 | 60.00 | 0.75 |
| WATERCOURSE 9 | 38 | 100-Yr | 6.90 | 177.12 | 178.31 | 178.31 | 178.64 | 0.012619 | 2.57 | 2.69 | 4.03 | 1.00 |
| WATERCOURSE 9 | 38 | Regional | 8.90 | 177.12 | 178.45 | 178.45 | 178.82 | 0.012278 | 2.71 | 3.29 | 4.43 | 1.00 |
| WATERCOURSE 9 | 0 | 100-Yr | 6.90 | 176.74 | 177.50 | 177.50 | 177.54 | 0.002230 | 1.21 | 12.39 | 20.00 | 0.47 |
| WATERCOURSE 9 | 0 | Regional | 8.90 | 176.74 | 177.50 | 177.50 | 177.56 | 0.003710 | 1.56 | 12.39 | 20.00 | 0.61 |

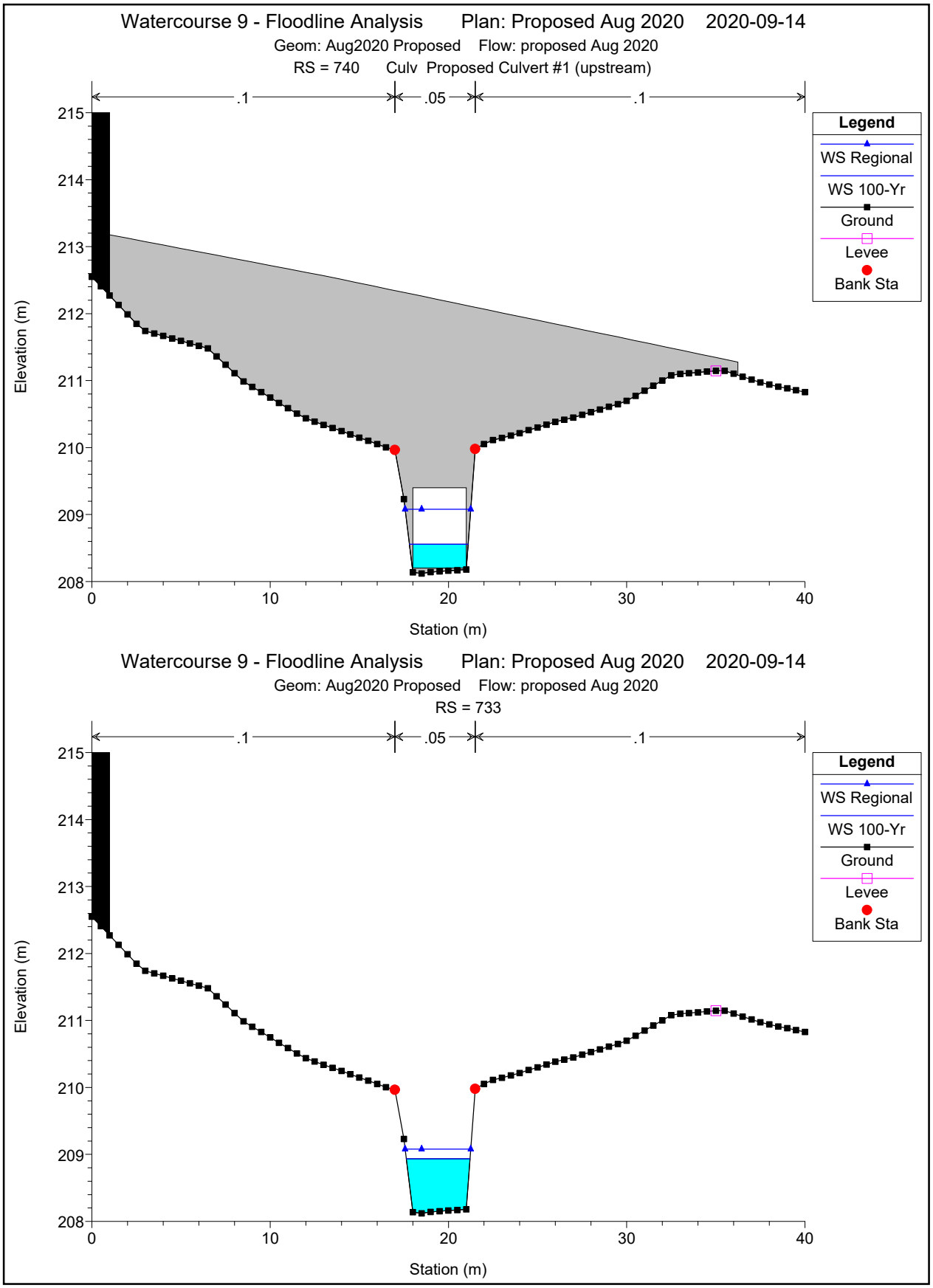

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 265
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 960 CR 19 Upstream
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta
Elevation (m)
Station (m)

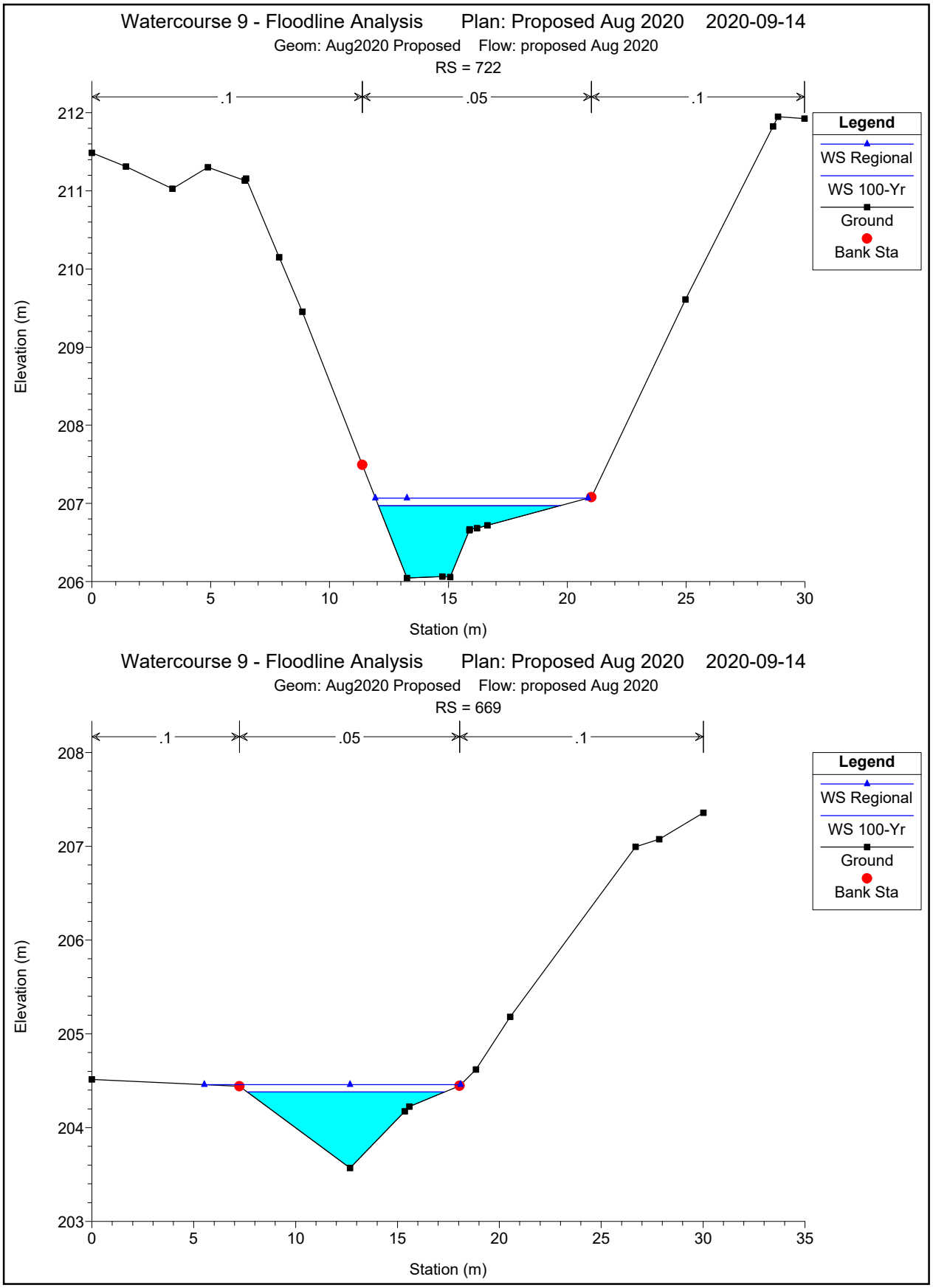

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 926 CR 19 Upstream
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 909 Culv CR 19 (existing culvert)
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta
Elevation (m)
Station (m)

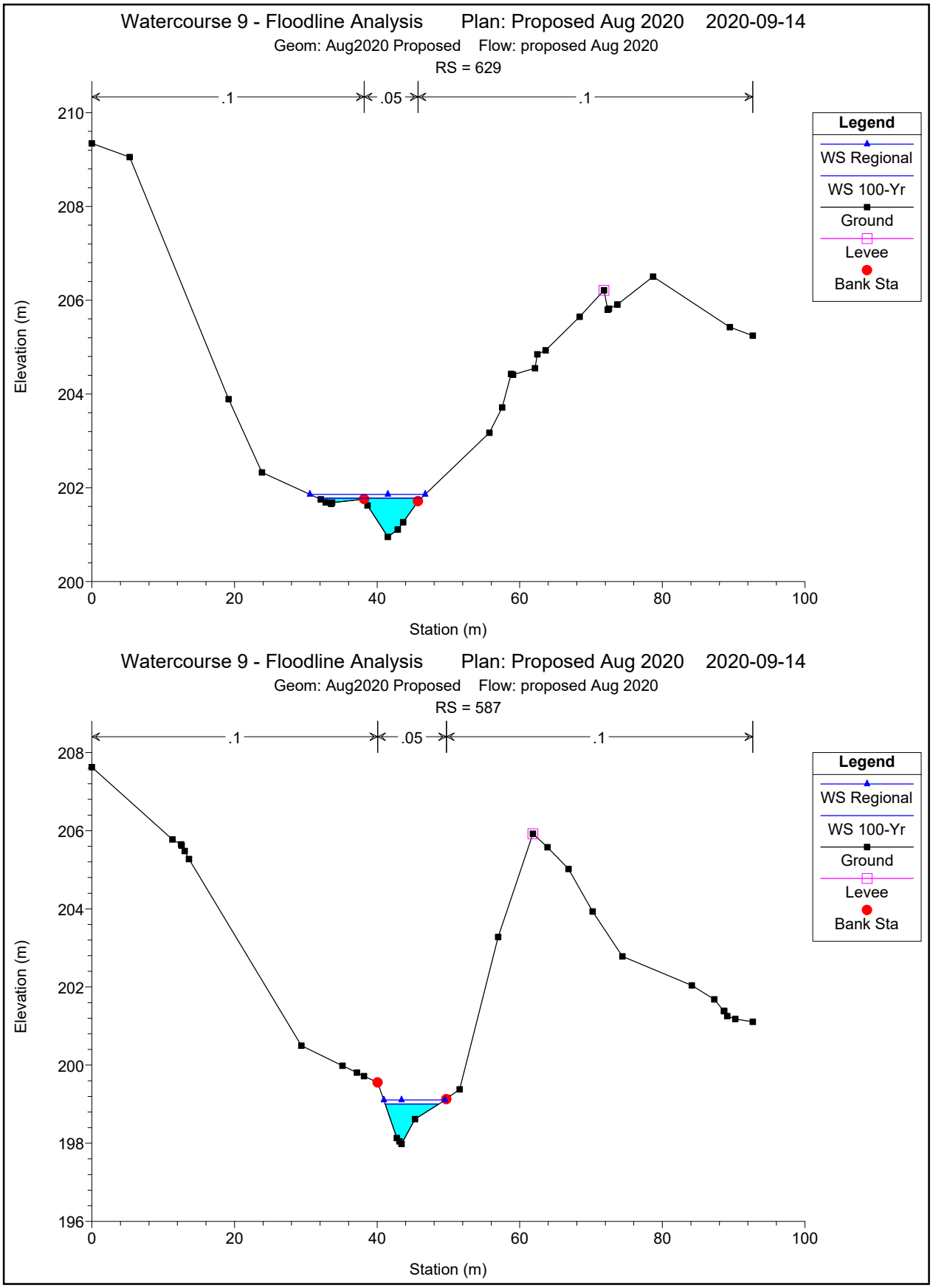

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 909 Culv CR 19 (existing culvert)
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 892 CR 19 Downstream
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta
Elevation (m)
Station (m)

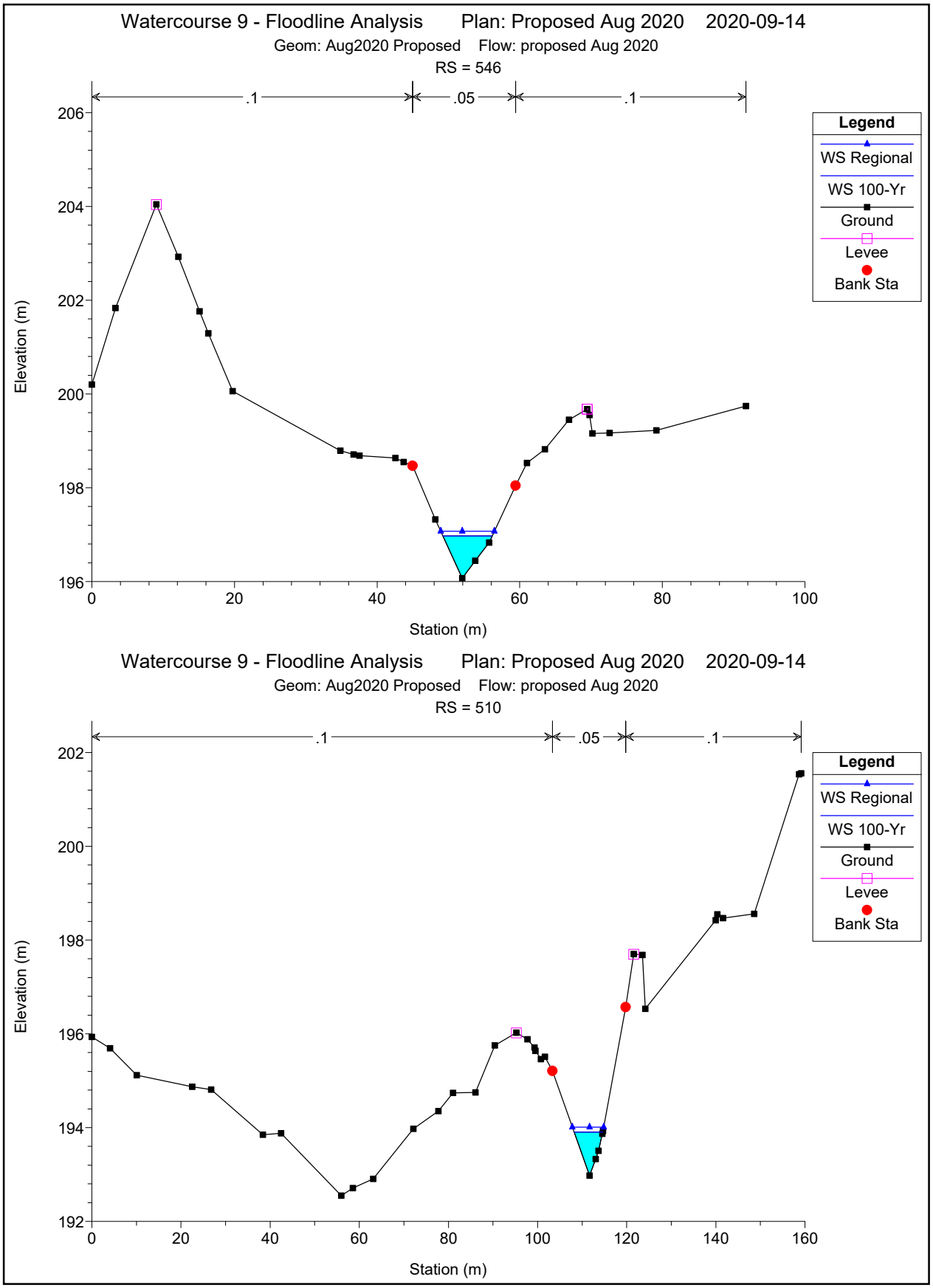

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 780
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 758
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)

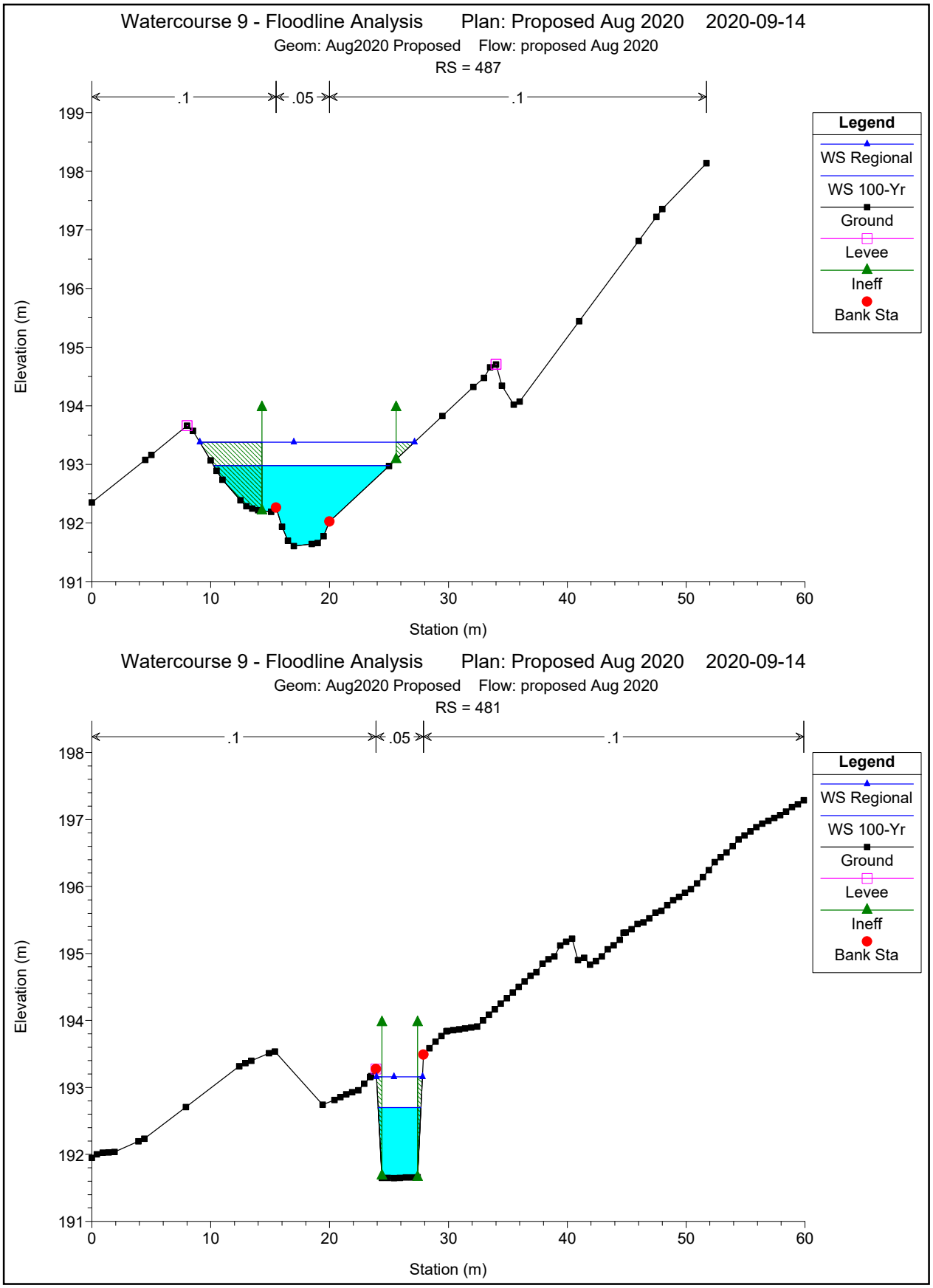

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 753
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta
Elevation (m)
213.5
213.0
212.5
212.0
211.5
211.0
210.5
210.0
209.5
0
5
10
15
20
25
30
35
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 740 Culv Proposed Culvert #1 (upstream)
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta
Elevation (m)
213.5
213.0
212.5
212.0
211.5
211.0
210.5
210.0
209.5
0
5
10
15
20
25
30
35
Station (m)

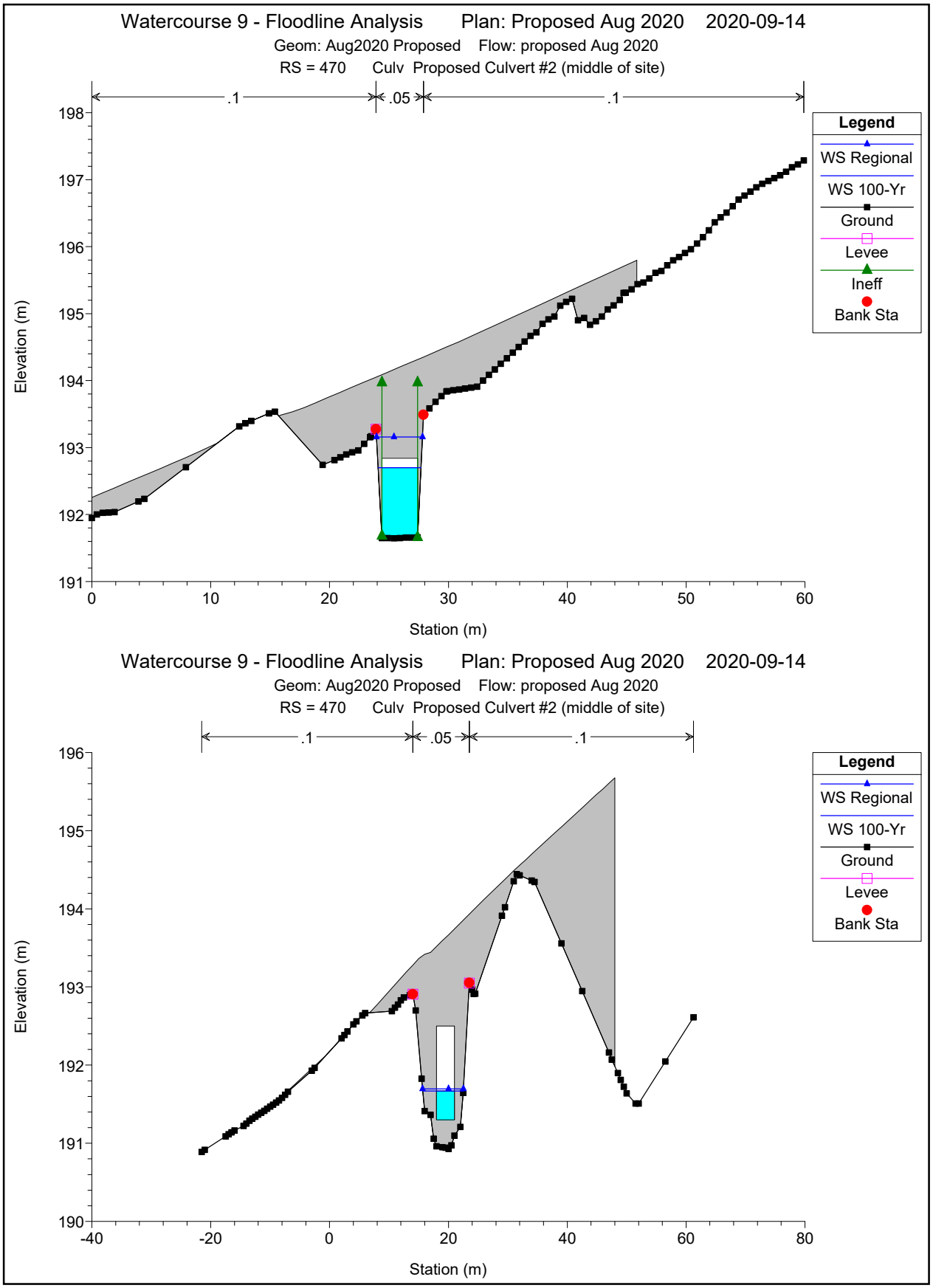

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 740 Culv Proposed Culvert #1 (upstream)
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
215
214
213
212
211
210
209
208
0
10
20
30
40
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 733
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
215
214
213
212
211
210
209
208
0
10
20
30
40
Station (m)

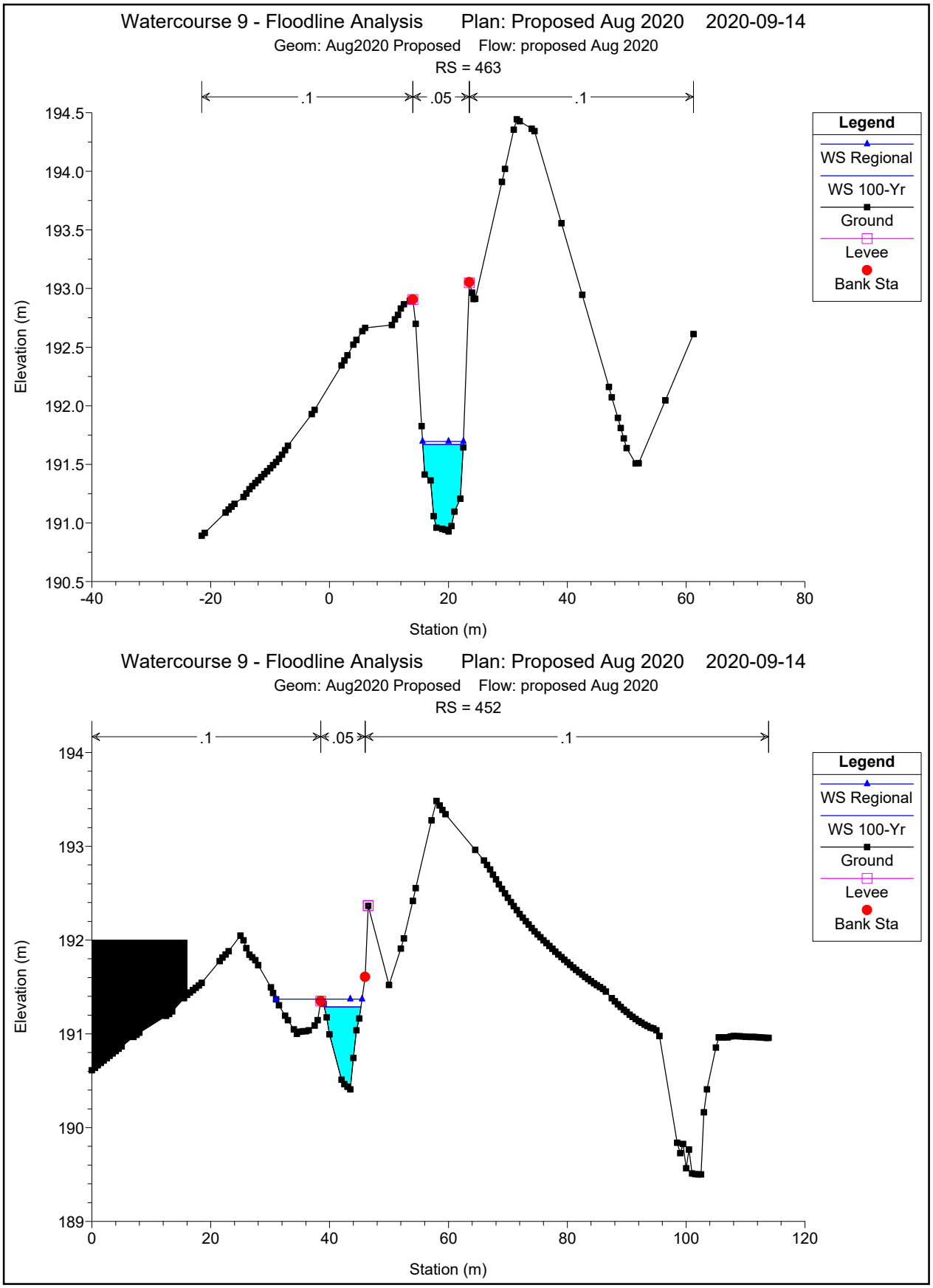

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 722
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 669
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta
Elevation (m)
Station (m)

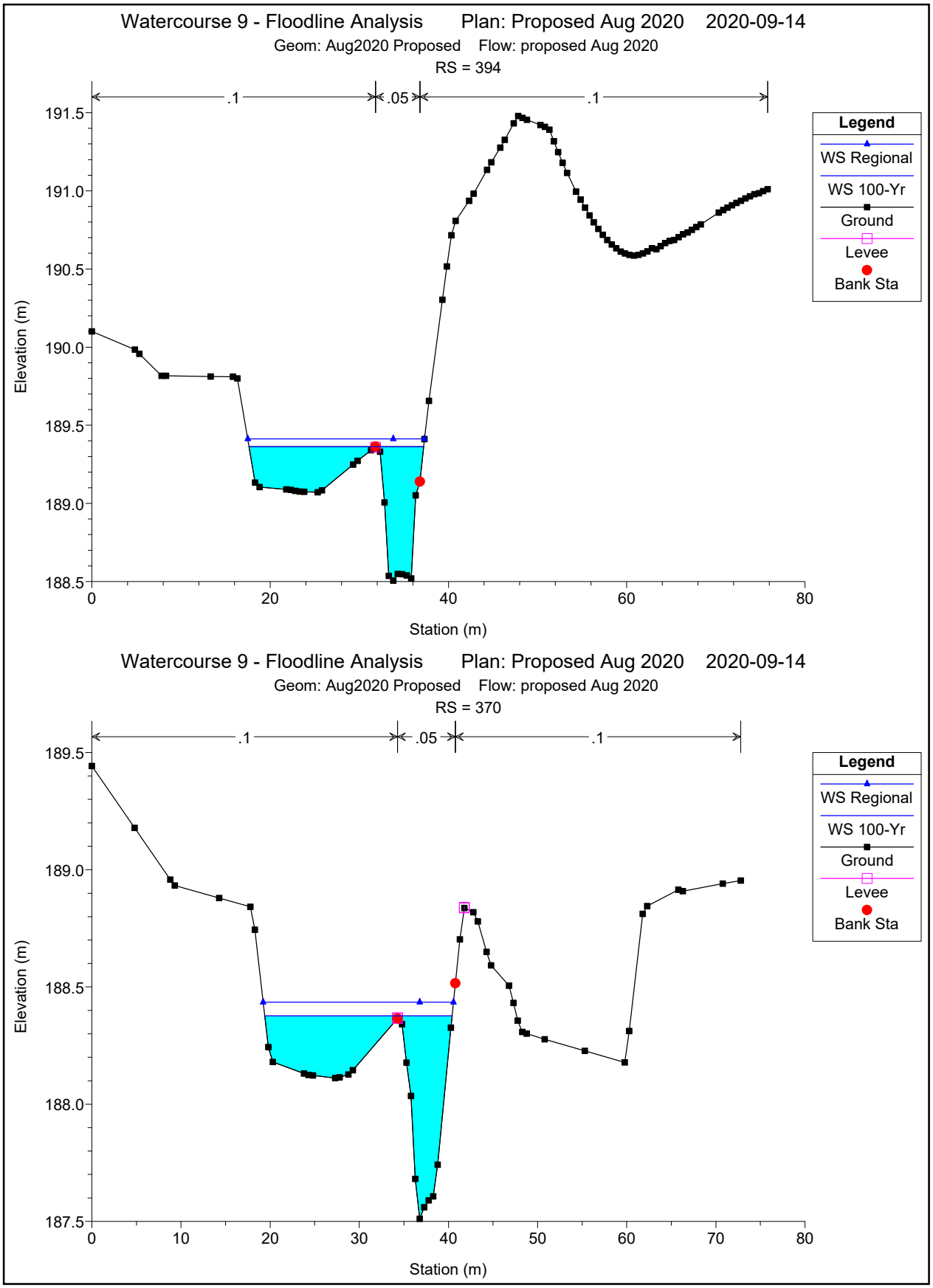

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 629
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 587
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

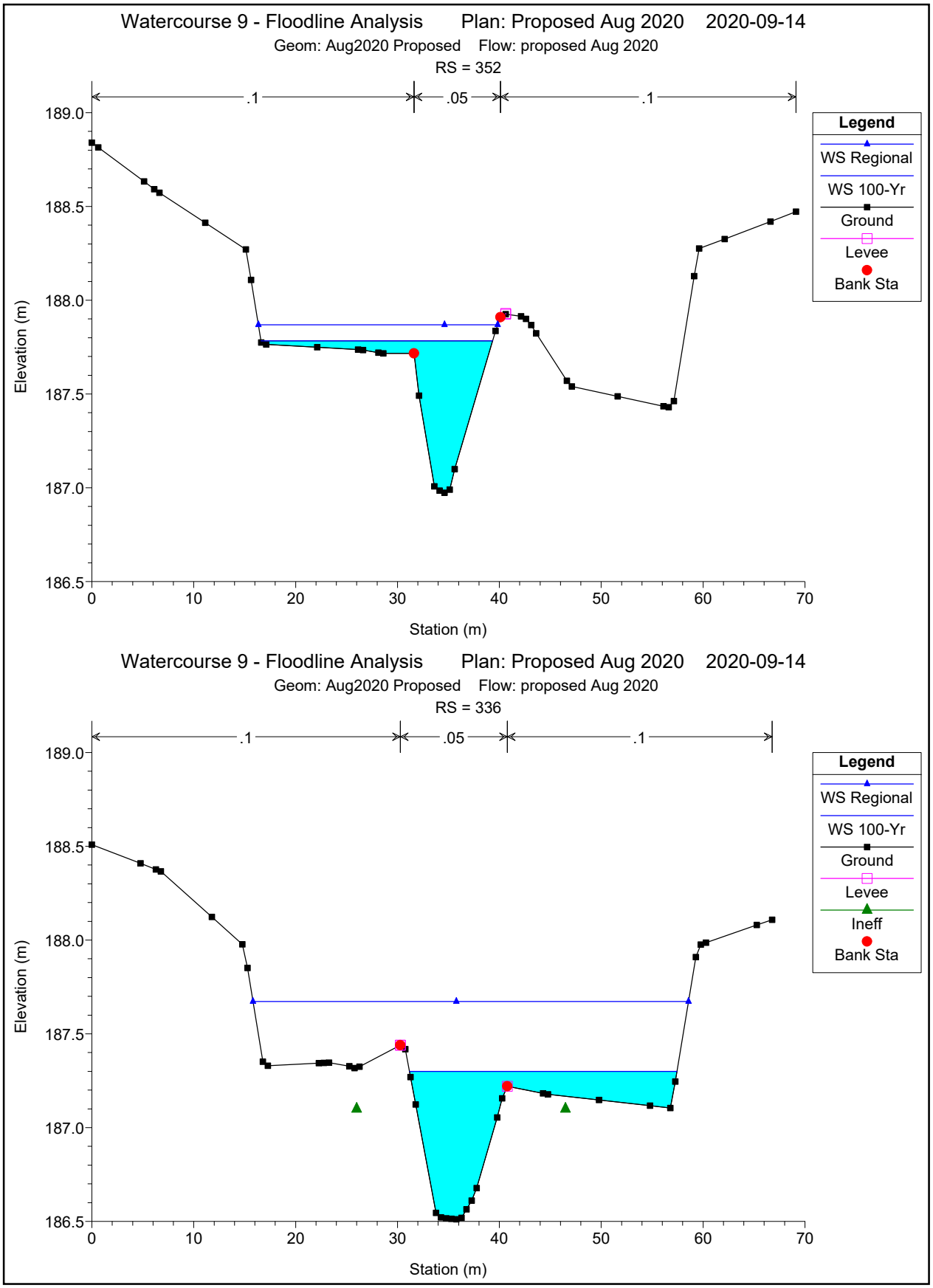

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 546
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
206
204
202
200
198
196
0
20
40
60
80
100
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 510
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
202
200
198
196
194
192
0
20
40
60
80
100
120
140
160

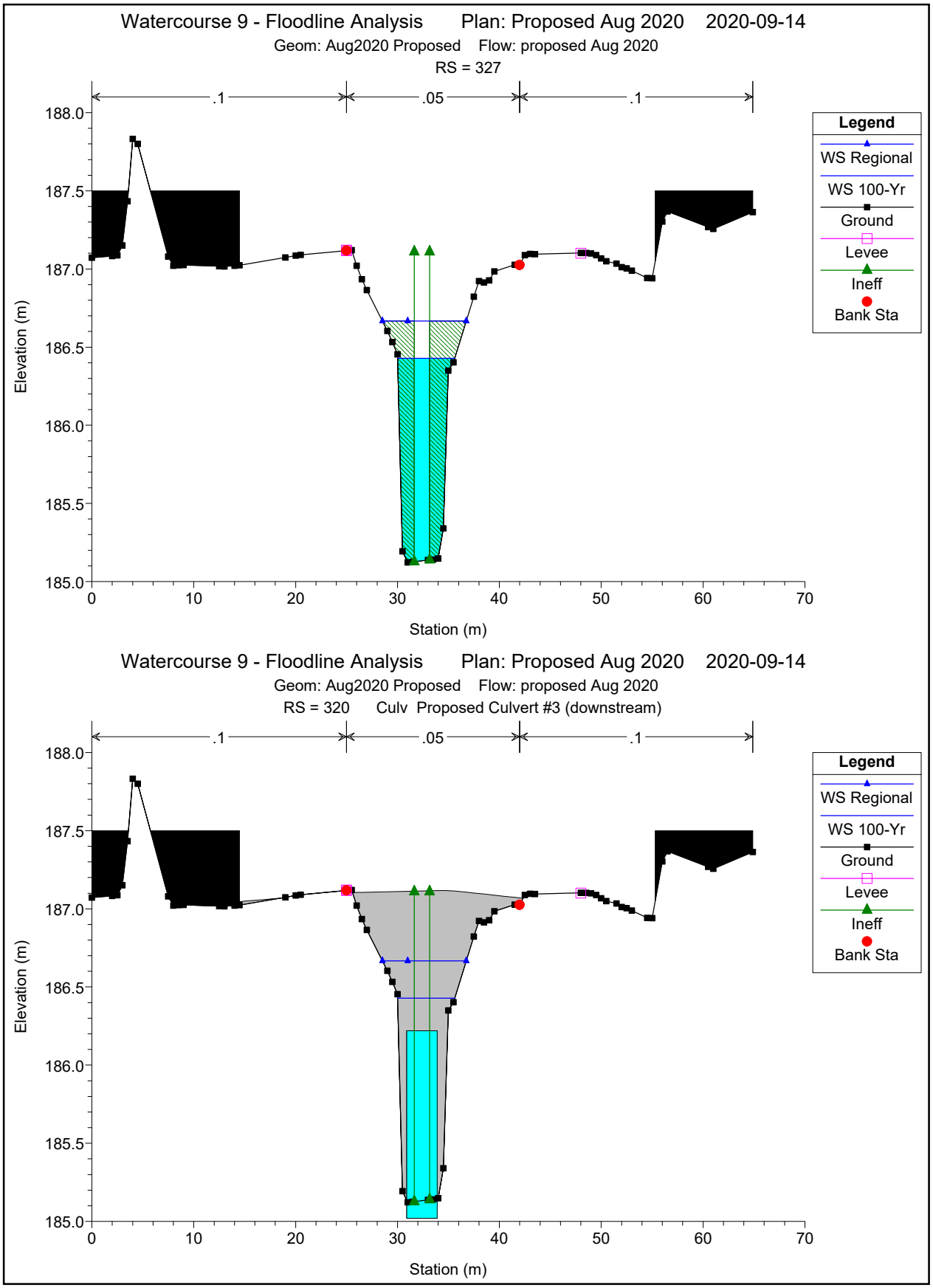

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 487
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 481
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)

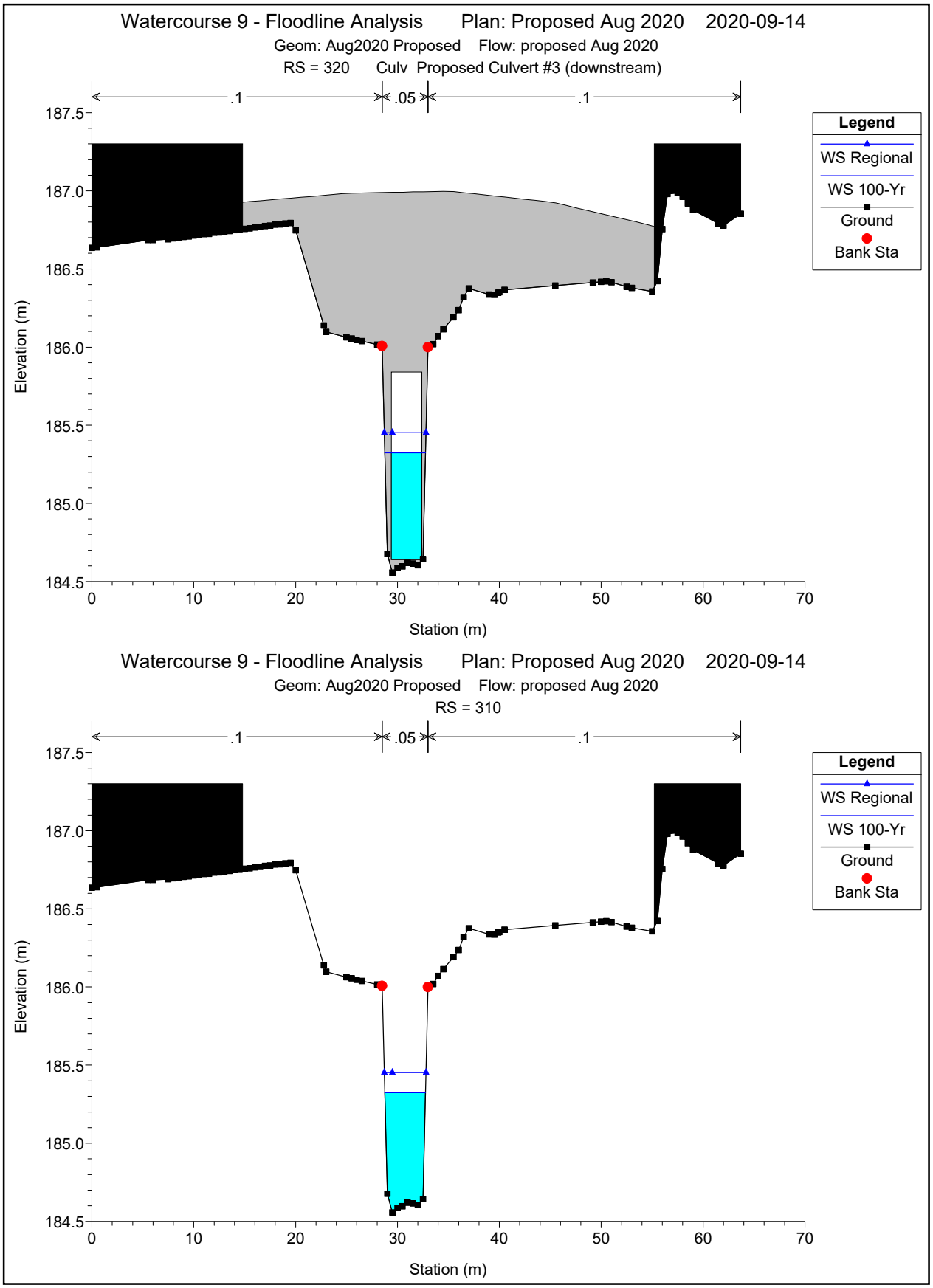

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 470 Culv Proposed Culvert #2 (middle of site)
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
198
197
196
195
194
193
192
191
0
10
20
30
40
50
60
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 470 Culv Proposed Culvert #2 (middle of site)
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
196
195
194
193
192
191
190
-40
-20
0
20
40
60
80

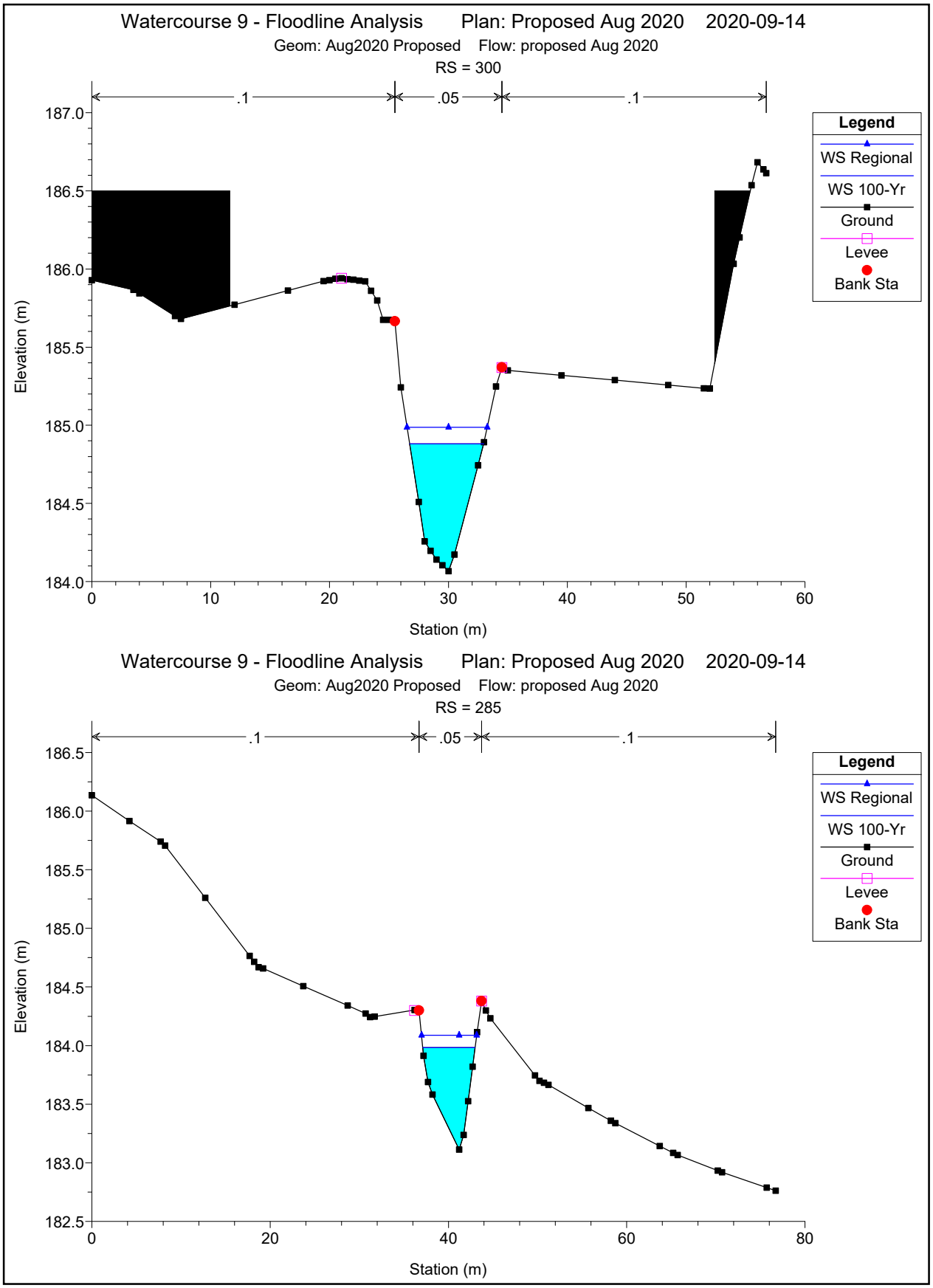

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 463
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 452
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

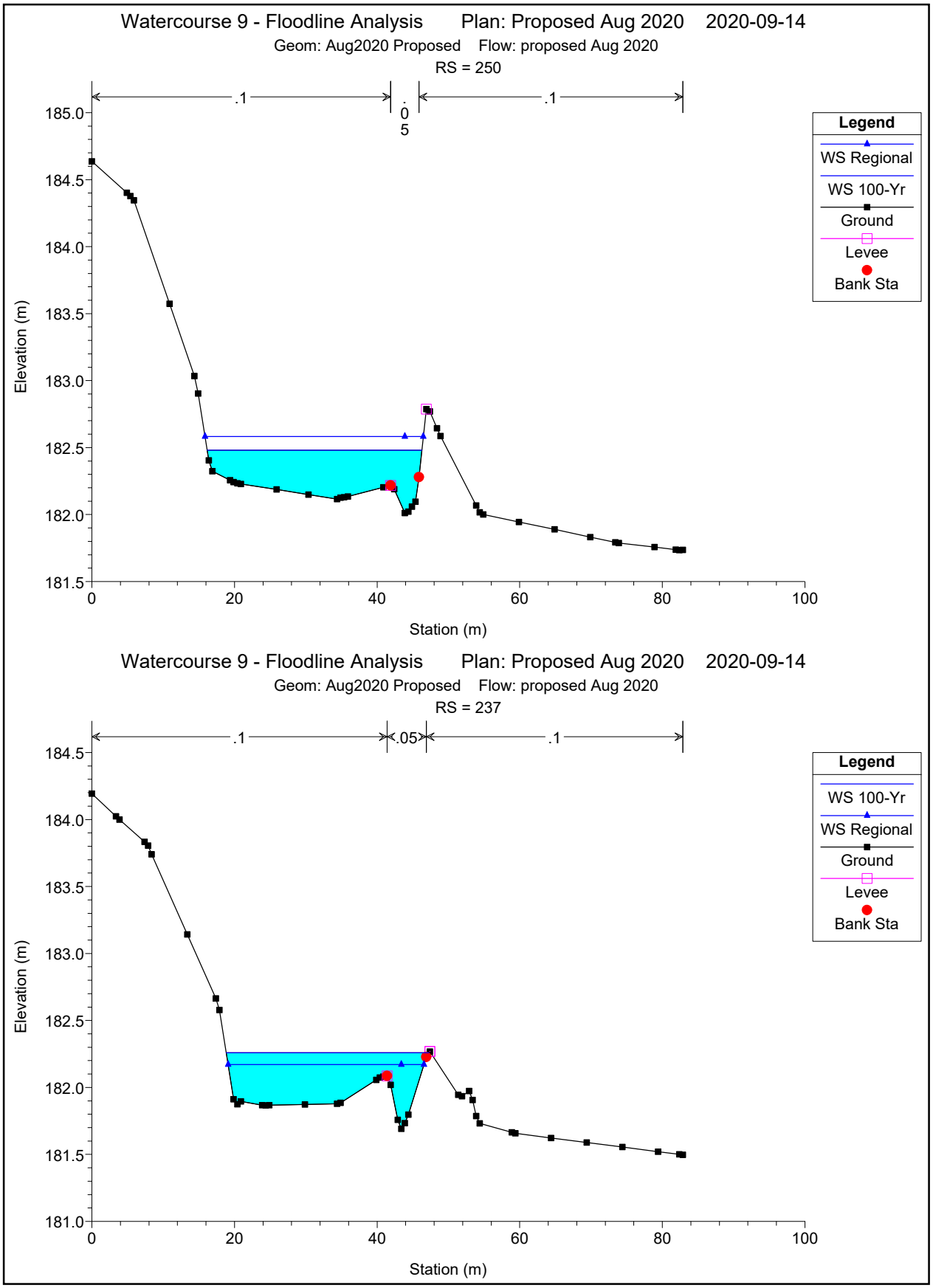

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 394
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 370
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

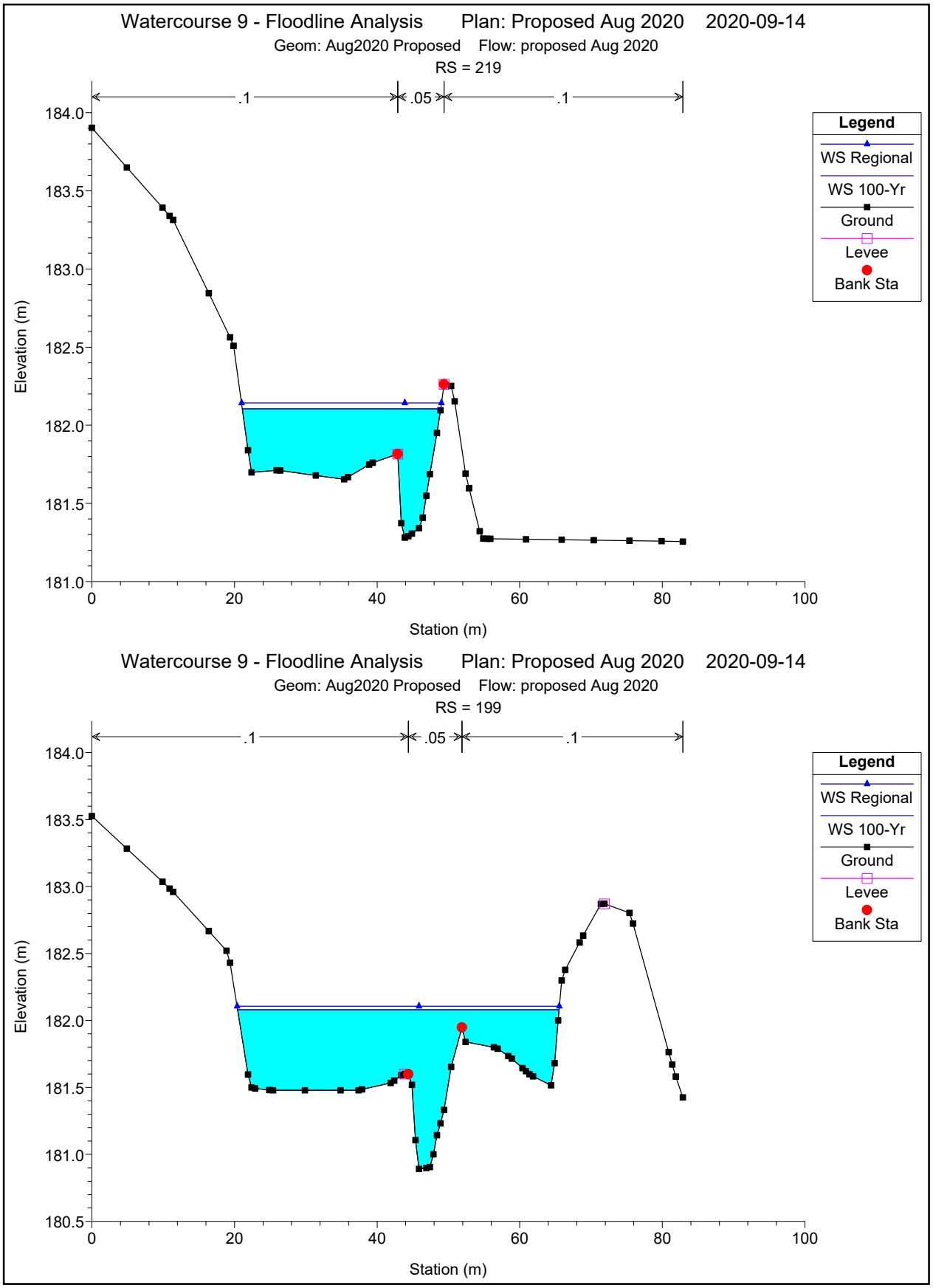

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 352
.1
.05
.1
189.0
188.5
188.0
187.5
187.0
186.5
Elevation (m)
0
10
20
30
40
50
60
70
Station (m)
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 336
.1
.05
.1
189.0
188.5
188.0
187.5
187.0
186.5
Elevation (m)
0
10
20
30
40
50
60
70
Station (m)
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta

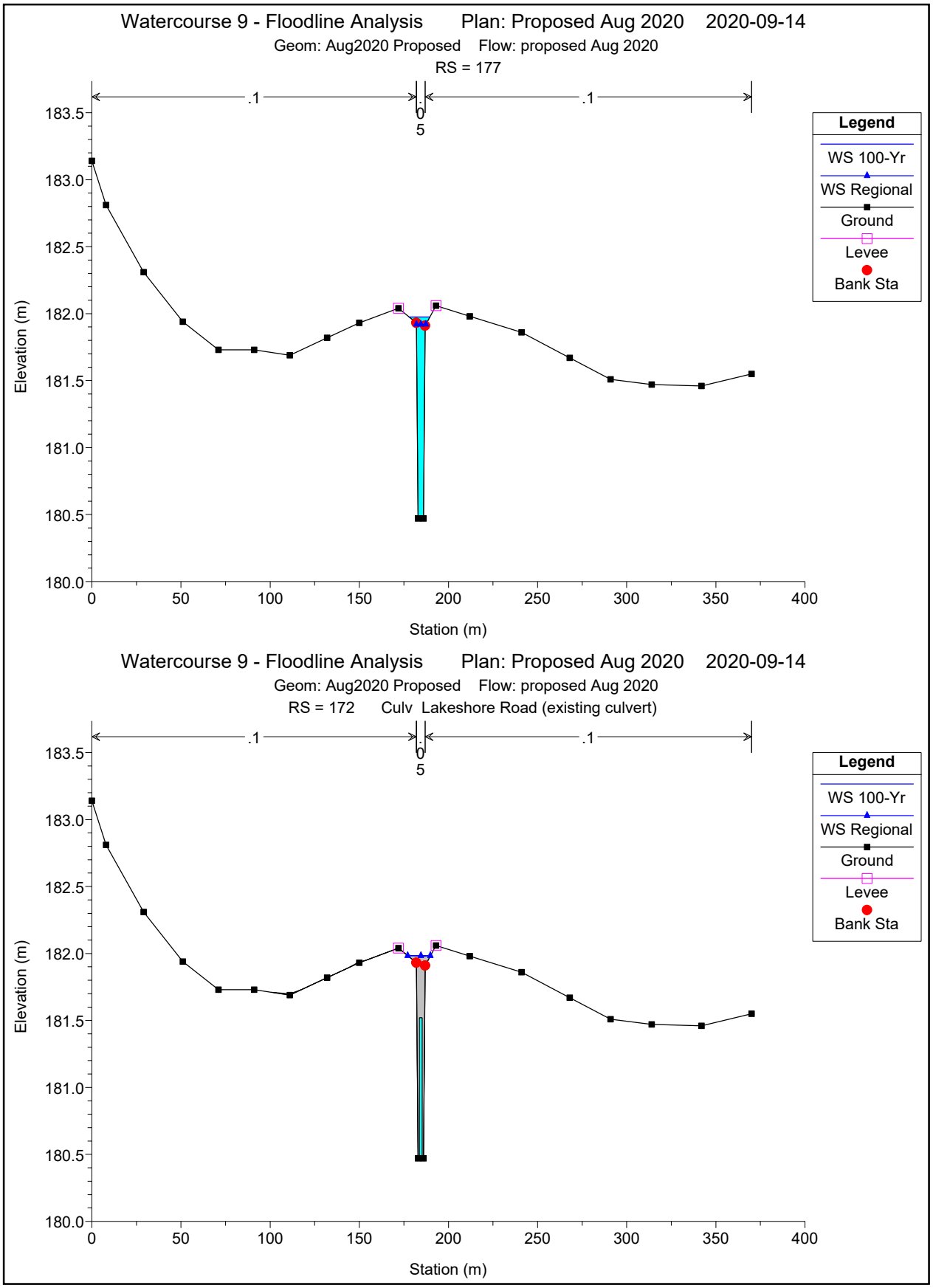

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 327
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta
Elevation (m)
188.0
187.5
187.0
186.5
186.0
185.5
185.0
0
10
20
30
40
50
60
70
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 320 Culv Proposed Culvert #3 (downstream)
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta
Elevation (m)
188.0
187.5
187.0
186.5
186.0
185.5
185.0
0
10
20
30
40
50
60
70
Station (m)

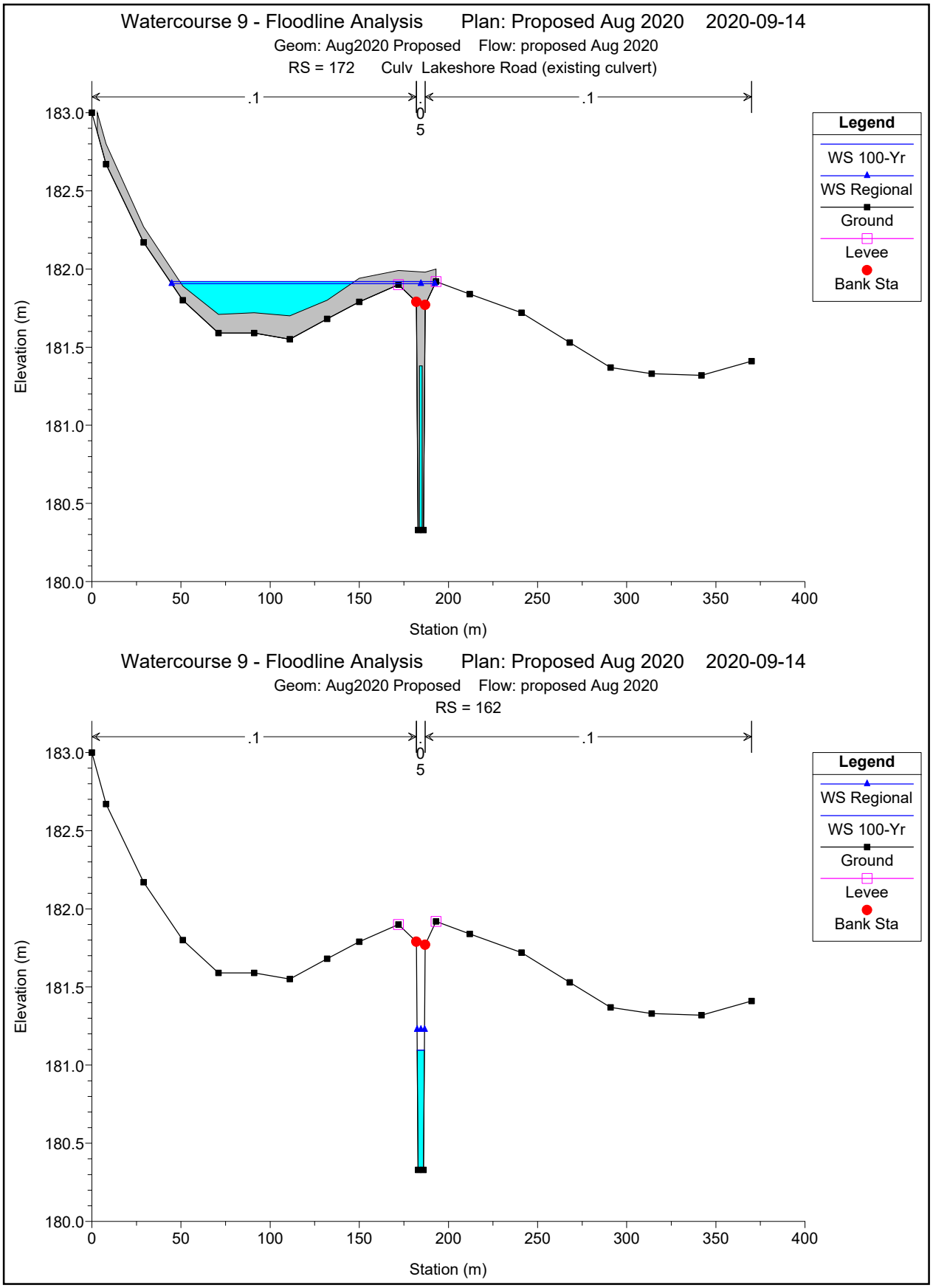

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 320 Culv Proposed Culvert #3 (downstream)
.1
.05
.1
187.5
187.0
186.5
186.0
185.5
185.0
184.5
Elevation (m)
0
10
20
30
40
50
60
70
Station (m)
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 310
.1
.05
.1
187.5
187.0
186.5
186.0
185.5
185.0
184.5
Elevation (m)
0
10
20
30
40
50
60
70
Station (m)
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta

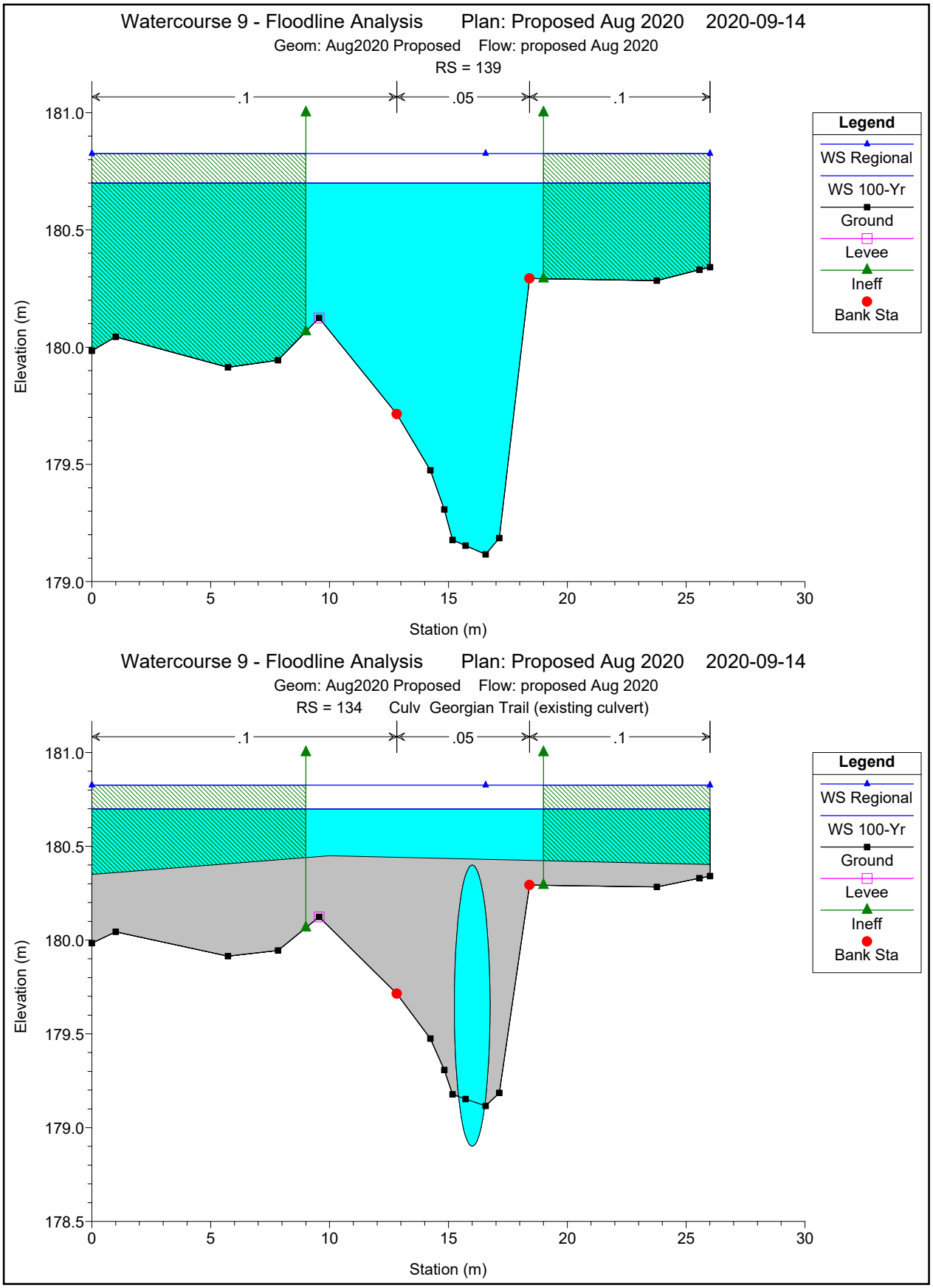

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 300
.1
.05
.1
187.0
186.5
186.0
185.5
185.0
184.5
184.0
Elevation (m)
0
10
20
30
40
50
60
Station (m)
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 285
.1
.05
.1
186.5
186.0
185.5
185.0
184.5
184.0
183.5
183.0
182.5
Elevation (m)
0
20
40
60
80
Station (m)
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta

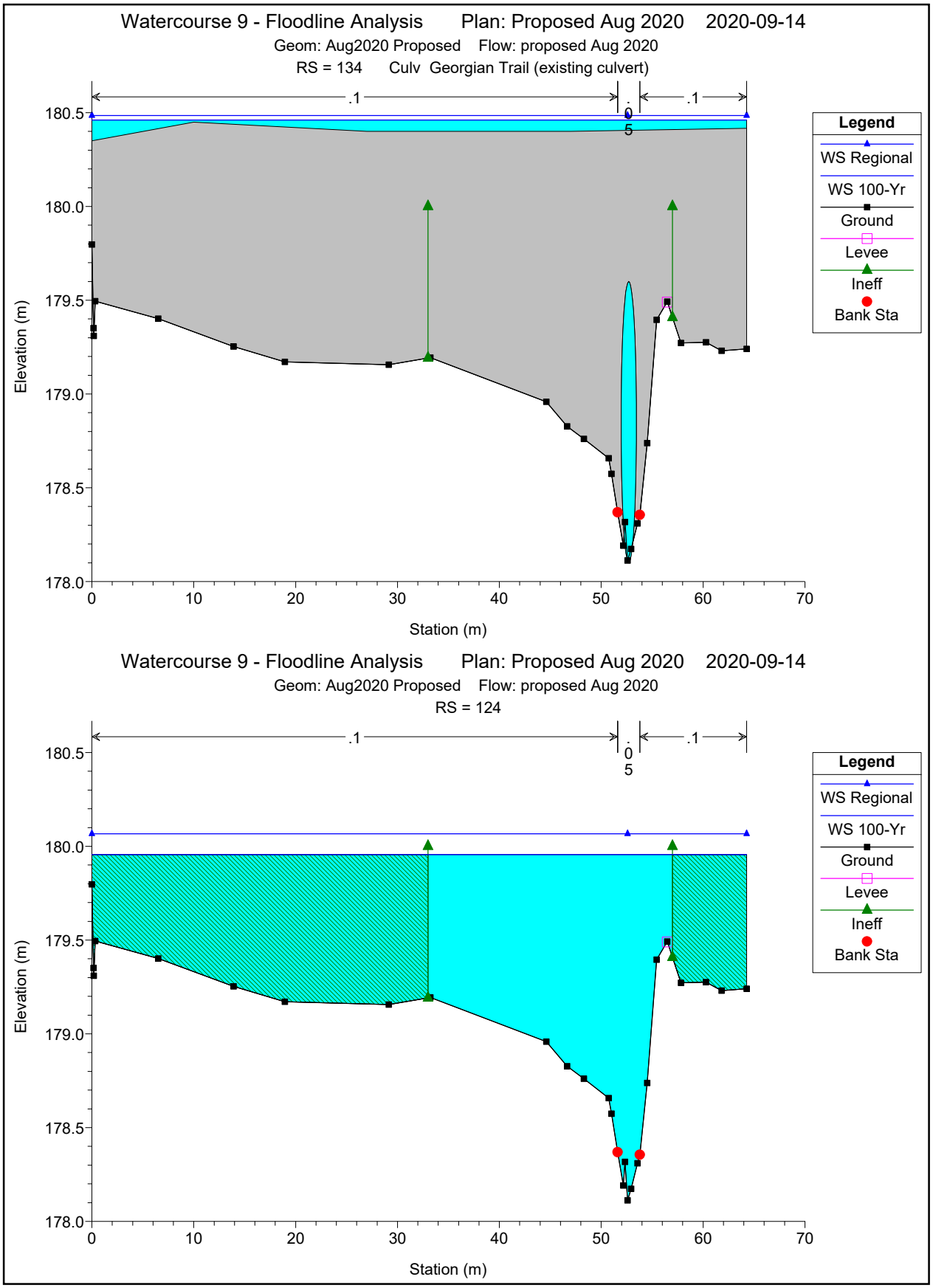

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 250
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
185.0
184.5
184.0
183.5
183.0
182.5
182.0
181.5
0
20
40
60
80
100
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 237
.1
.05
.1
Legend
WS 100-Yr
WS Regional
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
184.5
184.0
183.5
183.0
182.5
182.0
181.5
181.0
0
20
40
60
80
100

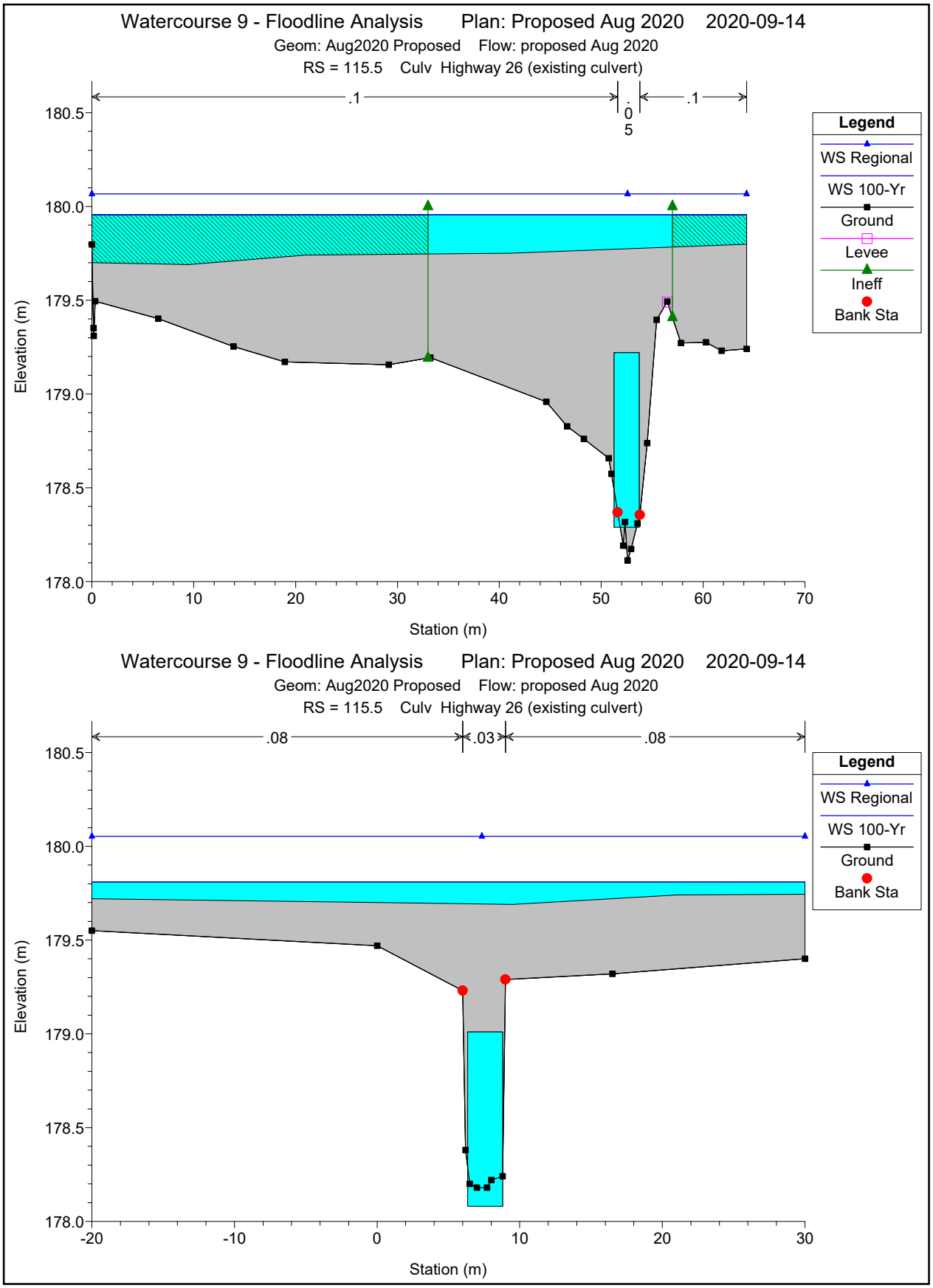

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 219
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 199
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

