

SERVICING & STORMWATER MANAGEMENT REPORT

DISTILLERY - 5923 OTTAWA STREET



Project No.: CCO-25-0415

City File No.: D07-12-25-0078

Prepared for:

99117756 Canada Inc.
C/O Mr. Jack Gulas
411 Legget Drive, Suite 710
Ottawa, ON K2K 3C9

Prepared by:

Egis Canada
115 Walgreen Road
Carp, ON K0A 1L0

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1.0 PROJECT DESCRIPTION

1.1 Purpose

Egis Canada (Egis) has been retained by 99117756 Canada Inc. to prepare this Servicing and Stormwater Management Report in support of the Site Plan Control process for the proposed development located at 5923 Ottawa Street within the City of Ottawa (City).

The main purpose of this report is to present a servicing design for the development in accordance with the recommendations and guidelines provided by the City, the Rideau Valley Conservation Authority (RVCA), and the Ministry of the Environment, Conservation and Parks (MECP). This report will address the water, sanitary, and storm sewer servicing for the development, ensuring that proposed services will adequately service the development.

This report should be read in conjunction with the following drawings:

- CCO-25-0415, C101 – Lot Grading and Drainage Plan,
- CCO-25-0415, C102 – Site Servicing Plan,
- CCO-25-0415, C103 – Erosion & Sediment Control Plan,
- CCO-25-0415, PRE – Pre-Development Drainage Area Plan (Appendix 'E'), and
- CCO-25-0415, POST – Post-Development Drainage Area Plan (Appendix 'F').

1.2 Site Description

Figure 1: Site Map



The property is located at 5923 Ottawa Street within the City of Ottawa. It is described as Part of Unit 10, Index Plan D-26, geographic township of Goulbourn, City of Ottawa. The land in question covers approximately 2.27 ha and is located near the intersection of Ottawa Street and Eagleson Road. See Site Location Plan in Appendix 'A' for more details.

1.3 Proposed Development and Statistics

The proposed development consists of two phases. Phase 1 covers 1.17 ha and proposes a new 651 m² ground-floor area building with a distillery/warehouse, restaurant, and retail space. Phase 2 covers 1.10 ha and proposes a new 926 m² ground-floor area brewery building. Parking and drive aisles will be provided throughout each phase along with landscaping around the perimeter of the development area. The development will be accessed via the proposed site entrances from Ottawa Street.

1.4 Existing Conditions and Infrastructure

The existing site is currently undeveloped with no available municipal services. A municipal ditch fronts the subject site along Ottawa Street. The Smiths Falls Rail Corridor is located northwest of the subject site.

1.5 Approvals

The proposed development is subject to the City of Ottawa site plan control approval process. Site plan control requires the City to review, provide concurrence and approve the engineering design package. Permits to construct can be requested once the City has issued a site plan agreement.

An Environmental Activity and Sector Registry (EASR) through the MECP is expected to be required for stormwater management based on the industrial usage of the site. As industrial activities will only take place indoors and there will be no discharge of process water to the stormwater management system, an Environmental Compliance Approval is not anticipated to be required for stormwater management.

The septic system design has been completed by others with approval under the Ontario Building Code.

2.0 BACKGROUND STUDIES, STANDARDS, AND REFERENCES

2.1 Background Reports / Reference Information

Background plans and studies that have been completed for the proposed site are listed below:

- Plan of Survey, drawing CCO-25-0415 Ottawa St, prepared by Egis Surveying Inc. and dated July 9, 2024.
- Site Plan, drawing A-001, prepared by N45 Architecture Inc. and dated October 5, 2025.
- Geotechnical Investigation, Proposed Commercial Development, prepared by Paterson Group, and dated July 9, 2025.
- Ditch Hydrologic and Hydraulic Analysis, prepared by JFSA, and dated September 10, 2025
750 Palladium Drive, Suite 310, Kanata, ON K2V 1C7 | T. 613-836-2184 | F. 613-836-3742
info.north-america@egis-group.com | www.egis-group.com

- Sewage System Layout Plan, Drawing PH4924-1(rev.5), prepared by Paterson Group, and dated November 7, 2025
- 5923 Ottawa Street Occupancy Alternative Solution Roadmap memorandum, prepared by LRI, and dated August 21, 2025
- 5923 Ottawa Street Distillery water Storage Volume Estimate, prepared by LRI, and dated August 21, 2025
- Village of Richmond Environmental Management Plan, dated June 17, 2010.

