The Odan/Detech Group Inc.
P: (905) 632-3811
F: (905) 632-3363
5230, SOUTH SERVICE ROAD, UNIT 107
BURLINGTON, ONTARIO, L7L 5K2
www.odandetech.com

PROPOSED INDUSTRIAL DEVELOPMENT
3054 Homestead Drive

City of Hamilton

FUNCTIONAL SERVICING REPORT

Prepared For:

Fengate Homestead Holdings LP

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EXECUTIVE SUMMARY

Odan/Detech was retained by FENGATE HOMESTEAD HOLDINGS LP to propose a servicing scheme for the industrial development located at 3054 Homestead Drive, Hamilton, Ontario. The subject site also includes lands located at 9174 and 9166 Airport Rd West. A draft plan of subdivision has been proposed which will introduce 129,551.32 m2 of ICI (industrial/commercial/institutional) space to the Hamilton Airport area. The following is a summary of the findings listed per type of service.

Sanitary Service:

The development of 3054 Homestead Drive will generate a population of approximately 656 persons. This is within the allowance provided for this property at the English Church Sanitary Pump Station (HC019) which is 950 persons/jobs. A discussion regarding the properties employment, based on land use, can be found in Section 2.0. The existing site has no existing sanitary drainage pattern, and it is proposed to service the development through two sanitary connections. A 375mm sanitary sewer at a slope of 0.5% (minimum) will convey the proposed developments sanitary flow to Airport Road and Homestead Drive. See the Conceptual Servicing Plan (Drawing 1) in Appendix F.

Water Service:

A 300mm looped watermain system is proposed within the subject site. Connections will be made to the existing 400mm watermains on Airport Road and Homestead Drive, respectively. The watermain configuration is suitable for the development for full build out or in a Phased condition. See Section 3.0 for the water supply and distribution discussion.

Storm & SWM Service:

The Stormwater management strategy for the site will follow the requirement outlined in the AEDG Subwatershed Study & SWMP Implementation Document. The proposed development site is situated across a drainage boundary for Twenty Mile Creek and the Welland River.

Figure 4 in Appendix C outlines the existing drainage boundary divide across the site and the existing storm outlets towards Homestead Dr and Airport Rd. A portion of the Hamilton Airport lands to the west drains into the site at the west boundary into the existing wetlands within the north end of the site. Storm flow from the Hamilton Airport lands will be diverted thought the site within an open swale ultimately to the existing north-west storm outlet to Homestead Rd.

As a result of the existing drainage divide, the site's stormwater management strategy will incorporate multiple separate storm outlets. As per discussions with the City, the two most southern catchments will both drain toward Airport Road in the post-development, and the 100-year release rate will be less than the flow rate allocation provided by the Lancaster Heights SWM Pond. New storm sewers will be constructed off-site along Airport Rd to provide the necessary storm water outlet conveyance to the receiving storm sewer. The post development flow rate to the northern storm outlet proposed to drain toward Homestead Rd will control the post-development flows to pre-development levels.

To control stormwater runoff on-site to their respective flow rates, on site storm water management will be required. This will be achieved through roof top control drains allowing flow attenuation from building roof areas, as well as on site surface ponding at catch basins and underground storage chambers. Additional control will be achieved by incorporating infiltration galleries to achieve water balance targets while also providing runoff retention and lower overall runoff volume from the site.

The site will require quality control which will be achieved by various oil/grit separator units and LID measures.

Site Grading:

Under the new development there will be several grading constraints for this development to match. The constraints are matching both the existing overland flow route and grades along the north property line, as it is also being developed. The post-development overland flow has been modified form the pre-development and a detailed discussion can be found in Section 6. At a later date, coordination with the adjacent landowner will determine the grades to match along the north property line.

1. INTRODUCTION

1.1 Background

The Odan/Detech Group was retained by Fengate Homestead Holdings LP to complete the functional servicing study for the proposed industrial draft plan of subdivision located at 3054 Homestead Drive and 9174 and 9166 Airport Rd West in the Mount Hope community in the City of Hamilton. This report will evaluate the serviceability of the site with respect to sanitary, water and storm servicing and also evaluate the stormwater management (SWM) strategy that will be implemented to meet the SWM requirements set out by regulatory agencies.

1.2 Site Description

The property under study is a 31.8 hectare (ha) (78.5 acre) site located south-east of the John C. Munro Hamilton International Airport in the City of Hamilton within the Airport Employment Growth District (AEGD) lands. The site is bounded by the following:

- To the north: there are existing agricultural lands, which are in the application process to be developed by Rice Group.
- To the east: there are single family dwellings which front onto Homestead Drive.
- To the south: there are single family dwellings which front onto Airport Road.
- To the west: there is East Cargo Road and John C. Hamilton International Airport.

An aerial view of the site can be found in Appendix A.

The subject site is currently vacant consisting of mostly cultivated lands. A drainage feature cuts through the north end of the site draining the westerly airport lands to Homestead Drive and is surrounded by meadow marsh vegetation. The topography of the site has a high point spanning east/west through the center of the site wherefrom the lands generally slope towards Airport Road to the south and the existing drainage feature to the north. Please refer to the topographic survey prepared Nanfara & Ng Surveyors Inc. for detailed topography of the existing site conditions.

The site is located within two watershed boundaries. Areas of the site draining northward are within the Twenty Mile Creek watershed and ultimately drain east across Homestead Drive through Willow Valley Golf Course. Areas draining to the south are within the Welland River watershed. One of the two southern outlets drains across Airport Rd towards a newly built SWM pond within Lancaster Heights Subdivision, while the other outlet drains through Homestead Drive to a channel located at the intersection of Homestead Drive and Provident Way. Both watersheds are within the jurisdiction of the Niagara Peninsula Conservation Authority.

1.3 Proposed Development

The proposed development will consist of four industrial buildings, a right-of-way and a natural heritage compensation area. The proposed road allowance will extend from Airport Road to a proposed cul-de-sac at the north east edge of the site. Please refer to the proposed Draft Plan of Subdivision in Appendix A prepared by Urban Solutions for layout of the proposed development.

On the adjacent lands to the north, the Rice Group is currently working on a development proposal that is proposing a road allowance aligned with Street A cul-de-sac. Should the Rice Group construct the connecting road allowance at the same time or prior to the road proposed within the subject site, the proposed cul-de-sac design for this site will be omitted from the design.

A Concept Plan of the site dated July 28, 2023, by Urban Solutions, can be found in Appendix A. Phasing of the site is considered within the following report and it should be noted that the phasing of each component of the site plan will be determined at the detailed design stage. For further information regarding the proposed plan and specific land use, refer to the Draft Planning Justification Report prepared by Urban Solutions.

2. SANITARY SERVICING

2.1 Existing Sanitary Sewer Infrastructure

The proposed development is abutting two existing sanitary sewers to the east and south on Homestead Drive and Airport Road. respectively. There is a 450mm diameter sewer on Airport Rd that flows easterly to the intersection of Airport Rd and Homestead Dr, where it discharges to Homestead Drive's 675mm trunk sewer which drains northward passing the site's eastern frontage access. This sewer ultimately discharges to the downstream English Church Sanitary Pump Station (SPS) (Ref No. HC019) located at 2844 Upper James St.

A capacity allowance has been made at the English Church SPS (HC019) for the subject property, based on a growth of approximately 950 jobs.

As the site consists of existing agricultural lands, there is currently no connection to the existing sanitary sewers abutting the site.

2.2 Proposed Sanitary Servicing

Wastewater from the subject lands is intended to be directed to the existing English Church SPS (HC019) through gravity sewer connections to Homestead Dr and Airport Road, via Street A. Building A's sanitary discharge is proposed to outlet to the proposed 375mm sanitary sewer beneath Street A, which will discharge to the existing 450mm diameter sewer beneath Airport Road. Building's B, C and D are proposed to discharge to the 675mm sanitary sewer beneath Homestead Drive.

For the sewer connection to Homestead Dr, a municipal sewer is proposed to connect from Street A through Block 1 to Homestead Dr. which will require a municipal servicing easement/corridor over top of the main sewers through Block 1. For the proposed sanitary servicing layout of the site please refer to the Conceptual Site Servicing Plan in Appendix F.

In the event the Rice Group lands to the north of the site, 2876 Upper James Street, is constructed prior to the subject development, an alternate outlet will be utilized for Buildings B, C and D. This outlet would be through the neighbouring property, within the Street A road allowance, which would eliminate the need for a municipal sewer easement through Block 1. Refer to the Alternative Water and Sanitary Outlet Figure 3 in Appendix B for reference.

Phasing of the site has been considered and Phase 1 involves the construction of Building A only, and Street A from Airport Rd to a cul-de-sac north of Building A. This first phase would require a relatively short municipal sanitary sewer run on Street A from Airport Rd to Building A as shown in the Conceptual Servicing Plan in Appendix F. This would defer the Homestead Dr sanitary connection and improve the possibility of connecting the future Street A sanitary sewer to the development at 2876 Upper James St, should the construction schedules align between both developments.

2.2.1 Sanitary Sewer Design Considerations

The equivalent population for this development will follow the population densities established within AEGD Water and Wastewater Master Plan and as shown in the following Table 1 from the study.

Table 1 – Updated AEGD area and population projection

Land Use		Area (ha)	Employment Density (emp/ha)	Projected Employees
ASI	Airside Industrial	87	36	3,123
ARB	Airport Related Business	16.0	81	1,299
IND	Light Industrial	150.1	23	3,451
PBP	Prestige Business Park	397.7	39	15,509
Institutional*	Institutional*	41.0	11	451
Total		**692**		**23,843**
**Includes church, college lands, and secondary school uses at areas of 8.2, 24.6, and 8.2 net ha respectively.*				

In determining the total population for the subject site, the AEGD population employment densities will be used for light industrial. The following table 2 shows the population of the site based on the population density (person/ha) count method.

Only the total developable site area will be considered for inclusion in the sanitary flows.

Table 2 – Employment Population Based on Employment Density

Unit Type	Site Area (ha.)	Employment Density (persons/ha)	Total Population
Light Industrial	28.5	23	656

The total population/employment for the subject site is 656 people, which is less than the 950 people this development has allocated to the English Church SPS (HC019). Therefore, this development can be serviced by this sanitary pump station with no upgrades to the SPS.

Currently the English Church SPS ultimately outlets to the Twenty Rd SPS. It has been noted by the City of Hamilton that the sanitary flow from this area (including flow from the English Church SPS) is intended to be diverted to a future trunk sewer on Dickenson Rd East as proposed in the Master Servicing Strategy for the AEGD lands. Before the trunk sewer has been completed, the City is requiring that the development

apply for and obtain written permission from the Director of Growth Management Division to secure sanitary capacity allocation in the future trunk sewer. This will be completed at the detailed design stage.

The total expected sanitary flow from the proposed development was calculated as follows in Table 3 based on the total population determined above. The peaking factor was calculated using the Babbitt formula as outlined in the City of Hamilton Comprehensive Development Guidelines and Financial Policies Manual, 2019.

Table 3 – Summary of Sanitary Sewer Design Flow

Outlet Location	Area (ha)	Population[1]	Average Dry Weather Flow (L/s)[2]	Peak Factor[3]	Infiltration Allowance (L/s)[4]	Design Flow (L/s)[5]
Homestead Dr	19.76	454	1.79	5	7.50	**16.48**
Airport Rd.	8.74	202	0.84	5	3.50	**7.68**

[1]Population: Refer to Table 2
[2]Average Dry Weather Flow = 360 L/cap/day x population
[3]Peak Factor, M (Babbitt Formula) = $5 \div (P/1000)^{0.2}$ ($2 < M < 5$), P is number of Persons in thousands
[4]Infiltration Allowance = Infiltration Factor (0.4L/s/ha) X Sanitary Tributary Area
[5]Design Flow = Average Dry Weather Flow X Peak Factor + Infiltration Allowance

It should be noted that at the site plan stage, waste water generation will be evaluated by estimating flows using the Ontario Building Code. Given that the sanitary flow for the proposed building types will be calculated by the number of loading bays and limited office space rather than population, a preliminary OBC calculation was completed to compare anticipated flow generation to preliminary flow shown in Table 3. An average dry weather flow rate of 0.75 l/s was calculated which is 27% of the flow calculated using the population method (refer to Appendix B for the OBC calculation breakdown) which suggests that sanitary flows will most likely be lower than the flows summarized in Table 2. In addition, the sanitary sewers to do not span a large portion of the site, therefore the calculated infiltration rate is likely inflated. Given the relatively low flows generated from a relatively large site, the City has requested that a sanitary monitoring plan be implemented to ensure that site flows do not exceed the allocated flow for the site. The details of this plan will be reviewed with the City at the detailed design stage.

2.2.2 Sanitary Sewer Design & Downstream Pipe Capacity

The sanitary sewer design for the site will follow the City of Hamilton's servicing standards and requirements. All proposed municipal sanitary sewers are to be 375mm diameter with a minimum slope of 0.5%. Proposed sanitary sewers for the development were evaluated using the sanitary sewer calculation sheet in Appendix B to determine the capacity of the proposed sanitary system. Please refer to Figure 1 in Appendix B as a reference for the sanitary sewer calculation sheet.

The proposed site will drain to the existing 675mm diameter sanitary sewer (at slope of 0.20%) on Homestead Dr and a 450mm diameter sanitary sewer (at slope of 0.20%) on Airport Rd, which have a capacity of 376 L/s and 127 L/s respectively.

3. WATER SUPPLY AND DISTRIBUTION

3.1 Existing Water Supply and Distribution

The subject site is located adjacent to two available municipal watermains for servicing purposes. To the south there is a 400mm watermain beneath Airport Road which the site has access to. To the east there is a 400mm watermain beneath Homestead Drive that is accessible from the portion of the site that fronts Homestead Dr. The site is within the City Pressure District 6 (PD6) pressure zone.

3.2 Proposed Water Supply

The City of Hamilton has recently adopted a new policy regarding requirements for providing water to new developments. This was made effective January 1, 2020 and is as follows;

Water Main Fire Flow Requirements Design Guidelines require that fire flows be based on the greater of the required fire flow calculated using the Ontario Building Code (OBC) method and a City Target Available Fire Flow based on land use, and not the Fire Underwriters Survey (FUS) approach.

The following Table identifies City of Hamilton Target Available Fire Flows based on Land Use.

Land Use	Target AFF (L/s)
Commercial	150
Small ICI (<1800m3)	100
Industrial	250
Institutional	150
Residential Multi (greater than 3 units)	150
Residential medium (three or less units)	125
Residential Single	75
Residential Single (dead end)	50

The Odan/Detech Group has been working closely with the City of Hamilton in the AEGD area and it is known that the available fire flow in the area of the subject site is below 250 L/s. This has been confirmed by a hydraulic assessment of the existing watermain system completed by WSP under a separate cover for the subject site. To mitigate this issue on recent development sites with similar sized industrial buildings adjacent to the site, the City has acknowledged that upon detailed design of the buildings, the OBC caps the required fire flow at 150 L/s once all code requirements and sprinkler systems have been considered. We anticipate that the buildings within the subject development will undergo similar concessions to allow the development to proceed.

3.2.1 Domestic Water Demand

The estimated domestic water demand for the site has been calculated based on the Ontario Ministry of Environment's "Design Guidelines for Drinking-Water Systems". Table 3 summarizes the domestic water demand from the proposed development.

Table 4 – Summary of Domestic Water Demand

Population[1]	Average Day Demand (L/s)[2]	Max. Day Factor[3]	Peak Hour Factor[4]	Max. Day Demand[5]	Peak Hour Demand[6]
656	2.73	2.5	3.75	6.8	10.2

[1]Population: Refer to Table 2
[2]Average Day Demand = 360 L/cap/day x population
[3]Max Day Peaking Factor = 2.5
[4]Peak Hour Peaking Factor = 3.75
[5]Maximum Day Demand = Average Day Demand x Max. Day Peaking Factor
[6]Peak Hour Demand = Average Day Demand x Peak Hour Peaking Factor

At the final design stage actual domestic demand for each building will be determined using the AWWA Manual M22 Modified Fixture Value method.

3.2.2 Fire Flow Demand

According to MOE (2008), the water distribution system requires to maintain a minimum residual pressure of 20 psi (140 kPa) when subject to Maximum Day + Fire Flow demands, and the pressure in the distribution system must not exceed 100 psi (700 kPa) nor fall below 40 psi (275 kPa) during normal demand periods.

The fire flow demand of each building within the proposed development will be confirmed at the building permit stage. As mentioned above it is anticipated that the fire flow demand will not exceed 150 L/s when determined by the OBC method. To confirm available fire flow within the development, a separate watermain hydraulic analysis was completed by WSP and submitted under a separate cover.

The site's watermain was analysed based on the layout shown on the Conceptual Servicing Plan in Appendix F which shows the watermain looping from Airport Rd through Street A and connecting to Homestead Dr through Block 1. The site's watermain was also analysed based on the layout shown in Figure 3 in Appendix B, where Street A's sanitary sewers and watermain is directed through the Rice Groups property to Homestead Drive. In addition, an analysis was completed by WSP to evaluate the available fire flow in the Phase 1 condition described in Section 2.2, whereby only Building A would be constructed and the watermain would be installed from Airport Rd to midway of Building B.

By phasing the site, the remainder of the watermain loop connecting to Homestead Rd would be deferred which would potentially allow for the watermain to be connected through the Rice Group lands should their construction schedule align with the second phase of the subject development. Please refer to Figure

3 in Appendix B for the potential alternative watermain layout showing the watermain looped to Homestead through the Rice Group lands.

From WSP's analysis it is shown that the available fire flow to the site under the ultimate build-out and Phase 1 condition ranges from 196-266 L/s and 156-268 L/s respectively at hydrants within the site. If the proposed watermain is connected to the future Rice Group property (Option 2), the available fire flow range slightly increases to 200-276 L/s. These flows are sufficient to meet the anticipated 150 L/s demand criteria for the site under the OBC. In addition the max day pressures exceeded 275 kpa under the ultimate build-out and Phase 1 scenarios with ranges yielding 358-420kpa and 360-390 kpa respectively. For Option 2 of the ultimate build-out the pressures marginally increase to 358-441kpa. Based on these results the proposed watermain layout for the full build-out and Phase 1 conditions are able to sufficiently service the fire and domestic water demands of the site.

4. STORMWATER MANAGEMENT

4.1 Design Criteria

As previously mentioned, the subject site drains to two watersheds, the Twenty Mile Creek Watershed and Welland River Watershed. Two separate storm outlets will be provided in the post-development which will follow the SWM criteria set out by the City of Hamilton Airport Employment Growth District (AEGD) Subwatershed Study & Stormwater Master Plan (SWMP) Implementation Document (Final Report, dated April 2017, Version 2.2) as prepared by Aquafor Beech Limited.

For the area of site within the Welland River Tributary, reference will be made to recent SWM modelling included in the Stormwater Management Report for the Lancaster Heights Subdivision prepared by the Odan/Detech Group Inc. These areas have been modelled as part of the Lancaster SWM Pond and storm conveyance infrastructure up to Airport Rd has been sized to drain this area of the subject development.

A summary of the stormwater management criteria applicable to the site is as follows:

Quantity Control: Quantity control measures for the site are applied on a per outlet basis. The site's post-development stormwater release rate to Airport Road must be less than or equal to the 100-year flow rate allocated from the subject development to the Lancaster Heights SWM Pond. The site's proposed south eastern outlet to Homestead Drive must control the post-development release rates to the pre-development levels. The Regional event will also be considered in subsequent evaluations for flood management purposes at the detailed design stage.

Quality Control: Quality control measures are to be designed to provide Enhanced Protection - long term average removal of 80% of Total Suspended Solids (TSS) on an annual loading basis from all runoff leaving the proposed development site and to infiltrate the AEGD minimum target of 10mm of rainfall over the site's asphalt surfaces. A train treatment approach using Low Impact Design (LID) features is the preferred method to achieve quality control within the AEGD area. Wet ponds are discouraged as they attract birds that have an impact on airport safety. Source control to contain spills within industrial lands will be required.

Runoff Conveyance: The minor and major storms are to be controlled on site and outlet to designated storm outlet sewers. Flows within the proposed road allowance will flow uncontrolled to road side bioswales and ultimately into sewers sized for the 100-year storm. Curb depressions will be provided at low points within the road to allow for drainage from the road to spill into the road-side bioretention swales.

Ground Water Recharge: The AEGD has established water balance targets based on soil types to match pre-development infiltration targets to promote groundwater recharge and maintain pre-development runoff volume. The site is within a type C-D soil therefore the infiltration targets range from 6-8mm depending on the land use. The AEGD SWMP (April 2017 -Table 2.9.6.2) requires that a minimum of 10mm of infiltration is required for the site's asphalt surfaces.

4.2 Existing Conditions and Drainage Patterns

The existing drainage pattern for the site is divided into three quadrants. There is a high point along the site spanning east-west, which directs surface runoff to the north and south direction. The south portion of the property is separated with a high point spanning north-south, which directs surfaces runoff to the south west and south east directions. The existing drainage areas of the site are presented in the Pre-Development Storm Tributary Plan, Figure 4 in Appendix C and are summarized below in the following Table 5.

Table 5 – Summary of Pre-Development Tributary Areas

Area ID	Discharge Location	Area (ha)	Watershed
A	Airport Rd/ Lancaster Heights	12.55	Welland River
B	Existing Drainage Feature/ Homestead Dr.	13.80	Twenty Mile Creek
C	Homestead Dr.	5.03	Welland River

Area A sheet flows overland toward Airport Rd through the existing residential lots fronting Airport Rd. Flow from this area is conveyed along lot lines towards the ditch/culvert system along Airport Rd. There is visible channeling towards Airport Rd between 9158/9166 Airport Rd and 9100/9110 which is intercepted by culverts draining across to the south side of Airport Rd at Mt. Hope Public School and Marion St, ultimately to the temporary dry pond at Spitfire Dr pond which will be decommissioned in the near future. It is planned for the subject lands to be intercepted into the newly built 900mm storm sewers at Airport Rd and Provident Way to convey flow to the new Lancaster Heights SWM pond located near Hwy 6 and White Church Rd.

Area B sheet flows overland to an existing drainage feature that drains from the neighbouring Hamilton Airport through the north part of the site towards the intersection of Homestead Dr and Upper James St through 2918 Upper James St (Hwy No. 6). An existing 900mm x 1200mm culvert crossing Homestead Drive conveys drainage to the east side of Upper James St into a vegetated watercourse that ultimately drains westward to Willow Valley Golf Course. A small area at the north end of the site drains toward the northerly lands to another drainage feature that also drains to the same downstream golf course via another culvert crossing further north on Upper James St.

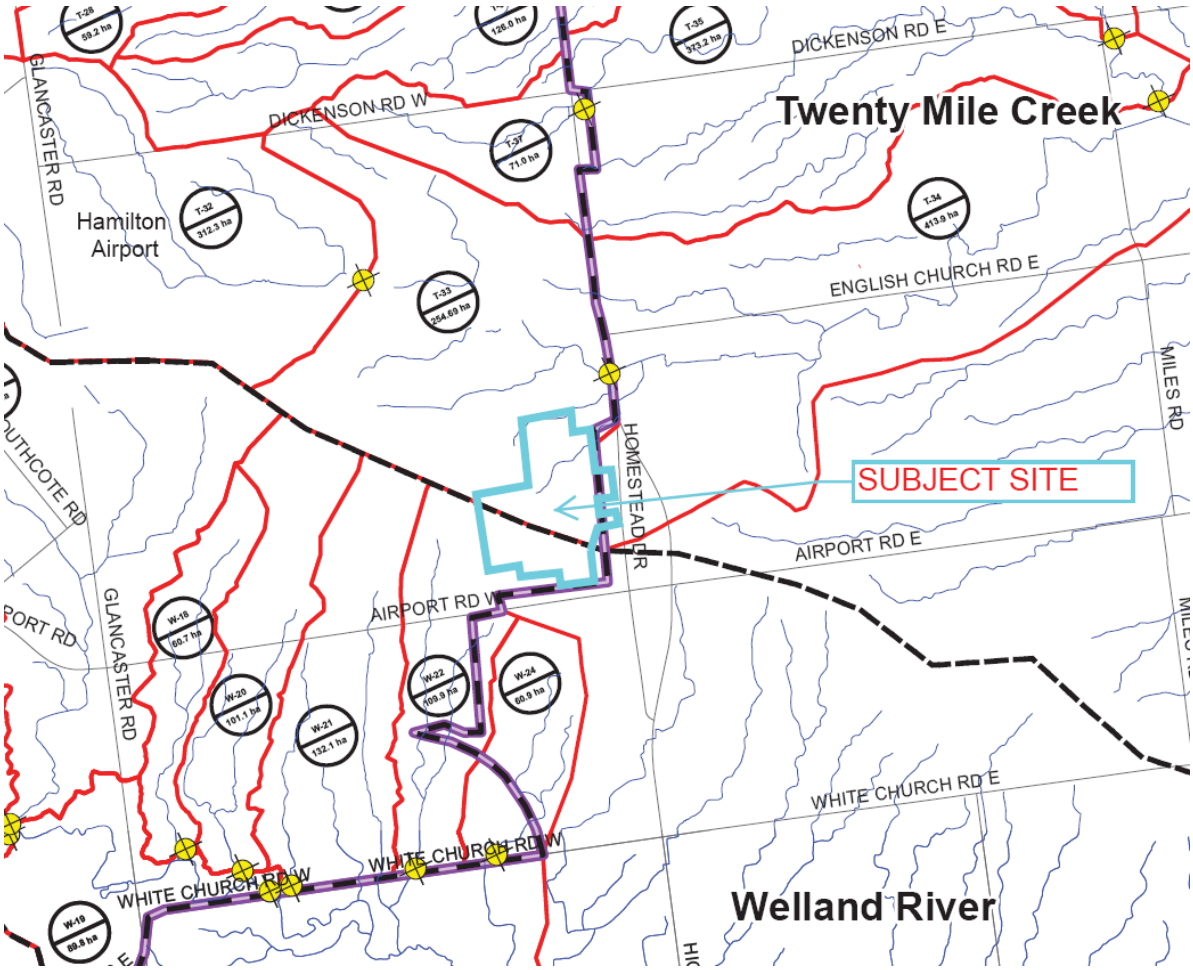
Area C sheet flows overland toward the Airport Rd and Homestead Dr intersection through the existing residential lots fronting Airport Rd. Flow from this area is conveyed through a series of sewers beneath Homestead Drive flowing southerly before discharging to a channel near the intersection of Homestead Drive and Provident Way. As per discussions with the City, the surface runoff from this area shall be directed toward the Lancaster Heights SWM pond in the post development.

Drainage from Hamilton Airport which enters the subject lands through the existing drainage feature is controlled by a dry pond located within the Airport lands. Drainage and sewer records were obtained from Hamilton Airport and it was determined that a total upstream area of 18.77ha drains to this drainage

feature from the Airport. Please refer to Figure 9 in Appendix E for a plan of the upstream storm tributary area draining to the drainage feature and the accompanying Internal Storm Drainage Plan for the Hamilton International Airport. It is proposed to reroute the drainage feature through the site around the north side of Building A. This is described in further detail in Section 4.6 of this report.

Within the Hamilton AEGD SWMP, the drainage areas to each watershed were subdivided into hydrological subcatchments which are shown in Figure 2.7 of the Hamilton AEGD SWMP and is also located in Appendix C. The subject site is located within subcatchments identified as T-33 and W-22 that have a total area of 254.69ha and 109.9ha respectively as shown below in Exhibit 1. Area T-33 drains toward Twenty Mile Creek and W-22 towards the Welland River. The subject site's pre-development catchment area C does not fall within the AEGD hydrological subcatchments. As per discussions with the City, stormwater runoff from Catchment C will be directed to the Catchment A outlet in the post-development.

Exhibit 1 – Subject Site within AEGD Boundaries



4.3 Pre-development/Allowable Flow Rates

The allowable stormwater flows from the site will be separated into two parts, one outlet for the portion of the property draining to the Welland River Watershed and another outlet for the portion of the site draining to the Twenty Mile Creek watershed.

Welland River Watershed (Catchment A)

The area of the site draining toward Airport Rd has been accounted for in the design of the SWM pond within the southerly Lancaster Heights Subdivision under pre-development conditions. Please refer to Figure 3B in Appendix C for the Lancaster Heights post development storm tributary plan denoting Areas EX 1 (10.22ha) and EX 2 (6.83ha) which includes Area A of the subject site and residential lots fronting Airport Rd. Areas west of EXT 1, denoted as Area 201, drain to a storm bypass sewer on Airport Rd that diverts flow to a watercourse west of Lancaster Heights.

In order to have no negative impact to the downstream SWM pond and receiving storm sewers at Provident Way, the post development flows from the site must be controlled to the pre-development levels determined in the Lancaster Heights SWM model. As per the Lancaster Heights Storm Sewer Design Sheet shown in Appendix C, the total 100-year flow at the intersection of Airport Road West and Provident Way must be equal to or less than 897 L/s. Please note that "Mountaingate Road" on Figure 3B was a preliminary name for the street and it has since been renamed and constructed as Provident Way. As per the discussion on page 19, the allowable flow from the subject property to Airport Road is 634 L/s, with a corresponding time of concentration of 243.7 min. As per the City's request, both catchments A and C on the pre-development drainage plan will outlet to Airport Road (through Street A) in the post-development.

The stormwater management for the site has been designed for the potential phasing of the development, as can be seen in Section 4.6. As such, during the construction of the property it must be assured that the flow to the Lancaster Heights SWM Pond is below the allowable 100-year release rate of 634L/s mentioned above. In addition, it must be ensured that catchment A's release rate to Airport Road is less than the existing flow rate. Therefore, the 5 and 100-year 4-hour Chicago storms have been used to determine Catchment A's pre-development flow rate to Airport Road. The Nash unit hydrograph is used for rural areas and requires a time to peak. The time to peak (Tp) was derived from the time of concentration (Tc), which is calculated using the Airport method. Airport method was used for the site as it provides a better estimate of the time of concentration for relatively flat land; this method was developed for airfields. The Tc and Tp for Catchment A were calculated as follows:

$$Tc = \frac{3.26(1.1 - c)L^{0.5}}{S^{1/3}}$$

Table 6 – Pre-Development Catchment A (To Airport Road) Time of Concentration			
Runoff Coefficient (c)	**Length (m)**	**Slope (%)**	**Tc**
0.25	311	0.64	**56**

$$Tp = 0.66(Tc) = 37.4min = 0.62hr$$

The visual OTTHYMO Model and parameter summary for Catchment A (to Airport Road) is shown below.

Exhibit 2 – Pre-Development Catchment A (To Airport Road) OTTHYMO Model

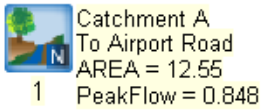


Table 7 – Pre-Development Catchment A (To Airport Road) Visual OTTHYMO Parameters				
Catchment	Area (ha)	Hydrograph Method	CN for Pervious Area	Time to Peak (hr)
Catchment B	12.55	NasHyd	75	0.62hr

The following table is a summary of the pre-development peak flows. The visual OTTHYMO Output File can be found in Appendix G.

Table 8 – Pre-Development Catchment A (To Airport Road) Flow Rate		
Storm Distribution	5-Year Flow Rate (m3/s)	100-Year Flow Rate (m3/s)
4 Hour Chicago	0.284	0.848

Twenty Mile Creek Watershed (Catchment B)

The target storm discharge rates for Area B will be controlled to pre-development levels. The 2-100 year 24 hour SCS storms, the 5 and 100-year 4 hour Chicago storm, the 25mm 4 hour Chicago Storm and the Hurricane Hazel rainfall event have been used for analysis. Visual OTTHYMO 2.3.2. has been used to model and determine the site's pre-development flow rate to Twenty Mile Creek. The Nash unit hydrograph is used for rural areas and required a time to peak. The time to peak (Tp) was derived from the time of concentration (Tc), which is calculated using the Airport method. Airport method was used for the site as it provides a better estimate of the time of concentration for relatively flat land; this method was developed for airfields. The Tc and Tp for Catchment B were calculated as follows:

$$Tc = \frac{3.26(1.1 - c)L^{0.5}}{S^{1/3}}$$

Table 9 – Pre-Development Catchment B Time of Concentration			
Runoff Coefficient (c)	**Length (m)**	**Slope (%)**	**Tc**
0.25	523	1.5	**55**

$$Tp = 0.66(Tc) = 36.3min = 0.61hr$$

The visual OTTHYMO Model and parameter summary for Catchment B is shown below.

Exhibit 3 – Pre-Development Catchment B OTTHYMO Model

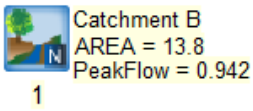


Table 10 – Pre-Development Catchment B Visual OTTHYMO Parameters				
Catchment	Area (ha)	Hydrograph Method	CN for Pervious Area	Time to Peak (hr)
Catchment B	13.8	NasHyd	75	0.61hr

The following table is a summary of the pre-development peak flows. The visual OTTHYMO output file can be found in Appendix G.

Table 11 – Pre-Development Catchment B Flow Rates	
Storm Event	**Allowable Flow (m3/s)**
2 Year 24 hour SCS	0.268
5 Year 24 hour SCS	0.462
10 Year 24 hour SCS	0.604
25 Year 24 hour SCS	0.797
50 Year 24 hour SCS	0.947
100 Year 24 hour SCS	1.099
25mm 4 hour Chicago	0.074
5 Year 4 hour Chicago	0.339
100 year 4 hour Chicago	0.942
Hurricane Hazel	1.449

Weiland River Watershed (Catchment C)

As per discussions with the City, stormwater runoff will not be directed toward the intersection of Airport Road and Homestead Drive in the post-development. Therefore, Catchment C is not included in the post-development tributary plan, Figure 5 of Appendix C.

4.4 Post Development Drainage Pattern

The post-development storm tributary areas of the subject site have been identified as shown on Figure 5 in Appendix C. In consistency with the pre-development drainage plan, post development areas denoted with the letter A represent areas draining toward the Welland River watershed. Post development areas denoted with the letter B drain toward Twenty Mile Creek. Catchment area C from the pre-development drainage plan has been included in catchment A in the post-development, as they both outlet to the Welland River watershed. The areas outside of the site draining to Airport Rd that are captured in Areas EX1 and EX2 on Figure 3B in Appendix C have been included as catchments 5A-1 to 5A-4 on the post-development tributary plan.

Welland River Watershed (Catchment A)

Since the existing site does not abut storm servicing infrastructure to convey the proposed development to the Provident Way storm sewers, it is proposed to install 900mm storm sewer at 0.3% slope from the subject site to the existing storm sewer roughly 150m east of the intersection of Airport Road and Provident Way. Please see the Conceptual Servicing Plan (drawing 1 of 4) and the Conceptual Storm Sewer Plan & Profile (drawing 4 of 4) in Appendix F for the layout of the proposed off-site storm sewer.

The proposed storm sewer beneath the proposed municipal R.O.W. (Street A) is designed to service the road's ditch inlets as well as the subject site. There will be curb depressions located at the low points of the proposed right-of-way, allowing stormwater runoff from the road to drain into the road side bioswale and ditch inlets. The ditch inlets will be connected to the proposed municipal storm sewer beneath the right-of-way. The proposed storm sewer beneath Airport Road accounts for the Catchment area A noted on Figure 5.

A summary of the post-development tributary areas from the site contributing to the Welland River Watershed are summarized below. Catchments A1, A2, A9 and A10 are modelled using visual OTTHYMO and therefore their percent impervious is shown on the post-development catchment plan. All other catchments are calculated using the rational method and therefore their runoff coefficients are shown on the catchment plan.

Table 12 – Post-Development Stormwater Tributary Area Description – Catchment A

Tributary Area ID	Area Description	Area (ha)	Imperviousness (%)	Runoff Coefficient
A1	Building Roof E	3.330	99	-
A2	Driveways/Loading/Parking	7.080	90	-
A3	Street A	0.240	-	0.6
A4a	Street A	0.055	-	0.6
A4b	Street A	0.155	-	0.6
A5	Street A	0.270	-	0.6
A6	Street A	0.270	-	0.6

A7	Street A	0.270	-	0.6
A8	Street A	0.430	-	0.6
A9	Partial Building B	1.20	99	-
A10	Building C	3.83	99	-
Total Area from Site to Welland River Watershed		**17.13**		
Ex 5A-1	Airport Road &	0.404	-	0.62
Ex 5A-2	Airport Road/Residential Properties	0.960	-	0.61
Ex 5A-3	Airport Road/Residential Properties	1.910	-	0.50
Ex 5A-4a	Airport Road/Residential Properties	0.690	-	0.55
Ex 5A-4b	Airport Road/Landscaping	3.790	-	0.43
Ex 5A-5	Airport Road	0.330	-	0.85
Ex 5A-6	Airport Road	0.080	-	0.85
Ex 5A-7	Airport Road	0.120	-	0.85

Please note the post-development catchment A will convey 17.13ha of stormwater runoff to the Welland River Watershed, which is 0.45ha less than the pre-development area of 17.58ha. The pre-development area 17.58ha includes 12.55ha from Catchment A and 5.03ha from Catchment C.

The runoff coefficients for catchments Ex-5A-1 through to Ex-5A-4 were calculated based off the percentage of area that is asphalt and the percentage of area that is landscaping. A runoff coefficient of 0.40 has been used for the landscaped areas and 0.85 has been used for the Airport Road right-of-way. A summary of the composite runoff calculations are as follows.

Table 13 – Post-Development Composite Runoff Coefficients – Catchment A

Tributary Area ID	Area 1 (ha)	Runoff Coefficient 1	Area 2 (ha)	Runoff Coefficient 2	Total Area (ha)	Composite Runoff Coefficient
Ex 5A-1	0.203	0.40	0.201	0.85	0.404	0.62
Ex 5A-2	0.515	0.40	0.445	0.85	0.960	0.61
Ex 5A-3	1.471	0.40	0.439	0.85	1.910	0.50
Ex 5A-4a	0.456	0.40	0.234	0.85	0.690	0.55
Ex 5A-4b	3.536	0.40	0.254	0.85	3.790	0.43

It is noted that the proposed infiltration galleries and bioswales as mentioned in section 5 of this report will help in reducing the stormwater runoff from the site, however this has conservatively not been considered for the Catchment A outlet.

Twenty Mile Creek Watershed (Catchment B)

All areas of the proposed site draining towards Twenty Mile Creek are proposed to outlet towards the existing drainage feature at the north-east corner of the site. The existing meadow marsh lands and drainage feature will be removed and new natural heritage compensation area will be created at the north-east corner of the site that will be oriented in a north-south direction, east of Street A. The natural heritage lands will be designed such that 20mm of rainfall will be captured and infiltrated into the surface. The proposed storm sewers within the site draining tributary Areas B1-B15 will outlet to the surface upstream of the new natural heritage compensation area, allowing for a new naturalized drainage feature to drain through the area into the existing drainage feature at the north-east corner.

Along Street A, drainage will be diverted to road side bioretention swales, utilizing curb spillways at the road's low points that will be intercepted by ditch inlets draining to proposed municipal storm sewers within the road allowance. At this stage, 17mm of rainfall over the right-of-way has been designed to be captured and infiltrated through the bioretention swales. As such, 17mm depression storage has been included in the visual OTTHYMO model for both pervious and impervious areas. This number will be refined at the detailed design stage. The site's storm servicing has been designed to allow for a future splitting of the site into separate blocks.

The rooftop areas which discharge stormwater to Twenty Mile Creek will infiltrate the first 15mm of rainfall through infiltration galleries. Catchments B2 and B14 will infiltrate the first 10mm of rainfall back into the surface.

The storm tributary areas of the site draining to Homestead Dr have been divided according to building roof area, loading/driveway areas and the road allowance. The natural heritage feature has also been separated and also includes set back areas. It is intended to control all storm flow up to the outlet draining to the natural heritage feature to meet the pre-development flow targets. Quality control will be achieved upstream of the natural heritage outlet therefore it will not be a component of the on-site quality control not withstanding it will add to the train treatment of the storm runoff from the site. Refer to Section 4.7 of this report for the water quality measures implemented on the subject site.

A summary of the post-development tributary areas from the site contributing to the Twenty Mile Creek Watershed are shown below. Refer to Figure 5 for reference.

Table 14 – Post-Development Stormwater Tributary Area Description – Catchment B

Tributary Area ID	Description	Area (ha)	Imperviousness (%)	Depression Storage (mm)
B1	Building Roof C (Partial)	1.46	99	15
B2	Driveway/Loading/Parking	2.10	60	10
B3	Natural Heritage Area (incl. Buffer)	2.01	N/A	20
B4	Street A	0.34	56	17
B5	Street A	0.30	56	17

B6	Street A	0.30	56	17
B7	Street A	0.23	56	17
B8	Street A	0.16	56	17
B9	Street A	0.26	56	17
B10	Street A	0.26	56	17
B11	Street A	0.20	56	17
B12	Street A	0.10	56	17
B13	Street A	0.24	56	17
B14	Building D	3.31	99	15
B15	Driveway/Loading/Parking	2.98	86	10
	Total Area	**14.25**		

Please note that the proposed development will convey 14.25ha of storm runoff to the Twenty Mile Creek Watershed, which is 0.45ha more than the pre-development area of 13.80ha.

4.5 Post Development Modelling

To meet allowable flow targets for the two storm outlets, on-site controls will be required. On-site controls will be restricted to the privately owned development blocks, as no controls will take place beneath the proposed right-of-way or the natural heritage area. In order to control the post-development flows from the site to the pre-development peak flow rates, the site will require rooftop detention, above grade and underground storage. Infiltration galleries will also be used for water recharge purposes and can provide storage. The effects of infiltration have been considered when modelling outlet B, but has not been considered when modelling outlet A.

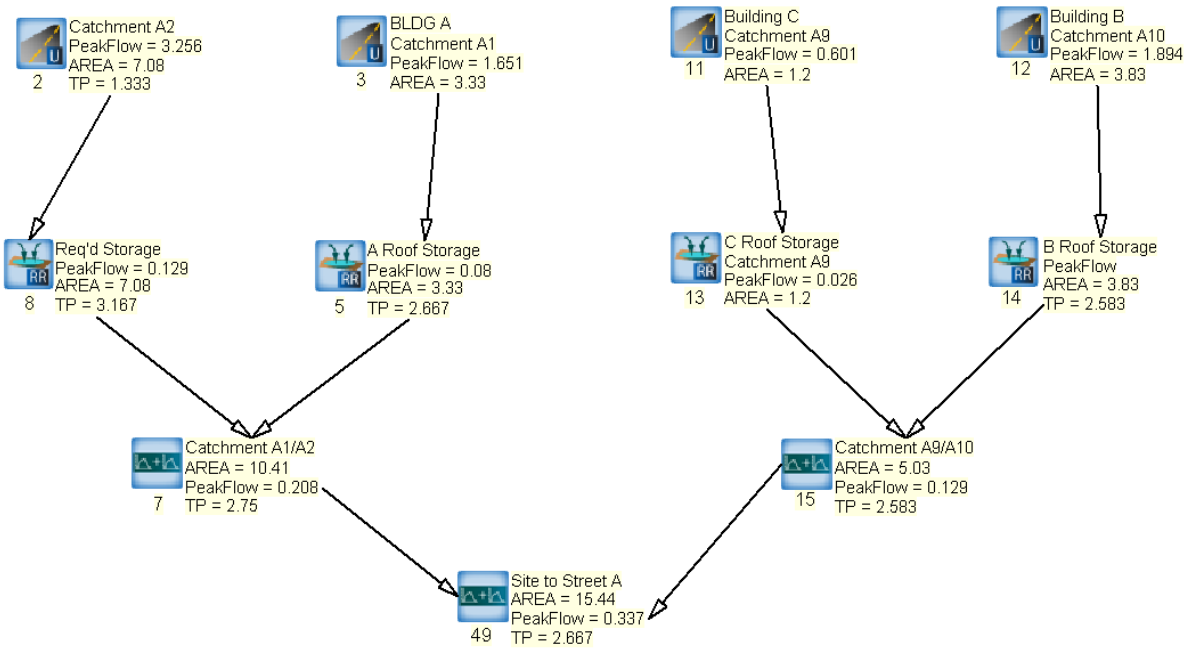
Visual OTTHYMO 2.3.2. was used to model and determine the detention volume required throughout the site. OTTHYMO is accomplished using the “Standhyd” and “Nashhyd” method. The “Stanhyd” method is used in urban watersheds to simulate runoff by combining two parallel standard unit hydrographs resulting from the effective rainfall intensity over the pervious and impervious surfaces. For pervious surfaces, losses are calculated using the SCS modified CN method. A CN value of 75 has been used for the post-development with a pervious area depression storage of 5mm. The “Nashhyd” method is used for rural areas and required a time to peak, which is derived from the time of concentration.

Welland River Watershed (Catchment A)

To match Catchment A’s allowable release rate, determined in Section 4.3 of this report, the 100-year flow rate from the proposed right-of-way and the airport road has been calculated using storm sewer design sheets, shown in Appendix C. The remainder of catchment A was calculated using Visual OTTHYMO and the results were inputted to the storm sewer design sheets.

To control the 100-year flows to the allowable release rate, rooftop storage is required for building A, B and C and a 170mm orifice plate is required on catchment A2's outlet, with corresponding underground/surface storage. Refer to Appendix C for the rooftop control stage storage and underground/surface stage storage. A schematic diagram of the visual OTTHYMO model for Catchment A is as follows:

Exhibit 4 – Post-Development Visual OTTHYMO Model - Catchment A (100-Year Chicago Output)



As can be seen by Exhibit 4 above, the site's stormwater release rate from the 100-year, 4 hour Chicago storm, to Street A is 337 L/s, with a corresponding time to peak of 2.667hrs (160 minutes). This flow rate has been inserted into the Storm Sewer design sheet in Appendix C to calculate the stormwater release rate from Catchment A to the Lancaster Heights SWM Pond. The time to peak therefore has been converted to time of concentration as follows:

$$Tc = (Tp)/0.66 = 242.5min$$

As can be seen in the storm sewer design sheet in Appendix C, the subject property outlets 401 L/s of flow to Airport Road in the 100-year 4 hour Chicago Storm event, with a corresponding time of concentration of 243.7 minutes. The 100-year flow rate at the intersection of Airport Road and Provident way is 664 L/s, which is 233 L/s less than the allowable flow of 897 L/s at this location. As such, it follows that the allowable flow rate from the subject property is 232 L/s larger than what is being proposed, which equates to 634 L/s, with a corresponding time of concentration of 243.7 minutes.

A summary of the quantity control volumes required for Catchment A are as follows:

Table 15 – Quantity Control Required Volume – Catchment A					
Catchment	100-Year Required Storage (m3)		Provided Underground Storage (m3)	Provided Surface Ponding (m3)	**Total Provided Surface (m3)**
	100-Yr24hr SCS	100-Yr 4hr Chicago			
Catchment A1	**2398**	2330	-	2498	**2498**
Catchment A2	**5074**	4901	3700	1400	**5100**
Catchment A9	**884**	854		878	**878**
Catchment A10	**2682**	2624		2870	**2870**

A summary of the post-development stormwater release rate from the subject site is as follows:

Table 16 – Summary of Storm Flow from Catchment A		
Outlet Description	**Allowable 100-year Flow Rate (L/s)**	**Provided 100-year Flow Rate (L/s)**
Subject Site to Airport Road	634	401
Catchment A to Intersection of Airport Road and Provident Way	897	664

As demonstrated above in Table 16, the post-development peak flow is controlled below the allowable flow for the 100-year storms. The existing downstream 900mm sewers beneath Provident Way are designed to convey the 100-year storm within the pipe therefore there will be no impact to the receiving storm sewer system downstream.

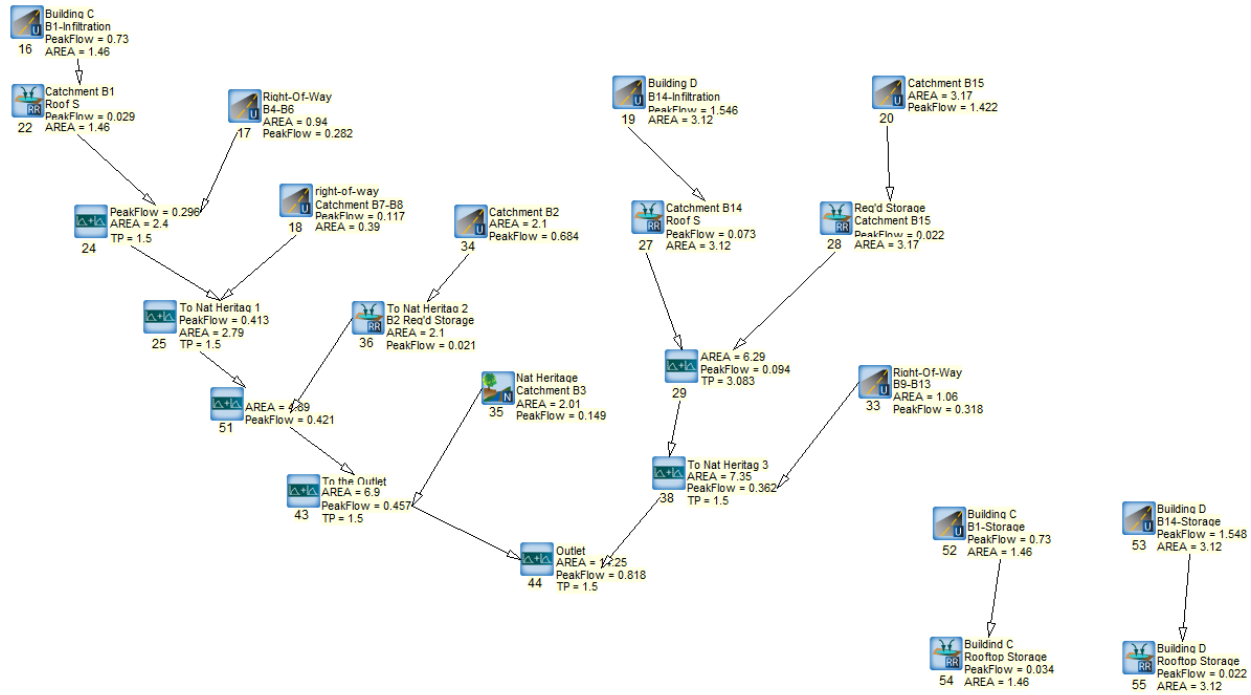
Twenty Mile Creek Watershed (Catchment B)

Visual OTTHYMO was used to model the storm tributary areas draining to the Twenty Mile Creek Watershed (Catchment B). To control flows to the allowable release rate, rooftop storage is required for building C and D. A 75mm orifice plate is required for catchment B2 and a 75mm orifice plate is required for catchment B15, with corresponding underground/surface storage. Refer to Appendix C for the rooftop control stage storage and underground/surface stage storage details.

To model the stormwater runoff losses due to infiltration, 15mm depression storage has been included in the Building C and Building D rooftop nodes. This reduces the runoff directed to the rooftop storage nodes and therefore doesn't accurately model the storage requirements on the rooftops. As such, separate nodes have been created for Building C and Building D which do not include the losses due to infiltration, accurately modelling the rooftop storage requirements. This model will be fine-tuned at the detailed design stage.

Catchment B3, the natural heritage allocation, is modelled using the Nashhyd unit hydrograph and the time to peak was calculated to be 0.52hr (c = 0.25, L = 180m, S = 0.5%). A schematic diagram of the visual OTTHYMO model for Catchment B is as follows:

Exhibit 5 – Post-Development OTTHYMO Model - Catchment B (100-Year Chicago Output)



The following Table summarizes the post-development flow rates through each of the three outlets to the natural heritage lands.

Table 17 – Summary of Storm Flow from Catchment B

Storm Event	Natural Heritage Outlet 1 Peak Flow Rate (m3/s)	Natural Heritage Outlet 2 Peak Flow Rate (m3/s)	Natural Heritage Outlet 3 Peak Flow Rate (m3/s)
2 Year 24 hour SCS	0.131	0.008	0.023
5 Year 24 hour SCS	0.191	0.012	0.062
10 Year 24 hour SCS	0.234	0.015	0.093
25 Year 24 hour SCS	0.294	0.019	0.137
50 Year 24 hour SCS	0.338	0.021	0.171
100 Year 24 hour SCS	0.381	0.021	0.206
25mm 4 hour Chicago	0.018	0.003	0.001
5 Year 4 hour Chicago	0.207	0.010	0.029
100 year 4 hour Chicago	0.413	0.021	0.149
Hurricane Hazel	0.231	0.023	0.237

The following Table 18 summarizes the post development modelled peak flows to the Twenty Mile Creek Watershed compared to the allowable flow. The storm sewer design sheet for Street A can be found in Appendix C.

Table 18 – Summary of Storm Flow from Catchment B

Storm Event	Allowable Flow (m3/s)	Peak flow (m3/s)
2 Year 24 hour SCS	0.268	0.269
5 Year 24 hour SCS	0.462	0.421
10 Year 24 hour SCS	0.604	0.530
25 Year 24 hour SCS	0.797	0.685
50 Year 24 hour SCS	0.947	0.800
100 Year 24 hour SCS	1.099	0.915
25mm 4 hour Chicago	0.074	0.039
5 Year 4 hour Chicago	0.339	0.386
100 year 4 hour Chicago	0.942	0.818
Hurricane Hazel	1.449	0.779

As demonstrated above, the post-development peak flow is equal to or less than the allowable flow for all storms, with the exceptions of the 2-year 24 hour SCS storm and 5 year 4 hour Chicago storm. It is expected that as the model is refined at the detail design stage, the flow rates from these storms will be

reduced to below pre-development levels. The above modelled flow demonstrates that the target flows can be achieved with the provided on-site storage requirements listed in the following Table 19 at each storage node.

Table 19 – Quantity Control Required Volume – Catchment B

Catchment	**Required Storage (m3) 100-Year, 4 hour Chicago**	**Required Storage (m3) 100-Year, 24 hour SCS**	Provided Underground Storage (m3)	Provided Surface Ponding (m3)	**Total Provided Surface (m3)**
Catchment B1	1038	**1059**	-	1095	**1095**
Catchment B2	1174	**1322**	1100	420	**1520**
Catchment B14	2153	**2174**		2482	**2482**
Catchment B15	2206	**2526**	2000	660	**2660**

The 25mm 4-hour Chicago Storm was ran for Catchment B to ensure the proposed stormwater discharge to this storm outlet during the erosion event meets the downstream unitary Erosion Threshold value as suggested in the Erosion Threshold Assessment Report (prepared by Geomorphix; dated, September 8, 2023). Refer to section 7 of this report for a detailed discussion on the site's Erosion Threshold.

4.6 Post Development Stormwater Phasing

The stormwater servicing for the subject property has been designed to ensure that if the development is constructed in one phase, or multiple phases, the stormwater release rates to all storm outlets will remain within the allowable release rate. Refer to Appendix D for the conceptual Phase 1 and Phase 2 stormwater catchment plans. At this time, it is believed that the first phase of the development would be the construction of Building A and a portion of the Street A right-of-way. Phase 2 of the development would consist of the construction of buildings B, C, the completion of the Street A right-of-way and the natural heritage lands.

Phase 1 Stormwater Servicing

As can be seen by the Phase 1 Stormwater Catchment Plan in Appendix D, the area directed toward catchments B and C has been decreased in comparison to the pre-development, therefore there will be less flow directed to these two outlets than in the existing condition. Catchment A however is significantly different than in the pre-development condition and therefore visual OTTHYMO has been used as follows to quantify the stormwater impacts of this phase of the development.

As noted in Section 4.3 of this report, the site's allowable release rate to the Lancaster Heights SWM Pond is 634 L/s and the site's pre-development flow rates to airport road are summarized in Table 8.

A summary of the site's Phase 1 tributary areas to the Welland River watershed (Catchment A) are as follows:

Table 20 – Phase 1 Stormwater Tributary Area Description – Catchment A

Tributary Area ID	Area Description	Area (ha)	Imperviousness (%)	Runoff Coefficient
A1	Building Roof E	3.330	99	-
A2	Partial Driveways/ Loading/Parking	3.29	90	-
A3	Street A	0.240	56	0.6
A4a	Street A	0.055	56	0.6
A4b	Street A	0.155	56	0.6
A5	Street A	0.270	56	0.6
A6	Street A	0.270	56	0.6
A7	Street A	0.270	56	0.6
A8	Street A	0.430	56	0.6
A9	Temporary Conveyance Swale and landscaping	1.96	0	-
A10	Landscaping free-flow	3.20	0	-
B4	Street B	0.34	56	-
B5	Street B	0.30	56	-
Total Area from Site to Welland River Watershed		**14.11**		

To match Catchment A's allowable release rate, determined in Section 4.3 of this report, Visual OTTHYMO has been used. Rooftop storage is required for Building A and a 170mm orifice plate is required on catchment A2's outlet, with corresponding underground/surface storage. It is noted that Catchment A2 is a smaller area in phase 1 than it will be in the ultimate condition. As such, the provided storage in this catchment will also be lower in phase 1. Refer to Appendix D for Catchment A2's Phase 1 underground/surface stage storage. Catchments A9 and A10 have been modelled using the "Nashhyd" method. The Time to peak for Catchments A9 and A10 have been calculated as followed and inserted into the visual OTTHYMO model.

Table 21 – Phase 1 Catchment A Time of Concentration

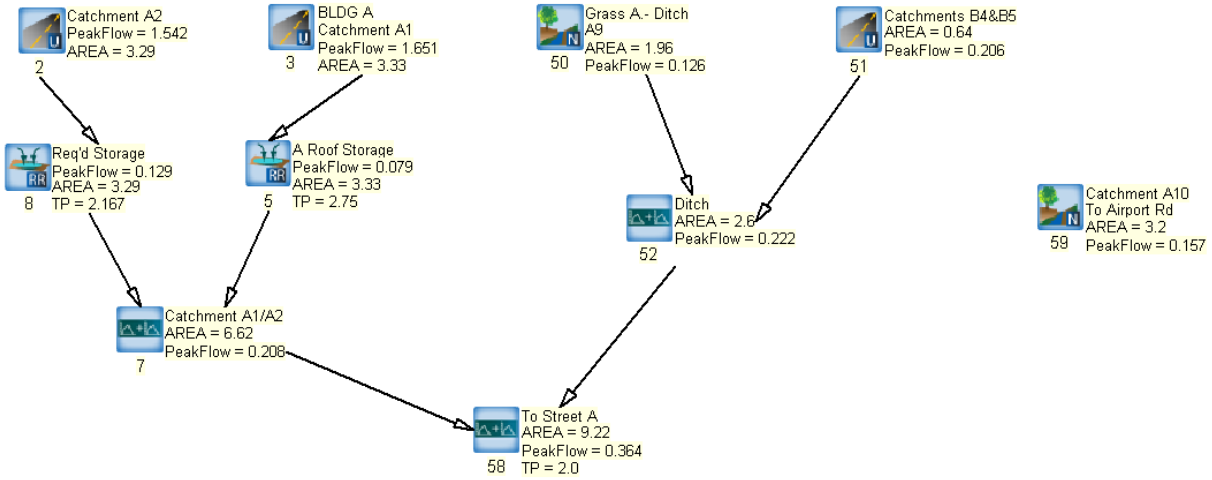
Catchment	Runoff Coefficient (c)	Length (m)	Slope (%)	Tc (min)
Catchment A9	0.25	306	0.49	**61**
Catchment A10	0.25	630	0.48	**62**

Catchment A9: $Tp = 0.66(Tc) = 40.3min = 0.67hr$

Catchment A10: $Tp = 0.66(Tc) = 40.9min = 0.68hr$

A schematic diagram of the visual OTTHYMO model for Phase 1 is as follows:

Exhibit 6 –Phase 1: Catchment A OTTHYMO Model - (100-Year Chicago Output)



As can be seen by Exhibit 6 above, the site's stormwater release rate from the 100-year, 4 hour Chicago storm, to Street A is 364 L/s, with a corresponding time to peak of 2.0 hours (120 min). This flow rate has been inserted into the Storm Sewer design sheet in Appendix D to calculate the phase 1 stormwater release rate from the site to the Lancaster Heights SWM Pond. The time to peak therefore has been converted to time of concentration as follows:

$$Tc = (Tp)/0.66 = 182min$$

As can be seen in the storm sewer design sheet in Appendix D, the subject property outlets 444 L/s of flow to the Lancaster Heights SWM Pond (via Airport Road) in the 100-year 4 hour Chicago Storm event, which is less than the allowable release rate of 634L/s. The total site flow rate to Airport Road is calculated as follows, adding the site's flow rate to the Lancaster Heights SWM Pond to Catchment A10's flow rate which is directed toward Airport Road. As can be seen below, the Phase 1 stormwater release rates are less than the existing flow rates to Airport Road.

Table 22 – Phase 1 Stormwater Summary to Airport Road

Storm Event	Flowrate (L/s) to Lancaster Heights SWM Pond	Flow Rate to Airport Road from Catchment A10	Total Flow Rate to Airport Road	Existing Flow Rate to Airport Road
5-Year 4 hour Chicago	227	54	281	284
100-Year 4 hour Chicago	444	157	601	848

Table 23 – Quantity Control Required Volume – Phase 1 - Catchment A					
Catchment	100-Year Required Storage (m3)		Provided Underground Storage (m3)	Provided Surface Ponding (m3)	**Total Provided Surface (m3)**
	100-Yr24hr SCS	100-Yr 4hr Chicago			
Catchment A1	**2398**	2330	-	2498	**2498**
Catchment A2	**1900**	1943	1692	658	**2350**

Phase 2 Stormwater Servicing

As can be seen by the Phase 2 Stormwater Catchment Plan in Appendix D, the construction of post-development Catchment A will be completed in this phase. This consists of Industrial Buildings A, B and C. Building D however will not yet be constructed and an analysis has been provided as follows to ensure that Catchment B's stormwater release rate in Phase 2 of the development remains within the allowable release rate. Visual OTTHYMO has been used as follows to quantify the stormwater impacts of this portion of the development.

As noted in Section 4.3 of this report, Catchment B's allowable release rates to the Twenty Mile Creek watershed are summarized in Table 11.

A summary of the site's Phase 2 tributary areas to the Twenty Mile Creek watershed (Catchment B) are as follows:

Table 24 – Phase 2 Stormwater Tributary Area Description – Catchment B				
Tributary Area ID	**Description**	**Area (ha)**	**Imperviousness (%)**	**Depression Storage (mm)**
B1	Building Roof B (Partial)	1.46	99	15
B2	Driveway/Loading/Parking	2.10	60	10
B3	Natural Heritage Area (incl. Buffer)	2.01	0	20
B4	Street A	0.34	56	17
B5	Street A	0.30	56	17
B6	Street A	0.30	56	17
B7	Street A	0.23	56	17
B8	Street A	0.16	56	17
B9	Street A	0.26	56	17
B10	Street A	0.26	56	17
B11	Street A	0.20	56	17

B12	Street A	0.10	56	17
B13	Street A	0.24	56	17
B14	Existing Drainage Feature	0.99	0	5
B15	Landscaping to Temp Pond 1	1.67	0	5
B16	Landscaping to Temp Pond 2	3.63	0	5
	Total Area	**14.25**		

Visual OTTHYMO was used to model the storm tributary areas draining to the Twenty Mile Creek Watershed (Catchment B) in Phase 2. To control flows to the allowable release rate, rooftop storage is required for building C. A 75mm orifice plate is required for catchment B2 with corresponding underground/surface storage. Refer to Appendix C for the rooftop control stage storage and underground/surface stage storage details.

Two temporary Sediment Ponds are required in Block 2 and the stage storage details for these ponds can be seen on Figure 8 in Appendix D. Sediment Pond 1 will have a dry storage volume of 610m3 and Sediment Pond 2 will have a storage volume of 1700m3. Both temporary ponds will have a 150mm diameter outlet pipe to the existing drainage feature running though Block 2. These ponds will be further detailed at the detailed design stage.

Catchment B3, B14, B15 and B16 are modelled using the Nash unit hydrograph and their time to peaks were calculated as follows.

Table 25 – Phase 2 Catchment B Time of Concentrations

Catchment	Runoff Coefficient ©	Length (m)	Slope (%)	Tc (min)
Catchment B3	0.25	180	0.50	46.7
Catchment B14	0.25	264	0.95	45.8
Catchment B15	0.25	100	2.00	22.0
Catchment B16	0.25	194	1.55	33.4

Catchment B3: $Tp = 0.66(Tc) = 30.8min = 0.52hr$

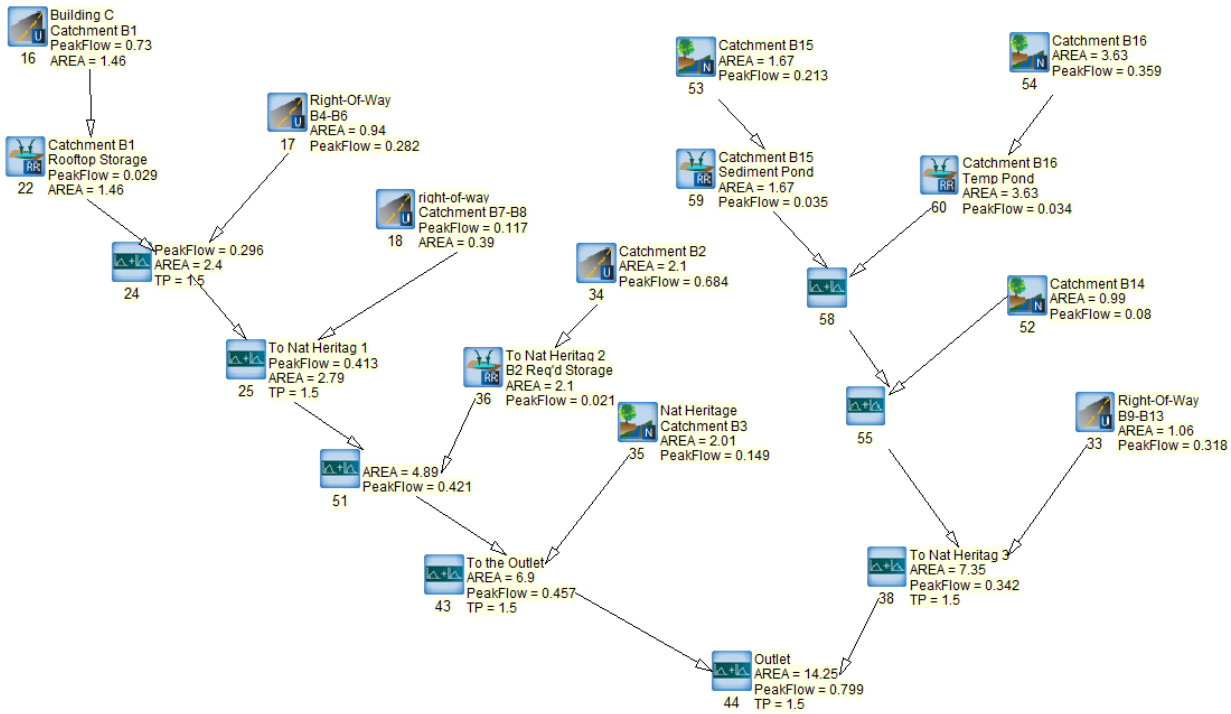
Catchment B14: $Tp = 0.66(Tc) = 30.2min = 0.50hr$

Catchment B15: $Tp = 0.66(Tc) = 14.5min = 0.24hr$

Catchment B16: $Tp = 0.66(Tc) = 22.0min = 0.37hr$

A schematic diagram of the visual OTTHYMO model for Catchment B is as follows:

Exhibit 7 –Phase 2: Catchment B OTTHYMO Model - (100-Year Chicago Output)



The following Table 26 summarizes the Phase 2 stormwater peak flows to the Twenty Mile Creek Watershed compared to the allowable flow.

Table 26 – Phase 2 Summary of Storm Flow from Catchment B

Storm Event	Allowable Flow (m3/s)	Peak flow (m3/s)
2 Year 24 hour SCS	0.268	0.262
5 Year 24 hour SCS	0.462	0.411
10 Year 24 hour SCS	0.604	0.521
25 Year 24 hour SCS	0.797	0.679
50 Year 24 hour SCS	0.947	0.797
100 Year 24 hour SCS	1.099	0.914
25mm 4 hour Chicago	0.072	0.040
5 Year 4 hour Chicago	0.339	0.378
100 year 4 hour Chicago	0.942	0.799
Hurricane Hazel	1.449	0.841

As demonstrated above, the post-development peak flow is equal to or less than the allowable flow for all storms, with the exceptions of the 5-year Chicago storm. It is expected that as the model is refined at the detail design stage, the flow rate from this storm will be reduced to the pre-development level. The

above modelled flow demonstrates that the target flows can be achieved with the provided on-site storage requirements listed in the following Table 27 at each storage node.

Table 27 – Phase 2 Temporary SWM Pond Storage Requirements

Catchment	Required Storage (m3) 100-Year, 4 hour Chicago	Required Storage (m3) 100-Year, 24 hour SCS	Total Provided Dry Storage Volume (m3)
Temp Pond 1 (Catchment B15)	472	**553**	**610**
Temp Pond 2 (Catchment B16)	1273	**1482**	**1700**

4.7 External Flow Runoff via Proposed Conveyance Swale

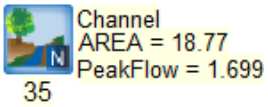
As mentioned previously in section 4.2, storm runoff from 18.77ha of land to the west of this development is being conveyed to the Twenty Mile Creek via a drainage feature through the subject site. It is proposed to convey drainage to the site's north property line, via a conveyance swale, and provide a 10.0m building setback from the 100-Year water level within the swale. Refer to Figure 9 in Appendix E.

The proposed conveyance swale is designed to convey the flows from the larger of the 100-year storm event or the regional storm event to the 900mm x 1200mm culvert/outlet beneath Homestead Drive. It is also designed to ensure that the water volume within the existing drainage feature can be provided within the new channel. The maximum flow rate is calculated below, using Visual OTTHYMO 2.3.2. The following parameters were used when modelling the Nash hydrograph shown in Exhibit 8.

Table 28 – Proposed Conveyance Swale Visual OTTHYMO Parameters

Area (ha)	18.77
Time Step (min)	5
CN Procedure Curve Number	78
Pervious Area Depression Storage (mm)	7.2
Number of Linear Reservoirs	3
Time to Peak of Unit Hydrograph (hr)	1.24

Exhibit 8 – Proposed Conveyance Swale Visual OTTHYMO Model



As shown below, the regional storm event (Hurricane Hazel) results in the largest flow rate through the conveyance swale, 1.699m3/s.

Table 29 – Design Flow for Proposed Conveyance Swale			
Storm Event	**100-Year 4 hour Chicago**	**100-Year 24 hour SCS**	**Hurricane Hazel**
Flow Rate (m^3/s)	0.850	0.981	**1.699**

The Hydrologic Engineering Centers River Analysis System (HEC-RAS) has been used to analyse and optimize the hydraulic behaviour of the existing and proposed channel systems. HEC-RAS' advanced modelling capabilities allows for precise calculations of water flow rates, water levels and other hydraulic parameters.

To determine the volume of water within the existing drainage feature, it was divided into six sections, each representing a distinct segment along the channel. These sections were defined based on specific cross-sectional profiles taken at regular intervals along the length of the drainage feature and are shown in Figure 10 in Appendix E.

Using the HEC-RAS software, geometrical data and boundary conditions were imputed for each section, including channel geometry, flow rates, and the slope of the terrain. HEC-RAS then performed hydraulic analysis and generated water level profiles for each section. The existing drainage feature's slope and cross-sectional area varies as it spans through the subject site.

Two boundary conditions were included in the existing drainage features HEC-RAS model. At the downstream end, a normal depth (S) of 0.012 was considered. At the upstream end, the stormwater flow rate was inputted. Note that three scenarios were modelled, each with varying discharges for the 100-year 4-hour Chicago storm, 100-year 24-hour SCS storm and the Hurricane Hazel storm.

For each section, HEC-RAS provided the cross-sectional area of the flow in the channel and the corresponding water level. Refer to Appendix E for the six HEC-RAS sections and the profile view for the existing drainage feature. The HEC-RAS profile output table has been included in Appendix E. The total water volume within the channel is calculated from the downstream to the upstream. Therefore, the section output table for Section 6 has been included in Appendix E, which summarizes the water volume provided within the channel during the Hurricane Hazel rainfall event.

Table 30 – Existing Drainage Feature Hurricane Hazel Storage Volume (m^3)				
Description	Storage Volume over Left Bank (m^3)	Storage Volume over Channel (m^3)	Storage Volume over Right Bank (m^3)	Hurricane Hazel Storage Volume (m^3)
Existing Drainage Feature	10	730	100	840

Therefore, the proposed conveyance swale will be designed with a storage volume greater than 840m3.

To convey the 100-Year and Regional flow from the neighbouring Hamilton Airport lands through the site, in the post-development, a ditch with a 3.0m base, 2.5:1 side slope and 0.62% longitudinal slope is required. HEC-RAS was used to model the water level at six segments throughout the ditch. Refer to Figure 11 in Appendix E for the location of each of the six cross sections.

Two boundary conditions were included in the proposed conveyance swale's HEC-RAS model. At the downstream end, a normal depth (S) of 0.012 was considered. At the upstream end, the stormwater flow rate was inputted. Note that three scenarios were modelled, each with varying discharges for the 100-year 4-hour Chicago storm, 100-year 24-hour SCS storm and the Hurricane Hazel storm

For each section, HEC-RAS provided the cross-sectional area of the flow in the channel and the corresponding water level. Refer to Appendix E for the HEC-RAS sections and the profile view for the proposed conveyance swale. It is noted that HEC-RAS has created additional sections between the sections shown on Figure 11. The HEC-RAS profile output table has been included in Appendix E. The total water volume within the channel is calculated from the downstream to the upstream end. Therefore, the section output table for Section 6 has been included in Appendix E, which summarizes the water volume provided within the channel during the Hurricane Hazel rainfall event.

Table 31 – Proposed Conveyance Swale - Hurricane Hazel Storage Volume (m^3)

Description	Storage Volume over Left Bank (m^3)	Storage Volume over Channel (m^3)	Storage Volume over Right Bank (m^3)	Hurricane Hazel Storage Volume (m^3)
Prop. Conveyance Swale	90	540	90	720

During the Hurricane Hazel rainfall event, the water volume within the relocated channel is 720m3. This volume is less than in the existing channel due to an increased longitudinal slope of the channel, which increases the velocity of water. Although the actual water volume within the channel is less than in the existing condition, the total volume of the channel is larger than 840m3 and is calculated as follows:

Table 32 – Proposed Conveyance Swale Storage Volume (m^3)

Description	Cross-Sectional Area of Channel (m^2)	Length of Channel (m)	Channel Volume (m^3)
Prop. Conveyance Swale	2.82	391.2	1103

A 10m setback will be provided on-site from the 100-year water level within the relocated channel. No buildings will be within the setback, however paved areas and the access road will be permitted. The maximum water depth within the channel is 0.38m during the 100-year 24 hour SCS storm, as calculated below. Refer to the Proposed Conveyance Channel Profile Output Table in Appendix E for reference.

Table 33 – 100 Year Water level in Proposed Conveyance Swale					
Description	Ditch Bottom Elevation (m)	100-year 4-hour Chicago Water level (m)	100-year 4-hour Chicago Water Depth (m)	100-year 24-hour SCS Water level (m)	100-year 24-hour SCS Water Depth (m)
Section 6	229.93	230.26	0.33	230.29	**0.36**
Section 5	229.25	229.58	0.33	229.61	**0.36**
Section 4	228.85	229.18	0.33	229.21	**0.36**
Section 3	228.46	228.79	0.33	228.82	**0.36**
Section 2	227.99	228.34	228.37	228.37	**0.38**

At the west end the swale, drainage flow will need to be entombed through the proposed cul-de-sac of Street A and outlet into proposed Natural Heritage Area. A 2400mm x 1200mm box culvert at 0.4% is proposed beneath the Street A cul-de-sac to convey the flow from the conveyance swale to the site's north eastern outlet.

A 4m access road and easement is provided along the side of the channel. Refer to the Conceptual Servicing and Grading Plans in Appendix F for reference.

4.8 Water Quality

The AEGD Subwatershed Study & SWMP Implementation Document establishes the required guidelines for implementing stormwater quality for the proposed development. The requirements for Water quality are as follows within Table 2.9.5 of the AEGD SS & SWMP.

2011 Groundwater Plan Implementation.
"Control pollutant loadings in accordance with current MOE guidelines. Enhanced Level 1 protection as defined in the 2003 Stormwater Management Planning & Design Manual – reduce average long term annual load of suspended sediment by 80% or better. Accomplish through the use of LID source and conveyance controls."

Amended, Supported, or Superseded by:
"These controls shall be amended, supported or superseded by the Low Impact Development Stormwater Management Guidance Manual (Pending 2017) is anticipated to support or supersede the 2011 Plan. Minimum on-site control targets will be required."

"Stormwater Source Control Policy for Industrial, Commercial and Institutional (ICI) Land Uses (February, 2014)"

Environmental Criteria and Minimum targets are provided in Section 2.9.6.2. The generalized target is Enhanced Level 1 Protection of 80% removal of total suspended solids and the AEGD minimum target is the infiltration of 10 mm of rainfall (over asphalt areas).

In order to achieve the required water quality for each area of the development the following methods can be considered at the detailed design stage for each storm system. The following provides values established and generally accepted throughout the province for use of various TSS removal techniques.

Total Suspended Solid Removal Method & Removal Efficiency	
Removal Method	**Removal Efficiency**
Rooftop	*80%*
Grassed Swale (with Perforated Pipe)	*80%*
Grass Swale (no perforated Pipe)	*50%*
Soakaway & Infiltration Systems	*70-90%*
Chambers (with Infiltration)	*70-90%*
Bio retention	*80%*
Dry Swale	*80%*
Permeable Pavers (with Storage Bed)	*80%*
OGS (Oil/Grit Separator)	*50%-80%*
CB Shield	** 50%*

* - Based on Design Table provided by Manufacturer.

The typical TSS removal of a vegetated swale is approximately 50%. Bio retention facilities can provide approximately 80% TSS removal. Rooftop flow is considered clean and therefore is acceptable at 80% or Level 1 when not combined with the storm sewer system. As the proposed developments are located adjacent to existing drainage features, options to direct storm connection from rooftop directly to the proposed drainage feature can be considered as it will allow for clean water to enter the naturalized system directly without the need for additional treatment.

In order to achieve water quality for the development the use of various methods for water quality should be considered. As these developments are largely warehouse space the methods to obtain water quality may be limited and vary in nature throughout each site. This may be due to constraints such as limited landscape space available throughout the site for implementing LID's, underlying soils conditions and conductivity to LID's, groundwater conditions and other factors that can limit the use of LID's. All reasonable attempts should be made during the detailed design stage to provide for the use of LID's to enhance water quality measures.

In order to ensure the removal of oils, each outlet will require an oil grit separator or method of removing oil spills prior to discharging to the downstream outlet and receiving water course.

For the site's proposed right-of-way, road side bioretention swales are proposed as part of the typical 30m AEGD road cross-section that will convey storm runoff through the bioretention swales which will achieve the target TSS removal before entering the downstream natural heritage lands. The new road

section was recently developed by the City of Hamilton. Please refer to typical section detail shown on the conceptual grading plan in Appendix F.
The TSS removal methods for each outlet are summarized as follows:

Table 34 – TSS Removal Breakdown – Catchment A

Catchment(s) ID	Area (ha)	TSS Removal Method	Removal Efficiency %
A1, A9, A10	8.36	Clean rooftop Water	80
A2	7.07	Asphalt runoff through two OGS units prior to discharging to Street A.	80
A3, A4a, A4b, A5, A6, S7, A8	1.68	R.O.W. runoff flowing to road side bioretention swale	80
Catchment A	17.11		80

Table 35 – TSS Removal Breakdown – Catchment B

Catchment(s) ID	Area (ha)	TSS Removal Method	Removal Efficiency %
B1, B14	4.77	Clean Rooftop Water	80
B15	2.98	Asphalt runoff through an OGS prior to discharging to Street A.	80
B2	2.10	Asphalt runoff through OGS and bioretention before discharging into the natural compensation area.	80
B4, B5, B6, B7, B8, B9, B10, B11, B12, B13	2.36	R.O.W. runoff flowing to road side bioretention swale	80
B3	2.01	Clean runoff in the natural compensation area.	80
Catchment A	14.22		80

The site's retention features to provide 10mm of rainwater retention over asphalt areas are summarized as follows. Refer to the 10mm retention figure in Appendix C. Gravel material will be used as fill in infiltration areas to create soils that are more conductive for infiltration.

Table 36 – SWM Water Quality Summary

Area ID	Impervious Parking Area (m^2)	Infiltration Volume Required (m^3)	Infiltration Volume Provided* (m^3)	Treatment Method	TSS Removal Efficiency
Area 1	7,812	78.12	80	Bioretention Swale	80
Area 2	26,104	261.04	265	Bioretention Swale	80
Area 3	15,685	156.85	157	Bioretention Swale	80
Area 4	7,285	72.85	73	Infiltration Gallery	80
Area 5	12,538	125.38	130	Bioretention Swale	80
Area 6	15,200	152.00	152	Infiltration Gallery	80
Area 7	8,544	85.44	138	Bioretention Swale	80
Total	93,246	932.46	995	-	80

**The provided infiltration volume is to be detailed at the SPA stage.*

5. WATER BALANCE

The AEGD Subwatershed Study & SWMP Implementation Document establishes the required guidelines for implementing water balance for the proposed development. The requirements for Water balance are as follows within Table 2.9.5 of the AEGD SS & SWMP.

2011 Groundwater Plan Implementation (in Table 2.9.5 of the AEGD SS & SWMP)

"As part of the development of the required Stormwater Management Plans as part of the development approval process, a water budget approach is required to maintain the existing hydrologic cycle in newly developed areas. As part of the stormwater management plan development, proponents will be required to maintain groundwater recharge per the pre-development water balance. Because much of the lands in the study area have a low potential for infiltration, innovative source and conveyance control measures will be necessary. Infiltration targets are to be met using infiltration-based LID source and conveyance controls.

This is in keeping with the eco-industrial development concept being considered for these lands. This is also consistent with a "comprehensive urbanization approach" recommended in the City of Hamilton's Stormwater Management Strategy (Aquafor Beech, 2007).

Environmental Criteria and Minimum targets are provided in Section 2.9.6.4, Table 2.9.6.4 and Capture Targets per soil type and land use within Table 2.9.6.5."

The proposed development is located in sub watersheds T-33 and W-22 of the Twenty Mile Creek and Welland River tributary as identified the AEGD SS & SWMP. The predominant soil types within the proposed development area are classified as Hydrologic Soil Groups C and D. Based on the Table 2.9.6.5 (below), infiltration target for the site and roads are **8mm and 7mm**, respectively. It is noted that in referencing Tables 12 and 14, the total percentage impervious for the site equates to 81%.

For the site's proposed right-of-way, road side bioretention swales are proposed as part of the typical road cross-section which will convey storm runoff through bioretention swales which will achieve larger than the 7mm water capture target (17mm will be captured).

Table 2.9.6.5: LID Capture Target (m^3/impervious ha served) for Proposed Conditions Land uses

Scenario (See **Figure 2.9.6.** and **Figure 2.9.7** for soil types)	LID Facility Design Capture Target		Assumed % Imperviousness of future conditions land use
	(mm)	(m^3 / imp ha)	
Roads AB Soils	9	90	70
Roads BC Soils	8	80	70
Roads CD Soils	7	70	70
Prestige Business Park / Airport Related Business AB Soils	10	100	70
Prestige Business Park / Airport Related Business BC Soils	8	80	70
Prestige Business Park / Airport Related Business CD Soils	6	60	70
Airside Industrial / Light Industrial AB Soils	13	130	80
Airside Industrial / Light Industrial BC Soils	11	110	80
Airside Industrial / Light Industrial CD Soils	8	80	80

Along with the 10mm water retention measures proposed in the impervious parking areas within the site, infiltration galleries will be utilized to achieve the remaining 8mm capture target throughout the property. Gravel material will be used as fill in the infiltration areas to create soils that are more conductive for infiltration. The remaining water balance target volume is as follows:

Table 37 – Water Balance Retention Volume Requirements

	Initial Abstraction (mm)	Area (m^2)	Volume (m^3)
8mm Required Volume Whole Site	**8**	**313,800**	**2,510**
Less 7mm Volume Right-of-way	17	39,314	668
Less 10mm Volume Impervious Parking Area	10	93,246	995
Required Retention Volume			***847***

Infiltration galleries will be utilized to retain the remaining 847m3 of water required for the site. To assist with the site's stormwater quantity control design, the site will infiltrate more than the 8mm requirement over the property. The provided infiltration volumes throughout the site are summarized as follows:

Table 38 – Infiltration Gallery Sizing Requirements

Building	Area (m2)	Infiltrated Runoff (mm)	Required Retention Volume (m3)
Building A	33,469	6	200.8
Building B	38,269	6	229.6
Building C (Catchment A9)	12,000	6	72
Building C (Catchment B1)	14,656	15	220
Building D	31,251	15	469

The proposed infiltration gallery characteristics are summarized as follows:

Table 39 – Infiltration Gallery Design Summary

Tributary Area ID	Description	Length (m)	Width (m)	Depth (m)	Volume (m^3)
Catchment A1	Building A	150	8	0.6	200.8
Catchment A9 Catchment A10	Building B & C	2598		0.6	301.6
Catchment B1	Building C	100	8	0.7	220
Catchment B14	Building D	200	9	0.7	469

As shown below in Table 40, the total capture of 2,855m3 exceeds the annual target volume of 2,510m3 therefore, the water balanced target will be achieved on-site.

Table 40 – Total Site Retention Volume

	Initial Abstraction (mm)	Area (m^2)	Volume (m^3)
6mm Required Volume Whole Site	**8**	**313,800**	**2,510**
Less 17mm Volume Right-of-way	17	39,314	668
Less 10mm Volume Impervious Parking Area	10	93,246	995
6mm Building A (infiltration gallery)	6	33,326	201
6mm Building B & C (infiltration gallery)	6	50,269	302
15mm Building C (infiltration gallery)	15	14,656	220
15mm Building D (infiltration gallery)	15	31,251	469
Provided Retention Volume	***9.1***	***313,800***	***2,855***

6. GRADING CONSIDERATIONS

The proposed grading of the site generally follows the pre-development topography. Due to the large building areas that are proposed, stepping of the site grading will need to occur with gradual lowering of building elevations from west to east, with the lowest areas being towards the north-east corner where the proposed natural heritage area is located. Refer to the Conceptual Grading Plan and Site Sections (Drawing 2 and 4) included in Appendix F for additional detail. Grading for of the site will be detailed at the Site Plan stage of development.

The proposed Street A terminates with a cul-de-sac at the property line at the north end of the site. It is anticipated that the road allowance will eventually connect north into the neighbouring lands thereby eliminating the need for a cul-de-sac. The grading of the cul-de-sac is currently proposed higher than the existing property line grade and slopes down to match the existing elevations. The higher road elevation allows for the by-pass drainage swale to be entombed beneath the road and allows for a stepped transition between the natural heritage area and the Building D site.

Along the perimeter of the site where it abuts residential lands, a landscaped buffer to provide room for a noise berm has been provided. The berm height will be maximized depending on the elevation difference between the existing property line grade and the proposed internal grades. A noise wall will be erected at the peak of the berm to maximize the barrier height for noise attenuation.

7. EROSION AND SEDIMENT CONTROL

Erosion and sediment controls for the site during construction will be implemented according to the Golden Horseshoe Area Conservation Authorities' Erosion and Sediment Control Guidelines for Urban Construction and City of Hamilton's Guidelines. A detailed erosion control plan will be prepared upon final design.

An erosion threshold assessment of the existing drainage feature flowing towards Homestead Dr was completed by Geomorphix to determine the predicted impact of the site's post development flow on the existing drainage features bed/bank material with respect to transportation of non-cohesive sediments. Upon review of the post development 25mm storm hydrograph and comparing it to existing flows it was concluded that the current functional SWM design shows a general reduction in erosion potential for the 25mm storm event. Based on these findings it is expected that the SWM design will be able to meet the erosion threshold requirements at the detailed design stage. For further details, please refer to Geomorphix's report dated September 8th, 2023 submitted under a separate cover.

8. CONCLUSIONS

The proposed site is serviceable with respect to sanitary, water and storm by connecting to the existing infrastructure surrounding the site.

Sanitary servicing for the site will connect to the existing infrastructure on Airport Rd and Homestead Drive. Generated sanitary flow from the site has been allocated to the existing English Church Sanitary Pump Station (SPS) (Ref No. HC019) located at 2844 Upper James St.