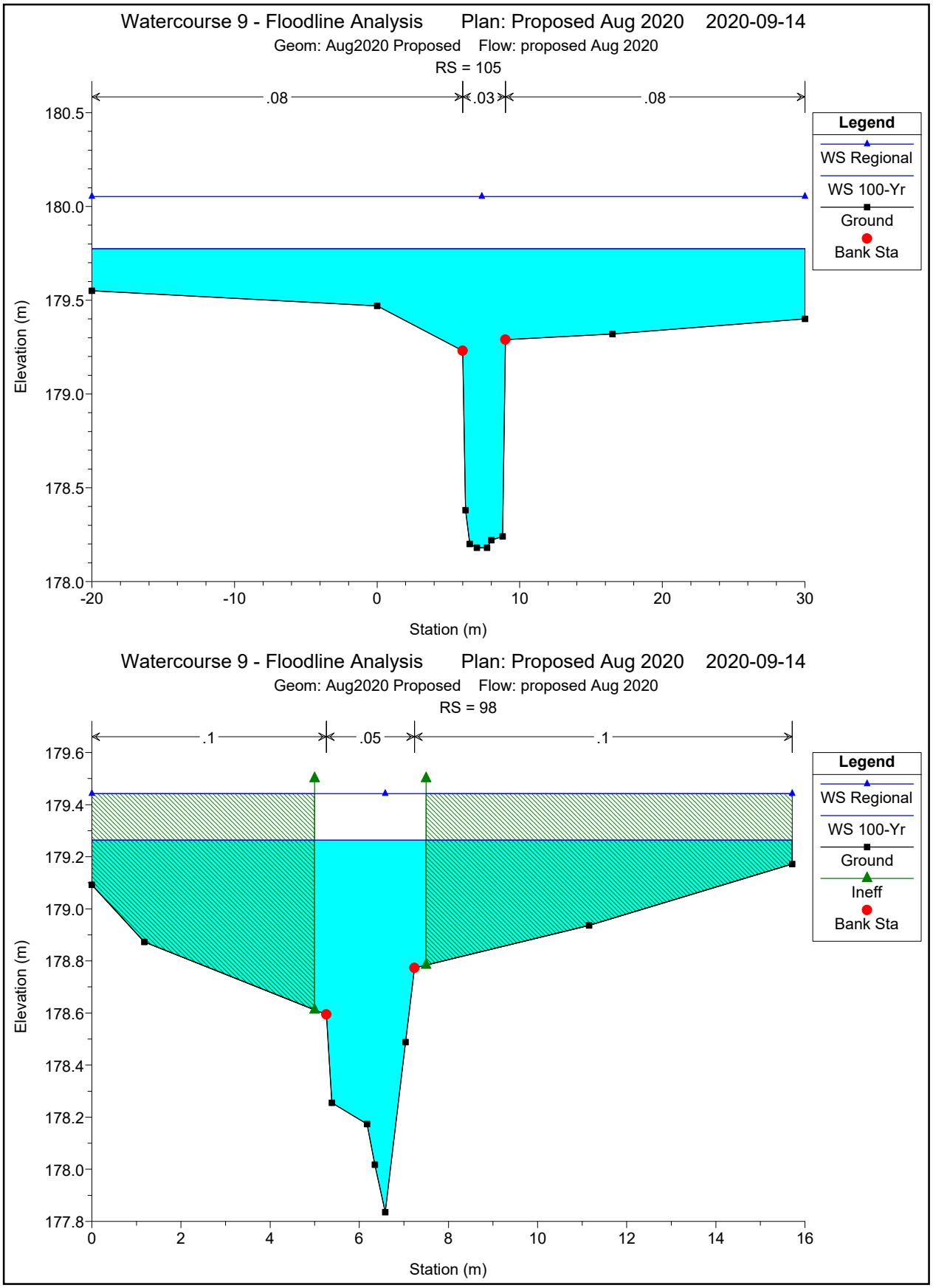

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 177
.1
0
5
.1
Legend
WS 100-Yr
WS Regional
Ground
Levee
Bank Sta
Elevation (m)
183.5
183.0
182.5
182.0
181.5
181.0
180.5
180.0
0
50
100
150
200
250
300
350
400
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 172 Culv Lakeshore Road (existing culvert)
.1
0
5
.1
Legend
WS 100-Yr
WS Regional
Ground
Levee
Bank Sta
Elevation (m)
183.5
183.0
182.5
182.0
181.5
181.0
180.5
180.0
0
50
100
150
200
250
300
350
400
Station (m)

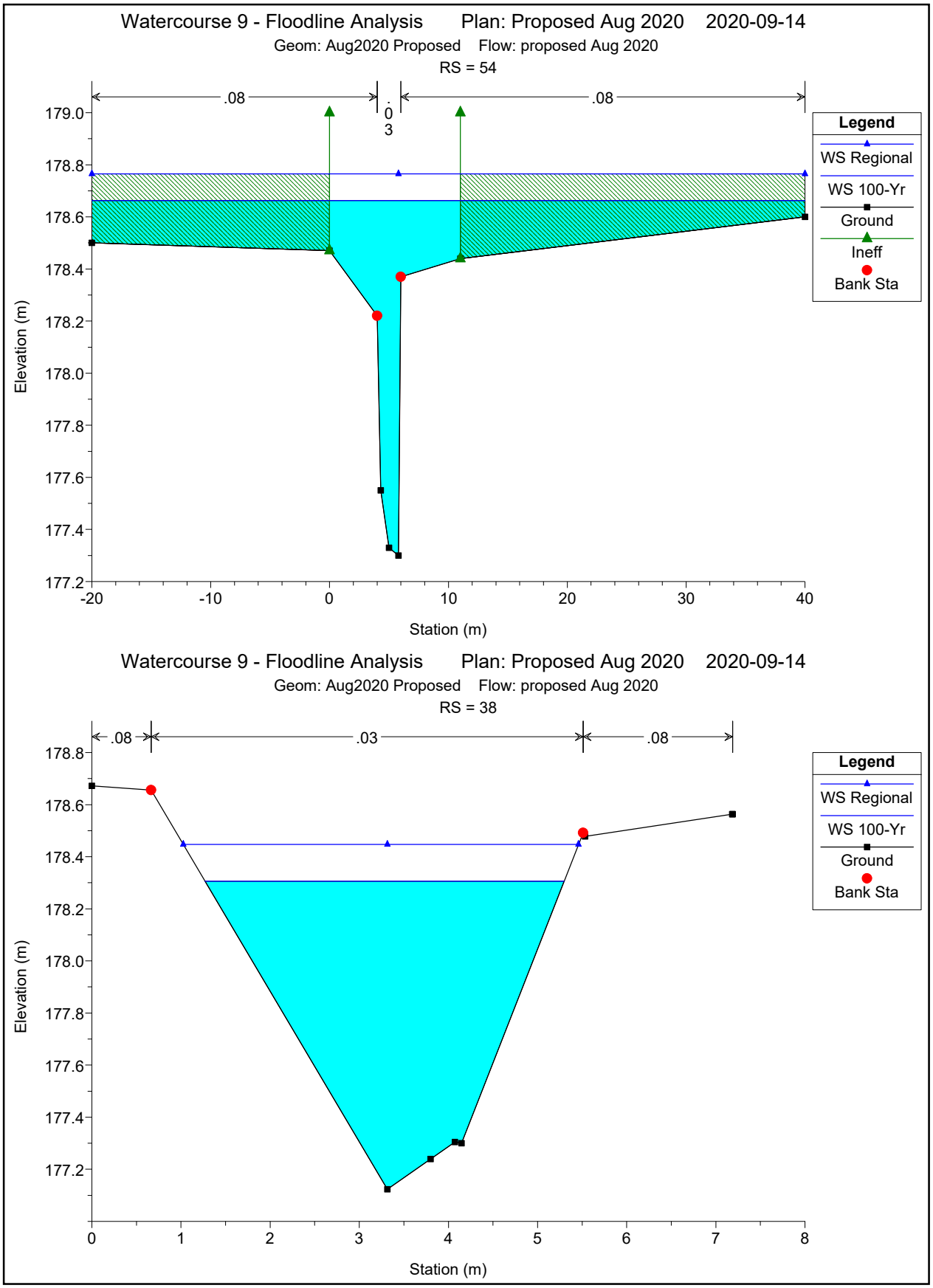

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 172 Culv Lakeshore Road (existing culvert)
.1
0
5
.1
Legend
WS 100-Yr
WS Regional
Ground
Levee
Bank Sta
Elevation (m)
183.0
182.5
182.0
181.5
181.0
180.5
180.0
0
50
100
150
200
250
300
350
400
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 162
.1
0
5
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Bank Sta
Elevation (m)
183.0
182.5
182.0
181.5
181.0
180.5
180.0
0
50
100
150
200
250
300
350
400
Station (m)

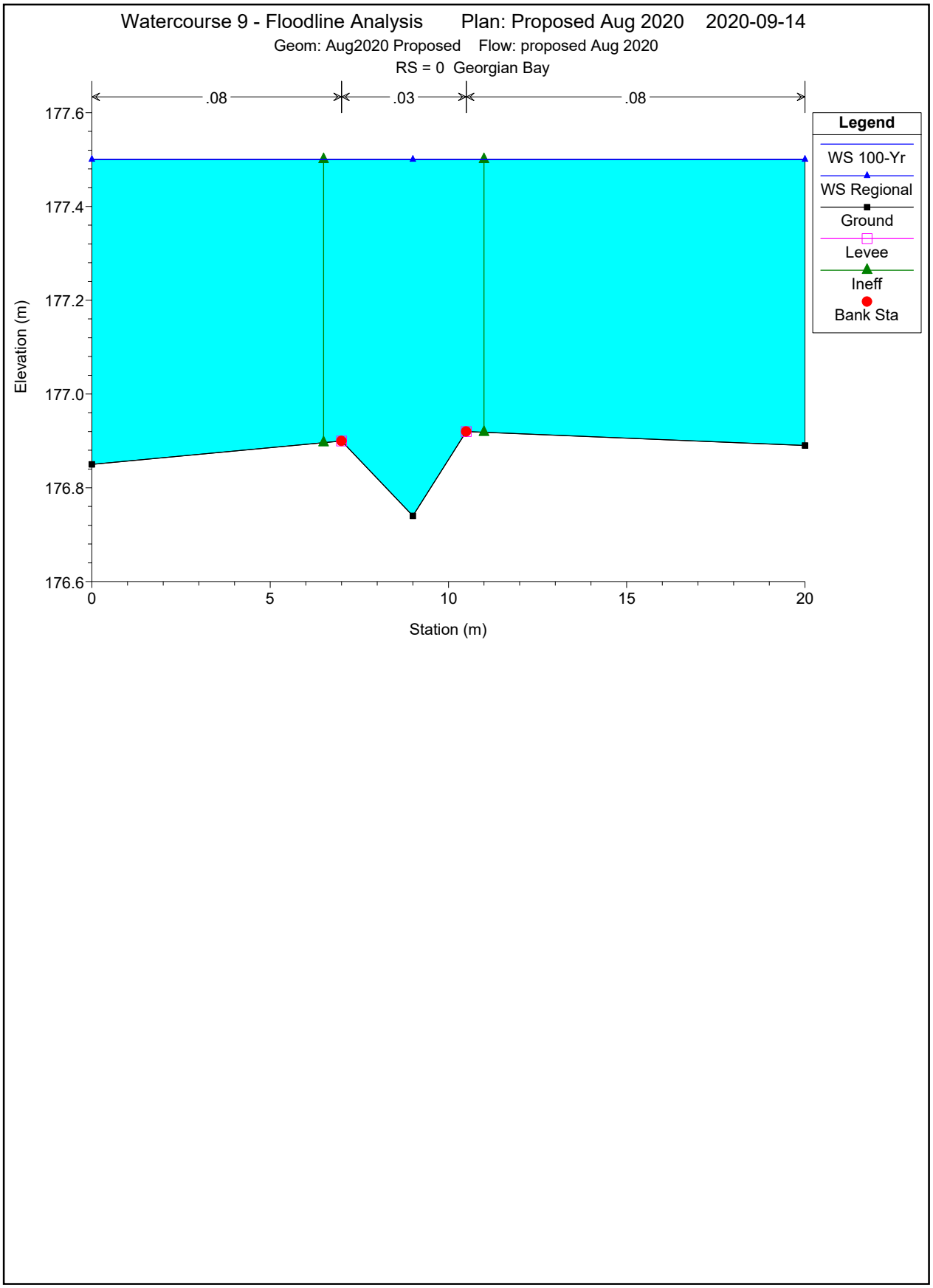

Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 139
.1
.05
.1
181.0
180.5
180.0
179.5
179.0
Elevation (m)
0
5
10
15
20
25
30
Station (m)
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 134 Culv Georgian Trail (existing culvert)
.1
.05
.1
181.0
180.5
180.0
179.5
179.0
178.5
Elevation (m)
0
5
10
15
20
25
30
Station (m)
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta


Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 134 Culv Georgian Trail (existing culvert)
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta
Elevation (m)
180.5
180.0
179.5
179.0
178.5
178.0
0
10
20
30
40
50
60
70
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 124
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta
Elevation (m)
180.5
180.0
179.5
179.0
178.5
178.0
0
10
20
30
40
50
60
70
Station (m)


Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 115.5 Culv Highway 26 (existing culvert)
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 115.5 Culv Highway 26 (existing culvert)
.08
.03
.08
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta
Elevation (m)
Station (m)


Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 105
.08
.03
.08
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 98
.1
.05
.1
Legend
WS Regional
WS 100-Yr
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)


Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 54
.08
.03
.08
Legend
WS Regional
WS 100-Yr
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 38
.08
.03
.08
Legend
WS Regional
WS 100-Yr
Ground
Bank Sta
Elevation (m)
Station (m)


Watercourse 9 - Floodline Analysis Plan: Proposed Aug 2020 2020-09-14
Geom: Aug2020 Proposed Flow: proposed Aug 2020
RS = 0 Georgian Bay
.08
.03
.08
177.6
177.4
177.2
177.0
176.8
176.6
Elevation (m)
0
5
10
15
20
Station (m)
Legend
WS 100-Yr
WS Regional
Ground
Levee
Ineff
Bank Sta

# APPENDIX D

## SWM Facility Design

Summary of Pre & Post Development Flows
Summary of Pond Operating Flows & Storage
SWM Facility #1 Quality Requirements, SSD, ED, Forebay
SWM Facility #2 Quality Requirements, SSD, ED, Forebay

CROZIER CONSULTING ENGINEERS

| | |
|---|---|
| PROJ. NO: | 1046-4031 |
| PROJECT: | Parkbridge Craigleith |
| DESIGN: | J. Elder |
| FILE: | Summary of Flows |
| DATE: | April 29, 2021 |

**6-Hour Keifer-Chu Distribution**

| Location | Return Period | Peak Flow ($m^3/s$) | | % Difference |
|---|---|---|---|---|
| | | Pre-Development | Post-Development | |
| Lakeshore Road (Watercourse 9) | 2-Year | 1.36 | 1.32 | -3.2% |
| | 5-Year | 2.60 | 2.48 | -4.6% |
| | 10-Year | 3.98 | 3.76 | -5.5% |
| | 25-Year | 5.22 | 4.91 | -5.9% |
| | 50-Year | 5.87 | 5.51 | -6.1% |
| | 100-Year | 7.26 | 6.78 | -6.6% |
| | Regional | 9.01 | 8.67 | -3.8% |

**4-Hour Chicago**

| Location | Return Period | Peak Flow ($m^3/s$) | | % Difference |
|---|---|---|---|---|
| | | Pre-Development | Post-Development | |
| Lakeshore Road (Watercourse 9) | 25-mm | 0.57 | 0.57 | -0.5% |
| | 2-Year | 0.89 | 0.88 | -1.6% |
| | 5-Year | 1.65 | 1.60 | -3.2% |
| | 10-Year | 2.25 | 2.16 | -4.0% |
| | 25-Year | 3.02 | 2.88 | -4.6% |
| | 50-Year | 3.69 | 3.50 | -5.1% |
| | 100-Year | 4.38 | 4.14 | -5.4% |

**24-Hour SCS**

| Location | Return Period | Peak Flow ($m^3/s$) | | % Difference |
|---|---|---|---|---|
| | | Pre-Development | Post-Development | |
| Lakeshore Road (Watercourse 9) | 2-Year | 1.45 | 1.39 | -4.2% |
| | 5-Year | 2.68 | 2.53 | -5.5% |
| | 10-Year | 3.47 | 3.27 | -6.0% |
| | 25-Year | 4.73 | 4.46 | -5.7% |
| | 50-Year | 5.59 | 5.35 | -4.3% |
| | 100-Year | 6.71 | 6.42 | -4.2% |

**12-Hour SCS**

| Location | Return Period | Peak Flow ($m^3/s$) | | % Difference |
|---|---|---|---|---|
| | | Pre-Development | Post-Development | |
| Lakeshore Road (Watercourse 9) | 2-Year | 1.31 | 1.26 | -3.8% |
| | 5-Year | 2.54 | 2.41 | -5.2% |
| | 10-Year | 3.52 | 3.32 | -5.8% |
| | 25-Year | 4.85 | 4.58 | -5.4% |
| | 50-Year | 5.85 | 5.61 | -4.1% |
| | 100-Year | 6.87 | 6.60 | -4.0% |

CROZIER CONSULTING ENGINEERS

PROJ. NO: 1046-4031
PROJECT: Parkbridge Craigleith
DESIGN: J. Elder
FILE: SWMHYMO Pond Summary
DATE: June 15, 2020

| 6-Hour Keifer Chu Model | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pond ID | Peak Flow ($m^3/s$) | | Return Period | | | | | | |
| | | 25 mm | 2-Year | 5-Year | 10-Year | 25-Year | 50-Year | 100-Year | Regional |
| SWMF #1 (upper) | Peak Flow In | 0.09 | 0.21 | 0.37 | 0.56 | 0.73 | 0.82 | 1.02 | 1.05 |
| | Peak Flow Out | 0.01 | 0.02 | 0.03 | 0.03 | 0.05 | 0.07 | 0.12 | 0.65 |
| | % Difference | -89% | -91% | -93% | -94% | -93% | -91% | -88% | -38% |
| | Storage Required | 410 | 960 | 1820 | 2760 | 3630 | 3990 | 4660 | 8110 |
| SWMF #2 (lower) | Peak Flow In | 0.12 | 0.22 | 0.35 | 0.49 | 0.62 | 0.69 | 0.83 | 0.72 |
| | Peak Flow Out | 0.01 | 0.02 | 0.03 | 0.04 | 0.07 | 0.09 | 0.13 | 0.67 |
| | % Difference | -89% | -91% | -93% | -92% | -89% | -87% | -84% | -8% |
| | Storage Required | 460 | 870 | 1430 | 1960 | 2350 | 2530 | 2930 | 3760 |

| 4-Hour Chicago Model | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pond ID | Peak Flow ($m^3/s$) | | Return Period | | | | | | |
| | | 25 mm | 2-Year | 5-Year | 10-Year | 25-Year | 50-Year | 100-Year | Regional |
| SWMF #1 (upper) | Peak Flow In | 0.20 | 0.29 | 0.41 | 0.50 | 0.63 | 0.75 | 0.85 | 1.05 |
| | Peak Flow Out | 0.01 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.04 | 0.65 |
| | % Difference | -95% | -95% | -94% | -95% | -95% | -96% | -96% | -38% |
| | Storage Required | 430 | 700 | 1240 | 1670 | 2240 | 2750 | 3250 | 8110 |
| SWMF #2 (lower) | Peak Flow In | 0.33 | 0.49 | 0.70 | 0.84 | 1.06 | 1.23 | 1.39 | 0.72 |
| | Peak Flow Out | 0.01 | 0.02 | 0.02 | 0.03 | 0.03 | 0.04 | 0.06 | 0.67 |
| | % Difference | -96% | -97% | -97% | -97% | -97% | -96% | -96% | -8% |
| | Storage Required | 490 | 690 | 1080 | 1370 | 1740 | 2020 | 2250 | 3760 |

**Water Quality Requirements**

Project #: 1046-4031
Project: Parkbridge Craigleith
Date: June 15, 2020
By: JE

## Post-Development Scenario Water Quality Requirements

### SWM Facility #1 - Existing Pond converted to Proposed Wetland

## Quantity Calculations

| Parameter | Impervious Areas | All Areas | Units |
|---|---|---|---|
| **Area Statistics** | | | |
| Contributing Areas | 1A | EXT-1A, 1A, 1B | - |
| Area | 2.95 | 13.13 | ha |
| % Impervious | 51.4 | 13.1 | % |
| **MOE Volumes (per Table 3.2)** | | | |
| MOE Total Water Quality (WQ) Volume | 101 | 80 | $m^3$/ha |
| MOE Extended Detention (ED) Volume | 40 | 40 | $m^3$/ha |
| **Extended Detention (ED)** | | | |
| 25mm Runoff Depth | 10.1 | 4.1 | mm |
| 25mm Runoff Volume | 298 | **540** | $m^3$ |
| MOE ED Volume | 118 | **525** | $m^3$ |
| **Permanent Pool (PP)** | | | |
| MOE Permanent Pool (PP) Volume | 61 | 40 | $m^3$/ha |
| MOE PP Volume | 178 | **525** | $m^3$ |

## Required Volumes

| | | |
|---|---|---|
| ED Volume - 25mm RV for All Areas governs | **540** | $m^3$ |
| PP Volume - All Areas governs | **525** | $m^3$ |
| Total WQ Volume - ED + PP | **1065** | $m^3$ |

CROZIER & ASSOCIATES
Consulting Engineers

Project: 1046-4031
Project No.: Parkbridge Craigleith
File: Stage Storage Discharge
Design by: JE
Checked by: RW
Date: May 26, 2020

## Proposed SWM Facility #1 - Upper Pond - Stage Storage Discharge Calculations & Extended Detention Calculations

| Outlet Structure Dimensions | | | |
|---|---|---|---|
| **Extended Detention Orifice** | | **Spillway** | |
| E.D. Orifice Diameter: | 0.130 m | Spillway Elev. | 191.10 m |
| E.D. Orifice Invert Elevation: | 189.40 m | Spillway Bot. Width | 5.00 m |
| Orifice Coeff (plate): | 0.64 | Trap. Side Slopes | 6:1 |
| **Rectangular Weir** | | **Weir Orifice (used above top of weir)** | |
| Weir Width | 0.25 m | Weir Orifice Diameter: | 0.375 m |
| Weir Invert | 190.40 m | Weir Orifice Invert Elev: | 190.40 m |
| Top of Weir | 190.90 m | Orifice Coeff (Tube): | 0.82 |

| Pond Dimensions | | | | Outlet Structure Discharge | | | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Elev. | Depth Above PP | Area | Storage Volume | ED Orifice Discharge | Rect. Weir Discharge | Spillway Avg. Weir Width | Spillway Discharge | Total Discharge | ED Draw-down time | Total Discharge | Storage |
| (m) | (m) | (sqm) | (cu.m) | (cu.m/s) | (cu.m/s) | (m) | (cu.m/s) | (cu.m/s) | (hrs) | (cu.m/s) | (ha-m) |
| *189.40* | 0.00 | 2546 | 0 | 0.000 | 0.000 | 0.00 | 0.000 | 0.000 | 0.0 | 0.000 | 0.000 |
| 189.50 | 0.10 | 2690 | 262 | 0.007 | 0.000 | 0.00 | 0.000 | 0.007 | 20.7 | **0.007** | **0.026** |
| 189.60 | 0.20 | 2833 | 538 | 0.014 | 0.000 | 0.00 | 0.000 | 0.014 | 7.4 | 0.014 | 0.054 |
| *189.70* | *0.30* | 2977 | *828* | 0.018 | 0.000 | 0.00 | 0.000 | 0.018 | 5.0 | **0.018** | **0.083** |
| 189.80 | *0.40* | 3134 | *1134* | 0.022 | 0.000 | 0.00 | 0.000 | 0.022 | | 0.022 | 0.113 |
| 189.90 | *0.50* | 3291 | *1455* | 0.025 | 0.000 | 0.00 | 0.000 | 0.025 | | **0.025** | **0.146** |
| 190.00 | 0.60 | 3448 | 1792 | 0.028 | 0.000 | 0.00 | 0.000 | 0.028 | | 0.028 | 0.179 |
| 190.05 | 0.65 | 3527 | 1967 | 0.029 | 0.000 | 0.00 | 0.000 | 0.029 | | **0.029** | **0.197** |
| 190.10 | 0.70 | 3605 | 2145 | 0.030 | 0.000 | 0.00 | 0.000 | 0.030 | | 0.030 | 0.214 |
| 190.20 | 0.80 | 3763 | 2513 | 0.032 | 0.000 | 0.00 | 0.000 | 0.032 | | **0.032** | **0.251** |
| 190.30 | 0.90 | 3920 | 2897 | 0.034 | 0.000 | 0.00 | 0.000 | 0.034 | | 0.034 | 0.290 |
| 190.40 | *1.00* | 4077 | *3297* | 0.036 | 0.000 | 0.00 | 0.000 | 0.036 | | **0.036** | **0.330** |
| 190.50 | 1.10 | 4234 | 3713 | 0.038 | 0.013 | 0.00 | 0.000 | 0.052 | | 0.052 | 0.371 |
| 190.60 | 1.20 | 4391 | 4144 | 0.040 | 0.038 | 0.00 | 0.000 | 0.078 | | **0.078** | **0.414** |
| 190.70 | 1.30 | 4548 | 4591 | 0.042 | 0.070 | 0.00 | 0.000 | 0.112 | | 0.112 | 0.459 |
| 190.80 | 1.40 | 4705 | 5054 | 0.043 | 0.108 | 0.00 | 0.000 | 0.151 | | **0.151** | **0.505** |
| 190.90 | 1.50 | 4862 | 5532 | 0.045 | 0.150 | 0.00 | 0.000 | 0.195 | | 0.195 | 0.553 |
| *190.95* | 1.55 | 4941 | 5777 | 0.046 | 0.279 | 0.00 | 0.000 | 0.325 | | **0.325** | **0.578** |
| 191.00 | 1.60 | 5915 | 8073 | 0.047 | 0.293 | 0.00 | 0.000 | 0.340 | | **0.340** | **0.807** |
| *191.10* | 1.70 | 7863 | 8761 | 0.048 | 0.320 | 5.00 | 0.000 | 5.368 | | **5.368** | **0.876** |
| 191.20 | 1.80 | 8094 | 9559 | 0.050 | 0.344 | 5.60 | 0.302 | 6.295 | | 6.295 | 0.956 |
| 191.30 | 1.90 | 8324 | 10380 | 0.051 | 0.367 | 6.20 | 0.945 | 7.563 | | **7.563** | **1.038** |
| *191.40* | 2.00 | 8555 | 11224 | 0.052 | 0.388 | 6.80 | 1.905 | 9.145 | | **9.145** | **1.122** |

Total ED Draw Down Time (hrs) 33.0

Pond designed to spill into South pond half during Regional event. Additional 2024 m3 or 0.202 ha-m (south pond portion) volume is available above berm elev. 190.95. Applied at elev. 191.00.

CROZIER &ASSOCIATES Consulting Engineers

| | |
|---|---|
| Project: | 1046-4031 |
| Project No.: | Parkbridge Craigleith |
| File: | Extended Detention |
| Design by: | RW |
| Date: | June 11, 2020 |

**EXTENDED DETENTION SPECIFICATIONS - SWM FACILITY #1**
(Per MOECC)

| | | | |
|---|---|---|---|
| Extended Detention Volume Required (Area x runoff from 25mm event) | | 540 | $m^3$ |
| Extended Detention Volume Provided | | 828 | $m^3$ |
| t (drawdown time - seconds, *hours in italics*) | *24.0 hours* | 86400 | s |
| Ao (cross section area of orifice - sqm, as designed) | | 0.013 | $m^2$ |
| h (maximum water elevation above orifice for extended detention- m) | | 0.30 | m |
| C (discharge coefficient) | | 0.64 | |
| Ap (average surface area for extended detention - sqm) | | 2977 | $m^2$ |

t = 2*Ap*(h^0.5)/(C*Ao*(g*2)^0.5)

Ao = 0.013 sqm d = 130 mm

Extended Detention Orifice Diameter (as designed) d = **130** mm

Drawdown Time Provided (per SSD) t = 33.0 hrs

Project # 1046-4031
Project Name: Parkbridge Craigleith
Prepared by: RW
Date: June 11, 2020

## SWMF#1 FOREBAY DESIGN CALCULATIONS

| *Parameter* | *Variable* | *Value* |
|---|---|---|
| Forebay Settling Length | Length of forebay bottom (m) | 28.9 |
| | Width of forebay bottom (m) | 14.2 |
| | Length-to-width ratio of forebay | 2.0 |
| | Peak flow rate from forebay in quality event ($m^3/s$) | 0.010 |
| | Settling velocity (m/s) | 0.0003 |
| | | |
| | **Required Forebay length (m)** | **8.2** |
| Dispersion Length | Inlet flowrate in 5 year event ($m^3/s$) | 0.37 |
| | Depth of the permanent pool in the forebay (m) | 1.00 |
| | Desired velocity in the forebay (m/s) | 0.5 |
| | | |
| | **Length of dispersion (m)** | **6.0** |
| Velocity in forebay check | Stage of Pond in 10 Year Event (m) | 190.15 |
| | Cross sectional area ($m^2$) | 85.8 |
| | Inlet flowrate in 10 year event (m3/s) | 0.56 |
| | | |
| | **Velocity in forebay (m/s)*** | **0.0066** |
| **DESIGN FOREBAY LENGTH (m)** | | **35** |

* Desired maximum average velocity in the forebay is 0.15m/s, per MOE, 2003, Page 4-56

**Water Quality Requirements**

Project #: 1046-4031
Project: Parkbridge Craigleith
Date: June 15, 2020
By: JE

## Post-Development Scenario Water Quality Requirements

### SWM Facility #2 - Proposed Water Quality Wet Pond (Lower East Pond)

## Quantity Calculations

| Parameter | Impervious Areas | All Areas | Units |
|---|---|---|---|
| **Area Statistics** | | | |
| Contributing Areas | 2C, 2D, 2E | 2A, 2B, 2C, 2D, 2E | - |
| Area | 6.73 | 9.59 | ha |
| % Impervious | 51.1 | 35.8 | % |
| **MOE Volumes (per Table 3.2)** | | | |
| MOE Total Water Quality (WQ) Volume | 180 | 142 | $m^3$/ha |
| MOE Extended Detention (ED) Volume | 40 | 40 | $m^3$/ha |
| **Extended Detention (ED)** | | | |
| 25mm Runoff Depth | 9.0 | 6.4 | mm |
| 25mm Runoff Volume | 604 | **618** | $m^3$ |
| MOE ED Volume | 269 | **384** | $m^3$ |
| **Permanent Pool (PP)** | | | |
| MOE Permanent Pool (PP) Volume | 140 | 102 | $m^3$/ha |
| MOE PP Volume | 944 | **979** | $m^3$ |

## Required Volumes

| | | |
|---|---|---|
| ED Volume - 25mm RV for All Areas governs | **618** | $m^3$ |
| PP Volume - All Areas governs | **979** | $m^3$ |
| Total WQ Volume - ED + PP | **1598** | $m^3$ |

CROZIER & ASSOCIATES
Consulting Engineers

Project: 1046-4031
Project No.: Parkbridge Craigleith
File: Stage Storage Discharge
Design by: JE
Checked by: RW
Date: May 26, 2020

## Proposed SWM Facility #2 - Lower Pond - Stage Storage Discharge Calculations & Extended Detention Calculations

| Outlet Structure Dimensions | | | |
|---|---|---|---|
| **Extended Detention Orifice** | | **Spillway** | |
| E.D. Orifice Diameter: | 0.120 m | Spillway Elev. | 182.50 m |
| E.D. Orifice Invert Elevation: | 181.00 m | Spillway Bot. Width | 5.00 m |
| Orifice Coeff (plate): | 0.64 | Trap. Side Slopes | 6:1 |
| **Rectangular Weir** | | **Weir Orifice (used above top of weir)** | |
| Weir Width | 0.25 m | Weir Orifice Diameter: | 0.375 m |
| Weir Invert | 181.80 m | Weir Orifice Invert Elev: | 181.80 m |
| Top of Weir | 182.30 m | Orifice Coeff (Tube): | 0.82 |

| Pond Dimensions | | | | Outlet Structure Discharge | | | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Elev. | Depth Above PP | Area | Storage Volume | ED Orifice Discharge | Rect. Weir Discharge | Spillway Avg. Weir Width | Spillway Discharge | Total Discharge | ED Draw-down time | Total Discharge | Storage |
| (m) | (m) | (sqm) | (cu.m) | (cu.m/s) | (cu.m/s) | (m) | (cu.m/s) | (cu.m/s) | (hrs) | (cu.m/s) | (ha-m) |
| *181.00* | 0.00 | *1714* | 0 | 0.000 | 0.000 | 0.00 | 0.000 | 0.000 | 0.0 | 0.000 | 0.000 |
| 181.10 | 0.10 | 1843 | 178 | 0.006 | 0.000 | 0.00 | 0.000 | 0.006 | 15.4 | **0.006** | **0.018** |
| 181.20 | 0.20 | 1972 | 369 | 0.012 | 0.000 | 0.00 | 0.000 | 0.012 | 5.8 | 0.012 | 0.037 |
| *181.30* | *0.30* | 2101 | *572* | 0.016 | 0.000 | 0.00 | 0.000 | 0.016 | 4.1 | **0.016** | **0.057** |
| *181.40* | *0.40* | 2230 | *789* | 0.019 | 0.000 | 0.00 | 0.000 | 0.019 | 3.5 | 0.019 | 0.079 |
| *181.50* | *0.50* | 2373 | *1019* | 0.021 | 0.000 | 0.00 | 0.000 | 0.021 | | **0.021** | **0.102** |
| 181.60 | 0.60 | 2515 | 1263 | 0.024 | 0.000 | 0.00 | 0.000 | 0.024 | | 0.024 | 0.126 |
| 181.65 | 0.65 | 2587 | 1391 | 0.025 | 0.000 | 0.00 | 0.000 | 0.025 | | **0.025** | **0.139** |
| 181.70 | 0.70 | 2658 | 1522 | 0.026 | 0.000 | 0.00 | 0.000 | 0.026 | | 0.026 | 0.152 |
| 181.80 | 0.80 | 2801 | 1795 | 0.028 | 0.000 | 0.00 | 0.000 | 0.028 | | **0.028** | **0.179** |
| 181.90 | 0.90 | 2943 | 2082 | 0.029 | 0.013 | 0.00 | 0.000 | 0.043 | | 0.043 | 0.208 |
| *182.00* | *1.00* | 3086 | *2384* | 0.031 | 0.038 | 0.00 | 0.000 | 0.069 | | **0.069** | **0.238** |
| 182.10 | 1.10 | 3228 | 2699 | 0.033 | 0.070 | 0.00 | 0.000 | 0.103 | | 0.103 | 0.270 |
| 182.20 | 1.20 | 3371 | 3029 | 0.034 | 0.108 | 0.00 | 0.000 | 0.142 | | **0.142** | **0.303** |
| 182.30 | 1.30 | 3514 | 3373 | 0.036 | 0.150 | 0.00 | 0.000 | 0.186 | | 0.186 | 0.337 |
| 182.40 | 1.40 | 3656 | 3732 | 0.037 | 0.295 | 0.00 | 0.000 | 0.332 | | **0.332** | **0.373** |
| 182.50 | 1.50 | 3799 | 4105 | 0.038 | 0.321 | 5.00 | 0.000 | 5.359 | | **5.359** | **0.410** |
| 182.60 | 1.60 | 3933 | 4491 | 0.040 | 0.345 | 5.60 | 0.302 | 6.287 | | 6.287 | 0.449 |
| 182.70 | 1.70 | 4068 | 4891 | 0.041 | 0.368 | 6.20 | 0.945 | 7.554 | | **7.554** | **0.489** |
| 182.80 | 1.80 | 4202 | 5305 | 0.042 | 0.389 | 6.80 | 1.401 | 8.632 | | **8.632** | **0.530** |

Total ED Draw Down Time (hrs) 28.7

CROZIER & ASSOCIATES Consulting Engineers

| | |
|---|---|
| Project: | 1046-4031 |
| Project No.: | Parkbridge Craigleith |
| File: | Extended Detention |
| Design by: | RW |
| Date: | June 15, 2020 |

**EXTENDED DETENTION SPECIFICATIONS - SWM FACILITY #2**

(Per MOECC)

| | | |
|---|---|---|
| Extended Detention Volume (Area x runoff from 25mm event) | | 618 |
| Extended Detention Volume Provided | | 789 |
| t (drawdown time - seconds, *hours in italics*) | *24.0 hours* | 86400 |
| Ao (cross section area of orifice - sqm, as designed) | | 0.011 |
| h (maximum water elevation above orifice for extended detention- m) | | 0.40 |
| C (discharge coefficient) | | 0.64 |
| Ap (average surface area for extended detention - sqm) | | 2230 |

t = 2*Ap*(h^0.5)/(C*Ao*(g*2)^0.5)

Ao = 0.012 sqm d = 121 mm

Extended Detention Orifice Diameter (as designed) d = **120** mm

Drawdown Time Provided (per SSD) t = 28.7 hrs

Project # 1046-4031
Project Name: Parkbridge Craigleith
Prepared by: RW
Date: June 11, 2020

## SWMF#2 FOREBAY DESIGN CALCULATIONS

| *Parameter* | *Variable* | *Value* |
|---|---|---|
| Forebay Settling Length | Length of forebay (bottom) (m) | 22.5 |
| | Width of forebay (bottom) (m) | 8.5 |
| | Length-to-width ratio of forebay | 2.6 |
| | Peak flow rate from forebay in quality event ($m^3/s$) | 0.013 |
| | Settling velocity (m/s) | 0.0003 |
| | | |
| | **Required Forebay length (m)** | **10.7** |
| Dispersion Length | Inlet flowrate in 5 year event ($m^3/s$) | 0.35 |
| | Depth of of the permanent pool in the forebay (m) | 0.80 |
| | Desired velocity in the forebay (m/s) | 0.5 |
| | | |
| | **Length of dispersion (m)** | **7.0** |
| Velocity in forebay check | Stage of Pond in 10 Year Event (m) | 181.83 |
| | Cross sectional area ($m^2$) | 54.9 |
| | Inlet flowrate in 10 year event (m3/s) | 0.49 |
| | | |
| | **Velocity in forebay (m/s)*** | **0.009** |
| **DESIGN FOREBAY LENGTH (m)** | | **30** |

* Desired maximum average velocity in the forebay is 0.15m/s, per MOE, 2003, Page 4-56

# APPENDIX E

## Stormwater Design Calculations

Storm Sewer Design Sheet
Jellyfish Filter Sizing Report
FlowMaster – Catchment #2 Gutter Flow (9 sheets)
MTO Catchbasin & Double Catchbasin Capture Curves
CB Capture Analysis Summary
CulvertMaster – Watercourse 9 Culvert Sizing
CulvertMaster – Emergency Access Culvert Sizing
FlowMaster – Council Way Overland Flow Route (1A)
FlowMaster – SWMF #2 Access Road Overland Flow Route (2D)
FlowMaster – Watercourse 8 Ditch (8A & EXT-8A)
CulvertMaster – Watercourse 8 Culvert Sizing (8A & EXT-8A)
Capture Curve – DCB #12 Inlet (2A & 2B)
Capture Curve – Storm Inlet Structure (EXT8A & 8A)

# PARKBRIDGE CRAIGLEITH

**1046-4031**

STORM SEWER DESIGN SHEET

CROZIER CONSULTING ENGINEERS

| FREQUENCY - 5 YEARS - MTO LOOKUP TOOL | | | |
|---|---|---|---|
| Coef. A= | 27.5 | Coef. B= | -0.699 |
| **FREQUENCY - 100 YEARS - MTO LOOKUP TOOL** | | | |
| Coef. A= | 46.4 | Coef. B= | -0.699 |

| MATERIAL | MANNINGS "n" |
|---|---|
| PVC | 0.009 |
| CONC. | 0.013 |
| CSP | 0.024 |

| | |
|---|---|
| DESIGNED BY: | JE |
| CHECKED BY: | RW |
| DATE: | 2020-06-16 |
| REVISION NO.: | 2 |
| REVISED BY: | JE |
| DATE: | 2021-05-14 |

INITIAL TIME OF CONCENTRATION (minutes) = 15.00

| CATCHMENT I.D. | STREET | FR MH NO | TO MH NO | AREA (A) (Ha) | RUN-OFF COEFF | DESIGN STORM | A x C | 5 YEAR CUMMUL. A x C | 100 YEAR CUMMUL. A x C | TIME OF CONC. (min.) | 5 YEAR I (mm/hr) | 100 YEAR I (mm/hr) | DESIGN FLOW (l/sec) | PIPE SLOPE (%) | PIPE DIA. (mm) | MANNING'S "n" | VEL. (m/sec) | LENGTH (m) | TIME OF FLOW (min) | PIPE CAPACITY (l/sec) | CAPACITY (%) | PIPE INV ELEV. UPPER END | PIPE INV ELEV. LOWER END | PIPE OBV ELEV. UPPER END | PIPE OBV ELEV. LOWER END | GROUND ELEV. UPPER END | GROUND ELEV. LOWER END | COVER UPPER END | COVER LOWER END |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **TO SWMF #1** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Council Way | CB5 | STMH23 | 0.08 | 0.90 | 5 year | 0.07 | 0.07 | 0.00 | 15.00 | 72.47 | 122.28 | **14.51** | 4.0% | 300 | 0.009 | 4.0 | 45.9 | 0.19 | **279.36** | **5%** | 215.04 | 213.21 | 215.34 | 213.51 | 217.61 | 215.24 | 2.27 | 1.73 |
| - | Council Way | STMH23 | CBMH22 | 0.00 | 0.55 | 5 year | 0.00 | 0.07 | 0.00 | 15.19 | 71.83 | 121.19 | **14.38** | 3.1% | 300 | 0.009 | 3.5 | 15.2 | 0.07 | **246.72** | **6%** | 212.10 | 211.63 | 212.40 | 211.93 | 215.24 | 214.32 | 2.84 | 2.39 |
| 60 | Parking Area | CB18 | CBMH60 | 0.08 | 0.90 | 5 year | 0.07 | 0.07 | 0.00 | 15.00 | 72.47 | 122.28 | **14.51** | 0.5% | 300 | 0.009 | 1.4 | 35.4 | 0.42 | **98.77** | **15%** | 212.64 | 212.46 | 212.94 | 212.76 | 216.80 | 215.61 | 3.86 | 2.85 |
| 61 | Parking Area | CBMH60 | CBMH22 | 0.12 | 0.90 | 5 year | 0.11 | 0.18 | 0.00 | 15.42 | 71.08 | 119.93 | **35.57** | 0.5% | 300 | 0.009 | 1.4 | 30.4 | 0.36 | **98.77** | **36%** | 212.38 | 212.23 | 212.68 | 212.53 | 215.61 | 214.32 | 2.93 | 1.79 |
| 3 | Council Way | CBMH22 | CBMH20 | 0.17 | 0.65 | 5 year | 0.11 | 0.36 | 0.00 | 15.78 | 69.93 | 118.00 | **70.48** | 4.3% | 300 | 0.009 | 4.1 | 38.9 | 0.16 | **290.32** | **24%** | 210.52 | 208.84 | 210.82 | 209.14 | 214.32 | 212.26 | 3.50 | 3.12 |
| 4 | Council Way | CBMH20 | DCBMH70 | 0.12 | 0.90 | 5 year | 0.11 | 0.47 | 0.00 | 15.94 | 69.45 | 117.18 | **90.84** | 0.6% | 300 | 0.009 | 1.5 | 31.0 | 0.34 | **108.19** | **84%** | 207.88 | 207.69 | 208.18 | 207.99 | 212.26 | 211.10 | 4.08 | 3.11 |
| 8 | Copper Lane | DCBMH70 | CBMH18 | 0.38 | 0.55 | 5 year | 0.21 | 0.68 | 0.00 | 16.28 | 68.44 | 115.48 | **129.28** | 2.8% | 300 | 0.009 | 3.3 | 12.6 | 0.06 | **232.05** | **56%** | 207.61 | 207.26 | 207.91 | 207.56 | 211.10 | 210.52 | 3.19 | 2.96 |
| 5 | Council Way | CBMH18 | CBMH16 | 0.06 | 0.90 | 5 year | 0.05 | 0.73 | 0.00 | 16.34 | 68.25 | 115.16 | **139.18** | 3.5% | 300 | 0.009 | 3.7 | 38.7 | 0.17 | **261.32** | **53%** | 207.17 | 205.81 | 207.47 | 206.11 | 210.52 | 208.29 | 3.05 | 2.18 |
| 10 | Copper Lane | DCB3 | CBMH16 | 0.34 | 0.55 | 5 year | 0.19 | 0.19 | 0.00 | 15.00 | 72.47 | 122.28 | **37.68** | 5.0% | 300 | 0.009 | 4.4 | 14.1 | 0.05 | **312.33** | **12%** | 206.73 | 206.03 | 207.03 | 206.33 | 209.04 | 208.29 | 2.01 | 1.96 |
| 7 | Council Way | CBMH16 | STMH15 | 0.09 | 0.55 | 5 year | 0.05 | 0.97 | 0.00 | 16.52 | 67.75 | 114.31 | **182.69** | 3.5% | 375 | 0.009 | 4.3 | 21.6 | 0.08 | **473.80** | **39%** | 205.20 | 204.44 | 205.58 | 204.82 | 208.29 | 207.12 | 2.72 | 2.31 |
| - | Council Way | STMH15 | CBMH14 | 0.00 | 0.55 | 5 year | 0.00 | 0.97 | 0.00 | 16.60 | 67.51 | 113.90 | **182.04** | 3.5% | 375 | 0.009 | 4.3 | 24.3 | 0.09 | **473.80** | **38%** | 203.78 | 202.93 | 204.16 | 203.31 | 207.12 | 204.53 | 2.97 | 1.22 |
| 12 | Coltsfoot Crescent | DCB2 | CBMH14 | 0.17 | 0.55 | 5 year | 0.09 | 0.09 | 0.00 | 15.00 | 72.47 | 122.28 | **18.84** | 5.0% | 300 | 0.009 | 4.4 | 16.0 | 0.06 | **312.33** | **6%** | 204.33 | 203.53 | 204.63 | 203.83 | 206.62 | 204.53 | 1.99 | 0.70 |
| 9 | Council Way | CBMH14 | STMH13 | 0.12 | 0.55 | 5 year | 0.07 | 1.13 | 0.00 | 16.70 | 67.24 | 113.45 | **211.14** | 3.5% | 375 | 0.009 | 4.3 | 9.5 | 0.04 | **473.80** | **45%** | 202.53 | 202.19 | 202.91 | 202.57 | 204.53 | 205.17 | 1.63 | 2.60 |
| - | Council Way | STMH13 | CBMH9 | 0.00 | 0.55 | 5 year | 0.00 | 1.13 | 0.00 | 16.73 | 67.14 | 113.28 | **210.81** | 3.5% | 375 | 0.009 | 4.3 | 22.6 | 0.09 | **473.80** | **44%** | 201.72 | 200.93 | 202.10 | 201.31 | 205.17 | 203.74 | 3.07 | 2.44 |
| EXT1 A + 49 | Coltsfoot Crescent | INLET HEADWALL #1 | CBMH12 | 8.46 | 0.38 | 5 year | 3.21 | 3.21 | 0.00 | 15.00 | 72.47 | 122.28 | **647.15** | 3.6% | 525 | 0.013 | 3.8 | 30.2 | 0.13 | **815.99** | **79%** | 204.55 | 203.46 | 205.08 | 203.99 | 208.28 | 206.61 | 3.20 | 2.63 |
| 15 | Coltsfoot Crescent | CBMH12 | DCBMH10 | 0.10 | 0.55 | 5 year | 0.06 | 3.27 | 0.00 | 15.13 | 72.02 | 121.53 | **654.17** | 4.0% | 525 | 0.013 | 3.9 | 51.6 | 0.22 | **854.73** | **77%** | 203.44 | 201.40 | 203.97 | 201.93 | 206.61 | 204.79 | 2.65 | 2.86 |
| 14 | Coltsfoot Crescent | DCBMH10 | CBMH9 | 0.21 | 0.55 | 5 year | 0.12 | 3.38 | 0.00 | 15.35 | 71.31 | 120.32 | **670.56** | 3.4% | 525 | 0.013 | 3.7 | 19.2 | 0.09 | **793.00** | **85%** | 201.35 | 200.70 | 201.88 | 201.23 | 204.79 | 203.74 | 2.91 | 2.52 |
| 11 | Council Way | CBMH9 | CBMH6 | 0.11 | 0.55 | 5 year | 0.06 | 4.57 | 0.00 | 16.82 | 66.89 | 112.87 | **850.32** | 3.5% | 600 | 0.013 | 4.1 | 47.8 | 0.20 | **1148.71** | **74%** | 199.91 | 198.24 | 200.51 | 198.84 | 203.74 | 200.60 | 3.23 | 1.76 |
| 16 | Cottontail Crescent | CB1 | DCBMH7 | 0.21 | 0.55 | 5 year | 0.12 | 0.12 | 0.00 | 15.00 | 72.47 | 122.28 | **23.27** | 4.0% | 300 | 0.009 | 4.0 | 43.3 | 0.18 | **279.36** | **8%** | 201.53 | 199.80 | 201.83 | 200.10 | 204.62 | 201.75 | 2.79 | 1.65 |
| 17 | Cottontail Crescent | DCBMH7 | CBMH6 | 0.15 | 0.55 | 5 year | 0.08 | 0.20 | 0.00 | 15.18 | 71.86 | 121.25 | **39.56** | 4.0% | 300 | 0.009 | 4.0 | 15.9 | 0.07 | **279.36** | **14%** | 199.14 | 198.50 | 199.44 | 198.80 | 201.75 | 200.60 | 2.31 | 1.80 |
| 13 | Council Way | CBMH6 | STMH5 | 0.14 | 0.55 | 5 year | 0.08 | 4.85 | 0.00 | 17.02 | 66.35 | 111.96 | **894.19** | 3.5% | 600 | 0.013 | 4.1 | 26.8 | 0.11 | **1148.71** | **78%** | 197.31 | 196.37 | 197.91 | 196.97 | 200.60 | 198.57 | 2.69 | 1.60 |
| - | Council Way | STMH5 | CBMH4 | 0.00 | 0.55 | 5 year | 0.00 | 4.85 | 0.00 | 17.13 | 66.05 | 111.45 | **890.17** | 3.5% | 600 | 0.013 | 4.1 | 17.0 | 0.07 | **1148.71** | **77%** | 195.49 | 194.89 | 196.09 | 195.49 | 198.57 | 197.37 | 2.48 | 1.88 |
| 18 | Council Way | CBMH4 | DCBMH2 | 0.40 | 0.55 | 5 year | 0.22 | 5.07 | 0.00 | 17.20 | 65.87 | 111.14 | **927.93** | 3.5% | 600 | 0.013 | 4.1 | 34.1 | 0.14 | **1148.71** | **81%** | 194.01 | 192.82 | 194.61 | 193.42 | 197.37 | 194.92 | 2.76 | 1.50 |
| 19 | Council Way | DCBMH2 | STMH1 | 0.07 | 0.90 | 5 year | 0.06 | 5.13 | 0.00 | 17.34 | 65.50 | 110.51 | **934.16** | 3.5% | 600 | 0.013 | 4.1 | 23.0 | 0.09 | **1147.07** | **81%** | 191.94 | 191.14 | 192.54 | 191.74 | 194.92 | 193.67 | 2.38 | 1.93 |
| - | N/A | STMH1 | HEADWALL #1 | 0.00 | 0.60 | 5 year | 0.00 | 5.13 | 0.00 | 17.43 | 65.25 | 110.09 | **930.62** | 3.5% | 600 | 0.013 | 4.1 | 28.8 | 0.12 | **1148.71** | **81%** | 190.41 | 189.40 | 191.01 | 190.00 | 193.67 | 189.97 | 2.66 | |
| | **TO SWMF #2** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Council Way | CB13 | CBMH50 | 0.12 | 0.55 | 100 year | 0.07 | 0.00 | 0.07 | 15.00 | 72.47 | 122.28 | **22.44** | 3.0% | 300 | 0.009 | 3.4 | 28.5 | 0.14 | **241.93** | **9%** | 188.08 | 187.23 | 188.38 | 187.53 | 190.40 | 189.31 | 2.02 | 1.78 |
| 21 | Council Way | CBMH50 | STMH49 | 0.14 | 0.55 | 100 year | 0.08 | 0.00 | 0.14 | 15.14 | 72.01 | 121.50 | **48.30** | 2.5% | 300 | 0.009 | 3.1 | 28.5 | 0.15 | **220.41** | **22%** | 186.50 | 185.79 | 186.80 | 186.09 | 189.31 | 188.26 | 2.51 | 2.17 |
| 37 | N/A | DCB12 | STMH49 | 2.86 | 0.11 | 100 year | 0.33 | 0.00 | 0.33 | 15.00 | 72.47 | 122.28 | **110.99** | 1.7% | 375 | 0.009 | 3.0 | 49.3 | 0.27 | **332.14** | **33%** | 186.38 | 185.53 | 186.76 | 185.91 | 186.96 | 188.26 | | 2.35 |
| - | Council Way | STMH49 | DCBMH48 | 0.00 | 0.55 | 100 year | 0.00 | 0.00 | 0.47 | 15.29 | 71.51 | 120.65 | **157.47** | 2.7% | 375 | 0.009 | 3.7 | 42.7 | 0.19 | **413.82** | **38%** | 185.45 | 184.31 | 185.83 | 184.69 | 188.26 | 186.93 | 2.44 | 2.25 |
| 22 | Council Way | DCBMH48 | STMH42 | 0.33 | 0.55 | 100 year | 0.18 | 0.00 | 0.65 | 15.48 | 70.89 | 119.61 | **216.47** | 1.1% | 450 | 0.009 | 2.7 | 14.5 | 0.09 | **425.99** | **51%** | 183.96 | 183.80 | 184.41 | 184.25 | 186.93 | 186.66 | 2.52 | 2.41 |
| 24 | Festoon Crescent | DCB9 | STMH42 | 0.16 | 0.55 | 100 year | 0.09 | 0.00 | 0.09 | 15.00 | 72.47 | 122.28 | **29.91** | 1.0% | 300 | 0.009 | 2.0 | 34.6 | 0.29 | **138.28** | **22%** | 184.39 | 184.05 | 184.69 | 184.35 | 185.69 | 186.66 | 1.00 | 2.31 |
| 28 | Rally Trail | CB11 | STMH47 | 0.17 | 0.45 | 100 year | 0.08 | 0.00 | 0.08 | 15.00 | 72.47 | 122.28 | **26.01** | 1.6% | 300 | 0.009 | 2.5 | 24.2 | 0.16 | **175.02** | **15%** | 185.60 | 185.22 | 185.90 | 185.52 | 188.04 | 187.57 | 2.14 | 2.05 |
| 58 | Parking Area | CB17 | CBMH59 | 0.04 | 0.90 | 100 year | 0.04 | 0.00 | 0.04 | 15.00 | 72.47 | 122.28 | **12.24** | 0.5% | 300 | 0.009 | 1.4 | 20.6 | 0.25 | **98.77** | **12%** | 185.64 | 185.54 | 185.94 | 185.84 | 186.15 | 187.54 | 0.21 | 1.70 |
| 59 | Parking Area | CBMH59 | DCBMH67 | 0.03 | 0.90 | 100 year | 0.03 | 0.00 | 0.06 | 15.25 | 71.65 | 120.90 | **21.17** | 0.5% | 300 | 0.009 | 1.4 | 16.5 | 0.19 | **101.69** | **21%** | 185.46 | 185.37 | 185.76 | 185.67 | 187.54 | 187.31 | 1.78 | 1.64 |
| 27 | Festoon Crescent | DCBMH67 | STMH47 | 0.22 | 0.45 | 100 year | 0.10 | 0.00 | 0.16 | 15.44 | 71.03 | 119.85 | **53.98** | 0.5% | 300 | 0.009 | 1.4 | 10.8 | 0.13 | **98.77** | **55%** | 185.30 | 185.25 | 185.60 | 185.55 | 187.31 | 187.57 | 1.71 | 2.02 |
| - | Rally Trail | STMH47 | STMH46 | 0.00 | 0.45 | 100 year | 0.00 | 0.00 | 0.24 | 15.57 | 70.62 | 119.16 | **79.00** | 1.0% | 300 | 0.009 | 1.9 | 28.5 | 0.25 | **136.14** | **58%** | 185.17 | 184.90 | 185.47 | 185.20 | 187.57 | 187.26 | 2.10 | 2.06 |
| - | Rally Trail | STMH46 | CBMH45 | 0.00 | 0.45 | 100 year | 0.00 | 0.00 | 0.24 | 15.81 | 69.85 | 117.85 | **78.14** | 0.5% | 300 | 0.009 | 1.4 | 29.1 | 0.35 | **98.77** | **79%** | 184.86 | 184.71 | 185.16 | 185.01 | 187.26 | 187.16 | 2.10 | 2.15 |
| 26 | Rally Trail | CBMH45 | STMH44 | 0.29 | 0.45 | 100 year | 0.13 | 0.00 | 0.37 | 16.16 | 68.80 | 116.08 | **119.08** | 0.5% | 375 | 0.009 | 1.7 | 29.7 | 0.30 | **182.62** | **65%** | 184.65 | 184.49 | 185.03 | 184.87 | 187.16 | 186.98 | 2.13 | 2.11 |
| - | Rally Trail | STMH44 | DCBMH43 | 0.00 | 0.45 | 100 year | 0.00 | 0.00 | 0.37 | 16.46 | 67.92 | 114.60 | **117.56** | 0.5% | 375 | 0.009 | 1.6 | 41.8 | 0.43 | **177.28** | **66%** | 184.44 | 184.24 | 184.82 | 184.62 | 186.98 | 186.76 | 2.16 | 2.14 |
| 25 | Rally Trail | DCBMH43 | STMH42 | 0.41 | 0.45 | 100 year | 0.18 | 0.00 | 0.55 | 16.89 | 66.70 | 112.53 | **173.16** | 0.5% | 450 | 0.009 | 1.8 | 24.4 | 0.22 | **291.20** | **59%** | 183.97 | 183.85 | 184.42 | 184.30 | 186.76 | 186.66 | 2.34 | 2.36 |
| - | Rally Trail | STMH42 | CBMH41 | 0.00 | 0.45 | 100 year | 0.00 | 0.00 | 1.29 | 17.11 | 66.09 | 111.51 | **400.67** | 0.6% | 600 | 0.013 | 1.7 | 5.7 | 0.06 | **475.61** | **84%** | 183.70 | 183.67 | 184.30 | 184.27 | 186.66 | 186.72 | 2.36 | 2.45 |
| 23 | Rally Trail | CBMH41 | STMH40 | 0.08 | 0.55 | 100 year | 0.04 | 0.00 | 1.34 | 17.17 | 65.94 | 111.25 | **413.36** | 0.7% | 600 | 0.013 | 1.8 | 50.7 | 0.47 | **513.72** | **80%** | 183.63 | 183.28 | 184.23 | 183.88 | 186.72 | 186.99 | 2.49 | 3.11 |
| | Rally Trail | STMH40 | STMH39 | 0.00 | 0.55 | 100 year | 0.00 | 0.00 | 1.34 | 17.64 | 64.72 | 109.20 | **405.71** | 0.7% | 600 | 0.013 | 1.8 | 57.0 | 0.52 | **513.72** | **79%** | 183.25 | 182.85 | 183.85 | 183.45 | 186.99 | 186.00 | 3.14 | 2.55 |
| - | Rally Trail | STMH39 | CBMH38 | 0.00 | 0.55 | 100 year | 0.00 | 0.00 | 1.34 | 18.16 | 63.41 | 106.99 | **397.51** | 0.9% | 600 | 0.013 | 2.1 | 21.6 | 0.17 | **595.31** | **67%** | 182.70 | 182.50 | 183.30 | 183.10 | 186.00 | 185.34 | 2.70 | 2.24 |
| 40 | Butternut Court | CB8 | CBMH38 | 0.27 | 0.55 | 5 year | 0.15 | 0.15 | 0.00 | 15.00 | 72.47 | 122.28 | **29.92** | 0.7% | 300 | 0.009 | 1.7 | 16.3 | 0.16 | **118.52** | **25%** | 182.92 | 182.80 | 183.22 | 183.10 | 185.93 | 185.34 | 2.71 | 2.24 |
| 39 | Rally Trail | CBMH38 | STMH37 | 0.19 | 0.55 | 5 year | 0.10 | 0.25 | 1.34 | 18.33 | 62.99 | 106.29 | **439.22** | 1.4% | 600 | 0.013 | 2.6 | 24.4 | 0.16 | **736.81** | **60%** | 182.45 | 182.10 | 183.05 | 182.70 | 185.34 | 184.64 | 2.29 | 1.94 |
| - | Rally Trail | STMH37 | DCBMH26 | 0.00 | 0.55 | 5 year | 0.00 | 0.25 | 1.34 | 18.49 | 62.62 | 105.66 | **436.63** | 1.0% | 600 | 0.013 | 2.2 | 53.0 | 0.41 | **614.01** | **71%** | 182.05 | 181.52 | 182.65 | 182.12 | 184.64 | 183.43 | 1.99 | 1.31 |
| 55 | Rear Yards | CB7 | CBMH66 | 0.15 | 0.45 | 5 year | 0.07 | 0.07 | 0.00 | 15.00 | 72.47 | 122.28 | **13.60** | 1.0% | 300 | 0.009 | 2.0 | 20.6 | 0.17 | **139.68** | **10%** | 183.62 | 183.41 | 183.92 | 183.71 | 184.58 | 184.58 | 0.66 | 0.87 |
| 54 | Rear Yards | CBMH66 | CBMH65 | 0.08 | 0.45 | 5 year | 0.04 | 0.10 | 0.00 | 15.17 | 71.89 | 121.30 | **20.69** | 0.5% | 300 | 0.009 | 1.4 | 20.6 | 0.25 | **98.77** | **21%** | 183.38 | 183.28 | 183.68 | 183.58 | 184.58 | 184.58 | 0.90 | 1.00 |
| 53 | Rear Yards | CBMH65 | CBMH63 | 0.08 | 0.45 | 5 year | 0.04 | 0.14 | 0.00 | 15.42 | 71.09 | 119.95 | **27.57** | 0.5% | 300 | 0.009 | 1.4 | 20.1 | 0.24 | **98.77** | **28%** | 183.23 | 183.13 | 183.53 | 183.43 | 184.58 | 184.58 | 1.05 | 1.15 |
| 52 | Rear Yards | CBMH63 | CBMH62 | 0.04 | 0.45 | 5 year | 0.02 | 0.16 | 0.00 | 15.66 | 70.33 | 118.66 | **30.79** | 0.5% | 300 | 0.009 | 1.4 | 20.4 | 0.24 | **98.77** | **31%** | 183.08 | 182.98 | 183.38 | 183.28 | 184.58 | 184.58 | 1.20 | 1.30 |
| 51 | Rear Yards | CBMH62 | CBMH61 | 0.04 | 0.45 | 5 year | 0.02 | 0.18 | 0.00 | 15.90 | 69.57 | 117.39 | **33.94** | 0.5% | 300 | 0.009 | 1.4 | 20.1 | 0.24 | **98.77** | **34%** | 182.93 | 182.83 | 183.23 | 183.13 | 184.58 | 184.18 | 1.35 | 1.05 |

# PARKBRIDGE CRAIGLEITH

**1046-4031**

STORM SEWER DESIGN SHEET

CROZIER CONSULTING ENGINEERS

| FREQUENCY - 5 YEARS - MTO LOOKUP TOOL | | | |
|---|---|---|---|
| Coef. A= | 27.5 | Coef. B= | -0.699 |
| **FREQUENCY - 100 YEARS - MTO LOOKUP TOOL** | | | |
| Coef. A= | 46.4 | Coef. B= | -0.699 |

| MATERIAL | MANNINGS "n" |
|---|---|
| PVC | 0.009 |
| CONC. | 0.013 |
| CSP | 0.024 |

| | |
|---|---|
| DESIGNED BY: | JE |
| CHECKED BY: | RW |
| DATE: | 2020-06-16 |
| REVISION NO.: | 2 |
| REVISED BY: | JE |
| DATE: | 2021-05-14 |

INITIAL TIME OF CONCENTRATION (minutes) = 15.00

| CATCHMENT I.D. | STREET | FR MH NO | TO MH NO | AREA (A) (Ha) | RUN-OFF COEFF | DESIGN STORM | A x C | 5 YEAR CUMMUL. A x C | 100 YEAR CUMMUL. A x C | TIME OF CONC. (min.) | 5 YEAR I (mm/hr) | 100 YEAR I (mm/hr) | DESIGN FLOW (l/sec) | PIPE SLOPE (%) | PIPE DIA. (mm) | MANNING'S "n" | VEL. (m/sec) | LENGTH (m) | TIME OF FLOW (min) | PIPE CAPACITY (l/sec) | CAPACITY (%) | PIPE INV ELEV. UPPER END | PIPE INV ELEV. LOWER END | PIPE OBV ELEV. UPPER END | PIPE OBV ELEV. LOWER END | GROUND ELEV. UPPER END | GROUND ELEV. LOWER END | COVER UPPER END | COVER LOWER END |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | Rally Trail | CBMH61 | STMH36 | 0.14 | 0.45 | 5 year | 0.06 | 0.24 | 0.00 | 16.14 | 68.85 | 116.17 | **45.65** | 1.7% | 300 | 0.009 | 2.6 | 24.1 | 0.16 | **181.58** | **25%** | 182.75 | 182.34 | 183.05 | 182.64 | 184.18 | 183.89 | 1.13 | 1.25 |
| - | Rally Trail | STMH36 | CBMH35 | 0.00 | 0.45 | 5 year | 0.00 | 0.24 | 0.00 | 16.30 | 68.39 | 115.39 | **45.34** | 2.0% | 300 | 0.009 | 2.8 | 15.1 | 0.09 | **197.54** | **23%** | 182.29 | 181.99 | 182.59 | 182.29 | 183.89 | 183.76 | 1.30 | 1.47 |
| 42 | Rally Trail | CBMH35 | DCBMH26 | 0.06 | 0.45 | 5 year | 0.03 | 0.27 | 0.00 | 16.39 | 68.12 | 114.94 | **50.28** | 0.5% | 300 | 0.009 | 1.4 | 22.9 | 0.27 | **98.77** | **51%** | 181.93 | 181.82 | 182.23 | 182.12 | 183.76 | 183.43 | 1.53 | 1.31 |
| 48 | Rally Trail | CB6 | STMH34 | 0.46 | 0.45 | 5 year | 0.21 | 0.21 | 0.00 | 15.00 | 72.47 | 122.28 | **41.70** | 1.0% | 300 | 0.009 | 2.0 | 30.5 | 0.26 | **139.68** | **30%** | 183.39 | 183.08 | 183.69 | 183.38 | 184.92 | 184.53 | 1.23 | 1.15 |
| - | Rally Trail | STMH34 | CBMH33 | 0.00 | 0.45 | 5 year | 0.00 | 0.21 | 0.00 | 15.26 | 71.62 | 120.84 | **41.21** | 1.0% | 300 | 0.009 | 2.0 | 27.4 | 0.23 | **139.68** | **30%** | 183.05 | 182.78 | 183.35 | 183.08 | 184.53 | 185.40 | 1.18 | 2.32 |
| 47 | Rally Trail | CBMH33 | STMH32 | 0.23 | 0.45 | 5 year | 0.10 | 0.31 | 0.00 | 15.49 | 70.87 | 119.57 | **61.17** | 0.5% | 300 | 0.009 | 1.4 | 22.3 | 0.27 | **98.77** | **62%** | 183.17 | 183.06 | 183.47 | 183.36 | 185.40 | 185.19 | 1.93 | 1.83 |
| - | Rally Trail | STMH32 | STMH31 | 0.00 | 0.45 | 5 year | 0.00 | 0.31 | 0.00 | 15.75 | 70.03 | 118.16 | **60.45** | 0.5% | 300 | 0.009 | 1.4 | 13.6 | 0.16 | **98.77** | **61%** | 183.01 | 182.94 | 183.31 | 183.24 | 185.19 | 185.07 | 1.88 | 1.83 |
| - | Rally Trail | STMH31 | CBMH30 | 0.00 | 0.45 | 5 year | 0.00 | 0.31 | 0.00 | 15.92 | 69.53 | 117.31 | **60.02** | 0.5% | 300 | 0.009 | 1.4 | 16.2 | 0.19 | **98.77** | **61%** | 182.89 | 182.81 | 183.19 | 183.11 | 185.07 | 184.93 | 1.88 | 1.82 |
| 46 | Rally Trail | CBMH30 | STMH29 | 0.18 | 0.45 | 5 year | 0.08 | 0.39 | 0.00 | 16.11 | 68.95 | 116.33 | **75.04** | 0.5% | 300 | 0.009 | 1.4 | 65.3 | 0.78 | **98.77** | **76%** | 182.76 | 182.43 | 183.06 | 182.73 | 184.93 | 184.38 | 1.87 | 1.65 |
| - | Rally Trail | STMH29 | CBMH28 | 0.00 | 0.45 | 5 year | 0.00 | 0.39 | 0.00 | 16.89 | 66.71 | 112.55 | **72.60** | 0.5% | 300 | 0.009 | 1.4 | 36.5 | 0.44 | **98.77** | **74%** | 182.38 | 182.20 | 182.68 | 182.50 | 184.38 | 184.06 | 1.70 | 1.56 |
| 44 | Rally Trail | CBMH28 | STMH27 | 0.36 | 0.45 | 5 year | 0.16 | 0.55 | 0.00 | 17.32 | 65.53 | 110.57 | **100.83** | 0.5% | 375 | 0.009 | 1.6 | 24.2 | 0.25 | **179.08** | **56%** | 182.13 | 182.01 | 182.51 | 182.39 | 184.06 | 183.85 | 1.56 | 1.47 |
| - | Rally Trail | STMH27 | DCBMH26 | 0.00 | 0.45 | 5 year | 0.00 | 0.55 | 0.00 | 17.57 | 64.88 | 109.47 | **99.83** | 0.5% | 375 | 0.009 | 1.6 | 53.8 | 0.55 | **179.08** | **56%** | 181.94 | 181.67 | 182.32 | 182.05 | 183.85 | 183.43 | 1.54 | 1.39 |
| 41 | SWMF Access Road | DCBMH26 | STMH25 | 0.78 | 0.55 | 5 year | 0.43 | 1.50 | 1.34 | 18.89 | 61.68 | 104.07 | **644.02** | 0.2% | 900 | 0.013 | 1.3 | 33.7 | 0.44 | **809.60** | **80%** | 181.29 | 181.22 | 182.19 | 182.12 | 183.43 | 183.33 | 1.24 | 1.21 |
| - | SWMF Access Road | STMH25 | STMH24 | 0.00 | 0.55 | 5 year | 0.00 | 1.50 | 1.34 | 19.33 | 60.69 | 102.40 | **633.71** | 0.2% | 900 | 0.013 | 1.3 | 49.9 | 0.65 | **809.60** | **78%** | 181.17 | 181.07 | 182.07 | 181.97 | 183.33 | 182.86 | 1.26 | 0.89 |
| 38 | N/A | INLET HEADWALL #2 | STMH24 | 0.76 | 0.25 | 5 year | 0.19 | 0.19 | 0.00 | 15.00 | 72.47 | 122.28 | **38.28** | 2.3% | 300 | 0.009 | 3.0 | 9.6 | 0.05 | **211.83** | **18%** | 181.50 | 181.28 | 181.80 | 181.58 | 181.81 | 182.86 | | 1.28 |
| - | SWMF Access Road | STMH24 | HEADWALL #2 | 0.00 | 0.55 | 5 year | 0.00 | 1.69 | 1.34 | 19.99 | 59.30 | 100.05 | **650.47** | 0.2% | 900 | 0.013 | 1.3 | 11.4 | 0.15 | **809.60** | **80%** | 181.02 | 181.00 | 181.92 | 181.90 | 182.86 | 181.88 | 0.94 | |
| | **TO OGS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | Festoon Crescent | CB15 | STMH58 | 0.09 | 0.90 | 5 year | 0.08 | 0.08 | 0.00 | 15.00 | 72.47 | 122.28 | **16.32** | 1.0% | 300 | 0.009 | 2.0 | 17.9 | 0.15 | **139.68** | **12%** | 183.01 | 182.83 | 183.31 | 183.13 | 185.02 | 184.61 | 1.71 | 1.48 |
| - | Festoon Crescent | STMH58 | CBMH56 | 0.00 | 0.55 | 5 year | 0.00 | 0.08 | 0.00 | 15.15 | 71.97 | 121.43 | **16.21** | 0.5% | 300 | 0.009 | 1.4 | 17.6 | 0.21 | **98.77** | **16%** | 182.78 | 182.69 | 183.08 | 182.99 | 184.61 | 184.40 | 1.53 | 1.41 |
| 31 | Festoon Crescent | CBMH56 | CBMH55 | 0.04 | 0.90 | 5 year | 0.04 | 0.12 | 0.00 | 15.36 | 71.28 | 120.27 | **23.18** | 0.5% | 300 | 0.009 | 1.4 | 43.7 | 0.52 | **98.77** | **23%** | 182.64 | 182.42 | 182.94 | 182.72 | 184.40 | 184.19 | 1.46 | 1.47 |
| 56 | Festoon Crescent | CBMH55 | CBMH54 | 0.13 | 0.55 | 5 year | 0.07 | 0.19 | 0.00 | 15.88 | 69.63 | 117.49 | **36.49** | 0.5% | 300 | 0.009 | 1.4 | 39.8 | 0.47 | **99.75** | **37%** | 182.37 | 182.17 | 182.67 | 182.47 | 184.19 | 183.99 | 1.52 | 1.52 |
| 30 | Rear Yards | CB19 | CBMH69 | 0.17 | 0.55 | 5 year | 0.09 | 0.09 | 0.00 | 15.00 | 72.47 | 122.28 | **18.84** | 0.5% | 300 | 0.009 | 1.4 | 34.9 | 0.42 | **98.77** | **19%** | 182.90 | 182.73 | 183.20 | 183.03 | 184.17 | 184.16 | 0.97 | 1.13 |
| 57 | Rear Yards | CBMH69 | CBMH68 | 0.17 | 0.55 | 5 year | 0.09 | 0.19 | 0.00 | 15.42 | 71.10 | 119.96 | **36.96** | 0.5% | 300 | 0.009 | 1.4 | 41.1 | 0.49 | **98.77** | **37%** | 182.70 | 182.49 | 183.00 | 182.79 | 184.16 | 184.22 | 1.16 | 1.43 |
| 34 | Rear Yards | CBMH68 | CBMH54 | 0.22 | 0.55 | 5 year | 0.12 | 0.31 | 0.00 | 15.91 | 69.56 | 117.37 | **59.56** | 0.5% | 300 | 0.009 | 1.4 | 45.4 | 0.54 | **98.77** | **60%** | 182.41 | 182.18 | 182.71 | 182.48 | 184.22 | 183.99 | 1.51 | 1.51 |
| 55 | Festoon Crescent | CBMH54 | DCBMH53 | 0.11 | 0.55 | 5 year | 0.06 | 0.56 | 0.00 | 16.45 | 67.95 | 114.65 | **105.22** | 0.5% | 375 | 0.009 | 1.7 | 27.4 | 0.27 | **186.10** | **57%** | 182.10 | 181.95 | 182.48 | 182.33 | 183.99 | 183.90 | 1.52 | 1.58 |
| 33 & 36 | N/A | DCBMH53 | MH52 | 0.33 | 0.55 | 5 year | 0.18 | 0.74 | 0.00 | 16.72 | 67.18 | 113.35 | **137.92** | 3.0% | 375 | 0.009 | 4.0 | 8.9 | 0.04 | **438.65** | **31%** | 181.81 | 181.54 | 182.19 | 181.92 | 183.90 | 182.67 | 1.72 | 0.75 |
| - | N/A | MH52 | HEADWALL #3 | 0.00 | 0.45 | 5 year | 0.00 | 0.74 | 0.00 | 16.76 | 67.07 | 113.17 | **137.71** | 3.0% | 375 | 0.009 | 4.0 | 9.2 | 0.04 | **438.65** | **31%** | 181.28 | 181.00 | 181.66 | 181.38 | 182.67 | 181.61 | 1.01 | 0.24 |

# STANDARD OFFLINE
# Jellyfish Filter Sizing Report

## Project Information

| | |
|---|---|
| Date | Wednesday, April 28, 2021 |
| Project Name | Craigleith Ridge - Catchment 9D |
| Project Number | 1046-4031 |
| Location | Blue Mountains |

## Jellyfish Filter Design Overview

This report provides information for the sizing and specification of the Jellyfish Filter. When designed properly in accordance to the guidelines detailed in the Jellyfish Filter Technical Manual, the Jellyfish Filter will exceed the performance and longevity of conventional horizontal bed and granular media filters.