2.2 Applicable Guidelines and Standards

City of Ottawa:

- ◆ Ottawa Sewer Design Guidelines, City of Ottawa, SDG002, October 2012. (Ottawa Sewer Guidelines)
 - Technical Bulletin ISTB-2014-01 City of Ottawa, February 2014. (ISTB-2014-01)
 - Technical Bulletin PIEDTB-2016-01 City of Ottawa, September 2016. (PIEDTB-2016-01)
 - Technical Bulletin ISTB-2018-01 City of Ottawa, January 2018. (ISTB-2018-01)
 - Technical Bulletin ISTB-2018-04 City of Ottawa, March 2018. (ISTB-2018-04)
 - Technical Bulletin ISTB-2019-02 City of Ottawa, February 2019. (ISTB-2019-02)
 - Technical Bulletin IWSB-2024-04 City of Ottawa, September 2024. (ISTB-2024-04)
- ◆ Ottawa Design Guidelines – Water Distribution City of Ottawa, July 2010. (Ottawa Water Guidelines)
 - Technical Bulletin ISD-2010-2 City of Ottawa, December 15, 2010. (ISD-2010-2)
 - Technical Bulletin ISDTB-2014-02 City of Ottawa, May 2014. (ISDTB-2014-02)
 - Technical Bulletin ISTB-2018-02 City of Ottawa, March 2018. (ISTB-2018-02)
 - Technical Bulletin ISTB-2021-03 City of Ottawa, August 2021. (ISTB-2021-03)
 - Technical Bulletin IWSB-2024-05 City of Ottawa, November 2024. (IWSB-2024-05)

Ministry of Environment, Conservation and Parks:

- ◆ Stormwater Planning and Design Manual, Ministry of the Environment, March 2003. (MECP Stormwater Design Manual)
- ◆ Design Guidelines for Sewage Works, Ministry of the Environment, 2008. (MECP Sewer Design Guidelines)

Other:

- ◆ Water Supply for Public Fire Protection, Fire Underwriters Survey, 2020. (FUS Guidelines)

3.0 PRE-CONSULTATION SUMMARY

A pre-consultation meeting was conducted on March 21st, 2024, regarding the proposed site. Specific design parameters to be incorporated within this design include the following:

- Control post-development flows to the 2-year pre-development peak flow rate with $C=0.5$ or existing, whichever is lesser, for all storms up to and including the 100-year storm event.
- Quality control to be provided up to an enhanced level of treatment (80% TSS Removal).

The notes from the City of Ottawa can be found in Appendix 'B'.

4.0 WATER SERVICING

4.1 Existing Watermain

The subject site is currently undeveloped with no access to a municipal watermain. Neighbouring properties are serviced by private wells.

4.2 Proposed Water Servicing

A new private drilled well and pump system is proposed within each phase to provide the development with domestic water supply. The well servicing Phase 1 has already been installed, and the approximate location is indicated on the Site Servicing Plan. The Phase 2 well, which will be designed and specified by others, will be included on the Servicing Plan once the location has been confirmed. As the development will be phased, it is proposed to temporarily service the Phase 2 building via the Phase 1 well. After the Phase 2 well is drilled, the service from the Phase 1 well to Phase 2 will be abandoned and both buildings will be independently serviced. Please refer to the Hydrogeological Report and Terrain Analysis completed by Paterson Group for well capacity discussion.

Although the building will be serviced via a drilled well and pump system as described above, water demands based on occupancy areas are provided in Table 1, below, for information purposes only. The water demands have been calculated to adhere to the Ottawa Water Guidelines and can be found in Appendix 'C'.

Table 1: Water Supply Design Criteria and Water Demands

Proposed Development	Phase 1	Phase 2
Site Area	1.17 ha	1.10 ha
Commercial	28,000 L/gross ha/day	
Commercial Peaking Factor (Max Day)	1.5 x avg. day	
Commercial Peaking Factor (Peak Hour)	1.8 x max. day	
Industrial	35,000 L/gross ha/day	
Industrial Peaking Factor (Max Day)	1.5 x avg. day	
Industrial Peaking Factor (Peak Hour)	1.8 x max. day	
Average Day Demand (L/s)	0.02	0.04
Maximum Daily Demand (L/s)	0.04	0.06
Peak Hourly Demand (L/s)	0.06	0.11

Fire protection is proposed to be provided by a remote fire protection system comprised of underground water storage tanks, dry hydrants, and a 150 mm diameter private watermain. The underground storage tanks will provide water to the building sprinkler systems as well as the dry hydrants. Both buildings will be equipped with fully supervised sprinkler systems, which require a supervisory signal to indicate conditions that could impair the operation of the system, as well as a water flow alarm to indicate the sprinkler system has been activated. The alarms must be sent to approved receiving facilities identified by the Fire Underwriters Survey.