Watermain servicing will connect to the existing watermain on Airport Rd and Homestead Drive which will provide a watermain loop through the site providing sufficient flow to meet the water demand for the site. A hydraulic analysis has been completed by WSP under a separate cover demonstrating the available water flow and pressure to the site meets the site domestic and fire water demands.

Storm servicing for the proposed development will drain to two separate outlets draining to different watersheds (Twenty Mile Creek & Welland River). The area of the site draining to Twenty Mile Creek will drain to an existing drainage feature and will match pre-development flow rates. Drainage towards the Welland River will connect to the new sewers on Airport Rd and Provident Way which ultimately drains to the new SWM pond within Lancaster Heights subdivision. Drainage from the site has been allocated to the pond at the pre-development flow rate therefore on-site SWM control is proposed to match target flow rates.

Stormwater quality control target (Enhanced Protection – 80% TSS removal) will be achieved by using oil grit separators and infiltration galleries as stormwater management treatment train measures. Proposed infiltration galleries have also been proposed to meet the water balance targets for the site to allow for sufficient ground water recharge throughout the site.

From our site investigation and preliminary analysis, the site is favourable to service the proposed industrial development as detailed in this report.

Respectfully Submitted:
The Odan Detech Group Inc.



Paul Hecimovic, P.Eng

Mitchell Bufalino, E.I.T.

9. REFERENCES

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2. GGHA CAs (December, 2006). Erosion and Sediment Control Guideline for Urban Construction, Greater Golden Horseshoe Area Conservation Authorities, Ontario.

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12. IBI (2013). Drainage and Stormwater Management Report for Highway 5 & Highway 6 Interchange, submitted to Ministry of Transportation. IBI Group, Toronto, Ontario.

13. AMEC (2012). Waterdown North Master Drainage Plan Addendum. AMEC Environment and Infrastructure, Burlington, Ontario.

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APPENDIX A

Aerial Photo of Existing Site
Draft Plan of Subdivision By Urban Solutions
Site/Concept Plan By Urban Solutions

Aerial Photo of Existing Site



SCALE 1:1300

HOMESTEAD DRIVE
(OLD HIGHWAY No. 6 - ESTABLISHED BY PLAN 6/R-9036.)
(FORMERLY HAMILTON & PORT DOVER PLANK ROAD)

BLOCK 7
0.3 METRE (1 FOOT) RESERVE
0.0008 ha (0.001 ac)

BLOCK 8
NATURAL HERITAGE OFFSETTING COMPENSATION
1.99 ha (4.93 ac)

STREET 'A'

BLOCK 5
TEMPORARY CUL-DE-SAC
(FUTURE INDUSTRIAL)
0.05 ha (0.13 ac)

BLOCK 2
INDUSTRIAL
6.21 ha (15.36 ac)

BLOCK 4
TEMPORARY CUL-DE-SAC
(FUTURE INDUSTRIAL)
0.05 ha (0.13 ac)

BLOCK 1
INDUSTRIAL
19.07 ha (47.13 ac)

BLOCK 6
0.3 METRE (1 FOOT) RESERVE
0.0189 ha (0.0467 ac)

BLOCK 3
INDUSTRIAL
0.075 ha (0.18 ac)

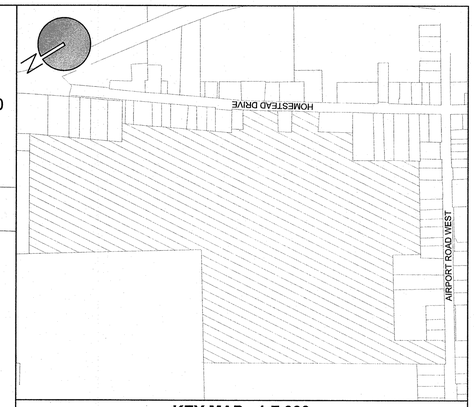
RESIDENTIAL

JOHN C. MUNRO
INTERNATIONAL AIRPORT

AIRPORT ROAD WEST

CONCESSION 4

LOT 5



KEY MAP - 1:7,000

DRAFT PLAN OF SUBDIVISION

PART OF LOT 5 CONCESSION 4
CITY OF HAMILTON

3054 HOMESTEAD DRIVE, 9174 & 9166 AIRPORT ROAD WEST

SCALE: 1:1300

0 50 100 150m

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51 SUB SECTION 17 OF THE PLANNING ACT, R.S.O. 1990, C.P. 13

(A) AS SHOWN ON DRAFT PLAN
(B) AS SHOWN ON DRAFT PLAN
(C) AS SHOWN ON DRAFT PLAN
(D) AS SHOWN ON DRAFT PLAN
(E) AS SHOWN ON DRAFT PLAN
(F) AS SHOWN ON DRAFT PLAN
(G) AS SHOWN ON DRAFT PLAN
(H) MUNICIPAL WATER SUPPLY
(I) CLAY-SILT
(J) AS SHOWN ON DRAFT PLAN
(K) FULL MUNICIPALWATER AND WASTE WATER SERVICES TO BE PROVIDED
(L) AS SHOWN ON DRAFT PLAN

LAND USE SCHEDULE

DESCRIPTION	LOTS/BLOCKS	AREA (ha)
INDUSTRIAL	BLOCKS 1-3	25.33 ha
TEMP. CUL-DE-SAC (FUTURE INDUSTRIAL)	BLOCK 4 & 5	0.1 ha
0.3 M RESERVE	BLOCK 6 & 7	0.0197 ha
NATURAL HERITAGE	BLOCK 8	1.99 ha
STREET 'A'		3.90 ha
TOTAL	8	31.38 ha

OWNER'S AUTHORIZATION

I AUTHORIZE URBANSOLUTIONS PLANNING AND LAND DEVELOPMENT CONSULTANTS INC. (URBANSOLUTIONS) TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE CITY OF HAMILTON FOR APPROVAL.

FENGATE HOMESTEAD NOMINEE INC. — Aug 31, 2023 DATE

9166 AIRPORT NOMINEE INC. — August 31, 2023 DATE

9174 AIRPORT NOMINEE INC. — August 31, 2023 DATE

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES ARE OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

ROBERT MCLAREN, O.L.S.
A.T.MCLAREN LIMITED. — 06 SEP 2023 DATE

No.	DATE	BY	DESCRIPTION
3	JULY 23	LD	AMALGAMATE FORMER BLOCK 1 & 2
2	JAN 23	LD	REVISED AS PER NEW ROAD LAYOUT & BLOCK 4, 7 & 8
1	DEC 21	LD	REVISED TO INCLUDE BLOCK 9

PREPARED BY:
URBAN SOLUTIONS
PLANNING & LAND DEVELOPMENT
3 Studebaker Place, Unit 1
Hamilton, ON L8L 0C8
905 546 1087 -
UrbanSolutions.info

DRAWN BY: L. DRENNAN | CHECKED BY: S.MANCHIA | DATE: SEPTEMBER 20, 2021 | U/S FILE NUMBER: 413-21

SCALE 1:1300

HOMESTEAD DRIVE

REGIONAL ROAD No. 52

AIRPORT ROAD WEST

EAST CARGO ROAD

NEW SERVICE ROAD

NHS COMPENSATION
1.11 ha
2.74 acres

BUILDING 'A'
33,468.93 m2
360,257 sq ft

BUILDING 'B'
38,268.75 m2
411,921sq ft

BUILDING 'C'
26,562.68 m2
285,918 sq ft

BUILDING 'D'
31,250.96 m2
336,382 sq ft

STREET 'A'

INSTITUTIONAL ZONE

LANDS SUBJECT TO 4.0 m WIDE MAINTENANCE ACCESS EASEMENT, RETAINING WALL & CONVEYANCE SWALE

RETAINING WALL

63 TRUCK LEVEL DOORS

65 TRUCK LEVEL DOORS

50 TRUCK LEVEL DOORS

15 TRAILER PARKING SPACES

FUTURE OFFICE

LANDSCAPED AREA

ASPHALT

CONCRETE APRON

CONC. SIDEWALK

MULTI-USE TRAIL

TREELINE

EDGE OF ASPHALT

EDGE OF GRAVEL

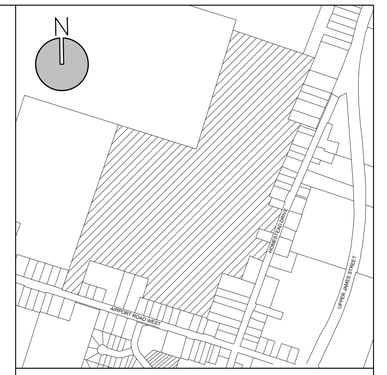
CONCRETE CURB

DEVELOPMENT STATISTICS
Airside Industrial (M7) Zone

Item	Required	Proposed
Permitted Uses	Warehouse & Office	Warehouse & Office
Min. Lot Area	4,000.00 m^2	313,822.42 m^2
No. of Buildings	N/A	4 Buildings
Min. Yard Abutting a Street	3.0 m	New Service Road: 56.22 m (Building A) East Cargo Road: 33.00 m (Building A) Homestead Road: 94.84 m (Building C) Street 'A': 3.00 m (Building Nos. A-C)
Max. Building Height	TBD	TBD
Landscaping	10%	11.87% (Excluding ROW & NHS Compensation)
Min. Landscaped Strip	3.0 m	3.0 m
Parking		
Warehouse	1 space/ 30m^2 of Office Use = 3,485.90 m^2 /30 =116 spaces	911 Typical Spaces 243 Truck Level Doors 30 Trailer Parking Spaces Total: 1,184 spaces
Long Term Bicycle Parking	5% of Required Spaces = 5.8 spaces	TBD

DEVELOPMENT STATISTICS: GFA

Item	Proposed
Building 'A'	33,468.93 m^2 (360,257 ft2)
Building 'B'	38,268.75 m^2 (411,921 ft2)
Building 'C'	26,562.68 m^2 (285,918 ft2)
Building 'D'	31,250.96 m^2 (336,382 ft2)
Total	*129,551.32 m^2 (1,394,478 ft2)*



KEY MAP - N.T.S.

SCALE: 1:1300

0 50 100 150m

LEGEND:

- SUBJECT LANDS
- EXISTING PROPERTY LINES
- PROPOSED BUILDING
- MAN DOOR
- OVERHEAD DOOR

DESIGN BY: S. McKAY	CHECKED BY: S. MANCHIA
DRAWN BY: L. DRENNAN	DATE: JULY 28, 2023

URBAN SOLUTIONS
PLANNING & LAND DEVELOPMENT
3 STUDEBAKER PLACE, UNIT 1
HAMILTON, ON L8L 0C8
905-546-1087 URBANSOLUTIONS.INFO

PROJECT:
3054 HOMESTEAD DRIVE, 9174 & 9166 AIRPORT ROAD WEST
City of Hamilton

CLIENT:
FENGATE HOMESTEAD HOLDINGS LP

TITLE:
CONCEPT PLAN

U/S FILE NUMBER:	SHEET NUMBER:
413-21	1

APPENDIX B

Figure 1: Post-Development Sanitary Tributary Plan (Population)
Table B1: Sanitary Sewer Design Sheet (Population)
Figure 2: Post-Development Sanitary Tributary Plan (OBC)
Table B2: Sanitary Sewer Design Sheet (OBC)
Figure 3: Alternative Water and Sanitary Outlet to Rice Group Property

UPPER JAMES ST.

CONSTRUCTION NORTH

SANITARY PUMPING STATION
ENGLISH CHURCH SPS (HC019)

EX 675mm SAN

HOMESTEAD DRIVE

EX 675mm SAN

PROP SAN MH

EX 450mm SAN

LONGVIEW DR

NHS COMPENSATION
1.11 ha
2.74 acres

PROP 375mm SAN @ 0.50%

Your location

B 454
19.76ha

A 202
8.74ha

MARION STREET

Mt Hope Public School

AIRPORT ROAD

PROP 375mm SAN @ 0.50%

EX 450mm SAN

Mohawk College
Aviation Campus

LEGEND

A 10 — TRIBUTARY ID / EMPLOYEES
5.0ha — TRIBUTARY AREA (HA)

CATCHMENT AREA

PROPERTY LINE

EX SAN SEWER

PROP SAN SEWER

DRAWING :
FIGURE 1
POST-DEVELOPMENT SANITARY TRIBUTARY PLAN (POPULATION)

DATE:	PROJ. NO.:	SCALE:
SEPT 2021	21218	1: 4000

PROJECT :
PROPOSED INDUSTRIAL DEVELOPMENT
3054 HOMESTEAD DRIVE
HAMILTON, ON

ODAN·DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

ODAN·DETECH
CONSULTING ENGINEERS

The Odan/Detech Group Inc.
P: (905) 632-3811
F: (905) 632-3363
5230, SOUTH SERVICE ROAD, UNIT 107
BURLINGTON, ONTARIO, L7L 5K2
www.odandetech.com

Sanitary Sewer Calculations - 375mm sanitary sewer

PROJECT: ***Fengate Asset Management***
3054 Homestead Drive

Table B1

CLIENT: Fengate Asset Management
DATE: 7/27/23
PROJECT No.: 21218
DRAWING REF.: Post-Dev San Trib Plan (Population)

PLEASE ENTER THE INFILTRATION MULTIPLIER: ----> **0.4**

Catchment Name	FROM MANHOLE	TO MANHOLE	POP. DENSITY	AREA (hect.)	CUM. AREA (hect.)	POP. INCR.	CUM. POP.	PEAKING FACTOR	Q. AVG L.P.S.	Q. PEAK L.P.S.	Q. INFILT. L.P.S.	TOTAL FLOW L.P.S.	DIAMETER (mm)	GRADE PER CENT	CAPACITY L.P.S	VELOCITY M.P.S.	% OF CAP USED
Catchment A	15A	Ex 1A	23	8.7	8.7	201	201	5.00	0.84	4.18	3.50	7.68	375	0.50	107.45	0.97	7.15
Catchment B	2A	1A	23	18.8	18.8	431	431	5.00	1.79	8.97	7.50	16.48	375	0.50	107.45	0.97	15.34
Total	EX 4A	EX 3A	23	28.5	28.5	656	656	5.00	2.73	13.63	11.40	25.03	375	0.50	107.45	0.97	23.30

Notes:

PEAKING FACTOR,	$M = 5 / (P/1000)^{0.2}$, $2<M<5.0$	Where P = Population
AVERAGE DAILY PER CAPITA FLOW,	q = 360 L / Cap. Day	
UNIT OF PEAK EXTRANEOUS FLOW,	I = 0.4 L / Sec. / ha	
PEAK POPULATION FLOW,	Q (p) = 360 P M / 86400 L / Sec.	
PEAK EXTRANEOUS FLOW,	Q(i) = I A L / Sec.	Where A = area in hectares
PEAK DESIGN FLOW,	Q(d) = Q(p) + Q(i) L / Sec.	
PIPE ROUGHGNESS,	n = 0.015 For Manning's Equation	

UPPER JAMES ST.

CONSTRUCTION NORTH

SANITARY PUMPING STATION
ENGLISH CHURCH SPS (HC019)

EX 675mm SAN

HOMESTEAD DRIVE

EX 675mm SAN

PROP SAN MH

EX 450mm SAN

LONGVIEW DR

NHS COMPENSATION
1.11 ha
2.74 acres

PROP 375mm SAN @ 0.50%

Your location

D
63 0.08

C
50 0.09

B
65 0.09

A
65 0.08

MARION STREET

Mt Hope Public School

AIRPORT ROAD

PROP 375mm SAN @ 0.50%

EX 450mm SAN

Mohawk Colleg
Aviation Campu

LEGEND

A
20 0.20

TRIBUTARY ID
NUMBER OF LOADING BAYS
OFFICE SPACE AREA(HA)

PROPERTY LINE

EX SAN SEWER

PROP SAN SEWER

DRAWING :

FIGURE 2:
POST-DEVELOPMENT SANITARY TRIBUTARY PLAN (OBC)

DATE:	PROJ. NO.:	SCALE:
SEPT 2021	21218	1: 4000

PROJECT :

PROPOSED INDUSTRIAL DEVELOPMENT
3054 HOMESTEAD DRIVE
HAMILTON, ON

ODAN-DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

ODAN·DETECH
CONSULTING ENGINEERS

The Odan/Detech Group Inc.
P: (905) 632-3811
F: (905) 632-3363
5230, SOUTH SERVICE ROAD, UNIT 107
BURLINGTON, ONTARIO, L7L 5K2
www.odandetech.com

Sewage System Design Flows (OBC 8.2.1.3)

PROJECT: ***Fengate Asset Management***
3054 Homestead Drive

Table B2

CLIENT: Fengate Asset Management
DATE: 7/27/23
PROJECT No.: 21218
DRAWING REF.: Post-Dev San Trib Plan (OBC)

	A	B	C	D	E	F	G	H	I	J	K
	Floor Area (sq.ft.)	**Floor Area (sq.m.)**	**Establishment Type (OBC 8.2.1.3.B.)**	**Based on Floor Area**	**Volume (litres)**	**Total Volume (litres)**	**Number of Units (G)**	**Establishment Type (OBC 8.2.1.3.B.)**	**Based on Employees/Service Chairs/Patrons (ea.)**	**Volume (litres) (J)**	**Volume (litres) (G x I x J)**
3054 Homestead Drive											
Warehouse B, C & D							178	Per loading Bay		150	*26700*
Office B, C & D	28697	2667	Office	per 9.3m^2 floor area	75	*21508*					
Warehouse A							65	Per loading Bay		150	*9750*
Office A	1018831	819	Office	per 9.3m^2 floor area	75	*6605*					
Total Floor Area	***28697***	***2667***	***Total Based on office Floor Area***			**28113**	***Total Based on Loading Bay***				**36450**
Total Volume (Average per day)											***64563***
Total Average Flow (L/sec)											***0.75***
Total Peak Flow (L/sec) (Peaking Factor 4.0)											***2.99***

UPPER JAMES ST.

HOMESTEAD DRIVE

LONGVIEW DR

CONSTRUCTION NORTH

EX 400mm W/M

EX 675mm SAN

EX 675mm SAN

EX 450mm SAN

EX 400mm W/M

EX 450mm SAN

PROP STM CULVERT

SAN MH
RIM ELEV 231.78
SW INV EL 225.73
N INV EL 225.70

PROP 75.96m 375mmø
PVC SAN @ 0.80%

PROP 90.00m 375mmø
PVC SAN @ 1.00%

PROP 300mm W/M
(BY RICE GROUP)

PROP 34.67m 375mmø
PVC SAN @ 1.00%

PROP 90.00m 375mmø
PVC SAN @ 1.00%

Your location

NHS COMPENSATION
1.11 ha
2.74 acres

PROP 90.00m 375mmø
PVC SAN @ 0.80%

PROP 90.00m 375mmø
PVC SAN @ 0.80%

PROP 90.00m 375mmø
PVC SAN @ 0.80%

PROP 300mm W/M

SAN MH
RIM ELEV 233.38
SW INV EL 229.21
N INV EL 228.59
NW INV EL 229.18

PROP 27.39m 375mmø
PVC SAN @ 0.42%

PROP 73.88m 375mmø
PVC SAN @ 0.47%

BUILDING 'C'
26,562.68 m2
285,918 sq ft

BUILDING 'D'
31,250.96 m2
336,382 sq ft

SAN MH
RIM ELEV 233.73
E INV EL 229.73
S INV EL 229.78
W INV EL 229.76

BUILDING 'B'
38,268.75 m2
411,921sq ft

BUILDING 'A'
33,468.93 m2
360,257 sq ft

PROP 300mm W/M

SAN MH
RIM ELEV 233.08
E INV EL 228.22
S INV EL 228.16

SAN MH
RIM ELEV 233.07
N INV EL 227.50

PROP 16.04m 375mmø
PVC SAN @ 1.19%

PROP 60.84m 375mmø
PVC SAN @ 0.50%

PROP 66.04m 375mmø
PVC SAN @ 0.49%

Mt Hope Public School

Mohawk College Aviation

LEGEND

- PROPERTY LINE
- EX SAN SEWER
- PROP SAN SEWER
- PROP SAN SEWER BY RICE GROUP
- PROP WATERMAIN
- PROP WATERMAIN BY RICE GROUP

DRAWING :

FIGURE 3
ALTERNATIVE WATER & SANITARY OUTLET TO RICE GROUP PROPERTY

DATE:	PROJ. NO.:	SCALE:
JAN 2023	21218	1: 4000

PROJECT :

PROPOSED INDUSTRIAL DEVELOPMENT
3054 HOMESTEAD DRIVE
HAMILTON, ON

ODAN·DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

APPENDIX C

Figure 4: Pre-Development Storm Tributary Area Plan
Figure 3B: Lancaster Heights Post-Development Tributary Plan
Hamilton AEGD Subwatershed Plan
Hamilton AEGD Hydrologic Analysis for Twenty Mile Creek Watershed Table
Lancaster Heights Subdivision – External Airport Road Storm Sewer Design Sheet
Figure 5: Post-Development Storm Tributary Area Plan
Rooftop Control Stage Storage
Underground and Surface Stage Storage
Storm Sewer Design Sheet – Catchment A
Storm Sewer Design Sheet – Catchment B
Figure 6: 10mm Stormwater Retention Plan
Infiltration Gallery/ Soakaway Pit Tables



CONSTRUCTION NORTH

LEGEND:

- EXISTING OVERLAND FLOW
- PRE-DEVELOPMENT CATCHMENT BOUNDARY
- PROPERTY LINE
- TRIBUTARY ID
- TRIBUTARY AREA (HA)

A
10.0ha

DRAWING :

FIGURE 4:
PRE-DEVELOPMENT STORM TRIBUTARY AREA PLAN

DATE:	PROJ. NO.:	SCALE:
SEPT 2021	21218	1:5000

PROJECT :

PROPOSED INDUSTRIAL DEVELOPMENT
HOMESTEAD DRIVE & AIRPORT ROAD
HAMILTON, ON

ODAN•DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

CONSTRUCTION NORTH

KEY PLAN
Scale : N.T.S.

SUBJECT LANDS

AIRPORT RD
HIGHWAY 6
WHITE CHURCH RD
HOMESTEAD DR
UPPER JAMES ST

WHITE CHURCH ROAD WEST

PROPOSED WEST SWM POND
BLOCK 366

51 1.46 0.32

52 4.56 0.26

50 0.90 0.24

49 2.37 0.44

HIGHWAY No.6 (MTO)

15.0m PERMANENT EASEMENT

MTO DRAINAGE OUTLET

PROPOSED EAST SWM POND

BLOCK 368 RESIDENTIAL BLOCK

BLOCK 367 NATURAL OPEN SPACE

PROP 4.55m 1200mm CONC STM @ 0.65%

EX STM CAP

PROP 12.75m 1200mm CONC STM @ 0.65%

EX. DITCH

EX. 900mm CULVERT

EX. CULVERT

EX. DITCH

SEE DRAWING 301 FOR INTERNAL STORM DRAINAGE AREA PLAN

NEIGHBOURHOOD PARK (BLOCK 360)

SIGNIFICANT WOODLAND

STREET A

ROSEBURY WAY

STREET E

STREET F

STREET D

STREET C

STREET B

MOUNTAINGATE ROAD

SERVICING CORRIDOR (BLOCK 357)

OPEN SPACE (BLOCK 356)

STUB BLOCK 361

STUB BLK 363

RESIDENTIAL CONDOMINIUM (BLOCK 352)

COMMERCIAL (BLOCK 354)

INSTITUTIONAL OR RESIDENTIAL CONDOMINIUM (BLOCK 353)

ROAD WIDENING (BLOCK 355)

FUT 75.39m 900mm² CONC STM @ 0.30%

STUB SCHOOL

BLOCK 358 0.3m Reserve

EXISTING SCHOOL (MOUNT HOPE ELEMENTARY SCHOOL)

EXISTING RESI-DENTIAL

PROPOSED FUTURE CONNECTION

AIRPORT ROAD WEST

FUT 120.00m 900mm² CONC STM @ 0.30%

FUT 120.00m 750mm² CONC STM @ 0.30%

FUT 120.00m 675mm² CONC STM @ 0.30%

FUT 53.78m 525mm² CONC STM @ 0.30%

EXISTING SOUTH HAMPTON SUBDIVISION

47-2	0.09	0.50
40-2	0.04	0.50
33-2	0.09	0.50
32-1	0.23	0.50
21-1	0.07	0.50
22-3	0.58	0.25
22-1	0.16	0.50
EX 6	6.37	0.65
EX 4	3.65	0.38
EX 3	0.96	0.50
EX 1	10.22	0.24
EX 7	37.37	0.50
EX 5	9.42	0.48
EX 2	6.83	0.27
5A-7	0.12	0.85
201	11.72	0.25
5A-6	0.08	0.85
5A-5	0.33	0.85
5A-4	0.44	0.85
5A-3	0.45	0.85
5A-2	0.45	0.85
5A-1	0.20	0.85

LEGEND:

- PROPOSED STORM MANHOLE
- PROPOSED CATCH BASIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED DOUBLE CATCH BASIN
- PROPOSED STORM SEWER
- EXISTING CONTOUR
- PROPERTY LINE
- TRIBUTARY AREA ID NO.
- LABEL BORDER: SOLID LINE (PROPOSED) DASHED LINE (EXISTING)
- RUNOFF COEFFICIENT
- TRIBUTARY AREA (HA)
- PROPOSED MAJOR STORM OVERLAND FLOW
- EXISTING MAJOR STORM OVERLAND FLOW

FIGURE 3B

DATE:	PROJ. NO.:	SCALE:
MAY 2019	11208	1 : 2500

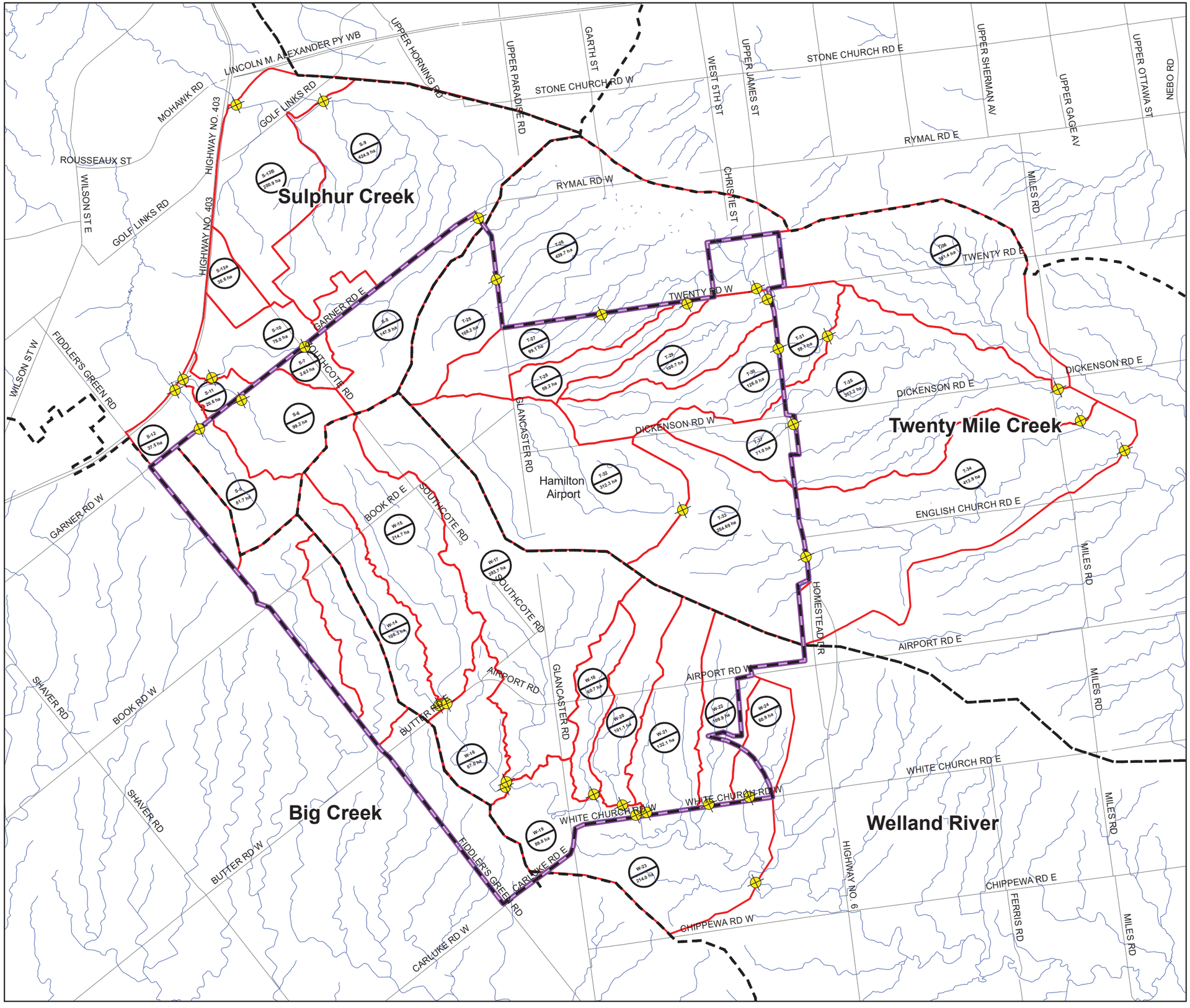
DRAWING : POST-DEVELOPMENT STORM TRIBUTARY AREA PLAN (EXTERNAL)

PROJECT : LANCASTER HEIGHTS SUBDIVISION HWY. NO. 6 AND WHITE CHURCH ROAD HAMILTON, ONTARIO

ODAN·DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3361
3230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

Hamilton AEGD Study
Subwatershed Plan

HYDROLOGICAL SUBCATCHMENTS
Figure 4.0



Legend

- Flow Node Location
- Study Area
- Hydrologic Catchments

Meters

0 355 710 1,420 2,130

Map Created By: AS
Map Checked By: BH
Date Created: October 5, 2009
Date Modified:
File Path: L:\Dillon\64758 Hamilton Airport\GIS\MXD\

BUILDING A STRONG FOUNDATION HAMILTON

Hamilton
Planning & Economic Development Department

Table 4.3: Hydrologic Analysis for Twenty Mile Creek Watershed

Catchment ID #	Contributing Catchments	Drainage Area (ha)	Surface Runoff Flows (m^3/s) Generated by the Hydrologic Model SWMHYMO											
			2 Year Storm		5 Year Storm		10 Year Storm		25 Year Storm		50 Year Storm		100 Year Storm	
			Existing Land use	Future No SWM	Existing Land use	Future No SWM	Existing Land use	Future No SWM	Existing Land use	Future No SWM	Existing Land use	Future No SWM	Existing Land use	Future No SWM
Twenty Mile Creek Watershed														
T-25		108.2	1.10	6.34	1.90	10.13	2.47	13.17	3.24	16.53	3.83	19.10	4.42	22.89
T-26		439.7	3.27-16.76	16.76	5.55-27.37	27.38	7.22-36.77	36.77	9.43-47.31	47.31	11.15-55.55	55.55	12.89-67.50	67.50
T-27		99.1	1.57	6.41	2.57	10.17	3.28	12.60	4.21	15.77	4.90	19.23	5.61	21.81
T-28		59.2	0.42	4.64	0.72	6.95	0.94	8.51	1.24	10.95	1.46	12.60	1.69	15.03
Sum	At outlet of s/c 26	706.2	6.40-17.02	37.34	11.02-28.13	59.93	14.39-37.78	80.68	18.65-48.81	102.90	21.91-57.45	121.02	25.20-69.80	143.67
T-29		100.7	0.77	6.31	1.34	9.66	1.76	12.43	2.31	15.54	2.73	17.96	3.16	21.50
T-30		126.0	1.16	6.99	2.02	11.34	2.65	14.87	3.48	18.73	4.12	21.70	4.78	26.16
T-31		59.1	0.68	No Change	1.21	No Change	1.59	No Change	2.12	No Change	2.52	No Change	2.93	No Change
Sum	At outlet of s/c 31	992.0	7.88-16.38	43.15	13.64-27.33	68.94	17.80-35.99	91.90	23.12-46.80	116.96	27.20-55.23	135.92	31.31-66.51	157.73
T-32		312.3	2.83	18.37	4.74	29.11	6.10	36.00	7.91	47.38	9.28	54.72	10.67	63.46
T-33		255.0	1.35	2.99	2.36	4.73	3.10	5.95	4.09	7.51	4.85	8.69	5.63	9.87
Sum	T32 + T33	567.3	4.01	19.10	6.75	29.47	8.7	36.13	11.34	46.40	13.34	53.03	15.41	60.50
T-34		413.9	1.19	No Change	3.29	No Change	4.30	No Change	5.64	No Change	6.67	No Change	7.73	No Change
Sum	T32 + T33 + T34	981.2	5.24	18.64	8.63	29.14	11.19	35.89	14.49	44.90	17.14	51.20	19.82	56.93
T-35		373.2	1.55	No Change	2.70	No Change	3.55	No Change	4.67	No Change	5.54	No Change	6.43	No Change
T-36		301.4	2.18	No Change	3.64	No Change	4.69	No Change	6.07	No Change	7.12	No Change	8.19	No Change
T-37		71.0	1.17	5.09	1.98	7.71	2.57	10.14	3.34	12.66	3.93	14.57	4.53	16.48
Sum	At outlet of s/c 35	1,737.6	9.57-15.26	43.79	16.30-24.93	68.19	21.33-31.99	87.67	28.12-41.51	112.35	33.39-48.86	131.69	38.78-56.35	154.48
Sum	All Twenty Mile Catchments	2,718.8	14.72-14.82	55.89	24.69-26.94	87.14	32.18-35.17	112.31	42.13-46.35	144.45	49.99-59.03	169.20	58.00-68.89	195.25

ODAN·DETECH
CONSULTING ENGINEERS

STORM SEWER DESIGN-SECONDARY SYSTEM

RAINFALL: 5 YEAR MOUNT HOPE STORM $i = 1049.5/(Tc+8)^{0.803}$

100 YEAR MOUNT HOPE STORM $i = 2317.4/(Tc+11)^{0.836}$

PROJECT: LANCASTER HEIGHTS SUBDIVISION - EXTERNAL - AIRPORT ROAD
PROJECT No.: 11208
LOCATION: AIRPORT ROAD
MUNICIPALITY: CITY OF HAMILTON

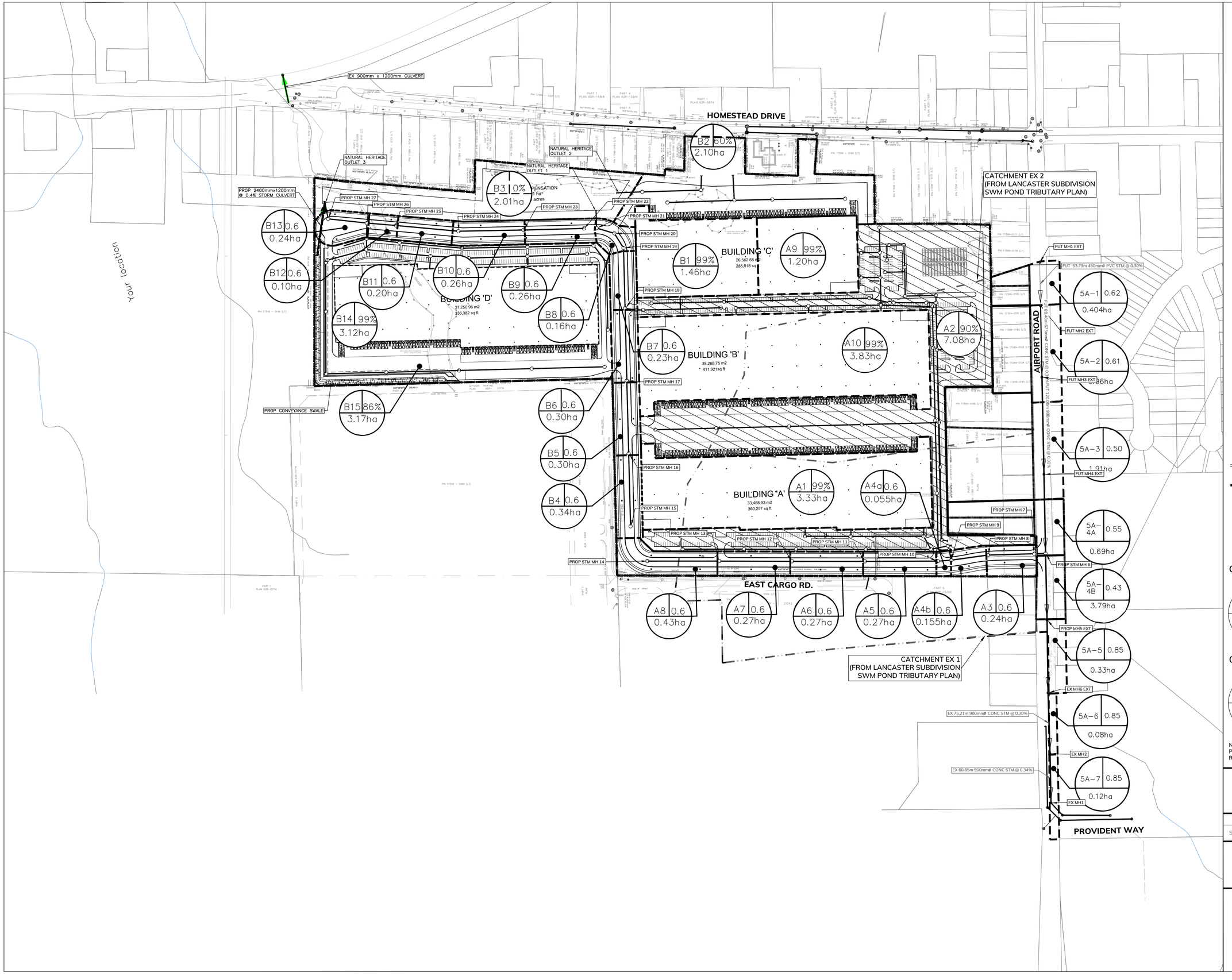
DESIGN BY: F.W.B,
CHECKED BY: S.A.
DATE: September 30, 2019

Vmin = 0.90m/s Vmax = 3.65m/s Tc min= 10 minutes

SEWER DESIGN: 0.013

% of Full Flow: Peak Flow / Full Flow Capacity
(MAX 85% 5 YEAR, 100% 100 Year))

LOCATION				STORMWATER ANALYSIS Mountaingate Subdivision										STORM SEWER DATA								
Tributary ID No.	STREET NAME	From Manhole	To Manhole	A Area (ha)	C Runoff Coeff.	A*C	Accumulated A*C	Time of Concentration (min)	Acc. Time of Concentration (min)	5 Yr Rainfall Intensity (mm/hr)	5 Yr Peak Flow (L/s)	100 Yr Rainfall Intensity (mm/hr)	100 Yr Peak Flow (L/s)	Flow Time (min)	Pipe Length (m)	Pipe Height/ Diameter (mm)	Pipe Width (mm)	Pipe Slope (%)	Pipe Full Flow Capacity (l/s)	Pipe Full Flow Velocity (m/s)	Percent of Full Flow Capacity (5yr)	Percent of Full Flow Capacity (100yr)
EX 5A-1	Airport Road	1 EXT	2 EXT	0.20	0.85	0.170	0.170	10.00	10.82	103.04	49	181.81	86	0.82	53.8	525		0.3	236	1.09	21%	36%
EX 5A-2+EX 2	Airport Road	2 EXT	3 EXT	7.28	0.31	2.227	2.397	56.10	57.65	37.16	248	68.84	459	1.55	120.0	675		0.3	460	1.29	54%	100%
EX 5A-3	Airport Road	3 EXT	4 EXT	0.45	0.85	0.383	2.779	57.65	59.10	36.45	282	67.54	522	1.45	120.0	750		0.3	610	1.38	46%	86%
EX 5A-4+EX 1	Airport Road	4 EXT	5 EXT	10.66	0.27	2.827	5.606	76.80	78.08	29.68	463	54.98	857	1.28	120.0	900		0.3	992	1.56	47%	86%
EX 5A-5	Airport Road	5 EXT	6 EXT	0.33	0.85	0.281	5.886	78.08	79.37	29.33	480	54.32	889	1.28	120.0	900		0.3	992	1.56	48%	90%
EX 5A-6	Airport Road	6 EXT	7 EXT	0.08	0.85	0.068	5.954	79.37	80.17	28.98	480	53.68	889	0.81	75.4	900		0.3	992	1.56	48%	90%
EX 5A-7	Airport Road	7 EXT	1	0.12	0.85	0.102	6.056	80.17	80.98	28.77	484	53.28	897	0.81	75.4	900		0.3	992	1.56	49%	90%



CONSTRUCTION NORTH

LEGEND:

- PROPOSED STORM MANHOLE
- EXISTING STM MANHOLE
- PROPOSED CATCH BASIN
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PROPOSED OVERLAND FLOW
- CATCHMENT BOUNDARY
- PROPERTY LINE

CATCHMENT LABEL (PUBLIC PROPERTY)

A | 0.9 — TRIBUTARY ID; RUNOFF COEFFICIENT
10.0ha — TRIBUTARY AREA (HA)

CATCHMENT LABEL (PRIVATE PROPERTY)

A | 90 — TRIBUTARY ID; PERCENT IMPERVIOUS
10.0ha — TRIBUTARY AREA (HA)

NOTE:
PERCENT IMPERVIOUS IS USED FOR SWM MODELLING IN OTTHYMO.
RUNOFF COEFFICIENT IS USED IN SWM DESIGN SHEETS.

FIGURE 5:
POST-DEVELOPMENT STORM TRIBUTARY AREA PLAN

	PROJ. NO.:	SCALE:
SEPT 2021	21218	1: 2000

PROPOSED INDUSTRIAL DEVELOPMENT
HOMESTEAD DRIVE & AIRPORT ROAD
HAMILTON, ON

ODAN·DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

Project Number : 21218
:

Date : Aug 15 2023
Designed by : MLB
Reviewed by : PH

Subject : **Rating Curve for Rooftop Control Devices**

ODAN·DETECH CONSULTING ENGINEERS

Building D

Area of Roof = 31251 m^2
Number of Weirs = 42
Number of Drains = 42

Head (m)	Volume (m^3)	Discharge (m^3/s)
0	0.0	0.0000
0.05	781.3	0.0314
0.1	1562.5	0.0628
0.15	2343.8	0.0943

Building C (Partial Catchment B1)

Area of Roof = 14600 m^2
Number of Weirs = 16
Number of Drains = 16

	Head (m)	Volume (m^3)	Discharge (m^3/s)
	0	0.0	0
0.078127	0.05	365.0	0.0120
0.156255	0.1	730.0	0.0239
0.234382	0.15	1095.0	0.0359

Building C (Partial Catchment A9)

Area of Roof = 11700 m^2
Number of Weirs = 12
Number of Drains = 12

Head (m)	Volume (m^3)	Discharge (m^3/s)
0	0.0	0
0.05	292.5	0.0090
0.1	585.0	0.0180
0.15	877.5	0.0269

Building B

Area of Roof = 38269 m^2
Number of Weirs = 50
Number of Drains = 50

Head (m)	Volume (m^3)	Discharge (m^3/s)
0	0.0	0
0.05	956.7	0.0374
0.1	1913.4	0.0748
0.15	2870.2	0.1122

Building A

Area of Roof = 33300 m^2
Number of Weirs = 38
Number of Drains = 38

Head (m)	Volume (m^3)	Discharge (m^3/s)
0	0.0	0.0000
0.05	832.5	0.0284
0.1	1665.0	0.0569
0.15	2497.5	0.0853

Example calculation:

Ponding Volume = Head x Area of Roof x 0.5 (reduced by 50% for roof slope)
= 0.15 x 11500 x 0.5 m^3
= 862.50 m^3

Discharge = No of weirs x Head (m) x {(Weir Discharge/25.4) *1000)} L/sec
= No of weirs x Head (m) x (Weir Discharge/25.4)) m^3/s
= 7 x 0.15 x 0.38/25.4 m^3/s ***[1 notch per roof drain = 0.38 l/sec per 25.4 mm of Head]***
= 0.0157 m^3/s

SWM INFORMATION FOR ORIFICE CONTROLED STORM TRIBUTARY AREAS

Tributary Area No. A2 **Tributary Area** 7.07 ha

INLET CONTROL DEVICE (ICD) INFORMATION

Location of ICD	Street A South Outlet	
Type of ICD	Plate	
Surface Elevation	233.87	m
Orifice Invert Elevation	229.80	m
Orifice Size	170.00	mm
Orifice Coefficient	0.62	

STORM WATER STORAGE INFORMATION

Underground Storage	3700.00	m3
Area of Ponding	14000.00	m2

270

STAGE/DISCHARGE/VOLUME RELATIONSHIP

Stage Description	Elevation (m)	Head (m)	Discharge (m^3/s)	Volume (m^3)	Volume (ha·m)
Orifice	229.89	0.00	0.0000	0.0	0.00000
Rim	233.87	3.98	0.1244	3700.0	0.37000
0.1 ponding	233.97	4.08	0.1260	3751.8	0.37518
0.2 ponding	234.07	4.18	0.1275	4114.4	0.41144
0.3 ponding	234.17	4.29	0.1290	5100.0	0.51000

SWM INFORMATION FOR ORIFICE CONTROLED STORM TRIBUTARY AREAS

Tributary Area No. B2 **Tributary Area** 2.1 ha

INLET CONTROL DEVICE (ICD) INFORMATION

Location of ICD	West of Bldg C	
Type of ICD	Plate	
Surface Elevation	234.53	m
Orifice Invert Elevation	231.70	m
Orifice Size	75.00	mm
Orifice Coefficient	0.62	

STORM WATER STORAGE INFORMATION

Underground Storage	1100.00	m3
Area of Ponding	4200.00	m2

100

STAGE/DISCHARGE/VOLUME RELATIONSHIP

Stage Description	Elevation (m)	Head (m)	Discharge (m^3/s)	Volume (m^3)	Volume (ha·m)
Orifice	231.74	0.00	0.0000	0.0	0.00000
Rim	234.53	2.79	0.0203	1100.0	0.11000
0.1 ponding	234.63	2.89	0.0206	1115.5	0.11155
0.2 ponding	234.73	2.99	0.0210	1224.3	0.12243
0.3 ponding	234.83	3.09	0.0213	1520.0	0.15200

SWM INFORMATION FOR ORIFICE CONTROLED STORM TRIBUTARY AREAS

Tributary Area No. B15 **Tributary Area** 2.98 ha

INLET CONTROL DEVICE (ICD) INFORMATION

Location of ICD	Street A North Outlet	
Type of ICD	Plate	
Surface Elevation	231.30	m
Orifice Invert Elevation	228.20	m
Orifice Size	75.00	mm
Orifice Coefficient	0.62	

STORM WATER STORAGE INFORMATION

Underground Storage	2100.00	m3
Area of Ponding	6600.00	m2

STAGE/DISCHARGE/VOLUME RELATIONSHIP

Stage Description	Elevation (m)	Head (m)	Discharge (m^3/s)	Volume (m^3)	Volume (ha·m)
Orifice	228.24	0.00	0.0000	0.0	0.00000
Rim	231.30	3.06	0.0212	2100.0	0.21000
0.1 ponding	231.40	3.16	0.0216	2124.4	0.21244
0.2 ponding	231.50	3.26	0.0219	2295.4	0.22954
0.3 ponding	231.60	3.36	0.0222	2760.0	0.27600

STORM SEWER DESIGN

Catchment A

ODAN·DETECH CONSULTING ENGINEERS

5YEAR Mount Hope Storm $i = 1049.5/(Tc+8)^{0.803}$

RAINFALL: 100 YEAR Mount Hope Storm $i = 2317.4/(Tc+11)^{0.836}$

DESIGN BY: M.L.B. TC= 10 min Vmin = 0.90m/s Vmax = 3.65m/s

CHECKED BY: n = 0.013

PROJECT No.: 21218 DATE: August 15-2023 **SEWER DESIGN:** PIPE ROUGHNESS: n = 0.013 For Manning's Equation

LOCATION: 3054 Homestead Dr. % of Full Flow: Peak Flow / Full Flow Capacity

MUNICIPALITY: CITY OF HAMILTON

Proposed Industrial Development

LOCATION				STORMWATER ANALYSIS										STORM SEWER DATA						
Tributary ID No.	STREET NAME	From Manhole	To Manhole	A Area (ha)	C Runoff Coeff.	A*C	Accumulated A*C	Time of Concentration (min)	Flow Time (min)	5-yr-Rainfall Intensity (mm/hr)	5-yr-Peak Flow (l/s)	100-yr-Rainfall Intensity (mm/hr)	100-yr-Peak Flow (l/s)	Pipe Length (m)	Pipe Size (mm)	Pipe Slope (%)	Pipe Full Flow Capacity (l/s)	Pipe Full Flow Velocity (m/s)	5-yr.-Percent of Full Flow Capacity (%)	100-yr.-Percent of Full Flow Capacity (%)
A8	STREET A	14	13	0.430	0.60	0.258	0.258	10.00	1.53	103.03	74	182	130	90.0	450	0.3	156	0.98	47%	84%
A7	STREET A	13	12	0.270	0.60	0.162	0.420	11.53	1.38	96.50	113	171	200	90.0	525	0.3	236	1.09	48%	85%
A6	STREET A	12	11	0.270	0.60	0.162	0.582	12.91	1.26	91.36	148	163	264	90.0	600	0.3	336	1.19	44%	78%
A5	STREET A	11	10	0.270	0.60	0.162	0.744	14.17	1.17	87.16	180	156	323	90.0	675	0.3	460	1.29	39%	70%
A4a	STREET A	10	9	0.055	0.60	0.033	0.777	15.33	0.22	83.65	181	150	325	17.0	675	0.3	460	1.29	39%	71%
A1, A2 & C1, C2	From other Tributary Areas							**242.50**			**197**		**337**		VOH					
A4b	STREET A	9	8	0.155	0.60	0.093	0.870	242.50	0.56	12.44	227	23	392	46.0	750	0.3	610	1.38	37%	64%
A3	STREET A	8	7	0.240	0.60	0.144	1.014	243.06	0.69	12.41	232	23	401	57.0	750	0.3	610	1.38	38%	66%
SITE OUTLET	STREET A	7	**Pr. MH6**				1.014	**243.74**	0.17	12.39	**232**	23	**401**	14.0	750	0.3	610	1.38	38%	66%
5A-1	Airport Rd.	1 EXT	2 EXT	0.404	0.62	0.250	0.250	10.00	0.92	103.03	72	182	127	54.0	450	0.3	156	0.98	46%	81%
5A-2	Airport Rd.	2 EXT	3 EXT	0.960	0.61	0.586	0.836	10.92	1.15	99.00	230	175	408	88.4	675	0.3	460	1.29	50%	89%
5A-3	Airport Rd.	3 EXT	4 EXT	1.910	0.50	0.955	1.791	12.06	1.28	94.44	470	168	837	120.0	900	0.3	992	1.56	47%	84%
5A-4A	Airport Rd.	4 EXT	**Pr. MH6**	0.690	0.55	0.380	2.171	13.34	0.74	89.85	542	161	970	69.0	900	0.3	992	1.56	55%	98%
5A-4B	Airport Rd.	**PR. MH6**	5 EXT	3.790	0.43	1.630	4.814	**243.74**	0.88	12.39	363	23	639	82.40	900	0.3	992	1.56	37%	64%
5A-5	Airport Rd.	5 EXT	6 EXT	0.330	0.85	0.281	5.095	244.62	0.96	12.35	372	23	656	90.00	900	0.3	992	1.56	38%	66%
5A-6	Airport Rd.	6 EXT	EX MH 2	0.080	0.85	0.068	5.163	245.59	0.80	12.31	374	22	659	75.20	900	0.3	992	1.56	38%	66%
5A-7	Airport Rd.	EX MH 2	EX MH 1	0.120	0.85	0.102	5.265	246.39	0.65	12.28	377	22	664	60.80	900	0.3	992	1.56	38%	67%

ODAN·DETECH
CONSULTING ENGINEERS

STORM SEWER DESIGN

Catchment B

RAINFALL: 5YEAR Mount Hope Storm $i = 1049.5/(Tc+8)^{0.803}$

100 YEAR Mount Hope Storm $i = 2317.4/(Tc+11)^{0.836}$

PROJECT No.: 21218
LOCATION: 3054 Homestead Dr.
MUNICIPALITY: CITY OF HAMILTON

Proposed Industrial Development

DESIGN BY:
CHECKED BY:
DATE:

TC= 10 min

Vmin = 0.90m/s Vmax = 3.65m/s
n = 0.013

SEWER DESIGN: PIPE ROUGHNESS: n = 0.013 For Manning's Equation
% of Full Flow: Peak Flow / Full Flow Capacity (MAX 85%)

LOCATION				STORMWATER ANALYSIS										STORM SEWER DATA						
Tributary ID No.	STREET NAME	From Manhole	To Manhole	A Area (ha)	C Runoff Coeff.	A*C	Accumulated A*C	Time of Concentration (min)	Flow Time (min)	5-yr-Rainfall Intensity (mm/hr)	5-yr-Peak Flow (l/s)	100-yr-Rainfall Intensity (mm/hr)	100-yr-Peak Flow (l/s)	Pipe Length (m)	Pipe Size (mm)	Pipe Slope (%)	Pipe Full Flow Capacity (l/s)	Pipe Full Flow Velocity (m/s)	5-yr.-Percent of Full Flow Capacity (%)	100-yr.-Percent of Full Flow Capacity (%)
B4	STREET A	15	16	0.340	0.60	0.204	0.204	10.00	1.73	103.03	58	182	103	90.0	375	0.3	96	0.87	61%	107%
B5	STREET A	16	17	0.300	0.60	0.180	0.384	11.73	1.53	95.73	102	170	182	90.0	450	0.3	156	0.98	65%	116%
B6	STREET A	17	18	0.300	0.60	0.180	0.564	13.25	1.38	90.16	141	161	253	90.0	525	0.3	236	1.09	60%	107%
B1			18								13		29	VOH						
B7	STREET A	18	19	0.230	0.60	0.138	0.702	14.63	1.10	85.73	180	154	329	72.0	525	0.3	236	1.09	77%	140%
B8	STREET A	19	20	0.160	0.60	0.096	0.798	15.73	0.62	82.51	196	149	359	44.0	600	0.3	336	1.19	58%	107%
	STREET A	20	21	0.000	0.60	0.000	0.798	16.35	0.32	80.83	**192**	146	**352**	23.0	600	0.3	336	1.19	57%	105%
B9	STREET A	22	23	0.260	0.60	0.156	0.156	10.00	1.43	103.03	45	182	79	74.7	375	0.3	96	0.87	47%	82%
B10	STREET A	23	24	0.260	0.60	0.156	0.312	11.43	1.37	96.89	84	172	149	80.6	450	0.3	156	0.98	54%	96%
B11	STREET A	24	25	0.200	0.60	0.120	0.432	12.80	1.31	91.74	110	164	197	77.4	450	0.3	156	0.98	71%	126%
B12	STREET A	25	26	0.100	0.60	0.060	0.492	14.11	0.61	87.33	119	157	214	36.0	450	0.3	156	0.98	76%	137%
B14&15			26								43		94	VOH						
B13	STREET A	26	27	0.240	0.60	0.144	0.636	14.72	0.78	85.44	**194**	153	**365**	51.0	525	0.3	236	1.09	82%	155%

EX 900mm x 1200mm CULVERT

HOMESTEAD DRIVE

AREA 5 RETENTION SWALE
PROV'D VOLUME = 130 CU.M.

AREA 5 ASPHALT/CONCRETE
AREA =12,538 SQ.M.
10mm RETENTION VOLUME = 125 CU.M.

NHS COMPENSATION
1.11 ha
2.74 acres

STM MH

PROP STM

AREA 6
INFILTRATION GALLERY
PROVIDE RETENTION
VOLUME = 151 CU.M.

AREA 7 RETENTION SWALE
LINEAR AREA =0.3m2/m
PROV'D VOLUME = 138 CU.M.

STM CBMH

AREA 7 ASPHALT/CONCRETE
AREA = 8,544 SQ.M.
10mm REQ'D VOLUME = 85 CU.M.

PROP OGS

BUILDING 'C'
26,562.68 m2
285,918 sq ft

BUILDING 'D'
31,250.96 m2
336,382 sq ft

AREA 3 ASPHALT/CONCRETE
AREA = 15,685 SQ.M.
10mm REQ'D VOLUME = 157 CU.M.

AREA 3 RETENTION SWALE
PROV'D VOLUME = 170 CU.M.

AREA 4 ASPHALT/CONCRETE
AREA = 7,285 SQ.M.
10mm REQ'D VOLUME = 73 CU.M.

AREA 4 INFILTRATION
GALLERY
PROVIDE RETENTION
VOLUME = 73 CU.M.

BUILDING 'B'
38,268.75 m2
411,921sq ft

AIRPORT ROAD

FUT STM

AREA 6 ASPHALT/CONCRETE
AREA = 15,200 SQ.M.
10mm REQ'D VOLUME = 152 CU.M.

AREA 2 ASPHALT/CONCRETE
AREA = 26,104 SQ.M.
10mm RETENTION VOLUME = 261 CU.M.

AREA 1 RETENTION SWALE
PROV'D VOLUME = 80 CU.M.

BUILDING 'A'
33,468.93 m2
360,257 sq ft

AREA 1 ASPHALT/CONCRETE
AREA = 7,812 SQ.M.
10mm REQ'D VOLUME = 78 CU.M.

AREA 2 RETENTION SWALE
PROV'D VOLUME = 265 CU.M.

PROP STM MH 6

EAST CARGO RD.

CONSTRUCTION NORTH

LEGEND:

- DENOTES PROPOSED STORM MANHOLE
- DENOTES FUTURE STORM SEWER
- DENOTES EXISTING STORM SEWER
- DENOTES PROPOSED STORM SEWER
- PROPERTY LINE

DRAWING :

FIGURE 6: 10mm STORMWATER RETENTION PLAN

DATE:	PROJ. NO.:	SCALE:
JAN 2023	21218	1: 3000

PROJECT :

PROPOSED INDUSTRIAL DEVELOPMENT
HOMESTEAD DRIVE & AIRPORT ROAD
HAMILTON, ON

ODAN·DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

Infiltration Gallery/Soakaway Pit Tables

SOAK-AWAY PIT CALCULATION TEMPLATE

PROJECT: Industrial Development, 3054 Homestead Drive

PROJECT No. : 21218

Location of soak-away pit: Area 4 (Figure 6)

						DESCRIPTION
					UNIT	A = 1,000V / (PnΔt)
	d = PΔt/1000		P=	15	mm/hr	Where:
			Δt =	48	hr	
d =	0.72	m				A = Filter bed surface area (m2)
			n=	0.40	-	V = Water volume (m3)
						Δt = time to drain (hr)
						n = void space ratio for aggregate used
V=	72.9	m3	Atrib	7285	m2	(note: void space ratio of 0.4 to be used)
			runoff	10	mm	
						d = PΔt/1000
						Where:
						d = maximum soak-away depth (m)
A =	1,000V / (PnΔt)					P= infiltration rate for native soils (mm/hr)
						Δt = time to drain (hr)
Af=	253					
Af provided =	260	m2				Vpit req'd = V/n
						Vpit provided = L x W x d
Vpit req'd =	182	m3				
			L =	40	m	L = length of pit (m)
Vpit provided =	**182**	m3	W =	6.5	m	W = width of pit (m)
			d =	0.7	m	d = depth of pit (m)

SOAK-AWAY PIT CALCULATION TEMPLATE

PROJECT: Industrial Development, 3054 Homestead Drive

PROJECT No. : 21218

Location of soak-away pit: Area 6 (Figure 6)

						DESCRIPTION
					UNIT	A = 1,000V / (PnΔt)
	d = PΔt/1000		P=	15	mm/hr	Where:
			Δt =	48	hr	
d =	0.72	m				A = Filter bed surface area (m2)
			n=	0.40	-	V = Water volume (m3)
						Δt = time to drain (hr)
						n = void space ratio for aggregate used
V=	152.0	m3	Atrib	15200	m2	(note: void space ratio of 0.4 to be used)
			runoff	10	mm	
						d = PΔt/1000
						Where:
						d = maximum soak-away depth (m)
A =	1,000V / (PnΔt)					P= infiltration rate for native soils (mm/hr)
						Δt = time to drain (hr)
Af=	528					
Af provided =	560	m2				Vpit req'd = V/n
						Vpit provided = L x W x d
Vpit req'd =	380	m3				
			L =	40	m	L = length of pit (m)
Vpit provided =	**392**	m3	W =	14	m	W = width of pit (m)
			d =	0.7	m	d = depth of pit (m)

SOAK-AWAY PIT CALCULATION TEMPLATE

PROJECT: Industrial Development, 3054 Homestead Drive

PROJECT No. : 21218

Location of soak-away pit: Building A (Catchment A1)

						DESCRIPTION
					UNIT	A = 1,000V / (PnΔt)
	d = PΔt/1000		P=	15	mm/hr	Where:
			Δt =	48	hr	
d =	0.72	m				A = Filter bed surface area (m2)
			n=	0.40	-	V = Water volume (m3)
						Δt = time to drain (hr)
						n = void space ratio for aggregate used
V=	200.8	m3	Atrib	33469	m2	(note: void space ratio of 0.4 to be used)
			runoff	6	mm	
						d = PΔt/1000
						Where:
						d = maximum soak-away depth (m)
A =	1,000V / (PnΔt)					P= infiltration rate for native soils (mm/hr)
						Δt = time to drain (hr)
Af=	697					
Af provided =	1200	m2				Vpit req'd = V/n
						Vpit provided = L x W x d
Vpit req'd =	502	m3				
			L =	150	m	L = length of pit (m)
Vpit provided =	**720**	m3	W =	8	m	W = width of pit (m)
			d =	0.6	m	d = depth of pit (m)

SOAK-AWAY PIT CALCULATION TEMPLATE

PROJECT: Industrial Development, 3054 Homestead Drive

PROJECT No. : 21218

Location of soak-away pit: Building B & C (Catchment A10 & A9)

						DESCRIPTION
					UNIT	A = 1,000V / (PnΔt)
	d = PΔt/1000		P=	15	mm/hr	Where:
			Δt =	48	hr	
d =	0.72	m				A = Filter bed surface area (m2)
			n=	0.40	-	V = Water volume (m3)
						Δt = time to drain (hr)
						n = void space ratio for aggregate used
V=	301.6	m3	Atrib	50269	m2	(note: void space ratio of 0.4 to be used)
			runoff	6	mm	
						d = PΔt/1000
						Where:
						d = maximum soak-away depth (m)
A =	1,000V / (PnΔt)					P= infiltration rate for native soils (mm/hr)
						Δt = time to drain (hr)
Af=	1047					
Af provided =	2598	m2				Vpit req'd = V/n
						Vpit provided = L x W x d
Vpit req'd =	754	m3				
			a=	2598	m2	L = length of pit (m)
Vpit provided =	**1559**	m3		1	m	W = width of pit (m)
			d =	0.6	m	d = depth of pit (m)

SOAK-AWAY PIT CALCULATION TEMPLATE

PROJECT: Industrial Development, 3054 Homestead Drive

PROJECT No. : 21218

Location of soak-away pit: Building C (Catchment B1)

						DESCRIPTION
				UNIT		A = 1,000V / (PnΔt)
	d = PΔt/1000		P=	15	mm/hr	Where:
			Δt =	48	hr	
d =	0.72	m				A = Filter bed surface area (m2)
			n=	0.40	-	V = Water volume (m3)
						Δt = time to drain (hr)
						n = void space ratio for aggregate used
V=	219.8	m3	Atrib	14656	m2	(note: void space ratio of 0.4 to be used)
			runoff	15	mm	
						d = PΔt/1000
						Where:
						d = maximum soak-away depth (m)
A =	1,000V / (PnΔt)					P= infiltration rate for native soils (mm/hr)
						Δt = time to drain (hr)
Af=	763					
Af provided =	800	m2				Vpit req'd = V/n
						Vpit provided = L x W x d
Vpit req'd =	550	m3				
			L =	100	m	L = length of pit (m)
Vpit provided =	**560**	m3	W =	8	m	W = width of pit (m)
			d =	0.7	m	d = depth of pit (m)

SOAK-AWAY PIT CALCULATION TEMPLATE

PROJECT: Industrial Development, 3054 Homestead Drive

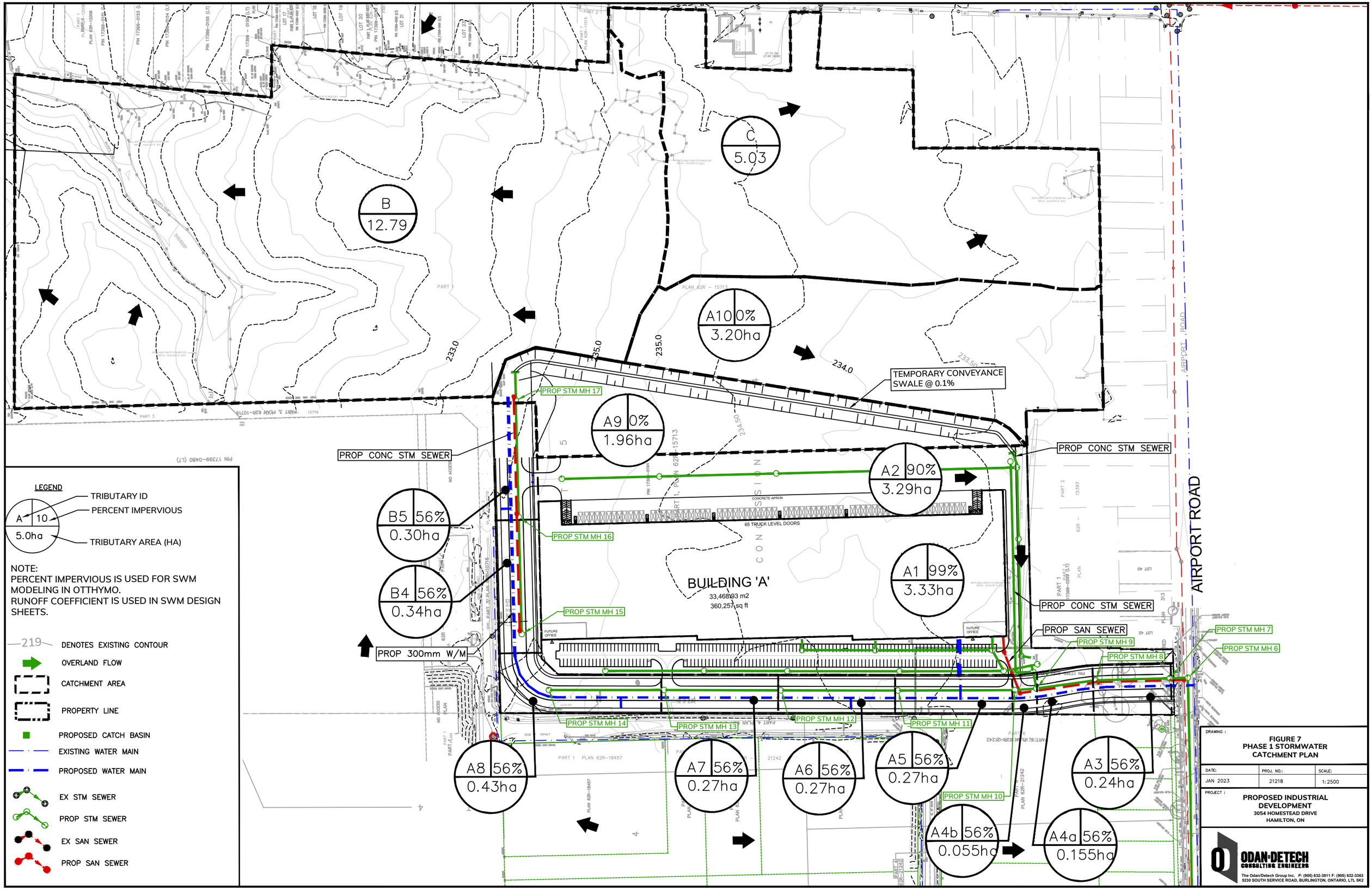
PROJECT No. : 21218

Location of soak-away pit: Building D (Catchment B14)

						DESCRIPTION
					UNIT	A = 1,000V / (PnΔt)
	d = PΔt/1000		P=	15	mm/hr	Where:
			Δt =	48	hr	
d =	0.72	m				A = Filter bed surface area (m2)
			n=	0.40	-	V = Water volume (m3)
						Δt = time to drain (hr)
						n = void space ratio for aggregate used
V=	468.8	m3	Atrib	31251	m2	(note: void space ratio of 0.4 to be used)
			runoff	15	mm	
						d = PΔt/1000
						Where:
						d = maximum soak-away depth (m)
A =	1,000V / (PnΔt)					P= infiltration rate for native soils (mm/hr)
						Δt = time to drain (hr)
Af=	1628					
Af provided =	1800	m2				Vpit req'd = V/n
						Vpit provided = L x W x d
Vpit req'd =	1172	m3				
			L =	200	m	L = length of pit (m)
Vpit provided =	**1260**	m3	W =	9	m	W = width of pit (m)
			d =	0.7	m	d = depth of pit (m)

APPENDIX D

Figure 7: Phase 1 Stormwater Catchment Plan
Phase 1 Stormwater – Revised Underground and Surface Stage Storage
Phase 1 Storm Sewer Design Sheet – Catchment A
Figure 8: Phase 2 Stormwater Catchment Plan
Phase 2 Stormwater – Revised Underground and Surface Stage Storage



LEGEND

A | 10 | TRIBUTARY ID
5.0ha | PERCENT IMPERVIOUS
TRIBUTARY AREA (HA)

NOTE:
PERCENT IMPERVIOUS IS USED FOR SWM MODELING IN OTTHYMO.
RUNOFF COEFFICIENT IS USED IN SWM DESIGN SHEETS.

219 — DENOTES EXISTING CONTOUR
OVERLAND FLOW
CATCHMENT AREA
PROPERTY LINE
PROPOSED CATCH BASIN
EXISTING WATER MAIN
PROPOSED WATER MAIN
EX STM SEWER
PROP STM SEWER
EX SAN SEWER
PROP SAN SEWER

DRAWING :

FIGURE 7
PHASE 1 STORMWATER CATCHMENT PLAN

DATE:	PROJ. NO.:	SCALE:
JAN 2023	21218	1:2500

PROJECT :

PROPOSED INDUSTRIAL DEVELOPMENT
3054 HOMESTEAD DRIVE
HAMILTON, ON

ODAN-DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

SWM INFORMATION FOR ORIFICE CONTROLED STORM TRIBUTARY AREAS

Tributary Area No. A2 **Tributary Area** 3.29 ha (47% final A)

INLET CONTROL DEVICE (ICD) INFORMATION

Location of ICD	Street A South Outlet	
Type of ICD	Plate	
Surface Elevation	233.87	m
Orifice Invert Elevation	229.80	m
Orifice Size	170.00	mm
Orifice Coefficient	0.62	

STORM WATER STORAGE INFORMATION

Underground Storage	1692.00	m
Area of Ponding	6580.00	m2

STAGE/DISCHARGE/VOLUME RELATIONSHIP

Stage Description	Elevation (m)	Head (m)	Discharge (m^3/s)	Volume (m^3)	Volume (ha·m)
Orifice	229.89	0.00	0.0000	0.0	0.00000
Rim	233.87	3.98	0.1244	1692.0	0.16920
0.1 ponding	233.97	4.08	0.1260	1716.3	0.17163
0.2 ponding	234.07	4.18	0.1275	1886.8	0.18868
0.3 ponding	234.17	4.29	0.1290	2350.0	0.23500

ODAN·DETECH
CONSULTING ENGINEERS

STORM SEWER DESIGN

Catchment A - Phase 1

5YEAR Mount Hope Storm $i = 1049.5/(Tc+8)^{0.803}$

RAINFALL: 100 YEAR Mount Hope Storm $i = 2317.4/(Tc+11)^{0.836}$

DESIGN BY: M.L.B. TC= 10 min Vmin = 0.90m/s Vmax = 3.65m/s

CHECKED BY: n = 0.013

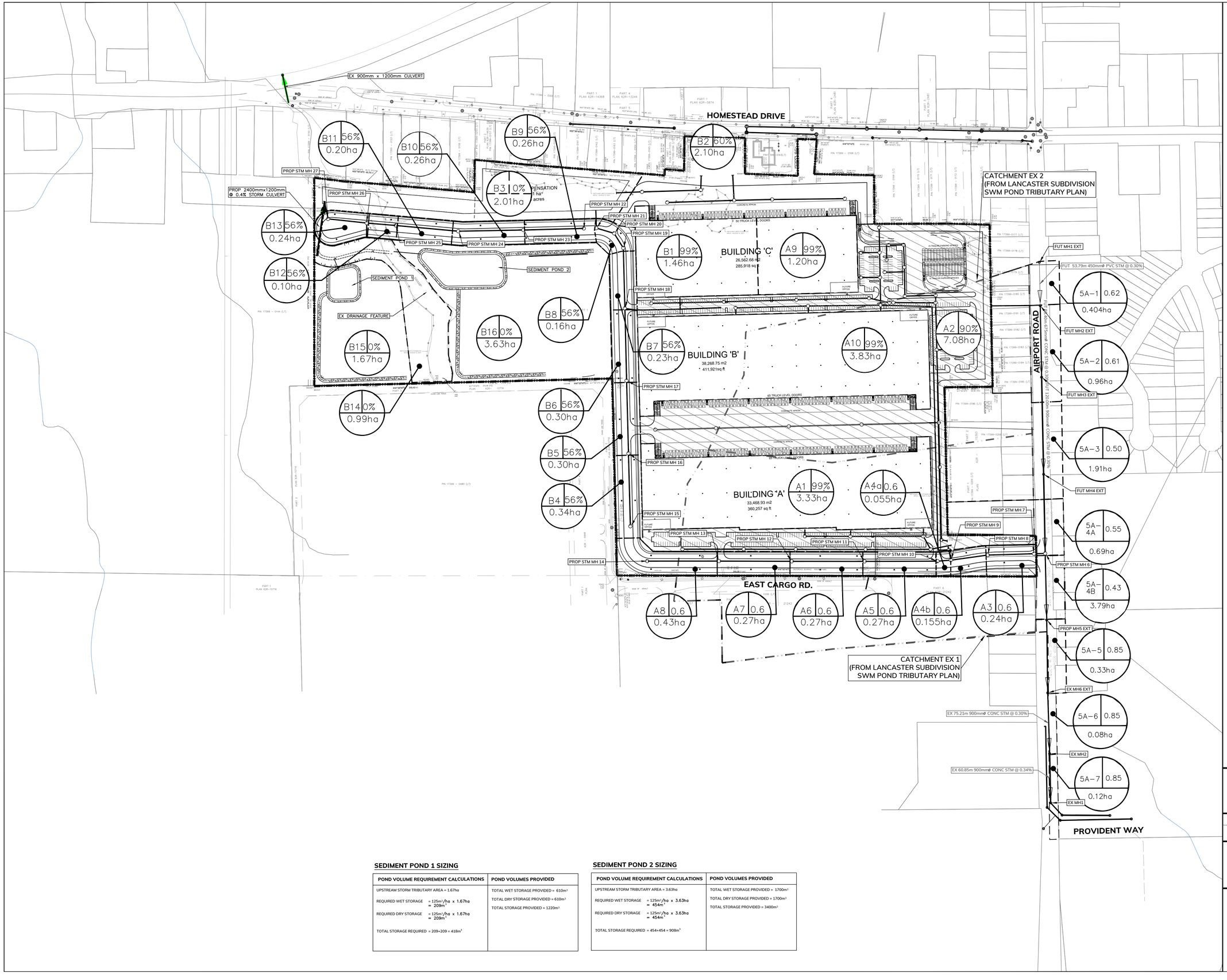
PROJECT No.: 21218 DATE: August 15-2023 **SEWER DESIGN:** PIPE ROUGHNESS: n = 0.013 For Manning's Equation

LOCATION: 3054 Homestead Dr. % of Full Flow: Peak Flow / Full Flow Capacity

MUNICIPALITY: CITY OF HAMILTON

Proposed Industrial Development

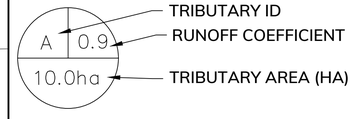
LOCATION				STORMWATER ANALYSIS										STORM SEWER DATA						
Tributary ID No.	STREET NAME	From Manhole	To Manhole	A Area (ha)	C Runoff Coeff.	A*C	Accumulated A*C	Time of Concentration (min)	Flow Time (min)	5-yr-Rainfall Intensity (mm/hr)	5-yr-Peak Flow (l/s)	100-yr-Rainfall Intensity (mm/hr)	100-yr-Peak Flow (l/s)	Pipe Length (m)	Pipe Size (mm)	Pipe Slope (%)	Pipe Full Flow Capacity (l/s)	Pipe Full Flow Velocity (m/s)	5-yr.-Percent of Full Flow Capacity (%)	100-yr.-Percent of Full Flow Capacity (%)
A8	STREET A	14	13	0.430	0.60	0.258	0.258	10.00	1.53	103.03	74	182	130	90.0	450	0.3	156	0.98	47%	84%
A7	STREET A	13	12	0.270	0.60	0.162	0.420	11.53	1.38	96.50	113	171	200	90.0	525	0.3	236	1.09	48%	85%
A6	STREET A	12	11	0.270	0.60	0.162	0.582	12.91	1.26	91.36	148	163	264	90.0	600	0.3	336	1.19	44%	78%
A5	STREET A	11	10	0.270	0.60	0.162	0.744	14.17	1.17	87.16	180	156	323	90.0	675	0.3	460	1.29	39%	70%
A4a	STREET A	10	9	0.055	0.60	0.033	0.777	15.33	0.22	83.65	181	150	325	17.0	675	0.3	460	1.29	39%	71%
A1, A2 & C1, C2	From other Tributary Areas							**181.82**			**183**		**364**						VOH	
A4b	STREET A	9	8	0.155	0.60	0.093	0.870	181.82	0.56	15.54	221	28	433	46.0	750	0.3	610	1.38	36%	71%
A3	STREET A	8	7	0.240	0.60	0.144	1.014	182.37	0.69	15.50	227	28	444	57.0	750	0.3	610	1.38	37%	73%
SITE OUTLET	STREET A	7	**Pr. MH6**				1.014	**183.06**	0.17	15.46	**227**	28	**444**	14.0	750	0.3	610	1.38	37%	73%



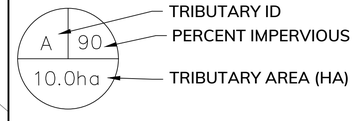
LEGEND:

- PROPOSED STORM MANHOLE
- EXISTING STM MANHOLE
- PROPOSED CATCH BASIN
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PROPOSED OVERLAND FLOW
- CATCHMENT BOUNDARY
- PROPERTY LINE

CATCHMENT LABEL (PUBLIC PROPERTY)



CATCHMENT LABEL (PRIVATE PROPERTY)



NOTE:
PERCENT IMPERVIOUS IS USED FOR SWM MODELLING IN OTTHYMO.·
RUNOFF COEFFICIENT IS USED IN SWM DESIGN SHEETS.

FIGURE 8:
PHASE 2 STORMWATER CATCHMENT PLAN

	PROJ. NO.:	SCALE:
SEPT 2021	21218	1: 2000

PROPOSED INDUSTRIAL DEVELOPMENT
HOMESTEAD DRIVE & AIRPORT ROAD
HAMILTON, ON

ODAN·DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

SEDIMENT POND 1 SIZING

POND VOLUME REQUIREMENT CALCULATIONS	POND VOLUMES PROVIDED
UPSTREAM STORM TRIBUTARY AREA = 1.67ha	TOTAL WET STORAGE PROVIDED = 610m³
REQUIRED WET STORAGE = 125m³/ha x 1.67ha = 209m³	TOTAL DRY STORAGE PROVIDED = 610m³
REQUIRED DRY STORAGE = 125m³/ha x 1.67ha = 209m³	TOTAL STORAGE PROVIDED = 1220m³
TOTAL STORAGE REQUIRED = 209+209 = 418m³	

SEDIMENT POND 2 SIZING

POND VOLUME REQUIREMENT CALCULATIONS	POND VOLUMES PROVIDED
UPSTREAM STORM TRIBUTARY AREA = 3.63ha	TOTAL WET STORAGE PROVIDED = 1700m³
REQUIRED WET STORAGE = 125m³/ha x 3.63ha = 454m³	TOTAL DRY STORAGE PROVIDED = 1700m³
REQUIRED DRY STORAGE = 125m³/ha x 3.63ha = 454m³	TOTAL STORAGE PROVIDED = 3400m³
TOTAL STORAGE REQUIRED = 454+454 = 908m³	

SWM INFORMATION FOR ORIFICE CONTROLED STORM TRIBUTARY AREAS

Tributary Area No. B15 **Tributary Area** 1.67 ha

INLET CONTROL DEVICE (ICD) INFORMATION

Location of ICD: Sediment Pond 1

Type of ICD: Tube

Orifice Invert Elevation: 229.00 m

Orifice Size: 150.00 mm

Orifice Coefficient: 0.82

STORM WATER STORAGE INFORMATION

Dry Storage Volume: 610.00 m3

STAGE/DISCHARGE/VOLUME RELATIONSHIP

Stage Description	Elevation (m)	Head (m)	Discharge (m^3/s)	Volume (m^3)	Volume (ha·m)
Orifice/ Water Level	229.08	0.00	0.0000	0.0	0.00000
0.25m Depth	229.25	0.18	0.0269	305.0	0.03050
0.5m Depth	229.50	0.43	0.0418	610.0	0.06100

SWM INFORMATION FOR ORIFICE CONTROLED STORM TRIBUTARY AREAS

Tributary Area No. B16 **Tributary Area** 3.63 ha

INLET CONTROL DEVICE (ICD) INFORMATION

Location of ICD: Sediment Pond 2

Type of ICD: Tube

Orifice Invert Elevation: 229.40 m

Orifice Size: 150.00 mm

Orifice Coefficient: 0.82

STORM WATER STORAGE INFORMATION

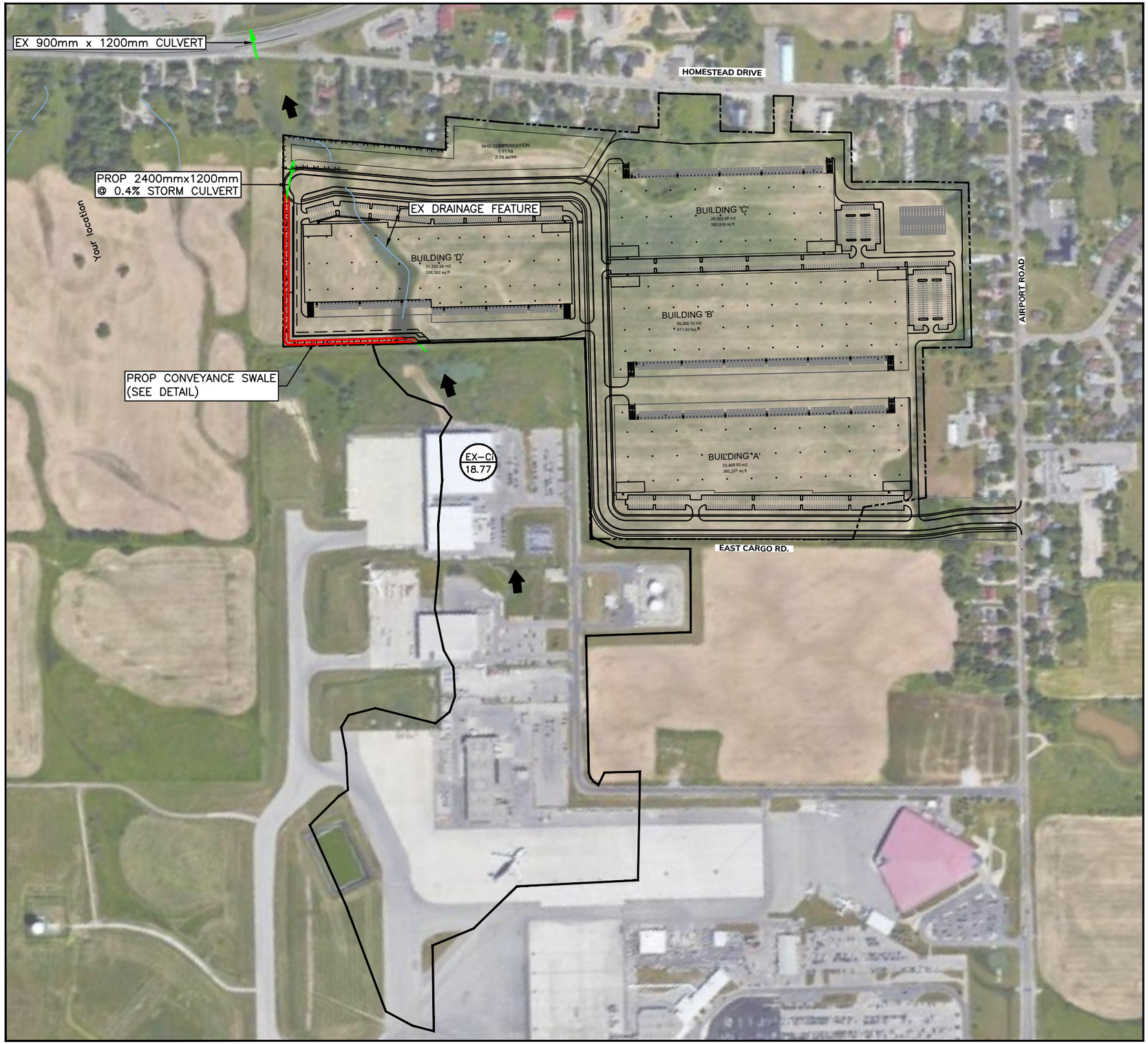
Dry Storage Volume: 1700.00 m3

STAGE/DISCHARGE/VOLUME RELATIONSHIP

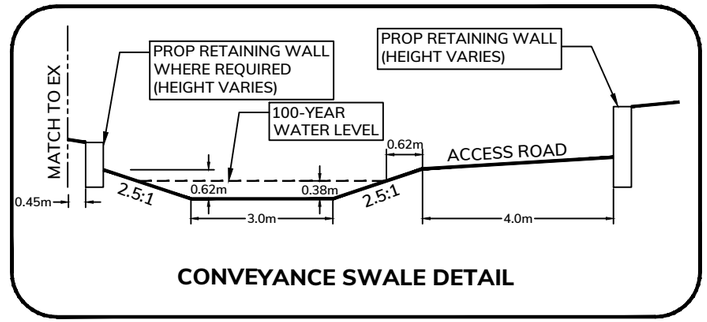
Stage Description	Elevation (m)	Head (m)	Discharge (m^3/s)	Volume (m^3)	Volume (ha·m)
Orifice/ Water Level	229.48	0.00	0.0000	0.0	0.00000
0.25m Depth	229.65	0.18	0.0269	850.0	0.08500
0.5m Depth	229.90	0.43	0.0418	1700.0	0.17000

APPENDIX E

Figure 9: Conveyance Swale Catchment
Hamilton International Airport Internal Storm Drainage Plan No. 8
AEGD Figure 2.8.1. Aquatic Resources
Figure 10: Existing Drainage Feature HEC-RAS Section Plan
Existing Drainage Feature HEC-RAS Profile and Sections
Existing Drainage Feature HEC-RAS Output Table
Figure 11: Proposed Conveyance Swale HEC-RAS Section Plan
Proposed Conveyance Swale HEC-RAS Profiles and Sections
Existing Drainage Feature HEC-RAS Output Table







CONVEYANCE SWALE DETAIL

LEGEND:

- EXISTING OVERLAND FLOW
- CATCHMENT BOUNDARY
- PROPERTY LINE
- A / 10.0 — CATCHMENT ID / CATCHMENT AREA (ha)

DRAWING :

FIGURE 9
CONVEYANCE SWALE CATCHMENT

DATE:	PROJ. NO.:	SCALE:
SEPT 2021	21218	1:5000

PROJECT :

PROPOSED INDUSTRIAL DEVELOPMENT
HOMESTEAD DRIVE & AIRPORT ROAD
HAMILTON, ON

ODAN•DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

SEE DWG. No. 6

SEE DWG. No. 9

SEE DWG. No. 12

I-18

O-3 O-6 O-7 O-8 O-9 O-10 O-11

142.63 1.46 0.85 7.76 18.77

UPPER JAMES ST.

ENGLISH CHURCH RD. E.

HOMESTEAD DR.

UPPER JAMES ST.