*Please see* ***www.ImbriumSystems.com*** *for more information.*

## Jellyfish Filter System Recommendation

The Jellyfish Filter model JF6-5-1 is recommended to meet the water quality objective by treating a flow of 27.8 L/s, which meets or exceeds 90% of the average annual rainfall runoff volume based on 39 years of OWEN SOUND MOE rainfall data for this site. This model has a sediment capacity of 313 kg, which meets or exceeds the estimated average annual sediment load.

| Jellyfish Model | Number of High-Flo Cartridges | Number of Draindown Cartridges | Manhole Diameter (m) | Treatment Flow Rate (L/s) | Sediment Capacity (kg) |
|---|---|---|---|---|---|
| **JF6-5-1** | 5 | 1 | 1.8 | 27.8 | 313 |

## The Jellyfish Filter System

The patented Jellyfish Filter is an engineered stormwater quality treatment technology featuring unique membrane filtration in a compact stand-alone treatment system that removes a high level and wide variety of stormwater pollutants. Exceptional pollutant removal is achieved at high treatment flow rates with minimal head loss and low maintenance costs. Each lightweight Jellyfish Filter cartridge contains an extraordinarily large amount of membrane surface area, resulting in superior flow capacity and pollutant removal capacity.

## Maintenance

Regular scheduled inspections and maintenance is necessary to assure proper functioning of the Jellyfish Filter. The maintenance interval is designed to be a minimum of 12 months, but this will vary depending on site loading conditions and upstream pretreatment measures. Quarterly inspections and inspections after all storms beyond the 5-year event are recommended until enough historical performance data has been logged to comfortably initiate an alternative inspection interval.

*Please see* ***www.ImbriumSystems.com*** *for more information.*

Thank you for the opportunity to present this information to you and your client.

## Performance

Jellyfish efficiently captures a high level of Stormwater pollutants, including:

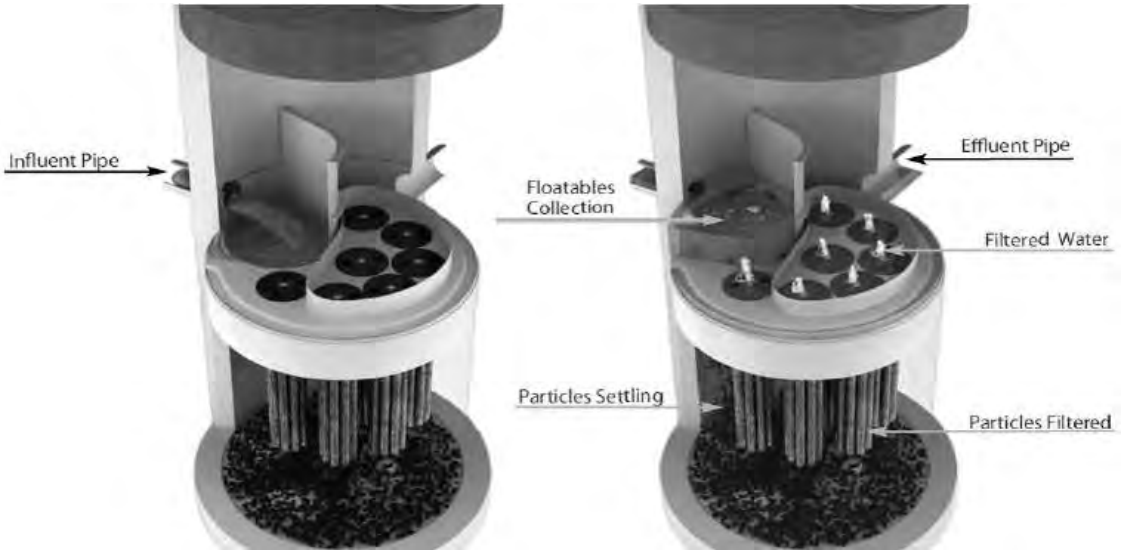
- ☑ 89% of the total suspended solids (TSS) load, including particles less than 5 microns
- ☑ 59% TP removal & 51% TN removal
- ☑ 90% Total Copper, 81% Total Lead, 70% Total Zinc
- ☑ Particulate-bound pollutants such as nutrients, toxic metals, hydrocarbons and bacteria
- ☑ Free oil, Floatable trash and debris

## Field Proven Peformance

The Jellyfish filter has been field-tested on an urban site with 25 TARP qualifying rain events and field monitored according to the TARP field test protocol, demonstrating:

- A median TSS removal efficiency of 89%, and a median SSC removal of 99%;
- The ability to capture fine particles as indicated by an effluent d50 median of 3 microns for all monitotred storm events, and a median effluent turbidity of 5 NTUs;
- A median Total Phosphorus removal of 59%, and a median Total Nitrogen removal of 51%.

## Jellyfish Filter Treatment Functions




*Pre-treatment and Membrane Filtration*

## Project Information

| | |
|---|---|
| Date: | Wednesday, April 28, 2021 |
| Project Name: | Craigleith Ridge - Catchment 9D |
| Project Number: | 1046-4031 |
| Location: | Blue Mountains |

## Designer Information

| | |
|---|---|
| Company: | C.F. Crozier & Associates Inc. |
| Contact: | Jessie Elder |
| Phone #: | |

## Notes

## Rainfall

| | |
|---|---|
| Name: | OWEN SOUND MOE |
| State: | ON |
| ID: | 6132 |
| Record: | 1964 to 2003 |
| Co-ords: | 44°35'N, 80°56'W |

## Drainage Area

| | |
|---|---|
| Total Area: | 1.32 ha |
| Imperviousness: | 75% |

## Upstream Detention

| | |
|---|---|
| Peak Release Rate: | n/a |
| Pretreatment Credit: | n/a |

## Design System Requirements

| | | |
|---|---|---|
| **Flow Loading** | 90% of the Average Annual Runoff based on 39 years of OWEN SOUND MOE rainfall data: | **26.9 L/s** |
| **Sediment Loading** | Treating 90% of the average annual runoff volume, 3833 m³, with a suspended sediment concentration of 60 mg/L. | **230 kg** |

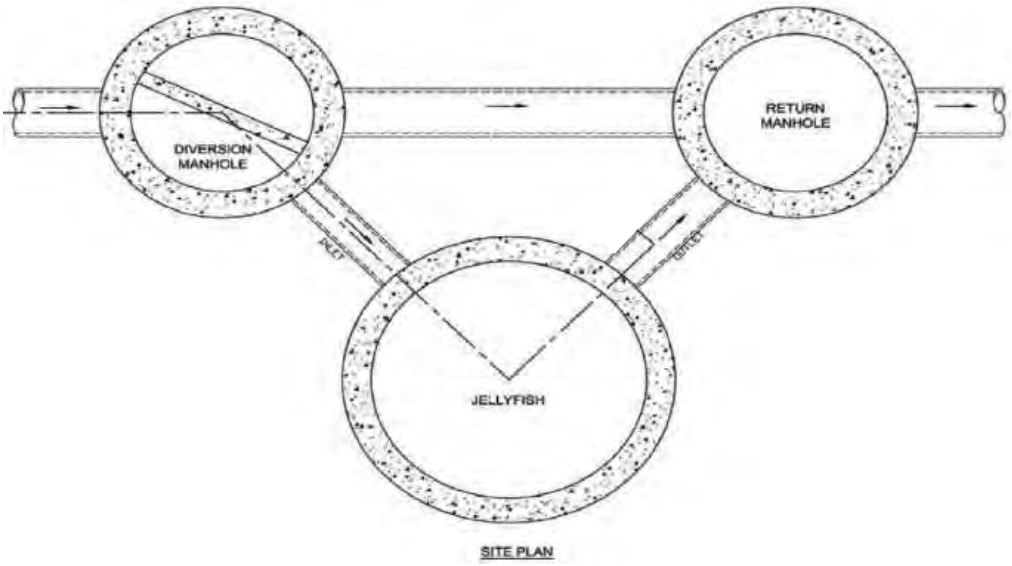
## Recommendation

The Jellyfish Filter model JF6-5-1 is recommended to meet the water quality objective by treating a flow of 27.8 L/s, which meets or exceeds 90% of the average annual rainfall runoff volume based on 39 years of OWEN SOUND MOE rainfall data for this site. This model has a sediment capacity of 313 kg, which meets or exceeds the estimated average annual sediment load.

| Jellyfish Model | Number of High-Flo Cartridges | Number of Draindown Cartridges | Manhole Diameter (m) | Wet Vol Below Deck (L) | Sump Storage (m³) | Oil Capacity (L) | Treatment Flow Rate (L/s) | Sediment Capacity (kg) |
|---|---|---|---|---|---|---|---|---|
| JF4-1-1 | 1 | 1 | 1.2 | 2313 | 0.34 | 379 | 7.6 | 85 |
| JF4-2-1 | 2 | 1 | 1.2 | 2313 | 0.34 | 379 | 12.6 | 142 |
| JF6-3-1 | 3 | 1 | 1.8 | 5205 | 0.79 | 848 | 17.7 | 199 |
| JF6-4-1 | 4 | 1 | 1.8 | 5205 | 0.79 | 848 | 22.7 | 256 |
| **JF6-5-1** | **5** | **1** | **1.8** | **5205** | **0.79** | **848** | **27.8** | **313** |
| JF6-6-1 | 6 | 1 | 1.8 | 5205 | 0.79 | 848 | 28.6 | 370 |
| JF8-6-2 | 6 | 2 | 2.4 | 9252 | 1.42 | 1469 | 35.3 | 398 |
| JF8-7-2 | 7 | 2 | 2.4 | 9252 | 1.42 | 1469 | 40.4 | 455 |
| JF8-8-2 | 8 | 2 | 2.4 | 9252 | 1.42 | 1469 | 45.4 | 512 |
| JF8-9-2 | 9 | 2 | 2.4 | 9252 | 1.42 | 1469 | 50.5 | 569 |
| JF8-10-2 | 10 | 2 | 2.4 | 9252 | 1.42 | 1469 | 50.5 | 626 |
| JF10-11-3 | 11 | 3 | 3.0 | 14456 | 2.21 | 2302 | 63.1 | 711 |
| JF10-12-3 | 12 | 3 | 3.0 | 14456 | 2.21 | 2302 | 68.2 | 768 |
| JF10-12-4 | 12 | 4 | 3.0 | 14456 | 2.21 | 2302 | 70.7 | 796 |
| JF10-13-4 | 13 | 4 | 3.0 | 14456 | 2.21 | 2302 | 75.7 | 853 |
| JF10-14-4 | 14 | 4 | 3.0 | 14456 | 2.21 | 2302 | 78.9 | 910 |
| JF10-15-4 | 15 | 4 | 3.0 | 14456 | 2.21 | 2302 | 78.9 | 967 |
| JF10-16-4 | 16 | 4 | 3.0 | 14456 | 2.21 | 2302 | 78.9 | 1024 |
| JF10-17-4 | 17 | 4 | 3.0 | 14456 | 2.21 | 2302 | 78.9 | 1081 |
| JF10-18-4 | 18 | 4 | 3.0 | 14456 | 2.21 | 2302 | 78.9 | 1138 |
| JF10-19-4 | 19 | 4 | 3.0 | 14456 | 2.21 | 2302 | 78.9 | 1195 |
| JF12-20-5 | 20 | 5 | 3.6 | 20820 | 3.2 | 2771 | 113.6 | 1280 |
| JF12-21-5 | 21 | 5 | 3.6 | 20820 | 3.2 | 2771 | 113.7 | 1337 |
| JF12-22-5 | 22 | 5 | 3.6 | 20820 | 3.2 | 2771 | 113.7 | 1394 |
| JF12-23-5 | 23 | 5 | 3.6 | 20820 | 3.2 | 2771 | 113.7 | 1451 |
| JF12-24-5 | 24 | 5 | 3.6 | 20820 | 3.2 | 2771 | 113.7 | 1508 |
| JF12-25-5 | 25 | 5 | 3.6 | 20820 | 3.2 | 2771 | 113.7 | 1565 |
| JF12-26-5 | 26 | 5 | 3.6 | 20820 | 3.2 | 2771 | 113.7 | 1622 |
| JF12-27-5 | 27 | 5 | 3.6 | 20820 | 3.2 | 2771 | 113.7 | 1679 |

## Jellyfish Filter Design Notes

- Typically the Jellyfish Filter is designed in an offline configuration, as all stormwater filter systems will perform for a longer duration between required maintenance services when designed and applied in off-line configurations. Depending on the design parameters, an optional internal bypass may be incorporated into the Jellyfish Filter, however note the inspection and maintenance frequency should be expected to increase above that of an off-line system. Speak to your local representative for more information.




*Jellyfish Filter Typical Layout*

- Typically, 18 inches (457 mm) of driving head is designed into the system, calculated as the difference in elevation between the top of the diversion structure weir and the invert of the Jellyfish Filter outlet pipe. Alternative driving head values can be designed as 12 to 24 inches (305 to 610mm) depending on specific site requirements, requiring additional sizing and design assistance.
- Typically, the Jellyfish Filter is designed with the inlet pipe configured 6 inches (150 mm) above the outlet invert elevation. However, depending on site parameters this can vary to an optional configuration of the inlet pipe entering the unit below the outlet invert elevation.
- The Jellyfish Filter can accommodate multiple inlet pipes within certain restrictions.
- While the optional inlet below deck configuration offers 0 to 360 degree flexibility between the inlet and outlet pipe, typical systems conform to the following:

| Model Diameter (m) | Minimum Angle Inlet / Outlet Pipes | Minimum Inlet Pipe Diameter (mm) | Minimum Outlet Pipe Diameter (mm) |
|---|---|---|---|
| 1.2 | 62º | 150 | 200 |
| **1.8** | **59º** | **200** | **250** |
| 2.4 | 52º | 250 | 300 |
| 3.0 | 48º | 300 | 450 |
| 3.6 | 40º | 300 | 450 |

- The Jellyfish Filter can be built at all depths of cover generally associated with conventional stormwater conveyance systems. For sites that require minimal depth of cover for the stormwater infrastructure, the Jellyfish Filter can be applied in a shallow application using a hatch cover. The general minimum depth of cover is 36 inches (915 mm) from top of the underslab to outlet invert.
- If driving head caclulations account for water elevation during submerged conditions the Jellyfish Filter will function effectively under submerged condtions.
- Jellyfish Filter systems may incorporate grated inlets depending on system configuration.
- For sites with water quality treatment flow rates or mass loadings that exceed the design flow rate of the largest standard Jellyfish Filter manhole models, systems can be designed that hydraulically connect multiple Jellyfish Filters in series or alternatively Jellyfish Vault units can be designed.

# STANDARD SPECIFICATION
# STORMWATER QUALITY – MEMBRANE FILTRATION TREATMENT DEVICE

## PART 1 – GENERAL

### 1.1 WORK INCLUDED

Specifies requirements for construction and performance of an underground stormwater quality membrane filtration treatment device that removes pollutants from stormwater runoff through the unit operations of sedimentation, floatation, and membrane filtration.

### 1.2 REFERENCE STANDARDS

ASTM C 891: Specification for Installation of Underground Precast Concrete Utility Structures
ASTM C 478: Specification for Precast Reinforced Concrete Manhole Sections
ASTM C 443: Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM D 4101: Specification for Copolymer steps construction

CAN/CSA-A257.4-M92
Joints for Circular Concrete Sewer and Culvert Pipe, Manhole Sections and Fittings Using Rubber Gaskets

CAN/CSA-A257.4-M92
Precast Reinforced Circular Concrete Manhole Sections, Catch Basins and Fittings

Canadian Highway Bridge Design Code

### 1.3 SHOP DRAWINGS

Shop drawings for the structure and performance are to be submitted with each order to the contractor. Contractor shall forward shop drawing submittal to the consulting engineer for approval. Shop drawings are to detail the structure's precast concrete and call out or note the fiberglass (FRP) internals/components.

### 1.4 PRODUCT SUBSTITUTIONS

No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the engineer of record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

### 1.5 HANDLING AND STORAGE

Prevent damage to materials during storage and handling.

## PART 2 – PRODUCTS

2.1 GENERAL

2.1.1 The device shall be a cylindrical or rectangular, all concrete structure (including risers), constructed from precast concrete riser and slab components or monolithic precast structure(s), installed to conform to ASTM C 891 and to any required state highway, municipal or local specifications; whichever is more stringent. The device shall be watertight.

2.1.2 Cartridge Deck The cylindrical concrete device shall include a fiberglass deck. The rectangular concrete device shall include a coated aluminum deck. In either instance, the insert shall be bolted and sealed watertight inside the precast concrete chamber. The deck shall serve as: (a) a horizontal divider between the lower treatment zone and the upper treated effluent zone; (b) a deck for attachment of filter cartridges such that the membrane filter elements of each cartridge extend into the lower treatment zone; (c) a platform for maintenance workers to service the filter cartridges (maximum manned weight = 450 pounds (204 kg)); (d) a conduit for conveyance of treated water to the effluent pipe.

2.1.3 Membrane Filter Cartridges Filter cartridges shall be comprised of reusable cylindrical membrane filter elements connected to a perforated head plate. The number of membrane filter elements per cartridge shall be a minimum of eleven 2.75-inch (70-mm) diameter elements. The length of each filter element shall be a minimum 15 inches (381 mm). Each cartridge shall be fitted into the cartridge deck by insertion into a cartridge receptacle that is permanently mounted into the cartridge deck. Each cartridge shall be secured by a cartridge lid that is threaded onto the receptacle, or similar mechanism to secure the cartridge into the deck. The maximum treatment flow rate of a filter cartridge shall be controlled by an orifice in the cartridge lid, or on the individual cartridge itself, and based on a design flux rate (surface loading rate) determined by the maximum treatment flow rate per unit of filtration membrane surface area. The maximum design flux rate shall be 0.21 gpm/ft² (0.142 lps/m²).

Each membrane filter cartridge shall allow for manual installation and removal. Each filter cartridge shall have filtration membrane surface area and dry installation weight as follows (if length of filter cartridge is between those listed below, the surface area and weight shall be proportionate to the next length shorter and next length longer as shown below):

| Filter Cartridge Length (in / mm) | Minimum Filtration Membrane Surface Area (ft2 / m2) | Maximum Filter Cartridge Dry Weight (lbs / kg) |
|---|---|---|
| 15 | 106 / 9.8 | 10.5 / 4.8 |
| 27 | 190 / 17.7 | 15.0 / 6.8 |
| 40 | 282 / 26.2 | 20.5 / 9.3 |
| 54 | 381 / 35.4 | 25.5 / 11.6 |

2.1.4 Backwashing Cartridges The filter device shall have a weir extending above the cartridge deck, or other mechanism, that encloses the high flow rate filter cartridges when placed in their respective cartridge receptacles within the cartridge deck. The weir, or other mechanism, shall collect a pool of filtered water during inflow events that backwashes the high flow rate cartridges when the inflow

event subsides. All filter cartridges and membranes shall be reusable and allow for the use of filtration membrane rinsing procedures to restore flow capacity and sediment capacity; extending cartridge service life.

2.1.5 Maintenance Access to Captured Pollutants The filter device shall contain an opening(s) that provides maintenance access for removal of accumulated floatable pollutants and sediment, removal of and replacement of filter cartridges, cleaning of the sump, and rinsing of the deck. Access shall have a minimum clear vertical clear space over all of the filter cartridges. Filter cartridges shall be able to be lifted straight vertically out of the receptacles and deck for the entire length of the cartridge.

2.1.6 Bend Structure The device shall be able to be used as a bend structure with minimum angles between inlet and outlet pipes of 90-degrees or less in the stormwater conveyance system.

2.1.7 Double-Wall Containment of Hydrocarbons The cylindrical precast concrete device shall provide double-wall containment for hydrocarbon spill capture by a combined means of an inner wall of fiberglass, to a minimum depth of 12 inches (305 mm) below the cartridge deck, and the precast vessel wall.

2.1.8 Baffle The filter device shall provide a baffle that extends from the underside of the cartridge deck to a minimum length equal to the length of the membrane filter elements. The baffle shall serve to protect the membrane filter elements from contamination by floatables and coarse sediment. The baffle shall be flexible and continuous in cylindrical configurations, and shall be a straight concrete or aluminum wall in rectangular configurations.

2.1.9 Sump The device shall include a minimum 24 inches (610 mm) of sump below the bottom of the cartridges for sediment accumulation, unless otherwise specified by the design engineer. Depths less than 24 inches may have an impact on the total performance and/or longevity between cartridge maintenance/replacement of the device.

2.2 PRECAST CONCRETE SECTIONS

All precast concrete components shall be manufactured to a minimum live load of HS-20 truck loading or greater based on local regulatory specifications, unless otherwise modified or specified by the design engineer, and shall be watertight.

2.3 JOINTS All precast concrete manhole configuration joints shall use nitrile rubber gaskets and shall meet the requirements of ASTM C443, Specification C1619, Class D or engineer approved equal to ensure oil resistance. Mastic sealants or butyl tape are not an acceptable alternative.

2.4 GASKETS Only profile neoprene or nitrile rubber gaskets in accordance to CSA A257.3-M92 will be accepted. Mastic sealants, butyl tape or Conseal CS-101 are not acceptable gasket materials.

2.5 FRAME AND COVER Frame and covers must be manufactured from cast-iron or other composite material tested to withstand H-20 or greater design loads, and as approved by the

local regulatory body. Frames and covers must be embossed with the name of the device manufacturer or the device brand name.

2.6 DOORS AND HATCHES If provided shall meet designated loading requirements or at a minimum for incidental vehicular traffic.

2.7 CONCRETE All concrete components shall be manufactured according to local specifications and shall meet the requirements of ASTM C 478.

2.8 FIBERGLASS The fiberglass portion of the filter device shall be constructed in accordance with the following standard: ASTM D-4097: Contact Molded Glass Fiber Reinforced Chemical Resistant Tanks.

2.9 STEPS Steps shall be constructed according to ASTM D4101 of copolymer polypropylene, and be driven into preformed or pre-drilled holes after the concrete has cured, installed to conform to applicable sections of state, provincial and municipal building codes, highway, municipal or local specifications for the construction of such devices.

2.10 INSPECTION All precast concrete sections shall be inspected to ensure that dimensions, appearance and quality of the product meet local municipal specifications and ASTM C 478.

## PART 3 – PERFORMANCE

### 3.1 GENERAL

3.1.1 Verification – The stormwater quality filter must be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV).

3.1.2 Function - The stormwater quality filter treatment device shall function to remove pollutants by the following unit treatment processes; sedimentation, floatation, and membrane filtration.

3.1.3 Pollutants - The stormwater quality filter treatment device shall remove oil, debris, trash, coarse and fine particulates, particulate-bound pollutants, metals and nutrients from stormwater during runoff events.

3.1.4 Bypass - The stormwater quality filter treatment device shall typically utilize an external bypass to divert excessive flows. Internal bypass systems shall be equipped with a floatables baffle, and must avoid passage through the sump and/or cartridge filtration zone.

3.1.5 Treatment Flux Rate (Surface Loading Rate) – The stormwater quality filter treatment device shall treat 100% of the required water quality treatment flow based on a maximum design treatment flux rate (surface loading rate) across the membrane filter cartridges of 0.21 gpm/ft² (0.142 lps/m²).

## 3.2 FIELD TEST PERFORMANCE

At a minimum, the stormwater quality filter device shall have been field tested and verified with a minimum 25 TARP qualifying storm events and field monitoring shall have been conducted according to the TARP 2009 NJDEP TARP field test protocol, and have received NJCAT verification.

3.2.1 Suspended Solids Removal - The stormwater quality filter treatment device shall have demonstrated a minimum median TSS removal efficiency of 85% and a minimum median SSC removal efficiency of 95%.

3.2.2 Runoff Volume – The stormwater quality filter treatment device shall be engineered, designed, and sized to treat a minimum of 90 percent of the annual runoff volume determined from use of a minimum 15-year rainfall data set.

3.2.3 Fine Particle Removal - The stormwater quality filter treatment device shall have demonstrated the ability to capture fine particles as indicated by a minimum median removal efficiency of 75% for the particle fraction less than 25 microns, an effluent $d_{50}$ of 15 microns or lower for all monitored storm events.

3.2.4 Turbidity Reduction - The stormwater quality filter treatment device shall have demonstrated the ability to reduce the turbidity from influent from a range of 5 to 171 NTU to an effluent turbidity of 15 NTU or lower.

3.2.5 Nutrient (Total Phosphorus & Total Nitrogen) Removal - The stormwater quality filter treatment device shall have demonstrated a minimum median Total Phosphorus removal of 55%, and a minimum median Total Nitrogen removal of 50%.

3.2.6 Metals (Total Zinc & Total Copper) Removal - The stormwater quality filter treatment device shall have demonstrated a minimum median Total Zinc removal of 55%, and a minimum median Total Copper removal of 85%.

## 3.3 INSPECTION and MAINTENANCE

The stormwater quality filter device shall have the following features:

3.3.1 Durability of membranes are subject to good handling practices during inspection and maintenance (removal, rinsing, and reinsertion) events, and site specific conditions that may have heavier or lighter loading onto the cartridges, and pollutant variability that may impact the membrane structural integrity. Membrane maintenance and replacement shall be in accordance with manufacturer's recommendations.

3.3.2 Inspection which includes trash and floatables collection, sediment depth determination, and visible determination of backwash pool depth shall be easily conducted from grade (outside the structure).

3.3.3 Manual rinsing of the reusable filter cartridges shall promote restoration of the flow capacity and sediment capacity of the filter cartridges, extending cartridge service life.

3.3.4 The filter device shall have a minimum 12 inches (305 mm) of sediment storage depth, and a minimum of 12 inches between the top of the sediment storage and bottom of the filter cartridge tentacles, unless otherwise specified by the design engineer. Variances may have an impact on the total performance and/or longevity between cartridge maintenance/replacement of the device.

3.3.5 Sediment removal from the filter treatment device shall be able to be conducted using a standard maintenance truck and vacuum apparatus, and a minimum one point of entry to the sump that is unobstructed by filter cartridges.

3.3.6 Maintenance access shall have a minimum clear height that provides suitable vertical clear space over all of the filter cartridges. Filter cartridges shall be able to be lifted straight vertically out of the receptacles and deck for the entire length of the cartridge.

3.3.7 Filter cartridges shall be able to be maintained without the requirement of additional lifting equipment.

## PART 4 – EXECUTION

### 4.1 INSTALLATION

#### 4.1.1 PRECAST DEVICE CONSTRUCTION SEQUENCE

The installation of a watertight precast concrete device should conform to ASTM C 891 and to any state highway, municipal or local specifications for the construction of manholes, whichever is more stringent. Selected sections of a general specification that are applicable are summarized below.

4.1.1.1 The watertight precast concrete device is installed in sections in the following sequence:

- aggregate base
- base slab
- treatment chamber and cartridge deck riser section(s)
- bypass section
- connect inlet and outlet pipes
- concrete riser section(s) and/or transition slab (if required)
- maintenance riser section(s) (if required)
- frame and access cover

4.1.2 The precast base should be placed level at the specified grade. The entire base should be in contact with the underlying compacted granular material. Subsequent sections, complete with joint seals, should be installed in accordance with the precast concrete manufacturer's recommendations.

4.1.3 Adjustment of the stormwater quality treatment device can be performed by lifting the upper sections free of the excavated area, re-leveling the base, and re-installing the sections. Damaged sections and gaskets should be repaired or replaced as necessary to restore original condition and watertight seals. Once the stormwater quality treatment device has been constructed, any/all lift holes must be plugged watertight with mortar or non-shrink grout.

4.1.4 Inlet and Outlet Pipes Inlet and outlet pipes should be securely set into the device using approved pipe seals (flexible boot connections, where applicable) so that the structure is watertight, and such that any pipe intrusion into the device does not impact the device functionality.

4.1.5 Frame and Cover Installation Adjustment units (e.g. grade rings) should be installed to set the frame and cover at the required elevation. The adjustment units should be laid in a full bed of mortar with successive units being joined using sealant recommended by the manufacturer. Frames for the cover should be set in a full bed of mortar at the elevation specified.

4.2 MAINTENANCE ACCESS WALL
In some instances the Maintenance Access Wall, if provided, shall require an extension attachment and sealing to the precast wall and cartridge deck at the job site, rather than at the precast facility. In this instance, installation of these components shall be performed according to instructions provided by the manufacturer.

4.3 FILTER CARTRIDGE INSTALLATION Filter cartridges shall be installed in the cartridge deck only after the construction site is fully stabilized and in accordance with the manufacturer's guidelines and recommendations. Contractor to contact the manufacturer to schedule cartridge delivery and review procedures/requirements to be completed to the device prior to installation of the cartridges and activation of the system.

## PART 5 – QUALITY ASSURANCE

5.1 FILTER CARTRIDGE INSTALLATION Manufacturer shall coordinate delivery of filter cartridges and other internal components with contractor. Filter cartridges shall be delivered and installed complete after site is stabilized and unit is ready to accept cartridges. Unit is ready to accept cartridges after is has been cleaned out and any standing water, debris, and other materials have been removed. Contractor shall take appropriate action to protect the filter cartridge receptacles and filter cartridges from damage during construction, and in accordance with the manufacturer's recommendations and guidance. For systems with cartridges installed prior to full site stabilization and prior to system activation, the contractor can plug inlet and outlet pipes to prevent stormwater and other influent from entering the device. Plugs must be removed during the activation process.

5.2 INSPECTION AND MAINTENANCE

5.2.1 The manufacturer shall provide an Owner's Manual upon request.

5.2.2 After construction and installation, and during operation, the device shall be inspected and cleaned as necessary based on the manufacturer's recommended inspection and maintenance guidelines and the local regulatory agency/body.

5.3 REPLACEMENT FILTER CARTRIDGES When replacement membrane filter elements and/or other parts are required, only membrane filter elements and parts approved by the manufacturer for use with the stormwater quality filter device shall be installed.

## END OF SECTION

# Worksheet for Gutter - CB13

## Project Description

| | |
|---|---|
| Solve For | Spread |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.03800 | m/m |
| Discharge | 0.023 | m³/s |
| Gutter Width | 0.28 | m |
| Gutter Cross Slope | 0.02 | m/m |
| Road Cross Slope | 0.02 | m/m |
| Roughness Coefficient | 0.013 | |

## Results

| | | |
|---|---|---|
| Spread | 1.46 | m |
| Flow Area | 0.02 | m² |
| Depth | 0.03 | m |
| Gutter Depression | 0.00 | m |
| Velocity | 1.07 | m/s |

# Worksheet for Gutter - CBMH50

## Project Description

| | |
|---|---|
| Solve For | Spread |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.03600 | m/m |
| Discharge | 0.026 | m³/s |
| Gutter Width | 0.28 | m |
| Gutter Cross Slope | 0.02 | m/m |
| Road Cross Slope | 0.02 | m/m |
| Roughness Coefficient | 0.013 | |

## Results

| | | |
|---|---|---|
| Spread | 1.55 | m |
| Flow Area | 0.02 | m² |
| Depth | 0.03 | m |
| Gutter Depression | 0.00 | m |
| Velocity | 1.08 | m/s |

# Worksheet for Gutter - DCBMH48

## Project Description

| | |
|---|---|
| Solve For | Spread |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | m/m |
| Discharge | 0.062 | m³/s |
| Gutter Width | 0.28 | m |
| Gutter Cross Slope | 0.02 | m/m |
| Road Cross Slope | 0.02 | m/m |
| Roughness Coefficient | 0.013 | |

## Results

| | | |
|---|---|---|
| Spread | 2.39 | m |
| Flow Area | 0.06 | m² |
| Depth | 0.05 | m |
| Gutter Depression | 0.00 | m |
| Velocity | 1.08 | m/s |

# Worksheet for Gutter - CB11

## Project Description

| | |
|---|---|
| Solve For | Spread |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.01800 | m/m |
| Discharge | 0.026 | m³/s |
| Gutter Width | 0.28 | m |
| Gutter Cross Slope | 0.02 | m/m |
| Road Cross Slope | 0.02 | m/m |
| Roughness Coefficient | 0.013 | |

## Results

| | | |
|---|---|---|
| Spread | 1.76 | m |
| Flow Area | 0.03 | m² |
| Depth | 0.04 | m |
| Gutter Depression | 0.00 | m |
| Velocity | 0.84 | m/s |

# Worksheet for Gutter - DCBMH67

## Project Description

| | |
|---|---|
| Solve For | Spread |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | m/m |
| Discharge | 0.034 | m³/s |
| Gutter Width | 0.28 | m |
| Gutter Cross Slope | 0.02 | m/m |
| Road Cross Slope | 0.02 | m/m |
| Roughness Coefficient | 0.013 | |

## Results

| | | |
|---|---|---|
| Spread | 1.91 | m |
| Flow Area | 0.04 | m² |
| Depth | 0.04 | m |
| Gutter Depression | 0.00 | m |
| Velocity | 0.93 | m/s |

# Worksheet for Gutter - CBMH45

## Project Description

| | |
|---|---|
| Solve For | Spread |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.00500 | m/m |
| Discharge | 0.045 | m³/s |
| Gutter Width | 0.28 | m |
| Gutter Cross Slope | 0.02 | m/m |
| Road Cross Slope | 0.02 | m/m |
| Roughness Coefficient | 0.013 | |

## Results

| | | |
|---|---|---|
| Spread | 2.75 | m |
| Flow Area | 0.08 | m² |
| Depth | 0.06 | m |
| Gutter Depression | 0.00 | m |
| Velocity | 0.59 | m/s |

# Worksheet for Gutter - DCBMH43

## Project Description

| | |
|---|---|
| Solve For | Spread |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.00600 | m/m |
| Discharge | 0.063 | m³/s |
| Gutter Width | 0.28 | m |
| Gutter Cross Slope | 0.02 | m/m |
| Road Cross Slope | 0.02 | m/m |
| Roughness Coefficient | 0.013 | |

## Results

| | | |
|---|---|---|
| Spread | 3.02 | m |
| Flow Area | 0.09 | m² |
| Depth | 0.06 | m |
| Gutter Depression | 0.00 | m |
| Velocity | 0.69 | m/s |

# Worksheet for Gutter - CBMH41

## Project Description

| | |
|---|---|
| Solve For | Spread |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.00500 | m/m |
| Discharge | 0.015 | m³/s |
| Gutter Width | 0.28 | m |
| Gutter Cross Slope | 0.02 | m/m |
| Road Cross Slope | 0.02 | m/m |
| Roughness Coefficient | 0.013 | |

## Results

| | | |
|---|---|---|
| Spread | 1.82 | m |
| Flow Area | 0.03 | m² |
| Depth | 0.04 | m |
| Gutter Depression | 0.00 | m |
| Velocity | 0.45 | m/s |

# Worksheet for Gutter - DCB9

## Project Description

| | |
|---|---|
| Solve For | Spread |

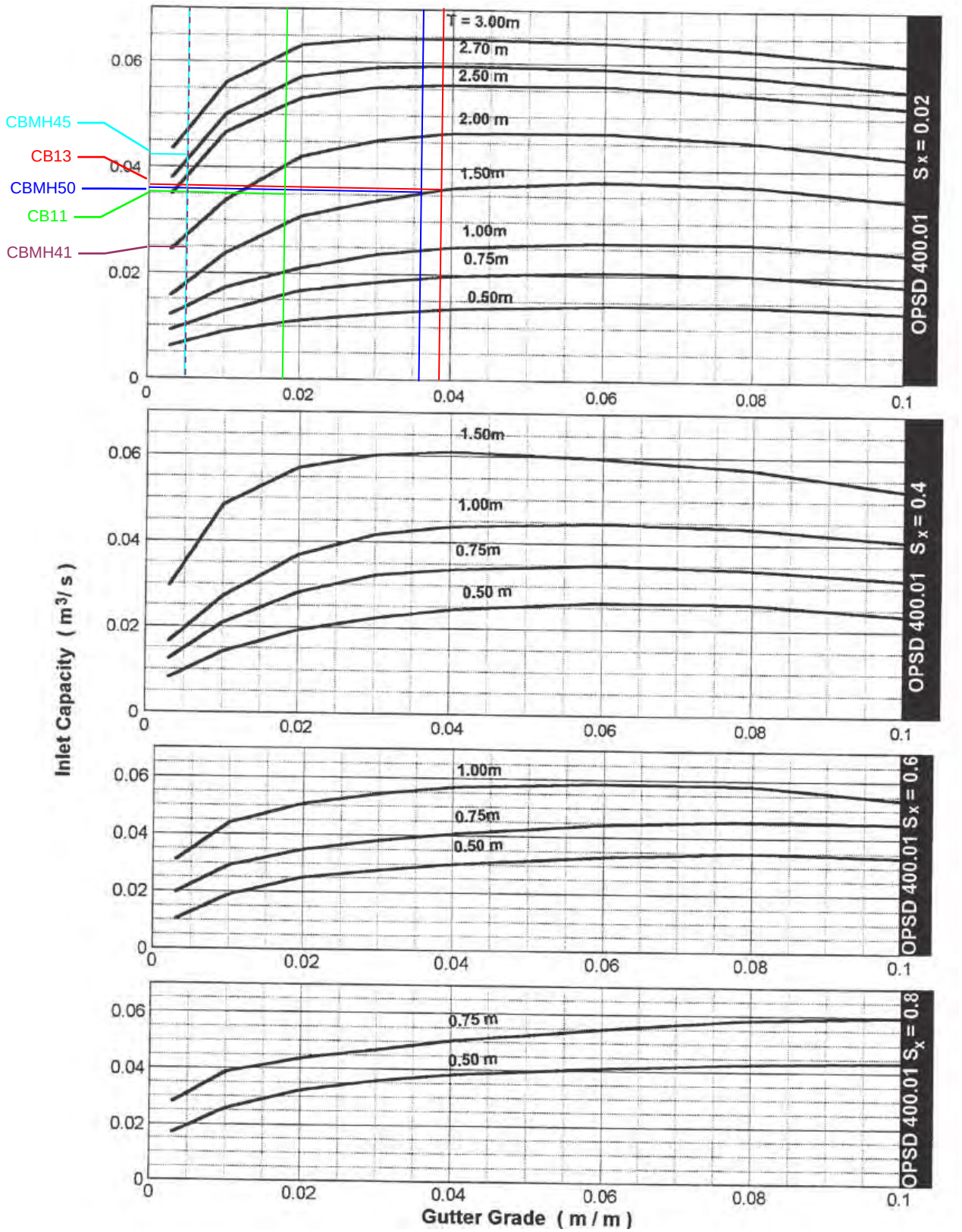
## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.03300 | m/m |
| Discharge | 0.030 | m³/s |
| Gutter Width | 0.28 | m |
| Gutter Cross Slope | 0.02 | m/m |
| Road Cross Slope | 0.02 | m/m |
| Roughness Coefficient | 0.013 | |

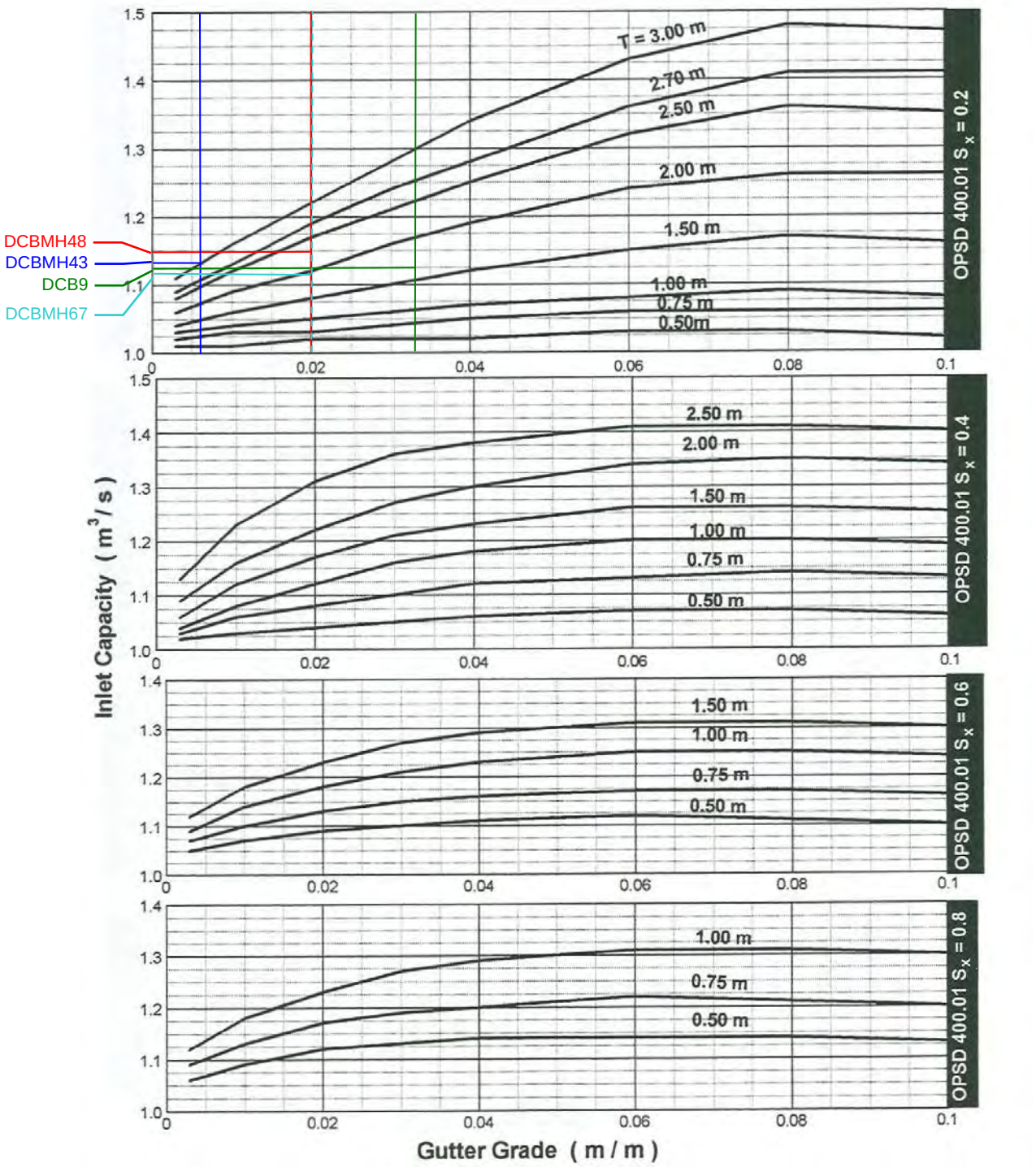
## Results

| | | |
|---|---|---|
| Spread | 1.66 | m |
| Flow Area | 0.03 | m² |
| Depth | 0.03 | m |
| Gutter Depression | 0.00 | m |
| Velocity | 1.09 | m/s |

## Design Chart 4.15: Inlet Capacity OPSD 400.01 (C & G OPSD 600.02)



**Design Chart 4.17: Twin Inlet Capacity OPSD 400.01**



PROJECT: Parkbridge Craigleith
PROJECT No.: 1046-4031
FILE: Rational Method - Peak Flow
DATE: 2021-05-03
DESIGN: JE

# CB Capture Analysis

Rational Method Q=0.0028*C*i*A (cms)
Intensity i=A*(Tc)^c (mm/hr)

| Frequency - | Craigleith MTO IDF | | $T_c$ | Intensity |
|---|---|---|---|---|
| Storm Return | Coef. A | Coef. B | | |
| 100 | 46.4 | -0.699 | 15 | 122.28 |

| CB ID | Area (ha) | Runoff Coef. | 100-yr Peak Flow (cms) | Longitudinal Road Grade | Spread[1] (m) | Depth[1] (m) | Capture[2] (cms) | Capture at 50% Blockage | Total Flow at Downstream Catchbasin ($m^3$) |
|---|---|---|---|---|---|---|---|---|---|
| CB13 | 0.12 | 0.55 | 0.023 | **3.8%** | **1.46** | 0.03 | 0.036 | 0.018 | |
| CBMH50 | 0.14 | 0.55 | 0.026 | **3.6%** | **1.55** | 0.03 | 0.036 | 0.018 | |
| DCBMH48 | 0.33 | 0.55 | 0.062 | **2.0%** | **2.39** | 0.05 | 1.150 | 0.575 | 0.111 |
| CB11 | 0.17 | 0.45 | 0.026 | **1.8%** | **1.76** | 0.04 | 0.035 | 0.018 | |
| DCBMH67 | 0.22 | 0.45 | 0.034 | **2.0%** | **1.91** | 0.04 | 1.120 | 0.560 | 0.060 |
| CBMH45 | 0.29 | 0.45 | 0.045 | **0.5%** | **2.75** | 0.06 | 0.042 | 0.021 | |
| DCBMH43 | 0.41 | 0.45 | 0.063 | **0.6%** | **3.02** | 0.06 | 1.130 | 0.565 | 0.108 |
| CBMH41 | 0.08 | 0.55 | 0.015 | **0.5%** | **1.82** | 0.04 | 0.025 | 0.013 | |
| DCB9 | 0.16 | 0.55 | 0.030 | **3.3%** | **1.66** | 0.03 | 1.120 | 0.560 | 0.045 |

Note 1: Value obtained from FlowMaster.

Note 2: Value obtained from MTO Design Chart 4.15 (CBs) and Design Chart 4.17 (DCBs).
$S_x$ = 2% used. Refer to charts.

Note 3: Where peak flow exceeds capture at 50% blockage, the DCBs/DCBMHs downstream have sufficient surplus capture capacity at 50% blockage to capture the residual flows.

# Culvert Calculator Report
## Culvert - 1 Full Flow

Solve For: Discharge

| Culvert Summary | | | | | |
|---|---|---|---|---|---|
| Allowable HW Elevation | 211.66 | m | Headwater Depth/Height | 1.59 | |
| Computed Headwater Elev | 211.66 | m | Discharge | 11.4785 | m³/s |
| Inlet Control HW Elev. | 211.66 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 211.53 | m | Control Type | Inlet Control | |

| Grades | | | | | |
|---|---|---|---|---|---|
| Upstream Invert | 209.72 | m | Downstream Invert | 208.37 | m |
| Length | 19.30 | m | Constructed Slope | 0.069948 | m/m |

| Hydraulic Profile | | | | | |
|---|---|---|---|---|---|
| Profile | S2 | | Depth, Downstream | 0.57 | m |
| Slope Type | Steep | | Normal Depth | 0.40 | m |
| Flow Regime | Supercritical | | Critical Depth | 1.13 | m |
| Velocity Downstream | 6.56 | m/s | Critical Slope | 0.003334 | m/m |

| Section | | | | | |
|---|---|---|---|---|---|
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 3.05 | m |
| Section Size | 3050 x 1220 mm | | Rise | 1.22 | m |
| Number Sections | 1 | | | | |

| Outlet Control Properties | | | | | |
|---|---|---|---|---|---|
| Outlet Control HW Elev. | 211.53 | m | Upstream Velocity Head | 0.57 | m |
| Ke | 0.20 | | Entrance Loss | 0.11 | m |

| Inlet Control Properties | | | | | |
|---|---|---|---|---|---|
| Inlet Control HW Elev. | 211.66 | m | Flow Control | N/A | |
| Inlet Type | 90° headwall w 45° bevels | | Area Full | 3.7 | m² |
| K | 0.49500 | | HDS 5 Chart | 10 | |
| M | 0.66700 | | HDS 5 Scale | 2 | |
| C | 0.03140 | | Equation Form | 2 | |
| Y | 0.82000 | | | | |

# Culvert Calculator Report
## Culvert - 2 Full Flow

Solve For: Discharge

| Culvert Summary | | | | | |
|---|---|---|---|---|---|
| Allowable HW Elevation | 193.46 | m | Headwater Depth/Height | 1.49 | |
| Computed Headwater Elev | 193.46 | m | Discharge | 10.5631 | m³/s |
| Inlet Control HW Elev. | 193.46 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 193.35 | m | Control Type | Inlet Control | |

| Grades | | | | | |
|---|---|---|---|---|---|
| Upstream Invert | 191.64 | m | Downstream Invert | 191.30 | m |
| Length | 17.10 | m | Constructed Slope | 0.019883 | m/m |

| Hydraulic Profile | | | | | |
|---|---|---|---|---|---|
| Profile | S2 | | Depth, Downstream | 0.75 | m |
| Slope Type | Steep | | Normal Depth | 0.57 | m |
| Flow Regime | Supercritical | | Critical Depth | 1.07 | m |
| Velocity Downstream | 4.59 | m/s | Critical Slope | 0.003293 | m/m |

| Section | | | | | |
|---|---|---|---|---|---|
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 3.05 | m |
| Section Size | 3050 x 1220 mm | | Rise | 1.22 | m |
| Number Sections | 1 | | | | |

| Outlet Control Properties | | | | | |
|---|---|---|---|---|---|
| Outlet Control HW Elev. | 193.35 | m | Upstream Velocity Head | 0.53 | m |
| Ke | 0.20 | | Entrance Loss | 0.11 | m |

| Inlet Control Properties | | | | | |
|---|---|---|---|---|---|
| Inlet Control HW Elev. | 193.46 | m | Flow Control | N/A | |
| Inlet Type | 90° headwall w 45° bevels | | Area Full | 3.7 | m² |
| K | 0.49500 | | HDS 5 Chart | 10 | |
| M | 0.66700 | | HDS 5 Scale | 2 | |
| C | 0.03140 | | Equation Form | 2 | |
| Y | 0.82000 | | | | |

# Culvert Calculator Report
# Culvert - 3 Full Flow

Solve For: Discharge

| Culvert Summary | | | | | |
|---|---|---|---|---|---|
| Allowable HW Elevation | 186.96 | m | Headwater Depth/Height | 1.59 | |
| Computed Headwater Elev | 186.96 | m | Discharge | 11.3151 | m³/s |
| Inlet Control HW Elev. | 186.96 | m | Tailwater Elevation | 181.70 | m |
| Outlet Control HW Elev. | 186.81 | m | Control Type | Inlet Control | |

| Grades | | | | | |
|---|---|---|---|---|---|
| Upstream Invert | 185.02 | m | Downstream Invert | 184.64 | m |
| Length | 15.60 | m | Constructed Slope | 0.024359 | m/m |

| Hydraulic Profile | | | | | |
|---|---|---|---|---|---|
| Profile | S2 | | Depth, Downstream | 0.77 | m |
| Slope Type | Steep | | Normal Depth | 0.56 | m |
| Flow Regime | Supercritical | | Critical Depth | 1.12 | m |
| Velocity Downstream | 4.81 | m/s | Critical Slope | 0.003327 | m/m |

| Section | | | | | |
|---|---|---|---|---|---|
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 3.05 | m |
| Section Size | 3050 x 1220 mm | | Rise | 1.22 | m |
| Number Sections | 1 | | | | |

| Outlet Control Properties | | | | | |
|---|---|---|---|---|---|
| Outlet Control HW Elev. | 186.81 | m | Upstream Velocity Head | 0.56 | m |
| Ke | 0.20 | | Entrance Loss | 0.11 | m |

| Inlet Control Properties | | | | | |
|---|---|---|---|---|---|
| Inlet Control HW Elev. | 186.96 | m | Flow Control | N/A | |
| Inlet Type | 90° headwall w 45° bevels | | Area Full | 3.7 | m² |
| K | 0.49500 | | HDS 5 Chart | 10 | |
| M | 0.66700 | | HDS 5 Scale | 2 | |
| C | 0.03140 | | Equation Form | 2 | |
| Y | 0.82000 | | | | |

# Culvert Calculator Report
# Emerg Access Culvert - Ditch

Solve For: Discharge

| Culvert Summary | | | | | |
|---|---|---|---|---|---|
| Allowable HW Elevation | 184.00 | m | Headwater Depth/Height | 1.10 | |
| Computed Headwater Eleva | 184.00 | m | Discharge | 0.1899 | m³/s |
| Inlet Control HW Elev. | 183.94 | m | Tailwater Elevation | 181.70 | m |
| Outlet Control HW Elev. | 184.00 | m | Control Type | Outlet Control | |

| Grades | | | | | |
|---|---|---|---|---|---|
| Upstream Invert | 183.45 | m | Downstream Invert | 183.30 | m |
| Length | 25.00 | m | Constructed Slope | 0.006000 | m/m |

| Hydraulic Profile | | | | | |
|---|---|---|---|---|---|
| Profile | M2 | | Depth, Downstream | 0.30 | m |
| Slope Type | Mild | | Normal Depth | N/A | m |
| Flow Regime | Subcritical | | Critical Depth | 0.30 | m |
| Velocity Downstream | 1.56 | m/s | Critical Slope | 0.019615 | m/m |

| Section | | | | | |
|---|---|---|---|---|---|
| Section Shape | Circular | | Mannings Coefficient | 0.024 | |
| Section Material | CMP | | Span | 0.50 | m |
| Section Size | 500 mm | | Rise | 0.50 | m |
| Number Sections | 1 | | | | |

| Outlet Control Properties | | | | | |
|---|---|---|---|---|---|
| Outlet Control HW Elev. | 184.00 | m | Upstream Velocity Head | 0.05 | m |
| Ke | 0.90 | | Entrance Loss | 0.05 | m |

| Inlet Control Properties | | | | | |
|---|---|---|---|---|---|
| Inlet Control HW Elev. | 183.94 | m | Flow Control | N/A | |
| Inlet Type | Projecting | | Area Full | 0.2 | m² |
| K | 0.03400 | | HDS 5 Chart | 2 | |
| M | 1.50000 | | HDS 5 Scale | 3 | |
| C | 0.05530 | | Equation Form | 1 | |
| Y | 0.54000 | | | | |

# Culvert Calculator Report
# Emerg Access Culvert - Internal

Solve For: Discharge

| Culvert Summary | | | | | |
|---|---|---|---|---|---|
| Allowable HW Elevation | 184.99 | m | Headwater Depth/Height | 1.28 | |
| Computed Headwater Elev | 184.99 | m | Discharge | 0.2509 | m³/s |
| Inlet Control HW Elev. | 184.95 | m | Tailwater Elevation | 181.70 | m |
| Outlet Control HW Elev. | 184.99 | m | Control Type | Outlet Control | |

| Grades | | | | | |
|---|---|---|---|---|---|
| Upstream Invert | 184.35 | m | Downstream Invert | 184.20 | m |
| Length | 15.00 | m | Constructed Slope | 0.010000 | m/m |

| Hydraulic Profile | | | | | |
|---|---|---|---|---|---|
| Profile | M2 | | Depth, Downstream | 0.34 | m |
| Slope Type | Mild | | Normal Depth | N/A | m |
| Flow Regime | Subcritical | | Critical Depth | 0.34 | m |
| Velocity Downstream | 1.74 | m/s | Critical Slope | 0.022550 | m/m |

| Section | | | | | |
|---|---|---|---|---|---|
| Section Shape | Circular | | Mannings Coefficient | 0.024 | |
| Section Material | CMP | | Span | 0.50 | m |
| Section Size | 500 mm | | Rise | 0.50 | m |
| Number Sections | 1 | | | | |

| Outlet Control Properties | | | | | |
|---|---|---|---|---|---|
| Outlet Control HW Elev. | 184.99 | m | Upstream Velocity Head | 0.09 | m |
| Ke | 0.90 | | Entrance Loss | 0.08 | m |

| Inlet Control Properties | | | | | |
|---|---|---|---|---|---|
| Inlet Control HW Elev. | 184.95 | m | Flow Control | N/A | |
| Inlet Type | Projecting | | Area Full | 0.2 | m² |
| K | 0.03400 | | HDS 5 Chart | 2 | |
| M | 1.50000 | | HDS 5 Scale | 3 | |
| C | 0.05530 | | Equation Form | 1 | |
| Y | 0.54000 | | | | |

# Worksheet for Upper 14m Street A ROW

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.05900 | m/m |
| Discharge | 0.38 | m³/s |

Section Definitions

| Station (m) | Elevation (m) |
|---|---|
| 0+00 | 0.30 |
| 0+03 | 0.24 |
| 0+04 | 0.12 |
| 0+10 | 0.00 |
| 0+10 | 0.13 |
| 0+12 | 0.16 |
| 0+14 | 0.20 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00, 0.30) | (0+14, 0.20) | 0.013 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | | |
|---|---|---|
| Normal Depth | 0.08 | m |
| Elevation Range | 0.00 to 0.30 m | |
| Flow Area | 0.18 | m² |
| Wetted Perimeter | 4.45 | m |
| Hydraulic Radius | 0.04 | m |
| Top Width | 4.44 | m |

# Worksheet for Upper 14m Street A ROW

## Results

| | | | |
|---|---|---|---|
| Normal Depth | | 0.08 | m |
| Critical Depth | | 0.13 | m |
| Critical Slope | | 0.00406 | m/m |
| Velocity | | 2.16 | m/s |
| Velocity Head | | 0.24 | m |
| Specific Energy | | 0.32 | m |
| Froude Number | | 3.48 | |
| Flow Type | Supercritical | | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | m |
| Length | 0.00 | m |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | m |
| Profile Description | | |
| Profile Headloss | 0.00 | m |
| Downstream Velocity | Infinity | m/s |
| Upstream Velocity | Infinity | m/s |
| Normal Depth | 0.08 | m |
| Critical Depth | 0.13 | m |
| Channel Slope | 0.05900 | m/m |
| Critical Slope | 0.00406 | m/m |

# Cross Section for Upper 14m Street A ROW

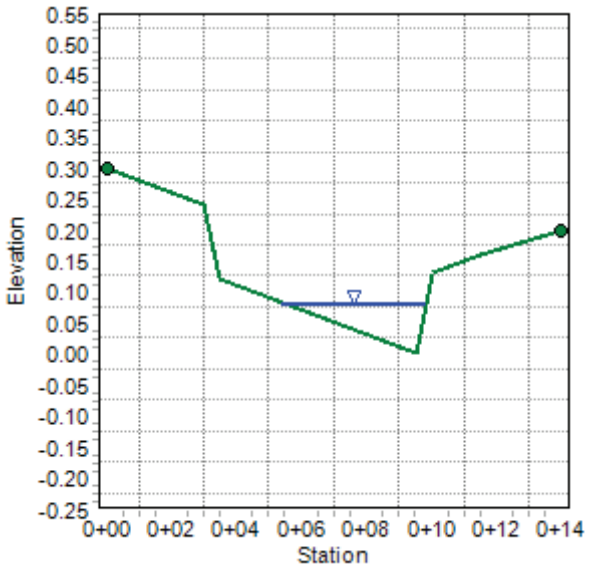
## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.05900 | m/m |
| Normal Depth | 0.08 | m |
| Discharge | 0.38 | m³/s |

## Cross Section Image



# Worksheet for Overland Flow to Pond 2 - Depth

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.033 | |
| Channel Slope | 0.00600 | m/m |
| Left Side Slope | 3.00 | m/m (H:V) |
| Right Side Slope | 3.00 | m/m (H:V) |
| Bottom Width | 4.00 | m |
| Discharge | 0.36 | m³/s |

## Results

| | | |
|---|---|---|
| Normal Depth | 0.14 | m |
| Flow Area | 0.61 | m² |
| Wetted Perimeter | 4.88 | m |
| Hydraulic Radius | 0.13 | m |
| Top Width | 4.83 | m |
| Critical Depth | 0.09 | m |
| Critical Slope | 0.02439 | m/m |
| Velocity | 0.59 | m/s |
| Velocity Head | 0.02 | m |
| Specific Energy | 0.16 | m |
| Froude Number | 0.53 | |
| Flow Type | Subcritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | m |
| Length | 0.00 | m |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | m |
| Profile Description | | |
| Profile Headloss | 0.00 | m |
| Downstream Velocity | Infinity | m/s |
| Upstream Velocity | Infinity | m/s |
| Normal Depth | 0.14 | m |
| Critical Depth | 0.09 | m |
| Channel Slope | 0.00600 | m/m |

# Worksheet for Overland Flow to Pond 2 - Depth

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.02439 | m/m |

# Worksheet for Overland Flow to Pond 2 - max discharge

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.033 | |
| Channel Slope | 0.00600 | m/m |
| Normal Depth | 0.30 | m |
| Left Side Slope | 3.00 | m/m (H:V) |
| Right Side Slope | 3.00 | m/m (H:V) |
| Bottom Width | 4.00 | m |

## Results

| | | |
|---|---|---|
| Discharge | 1.37 | $m^3/s$ |
| Flow Area | 1.47 | $m^2$ |
| Wetted Perimeter | 5.90 | m |
| Hydraulic Radius | 0.25 | m |
| Top Width | 5.80 | m |
| Critical Depth | 0.22 | m |
| Critical Slope | 0.01892 | m/m |
| Velocity | 0.93 | m/s |
| Velocity Head | 0.04 | m |
| Specific Energy | 0.34 | m |
| Froude Number | 0.59 | |
| Flow Type | Subcritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | m |
| Length | 0.00 | m |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | m |
| Profile Description | | |
| Profile Headloss | 0.00 | m |
| Downstream Velocity | Infinity | m/s |
| Upstream Velocity | Infinity | m/s |
| Normal Depth | 0.30 | m |
| Critical Depth | 0.22 | m |
| Channel Slope | 0.00600 | m/m |

# Worksheet for Overland Flow to Pond 2 - max discharge

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.01892 | m/m |

# Worksheet for WC8 outlet from headwall

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.016 | |
| Channel Slope | 0.03400 | m/m |
| Normal Depth | 0.50 | m |
| Left Side Slope | 3.00 | m/m (H:V) |
| Right Side Slope | 3.00 | m/m (H:V) |
| Bottom Width | 0.60 | m |

## Results

| | | |
|---|---|---|
| Discharge | 5.17 | $m^3/s$ |
| Flow Area | 1.05 | $m^2$ |
| Wetted Perimeter | 3.76 | m |
| Hydraulic Radius | 0.28 | m |
| Top Width | 3.60 | m |
| Critical Depth | 0.81 | m |
| Critical Slope | 0.00349 | m/m |
| Velocity | 4.92 | m/s |
| Velocity Head | 1.24 | m |
| Specific Energy | 1.74 | m |
| Froude Number | 2.91 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | m |
| Length | 0.00 | m |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | m |
| Profile Description | | |
| Profile Headloss | 0.00 | m |
| Downstream Velocity | Infinity | m/s |
| Upstream Velocity | Infinity | m/s |
| Normal Depth | 0.50 | m |
| Critical Depth | 0.81 | m |
| Channel Slope | 0.03400 | m/m |

# Worksheet for WC8 outlet from headwall

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.00349 | m/m |

# Worksheet for WC8 connection to Road Ditch

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.016 | |
| Channel Slope | 0.00600 | m/m |
| Normal Depth | 0.50 | m |
| Left Side Slope | 3.00 | m/m (H:V) |
| Right Side Slope | 3.00 | m/m (H:V) |
| Bottom Width | 0.60 | m |

## Results

| | | |
|---|---|---|
| Discharge | 2.17 | $m^3/s$ |
| Flow Area | 1.05 | $m^2$ |
| Wetted Perimeter | 3.76 | m |
| Hydraulic Radius | 0.28 | m |
| Top Width | 3.60 | m |
| Critical Depth | 0.55 | m |
| Critical Slope | 0.00391 | m/m |
| Velocity | 2.07 | m/s |
| Velocity Head | 0.22 | m |
| Specific Energy | 0.72 | m |
| Froude Number | 1.22 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | m |
| Length | 0.00 | m |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | m |
| Profile Description | | |
| Profile Headloss | 0.00 | m |
| Downstream Velocity | Infinity | m/s |
| Upstream Velocity | Infinity | m/s |
| Normal Depth | 0.50 | m |
| Critical Depth | 0.55 | m |
| Channel Slope | 0.00600 | m/m |

# Worksheet for WC8 connection to Road Ditch

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.00391 | m/m |

# Culvert Calculator Report
# WC8 Internal

Solve For: Discharge

| Culvert Summary | | | | | |
|---|---|---|---|---|---|
| Allowable HW Elevation | 184.00 | m | Headwater Depth/Height | 2.43 | |
| Computed Headwater Eleva | 184.00 | m | Discharge | 0.6598 | m³/s |
| Inlet Control HW Elev. | 183.60 | m | Tailwater Elevation | 180.94 | m |
| Outlet Control HW Elev. | 184.00 | m | Control Type | Outlet Control | |

| Grades | | | | | |
|---|---|---|---|---|---|
| Upstream Invert | 182.52 | m | Downstream Invert | 182.39 | m |
| Length | 61.20 | m | Constructed Slope | 0.002124 | m/m |

| Hydraulic Profile | | | | | |
|---|---|---|---|---|---|
| Profile | CompositeM2PressureProfile | | Depth, Downstream | 0.52 | m |
| Slope Type | Mild | | Normal Depth | N/A | m |
| Flow Regime | Subcritical | | Critical Depth | 0.52 | m |
| Velocity Downstream | 2.48 | m/s | Critical Slope | 0.009862 | m/m |

| Section | | | | | |
|---|---|---|---|---|---|
| Section Shape | Circular | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 0.61 | m |
| Section Size | 600 mm | | Rise | 0.61 | m |
| Number Sections | 1 | | | | |

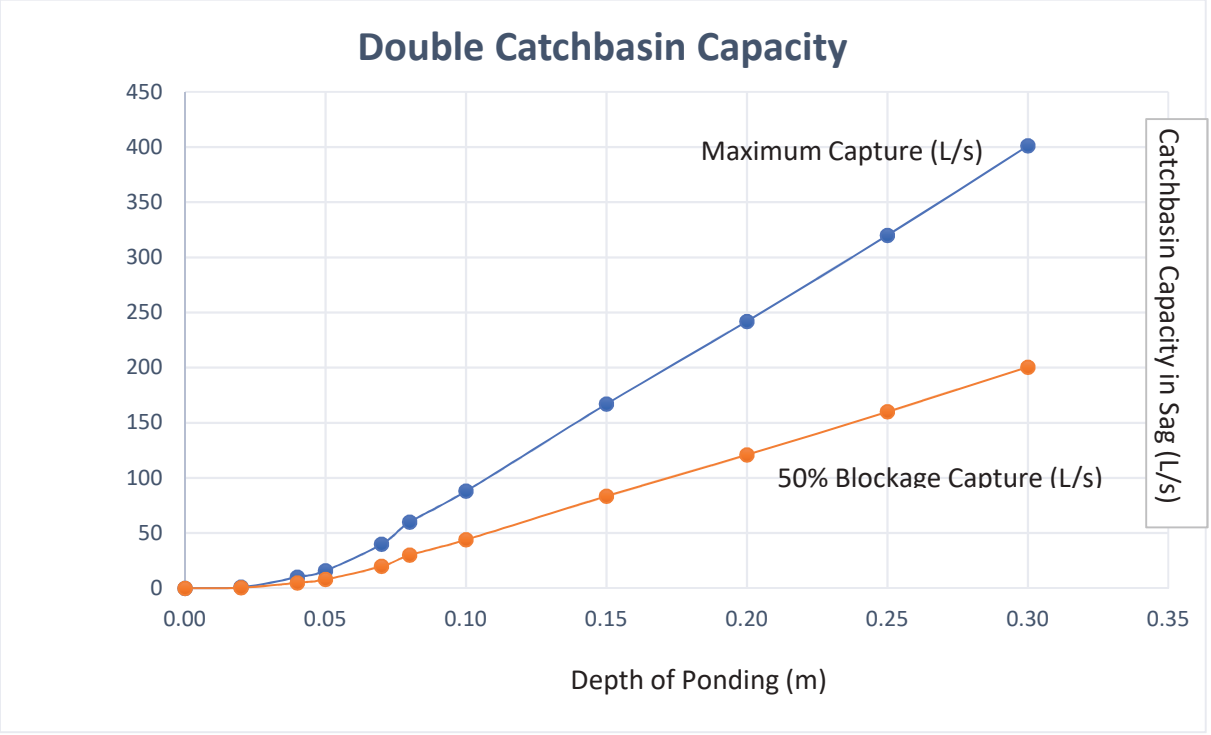
| Outlet Control Properties | | | | | |
|---|---|---|---|---|---|
| Outlet Control HW Elev. | 184.00 | m | Upstream Velocity Head | 0.26 | m |
| Ke | 0.50 | | Entrance Loss | 0.13 | m |

| Inlet Control Properties | | | | | |
|---|---|---|---|---|---|
| Inlet Control HW Elev. | 183.60 | m | Flow Control | N/A | |
| Inlet Type | Square edge w/headwall | | Area Full | 0.3 | m² |
| K | 0.00980 | | HDS 5 Chart | 1 | |
| M | 2.00000 | | HDS 5 Scale | 1 | |
| C | 0.03980 | | Equation Form | 1 | |
| Y | 0.67000 | | | | |

PROJ. NO: 1046-4031
PROJECT: Parkbridge Craigleith
DESIGN: RW
FILE: DCB#12 Capture Curve
DATE: 2020-06-17

| Double Catchbasin in Sag Capacity (L/s) | | |
|---|---|---|
| Ponding Depth (m) | Double Catchbasin in Sag Max. Capture (L/s) | Double Catchbasin in Sag with 50% Blockage Capture (L/s) |
| 0.00 | 0 | 0 |
| 0.02 | 1 | 0.5 |
| 0.04 | 10 | 5 |
| 0.05 | 16 | 8 |
| 0.07 | 40 | 20 |
| 0.08 | 60 | 30 |
| 0.10 | 88 | 44 |
| 0.15 | 167 | 83.5 |
| 0.20 | 242 | 121 |
| 0.25 | 320 | 160 |
| 0.30 | 401 | 200.5 |

Note: Double Catchbasin in Sag Capacity referenced MTO Drainage Management Manual, Design Chart 4.19.



CROZIER CONSULTING ENGINEERS

PROJ. NO: 1046-4031
PROJECT: Parkbridge Craigleith
DESIGN: JE
FILE: Inlet Structure Capture Curve
DATE: 2021-05-12

## Catchment 8 - Inlet Structure Inlet Capacity Analysis

| | | | |
|---|---|---|---|
| Double catchbasin capture area = | 0.72 | $m^2$ | (600x600x2) |
| Inlet Structure Capture Area = | 1.62 | $m^2$ | (per detail on Dwg C112.C) |
| Scaling Factor = | 2.25 | | (x2 conservatively used) |
| Max Ponding Depth = | 0.5 | m | (per grading plan, 184.00) |
| Required flow = | 620 | L/s | (Regional flow, SWMHYMO) |

| Ponding Depth (m) | Double Catchbasin in Sag | Inlet Structure in Sag | Inlet Structure with 50% Blockage |
|---|---|---|---|
| | Capture (L/s) | Capture (L/s) | Capture (L/s) |
| 0.00 | 0 | 0 | 0 |
| 0.02 | 1 | 2 | 1 |
| 0.04 | 10 | 20 | 10 |
| 0.05 | 16 | 32 | 16 |
| 0.07 | 40 | 80 | 40 |
| 0.08 | 60 | 120 | 60 |
| 0.10 | 88 | 176 | 88 |
| 0.15 | 167 | 334 | 167 |
| 0.20 | 242 | 484 | 242 |
| 0.25 | 320 | 640 | 320 |
| 0.30 | 401 | 802 | 401 |
| 0.35 | 482 | 964 | 482 |
| 0.40 | 563 | 1126 | 563 |
| 0.45 | 644 | 1288 | 644 |
| **0.50** | **725** | **1450** | **725** |
| 0.55 | 806 | 1612 | 806 |

Note: Double Catchbasin in Sag Capacity referenced MTO Drainage Management Manual, Design Chart 4.19.