The minimum required on-site storage volume was determined by LRI and provided in the 5923 Ottawa Street Distillery Water Storage Volume Estimate memo. The recommended on-site storage volume was determined based on the OBC-mandated Q-values for a Group F, Division 1 occupancy for the distillery, and a Group F, Division 2 occupancy for the brewery and storage areas. No reduction for OFS water shuttling was accounted for. The results are summarized in Table 2, below.

Table 2: On-Site Storage Volume Summary

Proposed Development	Phase 1	Phase 2
OBC Flow Rate Requirement	5,400 L/min	5,400 L/min
OBC Volume Requirement	177,100 L	173,949 L
NFPA13 Volume Requirement	288,442 L	242,574 L
NFPA13 Evaluation w/ Superior Tanker Shuttle Service Reduction	118,117 L	129,024 L

As per Table 2, above, a minimum on-site water supply of 180,000 litres has been recommended by LRI. Please refer to the 5923 Ottawa Street Distillery Water Storage Volume Estimate prepared by LRI and included within Appendix 'C' for additional information.

On-site storage for both phases is proposed to be provided by shared underground concrete water storage tanks connected to two dry hydrants as well as the building sprinkler systems. The underground water storage tanks will be located adjacent to the Phase 2 layby area, and will include a draw pipe and chute as per City of Ottawa Figure 5, Figure 10, and standard drawings W51 and W52. A total of four 45,000 litre Boyd Bro's concrete water storage tanks (or approved equivalent) are proposed for a total on-site storage volume of 180,000 litres. Each phase will include a layby area near the site entrance adjacent a private hydrant for firefighting access. A Samese connection will be located within 45m of each layby area to allow Ottawa Fire Services to supplement sprinkler supply as required.

Please refer to the Site Servicing plan for more information on the servicing layout.

As the site contains high groundwater, a buoyancy review of the underground storage tanks was completed by Paterson Group. Paterson has indicated that ballasting blocks will be required to mitigate flotation of the tanks. Additional details will be provided once the servicing layout is approved and the tank locations are final.

5.0 SANITARY SERVICING

5.1 Existing Sanitary Sewers

The subject site is currently undeveloped with no access to a municipal sanitary sewer. Neighbouring properties are serviced by private septic systems.

5.2 Proposed Sanitary Servicing

A new septic bed located north of the proposed buildings will be installed for each phase and sized to accommodate the development.

Total Daily Design Sanitary Sewage Flow (TDDSSF) for Phases 1 and 2 was calculated by Paterson as 9,367 L/day and 600 L/day, respectively. It is understood that approval of on-site septic treatment will be governed by OBC, as the TDDSSF for each system will be less than 10,000 L/day. Refer to the septic design completed by Paterson Group, which has been submitted to the Ottawa Septic System Office (OSSO) and approved through Septic File #25-176 and #25-177. The permits can be found within Appendix 'D'.

In summary, both the Phase 1 and Phase 2 systems have been designed using Class 4 raised leaching beds in combination with an Ejjen GSF treatment system.

Phase 1 will treat up to 9,367 L/day of Effluent. The Phase 1 system will include a 28,101 L pretreatment tank and an 18,500 L balancing tank complete with a time operated control panel. The sanitary service exiting the building will be 100 mm diameter and sleeved through a 150 mm diameter pipe overlain by rigid insulation boards.

Phase 2 will treat up to 600 L/day of Effluent. The Phase 2 system will include a 3,600 L pretreatment tank and a 450 L balancing tank complete with a time operated control panel. The sanitary service exiting the building will be 100 mm diameter and sleeved through a 150 mm diameter pipe overlain by rigid insulation boards.

As the site contains high groundwater, a buoyancy review is required to mitigate flotation of the septic tanks. As per the Response to City Comments memorandum provided by Paterson Group and dated August 20th, 2025, this review was completed as part of the Sewage System Design process and no further action was deemed to be required.