LOCALIZER

PARCEL D UNDEVELOPED AREA

PARCEL C UNDEVELOPED AREA

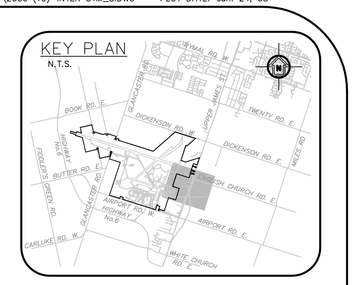
RESERVOIR AREA

PROPERTY LINE

EXISTING FENCELINE

WJ CJ CJ

KEY PLAN
N.T.S.



LEGEND

- LIMIT OF AIRPORT LANDS
- EXISTING GROUND CONTOUR
- EXISTING CREEK, RIVER, & WATERCOURSE
- EXISTING EXTERNAL STORM DRAINAGE BOUNDARY
- EXISTING STORM DRAINAGE BOUNDARY
- I-1 EXISTING STORM INLET LOCATION
- O-1 EXISTING STORM OUTLET LOCATION
- 5.00 (1) EXISTING STORM DRAINAGE AREA ID. # / EXISTING STORM DRAINAGE AREA (ha.)

BENCHMARK:

(BM. 1)

HAMILTON-WENTWORTH INDEX No. 75U159
ELEVATION: 228.625

DESCRIPTION: AIRPORT ROAD CONCRETE BOX CULVERT OVER CREEK, 1.6 KM WEST OF INTERSECTION WITH HIGHWAY No. 6, 0.2 KM EAST OF ENTRANCE TO HAMILTON AIRPORT, TABLET IN TOP AT NORTH END OF CULVERT, 27 CM SOUTH AND 15 CM EAST OF NORTHWEST CORNER OF CULVERT, 2.4 M BELOW ROAD LEVEL.

(BM. 2)

HAMILTON-WENTWORTH INDEX No. 75U163
ELEVATION: 234.370

DESCRIPTION: HAMILTON AIRPORT, PIPER TRANS AIRCRAFT COMPANY BUILDING, AT END OF ENTRANCE DRIVEWAY TO AIRPORT, 0.3 KM NORTH OF AIRPORT ROAD, TABLET IN EAST CONCRETE BASE OF PILLAR BETWEEN TWO LARGE GARAGES, 40.5 M FROM SOUTHEAST CORNER OF BUILDING, 6 CM BELOW ASBESTOS SIDING.

REVISIONS				
No.	Revision	Date	By	Approved

CITY OF HAMILTON

HAMILTON INTERNATIONAL AIRPORT

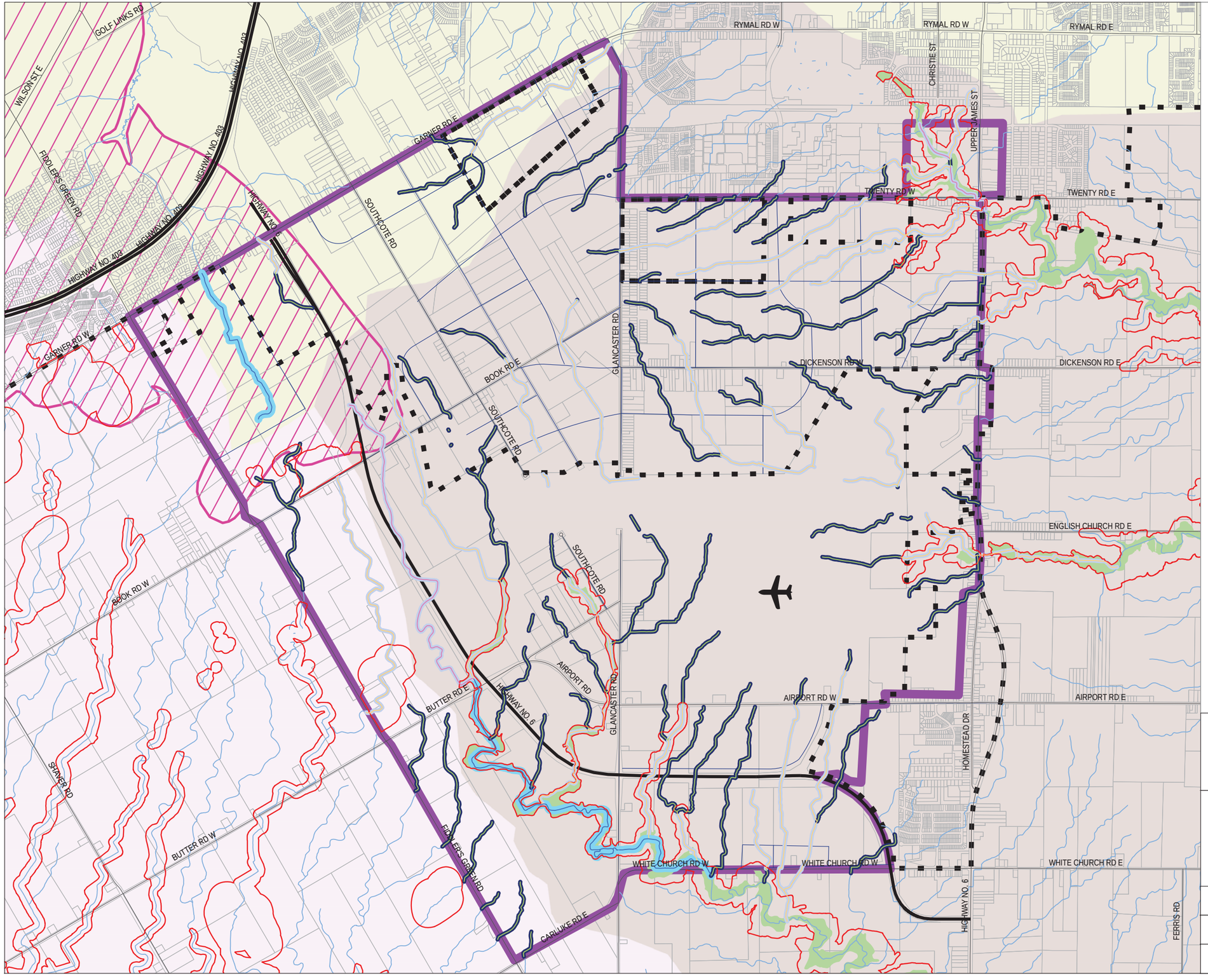
STORM DRAINAGE STUDY

INTERNAL STORM DRAINAGE PLAN No.8

WESLAKE
a division of Trow Associates Inc.
CIVIL ENGINEERS, MUNICIPAL AND ENVIRONMENTAL PLANNERS
80 BANCROFT STREET HAMILTON, ONTARIO L8E 2W0
446 GREY STREET UNIT No. 105 BRANTFORD, ONTARIO N3S 7L6

15 0 60
METRES

SCALE: HORIZ. 1:1,500			
DRAWN BY: M.G.		PROJECT No.	2000
DESIGNED BY: M.G.			
CHECKED BY: G.P.B.		DRAWING No.	10
NOT FOR CONSTRUCTION UNTIL SIGNED, STAMPED AND DATED	DATE: JAN. 2009		



Fish Community Type
- Cool/Cold
- Seasonal
- Support/Indirect Fish Habitat
- Warm

MNRF Fish Habitat Buffers
- Support/Indirect Fish Habitat (30m)*†
- Seasonal/Warmwater Habitat (30m)†
- Coldwater Habitat (60m)‡

Conservation Authority Jurisdiction
- Grand River Conservation Authority
- Hamilton Conservation Authority
- Niagara Peninsula Conservation Authority

Other Features
- High Recharge potential
- Floodplain
- Generic Regulation Lines**
- Airport Employment Growth District Study Boundary
- Urban Boundary

Notes:
* If watercourse is retained as an enhanced feature.
** Generic regulations include a 30 m buffer on all watercourses. Not all features regulated by the relevant Conservation Authority are mapped.
† Buffer based on 15m from each bank
‡ Buffer based on 30m from each bank

Figure 2.8.1
Airport Employment Growth District
Aquatic Resources

N

0 250 500 750 m

Hamilton

April 2017

Planning and Economic Development Department

CONSTRUCTION NORTH

PIN 17399 – 0148 (LT)

PIN 17399 – 0144 (LT)

LOT 5

PART 1 PLAN 62R–12026

PIN 17399 – 0153 (LT)

PIN 17399 – 0154 (LT)

PIN 17399 – 0155 (LT)

PIN 17399 – 0156 (LT)

PART 1 PLAN 62R–

PIN 17399–015

LOT 19

LOT 20 PART 1 PLAN 62R–

PIN 17399–0159 (LT)

PIN 17399–0160 (LT)

LOT 21

LOT 22

PIN 17399–0161 (LT)

LOT 23

PIN 17399–0162 (LT)

LOT 24

PIN 17399–0163 (LT)

LOT 25

PIN 17399 – 0164 (LT)

313

LOT 26

PART 1

1

2

3

4

5

6

EXISTING DRAINAGE FEATURE

SWAMP

WATER'S EDGE

POSTAND WIRE FENCE

CHAIN LINK FENCE

FENCE OK E/W

SIB(M&P)

SIB(600)

SIB(688)

IB(OU)

IB(717)

IB(912)

IP(OU) 0.12W 0.19N

SIB(OU) BASE 0.06W

PLANTER

SHED

N25^05'30"E(M) 38.85(P2&SET)

N23^38'20"E 45.72 (P2) N22^06'40"E 45.70(M)

N23^38'20"E 22.86 (P2) N23^07'20"E 22.84(M)

N22^43'00"E 59.93(M) N23^27'00"E 59.96 (P2) 37.09

N23^49'05"E (P2) N23^00'00"E(M) 31.44(P2&SET)

N71^06'55"W (P2) N71^52'10"W(M) 40.24(P2&SET)

N23^38'20"E(M) 44.46(P2&M) N24^22'20"E (P2)

N22^53'40"E (P2) N22^14'20"E(M) 20.03(P2&SET)

N23^26'25"E (P2) N22^55'00"E(M) 21.18 (P2&M)

179^53'30" (P2&SET)

150.02 (P2&M) N22^20'50"E(M)

N23^00'10"E (P2) 177.71

82^51'05" (P2&SET)

38.10 (P2&M)

N72^04'40"W 257.57 (M) 219.51 (P2) 216.48

N72^22'50"W 257.61 (P2)

N16^28'50"E 315.43(M) 142.07 (P2&M)

N17^10'40"E 315.46 (P2) 173.36 (M) 173.39 (P2)

N16^23'10"E(M) N17^06'10"E (P2) 52.77 (P2&M)

PIPE 230.49 PIPE 230.57 230.68

231.13 PIPE 230.88 PIPE 230.99

DRAWING :

FIGURE 10: EXISTING DRAIANGE FEATURE HEC-RAS SECTION PLAN

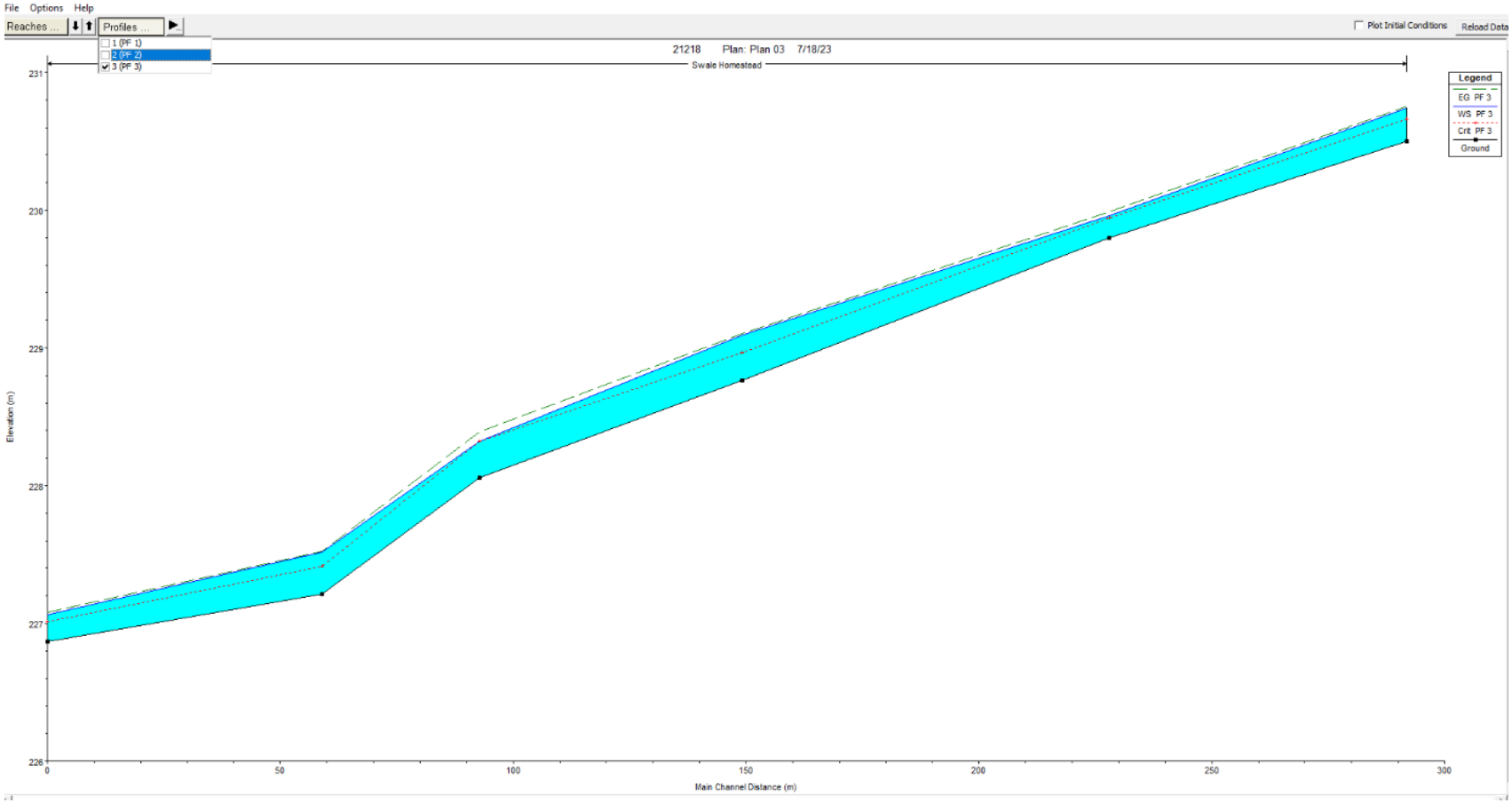
DATE:	PROJ. NO.:	SCALE:
JUN 2023	21218	1:1250

PROJECT :

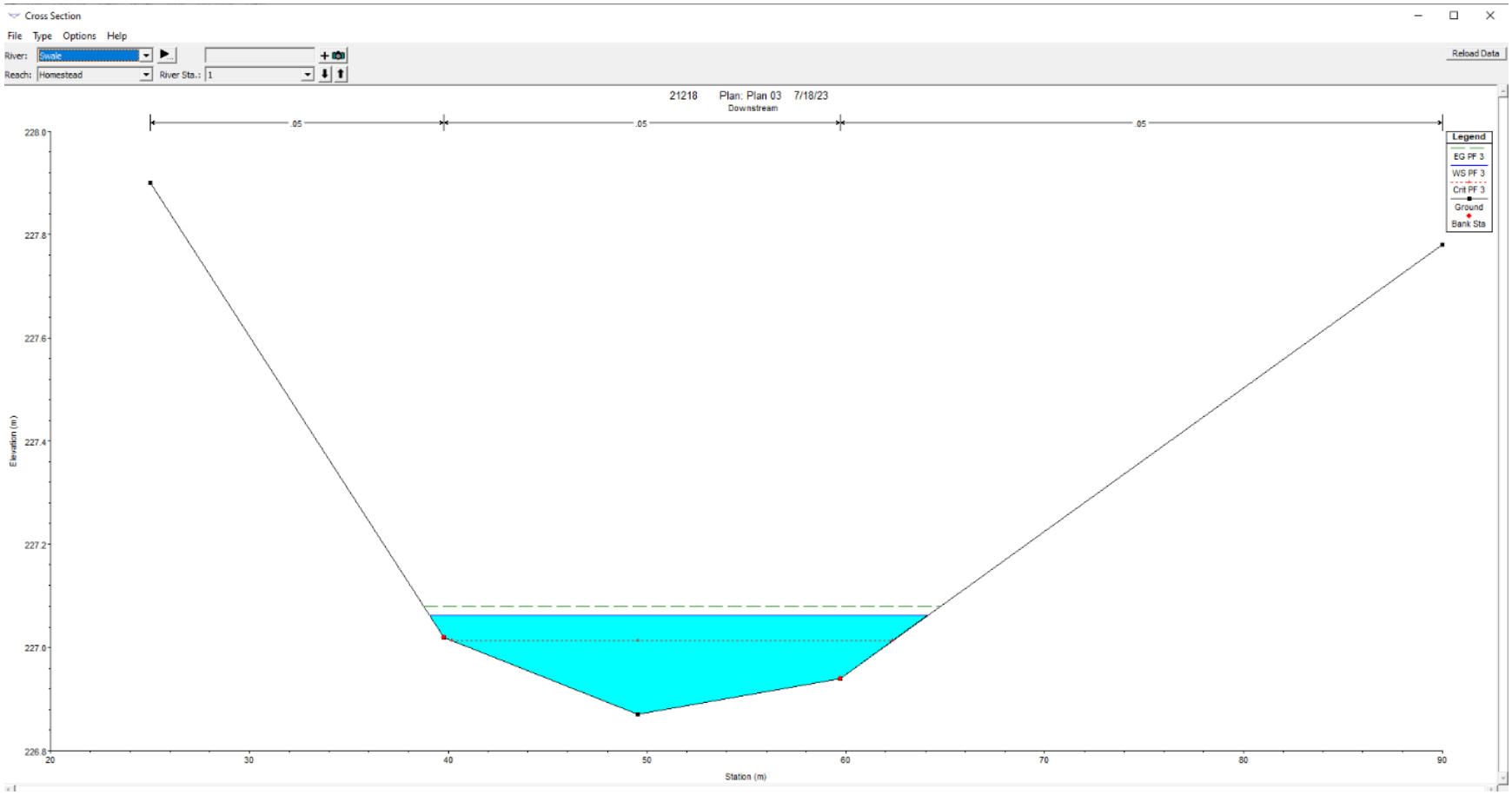
PROPOSED INDUSTRIAL DEVELOPMENT
HOMESTEAD DRIVE & AIRPORT ROAD
HAMILTON, ON

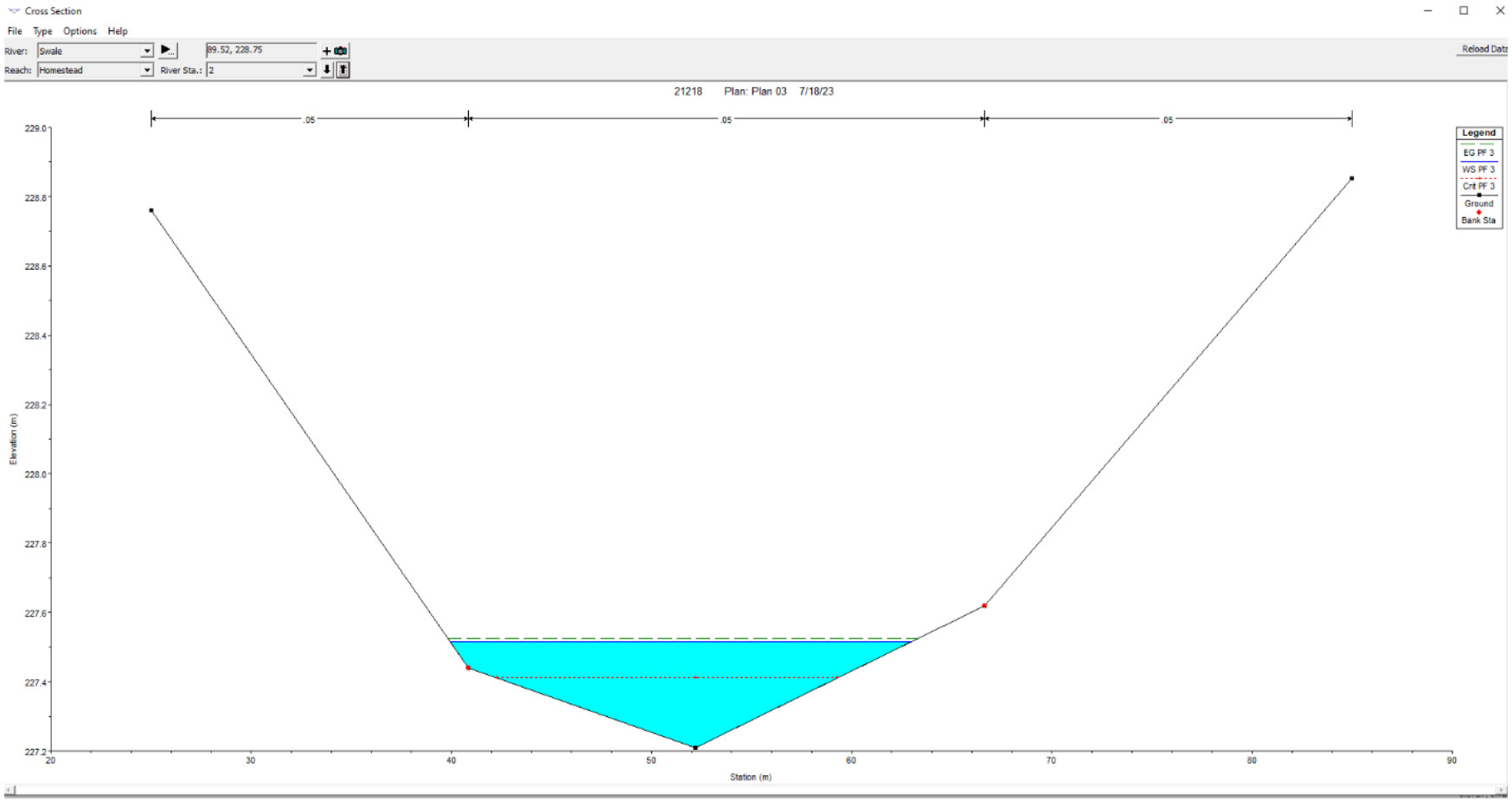
ODAN•DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

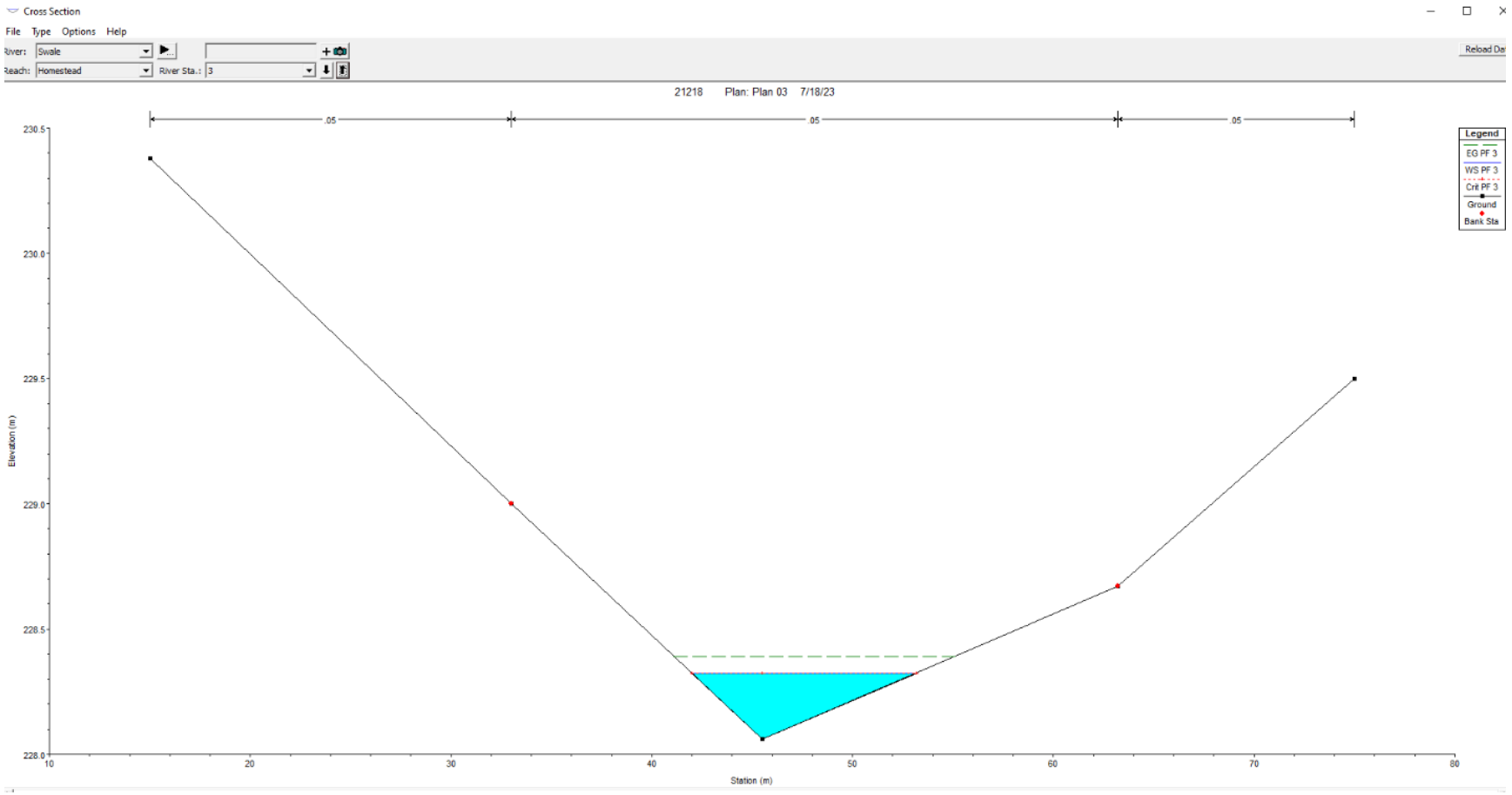
Existing Drainage Feature HEC-RAS Profile (Hurricane Hazel-PF 3)

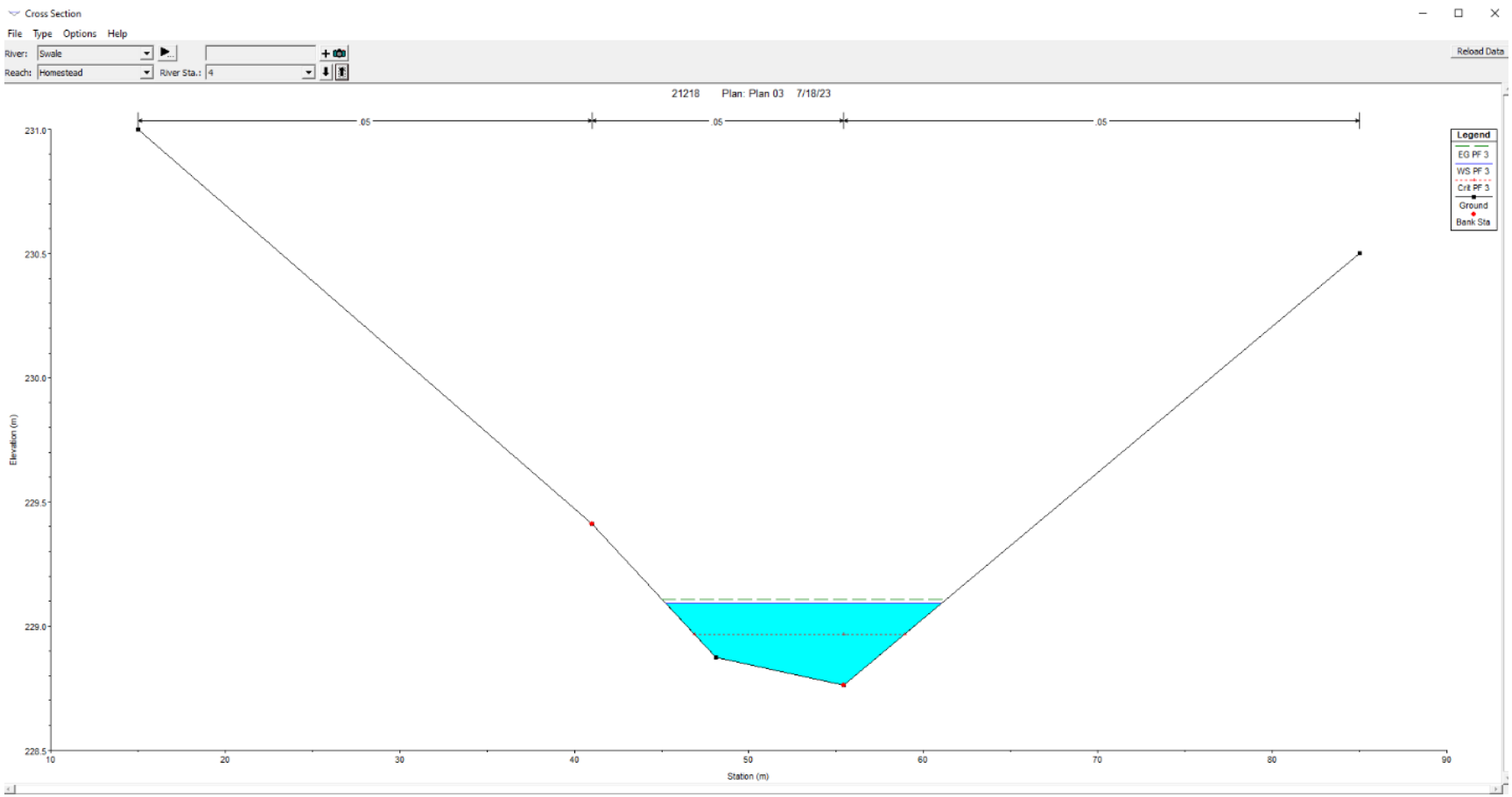


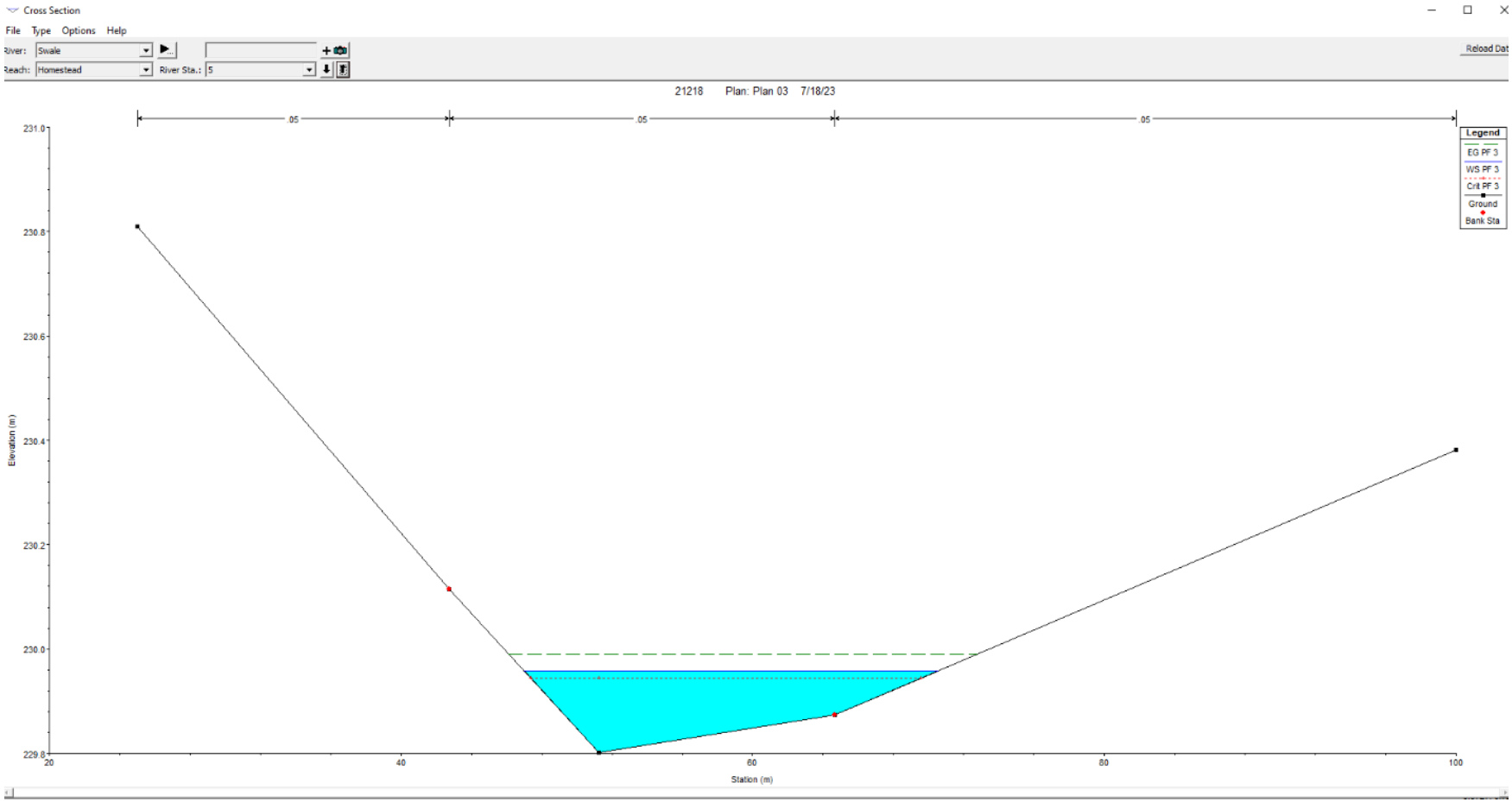
Existing Drainage Feature HEC-RAS Sections (Hurricane Hazel – PF 3)

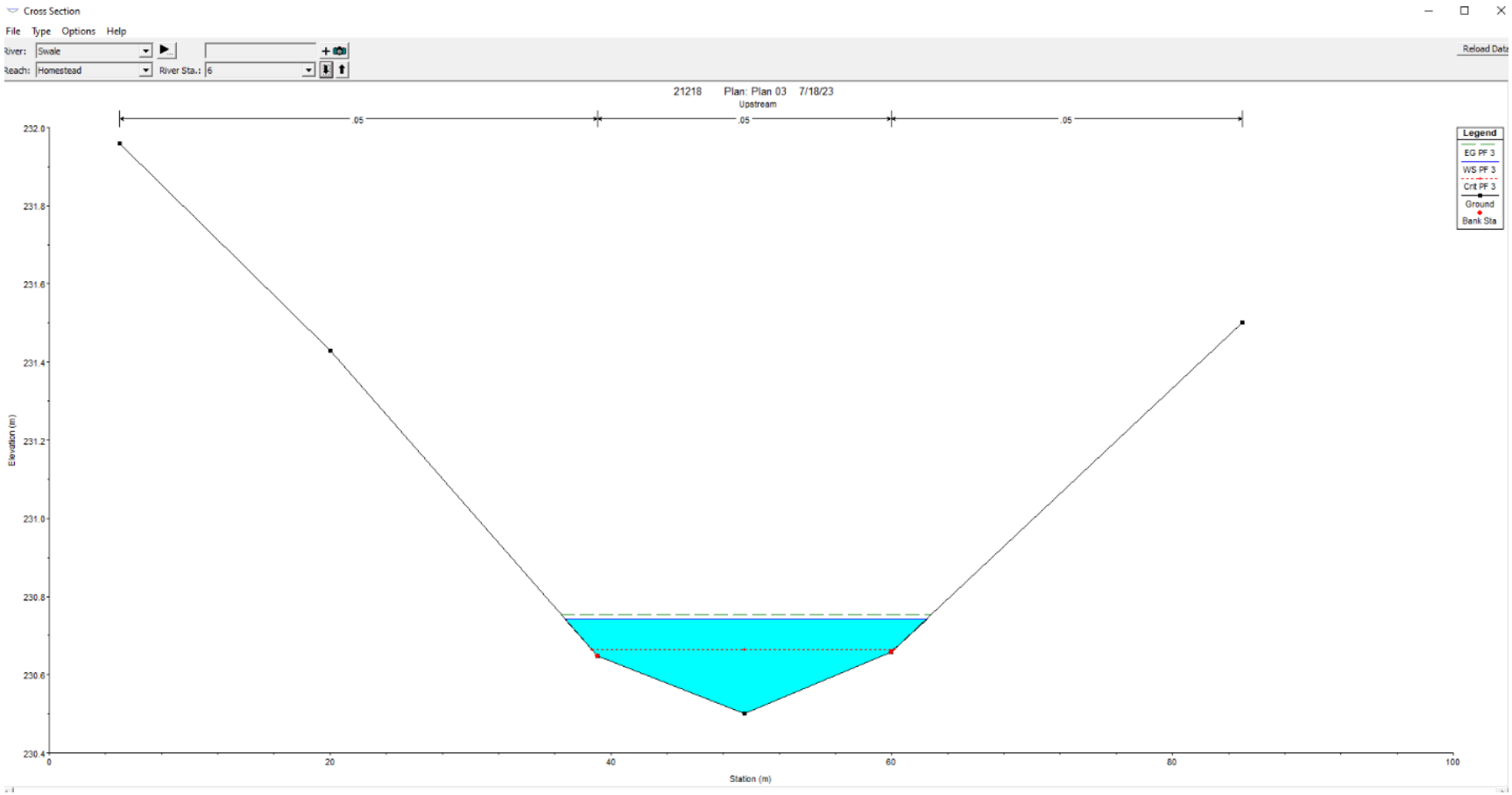



Cross Section
File Type Options Help
River: Swale
Reach: Homestead
River Sta.: 2
89.52, 228.75
Reload Data
21218 Plan: Plan 03 7/18/23
.05
.05
.05
Legend
EG PF 3
WS PF 3
Crit PF 3
Ground
Bank Sta
Elevation (m)
Station (m)
229.0
228.8
228.6
228.4
228.2
228.0
227.8
227.6
227.4
227.2
20
30
40
50
60
70
80
90


Cross Section
File Type Options Help
River: Swale
Reach: Homestead
River Sta.: 3
Reload Da
21218 Plan: Plan 03 7/18/23
.05
.05
.05
Legend
EG PF 3
WS PF 3
Crit PF 3
Ground
Bank Sta
230.5
230.0
229.5
229.0
228.5
228.0
Elevation (m)
10
20
30
40
50
60
70
80
Station (m)


Cross Section
File Type Options Help
River: Swale
Reach: Homestead
River Sta.: 4
Reload Data
21218 Plan: Plan 03 7/18/23
.05
.05
.05
Legend
EG PF 3
WS PF 3
Crit PF 3
Ground
Bank Sta
231.0
230.5
230.0
229.5
229.0
228.5
Elevation (m)
10
20
30
40
50
60
70
80
90
Station (m)


Cross Section
File Type Options Help
River: Swale
Reach: Homestead
River Sta.: 5
Reload Dat
21218 Plan: Plan 03 7/18/23
.05
.05
.05
Legend
EG PF 3
WS PF 3
Crit PF 3
Ground
Bank Sta
231.0
230.8
230.6
230.4
230.2
230.0
229.8
Elevation (m)
20
40
60
80
100
Station (m)


Cross Section
File Type Options Help
River: Swale
Reach: Homestead
River Sta.: 6
Reload Data
21218 Plan: Plan 03 7/18/23
Upstream
.05
.05
.05
Legend
EG PF 3
WS PF 3
Crit PF 3
Ground
Bank Sta
Elevation (m)
232.0
231.8
231.6
231.4
231.2
231.0
230.8
230.6
230.4
0
20
40
60
80
100
Station (m)

Existing Drainage Feature HEC-RAS Profile Output Table

Profile Output Table - Standard Table 1

File Options Std. Tables Locations Help

HEC-RAS Plan: Plan 03 River: Swale Reach: Homestead

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)	
Homestead	6	PF 1	0.85	230.50	230.69	230.63	230.70	0.005522	0.35	2.45	23.01	0.33
Homestead	6	PF 2	0.98	230.50	230.70	230.63	230.71	0.005646	0.37	2.66	23.51	0.34
Homestead	6	PF 3	1.70	230.50	230.74	230.66	230.75	0.006209	0.48	3.69	25.77	0.37
Homestead	5	PF 1	0.85	229.80	229.91	229.91	229.94	0.040857	0.70	1.24	19.23	0.83
Homestead	5	PF 2	0.98	229.80	229.92	229.91	229.95	0.038795	0.73	1.40	19.98	0.82
Homestead	5	PF 3	1.70	229.80	229.96	229.94	229.99	0.031146	0.81	2.21	23.58	0.78
Homestead	4	PF 1	0.85	228.76	229.01	228.91	229.02	0.005341	0.44	2.02	13.28	0.35
Homestead	4	PF 2	0.98	228.76	229.02	228.92	229.03	0.005375	0.46	2.23	13.75	0.35
Homestead	4	PF 3	1.70	228.76	229.09	228.97	229.11	0.005576	0.55	3.24	15.81	0.37
Homestead	3	PF 1	0.85	228.06	228.26	228.26	228.31	0.054293	1.00	0.85	8.47	1.01
Homestead	3	PF 2	0.98	228.06	228.27	228.27	228.33	0.053457	1.03	0.95	8.96	1.01
Homestead	3	PF 3	1.70	228.06	228.32	228.32	228.39	0.049559	1.15	1.47	11.17	1.01
Homestead	2	PF 1	0.85	227.21	227.45	227.36	227.46	0.004870	0.35	2.45	19.98	0.31
Homestead	2	PF 2	0.98	227.21	227.46	227.37	227.47	0.004960	0.37	2.68	20.51	0.32
Homestead	2	PF 3	1.70	227.21	227.52	227.41	227.53	0.005181	0.45	3.84	23.02	0.34
Homestead	1	PF 1	0.85	226.87	227.02	226.98	227.03	0.012006	0.45	1.94	22.46	0.47
Homestead	1	PF 2	0.98	226.87	227.02	226.98	227.04	0.012002	0.47	2.13	23.08	0.48
Homestead	1	PF 3	1.70	226.87	227.06	227.01	227.08	0.012007	0.58	3.03	25.06	0.50

Legend:
Q Total=Flow rate in channel at cross-section
Min Ch El = Minimum channel elevation at the cross-section
W.S. Elev = Water surface elevation at the cross section
Crit W.S. =Critical water surface elevation at cross-section
E.G. Elev =Energy grade line elevation at cross-section
E.G. Slope = Energy grade line slope at cross-section
Vel Chnl = Average velocity in the cannel at cross-section
Flow Area = Flow area of channel at cross-section
Top Width = Top width of channel at cross-section
Frouce # Chi = Froude number

Existing Drainage Feature HEC-RAS Cross Section Output Table

Cross Section Output

File Type Options Help

River: Swale Profile: PF 3

Reach Homestead RS: 6 Plan: Plan 03

Plan: Plan 03 Swale Homestead RS: 6 Profile: PF 3

E.G. Elev (m)	230.75	Element	Left OB	Channel	Right OB
Vel Head (m)	0.01	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (m)	230.74	Reach Len. (m)	65.60	64.00	65.00
Crit W.S. (m)	230.66	Flow Area (m2)	0.11	3.48	0.11
E.G. Slope (m/m)	0.006209	Area (m2)	0.11	3.48	0.11
Q Total (m3/s)	1.70	Flow (m3/s)	0.02	1.66	0.02
Top Width (m)	25.77	Top Width (m)	2.30	20.96	2.51
Vel Total (m/s)	0.46	Avg. Vel. (m/s)	0.21	0.48	0.19
Max Chl Dpth (m)	0.24	Hydr. Depth (m)	0.05	0.17	0.04
Conv. Total (m3/s)	21.6	Conv. (m3/s)	0.3	21.0	0.3
Length Wtd. (m)	64.05	Wetted Per. (m)	2.31	20.96	2.51
Min Ch El (m)	230.50	Shear (N/m2)	2.88	10.11	2.57
Alpha	1.05	Stream Power (N/m s)	0.59	4.81	0.49
Frctn Loss (m)	0.76	Cum Volume (1000 m3)	0.01	0.73	0.10
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.13	4.74	1.09

CONSTRUCTION NORTH

PROP 2400mmx1200mm @ 0.4% STORM CULVERT

PROP CONVEYANCE SWALE

NHS COMPENSATION
1.11 ha
2.74 acres

BUILDING 'D'
31,250.96 m2
336,382 sq ft

WETLAND LIMITS STAKED BY NPCA - AUGUST 6, 2021.

SWAMP

PART 1

PART 3

PLAN 62R– 10716

PIN 17399 – 0194 (LT)

1 2 3 4 5 6

DRAWING :

FIGURE 11: RELOCATED CONVEYANCE SWALE HEC-RAS SECTION PLAN

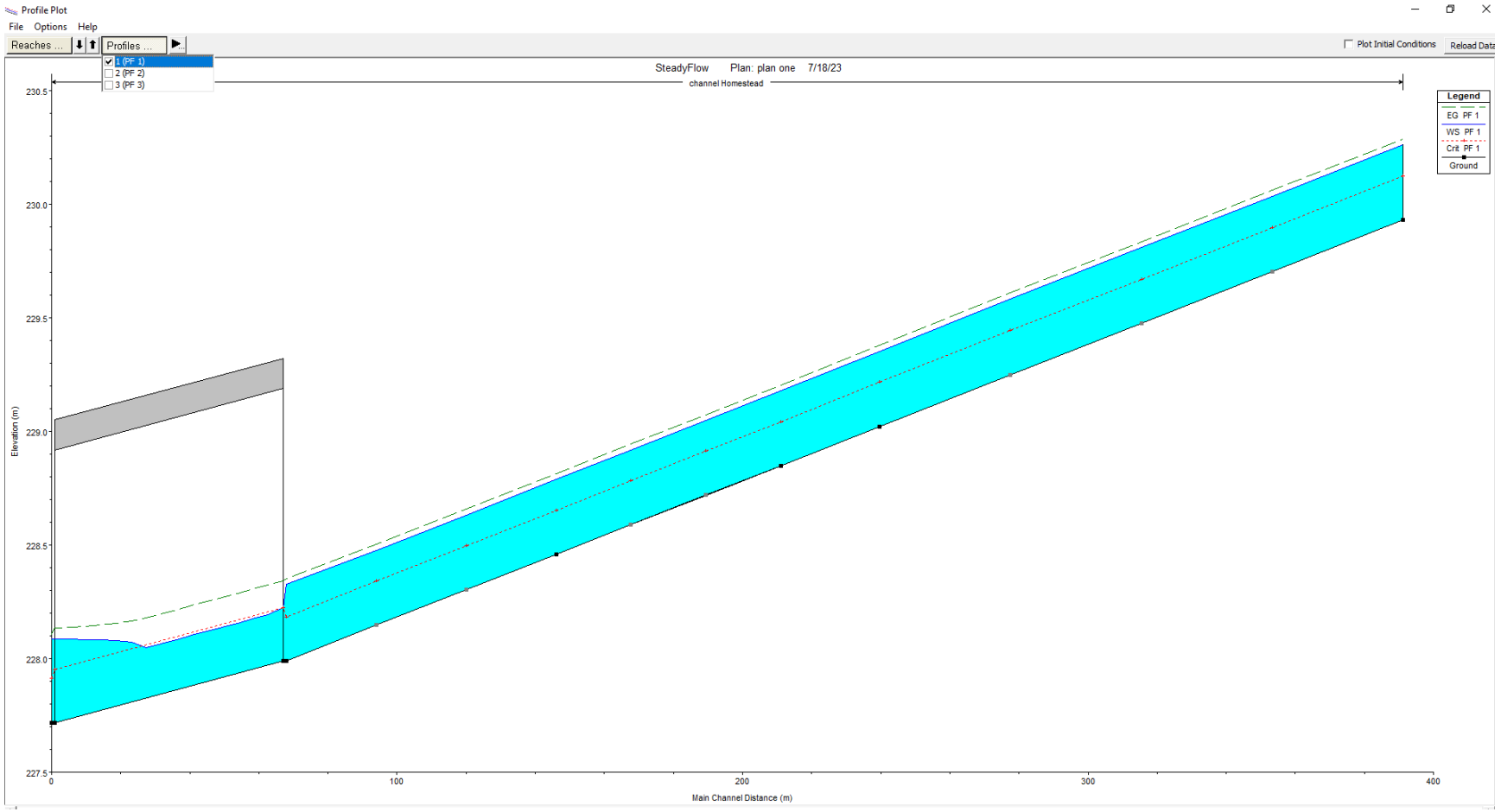
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JUN 2023	21218	1:1250

PROJECT :

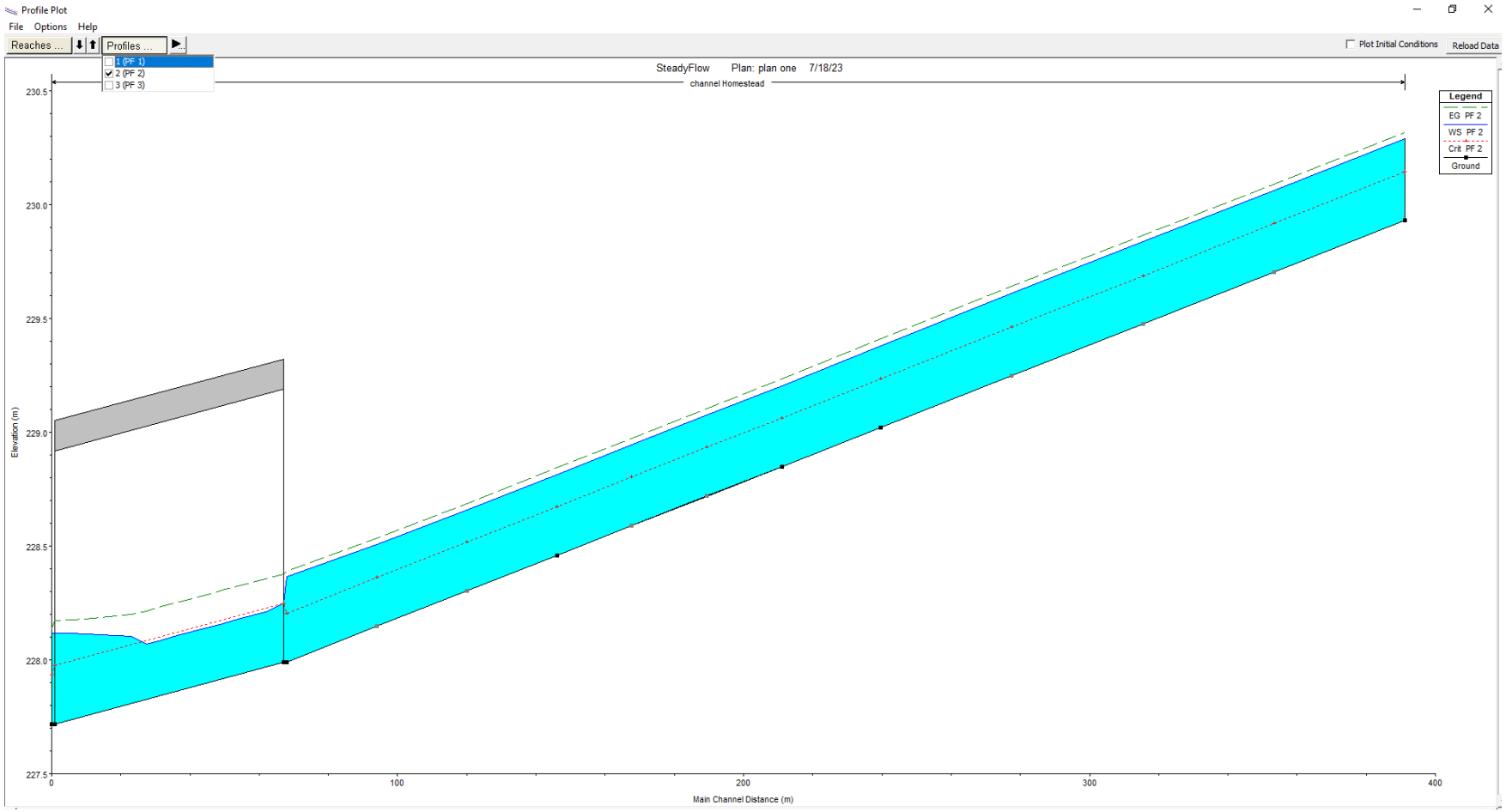
PROPOSED INDUSTRIAL DEVELOPMENT
HOMESTEAD DRIVE & AIRPORT ROAD
HAMILTON, ON

ODAN·DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

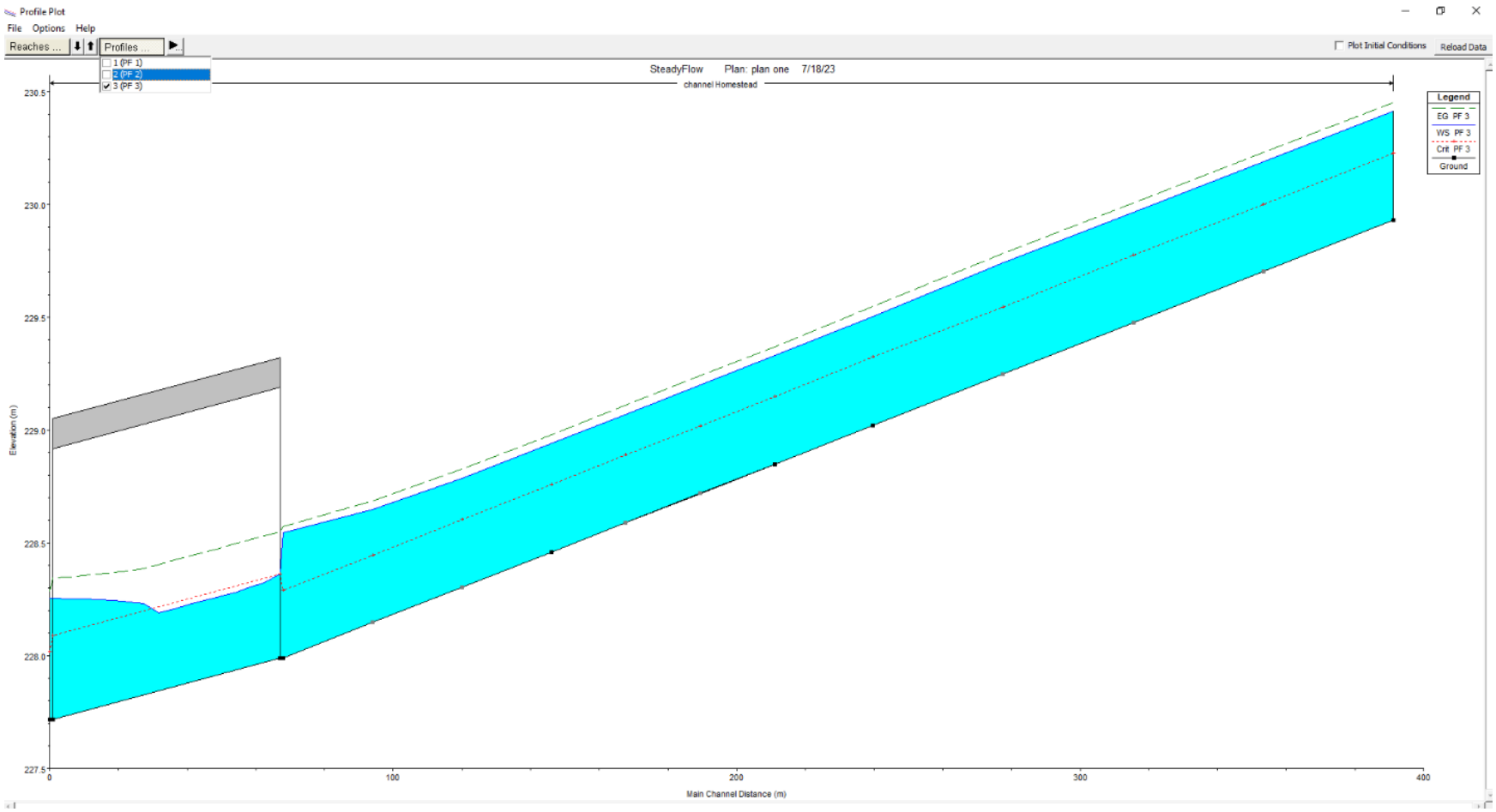
Proposed Conveyance Swale HEC-RAS Profile (100 Year 4 Hour Chicago -PF 1)



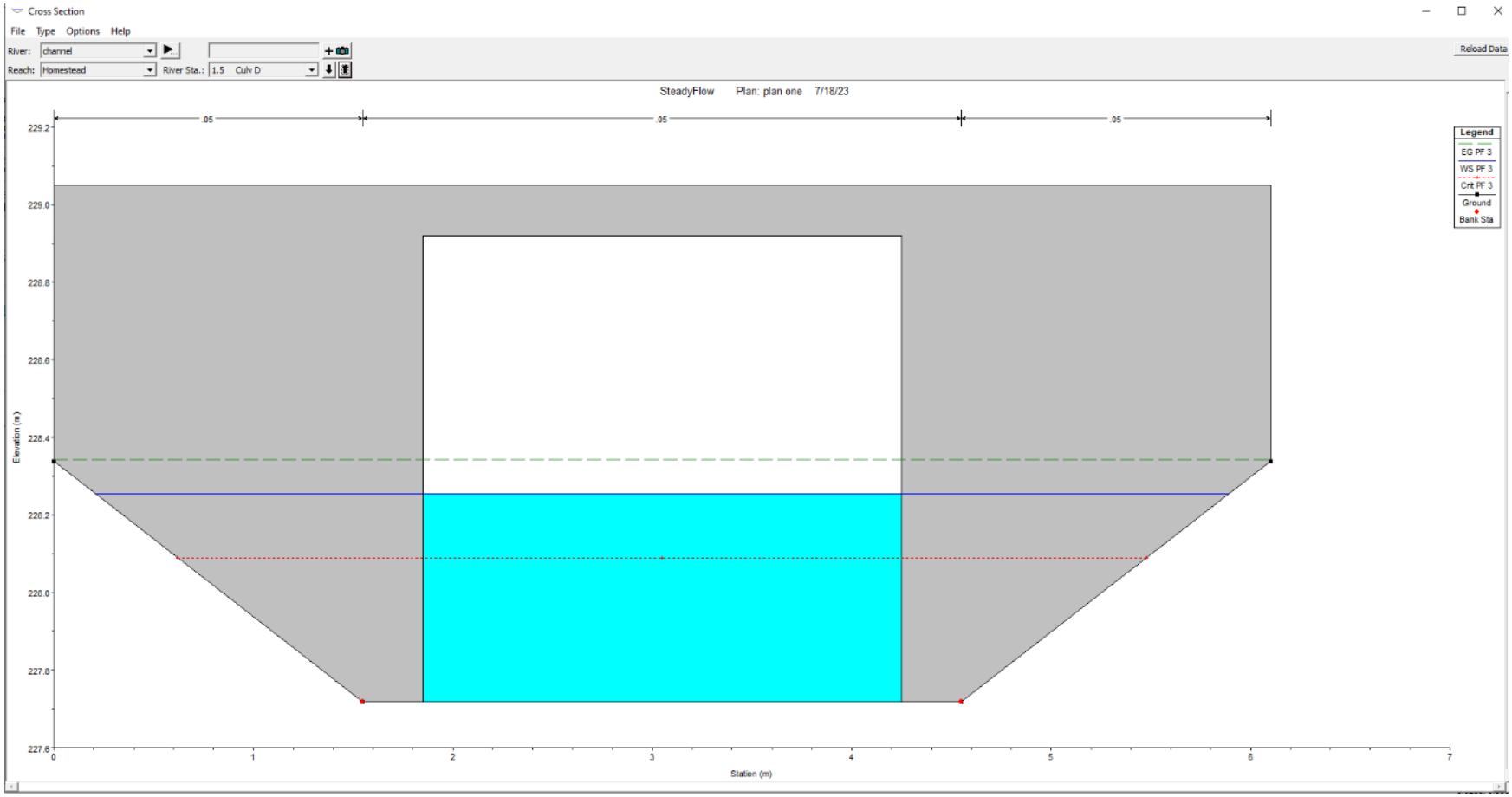
Proposed Conveyance Swale HEC-RAS Profile (100 Year 24 Hour SCS -PF 2)

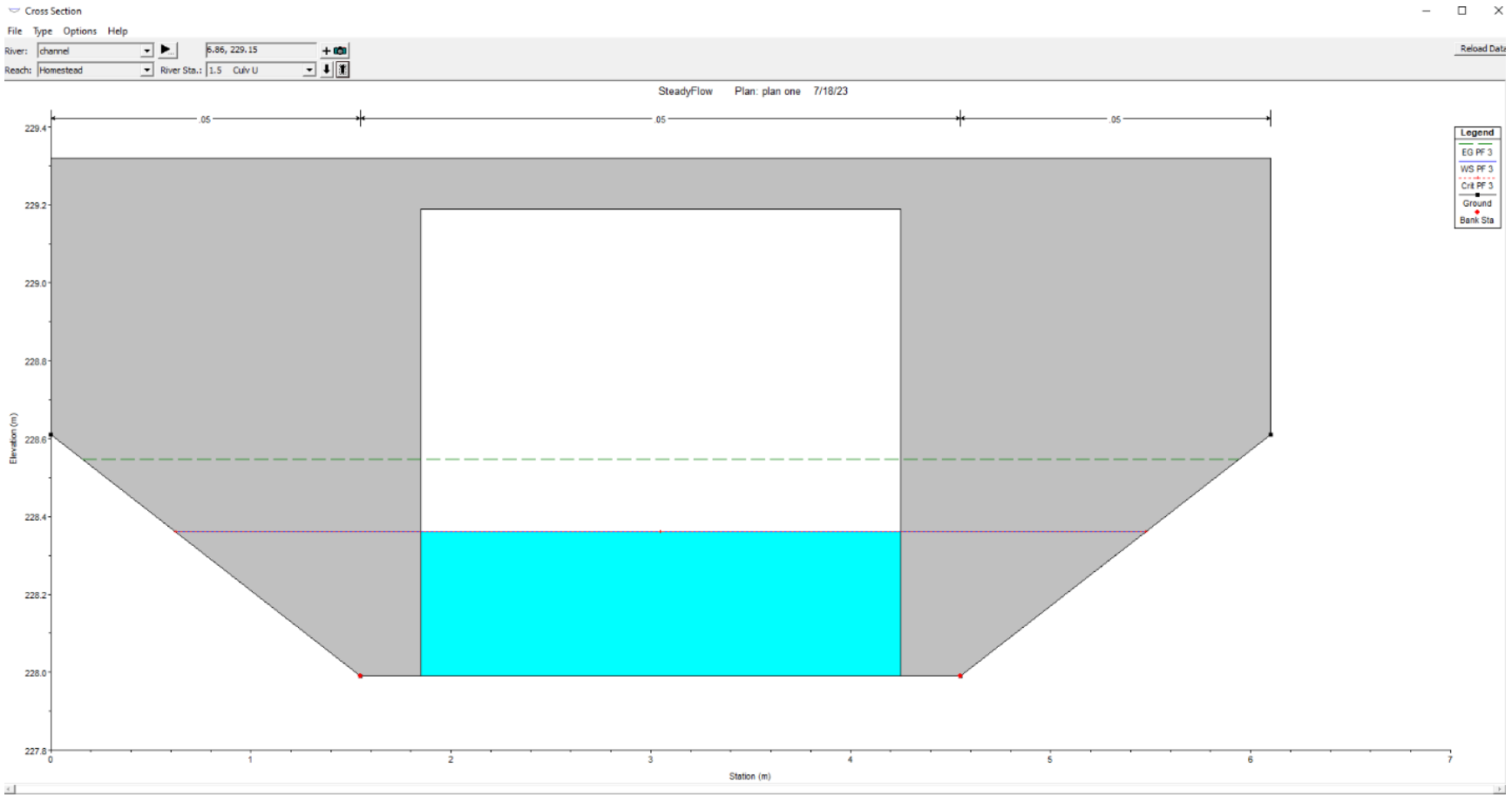


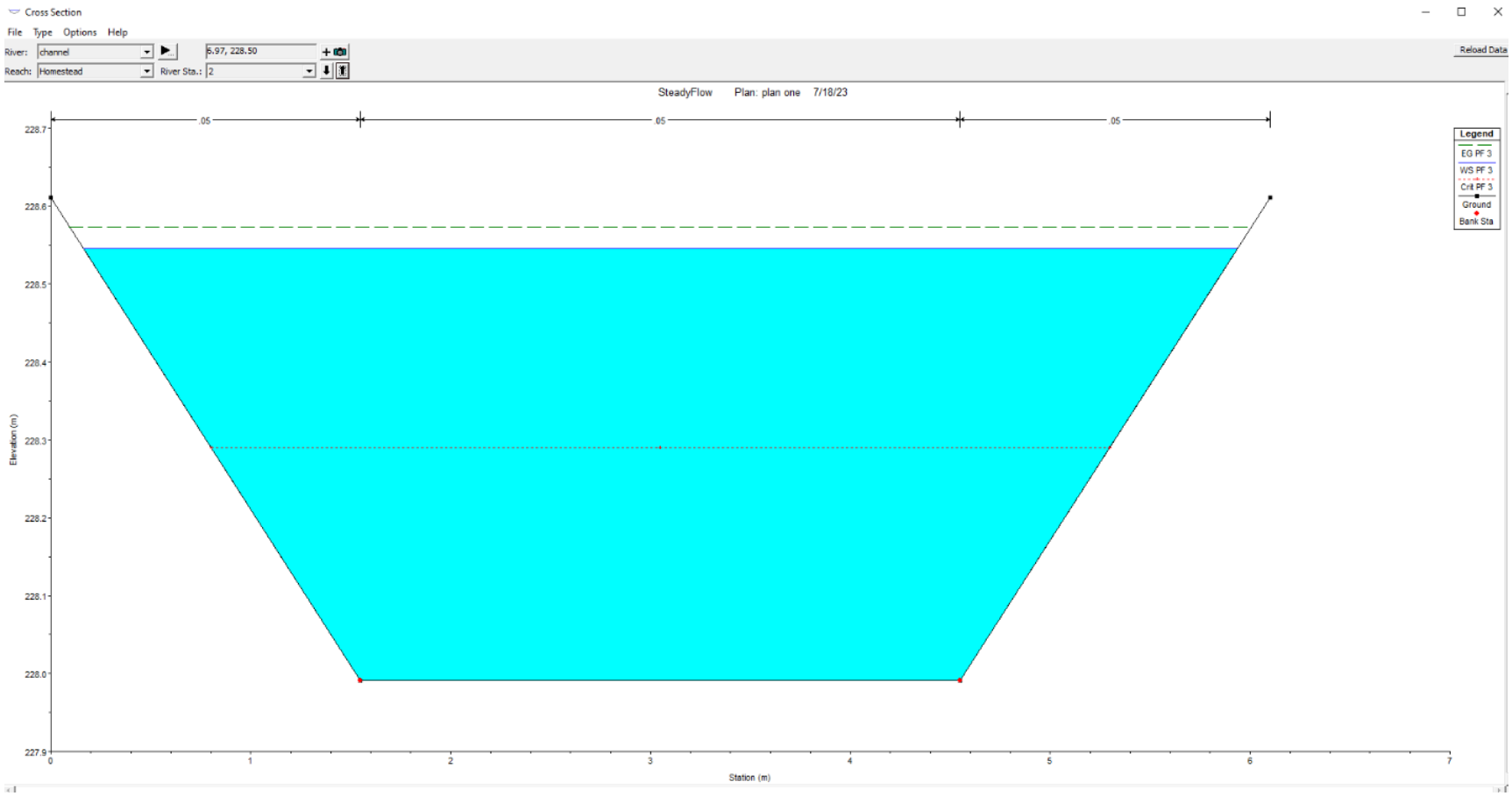
Proposed Conveyance Swale HEC-RAS Profile (Hurricane Hazel -PF 3)

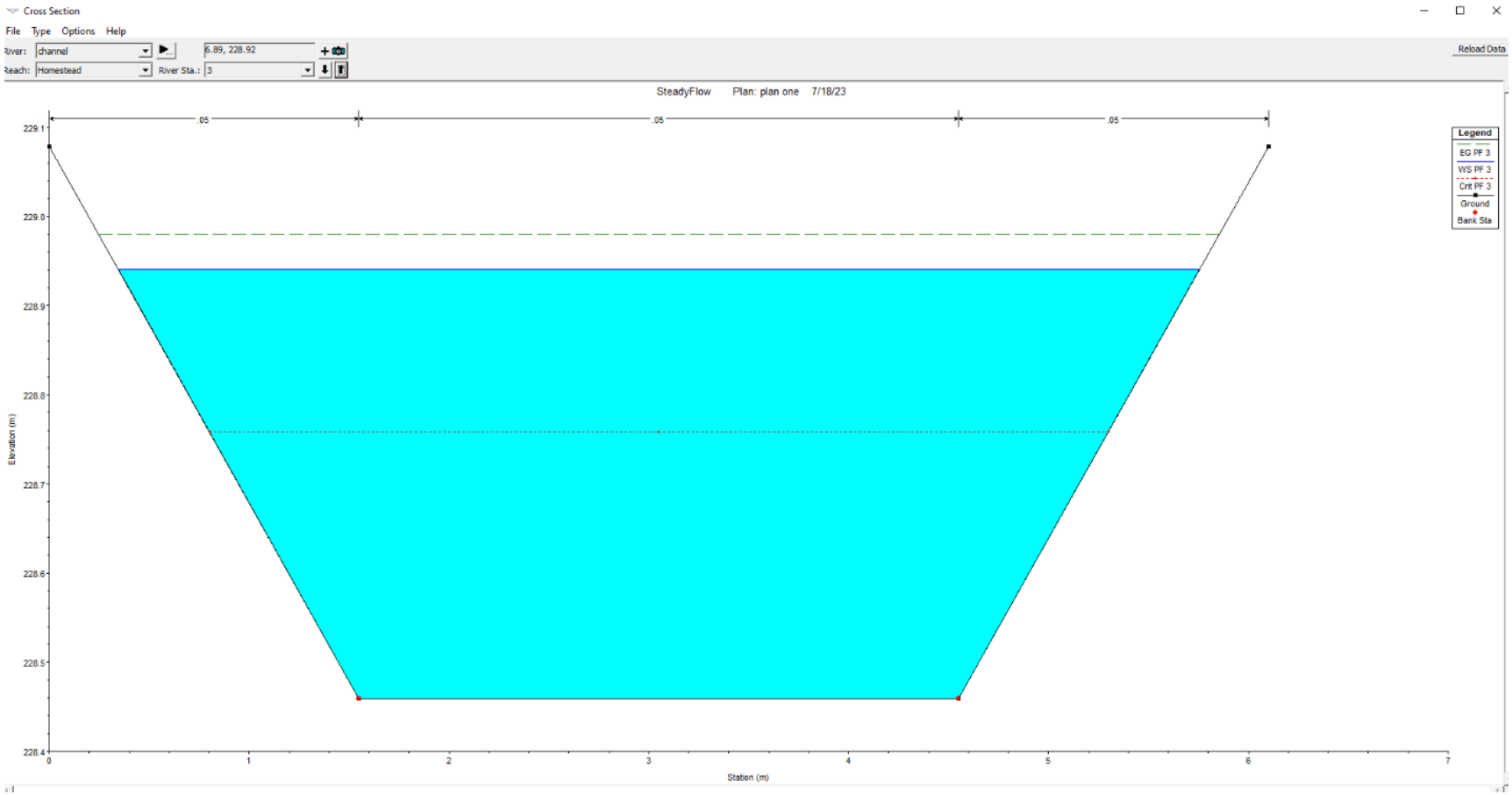


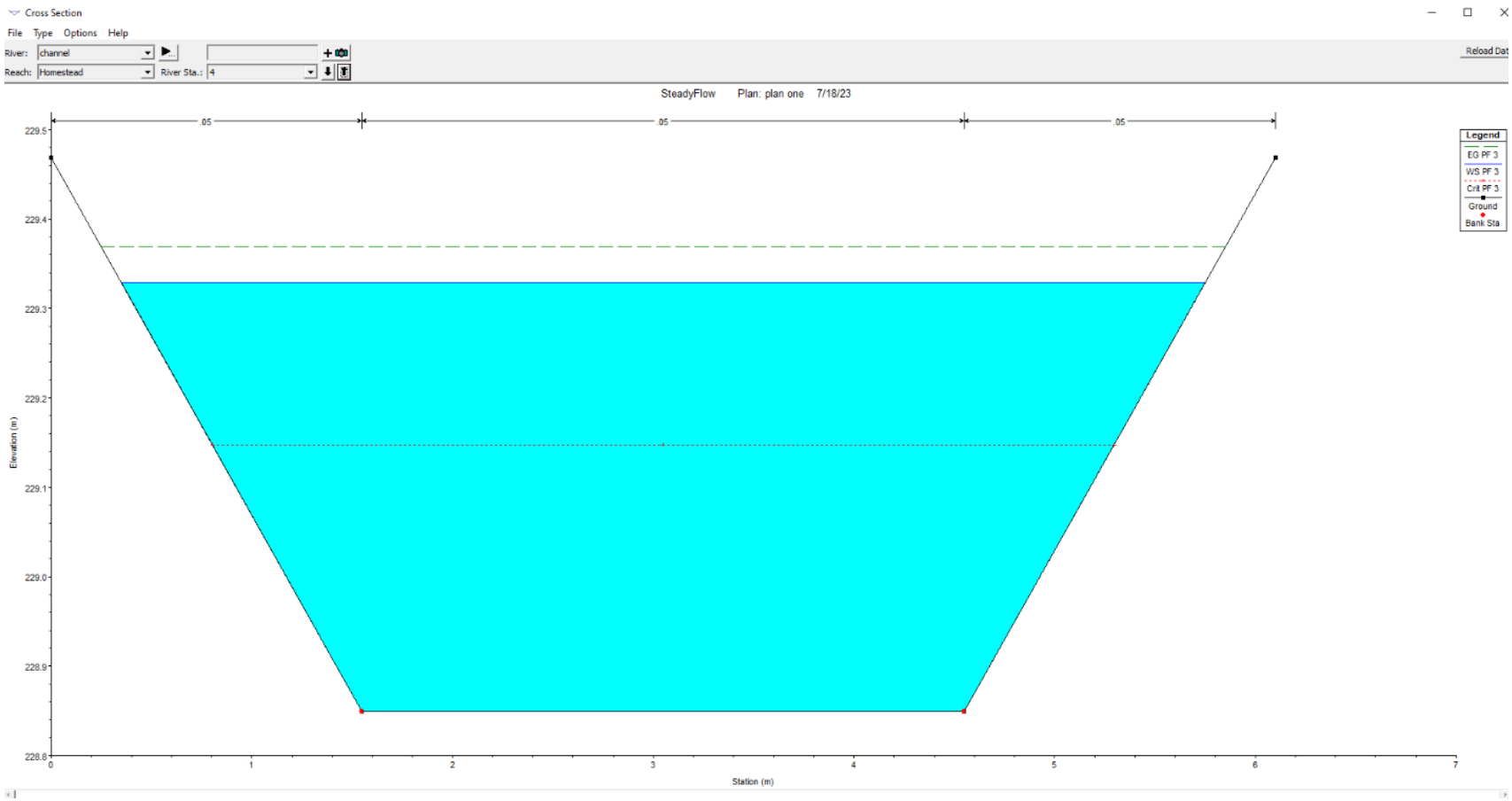
Proposed Conveyance Swale HEC-RAS Sections (Hurricane Hazel – PF 3)

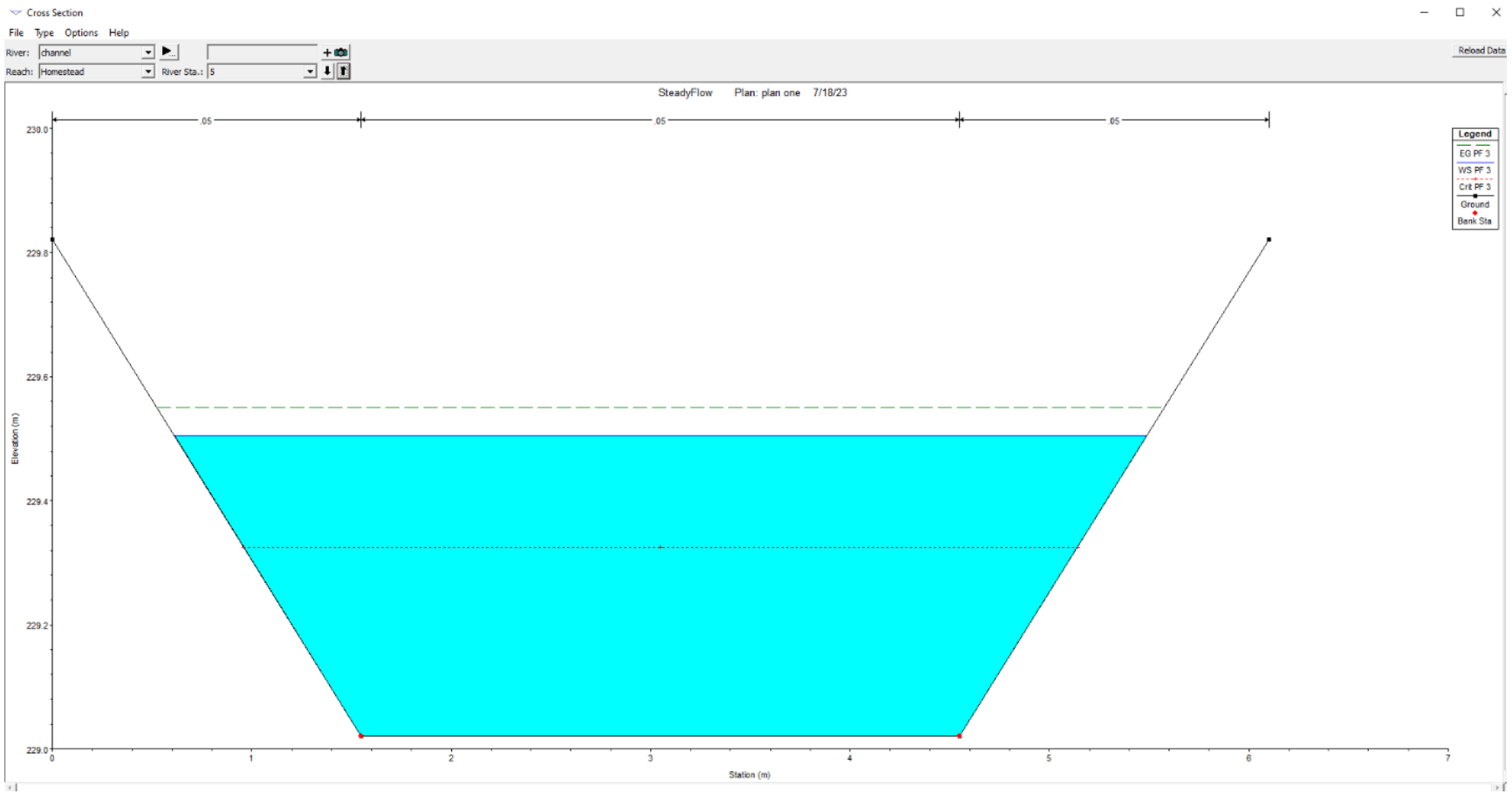


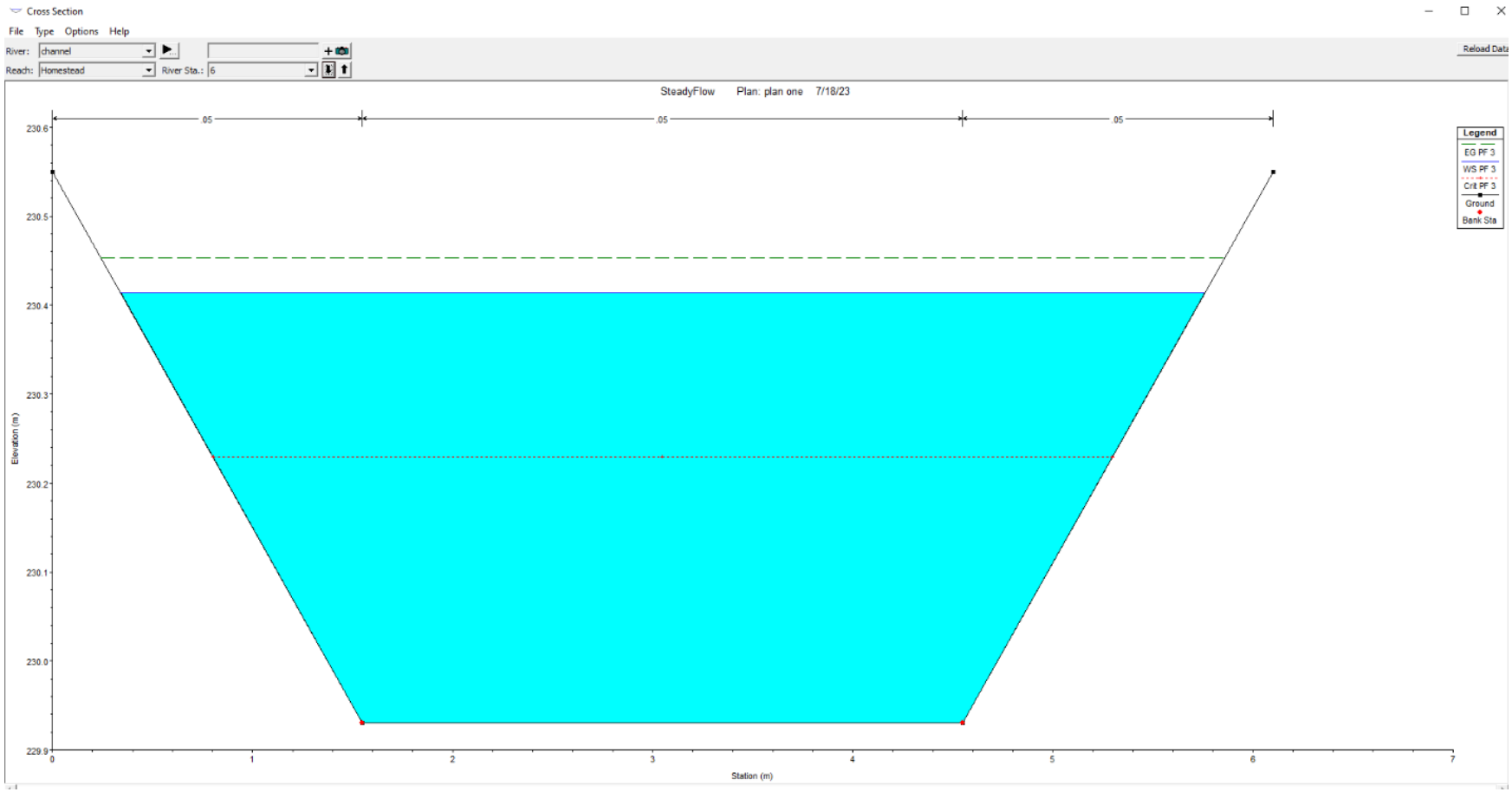

Cross Section
File Type Options Help
River: channel
Reach: Homestead
River Sta.: 1.5 Culv U
Reload Data
SteadyFlow Plan: plan one 7/18/23
.05
.05
.05
Legend
EG PF 3
WS PF 3
Crit PF 3
Ground
Bank Sta
Elevation (m)
229.4
229.2
229.0
228.8
228.6
228.4
228.2
228.0
227.8
0
1
2
3
4
5
6
7
Station (m)


Cross Section
File Type Options Help
River: channel
Reach: Homestead
River Sta.: 2
6.97, 228.50
Reload Data
SteadyFlow Plan: plan one 7/18/23
.05
.05
.05
Legend
EG PF 3
WS PF 3
Crit PF 3
Ground
Bank Sta
Elevation (m)
228.7
228.6
228.5
228.4
228.3
228.2
228.1
228.0
227.9
0
1
2
3
4
5
6
7
Station (m)


Cross Section
File Type Options Help
River: channel
Reach: Homestead
River Sta.: 3
6.89, 228.92
Reload Data
SteadyFlow Plan: plan one 7/18/23
.05
.05
.05
Legend
EG PF 3
WS PF 3
Crit PF 3
Ground
Bank Sta
229.1
229.0
228.9
228.8
228.7
228.6
228.5
228.4
Elevation (m)
0
1
2
3
4
5
6
7
Station (m)


Cross Section
File Type Options Help
River: channel
Reach: Homestead
River Sta.: 4
Reload Dat
SteadyFlow Plan: plan one 7/18/23
.05
.05
.05
Legend
EG PF 3
WS PF 3
Crit PF 3
Ground
Bank Sta
Elevation (m)
229.5
229.4
229.3
229.2
229.1
229.0
228.9
228.8
0
1
2
3
4
5
6
7
Station (m)


Cross Section
File Type Options Help
River: channel
Reach: Homestead
River Sta.: 5
Reload Data
SteadyFlow Plan: plan one 7/18/23
.05
.05
.05
Legend
EG PF 3
WS PF 3
Crit PF 3
Ground
Bank Sta
Elevation (m)
230.0
229.8
229.6
229.4
229.2
229.0
0
1
2
3
4
5
6
7
Station (m)


Cross Section
File Type Options Help
River: channel
Reach: Homestead
River Sta.: 6
Reload Data
SteadyFlow Plan: plan one 7/18/23
.05
.05
.05
Legend
EG PF 3
WS PF 3
Crit PF 3
Ground
Bank Sta
Elevation (m)
230.6
230.5
230.4
230.3
230.2
230.1
230.0
229.9
0
1
2
3
4
5
6
7
Station (m)

Proposed Conveyance Swale HEC-RAS Profile Output Table

Profile Output Table - Standard Table 1

File Options Std. Tables Locations Help

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)	
Homestead	6	PF 1	0.85	229.93	230.26	230.12	230.29	0.005868	0.73	1.27	4.66	0.41
Homestead	6	PF 2	0.98	229.93	230.29	230.14	230.32	0.005873	0.77	1.40	4.79	0.41
Homestead	6	PF 3	1.70	229.93	230.41	230.23	230.45	0.005853	0.94	2.04	5.42	0.43
Homestead	5.7500*	PF 1	0.85	229.70	230.04	229.90	230.06	0.005912	0.74	1.26	4.55	0.41
Homestead	5.7500*	PF 2	0.98	229.70	230.06	229.92	230.09	0.005915	0.78	1.38	4.68	0.41
Homestead	5.7500*	PF 3	1.70	229.70	230.19	230.00	230.23	0.005895	0.95	2.01	5.27	0.43
Homestead	5.5000*	PF 1	0.85	229.48	229.81	229.67	229.83	0.005950	0.74	1.24	4.46	0.41
Homestead	5.5000*	PF 2	0.98	229.48	229.84	229.69	229.87	0.005947	0.78	1.37	4.58	0.42
Homestead	5.5000*	PF 3	1.70	229.48	229.97	229.78	230.01	0.005868	0.95	2.00	5.14	0.43
Homestead	5.2500*	PF 1	0.85	229.25	229.58	229.45	229.61	0.005940	0.74	1.24	4.38	0.41
Homestead	5.2500*	PF 2	0.98	229.25	229.61	229.46	229.64	0.005905	0.78	1.36	4.49	0.41
Homestead	5.2500*	PF 3	1.70	229.25	229.74	229.55	229.78	0.005842	0.96	1.98	5.03	0.43
Homestead	5	PF 1	0.85	229.02	229.35	229.22	229.38	0.006311	0.76	1.21	4.28	0.42
Homestead	5	PF 2	0.98	229.02	229.38	229.23	229.41	0.006332	0.80	1.33	4.39	0.43
Homestead	5	PF 3	1.70	229.02	229.50	229.33	229.55	0.006465	0.99	1.90	4.87	0.45
Homestead	4	PF 1	0.85	228.85	229.18	229.04	229.20	0.006007	0.74	1.26	4.65	0.41
Homestead	4	PF 2	0.98	228.85	229.21	229.06	229.23	0.005998	0.78	1.39	4.78	0.42
Homestead	4	PF 3	1.70	228.85	229.33	229.15	229.37	0.005994	0.95	2.02	5.40	0.44
Homestead	3.6667*	PF 1	0.85	228.72	229.05	228.91	229.07	0.005977	0.74	1.26	4.65	0.41
Homestead	3.6667*	PF 2	0.98	228.72	229.08	228.93	229.10	0.005993	0.78	1.39	4.78	0.42
Homestead	3.6667*	PF 3	1.70	228.72	229.20	229.02	229.24	0.005994	0.95	2.02	5.40	0.44
Homestead	3.3333*	PF 1	0.85	228.59	228.92	228.78	228.94	0.006029	0.74	1.26	4.64	0.41
Homestead	3.3333*	PF 2	0.98	228.59	228.95	228.80	228.97	0.006012	0.78	1.39	4.78	0.42
Homestead	3.3333*	PF 3	1.70	228.59	229.07	228.89	229.11	0.006007	0.95	2.02	5.40	0.44
Homestead	3	PF 1	0.85	228.46	228.79	228.65	228.81	0.005955	0.74	1.26	4.65	0.41
Homestead	3	PF 2	0.98	228.46	228.82	228.67	228.84	0.005992	0.78	1.39	4.78	0.42
Homestead	3	PF 3	1.70	228.46	228.94	228.76	228.98	0.005958	0.95	2.02	5.41	0.44
Homestead	2.6667*	PF 1	0.85	228.30	228.63	228.50	228.66	0.006047	0.74	1.26	4.64	0.41
Homestead	2.6667*	PF 2	0.98	228.30	228.66	228.52	228.69	0.005987	0.78	1.39	4.78	0.42
Homestead	2.6667*	PF 3	1.70	228.30	228.79	228.60	228.83	0.005816	0.94	2.04	5.42	0.43
Homestead	2.3333*	PF 1	0.85	228.15	228.48	228.34	228.50	0.005940	0.74	1.26	4.65	0.41
Homestead	2.3333*	PF 2	0.98	228.15	228.51	228.36	228.53	0.005886	0.77	1.40	4.79	0.41
Homestead	2.3333*	PF 3	1.70	228.15	228.65	228.45	228.69	0.005106	0.90	2.13	5.51	0.41
Homestead	2	PF 1	0.85	227.99	228.33	228.18	228.35	0.005470	0.72	1.30	4.69	0.39
Homestead	2	PF 2	0.98	227.99	228.37	228.20	228.39	0.005014	0.74	1.47	4.87	0.38
Homestead	2	PF 3	1.70	227.99	228.55	228.29	228.57	0.003502	0.80	2.43	5.77	0.34
Homestead	1.5		Culvert									
Homestead	1	PF 1	0.85	227.72	228.09	227.91	228.11	0.004001	0.65	1.44	4.84	0.34
Homestead	1	PF 2	0.98	227.72	228.12	227.93	228.14	0.004003	0.68	1.59	4.99	0.35
Homestead	1	PF 3	1.70	227.72	228.25	228.02	228.29	0.004001	0.83	2.32	5.68	0.36