# APPENDIX F

## Geotechnical Report

Geotechnical Investigation by Peto MacCallum – December 2015
Supplemental Geotechnical Investigation by Peto MacCallum – January 2018
Supplemental Test Pit Investigation – June 2019
Slope Stability Assessment by Peto MacCallum – May 2020
Karst Topography Letter by Peto MacCallum – June 2019
Slope Appraisal Letter by Peto MacCallum – November 2020

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# GEOTECHNICAL INVESTIGATION
# PROPOSED RESIDENTIAL SUBDIVISION
# 161 LAKSHORE ROAD EAST
# TOWN OF THE BLUE MOUNTAINS, ONTARIO

**for**

**PARKBRIDGE LIFESTYLE COMMUNITIES INC.**

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1 cc: PML Barrie

PML Ref.: 15BF041
Report: 2
December 2015

Peto MacCallum Ltd.
CONSULTING ENGINEERS

December 7, 2015

PML Ref.: 15BF041
Report: 2

Mr. Chris Alderdice
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Dear Mr. Alderdice

**Geotechnical Investigation**
**Proposed Residential Subdivision**
**161 Lakeshore Road East**
**Town of the Blue Mountains, Ontario**

We are pleased to present the results of a geotechnical investigation completed for the above referenced project. Authorization for this assignment was provided by T. Exner of Parkbridge Lifestyle Communities Inc. (Parkbridge) in an email dated October 28, 2015.

Parkbridge is planning to purchase an approximate 25 Ha parcel of land at 161 Lakeshore Road East for development of an approximate 200 lot residential subdivision. The site is terraced comprising low lying ground, with frontage on Lakeshore Drive East, rising some 20 m up the Niagara Escarpment in the west and south parts of the site. The southwest part of the site has limited frontage along Grey Road 19. The configuration of the subdivision is in the preliminary stages and current concept plan has lots on both the high and low ground, however grading has yet to be determined. It is understood that site servicing is proposed and full depth basements are preferred.

Reference is made to Report 1, dated August 24, 2015 which was a factual report providing the subsurface conditions as revealed in 16 test pits dug in the lower lying northern part of the site.

For this Report 2, 19 boreholes were advanced across the entire site to provide more detailed subsurface information. It is noted that three monitoring wells were installed under the direction of and for the purposes of SPL Consultants, as requested by the Client.

The boreholes in the higher ground revealed typically dense to very dense till soil with ground water level well below the anticipated depth of the development. The low lying north part of the site is characterized by local fill (due to the surface being reworked for archeological reasons) and generally compact to very dense deposits of till, sand and silt. Ground water was encountered as high as 1.5 to 3.0 m below the existing grade of the site. Auger refusal was encountered in some boreholes possibly indicating shallow bedrock.

Geotechnical conditions are generally favourable for development, with due consideration required for relatively high ground water table and shallow bedrock in the low lying north part of the site.

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We trust the report is complete within our terms of reference and the information presented is sufficient for your present purposes. If you have any questions or when we may be of further service, please do not hesitate to call our office.

Sincerely
Peto MacCallum Ltd.

Geoffrey R. White, P.Eng.
Associate
Manager, Geotechnical and Geoenvironmental Services

GRW:jlb

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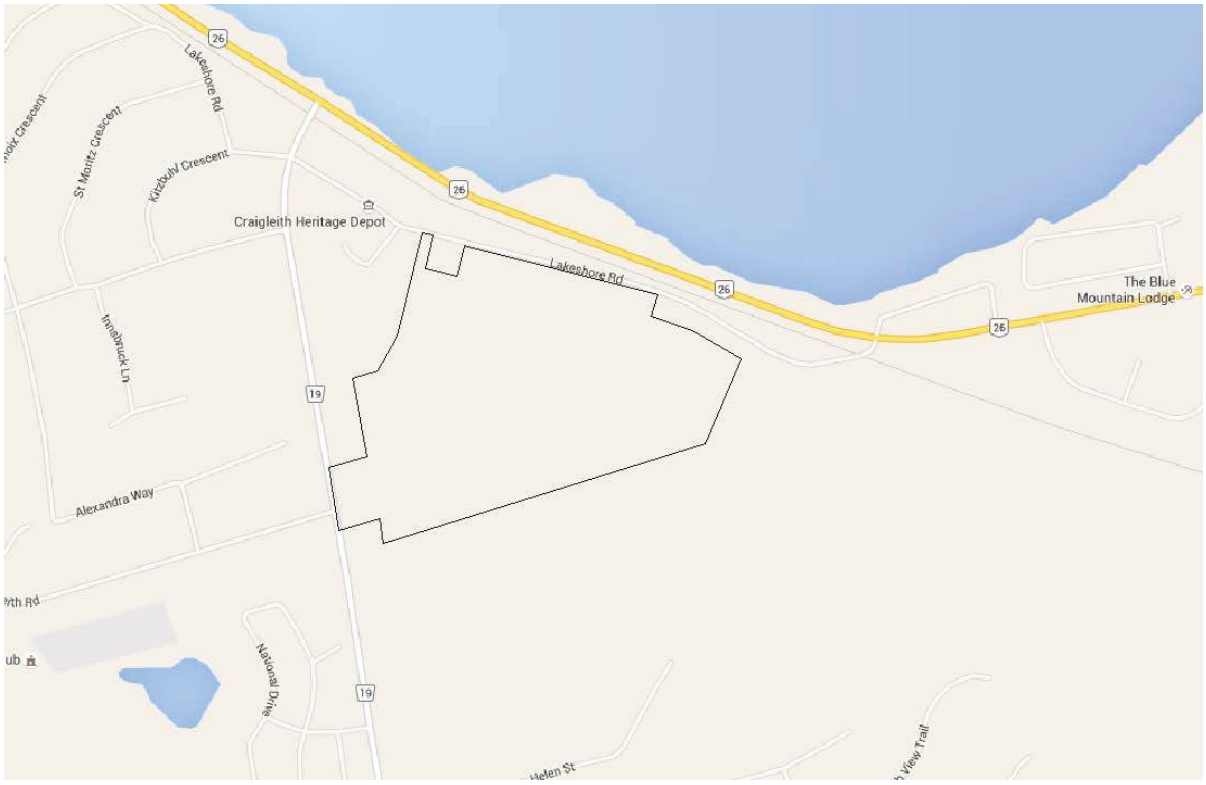
Drawing 2-1 – Borehole Location Plan

Appendix A – Engineered Fill

## 1. INTRODUCTION AND SITE DESCRIPTION

Peto MacCallum Ltd. (PML) is pleased to present the results of the geotechnical investigation completed at the above noted project site. Authorization for this assignment was provided by Mr. T. Exner of Parkbridge Lifestyle Communities Inc. (Parkbridge) in an email dated October 28, 2015.

Parkbridge is proposing a residential subdivision on an approximate 25 Ha irregular shaped property in Craigleigh, in the Town of Blue Mountains. The municipal address for the site is 161 Lakeshore Road East. The site is flanked on the north by Lakeshore Road East, with a small section of frontage on Grey Road 19, in the southwest corner. The site location is shown below.



The current concept plan for the subdivision comprising approximately 200 residential lots is shown in Drawing 2-1, appended. Full depth basements are currently planned, along with full site servicing, a network of internal roads and a Storm Water Management (SWM) Pond. It is noted that there are parts of the site were the topography will not permit development. Also no development is planned along the drainage pathway that flows through the middle of the site. Further, it is understood that Archeological studies are currently in progress that might impact development. Final grading for the subdivision has not yet been determined.

The site is divided by the Niagara Escarpment which creates an elevated southern section and a low lying northern portion, with relief of about 20 m. Within the lower northern lands the site slopes gently down to the northeast about 10 m (elevation 191 to about elevation 181). In the higher west and south grounds there is more irregularity to the relief with the site typically ranging from about elevation 210 to elevation 217. There is a drainage path through the east/west axis of the site and an existing pond in the east part of the lower lying northern section of the site. The depth of the pond is unknown.

Reference is made to Report 1, dated August 24, 2015 which is a factual report providing the subsurface conditions as revealed in 16 test pits dug in the lower lying northern part of the site.

The purpose of this borehole investigation and Report 2 was to obtain more detailed subsurface information for the entire site, and based on this information, provide comments and geotechnical engineering recommendations to assist in the planning and design of the proposed development. Geo-environmental assessment of the site was not within the terms of reference, and no work has been carried out in this regard.

The comments and recommendations provided in this report are based on the site conditions revealed in the boreholes at the time of the investigation, and are applicable only to the proposed works as addressed in the report. The design is at the conceptual/preliminary stages, and final grades were not available at the time of this study. Accordingly, the comments and recommendations provided in this report are general in nature, and suitable only for preliminary design and planning purposes. When design details are available, the proposed plans will require review by PML to assess the validity of the report, and may require modified recommendations, additional investigation and/or analysis.

## 2. INVESTIGATION PROCEDURES

The field work for the project was carried out during November 9 to 12. Boreholes 1 to 6 were drilled in the southern higher ground to 4.7 to 5.3 m depth, locally 18.4 m depth in Borehole 2. Boreholes 7 to 19 were advanced to 1.5 to 5.0 m depth in the lower lying north part of the site. The borehole locations are shown on appended Drawing 2-1.

Co-ordination for clearances of underground utilities was provided by PML with the aid of a subcontracted private utility locating service.

The boreholes were advanced using continuous flight solid stem augers, powered by track mounted CME-55 drill rig, equipped with and automatic hammer. The drill rig was supplied and operated by a specialist drilling contractor working under the full-time supervision of a member of PML's engineering staff.

Representative samples of the overburden were recovered at frequent depth intervals for identification purposes using a conventional split spoon sampler. Standard penetration tests were carried out simultaneously with the sampling operations to assess the strength characteristics of the subsoil.

Ground water conditions in the boreholes were closely monitored during the course of the field work. Standpipes comprising 19 mm diameter pipe were installed in three boreholes to permit monitoring of the stabilized ground water table. Monitoring wells with 50 mm diameter pipe were installed in three boreholes under the direction of and for the purposes of SPL Consultants, as requested by the Client. Above grade protective casings were installed on the monitoring wells.

Boreholes without standpipes or monitoring wells were backfilled in accordance with O.Reg. 903. As per O.Reg. 903 the standpipes and monitoring wells become the property of the Owner and will have to be decommissioned when no longer required. PML would be pleased to assist in this regard.

The location of each borehole was established in the field by the Client and PML prior to drilling. The boreholes were staked and numbered in the field for subsequent vertical and horizontal ties by the Client.

All recovered soil samples were returned to our laboratory for moisture content determination and detailed examination to confirm field classification. It is noted SPL Consultants recovered all soil samples from the boreholes where monitoring wells were installed and as a result no moisture contents were completed for these boreholes. Four soil samples from the boreholes were submitted for grain size analysis and the results are presented on Figures 2-1 to 2-4, appended.

## 3. SUMMARIZED SUBSURFACE CONDITIONS

Reference is made to the appended Log of Borehole sheets for details of the subsurface conditions, including soil classifications, inferred stratigraphy, Standard Penetration test N values, standpipe and monitoring well installation details, ground water observations and the results of laboratory moisture content determinations.

Due to the soil sampling procedures and limited sample size, the depth demarcations on the borehole logs must be viewed as "transitional" zones between layers, and cannot be construed as exact geologic boundaries between layers.

### 3.1 South Elevated Part of Site (Boreholes 1 to 6)

Based on Boreholes 1 to 6, the elevated south part of the site is dominate by a till deposit. Local layers of silt and sand are also present. A description of the characteristics and distribution of the various soil units and ground water observations encountered in Boreholes 1 to 6 is presented below.

#### 3.1.1 Topsoil

An 80 to 150 mm thick layer of topsoil was found at the surface of Boreholes 1 to 5.

### 3.1.2 Silt

Local upper silt layers were noted in Boreholes 1 and 5. A silt layer occurred from 0.1 to 0.7 m in Borehole 1 and 0.7 to 1.4 m depth in Borehole 5. The material comprised silt to clayey silt with trace sand. The consistency was very stiff to hard. The material was about the plastic limit with moisture contents of 6 to 20%.

A discontinuous basal sandy silt unit was encountered underlying the sand in Borehole 6, extending to the 4.8 m depth of exploration. The unit was very dense and very moist with a moisture content of 17%.

### 3.1.3 Sand

Sand deposits/layers were encountered in Boreholes 1, 2 5 and 6.

The sand occurred as upper layers in Borehole 1 (below the silt from 0.7 to 1.4 m depth) in Borehole 5 (below the topsoil from 0.08 to 0.7 m), and in Borehole 6 (from the surface to 4.0 m depth). The material comprised sand with trace silt, to silty sand. The unit was loose to very dense and was moist to very moist, with moisture contents of 5 to 17%.

A lower silty sand deposit was encountered below the till in Borehole 2 from 15.2 m depth to the 18.4 m depth of exploration. The deposit was very dense and wet.

### 3.1.4 Till

A major till deposit was encountered in all boreholes except Borehole 6. The till comprised gravely silty sand with trace clay and trace gravel. Cobbles and boulders were noted. A grain size analysis was conducted on a sample of the material from Borehole 3 and the results are provided in Figure 2-1, appended. The till was typically dense to very dense, locally compact or loose. The deposit was moist with moisture contents of 4 to 10%.

### 3.1.5 Ground Water

Upon completion of augering, no water or wet cave was observed in the boreholes, except Borehole 2 at 15.2 m depth.

The water levels in the wells installed in Boreholes 2 and 4 were measured on November 27, 2015, some 16 days after installation. The water level in Borehole 2 was measured at 2.9 m depth. The well in Borehole 4 was dry.

Ground water levels are subject to seasonal fluctuations and in response to variations in precipitation.

## 3.2 North Low Lying Part of Site (Boreholes 7 to 19)

Based on Boreholes 7 to 19, the subsurface stratigraphic sequence in the lower lying part of the site is variable and comprises surficial fill (due to grooming of the fields for archeological purposes) over deposits of sand, silt and till over areas assumed shallow bedrock or boulders. A description of the characteristics and distribution of the various soil units, bedrock and ground water observations encountered in Boreholes 7 to 19 is presented below.

### 3.2.1 Topsoil

Topsoil was at the surface of Boreholes 9, 12 and 16, measuring 100 to 150 mm thick.

### 3.2.2 Fill

A fill layer was at the surface of Boreholes 7, 8, 10, 11, 13 to 15, and 17 to 19, typically extending to 0.7 m depth, locally 1.4 m depth in Boreholes 8 and 15. It understood that the lower part of the site underwent an archeological study and as part of the study most of the lower lying lands were ‘groomed’ as part of the study, mixing the topsoil and upper soil layers. The fill typically comprised sandy silt, trace clay, trace gravel, with trace organics and topsoil inclusions. The material was moist with moisture contents ranging from 6 to 20%, locally wet with moisture content of 41% in Borehole 7, adjacent to the existing pond.

### 3.2.3 Sand

Upper sand layers were encountered in Boreholes 7, 9 and 15, beneath the fill or upper silt layers, and extending to 2.1 to 2.9 m depth. The layers were compact to very dense and comprised sand, trace silt to silty sand, with trace to some gravel, to gravelly sand, some silt. The material from Borehole 15 was submitted for grainsize analysis and the results are provided in Figure 2-2, appended. The material was moist with moisture contents of 3 to 8%.

Lower sand deposits were noted below the fill, silt or clayey silt layer, in Boreholes 9, 10, 12, 13 and 16 to 19 and extended to the depth of the boreholes. The deposit was variable grading from sand, trace silt to silty fine sand, with trace to some gravel, locally trace organics. The material was typically dense to very dense, locally compact or loose. The sand deposits ranged from moist to wet with moisture contents of 1 to 19%.

### 3.2.4 Silt

Upper silt layers were revealed in Boreholes 9, 10, 12, 16 and 19 below the topsoil or fill and extending to 0.7 to 1.4 m depth. The layers typically comprised sandy silt, trace gravel and trace organics. The material was compact and moist, with moisture contents of 10 to 15%.

A lower silt layer was contacted in Borehole 9 from 2.9 to 4.0 m depth, and in Borehole 15 from 2.9 m depth to the 4.7 m depth of exploration. These lower layers comprised sandy silt and ranged from compact to dense. A sample of the material from Borehole 15 was submitted to our laboratory for grain size analysis and the results are provided in Figure 2-3, attached. The material was moist to very moist with moisture contents of 14 to 18%.

### 3.2.5 Till

A till deposit was encountered in Boreholes 8, 11 and 14, below the fill to the 2.1 to 4.7 m depth of exploration. The till comprised silty sand to sandy silt, with trace gravel, locally varying to clayey silt, in the upper portion of Borehole 8. Cobbles and boulders were noted. A sample from the upper portion of Borehole 8 was submitted for grainsize analysis and the results are provided on

Figure 2-4, appended. The deposit was very dense/hard, locally compact in the upper portion of Borehole 14. The till was moist, locally wet, with moisture contents ranging from 6 to 16%.

### 3.2.6 Clayey Silt

A local clayey silt layer was contacted from 2.1 to 2.9 m depth in Borehole 7. The unit was hard and contained shale layers. The moisture content was 2%.

### 3.2.7 Sand and Silt

A local sand and silt deposit was contacted below the shale layer in Borehole 7 extending to the 4.2 m depth of exploration. The unit contained trace gravel and was very dense. The material was moist with a moisture content of 3%.

### 3.2.8 Auger Refusal/Assumed Bedrock

Auger refusal was encountered in Boreholes 7, 9 to 11, 13, 14 and 16 to 18 between 1.5 and 4.9 m depth. An additional attempt was made for most of the boreholes encountering similar refusal depths. Auger refusal is assumed to reflect shallow bedrock common to the area however, may also be due to boulders in the till soils.

A review of MOECC well records within about 300 m of the site revealed shale and/or limestone bedrock as shallow as 1.5 m.

It is noted that Rotary diamond coring is typically recommended to prove out bedrock. In this case it is further noted that bedrock, typically limestone, was encountered in some of the test pits from Report 1 at similar depths as noted above.

### 3.2.9 Ground Water

The following table provides the ground water measurements and measurements in the standpipes or monitoring wells on November 27, 2015.

| BOREHOLE | WATER LEVEL UPON COMPLETION (Depth m) | WATER LEVEL IN STANDPIPE OR WELL (Depth m) November 27, 2015 |
|---|---|---|
| 7 | No water | No Standpipe or Well |
| 8 | 4.4 | 0.6 |
| 9 | 3.8 | 3.2 |
| 10 | No water | No Standpipe or Well |
| 11 | No water | No Standpipe or Well |
| 12 | 4.6 | 1.5 |
| 13 | No water | No Standpipe or Well |
| 14 | No water | No Standpipe or Well |
| 15 | 4.4 | 3.1 |
| 16 | No water | No Standpipe or Well |
| 17 | No water | No Standpipe or Well |
| 18 | No water | No Standpipe or Well |
| 19 | 2.4 | No Standpipe or Well |

The stabilized ground water level is believed to be about 1.5 to 3.0 m below existing.

It is noted that surface water was present around the standpipe in Borehole 8 and the proximity to the existing pond is believed to have impacted the measured water level.

Ground water levels are subject to seasonal fluctuations and in response to variations in precipitation.

## 4. GEOTECHNICAL ENGINEERING CONSIDERATIONS

### 4.1 General

Parkbridge is planning to purchase an approximate 25 Ha. parcel of land at 161 Lakeshore Road East for development of an approximate 200 lot residential subdivision. The site is terraced comprising low lying ground, with frontage on Lakeshore Drive East, rising some 20 m up the Niagara Escarpment in the west and south parts of the site. The southwest part of the site has limited frontage along Grey Road 19. The configuration of the subdivision is in the preliminary stages and current concept plan has lots on both the high and low ground, however grading has yet to be determined. It is understood that site servicing is proposed and full depth basements are preferred.

The current concept plan for the subdivision comprising approximately 200 residential lots is shown in Drawing 2-1, appended. Full depth basements are currently planned, along with full site servicing, a network of internal roads and a Storm Water Management (SWM) Pond. It is noted that there are parts of the site were the topography will not permit development. Also no development is planned along the drainage pathway that flows through the middle of the site. Further, it is understood that Archeological studies are currently in progress that might impact development. Final grading for the subdivision has not yet been determined.

For purposes of this report it is assumed the proposed grades will coincide with the existing grade, with only minor cut and fill adjustments as required. Based on this assumption the irregular relief in the upper part of the site will likely require more grading.

The boreholes in the elevated south and west parts of the site have revealed typically dense to very dense till with ground water well below the anticipated 3 m depth anticipated for full depth basements and site servicing. The conditions are favourable for development in the higher ground.

Boreholes 7 to 19 in the lower lying norther part of the site encountered typically compact to very dense soil below a thin layer of fill, with assumed bedrock at 1.5 to 4.9 m depth below existing

grade. The stabilized ground water table is anticipated at 1.5 to 3.0 m below existing grade. While bearing capacity for the residences is readily available, the presence of the higher ground water table and shallow bedrock will require due consideration in relation to full depth basements. Rock excavation will be required depending on the depth of the basements and servicing.

### 4.2 General Site Grading and Engineered Fill

Final grades for the site have not yet been established. However, it is anticipated that some amount of cut/fill operations will be required. Existing fill that exists in the low lying north part of the site is not suitable for supporting buildings or infrastructure. Such existing fill needs to be sub-excavated and replaced with engineered fill. Also, engineered fill will be needed where grades are to be raised to support building infrastructure and roads.

General guidelines for engineered fill construction are provided in Appendix A. Specific site details are provided below:

- Strip existing topsoil, and sub-excavate existing fill, organic and other obvious deleterious materials down to competent native inorganic soil as verified by geotechnical review during construction;
- Proofroll exposed subgrade using a heavy roller. The proofrolling should be witnessed by geotechnical personnel to identify any unstable areas that may require further excavation;
- Following geotechnical approval of the subgrade, place select material in maximum 200 mm thick lifts and compact to minimum 100% Standard Proctor maximum dry density under buildings and structures. Engineered fill under pavements should be constructed to 95% Standard Proctor maximum dry density;
- Engineered fill should comprise inorganic soil, free of boulders, rubble, frozen or otherwise deleterious material, at a moisture content suitable for compaction. In this regard, excavated site soils are generally suitable for reuse, subject to geotechnical field review and approval during construction. Soils excavated from below the water table will be too wet to achieve compaction and will have to be “dried out” or mixed with direr soil;

- Proposed borrow/imported material should be reviewed for geotechnical and environmental quality;

- The engineered fill pad must extend to at least 1 m horizontally beyond the perimeter of the structural to be supported, then down and outwards at no steeper than 45 degrees to meet the approved subgrade. Strict survey control by an OLS will be needed to document and ensure the engineered fill pad fully incorporates the structure to be supported;

- Earthworks operations should be reviewed by PML to approve subgrade preparation and backfill material and ensure satisfactory placement and compaction efforts.

## 4.3 Foundations

### 4.3.1 South Elevated Part of Site (Boreholes 1 to 6)

Finished grades for the site have yet to be determined, however based on Borehole 1 to 6, dense to very dense soil was encountered below 0.5 m depth.

A geotechnical bearing resistance at Serviceability Limit State (SLS) of 200 kPa and a factored bearing resistance at Ultimate Limit State (ULS) of 300 kPa is available for design of residential footings founded on native soil, a minimum 0.5 m below existing grade. In general, it is noted that geotechnical bearing resistances increase with depth.

In areas where site grades are to be raised, the footings can be supported on engineered fill, constructed as described in Section 4.2, where a geotechnical bearing resistance of 150 kPa at SLS and a factored geotechnical bearing resistance at ULS of 225 kPa are available for design.

### 4.3.2 North Low Lying Part of Site (Boreholes 7 to 19)

Boreholes 7 to 19 revealed fill to 0.7 to 1.4 m depth, underlain by compact to very dense native soils. Shallow bedrock (limestone and shale) is assumed based on auger refusal in the boreholes between 1.5 and 4.9 m depth. The ground water table is interpreted to stabilized between 1.5 and 3.0 m depth below existing grade.

Based on the above, it is recommended that basement floor slabs be established no deeper than 1.5 m below existing grade, with footings no deeper than 2.0 m below existing grade, to minimize complications and impacts of shallow bedrock and ground water.

A geotechnical bearing resistance at SLS of 150 kPa and a factored bearing resistance at ULS of 225 kPa may be adopted for design of residential footings founded on native soil, a minimum 0.5 m below existing grade, or engineered fill, constructed as described in Section 4.2, except in the area of the existing pond as discussed below. In general, it is noted that geotechnical bearing resistances increase with depth within the native soil.

For residences planned in the location of the existing pond in the east part of the site, further investigation within and around the pond will be required prior to finalizing foundation recommendations.

Bedrock/assumed shallow bedrock (limestone and shale) was encountered in the boreholes (and test pits from Report 1) in the lower northern part of the site. While it is recommended that footings be kept within 2.0 m of the existing grade, there may be areas where footings are founded on bedrock. Where footings for a house are to be founded on bedrock it is recommended that all footings for the house extend down to the bedrock surface in order to avoid concerns with differential settlement. Footings founded on limestone or shale bedrock will not be governed by settlement and can be designed based on a factored bearing resistance at ULS of 400 kPa.

### 4.3.3 Ancillary

Site Classification D is applicable for Seismic Site Response as set out in Table 4.1.8.4.A of the Ontario Building Code (2012). There is a low potential for liquefaction based on the soil stratigraphy noted in the boreholes.

The geotechnical bearing resistance at SLS is based on 25 mm of settlement in the bearing stratum with differential settlement not exceeding 75% of this value. The factored bearing

resistance at ULS assumes a minimum footing width of 600 mm, with minimum 600 mm embedment.

Footings subject to frost action should be provided with a minimum 1.2 m of earth cover or equivalent.

Prior to placement of structural concrete, the footing subgrade surface must be examined by PML to verify that the design bearing capacity is available throughout.

### 4.4 Floor Slabs and Basements

The subsurface conditions in the southern elevated part of the site are favourable for full depth basements with basement floor slabs founded on native soil.

For the low lying northern part of the site it is recommended that basement floor slabs be set no deeper than 1.5 m below existing grade due to potential complications with the ground water table. Based on this level an underfloor drainage system may only be required in the southwest corner of the north half of the site (Borehole 12). Drainage requirements must be reviewed when final grading plans are established. Drainage system requirements within the existing pond area will have to be reviewed after further investigation is completed.

A minimum 200 mm thick base layer of crushed stone (nominal 20 mm size) is recommended directly beneath the basement floor slabs. A polyethylene sheeting or similar means should be incorporated as a vapour barrier on areas of shallow ground water.

Exterior grades should be established to promote drainage away from the site.

Basement walls must be designed to resist the unbalanced lateral pressure due to the weight of the retained soil. The lateral earth pressure, p, may be computed using the following equation and assuming a triangular pressure distribution:

$$p = K(\gamma h + q)$$

Where
- $K$ = lateral earth pressure coefficient = 0.5, assuming level backfill
- $\gamma$ = unit weight of retained soil = 20.0 kN/m$^3$
- $h$ = depth at which pressure is computed
- $q$ = surcharge adjacent to the wall (kPa)

It is recommended that the exterior basement be damp proofed and the backfill behind the wall comprise free draining material in conjunction with perimeter weeping tile system to prevent the buildup of hydrostatic pressure behind the wall. The weeping tile should be surrounded by a minimum 150 mm thick layer of clear crushed stone (20 mm nominal size) or pea gravel, fully wrapped with synthetic filter fabric to prevent migration of fines which may otherwise clog the system. The weeping tile should be positively sloped to a frost free sump or outlet.

Imported material such as OPSS Granular B should be used as free draining wall backfill. Alternatively, a proprietary drainage board product could be provided in conjunction with reuse of site excavated soil as wall backfill.

Backfill should be placed in maximum 200 mm thick lifts and compacted to 95% Standard Proctor maximum dry density. Over compaction close to the wall should be avoided as this could generate excessive pressure on the wall. Suitable bracing and/or precautions should be taken to ensure the wall is not damaged during backfill/compaction activities.

## 4.5 Site Servicing

The invert levels of the services were not known at the time of this report and site grading were yet to be determined. For purposes of this report it is assumed that inverts will be no deeper than 3.0 m below existing grade.

### 4.5.1 Trench Excavation and Ground Water Control

Trench excavation and ground water control is discussed later in the report under Section 4.8.

### 4.5.2 Bedding

It is anticipated that services will generally be supported by native soils, where bearing capacity is not expected to be a concern. However, where poor subgrade or fill soil is encountered at the design invert and it may be necessary to sub-excavate and provide an increased thickness of bedding, subject to geotechnical field review.

Standard granular bedding in accordance with OPSS compacted to 95% Standard Proctor maximum dry density should be satisfactory. For flexible pipes, bedding and cover material should comprise OPSS Granular A. For rigid pipes, bedding material should comprise OPSS Granular A, and cover material may comprise select trench backfill free of oversized (200 mm or less) or excessively wet material.

### 4.5.3 Backfill

Backfill in trenches should be placed in maximum 200 mm thick loose lifts compacted to at least 95% Standard Proctor maximum dry density to minimize post construction settlement in the backfill. Backfill for at least the upper 1 m of trench should be close to optimum moisture content to prevent subgrade instability issues.

Backfill for service trenches should comprise inorganic soil, free of boulders, rubble, frozen or otherwise deleterious material, at a moisture content suitable for compaction. In this regard, excavated site soils will be generally suitable for reuse, subject to geotechnical review and

approval during construction. Soils excavated from below the ground water table will be too wet to achieve high compaction. Wet soil will have to be mixed and/or allowed to "dry out" in order to render the material suitable for reuse. Construction during the dry time of the season is encouraged to optimize the reuse of any excavated site soil. Imported soil for backfill, if required, should be reviewed by PML prior to transporting the material to the site.

Earthworks operations should be inspected by PML to approve the subgrade, backfill materials, placement and compaction procedures and to ensure the specified compaction standards are achieved throughout.

### 4.6 Pavement Design and Construction

A preliminary Concept Plan in Drawing 2-1, appended, shows a network of roads. The proposed grades have not been established at the time of this report.

For preliminary purposes, based on the subgrade comprising moderate to high frost susceptible silty sand to sandy silt, present near the existing surface over most of the site, the following preliminary pavement structure thicknesses are recommended:

| MATERIAL | LIGHT DUTY | HEAVY DUTY |
|---|---|---|
| Asphalt (mm) | 90 | 120 |
| Granular A Base Course (mm) | 150 | 150 |
| Granular B Subbase Course (mm) | 400 | 600 |
| Total Thickness (mm) | 640 | 870 |

Following rough grading, subgrade preparation should include proofrolling and compacting the exposed subgrade with a heavy vibratory compactor to 95% Standard Proctor maximum dry density under geotechnical review. Any unstable zones identified during this process should be sub-excavated and replaced with compacted select material. Where grades are to be raised, road fill should be constructed as engineered fill.

Imported material for the granular base and subbase should conform to OPSS gradation specifications for Granular A and Granular B, and should be compacted to 100% Standard Proctor maximum dry density. Asphalt should be compacted in accordance with OPSS 310.

For the pavement to function properly, it is essential that provisions be made for water to drain and not collect in the base material. The incorporation of subdrains is recommended in conjunction crowing of the final surface to promote drainage away from the structure.

### 4.7 Storm Water Management Pond

Final grades and details of the SWM pond have not yet been established.

Boreholes 9 and 15 were advanced in the area of the SWM pond and revealed silty sand fill over layers of sandy silt, sand and/or silt to 2.9 m depth that was moist to very moist with depth. Beneath the sand, a lower compact to very dense sandy silt layer was encountered to the 4.7 m depth. The stabilized water levels in the standpipe and well were measured at 3.2 and 3.1 m depth below existing grade.

At the time of this report, the SWM pond design was not established. The following general comments and recommendations are provided for your consideration. When final grading and details of the pond are established they should be submitted to PML for geotechnical review:

- A maximum proposed depth of 2.5 m below existing grade should be considered so that the capacity of the pond is not compromised by ground water. The permeability of the in-situ is quite variable ranging between about $10^{-2}$ to $10^{-5}$ cm/sec;
- Berms should be constructed as engineered fill, using select material, compacted to 95% Standard Proctor maximum dry density as discussed earlier in the report;
- For storm water retention, an impermeable pond liner will be needed. Interior side slopes for ponds should be no steeper than 5 horizontal to 1 vertical (5H:1V) with exterior side slopes no steeper than 3H:1V. Vegetation cover, granular blanket, rip rap or the likes will be required for erosion control.

## 4.8 Excavation and Ground Water Control

For purposes of this report it is assumed that excavation for basements and trenching for servicing site will extend no deeper than 3.0 m below the existing ground surface. A variety of soil types will be encountered including fill, till, sand and silt. Also bedrock can be anticipated in the south part of the site. Open cuts will be feasible although harder digging conditions can be expected in the typically dense to very dense soils. Boulders can be expected in till soils, and bedrock excavation can be anticipated in the low lying south part of the site.

Cognizant of the blasting/rock excavation, a pre-construction survey should be carried out for structures located within and around the construction area. This documentation will assist in resolution of potential claims arising in the event of complaints of construction related damage. A blast monitoring programme should be implemented to optimize the effectiveness of each blast while maintaining vibrations within acceptable limits.

The site soils should be considered as Type 3 soil requiring excavation sidewalls to be constructed no steeper than 1H:1V from the base of the excavation in accordance with the Occupational Health and Safety Act.

Excavation in the southern part of the site will be above the ground water table and surface water run-off and perched water seepage can be handled by conventional sump pumping.

For the northern part of the site the recommended basement excavation depth is designed to keep excavation above the ground water table, while site serving will generally be above, locally below the ground water level. Surface water run-off and perched water seepage can be handled by conventional sump pumping for the most part. It is noted that greater water volumes can be anticipated in the southwest part of the northern half of the site (Borehole 12) where more aggressive pumping from keg wells and/or granular sheeting may be required. Excavation deeper than discussed above may require dewatering.

Also ground water control requirements for the east part of the north half of the site, where the existing pond is located, will need to be determined when further investigation is completed.

Water taking in Ontario is governed by the Ontario Water Resources Act (OWRA) and the Water Taking and Transfer Regulation O.Reg. 387/040, Section 34 of the OWRA requires any one taking more than 50,000 L/d to obtain a Permit to Take Water (PTTW). This requirement applies to all withdrawals, whether for consumption, temporary construction dewatering or permanent drainage improvements.

In general, excavation will be above the ground water table a PTTW is not anticipated. However, when grading details are established the requirement for a PTTW should be reviewed, which may require a site specific Hydrogeological Site Assessment to further assess dewatering requirements, and/or in support of an application to the MOECC for a PTTW.

### 4.2 Geotechnical Review and Construction Inspection and Testing

The borehole locations were staked and numbered in the field for subsequent horizontal and vertical tie-ins by the Client. In conjunction with the survey information, and final grading plans, it is recommended that the design drawings be submitted to PML to review of compatibility with site conditions and recommendations of this report.

Earthworks operations should be carried out under the supervision of PML to approve subgrade preparation, backfill materials, placement and compaction procedures, and verify that the specified compaction standards are achieved throughout.

Prior to placement of structural concrete, all founding surfaces must be inspected by PML to verify the design bearing capacity is available, or to reassess the design parameters based on the actual conditions.

Cognizant of the blasting/rock excavation, a pre-construction survey should be carried out for structures located within and around the construction area. This documentation will assist in resolution of potential claims arising in the event of complaints of construction related damage. A blast monitoring programme should be implemented to optimize the effectiveness of each blast while maintaining vibrations within acceptable limits.

The comments and recommendations provided in the report are based on the information revealed in the boreholes. Conditions away from and between boreholes may vary, particularly where foundation and/or service trenches exist. Geotechnical review during construction should be on going to confirm the subsurface conditions are substantially similar to those encountered in the boreholes, which may otherwise require modification to the original recommendations.

## 5. CLOSURE

We trust this report is complete within our terms of reference, and the information presented is sufficient for your present purposes. If you have any questions, or when we may be of further assistance, please do not hesitate to call our office.

Sincerely

Peto MacCallum Ltd.

Geoffrey R. White, P.Eng.
Associate
Manager, Geotechnical and Geoenvironmental Services

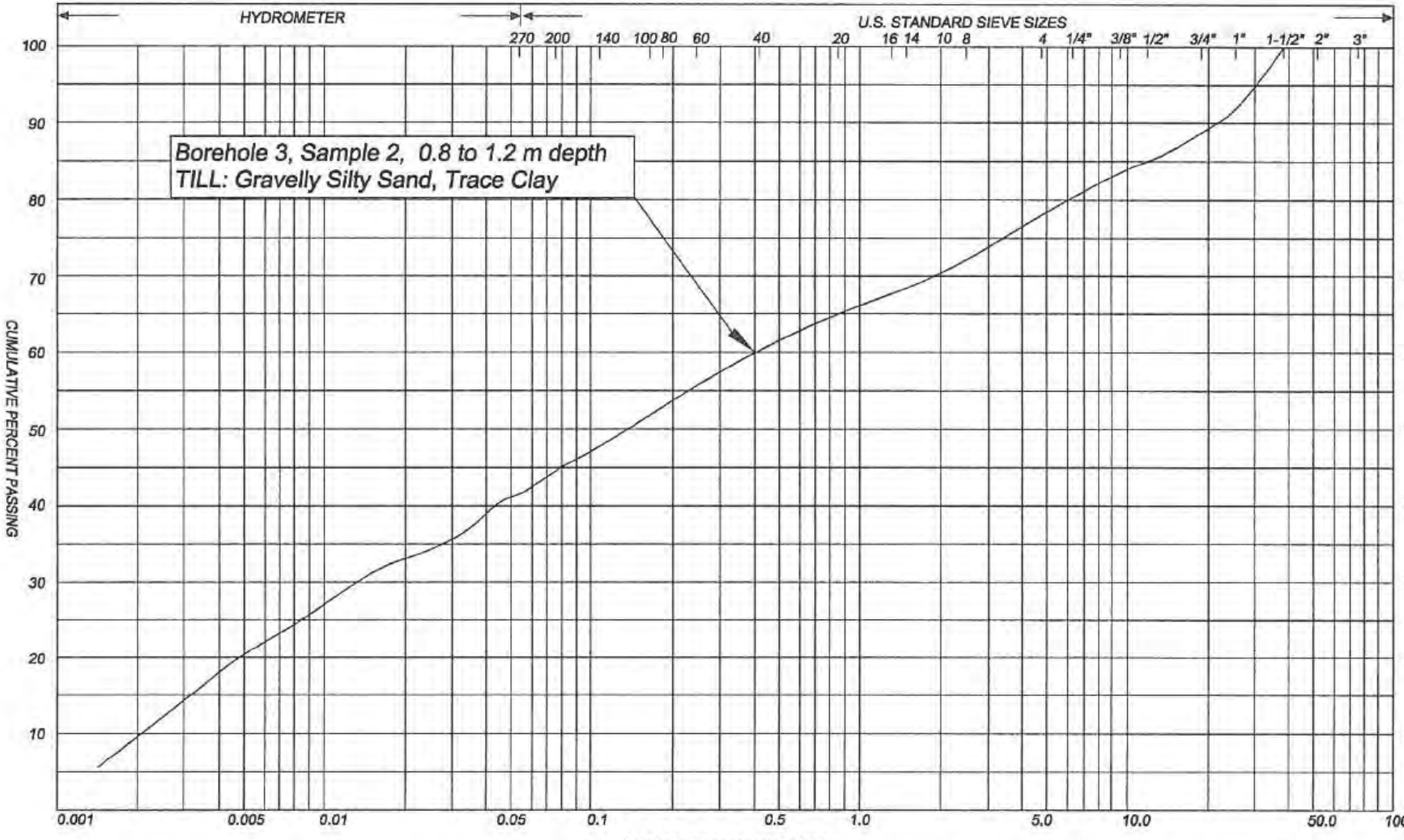
Turney Lee-Bun, P.Eng.
Vice President

GRW/TLB:jlb

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# PARTICLE SIZE DISTRIBUTION CHART

PML Ref.: 15BF041
Figure No.: 2-1

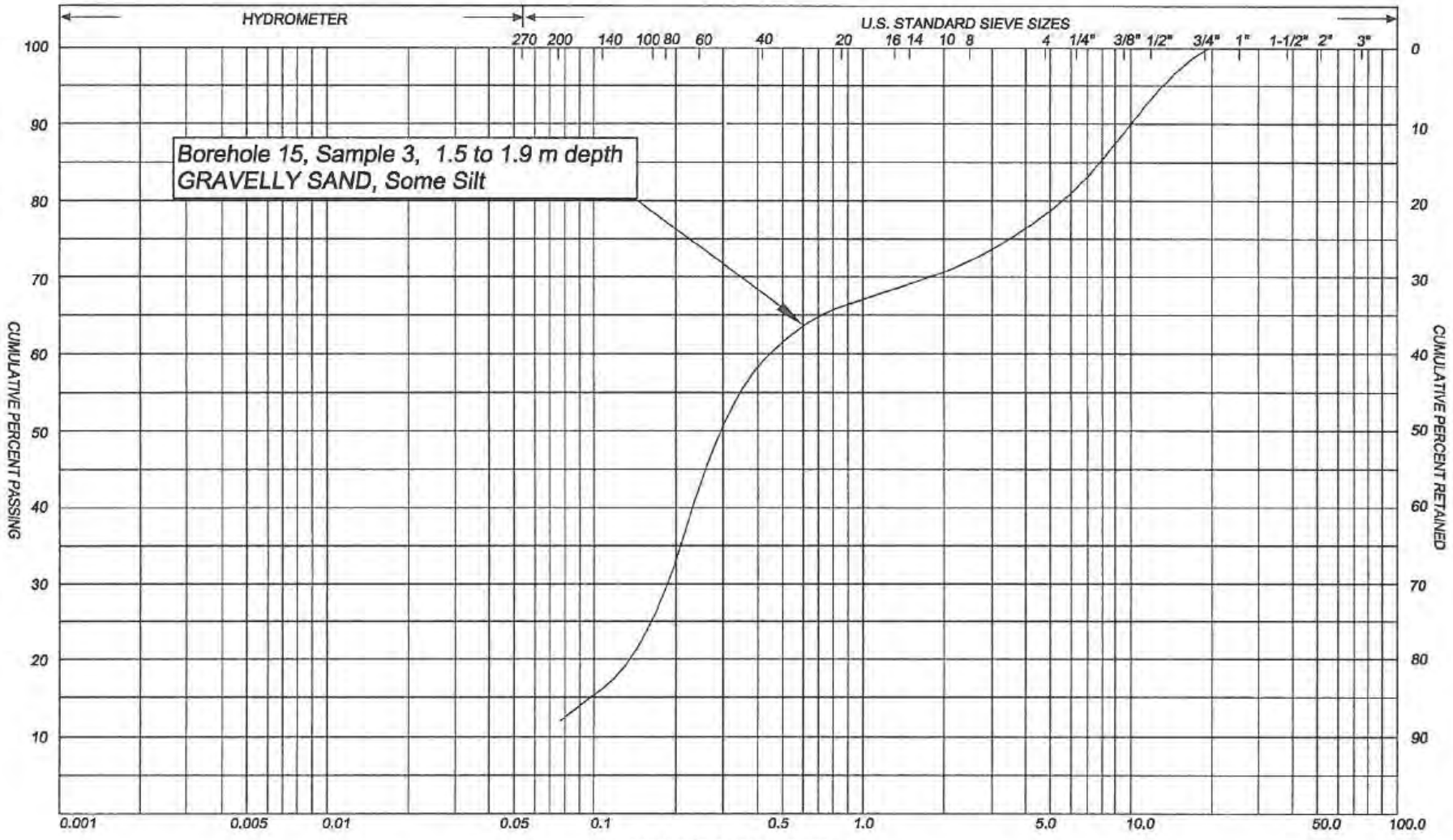



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SILT & CLAY | | | FINE | MEDIUM | COARSE | GRAVEL | | COBBLES | UNIFIED | | |
| | | | SAND | | | | | | | | |
| CLAY | FINE | MEDIUM | COARSE | FINE | MEDIUM | COARSE | GRAVEL | | COBBLES | M.I.T. | |
| | SILT | | | SAND | | | | | | | |
| CLAY | SILT | | V. FINE | FINE | MED | COARSE | GRAVEL | | | U.S. BUREAU | |
| | | | SAND | | | | | | | | |

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# PARTICLE SIZE DISTRIBUTION CHART

PML Ref.: 15BF041
Figure No.: 2-2



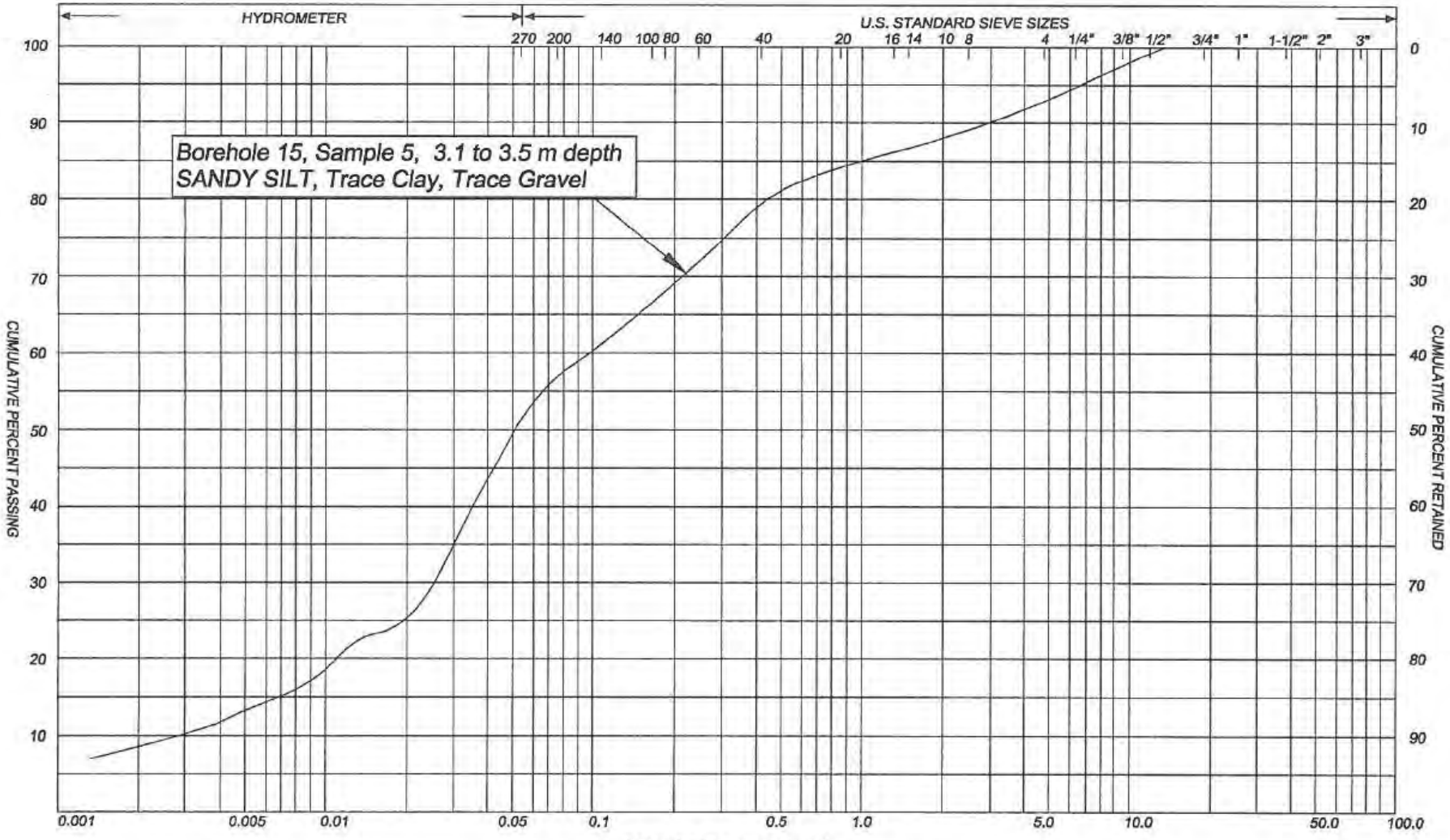

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SILT & CLAY | | | | FINE | MEDIUM | COARSE | GRAVEL | | | COB BLES | UNIFIED |
| | | | | SAND | | | | | | | |
| CLAY | FINE | MEDIUM | COARSE | FINE | MEDIUM | COARSE | GRAVEL | | | COBBLES | M.I.T. |
| | SILT | | | SAND | | | | | | | |
| CLAY | SILT | | | V. FINE | FINE | MED | COARSE | GRAVEL | | | U.S. BUREAU |
| | | | | SAND | | | | | | | |

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## PARTICLE SIZE DISTRIBUTION CHART

PML Ref.: 15BF041
Figure No.: 2-3

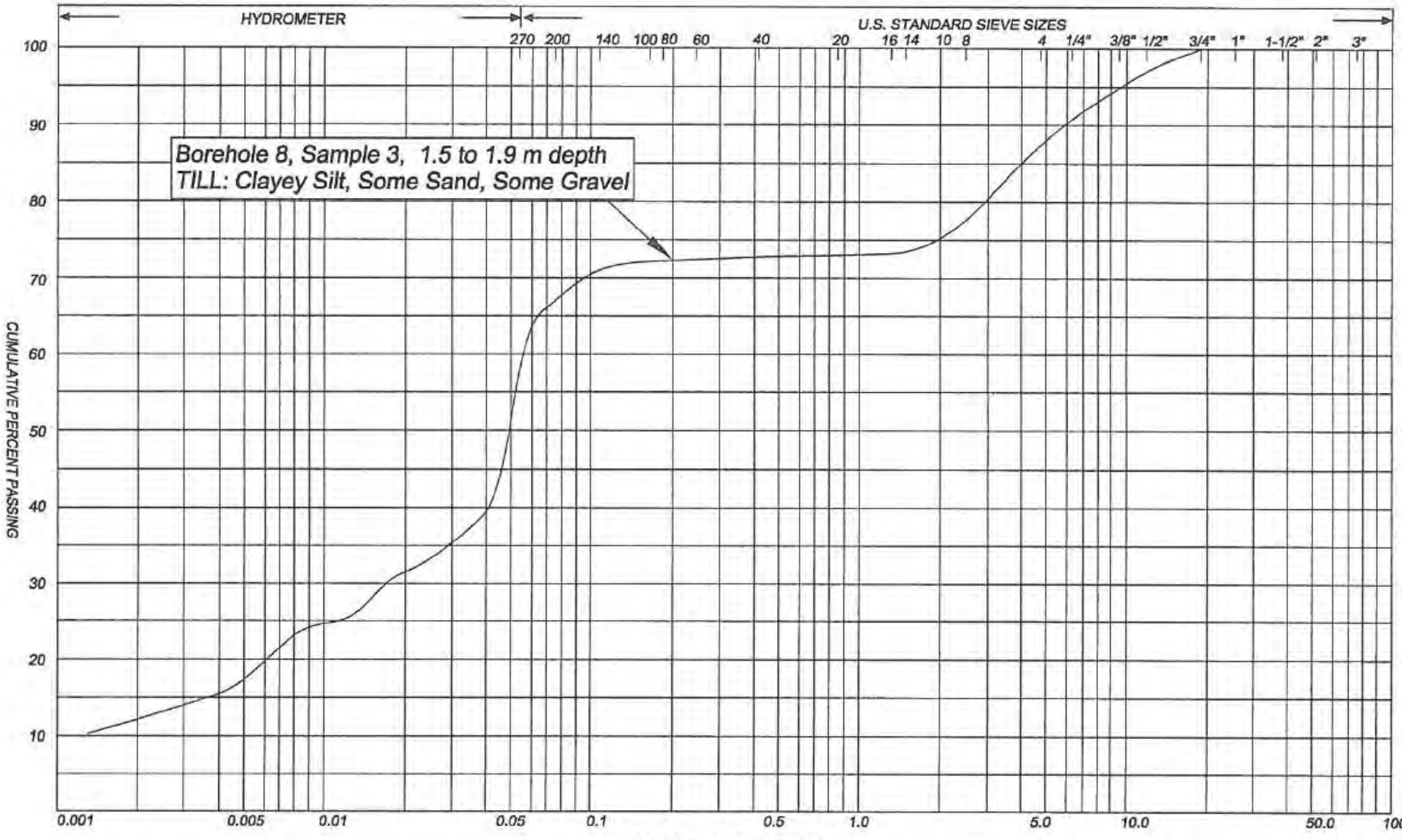



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SILT & CLAY | | | | FINE | MEDIUM | COARSE | GRAVEL | | COB BLES | UNIFIED |
| | | | | SAND | | | | | | |
| CLAY | FINE | MEDIUM | COARSE | FINE | MEDIUM | COARSE | GRAVEL | | COBBLES | M.I.T. |
| | SILT | | | SAND | | | | | | |
| CLAY | SILT | | | V. FINE | FINE | MED | COARSE | GRAVEL | | U.S. BUREAU |
| | | | | SAND | | | | | | |

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# PARTICLE SIZE DISTRIBUTION CHART

PML Ref.: 15BF041
Figure No.: 2-4




| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SILT & CLAY | | | | FINE | MEDIUM | COARSE | GRAVEL | | COBBLES | UNIFIED |
| | | | | SAND | | | | | | |
| CLAY | FINE | MEDIUM | COARSE | FINE | MEDIUM | COARSE | GRAVEL | | COBBLES | M.I.T. |
| | SILT | | | SAND | | | | | | |
| CLAY | SILT | | | V. FINE | FINE | MED | COARSE | GRAVEL | | U.S. BUREAU |
| | | | | SAND | | | | | | |

# *LIST OF ABBREVIATIONS*

## PENETRATION RESISTANCE

Standard Penetration Resistance N: - The number of blows required to advance a standard split spoon sampler 0.3 m into the subsoil. Driven by means of a 63.5 kg hammer falling freely a distance of 0.76 m.

Dynamic Penetration Resistance: - The number of blows required to advance a 51 mm, 60 degree cone, fitted to the end of drill rods, 0.3 m into the subsoil. The driving energy being 475 J per blow.

## DESCRIPTION OF SOIL

The consistency of cohesive soils and the relative density or denseness of cohesionless soils are described in the following terms:

| CONSISTENCY | N (blows/0.3 m) | c (kPa) | DENSENESS | N (blows/0.3 m) |
|---|---|---|---|---|
| Very Soft | 0 - 2 | 0 - 12 | Very Loose | 0 - 4 |
| Soft | 2 - 4 | 12 - 25 | Loose | 4 - 10 |
| Firm | 4 - 8 | 25 - 50 | Compact | 10 - 30 |
| Stiff | 8 - 15 | 50 - 100 | Dense | 30 - 50 |
| Very Stiff | 15 - 30 | 100 - 200 | Very Dense | > 50 |
| Hard | > 30 | > 200 | | |

| | |
|---|---|
| WTPL | Wetter Than Plastic Limit |
| APL | About Plastic Limit |
| DTPL | Drier Than Plastic Limit |

## TYPE OF SAMPLE

| | | | |
|---|---|---|---|
| SS | Split Spoon | ST | Slotted Tube Sample |
| WS | Washed Sample | TW | Thinwall Open |
| SB | Scraper Bucket Sample | TP | Thinwall Piston |
| AS | Auger Sample | OS | Oesterberg Sample |
| CS | Chunk Sample | FS | Foil Sample |
| GS | Grab Sample | RC | Rock Core |

| | |
|---|---|
| PH | Sample Advanced Hydraulically |
| PM | Sample Advanced Manually |

## SOIL TESTS

| | | | |
|---|---|---|---|
| Qu | Unconfined Compression | LV | Laboratory Vane |
| Q | Undrained Triaxial | FV | Field Vane |
| Qcu | Consolidated Undrained Triaxial | C | Consolidation |
| Qd | Drained Triaxial | | |

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 1



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0553702E
4929760N
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 11, 2015
**ENGINEER** GW
**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES 'N' VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) +FIELD VANE △TORVANE ○ Qu ▲POCKET PENETROMETER ○ Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200; 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | | | | | | | | | | |
| 0.10 | TOPSOIL: Black, silt, trace sand, moist | | | | | | | | | |
| | SILT: Very stiff, brown, silt to clayey silt, trace sand, APL | | 1 | SS | 18 | | | | | |
| 0.70 | | | | | | | | | | |
| 1.0 | SAND: Dense, brown, silty sand, trace gravel, moist | | 2 | SS | 46 | | | | | |
| 1.4 | | | | | | | | | | |
| | TILL: Very dense, brown to grey, silty sand/sandy silt, trace gravel, trace clay, cobbles and boulders, moist | | 3 | SS | 86 | | | | | |
| 2.0 | | | 4 | SS | 82/250mm | | | | | |
| 3.0 | | | 5 | SS | 75 | | | | | |
| 4.0 | | | | | | | | | | |
| 4.7 | Becoming grey | | 5 | SS | 50/140mm | | | | | |
| | BOREHOLE TERMINATED AT 4.7 m | | | | | | | | | Upon completion of augering<br>No water<br>No cave |
| 5.0 | | | | | | | | | | |
| 6.0 | | | | | | | | | | |
| 7.0 | | | | | | | | | | |
| 8.0 | | | | | | | | | | |
| 9.0 | | | | | | | | | | |
| 10.0 | | | | | | | | | | |
| 11.0 | | | | | | | | | | |
| 12.0 | | | | | | | | | | |
| 13.0 | | | | | | | | | | |
| 14.0 | | | | | | | | | | |
| 15.0 | | | | | | | | | | |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE/MONITORING WELL NO. 2



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0553743E
4929800N
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 11, 2015
**ENGINEER** GW
**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | TYPE | "N" VALUES |
|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | |
| 0.0 / 0.15 | TOPSOIL: Brown, sandy silt, moist | | | | |
| | TILL: Loose to very dense, brown, silty sand/sandy silt, trace gravel, trace clay, cobbles and boulders, moist | | 1 | SS | 7 |
| | | | 2 | SS | 70 |
| | | | 3 | SS | 75/220mm |
| | | | 4 | SS | 84/290mm |
| | Becoming grey | | 5 | SS | 84/210mm |
| | | | 6 | SS | 50/140mm |
| | With trace clay | | 7 | SS | 43 |
| | | | 8 | SS | 90/250mm |
| | | | 9 | SS | 68/250mm |
| | | | 10 | SS | 50/100mm |
| | | | 11 | SS | 84/200mm |
| | | | 12 | SS | 64/250mm |
| 15.0 | CONTINUED | | | | |

ELEVATION SCALE: 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE O Qu
▲ POCKET PENETROMETER O Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
Stick-up Casing
Monitoring well
Bentonite Seal

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE/MONITORING WELL NO. 2



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0553743E 4929800N
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 11, 2015
**ENGINEER** GW
**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES: NUMBER | SAMPLES: TYPE | SAMPLES: "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q (50 100 150 200); DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● (20 40 60 80) | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) (10 20 30 40) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|---|---|---|---|---|---|---|---|---|---|---|
| 15.0 | CONTINUED FROM PREVIOUS PAGE | | | | | | | | | |
| 15.2 | SAND: Very dense, grey, silty sand, trace gravel, wet | | 13 | SS | 50/100mm | | | | | 50 mm slotted pipe<br>Filter sand |
| 18.4 | BOREHOLE TERMINATED AT 18.4 m | | 14 | SS | 50/100mm | | | | | Upon completion of augering<br>Water at 15.2 m<br>No cave<br><br>Water Level Readings<br>Date: Nov. 27, 2015 — Depth (m): 2.9 |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 3



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0553842E
4929702N
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 12, 2015
**ENGINEER** GW
**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES |
|---|---|---|---|---|---|
| 0.0 | SURFACE ELEVATION | | | | |
| 0.12 | TOPSOIL: Brown, silt, trace sand, moist | | | | |
| | TILL: Compact to very dense, brown, gravelly silty sand/sandy silt, trace clay, cobbles and boulders, moist | | 1 | SS | 18 |
| | | | 2 | SS | 83 |
| | | | 3 | SS | 78/250mm |
| | | | 4 | SS | 83/230mm |
| | Becoming grey | | 5 | SS | 87 |
| 5.0 | | | 6 | SS | 38 |
| | BOREHOLE TERMINATED AT 5.0 m | | | | |

ELEVATION SCALE

SHEAR STRENGTH (kPa)
+ FIELD VANE △TORVANE ○ Qu
▲ POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Upon completion of augering
No water
No cave

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE/MONITORING WELL NO. 4



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
**LOCATION** Town of The Blue Mountains, Ontario
**BORING METHOD** Continuous Flight Solid Stem Augers

17T 0553880E
4929772N

**BORING DATE** November 12, 2015

**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) +FIELD VANE △TORVANE ○ Qu ▲POCKET PENETROMETER ○ Q 50 100 150 200 / DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST × ● 20 40 60 80 | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$ / WATER CONTENT (%) 10 20 30 40 | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | | | | |
| 0.0 | | | | | | | | | | |
| 0.10 | TOPSOIL: Brown, silt, trace sand, moist | | | | | | | | | |
| 0.50 | TILL: Compact to very dense, brown to grey, gravelly silty sand/sandy silt, trace clay, cobbles and boulders, moist | | 1 | SS | 29 | | | | | Stick-up Casing<br>Monitoring well |
| 1.0 | | | 2 | SS | 77/290mm | | | | | |
| | | | 3 | SS | 82/250mm | | | | | Bentonite Seal |
| 2.0 | | | 4 | SS | 78/290mm | | | | | |
| 3.0 | Becoming dark grey | | 5 | SS | 86/190mm | | | | | |
| 4.0 | | | 6 | SS | 79/290mm | | | | | 50 mm slotted pipe<br>Filter sand |
| 5.0 | | | | | | | | | | |
| 5.3 | BOREHOLE TERMINATED AT 5.3 m | | 7 | SS | 50/100mm | | | | | Upon completion of augering<br>No water<br>No cave<br><br>Water Level Readings<br>Date / Depth (m)<br>Nov. 27, 2015 / Dry |
| 6.0 | | | | | | | | | | |
| 7.0 | | | | | | | | | | |
| 8.0 | | | | | | | | | | |
| 9.0 | | | | | | | | | | |
| 10.0 | | | | | | | | | | |
| 11.0 | | | | | | | | | | |
| 12.0 | | | | | | | | | | |
| 13.0 | | | | | | | | | | |
| 14.0 | | | | | | | | | | |
| 15.0 | | | | | | | | | | |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 5



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
**LOCATION** Town of The Blue Mountains, Ontario
**BORING METHOD** Continuous Flight Solid Stem Augers
17T 0553944E
4929828N
**BORING DATE** November 12, 2015
**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES 'N' VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST • | PLASTIC LIMIT $W_P$ / NATURAL MOISTURE CONTENT W / LIQUID LIMIT $W_L$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200; 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | 0.08 TOPSOIL: Brown, silt, trace sand, moist | | | | | | | | | |
| | SAND: Compact, brown, sand, trace silt, trace gravel, moist | | 1 | SS | 12 | | • | □ | | |
| | 0.70 SILT: Hard, brown, silt to clayey silt, trace sand, APL | | 2 | SS | 62/250mm | | >>• | □ | | |
| 1.0 | 1.4 TILL: Very dense, brown, gravelly silty sand/sandy silt, trace clay, cobbles and boulders, moist | | 3 | SS | 61 | | • | ○ | | |
| 2.0 | | | 4 | SS | 50/140mm | | >>• | □ | | |
| 3.0 | Sand layers, very moist | | 5 | SS | 94/250mm | | >>• | ○ | | |
| 4.0 | Becoming grey | | 6 | SS | 74 | | • | □ | | |
| 5.0 | 5.0 BOREHOLE TERMINATED AT 5.0 m | | | | | | | | | Upon completion of augering<br>No water<br>No cave |
| 6.0 | | | | | | | | | | |
| 7.0 | | | | | | | | | | |
| 8.0 | | | | | | | | | | |
| 9.0 | | | | | | | | | | |
| 10.0 | | | | | | | | | | |
| 11.0 | | | | | | | | | | |
| 12.0 | | | | | | | | | | |
| 13.0 | | | | | | | | | | |
| 14.0 | | | | | | | | | | |
| 15.0 | | | | | | | | | | |

***NOTES***

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 6



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0554004E
4929787N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 12, 2015
**ENGINEER** GW

**BORING METHOD** Continuous Flight Hollow Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES |
|---|---|---|---|---|---|
| 0.0 | SURFACE ELEVATION | | | | |
| | SAND: Loose to very dense, brown to light brown, sand, some silt to silty, trace gravel, moist to very moist | | 1 | SS | 9 |
| | | | 2 | SS | 32 |
| | | | 3 | SS | 37 |
| | | | 4 | SS | 64 |
| | | | 5 | SS | 58 |
| 4.0 | SILT: Very dense, brown, sandy silt, very moist | | 6 | SS | 80/250mm |
| 4.8 | BOREHOLE TERMINATED AT 4.8 m | | | | |

ELEVATION SCALE

SHEAR STRENGTH (kPa)
+FIELD VANE △TORVANE ○ Qu
▲POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Upon completion of augering
No water
No cave

***NOTES***

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 7



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0554077E
4929936N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 9, 2015
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE |
|---|---|---|---|---|---|---|
| 0.0 | SURFACE ELEVATION | | | | | |
| | FILL: Black, sandy silt, trace clay, trace gravel, trace organics, wet | | 1 | SS | 10 | |
| 0.70 | | | | | | |
| 1.0 | SAND: Very dense, black to brown, silty sand, some gravel, trace organics, moist | | 2 | SS | 47 | |
| | | | 3 | SS | 50/100mm | |
| 2.0 | | | | | | |
| 2.1 | CLAYEY SILT: Hard, grey, clayey silt, with shale layers, damp | | 4 | SS | 65/290mm | |
| 2.9 | | | | | | |
| 3.0 | SAND AND SILT: Very dense, brown to grey, sand and silt, trace gravel, moist | | 5 | SS | 50/100mm | |
| 4.0 | | | | | | |
| 4.2 | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 4.2 m | | | | | |
| 5.0 | | | | | | |
| 6.0 | | | | | | |
| 7.0 | | | | | | |
| 8.0 | | | | | | |
| 9.0 | | | | | | |
| 10.0 | | | | | | |
| 11.0 | | | | | | |
| 12.0 | | | | | | |
| 13.0 | | | | | | |
| 14.0 | | | | | | |
| 15.0 | | | | | | |

SHEAR STRENGTH (kPa)
+FIELD VANE △TORVANE ○ Qu
▲POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Upon completion of augering
No water
Cave at 3.4 m

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE/MONITORING WELL NO. 8



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0554161E
4929892N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 9, 2015
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES: NUMBER | TYPE | "N" VALUES | ELEVATION SCALE |
|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | |
| 0.0 | FILL: Dark brown to black, sandy silt/clayey silt, trace gravel, trace organics, moist | | 1 | SS | 54 | |
| 1.0 | | | 2 | SS | 29 | |
| 1.4 | TILL: Hard, brown, clayey silt, some sand, some gravel, cobbles and boulders, moist | | 3 | SS | 77 | |
| 2.0 | | | 4 | SS | 50/140mm | |
| 3.0 | Becoming very dense, grey, sandy silt/silty sand, trace gravel, cobbles and boulders, wet | | 5 | SS | 50/140mm | |
| 4.0 | | | | | | |
| 4.7 | BOREHOLE TERMINATED AT 4.7 m | | 6 | SS | 50/100mm | |
| 5.0 | | | | | | |
| 6.0 | | | | | | |
| 7.0 | | | | | | |
| 8.0 | | | | | | |
| 9.0 | | | | | | |
| 10.0 | | | | | | |
| 11.0 | | | | | | |
| 12.0 | | | | | | |
| 13.0 | | | | | | |
| 14.0 | | | | | | |
| 15.0 | | | | | | |

SHEAR STRENGTH (kPa)
+FIELD VANE △TORVANE ○ Qu
▲POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $W_P$ — NATURAL MOISTURE CONTENT $W$ — LIQUID LIMIT $W_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL




Upon completion of augering
Water at 4.4 m
No cave

Water Level Readings

| Date | Depth (m) |
|---|---|
| Nov. 27, 2015 | 0.6 |

Surface water ponded around well.