For further design information pertaining to the on-site sewage system, please refer to the septic design completed by Paterson Group.

Although the building will be serviced via a septic system as described above, sanitary demands based on occupancy areas are provided below for information purposes only. The sanitary demands have been calculated to adhere to the Ottawa Sewer Guidelines and can be found in Appendix 'D'. Within the demand calculations, the restaurant area for Phase 1 has been increased to account for outdoor patio seating. The development area was considered instead of the full property area to provide a more reasonable infiltration allowance estimate, as

only a fraction of the property is being developed, and it is unlikely that downstream areas located a significant distance from the septic system will result in increased infiltration.

Sanitary Design Criteria are listed in Table 3, below.

Table 3: Sanitary Design Criteria

Design Parameter	Value
Phase 1 Development Area	0.48 ha
Phase 2 Development Area	0.45 ha
Commercial Area	280 L/person/day
Industrial – Light Area	35,000 L/gross ha/d
Restaurant Area	125 L (9.2 m ² /d)
Institutional/Commercial Peaking Factor	1.5
Extraneous Flow Allowance	0.33 L/s/ha

Table 4, below, summarizes the estimated wastewater flow from the proposed development. Refer to Appendix 'D' for detailed calculations.

Table 4: Summary of Estimated Sanitary Flow

Design Parameter	Total Flow (L/s)	
	Phase 1	Phase 2
Total Estimated Average Dry Weather Flow	0.10	0.04
Total Estimated Peak Dry Weather Flow	0.14	0.05
Total Estimated Peak Wet Weather Flow	0.27	0.17

As mentioned above, sanitary demand calculations based on the Ottawa Sewer Guidelines are provided for information only. The sanitary design and septic demand have been completed by Paterson Group based on OBC requirements.

6.0 STORM SEWER SERVICING

6.1 Existing Storm Sewers

There are no existing storm sewers within the subject site or the adjacent municipal ROW. A municipal ditch fronts the subject site along Ottawa Street. A secondary ditch runs along the south of the Smiths Falls Rail Corridor at the rear of the site.

6.2 Proposed Storm Servicing

Runoff collected on the roof of the proposed Phase 1 and 2 buildings will be stored and controlled using flow restricting roof drains. Surface runoff from landscaped areas will be conveyed towards depressed surface storage areas located within the front yard of each phase. One minimum sized orifice for each phase will be used to direct controlled runoff from the surface storage areas to the municipal ditch along Ottawa Street during smaller storm events, while runoff exceeding the release rate of the orifices will be stored within the depressed surface storage areas. A weir is proposed for each surface storage area which will be located above the 100-year storage elevation. The weir will permit greater outflow in the event of a blockage within the system or a storm exceeding the 100-year event.

Runoff will be directed towards oil and grit separator units before discharging to the municipal ditch along Ottawa Street.

See CCO-25-0415 - POST in Appendix 'F' of this report and drawing C102 for more details. The Stormwater Management design for the subject property will be outlined in Section 7.0.

7.0 PROPOSED STORMWATER MANAGEMENT

7.1 Design Criteria

Stormwater management for the proposed site will be maintained through positive drainage away from the proposed building and towards the proposed depressed surface storage areas. The proposed stormwater management areas will capture and restrict runoff with the use of minimum sized orifices. The emergency overland flow route for the proposed site will be directed southeast towards the municipal ditch along Ottawa Street.

The quantitative and qualitative properties of the storm runoff for both the pre & post development flows are further detailed below. Stormwater Best Management Practices (SWM BMP's) will be implemented at the "Lot level", "Conveyance" and "End of Pipe" locations. These concepts will be explained further in Section 7.7.

In summary, the following design criteria have been employed in developing the stormwater management design for the site as directed by the RVCA and City:

Quality Control

- The site has been designed to achieve an 80% total suspended solids removal (enhanced level of treatment) using oil & grit separator units as part of a treatment train approach.

Quantity Control

- Post development 100-year flow is to be restricted to match the 2-year pre-development flow.

7.2 Runoff Coefficient Calculations

Runoff values presented in the report have been derived from the Hydrologic & Hydraulic analysis completed by JFSA. Please refer to the "Stratford Foxrun Development – 5923 Ottawa Street, Richmond Ditch Hydrologic and Hydraulic Analysis" for additional information.