Proposed Conveyance Swale HEC-RAS Cross Section Output Table

Cross Section Output

File Type Options Help

River: channel Profile: PF 3

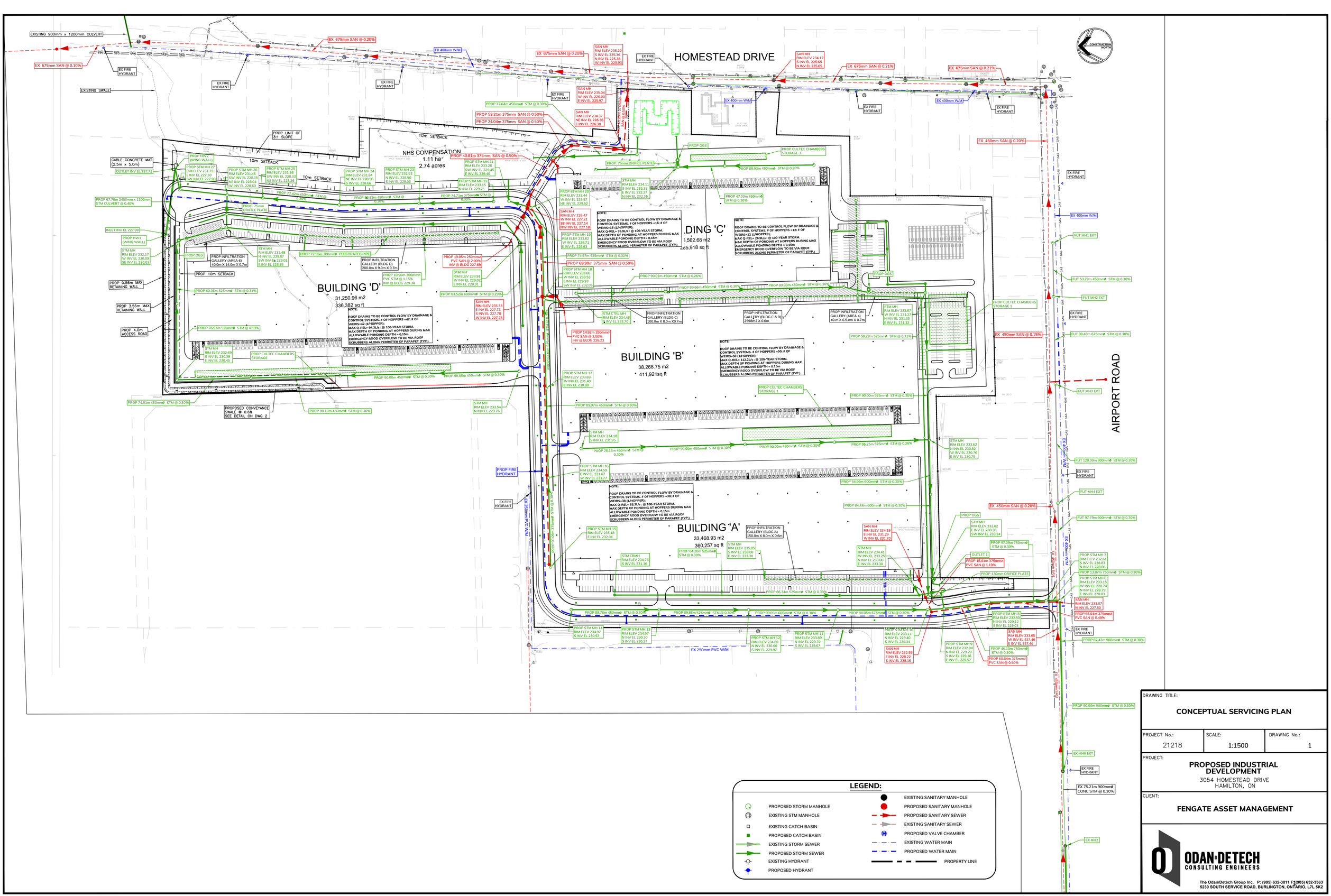
Reach Homestead RS: 6 Plan: P1

Plan: P1 channel Homestead RS: 6 Profile: PF 3

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	230.45	Wt. n-Val.	0.050	0.050	0.050
Vel Head (m)	0.04	Reach Len. (m)	37.88	37.88	37.88
W.S. Elev (m)	230.41	Flow Area (m2)	0.29	1.45	0.29
Crit W.S. (m)	230.23	Area (m2)	0.29	1.45	0.29
E.G. Slope (m/m)	0.005853	Flow (m3/s)	0.17	1.37	0.17
Q Total (m3/s)	1.70	Top Width (m)	1.21	3.00	1.21
Top Width (m)	5.42	Avg. Vel. (m/s)	0.57	0.94	0.57
Vel Total (m/s)	0.83	Hydr. Depth (m)	0.24	0.48	0.24
Max Chl Dpth (m)	0.48	Conv. (m3/s)	2.2	17.9	2.2
Conv. Total (m3/s)	22.2	Wetted Per. (m)	1.30	3.00	1.30
Length Wtd. (m)	37.88	Shear (N/m2)	12.89	27.77	12.89
Min Ch El (m)	229.93	Stream Power (N/m s)	7.29	26.18	7.29
Alpha	1.12	Cum Volume (1000 m3)	0.09	0.54	0.09
Frctn Loss (m)	0.22	Cum SA (1000 m2)	0.46	1.17	0.46
C & E Loss (m)	0.00				

APPENDIX F

Drawing 1: Conceptual Servicing Plan
Drawing 2: Conceptual Grading Plan
Drawing 3: Conceptual Section Plan
Drawing 4: Conceptual Airport Road Plan & Profile


HOMESTEAD DRIVE
AIRPORT ROAD
BUILDING 'A'
33,468.93 m2
360,257 sq ft
BUILDING 'B'
38,268.75 m2
411,921sq ft
BUILDING 'C'
,562.68 m2
,85,918 sq ft
BUILDING 'D'
31,250.96 m2
336,382 sq ft
NHS COMPENSATION
1.11 ha
2.74 acres
EXISTING 900mm x 1200mm CULVERT
EXISTING SWALE
EX 675mm SAN @ 0.10%
EX 675mm SAN @ 0.20%
EX 675mm SAN @ 0.21%
EX 400mm W/M
EX FIRE HYDRANT
PROP LIMIT OF 3:1 SLOPE
10m SETBACK
CABLE CONCRETE MAT (2.5m x 5.0m)
OUTLET INV EL 227.71
PROP HW1 (WING WALL)
PROP STM MH 27 RIM ELEV 231.79 E INV EL 227.30 SW INV EL 227.90
PROP STM MH 26 RIM ELEV 231.45 SW INV EL 228.15 NE INV EL 228.04 W INV EL 228.60
PROP STM MH 25 RIM ELEV 231.36 SW INV EL 228.33 NE INV EL 228.26
PROP STM MH 24 RIM ELEV 231.84 NE INV EL 228.56 S INV EL 228.66
PROP STM MH 23 RIM ELEV 232.52 N INV EL 228.90 S INV EL 229.03
PROP STM MH 22 RIM ELEV 233.15 N INV EL 229.25
PROP STM MH 21 RIM ELEV 233.28 SW INV EL 229.45 E INV EL 229.40
PROP 67.78m 2400mm x 1200mm STM CULVERT @ 0.40%
PROP 77.42m 450mm⌀ STM @ 0.30%
PROP 58.59m 450mm⌀ STM @ 0.30%
PROP 74.71m 375mm⌀ STM @ 0.30%
PROP 72.64m 450mm⌀ STM @ 0.30%
PROP 53.21m 375mm SAN @ 0.50%
PROP 24.04m 375mm SAN @ 0.50%
PROP 40.81m 375mm SAN @ 0.50%
PROP 75mm ORIFICE PLATE
PROP OGS
PROP CULTEC CHAMBERS STORAGE 3
PROP 89.93m 450mm⌀ STM @ 0.30%
PROP 47.03m 450mm⌀ STM @ 0.30%
INLET INV EL 227.98
PROP HW1 (WING WALL)
STM MH RIM ELEV 232.17 W INV EL 230.09 SE INV EL 230.03
PROP INFILTRATION GALLERY (AREA 6) 40.0m X 14.0m X 0.7m
STM MH RIM ELEV 232.48 N INV EL 229.87 SW INV EL 229.01 E INV EL 228.85
PROP 72.55m 300mm⌀ PERFORATED PIPE
PROP INFILTRATION GALLERY (BLDG D) 200.0m X 9.0m X 0.7m
PROP 19.05m 250mm⌀ PVC SAN @ 2.00% INV @ BLDG 227.69
PROP 10.90m 300mm⌀ PVC STM @ 1.15% INV @ BLDG 229.34
STM MH RIM ELEV 233.91 W INV EL 229.02 E INV EL 228.91
PROP 74.57m 525mm⌀ STM @ 0.30%
PROP 69.99m 375mm SAN @ 0.50%
PROP 0.56m MAX RETAINING WALL
PROP 3.55m MAX RETAINING WALL
PROP 4.0m ACCESS ROAD
PROP 60.36m 525mm⌀ STM @ 0.31%
PROP 83.52m 600mm⌀ STM @ 0.29%
SAN MH RIM ELEV 233.73 E INV EL 227.73 S INV EL 227.78 W INV EL 227.76
NOTE: ROOF DRAINS TO BE CONTROL FLOW BY DRAINAGE & CONTROL SYSTEMS. # OF HOPPERS =42; # OF WEIRS=42 (1/HOPPER); MAX Q-REL= 94.3L/s ; @ 100-YEAR STORM. MAX DEPTH OF PONDING AT HOPPERS DURING MAX ALLOWABLE PONDING DEPTH = 0.15m EMERGENCY ROOD OVERFLOW TO BE VIA ROOF SCRUBBERS ALONG PERIMETER OF PARAPET (TYP.)
PROP 76.97m 525mm⌀ STM @ 0.19%
STM MH RIM ELEV 232.69 S INV EL 230.39 S INV EL 230.45
PROP CULTEC CHAMBERS STORAGE
PROP 90.00m 450mm⌀ STM @ 0.30%
PROP 74.51m 450mm⌀ STM @ 0.30%
PROPOSED CONVEYANCE SWALE @ 0.6% SEE DETAIL ON DWG 2
PROP 90.13m 450mm⌀ STM @ 0.30%
STM MH RIM ELEV 233.54 N INV EL 229.76
NOTE: ROOF DRAINS TO BE CONTROL FLOW BY DRAINAGE & CONTROL SYSTEMS. # OF HOPPERS =50; # OF WEIRS=50 (1/HOPPER); MAX Q-REL= 112.2L/s ; @ 100-YEAR STORM. MAX DEPTH OF PONDING AT HOPPERS DURING MAX ALLOWABLE PONDING DEPTH = 0.15m EMERGENCY ROOD OVERFLOW TO BE VIA ROOF SCRUBBERS ALONG PERIMETER OF PARAPET (TYP.)
PROP STM MH 18 RIM ELEV 233.68 W INV EL 230.53 E INV EL 229.93 SW INV EL 232.05
PROP 90.02m 450mm⌀ STM @ 0.26%
PROP 89.66m 450mm⌀ STM @ 0.30%
PROP 89.93m 450mm⌀ STM @ 0.30%
STM CTRL MH RIM ELEV 234.46 INV EL 232.70
PROP INFILTRATION GALLERY (BLDG C) 100.0m X 8.0m X0.7m
PROP INFILTRATION GALLERY (BLDG C & B) 2598m2 X 0.6m
PROP INFILTRATION GALLERY (AREA 4) 40.m X 6.5.0m X 0.7m
STM MH RIM ELEV 233.87 W INV EL 231.27 N INV EL 231.33 E INV EL 231.32
PROP 14.82m 250mm⌀ PVC SAN @ 2.00% INV @ BLDG 228.23
PROP 58.28m 525mm⌀ STM @ 0.31%
PROP CULTEC CHAMBERS STORAGE 1
PROP 90.00m 525mm⌀ STM @ 0.30%
PROP STM MH 17 RIM ELEV 233.69 W INV EL 231.40 E INV EL 230.80
PROP 89.97m 450mm⌀ STM @ 0.30%
STM MH RIM ELEV 234.18 S INV EL 231.95
PROP 75.13m 450mm⌀ STM @ 0.30%
PROP 90.00m 450mm⌀ STM @ 0.30%
PROP 95.25m 525mm⌀ STM @ 0.28%
STM MH RIM ELEV 233.62 N INV EL 230.82 W INV EL 230.76 E INV EL 230.79
PROP FIRE HYDRANT
PROP STM MH 16 RIM ELEV 234.59 E INV EL 231.67 W INV EL 231.77
PROP 54.96m 600mm⌀ STM @ 0.30%
EX FIRE HYDRANT
EX 300mm PVC W/M
PROP 90.00m 375mm⌀ STM @ 0.30%
PROP 84.44m 600mm⌀ STM @ 0.30%
EX 450mm SAN @ 0.20%
PROP OGS
STM MH RIM ELEV 232.02 E INV EL 230.30 SW INV EL 230.24
PROP 57.09m 750mm⌀ STM @ 0.30%
OUTLET 1
PROP 16.04m 375mm⌀ PVC SAN @ 1.15%
PROP 120mm ORIFICE PLATE
PROP STM MH 15 RIM ELEV 235.18 E INV EL 232.04
STM CBMH RIM ELEV 234.76 S INV EL 231.16
PROP INFILTRATION GALLERY (BLDG A) 150.0m X 8.0m X 0.6m
STM MH RIM ELEV 235.05 S INV EL 233.00 E INV EL 233.30
PROP 64.20m 525mm⌀ STM @ 0.30%
SAN MH RIM ELEV 234.19 E INV EL 231.29 W INV EL 231.20
STM MH RIM ELEV 234.41 W INV EL 233.25 N INV EL 233.00 E INV EL 233.10
PROP 86.34m 525mm⌀ STM @ 0.30%
PROP 88.78m 450mm⌀ STM @ 0.30%
PROP 89.86m 525mm⌀ STM @ 0.30%
PROP 90.05m 600mm⌀ STM @ 0.30%
PROP 90.05m 675mm⌀ STM @ 0.30%
PROP STM MH 14 RIM ELEV 234.97 S INV EL 230.57
PROP STM MH 13 RIM ELEV 234.57 N INV EL 230.30 S INV EL 230.27
PROP STM MH 12 RIM ELEV 234.60 N INV EL 230.00 S INV EL 229.97
PROP STM MH 11 RIM ELEV 233.89 N INV EL 229.70 S INV EL 229.67
EX 250mm PVC W/M
PROP STM MH 10 RIM ELEV 233.11 N INV EL 229.40 S INV EL 229.34
SAN MH RIM ELEV 232.55 E INV EL 228.22 S INV EL 228.16
PROP STM MH 9 RIM ELEV 232.94 N INV EL 229.29 S INV EL 229.26 E INV EL 229.57
PROP STM MH 8 RIM ELEV 232.50 N INV EL 229.12 S INV EL 229.03
SAN MH RIM ELEV 233.05 W INV EL 227.46 E INV EL 227.46
PROP 46.10m 750mm⌀ STM @ 0.30%
PROP 60.84m 375mm⌀ PVC SAN @ 0.50%
EX 450mm SAN @ 0.21%
EX 450mm SAN @ 0.20%
EX 400mm W/M
EX FIRE HYDRANT
FUT MH1 EXT
FUT 53.79m 450mm⌀ STM @ 0.30%
FUT MH2 EXT
PROP CULTEC CHAMBERS STORAGE 1
EX 450mm SAN @ 0.15%
FUT 88.40m 675mm⌀ STM @ 0.30%
FUT MH3 EXT
FUT 120.00m 900mm⌀ STM @ 0.30%
FUT MH4 EXT
FUT 97.79m 900mm⌀ STM @ 0.30%
PROP STM MH 7 RIM ELEV 233.61 S INV EL 228.83 N INV EL 228.86
PROP 13.87m 750mm⌀ STM @ 0.30%
PROP STM MH 6 RIM ELEV 233.15 W INV EL 228.74 N INV EL 228.79 E INV EL 228.83
SAN MH RIM ELEV 233.07 N INV EL 227.50
PROP 66.04m 375mm⌀ PVC SAN @ 0.49%
PROP 82.43m 900mm⌀ STM @ 0.30%
PROP 90.00m 900mm⌀ STM @ 0.30%
EX MH6 EXT
EX MH2
EX 75.21m 900mm⌀ CONC STM @ 0.30%
EX 300mm PVC SAN
EX 525mm PVC SAN
EX 600mm PVC SAN
EX 675mm PVC SAN
EX 750mm PVC SAN
EX 900mm PVC SAN
EX MH4
EX MH5
EX MH7
EX MH8
EX MH9
EX MH10
EX MH11
EX MH12
EX MH13
EX MH14
EX MH15
EX MH16
EX MH17
EX MH18
EX MH19
EX MH20
EX MH21
EX MH22
EX MH23
EX MH24
EX MH25
EX MH26
EX MH27
EX CBMH
EX CTRL MH
EX INLET
EX OGS
EX 1200mm CSP
EX 1800mm CSP
EX 2400mm CSP
EX 3000mm CSP
EX 3600mm CSP
EX 4200mm CSP
EX 4800mm CSP
EX 5400mm CSP
EX 6000mm CSP
EX 6600mm CSP
EX 7200mm CSP
EX 7800mm CSP
EX 8400mm CSP
EX

HOMESTEAD DRIVE

NHS COMPENSATION
1.11 ha
2.74 acres

10m SETBACK

BUILDING 'C'
26,562.68 m2
285,918 sq ft
F.F.E. 234.85m

BUILDING 'D'
31,250.96 m2
336,382 sq ft
F.F.E. 233.80m

BUILDING 'B'
38,268.75 m2
411,921sq ft
F.F.E. 234.85m

BUILDING 'A'
33,468.93 m2
360,257 sq ft
F.F.E. 235.40m

PROP MUNICIPAL EASEMENT FOR DITCH ACCESS

PROP 0.64m MAX RETAINING WALL

PROP RAMP DOWN TO ACCESS ROAD

PROP 10.0m SETBACK

PROP 1.09m MAX RETAINING WALL

PROP 3.49m MAX RETAINING WALL

PROPOSED CONVEYANCE SWALE @ 0.82% SEE DETAIL ON THIS SHEET

PROP 10.0m SETBACK

PROP MUNICIPAL EASEMENT FOR DITCH ACCESS

PROPOSED CONVEYANCE SWALE @ 0.62% SEE DETAIL ON THIS SHEET

CONSTRUCTION NORTH

ROAD WEST

PART 3, PLAN 62R-10716

PART 1, PLAN 62R-21242

PART 6, PLAN 62R-21242

PART 5, PLAN 62R-21242

PART 4, PLAN 62R-21242

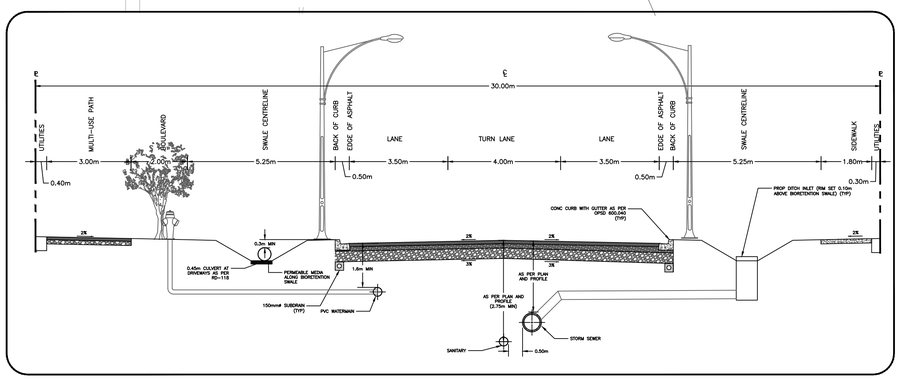
PART 3, PLAN 62R-21242

PART 8, PLAN 62R-21242

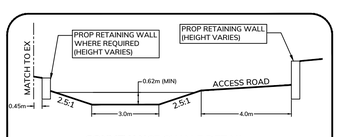
PART 7, PLAN 62R-21242

PLAN 62R-18457

LOT 4



STREET A TYPICAL 30m CROSS SECTION
SCALE 1:100



CONVEYANCE SWALE DETAIL

LEGEND:

EXISTING STORM MANHOLE	PROPOSED WATER VALVE & BOX	1.0%	PROPOSED FLOW ARROW AND SLOPE
PROPOSED STORM MANHOLE	EXISTING VALVE CHAMBER		PROPOSED FLOW ARROW
EXISTING CATCH BASIN MANHOLE	PROPOSED VALVE CHAMBER		PROPOSED EMERGENCY OVERLAND FLOW
PROPOSED CATCH BASIN MANHOLE	× *100.00* EXISTING SPOT ELEVATION	195.50	EXISTING CONTOUR
PROPOSED STORMCEPTOR	× (100.00) PROPOSED ELEVATION		EXTENT OF MAX. PONDING
EXISTING CATCH BASIN	× (100.00)TC PROPOSED TOP OF CURB ELEVATION		PROPOSED RETAINING WALL
PROPOSED CATCH BASIN	× (100.00)GL PROPOSED GUTTER LINE ELEVATION		PROPOSED CONCRETE SIDEWALK
EXISTING SANITARY MANHOLE	× (100.00)HP PROPOSED HIGH POINT		PROPOSED SLOPE (3:1 OR HIGHER)
PROPOSED SANITARY MANHOLE	× (100.00)LP PROPOSED LOW POINT		PROPOSED RIP RAP
EXISTING HYDRANT	× (100.00) PROPOSED SWALE INVERT ELEVATION		PROPERTY LINE
PROPOSED HYDRANT	× [100.00] INTERIM ELEVATION		LIMIT OF CONSTRUCTION
EXISTING WATER VALVE & BOX	100.00 PROPOSED APRON ELEVATION		

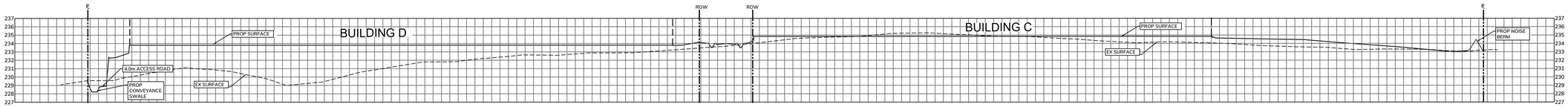
DRAWING TITLE:
CONCEPTUAL GRADING PLAN

PROJECT No.:	SCALE:	DRAWING No.:
21218	1:1500	2

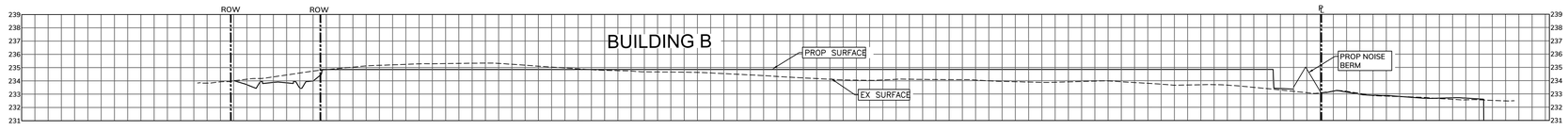
PROJECT:
PROPOSED INDUSTRIAL DEVELOPMENT
3054 HOMESTEAD DRIVE
HAMILTON, ON

CLIENT:
FENGATE ASSET MANAGEMENT

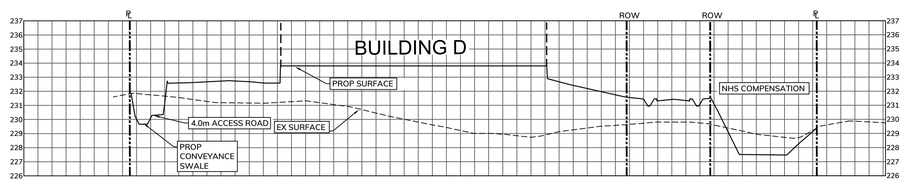
ODAN·DETECH
CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F:(905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2



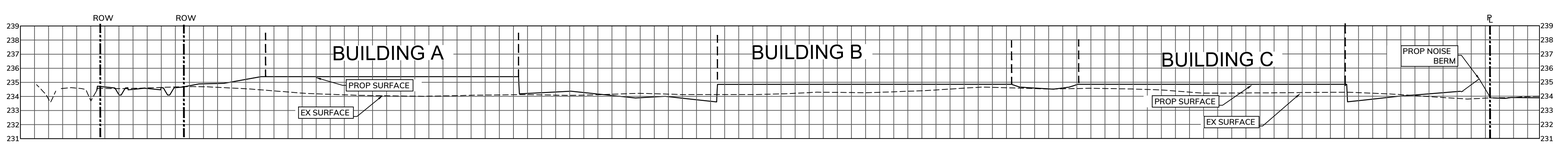
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SCALE 1:1250



SECTION B:
SCALE 1:1000



SECTION C:
SCALE 1:1000



SECTION D:
SCALE 1:1000

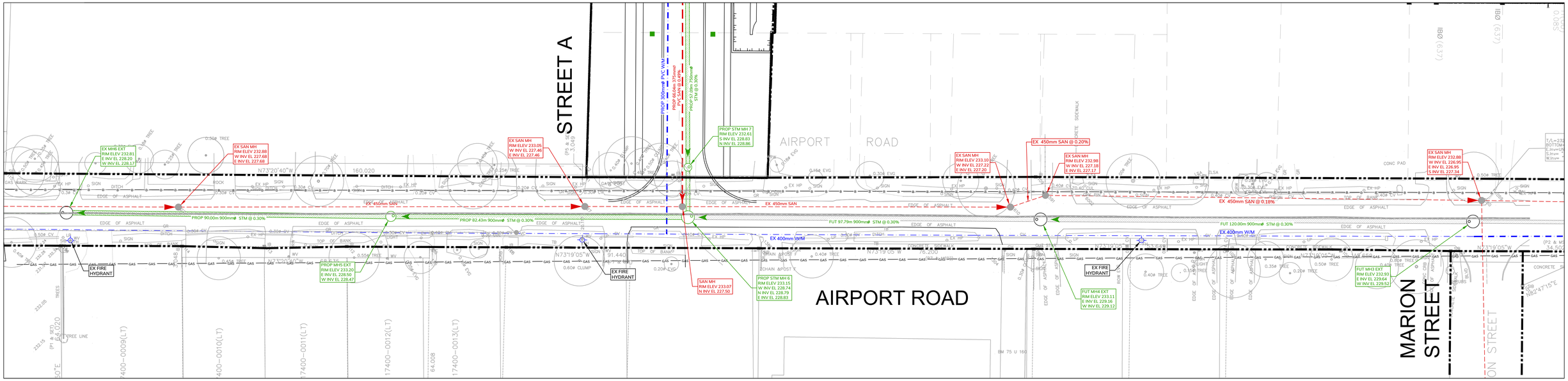
DRAWING TITLE:
CONCEPTUAL SECTION PLAN

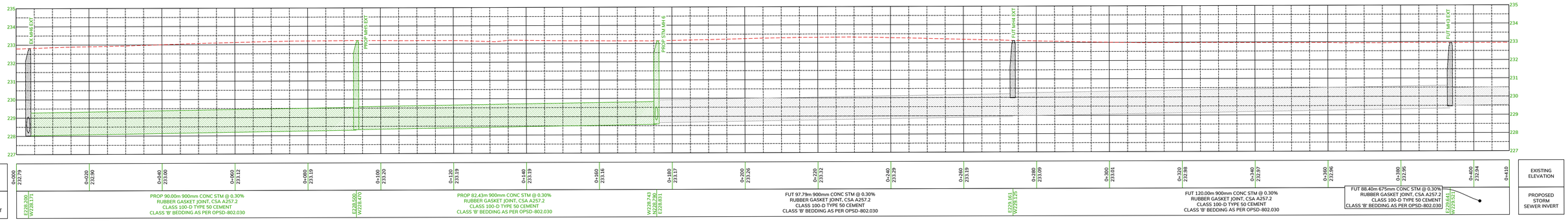
PROJECT No.:	SCALE:	DRAWING No.:
21218	AS NOTED	3

PROJECT:
PROPOSED INDUSTRIAL DEVELOPMENT
3054 HOMESTEAD DRIVE
HAMILTON, ON

CLIENT:
FENGATE ASSET MANAGEMENT

ODAN·DETECH
CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F: (905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2





LEGEND:

- PROPOSED STORM MANHOLE
- EXISTING STM MANHOLE
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- EXISTING HYDRANT
- PROPOSED HYDRANT
- EXISTING SANITARY MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED VALVE CHAMBER
- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- PROPERTY LINE

DRAWING TITLE:

CONCEPTUAL AIRPORT ROAD PLAN & PROFILE

PROJECT No.:	SCALE:	DRAWING No.:
21218	1:500	1

PROJECT:

PROPOSED INDUSTRIAL DEVELOPMENT
3054 HOMESTEAD DRIVE
HAMILTON, ON

CLIENT:

FENGATE ASSET MANAGEMENT

ODAN·DETECH CONSULTING ENGINEERS
The Odan/Detech Group Inc. P: (905) 632-3811 F:(905) 632-3363
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO, L7L 5K2

APPENDIX G

Visual OTTHYMO Output Files (Refer to separate 'FSR Visual OTTHYMO Output Files' Document prepared by the Odan/Detech Group)

The Odan/Detech Group Inc.
P: (905) 632-3811
F: (905) 632-3363
5230, SOUTH SERVICE ROAD, UNIT 107
BURLINGTON, ONTARIO, L7L 5K2
www.odandetech.com

PROPOSED INDUSTRIAL DEVELOPMENT
3054 HOMESTEAD DRIVE
CITY OF HAMILTON

PROJECT No. : 21218

APPENDIX G

FSR VISUAL OTTHMYO OUTPUT FILES

Prepared For:

Fengate Homestead Holdings LP

Prepared By:

The Odan/Detech Group Inc.

August 25, 2023

Visual OTTHYMO Output File – Catchment A – Pre-Development

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================================================================================================================
==============

       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO

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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 2.3.3\voin.dat
  Output  filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\VOH-Pre-Dev Airport
road .- July 19-2023 (Catchment A)\Airport Road Out
  Summary filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\VOH-Pre-Dev Airport
road .- July 19-2023 (Catchment A)\Airport Road Out


DATE: 8/02/23                             TIME: 4:20:15 PM

USER:


COMMENTS: _____________________________________________________

--------------------------------------------------------------------------------------------------------
--------------
  ****************************
  ** SIMULATION NUMBER:   9 **
  ****************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1049.500
| Ptotal= 50.14 mm |                          B=   8.000
--------------------                          C=    .803
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =   .33

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    3.22 |  1.17   28.14 |  2.17    8.05 |  3.17    3.87
                 .33    3.72 |  1.33  103.04 |  2.33    6.77 |  3.33    3.58
                 .50    4.43 |  1.50   36.87 |  2.50    5.86 |  3.50    3.33
                 .67    5.51 |  1.67   19.46 |  2.67    5.18 |  3.67    3.12
                 .83    7.40 |  1.83   13.16 |  2.83    4.65 |  3.83    2.93
                1.00   11.55 |  2.00    9.97 |  3.00    4.22 |  4.00    2.77

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0001) |   Area    (ha)=  12.55   Curve Number    (CN)= 75.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .62

     Unit Hyd Qpeak  (cms)=    .773

     PEAK FLOW       (cms)=    .284 (i)
     TIME TO PEAK    (hrs)=   2.000
     RUNOFF VOLUME    (mm)=  15.689
     TOTAL RAINFALL   (mm)=  50.136
     RUNOFF COEFFICIENT   =    .313

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:  10 **
  ****************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=2317.000
| Ptotal= 91.35 mm |                          B=  11.000
--------------------                          C=    .836
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =   .33

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    5.36 |  1.17   54.82 |  2.17   14.69 |  3.17    6.55
                 .33    6.27 |  1.33  181.78 |  2.33   12.15 |  3.33    6.01
                 .50    7.60 |  1.50   71.89 |  2.50   10.36 |  3.50    5.56
                 .67    9.68 |  1.67   37.82 |  2.67    9.04 |  3.67    5.17
                 .83   13.40 |  1.83   25.03 |  2.83    8.02 |  3.83    4.83
                1.00   21.76 |  2.00   18.55 |  3.00    7.21 |  4.00    4.54

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0001) |   Area    (ha)=  12.55   Curve Number    (CN)= 75.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .62

     Unit Hyd Qpeak  (cms)=    .773

     PEAK FLOW       (cms)=    .848 (i)
     TIME TO PEAK    (hrs)=   2.000
     RUNOFF VOLUME    (mm)=  43.585
     TOTAL RAINFALL   (mm)=  91.350
     RUNOFF COEFFICIENT   =    .477

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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 FINISH
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Visual OTTHYMO Output File – Catchment B – Pre-Development

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================================================================================================
==============

       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I       SS  U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO

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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO
2.3.3\voin.dat
  Output  filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\VOH-Pre-Dev Catchment B
- July-20-2023\Airport Road Outlet.out
  Summary filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\VOH-Pre-Dev Catchment B
- July-20-2023\Airport Road Outlet.sum


DATE: 8/02/23                              TIME: 4:30:00 PM

USER:


COMMENTS: _____________________________________________________


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--------------
  ****************************
  ** SIMULATION NUMBER:   1 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Pre-Dev Catchment B - July-20-2023\2yr24h
| Ptotal= 53.10 mm |    Comments: 2yr/24hr SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	.58	6.17	1.06	12.17	7.65	18.17	.96
.33	.58	6.33	1.06	12.33	7.65	18.33	.96
.50	.58	6.50	1.06	12.50	7.65	18.50	.96
.67	.58	6.67	1.06	12.67	3.93	18.67	.96
.83	.58	6.83	1.06	12.83	3.93	18.83	.96
1.00	.58	7.00	1.06	13.00	3.93	19.00	.96
1.17	.58	7.17	1.06	13.17	.74	19.17	.96
1.33	.58	7.33	1.06	13.33	.74	19.33	.96
1.50	.58	7.50	1.06	13.50	.74	19.50	.96
1.67	.58	7.67	1.06	13.67	4.35	19.67	.96
1.83	.58	7.83	1.06	13.83	4.35	19.83	.96
2.00	.58	8.00	1.06	14.00	4.35	20.00	.96
2.17	.69	8.17	1.43	14.17	1.59	20.17	.64
2.33	.69	8.33	1.43	14.33	1.59	20.33	.64
2.50	.69	8.50	1.43	14.50	1.59	20.50	.64
2.67	.69	8.67	1.43	14.67	1.59	20.67	.64
2.83	.69	8.83	1.43	14.83	1.59	20.83	.64
3.00	.69	9.00	1.43	15.00	1.59	21.00	.64
3.17	.69	9.17	1.70	15.17	1.59	21.17	.64
3.33	.69	9.33	1.70	15.33	1.59	21.33	.64
3.50	.69	9.50	1.70	15.50	1.59	21.50	.64
3.67	.69	9.67	1.91	15.67	1.59	21.67	.64
3.83	.69	9.83	1.91	15.83	1.59	21.83	.64
4.00	.69	10.00	1.91	16.00	1.59	22.00	.64
4.17	.85	10.17	2.44	16.17	.96	22.17	.64
4.33	.85	10.33	2.44	16.33	.96	22.33	.64
4.50	.85	10.50	2.44	16.50	.96	22.50	.64
4.67	.85	10.67	3.29	16.67	.96	22.67	.64
4.83	.85	10.83	3.29	16.83	.96	22.83	.64
5.00	.85	11.00	3.29	17.00	.96	23.00	.64
5.17	.85	11.17	5.10	17.17	.96	23.17	.64
5.33	.85	11.33	5.10	17.33	.96	23.33	.64
5.50	.85	11.50	5.10	17.50	.96	23.50	.64
5.67	.85	11.67	22.09	17.67	.96	23.67	.64
5.83	.85	11.83	40.36	17.83	.96	23.83	.64
6.00	.85	12.00	58.62	18.00	.96	24.00	.64

```
------------------------------------------------------------------------------

--------------------
| CALIB            |
| NASHYD    (0001) |   Area    (ha)=  13.80   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .61

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	.58	6.083	1.06	12.083	7.66	18.08	.96
.167	.58	6.167	1.06	12.167	7.65	18.17	.96
.250	.58	6.250	1.06	12.250	7.65	18.25	.96
.333	.58	6.333	1.06	12.333	7.65	18.33	.96
.417	.58	6.417	1.06	12.417	7.65	18.42	.96
.500	.58	6.500	1.06	12.500	7.65	18.50	.96
.583	.58	6.583	1.06	12.583	3.93	18.58	.96
.667	.58	6.667	1.06	12.667	3.93	18.67	.96
.750	.58	6.750	1.06	12.750	3.93	18.75	.96
.833	.58	6.833	1.06	12.833	3.93	18.83	.96
.917	.58	6.917	1.06	12.917	3.93	18.92	.96
1.000	.58	7.000	1.06	13.000	3.93	19.00	.96
1.083	.58	7.083	1.06	13.083	.74	19.08	.96
1.167	.58	7.167	1.06	13.167	.74	19.17	.96
1.250	.58	7.250	1.06	13.250	.74	19.25	.96
1.333	.58	7.333	1.06	13.333	.74	19.33	.96
1.417	.58	7.417	1.06	13.417	.74	19.42	.96
1.500	.58	7.500	1.06	13.500	.74	19.50	.96
1.583	.58	7.583	1.06	13.583	4.35	19.58	.96
1.667	.58	7.667	1.06	13.667	4.35	19.67	.96
1.750	.58	7.750	1.06	13.750	4.35	19.75	.96
1.833	.58	7.833	1.06	13.833	4.35	19.83	.96
1.917	.58	7.917	1.06	13.917	4.35	19.92	.96
2.000	.58	8.000	1.06	14.000	4.35	20.00	.96
2.083	.69	8.083	1.43	14.083	1.59	20.08	.64
2.167	.69	8.167	1.43	14.167	1.59	20.17	.64
2.250	.69	8.250	1.43	14.250	1.59	20.25	.64
2.333	.69	8.333	1.43	14.333	1.59	20.33	.64
2.417	.69	8.417	1.43	14.417	1.59	20.42	.64

2.500	.69	8.500	1.43	14.500	1.59	20.50	.64
2.583	.69	8.583	1.43	14.583	1.59	20.58	.64
2.667	.69	8.667	1.43	14.667	1.59	20.67	.64
2.750	.69	8.750	1.43	14.750	1.59	20.75	.64
2.833	.69	8.833	1.43	14.833	1.59	20.83	.64
2.917	.69	8.917	1.43	14.917	1.59	20.92	.64
3.000	.69	9.000	1.43	15.000	1.59	21.00	.64
3.083	.69	9.083	1.70	15.083	1.59	21.08	.64
3.167	.69	9.167	1.70	15.167	1.59	21.17	.64
3.250	.69	9.250	1.70	15.250	1.59	21.25	.64
3.333	.69	9.333	1.70	15.333	1.59	21.33	.64
3.417	.69	9.417	1.70	15.417	1.59	21.42	.64
3.500	.69	9.500	1.70	15.500	1.59	21.50	.64
3.583	.69	9.583	1.91	15.583	1.59	21.58	.64
3.667	.69	9.667	1.91	15.667	1.59	21.67	.64
3.750	.69	9.750	1.91	15.750	1.59	21.75	.64
3.833	.69	9.833	1.91	15.833	1.59	21.83	.64
3.917	.69	9.917	1.91	15.917	1.59	21.92	.64
4.000	.69	10.000	1.91	16.000	1.59	22.00	.64
4.083	.85	10.083	2.44	16.083	.96	22.08	.64
4.167	.85	10.167	2.44	16.167	.96	22.17	.64
4.250	.85	10.250	2.44	16.250	.96	22.25	.64
4.333	.85	10.333	2.44	16.333	.96	22.33	.64
4.417	.85	10.417	2.44	16.417	.96	22.42	.64
4.500	.85	10.500	2.44	16.500	.96	22.50	.64
4.583	.85	10.583	3.29	16.583	.96	22.58	.64
4.667	.85	10.667	3.29	16.667	.96	22.67	.64
4.750	.85	10.750	3.29	16.750	.96	22.75	.64
4.833	.85	10.833	3.29	16.833	.96	22.83	.64
4.917	.85	10.917	3.29	16.917	.96	22.92	.64
5.000	.85	11.000	3.29	17.000	.96	23.00	.64
5.083	.85	11.083	5.10	17.083	.96	23.08	.64
5.167	.85	11.167	5.10	17.167	.96	23.17	.64
5.250	.85	11.250	5.10	17.250	.96	23.25	.64
5.333	.85	11.333	5.10	17.333	.96	23.33	.64
5.417	.85	11.417	5.10	17.417	.96	23.42	.64
5.500	.85	11.500	5.10	17.500	.96	23.50	.64
5.583	.85	11.583	22.09	17.583	.96	23.58	.64
5.667	.85	11.667	22.09	17.667	.96	23.67	.64
5.750	.85	11.750	40.36	17.750	.96	23.75	.64
5.833	.85	11.833	40.36	17.833	.96	23.83	.64
5.917	.85	11.917	58.62	17.917	.96	23.92	.64
6.000	.85	12.000	58.62	18.000	.96	24.00	.64

Unit Hyd Qpeak (cms)= .863

PEAK FLOW (cms)= .268 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 17.428
TOTAL RAINFALL (mm)= 53.103
RUNOFF COEFFICIENT = .328

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

****
** SIMULATION NUMBER: 2 **
****

READ STORM | Filename: C:\Users\Mitchell Bufalino\Deskto
| p\OTTHYMO\21218\
| VOH-Pre-Dev Catchment B - July-20-2023\5yr24h
Ptotal= 71.78 mm | Comments: 5yr/24hr SCS

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	.79	6.17	1.44	12.17	10.34	18.17	1.29
.33	.79	6.33	1.44	12.33	10.34	18.33	1.29
.50	.79	6.50	1.44	12.50	10.34	18.50	1.29
.67	.79	6.67	1.44	12.67	5.31	18.67	1.29
.83	.79	6.83	1.44	12.83	5.31	18.83	1.29
1.00	.79	7.00	1.44	13.00	5.31	19.00	1.29
1.17	.79	7.17	1.44	13.17	1.01	19.17	1.29
1.33	.79	7.33	1.44	13.33	1.01	19.33	1.29
1.50	.79	7.50	1.44	13.50	1.01	19.50	1.29
1.67	.79	7.67	1.44	13.67	5.89	19.67	1.29
1.83	.79	7.83	1.44	13.83	5.89	19.83	1.29
2.00	.79	8.00	1.44	14.00	5.89	20.00	1.29
2.17	.93	8.17	1.94	14.17	2.15	20.17	.86
2.33	.93	8.33	1.94	14.33	2.15	20.33	.86
2.50	.93	8.50	1.94	14.50	2.15	20.50	.86
2.67	.93	8.67	1.94	14.67	2.15	20.67	.86
2.83	.93	8.83	1.94	14.83	2.15	20.83	.86
3.00	.93	9.00	1.94	15.00	2.15	21.00	.86
3.17	.93	9.17	2.30	15.17	2.15	21.17	.86
3.33	.93	9.33	2.30	15.33	2.15	21.33	.86
3.50	.93	9.50	2.30	15.50	2.15	21.50	.86
3.67	.93	9.67	2.58	15.67	2.15	21.67	.86
3.83	.93	9.83	2.58	15.83	2.15	21.83	.86
4.00	.93	10.00	2.58	16.00	2.15	22.00	.86
4.17	1.15	10.17	3.30	16.17	1.29	22.17	.86
4.33	1.15	10.33	3.30	16.33	1.29	22.33	.86
4.50	1.15	10.50	3.30	16.50	1.29	22.50	.86
4.67	1.15	10.67	4.45	16.67	1.29	22.67	.86
4.83	1.15	10.83	4.45	16.83	1.29	22.83	.86
5.00	1.15	11.00	4.45	17.00	1.29	23.00	.86
5.17	1.15	11.17	6.89	17.17	1.29	23.17	.86
5.33	1.15	11.33	6.89	17.33	1.29	23.33	.86
5.50	1.15	11.50	6.89	17.50	1.29	23.50	.86
5.67	1.15	11.67	29.87	17.67	1.29	23.67	.86
5.83	1.15	11.83	54.57	17.83	1.29	23.83	.86
6.00	1.15	12.00	79.27	18.00	1.29	24.00	.86

CALIB |
NASHYD (0001) | Area (ha)= 13.80 Curve Number (CN)= 75.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= .61

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	.79	6.083	1.44	12.083	10.35	18.08	1.29
.167	.79	6.167	1.44	12.167	10.34	18.17	1.29
.250	.79	6.250	1.44	12.250	10.34	18.25	1.29
.333	.79	6.333	1.44	12.333	10.34	18.33	1.29
.417	.79	6.417	1.44	12.417	10.34	18.42	1.29
.500	.79	6.500	1.44	12.500	10.34	18.50	1.29
.583	.79	6.583	1.44	12.583	5.31	18.58	1.29
.667	.79	6.667	1.44	12.667	5.31	18.67	1.29
.750	.79	6.750	1.44	12.750	5.31	18.75	1.29
.833	.79	6.833	1.44	12.833	5.31	18.83	1.29
.917	.79	6.917	1.44	12.917	5.31	18.92	1.29
1.000	.79	7.000	1.44	13.000	5.31	19.00	1.29
1.083	.79	7.083	1.44	13.083	1.01	19.08	1.29
1.167	.79	7.167	1.44	13.167	1.01	19.17	1.29
1.250	.79	7.250	1.44	13.250	1.01	19.25	1.29
1.333	.79	7.333	1.44	13.333	1.01	19.33	1.29
1.417	.79	7.417	1.44	13.417	1.01	19.42	1.29
1.500	.79	7.500	1.44	13.500	1.01	19.50	1.29
1.583	.79	7.583	1.44	13.583	5.89	19.58	1.29
1.667	.79	7.667	1.44	13.667	5.89	19.67	1.29
1.750	.79	7.750	1.44	13.750	5.89	19.75	1.29
1.833	.79	7.833	1.44	13.833	5.89	19.83	1.29
1.917	.79	7.917	1.44	13.917	5.89	19.92	1.29
2.000	.79	8.000	1.44	14.000	5.89	20.00	1.29
2.083	.93	8.083	1.94	14.083	2.15	20.08	.86
2.167	.93	8.167	1.94	14.167	2.15	20.17	.86
2.250	.93	8.250	1.94	14.250	2.15	20.25	.86

2.333	.93	8.333	1.94	14.333	2.15	20.33	.86
2.417	.93	8.417	1.94	14.417	2.15	20.42	.86
2.500	.93	8.500	1.94	14.500	2.15	20.50	.86
2.583	.93	8.583	1.94	14.583	2.15	20.58	.86
2.667	.93	8.667	1.94	14.667	2.15	20.67	.86
2.750	.93	8.750	1.94	14.750	2.15	20.75	.86
2.833	.93	8.833	1.94	14.833	2.15	20.83	.86
2.917	.93	8.917	1.94	14.917	2.15	20.92	.86
3.000	.93	9.000	1.94	15.000	2.15	21.00	.86
3.083	.93	9.083	2.30	15.083	2.15	21.08	.86
3.167	.93	9.167	2.30	15.167	2.15	21.17	.86
3.250	.93	9.250	2.30	15.250	2.15	21.25	.86
3.333	.93	9.333	2.30	15.333	2.15	21.33	.86
3.417	.93	9.417	2.30	15.417	2.15	21.42	.86
3.500	.93	9.500	2.30	15.500	2.15	21.50	.86
3.583	.93	9.583	2.58	15.583	2.15	21.58	.86
3.667	.93	9.667	2.58	15.667	2.15	21.67	.86
3.750	.93	9.750	2.58	15.750	2.15	21.75	.86
3.833	.93	9.833	2.58	15.833	2.15	21.83	.86
3.917	.93	9.917	2.58	15.917	2.15	21.92	.86
4.000	.93	10.000	2.58	16.000	2.15	22.00	.86
4.083	1.15	10.083	3.30	16.083	1.29	22.08	.86
4.167	1.15	10.167	3.30	16.167	1.29	22.17	.86
4.250	1.15	10.250	3.30	16.250	1.29	22.25	.86
4.333	1.15	10.333	3.30	16.333	1.29	22.33	.86
4.417	1.15	10.417	3.30	16.417	1.29	22.42	.86
4.500	1.15	10.500	3.30	16.500	1.29	22.50	.86
4.583	1.15	10.583	4.45	16.583	1.29	22.58	.86
4.667	1.15	10.667	4.45	16.667	1.29	22.67	.86
4.750	1.15	10.750	4.45	16.750	1.29	22.75	.86
4.833	1.15	10.833	4.45	16.833	1.29	22.83	.86
4.917	1.15	10.917	4.45	16.917	1.29	22.92	.86
5.000	1.15	11.000	4.45	17.000	1.29	23.00	.86
5.083	1.15	11.083	6.89	17.083	1.29	23.08	.86
5.167	1.15	11.167	6.89	17.167	1.29	23.17	.86
5.250	1.15	11.250	6.89	17.250	1.29	23.25	.86
5.333	1.15	11.333	6.89	17.333	1.29	23.33	.86
5.417	1.15	11.417	6.89	17.417	1.29	23.42	.86
5.500	1.15	11.500	6.89	17.500	1.29	23.50	.86
5.583	1.15	11.583	29.87	17.583	1.29	23.58	.86
5.667	1.15	11.667	29.87	17.667	1.29	23.67	.86
5.750	1.15	11.750	54.57	17.750	1.29	23.75	.86
5.833	1.15	11.833	54.57	17.833	1.29	23.83	.86
5.917	1.15	11.917	79.27	17.917	1.29	23.92	.86
6.000	1.15	12.000	79.27	18.000	1.29	24.00	.86

Unit Hyd Qpeak (cms)= .863

PEAK FLOW (cms)= .462 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 29.446
TOTAL RAINFALL (mm)= 71.780
RUNOFF COEFFICIENT = .410

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

****
** SIMULATION NUMBER: 3 **
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READ STORM | Filename: C:\Users\Mitchell Bufalino\Deskto p\OTTHYMO\21218\ VOH-Pre-Dev Catchment B - July-20-2023\10yr24
Ptotal= 84.21 mm | Comments: 10yr/24hr SCS

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	.93	6.17	1.68	12.17	12.12	18.17	1.52
.33	.93	6.33	1.68	12.33	12.12	18.33	1.52
.50	.93	6.50	1.68	12.50	12.12	18.50	1.52
.67	.93	6.67	1.68	12.67	6.23	18.67	1.52
.83	.93	6.83	1.68	12.83	6.23	18.83	1.52
1.00	.93	7.00	1.68	13.00	6.23	19.00	1.52
1.17	.93	7.17	1.68	13.17	1.18	19.17	1.52
1.33	.93	7.33	1.68	13.33	1.18	19.33	1.52
1.50	.93	7.50	1.68	13.50	1.18	19.50	1.52
1.67	.93	7.67	1.68	13.67	6.90	19.67	1.52
1.83	.93	7.83	1.68	13.83	6.90	19.83	1.52
2.00	.93	8.00	1.68	14.00	6.90	20.00	1.52
2.17	1.09	8.17	2.27	14.17	2.53	20.17	1.01
2.33	1.09	8.33	2.27	14.33	2.53	20.33	1.01
2.50	1.09	8.50	2.27	14.50	2.53	20.50	1.01
2.67	1.09	8.67	2.27	14.67	2.53	20.67	1.01
2.83	1.09	8.83	2.27	14.83	2.53	20.83	1.01
3.00	1.09	9.00	2.27	15.00	2.53	21.00	1.01
3.17	1.09	9.17	2.69	15.17	2.53	21.17	1.01
3.33	1.09	9.33	2.69	15.33	2.53	21.33	1.01
3.50	1.09	9.50	2.69	15.50	2.53	21.50	1.01
3.67	1.09	9.67	3.03	15.67	2.53	21.67	1.01
3.83	1.09	9.83	3.03	15.83	2.53	21.83	1.01
4.00	1.09	10.00	3.03	16.00	2.53	22.00	1.01
4.17	1.35	10.17	3.87	16.17	1.52	22.17	1.01
4.33	1.35	10.33	3.87	16.33	1.52	22.33	1.01
4.50	1.35	10.50	3.87	16.50	1.52	22.50	1.01
4.67	1.35	10.67	5.22	16.67	1.52	22.67	1.01
4.83	1.35	10.83	5.22	16.83	1.52	22.83	1.01
5.00	1.35	11.00	5.22	17.00	1.52	23.00	1.01
5.17	1.35	11.17	8.08	17.17	1.52	23.17	1.01
5.33	1.35	11.33	8.08	17.33	1.52	23.33	1.01
5.50	1.35	11.50	8.08	17.50	1.52	23.50	1.01
5.67	1.35	11.67	35.03	17.67	1.52	23.67	1.01
5.83	1.35	11.83	63.99	17.83	1.52	23.83	1.01
6.00	1.35	12.00	92.96	18.00	1.52	24.00	1.01

CALIB
NASHYD (0001) | ID= 1 DT= 5.0 min | Area (ha)= 13.80 Curve Number (CN)= 75.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= .61

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	.93	6.083	1.68	12.083	12.13	18.08	1.52
.167	.93	6.167	1.68	12.167	12.12	18.17	1.52
.250	.93	6.250	1.68	12.250	12.12	18.25	1.52
.333	.93	6.333	1.68	12.333	12.12	18.33	1.52
.417	.93	6.417	1.68	12.417	12.12	18.42	1.52
.500	.93	6.500	1.68	12.500	12.12	18.50	1.52
.583	.93	6.583	1.68	12.583	6.23	18.58	1.52
.667	.93	6.667	1.68	12.667	6.23	18.67	1.52
.750	.93	6.750	1.68	12.750	6.23	18.75	1.52
.833	.93	6.833	1.68	12.833	6.23	18.83	1.52
.917	.93	6.917	1.68	12.917	6.23	18.92	1.52
1.000	.93	7.000	1.68	13.000	6.23	19.00	1.52
1.083	.93	7.083	1.68	13.083	1.18	19.08	1.52
1.167	.93	7.167	1.68	13.167	1.18	19.17	1.52
1.250	.93	7.250	1.68	13.250	1.18	19.25	1.52
1.333	.93	7.333	1.68	13.333	1.18	19.33	1.52
1.417	.93	7.417	1.68	13.417	1.18	19.42	1.52
1.500	.93	7.500	1.68	13.500	1.18	19.50	1.52
1.583	.93	7.583	1.68	13.583	6.90	19.58	1.52
1.667	.93	7.667	1.68	13.667	6.90	19.67	1.52
1.750	.93	7.750	1.68	13.750	6.90	19.75	1.52
1.833	.93	7.833	1.68	13.833	6.90	19.83	1.52
1.917	.93	7.917	1.68	13.917	6.90	19.92	1.52
2.000	.93	8.000	1.68	14.000	6.90	20.00	1.52
2.083	1.09	8.083	2.27	14.083	2.53	20.08	1.01

2.167	1.09	8.167	2.27	14.167	2.53	20.17	1.01
2.250	1.09	8.250	2.27	14.250	2.53	20.25	1.01
2.333	1.09	8.333	2.27	14.333	2.53	20.33	1.01
2.417	1.09	8.417	2.27	14.417	2.53	20.42	1.01
2.500	1.09	8.500	2.27	14.500	2.53	20.50	1.01
2.583	1.09	8.583	2.27	14.583	2.53	20.58	1.01
2.667	1.09	8.667	2.27	14.667	2.53	20.67	1.01
2.750	1.09	8.750	2.27	14.750	2.53	20.75	1.01
2.833	1.09	8.833	2.27	14.833	2.53	20.83	1.01
2.917	1.09	8.917	2.27	14.917	2.53	20.92	1.01
3.000	1.09	9.000	2.27	15.000	2.53	21.00	1.01
3.083	1.09	9.083	2.69	15.083	2.53	21.08	1.01
3.167	1.09	9.167	2.69	15.167	2.53	21.17	1.01
3.250	1.09	9.250	2.69	15.250	2.53	21.25	1.01
3.333	1.09	9.333	2.69	15.333	2.53	21.33	1.01
3.417	1.09	9.417	2.69	15.417	2.53	21.42	1.01
3.500	1.09	9.500	2.69	15.500	2.53	21.50	1.01
3.583	1.09	9.583	3.03	15.583	2.53	21.58	1.01
3.667	1.09	9.667	3.03	15.667	2.53	21.67	1.01
3.750	1.09	9.750	3.03	15.750	2.53	21.75	1.01
3.833	1.09	9.833	3.03	15.833	2.53	21.83	1.01
3.917	1.09	9.917	3.03	15.917	2.53	21.92	1.01
4.000	1.09	10.000	3.03	16.000	2.53	22.00	1.01
4.083	1.35	10.083	3.87	16.083	1.52	22.08	1.01
4.167	1.35	10.167	3.87	16.167	1.52	22.17	1.01
4.250	1.35	10.250	3.87	16.250	1.52	22.25	1.01
4.333	1.35	10.333	3.87	16.333	1.52	22.33	1.01
4.417	1.35	10.417	3.87	16.417	1.52	22.42	1.01
4.500	1.35	10.500	3.87	16.500	1.52	22.50	1.01
4.583	1.35	10.583	5.22	16.583	1.52	22.58	1.01
4.667	1.35	10.667	5.22	16.667	1.52	22.67	1.01
4.750	1.35	10.750	5.22	16.750	1.52	22.75	1.01
4.833	1.35	10.833	5.22	16.833	1.52	22.83	1.01
4.917	1.35	10.917	5.22	16.917	1.52	22.92	1.01
5.000	1.35	11.000	5.22	17.000	1.52	23.00	1.01
5.083	1.35	11.083	8.08	17.083	1.52	23.08	1.01
5.167	1.35	11.167	8.08	17.167	1.52	23.17	1.01
5.250	1.35	11.250	8.08	17.250	1.52	23.25	1.01
5.333	1.35	11.333	8.08	17.333	1.52	23.33	1.01
5.417	1.35	11.417	8.08	17.417	1.52	23.42	1.01
5.500	1.35	11.500	8.08	17.500	1.52	23.50	1.01
5.583	1.35	11.583	35.03	17.583	1.52	23.58	1.01
5.667	1.35	11.667	35.03	17.667	1.52	23.67	1.01
5.750	1.35	11.750	63.99	17.750	1.52	23.75	1.01
5.833	1.35	11.833	63.99	17.833	1.52	23.83	1.01
5.917	1.35	11.917	92.96	17.917	1.52	23.92	1.01
6.000	1.35	12.000	92.96	18.000	1.52	24.00	1.01

Unit Hyd Qpeak (cms)= .863

PEAK FLOW (cms)= .604 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 38.283
TOTAL RAINFALL (mm)= 84.207
RUNOFF COEFFICIENT = .455

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

** SIMULATION NUMBER: 4 **

READ STORM | Filename: C:\Users\Mitchell Bufalino\Deskto p\OTTHYMO\21218\ VOH-Pre-Dev Catchment B - July-20-2023\25yr24
Ptotal= 99.84 mm | Comments: 25yr/24hr SCS

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	1.10	6.17	2.00	12.17	14.37	18.17	1.80
.33	1.10	6.33	2.00	12.33	14.37	18.33	1.80
.50	1.10	6.50	2.00	12.50	14.37	18.50	1.80
.67	1.10	6.67	2.00	12.67	7.39	18.67	1.80
.83	1.10	6.83	2.00	12.83	7.39	18.83	1.80
1.00	1.10	7.00	2.00	13.00	7.39	19.00	1.80
1.17	1.10	7.17	2.00	13.17	1.40	19.17	1.80
1.33	1.10	7.33	2.00	13.33	1.40	19.33	1.80
1.50	1.10	7.50	2.00	13.50	1.40	19.50	1.80
1.67	1.10	7.67	2.00	13.67	8.18	19.67	1.80
1.83	1.10	7.83	2.00	13.83	8.18	19.83	1.80
2.00	1.10	8.00	2.00	14.00	8.18	20.00	1.80
2.17	1.30	8.17	2.69	14.17	2.99	20.17	1.20
2.33	1.30	8.33	2.69	14.33	2.99	20.33	1.20
2.50	1.30	8.50	2.69	14.50	2.99	20.50	1.20
2.67	1.30	8.67	2.69	14.67	2.99	20.67	1.20
2.83	1.30	8.83	2.69	14.83	2.99	20.83	1.20
3.00	1.30	9.00	2.69	15.00	2.99	21.00	1.20
3.17	1.30	9.17	3.19	15.17	2.99	21.17	1.20
3.33	1.30	9.33	3.19	15.33	2.99	21.33	1.20
3.50	1.30	9.50	3.19	15.50	2.99	21.50	1.20
3.67	1.30	9.67	3.59	15.67	2.99	21.67	1.20
3.83	1.30	9.83	3.59	15.83	2.99	21.83	1.20
4.00	1.30	10.00	3.59	16.00	2.99	22.00	1.20
4.17	1.60	10.17	4.59	16.17	1.80	22.17	1.20
4.33	1.60	10.33	4.59	16.33	1.80	22.33	1.20
4.50	1.60	10.50	4.59	16.50	1.80	22.50	1.20
4.67	1.60	10.67	6.19	16.67	1.80	22.67	1.20
4.83	1.60	10.83	6.19	16.83	1.80	22.83	1.20
5.00	1.60	11.00	6.19	17.00	1.80	23.00	1.20
5.17	1.60	11.17	9.58	17.17	1.80	23.17	1.20
5.33	1.60	11.33	9.58	17.33	1.80	23.33	1.20
5.50	1.60	11.50	9.58	17.50	1.80	23.50	1.20
5.67	1.60	11.67	41.52	17.67	1.80	23.67	1.20
5.83	1.60	11.83	75.85	17.83	1.80	23.83	1.20
6.00	1.60	12.00	110.18	18.00	1.80	24.00	1.20

CALIB | NASHYD (0001) | ID= 1 DT= 5.0 min | Area (ha)= 13.80 Curve Number (CN)= 75.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= .61

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.10	6.083	2.00	12.083	14.38	18.08	1.80
.167	1.10	6.167	2.00	12.167	14.37	18.17	1.80
.250	1.10	6.250	2.00	12.250	14.37	18.25	1.80
.333	1.10	6.333	2.00	12.333	14.37	18.33	1.80
.417	1.10	6.417	2.00	12.417	14.37	18.42	1.80
.500	1.10	6.500	2.00	12.500	14.37	18.50	1.80
.583	1.10	6.583	2.00	12.583	7.39	18.58	1.80
.667	1.10	6.667	2.00	12.667	7.39	18.67	1.80
.750	1.10	6.750	2.00	12.750	7.39	18.75	1.80
.833	1.10	6.833	2.00	12.833	7.39	18.83	1.80
.917	1.10	6.917	2.00	12.917	7.39	18.92	1.80
1.000	1.10	7.000	2.00	13.000	7.39	19.00	1.80
1.083	1.10	7.083	2.00	13.083	1.40	19.08	1.80
1.167	1.10	7.167	2.00	13.167	1.40	19.17	1.80
1.250	1.10	7.250	2.00	13.250	1.40	19.25	1.80
1.333	1.10	7.333	2.00	13.333	1.40	19.33	1.80
1.417	1.10	7.417	2.00	13.417	1.40	19.42	1.80
1.500	1.10	7.500	2.00	13.500	1.40	19.50	1.80
1.583	1.10	7.583	2.00	13.583	8.18	19.58	1.80
1.667	1.10	7.667	2.00	13.667	8.18	19.67	1.80
1.750	1.10	7.750	2.00	13.750	8.18	19.75	1.80
1.833	1.10	7.833	2.00	13.833	8.18	19.83	1.80
1.917	1.10	7.917	2.00	13.917	8.18	19.92	1.80

2.000	1.10	8.000	2.00	14.000	8.18	20.00	1.80
2.083	1.30	8.083	2.69	14.083	2.99	20.08	1.20
2.167	1.30	8.167	2.69	14.167	2.99	20.17	1.20
2.250	1.30	8.250	2.69	14.250	2.99	20.25	1.20
2.333	1.30	8.333	2.69	14.333	2.99	20.33	1.20
2.417	1.30	8.417	2.69	14.417	2.99	20.42	1.20
2.500	1.30	8.500	2.69	14.500	2.99	20.50	1.20
2.583	1.30	8.583	2.69	14.583	2.99	20.58	1.20
2.667	1.30	8.667	2.69	14.667	2.99	20.67	1.20
2.750	1.30	8.750	2.69	14.750	2.99	20.75	1.20
2.833	1.30	8.833	2.69	14.833	2.99	20.83	1.20
2.917	1.30	8.917	2.69	14.917	2.99	20.92	1.20
3.000	1.30	9.000	2.69	15.000	2.99	21.00	1.20
3.083	1.30	9.083	3.19	15.083	2.99	21.08	1.20
3.167	1.30	9.167	3.19	15.167	2.99	21.17	1.20
3.250	1.30	9.250	3.19	15.250	2.99	21.25	1.20
3.333	1.30	9.333	3.19	15.333	2.99	21.33	1.20
3.417	1.30	9.417	3.19	15.417	2.99	21.42	1.20
3.500	1.30	9.500	3.19	15.500	2.99	21.50	1.20
3.583	1.30	9.583	3.59	15.583	2.99	21.58	1.20
3.667	1.30	9.667	3.59	15.667	2.99	21.67	1.20
3.750	1.30	9.750	3.59	15.750	2.99	21.75	1.20
3.833	1.30	9.833	3.59	15.833	2.99	21.83	1.20
3.917	1.30	9.917	3.59	15.917	2.99	21.92	1.20
4.000	1.30	10.000	3.59	16.000	2.99	22.00	1.20
4.083	1.60	10.083	4.59	16.083	1.80	22.08	1.20
4.167	1.60	10.167	4.59	16.167	1.80	22.17	1.20
4.250	1.60	10.250	4.59	16.250	1.80	22.25	1.20
4.333	1.60	10.333	4.59	16.333	1.80	22.33	1.20
4.417	1.60	10.417	4.59	16.417	1.80	22.42	1.20
4.500	1.60	10.500	4.59	16.500	1.80	22.50	1.20
4.583	1.60	10.583	6.19	16.583	1.80	22.58	1.20
4.667	1.60	10.667	6.19	16.667	1.80	22.67	1.20
4.750	1.60	10.750	6.19	16.750	1.80	22.75	1.20
4.833	1.60	10.833	6.19	16.833	1.80	22.83	1.20
4.917	1.60	10.917	6.19	16.917	1.80	22.92	1.20
5.000	1.60	11.000	6.19	17.000	1.80	23.00	1.20
5.083	1.60	11.083	9.58	17.083	1.80	23.08	1.20
5.167	1.60	11.167	9.58	17.167	1.80	23.17	1.20
5.250	1.60	11.250	9.58	17.250	1.80	23.25	1.20
5.333	1.60	11.333	9.58	17.333	1.80	23.33	1.20
5.417	1.60	11.417	9.58	17.417	1.80	23.42	1.20
5.500	1.60	11.500	9.58	17.500	1.80	23.50	1.20
5.583	1.60	11.583	41.52	17.583	1.80	23.58	1.20
5.667	1.60	11.667	41.52	17.667	1.80	23.67	1.20
5.750	1.60	11.750	75.85	17.750	1.80	23.75	1.20
5.833	1.60	11.833	75.85	17.833	1.80	23.83	1.20
5.917	1.60	11.917	110.18	17.917	1.80	23.92	1.20
6.000	1.60	12.000	110.18	18.000	1.80	24.00	1.20

Unit Hyd Qpeak (cms)= .863

PEAK FLOW (cms)= .797 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 50.103
TOTAL RAINFALL (mm)= 99.835
RUNOFF COEFFICIENT = .502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

****
** SIMULATION NUMBER: 5 **
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READ STORM	Filename: C:\Users\Mitchell Bufalino\Deskto p\OTTHYMO\21218\
Ptotal=111.43 mm	Comments: 50yr/24hr SCS

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	1.23	6.17	2.23	12.17	16.04	18.17	2.01
.33	1.23	6.33	2.23	12.33	16.04	18.33	2.01
.50	1.23	6.50	2.23	12.50	16.04	18.50	2.01
.67	1.23	6.67	2.23	12.67	8.24	18.67	2.01
.83	1.23	6.83	2.23	12.83	8.24	18.83	2.01
1.00	1.23	7.00	2.23	13.00	8.24	19.00	2.01
1.17	1.23	7.17	2.23	13.17	1.56	19.17	2.01
1.33	1.23	7.33	2.23	13.33	1.56	19.33	2.01
1.50	1.23	7.50	2.23	13.50	1.56	19.50	2.01
1.67	1.23	7.67	2.23	13.67	9.13	19.67	2.01
1.83	1.23	7.83	2.23	13.83	9.13	19.83	2.01
2.00	1.23	8.00	2.23	14.00	9.13	20.00	2.01
2.17	1.45	8.17	3.01	14.17	3.34	20.17	1.34
2.33	1.45	8.33	3.01	14.33	3.34	20.33	1.34
2.50	1.45	8.50	3.01	14.50	3.34	20.50	1.34
2.67	1.45	8.67	3.01	14.67	3.34	20.67	1.34
2.83	1.45	8.83	3.01	14.83	3.34	20.83	1.34
3.00	1.45	9.00	3.01	15.00	3.34	21.00	1.34
3.17	1.45	9.17	3.56	15.17	3.34	21.17	1.34
3.33	1.45	9.33	3.56	15.33	3.34	21.33	1.34
3.50	1.45	9.50	3.56	15.50	3.34	21.50	1.34
3.67	1.45	9.67	4.01	15.67	3.34	21.67	1.34
3.83	1.45	9.83	4.01	15.83	3.34	21.83	1.34
4.00	1.45	10.00	4.01	16.00	3.34	22.00	1.34
4.17	1.78	10.17	5.12	16.17	2.01	22.17	1.34
4.33	1.78	10.33	5.12	16.33	2.01	22.33	1.34
4.50	1.78	10.50	5.12	16.50	2.01	22.50	1.34
4.67	1.78	10.67	6.91	16.67	2.01	22.67	1.34
4.83	1.78	10.83	6.91	16.83	2.01	22.83	1.34
5.00	1.78	11.00	6.91	17.00	2.01	23.00	1.34
5.17	1.78	11.17	10.69	17.17	2.01	23.17	1.34
5.33	1.78	11.33	10.69	17.33	2.01	23.33	1.34
5.50	1.78	11.50	10.69	17.50	2.01	23.50	1.34
5.67	1.78	11.67	46.34	17.67	2.01	23.67	1.34
5.83	1.78	11.83	84.66	17.83	2.01	23.83	1.34
6.00	1.78	12.00	122.99	18.00	2.01	24.00	1.34

CALIB			
NASHYD (0001)	Area (ha)= 13.80	Curve Number (CN)= 75.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= .61		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	1.23	6.083	2.23	12.083	16.05	18.08	2.01
.167	1.23	6.167	2.23	12.167	16.04	18.17	2.01
.250	1.23	6.250	2.23	12.250	16.04	18.25	2.01
.333	1.23	6.333	2.23	12.333	16.04	18.33	2.01
.417	1.23	6.417	2.23	12.417	16.04	18.42	2.01
.500	1.23	6.500	2.23	12.500	16.04	18.50	2.01
.583	1.23	6.583	2.23	12.583	8.24	18.58	2.01
.667	1.23	6.667	2.23	12.667	8.24	18.67	2.01
.750	1.23	6.750	2.23	12.750	8.24	18.75	2.01
.833	1.23	6.833	2.23	12.833	8.24	18.83	2.01
.917	1.23	6.917	2.23	12.917	8.24	18.92	2.01
1.000	1.23	7.000	2.23	13.000	8.24	19.00	2.01
1.083	1.23	7.083	2.23	13.083	1.56	19.08	2.01
1.167	1.23	7.167	2.23	13.167	1.56	19.17	2.01
1.250	1.23	7.250	2.23	13.250	1.56	19.25	2.01
1.333	1.23	7.333	2.23	13.333	1.56	19.33	2.01
1.417	1.23	7.417	2.23	13.417	1.56	19.42	2.01
1.500	1.23	7.500	2.23	13.500	1.56	19.50	2.01
1.583	1.23	7.583	2.23	13.583	9.13	19.58	2.01
1.667	1.23	7.667	2.23	13.667	9.13	19.67	2.01
1.750	1.23	7.750	2.23	13.750	9.13	19.75	2.01

1.833	1.23	7.833	2.23	13.833	9.13	19.83	2.01
1.917	1.23	7.917	2.23	13.917	9.13	19.92	2.01
2.000	1.23	8.000	2.23	14.000	9.13	20.00	2.01
2.083	1.45	8.083	3.01	14.083	3.34	20.08	1.34
2.167	1.45	8.167	3.01	14.167	3.34	20.17	1.34
2.250	1.45	8.250	3.01	14.250	3.34	20.25	1.34
2.333	1.45	8.333	3.01	14.333	3.34	20.33	1.34
2.417	1.45	8.417	3.01	14.417	3.34	20.42	1.34
2.500	1.45	8.500	3.01	14.500	3.34	20.50	1.34
2.583	1.45	8.583	3.01	14.583	3.34	20.58	1.34
2.667	1.45	8.667	3.01	14.667	3.34	20.67	1.34
2.750	1.45	8.750	3.01	14.750	3.34	20.75	1.34
2.833	1.45	8.833	3.01	14.833	3.34	20.83	1.34
2.917	1.45	8.917	3.01	14.917	3.34	20.92	1.34
3.000	1.45	9.000	3.01	15.000	3.34	21.00	1.34
3.083	1.45	9.083	3.56	15.083	3.34	21.08	1.34
3.167	1.45	9.167	3.56	15.167	3.34	21.17	1.34
3.250	1.45	9.250	3.56	15.250	3.34	21.25	1.34
3.333	1.45	9.333	3.56	15.333	3.34	21.33	1.34
3.417	1.45	9.417	3.56	15.417	3.34	21.42	1.34
3.500	1.45	9.500	3.56	15.500	3.34	21.50	1.34
3.583	1.45	9.583	4.01	15.583	3.34	21.58	1.34
3.667	1.45	9.667	4.01	15.667	3.34	21.67	1.34
3.750	1.45	9.750	4.01	15.750	3.34	21.75	1.34
3.833	1.45	9.833	4.01	15.833	3.34	21.83	1.34
3.917	1.45	9.917	4.01	15.917	3.34	21.92	1.34
4.000	1.45	10.000	4.01	16.000	3.34	22.00	1.34
4.083	1.78	10.083	5.12	16.083	2.01	22.08	1.34
4.167	1.78	10.167	5.12	16.167	2.01	22.17	1.34
4.250	1.78	10.250	5.12	16.250	2.01	22.25	1.34
4.333	1.78	10.333	5.12	16.333	2.01	22.33	1.34
4.417	1.78	10.417	5.12	16.417	2.01	22.42	1.34
4.500	1.78	10.500	5.12	16.500	2.01	22.50	1.34
4.583	1.78	10.583	6.91	16.583	2.01	22.58	1.34
4.667	1.78	10.667	6.91	16.667	2.01	22.67	1.34
4.750	1.78	10.750	6.91	16.750	2.01	22.75	1.34
4.833	1.78	10.833	6.91	16.833	2.01	22.83	1.34
4.917	1.78	10.917	6.91	16.917	2.01	22.92	1.34
5.000	1.78	11.000	6.91	17.000	2.01	23.00	1.34
5.083	1.78	11.083	10.69	17.083	2.01	23.08	1.34
5.167	1.78	11.167	10.69	17.167	2.01	23.17	1.34
5.250	1.78	11.250	10.69	17.250	2.01	23.25	1.34
5.333	1.78	11.333	10.69	17.333	2.01	23.33	1.34
5.417	1.78	11.417	10.69	17.417	2.01	23.42	1.34
5.500	1.78	11.500	10.69	17.500	2.01	23.50	1.34
5.583	1.78	11.583	46.34	17.583	2.01	23.58	1.34
5.667	1.78	11.667	46.34	17.667	2.01	23.67	1.34
5.750	1.78	11.750	84.66	17.750	2.01	23.75	1.34
5.833	1.78	11.833	84.66	17.833	2.01	23.83	1.34
5.917	1.78	11.917	122.99	17.917	2.01	23.92	1.34
6.000	1.78	12.000	122.99	18.000	2.01	24.00	1.34

Unit Hyd Qpeak (cms)= .863

PEAK FLOW (cms)= .947 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 59.276
TOTAL RAINFALL (mm)= 111.432
RUNOFF COEFFICIENT = .532

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

****
** SIMULATION NUMBER: 6 **
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READ STORM	Filename: C:\Users\Mitchell Bufalino\Deskto p\OTTHYMO\21218\ VOH-Pre-Dev Catchment B - July-20-2023\100yr2
Ptotal=122.89 mm	Comments: 100 yr/24 hr SCS

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	1.35	6.17	2.46	12.17	17.70	18.17	2.21
.33	1.35	6.33	2.46	12.33	17.70	18.33	2.21
.50	1.35	6.50	2.46	12.50	17.70	18.50	2.21
.67	1.35	6.67	2.46	12.67	9.09	18.67	2.21
.83	1.35	6.83	2.46	12.83	9.09	18.83	2.21
1.00	1.35	7.00	2.46	13.00	9.09	19.00	2.21
1.17	1.35	7.17	2.46	13.17	1.72	19.17	2.21
1.33	1.35	7.33	2.46	13.33	1.72	19.33	2.21
1.50	1.35	7.50	2.46	13.50	1.72	19.50	2.21
1.67	1.35	7.67	2.46	13.67	10.08	19.67	2.21
1.83	1.35	7.83	2.46	13.83	10.08	19.83	2.21
2.00	1.35	8.00	2.46	14.00	10.08	20.00	2.21
2.17	1.60	8.17	3.32	14.17	3.69	20.17	1.47
2.33	1.60	8.33	3.32	14.33	3.69	20.33	1.47
2.50	1.60	8.50	3.32	14.50	3.69	20.50	1.47
2.67	1.60	8.67	3.32	14.67	3.69	20.67	1.47
2.83	1.60	8.83	3.32	14.83	3.69	20.83	1.47
3.00	1.60	9.00	3.32	15.00	3.69	21.00	1.47
3.17	1.60	9.17	3.93	15.17	3.69	21.17	1.47
3.33	1.60	9.33	3.93	15.33	3.69	21.33	1.47
3.50	1.60	9.50	3.93	15.50	3.69	21.50	1.47
3.67	1.60	9.67	4.42	15.67	3.69	21.67	1.47
3.83	1.60	9.83	4.42	15.83	3.69	21.83	1.47
4.00	1.60	10.00	4.42	16.00	3.69	22.00	1.47
4.17	1.97	10.17	5.65	16.17	2.21	22.17	1.47
4.33	1.97	10.33	5.65	16.33	2.21	22.33	1.47
4.50	1.97	10.50	5.65	16.50	2.21	22.50	1.47
4.67	1.97	10.67	7.62	16.67	2.21	22.67	1.47
4.83	1.97	10.83	7.62	16.83	2.21	22.83	1.47
5.00	1.97	11.00	7.62	17.00	2.21	23.00	1.47
5.17	1.97	11.17	11.80	17.17	2.21	23.17	1.47
5.33	1.97	11.33	11.80	17.33	2.21	23.33	1.47
5.50	1.97	11.50	11.80	17.50	2.21	23.50	1.47
5.67	1.97	11.67	51.13	17.67	2.21	23.67	1.47
5.83	1.97	11.83	93.40	17.83	2.21	23.83	1.47
6.00	1.97	12.00	135.68	18.00	2.21	24.00	1.47

CALIB					
NASHYD (0001)	Area (ha)= 13.80	Curve Number (CN)= 75.0			
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= .61				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.35	6.083	2.46	12.083	17.71	18.08	2.21
.167	1.35	6.167	2.46	12.167	17.70	18.17	2.21
.250	1.35	6.250	2.46	12.250	17.70	18.25	2.21
.333	1.35	6.333	2.46	12.333	17.70	18.33	2.21
.417	1.35	6.417	2.46	12.417	17.70	18.42	2.21
.500	1.35	6.500	2.46	12.500	17.70	18.50	2.21
.583	1.35	6.583	2.46	12.583	9.09	18.58	2.21
.667	1.35	6.667	2.46	12.667	9.09	18.67	2.21
.750	1.35	6.750	2.46	12.750	9.09	18.75	2.21
.833	1.35	6.833	2.46	12.833	9.09	18.83	2.21
.917	1.35	6.917	2.46	12.917	9.09	18.92	2.21
1.000	1.35	7.000	2.46	13.000	9.09	19.00	2.21
1.083	1.35	7.083	2.46	13.083	1.72	19.08	2.21
1.167	1.35	7.167	2.46	13.167	1.72	19.17	2.21
1.250	1.35	7.250	2.46	13.250	1.72	19.25	2.21
1.333	1.35	7.333	2.46	13.333	1.72	19.33	2.21
1.417	1.35	7.417	2.46	13.417	1.72	19.42	2.21
1.500	1.35	7.500	2.46	13.500	1.72	19.50	2.21
1.583	1.35	7.583	2.46	13.583	10.08	19.58	2.21

1.667	1.35	7.667	2.46	13.667	10.08	19.67	2.21
1.750	1.35	7.750	2.46	13.750	10.08	19.75	2.21
1.833	1.35	7.833	2.46	13.833	10.08	19.83	2.21
1.917	1.35	7.917	2.46	13.917	10.08	19.92	2.21
2.000	1.35	8.000	2.46	14.000	10.08	20.00	2.21
2.083	1.60	8.083	3.32	14.083	3.69	20.08	1.47
2.167	1.60	8.167	3.32	14.167	3.69	20.17	1.47
2.250	1.60	8.250	3.32	14.250	3.69	20.25	1.47
2.333	1.60	8.333	3.32	14.333	3.69	20.33	1.47
2.417	1.60	8.417	3.32	14.417	3.69	20.42	1.47
2.500	1.60	8.500	3.32	14.500	3.69	20.50	1.47
2.583	1.60	8.583	3.32	14.583	3.69	20.58	1.47
2.667	1.60	8.667	3.32	14.667	3.69	20.67	1.47
2.750	1.60	8.750	3.32	14.750	3.69	20.75	1.47
2.833	1.60	8.833	3.32	14.833	3.69	20.83	1.47
2.917	1.60	8.917	3.32	14.917	3.69	20.92	1.47
3.000	1.60	9.000	3.32	15.000	3.69	21.00	1.47
3.083	1.60	9.083	3.93	15.083	3.69	21.08	1.47
3.167	1.60	9.167	3.93	15.167	3.69	21.17	1.47
3.250	1.60	9.250	3.93	15.250	3.69	21.25	1.47
3.333	1.60	9.333	3.93	15.333	3.69	21.33	1.47
3.417	1.60	9.417	3.93	15.417	3.69	21.42	1.47
3.500	1.60	9.500	3.93	15.500	3.69	21.50	1.47
3.583	1.60	9.583	4.42	15.583	3.69	21.58	1.47
3.667	1.60	9.667	4.42	15.667	3.69	21.67	1.47
3.750	1.60	9.750	4.42	15.750	3.69	21.75	1.47
3.833	1.60	9.833	4.42	15.833	3.69	21.83	1.47
3.917	1.60	9.917	4.42	15.917	3.69	21.92	1.47
4.000	1.60	10.000	4.42	16.000	3.69	22.00	1.47
4.083	1.97	10.083	5.65	16.083	2.21	22.08	1.47
4.167	1.97	10.167	5.65	16.167	2.21	22.17	1.47
4.250	1.97	10.250	5.65	16.250	2.21	22.25	1.47
4.333	1.97	10.333	5.65	16.333	2.21	22.33	1.47
4.417	1.97	10.417	5.65	16.417	2.21	22.42	1.47
4.500	1.97	10.500	5.65	16.500	2.21	22.50	1.47
4.583	1.97	10.583	7.62	16.583	2.21	22.58	1.47
4.667	1.97	10.667	7.62	16.667	2.21	22.67	1.47
4.750	1.97	10.750	7.62	16.750	2.21	22.75	1.47
4.833	1.97	10.833	7.62	16.833	2.21	22.83	1.47
4.917	1.97	10.917	7.62	16.917	2.21	22.92	1.47
5.000	1.97	11.000	7.62	17.000	2.21	23.00	1.47
5.083	1.97	11.083	11.80	17.083	2.21	23.08	1.47
5.167	1.97	11.167	11.80	17.167	2.21	23.17	1.47
5.250	1.97	11.250	11.80	17.250	2.21	23.25	1.47
5.333	1.97	11.333	11.80	17.333	2.21	23.33	1.47
5.417	1.97	11.417	11.80	17.417	2.21	23.42	1.47
5.500	1.97	11.500	11.80	17.500	2.21	23.50	1.47
5.583	1.97	11.583	51.13	17.583	2.21	23.58	1.47
5.667	1.97	11.667	51.13	17.667	2.21	23.67	1.47
5.750	1.97	11.750	93.40	17.750	2.21	23.75	1.47
5.833	1.97	11.833	93.40	17.833	2.21	23.83	1.47
5.917	1.97	11.917	135.68	17.917	2.21	23.92	1.47
6.000	1.97	12.000	135.68	18.000	2.21	24.00	1.47

Unit Hyd Qpeak (cms)= .863

PEAK FLOW (cms)= 1.099 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 68.609
TOTAL RAINFALL (mm)= 122.887
RUNOFF COEFFICIENT = .558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

****
** SIMULATION NUMBER: 7 **
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READ STORM	Filename: C:\Users\Mitchell Bufalino\Deskto p\OTTHYMO\21218\

	VOH-Pre-Dev Catchment B - July-20-2023\Hurric
Ptotal=212.00 mm	Comments: Hurricane Hazel

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	6.00	3.17	13.00	6.17	23.00	9.17	53.00
.33	6.00	3.33	13.00	6.33	23.00	9.33	53.00
.50	6.00	3.50	13.00	6.50	23.00	9.50	53.00
.67	6.00	3.67	13.00	6.67	23.00	9.67	53.00
.83	6.00	3.83	13.00	6.83	23.00	9.83	53.00
1.00	6.00	4.00	13.00	7.00	23.00	10.00	53.00
1.17	4.00	4.17	17.00	7.17	13.00	10.17	38.00
1.33	4.00	4.33	17.00	7.33	13.00	10.33	38.00
1.50	4.00	4.50	17.00	7.50	13.00	10.50	38.00
1.67	4.00	4.67	17.00	7.67	13.00	10.67	38.00
1.83	4.00	4.83	17.00	7.83	13.00	10.83	38.00
2.00	4.00	5.00	17.00	8.00	13.00	11.00	38.00
2.17	6.00	5.17	13.00	8.17	13.00	11.17	13.00
2.33	6.00	5.33	13.00	8.33	13.00	11.33	13.00
2.50	6.00	5.50	13.00	8.50	13.00	11.50	13.00
2.67	6.00	5.67	13.00	8.67	13.00	11.67	13.00
2.83	6.00	5.83	13.00	8.83	13.00	11.83	13.00
3.00	6.00	6.00	13.00	9.00	13.00	12.00	13.00

CALIB	
NASHYD (0001)	Area (ha)= 13.80 Curve Number (CN)= 75.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= .61

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00

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              3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=    .863

     PEAK FLOW       (cms)=   1.449 (i)
     TIME TO PEAK    (hrs)=  10.500
     RUNOFF VOLUME    (mm)= 146.908
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =    .693

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ** SIMULATION NUMBER:   8 **
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| CHICAGO STORM    |    IDF curve parameters: A= 460.600
| Ptotal= 25.00 mm |                          B=   6.000
--------------------                          C=    .781
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =   .38

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    1.69 |  1.17    6.21 |  2.17    4.63 |  3.17    2.07
                 .33    1.89 |  1.33   14.04 |  2.33    3.79 |  3.33    1.91
                 .50    2.17 |  1.50   52.83 |  2.50    3.22 |  3.50    1.77
                 .67    2.55 |  1.67   16.90 |  2.67    2.81 |  3.67    1.66
                 .83    3.13 |  1.83    8.79 |  2.83    2.50 |  3.83    1.56
                1.00    4.12 |  2.00    6.02 |  3.00    2.26 |  4.00    1.47


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| CALIB            |
| NASHYD    (0001) |   Area    (ha)=  13.80   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .61

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083    1.69 | 1.083    6.21 | 2.083    4.63 |  3.08    2.07
                .167    1.69 | 1.167    6.21 | 2.167    4.63 |  3.17    2.07
                .250    1.89 | 1.250   14.04 | 2.250    3.79 |  3.25    1.91
                .333    1.89 | 1.333   14.04 | 2.333    3.79 |  3.33    1.91
                .417    2.17 | 1.417   52.83 | 2.417    3.22 |  3.42    1.77
                .500    2.17 | 1.500   52.83 | 2.500    3.22 |  3.50    1.77
                .583    2.55 | 1.583   16.90 | 2.583    2.81 |  3.58    1.66
                .667    2.55 | 1.667   16.90 | 2.667    2.81 |  3.67    1.66
                .750    3.13 | 1.750    8.79 | 2.750    2.50 |  3.75    1.56
                .833    3.13 | 1.833    8.79 | 2.833    2.50 |  3.83    1.56
                .917    4.12 | 1.917    6.02 | 2.917    2.26 |  3.92    1.47
               1.000    4.12 | 2.000    6.02 | 3.000    2.26 |  4.00    1.47

     Unit Hyd Qpeak  (cms)=    .863

     PEAK FLOW       (cms)=    .074 (i)
     TIME TO PEAK    (hrs)=   2.333
     RUNOFF VOLUME    (mm)=   3.820
     TOTAL RAINFALL   (mm)=  24.997
     RUNOFF COEFFICIENT   =    .153

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ** SIMULATION NUMBER:   9 **
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--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1049.500
| Ptotal= 50.80 mm |                          B=   4.000
--------------------                          C=    .803
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =   .33

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    3.06 |  1.17   24.99 |  2.17    7.27 |  3.17    3.64
                 .33    3.51 |  1.33  126.08 |  2.33    6.18 |  3.33    3.38
                 .50    4.13 |  1.50   33.04 |  2.50    5.39 |  3.50    3.16
                 .67    5.09 |  1.67   16.96 |  2.67    4.79 |  3.67    2.96
                 .83    6.71 |  1.83   11.59 |  2.83    4.33 |  3.83    2.80
                1.00   10.23 |  2.00    8.89 |  3.00    3.95 |  4.00    2.65


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| CALIB            |
| NASHYD    (0001) |   Area    (ha)=  13.80   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .61

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083    3.06 | 1.083   24.99 | 2.083    7.27 |  3.08    3.64
                .167    3.06 | 1.167   24.99 | 2.167    7.27 |  3.17    3.64
                .250    3.51 | 1.250  126.08 | 2.250    6.18 |  3.25    3.38
                .333    3.51 | 1.333  126.08 | 2.333    6.18 |  3.33    3.38
                .417    4.13 | 1.417   33.04 | 2.417    5.39 |  3.42    3.16
                .500    4.13 | 1.500   33.04 | 2.500    5.39 |  3.50    3.16
                .583    5.09 | 1.583   16.96 | 2.583    4.79 |  3.58    2.96
                .667    5.09 | 1.667   16.96 | 2.667    4.79 |  3.67    2.96
                .750    6.71 | 1.750   11.59 | 2.750    4.33 |  3.75    2.80
                .833    6.71 | 1.833   11.59 | 2.833    4.33 |  3.83    2.80
                .917   10.23 | 1.917    8.89 | 2.917    3.95 |  3.92    2.65
               1.000   10.23 | 2.000    8.89 | 3.000    3.95 |  4.00    2.65

     Unit Hyd Qpeak  (cms)=    .863

     PEAK FLOW       (cms)=    .339 (i)
     TIME TO PEAK    (hrs)=   2.083
     RUNOFF VOLUME    (mm)=  16.075
     TOTAL RAINFALL   (mm)=  50.796
     RUNOFF COEFFICIENT   =    .316

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:  10 **
  ****************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=2317.000
| Ptotal= 91.35 mm |                          B=  11.000
--------------------                          C=    .836
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
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                        Storm time step    = 10.00 min
                        Time to peak ratio =   .33

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    5.36 |  1.17   54.82 |  2.17   14.69 |  3.17    6.55
                 .33    6.27 |  1.33  181.78 |  2.33   12.15 |  3.33    6.01
                 .50    7.60 |  1.50   71.89 |  2.50   10.36 |  3.50    5.56
                 .67    9.68 |  1.67   37.82 |  2.67    9.04 |  3.67    5.17
                 .83   13.40 |  1.83   25.03 |  2.83    8.02 |  3.83    4.83
                1.00   21.76 |  2.00   18.55 |  3.00    7.21 |  4.00    4.54


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| CALIB             |
| NASHYD    (0001) |   Area    (ha)=  13.80   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .61

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083    5.36 | 1.083   54.82 | 2.083   14.69 |  3.08    6.55
                .167    5.36 | 1.167   54.82 | 2.167   14.69 |  3.17    6.55
                .250    6.27 | 1.250  181.78 | 2.250   12.15 |  3.25    6.01
                .333    6.27 | 1.333  181.78 | 2.333   12.15 |  3.33    6.01
                .417    7.60 | 1.417   71.89 | 2.417   10.36 |  3.42    5.56
                .500    7.60 | 1.500   71.89 | 2.500   10.36 |  3.50    5.56
                .583    9.68 | 1.583   37.82 | 2.583    9.04 |  3.58    5.17
                .667    9.68 | 1.667   37.82 | 2.667    9.04 |  3.67    5.17
                .750   13.40 | 1.750   25.03 | 2.750    8.02 |  3.75    4.83
                .833   13.40 | 1.833   25.03 | 2.833    8.02 |  3.83    4.83
                .917   21.76 | 1.917   18.55 | 2.917    7.21 |  3.92    4.54
               1.000   21.76 | 2.000   18.55 | 3.000    7.21 |  4.00    4.54

     Unit Hyd Qpeak  (cms)=    .863

     PEAK FLOW       (cms)=    .942 (i)
     TIME TO PEAK    (hrs)=   2.083
     RUNOFF VOLUME    (mm)=  43.599
     TOTAL RAINFALL   (mm)=  91.350
     RUNOFF COEFFICIENT   =    .477

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

 FINISH
================================================================================================
==============
```