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE/MONITORING WELL NO. 9



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
**LOCATION** Town of The Blue Mountains, Ontario
**BORING METHOD** Continuous Flight Solid Stem Augers

17T 0554074E
4930139N

**BORING DATE** November 10, 2015

**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES |
|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | |
| 0.15 | TOPSOIL: Brown, sand, moist | | | | |
| | SILT: Compact, brown, sandy silt, trace gravel, very moist | | 1 | SS | 24 |
| 0.70 | SAND: Very dense to compact, brown, silty sand, trace gravel, to gravelly sand, trace silt, moist to very moist | | 2 | SS | 66 |
| | | | 3 | SS | 28 |
| | | | 4 | SS | 12 |
| 2.9 | SILT: Dense, grey, sandy silt, very moist | | 5 | SS | 36 |
| 4.0 | SAND: Loose to very dense, grey, silty sand, trace gravel, wet | | 6 | SS | 5 |
| 4.9 | Shale pieces | | 7 | SS | 50/100mm |
| 5.0 | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 4.9 m | | | | |

ELEVATION SCALE

SHEAR STRENGTH (kPa)
+FIELD VANE △TORVANE ○ Qu
▲POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION: ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI CL




Upon completion of augering
Water at 3.8 m

Water Level Readings

| Date | Depth (m) |
|---|---|
| Nov. 27, 2015 | 3.2 |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 10



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0554016E
4929979N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 10, 2015
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) +FIELD VANE △TORVANE O Qu ▲POCKET PENETROMETER O Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200; 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | FILL: Black to brown, sand, trace silt, some gravel, topsoil inclusions, moist | | 1 | SS | 21 | | | | | |
| 0.70 | | | | | | | | | | |
| 1.0 | SILT: Compact, brown, sandy silt, trace clay, trace gravel, trace organics, moist | | 2 | SS | 15 | | | | | |
| 1.4 | | | | | | | | | | |
| | SAND: Very dense, brown, silty sand, trace gravel, shale pieces, moist | | 3 | SS | 50/100mm | | | | | |
| 2.0 | | | | | | | | | | |
| 2.4 | | | 4 | SS | 50/100mm | | | | | |
| | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 2.4 m | | | | | | | | | Upon completion of augering<br>No water<br>No cave<br><br>Auger probe 1.0 m south of borehole encountered refusal at 1.8 m |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |
| 6.0 | | | | | | | | | | |
| 7.0 | | | | | | | | | | |
| 8.0 | | | | | | | | | | |
| 9.0 | | | | | | | | | | |
| 10.0 | | | | | | | | | | |
| 11.0 | | | | | | | | | | |
| 12.0 | | | | | | | | | | |
| 13.0 | | | | | | | | | | |
| 14.0 | | | | | | | | | | |
| 15.0 | | | | | | | | | | |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 11



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0553945E
4930039N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 10, 2015
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES 'N' VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) +FIELD VANE △TORVANE ○Qu ▲POCKET PENETROMETER ○○ 50 100 150 200 / DYNAMIC CONE PENETRATION ×, STANDARD PENETRATION TEST ● 20 40 60 80 | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$ WATER CONTENT (%) 10 20 30 40 | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | | | | |
| 0.0 | FILL: Brown, sandy silt, trace clay, trace gravel, trace orgainics, topsoil inclusions, moist | | 1 | SS | 13 | | ● | ○ | | |
| 0.70 | TILL: Very dense, grey, silty sand/sandy silt, trace gravel, cobbles and boulders, moist | | 2 | SS | 61/250mm | | ●→ | ○ | | |
| 1.0 | | | 3 | SS | 80/220mm | | ●→ | ○ | | |
| 2.1 | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 2.1 m | | | | | | | | | Upon completion of augering<br>No water<br>No cave<br><br>Auger probe 1.0 m south of borehole encountered refusal at 2.1 m |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |
| 6.0 | | | | | | | | | | |
| 7.0 | | | | | | | | | | |
| 8.0 | | | | | | | | | | |
| 9.0 | | | | | | | | | | |
| 10.0 | | | | | | | | | | |
| 11.0 | | | | | | | | | | |
| 12.0 | | | | | | | | | | |
| 13.0 | | | | | | | | | | |
| 14.0 | | | | | | | | | | |
| 15.0 | | | | | | | | | | |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE/MONITORING WELL NO. 12



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0553828E
4930064N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 10, 2015
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES |
|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | |
| 0.0 / 0.14 | TOPSOIL: Black, silt, trace sand, moist | | 1 | SS | 13 |
| 0.70 | SILT: Compact, brown, silt to clayey silt, trace to some gravel, very moist | | | | |
| 1.0 | SAND: Compact to very dense, brown to grey, silty fine sand with silt layers, moist to wet | | 2 | SS | 20 |
| 2.0 | | | 3 | SS | 53 |
| 3.0 | | | 4 | SS | 79 |
| 4.0 | | | 5 | SS | 90 |
| 5.0 | | | 6 | SS | 53 |
| 5.0 | BOREHOLE TERMINATED AT 5.0 m | | | | |

ELEVATION SCALE

SHEAR STRENGTH (kPa)
+FIELD VANE △TORVANE ○ Qu
▲POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Standpipe
Bentonite Seal
19 mm slotted pipe
Filter sand

Upon completion of augering
Water at 4.6 m
No cave

Water Level Readings

| Date | Depth (m) |
|---|---|
| Nov. 27, 2015 | 1.5 |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 13



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0554016E
4930097N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 9, 2015
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) +FIELD VANE △TORVANE ○ Qu ▲POCKET PENETROMETER ○ Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200; 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | FILL: Brown, sandy silt, trace clay, trace gravel, trace orgainc, topsoil inclusions, moist | | 1 | SS | 15 | | | | | |
| 0.70 | SAND: very dense, brown to black, silty sand, trace to some gravel, trace organics, moist | | 2 | SS | 61/240mm | | | | | |
| 1.5 | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 1.5 m | | | | | | | | | Upon completion of augering<br>No water<br>No cave<br><br>Auger probe 1.0 m north of borehole encountered refusal at 1.5 m |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 14



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0553875E
4930117N
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 10, 2015
**ENGINEER** GW
**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) +FIELD VANE △TORVANE ○Qu ▲POCKET PENETROMETER ○Q; DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST × ● | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200; 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | FILL: Brown to dark brown, silty sand to sand some silt, silt pockets, some gravel, trace organics, moist | | 1 | SS | 14 | | | | | |
| 0.70 | TILL: Compact to very dense, brown, silty sand/sandy silt, trace gravel, cobbles and boulders, moist to very moist | | 2 | SS | 18 | | | | | |
| 2.0 | | | 3 | SS | 54 | | | | | |
| 2.4 | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 2.4 m | | 4 | SS | 50/100mm | | | | | Upon completion of augering<br>No water<br>No cave<br><br>Auger probe 1.0 m west of borehole encountered refusal at 2.4 m |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |
| 6.0 | | | | | | | | | | |
| 7.0 | | | | | | | | | | |
| 8.0 | | | | | | | | | | |
| 9.0 | | | | | | | | | | |
| 10.0 | | | | | | | | | | |
| 11.0 | | | | | | | | | | |
| 12.0 | | | | | | | | | | |
| 13.0 | | | | | | | | | | |
| 14.0 | | | | | | | | | | |
| 15.0 | | | | | | | | | | |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE/MONITORING WELL NO. 15



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
**LOCATION** Town of The Blue Mountains, Ontario
**BORING METHOD** Continuous Flight Solid Stem Augers

17T 0554074E
4930135N

**BORING DATE** November 9, 2015

**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES |
|---|---|---|---|---|---|
| 0.0 | SURFACE ELEVATION | | | | |
| | FILL: Dark brown, silty sand, organic pockets, shale pieces, moist | | 1 | SS | 7 |
| | | | 2 | SS | 9 |
| 1.4 | | | | | |
| | SAND: Compact, brown, gravelly sand, some silt, trace gravel, moist to very moist | | 3 | SS | 16 |
| | | | 4 | SS | 23 |
| 2.9 | | | | | |
| | SILT: Compact to very dense, grey, silt to sandy silt, trace clay, trace gravel, very moist | | 5 | SS | 17 |
| 4.7 | | | 6 | SS | 50/100mm |
| | BOREHOLE TERMINATED AT 4.7 m | | | | |

ELEVATION SCALE

SHEAR STRENGTH (kPa)
+FIELD VANE △TORVANE ○ Qu
▲POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $W_P$ — NATURAL MOISTURE CONTENT $W$ — LIQUID LIMIT $W_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Standpipe
Bentonite Seal
19 mm slotted pipe
Filter sand

Upon completion of augering
Water at 4.4 m
No cave

Water Level Readings

| Date | Depth (m) |
|---|---|
| Nov. 27, 2015 | 3.1 |

***NOTES***

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 16



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0553882E
4930179N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 10, 2015
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) +FIELD VANE △TORVANE ○ Qu ▲POCKET PENETROMETER ○ Q 50 100 150 200 / DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST × ● 20 40 60 80 | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$ WATER CONTENT (%) 10 20 30 40 | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | | | | |
| 0.0 | | | | | | | | | | |
| 0.10 | TOPSOIL: Black, sandy silt, moist | | | | | | | | | |
| | SILT: Compact, brown, sandy silt, trace gravel, trace organics, moist | | 1 | SS | 11 | | | | | |
| 1.0 | | | 2 | SS | 19 | | | | | |
| 1.4 | SAND: Dense to very dense, brown, silty sand, some gravel, moist | | 3 | SS | 43 | | | | | |
| 2.0 | | | 4 | SS | 50/50mm | | | | | |
| 3.0 | | | | | | | | | | |
| 3.1 | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 3.1 m | | | | | | | | | Upon completion of augering<br>No water<br>No cave<br><br>Auger probe at south west side of hydro station near creek encountered refusal at 1.7 m |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |
| 6.0 | | | | | | | | | | |
| 7.0 | | | | | | | | | | |
| 8.0 | | | | | | | | | | |
| 9.0 | | | | | | | | | | |
| 10.0 | | | | | | | | | | |
| 11.0 | | | | | | | | | | |
| 12.0 | | | | | | | | | | |
| 13.0 | | | | | | | | | | |
| 14.0 | | | | | | | | | | |
| 15.0 | | | | | | | | | | |

***NOTES***

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 17



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0553938E
4930146N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 10, 2015
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES: NUMBER | SAMPLES: TYPE | SAMPLES: 'N' VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) / DYNAMIC CONE PENETRATION / STANDARD PENETRATION TEST | PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | | | | |
| 0.0 | FILL: Brown, sandy silt, trace clay, trace gravel, trace orgainc, topsoil inclusions, moist | | 1 | SS | 8 | | | | | |
| 0.70 | SAND: Very dense, black to brown, silty sand, some gravel, trace organics, moist | | 2 | SS | 43 | | | | | |
| 1.0 | | | 3 | SS | 78/160mm | | | | | |
| 2.0 | | | | | | | | | | |
| 2.1 | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 2.1 m | | | | | | | | | Upon completion of augering<br>No water<br>No cave<br><br>Auger probe 1.0 m north of borehole encountered refusal at 1.8 m |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |
| 6.0 | | | | | | | | | | |
| 7.0 | | | | | | | | | | |
| 8.0 | | | | | | | | | | |
| 9.0 | | | | | | | | | | |
| 10.0 | | | | | | | | | | |
| 11.0 | | | | | | | | | | |
| 12.0 | | | | | | | | | | |
| 13.0 | | | | | | | | | | |
| 14.0 | | | | | | | | | | |
| 15.0 | | | | | | | | | | |

SHEAR STRENGTH (kPa): + FIELD VANE △TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; 50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●; 20 40 60 80
PLASTIC LIMIT $w_P$ — NATURAL MOISTURE CONTENT $w$ — LIQUID LIMIT $w_L$
WATER CONTENT (%): 10 20 30 40

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 18



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0554121E
4930001N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 9, 2015
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES 'N' VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● | PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200; 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | FILL: Brown, sandy silt, trace clay, trace gravel, trace orgainc, topsoil inclusions, moist | | 1 | SS | 11 | | | | | |
| 0.70 | SAND: Very dense, black to brown, silty sand, trace gravel, moist | | 2 | SS | 50 | | | | | |
| 1.0 | | | | | | | | | | |
| 1.7 | | | 3 | SS | 50/140mm | | | | | |
| 2.0 | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 1.7 m | | | | | | | | | Upon completion of augering<br>No water<br>No cave<br><br>Auger probe 1.0 m west of borehole encountered refusal at 1.7 m |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |
| 6.0 | | | | | | | | | | |
| 7.0 | | | | | | | | | | |
| 8.0 | | | | | | | | | | |
| 9.0 | | | | | | | | | | |
| 10.0 | | | | | | | | | | |
| 11.0 | | | | | | | | | | |
| 12.0 | | | | | | | | | | |
| 13.0 | | | | | | | | | | |
| 14.0 | | | | | | | | | | |
| 15.0 | | | | | | | | | | |

***NOTES***

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 19



**PROJECT** Proposed Residential Subdivision - 161 Lakeshore Road East
17T 0554313E
4929943N
**PML REF.** 15BF041

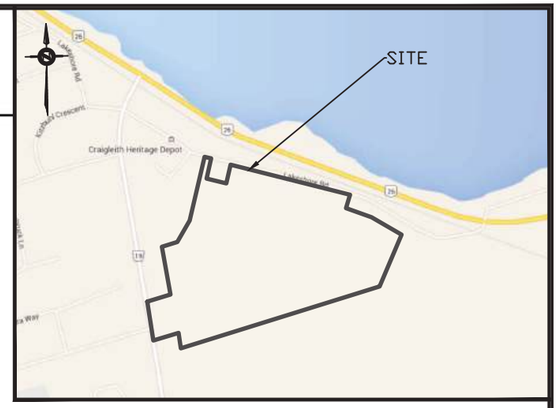
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 9, 2015
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) + FIELD VANE △TORVANE ○ Qu ▲POCKET PENETROMETER ○ Q; DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST × ● | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200; 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | FILL: Brown, sandy silt, trace clay, trace gravel, trace orgainc, topsoil inclusions, moist | | 1 | SS | 5 | | | | | |
| 0.70 | SILT: Compact, brown to black, sandy silt, trace clay, trace gravel, trace organics, very moist | | 2 | SS | 17 | | | | | |
| 1.0 | Some gravel, shale pieces | | 3 | SS | 21 | | | | | |
| 2.1 | SAND: Compact, brown to dark grey, sand, trace to some silt, trace gravel, wet | | 4 | SS | 15 | | | | | |
| 3.0 | | | 5 | SS | 20 | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | 6 | SS | 22 | | | | | |
| 5.0 | BOREHOLE TERMINATED AT 5.0 m | | | | | | | | | Upon completion of augering Water at 2.4 m Cave at 2.8 m |
| 6.0 | | | | | | | | | | |
| 7.0 | | | | | | | | | | |
| 8.0 | | | | | | | | | | |
| 9.0 | | | | | | | | | | |
| 10.0 | | | | | | | | | | |
| 11.0 | | | | | | | | | | |
| 12.0 | | | | | | | | | | |
| 13.0 | | | | | | | | | | |
| 14.0 | | | | | | | | | | |
| 15.0 | | | | | | | | | | |

**NOTES**




KEY PLAN
TOWN OF BLUE MOUNTAINS, ONTARIO

LEGEND:

- SITE LIMITS
- BH 1 — BOREHOLE 1
- BH 2 — BOREHOLE 2 (WITH MONITORING WELL)
- BH 8 — BOREHOLE 8 (WITH STANDPIPE)

REFERENCE:

BASE PLAN PROVIDED BY CLIENT.

BOREHOLE LOCATIONS WERE STAKED UPON DRILLING COMPLETION IN THE FIELD FOR SUBSEQUENT HORIZONTAL AND VERTICAL TIE IN BY THE CLIENT.

0m 40 80 120 160 200

SCALE

# BOREHOLE LOCATION PLAN

PROPOSED RESIDENTIAL SUBDIVISION
161 LAKESHORE ROAD EAST
TOWN OF BLUE MOUNTAINS, ONTARIO

Peto MacCallum Ltd.
CONSULTING ENGINEERS

| | | DATE | SCALE | PML REF. | DRAWING NO. |
|---|---|---|---|---|---|
| DRAWN | RB | DEC. 2015 | AS SHOWN | 15BF041 | 2–1 |
| CHECKED | GRW | | | | |
| APPROVED | GRW | | | | |

# APPENDIX A

Engineered Fill

# *ENGINEERED FILL*

The information presented in this appendix is intended for general guidance only. Site specific conditions and prevailing weather may require modification of compaction standards, backfill type or procedures. Each site must be discussed, and procedures agreed with Peto MacCallum Ltd. prior to the start of the earthworks and must be subject to ongoing review during construction. This appendix is not intended to apply to embankments. Steeply sloping ravine residential lots require special consideration.

For fill to be classified as engineered fill suitable for supporting structural loads, a number of conditions must be satisfied, including but not necessarily limited to the following:

1. Purpose

The site specific purpose of the engineered fill must be recognized. In advance of construction, all parties should discuss the project and its requirements and agree on an appropriate set of standards and procedures.

2. Minimum Extent

The engineered fill envelope must extend beyond the footprint of the structure to be supported. The minimum extent of the envelope should be defined from a geotechnical perspective by:

- at founding level, extend a minimum 1.0 m beyond the outer edge of the foundations, greater if adequate layout has not yet been completed as noted below; and

- extend downward and outward at a slope no greater than 45° to meet the subgrade

All fill within the envelope established above must meet the requirements of engineered fill in order to support the structure safely. Other considerations such as survey control, or construction methods may require an envelope that is larger, as noted in the following sections.

Once the minimum envelope has been established, structures must not be moved or extended without consultation with Peto MacCallum Ltd. Similarly, Peto MacCallum Ltd. should be consulted prior to any excavation within the minimum envelope.

3. Survey Control

Accurate survey control is essential to the success of an engineered fill project. The boundaries of the engineered fill must be laid out by a surveyor in consultation with engineering staff from Peto MacCallum Ltd. Careful consideration of the maximum building envelope is required.

During construction it is necessary to have a qualified surveyor provide total station control on the three dimensional extent of filling.

4. Subsurface Preparation

Prior to placement of fill, the subgrade must be prepared to the satisfaction of Peto MacCallum Ltd. All deleterious material must be removed and in some cases, excavation of native mineral soils may be required.

Particular attention must be paid to wet subgrades and possible additional measures required to achieve sufficient compaction. Where fill is placed against a slope, benching may be necessary and natural drainage paths must not be blocked.

5. Suitable Fill Materials

All material to be used as fill must be approved by Peto MacCallum Ltd. Such approval will be influenced by many factors and must be site and project specific. External fill sources must be sampled, tested and approved prior to material being hauled to site.

6. Test Section

In advance of the start of construction of the engineered fill pad, the Contractor should conduct a test section. The compaction criterion will be assessed in consultation with Peto MacCallum Ltd. for the various fill material types using different lift thicknesses and number of passes for the compaction equipment proposed by the Contractor.

Additional test sections may be required throughout the course of the project to reflect changes in fill sources, natural moisture content of the material and weather conditions.

The Contractor should be particularly aware of changes in the moisture content of fill material. Site review by Peto MacCallum Ltd. is required to ensure the desired lift thickness is maintained and that each lift is systematically compacted, tested and approved before a subsequent lift is commenced.

7. Inspection and Testing

Uniform, thorough compaction is crucial to the performance of the engineered fill and the supported structure. Hence, all subgrade preparation, filling and compacting must be carried out under the full time inspection by Peto MacCallum Ltd.

All founding surfaces for all buildings and residential dwellings or any part thereof (including but not limited to footings and floor slabs) on structural fill or native soils must be inspected and approved by PML engineering personnel prior to placement of the base/subbase granular material and/or concrete. The purpose of the inspection is to ensure the subgrade soils are capable of supporting the building/house foundation and floor slab loads and to confirm the building/house envelope does not extend beyond the limits of any structural fill pads.

8. Protection of Fill

Fill is generally more susceptible to the effects of weather than natural soil. Fill placed and approved to the level at which structural support is required must be protected from excessive wetting, drying, erosion or freezing. Where adequate protection has not been provided, it may be necessary to provide deeper footings or to strip and recompact some of the fill.

9. Construction Delay Time Considerations

The integrity of the fill pad can deteriorate due to the harsh effects of our Canadian weather. Hence, particular care must be taken if the fill pad is constructed over a long time period.

It is necessary therefore, that all fill sources are tested to ensure the material compactability prior to the soil arriving at site. When there has been a lengthy delay between construction periods of the fill pad, it is necessary to conduct subgrade proof rolling, test pits or boreholes to verify the adequacy of the exposed subgrade to accept new fill material.

When the fill pad will be constructed over a lengthy period of time, a field survey should be completed at the end of each construction season to verify the areal extent and the level at which the compacted fill has been brought up to, tested and approved.

In the following spring, subexcavation may be necessary if the fill pad has been softened attributable to ponded surface water or freeze/thaw cycles.

A new survey is required at the beginning of the next construction season to verify that random dumping and/or spreading of fill has not been carried out at the site.

10. Approved Fill Pad Surveillance

It should be appreciated that once the fill pad has been brought to final grade and documented by field survey, there must be ongoing surveillance to ensure that the integrity of the fill pad is not threatened.

Grading operations adjacent to fill pads can often take place several months or years after completion of the fill pad.

It is imperative that all site management and supervision staff, the staff of Contractors and earthwork operators be fully aware of the boundaries of all approved engineered fill pads.

Excavation into an approved engineered fill pad should never be contemplated without the full knowledge, approval and documentation by the geotechnical consultant.

If the fill pad is knowingly built several years in advance of ultimate construction, the areal limits of the fill pad should be substantially overbuilt laterally to allow for changes in possible structure location and elevation and other earthwork operations and competing interests on the site. The overbuilt distance required is project and/or site specified.

Iron bars should be placed at the corner/intermediate points of the fill pad as a permanent record of the approved limits of the work for record keeping purposes.

11. Unusual Working Conditions

Construction of fill pads may at times take place at night and/or during periods of freezing weather conditions because of the requirements of the project schedule. It should be appreciated therefore, that both situations present more difficult working conditions. The Owner, Contractor, Design Consultant and Geotechnical Engineer must be willing to work together to revise site construction procedures, enhance field testing and surveillance, and incorporate design modifications as necessary to suit site conditions.

When working at night there must be sufficient artificial light to properly illuminate the fill pad and borrow areas.

Placement of material to form an engineered fill pad during winter and freezing temperatures has its own special conditions that must be addressed. It is imperative that each day prior to placement of new fill, the exposed subgrade must be inspected and any overnight snow or frozen material removed. Particular attention should be given to the borrow source inspection to ensure only nonfrozen fill is brought to the site.

The Contractor must continually assess the work program and have the necessary spreading and compacting equipment to ensure that densification of the fill material takes place in a minimum amount of time. Changes may be required to the spreading methods, lift thickness, and compaction techniques to ensure the desired compaction is achieved uniformly throughout each fill lift.

The Contractor should adequately protect the subgrade at the end of each shift to minimize frost penetration overnight. Since water cannot be added to the fill material to facilitate compaction, it is imperative that densification of the fill be achieved by additional compaction effort and an appropriate reduced lift thickness. Once the fill pad has been completed, it must be properly protected from freezing temperatures and ponding of water during the spring thaw period.

If the pad is unusually thick or if the fill thickness varies dramatically across the width or length of the fill pad, Peto MacCallum Ltd. should be consulted for additional recommendations. In this case, alternative special provisions may be recommended, such as providing a surcharge preload for a limited time or increase the degree of compaction of the fill.

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# SUPPLEMENTAL GEOTECHNICAL INVESTIGATION
# PROPOSED RESIDENTIAL SUBDIVISION
# CRAIGLEITH RIDGE
# 209621 HIGHWAY 26 AND 208 LAKESHORE ROAD EAST
# TOWN OF THE BLUE MOUNTAINS, ONTARIO

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2 cc: Parkbridge Lifestyle Communities Inc. (+email)
1 cc: PML Barrie

PML Ref.: 15BF041
Report: 4 Revised
January 2018

Peto MacCallum Ltd.
CONSULTING ENGINEERS

January 23, 2018

PML Ref.: 15BF041
Report: 4 Revised

Mr. Michael Sproule, C.E.T.
Parkbridge Lifestyle Communities Inc.
85 Theme Park Drive
Wasaga Beach, Ontario
L9Z 1X7

Dear Mr. Sproule

**Supplemental Geotechnical Investigation**
**Proposed Residential Subdivision**
**Craigleith Ridge**
**209621 Highway 26 and 208 Lakeshore Road East**
**Town of The Blue Mountains, Ontario**

Peto MacCallum Ltd. (PML) is pleased to present the results of the supplemental geotechnical investigation recently completed at the above noted project site. Authorization for this assignment was provided by Mr. R. Wagner, in the signed Engineering Services Agreement Change Order 4, dated October 23, 2017.

Parkbridge is planning an approximate 211 lot residential subdivision for the approximate 25 Ha parcel of land at 209621 Highway 26 & 208 Lakeshore Road East, in the Town of Blue Mountains. The site is terraced comprising low lying ground in the northern portion, with frontage on Lakeshore Road East, rising some 15 to 20 m up the Niagara Escarpment in the south part of the site. The southwest part of the site has limited frontage along Grey Road 19. The configuration is shown on Drawing 4-1, appended, however grading has yet to be finalized for all parts of the subdivision. It is understood that site servicing is proposed and full depth basements are preferred.

Reference is made to Report 2, dated December 7, 2015, where a geotechnical investigation was conducted and geotechnical engineering recommendations for the proposed development were provided.

The purpose of this supplemental borehole investigation was to obtain more detailed subsurface information for the entire site, and based on this information, provide any revisions to the recommendations provided in Report 2.

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*E-mail: barrie@petomaccallum.com*
*BARRIE, COLLINGWOOD, HAMILTON, KITCHENER, LONDON, TORONTO*

## INVESTIGATION PROCEDURES

The field work for this supplemental investigation was carried out on November 16 and 17, 2017, and consisted of Boreholes 101 to 110 drilled to depths of 0.9 to 5.0 m. The borehole locations are shown on the Borehole Location Plan, Drawing 4-1, appended. The boreholes from the previous investigation are also shown.

The boreholes were established in the field by PML. Co-ordination for clearances of underground public utilities was provided by PML. The boreholes were drilled cognizant of underground utilities.

The boreholes were advanced using continuous flight solid stem augers, powered by a rubber tire mounted CME-75 drill rig, equipped with an automatic hammer, supplied and operated by a specialist drilling contractor working under the full time supervision of a member of PML's engineering staff.

Representative samples of the overburden in the boreholes were recovered at frequent depth intervals for identification purposes using a conventional split spoon sampler. Standard penetration tests were carried out simultaneously with the sampling operations to assess the strength characteristics of the substrata. The ground water conditions in the boreholes were assessed during drilling by visual examination of the soil samples, the sampler, and drill rods as the samples were retrieved, and measurement of the water level in the open boreholes, if any.

The boreholes were backfilled in accordance with O.Reg. 903.

All recovered soil samples were returned to our laboratory for moisture content determinations and detailed examination to confirm field classification.

## SUMMARIZED SUBSURFACE CONDITIONS

Reference is made to the appended Log of Borehole sheet for details of the subsurface conditions, including soil classifications, inferred stratigraphy, Standard Penetration test N values, ground water observations and the results of laboratory moisture content determinations.

Due to the soil sampling procedures and limited sample size, the depth demarcations on the borehole logs must be viewed as "transitional" zones between layers, and cannot be construed as exact geologic boundaries between layers. PML should be retained to assist in determining geologic boundaries in the field during construction, if required.

### Elevated Southern Part of the Site – Boreholes 101 to 103

The stratigraphy revealed in the initial boreholes carried out for Report 2, comprised topsoil over local layers of silt and sand, over a major till deposit. The soils were typically dense to very dense and ground water was only noted in one borehole.

Boreholes 101 to 103 from the supplemental investigation revealed similar subsurface conditions as summarized below.

A topsoil mantle was at the surface and was 100 to 150 mm thick.

A sandy silt or silty sand unit was below the topsoil extending to 0.7 to 1.4 m depth in all three boreholes. The sandy silt was loose and the silty sand was very loose to very dense. The material was moist with moisture contents of 3 to 18%.

The major till deposit underlying the topsoil and upper soil units comprised silty sand to sandy silt with some gravel. Cobbles and boulders were noted. The till extended to the 4.7 to 5.0 m depth of investigation. The till was dense to very dense and moist with moisture contents of 5 to 11%.

Upon completion of augering, all three boreholes wet dry.

Ground water levels will fluctuate seasonally, and in response to variations in precipitation.

**Lower Lying Northern Part of the Site – Boreholes 104 to 110**

The stratigraphy revealed in the initial boreholes carried out for Report 2 was variable. Below the topsoil, the stratigraphic sequence comprised surficial fill (due to grooming of the fields for archeological purposes) over deposits of sand, silt and till, locally clayey silt or sand and silt, over areas where auger refusal was encountered, assumed to be shallow bedrock or boulders. The stabilized ground water level is believed to be about 1.5 to 3.0 m below existing grade.

Boreholes 104 to 110 from the supplemental investigation revealed similar subsurface conditions as summarized below.

The topsoil at the surface of the boreholes, except Borehole 109, and was 100 to 150 mm thick.

At the surface of Borehole 109 a thin fill layer was present to 0.2 m depth. The fill comprised silty sand which was moist with a moisture content of about 6%.

A sand layer was noted underlying the topsoil in Boreholes 106, 109 and 110 and extended to 2.1 to 2.9 m depth. The layer contained trace to some silt and gravel. The sand was very loose to very dense with depth and typically moist to wet with depth. Moisture contents ranged from 5 to 21%.

A silt or sandy silt unit was revealed in Boreholes 104 to 106, 107 and 110. A single layer was noted in Boreholes 105, 106 and 110, from 0.1 to 2.1 m depth and extending to 1.4 to 3.7 m depth. Two layers were noted in Boreholes 104 and 107, from beneath the topsoil to 1.4 m depth and again from 2.1 or 2.9 m depth to the 4.3 m depth of the boreholes. The layers ranged from loose to very dense. Moisture contents ranged from 6 to 24%, moist to very moist.

A till layer was noted in all boreholes at varying depths. The till was typically 1.0 to 2.0 m thick and comprised silty sand to sandy silt with some grave and trace clay. Cobbles and boulders were noted. The material was compact to very dense, typically with depth, and moist with moisture contents of 5 to 15%.

Auger refusal was encountered in Boreholes 104, and 107 to 109 between 0.9 and 4.3 m depth. Auger refusal is assumed to reflect shallow bedrock common to the area however, may also be due to boulders in the till soils.

A review of MOECC well records within about 300 m of the site revealed shale and/or limestone bedrock as shallow as 1.5 m.

It is noted that Rotary diamond coring is typically recommended to prove out bedrock. In this case it is further noted that bedrock, typically limestone, was encountered in some of the test pits from Report 1 at similar depths as noted above.

The following table provides the first water strike depths and the water level upon completion of augering.

| BOREHOLE | FIRST WATER STRIKE (Depth m) | WATER LEVEL UPON COMPLETION (Depth m) |
|---|---|---|
| 104 | 2.1 | 3.0 |
| 105 | No Water | No Water |
| 106 | No Water | No Water |
| 107 | 2.1 | 4.1 |
| 108 | No water | No Water |
| 109 | 2.1 | 1.5 |
| 110 | 2.1 | 3.0 |

Based on the data above, the stabilized water level is estimated to be 1.5 to 2.0 m below existing grade.

Ground water levels will fluctuate seasonally, and in response to variations in precipitation.

## GEOTECHNICAL ENGINEERING CONSIDERATIONS

### Elevated Southern Part of the Site

The subsurface conditions revealed in supplemental Boreholes 101 to 103 in the higher grounds in the southern part of the site were consistent with the initial boreholes carried out for Report 2. As such the recommendations provided in Report 2 for the elevated southern lands are still considered applicable.

### Lower Lying Northern Part of the Site

Similar to the higher grounds to the south, the subsurface conditions revealed in supplemental Boreholes 104 to 110 in the lower lying lands in the northern part of the site were generally consistent with the initial boreholes carried out for Report 2. As such the recommendations provided in Report 2 for the elevated southern lands are still considered applicable, except as follows.

The Storm Water Management (SWM) pond has been shifted to the east half of the low lying lands in the north.

Borehole 109 was advanced in the new location of the SWM pond. Below a 200 mm layer of surficial fill, a native sand deposit was revealed to 2.9 m depth. The sand was very loose to very dense with depth and moist to wet with depth (moisture contents of 6 to 14%). Below the sand to the 4.0 m depth (where auger refusal was encountered) a till deposit was present comprising a silty sand/sandy silt matrix with some gravel and trace clay. Cobbles and boulders were noted. Auger refusal could have been on assumed shallow bedrock common to the area or boulders in the till. First water strike was noted at 2.1 m depth and water in the borehole upon completion was at 1.5 m depth.

At the time of this report, the SWM pond design was not established. The general comments and recommendations provided in Report 2 are provided below and have been revised accordingly. When final grading and details of the pond are established they should be submitted to PML for geotechnical review:

- A maximum proposed depth of 1.0 m below existing grade should be considered to keep the pond base above the ground water level to allow for ease of excavation/construction and so that the capacity of the pond is not compromised by ground water. Excavation below the ground water table will require dewatering and ground water will have to be considered in the capacity design. The permeability of the in-situ sand is estimated to be $10^{-2}$ to $10^{-3}$ cm/sec and the underlying till is about $10^{-4}$ to $10^{-5}$ cm/sec;

- Berms should be constructed as engineered fill, using select material, compacted to 95% Standard Proctor maximum dry density as discussed earlier in the report;

- For storm water retention or to maintain a permanent pool level, an impermeable pond liner will be needed (permeability of $10^{-6}$ cm/sec or less). Interior side slopes for ponds should be no steeper than 5 horizontal to 1 vertical (5H:1V) with exterior side slopes no steeper than 3H:1V. Vegetation cover, granular blanket, rip rap or the likes will be required for erosion control.

- Maintenance of the side slopes will be required until vegetation, rip rap and/or other protective measures have taken root or have been installed.

## CLOSURE

We trust this report is complete within our terms of reference, and the information presented is sufficient for your present purposes. If you have any questions, or when we may be of further assistance, please do not hesitate to call our office.

Sincerely

Peto MacCallum Ltd.

Geoffrey R. White, P.Eng.
Associate
Manager, Geotechnical and Geoenvironmental Services

GRW:jlb

Enclosure(s):
List of Abbreviations
Log of Borehole Nos. 101 to 110
Drawing No. 4-1 - Borehole Location Plan

# LIST OF ABBREVIATIONS

## PENETRATION RESISTANCE

Standard Penetration Resistance N: - The number of blows required to advance a standard split spoon sampler 0.3 m into the subsoil. Driven by means of a 63.5 kg hammer falling freely a distance of 0.76 m.

Dynamic Penetration Resistance: - The number of blows required to advance a 51 mm, 60 degree cone, fitted to the end of drill rods, 0.3 m into the subsoil. The driving energy being 475 J per blow.

## DESCRIPTION OF SOIL

The consistency of cohesive soils and the relative density or denseness of cohesionless soils are described in the following terms:

| CONSISTENCY | N (blows/0.3 m) | c (kPa) | DENSENESS | N (blows/0.3 m) |
|---|---|---|---|---|
| Very Soft | 0 - 2 | 0 - 12 | Very Loose | 0 - 4 |
| Soft | 2 - 4 | 12 - 25 | Loose | 4 - 10 |
| Firm | 4 - 8 | 25 - 50 | Compact | 10 - 30 |
| Stiff | 8 - 15 | 50 - 100 | Dense | 30 - 50 |
| Very Stiff | 15 - 30 | 100 - 200 | Very Dense | > 50 |
| Hard | > 30 | > 200 | | |

| | |
|---|---|
| WTPL | Wetter Than Plastic Limit |
| APL | About Plastic Limit |
| DTPL | Drier Than Plastic Limit |

## TYPE OF SAMPLE

| | | | |
|---|---|---|---|
| SS | Split Spoon | ST | Slotted Tube Sample |
| WS | Washed Sample | TW | Thinwall Open |
| SB | Scraper Bucket Sample | TP | Thinwall Piston |
| AS | Auger Sample | OS | Oesterberg Sample |
| CS | Chunk Sample | FS | Foil Sample |
| GS | Grab Sample | RC | Rock Core |

| | |
|---|---|
| PH | Sample Advanced Hydraulically |
| PM | Sample Advanced Manually |

## SOIL TESTS

| | | | |
|---|---|---|---|
| Qu | Unconfined Compression | LV | Laboratory Vane |
| Q | Undrained Triaxial | FV | Field Vane |
| Qcu | Consolidated Undrained Triaxial | C | Consolidation |
| Qd | Drained Triaxial | | |

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 101



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
17T 0553738E
4929836N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 16, 2017
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** WP

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES |
|---|---|---|---|---|---|
| 0.0 | SURFACE ELEVATION | | | | |
| 0.12 | TOPSOIL: Dark Brown, silty sand, trace gravel, moist | | 1 | SS | 6 |
| 0.7 | SANDY SILT: Loose, brown, sandy silt, trace clay, moist | | | | |
| 1.0 | TILL: Dense to very dense, brown to grey, silty sand/sandy silt, some gravel, cobbles and boulders, moist | | 2 | SS | 41 |
| | | | 3 | SS | 74/250mm |
| 2.0 | | | 4 | SS | 98/250mm |
| 3.0 | | | 5 | SS | 76/270mm |
| 4.0 | | | | | |
| 4.7 | | | 6 | SS | 50/100mm |
| | BOREHOLE TERMINATED AT 4.7 m | | | | |
| 5.0 | | | | | |
| 6.0 | | | | | |
| 7.0 | | | | | |
| 8.0 | | | | | |
| 9.0 | | | | | |
| 10.0 | | | | | |
| 11.0 | | | | | |
| 12.0 | | | | | |
| 13.0 | | | | | |
| 14.0 | | | | | |
| 15.0 | | | | | |

ELEVATION SCALE

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE ○ Qu
▲ POCKET PENETROMETER O Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS

GRAIN SIZE DISTRIBUTION (%)
GR SA SI&CL

Upon completion of sugering
No water
No cave

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 102



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
17T 0553787E
4929692N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 16, 2017
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** WP

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) + FIELD VANE △TORVANE ○ Qu ▲ POCKET PENETROMETER O Q; DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ● | PLASTIC LIMIT $W_P$ / NATURAL MOISTURE CONTENT $W$ / LIQUID LIMIT $W_L$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200 / 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | 0.10 TOPSOIL: Dark brown, silty sand, trace gravel, moist | | 1 | SS | 6 | | | | | |
| | 0.7 SANDY SILT: Loose, brown, sandy silt, trace gravel, trace clay, moist | | | | | | | | | |
| 1.0 | TILL: Dense to very dense, brown to grey, silty sand/sandy silt, some gravel, cobbles and boulders, moist | | 2 | SS | 49 | | | | | |
| 2.0 | | | 3 | SS | 75/230mm | | | | | |
| | | | 4 | SS | 84/250mm | | | | | |
| 3.0 | | | 5 | SS | 82 | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | 5.0 | | 6 | SS | 58 | | | | | |
| | BOREHOLE TERMINATED AT 5.0 m | | | | | | | | | Upon completion of augering No water No cave |
| 6.0 | | | | | | | | | | |
| 7.0 | | | | | | | | | | |
| 8.0 | | | | | | | | | | |
| 9.0 | | | | | | | | | | |
| 10.0 | | | | | | | | | | |
| 11.0 | | | | | | | | | | |
| 12.0 | | | | | | | | | | |
| 13.0 | | | | | | | | | | |
| 14.0 | | | | | | | | | | |
| 15.0 | | | | | | | | | | |

***NOTES***

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 103



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
17T 0553894E
4929728N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 16, 2017
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** WP

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) / DYNAMIC CONE PENETRATION / STANDARD PENETRATION TEST | PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | | | | |
| 0.2 | TOPSOIL: Dark Brown, silty sand, trace gravel, moist | | 1 | SS | 2 | | | | | |
| | SILTY SAND: Very loose to very dense, brown, silty sand, trace to some gravel, moist | | 2 | SS | 67 | | | | | |
| | | | 3 | SS | 50/100mm | | | | | |
| 2.1 | TILL: Very dense, grey, silty sand/sandy silt, some gravel, cobbles and boulders, moist | | 4 | SS | 50/100mm | | | | | |
| | | | 5 | SS | 97/200mm | | | | | |
| 4.7 | | | 6 | SS | 50/80mm | | | | | |
| | BOREHOLE TERMINATED AT 4.7 m | | | | | | | | | Upon completion of augering<br>No water<br>No cave |

SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; 50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80
PLASTIC LIMIT $w_P$ — NATURAL MOISTURE CONTENT $w$ — LIQUID LIMIT $w_L$
WATER CONTENT (%): 10 20 30 40

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 104



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
17T 0554503E
4929897N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 16, 2017
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** WP

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | TYPE | "N" VALUES |
|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | |
| 0.0 / 0.2 | TOPSOIL: Dark brown, silty sand, some gravel, moist | | 1 | SS | 17 |
| | SILT: Compact, brown, sandy silt, trace gravel, trace clay, moist | | 2 | SS | 29 |
| 1.4 | TILL: Compact to very dense, brown to grey, silty sand/sandy silt, some gravel, trace clay, cobbles and boulders, moist | | 3 | SS | 23 |
| | | | 4 | SS | 50/80mm |
| 2.9 | SILT: Dense, grey, silt, some sand, some gravel, moist | | 5 | SS | 40 |
| 4.3 | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 4.3 m | | | | |

ELEVATION SCALE: 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE ○ Qu
▲ POCKET PENETROMETER O Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
First water strike at 2.1 m
Upon completion of augering
Water at 3.0 m
No cave

GRAIN SIZE DISTRIBUTION (%)
GR SA SI&CL

***NOTES***

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 105



17T 0554590E
4929794N

**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**LOCATION** Town of The Blue Mountains, Ontario
**BORING METHOD** Continuous Flight Solid Stem Augers
**BORING DATE** November 16, 2017
**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** WP

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | NUMBER | TYPE | "N" VALUES |
|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | |
| 0.10 | TOPSOIL: Dark brown, silt, some sand, trace gravel, moist | | 1 | SS | 13 |
| | SILT: Compact to dense, brown, sandy silt, trace gravel, trace clay, moist | | 2 | SS | 36 |
| 1.4 | TILL: Very dense, brown, silty sand/sandy silt, some gravel, trace clay, cobbles and boulders, moist | | 3 | SS | 60 |
| | | | 4 | SS | 50/80mm |
| | | | 5 | SS | 50/30mm |
| 4.6 | | | 6 | SS | 50/Bouncing |
| | BOREHOLE TERMINATED AT 4.6 m | | | | |

ELEVATION SCALE

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE ○ Qu
▲ POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS

GRAIN SIZE DISTRIBUTION (%)
GR SA SI&CL

Upon completion of augering
No water
No cave

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 106



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
17T 0554105E
4929995N
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 17, 2017
**ENGINEER** GW
**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** WP

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES |
|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | |
| 0.0 | TOPSOIL: Dark brown, silt, some sand, trace gravel, moist | | 1 | SS | 4 |
| 0.12 | SAND: Loose to very dense, dark brown, sand, some gravel, some silt, cobbles, moist | | 2 | SS | 16 |
| 1.0 | | | 3 | SS | 67 |
| 2.1 | SILT: Very dense, brown, silt, trace sand, trace gravel, moist | | 4 | SS | 75 |
| 2.9 | TILL: Very dense, brown to grey, silty sand/sandy silt, some gravel, trace clay, cobbles and boulders, moist | | 5 | SS | 65 |
| 4.8 | BOREHOLE TERMINATED AT 4.8 m | | 6 | SS | 65/220mm |

ELEVATION SCALE

SHEAR STRENGTH (kPa)
+ FIELD VANE △TORVANE ○ Qu
▲ POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%)
GR SA SI&CL

Upon completion of augering
No water
No cave

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 107



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
17T 0553843E
4930114N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 17, 2017
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** WP

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE |
|---|---|---|---|---|---|---|
| 0.0 | SURFACE ELEVATION | | | | | |
| 0.12 | TOPSOIL: Dark brown, silty, trace sand, moist | | 1 | SS | 4 | |
| | SANDY SILT: Loose to dense, brown, sandy silt, trace gravel, trace clay, very moist to moist | | 2 | SS | 36 | |
| 1.4 | | | | | | |
| | TILL: Very dense, grey, sandy silt, trace gravel, cobbles and boulders, moist | | 3 | SS | 79 | |
| 2.1 | | | | | | |
| | SANDY SILT: Very dense, grey, sandy silt, sand seam, moist to wet | | 4 | SS | 75 | |
| | | | 5 | SS | 78/200mm | |
| 4.3 | | | | | | |
| | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 4.3 m | | | | | |

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE ○ Qu
▲ POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL

First water strike at 2.1 m

Upon completion of augering
Wet cave at 4.1 m

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 108



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
17T 0554027E
4930057N
**PML REF.** 15BF041

**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** November 17, 2017
**ENGINEER** GW

**BORING METHOD** Continuous Flight Solid Stem Augers
**TECHNICIAN** WP

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200 / 20 40 60 80 | 10 20 30 40 | | |
| 0.12 | TOPSOIL: Dark brown, silt, some sand, trace gravel, moist | | 1 | SS | 7 | | ● | ○ | | |
| 0.9 | TILL: Very dense, brown, silty sand/sandy silt, some gravel, trace clay, cobbles and boulders, moist | | 2 | SS | 50/Bouncing | | >> | | | |
| | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 0.9 m | | | | | | | | | Upon completion of augering<br>No water<br>No cave |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 109



17T 0554223E
4930120N

**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**LOCATION** Town of The Blue Mountains, Ontario
**BORING METHOD** Continuous Flight Solid Stem Augers
**BORING DATE** November 17, 2017
**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** WP

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | |
| 0.2 | FILL: Dark brown, silty sand, trace gravel, moist | | 1 | SS | 3 | |
| | SAND: Very loose to very dense, brown, sand, trace to some gravel, trace to some silt, moist to wet | | 2 | SS | 14 | |
| | | | 3 | SS | 56 | |
| | | | 4 | SS | 44 | First water strike at 2.1 m |
| 2.9 | | | | | | |
| | TILL: Compact, grey, silty sand/sandy silt, some gravel, trace clay, cobbles and boulders, moist | | 5 | SS | 21 | |
| 4.0 | BOREHOLE TERMINATED UPON REFUSAL TO AUGER AT 4.0 m | | | | | Upon completion of augering Water at 1.5 m Cave at 2.1 m |

ELEVATION SCALE: 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE ○ Qu
▲ POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

***NOTES***

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF BOREHOLE NO. 110



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**LOCATION** Town of The Blue Mountains, Ontario
**BORING METHOD** Continuous Flight Solid Stem Augers

17T 0554244E
4930046N

**BORING DATE** November 17, 2017

**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** WP

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA Si&Cl |
|---|---|---|---|---|---|---|
| 0.0 | SURFACE ELEVATION | | | | | |
| 0.10 | TOPSOIL: Dark brown, sand, some silt, moist | | 1 | SS | 3 | |
| | SAND: Very loose to compact, brown, sand, trace to some silt, moist to wet | | 2 | SS | 9 | |
| | | | 3 | SS | 16 | |
| 2.1 | SILT: Compact to dense, grey, silt, trace sand, moist | | 4 | SS | 33 | First water strike at 2.1 m |
| | | | 5 | SS | 22 | |
| 3.7 | TILL: Compact, grey, silty sand/sandy silt, some gravel, trace clay, cobbles and boulders, moist | | 6 | SS | 12 | |
| 5.0 | BOREHOLE TERMINATED AT 5.0 m | | | | | Upon completion of augering Wet cave at 3.0 m |

ELEVATION SCALE

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE ○ Qu
▲ POCKET PENETROMETER ○ Q
50 100 150 200

DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT $w_P$ | NATURAL MOISTURE CONTENT $w$ | LIQUID LIMIT $w_L$
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

***NOTES***

PHASE III

C LAKESIDE COURTS
Total 76 units

A HILLSIDE GROVES
Total 12 units

B HILLSIDE COURTS
Total 65 units

PHASE I

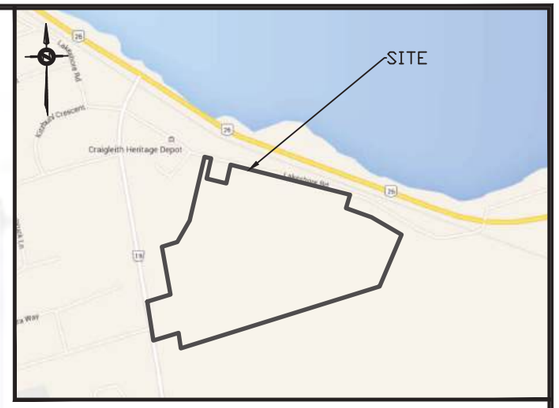
PHASE II

D CREEKSIDE COURTS
Total 50 units

GREY ROAD No. 19

HIGHWAY No. 26

BH 1
BH 2
BH 3
BH 4
BH 5
BH 6
BH 7
BH 8
BH 9
BH 10
BH 11
BH 12
BH 13
BH 14
BH 15
BH 16
BH 17
BH 18
BH 19
BH 101
BH 102
BH 103
BH 104
BH 105
BH 106
BH 107
BH 108
BH 109
BH 110




KEY PLAN
TOWN OF BLUE MOUNTAINS, ONTARIO

LEGEND:

- SITE LIMITS
- BH 101 — BOREHOLE 101 (THIS REPORT 4)
- BH 2 — BOREHOLE 2 (WITH MONITORING WELL) (REPORT 2)
- BH 101 — BOREHOLE 1 (REPORT 2)

REFERENCE:

BASE PLAN PROVIDED BY CLIENT.

KEY PLAN PRODUCED USING GOOGLE MAPS, DECEMBER 2017.

0m 40 80 120 160 200

# BOREHOLE LOCATION PLAN

PROPOSED RESIDENTIAL SUBDIVISION
CRAIGLEITH RIDGE
TOWN OF BLUE MOUNTAINS, ONTARIO

Peto MacCallum Ltd.
CONSULTING ENGINEERS

| | | | | | |
|---|---|---|---|---|---|
| DRAWN | WP | DATE | SCALE | PML REF. | DRAWING NO. |
| CHECKED | GW | JAN. 2018 | AS SHOWN | 15BF041 | 4–1 |
| APPROVED | GW | | | | |

Peto MacCallum Ltd.
CONSULTING ENGINEERS

June 25, 2019 PML Ref.: 15BF041
Report: 5

Mr. Jay Beech, C.E.T.
Parkbridge Lifestyle Communities Inc.
85 Theme Park Drive
Wasaga Beach, Ontario
L4M 4T5

Dear Mr. Beech

**Supplemental Test Pit Investigation**
**Proposed Residential Subdivision**
**Craigleith Ridge**
**209621 Highway 26 and 208 Lakeshore Road East**
**Town of Blue Mountains, Ontario**

Peto MacCallum Ltd. (PML) is pleased to present the results of the supplemental test pit investigation recently completed at the above noted project site. Authorization for this work was provided by Mr. J. Beech, in an email dated May 10, 2019.

Parkbridge is planning an approximate 211 lot residential subdivision for the approximate 25 ha parcel of land at 209621 Highway 26 & 208 Lakeshore Road East, in the Town of Blue Mountains. The site is terraced comprising low lying ground in the northern portion, with frontage on Lakeshore Road East, rising some 15 to 20 m up the Niagara Escarpment in the south part of the site. The southwest part of the site has limited frontage along Grey Road 19. It is understood that site servicing is proposed and full-depth basements are preferred.

Reference is made to Report 1, dated August 24, 2015, Report 2, dated December 7, 2015, and Report 4 Revised, dated January 23, 2018, where test pits and boreholes where advanced for the project to determine the subsurface conditions at the site and geotechnical recommendations were provided.

Some of the test pits and boreholes in the lower portion of the site were terminated on bedrock and further factual information regarding the depth of bedrock throughout the lower portion of the site was requested.

This letter provides the factual results of the supplemental test pit investigation.

## Investigation

PML attended the site on May 14 and May 23, 2019 and witnessed and logged Test Pits 101 to 115, excavated to depths of 0.6 to 3.0 m, below existing grade.

The test pit locations were laid out by the Client in the field during excavation. The locations are shown on the Test Pit Location Plan, Drawing 5-1, appended.

Co-ordination of clearances of underground utilities was provided by the Client prior to excavation of the test pits. The test pits were advanced using a rubber tire backhoe and a rubber track mini-excavator supplied and operated by the Client.

Soil samples from the test pits were returned to our laboratory for detailed examination.

## Summarized Subsurface Conditions

Reference is made to the appended Log of Test Pit sheets for details of the investigation, including soil descriptions and ground water conditions. A summary is below.

### Topsoil

A 200 to 400 mm layer of topsoil was encountered at the surface of all test pits.

### Silty Sand/Sand

A silty sand or sand deposit (locally gravelly sand) was encounter in all test pits, except Test Pits 101 and 105, below the topsoil and typically extending to the depth of excavation. In Test Pits 106, the sand was below a till layer and in Test Pit 109 the sand was penetrated at 1.0 m depth. Trace to some gravel and cobbles and boulders were noted in the deposits. The material was judged to be compact to dense and moist near the top of the unit becoming wet with depth.

### Sandy Silt

A sandy silt layer was below the topsoil in Borehole 101 to 1.1 m depth. A basal sandy silt unit was also below the sand in Test Pit 109 to the 2.2 m depth of excavation. Trace gravel was noted within the material. The units were judged to be compact or dense and moist.

### Sandy Silt Till

A sandy silt till deposit was encountered in Test Pits 101, 105 and 106. In Test Pit 101 the unit was below the sandy silt and extend to the 1.8 m depth of excavation. In Test Pit 105 the unit extended from below the topsoil to the 1.7 m depth of excavation. In Test Pit 106 the unit was below the topsoil and was penetrated at 1.1 m depth. The matrix comprised sandy silt with trace gravel and cobbles and boulders. The till was judged to be compact to very dense and moist to very moist with local wet seams.

### Bedrock

Test Pits 101 to 106 and 109 terminated on limestone bedrock at the depths noted in the table below. Bedrock in the area is mapped as sedimentary shales, dolomites and limestones from the Ordovician period, of the Paleozoic Era of the Phanerozoic Eon. It is noted that bedrock was encountered typically in test pits on the west side of the water course, except Test Pit 109. Test pits on the east side of the water course typically encountered a high ground water table within the sand/silty sand deposit that caused sloughing and limited the depth of the test pits, prior to encountering bedrock.

| TEST PIT | DEPTH TO BEDROCK (m) |
|---|---|
| 101 | 1.8 |
| 102 | 0.6 |
| 103 | 2.3 |
| 104 | 1.7 |
| 105 | 1.7 |
| 106 | 1.5 |
| 109 | 2.2 |

Ground Water

Upon completion of excavating, minor or major seepage was encountered in most test pits as follows.

| TEST PIT | DEPTH OF SEEPAGE |
|---|---|
| 101 | Minor Seepage at 1.5 m |
| 102 | No Seepage |
| 103 | Major Seepage at 1.6 m |
| 104 | Major Seepage at 0.9 m |
| 105 | No Seepage |
| 106 | Minor Seepage at 1.4 m |
| 107 | Major Seepage at 0.5 m |
| 108 | Major Seepage at 1.3 m |
| 109 | No Seepage |
| 110 | Major Seepage at 1.8 m |
| 111 | Major Seepage at 2.0 m |
| 112 | Major Seepage at 1.0 m |
| 113 | Major Seepage at 1.5 m |
| 114 | Major Seepage at 2.5 m |
| 115 | Major Seepage at 0.5 m |

Ground water levels are subject to seasonal variation and will fluctuate in response to precipitation.

## Closure

We trust this report is sufficiently detailed. Please do not hesitate to call if you have any questions.

Sincerely

Peto MacCallum Ltd.

Geoffrey R. White, P.Eng.
Associate
Manager, Geotechnical and Geoenvironmental Services

GRW:jlb

Enclosure(s):
List of Abbreviations
Log of Test Pits No. 101 to 115
Drawing 5-1 – Test Pit Location Plan

Distribution:
2 cc: Addressee (+email)
1 cc: PML Barrie

# *LIST OF ABBREVIATIONS*

## PENETRATION RESISTANCE

Standard Penetration Resistance N: - The number of blows required to advance a standard split spoon sampler 0.3 m into the subsoil. Driven by means of a 63.5 kg hammer falling freely a distance of 0.76 m.

Dynamic Penetration Resistance: - The number of blows required to advance a 51 mm, 60 degree cone, fitted to the end of drill rods, 0.3 m into the subsoil. The driving energy being 475 J per blow.

## DESCRIPTION OF SOIL

The consistency of cohesive soils and the relative density or denseness of cohesionless soils are described in the following terms:

| CONSISTENCY | N (blows/0.3 m) | c (kPa) | DENSENESS | N (blows/0.3 m) |
|---|---|---|---|---|
| Very Soft | 0 - 2 | 0 - 12 | Very Loose | 0 - 4 |
| Soft | 2 - 4 | 12 - 25 | Loose | 4 - 10 |
| Firm | 4 - 8 | 25 - 50 | Compact | 10 - 30 |
| Stiff | 8 - 15 | 50 - 100 | Dense | 30 - 50 |
| Very Stiff | 15 - 30 | 100 - 200 | Very Dense | > 50 |
| Hard | > 30 | > 200 | | |

| | |
|---|---|
| WTLL | Wetter Than Liquid Limit |
| WTPL | Wetter Than Plastic Limit |
| APL | About Plastic Limit |
| DTPL | Drier Than Plastic Limit |

## TYPE OF SAMPLE

| | | | |
|---|---|---|---|
| SS | Split Spoon | ST | Slotted Tube Sample |
| WS | Washed Sample | TW | Thinwall Open |
| SB | Scraper Bucket Sample | TP | Thinwall Piston |
| AS | Auger Sample | OS | Oesterberg Sample |
| CS | Chunk Sample | FS | Foil Sample |
| GS | Grab Sample | RC | Rock Core |

| | |
|---|---|
| PH | Sample Advanced Hydraulically |
| PM | Sample Advanced Manually |

## SOIL TESTS

| | | | |
|---|---|---|---|
| Qu | Unconfined Compression | LV | Laboratory Vane |
| Q | Undrained Triaxial | FV | Field Vane |
| Qcu | Consolidated Undrained Triaxial | C | Consolidation |
| Qd | Drained Triaxial | | |

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF TEST PIT NO. 101



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**LOCATION** Town of The Blue Mountains, Ontario
**EXCAVATION METHOD** Excavator
**BORING DATE** May 14, 2019
**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** RB

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES: NUMBER | SAMPLES: TYPE | SAMPLES: "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Cu; ▲ POCKET PENETROMETER O Q (50 100 150 200); DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● (20 40 60 80) | PLASTIC LIMIT $w_p$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_l$; WATER CONTENT (%) (10 20 30 40) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | | | | |
| 0.0 | TOPSOIL: Dark brown, silt, trace sand, moist | | | | | | | | | |
| 0.30 | SANDY SILT: Compact, dark brown, sandy silt, trace gravel, moist | | | | | | | | | |
| 1.0 | | | | | | | | | | |
| 1.1 | SANDY SILT TILL: Very dense, brown, sandy silt, trace gravel, cobbles and boulders, moist, wet seams | | | | | | | | | |
| 1.8 | TESTPIT TERMINATED UPON REFUSAL ON LIMESTONE BEDROCK AT 1.8 m<br>Bedrock scrapped with backhoe bucket, no signs of weak areas. No voids visible. | | | | | | | | | Upon completion of excavation<br>Minor water seepage at 1.5 m<br>No sidewall sloughing |
| 2.0 | | | | | | | | | | |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

***NOTES***

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF TEST PIT NO. 102



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**LOCATION** Town of The Blue Mountains, Ontario
**EXCAVATION METHOD** Excavator
**BORING DATE** May 14, 2019
**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** RB

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES: NUMBER | SAMPLES: TYPE | SAMPLES: 'N' VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER O Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200; 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | TOPSOIL: Dark brown, silt, trace sand, moist | | | | | | | | | |
| 0.30 | SILTY SAND: Very dense, brown, silty sand, some gravel, cobbles and boulders, shale fragments, moist | | | | | | | | | |
| 0.60 | TESTPIT TERMINATED UPON REFUSAL ON LIMESTONE BEDROCK AT 0.6 m<br>Bedrock scrapped with backhoe bucket, no signs of weak areas. No voids visible. | | | | | | | | | Upon completion of excavation<br>No seepage<br>No sidewall sloughing |
| 1.0 | | | | | | | | | | |
| 2.0 | | | | | | | | | | |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF TEST PIT NO. 103



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**LOCATION** Town of The Blue Mountains, Ontario
**EXCAVATION METHOD** Excavator
**BORING DATE** May 14, 2019
**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** RB

| DEPTH ELEV (metres) | SOIL PROFILE: DESCRIPTION | STRAT PLOT | SAMPLES: NUMBER | SAMPLES: TYPE | SAMPLES: "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER O Q (50 100 150 200); DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● (20 40 60 80) | PLASTIC LIMIT $w_p$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_l$; WATER CONTENT (%) (10 20 30 40) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | SURFACE ELEVATION | | | | | | | | | |
| | TOPSOIL: Dark brown, silty sand, moist | | | | | | | | | |
| 0.35 | SILTY SAND: Compact, brown, silty sand, some gravel to gravelly, cobbles and boulders, shale pieces, moist | | | | | | | | | |
| 0.60 | SAND: Very dense, brown, sand, some silt, some gravel, cobbles and boulders, moist to wet | | | | | | | | | |
| 1.0 | | | | | | | | | | |
| 2.0 | | | | | | | | | | |
| 2.3 | TESTPIT TERMINATED UPON REFUSAL ON LIMESTONE BEDROCK AT 2.3 m<br>Bedrock scrapped with backhoe bucket, no signs of weak areas. No voids visible. | | | | | | | | | Upon completion of excavation<br>Major water seepage at 1.6 m<br>Sidewall sloughing from surface |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF TEST PIT NO. 104



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**LOCATION** Town of The Blue Mountains, Ontario
**EXCAVATION METHOD** Excavator
**BORING DATE** May 14, 2019
**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** RB

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES: NUMBER | SAMPLES: TYPE | SAMPLES: "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE □ Qu; ▲ POCKET PENETROMETER ○ Q; 50 100 150 200; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ●; 20 40 60 80 | PLASTIC LIMIT $w_p$ — NATURAL MOISTURE CONTENT $w$ — LIQUID LIMIT $w_l$; WATER CONTENT (%) 10 20 30 40 | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | | | | |
| 0.0 | TOPSOIL: Dark brown, silty sand, moist | | | | | | | | | |
| 0.30 | SILTY SAND: Compact to dense, brown, silty sand, some gravel, cobbles and boulders, shale fragments, wet | | | | | | | | | |
| 1.7 | TESTPIT TERMINATED UPON REFUSAL ON LIMESTONE BEDROCK AT 1.7 m<br>Bedrock scrapped with backhoe bucket, no signs of weak areas. No voids visible. | | | | | | | | | Upon completion of excavation<br>Major water seepage at 0.9 m<br>Sidewall sloughing from surface |
| 2.0 | | | | | | | | | | |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

**NOTES**

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# LOG OF TEST PIT NO. 105



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** May 14, 2019
**ENGINEER** GW
**EXCAVATION METHOD** Excavator
**TECHNICIAN** RB

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES: NUMBER | SAMPLES: TYPE | SAMPLES: "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER O Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200; 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | TOPSOIL: Dark brown, silty sand, moist | | | | | | | | | |
| 0.25 | SILTY SAND TILL: Very dense, brown, silty sand, some gravel, cobbles and boulders, shale fragments, moist | | | | | | | | | |
| 1.7 | TESTPIT TERMINATED UPON REFUSAL ON LIMESTONE BEDROCK AT 1.7 m<br>Bedrock scrapped with backhoe bucket, no signs of weak areas. No voids visible. | | | | | | | | | Upon completion of excavation<br>No water<br>No sidewall sloughing |
| 1.0 | | | | | | | | | | |
| 2.0 | | | | | | | | | | |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF TEST PIT NO. 106



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**LOCATION** Town of The Blue Mountains, Ontario
**EXCAVATION METHOD** Excavator
**BORING DATE** May 14, 2019
**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** RB

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES 'N' VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST × ● | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200; 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | TOPSOIL: Dark brown, silty sand, moist | | | | | | | | | |
| 0.40 | SANDY SILT TILL: Compact, brown, sandy silt, some gravel, cobbles and boulders, moist | | | | | | | | | |
| 1.0 / 1.1 | SAND: Compact to dense, grey, sand, some silt, cobbles and boulders, very moist | | | | | | | | | |
| 1.5 | TESTPIT TERMINATED UPON REFUSAL ON LIMESTONE BEDROCK AT 1.5 m<br>Bedrock scrapped with backhoe bucket, no signs of weak areas. No voids visible. | | | | | | | | | Upon completion of excavation<br>Minor water seepage at 1.4 m<br>No sidewall sloughing |
| 2.0 | | | | | | | | | | |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

***NOTES***

Peto MacCallum Ltd.
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# LOG OF TEST PIT NO. 107



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**LOCATION** Town of The Blue Mountains, Ontario
**EXCAVATION METHOD** Excavator
**BORING DATE** May 23, 2019
**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER O Q (50 100 150 200) DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● (20 40 60 80) | PLASTIC LIMIT $w_p$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_l$ WATER CONTENT (%) (10 20 30 40) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | SURFACE ELEVATION | | | | | | | | | |
| | TOPSOIL: Dark brown, silty sand, moist | | | | | | | | | |
| 0.30 | | | | | | | | | | |
| | GRAVELLY SAND: Compact to dense, brown, gravelly sand, cobbles and boulders, moist | | | | | | | | | |
| 0.50 | | | | | | | | | | |
| | SAND: Compact to dense, brown, sand, trace silt, trace gravel, wet | | 1 | GS | - | | | | | |
| 1.0 | | | | | | | | | | |
| 1.1 | TESTPIT TERMINATED AT 1.1 m | | | | | | | | | Upon completion of excavation<br>Major water seepage at 0.5 m<br>Sidewall sloughing at 1.0 m<br>Could not excavate deeper due to frequent test pit sloughing due to high ground water levels |
| 2.0 | | | | | | | | | | |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF TEST PIT NO. 108



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**LOCATION** Town of The Blue Mountains, Ontario
**EXCAVATION METHOD** Excavator
**BORING DATE** May 23, 2019
**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES 'N' VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) / DYNAMIC CONE PENETRATION / STANDARD PENETRATION TEST | PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | + FIELD VANE △ TORVANE ○ Cu ▲ POCKET PENETROMETER ○ Q; 50 100 150 200; 20 40 60 80 | $w_p$ w $w_l$; 10 20 30 40 | | |
| 0.0 | TOPSOIL: Dark brown to black, sand, some silt, trace gravel, very moist to wet | | | | | | | | | |
| 0.25 | SAND: Compact, brown, sand, trace to some silt, trace gravel, very moist | | | | | | | | | |
| 0.60 | Becoming dense, some gravel, cobbles and boulders, very moist to wet | | 1 | GS | | | | | | |
| 1.0 | | | | | | | | | | |
| 2.0 | | | | | | | | | | |
| 2.1 | TESTPIT TERMINATED AT 2.1 m | | | | | | | | | Upon completion of excavation<br>Major water seepage at 1.3 m<br>Sidewall sloughing at 1.6 m<br>Could not excavate deeper due to frequent test pit sloughing due to high ground water levels. |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

***NOTES***

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF TEST PIT NO. 109



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** May 23, 2019
**ENGINEER** GW
**EXCAVATION METHOD** Excavator
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES 'N' VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) +FIELD VANE △TORVANE ○Qu ▲POCKET PENETROMETER ○○ 50 100 150 200 / DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● 20 40 60 80 | PLASTIC LIMIT $w_P$ NATURAL MOISTURE CONTENT $w$ LIQUID LIMIT $w_L$ WATER CONTENT (%) 10 20 30 40 | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | SURFACE ELEVATION | | | | | | | | | |
| 0.20 | TOPSOIL: Dark brown to black, sand, trace silt, trace gravel, moist | | | | | | | | | |
| | SAND: Compact to dense, brown to dark brown, sand, some silt, some gravel, cobbles and boulders, organics, very moist | | 1 | GS | - | | | | | |
| 1.00 | | | | | | | | | | |
| 1.0 | SANDY SILT: Dense, brown, sandy silt, trace gravel, moist | | 2 | GS | - | | | | | |
| 2.0 | | | | | | | | | | |
| 2.2 | TESTPIT TERMINATED UPON REFUSAL ON LIMESTONE BEDROCK AT 2.2 m<br>Bedrock scrapped with backhoe bucket, no signs of weak areas. No voids visible. | | | | | | | | | Upon completion of excavation<br>No water seepage<br>No sidewall sloughing |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF TEST PIT NO. 110



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** May 23, 2019
**ENGINEER** GW
**EXCAVATION METHOD** Excavator
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● (50, 100, 150, 200; 20, 40, 60, 80) | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) (10, 20, 30, 40) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | | | | |
| 0.0 | TOPSOIL: Black to brown, sand, trace to some silt, trace gravel, moist | | | | | | | | | |
| 0.35 | SAND: Compact to dense, brown to grey, sand, trace to some silt, some gravel, cobbles and boulders, very moist to wet | | 1 | GS | | | | | | |
| 2.3 | TESTPIT TERMINATED AT 2.3 m | | | | | | | | | Upon completion of excavation<br>Major water seepage at 1.8 m<br>Sidewall sloughing at 1.8 m<br>Could not excavate deeper due to frequent test pit sloughing due to high ground water levels. |

***NOTES***

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF TEST PIT NO. 111



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**LOCATION** Town of The Blue Mountains, Ontario
**EXCAVATION METHOD** Excavator
**BORING DATE** May 23, 2019
**PML REF.** 15BF041
**ENGINEER** GW
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES NUMBER | SAMPLES TYPE | SAMPLES "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER O Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200 / 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | TOPSOIL: Black to brown, silty sand, trace gravel, moist | | | | | | | | | |
| 0.30 | SAND: Compact to dense, brown, sand, trace silt, some gravel, cobbles and boulders, moist | | | | | | | | | |
| 1.00 | Becoming wet, with shale fragments | | 1 | GS | - | | | | | |
| 2.5 | TESTPIT TERMINATED AT 2.5 m | | | | | | | | | Upon completion of excavation<br>Major water seepage at 2.0 m<br>Sidewall sloughing at 2.3 m<br>Could not excavate deeper due to frequent test pit sloughing due to high ground water levels. |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF TEST PIT NO. 112



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** May 23, 2019
**ENGINEER** GW
**EXCAVATION METHOD** Excavator
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES: NUMBER | SAMPLES: TYPE | SAMPLES: "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; 50 100 150 200; DYNAMIC CONE PENETRATION ✕ STANDARD PENETRATION TEST ● 20 40 60 80 | PLASTIC LIMIT $w_P$ — NATURAL MOISTURE CONTENT $w$ — LIQUID LIMIT $w_L$; WATER CONTENT (%) 10 20 30 40 | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | SURFACE ELEVATION | | | | | | | | | |
| | TOPSOIL: Black to brown, silty sand, trace gravel, moist | | | | | | | | | |
| 0.40 | SAND: Compact to dense, brown, sand, trace silt, some gravel, cobbles and boulders, very moist to wet | | | | | | | | | |
| 1.0 | | | | | | | | | | |
| 2.0 | | | | | | | | | | |
| 2.6 | TESTPIT TERMINATED AT 2.6 m | | | | | | | | | Upon completion of excavation<br>Water seepage at 1.0 m<br>Sidewall sloughing at 2.0 m<br>Could not excavate deeper due to frequent test pit sloughing. |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF TEST PIT NO. 113



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** May 23, 2019
**ENGINEER** GW
**EXCAVATION METHOD** Excavator
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES: NUMBER | SAMPLES: TYPE | SAMPLES: "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) / DYNAMIC CONE PENETRATION / STANDARD PENETRATION TEST | PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | | | | |
| 0.0 | TOPSOIL: Black, silty sand, trace gravel, very moist | | | | | | | | | |
| 0.20 | SAND: Compact to dense, brown, sand, some gravel, cobbles and boulders, shale fragments, wet | | | | | | | | | |
| 2.3 | TESTPIT TERMINATED AT 2.3 m | | | | | | | | | Upon completion of excavation<br>Major water seepage at 1.5 m<br>Sidewall sloughing at 1.9 m<br>Could not excavate deeper due to frequent test pit sloughing due to high ground water levels. |
| 1.0 | | | | | | | | | | |
| 2.0 | | | | | | | | | | |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q — 50 100 150 200
DYNAMIC CONE PENETRATION
STANDARD PENETRATION TEST ● — 20 40 60 80
PLASTIC LIMIT $w_P$ — NATURAL MOISTURE CONTENT $w$ — LIQUID LIMIT $w_L$
WATER CONTENT (%) — 10 20 30 40

***NOTES***

Peto MacCallum Ltd.
CONSULTING ENGINEERS

# LOG OF TEST PIT NO. 114



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** May 23, 2019
**ENGINEER** GW
**EXCAVATION METHOD** Excavator
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES: NUMBER | SAMPLES: TYPE | SAMPLES: "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu; ▲ POCKET PENETROMETER ○ Q; 50 100 150 200; DYNAMIC CONE PENETRATION ×; STANDARD PENETRATION TEST ●; 20 40 60 80 | PLASTIC LIMIT $w_P$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_L$; WATER CONTENT (%) 10 20 30 40 | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | SURFACE ELEVATION | | | | | | | | | |
| | TOPSOIL: Black, sand, trace silt, trace gravel, very moist | | | | | | | | | |
| 0.25 | | | | | | | | | | |
| | SAND: Compact to dense, brown, sand, trace to some silt, some gravel, cobbles and boulders, wet | | | | | | | | | |
| 1.0 | | | | | | | | | | |
| 2.0 | | | | | | | | | | |
| 2.5 | | | | | | | | | | |
| | SILTY SAND: Dense, brown, silty sand, wet | | | | | | | | | |
| 3.0 | | | | | | | | | | |
| | TESTPIT TERMINATED AT 3.0 m | | | | | | | | | Upon completion of excavation<br>Major water seepage at 2.5 m<br>Sidewall sloughing at 2.5 m<br>Could not excavate deeper due to frequent test pit sloughing due to high ground water levels. |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

**NOTES**

Peto MacCallum Ltd.
CONSULTING ENGINEERS

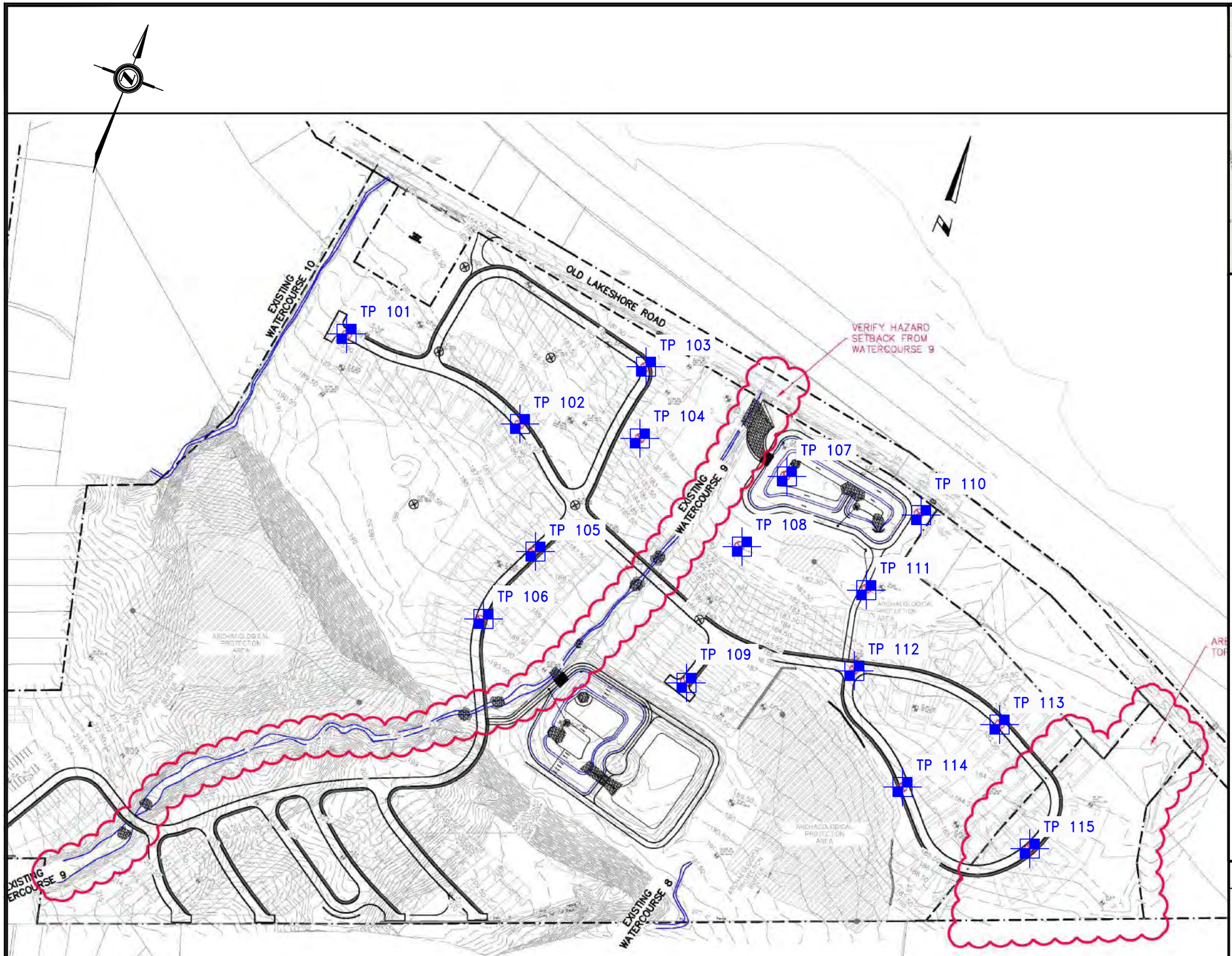
# LOG OF TEST PIT NO. 115



**PROJECT** Proposed Residential Subdivision - Craigleith Ridge
**PML REF.** 15BF041
**LOCATION** Town of The Blue Mountains, Ontario
**BORING DATE** May 23, 2019
**ENGINEER** GW
**EXCAVATION METHOD** Excavator
**TECHNICIAN** AT

| DEPTH ELEV (metres) | DESCRIPTION | STRAT PLOT | SAMPLES: NUMBER | SAMPLES: TYPE | SAMPLES: "N" VALUES | ELEVATION SCALE | SHEAR STRENGTH (kPa) + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● | PLASTIC LIMIT $w_p$ / NATURAL MOISTURE CONTENT $w$ / LIQUID LIMIT $w_l$; WATER CONTENT (%) | UNIT WEIGHT kN/m³ | GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL |
|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE ELEVATION | | | | | | 50 100 150 200; 20 40 60 80 | 10 20 30 40 | | |
| 0.0 | TOPSOIL: Black to brown, silty sand, trace gravel, wet | | | | | | | | | |
| 0.30 | SAND: Compact, brown, sand, trace silt, some gravel, cobbles and boulders, wet | | | | | | | | | |
| 1.0 | | | | | | | | | | |
| 1.1 | TESTPIT TERMINATED AT 1.1 m | | | | | | | | | Upon completion of excavation<br>Major water seepage at 0.5 m<br>Sidewall sloughing at 0.5 m<br>Could not excavate deeper due to frequent test pit sloughing due to high ground water levels. |
| 2.0 | | | | | | | | | | |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

**NOTES**







KEY PLAN
TOWN OF BLUE MOUNTAINS, ONTARIO

LEGEND:

TP 101 TEST PIT 101

REFERENCE:

BASE PLAN PROVIDED BY CLIENT.

KEY PLAN PRODUCED USING GOOGLE MAPS, DECEMBER 2017.