Egis provided JFSA with the site area and runoff coefficients to be incorporated into their larger drainage areas. The following coefficients were used to develop an average C for each area:

Roofs/Concrete/Asphalt	0.90
Gravel	0.60
Undeveloped and Grass	0.20

As per the Ottawa Sewer Guidelines, the 2/5-year balanced 'C' value must be increased by 25% for a 100-year storm event to a maximum of 1.0.

7.3 Pre-Development Drainage

The existing site drainage limits are demonstrated on the Pre-Development Drainage Area Plans included in Appendix 'E'. The site is 2.27 ha overall, but for the purposes of this report, the pre-development drainage is focused on the area of development. A summary of the Pre-Development Runoff Coefficient Calculations can be found in Table 5, below.

Table 5: Pre-Development Runoff Coefficients Summary

Drainage Area	Area (ha)	Runoff Coefficient (2/5-Year)	Runoff Coefficient (100-Year)
A1	0.22	0.20	0.25
A2	0.26	0.20	0.25
Total (Phase 1)	0.48	-	-
A3	0.16	0.20	0.25
A4	0.29	0.20	0.25
Total (Phase 2)	0.45		

Area A1 and A3 represents the portion of the Phase 1 and Phase 2 development directed towards the rear yard in the existing condition, respectively. Areas A2 and A4 represent the portion of the Phase 1 and Phase 2 development areas directed towards the Ottawa Street municipal ditch in the existing condition, respectively.

Runoff directed towards the rear yard is conveyed along the railway ditch before discharging through a 1500 mm diameter culvert to Marlborough Creek, a tributary of the Jock River.

Runoff directed towards Ottawa Street is conveyed along the Ottawa Street and Eagleson Road municipal ditches before turning towards the ditch along the railway track and ultimately discharging through the same 1500 mm diameter culvert to Marlborough Creek. A Ditch Figure can be found within Appendix 'G'.

7.4 Post-Development Drainage

The proposed site drainage limits are demonstrated on the Post-Development Drainage Area Plan. See CCO-25-0415 - POST in Appendix 'F' of this report for more details. A summary of the Post-Development Runoff Coefficients can be found in Table 6, below.

Table 6: Post-Development Runoff Coefficients Summary

Drainage Area	Area (ha)	Runoff Coefficient (2/5-Year)	Runoff Coefficient (100-Year)
B1	0.42	0.51	0.58
B2	0.07	0.90	1.00
Total (Phase 1)	0.48	-	-
B3	0.35	0.49	0.56
B4	0.09	0.90	1.00
Total (Phase 2)	0.45		

Areas B1 represents Phase 1 surface runoff, while area B2 represents the Phase 1 roof area. Area B3 represents Phase 2 surface runoff, and area B4 represents the Phase 2 roof area. See Appendix 'G' for calculations.

For each phase, controlled roof runoff and uncontrolled surface runoff will be directed towards a depressed surface storage area located within the front yard. Phase 1 and Phase 2 will each employ a 75 mm diameter orifice to control outflow from its respective storage area. Each storage area will also include a 0.30m earth weir to allow for outflow in the event of a blockage within the system or a storm exceeding the 100-year event. The restriction of runoff will result in a ponding depth of 0.52m for Phase 1, and 0.66m for Phase 2 during the 100-year storm event. Stormwater management will be independent for each phase.

Runoff will be conveyed from the depressed surface storage areas to oil and grit separator units before discharging to the Ottawa Street municipal ditch.

7.5 Quantity Control

The 2- to 100-year post development runoff for the site must be restricted to match the 2-year pre-development flow rate.

JFSA was retained to complete a Hydrologic and Hydraulic analysis of the proposed stormwater management design to confirm there will be no negative impacts to the receiving ditch. A pre- and post-development hydrologic model was created with SWMHYMO, and hydraulic modeling was completed using HEC-RAS.

Table 7, below, summarizes the site release rates and required storage volumes for the post-development condition based on JFSA's analysis. For further information, refer to the memo prepared by JFSA and included in Appendix 'G'.