Visual OTTHYMO Output File – Catchment A – Post-Development

```
================================================================================
==============

      V    V   I    SSSSS  U   U    A    L
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
        V V    I      SS   U   U  A   A  L
         VV    I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO

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                  ***** D E T A I L E D   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 2.3.3\voin.dat
  Output  filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\VOH-Post-Dev.- July 13-
2023 (Catchment A)\Airport Road Outlet.out
  Summary filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\VOH-Post-Dev.- July 13-
2023 (Catchment A)\Airport Road Outlet.sum

DATE: 8/08/23                             TIME: 11:04:14 AM

USER:

COMMENTS: _____________________________________________________

--------------------------------------------------------------------------------
--------------
  ****************************
  ** SIMULATION NUMBER:   6 **
  ****************************

--------------------
|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment A)\100
| Ptotal=122.89 mm |    Comments: 100 yr/24 hr SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	1.35	6.17	2.46	12.17	17.70	18.17	2.21
.33	1.35	6.33	2.46	12.33	17.70	18.33	2.21
.50	1.35	6.50	2.46	12.50	17.70	18.50	2.21
.67	1.35	6.67	2.46	12.67	9.09	18.67	2.21
.83	1.35	6.83	2.46	12.83	9.09	18.83	2.21
1.00	1.35	7.00	2.46	13.00	9.09	19.00	2.21
1.17	1.35	7.17	2.46	13.17	1.72	19.17	2.21
1.33	1.35	7.33	2.46	13.33	1.72	19.33	2.21
1.50	1.35	7.50	2.46	13.50	1.72	19.50	2.21
1.67	1.35	7.67	2.46	13.67	10.08	19.67	2.21
1.83	1.35	7.83	2.46	13.83	10.08	19.83	2.21
2.00	1.35	8.00	2.46	14.00	10.08	20.00	2.21
2.17	1.60	8.17	3.32	14.17	3.69	20.17	1.47
2.33	1.60	8.33	3.32	14.33	3.69	20.33	1.47
2.50	1.60	8.50	3.32	14.50	3.69	20.50	1.47
2.67	1.60	8.67	3.32	14.67	3.69	20.67	1.47
2.83	1.60	8.83	3.32	14.83	3.69	20.83	1.47
3.00	1.60	9.00	3.32	15.00	3.69	21.00	1.47
3.17	1.60	9.17	3.93	15.17	3.69	21.17	1.47
3.33	1.60	9.33	3.93	15.33	3.69	21.33	1.47
3.50	1.60	9.50	3.93	15.50	3.69	21.50	1.47
3.67	1.60	9.67	4.42	15.67	3.69	21.67	1.47
3.83	1.60	9.83	4.42	15.83	3.69	21.83	1.47
4.00	1.60	10.00	4.42	16.00	3.69	22.00	1.47
4.17	1.97	10.17	5.65	16.17	2.21	22.17	1.47
4.33	1.97	10.33	5.65	16.33	2.21	22.33	1.47
4.50	1.97	10.50	5.65	16.50	2.21	22.50	1.47
4.67	1.97	10.67	7.62	16.67	2.21	22.67	1.47
4.83	1.97	10.83	7.62	16.83	2.21	22.83	1.47
5.00	1.97	11.00	7.62	17.00	2.21	23.00	1.47
5.17	1.97	11.17	11.80	17.17	2.21	23.17	1.47
5.33	1.97	11.33	11.80	17.33	2.21	23.33	1.47
5.50	1.97	11.50	11.80	17.50	2.21	23.50	1.47
5.67	1.97	11.67	51.13	17.67	2.21	23.67	1.47
5.83	1.97	11.83	93.40	17.83	2.21	23.83	1.47
6.00	1.97	12.00	135.68	18.00	2.21	24.00	1.47

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--------------------
| CALIB            |
| STANDHYD  (0002) |   Area    (ha)=   7.08
|ID= 1 DT= 5.0 min |   Total Imp(%)=  90.00   Dir. Conn.(%)=  90.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	6.37	.71
Dep. Storage	(mm)=	1.00	1.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	217.30	40.00
Mannings n	=	.013	.250

```
    NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.35	6.083	2.46	12.083	17.71	18.08	2.21
.167	1.35	6.167	2.46	12.167	17.70	18.17	2.21
.250	1.35	6.250	2.46	12.250	17.70	18.25	2.21
.333	1.35	6.333	2.46	12.333	17.70	18.33	2.21
.417	1.35	6.417	2.46	12.417	17.70	18.42	2.21
.500	1.35	6.500	2.46	12.500	17.70	18.50	2.21
.583	1.35	6.583	2.46	12.583	9.09	18.58	2.21
.667	1.35	6.667	2.46	12.667	9.09	18.67	2.21
.750	1.35	6.750	2.46	12.750	9.09	18.75	2.21
.833	1.35	6.833	2.46	12.833	9.09	18.83	2.21
.917	1.35	6.917	2.46	12.917	9.09	18.92	2.21
1.000	1.35	7.000	2.46	13.000	9.09	19.00	2.21
1.083	1.35	7.083	2.46	13.083	1.72	19.08	2.21
1.167	1.35	7.167	2.46	13.167	1.72	19.17	2.21
1.250	1.35	7.250	2.46	13.250	1.72	19.25	2.21
1.333	1.35	7.333	2.46	13.333	1.72	19.33	2.21
1.417	1.35	7.417	2.46	13.417	1.72	19.42	2.21
1.500	1.35	7.500	2.46	13.500	1.72	19.50	2.21
1.583	1.35	7.583	2.46	13.583	10.08	19.58	2.21
1.667	1.35	7.667	2.46	13.667	10.08	19.67	2.21
1.750	1.35	7.750	2.46	13.750	10.08	19.75	2.21
1.833	1.35	7.833	2.46	13.833	10.08	19.83	2.21
1.917	1.35	7.917	2.46	13.917	10.08	19.92	2.21
2.000	1.35	8.000	2.46	14.000	10.08	20.00	2.21
2.083	1.60	8.083	3.32	14.083	3.69	20.08	1.47
2.167	1.60	8.167	3.32	14.167	3.69	20.17	1.47
2.250	1.60	8.250	3.32	14.250	3.69	20.25	1.47

```
              2.333    1.60 | 8.333    3.32 |14.333    3.69 | 20.33    1.47
              2.417    1.60 | 8.417    3.32 |14.417    3.69 | 20.42    1.47
              2.500    1.60 | 8.500    3.32 |14.500    3.69 | 20.50    1.47
              2.583    1.60 | 8.583    3.32 |14.583    3.69 | 20.58    1.47
              2.667    1.60 | 8.667    3.32 |14.667    3.69 | 20.67    1.47
              2.750    1.60 | 8.750    3.32 |14.750    3.69 | 20.75    1.47
              2.833    1.60 | 8.833    3.32 |14.833    3.69 | 20.83    1.47
              2.917    1.60 | 8.917    3.32 |14.917    3.69 | 20.92    1.47
              3.000    1.60 | 9.000    3.32 |15.000    3.69 | 21.00    1.47
              3.083    1.60 | 9.083    3.93 |15.083    3.69 | 21.08    1.47
              3.167    1.60 | 9.167    3.93 |15.167    3.69 | 21.17    1.47
              3.250    1.60 | 9.250    3.93 |15.250    3.69 | 21.25    1.47
              3.333    1.60 | 9.333    3.93 |15.333    3.69 | 21.33    1.47
              3.417    1.60 | 9.417    3.93 |15.417    3.69 | 21.42    1.47
              3.500    1.60 | 9.500    3.93 |15.500    3.69 | 21.50    1.47
              3.583    1.60 | 9.583    4.42 |15.583    3.69 | 21.58    1.47
              3.667    1.60 | 9.667    4.42 |15.667    3.69 | 21.67    1.47
              3.750    1.60 | 9.750    4.42 |15.750    3.69 | 21.75    1.47
              3.833    1.60 | 9.833    4.42 |15.833    3.69 | 21.83    1.47
              3.917    1.60 | 9.917    4.42 |15.917    3.69 | 21.92    1.47
              4.000    1.60 |10.000    4.42 |16.000    3.69 | 22.00    1.47
              4.083    1.97 |10.083    5.65 |16.083    2.21 | 22.08    1.47
              4.167    1.97 |10.167    5.65 |16.167    2.21 | 22.17    1.47
              4.250    1.97 |10.250    5.65 |16.250    2.21 | 22.25    1.47
              4.333    1.97 |10.333    5.65 |16.333    2.21 | 22.33    1.47
              4.417    1.97 |10.417    5.65 |16.417    2.21 | 22.42    1.47
              4.500    1.97 |10.500    5.65 |16.500    2.21 | 22.50    1.47
              4.583    1.97 |10.583    7.62 |16.583    2.21 | 22.58    1.47
              4.667    1.97 |10.667    7.62 |16.667    2.21 | 22.67    1.47
              4.750    1.97 |10.750    7.62 |16.750    2.21 | 22.75    1.47
              4.833    1.97 |10.833    7.62 |16.833    2.21 | 22.83    1.47
              4.917    1.97 |10.917    7.62 |16.917    2.21 | 22.92    1.47
              5.000    1.97 |11.000    7.62 |17.000    2.21 | 23.00    1.47
              5.083    1.97 |11.083   11.80 |17.083    2.21 | 23.08    1.47
              5.167    1.97 |11.167   11.80 |17.167    2.21 | 23.17    1.47
              5.250    1.97 |11.250   11.80 |17.250    2.21 | 23.25    1.47
              5.333    1.97 |11.333   11.80 |17.333    2.21 | 23.33    1.47
              5.417    1.97 |11.417   11.80 |17.417    2.21 | 23.42    1.47
              5.500    1.97 |11.500   11.80 |17.500    2.21 | 23.50    1.47
              5.583    1.97 |11.583   51.13 |17.583    2.21 | 23.58    1.47
              5.667    1.97 |11.667   51.13 |17.667    2.21 | 23.67    1.47
              5.750    1.97 |11.750   93.40 |17.750    2.21 | 23.75    1.47
              5.833    1.97 |11.833   93.40 |17.833    2.21 | 23.83    1.47
              5.917    1.97 |11.917  135.68 |17.917    2.21 | 23.92    1.47
              6.000    1.97 |12.000  135.68 |18.000    2.21 | 24.00    1.47

     Max.Eff.Inten.(mm/hr)=     135.68        94.36
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.60 (ii)    6.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .26          .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=       2.35          .15        2.502 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     121.89        71.93        116.89
     TOTAL RAINFALL   (mm)=     122.89       122.89        122.89
     RUNOFF COEFFICIENT   =        .99          .59           .95

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0003) |   Area    (ha)=   3.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.30          .03
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     149.00        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     135.68       471.82
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.87 (ii)    4.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .28          .24
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.23          .01        1.239 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     121.89        71.93        121.39
     TOTAL RAINFALL   (mm)=     122.89       122.89        122.89
     RUNOFF COEFFICIENT   =        .99          .59           .99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0011) |   Area    (ha)=   1.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.19          .01
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      89.40        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     135.68       235.91
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.11 (ii)    3.34 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .31          .26
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .45          .00          .450 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     121.89        71.93        121.39
     TOTAL RAINFALL   (mm)=     122.89       122.89        122.89
     RUNOFF COEFFICIENT   =        .99          .59           .99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0012) |   Area    (ha)=   3.83
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.79          .04
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     159.80        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     135.68       117.96
```

```
              over (min)        5.00          5.00
     Storage Coeff.  (min)=     3.00 (ii)     4.22 (ii)
     Unit Hyd. Tpeak (min)=     5.00          5.00
     Unit Hyd. peak  (cms)=      .28           .24
                                                      *TOTALS*
     PEAK FLOW       (cms)=     1.41           .01       1.422 (iii)
     TIME TO PEAK    (hrs)=    12.00         12.00       12.00
     RUNOFF VOLUME    (mm)=   121.89         71.93      121.39
     TOTAL RAINFALL   (mm)=   122.89        122.89      122.89
     RUNOFF COEFFICIENT   =     .99           .59         .99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0008) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .1280       .4114
                          .1240      .3700    |    .1290       .5100
                          .1260      .3752    |    .0000       .0000

                                 AREA      QPEAK       TPEAK       R.V.
                                 (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0002)      7.080      2.502       12.00      116.89
     OUTFLOW: ID= 1 (0008)      7.080       .129       13.00      116.78

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.15
                    TIME SHIFT OF PEAK FLOW         (min)= 60.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .5032

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0005) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0569       .1665
                          .0284      .0832    |    .0853       .2498

                                 AREA      QPEAK       TPEAK       R.V.
                                 (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0003)      3.330      1.239       12.00      121.39
     OUTFLOW: ID= 1 (0005)      3.330       .082       13.00      121.16

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.60
                    TIME SHIFT OF PEAK FLOW         (min)= 60.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .2396

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0013) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0180       .0585
                          .0090      .0293    |    .0269       .0878

                                 AREA      QPEAK       TPEAK       R.V.
                                 (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0011)      1.200       .450       12.00      121.39
     OUTFLOW: ID= 1 (0013)      1.200       .027       13.00      120.70

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.02
                    TIME SHIFT OF PEAK FLOW         (min)= 60.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0884

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0014) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0748       .1913
                          .0374      .0957    |    .1122       .2870

                                 AREA      QPEAK       TPEAK       R.V.
                                 (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0012)      3.830      1.422       12.00      121.39
     OUTFLOW: ID= 1 (0014)      3.830       .105       12.67      121.22

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.36
                    TIME SHIFT OF PEAK FLOW         (min)= 40.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .2680

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0007) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0008):     7.08     .129    13.00   116.78
        + ID2= 2 (0005):     3.33     .082    13.00   121.16
          ================================================
          ID = 3 (0007):    10.41     .211    13.00   118.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0015) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0013):     1.20     .027    13.00   120.70
        + ID2= 2 (0014):     3.83     .105    12.67   121.22
          ================================================
          ID = 3 (0015):     5.03     .132    12.67   121.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0049) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0007):    10.41     .211    13.00   118.18
        + ID2= 2 (0015):     5.03     .132    12.67   121.09
          ================================================
          ID = 3 (0049):    15.44     .342    12.75   119.13

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ***************************
  ** SIMULATION NUMBER:   9 **
  ***************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1049.500
| Ptotal= 50.14 mm |                          B=   8.000
--------------------                          C=    .803
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    = 10.00 min
                         Time to peak ratio =   .33
```

```
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    3.22 |  1.17   28.14 |  2.17    8.05 |  3.17    3.87
                 .33    3.72 |  1.33  103.04 |  2.33    6.77 |  3.33    3.58
                 .50    4.43 |  1.50   36.87 |  2.50    5.86 |  3.50    3.33
                 .67    5.51 |  1.67   19.46 |  2.67    5.18 |  3.67    3.12
                 .83    7.40 |  1.83   13.16 |  2.83    4.65 |  3.83    2.93
                1.00   11.55 |  2.00    9.97 |  3.00    4.22 |  4.00    2.77


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0002) |   Area    (ha)=   7.08
|ID= 1 DT= 5.0 min |   Total Imp(%)=  90.00   Dir. Conn.(%)=  90.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      6.37          .71
     Dep. Storage     (mm)=      1.00         1.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    217.30        40.00
     Mannings n            =     .013         .250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083    3.22 | 1.083   28.14 | 2.083    8.05 |  3.08    3.87
                .167    3.22 | 1.167   28.14 | 2.167    8.05 |  3.17    3.87
                .250    3.72 | 1.250  103.04 | 2.250    6.77 |  3.25    3.58
                .333    3.72 | 1.333  103.04 | 2.333    6.77 |  3.33    3.58
                .417    4.43 | 1.417   36.87 | 2.417    5.86 |  3.42    3.33
                .500    4.43 | 1.500   36.87 | 2.500    5.86 |  3.50    3.33
                .583    5.51 | 1.583   19.46 | 2.583    5.18 |  3.58    3.12
                .667    5.51 | 1.667   19.46 | 2.667    5.18 |  3.67    3.12
                .750    7.40 | 1.750   13.16 | 2.750    4.65 |  3.75    2.93
                .833    7.40 | 1.833   13.16 | 2.833    4.65 |  3.83    2.93
                .917   11.55 | 1.917    9.97 | 2.917    4.22 |  3.92    2.77
               1.000   11.55 | 2.000    9.97 | 3.000    4.22 |  4.00    2.77

     Max.Eff.Inten.(mm/hr)=     103.04        32.81
                over (min)        5.00        10.00
     Storage Coeff.  (min)=       4.02 (ii)    7.59 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .24          .13
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.71          .05         1.750 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42          1.33
     RUNOFF VOLUME    (mm)=      49.14        18.04         46.03
     TOTAL RAINFALL   (mm)=      50.14        50.14         50.14
     RUNOFF COEFFICIENT   =        .98          .36           .92

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0003) |   Area    (ha)=   3.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.30          .03
     Dep. Storage     (mm)=      1.00         1.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    149.00        40.00
     Mannings n            =     .013         .250

     Max.Eff.Inten.(mm/hr)=     103.04       164.07
                over (min)        5.00         5.00
     Storage Coeff.  (min)=       3.21 (ii)    4.57 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .27          .23
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .91          .00          .916 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.33          1.33
     RUNOFF VOLUME    (mm)=      49.14        18.04         48.82
     TOTAL RAINFALL   (mm)=      50.14        50.14         50.14
     RUNOFF COEFFICIENT   =        .98          .36           .97

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0011) |   Area    (ha)=   1.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.19          .01
     Dep. Storage     (mm)=      1.00         1.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     89.40        40.00
     Mannings n            =     .013         .250

     Max.Eff.Inten.(mm/hr)=     103.04        82.04
                over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.36 (ii)    3.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .30          .25
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .34          .00          .338 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.33          1.33
     RUNOFF VOLUME    (mm)=      49.14        18.04         48.82
     TOTAL RAINFALL   (mm)=      50.14        50.14         50.14
     RUNOFF COEFFICIENT   =        .98          .36           .97

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (0012) |   Area    (ha)=   3.83
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.79          .04
     Dep. Storage     (mm)=      1.00         1.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    159.80        40.00
     Mannings n            =     .013         .250

     Max.Eff.Inten.(mm/hr)=     103.04        41.02
                over (min)        5.00         5.00
     Storage Coeff.  (min)=       3.34 (ii)    4.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .26          .22
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                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.05          .00          1.049 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.33           1.33
     RUNOFF VOLUME    (mm)=      49.14        18.04          48.82
     TOTAL RAINFALL   (mm)=      50.14        50.14          50.14
     RUNOFF COEFFICIENT   =        .98          .36            .97

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| RESERVOIR (0008) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .1280       .4114
                          .1240       .3700   |    .1290       .5100
                          .1260       .3752   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0002)    7.080     1.750        1.33       46.03
     OUTFLOW: ID= 1 (0008)    7.080      .084        2.92       45.92

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.82
                TIME SHIFT OF PEAK FLOW         (min)= 95.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .2518

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-------------------
| RESERVOIR (0005) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0569       .1665
                          .0284       .0832   |    .0853       .2498

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0003)   3.330      .916         1.33       48.82
     OUTFLOW: ID= 1 (0005)   3.330      .043         2.83       48.60

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.68
                TIME SHIFT OF PEAK FLOW         (min)= 90.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .1254

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-------------------
| RESERVOIR (0013) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0180       .0585
                          .0090       .0293   |    .0269       .0878

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0011)   1.200      .338         1.33       48.82
     OUTFLOW: ID= 1 (0013)   1.200      .014         2.92       48.14

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.19
                TIME SHIFT OF PEAK FLOW         (min)= 95.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .0460

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-------------------
| RESERVOIR (0014) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0748       .1913
                          .0374       .0957   |    .1122       .2870

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0012)   3.830     1.049        1.33       48.82
     OUTFLOW: ID= 1 (0014)   3.830      .055        2.67       48.66

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.26
                TIME SHIFT OF PEAK FLOW         (min)= 80.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .1410

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-------------------
| ADD HYD   (0007) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0008):     7.08     .084     2.92    45.92
        + ID2= 2 (0005):     3.33     .043     2.83    48.60
          ================================================
          ID = 3 (0007):    10.41     .127     2.83    46.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0015) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0013):     1.20     .014     2.92    48.14
        + ID2= 2 (0014):     3.83     .055     2.67    48.66
          ================================================
          ID = 3 (0015):     5.03     .069     2.67    48.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0049) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0007):    10.41     .127     2.83    46.78
        + ID2= 2 (0015):     5.03     .069     2.67    48.53
          ================================================
          ID = 3 (0049):    15.44     .196     2.83    47.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ***************************
  ** SIMULATION NUMBER:  10 **
  ***************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A=2317.000
| Ptotal= 91.35 mm |                          B=  11.000
-------------------                          C=    .836
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    = 10.00 min
                         Time to peak ratio =   .33

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    5.36 |  1.17   54.82 |  2.17   14.69 |  3.17    6.55
                 .33    6.27 |  1.33  181.78 |  2.33   12.15 |  3.33    6.01
```

```
                .50    7.60 |  1.50   71.89 |  2.50   10.36 |  3.50    5.56
                .67    9.68 |  1.67   37.82 |  2.67    9.04 |  3.67    5.17
                .83   13.40 |  1.83   25.03 |  2.83    8.02 |  3.83    4.83
               1.00   21.76 |  2.00   18.55 |  3.00    7.21 |  4.00    4.54


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0002) |   Area    (ha)=   7.08
|ID= 1 DT= 5.0 min |   Total Imp(%)=  90.00   Dir. Conn.(%)=  90.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.37          .71
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     217.30        40.00
     Mannings n           =       .013         .250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
               .083    5.36 | 1.083   54.82 | 2.083   14.69 |  3.08    6.55
               .167    5.36 | 1.167   54.82 | 2.167   14.69 |  3.17    6.55
               .250    6.27 | 1.250  181.78 | 2.250   12.15 |  3.25    6.01
               .333    6.27 | 1.333  181.78 | 2.333   12.15 |  3.33    6.01
               .417    7.60 | 1.417   71.89 | 2.417   10.36 |  3.42    5.56
               .500    7.60 | 1.500   71.89 | 2.500   10.36 |  3.50    5.56
               .583    9.68 | 1.583   37.82 | 2.583    9.04 |  3.58    5.17
               .667    9.68 | 1.667   37.82 | 2.667    9.04 |  3.67    5.17
               .750   13.40 | 1.750   25.03 | 2.750    8.02 |  3.75    4.83
               .833   13.40 | 1.833   25.03 | 2.833    8.02 |  3.83    4.83
               .917   21.76 | 1.917   18.55 | 2.917    7.21 |  3.92    4.54
              1.000   21.76 | 2.000   18.55 | 3.000    7.21 |  4.00    4.54

     Max.Eff.Inten.(mm/hr)=     181.78        87.65
                 over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.20 (ii)    6.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .27          .15
                                                    *TOTALS*
     PEAK FLOW       (cms)=       3.12          .14          3.234 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.33
     RUNOFF VOLUME    (mm)=      90.35        46.64          85.98
     TOTAL RAINFALL   (mm)=      91.35        91.35          91.35
     RUNOFF COEFFICIENT   =        .99          .51            .94

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0003) |   Area    (ha)=   3.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.30          .03
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     149.00        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78       438.27
                 over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.56 (ii)    3.64 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .29          .25
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.64          .01          1.650 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.33           1.33
     RUNOFF VOLUME    (mm)=      90.35        46.64          89.91
     TOTAL RAINFALL   (mm)=      91.35        91.35          91.35
     RUNOFF COEFFICIENT   =        .99          .51            .98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0011) |   Area    (ha)=   1.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.19          .01
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      89.40        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78       219.14
                 over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.88 (ii)    2.97 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .32          .28
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .60          .00           .601 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.33           1.33
     RUNOFF VOLUME    (mm)=      90.35        46.64          89.91
     TOTAL RAINFALL   (mm)=      91.35        91.35          91.35
     RUNOFF COEFFICIENT   =        .99          .51            .98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0012) |   Area    (ha)=   3.83
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.79          .04
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     159.80        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78       109.57
                 over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.66 (ii)    3.75 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .29          .25
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.88          .01          1.893 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.33           1.33
     RUNOFF VOLUME    (mm)=      90.35        46.64          89.91
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     TOTAL RAINFALL   (mm)=      91.35        91.35          91.35
     RUNOFF COEFFICIENT   =        .99          .51            .98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0008) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .1280       .4114
                          .1240       .3700   |    .1290       .5100
                          .1260       .3752   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0002)    7.080     3.234        1.33       85.98
     OUTFLOW: ID= 1 (0008)    7.080      .129        3.08       85.87

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.98
                TIME SHIFT OF PEAK FLOW         (min)=105.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .4859

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0005) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0569       .1665
                          .0284       .0832   |    .0853       .2498

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0003)    3.330     1.650        1.33       89.91
     OUTFLOW: ID= 1 (0005)    3.330      .079        2.67       89.69

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.82
                TIME SHIFT OF PEAK FLOW         (min)= 80.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .2328

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--------------------
| RESERVOIR (0013) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0180       .0585
                          .0090       .0293   |    .0269       .0878

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0011)    1.200      .601        1.33       89.91
     OUTFLOW: ID= 1 (0013)    1.200      .026        2.83       89.23

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.35
                TIME SHIFT OF PEAK FLOW         (min)= 90.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .0853

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0014) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0748       .1913
                          .0374       .0957   |    .1122       .2870

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0012)    3.830     1.893        1.33       89.91
     OUTFLOW: ID= 1 (0014)    3.830      .102        2.58       89.75

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.41
                TIME SHIFT OF PEAK FLOW         (min)= 75.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .2622

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0007) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0008):     7.08     .129     3.08    85.87
        + ID2= 2 (0005):     3.33     .079     2.67    89.69
          ================================================
          ID = 3 (0007):    10.41     .208     2.75    87.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0015) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0013):     1.20     .026     2.83    89.23
        + ID2= 2 (0014):     3.83     .102     2.58    89.75
          ================================================
          ID = 3 (0015):     5.03     .129     2.58    89.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0049) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0007):    10.41     .208     2.75    87.09
        + ID2= 2 (0015):     5.03     .129     2.58    89.62
          ================================================
          ID = 3 (0049):    15.44     .337     2.67    87.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 FINISH
================================================================================
==============
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Visual OTTHYMO Output File – Catchment B – Post-Development

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================================================================================
==============

      V    V   I    SSSSS  U   U    A    L
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
        V V    I      SS   U   U  A   A  L
         VV    I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO

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                  ***** D E T A I L E D   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 2.3.3\voin.dat
  Output  filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\August 21st 2023\VOH-
Post-Dev.- July 13-2023 (Catchment B)\Twenty Mile
  Summary filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\August 21st 2023\VOH-
Post-Dev.- July 13-2023 (Catchment B)\Twenty Mile

DATE: 8/22/23                          TIME: 10:40:03 AM

USER:


COMMENTS: _____________________________________________________

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  ****************************
  ** SIMULATION NUMBER:   1 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\2yr
| Ptotal= 53.10 mm |    Comments: 2yr/24hr SCS
--------------------
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17     .58 |  6.17    1.06 | 12.17    7.65 | 18.17     .96
                 .33     .58 |  6.33    1.06 | 12.33    7.65 | 18.33     .96
                 .50     .58 |  6.50    1.06 | 12.50    7.65 | 18.50     .96
                 .67     .58 |  6.67    1.06 | 12.67    3.93 | 18.67     .96
                 .83     .58 |  6.83    1.06 | 12.83    3.93 | 18.83     .96
                1.00     .58 |  7.00    1.06 | 13.00    3.93 | 19.00     .96
                1.17     .58 |  7.17    1.06 | 13.17     .74 | 19.17     .96
                1.33     .58 |  7.33    1.06 | 13.33     .74 | 19.33     .96
                1.50     .58 |  7.50    1.06 | 13.50     .74 | 19.50     .96
                1.67     .58 |  7.67    1.06 | 13.67    4.35 | 19.67     .96
                1.83     .58 |  7.83    1.06 | 13.83    4.35 | 19.83     .96
                2.00     .58 |  8.00    1.06 | 14.00    4.35 | 20.00     .96
                2.17     .69 |  8.17    1.43 | 14.17    1.59 | 20.17     .64
                2.33     .69 |  8.33    1.43 | 14.33    1.59 | 20.33     .64
                2.50     .69 |  8.50    1.43 | 14.50    1.59 | 20.50     .64
                2.67     .69 |  8.67    1.43 | 14.67    1.59 | 20.67     .64
                2.83     .69 |  8.83    1.43 | 14.83    1.59 | 20.83     .64
                3.00     .69 |  9.00    1.43 | 15.00    1.59 | 21.00     .64
                3.17     .69 |  9.17    1.70 | 15.17    1.59 | 21.17     .64
                3.33     .69 |  9.33    1.70 | 15.33    1.59 | 21.33     .64
                3.50     .69 |  9.50    1.70 | 15.50    1.59 | 21.50     .64
                3.67     .69 |  9.67    1.91 | 15.67    1.59 | 21.67     .64
                3.83     .69 |  9.83    1.91 | 15.83    1.59 | 21.83     .64
                4.00     .69 | 10.00    1.91 | 16.00    1.59 | 22.00     .64
                4.17     .85 | 10.17    2.44 | 16.17     .96 | 22.17     .64
                4.33     .85 | 10.33    2.44 | 16.33     .96 | 22.33     .64
                4.50     .85 | 10.50    2.44 | 16.50     .96 | 22.50     .64
                4.67     .85 | 10.67    3.29 | 16.67     .96 | 22.67     .64
                4.83     .85 | 10.83    3.29 | 16.83     .96 | 22.83     .64
                5.00     .85 | 11.00    3.29 | 17.00     .96 | 23.00     .64
                5.17     .85 | 11.17    5.10 | 17.17     .96 | 23.17     .64
                5.33     .85 | 11.33    5.10 | 17.33     .96 | 23.33     .64
                5.50     .85 | 11.50    5.10 | 17.50     .96 | 23.50     .64
                5.67     .85 | 11.67   22.09 | 17.67     .96 | 23.67     .64
                5.83     .85 | 11.83   40.36 | 17.83     .96 | 23.83     .64
                6.00     .85 | 12.00   58.62 | 18.00     .96 | 24.00     .64

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| CALIB            |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------

                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.26           .84
     Dep. Storage     (mm)=      10.00         10.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     118.30         40.00
     Mannings n           =       .013          .250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083     .58 | 6.083    1.06 |12.083    7.66 | 18.08     .96
                .167     .58 | 6.167    1.06 |12.167    7.65 | 18.17     .96
                .250     .58 | 6.250    1.06 |12.250    7.65 | 18.25     .96
                .333     .58 | 6.333    1.06 |12.333    7.65 | 18.33     .96
                .417     .58 | 6.417    1.06 |12.417    7.65 | 18.42     .96
                .500     .58 | 6.500    1.06 |12.500    7.65 | 18.50     .96
                .583     .58 | 6.583    1.06 |12.583    3.93 | 18.58     .96
                .667     .58 | 6.667    1.06 |12.667    3.93 | 18.67     .96
                .750     .58 | 6.750    1.06 |12.750    3.93 | 18.75     .96
                .833     .58 | 6.833    1.06 |12.833    3.93 | 18.83     .96
                .917     .58 | 6.917    1.06 |12.917    3.93 | 18.92     .96
               1.000     .58 | 7.000    1.06 |13.000    3.93 | 19.00     .96
               1.083     .58 | 7.083    1.06 |13.083     .74 | 19.08     .96
               1.167     .58 | 7.167    1.06 |13.167     .74 | 19.17     .96
               1.250     .58 | 7.250    1.06 |13.250     .74 | 19.25     .96
               1.333     .58 | 7.333    1.06 |13.333     .74 | 19.33     .96
               1.417     .58 | 7.417    1.06 |13.417     .74 | 19.42     .96
               1.500     .58 | 7.500    1.06 |13.500     .74 | 19.50     .96
               1.583     .58 | 7.583    1.06 |13.583    4.35 | 19.58     .96
               1.667     .58 | 7.667    1.06 |13.667    4.35 | 19.67     .96
               1.750     .58 | 7.750    1.06 |13.750    4.35 | 19.75     .96
               1.833     .58 | 7.833    1.06 |13.833    4.35 | 19.83     .96
               1.917     .58 | 7.917    1.06 |13.917    4.35 | 19.92     .96
               2.000     .58 | 8.000    1.06 |14.000    4.35 | 20.00     .96
               2.083     .69 | 8.083    1.43 |14.083    1.59 | 20.08     .64
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                2.167     .69 | 8.167    1.43 |14.167    1.59 | 20.17     .64
                2.250     .69 | 8.250    1.43 |14.250    1.59 | 20.25     .64
                2.333     .69 | 8.333    1.43 |14.333    1.59 | 20.33     .64
                2.417     .69 | 8.417    1.43 |14.417    1.59 | 20.42     .64
                2.500     .69 | 8.500    1.43 |14.500    1.59 | 20.50     .64
                2.583     .69 | 8.583    1.43 |14.583    1.59 | 20.58     .64
                2.667     .69 | 8.667    1.43 |14.667    1.59 | 20.67     .64
                2.750     .69 | 8.750    1.43 |14.750    1.59 | 20.75     .64
                2.833     .69 | 8.833    1.43 |14.833    1.59 | 20.83     .64
                2.917     .69 | 8.917    1.43 |14.917    1.59 | 20.92     .64
                3.000     .69 | 9.000    1.43 |15.000    1.59 | 21.00     .64
                3.083     .69 | 9.083    1.70 |15.083    1.59 | 21.08     .64
                3.167     .69 | 9.167    1.70 |15.167    1.59 | 21.17     .64
                3.250     .69 | 9.250    1.70 |15.250    1.59 | 21.25     .64
                3.333     .69 | 9.333    1.70 |15.333    1.59 | 21.33     .64
                3.417     .69 | 9.417    1.70 |15.417    1.59 | 21.42     .64
                3.500     .69 | 9.500    1.70 |15.500    1.59 | 21.50     .64
                3.583     .69 | 9.583    1.91 |15.583    1.59 | 21.58     .64
                3.667     .69 | 9.667    1.91 |15.667    1.59 | 21.67     .64
                3.750     .69 | 9.750    1.91 |15.750    1.59 | 21.75     .64
                3.833     .69 | 9.833    1.91 |15.833    1.59 | 21.83     .64
                3.917     .69 | 9.917    1.91 |15.917    1.59 | 21.92     .64
                4.000     .69 |10.000    1.91 |16.000    1.59 | 22.00     .64
                4.083     .85 |10.083    2.44 |16.083     .96 | 22.08     .64
                4.167     .85 |10.167    2.44 |16.167     .96 | 22.17     .64
                4.250     .85 |10.250    2.44 |16.250     .96 | 22.25     .64
                4.333     .85 |10.333    2.44 |16.333     .96 | 22.33     .64
                4.417     .85 |10.417    2.44 |16.417     .96 | 22.42     .64
                4.500     .85 |10.500    2.44 |16.500     .96 | 22.50     .64
                4.583     .85 |10.583    3.29 |16.583     .96 | 22.58     .64
                4.667     .85 |10.667    3.29 |16.667     .96 | 22.67     .64
                4.750     .85 |10.750    3.29 |16.750     .96 | 22.75     .64
                4.833     .85 |10.833    3.29 |16.833     .96 | 22.83     .64
                4.917     .85 |10.917    3.29 |16.917     .96 | 22.92     .64
                5.000     .85 |11.000    3.29 |17.000     .96 | 23.00     .64
                5.083     .85 |11.083    5.10 |17.083     .96 | 23.08     .64
                5.167     .85 |11.167    5.10 |17.167     .96 | 23.17     .64
                5.250     .85 |11.250    5.10 |17.250     .96 | 23.25     .64
                5.333     .85 |11.333    5.10 |17.333     .96 | 23.33     .64
                5.417     .85 |11.417    5.10 |17.417     .96 | 23.42     .64
                5.500     .85 |11.500    5.10 |17.500     .96 | 23.50     .64
                5.583     .85 |11.583   22.09 |17.583     .96 | 23.58     .64
                5.667     .85 |11.667   22.09 |17.667     .96 | 23.67     .64
                5.750     .85 |11.750   40.36 |17.750     .96 | 23.75     .64
                5.833     .85 |11.833   40.36 |17.833     .96 | 23.83     .64
                5.917     .85 |11.917   58.62 |17.917     .96 | 23.92     .64
                6.000     .85 |12.000   58.62 |18.000     .96 | 24.00     .64

     Max.Eff.Inten.(mm/hr)=      58.62        14.90
               over (min)        5.00        25.00
     Storage Coeff.  (min)=       3.50 (ii)   22.11 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=        .26          .05
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .20          .02          .212 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.25         12.00
     RUNOFF VOLUME    (mm)=      43.10        14.54         31.67
     TOTAL RAINFALL   (mm)=      53.10        53.10         53.10
     RUNOFF COEFFICIENT   =        .81          .27           .60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          .53           .41
     Dep. Storage     (mm)=        17.00         17.00
     Average Slope     (%)=         1.00          1.00
     Length            (m)=        79.20         40.00
     Mannings n            =        .013          .250

     Max.Eff.Inten.(mm/hr)=        58.62          8.14
               over (min)          5.00         30.00
     Storage Coeff.  (min)=         2.75 (ii)   26.45 (ii)
     Unit Hyd. Tpeak (min)=         5.00         30.00
     Unit Hyd. peak  (cms)=          .28           .04
                                                      *TOTALS*
     PEAK FLOW       (cms)=          .08           .01          .087 (iii)
     TIME TO PEAK    (hrs)=        12.00         12.42         12.00
     RUNOFF VOLUME    (mm)=        36.10         10.79         24.95
     TOTAL RAINFALL   (mm)=        53.10         53.10         53.10
     RUNOFF COEFFICIENT   =          .68           .20           .47

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         1.45           .01
     Dep. Storage     (mm)=        15.00         15.00
     Average Slope     (%)=         1.00          1.00
     Length            (m)=        98.70         40.00
     Mannings n            =        .013          .250

     Max.Eff.Inten.(mm/hr)=        58.62        324.05
               over (min)          5.00          5.00
     Storage Coeff.  (min)=         3.14 (ii)    4.85 (ii)
     Unit Hyd. Tpeak (min)=         5.00          5.00
     Unit Hyd. peak  (cms)=          .27           .22
                                                      *TOTALS*
     PEAK FLOW       (cms)=          .23           .00          .233 (iii)
     TIME TO PEAK    (hrs)=        12.00         12.00         12.00
     RUNOFF VOLUME    (mm)=        38.10         11.83         37.84
     TOTAL RAINFALL   (mm)=        53.10         53.10         53.10
     RUNOFF COEFFICIENT   =          .72           .22           .71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          .22           .17
     Dep. Storage     (mm)=        17.00         17.00
     Average Slope     (%)=         1.00          1.00
     Length            (m)=        51.00         40.00
     Mannings n            =        .013          .250
```

```
     Max.Eff.Inten.(mm/hr)=      58.62         8.14
               over (min)         5.00        30.00
     Storage Coeff.  (min)=       2.11 (ii)   25.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=        .31          .04
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .04          .00          .036 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.42         12.00
     RUNOFF VOLUME    (mm)=      36.10        10.79         24.93
     TOTAL RAINFALL   (mm)=      53.10        53.10         53.10
     RUNOFF COEFFICIENT   =        .68          .20           .47

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .023 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)=   9.302
     TOTAL RAINFALL   (mm)=  53.103
     RUNOFF COEFFICIENT   =    .175

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0020) |   Area    (ha)=   3.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.73          .44
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     145.40        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      58.62        14.90
               over (min)         5.00        25.00
     Storage Coeff.  (min)=       3.96 (ii)   22.57 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=        .24          .05
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .43          .01          .437 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.25         12.00
     RUNOFF VOLUME    (mm)=      43.10        14.54         39.10
     TOTAL RAINFALL   (mm)=      53.10        53.10         53.10
     RUNOFF COEFFICIENT   =        .81          .27           .74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0019) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      58.62       162.02
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       3.94 (ii)    5.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .24          .15
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .49          .00          .491 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      38.10        11.83         37.84
     TOTAL RAINFALL   (mm)=      53.10        53.10         53.10
     RUNOFF COEFFICIENT   =        .72          .22           .71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .59          .47
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      84.10        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      58.62         8.14
               over (min)         5.00        30.00
     Storage Coeff.  (min)=       2.85 (ii)   26.55 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=        .28          .04
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .10          .01           .098 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.42         12.00
     RUNOFF VOLUME    (mm)=      36.10        10.79         24.95
     TOTAL RAINFALL   (mm)=      53.10        53.10         53.10
     RUNOFF COEFFICIENT   =        .68          .20           .47

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0052) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=       1.00         1.00
```

```
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      98.70        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      58.62       324.05
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       3.14 (ii)    4.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .27          .22
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .23          .00          .233 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      52.10        19.85         51.78
     TOTAL RAINFALL   (mm)=      53.10        53.10         53.10
     RUNOFF COEFFICIENT   =        .98          .37           .98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0053) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      58.62       162.02
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.94 (ii)    5.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .24          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .49          .00          .491 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      52.10        19.85         51.78
     TOTAL RAINFALL   (mm)=      53.10        53.10         53.10
     RUNOFF COEFFICIENT   =        .98          .37           .98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0210       .1224
                          .0203      .1100    |    .0213       .1520
                          .0206      .1116    |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)    2.100       .212       12.00       31.67
     OUTFLOW: ID= 1 (0036)    2.100       .008       14.67       31.02

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.80
                    TIME SHIFT OF PEAK FLOW          (min)=160.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0436

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-------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0239       .0730
                          .0120      .0365    |    .0359       .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)    1.460       .233       12.00       37.84
     OUTFLOW: ID= 1 (0022)    1.460       .011       13.00       37.31

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.67
                    TIME SHIFT OF PEAK FLOW          (min)= 60.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0332

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-------------------
| RESERVOIR (0028) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0219       .2295
                          .0212      .2100    |    .0222       .2760
                          .0216      .2124    |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0020)    3.170       .437       12.00       39.10
     OUTFLOW: ID= 1 (0028)    3.170       .009       16.08       38.31

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.11
                    TIME SHIFT OF PEAK FLOW          (min)=245.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0914

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-------------------
| RESERVOIR (0027) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0628       .1562
                          .0314      .0781    |    .0943       .2344

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0019)    3.120       .491       12.00       37.84
     OUTFLOW: ID= 1 (0027)    3.120       .028       13.00       37.64

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.65
                    TIME SHIFT OF PEAK FLOW          (min)= 60.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0690

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0054) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0240       .0730
                          .0120      .0365    |    .0360       .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0052)    1.460       .233       12.00       51.78
     OUTFLOW: ID= 1 (0054)    1.460       .015       13.00       51.26

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.41
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                  TIME SHIFT OF PEAK FLOW          (min)= 60.00
                  MAXIMUM  STORAGE   USED        (ha.m.)=   .0455

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--------------------
| RESERVOIR (0055) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0630       .1562
                          .0310      .0781    |    .0940       .2344

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)     3.120       .491       12.00      51.78
     OUTFLOW: ID= 1 (0055)     3.120       .037       12.67      51.58

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.58
                  TIME SHIFT OF PEAK FLOW          (min)= 40.00
                  MAXIMUM  STORAGE   USED        (ha.m.)=   .0934

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--------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0017):      .94    .087    12.00     24.95
        + ID2= 2 (0022):     1.46    .011    13.00     37.31
          ================================================
          ID = 3 (0024):     2.40    .094    12.00     32.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0029) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0028):     3.17    .009    16.08     38.31
        + ID2= 2 (0027):     3.12    .028    13.00     37.64
          ================================================
          ID = 3 (0029):     6.29    .036    13.08     37.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0024):     2.40    .094    12.00     32.47
        + ID2= 2 (0018):      .39    .036    12.00     24.93
          ================================================
          ID = 3 (0025):     2.79    .131    12.00     31.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0029):     6.29    .036    13.08     37.98
        + ID2= 2 (0033):     1.06    .098    12.00     24.95
          ================================================
          ID = 3 (0038):     7.35    .123    12.00     36.10

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0036):     2.10    .008    14.67     31.02
        + ID2= 2 (0025):     2.79    .131    12.00     31.42
          ================================================
          ID = 3 (0051):     4.89    .136    12.00     31.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0051):     4.89    .136    12.00     31.25
        + ID2= 2 (0035):     2.01    .023    12.25      9.30
          ================================================
          ID = 3 (0043):     6.90    .146    12.00     24.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0043):     6.90    .146    12.00     24.85
        + ID2= 2 (0038):     7.35    .123    12.00     36.10
          ================================================
          ID = 3 (0044):    14.25    .269    12.00     30.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   2 **
  ****************************


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|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\5yr
| Ptotal= 71.78 mm |    Comments: 5yr/24hr SCS
--------------------
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17     .79 |  6.17    1.44 | 12.17   10.34 | 18.17    1.29
                 .33     .79 |  6.33    1.44 | 12.33   10.34 | 18.33    1.29
                 .50     .79 |  6.50    1.44 | 12.50   10.34 | 18.50    1.29
                 .67     .79 |  6.67    1.44 | 12.67    5.31 | 18.67    1.29
                 .83     .79 |  6.83    1.44 | 12.83    5.31 | 18.83    1.29
                1.00     .79 |  7.00    1.44 | 13.00    5.31 | 19.00    1.29
                1.17     .79 |  7.17    1.44 | 13.17    1.01 | 19.17    1.29
                1.33     .79 |  7.33    1.44 | 13.33    1.01 | 19.33    1.29
                1.50     .79 |  7.50    1.44 | 13.50    1.01 | 19.50    1.29
                1.67     .79 |  7.67    1.44 | 13.67    5.89 | 19.67    1.29
                1.83     .79 |  7.83    1.44 | 13.83    5.89 | 19.83    1.29
                2.00     .79 |  8.00    1.44 | 14.00    5.89 | 20.00    1.29
                2.17     .93 |  8.17    1.94 | 14.17    2.15 | 20.17     .86
                2.33     .93 |  8.33    1.94 | 14.33    2.15 | 20.33     .86
                2.50     .93 |  8.50    1.94 | 14.50    2.15 | 20.50     .86
                2.67     .93 |  8.67    1.94 | 14.67    2.15 | 20.67     .86
                2.83     .93 |  8.83    1.94 | 14.83    2.15 | 20.83     .86
                3.00     .93 |  9.00    1.94 | 15.00    2.15 | 21.00     .86
                3.17     .93 |  9.17    2.30 | 15.17    2.15 | 21.17     .86
                3.33     .93 |  9.33    2.30 | 15.33    2.15 | 21.33     .86
```

3.50	.93	9.50	2.30	15.50	2.15	21.50	.86
3.67	.93	9.67	2.58	15.67	2.15	21.67	.86
3.83	.93	9.83	2.58	15.83	2.15	21.83	.86
4.00	.93	10.00	2.58	16.00	2.15	22.00	.86
4.17	1.15	10.17	3.30	16.17	1.29	22.17	.86
4.33	1.15	10.33	3.30	16.33	1.29	22.33	.86
4.50	1.15	10.50	3.30	16.50	1.29	22.50	.86
4.67	1.15	10.67	4.45	16.67	1.29	22.67	.86
4.83	1.15	10.83	4.45	16.83	1.29	22.83	.86
5.00	1.15	11.00	4.45	17.00	1.29	23.00	.86
5.17	1.15	11.17	6.89	17.17	1.29	23.17	.86
5.33	1.15	11.33	6.89	17.33	1.29	23.33	.86
5.50	1.15	11.50	6.89	17.50	1.29	23.50	.86
5.67	1.15	11.67	29.87	17.67	1.29	23.67	.86
5.83	1.15	11.83	54.57	17.83	1.29	23.83	.86
6.00	1.15	12.00	79.27	18.00	1.29	24.00	.86

CALIB	
STANDHYD (0034)	Area (ha)= 2.10
ID= 1 DT= 5.0 min	Total Imp(%)= 60.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.26	.84
Dep. Storage	(mm)=	10.00	10.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	118.30	40.00
Mannings n	=	.013	.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	.79	6.083	1.44	12.083	10.35	18.08	1.29
.167	.79	6.167	1.44	12.167	10.34	18.17	1.29
.250	.79	6.250	1.44	12.250	10.34	18.25	1.29
.333	.79	6.333	1.44	12.333	10.34	18.33	1.29
.417	.79	6.417	1.44	12.417	10.34	18.42	1.29
.500	.79	6.500	1.44	12.500	10.34	18.50	1.29
.583	.79	6.583	1.44	12.583	5.31	18.58	1.29
.667	.79	6.667	1.44	12.667	5.31	18.67	1.29
.750	.79	6.750	1.44	12.750	5.31	18.75	1.29
.833	.79	6.833	1.44	12.833	5.31	18.83	1.29
.917	.79	6.917	1.44	12.917	5.31	18.92	1.29
1.000	.79	7.000	1.44	13.000	5.31	19.00	1.29
1.083	.79	7.083	1.44	13.083	1.01	19.08	1.29
1.167	.79	7.167	1.44	13.167	1.01	19.17	1.29
1.250	.79	7.250	1.44	13.250	1.01	19.25	1.29
1.333	.79	7.333	1.44	13.333	1.01	19.33	1.29
1.417	.79	7.417	1.44	13.417	1.01	19.42	1.29
1.500	.79	7.500	1.44	13.500	1.01	19.50	1.29
1.583	.79	7.583	1.44	13.583	5.89	19.58	1.29
1.667	.79	7.667	1.44	13.667	5.89	19.67	1.29
1.750	.79	7.750	1.44	13.750	5.89	19.75	1.29
1.833	.79	7.833	1.44	13.833	5.89	19.83	1.29
1.917	.79	7.917	1.44	13.917	5.89	19.92	1.29
2.000	.79	8.000	1.44	14.000	5.89	20.00	1.29
2.083	.93	8.083	1.94	14.083	2.15	20.08	.86
2.167	.93	8.167	1.94	14.167	2.15	20.17	.86
2.250	.93	8.250	1.94	14.250	2.15	20.25	.86
2.333	.93	8.333	1.94	14.333	2.15	20.33	.86
2.417	.93	8.417	1.94	14.417	2.15	20.42	.86
2.500	.93	8.500	1.94	14.500	2.15	20.50	.86
2.583	.93	8.583	1.94	14.583	2.15	20.58	.86
2.667	.93	8.667	1.94	14.667	2.15	20.67	.86
2.750	.93	8.750	1.94	14.750	2.15	20.75	.86
2.833	.93	8.833	1.94	14.833	2.15	20.83	.86
2.917	.93	8.917	1.94	14.917	2.15	20.92	.86
3.000	.93	9.000	1.94	15.000	2.15	21.00	.86
3.083	.93	9.083	2.30	15.083	2.15	21.08	.86
3.167	.93	9.167	2.30	15.167	2.15	21.17	.86
3.250	.93	9.250	2.30	15.250	2.15	21.25	.86
3.333	.93	9.333	2.30	15.333	2.15	21.33	.86
3.417	.93	9.417	2.30	15.417	2.15	21.42	.86
3.500	.93	9.500	2.30	15.500	2.15	21.50	.86
3.583	.93	9.583	2.58	15.583	2.15	21.58	.86
3.667	.93	9.667	2.58	15.667	2.15	21.67	.86
3.750	.93	9.750	2.58	15.750	2.15	21.75	.86
3.833	.93	9.833	2.58	15.833	2.15	21.83	.86
3.917	.93	9.917	2.58	15.917	2.15	21.92	.86
4.000	.93	10.000	2.58	16.000	2.15	22.00	.86
4.083	1.15	10.083	3.30	16.083	1.29	22.08	.86
4.167	1.15	10.167	3.30	16.167	1.29	22.17	.86
4.250	1.15	10.250	3.30	16.250	1.29	22.25	.86
4.333	1.15	10.333	3.30	16.333	1.29	22.33	.86
4.417	1.15	10.417	3.30	16.417	1.29	22.42	.86
4.500	1.15	10.500	3.30	16.500	1.29	22.50	.86
4.583	1.15	10.583	4.45	16.583	1.29	22.58	.86
4.667	1.15	10.667	4.45	16.667	1.29	22.67	.86
4.750	1.15	10.750	4.45	16.750	1.29	22.75	.86
4.833	1.15	10.833	4.45	16.833	1.29	22.83	.86
4.917	1.15	10.917	4.45	16.917	1.29	22.92	.86
5.000	1.15	11.000	4.45	17.000	1.29	23.00	.86
5.083	1.15	11.083	6.89	17.083	1.29	23.08	.86
5.167	1.15	11.167	6.89	17.167	1.29	23.17	.86
5.250	1.15	11.250	6.89	17.250	1.29	23.25	.86
5.333	1.15	11.333	6.89	17.333	1.29	23.33	.86
5.417	1.15	11.417	6.89	17.417	1.29	23.42	.86
5.500	1.15	11.500	6.89	17.500	1.29	23.50	.86
5.583	1.15	11.583	29.87	17.583	1.29	23.58	.86
5.667	1.15	11.667	29.87	17.667	1.29	23.67	.86
5.750	1.15	11.750	54.57	17.750	1.29	23.75	.86
5.833	1.15	11.833	54.57	17.833	1.29	23.83	.86
5.917	1.15	11.917	79.27	17.917	1.29	23.92	.86
6.000	1.15	12.000	79.27	18.000	1.29	24.00	.86

Max.Eff.Inten.(mm/hr)=		79.27	31.19	
over (min)		5.00	20.00	
Storage Coeff. (min)=		3.10 (ii)	16.95 (ii)	
Unit Hyd. Tpeak (min)=		5.00	20.00	
Unit Hyd. peak (cms)=		.27	.06	
				TOTALS
PEAK FLOW	(cms)=	.27	.04	.304 (iii)
TIME TO PEAK	(hrs)=	12.00	12.17	12.00
RUNOFF VOLUME	(mm)=	61.78	26.06	47.49
TOTAL RAINFALL	(mm)=	71.78	71.78	71.78
RUNOFF COEFFICIENT	=	.86	.36	.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 75.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0017)	Area (ha)= .94
ID= 1 DT= 5.0 min	Total Imp(%)= 56.00 Dir. Conn.(%)= 56.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.53	.41
Dep. Storage	(mm)=	17.00	17.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	79.20	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.(mm/hr)=	79.27	25.73	
over (min)	5.00	20.00	
Storage Coeff. (min)=	2.44 (ii)	17.39 (ii)	

```
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=        .30           .06
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .12           .02          .126 (iii)
     TIME TO PEAK    (hrs)=      12.00         12.17         12.00
     RUNOFF VOLUME    (mm)=      54.78         21.52         40.14
     TOTAL RAINFALL   (mm)=      71.78         71.78         71.78
     RUNOFF COEFFICIENT   =        .76           .30           .56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      98.70        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      79.27       681.30
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.78 (ii)    4.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .28          .23
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .32          .00          .317 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      56.78        22.79         56.44
     TOTAL RAINFALL   (mm)=      71.78        71.78         71.78
     RUNOFF COEFFICIENT   =        .79          .32           .79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .22          .17
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      51.00        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      79.27        25.73
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       1.87 (ii)   16.83 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=        .32          .06
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .05          .01          .053 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.17         12.00
     RUNOFF VOLUME    (mm)=      54.78        21.52         40.12
     TOTAL RAINFALL   (mm)=      71.78        71.78         71.78
     RUNOFF COEFFICIENT   =        .76          .30           .56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .062 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)=  19.644
     TOTAL RAINFALL   (mm)=  71.780
     RUNOFF COEFFICIENT   =    .274

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0020) |   Area    (ha)=   3.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.73          .44
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     145.40        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      79.27        48.66
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.51 (ii)    8.12 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .26          .13
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .59          .03          .622 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      61.78        26.06         56.78
     TOTAL RAINFALL   (mm)=      71.78        71.78         71.78
     RUNOFF COEFFICIENT   =        .86          .36           .79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0019) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n           =       .013         .250
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     Max.Eff.Inten.(mm/hr)=      79.27       340.65
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      3.49 (ii)    5.01 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=       .26          .16
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .67          .00          .670 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00        12.00
     RUNOFF VOLUME    (mm)=     56.78        22.79        56.44
     TOTAL RAINFALL   (mm)=     71.78        71.78        71.78
     RUNOFF COEFFICIENT   =       .79          .32          .79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .59          .47
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     84.10        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     79.27        25.73
               over (min)        5.00        20.00
     Storage Coeff.  (min)=      2.53 (ii)   17.48 (ii)
     Unit Hyd. Tpeak (min)=      5.00        20.00
     Unit Hyd. peak  (cms)=       .29          .06
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .13          .02          .142 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.17        12.00
     RUNOFF VOLUME    (mm)=     54.78        21.52        40.14
     TOTAL RAINFALL   (mm)=     71.78        71.78        71.78
     RUNOFF COEFFICIENT   =       .76          .30          .56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (0052) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.45          .01
     Dep. Storage     (mm)=      1.00         1.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     98.70        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     79.27       681.30
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      2.78 (ii)    4.30 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .28          .23
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .32          .00          .317 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00        12.00
     RUNOFF VOLUME    (mm)=     70.78        32.23        70.39
     TOTAL RAINFALL   (mm)=     71.78        71.78        71.78
     RUNOFF COEFFICIENT   =       .99          .45          .98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (0053) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.09          .03
     Dep. Storage     (mm)=      1.00         1.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    144.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     79.27       340.65
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      3.49 (ii)    5.01 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=       .26          .16
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .67          .00          .670 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00        12.00
     RUNOFF VOLUME    (mm)=     70.78        32.23        70.39
     TOTAL RAINFALL   (mm)=     71.78        71.78        71.78
     RUNOFF COEFFICIENT   =       .99          .45          .98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0210       .1224
                          .0203      .1100    |    .0213       .1520
                          .0206      .1116    |    .0000       .0000

                                  AREA      QPEAK       TPEAK       R.V.
                                  (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)      2.100       .304       12.00       47.49
     OUTFLOW: ID= 1 (0036)      2.100       .012       14.42       46.83

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.00
                TIME SHIFT OF PEAK FLOW          (min)=145.00
                MAXIMUM  STORAGE   USED        (ha.m.)=   .0659

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-------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0239       .0730
                          .0120      .0365    |    .0359       .1095
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                              AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)    1.460       .317       12.00       56.44
     OUTFLOW: ID= 1 (0022)    1.460       .017       13.00       55.91

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.28
                   TIME SHIFT OF PEAK FLOW         (min)= 60.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0511

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--------------------
| RESERVOIR (0028) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000       .0000   |    .0219       .2295
                           .0212       .2100   |    .0222       .2760
                           .0216       .2124   |    .0000       .0000

                              AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0020)    3.170       .622       12.00       56.78
     OUTFLOW: ID= 1 (0028)    3.170       .013       16.08       55.98

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.17
                   TIME SHIFT OF PEAK FLOW         (min)=245.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1335

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--------------------
| RESERVOIR (0027) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000       .0000   |    .0628       .1562
                           .0314       .0781   |    .0943       .2344

                              AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0019)    3.120       .670       12.00       56.44
     OUTFLOW: ID= 1 (0027)    3.120       .043       13.00       56.24

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.35
                   TIME SHIFT OF PEAK FLOW         (min)= 60.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1059

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--------------------
| RESERVOIR (0054) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000       .0000   |    .0240       .0730
                           .0120       .0365   |    .0360       .1095

                              AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0052)    1.460       .317       12.00       70.39
     OUTFLOW: ID= 1 (0054)    1.460       .020       13.00       69.86

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.39
                   TIME SHIFT OF PEAK FLOW         (min)= 60.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0617

------------------------------------------------------------------------------
--------------------
| RESERVOIR (0055) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000       .0000   |    .0630       .1562
                           .0310       .0781   |    .0940       .2344
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                              AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)    3.120       .670       12.00       70.39
     OUTFLOW: ID= 1 (0055)    3.120       .051       12.67       70.19

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.58
                   TIME SHIFT OF PEAK FLOW         (min)= 40.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1265

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| ADD HYD   (0024) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0017):       .94     .126    12.00    40.14
       + ID2= 2 (0022):      1.46     .017    13.00    55.91
         ================================================
         ID = 3 (0024):      2.40     .139    12.00    49.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0029) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0028):      3.17     .013    16.08    55.98
       + ID2= 2 (0027):      3.12     .043    13.00    56.24
         ================================================
         ID = 3 (0029):      6.29     .055    13.00    56.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0024):      2.40     .139    12.00    49.73
       + ID2= 2 (0018):       .39     .053    12.00    40.12
         ================================================
         ID = 3 (0025):      2.79     .191    12.00    48.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0029):      6.29     .055    13.00    56.11
       + ID2= 2 (0033):      1.06     .142    12.00    40.14
         ================================================
         ID = 3 (0038):      7.35     .183    12.00    53.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------

--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0036):      2.10     .012    14.42    46.83
       + ID2= 2 (0025):      2.79     .191    12.00    48.39
         ================================================
         ID = 3 (0051):      4.89     .199    12.00    47.72
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0051):	4.89	.199	12.00	47.72
	+ ID2= 2 (0035):	2.01	.062	12.25	19.64
	ID = 3 (0043):	6.90	.237	12.00	39.54

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0044)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0043):	6.90	.237	12.00	39.54
	+ ID2= 2 (0038):	7.35	.183	12.00	53.81
	ID = 3 (0044):	14.25	.421	12.00	46.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION NUMBER: 3 **
****

READ STORM	Filename: C:\Users\Mitchell Bufalino\Deskto p\OTTHYMO\21218\ VOH-Post-Dev.- July 13-2023 (Catchment B)\10y
Ptotal= 84.21 mm	Comments: 10yr/24hr SCS

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	.93	6.17	1.68	12.17	12.12	18.17	1.52
.33	.93	6.33	1.68	12.33	12.12	18.33	1.52
.50	.93	6.50	1.68	12.50	12.12	18.50	1.52
.67	.93	6.67	1.68	12.67	6.23	18.67	1.52
.83	.93	6.83	1.68	12.83	6.23	18.83	1.52
1.00	.93	7.00	1.68	13.00	6.23	19.00	1.52
1.17	.93	7.17	1.68	13.17	1.18	19.17	1.52
1.33	.93	7.33	1.68	13.33	1.18	19.33	1.52
1.50	.93	7.50	1.68	13.50	1.18	19.50	1.52
1.67	.93	7.67	1.68	13.67	6.90	19.67	1.52
1.83	.93	7.83	1.68	13.83	6.90	19.83	1.52
2.00	.93	8.00	1.68	14.00	6.90	20.00	1.52
2.17	1.09	8.17	2.27	14.17	2.53	20.17	1.01
2.33	1.09	8.33	2.27	14.33	2.53	20.33	1.01
2.50	1.09	8.50	2.27	14.50	2.53	20.50	1.01
2.67	1.09	8.67	2.27	14.67	2.53	20.67	1.01
2.83	1.09	8.83	2.27	14.83	2.53	20.83	1.01
3.00	1.09	9.00	2.27	15.00	2.53	21.00	1.01
3.17	1.09	9.17	2.69	15.17	2.53	21.17	1.01
3.33	1.09	9.33	2.69	15.33	2.53	21.33	1.01
3.50	1.09	9.50	2.69	15.50	2.53	21.50	1.01
3.67	1.09	9.67	3.03	15.67	2.53	21.67	1.01
3.83	1.09	9.83	3.03	15.83	2.53	21.83	1.01
4.00	1.09	10.00	3.03	16.00	2.53	22.00	1.01
4.17	1.35	10.17	3.87	16.17	1.52	22.17	1.01
4.33	1.35	10.33	3.87	16.33	1.52	22.33	1.01
4.50	1.35	10.50	3.87	16.50	1.52	22.50	1.01
4.67	1.35	10.67	5.22	16.67	1.52	22.67	1.01
4.83	1.35	10.83	5.22	16.83	1.52	22.83	1.01
5.00	1.35	11.00	5.22	17.00	1.52	23.00	1.01
5.17	1.35	11.17	8.08	17.17	1.52	23.17	1.01
5.33	1.35	11.33	8.08	17.33	1.52	23.33	1.01
5.50	1.35	11.50	8.08	17.50	1.52	23.50	1.01
5.67	1.35	11.67	35.03	17.67	1.52	23.67	1.01
5.83	1.35	11.83	63.99	17.83	1.52	23.83	1.01
6.00	1.35	12.00	92.96	18.00	1.52	24.00	1.01

CALIB			
STANDHYD (0034)	Area (ha)=	2.10	
ID= 1 DT= 5.0 min	Total Imp(%)=	60.00	Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.26	.84
Dep. Storage	(mm)=	10.00	10.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	118.30	40.00
Mannings n	=	.013	.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	.93	6.083	1.68	12.083	12.13	18.08	1.52
.167	.93	6.167	1.68	12.167	12.12	18.17	1.52
.250	.93	6.250	1.68	12.250	12.12	18.25	1.52
.333	.93	6.333	1.68	12.333	12.12	18.33	1.52
.417	.93	6.417	1.68	12.417	12.12	18.42	1.52
.500	.93	6.500	1.68	12.500	12.12	18.50	1.52
.583	.93	6.583	1.68	12.583	6.23	18.58	1.52
.667	.93	6.667	1.68	12.667	6.23	18.67	1.52
.750	.93	6.750	1.68	12.750	6.23	18.75	1.52
.833	.93	6.833	1.68	12.833	6.23	18.83	1.52
.917	.93	6.917	1.68	12.917	6.23	18.92	1.52
1.000	.93	7.000	1.68	13.000	6.23	19.00	1.52
1.083	.93	7.083	1.68	13.083	1.18	19.08	1.52
1.167	.93	7.167	1.68	13.167	1.18	19.17	1.52
1.250	.93	7.250	1.68	13.250	1.18	19.25	1.52
1.333	.93	7.333	1.68	13.333	1.18	19.33	1.52
1.417	.93	7.417	1.68	13.417	1.18	19.42	1.52
1.500	.93	7.500	1.68	13.500	1.18	19.50	1.52
1.583	.93	7.583	1.68	13.583	6.90	19.58	1.52
1.667	.93	7.667	1.68	13.667	6.90	19.67	1.52
1.750	.93	7.750	1.68	13.750	6.90	19.75	1.52
1.833	.93	7.833	1.68	13.833	6.90	19.83	1.52
1.917	.93	7.917	1.68	13.917	6.90	19.92	1.52
2.000	.93	8.000	1.68	14.000	6.90	20.00	1.52
2.083	1.09	8.083	2.27	14.083	2.53	20.08	1.01
2.167	1.09	8.167	2.27	14.167	2.53	20.17	1.01
2.250	1.09	8.250	2.27	14.250	2.53	20.25	1.01
2.333	1.09	8.333	2.27	14.333	2.53	20.33	1.01
2.417	1.09	8.417	2.27	14.417	2.53	20.42	1.01
2.500	1.09	8.500	2.27	14.500	2.53	20.50	1.01
2.583	1.09	8.583	2.27	14.583	2.53	20.58	1.01
2.667	1.09	8.667	2.27	14.667	2.53	20.67	1.01
2.750	1.09	8.750	2.27	14.750	2.53	20.75	1.01
2.833	1.09	8.833	2.27	14.833	2.53	20.83	1.01
2.917	1.09	8.917	2.27	14.917	2.53	20.92	1.01
3.000	1.09	9.000	2.27	15.000	2.53	21.00	1.01
3.083	1.09	9.083	2.69	15.083	2.53	21.08	1.01
3.167	1.09	9.167	2.69	15.167	2.53	21.17	1.01
3.250	1.09	9.250	2.69	15.250	2.53	21.25	1.01
3.333	1.09	9.333	2.69	15.333	2.53	21.33	1.01
3.417	1.09	9.417	2.69	15.417	2.53	21.42	1.01
3.500	1.09	9.500	2.69	15.500	2.53	21.50	1.01
3.583	1.09	9.583	3.03	15.583	2.53	21.58	1.01
3.667	1.09	9.667	3.03	15.667	2.53	21.67	1.01
3.750	1.09	9.750	3.03	15.750	2.53	21.75	1.01
3.833	1.09	9.833	3.03	15.833	2.53	21.83	1.01
3.917	1.09	9.917	3.03	15.917	2.53	21.92	1.01

```
              4.000    1.09 |10.000    3.03 |16.000    2.53 | 22.00    1.01
              4.083    1.35 |10.083    3.87 |16.083    1.52 | 22.08    1.01
              4.167    1.35 |10.167    3.87 |16.167    1.52 | 22.17    1.01
              4.250    1.35 |10.250    3.87 |16.250    1.52 | 22.25    1.01
              4.333    1.35 |10.333    3.87 |16.333    1.52 | 22.33    1.01
              4.417    1.35 |10.417    3.87 |16.417    1.52 | 22.42    1.01
              4.500    1.35 |10.500    3.87 |16.500    1.52 | 22.50    1.01
              4.583    1.35 |10.583    5.22 |16.583    1.52 | 22.58    1.01
              4.667    1.35 |10.667    5.22 |16.667    1.52 | 22.67    1.01
              4.750    1.35 |10.750    5.22 |16.750    1.52 | 22.75    1.01
              4.833    1.35 |10.833    5.22 |16.833    1.52 | 22.83    1.01
              4.917    1.35 |10.917    5.22 |16.917    1.52 | 22.92    1.01
              5.000    1.35 |11.000    5.22 |17.000    1.52 | 23.00    1.01
              5.083    1.35 |11.083    8.08 |17.083    1.52 | 23.08    1.01
              5.167    1.35 |11.167    8.08 |17.167    1.52 | 23.17    1.01
              5.250    1.35 |11.250    8.08 |17.250    1.52 | 23.25    1.01
              5.333    1.35 |11.333    8.08 |17.333    1.52 | 23.33    1.01
              5.417    1.35 |11.417    8.08 |17.417    1.52 | 23.42    1.01
              5.500    1.35 |11.500    8.08 |17.500    1.52 | 23.50    1.01
              5.583    1.35 |11.583   35.03 |17.583    1.52 | 23.58    1.01
              5.667    1.35 |11.667   35.03 |17.667    1.52 | 23.67    1.01
              5.750    1.35 |11.750   63.99 |17.750    1.52 | 23.75    1.01
              5.833    1.35 |11.833   63.99 |17.833    1.52 | 23.83    1.01
              5.917    1.35 |11.917   92.96 |17.917    1.52 | 23.92    1.01
              6.000    1.35 |12.000   92.96 |18.000    1.52 | 24.00    1.01

     Max.Eff.Inten.(mm/hr)=      92.96        41.56
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       2.91 (ii)   15.25 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=        .28          .07
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .32          .06          .366 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.17         12.00
     RUNOFF VOLUME    (mm)=      74.21        34.66         58.38
     TOTAL RAINFALL   (mm)=      84.21        84.21         84.21
     RUNOFF COEFFICIENT   =        .88          .41           .69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .53          .41
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     79.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=      92.96        36.19
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       2.29 (ii)   15.33 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=        .30          .07
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .14          .02          .153 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.17         12.00
     RUNOFF VOLUME    (mm)=      67.21        29.74         50.71
     TOTAL RAINFALL   (mm)=      84.21        84.21         84.21
     RUNOFF COEFFICIENT   =        .80          .35           .60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.45          .01
     Dep. Storage     (mm)=     15.00        15.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     98.70        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=      92.96       945.61
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.61 (ii)    4.03 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .29          .24
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .37          .00          .372 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      69.21        31.13         68.82
     TOTAL RAINFALL   (mm)=      84.21        84.21         84.21
     RUNOFF COEFFICIENT   =        .82          .37           .82

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .22          .17
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     51.00        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=      92.96        36.19
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.76 (ii)   14.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .32          .08
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .06          .01          .065 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      67.21        29.74         50.70
     TOTAL RAINFALL   (mm)=      84.21        84.21         84.21
     RUNOFF COEFFICIENT   =        .80          .35           .60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .093 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)=  27.684
     TOTAL RAINFALL   (mm)=  84.207
     RUNOFF COEFFICIENT   =    .329

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0020) |   Area    (ha)=   3.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.73          .44
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     145.40        40.00
     Mannings n            =      .013         .250

     Max.Eff.Inten.(mm/hr)=      92.96        67.54
                 over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.29 (ii)    7.62 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .27          .13
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .69          .05          .738 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      74.21        34.66         68.67
     TOTAL RAINFALL   (mm)=      84.21        84.21         84.21
     RUNOFF COEFFICIENT   =        .88          .41           .82

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0019) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n            =      .013         .250

     Max.Eff.Inten.(mm/hr)=      92.96       472.80
                 over (min)        5.00         5.00
     Storage Coeff.  (min)=       3.28 (ii)    4.70 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .27          .22
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .79          .00          .789 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      69.21        31.13         68.82
     TOTAL RAINFALL   (mm)=      84.21        84.21         84.21
     RUNOFF COEFFICIENT   =        .82          .37           .82

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .59          .47
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      84.10        40.00
     Mannings n            =      .013         .250

     Max.Eff.Inten.(mm/hr)=      92.96        36.19
                 over (min)        5.00        20.00
     Storage Coeff.  (min)=       2.37 (ii)   15.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=        .30          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .15          .03          .172 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.17         12.00
     RUNOFF VOLUME    (mm)=      67.21        29.74         50.71
     TOTAL RAINFALL   (mm)=      84.21        84.21         84.21
     RUNOFF COEFFICIENT   =        .80          .35           .60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0052) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      98.70        40.00
     Mannings n            =      .013         .250

     Max.Eff.Inten.(mm/hr)=      92.96       945.61
                 over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.61 (ii)    4.03 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .29          .24
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .37          .00          .373 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      83.21        41.24         82.78
     TOTAL RAINFALL   (mm)=      84.21        84.21         84.21
     RUNOFF COEFFICIENT   =        .99          .49           .98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
```

```
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0053) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      92.96       472.80
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       3.28 (ii)    4.70 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .27          .22
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .79          .00          .790 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      83.21        41.24         82.79
     TOTAL RAINFALL   (mm)=      84.21        84.21         84.21
     RUNOFF COEFFICIENT   =        .99          .49           .98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0210       .1224
                          .0203      .1100    |    .0213       .1520
                          .0206      .1116    |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)    2.100       .366       12.00       58.38
     OUTFLOW: ID= 1 (0036)    2.100       .015       14.42       57.73

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.09
                    TIME SHIFT OF PEAK FLOW         (min)=145.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0812

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0239       .0730
                          .0120      .0365    |    .0359       .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)    1.460       .372       12.00       68.82
     OUTFLOW: ID= 1 (0022)    1.460       .021       13.00       68.30

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.50
                    TIME SHIFT OF PEAK FLOW         (min)= 60.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0627

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0028) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0219       .2295
                          .0212      .2100    |    .0222       .2760
                          .0216      .2124    |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0020)    3.170       .738       12.00       68.67
     OUTFLOW: ID= 1 (0028)    3.170       .016       16.08       67.88

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.21
                    TIME SHIFT OF PEAK FLOW         (min)=245.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .1615

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0027) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0628       .1562
                          .0314      .0781    |    .0943       .2344

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0019)    3.120       .789       12.00       68.82
     OUTFLOW: ID= 1 (0027)    3.120       .052       13.00       68.62

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.60
                    TIME SHIFT OF PEAK FLOW         (min)= 60.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .1296

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0054) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0240       .0730
                          .0120      .0365    |    .0360       .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0052)    1.460       .373       12.00       82.78
     OUTFLOW: ID= 1 (0054)    1.460       .024       13.00       82.26

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.38
                    TIME SHIFT OF PEAK FLOW         (min)= 60.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0724

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0055) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0630       .1562
                          .0310      .0781    |    .0940       .2344

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)    3.120       .790       12.00       82.79
     OUTFLOW: ID= 1 (0055)    3.120       .060       12.67       82.58

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.57
                    TIME SHIFT OF PEAK FLOW         (min)= 40.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .1485

--------------------------------------------------------------------------------
```

```
-------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)     (cms)    (hrs)      (mm)
         ID1= 1 (0017):       .94    .153    12.00    50.71
       + ID2= 2 (0022):     1.46    .021    13.00    68.30
         ================================================
         ID = 3 (0024):     2.40    .169    12.00    61.41

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
-------------------
| ADD HYD   (0029) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)     (cms)    (hrs)      (mm)
         ID1= 1 (0028):     3.17    .016    16.08    67.88
       + ID2= 2 (0027):     3.12    .052    13.00    68.62
         ================================================
         ID = 3 (0029):     6.29    .067    13.00    68.25

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
-------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)     (cms)    (hrs)      (mm)
         ID1= 1 (0024):     2.40    .169    12.00    61.41
       + ID2= 2 (0018):      .39    .065    12.00    50.70
         ================================================
         ID = 3 (0025):     2.79    .234    12.00    59.91

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
-------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)     (cms)    (hrs)      (mm)
         ID1= 1 (0029):     6.29    .067    13.00    68.25
       + ID2= 2 (0033):     1.06    .172    12.00    50.71
         ================================================
         ID = 3 (0038):     7.35    .224    12.00    65.72

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
-------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)     (cms)    (hrs)      (mm)
         ID1= 1 (0036):     2.10    .015    14.42    57.73
       + ID2= 2 (0025):     2.79    .234    12.00    59.91
         ================================================
         ID = 3 (0051):     4.89    .244    12.00    58.97

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
-------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)     (cms)    (hrs)      (mm)
         ID1= 1 (0051):     4.89    .244    12.00    58.97
       + ID2= 2 (0035):     2.01    .093    12.25    27.68
         ================================================
         ID = 3 (0043):     6.90    .306    12.00    49.86

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
-------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)     (cms)    (hrs)      (mm)
         ID1= 1 (0043):     6.90    .306    12.00    49.86
       + ID2= 2 (0038):     7.35    .224    12.00    65.72
         ================================================
         ID = 3 (0044):    14.25    .530    12.00    58.04

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
  ***************************
  ** SIMULATION NUMBER:   4 **
  ***************************


-------------------
|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\25y
| Ptotal= 99.84 mm |    Comments: 25yr/24hr SCS
-------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	1.10	6.17	2.00	12.17	14.37	18.17	1.80
.33	1.10	6.33	2.00	12.33	14.37	18.33	1.80
.50	1.10	6.50	2.00	12.50	14.37	18.50	1.80
.67	1.10	6.67	2.00	12.67	7.39	18.67	1.80
.83	1.10	6.83	2.00	12.83	7.39	18.83	1.80
1.00	1.10	7.00	2.00	13.00	7.39	19.00	1.80
1.17	1.10	7.17	2.00	13.17	1.40	19.17	1.80
1.33	1.10	7.33	2.00	13.33	1.40	19.33	1.80
1.50	1.10	7.50	2.00	13.50	1.40	19.50	1.80
1.67	1.10	7.67	2.00	13.67	8.18	19.67	1.80
1.83	1.10	7.83	2.00	13.83	8.18	19.83	1.80
2.00	1.10	8.00	2.00	14.00	8.18	20.00	1.80
2.17	1.30	8.17	2.69	14.17	2.99	20.17	1.20
2.33	1.30	8.33	2.69	14.33	2.99	20.33	1.20
2.50	1.30	8.50	2.69	14.50	2.99	20.50	1.20
2.67	1.30	8.67	2.69	14.67	2.99	20.67	1.20
2.83	1.30	8.83	2.69	14.83	2.99	20.83	1.20
3.00	1.30	9.00	2.69	15.00	2.99	21.00	1.20
3.17	1.30	9.17	3.19	15.17	2.99	21.17	1.20
3.33	1.30	9.33	3.19	15.33	2.99	21.33	1.20
3.50	1.30	9.50	3.19	15.50	2.99	21.50	1.20
3.67	1.30	9.67	3.59	15.67	2.99	21.67	1.20
3.83	1.30	9.83	3.59	15.83	2.99	21.83	1.20
4.00	1.30	10.00	3.59	16.00	2.99	22.00	1.20
4.17	1.60	10.17	4.59	16.17	1.80	22.17	1.20
4.33	1.60	10.33	4.59	16.33	1.80	22.33	1.20
4.50	1.60	10.50	4.59	16.50	1.80	22.50	1.20
4.67	1.60	10.67	6.19	16.67	1.80	22.67	1.20
4.83	1.60	10.83	6.19	16.83	1.80	22.83	1.20
5.00	1.60	11.00	6.19	17.00	1.80	23.00	1.20
5.17	1.60	11.17	9.58	17.17	1.80	23.17	1.20
5.33	1.60	11.33	9.58	17.33	1.80	23.33	1.20
5.50	1.60	11.50	9.58	17.50	1.80	23.50	1.20
5.67	1.60	11.67	41.52	17.67	1.80	23.67	1.20
5.83	1.60	11.83	75.85	17.83	1.80	23.83	1.20
6.00	1.60	12.00	110.18	18.00	1.80	24.00	1.20

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-------------------
| CALIB            |
| STANDHYD  (0034) |   Area    (ha)=   2.10
```