0m 30 60 90 120 150

# TEST PIT LOCATION PLAN

SUPPLEMENTAL GEOTECHNICAL INVESTIVATION
161 LAKESHORE ROAD EAST
TOWN OF BLUE MOUNTAINS, ONTARIO

Peto MacCallum Ltd.
CONSULTING ENGINEERS

| | | DATE | SCALE | PML REF. | DRAWING NO. |
|---|---|---|---|---|---|
| DRAWN | AT | JUNE 2019 | AS SHOWN | 15BF041 | 5–1 |
| CHECKED | RB | | | | |
| APPROVED | GW | | | | |

Peto MacCallum Ltd.
CONSULTING ENGINEERS

May 22, 2020

PML Ref.: 15BF041
Report: 7

Mr. Jay Beech, C.E.T.
Parkbridge Lifestyle Communities Inc.
85 Theme Park Drive
Wasaga Beach, Ontario
L9Z 1X7

Dear Mr. Beech

**Slope Stability Assessment**
**Proposed Craigleith Ridge Residential Subdivision**
**209621 Highway 26 and 208 Lakeshore Road East**
**Town of The Blue Mountains, Ontario**

Peto MacCallum Ltd. (PML) is pleased to present the results of the slope assessment recently completed at the above noted project site. Authorization for the work was provided by Mr. J. Beech, in an email dated April 23, 2020.

Parkbridge is planning an approximate 211 lot residential subdivision for the approximate 25 ha parcel of land at 209621 Highway 26 & 208 Lakeshore Road East, in the Town of Blue Mountains. The site is terraced comprising low lying ground in the northern portion, with frontage on Lakeshore Road East, rising some 15 to 18 m up the Nipissing Ridge Slope (Niagara Escarpment) in the south part of the site. The southwest part of the site has limited frontage along Grey Road 19. A site plan is shown on Drawing 7-1, enclosed.

Based on recent submission comments it is understood that there is concern regarding the setbacks of housing close to the top and bottom of the slopes, specifically Lots 112 to 116 at the base of the slope on the west side of the watercourse (western slope) and Lots 57 to 68 at the top of the slope on the east side of the watercourse (eastern slope).

The two areas of concern are highlighted on Drawing 7-1, attached. Two cross sections for each slope area were provided by Crozier Consulting Engineers (CCE). The approximate location of the cross sections is noted on Drawing 7-1 and the four cross sections are appended.

Reference is made to Report 3, dated December 16, 2016, where a slope stability assessment was completed for the slope below Lots 57 to 68. A site review of the slope was conducted and two boreholes were advanced to determine the subsurface conditions. An analysis was carried out and showed the existing slope is stable with a Factor of Safety (FS) of 1.3 or greater, against an overall deep-seated slope failure.

Reference is also made to Reports 1, 2, 4 and 5 where the results of a total of 29 boreholes and 31 test pits across the entire site revealed similar subsurface conditions as the two boreholes in Report 3.

PML's current scope of work was to attended the site to review the current slope conditions and in conjunction with the cross sections and previous reports, provide commentary on the slope stability and setbacks to address the comments from the recent project submission review.

## Site Visit

PML attended the site on April 28, 2020 to review the existing conditions of the slopes. A Slope Stability Rating Chart, from the MNR Technical Guide, is attached. Observations from our site visit are provided below.

A walk of the site was conducted along the toe of the slopes, up the slopes and along the top of the slopes. The slopes are covered with mature trees and scrub brush is just starting grow after the winter (Photographs 1 to 4). No ground water seepage from either slope was observed. The slopes are estimated to be about 15 m high and inclined steeper than two horizontal to one vertical (2H:1V). There is slight lip at the top of both slopes that prevents surface water at the top from directly flowing over the slope face. No evidence of large landslide events were observed. Small local areas of erosion are present on both slopes.

The watercourse that flows through the middle of the site, flows north towards Georgian Bay. Cobbles and boulders are present in the watercourse (Photographs 5 and 6).

## Drawing Review

A review of the cross sections provided by CCE (appended) was conducted.

Cross Sections 1 and 2 show the western slope above Lots 112 to 116, is about 7 m to 16 m in height, with the steepest inclination at about 1.2H:1V. The Zoning Boundary/setback is about 18 m from the top and base of the slope. The space between the setback lines allow for an overall slope of inclination flatter than 3H:1V, as flat as 6H:1V.

Cross Sections 3 and 4 show the eastern slope below Lots 57 to 68, is about 17 m in height, with the steepest inclination at about 1.8H:1V. The Zoning Boundary/setback is about 20 m from the top of the slope and about 10 m from the base of the slope. The space between the setback lines allow for an overall slope of inclination of about 3.5H:1V.

The slight lip at the top of the slopes, noted during our site visit, is shown in the cross sections.

## Previous Slope Stability Report

Reference is made to Report 3, dated December 16, 2016, where a slope stability assessment was completed for the slope below Lots 57 to 68.

A site review of the slope was conducted at that time with the same results as noted in the attached MNR Slope Stability Rating Chart, for the recent site review.

Two boreholes were advanced from the top of the slope to 18.0 and 24.5 m depth, to determine the subsurface conditions. The boreholes revealed sand, silt and till soils were present. N Values in the boreholes showed the material to be loose to compact in the upper 2 to 5 m becoming dense to very dense, below 2 to 5 m depth. Ground water was measured near the base of the slope.

A detailed analysis was carried out based on the geotechnical model development from the boreholes and visual findings, and utilizing Slide V7.0 software. Based on the MNR Technical Guide the land use at the top of the slope is considered ACTIVE - habitable or occupied residential or commercial structures will be near the top of the slope, where the recommended design minimum slope stability FS is 1.3.

The Slide V7.0 software computes the factor of safety for a near infinite number of trial slides at varying depths in the slope. The results of the analysis show the existing slope is stable (FS of 1.3 or greater), against an overall deep-seated slope failure.

The analysis does show the potential for local shallow slides at the surface of the slope, as seen during the visual inspection.

**Geotechnical Opinion**

A site visit was conducted to review the existing conditions of both slopes, in conjunction with review of slope cross sections provided to PML, a previous slope stability report for one of the slopes and other geotechnical reports for the site.

The existing slope conditions are similar to a previous site review for the eastern slope conducted about 3.5 years ago, which is an indicator of the stability of the slopes.

The previous analysis conducted showed the higher eastern slope was stable and had an adequate FS. The subsurface conditions are expected to be similar in the western slope, based on the test pits and boreholes from Reports 1, 2, 4 and 5 and thus a similar FS is expected.

Based on the above, it is our opinion that the slopes are relatively safe from a deep-seated slope failure. Shallow sloughing of loose surface material can be expected and hydroseeding can be considered to help promote surface vegetation to grow. Further, the proposed Zoning Boundaries/setbacks provide additional space to allow for any local erosion/sloughing of loose material.

## Closure

We trust this report is sufficient for your current requirements.

Sincerely

Pete MacCallum Ltd.

Geoffrey R. White, P.Eng.
Director
Manager Geotechnical and Geoenvironmental Services

GRW:tc

Enclosure(s):
Drawing 7-1 – Site Plan
Cross Sections 1 and 2 from CCE
Cross Sections 3 and 4 from CCE
Photographs
Slope Stability Rating Chart

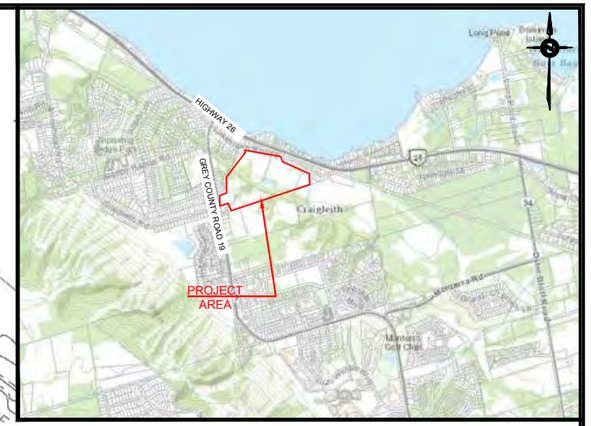
Distribution:
1 cc: Mr. J. Beech, Parkbridge Lifestyle Communities Inc. (email only: jbeech@parkbridge.com)
1 cc: PML Barrie

ZONING BOUNDARY/SETBACK

WATERCOURSE

LAKESHORE ROAD

KINGS HIGHWAY NO. 26




KEY PLAN
THE TOWN OF THE BLUE MOUNTAINS, ONTARIO

1 1 — LOCATION OF CROSS SECTION 1–1

AREAS OF HOUSING CONCERN DUE TO SLOPES

REFERENCE:

BASE PLAN PROVIDED BY CROZIER CONSULTING ENGINEERS

# SITE PLAN

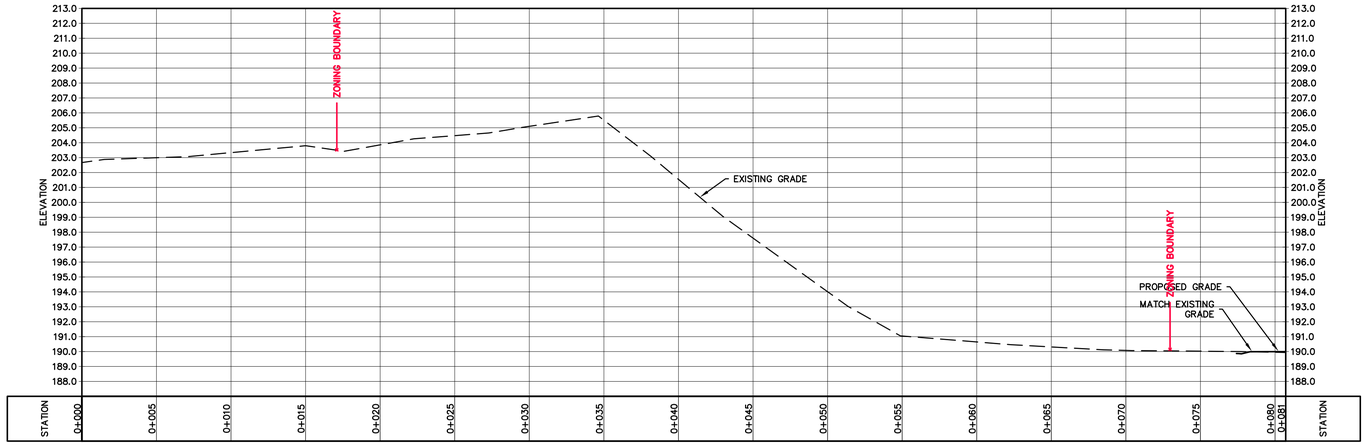
PROPOSED CRAIGLEITH RIDGE RESIDENTIAL SUBDIVISION

TOWN OF THE BLUE MOUNTAINS, ONTARIO

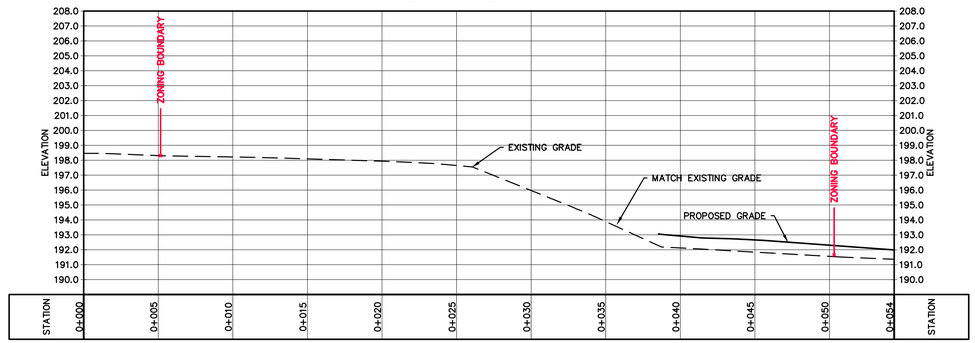
Peto MacCallum Ltd.
CONSULTING ENGINEERS

| DRAWN | DP | DATE | SCALE | PML REF. | DRAWING NO. |
|---|---|---|---|---|---|
| CHECKED | GW | MAY 2020 | AS SHOWN | 15BF041 | 7-1 |
| APPROVED | GW | | | | |

## SECTION 1–1




## SECTION 2–2




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4. DO NOT SCALE THE DRAWINGS.
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TEMPORARY BENCHMARKS

TBM#1–
TBM#2–
TBM#3–

Town

| No. | ISSUE | DATE: MM/DD/YYYY |
|---|---|---|
| 0 | ISSUED FOR 1st SUBMISSION | MM/DD/YYYY |

Engineer

DRAFT
FOR DISCUSSION PURPOSES ONLY

Engineer

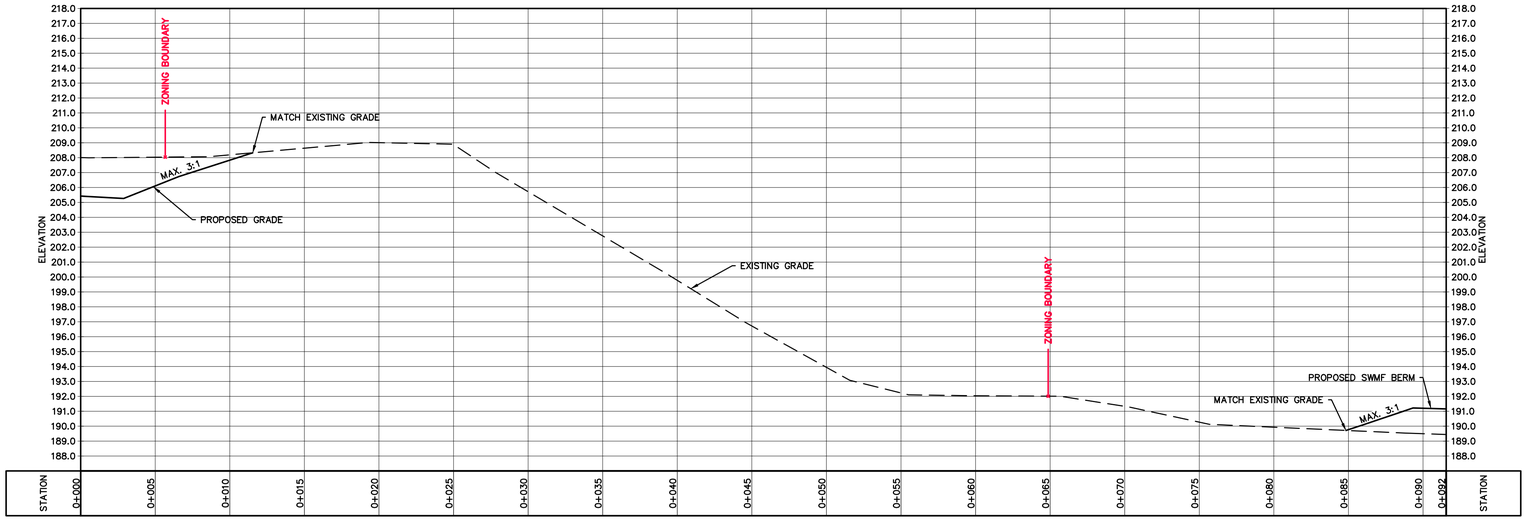
Project
PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing
CROSS SECTION 1 & 2

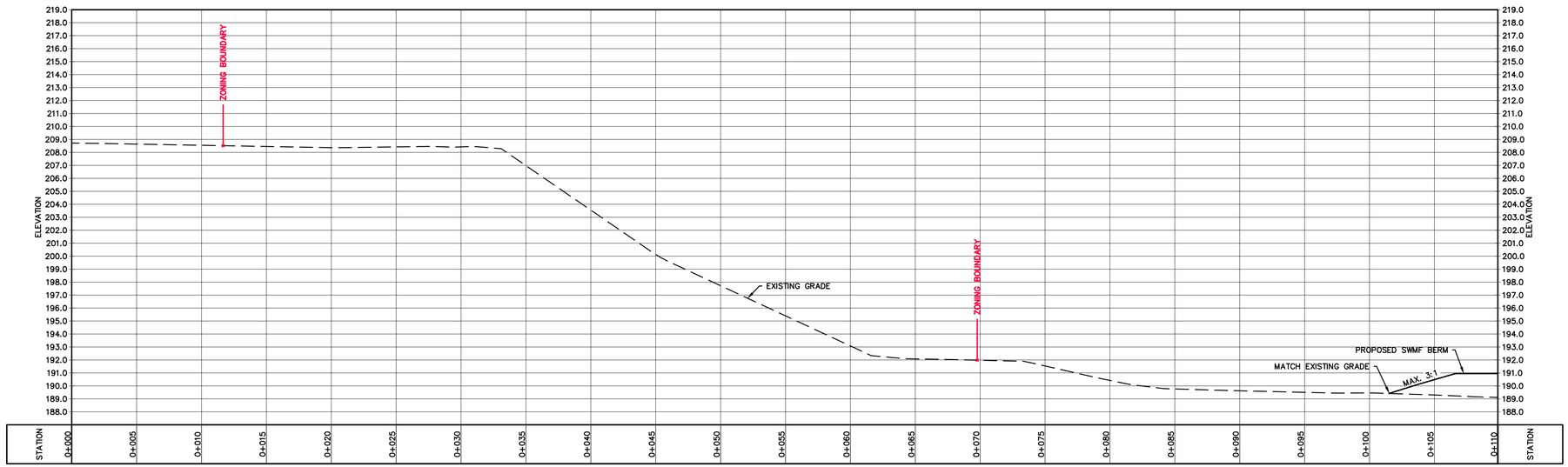

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
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COLLINGWOOD, ON L9Y 4R3
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705 446-3520 F
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INFO@CFCROZIER.CA


| Drawn By | Design By | Project |
|---|---|---|
| L.W. | L.W. | 1046–4031 |
| Check By | Check By | Scale / Drawing |
| S.O. | J.P. | 1:200 / 001 |

## SECTION 3–3




## SECTION 4–4





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3. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
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5. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.


TEMPORARY BENCHMARKS

TBM#1–
TBM#2–
TBM#3–

Town

| No. | ISSUE | DATE: MM/DD/YYYY |
|---|---|---|
| 0 | ISSUED FOR 1st SUBMISSION | MM/DD/YYYY |

Engineer

DRAFT
FOR DISCUSSION PURPOSES ONLY

Engineer

Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

CROSS SECTIONS 3 & 4


CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
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COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
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INFO@CFCROZIER.CA


| | | | | | |
|---|---|---|---|---|---|
| Drawn By | L.W. | Design By | L.W. | Project | 1046–4031 |
| Check By | S.O. | Check By | J.P. | Scale 1:200 | Drawing 002 |



Photograph No. 1: View looking up the western slope.



Photograph No. 2: View looking up the western slope.



Photograph No. 3: View looking up the eastern slope.



Photograph No. 4: View looking up the eastern slope.



Photograph No. 5: View looing down the watercourse.



Photograph No. 6: View looking up the watercourse

## SLOPE STABILITY RATING CHART (1)

**Site Location:** 209621 Highway 26 and 208 Lakeshore Road East, Town of The Blue Mountains, **PML Ref:** 15BF041

**Inspection Date:** April 28, 2020

**Inspected By:** Geoffrey White, P.Eng. **Weather:** Cloudy, 5 C

| | | | |
|---|---|---|---|
| **1.** | **OVERALL SLOPE INCLINATION** | | |
| | **Degrees** | **horiz : vert.** | |
| | a) 18 or less | 3 : 1 or flatter | 0 |
| | b) 18 – 26 | 2 : 1 to more than 3 : 1 | 6 |
| | c) more than 26 | steeper than 2 : 1 | **16** |
| **2.** | **SOIL STRATIGRAPHY** | | |
| | a) Shale, Limestone, Granite (Bedrock) | | 0 |
| | b) Sand, Gravel | | 6 |
| | c) Glacial Till | | **9** |
| | d) Clay, Silt | | 12 |
| | e) Fill | | 16 |
| | f) Leda Clay | | 24 |
| **3.** | **SEEPAGE FROM SLOPE FACE** | | |
| | a) None or Near bottom only | | **0** |
| | b) Near mid-slope only | | 6 |
| | c) Near crest only, or From several levels | | 12 |
| **4.** | **SLOPE HEIGHT** | | |
| | a) 2 m or less | | 0 |
| | b) 2.1 to 5 m | | 2 |
| | c) 5.1 to 10 m | | 4 |
| | d) more than 10 m | | **8** |
| **5.** | **VEGETATION COVER ON SLOPE FACE** | | |
| | a) Well vegetated; heavy shrubs or forested with mature trees | | **0** |
| | b) Light vegetation; Mostly grass, weeds, occasional trees, shrubs | | 4 |
| | c) No vegetation, bare | | 8 |
| **6.** | **TABLE LAND DRAINAGE** | | |
| | a) Table land flat, no apparent drainage over slope | | **0** |
| | b) Minor drainage over slope, no active erosion | | 2 |
| | c) Drainage over slope, active erosion, gullies | | 4 |
| **7.** | **PROXIMITY OF WATERCOURSE TO SLOPE TOE** | | |
| | a) 15 metres or more from slope toe | | **0** |
| | b) Less than 15 meters from slope toe | | 6 |
| **8.** | **PREVIOUS LANDSLIDE ACTIVITY** | | |
| | a) No | | **0** |
| | b) Yes | | 6 |

| **SLOPE INSTABILITY RATING** | **RATING VALUES INVESTIGATION TOTAL** | **REQUIREMENTS** | **TOTAL 33** |
|---|---|---|---|
| **1. Low potential** | **< 24** | **Site inspection only, confirmation, report letter.** | |
| **2. Slight potential** | **25-35** | **Site inspection and surveying, preliminary study, detailed report.** | |
| **3. Moderate potential** | **> 35** | **Boreholes, piezometers, lab tests, surveying, detailed report.** | |

DRAFT

June 25, 2019

PML Ref.: 15BF041
Draft Report: 6

Mr. Jay Beech, C.E.T.
Parkbridge Lifestyle Communities Inc.
85 Theme Park Drive
Wasaga Beach, Ontario
L4M 4T5

Dear Mr. Beech

**Karst Conditions**
**Proposed Residential Subdivision**
**Craigleith Ridge**
**209621 Highway 26 and 208 Lakeshore Road East**
**Town of Blue Mountains, Ontario**

Peto MacCallum Ltd. (PML) is pleased to present the following commentary regarding Karst conditions at the above noted project site. Authorization for this work was provided by Mr. J. Beech, verbally.

Parkbridge is planning an approximate 211 lot residential subdivision for the approximate 25 ha parcel of land at 209621 Highway 26 & 208 Lakeshore Road East, in the Town of Blue Mountains. The site is terraced comprising low lying ground in the northern portion, with frontage on Lakeshore Road East, rising some 15 to 20 m up the Niagara Escarpment in the south part of the site. The southwest part of the site has limited frontage along Grey Road 19. It is understood that site servicing is proposed and full-depth basements are preferred.

First project submission comments from the Town of Blue Mountains have been received and one comment related to the presence of Karst conditions. This letter serves to address this comment.

The Blue Mountains Constraint Map, attached, shows the location of Karst bedrock in the area. The Craigleith Ridge development limits have been plotted on the map. The development is outside of the areas of known/inferred Karst conditions.

Reference is made to Report 1, dated August 24, 2015, Report 2, dated December 7, 2015, Report 4 Revised, dated January 23, 2018, and Report 5, dated June 25, 2019 where test pits and boreholes where advanced for the project to determine the subsurface conditions at the site and geotechnical recommendations were provided.

Bedrock in the area is mapped as sedimentary shales, dolomites and limestones from the Ordovician period, of the Paleozoic Era of the Phanerozoic Eon. Local bedrock outcropping in the surrounding area is comprised of limestone.

Some of the test pits and boreholes in the lower portion of the site were terminated on limestone bedrock. Where auger refusal was encountered at depth in the boreholes, it is noted that no further penetration was observed through additional augering. PML cannot confirm the source of refusal, however, the lack of penetration, if bedrock was the source of refusal, may imply sound bedrock. In the test pits, especially the test pits completed for Report 5, the limestone surface was visible and no voids were noted. The bedrock surface was also scrapped with the bucket of the backhoe and no weak areas or voids were observed.

DRAFT

Based on the above observations and the presence of residential development, roads and other infrastructure surrounding most of the site, with many years of service, Karst conditions do not appear to be an issue for the project site.

## Closure

We trust this report is sufficiently detailed. Please do not hesitate to call if you have any questions.

Sincerely

Peto MacCallum Ltd.

Draft

Geoffrey R. White, P.Eng.
Associate
Manager, Geotechnical and Geoenvironmental Services

GRW:jlb

Enclosure(s):
Blue Mountains Constraint Mapping

Distribution:
2 cc: Addressee (+email)
1 cc: PML Barrie

Peto MacCallum Ltd.
CONSULTING ENGINEERS

November 23, 2020

PML Ref.: 15BF041
Report: 8

Ms. Silva Yousif
Parkbridge Lifestyle Communities Inc.
85 Theme Park Drive
Wasaga Beach, Ontario
L9Z 1X7

Dear Ms. Yousif

**Slope Stability Appraisal**
**Proposed Craigleith Ridge Residential Subdivision**
**209621 Highway 26 and 208 Lakeshore Road East**
**Town of The Blue Mountains, Ontario**

Peto MacCallum Ltd. (PML) is pleased to provide an appraisal for slope inclination at the above noted project site. Authorization for the work was provided by Ms. S. Yousif, in an email dated November 13, 2020.

Parkbridge is planning an approximate 211 lot residential subdivision for the approximate 25 ha parcel of land at 209621 Highway 26 & 208 Lakeshore Road East, in the Town of Blue Mountains. The site is terraced comprising low lying ground in the northern portion, with frontage on Lakeshore Road East, rising some 15 to 18 m up the Nipissing Ridge Slope (Niagara Escarpment) in the south part of the site. The southwest part of the site has limited frontage along Grey Road 19.

Based on recent submission comments it is understood that the Grey Suable Conservation Authority (GSCA) was looking for further geotechnical justification regarding the appropriateness of a slope inclination of two and a half horizontal to one vertical (2.5H:1V) utilized in the geomorphological assessment report, by others, for Watercourse 9 (running through the central part of the site). The typical assessment utilizes a slope inclination of 3H:1V in absence of geotechnical justification. This letter serves to provide geotechnical justification for the use of a 2.5H:1V slope inclination.

General reference is made to Reports 2 and 5 where the results of a total of 29 boreholes are presented. The boreholes in the upper portion of the site/higher ground, where the watercourse channel is located, show typically dense to very dense till soil.

Specific reference is made to Report 3, dated December 16, 2016, where a slope stability assessment was completed for the slope below Lots 57 to 68. A site review of the slope was conducted and two boreholes were advanced to determine the subsurface conditions. An analysis was carried out and showed the existing slope (naturally inclined at about 2H:1V) is stable with a Factor of Safety (FS) of 1.3 or greater, against an overall deep-seated slope failure.

During PML's site visit carried out for Report 7, dated May 22, 2020 (general slope assessment for development setbacks), our path crossed Watercourse 9 and at that time the soil noted in the channel banks was competent till with cobbles and boulders noted in the creek.

Based on the above, it is our opinion that utilization of a slope inclination of 2.5H:1V represents a FS of greater than 1.3 and is acceptable.

*19 Churchill Drive, Barrie, Ontario L4N 8Z5*
*Tel: (705) 734-3900 Fax: (705) 734-9911*
*E-mail: barrie@petomaccallum.com*
*BARRIE, COLLINGWOOD, HAMILTON, KITCHENER, LONDON, TORONTO*

We trust this report is sufficient for your current requirements.

Sincerely

Peto MacCallum Ltd.

Geoffrey R. White, P.Eng.
Director
Manager Geotechnical Services

GRW:tc

Distribution:
1 cc: Ms. S. Yousif, Parkbridge Lifestyle Communities Inc. (email only: syousif@parkbridge.com)
1 cc: PML Barrie

# APPENDIX G

## As-Constructed Drawings

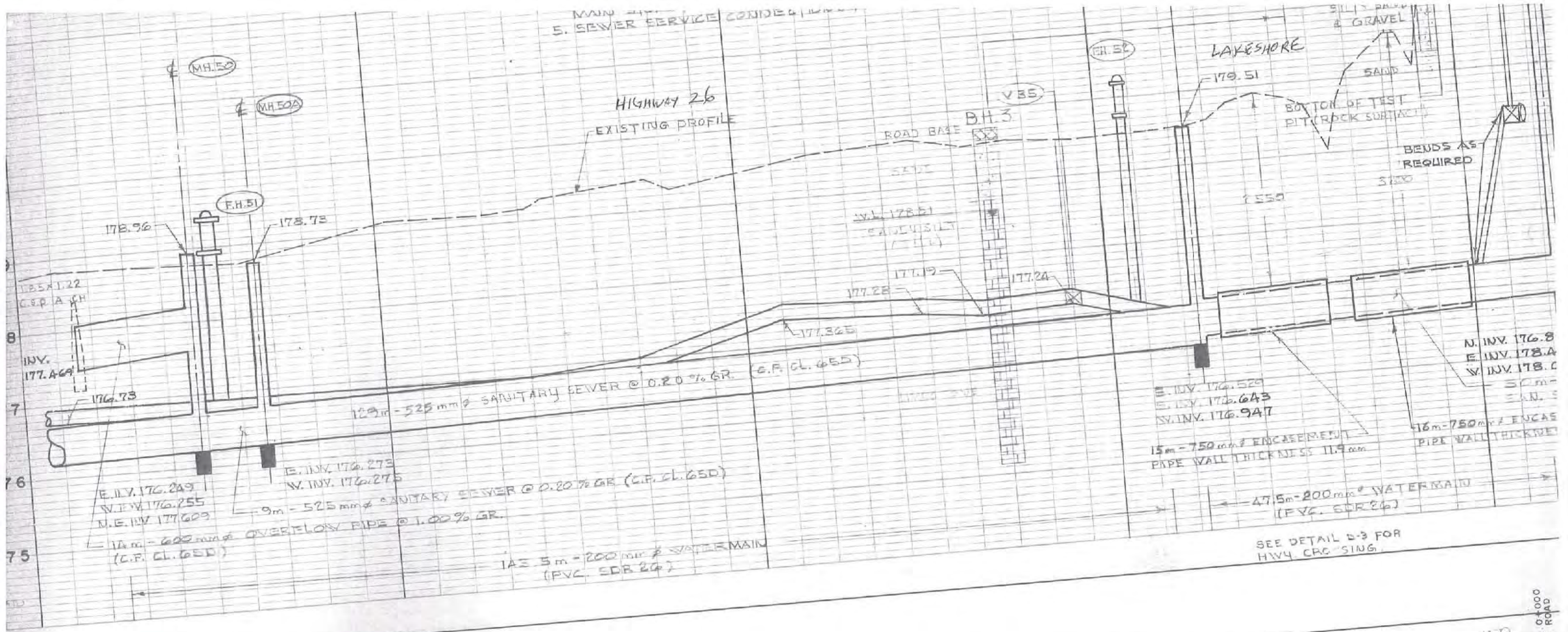
L. RENNIE
267
ERNEST LUST &
MURIEL LUST
GAG
GRAVEL DRIVEWAY
GRASS FIELD EXT.
71m - 200mm ϕ SAN. SEWER STUB (PVC SDR 35)
@ 0.45% GR. PLUGGED (INV. 176.74)
M.H. 47
525 ϕ S.S.
200 ϕ W/M
V.38
FH 53
2-82
T.P. II
200 ϕ x 150 ϕ REDUCER
200 TEE
V.37
13m - 400mm ϕ ENCASEMENT PIPE
WALL THICKNESS 7.1mm
16m - 750mm ϕ ENCASEMENT PIPE
WALL THICKNESS 11.9mm
B.H. 3
15m - 400mm ϕ ENCASEMENT PIPE
WALL THICKNESS 7.1mm
15m - 750mm ϕ ENCASEMENT PIPE
WALL THICKNESS 11.9mm
200 x 200 x 200 TEE
200 x 200 x 150 TEE
V.36
200mm ϕ WATERMAIN STUB TO BE INSTALLED
OVER SAN. SEWER BENDS AS REQUIRED
STUB PLUGGED
V.35
V.62
(PVC SDR 26)
300mm ϕ SAN. SEWER STUB (C.P. EL. 655)
GR. PLUGGED (INV. 176.919)
EX. GRAVEL SHOULDER = 3.0m
EX. ROAD SURFACE - ASPHALT = 7.3m
EX. GRAVEL SHOULDER = 3.0m
EX. 150 ϕ HIGH PRESSURE GAS MAIN
EX. C.B.
CONC. CURB
150 ϕ
142
FH 52
D. B. WHITE & BARBARA WHITE
247
GRAVEL PARKING LOT
ELIZABETH ZOTTER
BRAD-L-BRIN RESTAURANT
GR. 178.91
MOTEL UNITS #9 TO #16
GR. 178.80

# OLD LAKESHORE . ROAD

AS CONSTRUCTED DRAWINGS

COMPILED BY D.B. DATE MAY 1965

5. SEWER SERVICE CONNECTIONS







Legend

- Watermain
- B — Buried Bell Cable
- G — Gasmain
- Existing Watermain

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| 3 | AS CONETRUCTED | SEPT. 1985 | C.K.K. |
| 2 | PRE - TENDER REVISIONS | JUNE 1984 | C.K.K. |
| 1 | DRAWING REDRAFTED | MAR 1984 | C.K.K. |
| | | DATE | INITIAL |

Approved

TOWNSHIP OF COLLING
(CRAIGLEITH CAMPERDOWN
ONTARIO MINISTRY OF THE
DIRECT GRANT PROJECTS N

PLAN AND PROFILE

HIGHWAY Nº 26 - STA. 0+41
OLD LAKESHORE ROAD -

VERTICAL INVESTMENTS LTD. | DONALD B. & MARY E. MOTGOMERY | MOSES THOMPSON & MARY ELIZABETH THOMPSON | WILLIAM M. TROTTER | WILLIAM F. & MARGARET BEVILSON | SHIRLEY KIRKPATRICK | JOHN DAVID McPHAIL | MARY G. WARLL | JOHN E. HASTINGS | JOSEPH & BONNA HAUKE | STEVEN REICHENBACK | GENNARO & ASSUNTA COLANGELO

SKI TRAIL DRIVE

NOTE: FOR TIES SEE DWG. W7

NOTE: FOR TIES SEE DETAIL BELOW

150ø STUB (D.I. CL. 50) WITH 150ø VALVE PLUGGED END

EXISTING ROAD SURFACE GRAVEL - 9.0m WIDTH

EXISTING WATERMAIN TO BE ABANDONED

EX. 200ø WATERMAIN TIE INTO EXISTING 200ø WATERMAIN AND PLUG BOARDS AS REQUIRED & CAP EXIST. W/M

EQUIP. ROAD CROSSING SEE DET. DWG. 81043-S2

EX. 200ø VALVE CHAMBER SEE DETAILS 81043-S2

150ø WATERMAIN (D.I. CL. 50)

350 x 350 x 150 TEE

350 x 250 x 150 TEE

B.M.5

B.M.4

SEE DWG. 81043-W2

KATHERINE BIGELOW | PHILIP C. & PATRICIA J. WAITE | MARY GILBERT | CAROLYN E. CARSON | EDWIN & SUZANNE GOODMAN | CAROL SCHIPPER | ERNA HARRISON | LIONEL GOTTLIEB | ALEXANDER O. TAYLOR | DENNIS BEALLOR & BEALLOR & BEALLOR | MARY SERNIAK | SHELLY A. MILNES

* SEE NOTE DWG. 81043-W1

BAYVIEW Craigleith Rd AVENUE

Grey Rd 19

WINTER PARK ROAD

EXISTING 200ø WATERMAIN TO BE ABANDONED

EXISTING ROAD SURFACE GRAVEL - 6.5m WIDTH

NOTE: EXISTING WATERMAIN TO BE KEPT OPERABLE UNTIL.
1. NEW WATERMAIN IS CHLORINATED & TESTED.
2. EXISTING WATER SERVICES ARE CONNECTED TO NEW WATER SERVICES AT PROPERTY LINE.

B.M. ELEV. 718.849
RAILWAY SPIKE IN S.E. FACE OF H.P.B.R. AT U.S. CORNER OF BAYVIEW AND WINTER PARK RD.

AS CONSTRUCTED DRAWINGS

| | | | |
|---|---|---|---|
| COMPILED BY | B.K. | DATE | OCT. 1984 |
| CHECKED BY | | DATE | MARCH 1985 |
| DRAWN BY | G.W.M. | DATE | MAY 1985 |
| CHECKED BY | R.B.C. | DATE | MAY 1985 |

DETAIL OF TIES FOR BAYVIEW AVE. AND WINTER PARK ROAD

B.H.5
ROAD BASE
W.L. 715.5m
CLAYEY SILT
SAND AND GRAVEL
SAND
SANDY SILT (TILL)
REFER TO SOILS REPORT FOR MORE ACCURATE BOREHOLE INFORMATION.

EXISTING PROFILE

NOTES:
1. PIPE BEDDING, CLASS B-I GRANULAR 'A'.
2. WATER SERVICE CONNECTIONS, 19mmø POLYETHYLENE DR9.
   CURB STOPS, MUELLER A616.
   MAIN STOPS, MUELLER A220.
3. VALVES, CANADA VALVE GATE VALVES.
4. FIRE HYDRANTS, CANADA VALVE CENTURY 350-B18.

240.5m - 350mmø WATERMAIN (D.I. CL. 50)

B.H.4
ROAD BASE
SANDY SILT (TILL)
EX. 150ø WATERMAIN
EX. 200ø WATERMAIN
WINTER PARK ROAD
TO BE REMOVED AS REQUIRED
W.L. 717.10
REFER TO SOILS REPORT FOR MORE ACCURATE BOREHOLE INFORMATION.

| CHAINAGE | EXISTING G. ELEV. | WATERMAIN INVERTS |
|---|---|---|
| 1+000 | 226.60 | 224.37 |
| 25 | 226.20 | 223.91 |
| 50 | 225.75 | 223.40 |
| 75 | 225.35 | 222.99 |
| +100 | 224.75 | 222.50 |
| 25 | 224.30 | 222.04 |
| 50 | 223.65 | 221.57 |
| 75 | 223.05 | 220.92 |
| +200 | 222.55 | 220.36 |
| 25 | 221.75 | 219.66 |
| 50 | 221.25 | 219.13 |
| 75 | 220.75 | 218.42 |
| +300 | 220.00 | 217.83 |
| 25 | 219.06 | |
| 40.5 | | |

Notes:

Legend
105 — SERVICE CONNECTION No.
— Watermain
—B— Buried Bell Cable
—G— Gasmain
— Existing Watermain
— Borehole
— Test Pit

| NO. | REVISIONS | DATE | INITIAL |
|---|---|---|---|
| A | AS CONSTRUCTED ADDITIONAL INFO. | JULY 1986 | C.K.K. |
| 3 | AS CONSTRUCTED | MAY 1985 | C.K.K. |
| 2 | DRAWING REDRAFTED | NOV. 1983 | C.K.K. |
| 1 | PRE TENDER REVISIONS | OCT. 1983 | C.K.K. |

Approved

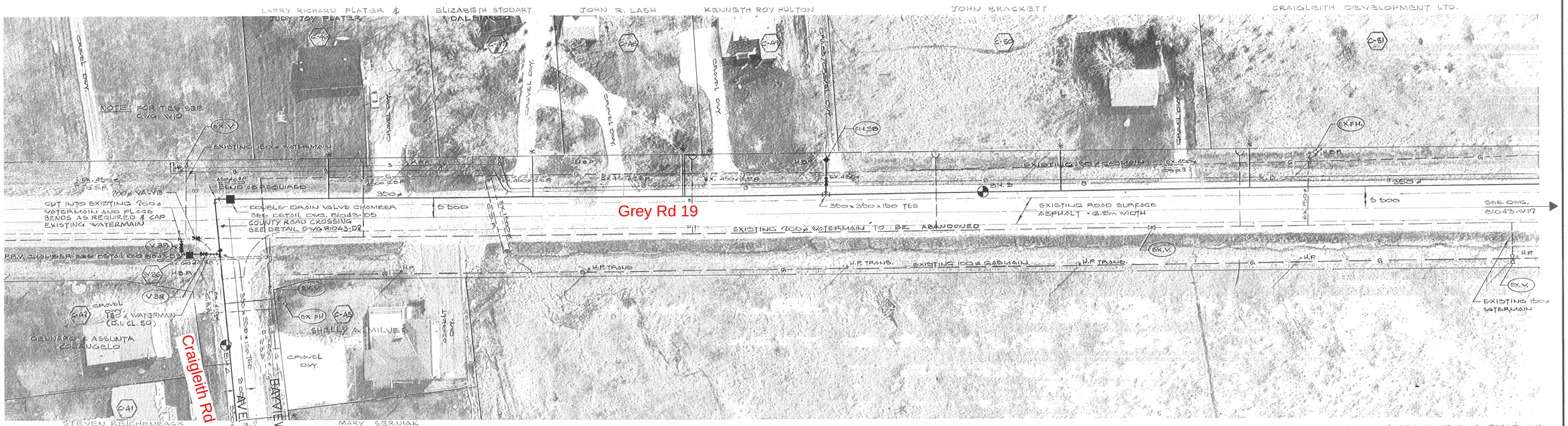
TOWNSHIP OF COLLINGWOOD
(CRAIGLEITH CAMPERDOWN AREA)
ONTARIO MINISTRY OF THE ENVIRONMENT
DIRECT GRANT PROJECTS Nº 3-0174 & 7-0242

PLAN AND PROFILE

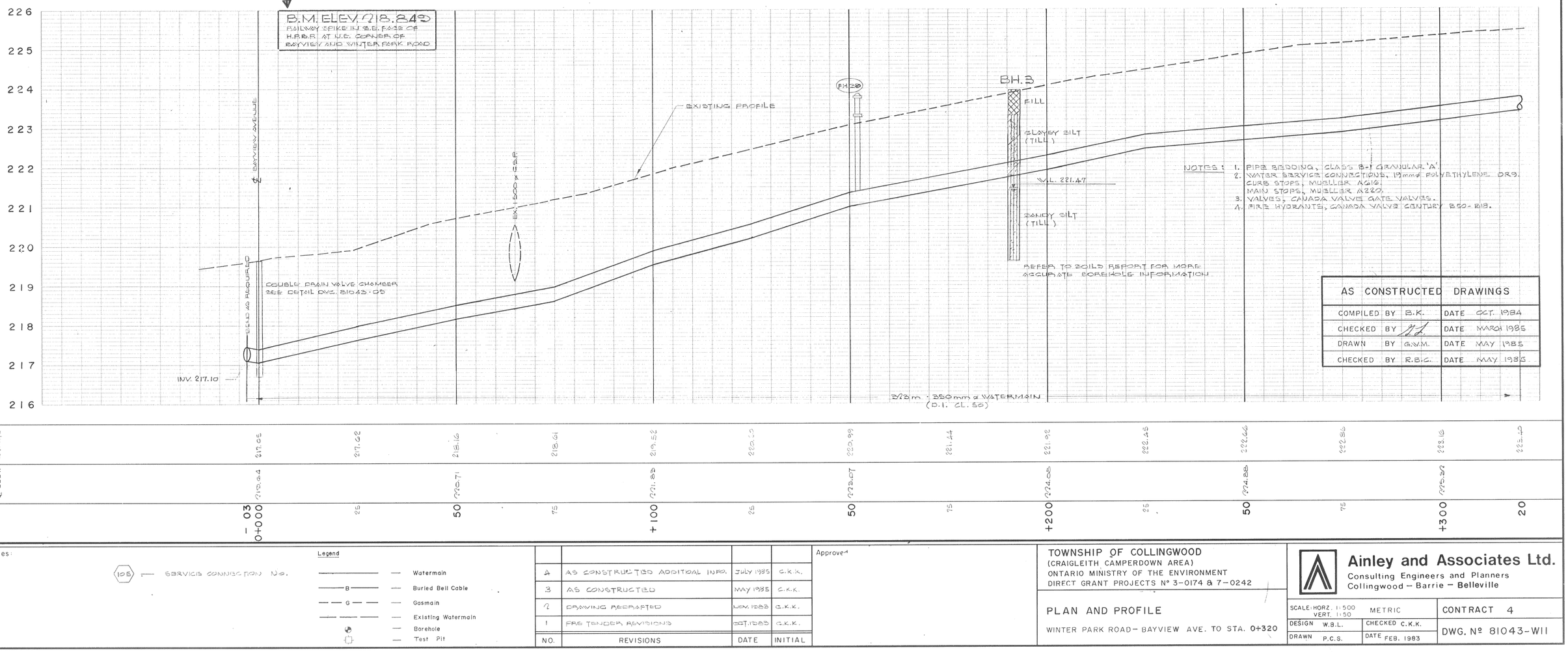
BAYVIEW AVENUE – STA. 1+000 TO WINTER PARK ROAD

Ainley and Associates Ltd.
Consulting Engineers and Planners
Collingwood – Barrie – Belleville

| | | | |
|---|---|---|---|
| SCALE: HORZ. 1:500 VERT. 1:50 | METRIC | CONTRACT 4 | |
| DESIGN W.B.L. | CHECKED C.K.K. | DWG. Nº 81043-W10 | |
| DRAWN D.S. | DATE FEB. 83 | | |




NOTE: EXISTING WATERMAIN TO BE KEPT OPERABLE UNTIL:
1. NEW WATERMAIN IS CHLORINATED & TESTED.
2. EXISTING WATER SERVICES ARE CONNECTED TO NEW WATER SERVICES AT PROPERTY LINE.




| AS CONSTRUCTED DRAWINGS | | | |
|---|---|---|---|
| COMPILED BY | B.K. | DATE | OCT. 1984 |
| CHECKED BY | [illegible] | DATE | MARCH 1985 |
| DRAWN BY | G.V.M. | DATE | MAY 1985 |
| CHECKED BY | R.B.C. | DATE | MAY 1985 |

Notes:

(105) — SERVICE CONNECTION No.

Legend

- Watermain
- B — Buried Bell Cable
- G — Gasmain
- Existing Watermain
- Borehole
- Test Pit

| NO. | REVISIONS | DATE | INITIAL |
|---|---|---|---|
| 4 | AS CONSTRUCTED ADDITIONAL INFO. | JULY 1985 | C.K.K. |
| 3 | AS CONSTRUCTED | MAY 1985 | C.K.K. |
| 2 | DRAWING RECRAFTED | NOV. 1983 | C.K.K. |
| 1 | PRE TENDER REVISIONS | OCT. 1983 | C.K.K. |

Approved

TOWNSHIP OF COLLINGWOOD
(CRAIGLEITH CAMPERDOWN AREA)
ONTARIO MINISTRY OF THE ENVIRONMENT
DIRECT GRANT PROJECTS N° 3-0174 & 7-0242

PLAN AND PROFILE

WINTER PARK ROAD - BAYVIEW AVE. TO STA. 0+320

**Ainley and Associates Ltd.**
Consulting Engineers and Planners
Collingwood - Barrie - Belleville

| | | | |
|---|---|---|---|
| SCALE: HORZ. 1:500 VERT. 1:50 | METRIC | CONTRACT 4 | |
| DESIGN W.B.L. | CHECKED C.K.K. | DWG. N° 81043-W11 | |
| DRAWN P.C.S. | DATE FEB. 1983 | | |

# FIGURES & DRAWINGS

* Figure 3, 5, and 6 are printed at half scale

**Figure 1:** Site Location Plan

**Figure 2:** Site Plan

**Figure 3:** Soil Map

**Figure 4:** Regional Drainage Plan – Watershed 9

**Figure 5:** Pre-Development Drainage Area Plan

**Figure 6:** Post-Development Drainage Area Plan

**Figure 7:** Post-Development HEC-RAS Sections

* 11x17 Drawings are printed at half scale

**Drawings C101.A-D** General Site Servicing Plan

**Drawings C102.A-D** Overall Site Grading Plan

**Drawings C106.A-D** Sanitary Drainage Area Plan

**Drawings C107.A-D** Storm Drainage Area Plan

**Drawings C108.A-C** Stormwater Management Facility #1 (Upper Pond)

**Drawings C109.A-C** Stormwater Management Facility #2 (Lower Pond)

**Drawings C110.A-D** Sediment & Erosion Control Plan

**Drawing C111** Site Preparation & Protection Plan

**Drawings C114.A-D** Watercourse Crossing Plan and Sections, and Notes and Details




Legend

= SUBJECT PROPERTY

Project

PARKBRIDGE CRAIGLEITH
TOWN OF THE BLUE MOUNTAINS

Drawing

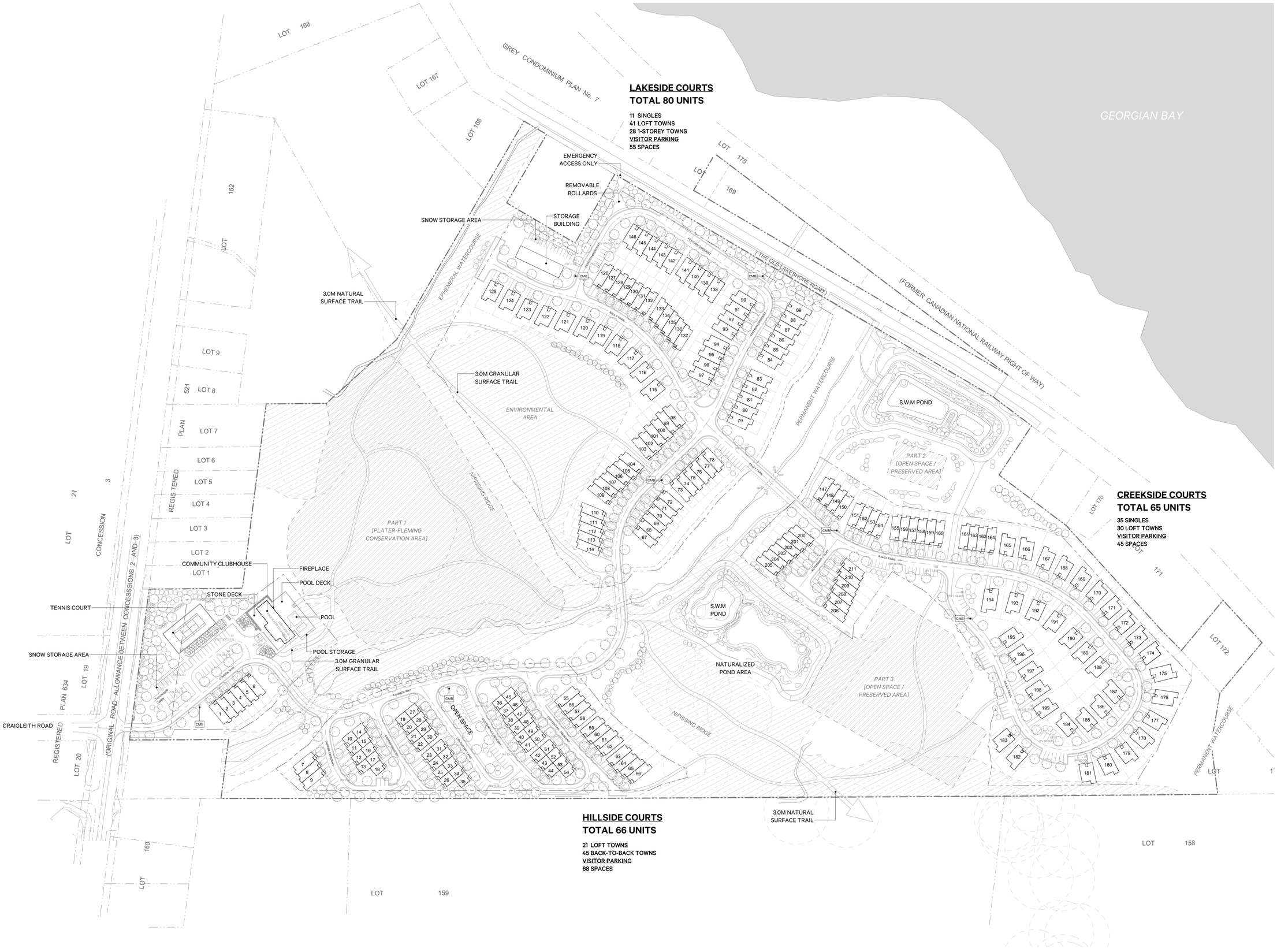
SITE LOCATION

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

| Drawn By | Design By | Project |
|---|---|---|
| L.W. | L.W. | 1046-4031 |

| Scale | Date | Check By | Drawing |
|---|---|---|---|
| N.T.S. | 09/20/2018 | J.P. | FIG. 1 |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_FIG 6-X.dwg, 9/20/2018 2:54:43 PM, cwcad




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| NO. | DATE | ISSUANCE |
|---|---|---|
| 1 | DEC 13, 2016 | DRAFT FOR SUBMISSION |
| 2 | MAY 01, 2018 | DRAFT FOR SUBMISSION |
| 3 | OCT 12, 2018 | DRAFT FOR SUBMISSION |
| 4 | OCT 10, 2019 | ISSUED FOR COORDINATION |
| 5 | AUG 13, 2020 | ISSUED FOR SUBMISSION |
| 6 | MAY 14, 2021 | ISSUED FOR SUBMISSION |

KEY PLAN:




## NOTES

LEGEND:

ARCHEOLOGICAL ZONE

BAT HABITAT

CMB — COMMUNITY MAILBOXES

BUILDING ENVELOPE EXTENTS

TOWNHOUSES

TYPE A
BACK-TO-BACK TOWNS

TYPE B
1-STOREY TOWNS

TYPE C
LOFT TOWNS

DETACHED

TYPE D
1-STOREY SINGLE

TYPE E
2-STOREY SINGLE

NOTE:
DETACHED LOTS CAN ACCOMODATE BOTH TYPE D & TYPE E

# FIGURE 2

0 10 20 50 100 m

SCALE 1:1250

SvN
110 Adelaide St. E.
Toronto, ON M5C 1K9
info@svn-ap.com
416.593.6499

**Craigleith Ridge**
Craigleith Ridge
The Blue Mountains, Ontario
**Parkbridge Lifestyle Communities Inc.**

**SITE PLAN**

| | | | |
|---|---|---|---|
| PROJECT | 41717 | DRAWN | CF |
| SCALE | 1:1250 | CHECKED | Checker |
| DATE | 24.03.21 | PLOTTED | 2021-05-14 11:31:53 AM |

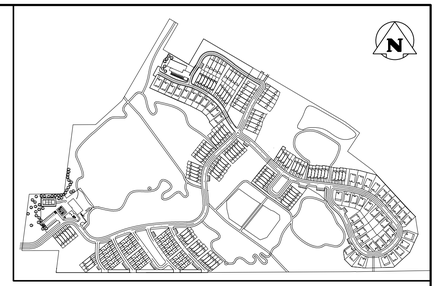
D.01

SOIL CLASSIFICATION FROM
'SOILS OF GREY COUNTY,
ONTARIO (NORTH SHEET)'
SOIL SURVEY REPORT No. 17

GRANBY SAND
HYDROLOGIC SOIL GROUP B

WATERLOO SANDY LOAM
HYDROLOGIC SOIL GROUP A

KEMBLE SILTY CLAY
HYDROLOGIC SOIL GROUP C



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| No. | ISSUE | DATE: MM/DD/YYYY |
|---|---|---|
| 0 | ISSUED FOR 1st SUBMISSION | 10/05/2018 |

Engineer | Engineer

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Project
PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

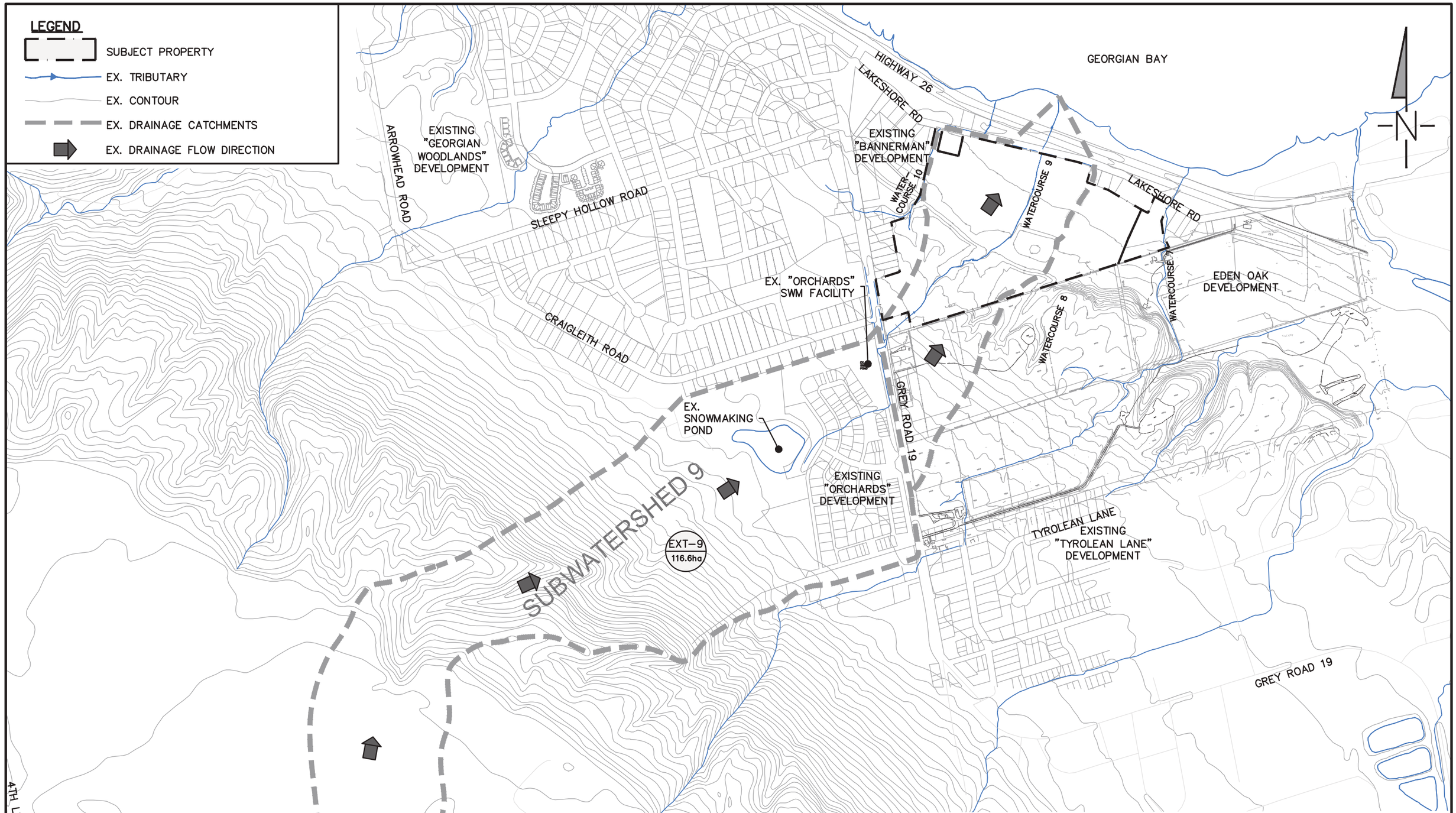
Drawing
SITE SOIL MAP


CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA


| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046-4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:1500 | FIG 3 |

SCALE: 1:1500

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_FIG 3,5,6.dwg, FIG 3, 2020-06-26 3:39:24 PM, jelder




NOTE: TOPOGRAPHIC MAPPING PER OBM BASE MAPS

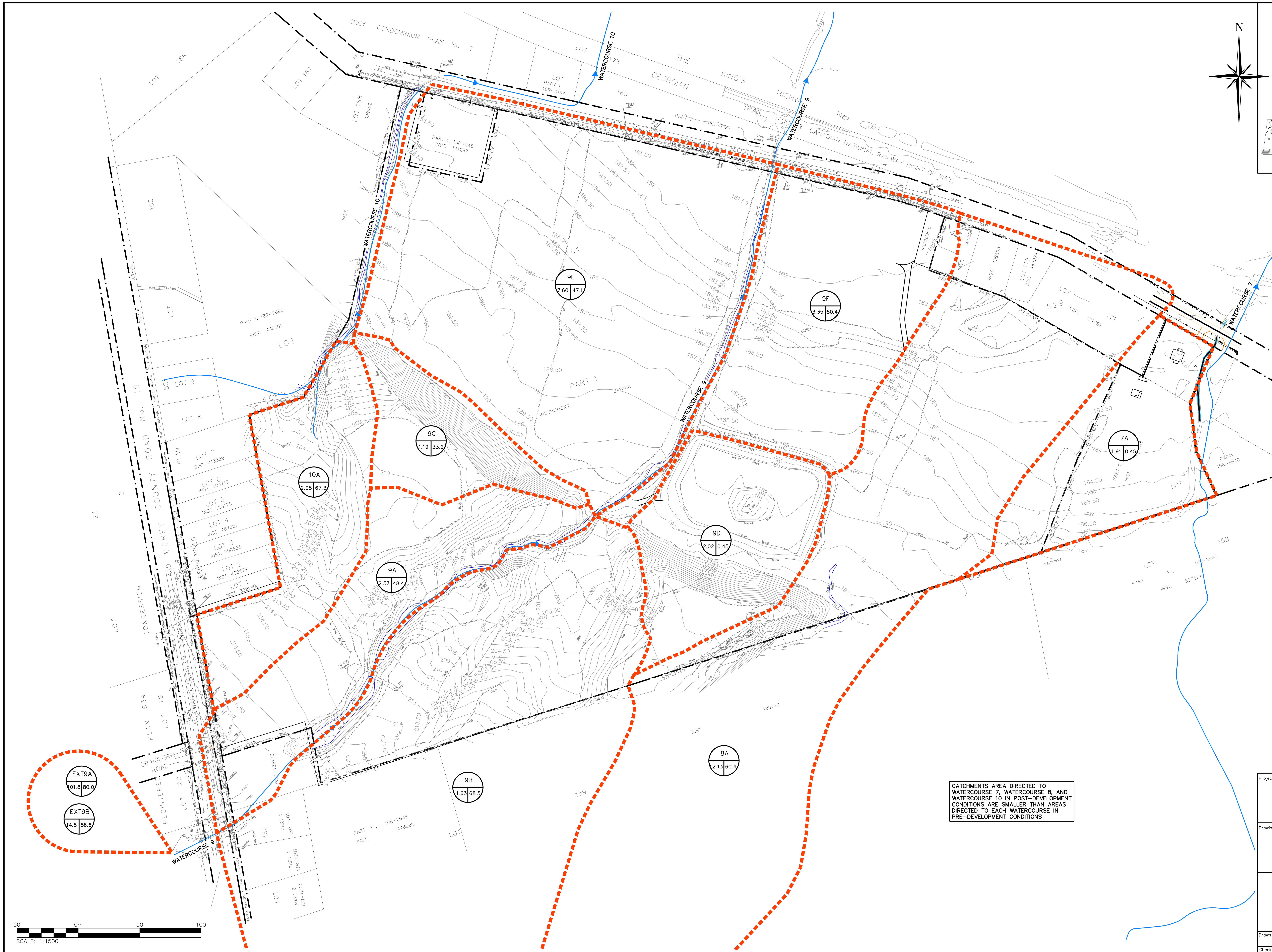
Project
PARKBRIDGE CRAIGLEITH
TOWN OF THE BLUE MOUNTAINS

Drawing
REGIONAL DRAINAGE PLAN
SUBWATERSHED 9


CROZIER & ASSOCIATES Consulting Engineers
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA


| Drawn By | Design By | Project |
|---|---|---|
| L.W. | L.W. | 1046-4031 |
| Scale | Date | Check By | Drawing |
| 1:10,000 | 09/20/2018 | J.P. | FIG 4 |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_FIG 6-X.dwg, 9/21/2018 9:04:03 AM, cwcad




**LEGEND**

- SUBJECT PROPERTY
- EX. DRAINAGE CATCHMENTS
- EX. TRIBUTARY
- EX. CONTOUR
- DRAINAGE I.D. (9D)
- SCS CURVE NUMBER (68.5)
- AREA (ha) (2.02)

NOTE: FOR PRE–DEVELOPMENT HYDROLOGIC PARAMETERS (ie. % IMPERVIOUS) REFER TO APPENDIX C IN CROZIER SERVICING & STORMWATER MANAGEMENT IMPLEMENTATION REPORT

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3. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
4. DO NOT SCALE THE DRAWINGS.
5. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

| No. | ISSUE | DATE: MM/DD/YYYY |
|---|---|---|
| 0 | ISSUED FOR 1st SUBMISSION | 10/05/2018 |

Engineer | Engineer

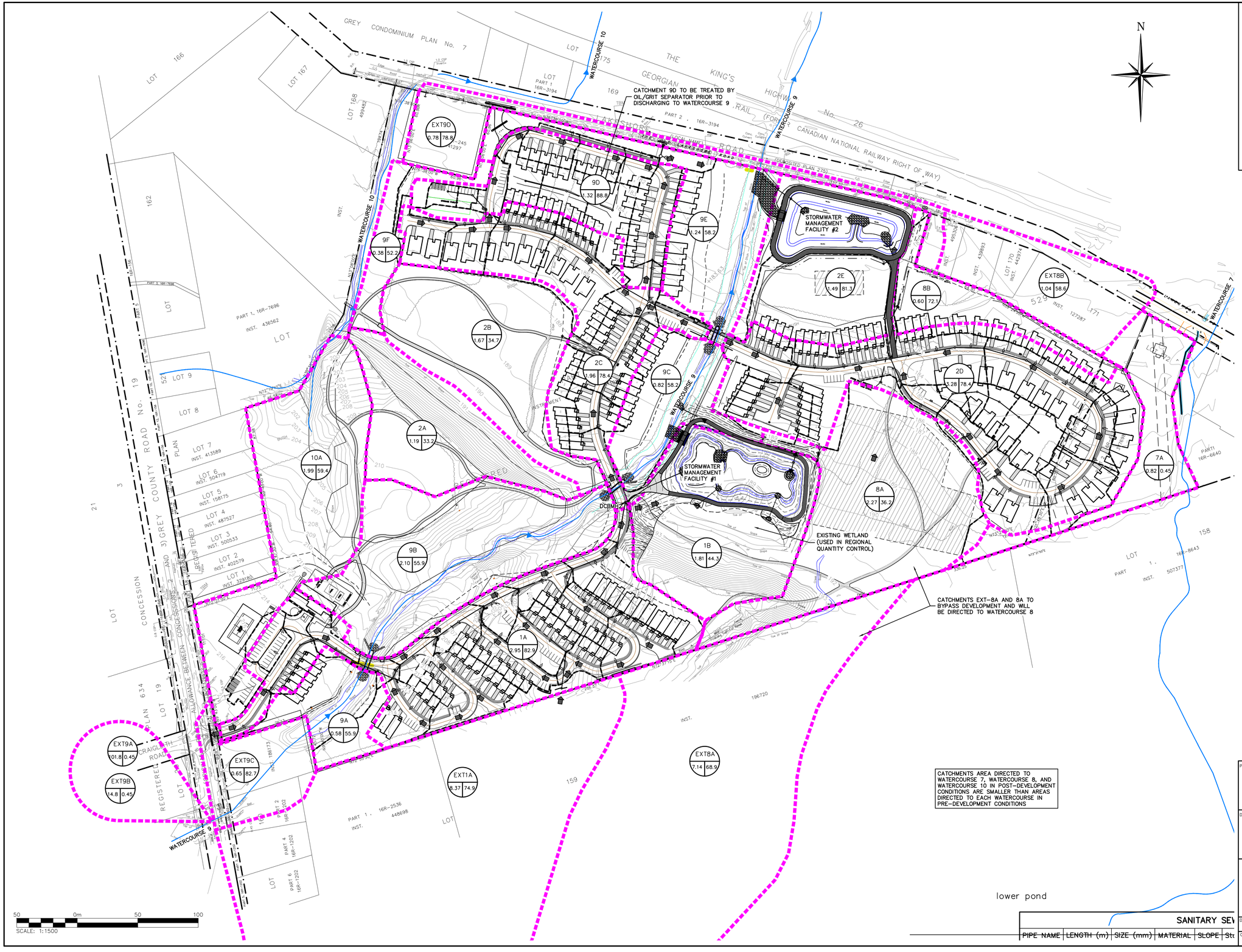
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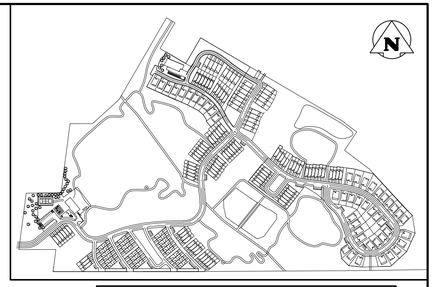
Project
PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing
PRE DEVELOPMENT
DRAINAGE AREA PLAN

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
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705 446-3520 F
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| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | 1046–4031 | |
| Check By R.W. | Check By J.P. | Scale 1:1500 | Drawing FIG 5 |



**LEGEND**

- SUBJECT PROPERTY
- EX. DRAINAGE CATCHMENTS
- PR. DRAINAGE FLOW DIRECTION
- PR. SWALE
- ×182.45 PR. ELEVATION
- 1.5% PR. GRADE & DIRECTION
- CULVERT
- EX. TRIBUTARY
- EX. CONTOUR
- 9D 2.02 68.5 DRAINAGE I.D. / SCS CURVE NUMBER / AREA (ha)
- PR. STORM SEWER & MANHOLE
- PR. CATCHBASIN
- PR. DOUBLE CATCHBASIN
- PR. CATCHBASIN MANHOLE
- PR. DOUBLE CATCHBASIN MANHOLE
- PR. STORM SEWER CATCHMENT

NOTE: FOR POST-DEVELOPMENT HYDROLOGIC PARAMETERS (ie. % IMPERVIOUS) REFER TO APPENDIX C IN CROZIER SERVICING & STORMWATER MANAGEMENT IMPLEMENTATION REPORT

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Engineer

Engineer

**PRELIMINARY**
NOT TO BE USED FOR CONSTRUCTION

Project

# PARKBRIDGE CRAIGLEITH
# THE TOWN OF THE BLUE MOUNTAINS

Drawing

## POST DEVELOPMENT DRAINAGE AREA PLAN


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THE HARBOUREDGE BUILDING,
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| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:1500 | FIG 6 |

SANITARY SEV

| PIPE NAME | LENGTH (m) | SIZE (mm) | MATERIAL | SLOPE | Sto |
|---|---|---|---|---|---|

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_FIG 3,5,6.dwg, FIG 6, 2021-05-14 1:08:11 PM, jelder

| POST-DEVELOPMENT WATER SURFACE ELEVATIONS | | |
|---|---|---|
| CROSS SECTION ID | 100-YEAR WSE | REGIONAL WSE |
| 780 | 212.34 | 212.39 |
| 758 | 211.22 | 211.59 |
| 753 | 210.92 | 211.34 |
| 733 | 208.94 | 209.08 |
| 722 | 206.97 | 207.07 |
| 669 | 204.38 | 204.46 |
| 629 | 201.78 | 201.86 |
| 587 | 199.01 | 199.11 |
| 546 | 196.97 | 197.07 |
| 510 | 193.90 | 194.01 |
| 487 | 192.98 | 193.38 |
| 481 | 192.70 | 193.16 |
| 463 | 191.67 | 191.70 |
| 452 | 191.29 | 191.37 |
| 394 | 189.36 | 189.41 |
| 370 | 188.38 | 188.43 |
| 352 | 187.78 | 187.87 |
| 336 | 187.30 | 187.67 |
| 327 | 186.43 | 186.67 |
| 310 | 185.32 | 185.45 |
| 300 | 184.88 | 184.99 |
| 285 | 183.98 | 184.09 |
| 265 | 183.20 | 183.25 |
| 250 | 182.48 | 182.58 |
| 237 | 182.11 | 182.14 |
| 219 | 182.11 | 182.14 |
| 199 | 182.08 | 182.11 |
| 177 | 181.97 | 181.92 |

LEGEND

546 HEC-RAS CROSS SECTION LOCATION AND ID

POST-DEVELOPMENT REGIONAL FLOODLINE

N

WATERCOURSE #9 OUTLETS TO GEORGIAN BAY

0 38 54 98 105 124 139 162 177 199 219 237 250 265 285 300 310 327 336 352 370 394 452 463 481 510 546 587 629 669 722 733 753 758 780 892 926 960

WATERCOURSE #10

WATERCOURSE #9

HWY 26

GEORGIAN TRAIL

LAKESHORE ROAD

CRAIGLEITH ROAD

COUNTY ROAD 19

181.50

TBM 181.61

EXISTING 2.45m BY 0.9m CONCRETE BOX CULVERT

EXISTING 1.5mø CSP CULVERT

EXISTING 1.55m x 1.05m CONCRETE BOX CULVERT

PROPOSED 17.1m - 3.0mx1.2m CONC. BOX CULVERT S.INV 191.64 N.INV 191.30

PROPOSED 15.6m - 3.0mx1.2m CONC BOX CULVERT S.INV 185.02 N.INV 184.64

PROPOSED 19.3 - 3.0mx1.2m CONC BOX CULVERT S.INV 209.88 N.INV 208.20

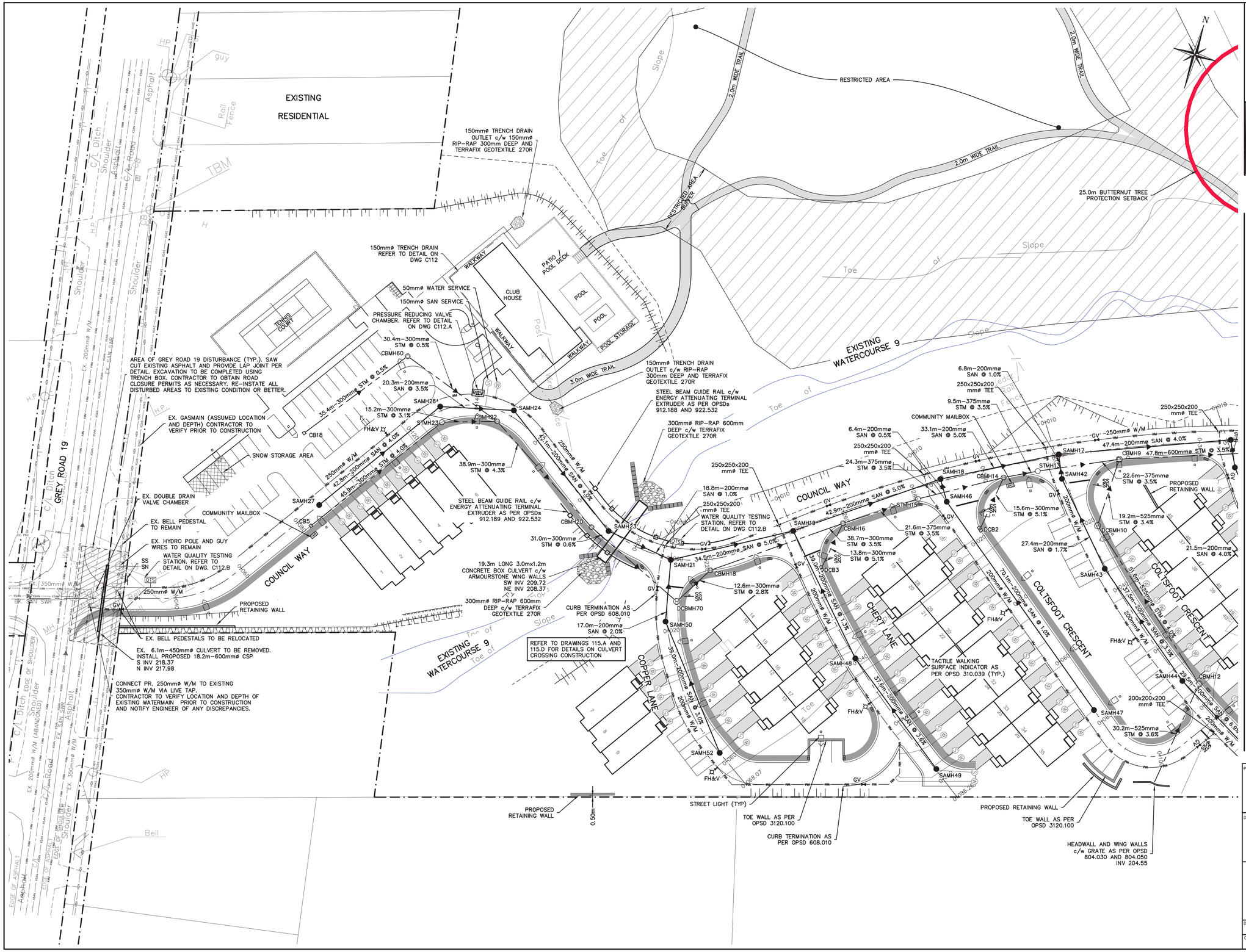
EXISTING 1.5mø CSP CULVERT

Project: PARKBRIDGE CRAIGLEITH
TOWN OF THE BLUE MOUNTAINS

Drawing: POST-DEVELOPMENT HEC-RAS SECTIONS

CROZIER & ASSOCIATES Consulting Engineers
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|---|---|---|
| J.E. | J.E. | 1046-4031 |
| Scale | Date | Check By | Drawing |
| 1:1000 | 09/14/2020 | J.P. | FIG 7 |




NOTE:
REFER TO DWG C114.D FOR DETAIL ON STEEL LINER AND CASING SPACERS.