Table 7: Site Release Rates / Required Storage Volume / Ponding Elevation

	Phase 1 (0.48 ha)			Phase 2 (0.45 ha)		
Storm	Peak Outflow (m ³ /s)	Required Storage (m ³)	Storage Elev. (m)	Peak Outflow (m ³ /s)	Required Storage (m ³)	Storage Elev. (m)
2YrCHI3Hr	0.033	34	94.113	0.031	38	94.058
5YrCHI3Hr	0.054	64	94.189	0.049	65	94.167
10YrCHI3Hr	0.072	85	94.231	0.064	84	94.220
25YrCHI3Hr	0.094	113	94.284	0.083	109	94.280
50YrCHI3Hr	0.109	134	94.323	0.096	129	94.323
100YrCHI3Hr	0.130	158	94.364	0.114	150	94.366
2YrSCS24Hr	0.036	43	94.139	0.034	45	94.091
5YrSCS24Hr	0.056	72	94.205	0.051	71	94.185
10YrSCS24Hr	0.070	91	94.244	0.064	89	94.232
25YrSCS24Hr	0.088	117	94.292	0.080	112	94.286
50YrSCS24Hr	0.101	136	94.327	0.090	130	94.325
100YrSCS24Hr	0.115	157	94.362	0.103	149	94.364

Table 8, below, summarizes the Pre- and Post- development peak flow within the Ottawa Street Municipal Ditch at the southeast corner of the property (Junction J1 from the modeling results).

Table 8: Pre- and Post-Development Peak Flow Summary

	Peak Flow (m ³ /s)		
Storm	Pre-Development	Post-Development	Difference
2YrCHI3Hr	0.015	0.019	0.004
5YrCHI3Hr	0.026	0.027	0.001
10YrCHI3Hr	0.035	0.032	-0.003
25YrCHI3Hr	0.047	0.038	-0.009
50YrCHI3Hr	0.057	0.043	-0.014

100YrCHI3Hr	0.067	0.048	-0.019
2YrSCS24Hr	0.024	0.024	0.000
5YrSCS24Hr	0.038	0.032	-0.006
10YrSCS24Hr	0.049	0.037	-0.012
25YrSCS24Hr	0.062	0.044	-0.018
50YrSCS24Hr	0.073	0.049	-0.024
100YrSCS24Hr	0.084	0.055	-0.029

As seen in Table 8, above, there will be a minor increase in flow during smaller storm events. The increase in flow is the result of additional area being directed towards the Ottawa Street municipal ditch that was directed towards the rear yard in the existing condition. Outflow during smaller events is controlled by an orifice at the minimum allowable size, and so reducing flow by reducing orifice size is not recommended. Furthermore, based on JFSA's analysis, it has been determined that there will be no negative downstream impact to the roadway or existing buildings resulting from the minor increase in runoff during smaller events.

During larger storm events, the modeling results indicate there will be a reduction in peak flow, and a reduction in the 100-year floodplain.

For more information on the Hydrologic and Hydraulic modeling completed by JFSA, please refer to the memo included in Appendix 'G'.

7.6 Quality Control

The development of this lot will employ Best Management Practices (BMP's) wherever possible. The intent of implementing stormwater BMP's is to ensure that water quality and quantity concerns are addressed at all stages of development. Lot level BMP's typically include temporary retention of the parking lot runoff, minimizing ground slopes and maximizing landscaped areas.

Within areas B1 and B3, surface runoff from the Phase 1 & 2 drive aisle, parking lots, and asphalt loading areas will be directed towards proposed grassed swales located along the phase line and property line. The grassed swales have been designed with minimal slope to reduce runoff velocity and promote filtration and settlement of suspended solids.

The proposed grassed swales will discharge to depressed surface storage areas located within Phase 1 and 2. The depressed surface storage areas will restrict runoff and provide further opportunity for suspended solids removal through filtration and settlement. Removal efficiency of the depressed surface storage area will be most comparable to a dry pond, given that runoff will be temporarily detained during storm events and then released at a controlled rate.

As per the Environmental Design Criteria section of the MECP Stormwater Design Manual, dry ponds can be credited with achieving a Basic 60% long-term suspended solid removal provided the storage volumes identified within Table 3.2 of the Manual are achieved.

For the Phase 1 site, with an imperviousness of 52%, a storage volume of 141 m³/ha or 67.7 m³ is required to achieve a basic long-term 60% TSS removal, based on Table 3.2 of the Manual. The Phase 1 surface storage area will provide up to 158 m³ of stormwater storage, more than doubling the requirement.