```
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.26          .84
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     118.30        40.00
     Mannings n           =       .013         .250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
  .083    1.10 | 6.083    2.00 |12.083   14.38 | 18.08    1.80
  .167    1.10 | 6.167    2.00 |12.167   14.37 | 18.17    1.80
  .250    1.10 | 6.250    2.00 |12.250   14.37 | 18.25    1.80
  .333    1.10 | 6.333    2.00 |12.333   14.37 | 18.33    1.80
  .417    1.10 | 6.417    2.00 |12.417   14.37 | 18.42    1.80
  .500    1.10 | 6.500    2.00 |12.500   14.37 | 18.50    1.80
  .583    1.10 | 6.583    2.00 |12.583    7.39 | 18.58    1.80
  .667    1.10 | 6.667    2.00 |12.667    7.39 | 18.67    1.80
  .750    1.10 | 6.750    2.00 |12.750    7.39 | 18.75    1.80
  .833    1.10 | 6.833    2.00 |12.833    7.39 | 18.83    1.80
  .917    1.10 | 6.917    2.00 |12.917    7.39 | 18.92    1.80
 1.000    1.10 | 7.000    2.00 |13.000    7.39 | 19.00    1.80
 1.083    1.10 | 7.083    2.00 |13.083    1.40 | 19.08    1.80
 1.167    1.10 | 7.167    2.00 |13.167    1.40 | 19.17    1.80
 1.250    1.10 | 7.250    2.00 |13.250    1.40 | 19.25    1.80
 1.333    1.10 | 7.333    2.00 |13.333    1.40 | 19.33    1.80
 1.417    1.10 | 7.417    2.00 |13.417    1.40 | 19.42    1.80
 1.500    1.10 | 7.500    2.00 |13.500    1.40 | 19.50    1.80
 1.583    1.10 | 7.583    2.00 |13.583    8.18 | 19.58    1.80
 1.667    1.10 | 7.667    2.00 |13.667    8.18 | 19.67    1.80
 1.750    1.10 | 7.750    2.00 |13.750    8.18 | 19.75    1.80
 1.833    1.10 | 7.833    2.00 |13.833    8.18 | 19.83    1.80
 1.917    1.10 | 7.917    2.00 |13.917    8.18 | 19.92    1.80
 2.000    1.10 | 8.000    2.00 |14.000    8.18 | 20.00    1.80
 2.083    1.30 | 8.083    2.69 |14.083    2.99 | 20.08    1.20
 2.167    1.30 | 8.167    2.69 |14.167    2.99 | 20.17    1.20
 2.250    1.30 | 8.250    2.69 |14.250    2.99 | 20.25    1.20
 2.333    1.30 | 8.333    2.69 |14.333    2.99 | 20.33    1.20
 2.417    1.30 | 8.417    2.69 |14.417    2.99 | 20.42    1.20
 2.500    1.30 | 8.500    2.69 |14.500    2.99 | 20.50    1.20
 2.583    1.30 | 8.583    2.69 |14.583    2.99 | 20.58    1.20
 2.667    1.30 | 8.667    2.69 |14.667    2.99 | 20.67    1.20
 2.750    1.30 | 8.750    2.69 |14.750    2.99 | 20.75    1.20
 2.833    1.30 | 8.833    2.69 |14.833    2.99 | 20.83    1.20
 2.917    1.30 | 8.917    2.69 |14.917    2.99 | 20.92    1.20
 3.000    1.30 | 9.000    2.69 |15.000    2.99 | 21.00    1.20
 3.083    1.30 | 9.083    3.19 |15.083    2.99 | 21.08    1.20
 3.167    1.30 | 9.167    3.19 |15.167    2.99 | 21.17    1.20
 3.250    1.30 | 9.250    3.19 |15.250    2.99 | 21.25    1.20
 3.333    1.30 | 9.333    3.19 |15.333    2.99 | 21.33    1.20
 3.417    1.30 | 9.417    3.19 |15.417    2.99 | 21.42    1.20
 3.500    1.30 | 9.500    3.19 |15.500    2.99 | 21.50    1.20
 3.583    1.30 | 9.583    3.59 |15.583    2.99 | 21.58    1.20
 3.667    1.30 | 9.667    3.59 |15.667    2.99 | 21.67    1.20
 3.750    1.30 | 9.750    3.59 |15.750    2.99 | 21.75    1.20
 3.833    1.30 | 9.833    3.59 |15.833    2.99 | 21.83    1.20
 3.917    1.30 | 9.917    3.59 |15.917    2.99 | 21.92    1.20
 4.000    1.30 |10.000    3.59 |16.000    2.99 | 22.00    1.20
 4.083    1.60 |10.083    4.59 |16.083    1.80 | 22.08    1.20
 4.167    1.60 |10.167    4.59 |16.167    1.80 | 22.17    1.20
 4.250    1.60 |10.250    4.59 |16.250    1.80 | 22.25    1.20
 4.333    1.60 |10.333    4.59 |16.333    1.80 | 22.33    1.20
 4.417    1.60 |10.417    4.59 |16.417    1.80 | 22.42    1.20
 4.500    1.60 |10.500    4.59 |16.500    1.80 | 22.50    1.20
 4.583    1.60 |10.583    6.19 |16.583    1.80 | 22.58    1.20
 4.667    1.60 |10.667    6.19 |16.667    1.80 | 22.67    1.20
 4.750    1.60 |10.750    6.19 |16.750    1.80 | 22.75    1.20
 4.833    1.60 |10.833    6.19 |16.833    1.80 | 22.83    1.20
 4.917    1.60 |10.917    6.19 |16.917    1.80 | 22.92    1.20
 5.000    1.60 |11.000    6.19 |17.000    1.80 | 23.00    1.20
 5.083    1.60 |11.083    9.58 |17.083    1.80 | 23.08    1.20
 5.167    1.60 |11.167    9.58 |17.167    1.80 | 23.17    1.20
 5.250    1.60 |11.250    9.58 |17.250    1.80 | 23.25    1.20
 5.333    1.60 |11.333    9.58 |17.333    1.80 | 23.33    1.20
 5.417    1.60 |11.417    9.58 |17.417    1.80 | 23.42    1.20
 5.500    1.60 |11.500    9.58 |17.500    1.80 | 23.50    1.20
 5.583    1.60 |11.583   41.52 |17.583    1.80 | 23.58    1.20
 5.667    1.60 |11.667   41.52 |17.667    1.80 | 23.67    1.20
 5.750    1.60 |11.750   75.85 |17.750    1.80 | 23.75    1.20
 5.833    1.60 |11.833   75.85 |17.833    1.80 | 23.83    1.20
 5.917    1.60 |11.917  110.18 |17.917    1.80 | 23.92    1.20
 6.000    1.60 |12.000  110.18 |18.000    1.80 | 24.00    1.20

     Max.Eff.Inten.(mm/hr)=     110.18        55.48
               over (min)          5.00        15.00
     Storage Coeff.  (min)=       2.72 (ii)   13.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .29          .08
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .38          .09          .458 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      89.83        46.25         72.40
     TOTAL RAINFALL   (mm)=      99.84        99.84         99.84
     RUNOFF COEFFICIENT   =        .90          .46           .73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .53          .41
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      79.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     110.18        50.30
               over (min)          5.00        15.00
     Storage Coeff.  (min)=       2.14 (ii)   13.57 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .31          .08
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .16          .04          .193 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      82.83        40.96         64.40
     TOTAL RAINFALL   (mm)=      99.84        99.84         99.84
     RUNOFF COEFFICIENT   =        .83          .41           .65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
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--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      98.70        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     110.18      1299.87
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.44 (ii)    3.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .30          .25
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .44          .00          .443 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      84.84        42.46         84.41
     TOTAL RAINFALL   (mm)=      99.84        99.84         99.84
     RUNOFF COEFFICIENT   =        .85          .43           .85

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .22          .17
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      51.00        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     110.18        50.30
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.64 (ii)   13.08 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .32          .08
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .07          .02          .081 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      82.83        40.96         64.40
     TOTAL RAINFALL   (mm)=      99.84        99.84         99.84
     RUNOFF COEFFICIENT   =        .83          .41           .65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .137 (i)
     TIME TO PEAK    (hrs)=  12.167
     RUNOFF VOLUME    (mm)=  38.735
     TOTAL RAINFALL   (mm)=  99.835
     RUNOFF COEFFICIENT   =    .388

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0020) |   Area    (ha)=   3.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.73          .44
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     145.40        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     110.18        92.85
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.08 (ii)    7.12 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .27          .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .82          .06          .886 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      89.83        46.25         83.73
     TOTAL RAINFALL   (mm)=      99.84        99.84         99.84
     RUNOFF COEFFICIENT   =        .90          .46           .84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0019) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     110.18       649.93
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       3.06 (ii)    4.39 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .27          .23
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .93          .01          .939 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      84.84        42.46         84.41
     TOTAL RAINFALL   (mm)=      99.84        99.84         99.84
     RUNOFF COEFFICIENT   =        .85          .43           .85

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB           |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .59          .47
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     84.10        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    110.18        50.30
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      2.22 (ii)   13.65 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .30          .08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .18          .04          .218 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.08        12.00
     RUNOFF VOLUME    (mm)=     82.84        40.96        64.40
     TOTAL RAINFALL   (mm)=     99.84        99.84        99.84
     RUNOFF COEFFICIENT   =       .83          .41          .65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB           |
| STANDHYD  (0052) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.45          .01
     Dep. Storage     (mm)=      1.00         1.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     98.70        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    110.18      1299.87
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      2.44 (ii)    3.77 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .30          .25
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .44          .00          .443 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00        12.00
     RUNOFF VOLUME    (mm)=     98.84        53.23        98.38
     TOTAL RAINFALL   (mm)=     99.84        99.84        99.84
     RUNOFF COEFFICIENT   =       .99          .53          .99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB           |
| STANDHYD  (0053) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.09          .03
     Dep. Storage     (mm)=      1.00         1.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    144.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    110.18       649.93
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      3.06 (ii)    4.39 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .27          .23
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .93          .01          .940 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00        12.00
     RUNOFF VOLUME    (mm)=     98.84        53.23        98.38
     TOTAL RAINFALL   (mm)=     99.84        99.84        99.84
     RUNOFF COEFFICIENT   =       .99          .53          .99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0210       .1224
                          .0203      .1100    |    .0213       .1520
                          .0206      .1116    |    .0000       .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)     2.100       .458       12.00       72.40
     OUTFLOW: ID= 1 (0036)     2.100       .019       14.33       71.74

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.06
                TIME SHIFT OF PEAK FLOW         (min)=140.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .1009

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--------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0239       .0730
                          .0120      .0365    |    .0359       .1095

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)     1.460       .443       12.00       84.41
     OUTFLOW: ID= 1 (0022)     1.460       .025       13.00       83.89

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.70
                TIME SHIFT OF PEAK FLOW         (min)= 60.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .0770

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--------------------
| RESERVOIR (0028) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0219       .2295
                          .0212      .2100    |    .0222       .2760
                          .0216      .2124    |    .0000       .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
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     INFLOW : ID= 2 (0020)      3.170       .886       12.00       83.73
     OUTFLOW: ID= 1 (0028)      3.170       .020       16.08       82.94

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.24
                   TIME SHIFT OF PEAK FLOW         (min)=245.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1969

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--------------------
| RESERVOIR (0027) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0628       .1562
                          .0314       .0781   |    .0943       .2344

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0019)      3.120       .939       12.00       84.41
     OUTFLOW: ID= 1 (0027)      3.120       .064       12.83       84.21

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.81
                   TIME SHIFT OF PEAK FLOW         (min)= 50.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1591

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--------------------
| RESERVOIR (0054) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0240       .0730
                          .0120       .0365   |    .0360       .1095

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0052)      1.460       .443       12.00       98.38
     OUTFLOW: ID= 1 (0054)      1.460       .028       13.00       97.85

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.38
                   TIME SHIFT OF PEAK FLOW         (min)= 60.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0859

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--------------------
| RESERVOIR (0055) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0630       .1562
                          .0310       .0781   |    .0940       .2344

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)      3.120       .940       12.00       98.38
     OUTFLOW: ID= 1 (0055)      3.120       .071       12.67       98.18

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.55
                   TIME SHIFT OF PEAK FLOW         (min)= 40.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1763

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--------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0017):      .94    .193    12.00    64.40
        + ID2= 2 (0022):     1.46    .025    13.00    83.89
          ================================================
          ID = 3 (0024):     2.40    .213    12.00    76.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD   (0029) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0028):     3.17    .020    16.08    82.94
        + ID2= 2 (0027):     3.12    .064    12.83    84.21
          ================================================
          ID = 3 (0029):     6.29    .083    13.00    83.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0024):     2.40    .213    12.00    76.25
        + ID2= 2 (0018):      .39    .081    12.00    64.40
          ================================================
          ID = 3 (0025):     2.79    .294    12.00    74.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0029):     6.29    .083    13.00    83.57
        + ID2= 2 (0033):     1.06    .218    12.00    64.40
          ================================================
          ID = 3 (0038):     7.35    .283    12.00    80.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0036):     2.10    .019    14.33    71.74
        + ID2= 2 (0025):     2.79    .294    12.00    74.60
          ================================================
          ID = 3 (0051):     4.89    .306    12.00    73.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0051):     4.89    .306    12.00    73.37
        + ID2= 2 (0035):     2.01    .137    12.17    38.73
          ================================================
          ID = 3 (0043):     6.90    .402    12.00    63.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0043):     6.90    .402    12.00    63.28
```

```
       + ID2= 2 (0038):     7.35    .283    12.00    80.81
         ================================================
         ID = 3 (0044):    14.25    .685    12.00    72.32

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ***************************
  ** SIMULATION NUMBER:   5 **
  ***************************


--------------------
|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\50y
| Ptotal=111.43 mm |    Comments: 50yr/24hr SCS
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	1.23	6.17	2.23	12.17	16.04	18.17	2.01
.33	1.23	6.33	2.23	12.33	16.04	18.33	2.01
.50	1.23	6.50	2.23	12.50	16.04	18.50	2.01
.67	1.23	6.67	2.23	12.67	8.24	18.67	2.01
.83	1.23	6.83	2.23	12.83	8.24	18.83	2.01
1.00	1.23	7.00	2.23	13.00	8.24	19.00	2.01
1.17	1.23	7.17	2.23	13.17	1.56	19.17	2.01
1.33	1.23	7.33	2.23	13.33	1.56	19.33	2.01
1.50	1.23	7.50	2.23	13.50	1.56	19.50	2.01
1.67	1.23	7.67	2.23	13.67	9.13	19.67	2.01
1.83	1.23	7.83	2.23	13.83	9.13	19.83	2.01
2.00	1.23	8.00	2.23	14.00	9.13	20.00	2.01
2.17	1.45	8.17	3.01	14.17	3.34	20.17	1.34
2.33	1.45	8.33	3.01	14.33	3.34	20.33	1.34
2.50	1.45	8.50	3.01	14.50	3.34	20.50	1.34
2.67	1.45	8.67	3.01	14.67	3.34	20.67	1.34
2.83	1.45	8.83	3.01	14.83	3.34	20.83	1.34
3.00	1.45	9.00	3.01	15.00	3.34	21.00	1.34
3.17	1.45	9.17	3.56	15.17	3.34	21.17	1.34
3.33	1.45	9.33	3.56	15.33	3.34	21.33	1.34
3.50	1.45	9.50	3.56	15.50	3.34	21.50	1.34
3.67	1.45	9.67	4.01	15.67	3.34	21.67	1.34
3.83	1.45	9.83	4.01	15.83	3.34	21.83	1.34
4.00	1.45	10.00	4.01	16.00	3.34	22.00	1.34
4.17	1.78	10.17	5.12	16.17	2.01	22.17	1.34
4.33	1.78	10.33	5.12	16.33	2.01	22.33	1.34
4.50	1.78	10.50	5.12	16.50	2.01	22.50	1.34
4.67	1.78	10.67	6.91	16.67	2.01	22.67	1.34
4.83	1.78	10.83	6.91	16.83	2.01	22.83	1.34
5.00	1.78	11.00	6.91	17.00	2.01	23.00	1.34
5.17	1.78	11.17	10.69	17.17	2.01	23.17	1.34
5.33	1.78	11.33	10.69	17.33	2.01	23.33	1.34
5.50	1.78	11.50	10.69	17.50	2.01	23.50	1.34
5.67	1.78	11.67	46.34	17.67	2.01	23.67	1.34
5.83	1.78	11.83	84.66	17.83	2.01	23.83	1.34
6.00	1.78	12.00	122.99	18.00	2.01	24.00	1.34

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| CALIB            |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.26          .84
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     118.30        40.00
     Mannings n           =       .013         .250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.23	6.083	2.23	12.083	16.05	18.08	2.01
.167	1.23	6.167	2.23	12.167	16.04	18.17	2.01
.250	1.23	6.250	2.23	12.250	16.04	18.25	2.01
.333	1.23	6.333	2.23	12.333	16.04	18.33	2.01
.417	1.23	6.417	2.23	12.417	16.04	18.42	2.01
.500	1.23	6.500	2.23	12.500	16.04	18.50	2.01
.583	1.23	6.583	2.23	12.583	8.24	18.58	2.01
.667	1.23	6.667	2.23	12.667	8.24	18.67	2.01
.750	1.23	6.750	2.23	12.750	8.24	18.75	2.01
.833	1.23	6.833	2.23	12.833	8.24	18.83	2.01
.917	1.23	6.917	2.23	12.917	8.24	18.92	2.01
1.000	1.23	7.000	2.23	13.000	8.24	19.00	2.01
1.083	1.23	7.083	2.23	13.083	1.56	19.08	2.01
1.167	1.23	7.167	2.23	13.167	1.56	19.17	2.01
1.250	1.23	7.250	2.23	13.250	1.56	19.25	2.01
1.333	1.23	7.333	2.23	13.333	1.56	19.33	2.01
1.417	1.23	7.417	2.23	13.417	1.56	19.42	2.01
1.500	1.23	7.500	2.23	13.500	1.56	19.50	2.01
1.583	1.23	7.583	2.23	13.583	9.13	19.58	2.01
1.667	1.23	7.667	2.23	13.667	9.13	19.67	2.01
1.750	1.23	7.750	2.23	13.750	9.13	19.75	2.01
1.833	1.23	7.833	2.23	13.833	9.13	19.83	2.01
1.917	1.23	7.917	2.23	13.917	9.13	19.92	2.01
2.000	1.23	8.000	2.23	14.000	9.13	20.00	2.01
2.083	1.45	8.083	3.01	14.083	3.34	20.08	1.34
2.167	1.45	8.167	3.01	14.167	3.34	20.17	1.34
2.250	1.45	8.250	3.01	14.250	3.34	20.25	1.34
2.333	1.45	8.333	3.01	14.333	3.34	20.33	1.34
2.417	1.45	8.417	3.01	14.417	3.34	20.42	1.34
2.500	1.45	8.500	3.01	14.500	3.34	20.50	1.34
2.583	1.45	8.583	3.01	14.583	3.34	20.58	1.34
2.667	1.45	8.667	3.01	14.667	3.34	20.67	1.34
2.750	1.45	8.750	3.01	14.750	3.34	20.75	1.34
2.833	1.45	8.833	3.01	14.833	3.34	20.83	1.34
2.917	1.45	8.917	3.01	14.917	3.34	20.92	1.34
3.000	1.45	9.000	3.01	15.000	3.34	21.00	1.34
3.083	1.45	9.083	3.56	15.083	3.34	21.08	1.34
3.167	1.45	9.167	3.56	15.167	3.34	21.17	1.34
3.250	1.45	9.250	3.56	15.250	3.34	21.25	1.34
3.333	1.45	9.333	3.56	15.333	3.34	21.33	1.34
3.417	1.45	9.417	3.56	15.417	3.34	21.42	1.34
3.500	1.45	9.500	3.56	15.500	3.34	21.50	1.34
3.583	1.45	9.583	4.01	15.583	3.34	21.58	1.34
3.667	1.45	9.667	4.01	15.667	3.34	21.67	1.34
3.750	1.45	9.750	4.01	15.750	3.34	21.75	1.34
3.833	1.45	9.833	4.01	15.833	3.34	21.83	1.34
3.917	1.45	9.917	4.01	15.917	3.34	21.92	1.34
4.000	1.45	10.000	4.01	16.000	3.34	22.00	1.34
4.083	1.78	10.083	5.12	16.083	2.01	22.08	1.34
4.167	1.78	10.167	5.12	16.167	2.01	22.17	1.34
4.250	1.78	10.250	5.12	16.250	2.01	22.25	1.34
4.333	1.78	10.333	5.12	16.333	2.01	22.33	1.34
4.417	1.78	10.417	5.12	16.417	2.01	22.42	1.34
4.500	1.78	10.500	5.12	16.500	2.01	22.50	1.34
4.583	1.78	10.583	6.91	16.583	2.01	22.58	1.34
4.667	1.78	10.667	6.91	16.667	2.01	22.67	1.34
4.750	1.78	10.750	6.91	16.750	2.01	22.75	1.34
4.833	1.78	10.833	6.91	16.833	2.01	22.83	1.34
4.917	1.78	10.917	6.91	16.917	2.01	22.92	1.34
5.000	1.78	11.000	6.91	17.000	2.01	23.00	1.34
5.083	1.78	11.083	10.69	17.083	2.01	23.08	1.34
5.167	1.78	11.167	10.69	17.167	2.01	23.17	1.34
5.250	1.78	11.250	10.69	17.250	2.01	23.25	1.34
5.333	1.78	11.333	10.69	17.333	2.01	23.33	1.34
5.417	1.78	11.417	10.69	17.417	2.01	23.42	1.34
5.500	1.78	11.500	10.69	17.500	2.01	23.50	1.34
5.583	1.78	11.583	46.34	17.583	2.01	23.58	1.34
5.667	1.78	11.667	46.34	17.667	2.01	23.67	1.34
5.750	1.78	11.750	84.66	17.750	2.01	23.75	1.34

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              5.833    1.78 |11.833   84.66 |17.833    2.01 | 23.83    1.34
              5.917    1.78 |11.917  122.99 |17.917    2.01 | 23.92    1.34
              6.000    1.78 |12.000  122.99 |18.000    2.01 | 24.00    1.34

     Max.Eff.Inten.(mm/hr)=     122.99        76.63
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.60 (ii)   12.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .29          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .43          .11          .524 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=     101.43        55.28         82.97
     TOTAL RAINFALL   (mm)=     111.43       111.43        111.43
     RUNOFF COEFFICIENT   =        .91          .50           .74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .53          .41
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     79.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     122.99        71.52
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.04 (ii)   11.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .31          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .18          .05          .222 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      94.43        49.79         74.78
     TOTAL RAINFALL   (mm)=     111.43       111.43        111.43
     RUNOFF COEFFICIENT   =        .85          .45           .67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.45          .01
     Dep. Storage     (mm)=     15.00        15.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     98.70        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     122.99      1573.48
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.33 (ii)    3.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .30          .25
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .49          .00           .495 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      96.43        51.35         95.98
     TOTAL RAINFALL   (mm)=     111.43       111.43        111.43
     RUNOFF COEFFICIENT   =        .87          .46           .86

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .22          .17
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     51.00        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     122.99        71.52
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.57 (ii)   11.51 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .33          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .07          .02           .093 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      94.43        49.79         74.77
     TOTAL RAINFALL   (mm)=     111.43       111.43        111.43
     RUNOFF COEFFICIENT   =        .85          .45           .67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .171 (i)
     TIME TO PEAK    (hrs)=  12.167
     RUNOFF VOLUME    (mm)=  47.459
     TOTAL RAINFALL   (mm)= 111.432
     RUNOFF COEFFICIENT   =    .426

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0020) |   Area    (ha)=   3.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
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                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.73          .44
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     145.40        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     122.99       112.39
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.94 (ii)    6.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .28          .14
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .92          .08          .996 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     101.43        55.28         94.97
     TOTAL RAINFALL   (mm)=     111.43       111.43        111.43
     RUNOFF COEFFICIENT   =        .91          .50           .85

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0019) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     122.99       786.74
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.93 (ii)    4.20 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .28          .24
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.04          .01          1.050 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      96.43        51.35         95.98
     TOTAL RAINFALL   (mm)=     111.43       111.43        111.43
     RUNOFF COEFFICIENT   =        .87          .46           .86

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .59          .47
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      84.10        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     122.99        71.52
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.12 (ii)   12.06 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .31          .09
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .20          .06          .250 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      94.43        49.79         74.78
     TOTAL RAINFALL   (mm)=     111.43       111.43        111.43
     RUNOFF COEFFICIENT   =        .85          .45           .67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0052) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      98.70        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     122.99      1573.48
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.33 (ii)    3.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .30          .25
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .49          .00          .495 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     110.43        62.51        109.95
     TOTAL RAINFALL   (mm)=     111.43       111.43        111.43
     RUNOFF COEFFICIENT   =        .99          .56           .99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0053) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     122.99       786.74
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.93 (ii)    4.20 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .28          .24
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.04          .01          1.051 (iii)
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     TIME TO PEAK     (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME     (mm)=     110.43        62.51        109.95
     TOTAL RAINFALL    (mm)=     111.43       111.43        111.43
     RUNOFF COEFFICIENT   =        .99          .56           .99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0210       .1224
                          .0203       .1100   |    .0213       .1520
                          .0206       .1116   |    .0000       .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)     2.100       .524       12.00       82.97
     OUTFLOW: ID= 1 (0036)     2.100       .021       14.33       82.32

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.96
                    TIME SHIFT OF PEAK FLOW         (min)=140.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .1158

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0239       .0730
                          .0120       .0365   |    .0359       .1095

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)     1.460       .495       12.00       95.98
     OUTFLOW: ID= 1 (0022)     1.460       .029       13.00       95.45

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.79
                    TIME SHIFT OF PEAK FLOW         (min)= 60.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0875

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0028) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0219       .2295
                          .0212       .2100   |    .0222       .2760
                          .0216       .2124   |    .0000       .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0020)     3.170       .996       12.00       94.97
     OUTFLOW: ID= 1 (0028)     3.170       .022       16.08       94.18

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.19
                    TIME SHIFT OF PEAK FLOW         (min)=245.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .2237

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0027) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0628       .1562
                          .0314       .0781   |    .0943       .2344

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0019)     3.120      1.050       12.00       95.98
     OUTFLOW: ID= 1 (0027)     3.120       .073       12.67       95.78

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.92
                    TIME SHIFT OF PEAK FLOW         (min)= 40.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .1807

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0054) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0240       .0730
                          .0120       .0365   |    .0360       .1095

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0052)     1.460       .495       12.00      109.95
     OUTFLOW: ID= 1 (0054)     1.460       .032       13.00      109.42

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.37
                    TIME SHIFT OF PEAK FLOW         (min)= 60.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0960

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0055) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0630       .1562
                          .0310       .0781   |    .0940       .2344

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)     3.120      1.051       12.00      109.95
     OUTFLOW: ID= 1 (0055)     3.120       .079       12.58      109.75

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.53
                    TIME SHIFT OF PEAK FLOW         (min)= 35.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .1969

--------------------------------------------------------------------------------
--------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0017):      .94     .222    12.00    74.78
        + ID2= 2 (0022):     1.46     .029    13.00    95.45
          ================================================
          ID = 3 (0024):     2.40     .245    12.00    87.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD   (0029) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0028):     3.17     .022    16.08    94.18
        + ID2= 2 (0027):     3.12     .073    12.67    95.78
          ================================================
          ID = 3 (0029):     6.29     .094    13.00    94.97
```

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     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0024):      2.40    .245    12.00    87.36
       + ID2= 2 (0018):       .39    .093    12.00    74.77
         ================================================
         ID = 3 (0025):      2.79    .338    12.00    85.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0029):      6.29    .094    13.00    94.97
       + ID2= 2 (0033):      1.06    .250    12.00    74.78
         ================================================
         ID = 3 (0038):      7.35    .325    12.00    92.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0036):      2.10    .021    14.33    82.32
       + ID2= 2 (0025):      2.79    .338    12.00    85.60
         ================================================
         ID = 3 (0051):      4.89    .352    12.00    84.19

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0051):      4.89    .352    12.00    84.19
       + ID2= 2 (0035):      2.01    .171    12.17    47.46
         ================================================
         ID = 3 (0043):      6.90    .475    12.00    73.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0043):      6.90    .475    12.00    73.49
       + ID2= 2 (0038):      7.35    .325    12.00    92.06
         ================================================
         ID = 3 (0044):     14.25    .800    12.00    83.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   6 **
  ****************************
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|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\100
| Ptotal=122.89 mm |    Comments: 100 yr/24 hr SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	1.35	6.17	2.46	12.17	17.70	18.17	2.21
.33	1.35	6.33	2.46	12.33	17.70	18.33	2.21
.50	1.35	6.50	2.46	12.50	17.70	18.50	2.21
.67	1.35	6.67	2.46	12.67	9.09	18.67	2.21
.83	1.35	6.83	2.46	12.83	9.09	18.83	2.21
1.00	1.35	7.00	2.46	13.00	9.09	19.00	2.21
1.17	1.35	7.17	2.46	13.17	1.72	19.17	2.21
1.33	1.35	7.33	2.46	13.33	1.72	19.33	2.21
1.50	1.35	7.50	2.46	13.50	1.72	19.50	2.21
1.67	1.35	7.67	2.46	13.67	10.08	19.67	2.21
1.83	1.35	7.83	2.46	13.83	10.08	19.83	2.21
2.00	1.35	8.00	2.46	14.00	10.08	20.00	2.21
2.17	1.60	8.17	3.32	14.17	3.69	20.17	1.47
2.33	1.60	8.33	3.32	14.33	3.69	20.33	1.47
2.50	1.60	8.50	3.32	14.50	3.69	20.50	1.47
2.67	1.60	8.67	3.32	14.67	3.69	20.67	1.47
2.83	1.60	8.83	3.32	14.83	3.69	20.83	1.47
3.00	1.60	9.00	3.32	15.00	3.69	21.00	1.47
3.17	1.60	9.17	3.93	15.17	3.69	21.17	1.47
3.33	1.60	9.33	3.93	15.33	3.69	21.33	1.47
3.50	1.60	9.50	3.93	15.50	3.69	21.50	1.47
3.67	1.60	9.67	4.42	15.67	3.69	21.67	1.47
3.83	1.60	9.83	4.42	15.83	3.69	21.83	1.47
4.00	1.60	10.00	4.42	16.00	3.69	22.00	1.47
4.17	1.97	10.17	5.65	16.17	2.21	22.17	1.47
4.33	1.97	10.33	5.65	16.33	2.21	22.33	1.47
4.50	1.97	10.50	5.65	16.50	2.21	22.50	1.47
4.67	1.97	10.67	7.62	16.67	2.21	22.67	1.47
4.83	1.97	10.83	7.62	16.83	2.21	22.83	1.47
5.00	1.97	11.00	7.62	17.00	2.21	23.00	1.47
5.17	1.97	11.17	11.80	17.17	2.21	23.17	1.47
5.33	1.97	11.33	11.80	17.33	2.21	23.33	1.47
5.50	1.97	11.50	11.80	17.50	2.21	23.50	1.47
5.67	1.97	11.67	51.13	17.67	2.21	23.67	1.47
5.83	1.97	11.83	93.40	17.83	2.21	23.83	1.47
6.00	1.97	12.00	135.68	18.00	2.21	24.00	1.47

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--------------------
| CALIB            |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.26           .84
     Dep. Storage     (mm)=       10.00         10.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      118.30         40.00
     Mannings n           =        .013          .250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.35	6.083	2.46	12.083	17.71	18.08	2.21
.167	1.35	6.167	2.46	12.167	17.70	18.17	2.21
.250	1.35	6.250	2.46	12.250	17.70	18.25	2.21
.333	1.35	6.333	2.46	12.333	17.70	18.33	2.21
.417	1.35	6.417	2.46	12.417	17.70	18.42	2.21
.500	1.35	6.500	2.46	12.500	17.70	18.50	2.21
.583	1.35	6.583	2.46	12.583	9.09	18.58	2.21

.667	1.35	6.667	2.46	12.667	9.09	18.67	2.21
.750	1.35	6.750	2.46	12.750	9.09	18.75	2.21
.833	1.35	6.833	2.46	12.833	9.09	18.83	2.21
.917	1.35	6.917	2.46	12.917	9.09	18.92	2.21
1.000	1.35	7.000	2.46	13.000	9.09	19.00	2.21
1.083	1.35	7.083	2.46	13.083	1.72	19.08	2.21
1.167	1.35	7.167	2.46	13.167	1.72	19.17	2.21
1.250	1.35	7.250	2.46	13.250	1.72	19.25	2.21
1.333	1.35	7.333	2.46	13.333	1.72	19.33	2.21
1.417	1.35	7.417	2.46	13.417	1.72	19.42	2.21
1.500	1.35	7.500	2.46	13.500	1.72	19.50	2.21
1.583	1.35	7.583	2.46	13.583	10.08	19.58	2.21
1.667	1.35	7.667	2.46	13.667	10.08	19.67	2.21
1.750	1.35	7.750	2.46	13.750	10.08	19.75	2.21
1.833	1.35	7.833	2.46	13.833	10.08	19.83	2.21
1.917	1.35	7.917	2.46	13.917	10.08	19.92	2.21
2.000	1.35	8.000	2.46	14.000	10.08	20.00	2.21
2.083	1.60	8.083	3.32	14.083	3.69	20.08	1.47
2.167	1.60	8.167	3.32	14.167	3.69	20.17	1.47
2.250	1.60	8.250	3.32	14.250	3.69	20.25	1.47
2.333	1.60	8.333	3.32	14.333	3.69	20.33	1.47
2.417	1.60	8.417	3.32	14.417	3.69	20.42	1.47
2.500	1.60	8.500	3.32	14.500	3.69	20.50	1.47
2.583	1.60	8.583	3.32	14.583	3.69	20.58	1.47
2.667	1.60	8.667	3.32	14.667	3.69	20.67	1.47
2.750	1.60	8.750	3.32	14.750	3.69	20.75	1.47
2.833	1.60	8.833	3.32	14.833	3.69	20.83	1.47
2.917	1.60	8.917	3.32	14.917	3.69	20.92	1.47
3.000	1.60	9.000	3.32	15.000	3.69	21.00	1.47
3.083	1.60	9.083	3.93	15.083	3.69	21.08	1.47
3.167	1.60	9.167	3.93	15.167	3.69	21.17	1.47
3.250	1.60	9.250	3.93	15.250	3.69	21.25	1.47
3.333	1.60	9.333	3.93	15.333	3.69	21.33	1.47
3.417	1.60	9.417	3.93	15.417	3.69	21.42	1.47
3.500	1.60	9.500	3.93	15.500	3.69	21.50	1.47
3.583	1.60	9.583	4.42	15.583	3.69	21.58	1.47
3.667	1.60	9.667	4.42	15.667	3.69	21.67	1.47
3.750	1.60	9.750	4.42	15.750	3.69	21.75	1.47
3.833	1.60	9.833	4.42	15.833	3.69	21.83	1.47
3.917	1.60	9.917	4.42	15.917	3.69	21.92	1.47
4.000	1.60	10.000	4.42	16.000	3.69	22.00	1.47
4.083	1.97	10.083	5.65	16.083	2.21	22.08	1.47
4.167	1.97	10.167	5.65	16.167	2.21	22.17	1.47
4.250	1.97	10.250	5.65	16.250	2.21	22.25	1.47
4.333	1.97	10.333	5.65	16.333	2.21	22.33	1.47
4.417	1.97	10.417	5.65	16.417	2.21	22.42	1.47
4.500	1.97	10.500	5.65	16.500	2.21	22.50	1.47
4.583	1.97	10.583	7.62	16.583	2.21	22.58	1.47
4.667	1.97	10.667	7.62	16.667	2.21	22.67	1.47
4.750	1.97	10.750	7.62	16.750	2.21	22.75	1.47
4.833	1.97	10.833	7.62	16.833	2.21	22.83	1.47
4.917	1.97	10.917	7.62	16.917	2.21	22.92	1.47
5.000	1.97	11.000	7.62	17.000	2.21	23.00	1.47
5.083	1.97	11.083	11.80	17.083	2.21	23.08	1.47
5.167	1.97	11.167	11.80	17.167	2.21	23.17	1.47
5.250	1.97	11.250	11.80	17.250	2.21	23.25	1.47
5.333	1.97	11.333	11.80	17.333	2.21	23.33	1.47
5.417	1.97	11.417	11.80	17.417	2.21	23.42	1.47
5.500	1.97	11.500	11.80	17.500	2.21	23.50	1.47
5.583	1.97	11.583	51.13	17.583	2.21	23.58	1.47
5.667	1.97	11.667	51.13	17.667	2.21	23.67	1.47
5.750	1.97	11.750	93.40	17.750	2.21	23.75	1.47
5.833	1.97	11.833	93.40	17.833	2.21	23.83	1.47
5.917	1.97	11.917	135.68	17.917	2.21	23.92	1.47
6.000	1.97	12.000	135.68	18.000	2.21	24.00	1.47

Max.Eff.Inten.(mm/hr)=		135.68	89.04	
over (min)		5.00	15.00	
Storage Coeff. (min)=		2.50 (ii)	11.60 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		.29	.09	
				TOTALS
PEAK FLOW	(cms)=	.47	.13	.588 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	112.89	64.51	93.53
TOTAL RAINFALL	(mm)=	122.89	122.89	122.89
RUNOFF COEFFICIENT	=	.92	.52	.76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 75.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0017)	Area (ha)=	.94	
ID= 1 DT= 5.0 min	Total Imp(%)=	56.00	Dir. Conn.(%)= 56.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.53	.41	
Dep. Storage	(mm)=	17.00	17.00	
Average Slope	(%)=	1.00	1.00	
Length	(m)=	79.20	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		135.68	84.15	
over (min)		5.00	15.00	
Storage Coeff. (min)=		1.97 (ii)	11.28 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		.31	.09	
				TOTALS
PEAK FLOW	(cms)=	.20	.06	.251 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	105.89	58.84	85.18
TOTAL RAINFALL	(mm)=	122.89	122.89	122.89
RUNOFF COEFFICIENT	=	.86	.48	.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 75.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0016)	Area (ha)=	1.46	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	1.45	.01	
Dep. Storage	(mm)=	15.00	15.00	
Average Slope	(%)=	1.00	1.00	
Length	(m)=	98.70	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		135.68	1851.28	
over (min)		5.00	5.00	
Storage Coeff. (min)=		2.24 (ii)	3.47 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		.30	.26	
				TOTALS
PEAK FLOW	(cms)=	.54	.00	.546 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	107.89	60.45	107.41
TOTAL RAINFALL	(mm)=	122.89	122.89	122.89
RUNOFF COEFFICIENT	=	.88	.49	.87

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .22          .17
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     51.00        40.00
     Mannings n            =     .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68        84.15
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      1.51 (ii)   10.82 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .33          .09
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .08          .03          .104 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.08        12.00
     RUNOFF VOLUME    (mm)=    105.89        58.84        85.17
     TOTAL RAINFALL   (mm)=    122.89       122.89       122.89
     RUNOFF COEFFICIENT   =       .86          .48          .69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .206 (i)
     TIME TO PEAK    (hrs)=  12.167
     RUNOFF VOLUME    (mm)=  56.426
     TOTAL RAINFALL   (mm)= 122.887
     RUNOFF COEFFICIENT   =    .459

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0020) |   Area    (ha)=   3.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      2.73          .44
     Dep. Storage     (mm)=     10.00        10.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    145.40        40.00
     Mannings n            =     .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68       132.23
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      2.83 (ii)    6.55 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=       .28          .14
                                                    *TOTALS*
     PEAK FLOW       (cms)=      1.02          .09         1.107 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00        12.00
     RUNOFF VOLUME    (mm)=    112.89        64.51        106.11
     TOTAL RAINFALL   (mm)=    122.89       122.89       122.89
     RUNOFF COEFFICIENT   =       .92          .52          .86

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0019) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.09          .03
     Dep. Storage     (mm)=     15.00        15.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    144.20        40.00
     Mannings n            =     .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68       925.64
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      2.82 (ii)    4.04 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .28          .24
                                                    *TOTALS*
     PEAK FLOW       (cms)=      1.15          .01         1.161 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00        12.00
     RUNOFF VOLUME    (mm)=    107.89        60.45        107.41
     TOTAL RAINFALL   (mm)=    122.89       122.89       122.89
     RUNOFF COEFFICIENT   =       .88          .49          .87

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .59          .47
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     84.10        40.00
     Mannings n            =     .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68        84.15
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      2.04 (ii)   11.35 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .31          .09
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .22          .07          .282 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.08        12.00
     RUNOFF VOLUME    (mm)=    105.89        58.84        85.18
     TOTAL RAINFALL   (mm)=    122.89       122.89       122.89
     RUNOFF COEFFICIENT   =       .86          .48          .69
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***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB             |
| STANDHYD  (0052) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.45          .01
     Dep. Storage     (mm)=      1.00         1.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     98.70        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68      1851.28
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      2.24 (ii)    3.47 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .30          .26
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .54          .00          .547 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00        12.00
     RUNOFF VOLUME    (mm)=    121.89        71.93       121.39
     TOTAL RAINFALL   (mm)=    122.89       122.89       122.89
     RUNOFF COEFFICIENT   =       .99          .59          .99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB             |
| STANDHYD  (0053) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.09          .03
     Dep. Storage     (mm)=      1.00         1.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    144.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68       925.64
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      2.82 (ii)    4.04 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .28          .24
                                                      *TOTALS*
     PEAK FLOW       (cms)=      1.15          .01         1.161 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00        12.00
     RUNOFF VOLUME    (mm)=    121.89        71.93       121.39
     TOTAL RAINFALL   (mm)=    122.89       122.89       122.89
     RUNOFF COEFFICIENT   =       .99          .59          .99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0210       .1224
                          .0203      .1100    |    .0213       .1520
                          .0206      .1116    |    .0000       .0000

                                  AREA      QPEAK       TPEAK       R.V.
                                  (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)      2.100       .588       12.00       93.53
     OUTFLOW: ID= 1 (0036)      2.100       .021       14.50       92.88

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.59
                TIME SHIFT OF PEAK FLOW         (min)=150.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .1322

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-------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0239       .0730
                          .0120      .0365    |    .0359       .1095

                                  AREA      QPEAK       TPEAK       R.V.
                                  (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)      1.460       .546       12.00      107.41
     OUTFLOW: ID= 1 (0022)      1.460       .032       13.00      106.89

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.87
                TIME SHIFT OF PEAK FLOW         (min)= 60.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .0979

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0028) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0219       .2295
                          .0212      .2100    |    .0222       .2760
                          .0216      .2124    |    .0000       .0000

                                  AREA      QPEAK       TPEAK       R.V.
                                  (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0020)      3.170      1.107       12.00      106.11
     OUTFLOW: ID= 1 (0028)      3.170       .022       16.08      105.32

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  1.99
                TIME SHIFT OF PEAK FLOW         (min)=245.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .2526

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0027) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0628       .1562
                          .0314      .0781    |    .0943       .2344

                                  AREA      QPEAK       TPEAK       R.V.
                                  (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0019)      3.120      1.161       12.00      107.41
     OUTFLOW: ID= 1 (0027)      3.120       .081       12.67      107.21

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.00
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                  TIME SHIFT OF PEAK FLOW          (min)= 40.00
                  MAXIMUM  STORAGE   USED        (ha.m.)=   .2020

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--------------------
| RESERVOIR (0054) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0240      .0730
                          .0120      .0365    |    .0360      .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
    INFLOW : ID= 2 (0052)     1.460      .547       12.00      121.39
    OUTFLOW: ID= 1 (0054)     1.460      .035       13.00      120.86

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.37
                  TIME SHIFT OF PEAK FLOW          (min)= 60.00
                  MAXIMUM  STORAGE   USED        (ha.m.)=   .1059

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0055) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0630      .1562
                          .0310      .0781    |    .0940      .2344

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
    INFLOW : ID= 2 (0053)     3.120     1.161       12.00      121.39
    OUTFLOW: ID= 1 (0055)     3.120      .087       12.58      121.18

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.51
                  TIME SHIFT OF PEAK FLOW          (min)= 35.00
                  MAXIMUM  STORAGE   USED        (ha.m.)=   .2174

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--------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0017):      .94    .251    12.00    85.18
       + ID2= 2 (0022):     1.46    .032    13.00   106.89
         ================================================
         ID = 3 (0024):     2.40    .277    12.00    98.38

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0029) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0028):     3.17    .022    16.08   105.32
       + ID2= 2 (0027):     3.12    .081    12.67   107.21
         ================================================
         ID = 3 (0029):     6.29    .103    12.75   106.26

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0024):     2.40    .277    12.00    98.38
       + ID2= 2 (0018):      .39    .104    12.00    85.17
         ================================================
         ID = 3 (0025):     2.79    .381    12.00    96.54

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0029):     6.29    .103    12.75   106.26
       + ID2= 2 (0033):     1.06    .282    12.00    85.18
         ================================================
         ID = 3 (0038):     7.35    .367    12.00   103.22

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0036):     2.10    .021    14.50    92.88
       + ID2= 2 (0025):     2.79    .381    12.00    96.54
         ================================================
         ID = 3 (0051):     4.89    .397    12.00    94.97

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0051):     4.89    .397    12.00    94.97
       + ID2= 2 (0035):     2.01    .206    12.17    56.43
         ================================================
         ID = 3 (0043):     6.90    .548    12.00    83.74

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0043):     6.90    .548    12.00    83.74
       + ID2= 2 (0038):     7.35    .367    12.00   103.22
         ================================================
         ID = 3 (0044):    14.25    .915    12.00    93.79

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   7 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\Hur
| Ptotal=212.00 mm |    Comments: Hurricane Hazel
--------------------
               TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .17    6.00 |  3.17   13.00 |  6.17   23.00 |  9.17   53.00
                .33    6.00 |  3.33   13.00 |  6.33   23.00 |  9.33   53.00
```

.50	6.00	3.50	13.00	6.50	23.00	9.50	53.00
.67	6.00	3.67	13.00	6.67	23.00	9.67	53.00
.83	6.00	3.83	13.00	6.83	23.00	9.83	53.00
1.00	6.00	4.00	13.00	7.00	23.00	10.00	53.00
1.17	4.00	4.17	17.00	7.17	13.00	10.17	38.00
1.33	4.00	4.33	17.00	7.33	13.00	10.33	38.00
1.50	4.00	4.50	17.00	7.50	13.00	10.50	38.00
1.67	4.00	4.67	17.00	7.67	13.00	10.67	38.00
1.83	4.00	4.83	17.00	7.83	13.00	10.83	38.00
2.00	4.00	5.00	17.00	8.00	13.00	11.00	38.00
2.17	6.00	5.17	13.00	8.17	13.00	11.17	13.00
2.33	6.00	5.33	13.00	8.33	13.00	11.33	13.00
2.50	6.00	5.50	13.00	8.50	13.00	11.50	13.00
2.67	6.00	5.67	13.00	8.67	13.00	11.67	13.00
2.83	6.00	5.83	13.00	8.83	13.00	11.83	13.00
3.00	6.00	6.00	13.00	9.00	13.00	12.00	13.00

CALIB	
STANDHYD (0034)	Area (ha)= 2.10
ID= 1 DT= 5.0 min	Total Imp(%)= 60.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.26	.84
Dep. Storage	(mm)=	10.00	10.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	118.30	40.00
Mannings n	=	.013	.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.	(mm/hr)=	53.00	45.75	
over	(min)	5.00	20.00	
Storage Coeff.	(min)=	3.64 (ii)	15.52 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	20.00	
Unit Hyd. peak	(cms)=	.25	.07	
				TOTALS
PEAK FLOW	(cms)=	.19	.10	.287 (iii)
TIME TO PEAK	(hrs)=	9.92	10.08	10.00
RUNOFF VOLUME	(mm)=	202.00	142.34	178.13
TOTAL RAINFALL	(mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT	=	.95	.67	.84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 75.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0017)	Area (ha)= .94
ID= 1 DT= 5.0 min	Total Imp(%)= 56.00 Dir. Conn.(%)= 56.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.53	.41
Dep. Storage	(mm)=	17.00	17.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	79.20	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.	(mm/hr)=	53.00	45.29
over	(min)	5.00	15.00
Storage Coeff.	(min)=	2.86 (ii)	14.79 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	.28	.08
			TOTALS
PEAK FLOW	(cms)=	.08	.05	.128 (iii)
TIME TO PEAK	(hrs)=	9.75	10.00	10.00
RUNOFF VOLUME	(mm)=	195.00	135.97	169.01
TOTAL RAINFALL	(mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT	=	.92	.64	.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 75.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0016)	Area (ha)= 1.46
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.45	.01
Dep. Storage	(mm)=	15.00	15.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	98.70	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.	(mm/hr)=	53.00	999.73
over	(min)	5.00	10.00
Storage Coeff.	(min)=	3.27 (ii)	5.05 (ii)
Unit Hyd. Tpeak	(min)=	5.00	10.00
Unit Hyd. peak	(cms)=	.27	.16
			TOTALS

```
     PEAK FLOW       (cms)=        .21          .00          .215 (iii)
     TIME TO PEAK    (hrs)=        9.83        10.00        10.00
     RUNOFF VOLUME    (mm)=      197.00       137.78       196.41
     TOTAL RAINFALL   (mm)=      212.00       212.00       212.00
     RUNOFF COEFFICIENT   =         .93          .65          .93

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .22          .17
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      51.00        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      53.00        45.29
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.20 (ii)   14.13 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .30          .08
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .03          .02          .053 (iii)
     TIME TO PEAK    (hrs)=       9.58        10.00        10.00
     RUNOFF VOLUME    (mm)=     195.00       135.97       169.00
     TOTAL RAINFALL   (mm)=     212.00       212.00       212.00
     RUNOFF COEFFICIENT   =        .92          .64          .80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .237 (i)
     TIME TO PEAK    (hrs)=  10.083
     RUNOFF VOLUME    (mm)= 133.208
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =    .628

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (0020) |   Area    (ha)=   3.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.73          .44
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     145.40        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      53.00        45.75
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.12 (ii)   16.00 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=        .24          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .40          .05          .455 (iii)
     TIME TO PEAK    (hrs)=      10.00        10.08        10.00
     RUNOFF VOLUME    (mm)=     202.00       142.34       193.64
     TOTAL RAINFALL   (mm)=     212.00       212.00       212.00
     RUNOFF COEFFICIENT   =        .95          .67          .91

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (0019) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      53.00       499.86
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       4.10 (ii)    5.88 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .24          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .45          .00          .459 (iii)
     TIME TO PEAK    (hrs)=      10.00        10.00        10.00
     RUNOFF VOLUME    (mm)=     197.00       137.78       196.41
     TOTAL RAINFALL   (mm)=     212.00       212.00       212.00
     RUNOFF COEFFICIENT   =        .93          .65          .93

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .59          .47
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      84.10        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      53.00        45.29
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.97 (ii)   14.90 (ii)
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     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=        .28           .08
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .09           .06          .144 (iii)
     TIME TO PEAK    (hrs)=       9.75         10.00         10.00
     RUNOFF VOLUME    (mm)=     195.00        135.97        169.02
     TOTAL RAINFALL   (mm)=     212.00        212.00        212.00
     RUNOFF COEFFICIENT   =        .92           .64           .80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB             |
| STANDHYD  (0052) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      98.70        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      53.00       999.73
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.27 (ii)    5.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .27          .16
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .21          .00          .215 (iii)
     TIME TO PEAK    (hrs)=       9.83        10.00         10.00
     RUNOFF VOLUME    (mm)=     211.00       150.58        210.40
     TOTAL RAINFALL   (mm)=     212.00       212.00        212.00
     RUNOFF COEFFICIENT   =       1.00          .71           .99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB             |
| STANDHYD  (0053) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      53.00       499.86
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       4.10 (ii)    5.88 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .24          .15
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .45          .00          .459 (iii)
     TIME TO PEAK    (hrs)=      10.00        10.00         10.00
     RUNOFF VOLUME    (mm)=     211.00       150.58        210.39
     TOTAL RAINFALL   (mm)=     212.00       212.00        212.00
     RUNOFF COEFFICIENT   =       1.00          .71           .99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0210       .1224
                          .0203      .1100    |    .0213       .1520
                          .0206      .1116    |    .0000       .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)     2.100       .287       10.00      178.13
     OUTFLOW: ID= 1 (0036)     2.100       .023       12.25      177.48

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.01
                TIME SHIFT OF PEAK FLOW         (min)=135.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .3187

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-------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0239       .0730
                          .0120      .0365    |    .0359       .1095

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)     1.460       .215       10.00      196.41
     OUTFLOW: ID= 1 (0022)     1.460       .063       11.17      195.88

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 29.43
                TIME SHIFT OF PEAK FLOW         (min)= 70.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .1926

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-------------------
| RESERVOIR (0028) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0219       .2295
                          .0212      .2100    |    .0222       .2760
                          .0216      .2124    |    .0000       .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0020)     3.170       .455       10.00      193.64
     OUTFLOW: ID= 1 (0028)     3.170       .024       12.17      192.52

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.28
                TIME SHIFT OF PEAK FLOW         (min)=130.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .5565

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0027) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0628       .1562
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                        .0314      .0781   |    .0943       .2344

                              AREA      QPEAK       TPEAK       R.V.
                              (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0019)   3.120       .459       10.00      196.41
     OUTFLOW: ID= 1 (0027)   3.120       .155       11.08      196.21

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 33.74
                   TIME SHIFT OF PEAK FLOW         (min)= 65.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .3848

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--------------------
| RESERVOIR (0054) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000      .0000   |    .0240       .0730
                           .0120      .0365   |    .0360       .1095

                              AREA      QPEAK       TPEAK       R.V.
                              (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0052)   1.460       .215       10.00      210.40
     OUTFLOW: ID= 1 (0054)   1.460       .065       11.17      209.87

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 30.47
                   TIME SHIFT OF PEAK FLOW         (min)= 70.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1991

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--------------------
| RESERVOIR (0055) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000      .0000   |    .0630       .1562
                           .0310      .0781   |    .0940       .2344

                              AREA      QPEAK       TPEAK       R.V.
                              (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)   3.120       .459       10.00      210.39
     OUTFLOW: ID= 1 (0055)   3.120       .158       11.08      210.19

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 34.48
                   TIME SHIFT OF PEAK FLOW         (min)= 65.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .3966

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--------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0017):       .94    .128    10.00   169.01
        + ID2= 2 (0022):     1.46    .063    11.17   195.88
          ================================================
          ID = 3 (0024):     2.40    .178    10.00   185.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0029) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0028):     3.17    .024    12.17   192.52
        + ID2= 2 (0027):     3.12    .155    11.08   196.21
          ================================================
          ID = 3 (0029):     6.29    .179    11.17   194.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0024):     2.40    .178    10.00   185.36
        + ID2= 2 (0018):      .39    .053    10.00   169.00
          ================================================
          ID = 3 (0025):     2.79    .231    10.00   183.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0029):     6.29    .179    11.17   194.35
        + ID2= 2 (0033):     1.06    .144    10.00   169.02
          ================================================
          ID = 3 (0038):     7.35    .291    10.00   190.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0036):     2.10    .023    12.25   177.48
        + ID2= 2 (0025):     2.79    .231    10.00   183.07
          ================================================
          ID = 3 (0051):     4.89    .253    10.00   180.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0051):     4.89    .253    10.00   180.67
        + ID2= 2 (0035):     2.01    .237    10.08   133.21
          ================================================
          ID = 3 (0043):     6.90    .488    10.00   166.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0043):     6.90    .488    10.00   166.84
        + ID2= 2 (0038):     7.35    .291    10.00   190.70
          ================================================
          ID = 3 (0044):    14.25    .779    10.00   179.15

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ***************************
  ** SIMULATION NUMBER:   8 **
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| CHICAGO STORM    |    IDF curve parameters: A= 460.600
| Ptotal= 25.00 mm |                          B=   6.000
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--------------------                          C=    .781
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  4.00 hrs
                        Storm time step    = 10.00 min
                        Time to peak ratio =   .38

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    1.69 |  1.17    6.21 |  2.17    4.63 |  3.17    2.07
                 .33    1.89 |  1.33   14.04 |  2.33    3.79 |  3.33    1.91
                 .50    2.17 |  1.50   52.83 |  2.50    3.22 |  3.50    1.77
                 .67    2.55 |  1.67   16.90 |  2.67    2.81 |  3.67    1.66
                 .83    3.13 |  1.83    8.79 |  2.83    2.50 |  3.83    1.56
                1.00    4.12 |  2.00    6.02 |  3.00    2.26 |  4.00    1.47


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.26          .84
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     118.30        40.00
     Mannings n           =       .013         .250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083    1.69 | 1.083    6.21 | 2.083    4.63 |  3.08    2.07
                .167    1.69 | 1.167    6.21 | 2.167    4.63 |  3.17    2.07
                .250    1.89 | 1.250   14.04 | 2.250    3.79 |  3.25    1.91
                .333    1.89 | 1.333   14.04 | 2.333    3.79 |  3.33    1.91
                .417    2.17 | 1.417   52.83 | 2.417    3.22 |  3.42    1.77
                .500    2.17 | 1.500   52.83 | 2.500    3.22 |  3.50    1.77
                .583    2.55 | 1.583   16.90 | 2.583    2.81 |  3.58    1.66
                .667    2.55 | 1.667   16.90 | 2.667    2.81 |  3.67    1.66
                .750    3.13 | 1.750    8.79 | 2.750    2.50 |  3.75    1.56
                .833    3.13 | 1.833    8.79 | 2.833    2.50 |  3.83    1.56
                .917    4.12 | 1.917    6.02 | 2.917    2.26 |  3.92    1.47
               1.000    4.12 | 2.000    6.02 | 3.000    2.26 |  4.00    1.47

     Max.Eff.Inten.(mm/hr)=      52.83         1.55
               over (min)        5.00        50.00
     Storage Coeff.  (min)=      3.65 (ii)   49.61 (ii)
     Unit Hyd. Tpeak (min)=      5.00        50.00
     Unit Hyd. peak  (cms)=       .25          .02
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .14          .00       .141 (iii)
     TIME TO PEAK    (hrs)=      1.50         2.67        1.50
     RUNOFF VOLUME    (mm)=     15.00         2.26        9.89
     TOTAL RAINFALL   (mm)=     25.00        25.00       25.00
     RUNOFF COEFFICIENT   =       .60          .09         .40

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .53          .41
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      79.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=       8.79          .34
               over (min)         5.00        95.00
     Storage Coeff.  (min)=       5.87 (ii)   90.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00        95.00
     Unit Hyd. peak  (cms)=        .19          .01
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .01          .00       .012 (iii)
     TIME TO PEAK    (hrs)=       1.83         4.42        1.83
     RUNOFF VOLUME    (mm)=       8.00          .69        4.72
     TOTAL RAINFALL   (mm)=      25.00        25.00       25.00
     RUNOFF COEFFICIENT   =        .32          .03         .19


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      98.70        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      16.90        62.48
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       5.16 (ii)    7.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .21          .13
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .06          .00       .055 (iii)
     TIME TO PEAK    (hrs)=       1.67         2.00        1.67
     RUNOFF VOLUME    (mm)=      10.00         1.06        9.91
     TOTAL RAINFALL   (mm)=      25.00        25.00       25.00
     RUNOFF COEFFICIENT   =        .40          .04         .40


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .22          .17
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      51.00        40.00
     Mannings n           =       .013         .250
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     Max.Eff.Inten.(mm/hr)=       8.79          .34
               over (min)        5.00        90.00
     Storage Coeff.  (min)=       4.51 (ii)   89.31 (ii)
     Unit Hyd. Tpeak (min)=       5.00        90.00
     Unit Hyd. peak  (cms)=        .23          .01
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .01          .00          .005 (iii)
     TIME TO PEAK    (hrs)=       1.83         4.42          1.83
     RUNOFF VOLUME    (mm)=       8.00          .69          4.60
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =        .32          .03           .18

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .001 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=    .278
     TOTAL RAINFALL   (mm)=  24.997
     RUNOFF COEFFICIENT   =    .011

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0020) |   Area    (ha)=   3.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.73          .44
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length             (m)=    145.40        40.00
     Mannings n            =       .013         .250

     Max.Eff.Inten.(mm/hr)=      52.83         1.55
               over (min)        5.00        55.00
     Storage Coeff.  (min)=       4.13 (ii)   50.09 (ii)
     Unit Hyd. Tpeak (min)=       5.00        55.00
     Unit Hyd. peak  (cms)=        .24          .02
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .29          .00          .288 (iii)
     TIME TO PEAK    (hrs)=       1.50         2.75          1.50
     RUNOFF VOLUME    (mm)=      15.00         2.26         13.20
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =        .60          .09           .53

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0019) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length             (m)=    144.20        40.00
     Mannings n            =       .013         .250

     Max.Eff.Inten.(mm/hr)=      16.90        17.59
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       6.48 (ii)    9.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .18          .12
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .11          .00          .108 (iii)
     TIME TO PEAK    (hrs)=       1.67         2.08          1.67
     RUNOFF VOLUME    (mm)=      10.00         1.06          9.91
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =        .40          .04           .40

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .59          .47
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length             (m)=     84.10        40.00
     Mannings n            =       .013         .250

     Max.Eff.Inten.(mm/hr)=       8.79          .34
               over (min)        5.00        95.00
     Storage Coeff.  (min)=       6.09 (ii)   90.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00        95.00
     Unit Hyd. peak  (cms)=        .19          .01
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .01          .00          .013 (iii)
     TIME TO PEAK    (hrs)=       1.83         4.42          1.83
     RUNOFF VOLUME    (mm)=       8.00          .69          4.73
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =        .32          .03           .19

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0052) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length             (m)=     98.70        40.00
     Mannings n            =       .013         .250
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     Max.Eff.Inten.(mm/hr)=      52.83          9.91
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       3.27 (ii)    5.06 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=        .27           .16
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .20           .00          .205 (iii)
     TIME TO PEAK    (hrs)=       1.50          1.58          1.50
     RUNOFF VOLUME    (mm)=      24.00          5.30         23.81
     TOTAL RAINFALL   (mm)=      25.00         25.00         25.00
     RUNOFF COEFFICIENT   =        .96           .21           .95

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0053) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      52.83          9.91
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       4.11 (ii)    5.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=        .24           .15
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .42           .00          .424 (iii)
     TIME TO PEAK    (hrs)=       1.50          1.58          1.50
     RUNOFF VOLUME    (mm)=      24.00          5.30         23.81
     TOTAL RAINFALL   (mm)=      25.00         25.00         25.00
     RUNOFF COEFFICIENT   =        .96           .21           .95

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)      (ha.m.)   |   (cms)      (ha.m.)
                          .0000       .0000   |    .0210       .1224
                          .0203       .1100   |    .0213       .1520
                          .0206       .1116   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)    2.100       .141        1.50        9.89
     OUTFLOW: ID= 1 (0036)    2.100       .003        4.08        9.23

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.32
                TIME SHIFT OF PEAK FLOW         (min)=155.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .0178

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-------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)      (ha.m.)   |   (cms)      (ha.m.)
                          .0000       .0000   |    .0239       .0730
                          .0120       .0365   |    .0359       .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)    1.460       .055        1.67        9.91
     OUTFLOW: ID= 1 (0022)    1.460       .004        4.08        9.38

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.95
                TIME SHIFT OF PEAK FLOW         (min)=145.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .0117

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-------------------
| RESERVOIR (0028) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)      (ha.m.)   |   (cms)      (ha.m.)
                          .0000       .0000   |    .0219       .2295
                          .0212       .2100   |    .0222       .2760
                          .0216       .2124   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0020)    3.170       .288        1.50       13.20
     OUTFLOW: ID= 1 (0028)    3.170       .004        4.08       12.41

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  1.35
                TIME SHIFT OF PEAK FLOW         (min)=155.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .0386

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-------------------
| RESERVOIR (0027) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)      (ha.m.)   |   (cms)      (ha.m.)
                          .0000       .0000   |    .0628       .1562
                          .0314       .0781   |    .0943       .2344

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0019)    3.120       .108        1.67        9.91
     OUTFLOW: ID= 1 (0027)    3.120       .010        4.00        9.70

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.90
                TIME SHIFT OF PEAK FLOW         (min)=140.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .0240

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-------------------
| RESERVOIR (0054) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)      (ha.m.)   |   (cms)      (ha.m.)
                          .0000       .0000   |    .0240       .0730
                          .0120       .0365   |    .0360       .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0052)    1.460       .205        1.50       23.81
     OUTFLOW: ID= 1 (0054)    1.460       .009        3.00       23.28

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.36
                TIME SHIFT OF PEAK FLOW         (min)= 90.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .0272
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| RESERVOIR (0055) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)      (ha.m.)   |   (cms)      (ha.m.)
                           .0000       .0000   |    .0630       .1562
                           .0310       .0781   |    .0940       .2344

                                 AREA      QPEAK       TPEAK       R.V.
                                 (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)      3.120       .424        1.50       23.81
     OUTFLOW: ID= 1 (0055)      3.120       .022        2.75       23.61

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.27
                   TIME SHIFT OF PEAK FLOW         (min)= 75.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0563

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| ADD HYD   (0024) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0017):       .94    .012     1.83     4.72
       + ID2= 2 (0022):     1.46    .004     4.08     9.38
         ================================================
         ID = 3 (0024):     2.40    .013     1.83     7.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0029) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0028):     3.17    .004     4.08    12.41
       + ID2= 2 (0027):     3.12    .010     4.00     9.70
         ================================================
         ID = 3 (0029):     6.29    .014     4.08    11.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0024):     2.40    .013     1.83     7.56
       + ID2= 2 (0018):      .39    .005     1.83     4.60
         ================================================
         ID = 3 (0025):     2.79    .018     1.83     7.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0029):     6.29    .014     4.08    11.07
       + ID2= 2 (0033):     1.06    .013     1.83     4.73
         ================================================
         ID = 3 (0038):     7.35    .019     1.83    10.15

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0051) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0036):     2.10    .003     4.08     9.23
       + ID2= 2 (0025):     2.79    .018     1.83     7.14
         ================================================
         ID = 3 (0051):     4.89    .020     1.83     8.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0051):     4.89    .020     1.83     8.04
       + ID2= 2 (0035):     2.01    .001     3.92      .28
         ================================================
         ID = 3 (0043):     6.90    .020     1.83     5.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0043):     6.90    .020     1.83     5.78
       + ID2= 2 (0038):     7.35    .019     1.83    10.15
         ================================================
         ID = 3 (0044):    14.25    .039     1.83     8.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   9 **
  ****************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1049.500
| Ptotal= 50.13 mm |                          B=   8.000
--------------------                          C=    .803
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =   .38

               TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .17    3.19 |  1.17   12.84 |  2.17    9.38 |  3.17    3.96
                .33    3.61 |  1.33   29.82 |  2.33    7.57 |  3.33    3.63
                .50    4.17 |  1.50  103.04 |  2.50    6.36 |  3.50    3.36
                .67    4.96 |  1.67   35.98 |  2.67    5.50 |  3.67    3.13
                .83    6.18 |  1.83   18.50 |  2.83    4.86 |  3.83    2.93
               1.00    8.29 |  2.00   12.42 |  3.00    4.36 |  4.00    2.76


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.26           .84
     Dep. Storage     (mm)=       10.00         10.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      118.30         40.00
     Mannings n             =      .013          .250
```

```
        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
              TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
               hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
              .083    3.19 | 1.083   12.84 | 2.083    9.38 |  3.08    3.96
              .167    3.19 | 1.167   12.84 | 2.167    9.38 |  3.17    3.96
              .250    3.61 | 1.250   29.82 | 2.250    7.57 |  3.25    3.63
              .333    3.61 | 1.333   29.82 | 2.333    7.57 |  3.33    3.63
              .417    4.17 | 1.417  103.04 | 2.417    6.36 |  3.42    3.36
              .500    4.17 | 1.500  103.04 | 2.500    6.36 |  3.50    3.36
              .583    4.96 | 1.583   35.98 | 2.583    5.50 |  3.58    3.13
              .667    4.96 | 1.667   35.98 | 2.667    5.50 |  3.67    3.13
              .750    6.18 | 1.750   18.50 | 2.750    4.86 |  3.75    2.93
              .833    6.18 | 1.833   18.50 | 2.833    4.86 |  3.83    2.93
              .917    8.29 | 1.917   12.42 | 2.917    4.36 |  3.92    2.76
             1.000    8.29 | 2.000   12.42 | 3.000    4.36 |  4.00    2.76

    Max.Eff.Inten.(mm/hr)=     103.04        17.35
              over (min)          5.00        25.00
    Storage Coeff.  (min)=       2.79 (ii)   20.30 (ii)
    Unit Hyd. Tpeak (min)=       5.00        25.00
    Unit Hyd. peak  (cms)=        .28          .05
                                                      *TOTALS*
    PEAK FLOW       (cms)=        .35          .02          .357 (iii)
    TIME TO PEAK    (hrs)=       1.50         1.92          1.50
    RUNOFF VOLUME    (mm)=      40.13        12.91         29.24
    TOTAL RAINFALL   (mm)=      50.13        50.13         50.13
    RUNOFF COEFFICIENT   =        .80          .26           .58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       .53          .41
    Dep. Storage     (mm)=     17.00        17.00
    Average Slope     (%)=      1.00         1.00
    Length            (m)=     79.20        40.00
    Mannings n           =      .013         .250

    Max.Eff.Inten.(mm/hr)=     103.04        10.00
              over (min)          5.00        25.00
    Storage Coeff.  (min)=       2.19 (ii)   24.02 (ii)
    Unit Hyd. Tpeak (min)=       5.00        25.00
    Unit Hyd. peak  (cms)=        .30          .05
                                                      *TOTALS*
    PEAK FLOW       (cms)=        .14          .01          .142 (iii)
    TIME TO PEAK    (hrs)=       1.50         2.00          1.50
    RUNOFF VOLUME    (mm)=      33.13         9.32         22.64
    TOTAL RAINFALL   (mm)=      50.13        50.13         50.13
    RUNOFF COEFFICIENT   =        .66          .19           .45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      1.45          .01
    Dep. Storage     (mm)=     15.00        15.00
    Average Slope     (%)=      1.00         1.00
    Length            (m)=     98.70        40.00
    Mannings n           =      .013         .250

    Max.Eff.Inten.(mm/hr)=     103.04       289.70
              over (min)          5.00         5.00
    Storage Coeff.  (min)=       2.50 (ii)    3.87 (ii)
    Unit Hyd. Tpeak (min)=       5.00         5.00
    Unit Hyd. peak  (cms)=        .29          .25
                                                      *TOTALS*
    PEAK FLOW       (cms)=        .39          .00          .391 (iii)
    TIME TO PEAK    (hrs)=       1.50         1.50          1.50
    RUNOFF VOLUME    (mm)=      35.13        10.30         34.88
    TOTAL RAINFALL   (mm)=      50.13        50.13         50.13
    RUNOFF COEFFICIENT   =        .70          .21           .70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       .22          .17
    Dep. Storage     (mm)=     17.00        17.00
    Average Slope     (%)=      1.00         1.00
    Length            (m)=     51.00        40.00
    Mannings n           =      .013         .250

    Max.Eff.Inten.(mm/hr)=     103.04        10.00
              over (min)          5.00        25.00
    Storage Coeff.  (min)=       1.69 (ii)   23.51 (ii)
    Unit Hyd. Tpeak (min)=       5.00        25.00
    Unit Hyd. peak  (cms)=        .32          .05
                                                      *TOTALS*
    PEAK FLOW       (cms)=        .06          .00          .061 (iii)
    TIME TO PEAK    (hrs)=       1.50         2.00          1.50
    RUNOFF VOLUME    (mm)=      33.13         9.32         22.62
    TOTAL RAINFALL   (mm)=      50.13        50.13         50.13
    RUNOFF COEFFICIENT   =        .66          .19           .45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .33
```

```
     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .029 (i)
     TIME TO PEAK    (hrs)=   2.000
     RUNOFF VOLUME    (mm)=   7.907
     TOTAL RAINFALL   (mm)=  50.133
     RUNOFF COEFFICIENT   =    .158

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (0020) |   Area    (ha)=   3.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      2.73          .44
     Dep. Storage     (mm)=     10.00        10.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    145.40        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    103.04        21.27
               over (min)        5.00        10.00
     Storage Coeff.  (min)=     3.16 (ii)    7.31 (ii)
     Unit Hyd. Tpeak (min)=     5.00        10.00
     Unit Hyd. peak  (cms)=      .27          .13
                                              *TOTALS*
     PEAK FLOW       (cms)=      .75          .02          .768 (iii)
     TIME TO PEAK    (hrs)=     1.50         1.58          1.50
     RUNOFF VOLUME    (mm)=    40.13        12.91         36.32
     TOTAL RAINFALL   (mm)=    50.13        50.13         50.13
     RUNOFF COEFFICIENT   =      .80          .26           .72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0019) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.09          .03
     Dep. Storage     (mm)=     15.00        15.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    144.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    103.04       148.86
               over (min)        5.00         5.00
     Storage Coeff.  (min)=     3.14 (ii)    4.51 (ii)
     Unit Hyd. Tpeak (min)=     5.00         5.00
     Unit Hyd. peak  (cms)=      .27          .23
                                              *TOTALS*
     PEAK FLOW       (cms)=      .80          .00          .801 (iii)
     TIME TO PEAK    (hrs)=     1.50         1.50          1.50
     RUNOFF VOLUME    (mm)=    35.13        10.30         34.88
     TOTAL RAINFALL   (mm)=    50.13        50.13         50.13
     RUNOFF COEFFICIENT   =      .70          .21           .70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .59          .47
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     84.10        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    103.04        10.00
               over (min)        5.00        25.00
     Storage Coeff.  (min)=     2.28 (ii)   24.10 (ii)
     Unit Hyd. Tpeak (min)=     5.00        25.00
     Unit Hyd. peak  (cms)=      .30          .05
                                              *TOTALS*
     PEAK FLOW       (cms)=      .16          .01          .159 (iii)
     TIME TO PEAK    (hrs)=     1.50         2.00          1.50
     RUNOFF VOLUME    (mm)=    33.13         9.32         22.64
     TOTAL RAINFALL   (mm)=    50.13        50.13         50.13
     RUNOFF COEFFICIENT   =      .66          .19           .45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0052) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.45          .01
     Dep. Storage     (mm)=      1.00         1.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     98.70        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    103.04       289.70
               over (min)        5.00         5.00
     Storage Coeff.  (min)=     2.50 (ii)    3.87 (ii)
     Unit Hyd. Tpeak (min)=     5.00         5.00
     Unit Hyd. peak  (cms)=      .29          .25
                                              *TOTALS*
     PEAK FLOW       (cms)=      .41          .00          .410 (iii)
     TIME TO PEAK    (hrs)=     1.50         1.50          1.50
     RUNOFF VOLUME    (mm)=    49.13        18.04         48.82
     TOTAL RAINFALL   (mm)=    50.13        50.13         50.13
     RUNOFF COEFFICIENT   =      .98          .36           .97

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0053) |   Area    (ha)=   3.12
```

```
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.09          .03
     Dep. Storage     (mm)=      1.00         1.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    144.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    103.04       144.85
               over (min)        5.00         5.00
     Storage Coeff.  (min)=     3.14 (ii)    4.51 (ii)
     Unit Hyd. Tpeak (min)=     5.00         5.00
     Unit Hyd. peak  (cms)=      .27          .23
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .86          .00        .861 (iii)
     TIME TO PEAK    (hrs)=     1.50         1.50        1.50
     RUNOFF VOLUME    (mm)=    49.13        18.04       48.82
     TOTAL RAINFALL   (mm)=    50.13        50.13       50.13
     RUNOFF COEFFICIENT   =      .98          .36         .97

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000      .0000    |    .0210      .1224
                           .0203      .1100    |    .0213      .1520
                           .0206      .1116    |    .0000      .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)     2.100       .357        1.50       29.24
     OUTFLOW: ID= 1 (0036)     2.100       .010        4.00       28.58

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.73
                  TIME SHIFT OF PEAK FLOW         (min)=150.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0529

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000      .0000    |    .0239      .0730
                           .0120      .0365    |    .0359      .1095

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)     1.460       .391        1.50       34.88
     OUTFLOW: ID= 1 (0022)     1.460       .013        3.58       34.36

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.36
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0400

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0028) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000      .0000    |    .0219      .2295
                           .0212      .2100    |    .0222      .2760
                           .0216      .2124    |    .0000      .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0020)     3.170       .768        1.50       36.32
     OUTFLOW: ID= 1 (0028)     3.170       .011        4.08       35.53

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  1.40
                  TIME SHIFT OF PEAK FLOW         (min)=155.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .1063

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0027) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000      .0000    |    .0628      .1562
                           .0314      .0781    |    .0943      .2344

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0019)     3.120       .801        1.50       34.88
     OUTFLOW: ID= 1 (0027)     3.120       .033        3.25       34.68

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.12
                  TIME SHIFT OF PEAK FLOW         (min)=105.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0821

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0054) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000      .0000    |    .0240      .0730
                           .0120      .0365    |    .0360      .1095

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0052)     1.460       .410        1.50       48.82
     OUTFLOW: ID= 1 (0054)     1.460       .018        2.92       48.30

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.49
                  TIME SHIFT OF PEAK FLOW         (min)= 85.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0560

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0055) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000      .0000    |    .0630      .1562
                           .0310      .0781    |    .0940      .2344

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)     3.120       .861        1.50       48.82
     OUTFLOW: ID= 1 (0055)     3.120       .046        2.67       48.62

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.40
                  TIME SHIFT OF PEAK FLOW         (min)= 70.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .1159

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--------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0017):     .94     .142     1.50    22.64
```

```
        + ID2= 2 (0022):     1.46    .013     3.58    34.36
          ================================================
          ID = 3 (0024):     2.40    .146     1.50    29.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0029) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0028):     3.17    .011     4.08    35.53
        + ID2= 2 (0027):     3.12    .033     3.25    34.68
          ================================================
          ID = 3 (0029):     6.29    .043     3.50    35.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0024):     2.40    .146     1.50    29.77
        + ID2= 2 (0018):      .39    .061     1.50    22.62
          ================================================
          ID = 3 (0025):     2.79    .207     1.50    28.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0029):     6.29    .043     3.50    35.11
        + ID2= 2 (0033):     1.06    .159     1.50    22.64
          ================================================
          ID = 3 (0038):     7.35    .173     1.50    33.31

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0036):     2.10    .010     4.00    28.58
        + ID2= 2 (0025):     2.79    .207     1.50    28.77
          ================================================
          ID = 3 (0051):     4.89    .210     1.50    28.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0051):     4.89    .210     1.50    28.69
        + ID2= 2 (0035):     2.01    .029     2.00     7.91
          ================================================
          ID = 3 (0043):     6.90    .213     1.50    22.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0043):     6.90    .213     1.50    22.63
        + ID2= 2 (0038):     7.35    .173     1.50    33.31
          ================================================
          ID = 3 (0044):    14.25    .386     1.50    28.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:  10 **
  ****************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=2317.000
| Ptotal= 91.34 mm |                          B=  11.000
--------------------                          C=    .836
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =   .38

              TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
               hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
               .17    5.30 |  1.17   24.37 |  2.17   17.36 |  3.17    6.73
               .33    6.07 |  1.33   58.13 |  2.33   13.72 |  3.33    6.12
               .50    7.11 |  1.50  181.78 |  2.50   11.34 |  3.50    5.61
               .67    8.62 |  1.67   70.17 |  2.67    9.66 |  3.67    5.19
               .83   10.98 |  1.83   35.88 |  2.83    8.43 |  3.83    4.83
              1.00   15.16 |  2.00   23.52 |  3.00    7.48 |  4.00    4.51


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--------------------
| CALIB            |
| STANDHYD  (0034) |   Area     (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.26           .84
     Dep. Storage     (mm)=       10.00         10.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      118.30         40.00
     Mannings n            =        .013          .250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
              TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
               hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
              .083    5.30 | 1.083   24.37 | 2.083   17.36 |  3.08    6.73
              .167    5.30 | 1.167   24.37 | 2.167   17.36 |  3.17    6.73
              .250    6.07 | 1.250   58.13 | 2.250   13.72 |  3.25    6.12
              .333    6.07 | 1.333   58.13 | 2.333   13.72 |  3.33    6.12
              .417    7.11 | 1.417  181.78 | 2.417   11.34 |  3.42    5.61
              .500    7.11 | 1.500  181.78 | 2.500   11.34 |  3.50    5.61
              .583    8.62 | 1.583   70.17 | 2.583    9.66 |  3.58    5.19
              .667    8.62 | 1.667   70.17 | 2.667    9.66 |  3.67    5.19
              .750   10.98 | 1.750   35.88 | 2.750    8.43 |  3.75    4.83
              .833   10.98 | 1.833   35.88 | 2.833    8.43 |  3.83    4.83
              .917   15.16 | 1.917   23.52 | 2.917    7.48 |  3.92    4.51
             1.000   15.16 | 2.000   23.52 | 3.000    7.48 |  4.00    4.51

     Max.Eff.Inten.(mm/hr)=     181.78         76.80
               over (min)          5.00         15.00
     Storage Coeff.  (min)=       2.22 (ii)    11.88 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=        .30           .09
```

```
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .63          .11          .684 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.67          1.50
     RUNOFF VOLUME    (mm)=      81.34        39.86         64.75
     TOTAL RAINFALL   (mm)=      91.34        91.34         91.34
     RUNOFF COEFFICIENT   =        .89          .44           .71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .53          .41
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      79.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78        53.79
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.75 (ii)   12.88 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .32          .08
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .27          .04          .282 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.67          1.50
     RUNOFF VOLUME    (mm)=      74.34        34.76         56.92
     TOTAL RAINFALL   (mm)=      91.34        91.34         91.34
     RUNOFF COEFFICIENT   =        .81          .38           .62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      98.70        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78      1366.15
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.00 (ii)    3.08 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .31          .27
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .73          .00          .730 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.50          1.50
     RUNOFF VOLUME    (mm)=      76.34        36.20         75.94
     TOTAL RAINFALL   (mm)=      91.34        91.34         91.34
     RUNOFF COEFFICIENT   =        .84          .40           .83
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***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .22          .17
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      51.00        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78        53.79
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.34 (ii)   12.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .33          .08
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .11          .02          .117 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.67          1.50
     RUNOFF VOLUME    (mm)=      74.34        34.76         56.91
     TOTAL RAINFALL   (mm)=      91.34        91.34         91.34
     RUNOFF COEFFICIENT   =        .81          .38           .62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .149 (i)
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=  32.617
     TOTAL RAINFALL   (mm)=  91.345
     RUNOFF COEFFICIENT   =    .357

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (0020) |   Area    (ha)=   3.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.73          .44
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     145.40        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78        97.58
               over (min)        5.00        10.00
```

```
     Storage Coeff.  (min)=       2.52 (ii)    5.83 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .29          .15
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.36          .08         1.422 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.58          1.50
     RUNOFF VOLUME    (mm)=      81.34        39.86         75.54
     TOTAL RAINFALL   (mm)=      91.34        91.34         91.34
     RUNOFF COEFFICIENT   =        .89          .44           .83

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0019) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78       683.07
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.51 (ii)    3.59 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .29          .26
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.54          .01         1.546 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.50          1.50
     RUNOFF VOLUME    (mm)=      76.34        36.20         75.94
     TOTAL RAINFALL   (mm)=      91.34        91.34         91.34
     RUNOFF COEFFICIENT   =        .84          .40           .83

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .59          .47
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      84.10        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78        53.79
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.81 (ii)   12.95 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .32          .08
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .30          .05          .318 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.67          1.50
     RUNOFF VOLUME    (mm)=      74.34        34.76         56.92
     TOTAL RAINFALL   (mm)=      91.34        91.34         91.34
     RUNOFF COEFFICIENT   =        .81          .38           .62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0052) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      98.70        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78      1366.15
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.00 (ii)    3.08 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .31          .27
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .73          .00          .730 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.50          1.50
     RUNOFF VOLUME    (mm)=      90.34        46.64         89.91
     TOTAL RAINFALL   (mm)=      91.34        91.34         91.34
     RUNOFF COEFFICIENT   =        .99          .51           .98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0053) |   Area    (ha)=   3.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.09          .03
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     144.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78       683.07
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.51 (ii)    3.59 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .29          .26
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.54          .01         1.548 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.50          1.50
     RUNOFF VOLUME    (mm)=      90.34        46.64         89.91
     TOTAL RAINFALL   (mm)=      91.34        91.34         91.34
     RUNOFF COEFFICIENT   =        .99          .51           .98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
```

```
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0210      .1224
                          .0203      .1100    |    .0213      .1520
                          .0206      .1116    |    .0000      .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)     2.100       .684        1.50       64.75
     OUTFLOW: ID= 1 (0036)     2.100       .021        4.00       64.09

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.04
                   TIME SHIFT OF PEAK FLOW         (min)=150.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1174

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0239      .0730
                          .0120      .0365    |    .0359      .1095

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)     1.460       .730        1.50       75.94
     OUTFLOW: ID= 1 (0022)     1.460       .029        3.08       75.42

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.94
                   TIME SHIFT OF PEAK FLOW         (min)= 95.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0878

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0028) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0219      .2295
                          .0212      .2100    |    .0222      .2760
                          .0216      .2124    |    .0000      .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0020)     3.170      1.422        1.50       75.54
     OUTFLOW: ID= 1 (0028)     3.170       .022        4.08       74.74

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  1.53
                   TIME SHIFT OF PEAK FLOW         (min)=155.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .2206

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0027) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0628      .1562
                          .0314      .0781    |    .0943      .2344

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0019)     3.120      1.546        1.50       75.94
     OUTFLOW: ID= 1 (0027)     3.120       .073        2.83       75.74

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.72
                   TIME SHIFT OF PEAK FLOW         (min)= 80.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1815

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0054) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0240      .0730
                          .0120      .0365    |    .0360      .1095

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0052)     1.460       .730        1.50       89.91
     OUTFLOW: ID= 1 (0054)     1.460       .034        2.83       89.38

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.67
                   TIME SHIFT OF PEAK FLOW         (min)= 80.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1038

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0055) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0630      .1562
                          .0310      .0781    |    .0940      .2344

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)     3.120      1.548        1.50       89.91
     OUTFLOW: ID= 1 (0055)     3.120       .086        2.58       89.71

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.58
                   TIME SHIFT OF PEAK FLOW         (min)= 65.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .2153

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0017):      .94     .282     1.50    56.92
        + ID2= 2 (0022):     1.46     .029     3.08    75.42
          ================================================
          ID = 3 (0024):     2.40     .296     1.50    68.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0029) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0028):     3.17     .022     4.08    74.74
        + ID2= 2 (0027):     3.12     .073     2.83    75.74
          ================================================
          ID = 3 (0029):     6.29     .094     3.08    75.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
```

```
          ID1= 1 (0024):     2.40    .296     1.50    68.17
        + ID2= 2 (0018):      .39    .117     1.50    56.91
          ================================================
          ID = 3 (0025):     2.79    .413     1.50    66.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0029):     6.29    .094     3.08    75.24
        + ID2= 2 (0033):     1.06    .318     1.50    56.92
          ================================================
          ID = 3 (0038):     7.35    .362     1.50    72.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0036):     2.10    .021     4.00    64.09
        + ID2= 2 (0025):     2.79    .413     1.50    66.60
          ================================================
          ID = 3 (0051):     4.89    .421     1.50    65.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0051):     4.89    .421     1.50    65.52
        + ID2= 2 (0035):     2.01    .149     1.92    32.62
          ================================================
          ID = 3 (0043):     6.90    .457     1.50    55.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0043):     6.90    .457     1.50    55.94
        + ID2= 2 (0038):     7.35    .362     1.50    72.60
          ================================================
          ID = 3 (0044):    14.25    .818     1.50    64.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

 FINISH
================================================================================
==============
```