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## TEMPORARY BENCHMARKS

**TBM#1** – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

TOPOGRAPHIC SURVEY COMPLETED BY ZUBEK, EMO, PATTEN AND THOMSEN LTD. O.L.S., DATED MARCH 2006.

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Engineer | Engineer

Project
PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing
GENERAL SITE SERVICING PLAN (WEST)

CROZIER CONSULTING ENGINEERS
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|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:500 | C101.A |

REFER TO DWG 101.D

REFER TO DWG 101.C

REFER TO DWG 101.A

REFER TO DRAWINGS 115.C AND 115.D FOR DETAILS ON CULVERT CROSSING CONSTRUCTION

REFER TO DRAWINGS 115.B AND 115.D FOR DETAILS ON CULVERT CROSSING CONSTRUCTION

STORMWATER MANAGEMENT FACILITY 1 (UPPER) REFER TO DRAWINGS 108.A – 108.C

RESTRICTED AREA

25.0m BUTTERNUT TREE PROTECTION SETBACK

EXISTING WATERCOURSE 8

EXISTING WATERCOURSE 9

BUTTERNUT CRESCENT

FESTOON CRESCENT

RALLY TRAIL

COUNCIL WAY

COTTONTAIL LANE

COLTSFOOT CRESCENT

3.0m WIDE TRAIL

2.0m WIDE TRAIL

21.6m–600mmø STM @ 0.9%

30.7m–200mmø SAN @ 3.1%

47.2m–200mmø SAN @ 4.9%

200mmø W/M

200x200x200 mmø TEE

30.15m

SAMH74

SAMH75

STMH39

FH&V

300mmø RIP–RAP 600mm DEEP c/w TERRAFIX GEOTEXTILE 270R

WATER QUALITY TESTING STATION. REFER TO DETAIL ON DWG C112.B

STEEL BEAM GUIDE RAIL c/w ENERGY ATTENUATING TERMINAL EXTRUDER AS PER OPSDs 912.189 AND 922.532

15.6m LONG 3.0mx1.2m CONCRETE BOX CULVERT c/w ARMOURSTONE WING WALLS S INV 185.02 N INV 184.64

STMH40

60.7m–600mmø STM @ 0.7%

200mmø W/M

34.6m–300mmø STM @ 1.0%

CBMH41

5.7m–600mmø STM @ 0.6%

STMH42

SAMH5

37.1m–200mmø SAN @ 0.5%

14.5m–450mmø STM @ 1.1%

TACTILE WALKING SURFACE INDICATOR AS PER OPSD 310.039 (TYP.)

DCBMH4B

DCBMH43

SAMH7

200mmø CROSS

28.9m–200mmø SAN @ 0.5%

42.7m–375mmø STM @ 2.7%

24.4m–450mmø STM @ 0.5%

SAMH30

58.3m–200mmø SAN @ 3.0%

COMMUNITY MAILBOX

STMH49

28.5m–300mmø STM @ 2.5%

49.3m–375mmø STM @ 1.7%

SAMH8

CBMH50

28.5m–300mmø STM @ 3.0%

STREET LIGHT (TYP.)

24.4m–200mmø SAN @ 3.5%

SAMH9

SAMH10

20.5m–200mmø SAN @ 3.5%

PRESSURE REDUCING VALVE CHAMBER. REFER TO DETAIL ON DWG C112.A

DCB12

CB13

60.5m–200mmø SAN @ 5.4%

250mmø W/M

PRV

SAMH12

34.1m–600mmø STM @ 3.5%

17.1m–200mmø SAN @ 4.0%

CBMH4

STREET LIGHT (TYP)

17.0m–600mmø STM @ 3.5%

STMH5

SAMH15

36.8m–600mmø STM @ 3.5%

17.1m LONG 3.0mx1.2m CONCRETE BOX CULVERT c/w ARMOURSTONE WING WALLS SW INV 191.64 NE INV 191.30

STEEL BEAM GUIDE RAIL c/w ENERGY ATTENUATING TERMINAL EXTRUDER AS PER OPSDs 912.188 AND 922.532

300mmø RIP–RAP 600mm DEEP c/w TERRAFIX GEOTEXTILE 270R

HEADWALL #1

28.8m–600mmø STM @ 3.5%

STMH1

23.0m–600mmø STM @ 3.5%

CBMH6

SS

SAMH16

47.8m–600mmø STM @ 3.5%

7.7m–200mmø SAN @ 1.0%

250x250x200 mmø TEE

43.3m–200mmø STM @ 3.5%

250mmø W/M

SAMH38

SAMH39

DCBMH7

CBMH12

15.9m–300mmø STM @ 4.0%

CB14

5.7%

50.8m–200mmø SAN @ 4.0%

200mmø W/M

43.3m–300mmø STM @ 4.0%

21.5m–200mmø SAN @ 4.0%

SAMH40

SAMH45

35.9m–200mmø SAN @ 4.4%

200x200x200 mmø TEE

150mmø SAN @ 6.9%

200mmø W/M

CB14.14

1.69m

SAMH41

TOE WALL AS PER OPSD 3120.100

PROPOSED RETAINING WALL

CURB TERMINATION AS PER OPSD 608.010

1.31m

CB14.80

3.03m

Toe of Slope

Top of Ditch

Fence

Post

Wire

Top of Ridge

Creek

Road

Slope

Toe of Slope

Top of Slope

## KEY PLAN

SCALE: N.T.S.

## SECTION A–A

SCALE 1:100

UNIT 103

UNIT 104

2.8m

3.1m

PROPOSED GRADE

EXISTING GRADE

ROCK

375mmø STM SWR

191.0

190.0

189.0

188.0

187.0

186.0

185.0

NOTE:
REFER TO DWG C114.D FOR DETAIL ON STEEL LINER AND CASING SPACERS.


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## TEMPORARY BENCHMARKS

**TBM#1** – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

TOPOGRAPHIC SURVEY COMPLETED BY ZUBEK, EMO, PATTEN AND THOMSEN LTD. O.L.S., DATED MARCH 2006.

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Engineer

Engineer

Project

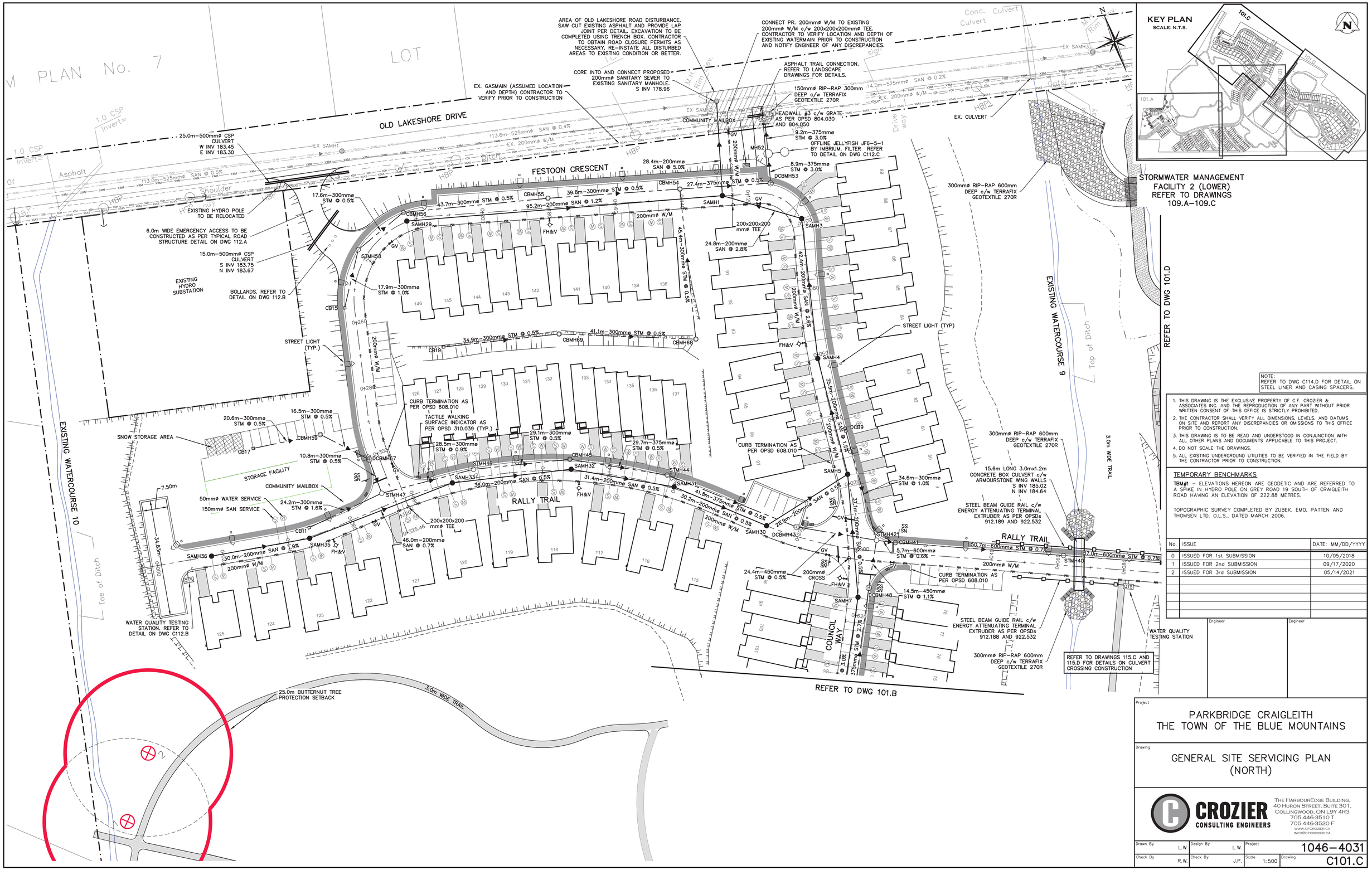
PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

GENERAL SITE SERVICING PLAN (CENTRAL)


CROZIER CONSULTING ENGINEERS
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|---|---|---|---|---|---|
| Check By | R.W. | Check By | J.P. | Scale | 1:500 |
| | | | | Drawing | C101.B |




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## TEMPORARY BENCHMARKS

**TBM#1** – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

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Engineer

Engineer

Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

GENERAL SITE SERVICING PLAN
(NORTH)

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
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|---|---|---|---|
| L.W. | L.W. | | 1046-4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:500 | C101.C |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_C101 GEN.dwg, C101.C, 2021-05-17 4:21:18 PM, lwaters

BREAK-IN AND CONNECT PROPOSED 200mmø SANITARY SEWER TO EXISTING SANITARY MANHOLE. S INV 177.87

EXISTING HYDRO POLE TO BE MAINTAINED AND SUPPORTED DURING CONSTRUCTION

OLD LAKESHORE ROAD

105.1m–525mmø SAN @ 1.0%

EX. 200mmø W/M

112.6m–525mmø SAN @ 0.2%

EX. 200mmø W/M

150mmø RIP–RAP 300mm DEEP c/w TERRAFIX GEOTEXTILE 270R

AREA OF OLD LAKESHORE ROAD DISTURBANCE. SAW CUT EXISTING ASPHALT AND PROVIDE LAP JOINT PER DETAIL. EXCAVATION TO BE COMPLETED USING TRENCH BOX. CONTRACTOR TO OBTAIN ROAD CLOSURE PERMITS AS NECESSARY. RE-INSTATE ALL DISTURBED AREAS TO EXISTING CONDITION OR BETTER.

LOT 171

EXISTING RESIDENTIAL

LOT 172

Cedar Rail Fence

STORMWATER MANAGEMENT FACILITY 2 (LOWER) REFER TO DRAWINGS 109.A–109.C

HEADWALL #2

11.4m–900mmø STM @ 0.2%

INLET HEADWALL #2 c/w GRATE AS PER OPSD 804.030 AND 804.050

9.6m–300mmø STM @ 2.3% c/w BACKFLOW PREVENTER

104.1m–200mmø SAN @ 0.5%

RESTRICTED AREA

150mmø RIP–RAP 300mm DEEP c/w TERRAFIX GEOTEXTILE 270R AT PIPE OUTLET

HEADWALL c/w GRATE AS PER OPSD 804.030 AND 804.050 INV 182.28

10.3m–600mmø STM @ 0.2%

SAMH55

STMH72

6.9m–600mmø STM @ 0.2%

STMH71

36.7m–200mmø SAN @ 0.5%

STMH25

35.7m–900mmø STM @ 0.2%

3.0m WIDE TRAIL

REFER TO DWG 101.C

22.9m–300mmø STM @ 0.5%

47.8m–600mmø STM @ 0.2%

STMH27

24.4m–375mmø STM @ 0.5%

24.0m–200mmø SAN @ 0.5%

CBMH28

36.5m–300mmø STM @ 0.5%

35.4m–200mmø SAN @ 0.5%

SAMH58

SAMH59

STMH29

65.3m–300mmø STM @ 0.5%

82.0m–200mmø SAN @ 0.5%

200mmø W/M

GV

FH&V

SAMH57

CBMH30

SAMH60

STREET LIGHT (TYP.)

RALLY TRAIL

16.2m–300mmø STM @ 0.5%

16.7m–200mmø SAN @ 0.5%

STMH31

13.6m–300mmø STM @ 0.5%

13.1m–200mmø SAN @ 0.6%

SAMH61

STMH32

20.7m–200mmø SAN @ 0.6%

SAMH62

22.3m–300mmø STM @ 0.5%

SAMH63

CBMH33

27.0m–200mmø SAN @ 0.5%

FH&V

SAMH64

22.0m–200mmø SAN @ 0.5%

200x200x200mmø W/M TEE

23.1m–200mmø SAN @ 1.0%

200mmø W/M

GV

SAMH70

SAMH71

24.7m–200mmø SAN @ 0.5%

200mmø W/M STUB c/w CAP

FUTURE EMERGENCY ACCESS

20.4m–300mmø STM @ 0.5%

20.1m–300mmø STM @ 0.5%

CBMH63

CBMH65

20.6m–300mmø STM @ 0.5%

CBMH66

20.6m–300mmø STM @ 1.0%

CB7

20.1m–300mmø STM @ 0.5%

CBMH62

200x200x200mmø W/M TEE

GV

SAMH56

SAMH66

32.7m–200mmø SAN @ 2.4%

CBMH35

FH&V

COMMUNITY MAILBOX

CURB TERMINATION AS PER OPSD 608.010

STORM INLET STRUCTURE. REFER TO DETAIL ON DWG C112.C.

15.1m–300mmø STM @ 2.0%

STMH36

36.2m–200mmø SAN @ 2.2%

SAMH68

CBMH61

27.4m–300mmø STM @ 1.0%

24.1m–300mmø STM @ 1.7%

STMH34

53.1m–200mmø SAN @ 1.1%

200mmø W/M

TACTILE WALKING SURFACE INDICATOR AS PER OPSD 310.039 (TYP.)

SAMH69

CBMH

30.5m–300mmø STM @ 1.0%

3.0m WIDE TRAIL

RESTRICTED AREA

COMMUNITY MAILBOX

21.6m–600mmø STM @ 0.9%

STMH37

24.4m–600mmø STM @ 1.4%

53.0m–600mmø STM @ 1.0%

57.2m–200mmø SAN @ 2.2%

RALLY TRAIL

STMH39

CBMH38

SAMH74

SAMH73

SAMH72

30.7m–200mmø SAN @ 3.1%

31.7m–200mmø SAN @ 2.6%

200mmø W/M

CURB TERMINATION AS PER OPSD 608.010

FH&V

200x200x200mmø TEE

GV

CB6

16.3m–300mmø STM @ 0.7%

200mmø W/M

47.2m–200mmø SAN @ 4.9%

BUTTERNUT CRESCENT

CURB TERMINATION AS PER OPSD 608.010

30.15m

SAMH75

FH&V

7.50m

Slope

STORMWATER MANAGEMENT FACILITY 1 (UPPER) REFER TO DRAWINGS 108.A–108.C

N62°27'35"W 20.82

N27°32'25"E 59.00

N60°04'30"W

NOTE:
REFER TO DWG C114.D FOR DETAIL ON STEEL LINER AND CASING SPACERS.

KEY PLAN
SCALE: N.T.S.

101.C
101.D
101.A

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TEMPORARY BENCHMARKS

TBM#1 – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

TOPOGRAPHIC SURVEY COMPLETED BY ZUBEK, EMO, PATTEN AND THOMSEN LTD. O.L.S., DATED MARCH 2006.

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| 2 | ISSUED FOR 3rd SUBMISSION | 05/14/2021 |

Engineer

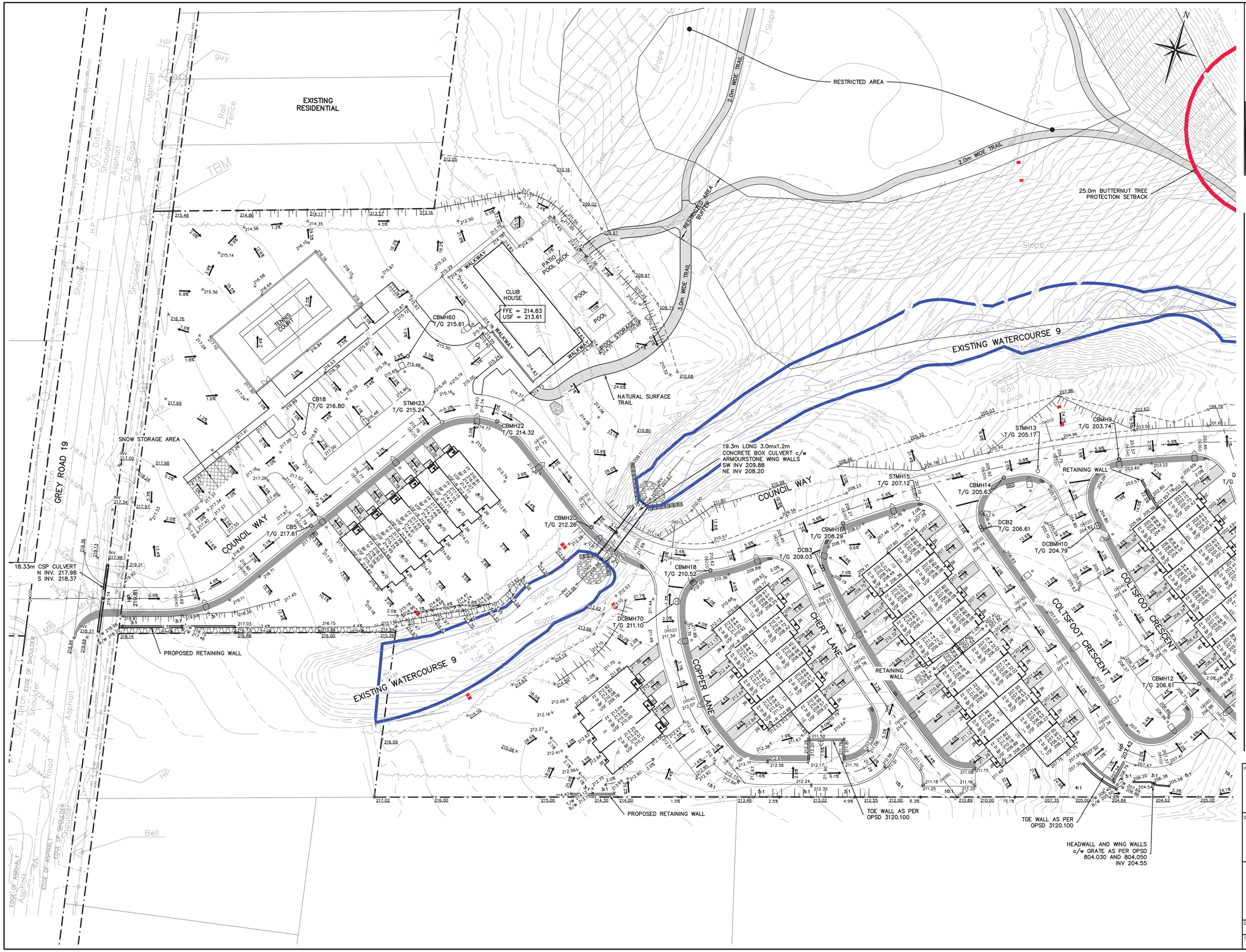
Engineer

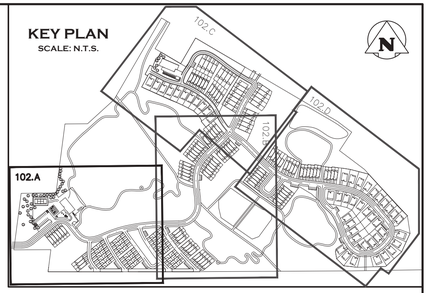
Project
PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing
GENERAL SITE SERVICING PLAN (EAST)

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
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INFO@CFCROZIER.CA

| Drawn By | L.W. | Design By | L.W. | Project | 1046–4031 |
|---|---|---|---|---|---|
| Check By | R.W. | Check By | J.P. | Scale 1:500 | Drawing C101.D |




## LEGEND

- REGIONAL FLOODLINE
- BUTTERNUT TREE c/w 25m SETBACK (GREEN PER GPS COORDINATES, BLUE PER PESCE SURVEY)
- SOLID RED – 25m SETBACK
- DASHED RED – SETBACK ENCROACHMENT
- RESTRICTED AREA
- MEANDER BELT (GEOMORPHIX, SEPT. 2020)
- STABLE TOP OF SLOPE (GEOMORPHIX, SEPT. 2020)
- STABLE TOP OF SLOPE SETBACK, 1m OR 5m (GEOMORPHIX, SEPT. 2020)

REFER TO DRAWING 112.B FOR TYPICAL LOT GRADING RELATIONSHIP DETAIL

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### TEMPORARY BENCHMARKS

**TBM#1** – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

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Engineer | Engineer

Project

# PARKBRIDGE CRAIGLEITH
# THE TOWN OF THE BLUE MOUNTAINS

Drawing

## OVERALL SITE GRADING PLAN (WEST)

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
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| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:500 | C102.A |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_C102 GRAD.dwg, C102.A, 2021-05-17 4:22:52 PM, lwaters

REFER TO DWG 102.D

REFER TO DWG 102.C

REFER TO DWG 102.A

EXISTING WATERCOURSE 9

EXISTING WATERCOURSE 8

BUTTERNUT CRESCENT

RALLY TRAIL

FESTOON CRESCENT

COUNCIL WAY

COTTONTAIL LANE

COLTSFOOT CRESCENT

2.0m WIDE TRAIL

3.0m WIDE TRAIL

15.6m LONG 3.0mx1.2m CONCRETE BOX CULVERT c/w ARMOURSTONE WING WALLS
S INV 185.02
N INV 184.64

17.1m LONG 3.0mx1.2m CONCRETE BOX CULVERT c/w ARMOURSTONE WING WALLS
SW INV 191.64
NE INV 191.30

STORMWATER MANAGEMENT FACILITY 1 (UPPER) REFER TO DRAWINGS 108.A – 108.C

RETAINING WALL

25.0m BUTTERNUT TREE PROTECTION SETBACK

ARCHAEOLOGICAL PROTECTION BUFFER

AREA OF SIDEWALK DROP TO ALLOW MAJOR OVERLAND FLOW TO SPILL TO POND

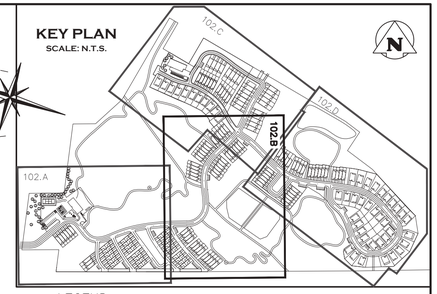
TOE WALL AS PER OPSD 3120.100

PROPOSED RETAINING WALL

RETAINING WALL

STMH39 T/G 186.00
STMH40 T/G 186.99
CBMH41 T/G 186.72
STMH42 T/G 186.66
DCBMH43 T/G 186.76
DCBMH48 T/G 186.93
STMH49 T/G 188.26
CBMH50 T/G 189.31
CB13 T/G 190.40
STMH1 T/G 193.67
DCBMH2 T/G 194.92
CBMH4 T/G 197.37
STMH5 T/G 198.57
CB1 T/G 204.62
CBMH6 T/G 200.60
DCBMH7 T/G 201.75
CBMH T/G 185.93

## KEY PLAN
SCALE: N.T.S.




## LEGEND

- POST DEVELOPMENT REGIONAL FLOODLINE
- BUTTERNUT TREE c/w 25m SETBACK (GREEN PER GPS COORDINATES, BLUE PER PESCE SURVEY)
- ARCHAEOLOGICAL SITE
- MEANDER BELT (GEOMORPHIX, SEPT. 2020)
- STABLE TOP OF SLOPE (GEOMORPHIX, SEPT. 2020)
- STABLE TOP OF SLOPE SETBACK, 1m OR 5m (GEOMORPHIX, SEPT. 2020)

REFER TO DRAWING 112.B FOR TYPICAL LOT GRADING RELATIONSHIP DETAIL

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## TEMPORARY BENCHMARKS

TBM#1 – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

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Engineer | Engineer

Project

# PARKBRIDGE CRAIGLEITH
# THE TOWN OF THE BLUE MOUNTAINS

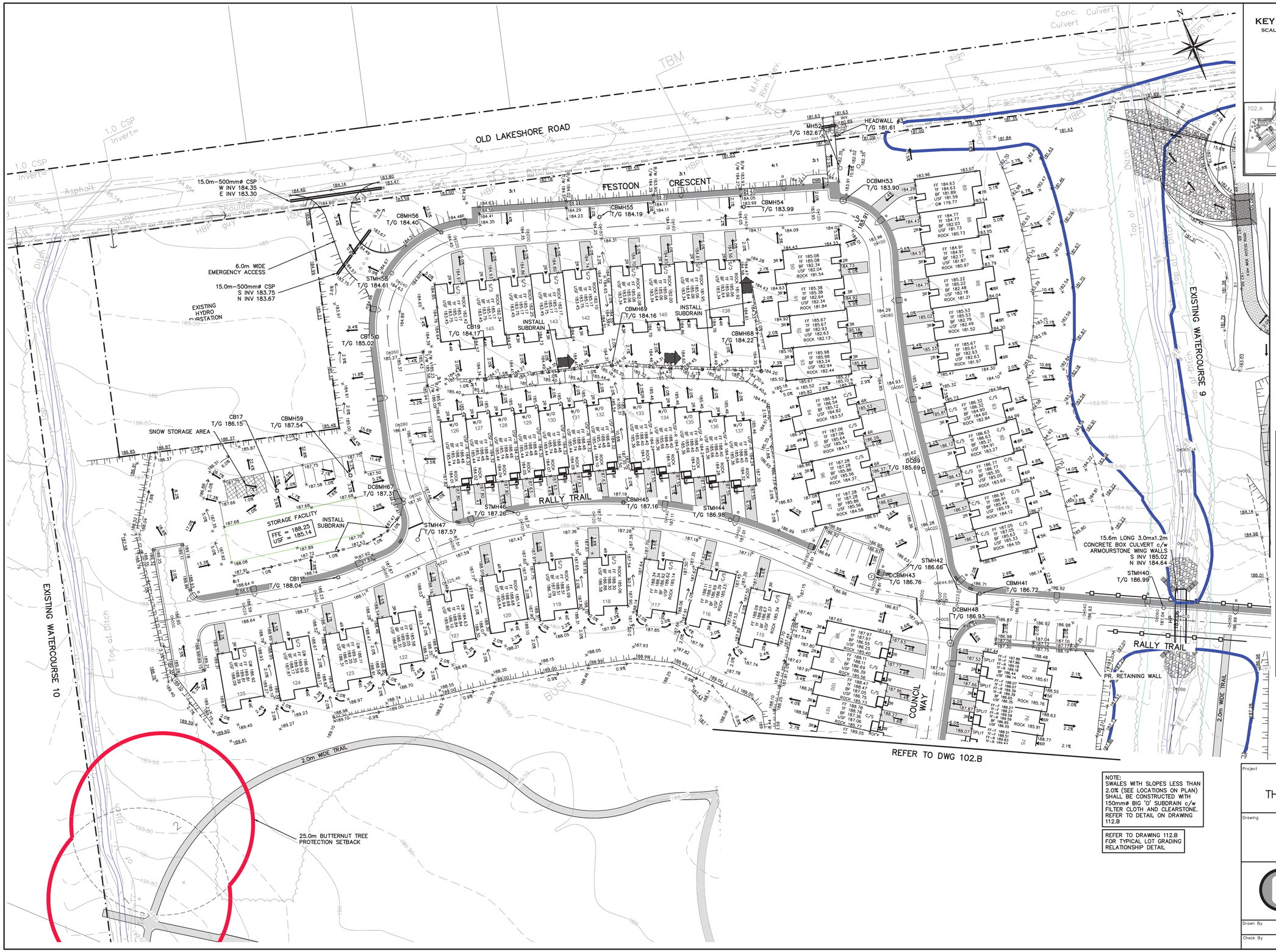
Drawing

## OVERALL SITE GRADING PLAN (CENTRAL)

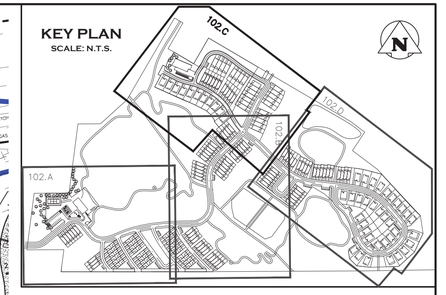

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| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1: 500 | C102.B |

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## KEY PLAN
SCALE: N.T.S.




## LEGEND

- REGIONAL FLOODLINE
- BUTTERNUT TREE c/w 25m SETBACK (GREEN PER GPS COORDINATES, BLUE PER PESCE SURVEY)
- ARCHAEOLOGICAL SITE
- MEANDER BELT (GEOMORPHIX, SEPT. 2020)
- STABLE TOP OF SLOPE (GEOMORPHIX, SEPT. 2020)
- STABLE TOP OF SLOPE SETBACK, 1m OR 5m (GEOMORPHIX, SEPT. 2020)

REFER TO DWG 102.D

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## TEMPORARY BENCHMARKS

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Engineer

Engineer

NOTE:
SWALES WITH SLOPES LESS THAN 2.0% (SEE LOCATIONS ON PLAN) SHALL BE CONSTRUCTED WITH 150mmø BIG 'O' SUBDRAIN c/w FILTER CLOTH AND CLEARSTONE. REFER TO DETAIL ON DRAWING 112.B

REFER TO DRAWING 112.B FOR TYPICAL LOT GRADING RELATIONSHIP DETAIL

Project

# PARKBRIDGE CRAIGLEITH
## THE TOWN OF THE BLUE MOUNTAINS

Drawing

# OVERALL SITE GRADING PLAN (NORTH)

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
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| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1: 500 | C102.C |

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OLD LAKESHORE ROAD

EXISTING RESIDENTIAL

STORMWATER MANAGEMENT FACILITY 2 (LOWER) REFER TO DRAWINGS 109.A – 109.C

STORMWATER MANAGEMENT FACILITY 1 (UPPER) REFER TO DRAWINGS 108.A – 108.C

REFER TO DWG 102.C

RALLY TRAIL

BUTTERNUT COURT

2.0m WIDE TRAIL

ARCHAEOLOGICAL PROTECTION AREA

HEADWALL #2 T/G 181.88

HEADWALL c/w GRATE AS PER OPSD 804.030 AND 804.050 T/W 183.44 INV 182.39

HEADWALL c/w GRATE AS PER OPSD 804.030 AND 804.050 T/W 182.25 INV 181.50

STMH24 T/G 182.86

STMH25 T/G 183.33

STMH27 T/G 183.85

STMH29 T/G 184.38

STMH31 T/G 185.07

STMH32 T/G 185.19

STMH33 T/G 185.40

STMH34 T/G 184.53

STMH35 T/G 183.76

STMH36 T/G 183.89

STMH37 T/G 184.64

STMH39 T/G 186.00

CBMH28 T/G 184.06

CBMH30 T/G 184.93

CBMH38 T/G 185.34

CBMH61 T/G 184.18

CBMH62 T/G 184.58

CBMH63 T/G 184.58

CBMH65 T/G 184.58

CBMH66 T/G 184.58

DCBMH26 T/G 183.43

CB7 T/G 184.58

CB8 T/G 185.93

CB6 T/G 184.92

0.4 CSP Invert=

Cedar Rail Fence

Cedar Hedge

Asphalt

Edge of Road

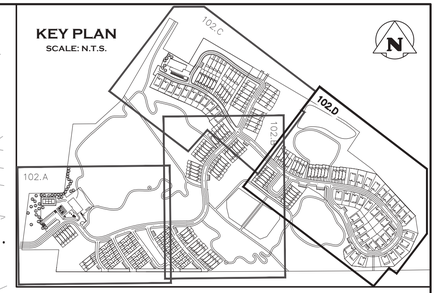
Edge of Shoulder

C/L

HBP

REFER TO DRAWING 112.B FOR TYPICAL LOT GRADING RELATIONSHIP DETAIL

## KEY PLAN
SCALE: N.T.S.




## LEGEND

- REGIONAL FLOODLINE
- BUTTERNUT TREE c/w 25m SETBACK (GREEN PER GPS COORDINATES, BLUE PER PESCE SURVEY)
- ARCHAEOLOGICAL SITE
- MEANDER BELT (GEOMORPHIX, SEPT. 2020)
- STABLE TOP OF SLOPE (GEOMORPHIX, SEPT. 2020)
- STABLE TOP OF SLOPE SETBACK, 1m OR 5m (GEOMORPHIX, SEPT. 2020)

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## TEMPORARY BENCHMARKS

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Engineer | Engineer

Project

# PARKBRIDGE CRAIGLEITH
## THE TOWN OF THE BLUE MOUNTAINS

Drawing

# OVERALL SITE GRADING PLAN (EAST)


CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
705 446 3510 T
705 446 3520 F
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| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:500 | C102.D |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_C102 GRAD.dwg, C102.D, 2021-05-17 4:24:03 PM, lwaters

EXISTING RESIDENCE

TBM

RESTRICTEDAREA

2.0m WIDE TRAIL

25.0m BUTTERNUT TREE PROTECTION SETBACK

RESTRICTED AREA BUFFER

Toe of Slope

EXISTING WATERCOURSE 9

CLUB HOUSE

TENNIS COURT

PATIO / POOL DECK

POOL

POOL

WALKWAY

WALKWAY

WALKWAY

01 12 0.36

02 12 0.32

03 0.0 0.07

04 0.0 0.03

05 0.0 0.03

06 17 0.26

07 17 0.22

08 14 0.13

09 0.0 0.05

10 0.0 0.07

11 21 0.33

12 0.0 0.01

13 0.0 0.03

14 0.0 0.01

15 3.0 0.10

16 10 0.11

20 7 0.10

21 0.0 0.06

20.3m–200mmø SAN @ 3.5%

42.6m–200mmø SAN @ 4.0%

42.1m–200mmø SAN @ 4.0%

34.5m–200mmø SAN @ 5.0%

33.1m–200mmø SAN @ 5.0%

7.7m–200mmø SAN @ 1.0%

47.4m–200mmø SAN @ 4.0%

6.8m–200mmø SAN @ 1.0%

27.4m–200mmø SAN @ 1.7%

6.4m–200mmø SAN @ 0.5%

42.9m–200mmø SAN @ 5.0%

18.8m–200mmø SAN @ 1.0%

17.0m–200mmø SAN @ 2.0%

39.0m–200mmø SAN @ 3.0%

39.0m–200mmø SAN @ 1.3%

37.6m–200mmø SAN @ 3.5%

70.1m–200mmø SAN @ 1.0%

37.5m–200mmø SAN @ 3.5%

29.5m–200mmø SAN

SAMH16 SAMH17 SAMH18 SAMH19 SAMH20 SAMH21 SAMH23 SAMH24 SAMH26 SAMH27 SAMH38 SAMH42 SAMH43 SAMH44 SAMH46 SAMH47 SAMH48 SAMH49 SAMH50 SAMH52

COUNCIL WAY

CHERT LANE

COLTSFOOT CRESCENT

COPPER LANE

GREY ROAD 19

C/L Ditch

Shoulder

Asphalt

C/L Road

EDGE OF ASPHALT

EDGE OF SHOULDER

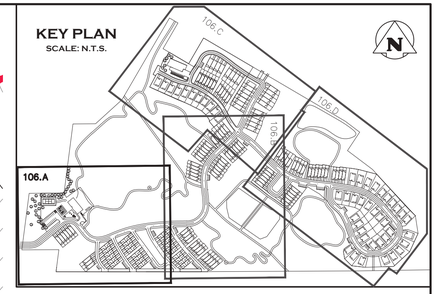
Rail Fence

Cedar Rail Fence

N

## KEY PLAN

SCALE: N.T.S.




REFER TO DWG 106.B

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### TEMPORARY BENCHMARKS

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Engineer | Engineer

Project

# PARKBRIDGE CRAIGLEITH
# THE TOWN OF THE BLUE MOUNTAINS

Drawing

## SANITARY DRAINAGE AREA PLAN (WEST)


CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
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| Drawn By | Design By | Project | |
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| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:500 | C106.A |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_C106 SAN.dwg, C106.A, 2021-05-17 4:42:23 PM, lwaters

REFER TO DWG 106.D

REFER TO DWG 106.C

REFER TO DWG 106.A

BUTTERNUT CRESCENT

RALLY TRAIL

FESTOON CRESCENT

COUNCIL WAY

COTTONTAIL LANE

COLTSFOOT CRESCENT

EXISTING WATERCOURSE 9

2.0m WIDE TRAIL

STORMWATER MANAGEMENT FACILITY 1 (UPPER) REFER TO DRAWINGS 108.A – 108.C

25.0m BUTTERNUT TREE PROTECTION SETBACK

SAMH74 — 30.7m–200mmø SAN @ 3.1%

SAMH75 — 47.2m–200mmø SAN @ 4.9%

SAMH5 — 37.1m–200mmø SAN @ 0.5%

SAMH30 — 28.9m–200mmø SAN @ 0.5%

SAMH7 — 58.2m–200mmø SAN @ 3.0%

SAMH8 — 24.4m–200mmø SAN @ 3.5%

SAMH9 — 20.5m–200mmø SAN @ 3.5%

SAMH10 — 60.5m–200mmø SAN @ 5.4%

SAMH12 — 47.1m–200mmø SAN @ 4.0%

SAMH15 — 43.3m–200mmø SAN @ 4.0%

SAMH16 — 7.7m–200mmø SAN @ 1.0%

SAMH38 — 21.5m–200mmø SAN @ 4.0%

SAMH39 — 50.8m–200mmø SAN @ 3.7%

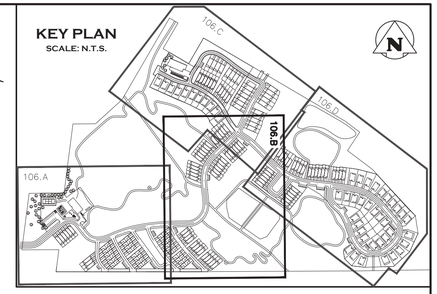
SAMH40 — 35.9m–200mmø SAN @ 4.4%

SAMH41

SAMH45 — 29.5m–200mmø SAN @ 6.9%

## KEY PLAN

SCALE: N.T.S.




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### TEMPORARY BENCHMARKS

**TBM#1** – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

TOPOGRAPHIC SURVEY COMPLETED BY ZUBEK, EMO, PATTEN AND THOMSEN LTD. O.L.S., DATED MARCH 2006.

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| 2 | ISSUED FOR 3rd SUBMISSION | 05/14/2021 |

| Engineer | Engineer |
|---|---|
| | |

Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

SANITARY DRAINAGE AREA PLAN
(CENTRAL)


CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
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| Drawn By | Design By | Project |
|---|---|---|
| L.W. | L.W. | 1046–4031 |
| Check By | Check By | Scale / Drawing |
| R.W. | J.P. | 1:500 / C106.B |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_C106 SAN.dwg, C106.B, 2021-05-17 4:42:32 PM, lwaters




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Engineer

Engineer

Project

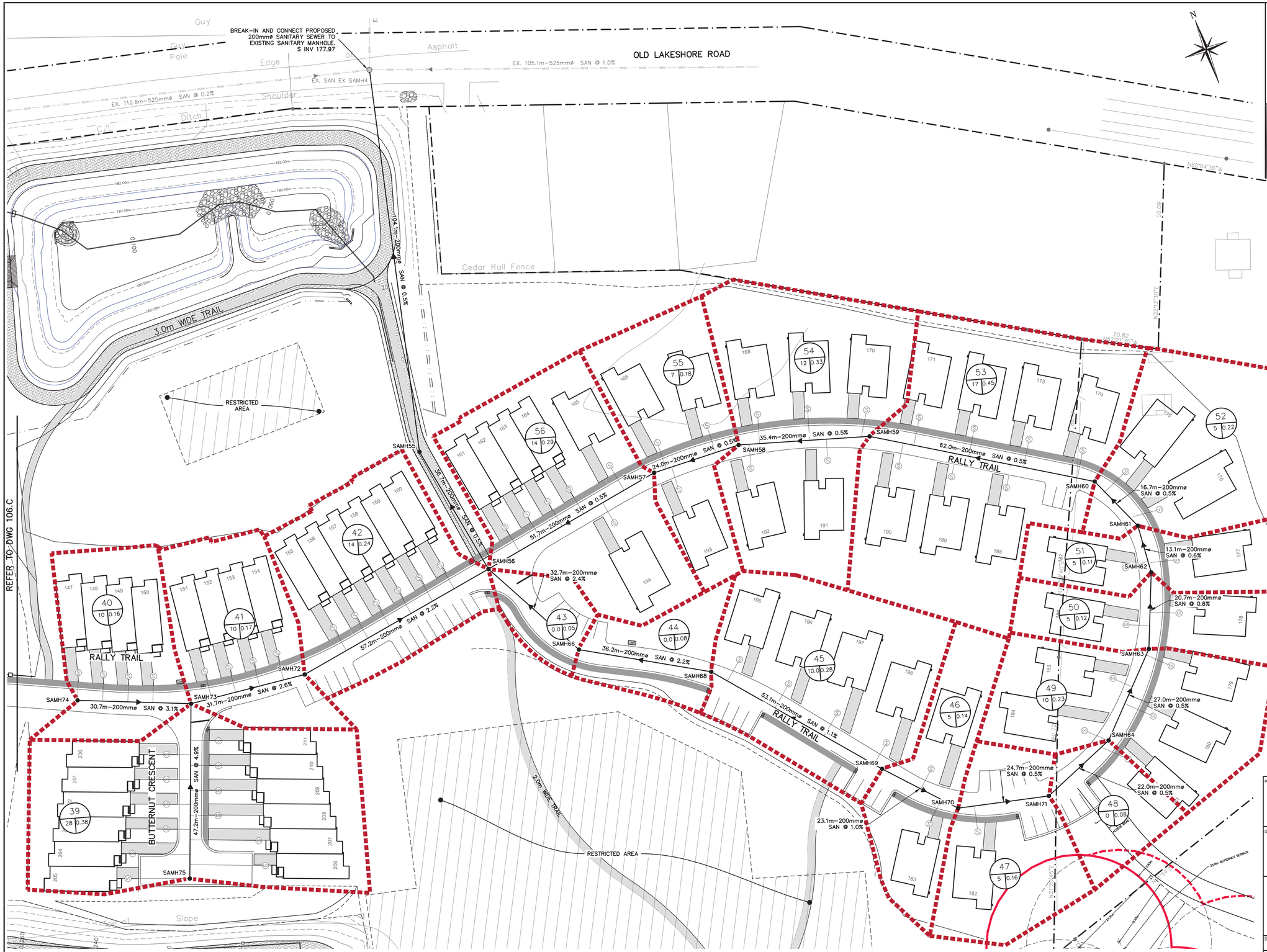
PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

SANITARY DRAINAGE AREA PLAN
(NORTH)

CROZIER CONSULTING ENGINEERS
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| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:500 | C106.C |




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Engineer | Engineer

Project

# PARKBRIDGE CRAIGLEITH
## THE TOWN OF THE BLUE MOUNTAINS

Drawing

# SANITARY DRAINAGE AREA PLAN (EAST)


CROZIER CONSULTING ENGINEERS
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| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046-4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:500 | C106.D |

EXISTING RESIDENCE

RESTRICTED AREA

2.0m WIDE TRAIL

RESTRICTED AREA BUFFER

25.0m BUTTERNUT TREE PROTECTION SETBACK

EXISTING WATERCOURSE 9

GREY ROAD 19

COUNCIL WAY

COPPER LANE

CHERT LANE

COLTSFOOT CRESCENT

TBM

BH #101 ELEV 210.38

BH/MW #2 ELEV 211.78 ELEV 209.38

BH #102 ELEV 214.22

BH #103 ELEV 215.39

TENNIS COURT

PATIO POOL DECK

POOL

POOL

POOL STORAGE

LIB HOUSE

WALKWAY

WALKWAY

WALKWAY

61 0.12 0.90

60 0.08 0.90

4 0.12 0.90

3 0.17 0.65

5 0.06 0.90

7 0.09 0.55

1 0.004 0.90

2 0.08 0.90

8 0.38 0.55

10 0.34 0.55

9 0.12 0.55

12 0.17 0.55

11 0.11 0.55

13 0.14 0.55

14 0.21 0.55

49 0.09 0.35

EXT1A 8.37 0.38

CBMH60

CB18

CBMH22

STMH23

CB8

CBMH20

CBMH18

DCBMH70

CBMH16

STMH15

DCB3

STMH13

CBMH14

DCB2

CBMH9

DCBMH10

CBMH12

INLET HEADWALL #1

30.4m–300mmø STM @ 0.5%

35.4m–300mmø STM @ 0.5%

15.2m–300mmø STM @ 3.1%

38.8m–300mmø STM @ 4.3%

45.9m–300mmø STM @ 4.0%

31.0m–300mmø STM @ 0.6%

12.6m–300mmø STM @ 2.8%

38.7m–300mmø STM @ 3.5%

41.6m–375mmø STM @ 3.5%

13.8m–300mmø STM @ 5.1%

9.5m–375mmø STM @ 3.5%

24.3m–375mmø STM @ 3.5%

22.6m–375mmø STM @ 3.5%

15.6m–300mmø STM @ 5.1%

47.8m–600mmø STM @ 3.5%

19.2m–525mmø STM @ 3.4%

51.6m–525mmø STM @ 4.0%

20.2m–525mmø STM @ 3.5%

HEADWALL AND WING WALLS c/w GRATE AS PER OPSD 804.030 AND 804.050 INV 204.55

EXTERNAL CATCHMENT EXT–1A TO BE CAPTURED INTO STORM SYSTEM REFER TO FIGURE 6 FOR CATCHMENT DELINEATION

N72°12'00"E 71.75

N91°47'30"W 54.86

N72°43'00"W 43.00

N72°55'30"E 76.13

N72°43'00"W 45.72

N72°37'11"E

Asphalt

C/L Ditch

Shoulder

C/L Road

Rail Fence

Cedar Rail Fence

Guide Rail

Hydro Pole

Bell

Invert=

0.8 CSP

0.6 CSP

0.45 CSP

Slope

Toe of Slope

Top of Slope

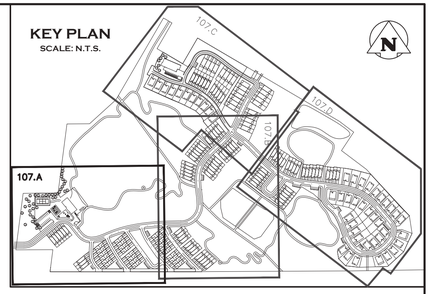
Fence

Edge of Asphalt

Edge of Shoulder

## KEY PLAN

SCALE: N.T.S.




REFER TO DWG 107.B

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Engineer

Engineer

Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

STORM DRAINAGE AREA PLAN
(WEST)

CROZIER CONSULTING ENGINEERS
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
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705 446 3520 F
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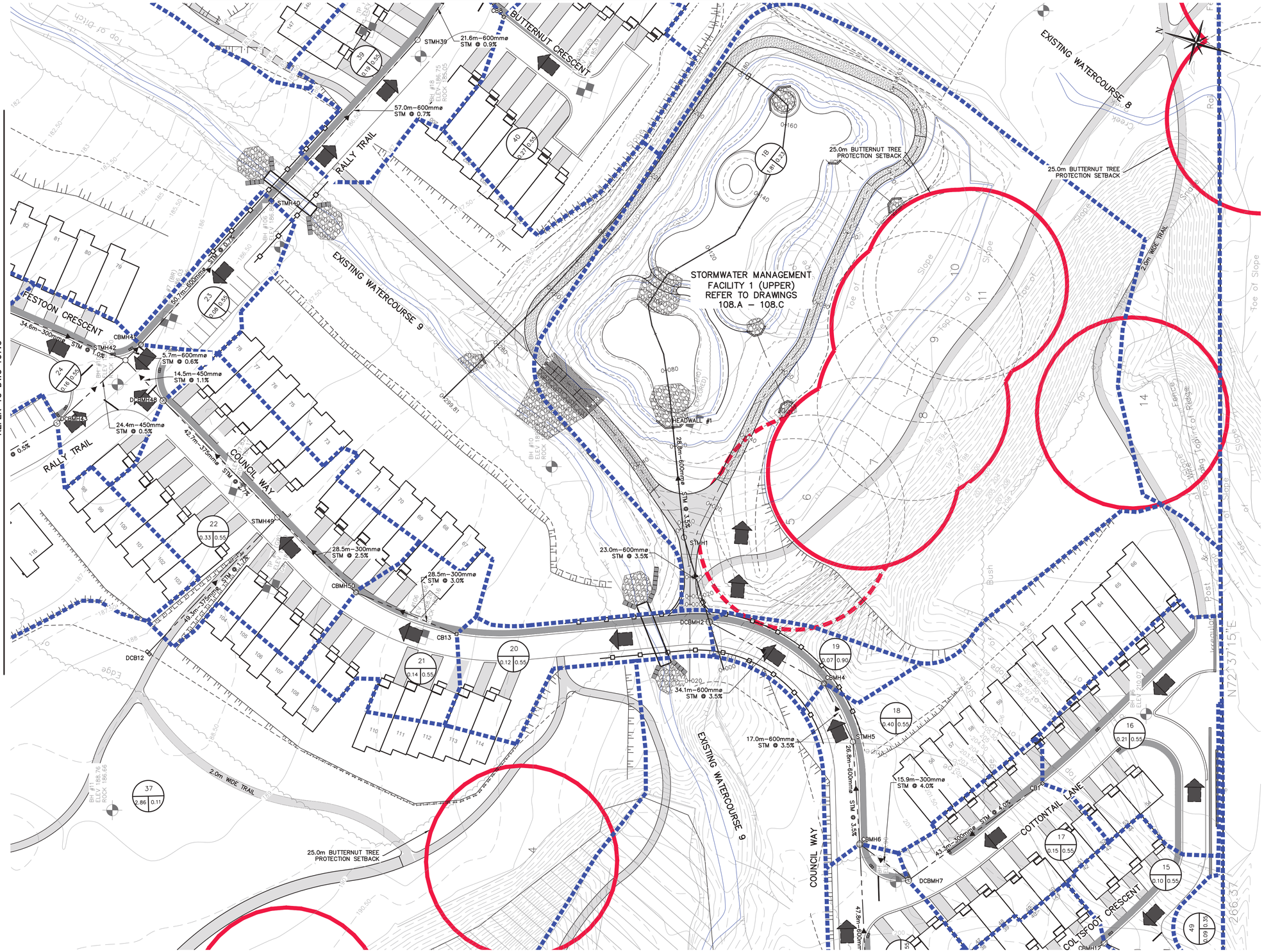
| Drawn By | L.W. | Design By | L.W. | Project | 1046–4031 |
|---|---|---|---|---|---|
| Check By | R.W. | Check By | J.P. | Scale 1: 500 | Drawing C107.A |

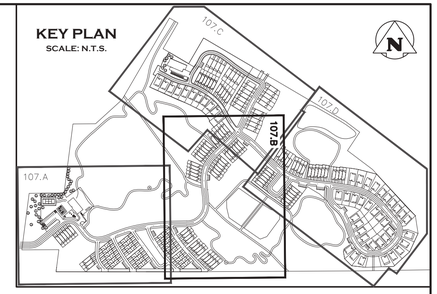
J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_C107 STM.dwg, C107.A, 2021-05-17 4:43:53 PM, lwaters

REFER TO DWG 107.D

REFER TO DWG 107.C

REFER TO DWG 107.A




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Engineer

Engineer

Project

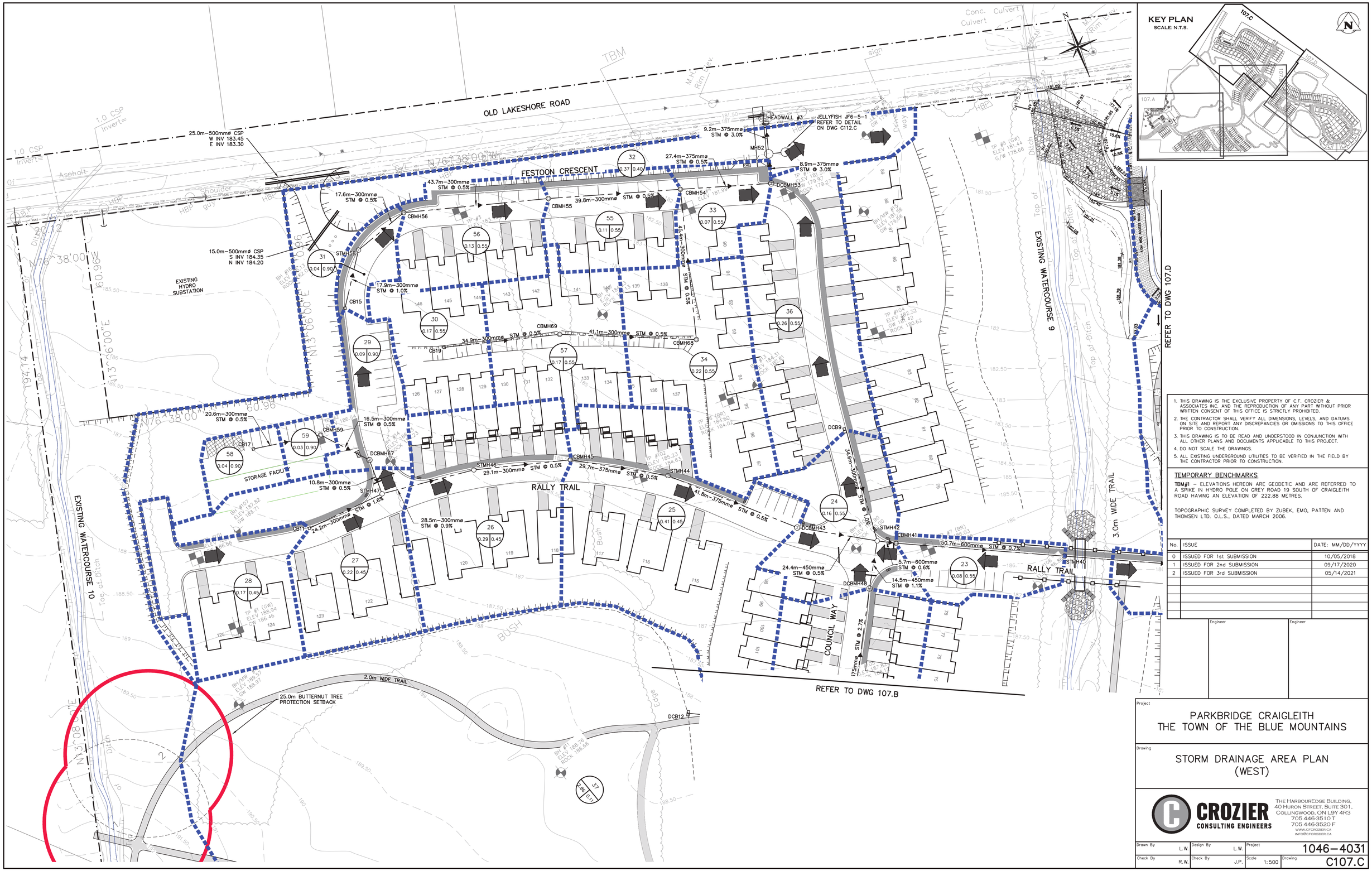
# PARKBRIDGE CRAIGLEITH
# THE TOWN OF THE BLUE MOUNTAINS

Drawing

## STORM DRAINAGE AREA PLAN (CENTRAL)


CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
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|---|---|---|---|
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| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:500 | C107.B |




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Engineer | Engineer

Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

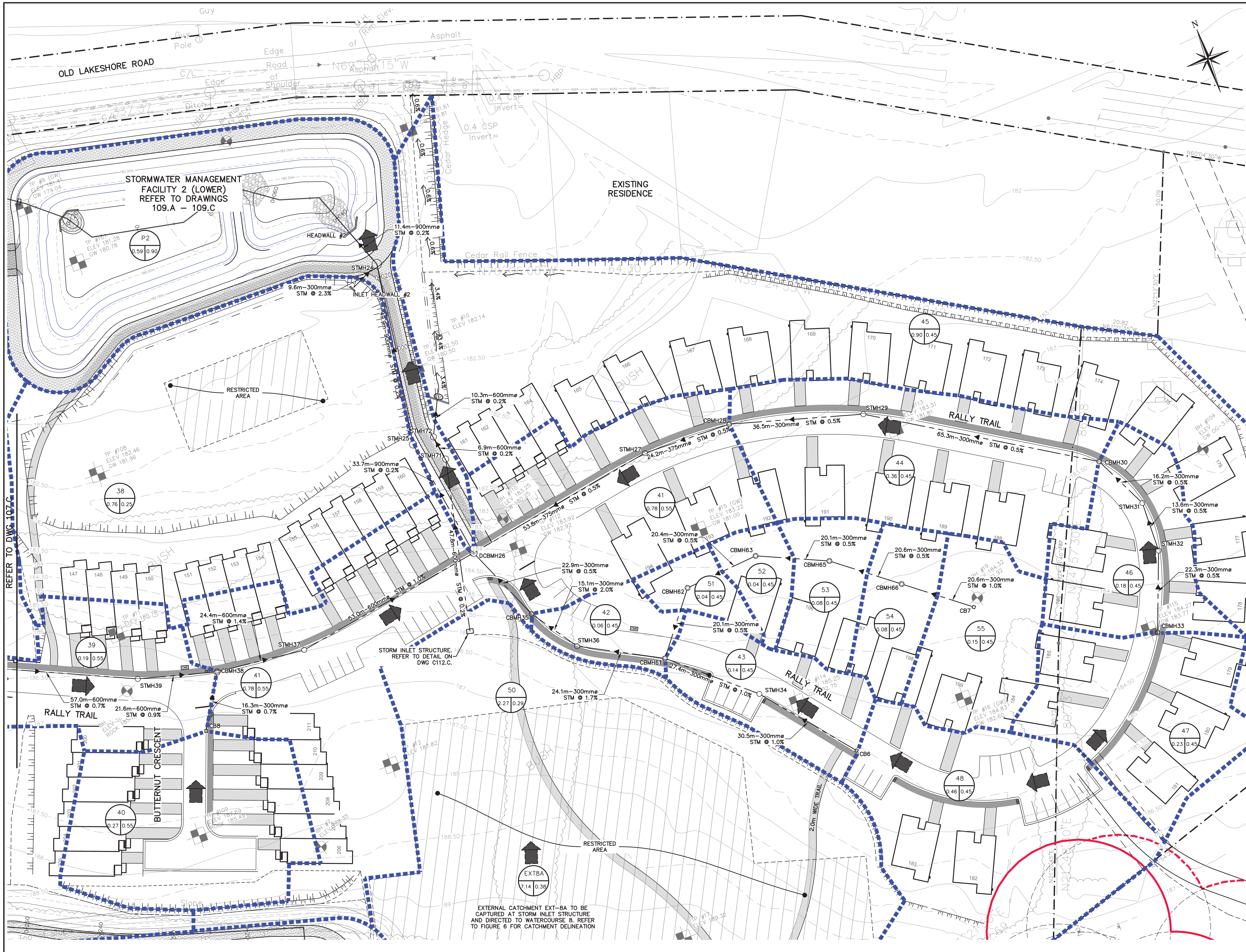
Drawing

STORM DRAINAGE AREA PLAN
(WEST)

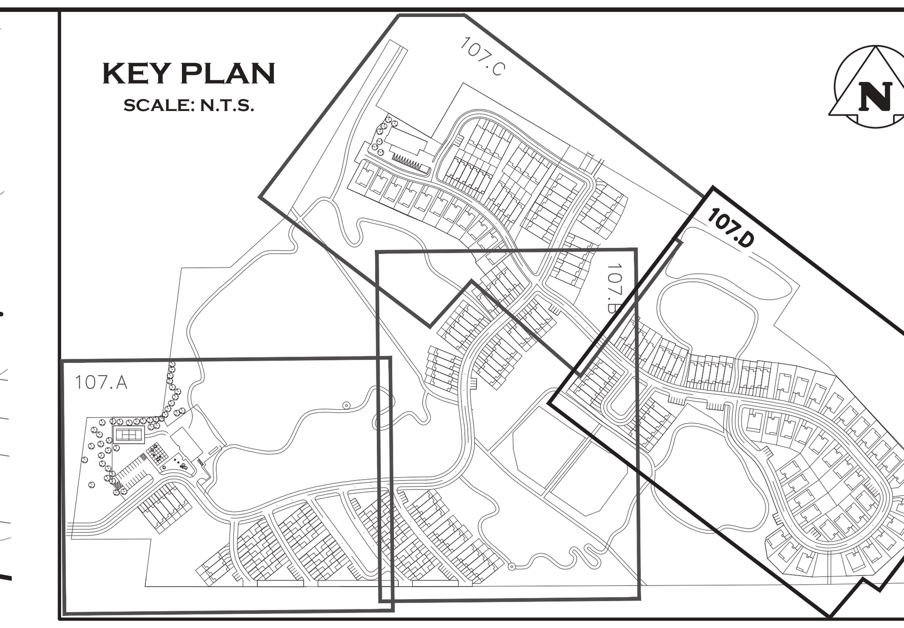
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| Drawn By | Design By | Project | |
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| R.W. | J.P. | 1: 500 | C107.C |

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## KEY PLAN
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Engineer

Engineer

Project
PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

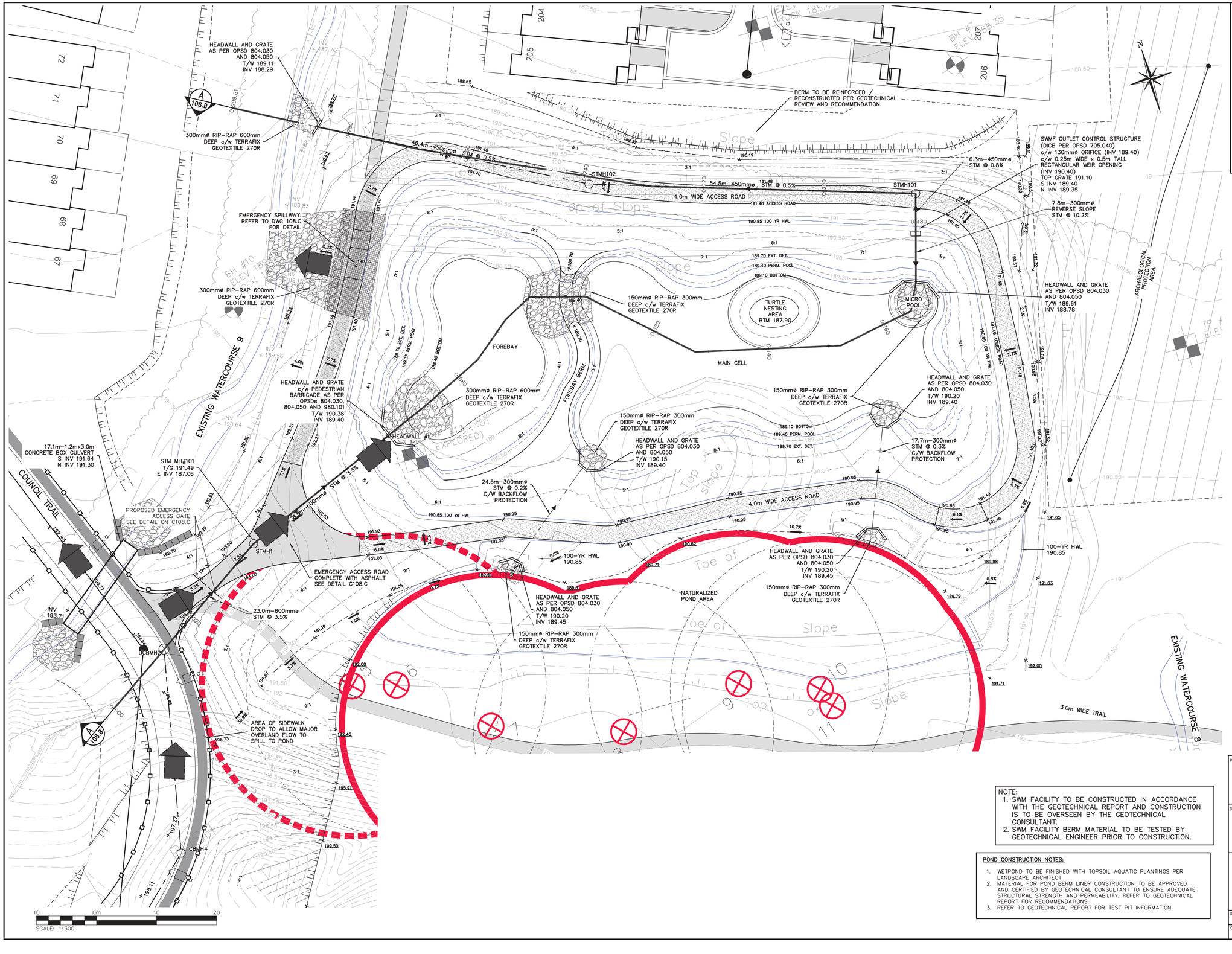
Drawing
STORM DRAINAGE AREA PLAN
(EAST)

CROZIER
CONSULTING ENGINEERS

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Collingwood, ON L9Y 4R3
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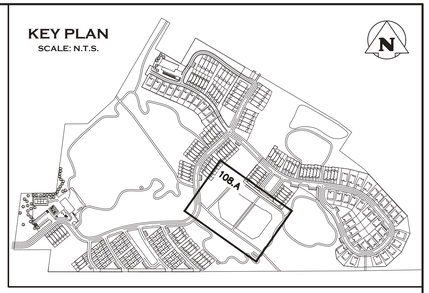
| Drawn By L.W. | Design By L.W. | Project 1046–4031 | |
|---|---|---|---|
| Check By R.W. | Check By J.P. | Scale 1:500 | Drawing C107.D |

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## KEY PLAN

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Engineer

Engineer

NOTE:
1. SWM FACILITY TO BE CONSTRUCTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT AND CONSTRUCTION IS TO BE OVERSEEN BY THE GEOTECHNICAL CONSULTANT.
2. SWM FACILITY BERM MATERIAL TO BE TESTED BY GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.

POND CONSTRUCTION NOTES:

1. WETPOND TO BE FINISHED WITH TOPSOIL AQUATIC PLANTINGS PER LANDSCAPE ARCHITECT.
2. MATERIAL FOR POND BERM LINER CONSTRUCTION TO BE APPROVED AND CERTIFIED BY GEOTECHNICAL CONSULTANT TO ENSURE ADEQUATE STRUCTURAL STRENGTH AND PERMEABILITY. REFER TO GEOTECHNICAL REPORT FOR RECOMMENDATIONS.
3. REFER TO GEOTECHNICAL REPORT FOR TEST PIT INFORMATION.

Project

# PARKBRIDGE CRAIGLEITH
## THE TOWN OF THE BLUE MOUNTAINS

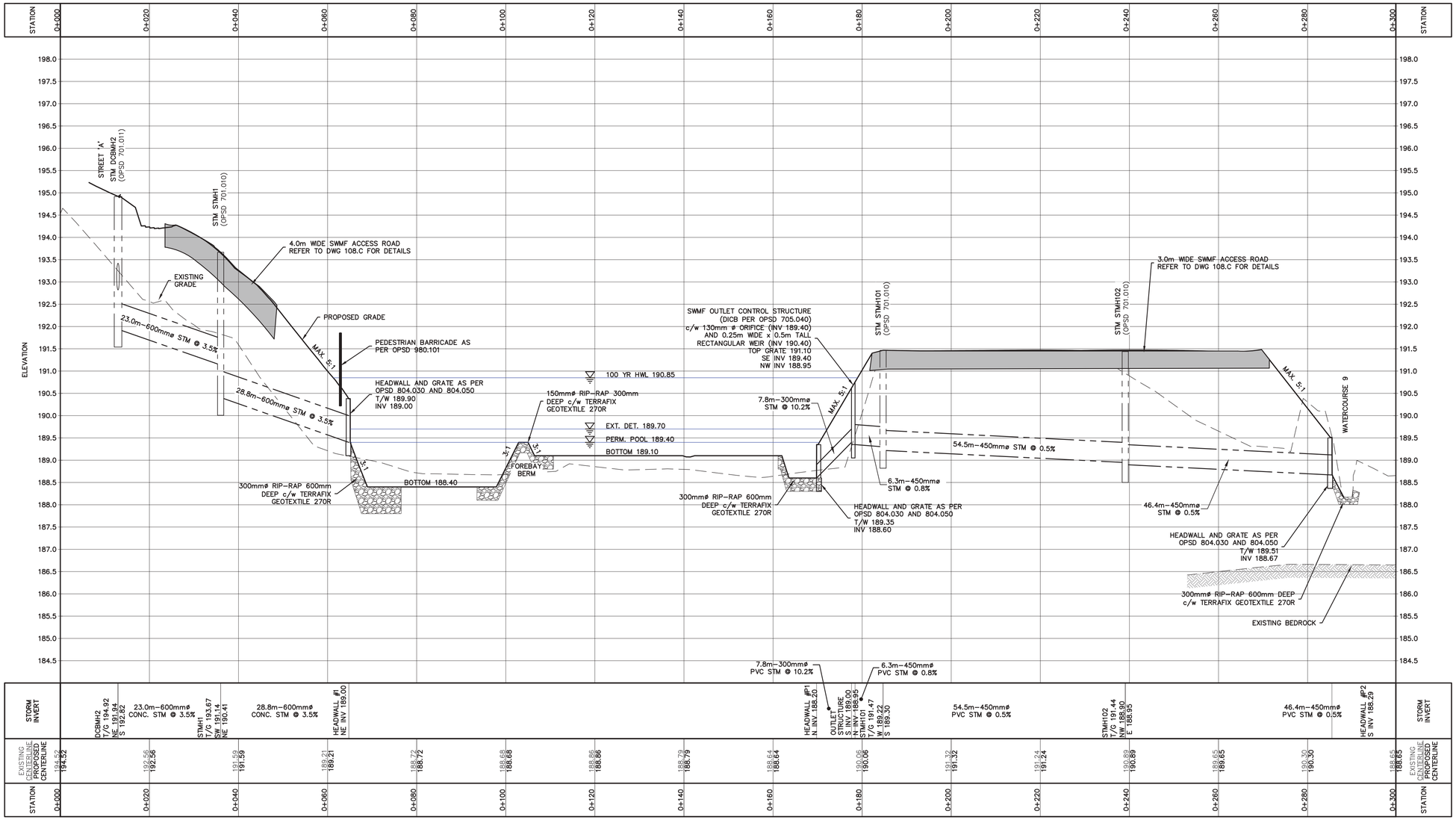
Drawing

## STORMWATER MANAGEMENT FACILITY 1 (UPPER POND) PLAN

CROZIER CONSULTING ENGINEERS
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705 446-3520 F
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| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046-4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:300 | C108.A |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_C108 SWM POND 1 UPPER.dwg, C108.A, 2021-05-17 4:45:48 PM, lwaters




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## TEMPORARY BENCHMARKS

**TBM#1** – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

TOPOGRAPHIC SURVEY COMPLETED BY ZUBEK, EMO, PATTEN AND THOMSEN LTD. O.L.S., DATED MARCH 2006.