Visual OTTHYMO Output File – Catchment A – Phase 1

```
================================================================================
==============

      V    V   I    SSSSS  U   U    A    L
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO

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                  *****  D E T A I L E D   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 2.3.3\voin.dat
  Output  filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\VOH-Post-Dev.- July 17-
2023 (Phase 1)\Phase 1 - Airport Road Outlet.out
  Summary filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\VOH-Post-Dev.- July 17-
2023 (Phase 1)\Phase 1 - Airport Road Outlet.sum

DATE: 8/08/23                             TIME: 11:27:02 AM

USER:


COMMENTS: _____________________________________________________

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  ****************************
  ** SIMULATION NUMBER:   6 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment A)\100
| Ptotal=122.89 mm |    Comments: 100 yr/24 hr SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	1.35	6.17	2.46	12.17	17.70	18.17	2.21
.33	1.35	6.33	2.46	12.33	17.70	18.33	2.21
.50	1.35	6.50	2.46	12.50	17.70	18.50	2.21
.67	1.35	6.67	2.46	12.67	9.09	18.67	2.21
.83	1.35	6.83	2.46	12.83	9.09	18.83	2.21
1.00	1.35	7.00	2.46	13.00	9.09	19.00	2.21
1.17	1.35	7.17	2.46	13.17	1.72	19.17	2.21
1.33	1.35	7.33	2.46	13.33	1.72	19.33	2.21
1.50	1.35	7.50	2.46	13.50	1.72	19.50	2.21
1.67	1.35	7.67	2.46	13.67	10.08	19.67	2.21
1.83	1.35	7.83	2.46	13.83	10.08	19.83	2.21
2.00	1.35	8.00	2.46	14.00	10.08	20.00	2.21
2.17	1.60	8.17	3.32	14.17	3.69	20.17	1.47
2.33	1.60	8.33	3.32	14.33	3.69	20.33	1.47
2.50	1.60	8.50	3.32	14.50	3.69	20.50	1.47
2.67	1.60	8.67	3.32	14.67	3.69	20.67	1.47
2.83	1.60	8.83	3.32	14.83	3.69	20.83	1.47
3.00	1.60	9.00	3.32	15.00	3.69	21.00	1.47
3.17	1.60	9.17	3.93	15.17	3.69	21.17	1.47
3.33	1.60	9.33	3.93	15.33	3.69	21.33	1.47
3.50	1.60	9.50	3.93	15.50	3.69	21.50	1.47
3.67	1.60	9.67	4.42	15.67	3.69	21.67	1.47
3.83	1.60	9.83	4.42	15.83	3.69	21.83	1.47
4.00	1.60	10.00	4.42	16.00	3.69	22.00	1.47
4.17	1.97	10.17	5.65	16.17	2.21	22.17	1.47
4.33	1.97	10.33	5.65	16.33	2.21	22.33	1.47
4.50	1.97	10.50	5.65	16.50	2.21	22.50	1.47
4.67	1.97	10.67	7.62	16.67	2.21	22.67	1.47
4.83	1.97	10.83	7.62	16.83	2.21	22.83	1.47
5.00	1.97	11.00	7.62	17.00	2.21	23.00	1.47
5.17	1.97	11.17	11.80	17.17	2.21	23.17	1.47
5.33	1.97	11.33	11.80	17.33	2.21	23.33	1.47
5.50	1.97	11.50	11.80	17.50	2.21	23.50	1.47
5.67	1.97	11.67	51.13	17.67	2.21	23.67	1.47
5.83	1.97	11.83	93.40	17.83	2.21	23.83	1.47
6.00	1.97	12.00	135.68	18.00	2.21	24.00	1.47

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--------------------
| CALIB            |
| STANDHYD  (0051) |   Area    (ha)=    .64
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .36          .28
     Dep. Storage     (mm)=      1.00         5.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     65.30        40.00
     Mannings n           =      .013         .250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.35	6.083	2.46	12.083	17.71	18.08	2.21
.167	1.35	6.167	2.46	12.167	17.70	18.17	2.21
.250	1.35	6.250	2.46	12.250	17.70	18.25	2.21
.333	1.35	6.333	2.46	12.333	17.70	18.33	2.21
.417	1.35	6.417	2.46	12.417	17.70	18.42	2.21
.500	1.35	6.500	2.46	12.500	17.70	18.50	2.21
.583	1.35	6.583	2.46	12.583	9.09	18.58	2.21
.667	1.35	6.667	2.46	12.667	9.09	18.67	2.21
.750	1.35	6.750	2.46	12.750	9.09	18.75	2.21
.833	1.35	6.833	2.46	12.833	9.09	18.83	2.21
.917	1.35	6.917	2.46	12.917	9.09	18.92	2.21
1.000	1.35	7.000	2.46	13.000	9.09	19.00	2.21
1.083	1.35	7.083	2.46	13.083	1.72	19.08	2.21
1.167	1.35	7.167	2.46	13.167	1.72	19.17	2.21
1.250	1.35	7.250	2.46	13.250	1.72	19.25	2.21
1.333	1.35	7.333	2.46	13.333	1.72	19.33	2.21
1.417	1.35	7.417	2.46	13.417	1.72	19.42	2.21
1.500	1.35	7.500	2.46	13.500	1.72	19.50	2.21
1.583	1.35	7.583	2.46	13.583	10.08	19.58	2.21
1.667	1.35	7.667	2.46	13.667	10.08	19.67	2.21
1.750	1.35	7.750	2.46	13.750	10.08	19.75	2.21
1.833	1.35	7.833	2.46	13.833	10.08	19.83	2.21
1.917	1.35	7.917	2.46	13.917	10.08	19.92	2.21
2.000	1.35	8.000	2.46	14.000	10.08	20.00	2.21
2.083	1.60	8.083	3.32	14.083	3.69	20.08	1.47

```
                2.167    1.60 | 8.167    3.32 |14.167    3.69 | 20.17    1.47
                2.250    1.60 | 8.250    3.32 |14.250    3.69 | 20.25    1.47
                2.333    1.60 | 8.333    3.32 |14.333    3.69 | 20.33    1.47
                2.417    1.60 | 8.417    3.32 |14.417    3.69 | 20.42    1.47
                2.500    1.60 | 8.500    3.32 |14.500    3.69 | 20.50    1.47
                2.583    1.60 | 8.583    3.32 |14.583    3.69 | 20.58    1.47
                2.667    1.60 | 8.667    3.32 |14.667    3.69 | 20.67    1.47
                2.750    1.60 | 8.750    3.32 |14.750    3.69 | 20.75    1.47
                2.833    1.60 | 8.833    3.32 |14.833    3.69 | 20.83    1.47
                2.917    1.60 | 8.917    3.32 |14.917    3.69 | 20.92    1.47
                3.000    1.60 | 9.000    3.32 |15.000    3.69 | 21.00    1.47
                3.083    1.60 | 9.083    3.93 |15.083    3.69 | 21.08    1.47
                3.167    1.60 | 9.167    3.93 |15.167    3.69 | 21.17    1.47
                3.250    1.60 | 9.250    3.93 |15.250    3.69 | 21.25    1.47
                3.333    1.60 | 9.333    3.93 |15.333    3.69 | 21.33    1.47
                3.417    1.60 | 9.417    3.93 |15.417    3.69 | 21.42    1.47
                3.500    1.60 | 9.500    3.93 |15.500    3.69 | 21.50    1.47
                3.583    1.60 | 9.583    4.42 |15.583    3.69 | 21.58    1.47
                3.667    1.60 | 9.667    4.42 |15.667    3.69 | 21.67    1.47
                3.750    1.60 | 9.750    4.42 |15.750    3.69 | 21.75    1.47
                3.833    1.60 | 9.833    4.42 |15.833    3.69 | 21.83    1.47
                3.917    1.60 | 9.917    4.42 |15.917    3.69 | 21.92    1.47
                4.000    1.60 |10.000    4.42 |16.000    3.69 | 22.00    1.47
                4.083    1.97 |10.083    5.65 |16.083    2.21 | 22.08    1.47
                4.167    1.97 |10.167    5.65 |16.167    2.21 | 22.17    1.47
                4.250    1.97 |10.250    5.65 |16.250    2.21 | 22.25    1.47
                4.333    1.97 |10.333    5.65 |16.333    2.21 | 22.33    1.47
                4.417    1.97 |10.417    5.65 |16.417    2.21 | 22.42    1.47
                4.500    1.97 |10.500    5.65 |16.500    2.21 | 22.50    1.47
                4.583    1.97 |10.583    7.62 |16.583    2.21 | 22.58    1.47
                4.667    1.97 |10.667    7.62 |16.667    2.21 | 22.67    1.47
                4.750    1.97 |10.750    7.62 |16.750    2.21 | 22.75    1.47
                4.833    1.97 |10.833    7.62 |16.833    2.21 | 22.83    1.47
                4.917    1.97 |10.917    7.62 |16.917    2.21 | 22.92    1.47
                5.000    1.97 |11.000    7.62 |17.000    2.21 | 23.00    1.47
                5.083    1.97 |11.083   11.80 |17.083    2.21 | 23.08    1.47
                5.167    1.97 |11.167   11.80 |17.167    2.21 | 23.17    1.47
                5.250    1.97 |11.250   11.80 |17.250    2.21 | 23.25    1.47
                5.333    1.97 |11.333   11.80 |17.333    2.21 | 23.33    1.47
                5.417    1.97 |11.417   11.80 |17.417    2.21 | 23.42    1.47
                5.500    1.97 |11.500   11.80 |17.500    2.21 | 23.50    1.47
                5.583    1.97 |11.583   51.13 |17.583    2.21 | 23.58    1.47
                5.667    1.97 |11.667   51.13 |17.667    2.21 | 23.67    1.47
                5.750    1.97 |11.750   93.40 |17.750    2.21 | 23.75    1.47
                5.833    1.97 |11.833   93.40 |17.833    2.21 | 23.83    1.47
                5.917    1.97 |11.917  135.68 |17.917    2.21 | 23.92    1.47
                6.000    1.97 |12.000  135.68 |18.000    2.21 | 24.00    1.47

     Max.Eff.Inten.(mm/hr)=     135.68       102.38
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.75 (ii)   10.36 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .32          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .13          .05         .183 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08        12.00
     RUNOFF VOLUME    (mm)=     121.89        76.62       101.96
     TOTAL RAINFALL   (mm)=     122.89       122.89       122.89
     RUNOFF COEFFICIENT   =        .99          .62          .83

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD    (0050) |   Area    (ha)=   1.96   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .67

     Unit Hyd Qpeak  (cms)=    .112

     PEAK FLOW       (cms)=    .146 (i)
     TIME TO PEAK    (hrs)=  12.583
     RUNOFF VOLUME    (mm)=  68.609
     TOTAL RAINFALL   (mm)= 122.887
     RUNOFF COEFFICIENT   =    .558

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0002) |   Area    (ha)=   3.29
|ID= 1 DT= 5.0 min |   Total Imp(%)=  90.00   Dir. Conn.(%)=  90.00
-------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.96          .33
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     148.10        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     135.68       225.24
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.86 (ii)    6.06 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .28          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.11          .08         1.185 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00        12.00
     RUNOFF VOLUME    (mm)=     121.89        80.14       117.71
     TOTAL RAINFALL   (mm)=     122.89       122.89       122.89
     RUNOFF COEFFICIENT   =        .99          .65          .96

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0003) |   Area    (ha)=   3.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.30          .03
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     149.00        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     135.68      1126.22
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.87 (ii)    4.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .28          .24
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.23          .01         1.240 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00        12.00
     RUNOFF VOLUME    (mm)=     121.89        80.14       121.47
     TOTAL RAINFALL   (mm)=     122.89       122.89       122.89
     RUNOFF COEFFICIENT   =        .99          .65          .99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
```

```
           CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0059) |   Area    (ha)=   3.20   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .97

     Unit Hyd Qpeak  (cms)=    .126

     PEAK FLOW       (cms)=    .182 (i)
     TIME TO PEAK    (hrs)=  12.917
     RUNOFF VOLUME    (mm)=  68.610
     TOTAL RAINFALL   (mm)= 122.887
     RUNOFF COEFFICIENT   =    .558

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0052) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0051):      .64    .183    12.00   101.96
       + ID2= 2 (0050):     1.96    .146    12.58    68.61
         ================================================
         ID = 3 (0052):     2.60    .250    12.00    76.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0008) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .1280      .1700
                          .1240      .1504    |    .1290      .2162
                          .1260      .1528    |    .0000      .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0002)    3.290      1.185       12.00      117.71
     OUTFLOW: ID= 1 (0008)    3.290       .128       12.58      117.62

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.83
                   TIME SHIFT OF PEAK FLOW         (min)= 35.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1900

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--------------------
| RESERVOIR (0005) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0569      .1665
                          .0284      .0833    |    .0853      .2498

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0003)    3.330      1.240       12.00      121.47
     OUTFLOW: ID= 1 (0005)    3.330       .082       13.00      121.25

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.61
                   TIME SHIFT OF PEAK FLOW         (min)= 60.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .2398

--------------------------------------------------------------------------------
--------------------
| ADD HYD   (0007) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0008):     3.29    .128    12.58   117.62
       + ID2= 2 (0005):     3.33    .082    13.00   121.25
         ================================================
         ID = 3 (0007):     6.62    .210    12.75   119.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0058) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0052):     2.60    .250    12.00    76.82
       + ID2= 2 (0007):     6.62    .210    12.75   119.44
         ================================================
         ID = 3 (0058):     9.22    .445    12.00   107.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   9 **
  ****************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1049.500
| Ptotal= 50.14 mm |                          B=   8.000
--------------------                          C=    .803
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    = 10.00 min
                         Time to peak ratio =   .33

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    3.22 |  1.17   28.14 |  2.17    8.05 |  3.17    3.87
                 .33    3.72 |  1.33  103.04 |  2.33    6.77 |  3.33    3.58
                 .50    4.43 |  1.50   36.87 |  2.50    5.86 |  3.50    3.33
                 .67    5.51 |  1.67   19.46 |  2.67    5.18 |  3.67    3.12
                 .83    7.40 |  1.83   13.16 |  2.83    4.65 |  3.83    2.93
                1.00   11.55 |  2.00    9.97 |  3.00    4.22 |  4.00    2.77


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0051) |   Area    (ha)=    .64
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .36           .28
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=      65.30         40.00
     Mannings n           =       .013          .250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083    3.22 | 1.083   28.14 | 2.083    8.05 |  3.08    3.87
                .167    3.22 | 1.167   28.14 | 2.167    8.05 |  3.17    3.87
                .250    3.72 | 1.250  103.04 | 2.250    6.77 |  3.25    3.58
                .333    3.72 | 1.333  103.04 | 2.333    6.77 |  3.33    3.58
```

```
                .417    4.43 | 1.417   36.87 | 2.417    5.86 |  3.42    3.33
                .500    4.43 | 1.500   36.87 | 2.500    5.86 |  3.50    3.33
                .583    5.51 | 1.583   19.46 | 2.583    5.18 |  3.58    3.12
                .667    5.51 | 1.667   19.46 | 2.667    5.18 |  3.67    3.12
                .750    7.40 | 1.750   13.16 | 2.750    4.65 |  3.75    2.93
                .833    7.40 | 1.833   13.16 | 2.833    4.65 |  3.83    2.93
                .917   11.55 | 1.917    9.97 | 2.917    4.22 |  3.92    2.77
               1.000   11.55 | 2.000    9.97 | 3.000    4.22 |  4.00    2.77

     Max.Eff.Inten.(mm/hr)=     103.04        28.18
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       1.95 (ii)   16.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=        .31          .06
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .10          .01          .106 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.58         1.33
     RUNOFF VOLUME    (mm)=      49.14        18.75        35.75
     TOTAL RAINFALL   (mm)=      50.14        50.14        50.14
     RUNOFF COEFFICIENT   =        .98          .37          .71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0050) |   Area    (ha)=   1.96   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .67

     Unit Hyd Qpeak  (cms)=    .112

     PEAK FLOW       (cms)=    .043 (i)
     TIME TO PEAK    (hrs)=   2.167
     RUNOFF VOLUME    (mm)=  15.694
     TOTAL RAINFALL   (mm)=  50.136
     RUNOFF COEFFICIENT   =    .313

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0002) |   Area    (ha)=   3.29
|ID= 1 DT= 5.0 min |   Total Imp(%)=  90.00   Dir. Conn.(%)=  90.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.96          .33
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     148.10        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     103.04        73.61
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.20 (ii)    6.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .27          .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .82          .03          .844 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42         1.33
     RUNOFF VOLUME    (mm)=      49.14        21.43        46.36
     TOTAL RAINFALL   (mm)=      50.14        50.14        50.14
     RUNOFF COEFFICIENT   =        .98          .43          .92

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0003) |   Area    (ha)=   3.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.30          .03
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     149.00        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     103.04       368.06
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       3.21 (ii)    4.57 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .27          .23
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .91          .00          .917 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.33         1.33
     RUNOFF VOLUME    (mm)=      49.14        21.43        48.86
     TOTAL RAINFALL   (mm)=      50.14        50.14        50.14
     RUNOFF COEFFICIENT   =        .98          .43          .97

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0059) |   Area    (ha)=   3.20   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .97

     Unit Hyd Qpeak  (cms)=    .126

     PEAK FLOW       (cms)=    .054 (i)
     TIME TO PEAK    (hrs)=   2.583
     RUNOFF VOLUME    (mm)=  15.694
     TOTAL RAINFALL   (mm)=  50.136
     RUNOFF COEFFICIENT   =    .313

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0052) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0051):      .64     .106     1.33     35.75
        + ID2= 2 (0050):     1.96     .043     2.17     15.69
          ================================================
          ID = 3 (0052):     2.60     .110     1.33     20.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR (0008) |
| IN= 2---> OUT= 1 |
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```
| DT=  5.0 min     |     OUTFLOW     STORAGE   |  OUTFLOW     STORAGE
--------------------      (cms)      (ha.m.)   |   (cms)      (ha.m.)
                          .0000       .0000    |    .1280       .1700
                          .1240       .1504    |    .1290       .2162
                          .1260       .1528    |    .0000       .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0002)     3.290       .844        1.33       46.36
     OUTFLOW: ID= 1 (0008)     3.290       .082        2.08       46.27

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.78
                   TIME SHIFT OF PEAK FLOW         (min)= 45.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1001

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-------------------
| RESERVOIR (0005) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW     STORAGE   |  OUTFLOW     STORAGE
--------------------      (cms)      (ha.m.)   |   (cms)      (ha.m.)
                          .0000       .0000    |    .0569       .1665
                          .0284       .0833    |    .0853       .2498

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0003)     3.330       .917        1.33       48.86
     OUTFLOW: ID= 1 (0005)     3.330       .043        2.83       48.64

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.68
                   TIME SHIFT OF PEAK FLOW         (min)= 90.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1255

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-------------------
| ADD HYD   (0007) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)     (cms)    (hrs)     (mm)
         ID1= 1 (0008):      3.29     .082     2.08     46.27
       + ID2= 2 (0005):      3.33     .043     2.83     48.64
         ================================================
         ID = 3 (0007):      6.62     .124     2.17     47.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0058) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)     (cms)    (hrs)     (mm)
         ID1= 1 (0052):      2.60     .110     1.33     20.63
       + ID2= 2 (0007):      6.62     .124     2.17     47.46
         ================================================
         ID = 3 (0058):      9.22     .183     2.00     39.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:  10 **
  ****************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A=2317.000
| Ptotal= 91.35 mm |                          B=  11.000
--------------------                          C=    .836
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    = 10.00 min
                         Time to peak ratio =   .33
```

```
                  TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                   .17    5.36 |  1.17   54.82 |  2.17   14.69 |  3.17    6.55
                   .33    6.27 |  1.33  181.78 |  2.33   12.15 |  3.33    6.01
                   .50    7.60 |  1.50   71.89 |  2.50   10.36 |  3.50    5.56
                   .67    9.68 |  1.67   37.82 |  2.67    9.04 |  3.67    5.17
                   .83   13.40 |  1.83   25.03 |  2.83    8.02 |  3.83    4.83
                  1.00   21.76 |  2.00   18.55 |  3.00    7.21 |  4.00    4.54


--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD  (0051) |   Area     (ha)=    .64
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=        .36           .28
     Dep. Storage      (mm)=       1.00          5.00
     Average Slope      (%)=       1.00          1.00
     Length             (m)=      65.30         40.00
     Mannings n            =       .013          .250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                  .083    5.36 | 1.083   54.82 | 2.083   14.69 |  3.08    6.55
                  .167    5.36 | 1.167   54.82 | 2.167   14.69 |  3.17    6.55
                  .250    6.27 | 1.250  181.78 | 2.250   12.15 |  3.25    6.01
                  .333    6.27 | 1.333  181.78 | 2.333   12.15 |  3.33    6.01
                  .417    7.60 | 1.417   71.89 | 2.417   10.36 |  3.42    5.56
                  .500    7.60 | 1.500   71.89 | 2.500   10.36 |  3.50    5.56
                  .583    9.68 | 1.583   37.82 | 2.583    9.04 |  3.58    5.17
                  .667    9.68 | 1.667   37.82 | 2.667    9.04 |  3.67    5.17
                  .750   13.40 | 1.750   25.03 | 2.750    8.02 |  3.75    4.83
                  .833   13.40 | 1.833   25.03 | 2.833    8.02 |  3.83    4.83
                  .917   21.76 | 1.917   18.55 | 2.917    7.21 |  3.92    4.54
                 1.000   21.76 | 2.000   18.55 | 3.000    7.21 |  4.00    4.54

     Max.Eff.Inten.(mm/hr)=     181.78        95.61
               over (min)          5.00        15.00
     Storage Coeff.  (min)=       1.56 (ii)   10.40 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .33          .09
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .18          .05          .206 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50          1.33
     RUNOFF VOLUME    (mm)=      90.35        49.76         72.48
     TOTAL RAINFALL   (mm)=      91.35        91.35         91.35
     RUNOFF COEFFICIENT   =        .99          .54           .79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD    (0050) |   Area     (ha)=   1.96   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .67

     Unit Hyd Qpeak  (cms)=    .112

     PEAK FLOW       (cms)=    .126 (i)
```

```
     TIME TO PEAK     (hrs)=   2.167
     RUNOFF VOLUME     (mm)=  43.599
     TOTAL RAINFALL    (mm)=  91.350
     RUNOFF COEFFICIENT   =    .477

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0002) |   Area     (ha)=   3.29
|ID= 1 DT= 5.0 min |   Total Imp(%)=  90.00   Dir. Conn.(%)=  90.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.96          .33
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     148.10        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78       210.34
               over (min)          5.00        10.00
     Storage Coeff.  (min)=       2.55 (ii)    5.39 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .29          .16
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.47          .08         1.542 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42          1.33
     RUNOFF VOLUME    (mm)=      90.35        53.06         86.62
     TOTAL RAINFALL   (mm)=      91.35        91.35         91.35
     RUNOFF COEFFICIENT   =        .99          .58           .95

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0003) |   Area     (ha)=   3.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.30          .03
     Dep. Storage     (mm)=       1.00         1.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     149.00        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     181.78      1051.72
               over (min)          5.00         5.00
     Storage Coeff.  (min)=       2.56 (ii)    3.64 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .29          .25
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.64          .01         1.651 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.33          1.33
     RUNOFF VOLUME    (mm)=      90.35        53.06         89.98
     TOTAL RAINFALL   (mm)=      91.35        91.35         91.35
     RUNOFF COEFFICIENT   =        .99          .58           .98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0059) |   Area     (ha)=   3.20   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .97

     Unit Hyd Qpeak  (cms)=    .126

     PEAK FLOW       (cms)=    .157 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  43.599
     TOTAL RAINFALL   (mm)=  91.350
     RUNOFF COEFFICIENT   =    .477

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0052) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0051):       .64     .206     1.33    72.48
       + ID2= 2 (0050):      1.96     .126     2.17    43.60
         ================================================
         ID = 3 (0052):      2.60     .222     1.33    50.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0008) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .1280       .1700
                          .1240      .1504    |    .1290       .2162
                          .1260      .1528    |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0002)    3.290     1.542        1.33       86.62
     OUTFLOW: ID= 1 (0008)    3.290      .129        2.17       86.53

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.34
                TIME SHIFT OF PEAK FLOW          (min)= 50.00
                MAXIMUM  STORAGE   USED        (ha.m.)=   .1943

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0005) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0569       .1665
                          .0284      .0833    |    .0853       .2498

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0003)    3.330     1.651        1.33       89.98
     OUTFLOW: ID= 1 (0005)    3.330      .080        2.67       89.75

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.82
                TIME SHIFT OF PEAK FLOW          (min)= 80.00
                MAXIMUM  STORAGE   USED        (ha.m.)=   .2330

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0007) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------           (ha)    (cms)    (hrs)     (mm)
```

```
          ID1= 1 (0008):     3.29    .129     2.17    86.53
        + ID2= 2 (0005):     3.33    .080     2.67    89.75
          ================================================
          ID = 3 (0007):     6.62    .208     2.67    88.15

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0058) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (m

    ID1= 1 (0052):     2.60    .222     1.33    50.71
        + ID2= 2 (0007):     6.62    .208     2.67    88.15
          ================================================
          ID = 3 (0058):     9.22    .364     2.00    77.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

 FINISH
================================================================================================
==============
```

Visual OTTHYMO Output File – Catchment B – Phase 2

```
================================================================================
==============

      V    V   I    SSSSS  U   U    A    L
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO

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                  *****  D E T A I L E D   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 2.3.3\voin.dat
  Output  filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\August 21st 2023\VOH-
Post-Dev.- July 13-2023 (Phase 2 Catchment B)\Phas
  Summary filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\August 21st 2023\VOH-
Post-Dev.- July 13-2023 (Phase 2 Catchment B)\Phas

DATE: 8/22/23                              TIME: 2:36:07 PM

USER:

COMMENTS: _____________________________________________________

--------------------------------------------------------------------------------------------
---------------
  ****************************
  ** SIMULATION NUMBER:   1 **
  ****************************

--------------------
|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\2yr
| Ptotal= 53.10 mm |    Comments: 2yr/24hr SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	.58	6.17	1.06	12.17	7.65	18.17	.96
.33	.58	6.33	1.06	12.33	7.65	18.33	.96
.50	.58	6.50	1.06	12.50	7.65	18.50	.96
.67	.58	6.67	1.06	12.67	3.93	18.67	.96
.83	.58	6.83	1.06	12.83	3.93	18.83	.96
1.00	.58	7.00	1.06	13.00	3.93	19.00	.96
1.17	.58	7.17	1.06	13.17	.74	19.17	.96
1.33	.58	7.33	1.06	13.33	.74	19.33	.96
1.50	.58	7.50	1.06	13.50	.74	19.50	.96
1.67	.58	7.67	1.06	13.67	4.35	19.67	.96
1.83	.58	7.83	1.06	13.83	4.35	19.83	.96
2.00	.58	8.00	1.06	14.00	4.35	20.00	.96
2.17	.69	8.17	1.43	14.17	1.59	20.17	.64
2.33	.69	8.33	1.43	14.33	1.59	20.33	.64
2.50	.69	8.50	1.43	14.50	1.59	20.50	.64
2.67	.69	8.67	1.43	14.67	1.59	20.67	.64
2.83	.69	8.83	1.43	14.83	1.59	20.83	.64
3.00	.69	9.00	1.43	15.00	1.59	21.00	.64
3.17	.69	9.17	1.70	15.17	1.59	21.17	.64
3.33	.69	9.33	1.70	15.33	1.59	21.33	.64
3.50	.69	9.50	1.70	15.50	1.59	21.50	.64
3.67	.69	9.67	1.91	15.67	1.59	21.67	.64
3.83	.69	9.83	1.91	15.83	1.59	21.83	.64
4.00	.69	10.00	1.91	16.00	1.59	22.00	.64
4.17	.85	10.17	2.44	16.17	.96	22.17	.64
4.33	.85	10.33	2.44	16.33	.96	22.33	.64
4.50	.85	10.50	2.44	16.50	.96	22.50	.64
4.67	.85	10.67	3.29	16.67	.96	22.67	.64
4.83	.85	10.83	3.29	16.83	.96	22.83	.64
5.00	.85	11.00	3.29	17.00	.96	23.00	.64
5.17	.85	11.17	5.10	17.17	.96	23.17	.64
5.33	.85	11.33	5.10	17.33	.96	23.33	.64
5.50	.85	11.50	5.10	17.50	.96	23.50	.64
5.67	.85	11.67	22.09	17.67	.96	23.67	.64
5.83	.85	11.83	40.36	17.83	.96	23.83	.64
6.00	.85	12.00	58.62	18.00	.96	24.00	.64

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--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.59	.47
Dep. Storage	(mm)=	17.00	17.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	84.10	40.00
Mannings n	=	.013	.250

```
    NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	.58	6.083	1.06	12.083	7.66	18.08	.96
.167	.58	6.167	1.06	12.167	7.65	18.17	.96
.250	.58	6.250	1.06	12.250	7.65	18.25	.96
.333	.58	6.333	1.06	12.333	7.65	18.33	.96
.417	.58	6.417	1.06	12.417	7.65	18.42	.96
.500	.58	6.500	1.06	12.500	7.65	18.50	.96
.583	.58	6.583	1.06	12.583	3.93	18.58	.96
.667	.58	6.667	1.06	12.667	3.93	18.67	.96
.750	.58	6.750	1.06	12.750	3.93	18.75	.96
.833	.58	6.833	1.06	12.833	3.93	18.83	.96
.917	.58	6.917	1.06	12.917	3.93	18.92	.96
1.000	.58	7.000	1.06	13.000	3.93	19.00	.96
1.083	.58	7.083	1.06	13.083	.74	19.08	.96
1.167	.58	7.167	1.06	13.167	.74	19.17	.96
1.250	.58	7.250	1.06	13.250	.74	19.25	.96
1.333	.58	7.333	1.06	13.333	.74	19.33	.96
1.417	.58	7.417	1.06	13.417	.74	19.42	.96
1.500	.58	7.500	1.06	13.500	.74	19.50	.96
1.583	.58	7.583	1.06	13.583	4.35	19.58	.96
1.667	.58	7.667	1.06	13.667	4.35	19.67	.96
1.750	.58	7.750	1.06	13.750	4.35	19.75	.96
1.833	.58	7.833	1.06	13.833	4.35	19.83	.96
1.917	.58	7.917	1.06	13.917	4.35	19.92	.96
2.000	.58	8.000	1.06	14.000	4.35	20.00	.96
2.083	.69	8.083	1.43	14.083	1.59	20.08	.64
2.167	.69	8.167	1.43	14.167	1.59	20.17	.64

```
                2.250     .69 | 8.250    1.43 |14.250    1.59 | 20.25     .64
                2.333     .69 | 8.333    1.43 |14.333    1.59 | 20.33     .64
                2.417     .69 | 8.417    1.43 |14.417    1.59 | 20.42     .64
                2.500     .69 | 8.500    1.43 |14.500    1.59 | 20.50     .64
                2.583     .69 | 8.583    1.43 |14.583    1.59 | 20.58     .64
                2.667     .69 | 8.667    1.43 |14.667    1.59 | 20.67     .64
                2.750     .69 | 8.750    1.43 |14.750    1.59 | 20.75     .64
                2.833     .69 | 8.833    1.43 |14.833    1.59 | 20.83     .64
                2.917     .69 | 8.917    1.43 |14.917    1.59 | 20.92     .64
                3.000     .69 | 9.000    1.43 |15.000    1.59 | 21.00     .64
                3.083     .69 | 9.083    1.70 |15.083    1.59 | 21.08     .64
                3.167     .69 | 9.167    1.70 |15.167    1.59 | 21.17     .64
                3.250     .69 | 9.250    1.70 |15.250    1.59 | 21.25     .64
                3.333     .69 | 9.333    1.70 |15.333    1.59 | 21.33     .64
                3.417     .69 | 9.417    1.70 |15.417    1.59 | 21.42     .64
                3.500     .69 | 9.500    1.70 |15.500    1.59 | 21.50     .64
                3.583     .69 | 9.583    1.91 |15.583    1.59 | 21.58     .64
                3.667     .69 | 9.667    1.91 |15.667    1.59 | 21.67     .64
                3.750     .69 | 9.750    1.91 |15.750    1.59 | 21.75     .64
                3.833     .69 | 9.833    1.91 |15.833    1.59 | 21.83     .64
                3.917     .69 | 9.917    1.91 |15.917    1.59 | 21.92     .64
                4.000     .69 |10.000    1.91 |16.000    1.59 | 22.00     .64
                4.083     .85 |10.083    2.44 |16.083     .96 | 22.08     .64
                4.167     .85 |10.167    2.44 |16.167     .96 | 22.17     .64
                4.250     .85 |10.250    2.44 |16.250     .96 | 22.25     .64
                4.333     .85 |10.333    2.44 |16.333     .96 | 22.33     .64
                4.417     .85 |10.417    2.44 |16.417     .96 | 22.42     .64
                4.500     .85 |10.500    2.44 |16.500     .96 | 22.50     .64
                4.583     .85 |10.583    3.29 |16.583     .96 | 22.58     .64
                4.667     .85 |10.667    3.29 |16.667     .96 | 22.67     .64
                4.750     .85 |10.750    3.29 |16.750     .96 | 22.75     .64
                4.833     .85 |10.833    3.29 |16.833     .96 | 22.83     .64
                4.917     .85 |10.917    3.29 |16.917     .96 | 22.92     .64
                5.000     .85 |11.000    3.29 |17.000     .96 | 23.00     .64
                5.083     .85 |11.083    5.10 |17.083     .96 | 23.08     .64
                5.167     .85 |11.167    5.10 |17.167     .96 | 23.17     .64
                5.250     .85 |11.250    5.10 |17.250     .96 | 23.25     .64
                5.333     .85 |11.333    5.10 |17.333     .96 | 23.33     .64
                5.417     .85 |11.417    5.10 |17.417     .96 | 23.42     .64
                5.500     .85 |11.500    5.10 |17.500     .96 | 23.50     .64
                5.583     .85 |11.583   22.09 |17.583     .96 | 23.58     .64
                5.667     .85 |11.667   22.09 |17.667     .96 | 23.67     .64
                5.750     .85 |11.750   40.36 |17.750     .96 | 23.75     .64
                5.833     .85 |11.833   40.36 |17.833     .96 | 23.83     .64
                5.917     .85 |11.917   58.62 |17.917     .96 | 23.92     .64
                6.000     .85 |12.000   58.62 |18.000     .96 | 24.00     .64

     Max.Eff.Inten.(mm/hr)=      58.62         8.14
               over (min)        5.00        30.00
     Storage Coeff.  (min)=      2.85 (ii)   26.55 (ii)
     Unit Hyd. Tpeak (min)=      5.00        30.00
     Unit Hyd. peak  (cms)=       .28          .04
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .10          .01          .098 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.42        12.00
     RUNOFF VOLUME    (mm)=     36.10        10.79        24.95
     TOTAL RAINFALL   (mm)=     53.10        53.10        53.10
     RUNOFF COEFFICIENT   =       .68          .20          .47

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0054) |   Area     (ha)=   3.63   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .37

     Unit Hyd Qpeak  (cms)=    .375

     PEAK FLOW       (cms)=    .100 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)=  17.425
     TOTAL RAINFALL   (mm)=  53.103
     RUNOFF COEFFICIENT   =    .328

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0053) |   Area     (ha)=   1.67   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .24

     Unit Hyd Qpeak  (cms)=    .266

     PEAK FLOW       (cms)=    .062 (i)
     TIME TO PEAK    (hrs)=  12.083
     RUNOFF VOLUME    (mm)=  17.412
     TOTAL RAINFALL   (mm)=  53.103
     RUNOFF COEFFICIENT   =    .328

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0052) |   Area     (ha)=    .99   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .50

     Unit Hyd Qpeak  (cms)=    .076

     PEAK FLOW       (cms)=    .022 (i)
     TIME TO PEAK    (hrs)=  12.417
     RUNOFF VOLUME    (mm)=  17.426
     TOTAL RAINFALL   (mm)=  53.103
     RUNOFF COEFFICIENT   =    .328

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0035) |   Area     (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=  20.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .023 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)=   9.302
     TOTAL RAINFALL   (mm)=  53.103
     RUNOFF COEFFICIENT   =    .175

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0018) |   Area     (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------

                                 IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          .22           .17
     Dep. Storage     (mm)=        17.00         17.00
     Average Slope     (%)=         1.00          1.00
     Length            (m)=        51.00         40.00
```

```
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      58.62         8.14
               over (min)        5.00        30.00
     Storage Coeff.  (min)=       2.11 (ii)   25.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=        .31          .04
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .04          .00          .036 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.42         12.00
     RUNOFF VOLUME    (mm)=      36.10        10.79         24.93
     TOTAL RAINFALL   (mm)=      53.10        53.10         53.10
     RUNOFF COEFFICIENT   =        .68          .20           .47

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      98.70        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      58.62       384.01
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       3.14 (ii)    4.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .27          .22
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .23          .00          .233 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      38.10        11.83         37.84
     TOTAL RAINFALL   (mm)=      53.10        53.10         53.10
     RUNOFF COEFFICIENT   =        .72          .22           .71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .53          .41
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      79.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      58.62         8.14
               over (min)        5.00        30.00
     Storage Coeff.  (min)=       2.75 (ii)   26.45 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=        .28          .04
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .08          .01          .087 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.42         12.00
     RUNOFF VOLUME    (mm)=      36.10        10.79         24.95
     TOTAL RAINFALL   (mm)=      53.10        53.10         53.10
     RUNOFF COEFFICIENT   =        .68          .20           .47

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.26          .84
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     118.30        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      58.62        14.90
               over (min)        5.00        25.00
     Storage Coeff.  (min)=       3.50 (ii)   22.11 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=        .26          .05
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .20          .02          .212 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.25         12.00
     RUNOFF VOLUME    (mm)=      43.10        14.54         31.67
     TOTAL RAINFALL   (mm)=      53.10        53.10         53.10
     RUNOFF COEFFICIENT   =        .81          .27           .60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0060) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .1700
                          .0270      .0850    |    .0000       .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0054)     3.630       .100       12.25       17.42
     OUTFLOW: ID= 1 (0060)     3.630       .011       14.75       17.21

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.99
                TIME SHIFT OF PEAK FLOW          (min)=150.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .0347

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0059) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .0610
```

```
                        .0270      .0305   |    .0000       .0000

                                  AREA      QPEAK       TPEAK       R.V.
                                  (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)      1.670       .062       12.08       17.41
     OUTFLOW: ID= 1 (0059)      1.670       .011       13.00       17.25

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.31
                   TIME SHIFT OF PEAK FLOW         (min)= 55.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0128

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000      .0000   |    .0239       .0730
                           .0120      .0365   |    .0359       .1095

                                  AREA      QPEAK       TPEAK       R.V.
                                  (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)      1.460       .233       12.00       37.84
     OUTFLOW: ID= 1 (0022)      1.460       .011       13.00       37.31

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.67
                   TIME SHIFT OF PEAK FLOW         (min)= 60.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0332

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0022):     1.46    .011    13.00    37.31
        + ID2= 2 (0017):      .94    .087    12.00    24.95
          ================================================
          ID = 3 (0024):     2.40    .094    12.00    32.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000      .0000   |    .0210       .1224
                           .0203      .1100   |    .0213       .1520
                           .0206      .1116   |    .0000       .0000

                                  AREA      QPEAK       TPEAK       R.V.
                                  (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)      2.100       .212       12.00       31.67
     OUTFLOW: ID= 1 (0036)      2.100       .008       14.67       31.02

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.80
                   TIME SHIFT OF PEAK FLOW         (min)=160.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0436

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--------------------
| ADD HYD   (0058) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0060):     3.63    .011    14.75    17.21
        + ID2= 2 (0059):     1.67    .011    13.00    17.25
          ================================================
          ID = 3 (0058):     5.30    .021    13.25    17.22

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0018):      .39    .036    12.00    24.93
        + ID2= 2 (0024):     2.40    .094    12.00    32.47
          ================================================
          ID = 3 (0025):     2.79    .131    12.00    31.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0025):     2.79    .131    12.00    31.42
        + ID2= 2 (0036):     2.10    .008    14.67    31.02
          ================================================
          ID = 3 (0051):     4.89    .136    12.00    31.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0055) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0058):     5.30    .021    13.25    17.22
        + ID2= 2 (0052):      .99    .022    12.42    17.43
          ================================================
          ID = 3 (0055):     6.29    .039    12.58    17.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0035):     2.01    .023    12.25     9.30
        + ID2= 2 (0051):     4.89    .136    12.00    31.25
          ================================================
          ID = 3 (0043):     6.90    .146    12.00    24.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0033):     1.06    .098    12.00    24.95
        + ID2= 2 (0055):     6.29    .039    12.58    17.25
          ================================================
          ID = 3 (0038):     7.35    .115    12.00    18.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0038):     7.35    .115    12.00    18.36
```

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       + ID2= 2 (0043):     6.90    .146    12.00    24.85
         ================================================
         ID = 3 (0044):    14.25    .262    12.00    21.50

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ***************************
  ** SIMULATION NUMBER:   2 **
  ***************************


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|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\5yr
| Ptotal= 71.78 mm |    Comments: 5yr/24hr SCS
--------------------
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17     .79 |  6.17    1.44 | 12.17   10.34 | 18.17    1.29
                 .33     .79 |  6.33    1.44 | 12.33   10.34 | 18.33    1.29
                 .50     .79 |  6.50    1.44 | 12.50   10.34 | 18.50    1.29
                 .67     .79 |  6.67    1.44 | 12.67    5.31 | 18.67    1.29
                 .83     .79 |  6.83    1.44 | 12.83    5.31 | 18.83    1.29
                1.00     .79 |  7.00    1.44 | 13.00    5.31 | 19.00    1.29
                1.17     .79 |  7.17    1.44 | 13.17    1.01 | 19.17    1.29
                1.33     .79 |  7.33    1.44 | 13.33    1.01 | 19.33    1.29
                1.50     .79 |  7.50    1.44 | 13.50    1.01 | 19.50    1.29
                1.67     .79 |  7.67    1.44 | 13.67    5.89 | 19.67    1.29
                1.83     .79 |  7.83    1.44 | 13.83    5.89 | 19.83    1.29
                2.00     .79 |  8.00    1.44 | 14.00    5.89 | 20.00    1.29
                2.17     .93 |  8.17    1.94 | 14.17    2.15 | 20.17     .86
                2.33     .93 |  8.33    1.94 | 14.33    2.15 | 20.33     .86
                2.50     .93 |  8.50    1.94 | 14.50    2.15 | 20.50     .86
                2.67     .93 |  8.67    1.94 | 14.67    2.15 | 20.67     .86
                2.83     .93 |  8.83    1.94 | 14.83    2.15 | 20.83     .86
                3.00     .93 |  9.00    1.94 | 15.00    2.15 | 21.00     .86
                3.17     .93 |  9.17    2.30 | 15.17    2.15 | 21.17     .86
                3.33     .93 |  9.33    2.30 | 15.33    2.15 | 21.33     .86
                3.50     .93 |  9.50    2.30 | 15.50    2.15 | 21.50     .86
                3.67     .93 |  9.67    2.58 | 15.67    2.15 | 21.67     .86
                3.83     .93 |  9.83    2.58 | 15.83    2.15 | 21.83     .86
                4.00     .93 | 10.00    2.58 | 16.00    2.15 | 22.00     .86
                4.17    1.15 | 10.17    3.30 | 16.17    1.29 | 22.17     .86
                4.33    1.15 | 10.33    3.30 | 16.33    1.29 | 22.33     .86
                4.50    1.15 | 10.50    3.30 | 16.50    1.29 | 22.50     .86
                4.67    1.15 | 10.67    4.45 | 16.67    1.29 | 22.67     .86
                4.83    1.15 | 10.83    4.45 | 16.83    1.29 | 22.83     .86
                5.00    1.15 | 11.00    4.45 | 17.00    1.29 | 23.00     .86
                5.17    1.15 | 11.17    6.89 | 17.17    1.29 | 23.17     .86
                5.33    1.15 | 11.33    6.89 | 17.33    1.29 | 23.33     .86
                5.50    1.15 | 11.50    6.89 | 17.50    1.29 | 23.50     .86
                5.67    1.15 | 11.67   29.87 | 17.67    1.29 | 23.67     .86
                5.83    1.15 | 11.83   54.57 | 17.83    1.29 | 23.83     .86
                6.00    1.15 | 12.00   79.27 | 18.00    1.29 | 24.00     .86

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--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .59          .47
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      84.10        40.00
     Mannings n           =       .013         .250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

```
                  ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
 .083     .79 | 6.083    1.44 |12.083   10.35 | 18.08    1.29
 .167     .79 | 6.167    1.44 |12.167   10.34 | 18.17    1.29
 .250     .79 | 6.250    1.44 |12.250   10.34 | 18.25    1.29
 .333     .79 | 6.333    1.44 |12.333   10.34 | 18.33    1.29
 .417     .79 | 6.417    1.44 |12.417   10.34 | 18.42    1.29
 .500     .79 | 6.500    1.44 |12.500   10.34 | 18.50    1.29
 .583     .79 | 6.583    1.44 |12.583    5.31 | 18.58    1.29
 .667     .79 | 6.667    1.44 |12.667    5.31 | 18.67    1.29
 .750     .79 | 6.750    1.44 |12.750    5.31 | 18.75    1.29
 .833     .79 | 6.833    1.44 |12.833    5.31 | 18.83    1.29
 .917     .79 | 6.917    1.44 |12.917    5.31 | 18.92    1.29
1.000     .79 | 7.000    1.44 |13.000    5.31 | 19.00    1.29
1.083     .79 | 7.083    1.44 |13.083    1.01 | 19.08    1.29
1.167     .79 | 7.167    1.44 |13.167    1.01 | 19.17    1.29
1.250     .79 | 7.250    1.44 |13.250    1.01 | 19.25    1.29
1.333     .79 | 7.333    1.44 |13.333    1.01 | 19.33    1.29
1.417     .79 | 7.417    1.44 |13.417    1.01 | 19.42    1.29
1.500     .79 | 7.500    1.44 |13.500    1.01 | 19.50    1.29
1.583     .79 | 7.583    1.44 |13.583    5.89 | 19.58    1.29
1.667     .79 | 7.667    1.44 |13.667    5.89 | 19.67    1.29
1.750     .79 | 7.750    1.44 |13.750    5.89 | 19.75    1.29
1.833     .79 | 7.833    1.44 |13.833    5.89 | 19.83    1.29
1.917     .79 | 7.917    1.44 |13.917    5.89 | 19.92    1.29
2.000     .79 | 8.000    1.44 |14.000    5.89 | 20.00    1.29
2.083     .93 | 8.083    1.94 |14.083    2.15 | 20.08     .86
2.167     .93 | 8.167    1.94 |14.167    2.15 | 20.17     .86
2.250     .93 | 8.250    1.94 |14.250    2.15 | 20.25     .86
2.333     .93 | 8.333    1.94 |14.333    2.15 | 20.33     .86
2.417     .93 | 8.417    1.94 |14.417    2.15 | 20.42     .86
2.500     .93 | 8.500    1.94 |14.500    2.15 | 20.50     .86
2.583     .93 | 8.583    1.94 |14.583    2.15 | 20.58     .86
2.667     .93 | 8.667    1.94 |14.667    2.15 | 20.67     .86
2.750     .93 | 8.750    1.94 |14.750    2.15 | 20.75     .86
2.833     .93 | 8.833    1.94 |14.833    2.15 | 20.83     .86
2.917     .93 | 8.917    1.94 |14.917    2.15 | 20.92     .86
3.000     .93 | 9.000    1.94 |15.000    2.15 | 21.00     .86
3.083     .93 | 9.083    2.30 |15.083    2.15 | 21.08     .86
3.167     .93 | 9.167    2.30 |15.167    2.15 | 21.17     .86
3.250     .93 | 9.250    2.30 |15.250    2.15 | 21.25     .86
3.333     .93 | 9.333    2.30 |15.333    2.15 | 21.33     .86
3.417     .93 | 9.417    2.30 |15.417    2.15 | 21.42     .86
3.500     .93 | 9.500    2.30 |15.500    2.15 | 21.50     .86
3.583     .93 | 9.583    2.58 |15.583    2.15 | 21.58     .86
3.667     .93 | 9.667    2.58 |15.667    2.15 | 21.67     .86
3.750     .93 | 9.750    2.58 |15.750    2.15 | 21.75     .86
3.833     .93 | 9.833    2.58 |15.833    2.15 | 21.83     .86
3.917     .93 | 9.917    2.58 |15.917    2.15 | 21.92     .86
4.000     .93 |10.000    2.58 |16.000    2.15 | 22.00     .86
4.083    1.15 |10.083    3.30 |16.083    1.29 | 22.08     .86
4.167    1.15 |10.167    3.30 |16.167    1.29 | 22.17     .86
4.250    1.15 |10.250    3.30 |16.250    1.29 | 22.25     .86
4.333    1.15 |10.333    3.30 |16.333    1.29 | 22.33     .86
4.417    1.15 |10.417    3.30 |16.417    1.29 | 22.42     .86
4.500    1.15 |10.500    3.30 |16.500    1.29 | 22.50     .86
4.583    1.15 |10.583    4.45 |16.583    1.29 | 22.58     .86
4.667    1.15 |10.667    4.45 |16.667    1.29 | 22.67     .86
4.750    1.15 |10.750    4.45 |16.750    1.29 | 22.75     .86
4.833    1.15 |10.833    4.45 |16.833    1.29 | 22.83     .86
4.917    1.15 |10.917    4.45 |16.917    1.29 | 22.92     .86
5.000    1.15 |11.000    4.45 |17.000    1.29 | 23.00     .86
5.083    1.15 |11.083    6.89 |17.083    1.29 | 23.08     .86
5.167    1.15 |11.167    6.89 |17.167    1.29 | 23.17     .86
5.250    1.15 |11.250    6.89 |17.250    1.29 | 23.25     .86
5.333    1.15 |11.333    6.89 |17.333    1.29 | 23.33     .86
5.417    1.15 |11.417    6.89 |17.417    1.29 | 23.42     .86
5.500    1.15 |11.500    6.89 |17.500    1.29 | 23.50     .86
5.583    1.15 |11.583   29.87 |17.583    1.29 | 23.58     .86
5.667    1.15 |11.667   29.87 |17.667    1.29 | 23.67     .86
5.750    1.15 |11.750   54.57 |17.750    1.29 | 23.75     .86
```

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              5.833    1.15 |11.833   54.57 |17.833    1.29 | 23.83     .86
              5.917    1.15 |11.917   79.27 |17.917    1.29 | 23.92     .86
              6.000    1.15 |12.000   79.27 |18.000    1.29 | 24.00     .86

     Max.Eff.Inten.(mm/hr)=      79.27        25.73
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       2.53 (ii)   17.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=        .29          .06
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .13          .02          .142 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.17        12.00
     RUNOFF VOLUME    (mm)=      54.78        21.52        40.14
     TOTAL RAINFALL   (mm)=      71.78        71.78        71.78
     RUNOFF COEFFICIENT   =        .76          .30          .56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD    (0054) |   Area    (ha)=   3.63   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .37

     Unit Hyd Qpeak  (cms)=    .375

     PEAK FLOW       (cms)=    .173 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)=  29.441
     TOTAL RAINFALL   (mm)=  71.780
     RUNOFF COEFFICIENT   =    .410

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD    (0053) |   Area    (ha)=   1.67   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .24

     Unit Hyd Qpeak  (cms)=    .266

     PEAK FLOW       (cms)=    .106 (i)
     TIME TO PEAK    (hrs)=  12.083
     RUNOFF VOLUME    (mm)=  29.419
     TOTAL RAINFALL   (mm)=  71.780
     RUNOFF COEFFICIENT   =    .410

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD    (0052) |   Area    (ha)=    .99   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .50

     Unit Hyd Qpeak  (cms)=    .076

     PEAK FLOW       (cms)=    .038 (i)
     TIME TO PEAK    (hrs)=  12.417
     RUNOFF VOLUME    (mm)=  29.444
     TOTAL RAINFALL   (mm)=  71.780
     RUNOFF COEFFICIENT   =    .410

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .062 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)=  19.644
     TOTAL RAINFALL   (mm)=  71.780
     RUNOFF COEFFICIENT   =    .274

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------
                                 IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          .22           .17
     Dep. Storage     (mm)=        17.00         17.00
     Average Slope     (%)=         1.00          1.00
     Length            (m)=        51.00         40.00
     Mannings n           =         .013          .250

     Max.Eff.Inten.(mm/hr)=        79.27         25.73
               over (min)          5.00         20.00
     Storage Coeff.  (min)=         1.87 (ii)    16.83 (ii)
     Unit Hyd. Tpeak (min)=         5.00         20.00
     Unit Hyd. peak  (cms)=          .32           .06
                                                        *TOTALS*
     PEAK FLOW       (cms)=          .05           .01          .053 (iii)
     TIME TO PEAK    (hrs)=        12.00         12.17        12.00
     RUNOFF VOLUME    (mm)=        54.78         21.52        40.12
     TOTAL RAINFALL   (mm)=        71.78         71.78        71.78
     RUNOFF COEFFICIENT   =          .76           .30          .56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                                 IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         1.45           .01
     Dep. Storage     (mm)=        15.00         15.00
     Average Slope     (%)=         1.00          1.00
     Length            (m)=        98.70         40.00
     Mannings n           =         .013          .250

     Max.Eff.Inten.(mm/hr)=        79.27        681.30
               over (min)          5.00          5.00
     Storage Coeff.  (min)=         2.78 (ii)     4.30 (ii)
     Unit Hyd. Tpeak (min)=         5.00          5.00
     Unit Hyd. peak  (cms)=          .28           .23
                                                        *TOTALS*
     PEAK FLOW       (cms)=          .32           .00          .317 (iii)
     TIME TO PEAK    (hrs)=        12.00         12.00        12.00
```

```
     RUNOFF VOLUME     (mm)=      56.78        22.79          56.44
     TOTAL RAINFALL    (mm)=      71.78        71.78          71.78
     RUNOFF COEFFICIENT   =        .79          .32            .79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .53          .41
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     79.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     79.27        25.73
               over (min)        5.00        20.00
     Storage Coeff.  (min)=      2.44 (ii)   17.39 (ii)
     Unit Hyd. Tpeak (min)=      5.00        20.00
     Unit Hyd. peak  (cms)=       .30          .06
                                                        *TOTALS*
     PEAK FLOW       (cms)=       .12          .02          .126 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.17        12.00
     RUNOFF VOLUME    (mm)=     54.78        21.52        40.14
     TOTAL RAINFALL   (mm)=     71.78        71.78        71.78
     RUNOFF COEFFICIENT   =       .76          .30          .56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.26          .84
     Dep. Storage     (mm)=     10.00        10.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    118.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     79.27        31.19
               over (min)        5.00        20.00
     Storage Coeff.  (min)=      3.10 (ii)   16.95 (ii)
     Unit Hyd. Tpeak (min)=      5.00        20.00
     Unit Hyd. peak  (cms)=       .27          .06
                                                        *TOTALS*
     PEAK FLOW       (cms)=       .27          .04          .304 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.17        12.00
     RUNOFF VOLUME    (mm)=     61.78        26.06        47.49
     TOTAL RAINFALL   (mm)=     71.78        71.78        71.78
     RUNOFF COEFFICIENT   =       .86          .36          .66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| RESERVOIR (0060) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .1700
                          .0270      .0850    |    .0000       .0000

                                    AREA      QPEAK       TPEAK       R.V.
                                    (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0054)      3.630       .173       12.25       29.44
     OUTFLOW: ID= 1 (0060)      3.630       .019       14.67       29.22

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.00
                    TIME SHIFT OF PEAK FLOW          (min)=145.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0598

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-------------------
| RESERVOIR (0059) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .0610
                          .0270      .0305    |    .0000       .0000

                                    AREA      QPEAK       TPEAK       R.V.
                                    (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)      1.670       .106       12.08       29.42
     OUTFLOW: ID= 1 (0059)      1.670       .020       12.92       29.25

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.47
                    TIME SHIFT OF PEAK FLOW          (min)= 50.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0222

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-------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0239       .0730
                          .0120      .0365    |    .0359       .1095

                                    AREA      QPEAK       TPEAK       R.V.
                                    (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)      1.460       .317       12.00       56.44
     OUTFLOW: ID= 1 (0022)      1.460       .017       13.00       55.91

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.28
                    TIME SHIFT OF PEAK FLOW          (min)= 60.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=   .0511

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| ADD HYD   (0024) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0022):     1.46     .017    13.00    55.91
       + ID2= 2 (0017):      .94     .126    12.00    40.14
         ================================================
         ID = 3 (0024):     2.40     .139    12.00    49.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW     STORAGE   |  OUTFLOW     STORAGE
--------------------      (cms)      (ha.m.)   |   (cms)      (ha.m.)
                           .0000       .0000   |    .0210       .1224
                           .0203       .1100   |    .0213       .1520
                           .0206       .1116   |    .0000       .0000

                                 AREA      QPEAK       TPEAK       R.V.
                                 (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)      2.100       .304       12.00      47.49
     OUTFLOW: ID= 1 (0036)      2.100       .012       14.42      46.83

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.00
                TIME SHIFT OF PEAK FLOW         (min)=145.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .0659

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--------------------
| ADD HYD   (0058) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0060):      3.63    .019    14.67     29.22
       + ID2= 2 (0059):      1.67    .020    12.92     29.25
         ================================================
         ID = 3 (0058):      5.30    .037    13.25     29.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0018):       .39    .053    12.00     40.12
       + ID2= 2 (0024):      2.40    .139    12.00     49.73
         ================================================
         ID = 3 (0025):      2.79    .191    12.00     48.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0025):      2.79    .191    12.00     48.39
       + ID2= 2 (0036):      2.10    .012    14.42     46.83
         ================================================
         ID = 3 (0051):      4.89    .199    12.00     47.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0055) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0058):      5.30    .037    13.25     29.23
       + ID2= 2 (0052):       .99    .038    12.42     29.44
         ================================================
         ID = 3 (0055):      6.29    .068    12.58     29.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0035):      2.01    .062    12.25     19.64
       + ID2= 2 (0051):      4.89    .199    12.00     47.72
         ================================================
         ID = 3 (0043):      6.90    .237    12.00     39.54

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0033):      1.06    .142    12.00     40.14
       + ID2= 2 (0055):      6.29    .068    12.58     29.26
         ================================================
         ID = 3 (0038):      7.35    .174    12.00     30.83

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0038):      7.35    .174    12.00     30.83
       + ID2= 2 (0043):      6.90    .237    12.00     39.54
         ================================================
         ID = 3 (0044):     14.25    .411    12.00     35.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   3 **
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|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\10y
| Ptotal= 84.21 mm |    Comments: 10yr/24hr SCS
--------------------

                TIME     RAIN |  TIME     RAIN |  TIME     RAIN |  TIME     RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17     .93 |  6.17    1.68 | 12.17   12.12 | 18.17    1.52
                 .33     .93 |  6.33    1.68 | 12.33   12.12 | 18.33    1.52
                 .50     .93 |  6.50    1.68 | 12.50   12.12 | 18.50    1.52
                 .67     .93 |  6.67    1.68 | 12.67    6.23 | 18.67    1.52
                 .83     .93 |  6.83    1.68 | 12.83    6.23 | 18.83    1.52
                1.00     .93 |  7.00    1.68 | 13.00    6.23 | 19.00    1.52
                1.17     .93 |  7.17    1.68 | 13.17    1.18 | 19.17    1.52
                1.33     .93 |  7.33    1.68 | 13.33    1.18 | 19.33    1.52
                1.50     .93 |  7.50    1.68 | 13.50    1.18 | 19.50    1.52
                1.67     .93 |  7.67    1.68 | 13.67    6.90 | 19.67    1.52
                1.83     .93 |  7.83    1.68 | 13.83    6.90 | 19.83    1.52
                2.00     .93 |  8.00    1.68 | 14.00    6.90 | 20.00    1.52
                2.17    1.09 |  8.17    2.27 | 14.17    2.53 | 20.17    1.01
                2.33    1.09 |  8.33    2.27 | 14.33    2.53 | 20.33    1.01
                2.50    1.09 |  8.50    2.27 | 14.50    2.53 | 20.50    1.01
                2.67    1.09 |  8.67    2.27 | 14.67    2.53 | 20.67    1.01
                2.83    1.09 |  8.83    2.27 | 14.83    2.53 | 20.83    1.01
                3.00    1.09 |  9.00    2.27 | 15.00    2.53 | 21.00    1.01
                3.17    1.09 |  9.17    2.69 | 15.17    2.53 | 21.17    1.01
                3.33    1.09 |  9.33    2.69 | 15.33    2.53 | 21.33    1.01
                3.50    1.09 |  9.50    2.69 | 15.50    2.53 | 21.50    1.01
                3.67    1.09 |  9.67    3.03 | 15.67    2.53 | 21.67    1.01
                3.83    1.09 |  9.83    3.03 | 15.83    2.53 | 21.83    1.01
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                4.00    1.09 | 10.00    3.03 | 16.00    2.53 | 22.00    1.01
                4.17    1.35 | 10.17    3.87 | 16.17    1.52 | 22.17    1.01
                4.33    1.35 | 10.33    3.87 | 16.33    1.52 | 22.33    1.01
                4.50    1.35 | 10.50    3.87 | 16.50    1.52 | 22.50    1.01
                4.67    1.35 | 10.67    5.22 | 16.67    1.52 | 22.67    1.01
                4.83    1.35 | 10.83    5.22 | 16.83    1.52 | 22.83    1.01
                5.00    1.35 | 11.00    5.22 | 17.00    1.52 | 23.00    1.01
                5.17    1.35 | 11.17    8.08 | 17.17    1.52 | 23.17    1.01
                5.33    1.35 | 11.33    8.08 | 17.33    1.52 | 23.33    1.01
                5.50    1.35 | 11.50    8.08 | 17.50    1.52 | 23.50    1.01
                5.67    1.35 | 11.67   35.03 | 17.67    1.52 | 23.67    1.01
                5.83    1.35 | 11.83   63.99 | 17.83    1.52 | 23.83    1.01
                6.00    1.35 | 12.00   92.96 | 18.00    1.52 | 24.00    1.01

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--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .59         .47
     Dep. Storage     (mm)=     17.00       17.00
     Average Slope     (%)=      1.00        1.00
     Length            (m)=     84.10       40.00
     Mannings n           =      .013        .250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                      ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      .083     .93 | 6.083    1.68 |12.083   12.13 | 18.08    1.52
      .167     .93 | 6.167    1.68 |12.167   12.12 | 18.17    1.52
      .250     .93 | 6.250    1.68 |12.250   12.12 | 18.25    1.52
      .333     .93 | 6.333    1.68 |12.333   12.12 | 18.33    1.52
      .417     .93 | 6.417    1.68 |12.417   12.12 | 18.42    1.52
      .500     .93 | 6.500    1.68 |12.500   12.12 | 18.50    1.52
      .583     .93 | 6.583    1.68 |12.583    6.23 | 18.58    1.52
      .667     .93 | 6.667    1.68 |12.667    6.23 | 18.67    1.52
      .750     .93 | 6.750    1.68 |12.750    6.23 | 18.75    1.52
      .833     .93 | 6.833    1.68 |12.833    6.23 | 18.83    1.52
      .917     .93 | 6.917    1.68 |12.917    6.23 | 18.92    1.52
     1.000     .93 | 7.000    1.68 |13.000    6.23 | 19.00    1.52
     1.083     .93 | 7.083    1.68 |13.083    1.18 | 19.08    1.52
     1.167     .93 | 7.167    1.68 |13.167    1.18 | 19.17    1.52
     1.250     .93 | 7.250    1.68 |13.250    1.18 | 19.25    1.52
     1.333     .93 | 7.333    1.68 |13.333    1.18 | 19.33    1.52
     1.417     .93 | 7.417    1.68 |13.417    1.18 | 19.42    1.52
     1.500     .93 | 7.500    1.68 |13.500    1.18 | 19.50    1.52
     1.583     .93 | 7.583    1.68 |13.583    6.90 | 19.58    1.52
     1.667     .93 | 7.667    1.68 |13.667    6.90 | 19.67    1.52
     1.750     .93 | 7.750    1.68 |13.750    6.90 | 19.75    1.52
     1.833     .93 | 7.833    1.68 |13.833    6.90 | 19.83    1.52
     1.917     .93 | 7.917    1.68 |13.917    6.90 | 19.92    1.52
     2.000     .93 | 8.000    1.68 |14.000    6.90 | 20.00    1.52
     2.083    1.09 | 8.083    2.27 |14.083    2.53 | 20.08    1.01
     2.167    1.09 | 8.167    2.27 |14.167    2.53 | 20.17    1.01
     2.250    1.09 | 8.250    2.27 |14.250    2.53 | 20.25    1.01
     2.333    1.09 | 8.333    2.27 |14.333    2.53 | 20.33    1.01
     2.417    1.09 | 8.417    2.27 |14.417    2.53 | 20.42    1.01
     2.500    1.09 | 8.500    2.27 |14.500    2.53 | 20.50    1.01
     2.583    1.09 | 8.583    2.27 |14.583    2.53 | 20.58    1.01
     2.667    1.09 | 8.667    2.27 |14.667    2.53 | 20.67    1.01
     2.750    1.09 | 8.750    2.27 |14.750    2.53 | 20.75    1.01
     2.833    1.09 | 8.833    2.27 |14.833    2.53 | 20.83    1.01
     2.917    1.09 | 8.917    2.27 |14.917    2.53 | 20.92    1.01
     3.000    1.09 | 9.000    2.27 |15.000    2.53 | 21.00    1.01
     3.083    1.09 | 9.083    2.69 |15.083    2.53 | 21.08    1.01
     3.167    1.09 | 9.167    2.69 |15.167    2.53 | 21.17    1.01
     3.250    1.09 | 9.250    2.69 |15.250    2.53 | 21.25    1.01
     3.333    1.09 | 9.333    2.69 |15.333    2.53 | 21.33    1.01
     3.417    1.09 | 9.417    2.69 |15.417    2.53 | 21.42    1.01
     3.500    1.09 | 9.500    2.69 |15.500    2.53 | 21.50    1.01
     3.583    1.09 | 9.583    3.03 |15.583    2.53 | 21.58    1.01
     3.667    1.09 | 9.667    3.03 |15.667    2.53 | 21.67    1.01
     3.750    1.09 | 9.750    3.03 |15.750    2.53 | 21.75    1.01
     3.833    1.09 | 9.833    3.03 |15.833    2.53 | 21.83    1.01
     3.917    1.09 | 9.917    3.03 |15.917    2.53 | 21.92    1.01
     4.000    1.09 |10.000    3.03 |16.000    2.53 | 22.00    1.01
     4.083    1.35 |10.083    3.87 |16.083    1.52 | 22.08    1.01
     4.167    1.35 |10.167    3.87 |16.167    1.52 | 22.17    1.01
     4.250    1.35 |10.250    3.87 |16.250    1.52 | 22.25    1.01
     4.333    1.35 |10.333    3.87 |16.333    1.52 | 22.33    1.01
     4.417    1.35 |10.417    3.87 |16.417    1.52 | 22.42    1.01
     4.500    1.35 |10.500    3.87 |16.500    1.52 | 22.50    1.01
     4.583    1.35 |10.583    5.22 |16.583    1.52 | 22.58    1.01
     4.667    1.35 |10.667    5.22 |16.667    1.52 | 22.67    1.01
     4.750    1.35 |10.750    5.22 |16.750    1.52 | 22.75    1.01
     4.833    1.35 |10.833    5.22 |16.833    1.52 | 22.83    1.01
     4.917    1.35 |10.917    5.22 |16.917    1.52 | 22.92    1.01
     5.000    1.35 |11.000    5.22 |17.000    1.52 | 23.00    1.01
     5.083    1.35 |11.083    8.08 |17.083    1.52 | 23.08    1.01
     5.167    1.35 |11.167    8.08 |17.167    1.52 | 23.17    1.01
     5.250    1.35 |11.250    8.08 |17.250    1.52 | 23.25    1.01
     5.333    1.35 |11.333    8.08 |17.333    1.52 | 23.33    1.01
     5.417    1.35 |11.417    8.08 |17.417    1.52 | 23.42    1.01
     5.500    1.35 |11.500    8.08 |17.500    1.52 | 23.50    1.01
     5.583    1.35 |11.583   35.03 |17.583    1.52 | 23.58    1.01
     5.667    1.35 |11.667   35.03 |17.667    1.52 | 23.67    1.01
     5.750    1.35 |11.750   63.99 |17.750    1.52 | 23.75    1.01
     5.833    1.35 |11.833   63.99 |17.833    1.52 | 23.83    1.01
     5.917    1.35 |11.917   92.96 |17.917    1.52 | 23.92    1.01
     6.000    1.35 |12.000   92.96 |18.000    1.52 | 24.00    1.01

     Max.Eff.Inten.(mm/hr)=      92.96        36.19
               over (min)         5.00        20.00
     Storage Coeff.  (min)=       2.37 (ii)   15.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=        .30          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .15          .03          .172 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.17        12.00
     RUNOFF VOLUME    (mm)=      67.21        29.74        50.71
     TOTAL RAINFALL   (mm)=      84.21        84.21        84.21
     RUNOFF COEFFICIENT   =        .80          .35          .60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0054) |   Area    (ha)=   3.63   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .37

     Unit Hyd Qpeak  (cms)=    .375

     PEAK FLOW       (cms)=    .226 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)=  38.277
     TOTAL RAINFALL   (mm)=  84.207
     RUNOFF COEFFICIENT   =    .455

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB           |
| NASHYD    (0053) |   Area     (ha)=   1.67   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .24

     Unit Hyd Qpeak  (cms)=    .266

     PEAK FLOW       (cms)=    .139 (i)
     TIME TO PEAK    (hrs)=  12.083
     RUNOFF VOLUME    (mm)=  38.248
     TOTAL RAINFALL   (mm)=  84.207
     RUNOFF COEFFICIENT   =    .454

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| NASHYD    (0052) |   Area     (ha)=    .99   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .50

     Unit Hyd Qpeak  (cms)=    .076

     PEAK FLOW       (cms)=    .050 (i)
     TIME TO PEAK    (hrs)=  12.333
     RUNOFF VOLUME    (mm)=  38.281
     TOTAL RAINFALL   (mm)=  84.207
     RUNOFF COEFFICIENT   =    .455

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| NASHYD    (0035) |   Area     (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=  20.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .093 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)=  27.684
     TOTAL RAINFALL   (mm)=  84.207
     RUNOFF COEFFICIENT   =    .329

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (0018) |   Area     (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      .22          .17
     Dep. Storage     (mm)=    17.00        17.00
     Average Slope     (%)=     1.00         1.00
     Length            (m)=    51.00        40.00
     Mannings n            =    .013         .250

     Max.Eff.Inten.(mm/hr)=    92.96        36.19
               over (min)        5.00        15.00
     Storage Coeff.  (min)=     1.76 (ii)   14.80 (ii)
     Unit Hyd. Tpeak (min)=     5.00        15.00
     Unit Hyd. peak  (cms)=     .32          .08
                                                    *TOTALS*
     PEAK FLOW       (cms)=     .06          .01          .065 (iii)
     TIME TO PEAK    (hrs)=   12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=   67.21        29.74         50.70
     TOTAL RAINFALL   (mm)=   84.21        84.21         84.21
     RUNOFF COEFFICIENT   =     .80          .35           .60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0016) |   Area     (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     1.45          .01
     Dep. Storage     (mm)=    15.00        15.00
     Average Slope     (%)=     1.00         1.00
     Length            (m)=    98.70        40.00
     Mannings n            =    .013         .250

     Max.Eff.Inten.(mm/hr)=    92.96       945.61
               over (min)        5.00         5.00
     Storage Coeff.  (min)=     2.61 (ii)    4.03 (ii)
     Unit Hyd. Tpeak (min)=     5.00         5.00
     Unit Hyd. peak  (cms)=      .29          .24
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .37          .00          .372 (iii)
     TIME TO PEAK    (hrs)=    12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=    69.21        31.13         68.82
     TOTAL RAINFALL   (mm)=    84.21        84.21         84.21
     RUNOFF COEFFICIENT   =      .82          .37           .82

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0017) |   Area     (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      .53          .41
     Dep. Storage     (mm)=    17.00        17.00
     Average Slope     (%)=     1.00         1.00
     Length            (m)=    79.20        40.00
     Mannings n            =    .013         .250

     Max.Eff.Inten.(mm/hr)=    92.96        36.19
               over (min)        5.00        20.00
     Storage Coeff.  (min)=     2.29 (ii)   15.33 (ii)
     Unit Hyd. Tpeak (min)=     5.00        20.00
     Unit Hyd. peak  (cms)=      .30          .07
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .14          .02          .153 (iii)
     TIME TO PEAK    (hrs)=    12.00        12.17         12.00
     RUNOFF VOLUME    (mm)=    67.21        29.74         50.71
     TOTAL RAINFALL   (mm)=    84.21        84.21         84.21
     RUNOFF COEFFICIENT   =      .80          .35           .60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
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     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.26          .84
     Dep. Storage     (mm)=     10.00        10.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    118.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     92.96        41.56
               over (min)        5.00        20.00
     Storage Coeff.  (min)=     2.91 (ii)   15.25 (ii)
     Unit Hyd. Tpeak (min)=     5.00        20.00
     Unit Hyd. peak  (cms)=      .28          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=      .32          .06          .366 (iii)
     TIME TO PEAK    (hrs)=    12.00        12.17         12.00
     RUNOFF VOLUME    (mm)=    74.21        34.66         58.38
     TOTAL RAINFALL   (mm)=    84.21        84.21         84.21
     RUNOFF COEFFICIENT   =      .88          .41           .69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| RESERVOIR (0060) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .1700
                          .0270      .0850    |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0054)    3.630       .226       12.25       38.28
     OUTFLOW: ID= 1 (0060)    3.630       .025       14.58       38.06

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.02
                   TIME SHIFT OF PEAK FLOW         (min)=140.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0784

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-------------------
| RESERVOIR (0059) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .0610
                          .0270      .0305    |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)    1.670       .139       12.08       38.25
     OUTFLOW: ID= 1 (0059)    1.670       .026       12.92       38.08

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.55
                   TIME SHIFT OF PEAK FLOW         (min)= 50.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0291

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| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0239       .0730
                          .0120      .0365    |    .0359       .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)    1.460       .372       12.00       68.82
     OUTFLOW: ID= 1 (0022)    1.460       .021       13.00       68.30

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.50
                   TIME SHIFT OF PEAK FLOW         (min)= 60.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0627

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-------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0022):     1.46     .021    13.00    68.30
        + ID2= 2 (0017):      .94     .153    12.00    50.71
          ================================================
          ID = 3 (0024):     2.40     .169    12.00    61.41

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0210       .1224
                          .0203      .1100    |    .0213       .1520
                          .0206      .1116    |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)    2.100       .366       12.00       58.38
     OUTFLOW: ID= 1 (0036)    2.100       .015       14.42       57.73

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.09
                   TIME SHIFT OF PEAK FLOW         (min)=145.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0812

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-------------------
| ADD HYD   (0058) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0060):     3.63     .025    14.58    38.06
        + ID2= 2 (0059):     1.67     .026    12.92    38.08
          ================================================
          ID = 3 (0058):     5.30     .049    13.25    38.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0018):      .39     .065    12.00    50.70
        + ID2= 2 (0024):     2.40     .169    12.00    61.41
          ================================================
          ID = 3 (0025):     2.79     .234    12.00    59.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD   (0051) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0025):     2.79    .234    12.00    59.91
       + ID2= 2 (0036):     2.10    .015    14.42    57.73
         ================================================
         ID = 3 (0051):     4.89    .244    12.00    58.97

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0055) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0058):     5.30    .049    13.25    38.06
       + ID2= 2 (0052):      .99    .050    12.33    38.28
         ================================================
         ID = 3 (0055):     6.29    .089    12.50    38.10

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0035):     2.01    .093    12.25    27.68
       + ID2= 2 (0051):     4.89    .244    12.00    58.97
         ================================================
         ID = 3 (0043):     6.90    .306    12.00    49.86

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0033):     1.06    .172    12.00    50.71
       + ID2= 2 (0055):     6.29    .089    12.50    38.10
         ================================================
         ID = 3 (0038):     7.35    .215    12.00    39.92

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0038):     7.35    .215    12.00    39.92
       + ID2= 2 (0043):     6.90    .306    12.00    49.86
         ================================================
         ID = 3 (0044):    14.25    .521    12.00    44.73

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   4 **
  ****************************


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|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\25y
| Ptotal= 99.84 mm |    Comments: 25yr/24hr SCS
--------------------
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    1.10 |  6.17    2.00 | 12.17   14.37 | 18.17    1.80
                 .33    1.10 |  6.33    2.00 | 12.33   14.37 | 18.33    1.80
                 .50    1.10 |  6.50    2.00 | 12.50   14.37 | 18.50    1.80
                 .67    1.10 |  6.67    2.00 | 12.67    7.39 | 18.67    1.80
                 .83    1.10 |  6.83    2.00 | 12.83    7.39 | 18.83    1.80
                1.00    1.10 |  7.00    2.00 | 13.00    7.39 | 19.00    1.80
                1.17    1.10 |  7.17    2.00 | 13.17    1.40 | 19.17    1.80
                1.33    1.10 |  7.33    2.00 | 13.33    1.40 | 19.33    1.80
                1.50    1.10 |  7.50    2.00 | 13.50    1.40 | 19.50    1.80
                1.67    1.10 |  7.67    2.00 | 13.67    8.18 | 19.67    1.80
                1.83    1.10 |  7.83    2.00 | 13.83    8.18 | 19.83    1.80
                2.00    1.10 |  8.00    2.00 | 14.00    8.18 | 20.00    1.80
                2.17    1.30 |  8.17    2.69 | 14.17    2.99 | 20.17    1.20
                2.33    1.30 |  8.33    2.69 | 14.33    2.99 | 20.33    1.20
                2.50    1.30 |  8.50    2.69 | 14.50    2.99 | 20.50    1.20
                2.67    1.30 |  8.67    2.69 | 14.67    2.99 | 20.67    1.20
                2.83    1.30 |  8.83    2.69 | 14.83    2.99 | 20.83    1.20
                3.00    1.30 |  9.00    2.69 | 15.00    2.99 | 21.00    1.20
                3.17    1.30 |  9.17    3.19 | 15.17    2.99 | 21.17    1.20
                3.33    1.30 |  9.33    3.19 | 15.33    2.99 | 21.33    1.20
                3.50    1.30 |  9.50    3.19 | 15.50    2.99 | 21.50    1.20
                3.67    1.30 |  9.67    3.59 | 15.67    2.99 | 21.67    1.20
                3.83    1.30 |  9.83    3.59 | 15.83    2.99 | 21.83    1.20
                4.00    1.30 | 10.00    3.59 | 16.00    2.99 | 22.00    1.20
                4.17    1.60 | 10.17    4.59 | 16.17    1.80 | 22.17    1.20
                4.33    1.60 | 10.33    4.59 | 16.33    1.80 | 22.33    1.20
                4.50    1.60 | 10.50    4.59 | 16.50    1.80 | 22.50    1.20
                4.67    1.60 | 10.67    6.19 | 16.67    1.80 | 22.67    1.20
                4.83    1.60 | 10.83    6.19 | 16.83    1.80 | 22.83    1.20
                5.00    1.60 | 11.00    6.19 | 17.00    1.80 | 23.00    1.20
                5.17    1.60 | 11.17    9.58 | 17.17    1.80 | 23.17    1.20
                5.33    1.60 | 11.33    9.58 | 17.33    1.80 | 23.33    1.20
                5.50    1.60 | 11.50    9.58 | 17.50    1.80 | 23.50    1.20
                5.67    1.60 | 11.67   41.52 | 17.67    1.80 | 23.67    1.20
                5.83    1.60 | 11.83   75.85 | 17.83    1.80 | 23.83    1.20
                6.00    1.60 | 12.00  110.18 | 18.00    1.80 | 24.00    1.20

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| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          .59           .47
     Dep. Storage     (mm)=        17.00         17.00
     Average Slope     (%)=         1.00          1.00
     Length            (m)=        84.10         40.00
     Mannings n             =        .013          .250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083    1.10 | 6.083    2.00 |12.083   14.38 | 18.08    1.80
                .167    1.10 | 6.167    2.00 |12.167   14.37 | 18.17    1.80
                .250    1.10 | 6.250    2.00 |12.250   14.37 | 18.25    1.80
                .333    1.10 | 6.333    2.00 |12.333   14.37 | 18.33    1.80
                .417    1.10 | 6.417    2.00 |12.417   14.37 | 18.42    1.80
                .500    1.10 | 6.500    2.00 |12.500   14.37 | 18.50    1.80
                .583    1.10 | 6.583    2.00 |12.583    7.39 | 18.58    1.80
                .667    1.10 | 6.667    2.00 |12.667    7.39 | 18.67    1.80
                .750    1.10 | 6.750    2.00 |12.750    7.39 | 18.75    1.80
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```
 .833   1.10 | 6.833   2.00 |12.833   7.39 | 18.83   1.80
 .917   1.10 | 6.917   2.00 |12.917   7.39 | 18.92   1.80
1.000   1.10 | 7.000   2.00 |13.000   7.39 | 19.00   1.80
1.083   1.10 | 7.083   2.00 |13.083   1.40 | 19.08   1.80
1.167   1.10 | 7.167   2.00 |13.167   1.40 | 19.17   1.80
1.250   1.10 | 7.250   2.00 |13.250   1.40 | 19.25   1.80
1.333   1.10 | 7.333   2.00 |13.333   1.40 | 19.33   1.80
1.417   1.10 | 7.417   2.00 |13.417   1.40 | 19.42   1.80
1.500   1.10 | 7.500   2.00 |13.500   1.40 | 19.50   1.80
1.583   1.10 | 7.583   2.00 |13.583   8.18 | 19.58   1.80
1.667   1.10 | 7.667   2.00 |13.667   8.18 | 19.67   1.80
1.750   1.10 | 7.750   2.00 |13.750   8.18 | 19.75   1.80
1.833   1.10 | 7.833   2.00 |13.833   8.18 | 19.83   1.80
1.917   1.10 | 7.917   2.00 |13.917   8.18 | 19.92   1.80
2.000   1.10 | 8.000   2.00 |14.000   8.18 | 20.00   1.80
2.083   1.30 | 8.083   2.69 |14.083   2.99 | 20.08   1.20
2.167   1.30 | 8.167   2.69 |14.167   2.99 | 20.17   1.20
2.250   1.30 | 8.250   2.69 |14.250   2.99 | 20.25   1.20
2.333   1.30 | 8.333   2.69 |14.333   2.99 | 20.33   1.20
2.417   1.30 | 8.417   2.69 |14.417   2.99 | 20.42   1.20
2.500   1.30 | 8.500   2.69 |14.500   2.99 | 20.50   1.20
2.583   1.30 | 8.583   2.69 |14.583   2.99 | 20.58   1.20
2.667   1.30 | 8.667   2.69 |14.667   2.99 | 20.67   1.20
2.750   1.30 | 8.750   2.69 |14.750   2.99 | 20.75   1.20
2.833   1.30 | 8.833   2.69 |14.833   2.99 | 20.83   1.20
2.917   1.30 | 8.917   2.69 |14.917   2.99 | 20.92   1.20
3.000   1.30 | 9.000   2.69 |15.000   2.99 | 21.00   1.20
3.083   1.30 | 9.083   3.19 |15.083   2.99 | 21.08   1.20
3.167   1.30 | 9.167   3.19 |15.167   2.99 | 21.17   1.20
3.250   1.30 | 9.250   3.19 |15.250   2.99 | 21.25   1.20
3.333   1.30 | 9.333   3.19 |15.333   2.99 | 21.33   1.20
3.417   1.30 | 9.417   3.19 |15.417   2.99 | 21.42   1.20
3.500   1.30 | 9.500   3.19 |15.500   2.99 | 21.50   1.20
3.583   1.30 | 9.583   3.59 |15.583   2.99 | 21.58   1.20
3.667   1.30 | 9.667   3.59 |15.667   2.99 | 21.67   1.20
3.750   1.30 | 9.750   3.59 |15.750   2.99 | 21.75   1.20
3.833   1.30 | 9.833   3.59 |15.833   2.99 | 21.83   1.20
3.917   1.30 | 9.917   3.59 |15.917   2.99 | 21.92   1.20
4.000   1.30 |10.000   3.59 |16.000   2.99 | 22.00   1.20
4.083   1.60 |10.083   4.59 |16.083   1.80 | 22.08   1.20
4.167   1.60 |10.167   4.59 |16.167   1.80 | 22.17   1.20
4.250   1.60 |10.250   4.59 |16.250   1.80 | 22.25   1.20
4.333   1.60 |10.333   4.59 |16.333   1.80 | 22.33   1.20
4.417   1.60 |10.417   4.59 |16.417   1.80 | 22.42   1.20
4.500   1.60 |10.500   4.59 |16.500   1.80 | 22.50   1.20
4.583   1.60 |10.583   6.19 |16.583   1.80 | 22.58   1.20
4.667   1.60 |10.667   6.19 |16.667   1.80 | 22.67   1.20
4.750   1.60 |10.750   6.19 |16.750   1.80 | 22.75   1.20
4.833   1.60 |10.833   6.19 |16.833   1.80 | 22.83   1.20
4.917   1.60 |10.917   6.19 |16.917   1.80 | 22.92   1.20
5.000   1.60 |11.000   6.19 |17.000   1.80 | 23.00   1.20
5.083   1.60 |11.083   9.58 |17.083   1.80 | 23.08   1.20
5.167   1.60 |11.167   9.58 |17.167   1.80 | 23.17   1.20
5.250   1.60 |11.250   9.58 |17.250   1.80 | 23.25   1.20
5.333   1.60 |11.333   9.58 |17.333   1.80 | 23.33   1.20
5.417   1.60 |11.417   9.58 |17.417   1.80 | 23.42   1.20
5.500   1.60 |11.500   9.58 |17.500   1.80 | 23.50   1.20
5.583   1.60 |11.583  41.52 |17.583   1.80 | 23.58   1.20
5.667   1.60 |11.667  41.52 |17.667   1.80 | 23.67   1.20
5.750   1.60 |11.750  75.85 |17.750   1.80 | 23.75   1.20
5.833   1.60 |11.833  75.85 |17.833   1.80 | 23.83   1.20
5.917   1.60 |11.917 110.18 |17.917   1.80 | 23.92   1.20
6.000   1.60 |12.000 110.18 |18.000   1.80 | 24.00   1.20

Max.Eff.Inten.(mm/hr)=    110.18        50.30
          over (min)        5.00        15.00
Storage Coeff.  (min)=      2.22 (ii)   13.65 (ii)
Unit Hyd. Tpeak (min)=      5.00        15.00
Unit Hyd. peak  (cms)=       .30          .08
                                              *TOTALS*
PEAK FLOW       (cms)=       .18          .04          .218 (iii)
TIME TO PEAK    (hrs)=     12.00        12.08        12.00
RUNOFF VOLUME    (mm)=     82.84        40.96        64.40
     TOTAL RAINFALL   (mm)=      99.84        99.84        99.84
     RUNOFF COEFFICIENT   =        .83          .41          .65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| NASHYD    (0054) |   Area    (ha)=   3.63   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .37

     Unit Hyd Qpeak  (cms)=    .375

     PEAK FLOW       (cms)=    .297 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)=  50.095
     TOTAL RAINFALL   (mm)=  99.835
     RUNOFF COEFFICIENT   =    .502

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| NASHYD    (0053) |   Area    (ha)=   1.67   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .24

     Unit Hyd Qpeak  (cms)=    .266

     PEAK FLOW       (cms)=    .183 (i)
     TIME TO PEAK    (hrs)=  12.083
     RUNOFF VOLUME    (mm)=  50.057
     TOTAL RAINFALL   (mm)=  99.835
     RUNOFF COEFFICIENT   =    .501

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| NASHYD    (0052) |   Area    (ha)=    .99   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .50

     Unit Hyd Qpeak  (cms)=    .076

     PEAK FLOW       (cms)=    .066 (i)
     TIME TO PEAK    (hrs)=  12.333
     RUNOFF VOLUME    (mm)=  50.100
     TOTAL RAINFALL   (mm)=  99.835
     RUNOFF COEFFICIENT   =    .502

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .137 (i)
     TIME TO PEAK    (hrs)=  12.167
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     RUNOFF VOLUME    (mm)=  38.735
     TOTAL RAINFALL   (mm)=  99.835
     RUNOFF COEFFICIENT   =    .388

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .22          .17
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     51.00        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    110.18        50.30
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      1.64 (ii)   13.08 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .32          .08
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .07          .02          .081 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.08        12.00
     RUNOFF VOLUME    (mm)=     82.83        40.96        64.40
     TOTAL RAINFALL   (mm)=     99.84        99.84        99.84
     RUNOFF COEFFICIENT   =       .83          .41          .65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.45          .01
     Dep. Storage     (mm)=     15.00        15.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     98.70        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    110.18      1299.87
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      2.44 (ii)    3.77 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .30          .25
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .44          .00          .443 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00        12.00
     RUNOFF VOLUME    (mm)=     84.84        42.46        84.41
     TOTAL RAINFALL   (mm)=     99.84        99.84        99.84
     RUNOFF COEFFICIENT   =       .85          .43          .85

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .53          .41
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     79.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    110.18        50.30
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      2.14 (ii)   13.57 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .31          .08
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .16          .04          .193 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.08        12.00
     RUNOFF VOLUME    (mm)=     82.83        40.96        64.40
     TOTAL RAINFALL   (mm)=     99.84        99.84        99.84
     RUNOFF COEFFICIENT   =       .83          .41          .65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.26          .84
     Dep. Storage     (mm)=     10.00        10.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    118.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    110.18        55.48
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      2.72 (ii)   13.72 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .29          .08
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .38          .09          .458 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.08        12.00
     RUNOFF VOLUME    (mm)=     89.83        46.25        72.40
     TOTAL RAINFALL   (mm)=     99.84        99.84        99.84
     RUNOFF COEFFICIENT   =       .90          .46          .73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR (0060) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420      .1700
                          .0270      .0850    |    .0000      .0000
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                              AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0054)    3.630      .297       12.25       50.10
     OUTFLOW: ID= 1 (0060)    3.630      .030       14.67       49.88

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.25
                   TIME SHIFT OF PEAK FLOW         (min)=145.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1048

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-------------------
| RESERVOIR (0059) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .0610
                          .0270      .0305    |    .0000       .0000

                              AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)    1.670      .183       12.08       50.06
     OUTFLOW: ID= 1 (0059)    1.670      .031       12.92       49.89

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.05
                   TIME SHIFT OF PEAK FLOW         (min)= 50.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0391

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-------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0239       .0730
                          .0120      .0365    |    .0359       .1095

                              AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)    1.460      .443       12.00       84.41
     OUTFLOW: ID= 1 (0022)    1.460      .025       13.00       83.89

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.70
                   TIME SHIFT OF PEAK FLOW         (min)= 60.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .0770

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| ADD HYD   (0024) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0022):     1.46    .025    13.00    83.89
       + ID2= 2 (0017):      .94    .193    12.00    64.40
         ================================================
         ID = 3 (0024):     2.40    .213    12.00    76.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0210       .1224
                          .0203      .1100    |    .0213       .1520
                          .0206      .1116    |    .0000       .0000

                              AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)    2.100      .458       12.00       72.40
     OUTFLOW: ID= 1 (0036)    2.100      .019       14.33       71.74

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.06
                   TIME SHIFT OF PEAK FLOW         (min)=140.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1009

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-------------------
| ADD HYD   (0058) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0060):     3.63    .030    14.67    49.88
       + ID2= 2 (0059):     1.67    .031    12.92    49.89
         ================================================
         ID = 3 (0058):     5.30    .061    13.25    49.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0025) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0018):      .39    .081    12.00    64.40
       + ID2= 2 (0024):     2.40    .213    12.00    76.25
         ================================================
         ID = 3 (0025):     2.79    .294    12.00    74.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0025):     2.79    .294    12.00    74.60
       + ID2= 2 (0036):     2.10    .019    14.33    71.74
         ================================================
         ID = 3 (0051):     4.89    .306    12.00    73.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0055) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0058):     5.30    .061    13.25    49.88
       + ID2= 2 (0052):      .99    .066    12.33    50.10
         ================================================
         ID = 3 (0055):     6.29    .116    12.50    49.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0035):     2.01    .137    12.17    38.73
       + ID2= 2 (0051):     4.89    .306    12.00    73.37
         ================================================
         ID = 3 (0043):     6.90    .402    12.00    63.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0038) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0033):      1.06     .218    12.00    64.40
       + ID2= 2 (0055):      6.29     .116    12.50    49.91
         ================================================
         ID = 3 (0038):      7.35     .276    12.00    52.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0038):      7.35     .276    12.00    52.00
       + ID2= 2 (0043):      6.90     .402    12.00    63.28
         ================================================
         ID = 3 (0044):     14.25     .679    12.00    57.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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  ****************************
  ** SIMULATION NUMBER:   5 **
  ****************************


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|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\50y
| Ptotal=111.43 mm |    Comments: 50yr/24hr SCS
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	1.23	6.17	2.23	12.17	16.04	18.17	2.01
.33	1.23	6.33	2.23	12.33	16.04	18.33	2.01
.50	1.23	6.50	2.23	12.50	16.04	18.50	2.01
.67	1.23	6.67	2.23	12.67	8.24	18.67	2.01
.83	1.23	6.83	2.23	12.83	8.24	18.83	2.01
1.00	1.23	7.00	2.23	13.00	8.24	19.00	2.01
1.17	1.23	7.17	2.23	13.17	1.56	19.17	2.01
1.33	1.23	7.33	2.23	13.33	1.56	19.33	2.01
1.50	1.23	7.50	2.23	13.50	1.56	19.50	2.01
1.67	1.23	7.67	2.23	13.67	9.13	19.67	2.01
1.83	1.23	7.83	2.23	13.83	9.13	19.83	2.01
2.00	1.23	8.00	2.23	14.00	9.13	20.00	2.01
2.17	1.45	8.17	3.01	14.17	3.34	20.17	1.34
2.33	1.45	8.33	3.01	14.33	3.34	20.33	1.34
2.50	1.45	8.50	3.01	14.50	3.34	20.50	1.34
2.67	1.45	8.67	3.01	14.67	3.34	20.67	1.34
2.83	1.45	8.83	3.01	14.83	3.34	20.83	1.34
3.00	1.45	9.00	3.01	15.00	3.34	21.00	1.34
3.17	1.45	9.17	3.56	15.17	3.34	21.17	1.34
3.33	1.45	9.33	3.56	15.33	3.34	21.33	1.34
3.50	1.45	9.50	3.56	15.50	3.34	21.50	1.34
3.67	1.45	9.67	4.01	15.67	3.34	21.67	1.34
3.83	1.45	9.83	4.01	15.83	3.34	21.83	1.34
4.00	1.45	10.00	4.01	16.00	3.34	22.00	1.34
4.17	1.78	10.17	5.12	16.17	2.01	22.17	1.34
4.33	1.78	10.33	5.12	16.33	2.01	22.33	1.34
4.50	1.78	10.50	5.12	16.50	2.01	22.50	1.34
4.67	1.78	10.67	6.91	16.67	2.01	22.67	1.34
4.83	1.78	10.83	6.91	16.83	2.01	22.83	1.34
5.00	1.78	11.00	6.91	17.00	2.01	23.00	1.34
5.17	1.78	11.17	10.69	17.17	2.01	23.17	1.34
5.33	1.78	11.33	10.69	17.33	2.01	23.33	1.34
5.50	1.78	11.50	10.69	17.50	2.01	23.50	1.34
5.67	1.78	11.67	46.34	17.67	2.01	23.67	1.34
5.83	1.78	11.83	84.66	17.83	2.01	23.83	1.34
6.00	1.78	12.00	122.99	18.00	2.01	24.00	1.34

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--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .59          .47
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      84.10        40.00
     Mannings n           =       .013         .250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.23	6.083	2.23	12.083	16.05	18.08	2.01
.167	1.23	6.167	2.23	12.167	16.04	18.17	2.01
.250	1.23	6.250	2.23	12.250	16.04	18.25	2.01
.333	1.23	6.333	2.23	12.333	16.04	18.33	2.01
.417	1.23	6.417	2.23	12.417	16.04	18.42	2.01
.500	1.23	6.500	2.23	12.500	16.04	18.50	2.01
.583	1.23	6.583	2.23	12.583	8.24	18.58	2.01
.667	1.23	6.667	2.23	12.667	8.24	18.67	2.01
.750	1.23	6.750	2.23	12.750	8.24	18.75	2.01
.833	1.23	6.833	2.23	12.833	8.24	18.83	2.01
.917	1.23	6.917	2.23	12.917	8.24	18.92	2.01
1.000	1.23	7.000	2.23	13.000	8.24	19.00	2.01
1.083	1.23	7.083	2.23	13.083	1.56	19.08	2.01
1.167	1.23	7.167	2.23	13.167	1.56	19.17	2.01
1.250	1.23	7.250	2.23	13.250	1.56	19.25	2.01
1.333	1.23	7.333	2.23	13.333	1.56	19.33	2.01
1.417	1.23	7.417	2.23	13.417	1.56	19.42	2.01
1.500	1.23	7.500	2.23	13.500	1.56	19.50	2.01
1.583	1.23	7.583	2.23	13.583	9.13	19.58	2.01
1.667	1.23	7.667	2.23	13.667	9.13	19.67	2.01
1.750	1.23	7.750	2.23	13.750	9.13	19.75	2.01
1.833	1.23	7.833	2.23	13.833	9.13	19.83	2.01
1.917	1.23	7.917	2.23	13.917	9.13	19.92	2.01
2.000	1.23	8.000	2.23	14.000	9.13	20.00	2.01
2.083	1.45	8.083	3.01	14.083	3.34	20.08	1.34
2.167	1.45	8.167	3.01	14.167	3.34	20.17	1.34
2.250	1.45	8.250	3.01	14.250	3.34	20.25	1.34
2.333	1.45	8.333	3.01	14.333	3.34	20.33	1.34
2.417	1.45	8.417	3.01	14.417	3.34	20.42	1.34
2.500	1.45	8.500	3.01	14.500	3.34	20.50	1.34
2.583	1.45	8.583	3.01	14.583	3.34	20.58	1.34
2.667	1.45	8.667	3.01	14.667	3.34	20.67	1.34
2.750	1.45	8.750	3.01	14.750	3.34	20.75	1.34
2.833	1.45	8.833	3.01	14.833	3.34	20.83	1.34
2.917	1.45	8.917	3.01	14.917	3.34	20.92	1.34
3.000	1.45	9.000	3.01	15.000	3.34	21.00	1.34
3.083	1.45	9.083	3.56	15.083	3.34	21.08	1.34
3.167	1.45	9.167	3.56	15.167	3.34	21.17	1.34
3.250	1.45	9.250	3.56	15.250	3.34	21.25	1.34
3.333	1.45	9.333	3.56	15.333	3.34	21.33	1.34
3.417	1.45	9.417	3.56	15.417	3.34	21.42	1.34
3.500	1.45	9.500	3.56	15.500	3.34	21.50	1.34
3.583	1.45	9.583	4.01	15.583	3.34	21.58	1.34
3.667	1.45	9.667	4.01	15.667	3.34	21.67	1.34
3.750	1.45	9.750	4.01	15.750	3.34	21.75	1.34
3.833	1.45	9.833	4.01	15.833	3.34	21.83	1.34
3.917	1.45	9.917	4.01	15.917	3.34	21.92	1.34
4.000	1.45	10.000	4.01	16.000	3.34	22.00	1.34
4.083	1.78	10.083	5.12	16.083	2.01	22.08	1.34
4.167	1.78	10.167	5.12	16.167	2.01	22.17	1.34
4.250	1.78	10.250	5.12	16.250	2.01	22.25	1.34
4.333	1.78	10.333	5.12	16.333	2.01	22.33	1.34