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| 2 | ISSUED FOR 3rd SUBMISSION | 05/14/2021 |

Engineer

Engineer

Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

STORMWATER MANAGEMENT FACILITY 1
(UPPER POND ) CROSS SECTIONS

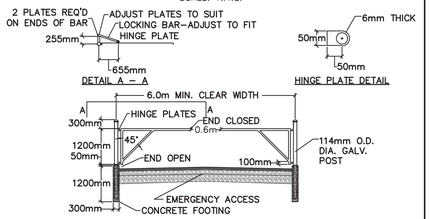
CROZIER
CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale V=1:50 H=1:500 | Drawing C108.B |
| R.W. | J.P. | | |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_C108 SWM POND 1 UPPER.dwg, C108.B, 2021-05-17 4:46:05 PM, lwaters

## EMERGENCY ACCESS GATE

SCALE: N.T.S.

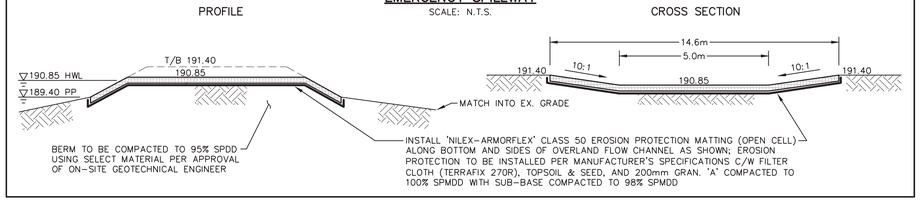



NOTES:

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5. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW & APPROVAL OF TOWN & ENGINEER PRIOR TO FABRICATION.
6. WALKWAY/MAINTENANCE GATE TO BE INSTALLED AT EMERGENCY ACCESS.

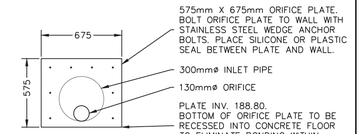
## EMERGENCY SPILLWAY

SCALE: N.T.S.




## ORIFICE PLATE DETAIL

SCALE: 1:25




## 4.0m WIDE ACCESS ROAD STRUCTURE DETAIL

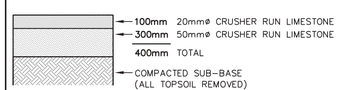
SCALE: N.T.S.




NOTE:
REFER TO CONSTRUCTION NOTES FOR DETAILS ON PLACEMENT OF MATERIALS.

## 4.0m WIDE ACCESS ROAD STRUCTURE DETAIL

SCALE: N.T.S.

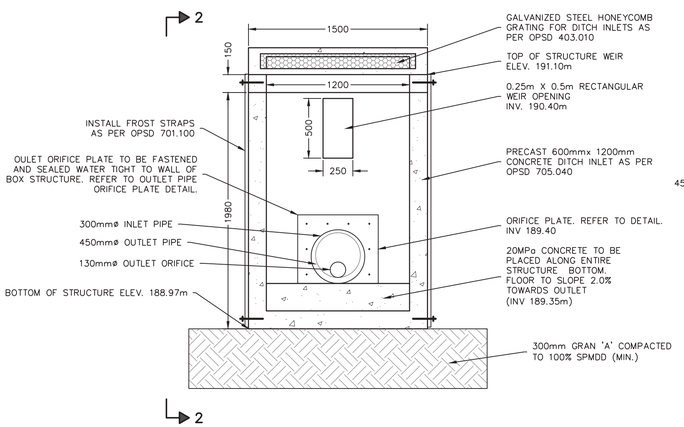



NOTE:
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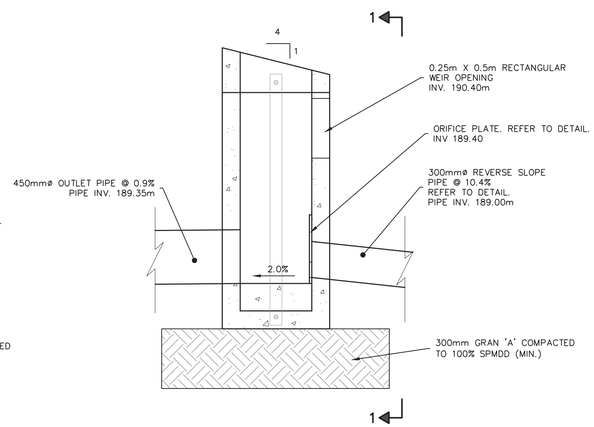
## OUTLET STRUCTURE DETAIL (UPPER POND)

SCALE: 1:25

### SECTION 1–1




### SECTION 2–2




NOTES:

1. ALL UNITS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
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3. INLET GRATE SHALL BE WELDED TO CSAW59–M1989.
4. ALL STEEL TO BE DOUBLE HOT DIP GALVANIZED TO G–164, POST FABRICATION.
5. ALL STEEL TO CONFORM TO CSA–CAN–G40.21 M81, GRADE 300.
6. ALL STRUCTURE JOINTS, INLETS & OUTLETS TO BE PARGED TO PROVIDE A WATER TIGHT SEAL.
7. ALL FASTNERS TO BE STAINLESS STEEL.


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### TEMPORARY BENCHMARKS

**TBM#1** – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

TOPOGRAPHIC SURVEY COMPLETED BY ZUBEK, EMO, PATTEN AND THOMSEN LTD. O.L.S., DATED MARCH 2006.

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| | | |
| | | |
| | | |
| | | |
| | | |

Engineer

Engineer

Project

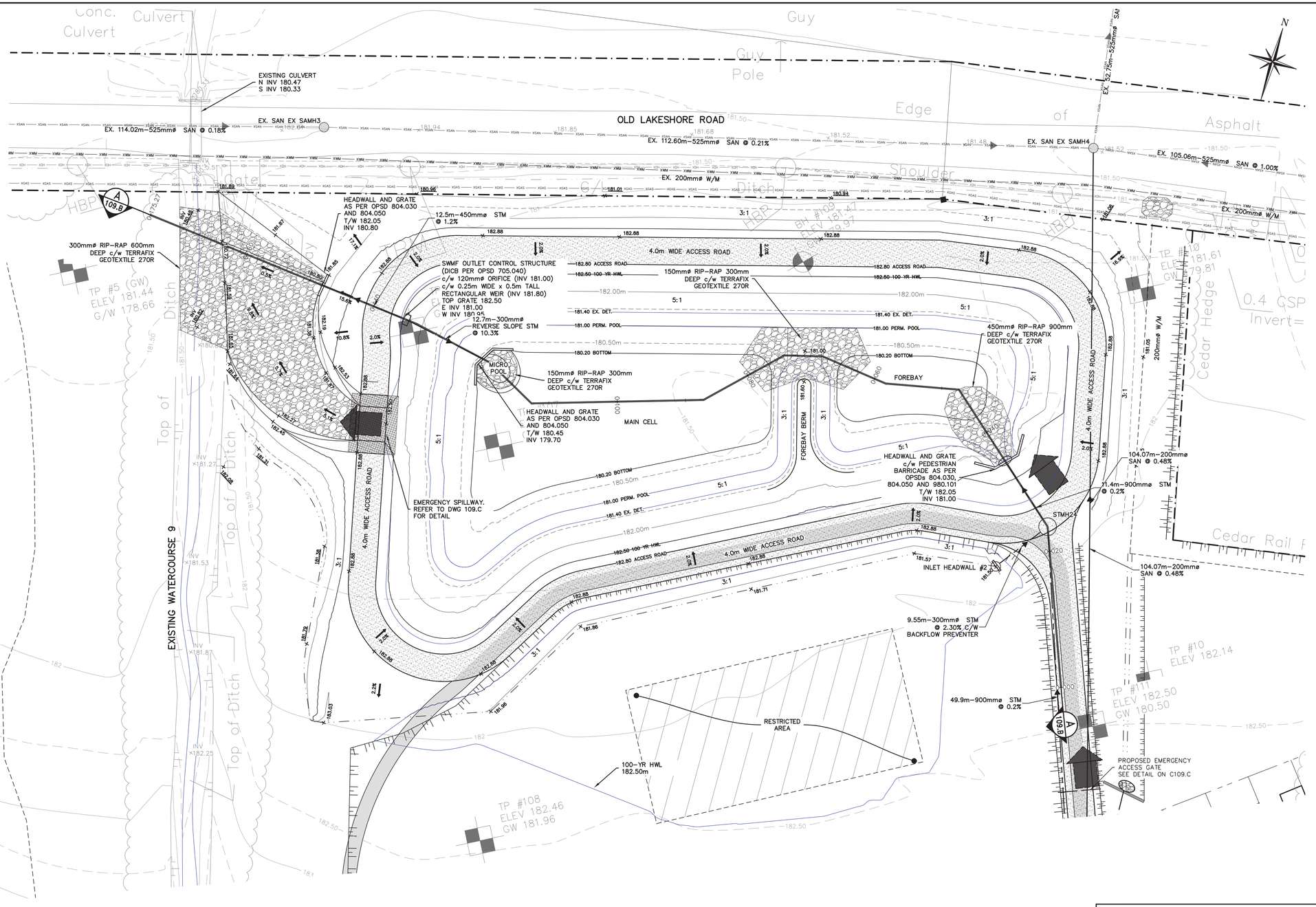
# PARKBRIDGE CRAIGLEITH
# THE TOWN OF THE BLUE MOUNTAINS

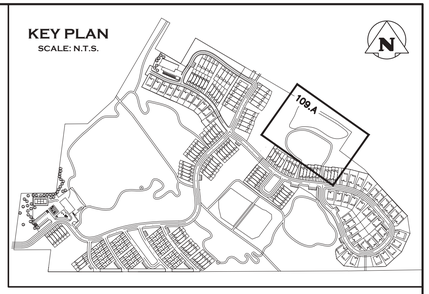
Drawing

## STORMWATER MANAGEMENT FACILITY 1 (UPPER POND) DETAILS


CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA


| Drawn By | Design By | Project |
|---|---|---|
| L.W. | L.W. | 1046–4031 |
| **Check By** | **Check By** | **Scale** / **Drawing** |
| R.W. | J.P. | AS SHOWN / C108.C |




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| Engineer | Engineer |
|---|---|

NOTE:
1. SWM FACILITY TO BE CONSTRUCTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT AND CONSTRUCTION IS TO BE OVERSEEN BY THE GEOTECHNICAL CONSULTANT.
2. SWM FACILITY BERM MATERIAL TO BE TESTED BY GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.

POND CONSTRUCTION NOTES:

1. WETPOND TO BE FINISHED WITH TOPSOIL AQUATIC PLANTINGS PER LANDSCAPE ARCHITECT.
2. MATERIAL FOR POND BERM LINER CONSTRUCTION TO BE APPROVED AND CERTIFIED BY GEOTECHNICAL CONSULTANT TO ENSURE ADEQUATE STRUCTURAL STRENGTH AND PERMEABILITY. REFER TO GEOTECHNICAL REPORT FOR RECOMMENDATIONS.
3. REFER TO GEOTECHNICAL REPORT FOR TEST PIT INFORMATION.

10 0m 10 20
SCALE: 1: 300

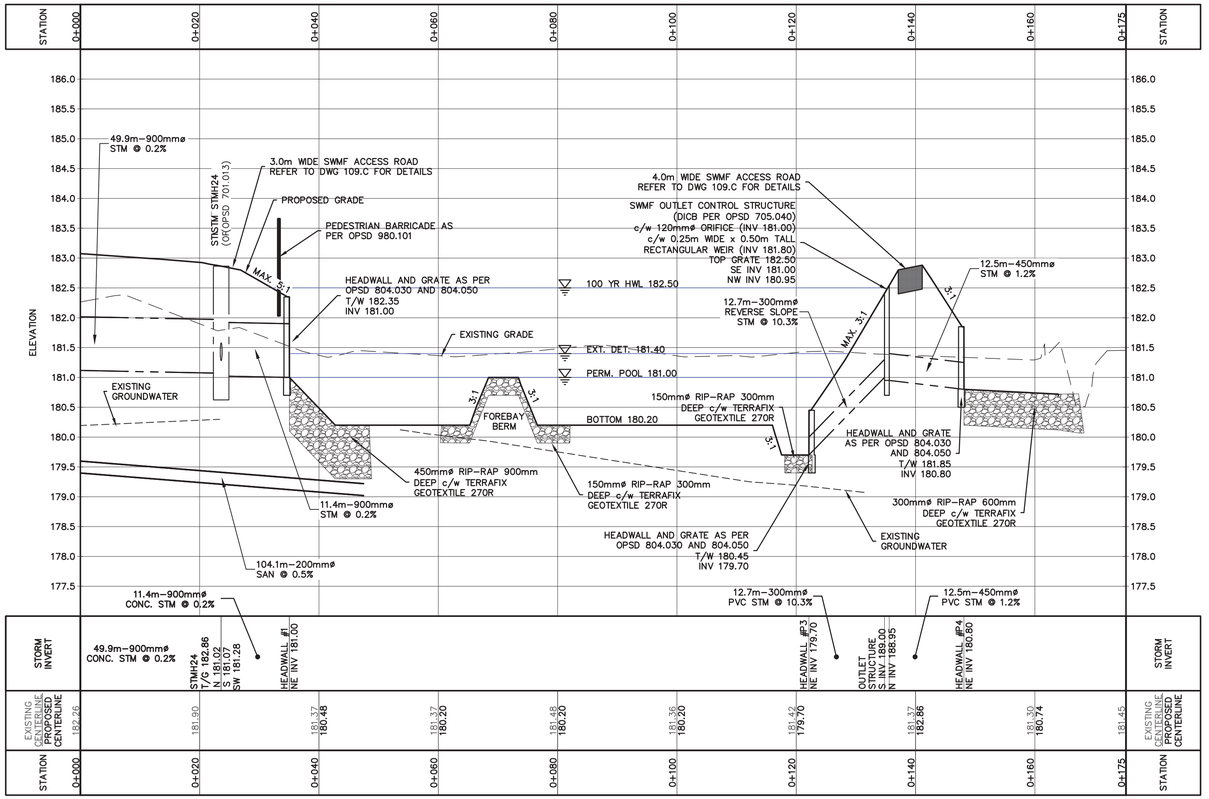
Project
PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing
STORMWATER MANAGEMENT FACILITY 2 (LOWER POND) PLAN

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
705 446 3510 T
705 446 3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1: 300 | C109.A |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_C109 SWM POND 2 LOWER.dwg, C109.A, 2021-05-17 4:47:06 PM, lwaters





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Engineer

Engineer

Project

# PARKBRIDGE CRAIGLEITH
# THE TOWN OF THE BLUE MOUNTAINS

Drawing

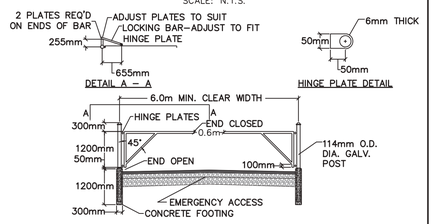
## STORMWATER MANAGEMENT FACILITY 2 (LOWER POND) CROSS SECTIONS


CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA


| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | AS SHOWN | C109.B |

## EMERGENCY ACCESS GATE

SCALE: N.T.S.

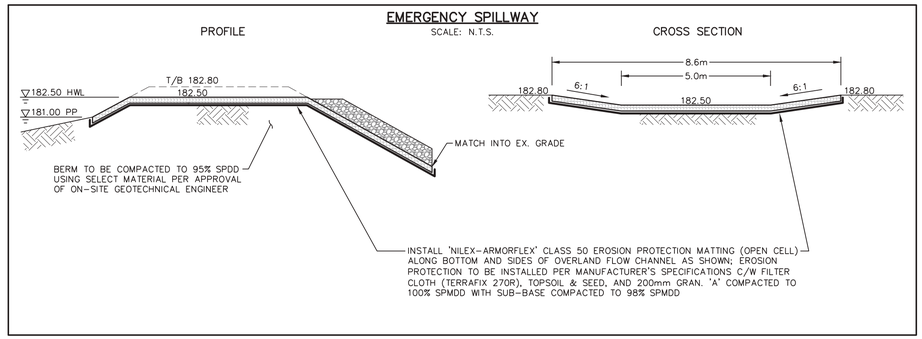



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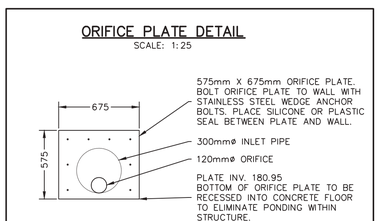
## EMERGENCY SPILLWAY

SCALE: N.T.S.



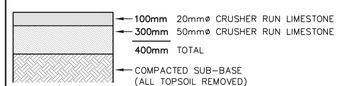

## ORIFICE PLATE DETAIL

SCALE: 1:25




## 4.0m WIDE ACCESS ROAD STRUCTURE DETAIL

SCALE: N.T.S.



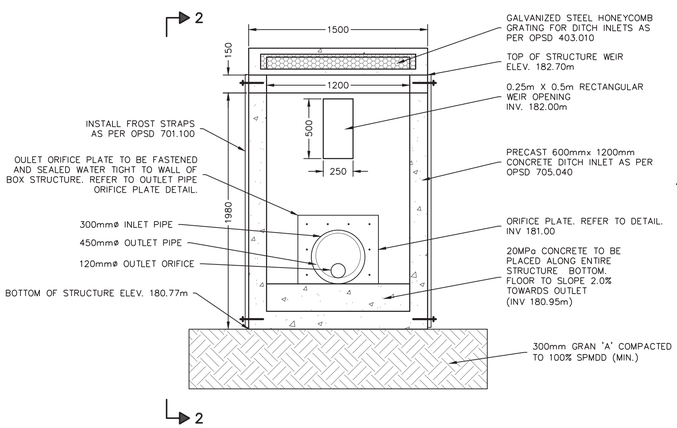

NOTE:

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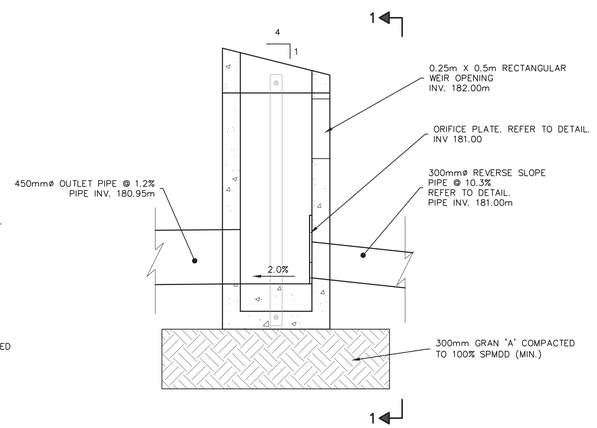
## OUTLET STRUCTURE DETAIL (LOWER POND)

SCALE: 1:25

SECTION 1-1




SECTION 2-2




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Engineer

Engineer

Project

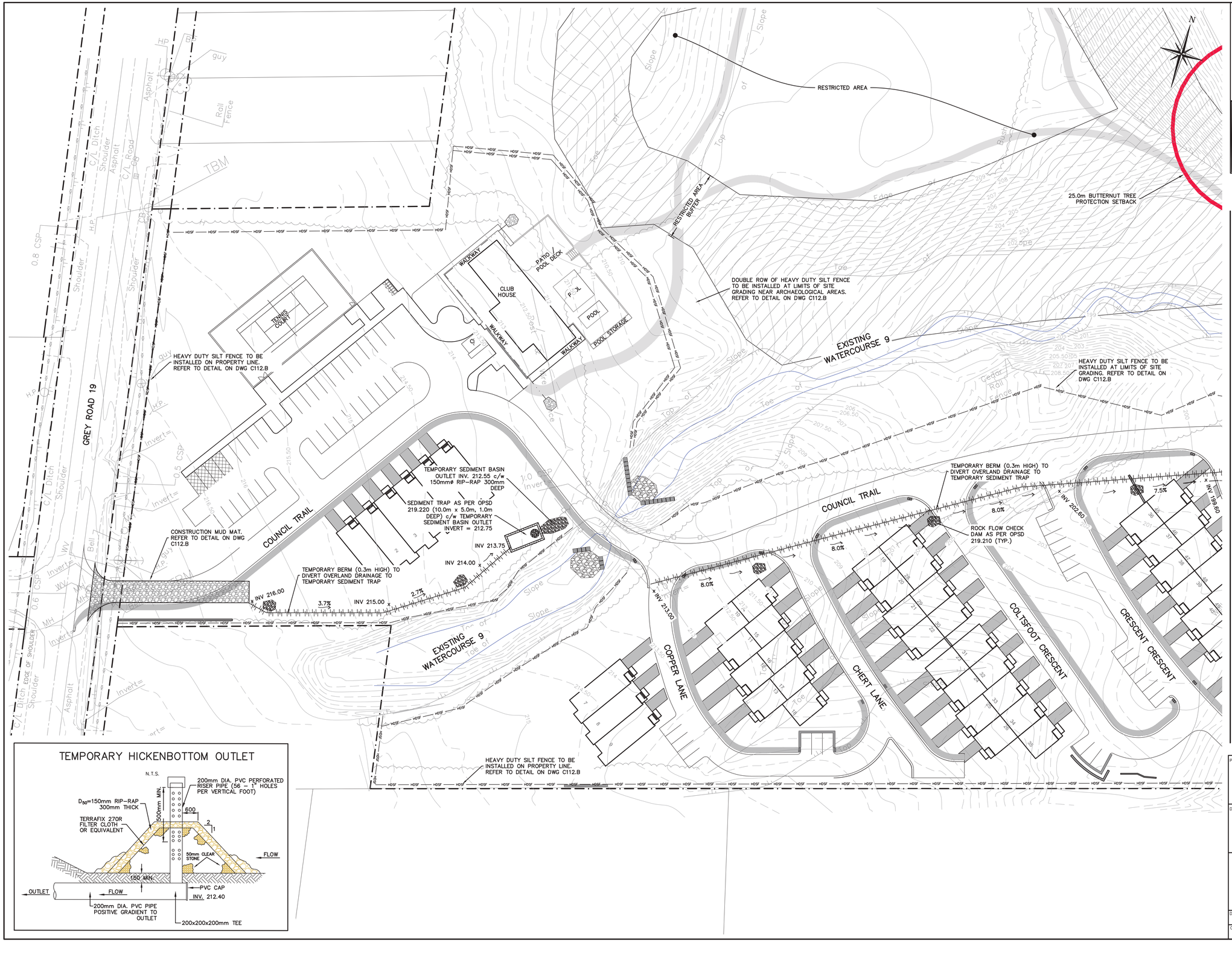
PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

STORMWATER MANAGEMENT FACILITY 1
(LOWER POND) DETAILS

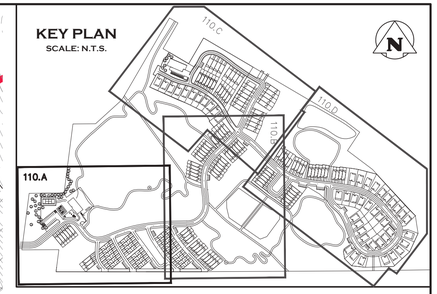

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA


| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046-4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | AS SHOWN | C109.C |




## KEY PLAN

SCALE: N.T.S.




REFER TO DWG 110.B

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## TEMPORARY HICKENBOTTOM OUTLET

N.T.S.




Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

SEDIMENT & EROSION CONTROL PLAN (WEST)

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:500 | C110.A |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_C110-111 ESC.dwg, C110.A, 2021-05-17 4:48:23 PM, lwaters

REFER TO DWG 110.D

REFER TO DWG 110.C

REFER TO DWG 110.A

HEAVY DUTY SILT FENCE TO BE INSTALLED AT LIMITS OF SITE GRADING. REFER TO DETAIL ON DWG C112.B

DOUBLE ROW OF HEAVY DUTY SILT FENCE TO BE INSTALLED AT LIMITS OF SITE GRADING NEAR ARCHAEOLOGICAL AREAS. REFER TO DETAIL ON DWG C112.B

25.0m BUTTERNUT TREE PROTECTION SETBACK

BUTTERNUT CRESCENT

FESTOON CRESCENT

RALLY TRAIL

COUNCIL TRAIL

COTTONTAIL LANE

COLTSFOOT CRESCENT

EXISTING WATERCOURSE 8

EXISTING WATERCOURSE 9

STORMWATER MANAGEMENT FACILITY 1 (UPPER) REFER TO DRAWINGS 108.A – 108.C

INV 183.70 × 4.5% →

INV 185.70 × 4.5% →

INV 187.70 × 4.5% →

INV 189.70 × 3.1% →

TEMPORARY BERM (0.3m HIGH) TO DIVERT OVERLAND DRAINAGE TO TEMPORARY SEDIMENT TRAP

TEMPORARY SEDIMENT BASIN OUTLET INV. 177.07 c/w 150mmø RIP-RAP, 300mm DEEP

SEDIMENT TRAP AS PER OPSD 219.220 (10.0m x 5.0m, 1.0m DEEP) c/w TEMPORARY SEDIMENT BASIN OUTLET

INV 196.75 × 6.0% →

ROCK FLOW CHECK DAM AS PER OPSD 219.210 (TYP.)

INV 200.15 × 6.0% →

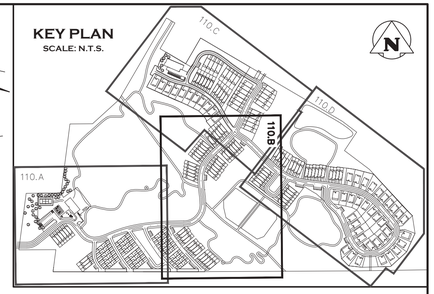
INV 199.60 ×

HEAVY DUTY SILT FENCE TO BE INSTALLED ON PROPERTY LINE. REFER TO DETAIL ON DWG C112.B

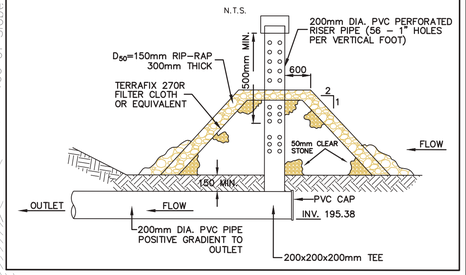
HEAVY DUTY SILT FENCE TO BE INSTALLED AT LIMITS OF SITE GRADING. REFER TO DETAIL ON DWG C112.B

## KEY PLAN

SCALE: N.T.S.




## TEMPORARY HICKENBOTTOM OUTLET




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4. DO NOT SCALE THE DRAWINGS.

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### TEMPORARY BENCHMARKS

TBM#1 – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

TOPOGRAPHIC SURVEY COMPLETED BY ZUBEK, EMO, PATTEN AND THOMSEN LTD. O.L.S., DATED MARCH 2006.

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Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

SEDIMENT & EROSION CONTROL PLAN (CENTRAL)

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
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| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:500 | C110.B |

OLD LAKESHORE DRIVE

FESTOON CRESCENT

RALLY TRAIL

COUNCIL TRAIL

EXISTING WATERCOURSE 9

EXISTING WATERCOURSE 10

EXISTING HYDRO SUBSTATION

STORAGE FACILITY

CONSTRUCTION ACCESS c/w MUD MAT. REFER TO DETAIL ON DWG C112.B

HEAVY DUTY SILT FENCE TO BE INSTALLED ON PROPERTY LINE. REFER TO DETAIL ON DWG C112.B

TEMPORARY BERM (0.3m HIGH) TO DIVERT OVERLAND DRAINAGE TO TEMPORARY SEDIMENT TRAP

SEDIMENT TRAP AS PER OPSD 219.220 (10.0m x 5.0m, 1.0m DEEP) c/w TEMPORARY SEDIMENT BASIN OUTLET

TEMPORARY SEDIMENT BASIN OUTLET INV. 177.07 c/w 150mmø RIP-RAP 300mm DEEP

TEMPORARY 10m-500mmø CSP W INV. 184.85 E INV 184.70

ROCK FLOW CHECK DAM AS PER OPSD 219.210 (TYP.)

HEAVY DUTY SILT FENCE TO BE INSTALLED AT LIMITS OF SITE GRADING. REFER TO DETAIL ON DWG C112.B

TEMPORARY BERM (0.3m HIGH) TO DIVERT OVERLAND DRAINAGE TO TEMPORARY SEDIMENT TRAP

HEAVY DUTY SILT FENCE TO BE INSTALLED AT LIMITS OF SITE GRADING. REFER TO DETAIL ON DWG C112.B

25.0m BUTTERNUT TREE PROTECTION SETBACK

INV 181.40 0.5% INV 181.20 1.3% INV 182.20 2.6% INV 183.50 5.8% INV 184.70 1.0% INV 184.85 INV 184.85 2.7% INV 185.20 2.4% INV 186.70 INV 187.20

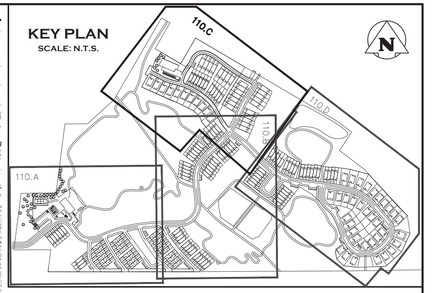
INV 181.70 4.9% INV 183.70 4.8% INV 185.70 4.5%

REFER TO DWG 110.B

REFER TO DWG 110.D

## KEY PLAN

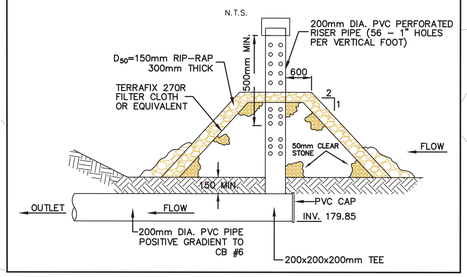
SCALE: N.T.S.




STORMWATER MANAGEMENT FACILITY 2 (LOWER) REFER TO DRAWINGS 109.A–109.C

## TEMPORARY HICKENBOTTOM OUTLET

N.T.S.




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### TEMPORARY BENCHMARKS

**TBM#1** – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

TOPOGRAPHIC SURVEY COMPLETED BY ZUBEK, EMO, PATTEN AND THOMSEN LTD. O.L.S., DATED MARCH 2006.

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Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

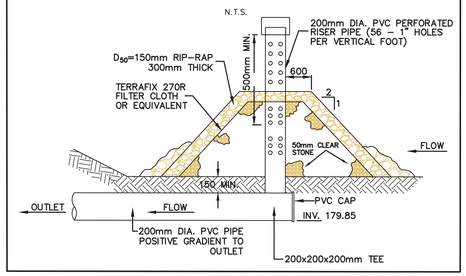
SEDIMENT & EROSION CONTROL PLAN (NORTH)


CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
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| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:500 | C110.C |

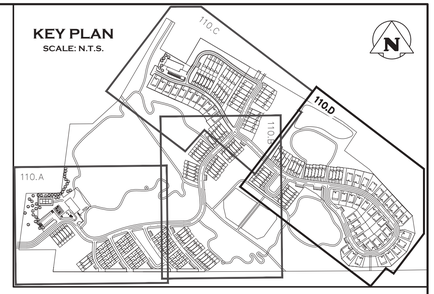
## TEMPORARY HICKENBOTTOM OUTLET

N.T.S.




## KEY PLAN

SCALE: N.T.S.




OLD LAKESHORE ROAD

STORMWATER MANAGEMENT FACILITY 2 (LOWER) REFER TO DRAWINGS 109.A–109.C

TEMPORARY HICKENBOTTOM. REFER TO DETAIL.

Cedar Rail Fence

HEAVY DUTY SILT FENCE TO BE INSTALLED ON PROPERTY LINE. REFER TO DETAIL ON DWG C112.B

EXISTING RESIDENCE

CONSTRUCTION ACCESS c/w MUD MAT. REFER TO DETAIL ON DWG C112.B

DOUBLE ROW OF HEAVY DUTY SILT FENCE TO BE INSTALLED AT LIMITS OF SITE GRADING NEAR RRESTRICTED AREAS. REFER TO DETAIL ON DWG C112.B

RESTRICTED AREA

BUSH

RALLY TRAIL

BUTTERNUT CRESCENT

REFER TO DWG 110.C

DOUBLE ROW OF HEAVY DUTY SILT FENCE TO BE INSTALLED AT LIMITS OF SITE GRADING NEAR RESTRICTED AREAS REFER TO DETAIL ON DWG C112.B

RESTRICTED AREA

STORMWATER MANAGEMENT FACILITY 1 (UPPER) REFER TO DRAWINGS 108.A–108.C

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### TEMPORARY BENCHMARKS

**TBM #1** – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

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Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

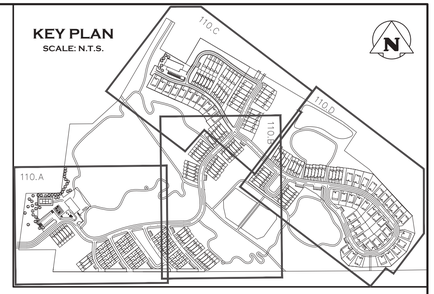
Drawing

SEDIMENT & EROSION CONTROL PLAN (EAST)


CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
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705 446 3520 F
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| Drawn By | L.W. | Design By | L.W. | Project | 1046–4031 |
|---|---|---|---|---|---|
| Check By | R.W. | Check By | J.P. | Scale | 1:500 |
| | | | | Drawing | C110.D |




**LEGEND**

- RESTRICTED AREA
- EXISTING BUTTERNUT TREE c/w 25m AND 50m SETBACKS (GREEN PER GPS COORDINATES, BLUE PER PESCE SURVEY)
- PR. HEAVY DUTY SILT FENCE
- HIGH HAZARD CONSTRAINT (AZIMUTH)
- ZONING LIMIT (TOBM)
- REGIONAL FLOODLINE
- MEANDER BELT (GEOMORPHIX, SEPT. 2020)
- STABLE TOP OF SLOPE (GEOMORPHIX, SEPT. 2020)
- STABLE TOP OF SLOPE SETBACK, 1m OR 5m (GEOMORPHIX, SEPT. 2020)

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**TEMPORARY BENCHMARKS**

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**RESTRICTED AREAS**

1. PROTECTED AREAS SHALL NOT BE SUBJECT TO ANY SOIL DISTURBING ACTIVITIES WITHOUT THE MINISTRY OF TOURISM, CULTURE AND SPORT (MTCS) APPROVAL OR AN ARCHAEOLOGICAL ASSESSMENT CONDUCTED BY A LICENSED ARCHAEOLOGIST. RESTRICTED ACTIVITIES INCLUDE GRADING, THE INSTALLATION OF UTILITIES, THE IMPORTATION OF SOILS, THE INSTALLATION OF FEATURES OR ANY OTHER ACTIVITIES THAT MAY POTENTIALLY IMPACT THE ARCHAEOLOGICAL SITE.
2. THE FOLLOWING MEASURES SHALL BE ADHERED DURING CONSTRUCTION WORKS TO PROTECT THE ARCHAEOLOGICAL SITES:
   - 2.1. FOLLOWING THE STAGE 4 EXCAVATION OF THE PORTION OF THE SITE WITHIN THE WORK AREA AND PRIOR TO CONSTRUCTION COMMENCING, TEMPORARY PROTECTIVE FENCING WILL BE ERECTED AROUND THE PORTION OF THE SITE TO BE AVOIDED;
   - 2.2. THE PROTECTED AREA WILL BE CONSIDERED A RESTRICTED ZONE FOR CONSTRUCTION PURPOSES AND THIS WILL BE COMMUNICATED TO ALL INDIVIDUALS WORKING ON SITE AND TO ANY INDIVIDUALS INVOLVED IN CONSTRUCTION PLANNING;
   - 2.3. THE LOCATION OF THE PROTECTED AREA WILL BE EXPLICITLY LABELED ON ALL PERTINENT CONTRACT DRAWINGS;
   - 2.4. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, A LICENSED CONSULTANT ARCHAEOLOGIST WILL BE HIRED TO SUPERVISE THE ERECTION OF THE TEMPORARY PROTECTIVE FENCING;
   - 2.5. DURING GRADING AND OTHER SOIL DISTURBING ACTIVITIES, THE PROTECTED SITE AREA WILL BE INSPECTED AND MONITORED BY A LICENSED CONSULTANT ARCHAEOLOGIST TO VERIFY THE EFFECTIVENESS OF THE AVOIDANCE AND PROTECTION STRATEGIES AND ENSURE THERE ARE NO INCIDENTAL IMPACTS TO THE SITE;
   - 2.6. IF ALTERATION OF THE ARCHAEOLOGICAL SITE IS OBSERVED AT ANY TIME DURING CONSTRUCTION, MTCS WILL BE NOTIFIED IMMEDIATELY AND APPROPRIATE MEASURES WILL BE TAKEN UNDER GUIDANCE FROM A LICENSED CONSULTANT ARCHAEOLOGIST;
   - 2.7. AFTER COMPLETION OF GRADING AND OTHER SOIL DISTURBING ACTIVITIES, A LICENSED CONSULTANT ARCHAEOLOGIST WILL INSPECT AND REPORT TO THE MTCS ON THE EFFECTIVENESS OF THE AVOIDANCE AND PROTECTION STRATEGIES THROUGH A SITE VISIT TO OBSERVE CONDITIONS AND FINAL REPORTING AND;
   - 2.8. IF NEW ARCHAEOLOGICAL REMAINS ARE UNCOVERED DURING CONSTRUCTION, THE LICENSED CONSULTANT ARCHAEOLOGIST WILL STOP CONSTRUCTION AND CONDUCT ANY REQUIRED FOLLOW-UP ARCHAEOLOGICAL ASSESSMENT AS DEEMED APPROPRIATE BY MTCS.

**BUTTERNUT TREES**

1. A 25m BUFFER HAS BEEN SPECIFIED AROUND THE BUTTERNUT TREES TO BE PROTECTED
2. WORKS WITHIN THE BUTTERNUT BUFFERS SHALL BE AVOIDED.
3. DURING CONSTRUCTION OF SWMF #1, SNOW FENCE IS TO BE PLACED AROUND THE LIMITS OF SITE WORKS ADJACENT TO THE BUTTERNUT TREES.

**WATERCOURSE PROTECTION**

1. A 15m PROTECTION ZONE HAS BEEN SPECIFIED ON EITHER SIDE OF THE WATERCOURSE
2. HEAVY DUTY SILT FENCE WILL BE INSTALLED ALONG THE LIMITS OF SITE GRADING ADJACENT TO THE WATERCOURSE
3. ESC MEASURES HAVE BEEN PROPOSED TO LIMIT THE ACCUMULATION OF SEDIMENT AND CONSTRUCTION DEBRIS IN THE WATERCOURSE

**RIDGE PROTECTION**

1. A HAZARD ZONE HAS BEEN SPECIFIED THROUGH THE STEEP SECTION OF THE RIDGE PER GSCA MAPPING
2. WORK IN THIS AREA AND TRAVERSING THIS AREA SHALL BE AVOIDED WHEN POSSIBLE
3. WHEN CROSSING FROM THE HIGH SIDE TO THE LOW SIDE OF THE RIDGE, THE PROPOSED ROADWAY LOCATION IS TO BE USED
4. HEAVY DUTY SILT FENCE WILL BE INSTALLED ALONG THE LIMITS OF SITE GRADING ADJACENT TO THE WATERCOURSE
5. ESC MEASURES HAVE BEEN PROPOSED TO LIMIT THE ACCUMULATION OF SEDIMENT AND CONSTRUCTION DEBRIS IN THE WATERCOURSE
6. DURING CONSTRUCTION OF THE ROADWAY ACROSS THE RIDGE, TRAVERSING THE RIDGE SHALL BE MINIMIZED TO PRESERVE SLOPE STABILITY

**WOODLOT PROTECTION**

1. THE EXISTING WOODLOT SHALL NOT BE DISTURBED OUTSIDE OF THE PROPOSED SITE GRADING AREA

Project

# PARKBRIDGE CRAIGLEITH
# THE TOWN OF THE BLUE MOUNTAINS

Drawing

## SITE PREPARATION & PROTECTION PLAN

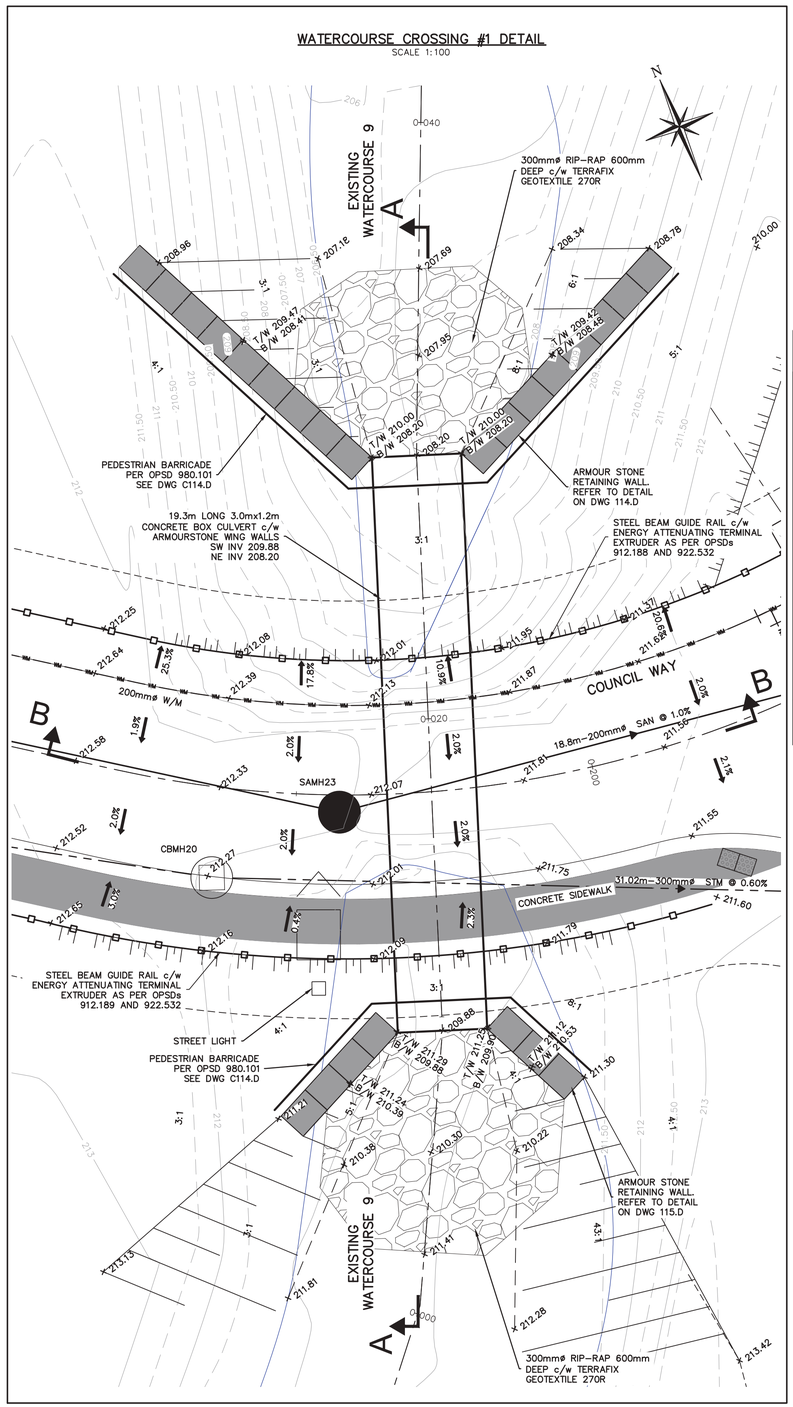
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| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:1500 | C111 |

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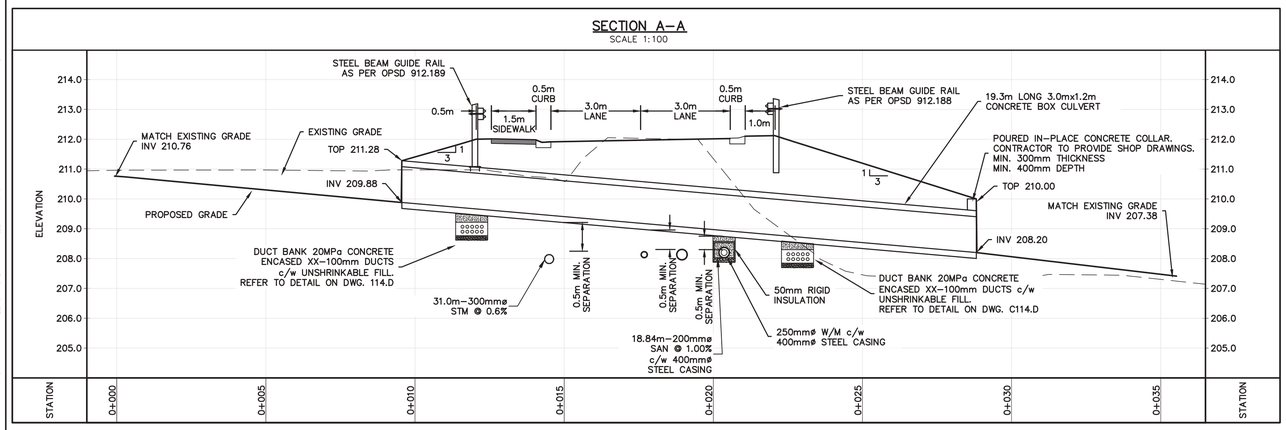
## WATERCOURSE CROSSING #1 DETAIL

SCALE 1:100



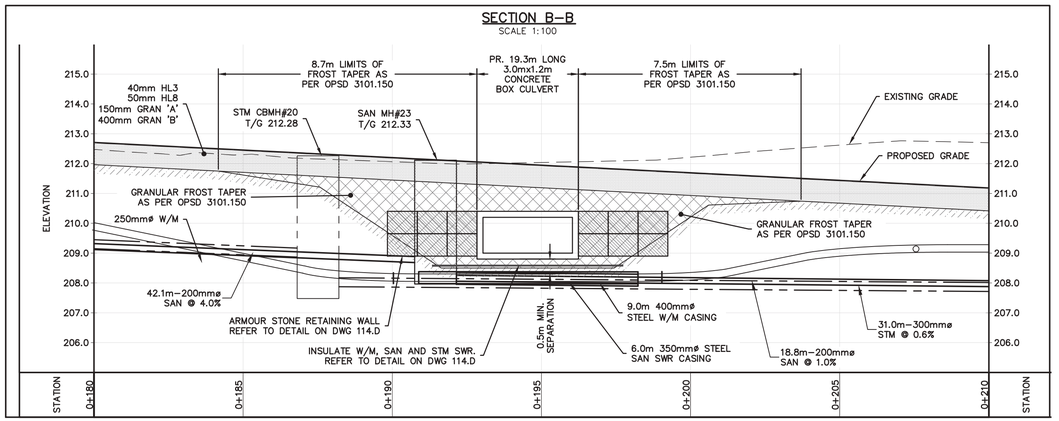

## SECTION A-A

SCALE 1:100



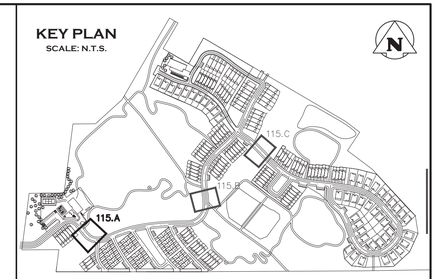

## SECTION B-B

SCALE 1:100




## KEY PLAN

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Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

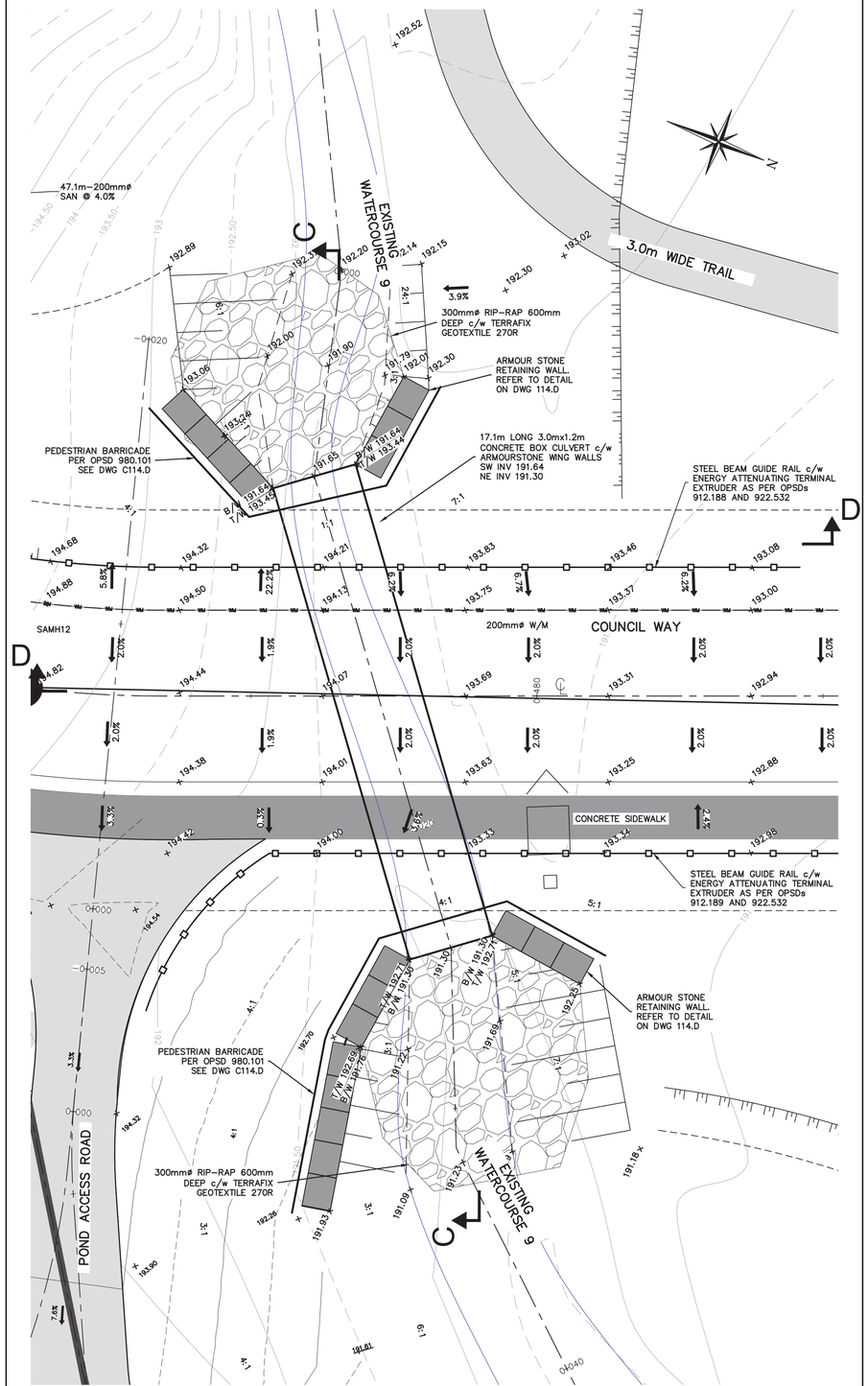
WATERCOURSE CROSSING #1
PLAN AND SECTIONS


CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
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705 446 3520 F
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| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046-4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:100 | C114.A |

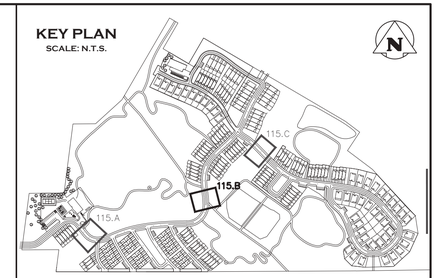
## WATERCOURSE CROSSING #2 DETAIL

SCALE 1:100



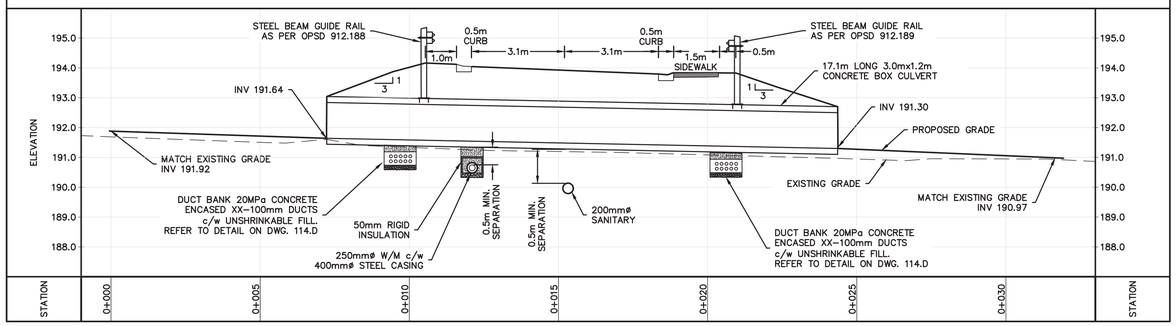

## KEY PLAN

SCALE: N.T.S.



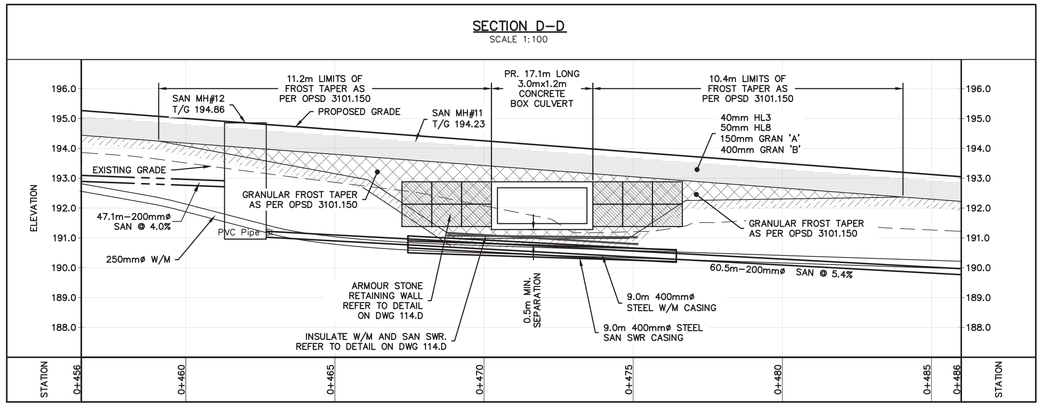

## SECTION C–C

SCALE 1:100




## SECTION D–D

SCALE 1:100




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### TEMPORARY BENCHMARKS

**TBM#1** – ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO A SPIKE IN HYDRO POLE ON GREY ROAD 19 SOUTH OF CRAIGLEITH ROAD HAVING AN ELEVATION OF 222.88 METRES.

TOPOGRAPHIC SURVEY COMPLETED BY ZUBEK, EMO, PATTEN AND THOMSEN LTD. O.L.S., DATED MARCH 2006.

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| 1 | ISSUED FOR 2nd SUBMISSION | 09/17/2020 |
| 2 | ISSUED FOR 3rd SUBMISSION | 05/14/2021 |

Engineer | Engineer

Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

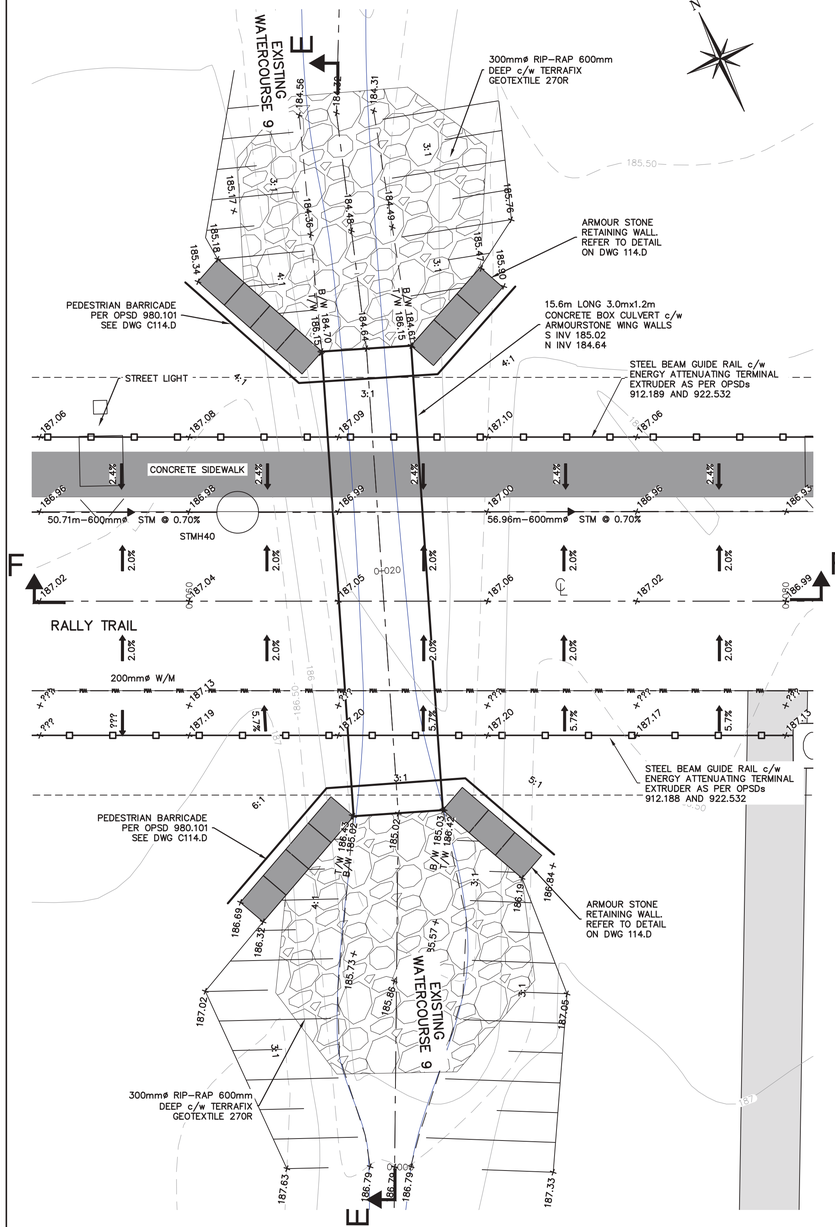
WATERCOURSE CROSSING #2
PLAN AND SECTIONS


CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

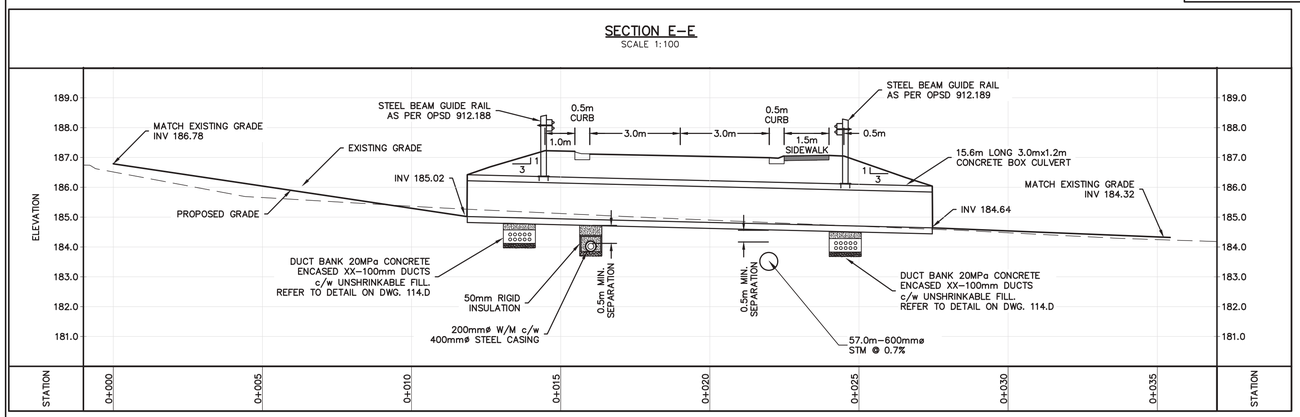

| Drawn By | Design By | Project | |
|---|---|---|---|
| L.W. | L.W. | | 1046–4031 |
| Check By | Check By | Scale | Drawing |
| R.W. | J.P. | 1:100 | C114.B |

J:\1000\1046-Parkbridge Lifestyle\4031-Craigleith Fogal Land Acq\CAD\CIVIL\1SHEET\4031_C114 WC CROSSINGS.dwg, C114.B, 2021-05-17 4:53:17 PM, lwaters

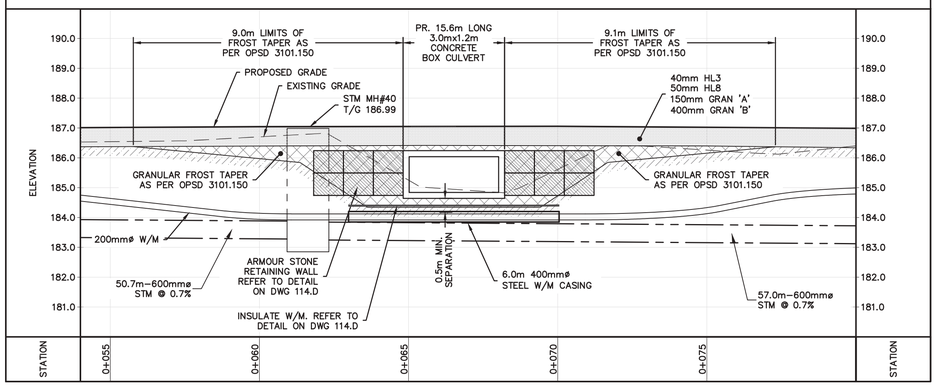
## WATERCOURSE CROSSING #3 DETAIL
SCALE 1:100



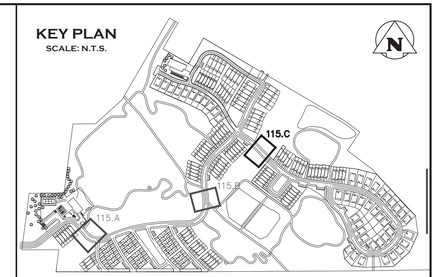

## SECTION E–E
SCALE 1:100




## SECTION F–F
SCALE 1:100




## KEY PLAN
SCALE: N.T.S.




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Project

PARKBRIDGE CRAIGLEITH
THE TOWN OF THE BLUE MOUNTAINS

Drawing

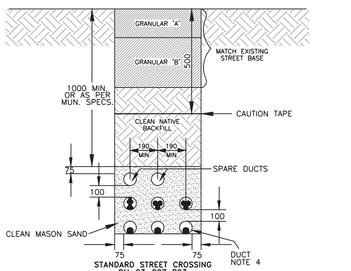
WATERCOURSE CROSSING #3
PLAN AND SECTIONS


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THE HARBOUREDGE BUILDING,
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|---|---|---|
| L.W. | L.W. | 1046–4031 |
| Check By | Check By | Scale / Drawing |
| R.W. | J.P. | 1:100 / C114.C |

## TYPICAL DUCT BANK ROAD CROSSING DETAIL

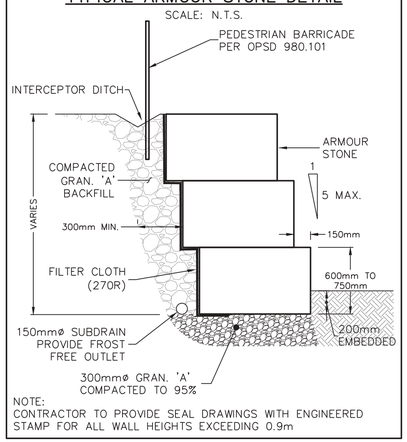
NTS, DIMENSIONS SHOWN IN MILLIMETRES (mm)



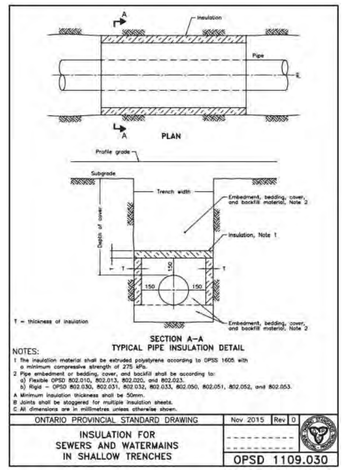

NOTES:
1. ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
2. STREET CROSSING DUCTS TO BE INSTALLED AS PER MUNICIPAL SPECIFICATIONS TO A 1000mm MINIMUM DEPTH FROM FINAL GRADE. CENTER POINT TO BE ELEVATED TO PROVIDE 3% SLOPE TO EXTREMITIES.
3. BACKFILLING & COMPACTION SHALL BE AS PER MUNICIPAL SPECIFICATIONS, COMPACTION SHALL BE A MINIMUM OF 95% STANDARD PROCTOR DENSITY.
4. IF TRENCH BOTTOM IS NOT LEVELED, FREE OF STONES & SHARP OBJECTS, MASON SAND SHALL BE PLACED IN THE TRENCH BOTTOM BEFORE INSTALLING DUCTS.
5. PRIMARY CABLES SHALL BE IN THE LOWER DUCTS AND SECONDARY CABLES IN THE UPPER DUCTS.
6. THIS DRAWING ALSO APPLIES TO CABLES INSTALLED ACROSS DRIVEWAYS IN INDUSTRIAL & COMMERCIAL SUBDIVISIONS AND UNDER PAVED PARKING AREAS.
7. IN CASE OF ABSENCE OF SECONDARY CABLES IN THE TRENCH, THE PRIMARY CABLES CAN BE PLACED IN THE MIDDLE LEVEL DUCTS.

## TYPICAL ARMOUR STONE DETAIL

SCALE: N.T.S.




NOTE:
CONTRACTOR TO PROVIDE SEAL DRAWINGS WITH ENGINEERED STAMP FOR ALL WALL HEIGHTS EXCEEDING 0.9m




NOTES:
1 The insulation material shall be extruded polystyrene according to OPSS 1605 with a minimum compressive strength of 275 kPa.
2 Pipe embedment or bedding, cover, and backfill shall be according to:
a) Flexible OPSD 802.010, 802.013, 802.020, and 802.023.
b) Rigid – OPSD 802.030, 802.031, 802.032, 802.033, 802.050, 802.051, 802.052, and 802.053.
A Minimum insulation thickness shall be 50mm.
B Joints shall be staggered for multiple insulation sheets.
C All dimensions are in millimetres unless otherwise shown.

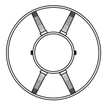
| ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2015 | Rev 0 |
|---|---|---|
| INSULATION FOR SEWERS AND WATERMAINS IN SHALLOW TRENCHES | | OPSD 1109.030 |

## CASING SPACERS

- CASCADE: CCS – 1320–8 (OR APPROVED EQUAL)

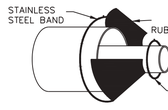
NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS OF MATERIAL AND INSTALLATION METHODOLOGY FOR REVIEW AND APPROVAL.
2. ALL CASING SPACERS ARE TO BE MADE OF T–304 STAINLESS STEEL.
3. BEARING SURFACES (RUNNERS) SHALL BE ULTRA HIGH MOLECULAR WEIGHT POLYMER OR EQUIVALENT.
4. POSITIONING OF SPACERS ALONG THE WATERMAIN IS TO BE AS PER MANUFACTURERS SPECIFICATIONS.
5. POSITION OF WATERMAIN WITHIN LINER TO BE CENTERED AND RESTRAINED, SUFFICIENT ENOUGH TO PROVIDE NO LESS THAN 19mm (¾") CLEARANCE BETWEEN THE CASING PIPE AND THE OUTSIDE DIAMETER OF THE BELL.



CENTERED & RESTRAINED

6. WATERMAIN SHALL BE RESTRAINED LATERALLY FOR THE ENTIRE LENGTH OF THE LINER PLUS ONE FULL PIPE LENGTH BEYOND END OF CASING.
7. LINER TO BE SEALED USING WRAP AROUND RUBBER ENDS COMPLETE WITH STAINLESS STEEL (T–304) BANDING.




**GENERAL CONSTRUCTION SCHEDULE**

1. IN STREAM WORKS TO COMPLY WITH NVCA/DFO FISHERY TIMING GUIDELINES AND ASSOCIATED PERMITTING.
2. MAINTAIN TEMPORARY BY–PASS CULVERTS AND OVERLAND SPILL ROUTE PRIOR TO ANY EXCAVATION.
3. COMPLETE ASSOCIATED SEDIMENT CONTROLS, CULVERT AND UNDERGROUND SERVICES ENSURING WORKING IN THE DRY AT ALL TIMES.

**GENERAL NOTES**

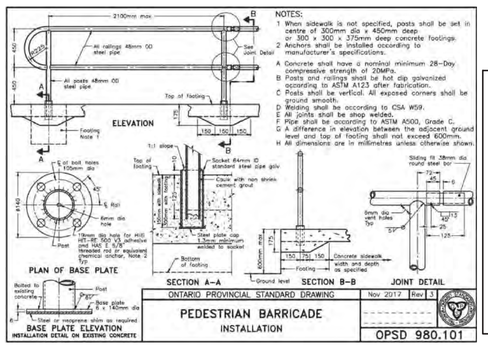
1. ALL WORK TO BE PERFORMED IN DRY DEWATERED CONDITIONS USING COFFER DAMS AND TEMPORARY CULVERTS.
2. NO MAINTENANCE OR REPAIR WORK ON CONSTRUCTION EQUIPMENT IS ALLOWED WITHIN 30 METRES OF WATERCOURSE.
3. ALL SEDIMENT & EROSION CONTROL FACILITIES AND WORKS ARE TO BE CONSTRUCTED AND IN PLACE TO THE APPROVAL OF THE SITE ENGINEER PRIOR TO EXCAVATION WORKS COMMENCING.
4. ALL TEMPORARY SOIL OR DIRT TO BE STOCKPILED PER DESIGNATED AREAS.
5. THE SEDIMENT & EROSION CONTROLS SPECIFIED HEREIN DO NOT NECESSARILY CONSTITUTE ALL MEASURES REQUIRED GIVEN FIELD CONDITIONS. CONTRACTOR TO PROVIDE ANY SUPPLEMENTARY SEDIMENT & EROSION CONTROL MEASURES AS REQUIRED TO ENSURE NO RELEASE OF DELETERIOUS SUBSTANCES TO WATERCOURSE.

**GENERAL CULVERT NOTES**

1. FOOTING DETAILS (DIMENSIONS & REINFORCING) FOR MUNICIPAL APPROVAL PROCESS ONLY. ACTUAL SIZE OF FOOTINGS AND REINFORCING AS PER DESIGN BY CONTRACTOR.
   FOOTINGS ARE ASSUMED TO BE FOUNDED ON BEDROCK; CONTRACTOR TO CONFIRM IN FIELD.
2. DESIGN IN ACCORDANCE WITH THE CANADIAN HIGHWAY BRIDGE DESIGN CODE (CAN/CSA–S6–06).
3. CONTRACTOR IS TO EXPOSE THE BEDROCK AROUND THE PROPOSED FOOTING FOR REVIEW BY GEOTECHNICAL ENGINEER. ANY LOOSE OR DELETERIOUS MATERIALS SHALL BE REMOVED AT THE DIRECTION OF THE GEOTECHNICAL ENGINEER
4. CLASS OF CAST–IN–PLACE CONCRETE = 30 MPa.
5. CLEAR COVER TO REINFORCING:
   FOOTINGS = 100±25
   DISTRIBUTION SLAB = AS NOTED ON DWG.
6. BAR MARKS WITH SUFFIX 'C' DENOTE COATED BARS.
7. REINFORCING BARS SHALL BE GRADE 400 MPa.
8. CONTRACTOR TO PROVIDE MIN. 0.75m GRANULAR ABOVE CULVERT STRUCTURE DURING CONSTRUCTION.

**REQUIREMENTS FOR THE CONTRACTOR**

1. PROVIDE STAMPED SHOP DRAWINGS INDICATING THAT THE CULVERT STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE CANADIAN HIGHWAY BRIDGE DESIGN CODE (CHBDC) (CAN/CSA–S6–06). CONTRACTOR TO ALSO PROVIDE COPIES OF ALL SHOP DRAWINGS TO THE TOWN FOR THEIR RECORDS.
2. SUBMISSION SHALL INCLUDE DETAILS ON REACTION LOADS, BOTH HORIZONTAL & VERTICAL, TO BE RESISTED BY FOUNDATION AS WELL AS DETAILS ON PROPOSED ANCHORAGE FOR CULVERT & FOOTINGS.
3. ENSURE THAT THE SHOP DRAWINGS ARE SPECIFIC TO THIS CONTRACT, AND REFERENCED TO CFCA PROJECT No. 721–3505, AND NOT A "STOCK ITEM".
4. ENSURE THAT SHOP DRAWINGS SHOW AND SPECIFY ALL JOINT FILLERS, SEALS AND COMPOUNDS, GROUT, AND GEOTEXTILE INSTALLATIONS AND APPLICATIONS.
5. CONTRACTOR RESPONSIBLE FOR DESIGN AND DETAILING OF CONCRETE HEADWALLS (COLLARS) INCLUDING ANCHORAGE DETAILS TO CULVERT. SEALED & SIGNED SHOP DRAWINGS TO BE PROVIDED.

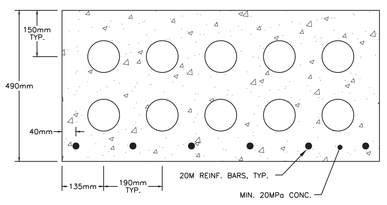



NOTES:
1 When sidewalk is not specified, posts shall be set in centre of 300mm dia x 450mm deep or 300 x 300 x 375mm deep concrete footings.
2 Anchors shall be installed according to manufacturer's specifications.
A Concrete shall have a nominal minimum 28–Day compressive strength of 20MPa.
B Posts and railings shall be hot dip galvanized according to ASTM A123 after fabrication.
C Posts shall be vertical. All exposed corners shall be ground smooth.
D Welding shall be according to CSA W59.
E All joints shall be shop welded.
F Pipe shall be according to ASTM A500, Grade C.
G A difference in elevation between the adjacent ground level and top of footing shall not exceed 600mm.
H All dimensions are in millimetres unless otherwise shown.

| ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2017 | Rev 3 |
|---|---|---|
| PEDESTRIAN BARRICADE INSTALLATION | | OPSD 980.101 |

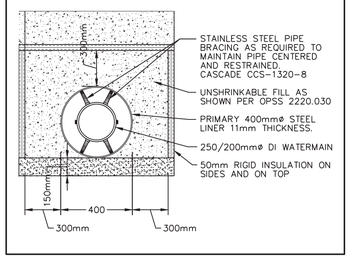
## DUCT BANK DETAIL

N.T.S.




## STEEL LINER DETAIL

N.T.S.




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WATERCOURSE CROSSING
NOTES AND DETAILS


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