```
                4.417    1.78 |10.417    5.12 |16.417    2.01 | 22.42    1.34
                4.500    1.78 |10.500    5.12 |16.500    2.01 | 22.50    1.34
                4.583    1.78 |10.583    6.91 |16.583    2.01 | 22.58    1.34
                4.667    1.78 |10.667    6.91 |16.667    2.01 | 22.67    1.34
                4.750    1.78 |10.750    6.91 |16.750    2.01 | 22.75    1.34
                4.833    1.78 |10.833    6.91 |16.833    2.01 | 22.83    1.34
                4.917    1.78 |10.917    6.91 |16.917    2.01 | 22.92    1.34
                5.000    1.78 |11.000    6.91 |17.000    2.01 | 23.00    1.34
                5.083    1.78 |11.083   10.69 |17.083    2.01 | 23.08    1.34
                5.167    1.78 |11.167   10.69 |17.167    2.01 | 23.17    1.34
                5.250    1.78 |11.250   10.69 |17.250    2.01 | 23.25    1.34
                5.333    1.78 |11.333   10.69 |17.333    2.01 | 23.33    1.34
                5.417    1.78 |11.417   10.69 |17.417    2.01 | 23.42    1.34
                5.500    1.78 |11.500   10.69 |17.500    2.01 | 23.50    1.34
                5.583    1.78 |11.583   46.34 |17.583    2.01 | 23.58    1.34
                5.667    1.78 |11.667   46.34 |17.667    2.01 | 23.67    1.34
                5.750    1.78 |11.750   84.66 |17.750    2.01 | 23.75    1.34
                5.833    1.78 |11.833   84.66 |17.833    2.01 | 23.83    1.34
                5.917    1.78 |11.917  122.99 |17.917    2.01 | 23.92    1.34
                6.000    1.78 |12.000  122.99 |18.000    2.01 | 24.00    1.34

     Max.Eff.Inten.(mm/hr)=     122.99        71.52
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.12 (ii)   12.06 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .31          .09
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .20          .06          .250 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      94.43        49.79         74.78
     TOTAL RAINFALL   (mm)=     111.43       111.43        111.43
     RUNOFF COEFFICIENT   =        .85          .45           .67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD    (0054) |   Area     (ha)=   3.63   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .37

     Unit Hyd Qpeak  (cms)=    .375

     PEAK FLOW       (cms)=    .353 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)=  59.267
     TOTAL RAINFALL   (mm)= 111.432
     RUNOFF COEFFICIENT   =    .532

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD    (0053) |   Area     (ha)=   1.67   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .24

     Unit Hyd Qpeak  (cms)=    .266

     PEAK FLOW       (cms)=    .217 (i)
     TIME TO PEAK    (hrs)=  12.083
     RUNOFF VOLUME    (mm)=  59.222
     TOTAL RAINFALL   (mm)= 111.432
     RUNOFF COEFFICIENT   =    .531

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD    (0052) |   Area     (ha)=    .99   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .50

     Unit Hyd Qpeak  (cms)=    .076

     PEAK FLOW       (cms)=    .078 (i)
     TIME TO PEAK    (hrs)=  12.333
     RUNOFF VOLUME    (mm)=  59.273
     TOTAL RAINFALL   (mm)= 111.432
     RUNOFF COEFFICIENT   =    .532

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (0035) |   Area     (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=  20.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .171 (i)
     TIME TO PEAK    (hrs)=  12.167
     RUNOFF VOLUME    (mm)=  47.459
     TOTAL RAINFALL   (mm)= 111.432
     RUNOFF COEFFICIENT   =    .426

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (0018) |   Area     (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=        .22          .17
     Dep. Storage      (mm)=      17.00        17.00
     Average Slope      (%)=       1.00         1.00
     Length             (m)=      51.00        40.00
     Mannings n            =       .013         .250

     Max.Eff.Inten.(mm/hr)=     122.99        71.52
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.57 (ii)   11.51 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .33          .09
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .07          .02          .093 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      94.43        49.79         74.77
     TOTAL RAINFALL   (mm)=     111.43       111.43        111.43
     RUNOFF COEFFICIENT   =        .85          .45           .67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (0016) |   Area     (ha)=   1.46
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```
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.45          .01
     Dep. Storage     (mm)=     15.00        15.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     98.70        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    122.99      1573.48
               over (min)        5.00         5.00
     Storage Coeff.  (min)=     2.33 (ii)    3.61 (ii)
     Unit Hyd. Tpeak (min)=     5.00         5.00
     Unit Hyd. peak  (cms)=      .30          .25
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .49          .00          .495 (iii)
     TIME TO PEAK    (hrs)=    12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=    96.43        51.35         95.98
     TOTAL RAINFALL   (mm)=   111.43       111.43        111.43
     RUNOFF COEFFICIENT   =      .87          .46           .86

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .53          .41
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     79.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    122.99        71.52
               over (min)        5.00        15.00
     Storage Coeff.  (min)=     2.04 (ii)   11.98 (ii)
     Unit Hyd. Tpeak (min)=     5.00        15.00
     Unit Hyd. peak  (cms)=      .31          .09
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .18          .05          .222 (iii)
     TIME TO PEAK    (hrs)=    12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=    94.43        49.79         74.78
     TOTAL RAINFALL   (mm)=   111.43       111.43        111.43
     RUNOFF COEFFICIENT   =      .85          .45           .67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.26          .84
     Dep. Storage     (mm)=     10.00        10.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    118.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    122.99        76.63
               over (min)        5.00        15.00
     Storage Coeff.  (min)=     2.60 (ii)   12.27 (ii)
     Unit Hyd. Tpeak (min)=     5.00        15.00
     Unit Hyd. peak  (cms)=      .29          .09
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .43          .11          .524 (iii)
     TIME TO PEAK    (hrs)=    12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=   101.43        55.28         82.97
     TOTAL RAINFALL   (mm)=   111.43       111.43        111.43
     RUNOFF COEFFICIENT   =      .91          .50           .74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR (0060) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .1700
                          .0270      .0850    |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0054)    3.630       .353       12.25       59.27
     OUTFLOW: ID= 1 (0060)    3.630       .034       14.67       59.05

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.71
                TIME SHIFT OF PEAK FLOW          (min)=145.00
                MAXIMUM  STORAGE   USED        (ha.m.)=   .1262

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--------------------
| RESERVOIR (0059) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .0610
                          .0270      .0305    |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)    1.670       .217       12.08       59.22
     OUTFLOW: ID= 1 (0059)    1.670       .035       13.00       59.05

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.19
                TIME SHIFT OF PEAK FLOW          (min)= 55.00
                MAXIMUM  STORAGE   USED        (ha.m.)=   .0471

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--------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0239       .0730
                          .0120      .0365    |    .0359       .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)    1.460       .495       12.00       95.98
     OUTFLOW: ID= 1 (0022)    1.460       .029       13.00       95.45

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.79
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                  TIME SHIFT OF PEAK FLOW          (min)= 60.00
                  MAXIMUM  STORAGE   USED        (ha.m.)=   .0875

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--------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0022):     1.46    .029    13.00    95.45
       + ID2= 2 (0017):      .94    .222    12.00    74.78
         ================================================
         ID = 3 (0024):     2.40    .245    12.00    87.36

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0210      .1224
                          .0203      .1100    |    .0213      .1520
                          .0206      .1116    |    .0000      .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
    INFLOW : ID= 2 (0034)     2.100       .524       12.00       82.97
    OUTFLOW: ID= 1 (0036)     2.100       .021       14.33       82.32

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.96
                  TIME SHIFT OF PEAK FLOW          (min)=140.00
                  MAXIMUM  STORAGE   USED        (ha.m.)=   .1158

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0058) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0060):     3.63    .034    14.67    59.05
       + ID2= 2 (0059):     1.67    .035    13.00    59.05
         ================================================
         ID = 3 (0058):     5.30    .068    13.25    59.05

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0018):      .39    .093    12.00    74.77
       + ID2= 2 (0024):     2.40    .245    12.00    87.36
         ================================================
         ID = 3 (0025):     2.79    .338    12.00    85.60

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0025):     2.79    .338    12.00    85.60
       + ID2= 2 (0036):     2.10    .021    14.33    82.32
         ================================================
         ID = 3 (0051):     4.89    .352    12.00    84.19

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0055) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0058):     5.30    .068    13.25    59.05
       + ID2= 2 (0052):      .99    .078    12.33    59.27
         ================================================
         ID = 3 (0055):     6.29    .136    12.50    59.08

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0035):     2.01    .171    12.17    47.46
       + ID2= 2 (0051):     4.89    .352    12.00    84.19
         ================================================
         ID = 3 (0043):     6.90    .475    12.00    73.49

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0033):     1.06    .250    12.00    74.78
       + ID2= 2 (0055):     6.29    .136    12.50    59.08
         ================================================
         ID = 3 (0038):     7.35    .321    12.00    61.35

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0038):     7.35    .321    12.00    61.35
       + ID2= 2 (0043):     6.90    .475    12.00    73.49
         ================================================
         ID = 3 (0044):    14.25    .797    12.00    67.23

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   6 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\100
| Ptotal=122.89 mm |    Comments: 100 yr/24 hr SCS
--------------------
                TIME     RAIN |  TIME     RAIN |  TIME     RAIN |  TIME     RAIN
                 hrs    mm/hr |   hrs    mm/hr |   hrs    mm/hr |   hrs    mm/hr
                 .17     1.35 |  6.17     2.46 | 12.17    17.70 | 18.17     2.21
                 .33     1.35 |  6.33     2.46 | 12.33    17.70 | 18.33     2.21
                 .50     1.35 |  6.50     2.46 | 12.50    17.70 | 18.50     2.21
                 .67     1.35 |  6.67     2.46 | 12.67     9.09 | 18.67     2.21
                 .83     1.35 |  6.83     2.46 | 12.83     9.09 | 18.83     2.21
                1.00     1.35 |  7.00     2.46 | 13.00     9.09 | 19.00     2.21
```

1.17	1.35	7.17	2.46	13.17	1.72	19.17	2.21
1.33	1.35	7.33	2.46	13.33	1.72	19.33	2.21
1.50	1.35	7.50	2.46	13.50	1.72	19.50	2.21
1.67	1.35	7.67	2.46	13.67	10.08	19.67	2.21
1.83	1.35	7.83	2.46	13.83	10.08	19.83	2.21
2.00	1.35	8.00	2.46	14.00	10.08	20.00	2.21
2.17	1.60	8.17	3.32	14.17	3.69	20.17	1.47
2.33	1.60	8.33	3.32	14.33	3.69	20.33	1.47
2.50	1.60	8.50	3.32	14.50	3.69	20.50	1.47
2.67	1.60	8.67	3.32	14.67	3.69	20.67	1.47
2.83	1.60	8.83	3.32	14.83	3.69	20.83	1.47
3.00	1.60	9.00	3.32	15.00	3.69	21.00	1.47
3.17	1.60	9.17	3.93	15.17	3.69	21.17	1.47
3.33	1.60	9.33	3.93	15.33	3.69	21.33	1.47
3.50	1.60	9.50	3.93	15.50	3.69	21.50	1.47
3.67	1.60	9.67	4.42	15.67	3.69	21.67	1.47
3.83	1.60	9.83	4.42	15.83	3.69	21.83	1.47
4.00	1.60	10.00	4.42	16.00	3.69	22.00	1.47
4.17	1.97	10.17	5.65	16.17	2.21	22.17	1.47
4.33	1.97	10.33	5.65	16.33	2.21	22.33	1.47
4.50	1.97	10.50	5.65	16.50	2.21	22.50	1.47
4.67	1.97	10.67	7.62	16.67	2.21	22.67	1.47
4.83	1.97	10.83	7.62	16.83	2.21	22.83	1.47
5.00	1.97	11.00	7.62	17.00	2.21	23.00	1.47
5.17	1.97	11.17	11.80	17.17	2.21	23.17	1.47
5.33	1.97	11.33	11.80	17.33	2.21	23.33	1.47
5.50	1.97	11.50	11.80	17.50	2.21	23.50	1.47
5.67	1.97	11.67	51.13	17.67	2.21	23.67	1.47
5.83	1.97	11.83	93.40	17.83	2.21	23.83	1.47
6.00	1.97	12.00	135.68	18.00	2.21	24.00	1.47

```
--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.59	.47
Dep. Storage	(mm)=	17.00	17.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	84.10	40.00
Mannings n	=	.013	.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.35	6.083	2.46	12.083	17.71	18.08	2.21
.167	1.35	6.167	2.46	12.167	17.70	18.17	2.21
.250	1.35	6.250	2.46	12.250	17.70	18.25	2.21
.333	1.35	6.333	2.46	12.333	17.70	18.33	2.21
.417	1.35	6.417	2.46	12.417	17.70	18.42	2.21
.500	1.35	6.500	2.46	12.500	17.70	18.50	2.21
.583	1.35	6.583	2.46	12.583	9.09	18.58	2.21
.667	1.35	6.667	2.46	12.667	9.09	18.67	2.21
.750	1.35	6.750	2.46	12.750	9.09	18.75	2.21
.833	1.35	6.833	2.46	12.833	9.09	18.83	2.21
.917	1.35	6.917	2.46	12.917	9.09	18.92	2.21
1.000	1.35	7.000	2.46	13.000	9.09	19.00	2.21
1.083	1.35	7.083	2.46	13.083	1.72	19.08	2.21
1.167	1.35	7.167	2.46	13.167	1.72	19.17	2.21
1.250	1.35	7.250	2.46	13.250	1.72	19.25	2.21
1.333	1.35	7.333	2.46	13.333	1.72	19.33	2.21
1.417	1.35	7.417	2.46	13.417	1.72	19.42	2.21
1.500	1.35	7.500	2.46	13.500	1.72	19.50	2.21
1.583	1.35	7.583	2.46	13.583	10.08	19.58	2.21
1.667	1.35	7.667	2.46	13.667	10.08	19.67	2.21
1.750	1.35	7.750	2.46	13.750	10.08	19.75	2.21
1.833	1.35	7.833	2.46	13.833	10.08	19.83	2.21
1.917	1.35	7.917	2.46	13.917	10.08	19.92	2.21
2.000	1.35	8.000	2.46	14.000	10.08	20.00	2.21
2.083	1.60	8.083	3.32	14.083	3.69	20.08	1.47
2.167	1.60	8.167	3.32	14.167	3.69	20.17	1.47
2.250	1.60	8.250	3.32	14.250	3.69	20.25	1.47
2.333	1.60	8.333	3.32	14.333	3.69	20.33	1.47
2.417	1.60	8.417	3.32	14.417	3.69	20.42	1.47
2.500	1.60	8.500	3.32	14.500	3.69	20.50	1.47
2.583	1.60	8.583	3.32	14.583	3.69	20.58	1.47
2.667	1.60	8.667	3.32	14.667	3.69	20.67	1.47
2.750	1.60	8.750	3.32	14.750	3.69	20.75	1.47
2.833	1.60	8.833	3.32	14.833	3.69	20.83	1.47
2.917	1.60	8.917	3.32	14.917	3.69	20.92	1.47
3.000	1.60	9.000	3.32	15.000	3.69	21.00	1.47
3.083	1.60	9.083	3.93	15.083	3.69	21.08	1.47
3.167	1.60	9.167	3.93	15.167	3.69	21.17	1.47
3.250	1.60	9.250	3.93	15.250	3.69	21.25	1.47
3.333	1.60	9.333	3.93	15.333	3.69	21.33	1.47
3.417	1.60	9.417	3.93	15.417	3.69	21.42	1.47
3.500	1.60	9.500	3.93	15.500	3.69	21.50	1.47
3.583	1.60	9.583	4.42	15.583	3.69	21.58	1.47
3.667	1.60	9.667	4.42	15.667	3.69	21.67	1.47
3.750	1.60	9.750	4.42	15.750	3.69	21.75	1.47
3.833	1.60	9.833	4.42	15.833	3.69	21.83	1.47
3.917	1.60	9.917	4.42	15.917	3.69	21.92	1.47
4.000	1.60	10.000	4.42	16.000	3.69	22.00	1.47
4.083	1.97	10.083	5.65	16.083	2.21	22.08	1.47
4.167	1.97	10.167	5.65	16.167	2.21	22.17	1.47
4.250	1.97	10.250	5.65	16.250	2.21	22.25	1.47
4.333	1.97	10.333	5.65	16.333	2.21	22.33	1.47
4.417	1.97	10.417	5.65	16.417	2.21	22.42	1.47
4.500	1.97	10.500	5.65	16.500	2.21	22.50	1.47
4.583	1.97	10.583	7.62	16.583	2.21	22.58	1.47
4.667	1.97	10.667	7.62	16.667	2.21	22.67	1.47
4.750	1.97	10.750	7.62	16.750	2.21	22.75	1.47
4.833	1.97	10.833	7.62	16.833	2.21	22.83	1.47
4.917	1.97	10.917	7.62	16.917	2.21	22.92	1.47
5.000	1.97	11.000	7.62	17.000	2.21	23.00	1.47
5.083	1.97	11.083	11.80	17.083	2.21	23.08	1.47
5.167	1.97	11.167	11.80	17.167	2.21	23.17	1.47
5.250	1.97	11.250	11.80	17.250	2.21	23.25	1.47
5.333	1.97	11.333	11.80	17.333	2.21	23.33	1.47
5.417	1.97	11.417	11.80	17.417	2.21	23.42	1.47
5.500	1.97	11.500	11.80	17.500	2.21	23.50	1.47
5.583	1.97	11.583	51.13	17.583	2.21	23.58	1.47
5.667	1.97	11.667	51.13	17.667	2.21	23.67	1.47
5.750	1.97	11.750	93.40	17.750	2.21	23.75	1.47
5.833	1.97	11.833	93.40	17.833	2.21	23.83	1.47
5.917	1.97	11.917	135.68	17.917	2.21	23.92	1.47
6.000	1.97	12.000	135.68	18.000	2.21	24.00	1.47

Max.Eff.Inten.(mm/hr)=		135.68	84.15	
over (min)		5.00	15.00	
Storage Coeff. (min)=		2.04 (ii)	11.35 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		.31	.09	
				TOTALS
PEAK FLOW	(cms)=	.22	.07	.282 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	105.89	58.84	85.18
TOTAL RAINFALL	(mm)=	122.89	122.89	122.89
RUNOFF COEFFICIENT	=	.86	.48	.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 75.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB            |
| NASHYD    (0054) |   Area    (ha)=   3.63   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .37

     Unit Hyd Qpeak  (cms)=    .375

     PEAK FLOW       (cms)=    .410 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)=  68.599
     TOTAL RAINFALL   (mm)= 122.887
     RUNOFF COEFFICIENT   =    .558

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (0053) |   Area    (ha)=   1.67   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .24

     Unit Hyd Qpeak  (cms)=    .266

     PEAK FLOW       (cms)=    .252 (i)
     TIME TO PEAK    (hrs)=  12.083
     RUNOFF VOLUME    (mm)=  68.546
     TOTAL RAINFALL   (mm)= 122.887
     RUNOFF COEFFICIENT   =    .558

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (0052) |   Area    (ha)=    .99   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .50

     Unit Hyd Qpeak  (cms)=    .076

     PEAK FLOW       (cms)=    .091 (i)
     TIME TO PEAK    (hrs)=  12.333
     RUNOFF VOLUME    (mm)=  68.606
     TOTAL RAINFALL   (mm)= 122.887
     RUNOFF COEFFICIENT   =    .558

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .206 (i)
     TIME TO PEAK    (hrs)=  12.167
     RUNOFF VOLUME    (mm)=  56.426
     TOTAL RAINFALL   (mm)= 122.887
     RUNOFF COEFFICIENT   =    .459

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .22          .17
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     51.00        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68        84.15
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      1.51 (ii)   10.82 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .33          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .08          .03       .104 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.08      12.00
     RUNOFF VOLUME    (mm)=    105.89        58.84      85.17
     TOTAL RAINFALL   (mm)=    122.89       122.89     122.89
     RUNOFF COEFFICIENT   =       .86          .48        .69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.45          .01
     Dep. Storage     (mm)=     15.00        15.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     98.70        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68      1851.28
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      2.24 (ii)    3.47 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .30          .26
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .54          .00       .546 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00      12.00
     RUNOFF VOLUME    (mm)=    107.89        60.45     107.41
     TOTAL RAINFALL   (mm)=    122.89       122.89     122.89
     RUNOFF COEFFICIENT   =       .88          .49        .87

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .53          .41
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     79.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68        84.15
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```
               over (min)        5.00         15.00
     Storage Coeff.  (min)=       1.97 (ii)   11.28 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=        .31           .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .20           .06          .251 (iii)
     TIME TO PEAK    (hrs)=      12.00         12.08         12.00
     RUNOFF VOLUME    (mm)=     105.89         58.84         85.18
     TOTAL RAINFALL   (mm)=     122.89        122.89        122.89
     RUNOFF COEFFICIENT   =        .86           .48           .69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.26          .84
     Dep. Storage     (mm)=      10.00         10.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     118.30         40.00
     Mannings n           =       .013          .250

     Max.Eff.Inten.(mm/hr)=     135.68         89.04
               over (min)        5.00         15.00
     Storage Coeff.  (min)=       2.50 (ii)   11.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=        .29           .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .47           .13          .588 (iii)
     TIME TO PEAK    (hrs)=      12.00         12.08         12.00
     RUNOFF VOLUME    (mm)=     112.89         64.51         93.53
     TOTAL RAINFALL   (mm)=     122.89        122.89        122.89
     RUNOFF COEFFICIENT   =        .92           .52           .76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0060) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0420       .1700
                          .0270       .0850   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0054)    3.630       .410       12.25       68.60
     OUTFLOW: ID= 1 (0060)    3.630       .038       14.75       68.38

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.31
                  TIME SHIFT OF PEAK FLOW         (min)=150.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .1482

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-------------------
| RESERVOIR (0059) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0420       .0610
                          .0270       .0305   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)    1.670       .252       12.08       68.55
     OUTFLOW: ID= 1 (0059)    1.670       .039       13.00       68.38

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 15.56
                  TIME SHIFT OF PEAK FLOW         (min)= 55.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0553

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-------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0239       .0730
                          .0120       .0365   |    .0359       .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)    1.460       .546       12.00      107.41
     OUTFLOW: ID= 1 (0022)    1.460       .032       13.00      106.89

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.87
                  TIME SHIFT OF PEAK FLOW         (min)= 60.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0979

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-------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0022):      1.46     .032    13.00   106.89
       + ID2= 2 (0017):       .94     .251    12.00    85.18
         ================================================
         ID = 3 (0024):      2.40     .277    12.00    98.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000       .0000   |    .0210       .1224
                          .0203       .1100   |    .0213       .1520
                          .0206       .1116   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)    2.100       .588       12.00       93.53
     OUTFLOW: ID= 1 (0036)    2.100       .021       14.50       92.88

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.59
                  TIME SHIFT OF PEAK FLOW         (min)=150.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .1322

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-------------------
| ADD HYD   (0058) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0060):      3.63     .038    14.75    68.38
       + ID2= 2 (0059):      1.67     .039    13.00    68.38
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          ==============================================
          ID = 3 (0058):     5.30    .076    13.25    68.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0025) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0018):      .39    .104    12.00    85.17
        + ID2= 2 (0024):     2.40    .277    12.00    98.38
          ==============================================
          ID = 3 (0025):     2.79    .381    12.00    96.54

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0025):     2.79    .381    12.00    96.54
        + ID2= 2 (0036):     2.10    .021    14.50    92.88
          ==============================================
          ID = 3 (0051):     4.89    .397    12.00    94.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0055) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0058):     5.30    .076    13.25    68.38
        + ID2= 2 (0052):      .99    .091    12.33    68.61
          ==============================================
          ID = 3 (0055):     6.29    .154    12.42    68.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0035):     2.01    .206    12.17    56.43
        + ID2= 2 (0051):     4.89    .397    12.00    94.97
          ==============================================
          ID = 3 (0043):     6.90    .548    12.00    83.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0033):     1.06    .282    12.00    85.18
        + ID2= 2 (0055):     6.29    .154    12.42    68.42
          ==============================================
          ID = 3 (0038):     7.35    .366    12.00    70.83

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0044) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0038):     7.35    .366    12.00    70.83
        + ID2= 2 (0043):     6.90    .548    12.00    83.74
          ==============================================
          ID = 3 (0044):    14.25    .914    12.00    77.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   7 **
  ****************************


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|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Catchment B)\Hur
| Ptotal=212.00 mm |    Comments: Hurricane Hazel
--------------------
                TIME     RAIN |  TIME     RAIN |  TIME     RAIN |  TIME     RAIN
                 hrs    mm/hr |   hrs    mm/hr |   hrs    mm/hr |   hrs    mm/hr
                 .17     6.00 |  3.17    13.00 |  6.17    23.00 |  9.17    53.00
                 .33     6.00 |  3.33    13.00 |  6.33    23.00 |  9.33    53.00
                 .50     6.00 |  3.50    13.00 |  6.50    23.00 |  9.50    53.00
                 .67     6.00 |  3.67    13.00 |  6.67    23.00 |  9.67    53.00
                 .83     6.00 |  3.83    13.00 |  6.83    23.00 |  9.83    53.00
                1.00     6.00 |  4.00    13.00 |  7.00    23.00 | 10.00    53.00
                1.17     4.00 |  4.17    17.00 |  7.17    13.00 | 10.17    38.00
                1.33     4.00 |  4.33    17.00 |  7.33    13.00 | 10.33    38.00
                1.50     4.00 |  4.50    17.00 |  7.50    13.00 | 10.50    38.00
                1.67     4.00 |  4.67    17.00 |  7.67    13.00 | 10.67    38.00
                1.83     4.00 |  4.83    17.00 |  7.83    13.00 | 10.83    38.00
                2.00     4.00 |  5.00    17.00 |  8.00    13.00 | 11.00    38.00
                2.17     6.00 |  5.17    13.00 |  8.17    13.00 | 11.17    13.00
                2.33     6.00 |  5.33    13.00 |  8.33    13.00 | 11.33    13.00
                2.50     6.00 |  5.50    13.00 |  8.50    13.00 | 11.50    13.00
                2.67     6.00 |  5.67    13.00 |  8.67    13.00 | 11.67    13.00
                2.83     6.00 |  5.83    13.00 |  8.83    13.00 | 11.83    13.00
                3.00     6.00 |  6.00    13.00 |  9.00    13.00 | 12.00    13.00

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| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         .59           .47
     Dep. Storage     (mm)=       17.00         17.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=       84.10         40.00
     Mannings n           =        .013          .250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME     RAIN |  TIME     RAIN |  TIME     RAIN |  TIME     RAIN
                 hrs    mm/hr |   hrs    mm/hr |   hrs    mm/hr |   hrs    mm/hr
                .083     6.00 | 3.083    13.00 | 6.083    23.00 |  9.08    53.00
                .167     6.00 | 3.167    13.00 | 6.167    23.00 |  9.17    53.00
                .250     6.00 | 3.250    13.00 | 6.250    23.00 |  9.25    53.00
                .333     6.00 | 3.333    13.00 | 6.333    23.00 |  9.33    53.00
                .417     6.00 | 3.417    13.00 | 6.417    23.00 |  9.42    53.00
                .500     6.00 | 3.500    13.00 | 6.500    23.00 |  9.50    53.00
                .583     6.00 | 3.583    13.00 | 6.583    23.00 |  9.58    53.00
                .667     6.00 | 3.667    13.00 | 6.667    23.00 |  9.67    53.00
                .750     6.00 | 3.750    13.00 | 6.750    23.00 |  9.75    53.00
                .833     6.00 | 3.833    13.00 | 6.833    23.00 |  9.83    53.00
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                .917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
               1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
               2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
               2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
               2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
               2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
               2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
               2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
               2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
               2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
               2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
               2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
               2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
               3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Max.Eff.Inten.(mm/hr)=      53.00        45.29
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       2.97 (ii)   14.90 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .28          .08
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .09          .06          .144 (iii)
     TIME TO PEAK    (hrs)=       9.75        10.00         10.00
     RUNOFF VOLUME    (mm)=     195.00       135.97        169.02
     TOTAL RAINFALL   (mm)=     212.00       212.00        212.00
     RUNOFF COEFFICIENT   =        .92          .64           .80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| NASHYD    (0054)  |   Area    (ha)=   3.63   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min  |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .37

     Unit Hyd Qpeak  (cms)=    .375

     PEAK FLOW       (cms)=    .430 (i)
     TIME TO PEAK    (hrs)=  10.083
     RUNOFF VOLUME    (mm)= 146.886
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =    .693

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD    (0053)  |   Area    (ha)=   1.67   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min  |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .24

     Unit Hyd Qpeak  (cms)=    .266

     PEAK FLOW       (cms)=    .209 (i)
     TIME TO PEAK    (hrs)=  10.000
     RUNOFF VOLUME    (mm)= 146.774
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =    .692

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD    (0052)  |   Area    (ha)=    .99   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min  |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .50

     Unit Hyd Qpeak  (cms)=    .076

     PEAK FLOW       (cms)=    .109 (i)
     TIME TO PEAK    (hrs)=  10.250
     RUNOFF VOLUME    (mm)= 146.902
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =    .693

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| NASHYD    (0035)  |   Area    (ha)=   2.01   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min  |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .237 (i)
     TIME TO PEAK    (hrs)=  10.083
     RUNOFF VOLUME    (mm)= 133.208
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =    .628

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (0018)  |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min  |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          .22           .17
     Dep. Storage     (mm)=        17.00         17.00
     Average Slope     (%)=         1.00          1.00
     Length            (m)=        51.00         40.00
     Mannings n           =         .013          .250

     Max.Eff.Inten.(mm/hr)=       53.00         45.29
               over (min)          5.00         15.00
     Storage Coeff.  (min)=        2.20 (ii)    14.13 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=         .30           .08
                                                      *TOTALS*
     PEAK FLOW       (cms)=         .03           .02          .053 (iii)
     TIME TO PEAK    (hrs)=        9.58         10.00         10.00
     RUNOFF VOLUME    (mm)=      195.00        135.97        169.00
     TOTAL RAINFALL   (mm)=      212.00        212.00        212.00
     RUNOFF COEFFICIENT   =         .92           .64           .80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
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     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      98.70        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      53.00       999.73
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       3.27 (ii)    5.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .27          .16
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .21          .00          .215 (iii)
     TIME TO PEAK    (hrs)=       9.83        10.00         10.00
     RUNOFF VOLUME    (mm)=     197.00       137.78        196.41
     TOTAL RAINFALL   (mm)=     212.00       212.00        212.00
     RUNOFF COEFFICIENT   =        .93          .65           .93

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .53          .41
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      79.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      53.00        45.29
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       2.86 (ii)   14.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .28          .08
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .08          .05          .128 (iii)
     TIME TO PEAK    (hrs)=       9.75        10.00         10.00
     RUNOFF VOLUME    (mm)=     195.00       135.97        169.01
     TOTAL RAINFALL   (mm)=     212.00       212.00        212.00
     RUNOFF COEFFICIENT   =        .92          .64           .80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.26          .84
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     118.30        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      53.00        45.75
               over (min)         5.00        20.00
     Storage Coeff.  (min)=       3.64 (ii)   15.52 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=        .25          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .19          .10          .287 (iii)
     TIME TO PEAK    (hrs)=       9.92        10.08         10.00
     RUNOFF VOLUME    (mm)=     202.00       142.34        178.13
     TOTAL RAINFALL   (mm)=     212.00       212.00        212.00
     RUNOFF COEFFICIENT   =        .95          .67           .84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0060) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .1700
                          .0270      .0850    |    .0000       .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0054)     3.630       .430       10.08      146.89
     OUTFLOW: ID= 1 (0060)     3.630       .084       12.33      146.67

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 19.45
                    TIME SHIFT OF PEAK FLOW          (min)=135.00
                    MAXIMUM  STORAGE   USED        (ha.m.)=   .4064

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0059) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .0610
                          .0270      .0305    |    .0000       .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)     1.670       .209       10.00      146.77
     OUTFLOW: ID= 1 (0059)     1.670       .078       11.42      146.61

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 37.08
                    TIME SHIFT OF PEAK FLOW          (min)= 85.00
                    MAXIMUM  STORAGE   USED        (ha.m.)=   .1333

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0239       .0730
                          .0120      .0365    |    .0359       .1095
```

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                              AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)      1.460      .215       10.00      196.41
     OUTFLOW: ID= 1 (0022)      1.460      .063       11.17      195.88

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 29.43
                   TIME SHIFT OF PEAK FLOW          (min)= 70.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .1926

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0022):     1.46    .063    11.17   195.88
       + ID2= 2 (0017):      .94    .128    10.00   169.01
         ================================================
         ID = 3 (0024):     2.40    .178    10.00   185.36

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         .0000      .0000    |    .0210       .1224
                         .0203      .1100    |    .0213       .1520
                         .0206      .1116    |    .0000       .0000

                              AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)      2.100      .287       10.00      178.13
     OUTFLOW: ID= 1 (0036)      2.100      .023       12.25      177.48

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.01
                   TIME SHIFT OF PEAK FLOW          (min)=135.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=   .3187

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--------------------
| ADD HYD   (0058) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0060):     3.63    .084    12.33   146.67
       + ID2= 2 (0059):     1.67    .078    11.42   146.61
         ================================================
         ID = 3 (0058):     5.30    .159    12.00   146.65

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0018):      .39    .053    10.00   169.00
       + ID2= 2 (0024):     2.40    .178    10.00   185.36
         ================================================
         ID = 3 (0025):     2.79    .231    10.00   183.07

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0025):     2.79    .231    10.00   183.07
       + ID2= 2 (0036):     2.10    .023    12.25   177.48
         ================================================
         ID = 3 (0051):     4.89    .253    10.00   180.67

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0055) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0058):     5.30    .159    12.00   146.65
       + ID2= 2 (0052):      .99    .109    10.25   146.90
         ================================================
         ID = 3 (0055):     6.29    .247    11.08   146.69

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0035):     2.01    .237    10.08   133.21
       + ID2= 2 (0051):     4.89    .253    10.00   180.67
         ================================================
         ID = 3 (0043):     6.90    .488    10.00   166.84

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0033):     1.06    .144    10.00   169.02
       + ID2= 2 (0055):     6.29    .247    11.08   146.69
         ================================================
         ID = 3 (0038):     7.35    .353    10.00   149.91

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0038):     7.35    .353    10.00   149.91
       + ID2= 2 (0043):     6.90    .488    10.00   166.84
         ================================================
         ID = 3 (0044):    14.25    .841    10.00   158.11

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   8 **
  ****************************

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| CHICAGO STORM    |    IDF curve parameters: A= 460.600
| Ptotal= 25.00 mm |                          B=   6.000
--------------------                          C=    .781
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    = 10.00 min
                         Time to peak ratio =   .38
```

```
               TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .17    1.69 |  1.17    6.21 |  2.17    4.63 |  3.17    2.07
                .33    1.89 |  1.33   14.04 |  2.33    3.79 |  3.33    1.91
                .50    2.17 |  1.50   52.83 |  2.50    3.22 |  3.50    1.77
                .67    2.55 |  1.67   16.90 |  2.67    2.81 |  3.67    1.66
                .83    3.13 |  1.83    8.79 |  2.83    2.50 |  3.83    1.56
               1.00    4.12 |  2.00    6.02 |  3.00    2.26 |  4.00    1.47


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--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .59          .47
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     84.10        40.00
     Mannings n           =      .013         .250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
               .083    1.69 | 1.083    6.21 | 2.083    4.63 |  3.08    2.07
               .167    1.69 | 1.167    6.21 | 2.167    4.63 |  3.17    2.07
               .250    1.89 | 1.250   14.04 | 2.250    3.79 |  3.25    1.91
               .333    1.89 | 1.333   14.04 | 2.333    3.79 |  3.33    1.91
               .417    2.17 | 1.417   52.83 | 2.417    3.22 |  3.42    1.77
               .500    2.17 | 1.500   52.83 | 2.500    3.22 |  3.50    1.77
               .583    2.55 | 1.583   16.90 | 2.583    2.81 |  3.58    1.66
               .667    2.55 | 1.667   16.90 | 2.667    2.81 |  3.67    1.66
               .750    3.13 | 1.750    8.79 | 2.750    2.50 |  3.75    1.56
               .833    3.13 | 1.833    8.79 | 2.833    2.50 |  3.83    1.56
               .917    4.12 | 1.917    6.02 | 2.917    2.26 |  3.92    1.47
              1.000    4.12 | 2.000    6.02 | 3.000    2.26 |  4.00    1.47

     Max.Eff.Inten.(mm/hr)=      8.79          .34
               over (min)        5.00        95.00
     Storage Coeff.  (min)=      6.09 (ii)   90.89 (ii)
     Unit Hyd. Tpeak (min)=      5.00        95.00
     Unit Hyd. peak  (cms)=       .19          .01
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .01          .00          .013 (iii)
     TIME TO PEAK    (hrs)=      1.83         4.42          1.83
     RUNOFF VOLUME    (mm)=      8.00          .69          4.73
     TOTAL RAINFALL   (mm)=     25.00        25.00         25.00
     RUNOFF COEFFICIENT   =       .32          .03           .19


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0054) |   Area    (ha)=   3.63   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .37

     Unit Hyd Qpeak  (cms)=    .375

     PEAK FLOW       (cms)=    .026 (i)
     TIME TO PEAK    (hrs)=   2.000
     RUNOFF VOLUME    (mm)=   3.820
     TOTAL RAINFALL   (mm)=  24.997
     RUNOFF COEFFICIENT   =    .153

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0053) |   Area    (ha)=   1.67   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .24

     Unit Hyd Qpeak  (cms)=    .266

     PEAK FLOW       (cms)=    .016 (i)
     TIME TO PEAK    (hrs)=   1.750
     RUNOFF VOLUME    (mm)=   3.817
     TOTAL RAINFALL   (mm)=  24.997
     RUNOFF COEFFICIENT   =    .153

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0052) |   Area    (ha)=    .99   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .50

     Unit Hyd Qpeak  (cms)=    .076

     PEAK FLOW       (cms)=    .006 (i)
     TIME TO PEAK    (hrs)=   2.167
     RUNOFF VOLUME    (mm)=   3.819
     TOTAL RAINFALL   (mm)=  24.997
     RUNOFF COEFFICIENT   =    .153

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .001 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=    .278
     TOTAL RAINFALL   (mm)=  24.997
     RUNOFF COEFFICIENT   =    .011

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0018) |   Area    (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .22          .17
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     51.00        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=      8.79          .34
               over (min)        5.00        90.00
     Storage Coeff.  (min)=      4.51 (ii)   89.31 (ii)
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     Unit Hyd. Tpeak (min)=       5.00         90.00
     Unit Hyd. peak  (cms)=        .23          .01
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .01          .00          .005 (iii)
     TIME TO PEAK    (hrs)=       1.83         4.42          1.83
     RUNOFF VOLUME    (mm)=       8.00          .69          4.60
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =        .32          .03           .18

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0016) |   Area    (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.45          .01
     Dep. Storage     (mm)=      15.00        15.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      98.70        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      16.90       229.46
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       5.16 (ii)    7.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .21          .13
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .06          .00          .055 (iii)
     TIME TO PEAK    (hrs)=       1.67         2.00          1.67
     RUNOFF VOLUME    (mm)=      10.00         1.06          9.91
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =        .40          .04           .40


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0017) |   Area    (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .53          .41
     Dep. Storage     (mm)=      17.00        17.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      79.20        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=       8.79          .34
               over (min)        5.00        95.00
     Storage Coeff.  (min)=       5.87 (ii)   90.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00        95.00
     Unit Hyd. peak  (cms)=        .19          .01
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .01          .00          .012 (iii)
     TIME TO PEAK    (hrs)=       1.83         4.42          1.83
     RUNOFF VOLUME    (mm)=       8.00          .69          4.72
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =        .32          .03           .19
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```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD  (0034) |   Area    (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.26          .84
     Dep. Storage     (mm)=      10.00        10.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     118.30        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      52.83         1.55
               over (min)        5.00        50.00
     Storage Coeff.  (min)=       3.65 (ii)   49.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00        50.00
     Unit Hyd. peak  (cms)=        .25          .02
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .14          .00          .141 (iii)
     TIME TO PEAK    (hrs)=       1.50         2.67          1.50
     RUNOFF VOLUME    (mm)=      15.00         2.26          9.89
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =        .60          .09           .40

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0060) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .1700
                          .0270      .0850    |    .0000       .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0054)     3.630       .026        2.00        3.82
     OUTFLOW: ID= 1 (0060)     3.630       .003        4.33        3.60

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 13.15
                TIME SHIFT OF PEAK FLOW          (min)=140.00
                MAXIMUM  STORAGE   USED       (ha.m.)=   .0110

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0059) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .0420       .0610
                          .0270      .0305    |    .0000       .0000

                                AREA      QPEAK       TPEAK       R.V.
                                (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)     1.670       .016        1.75        3.82
     OUTFLOW: ID= 1 (0059)     1.670       .003        3.33        3.65
```

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 21.29
                  TIME SHIFT OF PEAK FLOW          (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0038

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000   |    .0239       .0730
                          .0120      .0365   |    .0359       .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)    1.460       .055        1.67        9.91
     OUTFLOW: ID= 1 (0022)    1.460       .004        4.08        9.38

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.95
                  TIME SHIFT OF PEAK FLOW          (min)=145.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0117

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| ADD HYD   (0024) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0022):     1.46    .004     4.08     9.38
       + ID2= 2 (0017):      .94    .012     1.83     4.72
         ================================================
         ID = 3 (0024):     2.40    .013     1.83     7.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000   |    .0210       .1224
                          .0203      .1100   |    .0213       .1520
                          .0206      .1116   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)   2.100       .141        1.50        9.89
     OUTFLOW: ID= 1 (0036)   2.100       .003        4.08        9.23

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.32
                  TIME SHIFT OF PEAK FLOW          (min)=155.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0178

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-------------------
| ADD HYD   (0058) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0060):     3.63    .003     4.33     3.60
       + ID2= 2 (0059):     1.67    .003     3.33     3.65
         ================================================
         ID = 3 (0058):     5.30    .007     4.08     3.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

-------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0018):      .39    .005     1.83     4.60
       + ID2= 2 (0024):     2.40    .013     1.83     7.56
         ================================================
         ID = 3 (0025):     2.79    .018     1.83     7.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0025):     2.79    .018     1.83     7.14
       + ID2= 2 (0036):     2.10    .003     4.08     9.23
         ================================================
         ID = 3 (0051):     4.89    .020     1.83     8.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0055) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0058):     5.30    .007     4.08     3.62
       + ID2= 2 (0052):      .99    .006     2.17     3.82
         ================================================
         ID = 3 (0055):     6.29    .011     2.42     3.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0035):     2.01    .001     3.92      .28
       + ID2= 2 (0051):     4.89    .020     1.83     8.04
         ================================================
         ID = 3 (0043):     6.90    .020     1.83     5.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0033):     1.06    .013     1.83     4.73
       + ID2= 2 (0055):     6.29    .011     2.42     3.65
         ================================================
         ID = 3 (0038):     7.35    .020     1.83     3.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0038):     7.35    .020     1.83     3.80
       + ID2= 2 (0043):     6.90    .020     1.83     5.78
         ================================================
         ID = 3 (0044):    14.25    .040     1.83     4.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   9 **
  ****************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1049.500
| Ptotal= 50.13 mm |                          B=   8.000
-------------------                          C=    .803
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =   .38

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    3.19 |  1.17   12.84 |  2.17    9.38 |  3.17    3.96
                 .33    3.61 |  1.33   29.82 |  2.33    7.57 |  3.33    3.63
                 .50    4.17 |  1.50  103.04 |  2.50    6.36 |  3.50    3.36
                 .67    4.96 |  1.67   35.98 |  2.67    5.50 |  3.67    3.13
                 .83    6.18 |  1.83   18.50 |  2.83    4.86 |  3.83    2.93
                1.00    8.29 |  2.00   12.42 |  3.00    4.36 |  4.00    2.76


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-------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .59          .47
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     84.10        40.00
     Mannings n           =      .013         .250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083    3.19 | 1.083   12.84 | 2.083    9.38 |  3.08    3.96
                .167    3.19 | 1.167   12.84 | 2.167    9.38 |  3.17    3.96
                .250    3.61 | 1.250   29.82 | 2.250    7.57 |  3.25    3.63
                .333    3.61 | 1.333   29.82 | 2.333    7.57 |  3.33    3.63
                .417    4.17 | 1.417  103.04 | 2.417    6.36 |  3.42    3.36
                .500    4.17 | 1.500  103.04 | 2.500    6.36 |  3.50    3.36
                .583    4.96 | 1.583   35.98 | 2.583    5.50 |  3.58    3.13
                .667    4.96 | 1.667   35.98 | 2.667    5.50 |  3.67    3.13
                .750    6.18 | 1.750   18.50 | 2.750    4.86 |  3.75    2.93
                .833    6.18 | 1.833   18.50 | 2.833    4.86 |  3.83    2.93
                .917    8.29 | 1.917   12.42 | 2.917    4.36 |  3.92    2.76
               1.000    8.29 | 2.000   12.42 | 3.000    4.36 |  4.00    2.76

     Max.Eff.Inten.(mm/hr)=     103.04        10.00
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       2.28 (ii)   24.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=        .30          .05
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .16          .01          .159 (iii)
     TIME TO PEAK    (hrs)=       1.50         2.00          1.50
     RUNOFF VOLUME    (mm)=      33.13         9.32         22.64
     TOTAL RAINFALL   (mm)=      50.13        50.13         50.13
     RUNOFF COEFFICIENT   =        .66          .19           .45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (0054) |   Area    (ha)=   3.63   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .37

     Unit Hyd Qpeak  (cms)=    .375

     PEAK FLOW       (cms)=    .122 (i)
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=  15.690
     TOTAL RAINFALL   (mm)=  50.133
     RUNOFF COEFFICIENT   =    .313

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (0053) |   Area    (ha)=   1.67   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .24

     Unit Hyd Qpeak  (cms)=    .266

     PEAK FLOW       (cms)=    .072 (i)
     TIME TO PEAK    (hrs)=   1.750
     RUNOFF VOLUME    (mm)=  15.678
     TOTAL RAINFALL   (mm)=  50.133
     RUNOFF COEFFICIENT   =    .313

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (0052) |   Area    (ha)=    .99   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .50

     Unit Hyd Qpeak  (cms)=    .076

     PEAK FLOW       (cms)=    .027 (i)
     TIME TO PEAK    (hrs)=   2.083
     RUNOFF VOLUME    (mm)=  15.691
     TOTAL RAINFALL   (mm)=  50.133
     RUNOFF COEFFICIENT   =    .313

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (0035) |   Area    (ha)=   2.01   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  20.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .029 (i)
     TIME TO PEAK    (hrs)=   2.000
     RUNOFF VOLUME    (mm)=   7.907
     TOTAL RAINFALL   (mm)=  50.133
     RUNOFF COEFFICIENT   =    .158

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB           |
| STANDHYD  (0018) |   Area     (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .22          .17
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     51.00        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    103.04        10.00
               over (min)        5.00        25.00
     Storage Coeff.  (min)=      1.69 (ii)   23.51 (ii)
     Unit Hyd. Tpeak (min)=      5.00        25.00
     Unit Hyd. peak  (cms)=       .32          .05
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .06          .00          .061 (iii)
     TIME TO PEAK    (hrs)=      1.50         2.00         1.50
     RUNOFF VOLUME    (mm)=     33.13         9.32        22.62
     TOTAL RAINFALL   (mm)=     50.13        50.13        50.13
     RUNOFF COEFFICIENT   =       .66          .19          .45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB           |
| STANDHYD  (0016) |   Area     (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.45          .01
     Dep. Storage     (mm)=     15.00        15.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     98.70        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    103.04       289.70
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      2.50 (ii)    3.87 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .29          .25
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .39          .00          .391 (iii)
     TIME TO PEAK    (hrs)=      1.50         1.50         1.50
     RUNOFF VOLUME    (mm)=     35.13        10.30        34.88
     TOTAL RAINFALL   (mm)=     50.13        50.13        50.13
     RUNOFF COEFFICIENT   =       .70          .21          .70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB           |
| STANDHYD  (0017) |   Area     (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .53          .41
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     79.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    103.04        10.00
               over (min)        5.00        25.00
     Storage Coeff.  (min)=      2.19 (ii)   24.02 (ii)
     Unit Hyd. Tpeak (min)=      5.00        25.00
     Unit Hyd. peak  (cms)=       .30          .05
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .14          .01          .142 (iii)
     TIME TO PEAK    (hrs)=      1.50         2.00         1.50
     RUNOFF VOLUME    (mm)=     33.13         9.32        22.64
     TOTAL RAINFALL   (mm)=     50.13        50.13        50.13
     RUNOFF COEFFICIENT   =       .66          .19          .45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB           |
| STANDHYD  (0034) |   Area     (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.26          .84
     Dep. Storage     (mm)=     10.00        10.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    118.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    103.04        17.35
               over (min)        5.00        25.00
     Storage Coeff.  (min)=      2.79 (ii)   20.30 (ii)
     Unit Hyd. Tpeak (min)=      5.00        25.00
     Unit Hyd. peak  (cms)=       .28          .05
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .35          .02          .357 (iii)
     TIME TO PEAK    (hrs)=      1.50         1.92         1.50
     RUNOFF VOLUME    (mm)=     40.13        12.91        29.24
     TOTAL RAINFALL   (mm)=     50.13        50.13        50.13
     RUNOFF COEFFICIENT   =       .80          .26          .58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR (0060) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .0000      .0000   |    .0420       .1700
                           .0270      .0850   |    .0000       .0000

                                 AREA      QPEAK       TPEAK       R.V.
                                 (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0054)      3.630       .122        1.92       15.69
     OUTFLOW: ID= 1 (0060)      3.630       .014        4.25       15.47

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.72
                TIME SHIFT OF PEAK FLOW         (min)=140.00
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                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0449

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-------------------
| RESERVOIR (0059) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000   |    .0420       .0610
                          .0270      .0305   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)    1.670       .072        1.75       15.68
     OUTFLOW: ID= 1 (0059)    1.670       .014        2.92       15.51

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 19.47
                  TIME SHIFT OF PEAK FLOW         (min)= 70.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0159

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000   |    .0239       .0730
                          .0120      .0365   |    .0359       .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)    1.460       .391        1.50       34.88
     OUTFLOW: ID= 1 (0022)    1.460       .013        3.58       34.36

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.36
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0400

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-------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0022):     1.46    .013     3.58    34.36
       + ID2= 2 (0017):      .94    .142     1.50    22.64
         ================================================
         ID = 3 (0024):     2.40    .146     1.50    29.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000   |    .0210       .1224
                          .0203      .1100   |    .0213       .1520
                          .0206      .1116   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)    2.100       .357        1.50       29.24
     OUTFLOW: ID= 1 (0036)    2.100       .010        4.00       28.58

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.73
                  TIME SHIFT OF PEAK FLOW         (min)=150.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0529

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| ADD HYD   (0058) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0060):     3.63    .014     4.25    15.47
       + ID2= 2 (0059):     1.67    .014     2.92    15.51
         ================================================
         ID = 3 (0058):     5.30    .027     3.50    15.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0018):      .39    .061     1.50    22.62
       + ID2= 2 (0024):     2.40    .146     1.50    29.77
         ================================================
         ID = 3 (0025):     2.79    .207     1.50    28.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0025):     2.79    .207     1.50    28.77
       + ID2= 2 (0036):     2.10    .010     4.00    28.58
         ================================================
         ID = 3 (0051):     4.89    .210     1.50    28.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0055) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0058):     5.30    .027     3.50    15.48
       + ID2= 2 (0052):      .99    .027     2.08    15.69
         ================================================
         ID = 3 (0055):     6.29    .047     2.25    15.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0035):     2.01    .029     2.00     7.91
       + ID2= 2 (0051):     4.89    .210     1.50    28.69
         ================================================
         ID = 3 (0043):     6.90    .213     1.50    22.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

-------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0033):     1.06    .159     1.50    22.64
       + ID2= 2 (0055):     6.29    .047     2.25    15.52
         ================================================
         ID = 3 (0038):     7.35    .165     1.50    16.54
```

```
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0038):     7.35    .165     1.50    16.54
        + ID2= 2 (0043):     6.90    .213     1.50    22.63
          ================================================
          ID = 3 (0044):    14.25    .378     1.50    19.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:  10 **
  ****************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=2317.000
| Ptotal= 91.34 mm |                          B=  11.000
--------------------                          C=    .836
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =   .38

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    5.30 |  1.17   24.37 |  2.17   17.36 |  3.17    6.73
                 .33    6.07 |  1.33   58.13 |  2.33   13.72 |  3.33    6.12
                 .50    7.11 |  1.50  181.78 |  2.50   11.34 |  3.50    5.61
                 .67    8.62 |  1.67   70.17 |  2.67    9.66 |  3.67    5.19
                 .83   10.98 |  1.83   35.88 |  2.83    8.43 |  3.83    4.83
                1.00   15.16 |  2.00   23.52 |  3.00    7.48 |  4.00    4.51


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0033) |   Area    (ha)=   1.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .59          .47
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     84.10        40.00
     Mannings n           =      .013         .250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083    5.30 | 1.083   24.37 | 2.083   17.36 |  3.08    6.73
                .167    5.30 | 1.167   24.37 | 2.167   17.36 |  3.17    6.73
                .250    6.07 | 1.250   58.13 | 2.250   13.72 |  3.25    6.12
                .333    6.07 | 1.333   58.13 | 2.333   13.72 |  3.33    6.12
                .417    7.11 | 1.417  181.78 | 2.417   11.34 |  3.42    5.61
                .500    7.11 | 1.500  181.78 | 2.500   11.34 |  3.50    5.61
                .583    8.62 | 1.583   70.17 | 2.583    9.66 |  3.58    5.19
                .667    8.62 | 1.667   70.17 | 2.667    9.66 |  3.67    5.19
                .750   10.98 | 1.750   35.88 | 2.750    8.43 |  3.75    4.83
                .833   10.98 | 1.833   35.88 | 2.833    8.43 |  3.83    4.83
                .917   15.16 | 1.917   23.52 | 2.917    7.48 |  3.92    4.51
               1.000   15.16 | 2.000   23.52 | 3.000    7.48 |  4.00    4.51

     Max.Eff.Inten.(mm/hr)=     181.78        53.79
                 over (min)        5.00        15.00
     Storage Coeff.  (min)=        1.81 (ii)   12.95 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=         .32          .08
                                                          *TOTALS*
     PEAK FLOW       (cms)=         .30          .05          .318 (iii)
     TIME TO PEAK    (hrs)=        1.50         1.67         1.50
     RUNOFF VOLUME    (mm)=       74.34        34.76        56.92
     TOTAL RAINFALL   (mm)=       91.34        91.34        91.34
     RUNOFF COEFFICIENT   =         .81          .38          .62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0054) |   Area     (ha)=   3.63   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .37

     Unit Hyd Qpeak  (cms)=    .375

     PEAK FLOW       (cms)=    .359 (i)
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=  43.588
     TOTAL RAINFALL   (mm)=  91.345
     RUNOFF COEFFICIENT   =    .477

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0053) |   Area     (ha)=   1.67   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .24

     Unit Hyd Qpeak  (cms)=    .266

     PEAK FLOW       (cms)=    .213 (i)
     TIME TO PEAK    (hrs)=   1.750
     RUNOFF VOLUME    (mm)=  43.555
     TOTAL RAINFALL   (mm)=  91.345
     RUNOFF COEFFICIENT   =    .477

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0052) |   Area     (ha)=    .99   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .50

     Unit Hyd Qpeak  (cms)=    .076

     PEAK FLOW       (cms)=    .080 (i)
     TIME TO PEAK    (hrs)=   2.083
     RUNOFF VOLUME    (mm)=  43.593
     TOTAL RAINFALL   (mm)=  91.345
     RUNOFF COEFFICIENT   =    .477

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
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```
| NASHYD    (0035) |   Area     (ha)=   2.01   Curve Number    (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=  20.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=    .33

     Unit Hyd Qpeak  (cms)=    .233

     PEAK FLOW       (cms)=    .149 (i)
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=  32.617
     TOTAL RAINFALL   (mm)=  91.345
     RUNOFF COEFFICIENT   =    .357

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0018) |   Area     (ha)=    .39
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .22          .17
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     51.00        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    181.78        53.79
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      1.34 (ii)   12.48 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .33          .08
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .11          .02          .117 (iii)
     TIME TO PEAK    (hrs)=      1.50         1.67          1.50
     RUNOFF VOLUME    (mm)=     74.34        34.76         56.91
     TOTAL RAINFALL   (mm)=     91.34        91.34         91.34
     RUNOFF COEFFICIENT   =       .81          .38           .62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0016) |   Area     (ha)=   1.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.45          .01
     Dep. Storage     (mm)=     15.00        15.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     98.70        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    181.78      1366.15
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      2.00 (ii)    3.08 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .31          .27
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .73          .00          .730 (iii)
     TIME TO PEAK    (hrs)=      1.50         1.50          1.50
     RUNOFF VOLUME    (mm)=     76.34        36.20         75.94
     TOTAL RAINFALL   (mm)=     91.34        91.34         91.34
     RUNOFF COEFFICIENT   =       .84          .40           .83

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0017) |   Area     (ha)=    .94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  56.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .53          .41
     Dep. Storage     (mm)=     17.00        17.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=     79.20        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    181.78        53.79
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      1.75 (ii)   12.88 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .32          .08
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .27          .04          .282 (iii)
     TIME TO PEAK    (hrs)=      1.50         1.67          1.50
     RUNOFF VOLUME    (mm)=     74.34        34.76         56.92
     TOTAL RAINFALL   (mm)=     91.34        91.34         91.34
     RUNOFF COEFFICIENT   =       .81          .38           .62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0034) |   Area     (ha)=   2.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  60.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.26          .84
     Dep. Storage     (mm)=     10.00        10.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    118.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    181.78        76.80
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      2.22 (ii)   11.88 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .30          .09
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .63          .11          .684 (iii)
     TIME TO PEAK    (hrs)=      1.50         1.67          1.50
     RUNOFF VOLUME    (mm)=     81.34        39.86         64.75
     TOTAL RAINFALL   (mm)=     91.34        91.34         91.34
     RUNOFF COEFFICIENT   =       .89          .44           .71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

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--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0060) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000   |    .0420       .1700
                          .0270      .0850   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0054)    3.630       .359        1.92       43.59
     OUTFLOW: ID= 1 (0060)    3.630       .034        4.17       43.37

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.60
                  TIME SHIFT OF PEAK FLOW         (min)=135.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .1273

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0059) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000   |    .0420       .0610
                          .0270      .0305   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0053)    1.670       .213        1.75       43.56
     OUTFLOW: ID= 1 (0059)    1.670       .035        2.92       43.39

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.52
                  TIME SHIFT OF PEAK FLOW         (min)= 70.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0472

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0022) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000   |    .0239       .0730
                          .0120      .0365   |    .0359       .1095

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0016)    1.460       .730        1.50       75.94
     OUTFLOW: ID= 1 (0022)    1.460       .029        3.08       75.42

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.94
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .0878

--------------------------------------------------------------------------------

-------------------
| ADD HYD   (0024) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0022):     1.46    .029     3.08     75.42
       + ID2= 2 (0017):      .94    .282     1.50     56.92
         ================================================
         ID = 3 (0024):     2.40    .296     1.50     68.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR (0036) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000   |    .0210       .1224
                          .0203      .1100   |    .0213       .1520
                          .0206      .1116   |    .0000       .0000

                               AREA      QPEAK       TPEAK       R.V.
                               (ha)      (cms)       (hrs)       (mm)
     INFLOW : ID= 2 (0034)    2.100       .684        1.50       64.75
     OUTFLOW: ID= 1 (0036)    2.100       .021        4.00       64.09

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.04
                  TIME SHIFT OF PEAK FLOW         (min)=150.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=   .1174

--------------------------------------------------------------------------------

-------------------
| ADD HYD   (0058) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0060):     3.63    .034     4.17     43.37
       + ID2= 2 (0059):     1.67    .035     2.92     43.39
         ================================================
         ID = 3 (0058):     5.30    .068     3.33     43.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

-------------------
| ADD HYD   (0025) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0018):      .39    .117     1.50     56.91
       + ID2= 2 (0024):     2.40    .296     1.50     68.17
         ================================================
         ID = 3 (0025):     2.79    .413     1.50     66.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

-------------------
| ADD HYD   (0051) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0025):     2.79    .413     1.50     66.60
       + ID2= 2 (0036):     2.10    .021     4.00     64.09
         ================================================
         ID = 3 (0051):     4.89    .421     1.50     65.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

-------------------
| ADD HYD   (0055) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0058):     5.30    .068     3.33     43.38
       + ID2= 2 (0052):      .99    .080     2.08     43.59
         ================================================
         ID = 3 (0055):     6.29    .134     2.25     43.41

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

-------------------
| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0035):     2.01    .149     1.92     32.62
       + ID2= 2 (0051):     4.89    .421     1.50     65.52
```

```
          ================================================
          ID = 3 (0043):     6.90    .457     1.50    55.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0038) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0033):     1.06    .318     1.50    56.92
        + ID2= 2 (0055):     6.29    .134     2.25    43.41
          ================================================
          ID = 3 (0038):     7.35    .342     1.50    45.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (0044) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0038):     7.35    .342     1.50    45.36
        + ID2= 2 (0043):     6.90    .457     1.50    55.94
          ================================================
          ID = 3 (0044):    14.25    .799     1.50    50.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

 FINISH
================================================================================
==============
```

Visual OTTHYMO Output File – Existing Watercourse (flow from airport lands)

```
================================================================================
==============

      V    V   I    SSSSS  U   U    A    L
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO

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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 2.3.3\voin.dat
  Output  filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\Channel\Channel Flow -
Airport Trib.out
  Summary filename: C:\Users\Mitchell Bufalino\Desktop\OTTHYMO\21218\Channel\Channel Flow -
Airport Trib.sum


DATE: 8/08/23                             TIME: 1:43:59 PM

USER:


COMMENTS: _____________________________________________________

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  ***************************
  ** SIMULATION NUMBER:   1 **
  ***************************


--------------------
|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\Channel\
|                  |              100yr24hrSCSMtHope.stm
| Ptotal=122.89 mm |    Comments: 100 yr/24 hr SCS
--------------------
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .17    1.35 |  6.17    2.46 | 12.17   17.70 | 18.17    2.21
                 .33    1.35 |  6.33    2.46 | 12.33   17.70 | 18.33    2.21
                 .50    1.35 |  6.50    2.46 | 12.50   17.70 | 18.50    2.21
                 .67    1.35 |  6.67    2.46 | 12.67    9.09 | 18.67    2.21
                 .83    1.35 |  6.83    2.46 | 12.83    9.09 | 18.83    2.21
                1.00    1.35 |  7.00    2.46 | 13.00    9.09 | 19.00    2.21
                1.17    1.35 |  7.17    2.46 | 13.17    1.72 | 19.17    2.21
                1.33    1.35 |  7.33    2.46 | 13.33    1.72 | 19.33    2.21
                1.50    1.35 |  7.50    2.46 | 13.50    1.72 | 19.50    2.21
                1.67    1.35 |  7.67    2.46 | 13.67   10.08 | 19.67    2.21
                1.83    1.35 |  7.83    2.46 | 13.83   10.08 | 19.83    2.21
                2.00    1.35 |  8.00    2.46 | 14.00   10.08 | 20.00    2.21
                2.17    1.60 |  8.17    3.32 | 14.17    3.69 | 20.17    1.47
                2.33    1.60 |  8.33    3.32 | 14.33    3.69 | 20.33    1.47
                2.50    1.60 |  8.50    3.32 | 14.50    3.69 | 20.50    1.47
                2.67    1.60 |  8.67    3.32 | 14.67    3.69 | 20.67    1.47
                2.83    1.60 |  8.83    3.32 | 14.83    3.69 | 20.83    1.47
                3.00    1.60 |  9.00    3.32 | 15.00    3.69 | 21.00    1.47
                3.17    1.60 |  9.17    3.93 | 15.17    3.69 | 21.17    1.47
                3.33    1.60 |  9.33    3.93 | 15.33    3.69 | 21.33    1.47
                3.50    1.60 |  9.50    3.93 | 15.50    3.69 | 21.50    1.47
                3.67    1.60 |  9.67    4.42 | 15.67    3.69 | 21.67    1.47
                3.83    1.60 |  9.83    4.42 | 15.83    3.69 | 21.83    1.47
                4.00    1.60 | 10.00    4.42 | 16.00    3.69 | 22.00    1.47
                4.17    1.97 | 10.17    5.65 | 16.17    2.21 | 22.17    1.47
                4.33    1.97 | 10.33    5.65 | 16.33    2.21 | 22.33    1.47
                4.50    1.97 | 10.50    5.65 | 16.50    2.21 | 22.50    1.47
                4.67    1.97 | 10.67    7.62 | 16.67    2.21 | 22.67    1.47
                4.83    1.97 | 10.83    7.62 | 16.83    2.21 | 22.83    1.47
                5.00    1.97 | 11.00    7.62 | 17.00    2.21 | 23.00    1.47
                5.17    1.97 | 11.17   11.80 | 17.17    2.21 | 23.17    1.47
                5.33    1.97 | 11.33   11.80 | 17.33    2.21 | 23.33    1.47
                5.50    1.97 | 11.50   11.80 | 17.50    2.21 | 23.50    1.47
                5.67    1.97 | 11.67   51.13 | 17.67    2.21 | 23.67    1.47
                5.83    1.97 | 11.83   93.40 | 17.83    2.21 | 23.83    1.47
                6.00    1.97 | 12.00  135.68 | 18.00    2.21 | 24.00    1.47

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| CALIB            |
| NASHYD    (0001) |   Area    (ha)=  18.77   Curve Number    (CN)= 78.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.24

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083    1.35 | 6.083    2.46 |12.083   17.71 | 18.08    2.21
                .167    1.35 | 6.167    2.46 |12.167   17.70 | 18.17    2.21
                .250    1.35 | 6.250    2.46 |12.250   17.70 | 18.25    2.21
                .333    1.35 | 6.333    2.46 |12.333   17.70 | 18.33    2.21
                .417    1.35 | 6.417    2.46 |12.417   17.70 | 18.42    2.21
                .500    1.35 | 6.500    2.46 |12.500   17.70 | 18.50    2.21
                .583    1.35 | 6.583    2.46 |12.583    9.09 | 18.58    2.21
                .667    1.35 | 6.667    2.46 |12.667    9.09 | 18.67    2.21
                .750    1.35 | 6.750    2.46 |12.750    9.09 | 18.75    2.21
                .833    1.35 | 6.833    2.46 |12.833    9.09 | 18.83    2.21
                .917    1.35 | 6.917    2.46 |12.917    9.09 | 18.92    2.21
               1.000    1.35 | 7.000    2.46 |13.000    9.09 | 19.00    2.21
               1.083    1.35 | 7.083    2.46 |13.083    1.72 | 19.08    2.21
               1.167    1.35 | 7.167    2.46 |13.167    1.72 | 19.17    2.21
               1.250    1.35 | 7.250    2.46 |13.250    1.72 | 19.25    2.21
               1.333    1.35 | 7.333    2.46 |13.333    1.72 | 19.33    2.21
               1.417    1.35 | 7.417    2.46 |13.417    1.72 | 19.42    2.21
               1.500    1.35 | 7.500    2.46 |13.500    1.72 | 19.50    2.21
               1.583    1.35 | 7.583    2.46 |13.583   10.08 | 19.58    2.21
               1.667    1.35 | 7.667    2.46 |13.667   10.08 | 19.67    2.21
               1.750    1.35 | 7.750    2.46 |13.750   10.08 | 19.75    2.21
               1.833    1.35 | 7.833    2.46 |13.833   10.08 | 19.83    2.21
               1.917    1.35 | 7.917    2.46 |13.917   10.08 | 19.92    2.21
               2.000    1.35 | 8.000    2.46 |14.000   10.08 | 20.00    2.21
               2.083    1.60 | 8.083    3.32 |14.083    3.69 | 20.08    1.47
               2.167    1.60 | 8.167    3.32 |14.167    3.69 | 20.17    1.47
               2.250    1.60 | 8.250    3.32 |14.250    3.69 | 20.25    1.47
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2.333	1.60	8.333	3.32	14.333	3.69	20.33	1.47
2.417	1.60	8.417	3.32	14.417	3.69	20.42	1.47
2.500	1.60	8.500	3.32	14.500	3.69	20.50	1.47
2.583	1.60	8.583	3.32	14.583	3.69	20.58	1.47
2.667	1.60	8.667	3.32	14.667	3.69	20.67	1.47
2.750	1.60	8.750	3.32	14.750	3.69	20.75	1.47
2.833	1.60	8.833	3.32	14.833	3.69	20.83	1.47
2.917	1.60	8.917	3.32	14.917	3.69	20.92	1.47
3.000	1.60	9.000	3.32	15.000	3.69	21.00	1.47
3.083	1.60	9.083	3.93	15.083	3.69	21.08	1.47
3.167	1.60	9.167	3.93	15.167	3.69	21.17	1.47
3.250	1.60	9.250	3.93	15.250	3.69	21.25	1.47
3.333	1.60	9.333	3.93	15.333	3.69	21.33	1.47
3.417	1.60	9.417	3.93	15.417	3.69	21.42	1.47
3.500	1.60	9.500	3.93	15.500	3.69	21.50	1.47
3.583	1.60	9.583	4.42	15.583	3.69	21.58	1.47
3.667	1.60	9.667	4.42	15.667	3.69	21.67	1.47
3.750	1.60	9.750	4.42	15.750	3.69	21.75	1.47
3.833	1.60	9.833	4.42	15.833	3.69	21.83	1.47
3.917	1.60	9.917	4.42	15.917	3.69	21.92	1.47
4.000	1.60	10.000	4.42	16.000	3.69	22.00	1.47
4.083	1.97	10.083	5.65	16.083	2.21	22.08	1.47
4.167	1.97	10.167	5.65	16.167	2.21	22.17	1.47
4.250	1.97	10.250	5.65	16.250	2.21	22.25	1.47
4.333	1.97	10.333	5.65	16.333	2.21	22.33	1.47
4.417	1.97	10.417	5.65	16.417	2.21	22.42	1.47
4.500	1.97	10.500	5.65	16.500	2.21	22.50	1.47
4.583	1.97	10.583	7.62	16.583	2.21	22.58	1.47
4.667	1.97	10.667	7.62	16.667	2.21	22.67	1.47
4.750	1.97	10.750	7.62	16.750	2.21	22.75	1.47
4.833	1.97	10.833	7.62	16.833	2.21	22.83	1.47
4.917	1.97	10.917	7.62	16.917	2.21	22.92	1.47
5.000	1.97	11.000	7.62	17.000	2.21	23.00	1.47
5.083	1.97	11.083	11.80	17.083	2.21	23.08	1.47
5.167	1.97	11.167	11.80	17.167	2.21	23.17	1.47
5.250	1.97	11.250	11.80	17.250	2.21	23.25	1.47
5.333	1.97	11.333	11.80	17.333	2.21	23.33	1.47
5.417	1.97	11.417	11.80	17.417	2.21	23.42	1.47
5.500	1.97	11.500	11.80	17.500	2.21	23.50	1.47
5.583	1.97	11.583	51.13	17.583	2.21	23.58	1.47
5.667	1.97	11.667	51.13	17.667	2.21	23.67	1.47
5.750	1.97	11.750	93.40	17.750	2.21	23.75	1.47
5.833	1.97	11.833	93.40	17.833	2.21	23.83	1.47
5.917	1.97	11.917	135.68	17.917	2.21	23.92	1.47
6.000	1.97	12.000	135.68	18.000	2.21	24.00	1.47

Unit Hyd Qpeak (cms)= .578

PEAK FLOW (cms)= .933 (i)
TIME TO PEAK (hrs)= 13.167
RUNOFF VOLUME (mm)= 71.444
TOTAL RAINFALL (mm)= 122.887
RUNOFF COEFFICIENT = .581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

****
** SIMULATION NUMBER: 2 **
****

CHICAGO STORM	IDF curve parameters: A=2317.000
Ptotal= 91.34 mm	B= 11.000
	C= .836

used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = .38

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	5.30	1.17	24.37	2.17	17.36	3.17	6.73
.33	6.07	1.33	58.13	2.33	13.72	3.33	6.12
.50	7.11	1.50	181.78	2.50	11.34	3.50	5.61
.67	8.62	1.67	70.17	2.67	9.66	3.67	5.19
.83	10.98	1.83	35.88	2.83	8.43	3.83	4.83
1.00	15.16	2.00	23.52	3.00	7.48	4.00	4.51

CALIB	
NASHYD (0001)	Area (ha)= 18.77 Curve Number (CN)= 78.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.20 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.24

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	5.30	1.083	24.37	2.083	17.36	3.08	6.73
.167	5.30	1.167	24.37	2.167	17.36	3.17	6.73
.250	6.07	1.250	58.13	2.250	13.72	3.25	6.12
.333	6.07	1.333	58.13	2.333	13.72	3.33	6.12
.417	7.11	1.417	181.78	2.417	11.34	3.42	5.61
.500	7.11	1.500	181.78	2.500	11.34	3.50	5.61
.583	8.62	1.583	70.17	2.583	9.66	3.58	5.19
.667	8.62	1.667	70.17	2.667	9.66	3.67	5.19
.750	10.98	1.750	35.88	2.750	8.43	3.75	4.83
.833	10.98	1.833	35.88	2.833	8.43	3.83	4.83
.917	15.16	1.917	23.52	2.917	7.48	3.92	4.51
1.000	15.16	2.000	23.52	3.000	7.48	4.00	4.51

Unit Hyd Qpeak (cms)= .578

PEAK FLOW (cms)= .823 (i)
TIME TO PEAK (hrs)= 3.000
RUNOFF VOLUME (mm)= 45.449
TOTAL RAINFALL (mm)= 91.345
RUNOFF COEFFICIENT = .498

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

****
** SIMULATION NUMBER: 3 **
****

CHICAGO STORM	IDF curve parameters: A= 460.600
Ptotal= 25.00 mm	B= 6.000
	C= .781

used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = .38

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	1.69	1.17	6.21	2.17	4.63	3.17	2.07
.33	1.89	1.33	14.04	2.33	3.79	3.33	1.91
.50	2.17	1.50	52.83	2.50	3.22	3.50	1.77
.67	2.55	1.67	16.90	2.67	2.81	3.67	1.66
.83	3.13	1.83	8.79	2.83	2.50	3.83	1.56
1.00	4.12	2.00	6.02	3.00	2.26	4.00	1.47

CALIB	
NASHYD (0001)	Area (ha)= 18.77 Curve Number (CN)= 78.0

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|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.24

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
               .083    1.69 | 1.083    6.21 | 2.083    4.63 |  3.08    2.07
               .167    1.69 | 1.167    6.21 | 2.167    4.63 |  3.17    2.07
               .250    1.89 | 1.250   14.04 | 2.250    3.79 |  3.25    1.91
               .333    1.89 | 1.333   14.04 | 2.333    3.79 |  3.33    1.91
               .417    2.17 | 1.417   52.83 | 2.417    3.22 |  3.42    1.77
               .500    2.17 | 1.500   52.83 | 2.500    3.22 |  3.50    1.77
               .583    2.55 | 1.583   16.90 | 2.583    2.81 |  3.58    1.66
               .667    2.55 | 1.667   16.90 | 2.667    2.81 |  3.67    1.66
               .750    3.13 | 1.750    8.79 | 2.750    2.50 |  3.75    1.56
               .833    3.13 | 1.833    8.79 | 2.833    2.50 |  3.83    1.56
               .917    4.12 | 1.917    6.02 | 2.917    2.26 |  3.92    1.47
              1.000    4.12 | 2.000    6.02 | 3.000    2.26 |  4.00    1.47

    Unit Hyd Qpeak  (cms)=    .578

    PEAK FLOW       (cms)=    .058 (i)
    TIME TO PEAK    (hrs)=   3.333
    RUNOFF VOLUME    (mm)=   3.541
    TOTAL RAINFALL   (mm)=  24.997
    RUNOFF COEFFICIENT   =    .142

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ** SIMULATION NUMBER:   4 **
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|    READ STORM    |    Filename: C:\Users\Mitchell Bufalino\Deskto
|                  |              p\OTTHYMO\21218\
|                  |              VOH-Post-Dev.- July 13-2023 (Phase 2 Catchmen
| Ptotal=212.00 mm |    Comments: Hurricane Hazel
--------------------
               TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .17    6.00 |  3.17   13.00 |  6.17   23.00 |  9.17   53.00
                .33    6.00 |  3.33   13.00 |  6.33   23.00 |  9.33   53.00
                .50    6.00 |  3.50   13.00 |  6.50   23.00 |  9.50   53.00
                .67    6.00 |  3.67   13.00 |  6.67   23.00 |  9.67   53.00
                .83    6.00 |  3.83   13.00 |  6.83   23.00 |  9.83   53.00
               1.00    6.00 |  4.00   13.00 |  7.00   23.00 | 10.00   53.00
               1.17    4.00 |  4.17   17.00 |  7.17   13.00 | 10.17   38.00
               1.33    4.00 |  4.33   17.00 |  7.33   13.00 | 10.33   38.00
               1.50    4.00 |  4.50   17.00 |  7.50   13.00 | 10.50   38.00
               1.67    4.00 |  4.67   17.00 |  7.67   13.00 | 10.67   38.00
               1.83    4.00 |  4.83   17.00 |  7.83   13.00 | 10.83   38.00
               2.00    4.00 |  5.00   17.00 |  8.00   13.00 | 11.00   38.00
               2.17    6.00 |  5.17   13.00 |  8.17   13.00 | 11.17   13.00
               2.33    6.00 |  5.33   13.00 |  8.33   13.00 | 11.33   13.00
               2.50    6.00 |  5.50   13.00 |  8.50   13.00 | 11.50   13.00
               2.67    6.00 |  5.67   13.00 |  8.67   13.00 | 11.67   13.00
               2.83    6.00 |  5.83   13.00 |  8.83   13.00 | 11.83   13.00
               3.00    6.00 |  6.00   13.00 |  9.00   13.00 | 12.00   13.00

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| CALIB            |
| NASHYD    (0001) |   Area    (ha)=  18.77   Curve Number    (CN)= 78.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.24

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
               .083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
               .167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               .250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
               .333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               .417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
               .500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               .583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
               .667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               .750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
               .833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               .917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
              1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
              1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
              1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
              1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
              1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
              1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
              1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
              1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
              1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
              1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
              1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
              1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
              2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
              2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
              2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
              2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
              2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
              2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
              2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
              2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
              2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
              2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
              2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
              2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
              3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

    Unit Hyd Qpeak  (cms)=    .578

    PEAK FLOW       (cms)=   1.665 (i)
    TIME TO PEAK    (hrs)=  11.333
    RUNOFF VOLUME    (mm)= 151.725
    TOTAL RAINFALL   (mm)= 212.000
    RUNOFF COEFFICIENT   =    .716

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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