For the Phase 2 site, with an imperviousness of 53%, a storage volume of 144 m³/ha or 64.7 m³ is required to achieve a basic long-term 60% TSS removal, based on Table 3.2 of the Manual. The Phase 2 surface storage area will provide up to 150 m³ of stormwater storage, again more than doubling the requirement.

To ensure the quality control criteria are met, the depressed surface storage areas will discharge to Stormceptor EFO4 oil and grit separator units located at the outlet of each phase. The EFO4 unit is credited with achieving a TSS removal of 60% based on the ETV particle size distribution. Documentation supporting the 60% removal efficiency can be found within Appendix 'G'.

Given that runoff entering the EFO4 will already have undergone a 60% TSS removal within the depressed surface storage area, there will be a maximum remaining TSS of 40% of the baseline. As a result, runoff leaving the EFO4 units will have a remaining TSS of $[40\% - (60\% * 40\%)] = 16\%$, indicating a total TSS removal of 84%. It should be further noted that TSS reduction from the grassed swales has not been accounted for, and so the actual TSS removal efficiency of the site is expected to be increased.

7.7 Village of Richmond Environmental Management Plan

As the subject site is located within the Village of Richmond Environmental Management Plan (EMP) study area, the site must conform to the findings of the EMP. Concurrence with the findings and recommendations are listed below:

7.7.1 Treatment Train

The proposed stormwater management system will convey runoff within gently sloped swales to a depressed surface storage area where runoff will be stored and released at a controlled rate. This will provide an opportunity for filtration through the vegetated medium, infiltration, and settlement of suspended solids. Before leaving the site, controlled runoff will be directed to an Oil & Grit separator where additional quality treatment will be provided. These lot level, conveyance, and end-of-pipe controls will ensure stormwater quality is properly addressed and 80% TSS reduction is achieved.

7.7.2 Thermal Mitigation

As mentioned above, stormwater conveyance will primarily be through gently sloped grass swales, and stormwater will be stored within a landscaped depressed surface storage area before discharging to the municipal ditch. After leaving the site, runoff will travel a minimum 745m within the municipal and railroad ditches

before discharging to Marlborough Creek. With on-site detention of stormwater within landscaped areas and the length of the flow path to the outlet, thermal impacts to the receiving watercourse are not anticipated.

7.7.3 Water Balance

Based on the findings of the Hydrogeological Report and Geotechnical Report prepared by Paterson, the site is heavily constrained by high groundwater and soils that are not suitable for infiltration. The borehole results identified that all soils warranted a description containing either clay, silt, clayey, or silty. As per Technical Bulletin IWSB-2024-04, infiltration-type LID practices are not permitted in clay or silt soils, nor in soils that warrant a dual classification with silt or clay as per the USCS.

While the borehole logs identified some areas of glacial till consisting of silty sand that may be suitable for infiltration, the glacial till is most often described as “silty sand to sandy silt”, with a USCS soil classification of ML (inorganic silts of high plasticity) determined from BH3-24 SS3. The glacial till which solely consists of silty sand is also located below the high groundwater elevation of 93.79m – 93.86m identified by the Groundwater Monitoring Program. As per the Hydrogeological Report and Terrain Analysis, the highest elevation of the glacial till layer not containing “sandy silt” or “clayey silt” in the description was at BH2-25, where the top of the glacial till layer was noted at an elevation of 93.71m. As the glacial till layer comprised of silty sand is located below the seasonally high groundwater level, it cannot be incorporated into an infiltration-type LID. Furthermore, there is insufficient grade change within the site to allow for an infiltration-type LID to achieve minimum separation from the high groundwater level specified above.

While the site has been generally designed to promote infiltration with gently sloped grass conveyance swales and stormwater detention within landscaped surface storage areas, implementing an infiltration-type LID practice to ensure water balance will not be permitted, and so undertaking a water balance would not result in any changes to the design.

7.7.4 Volume Control (7 mm Storm Retention)

As mentioned above, an infiltration-type LID practice will not be permitted, and so the requirement to retain the first 7 mm of rainfall cannot be achieved through infiltration. Abstraction will be limited to depression storage within the gently sloped swales and stormwater management areas, and through evapotranspiration of the stored surface and roof runoff. Evapotranspiration has been promoted to the greatest extent possible within the design by providing orifice controls with the minimum permissible size. This will detain stormwater on site for long durations, resulting in maximum surface stormwater volumes of 158 m³ for Phase 1 and 150 m³ for Phase 2.

7.7.5 Control 100-Year Post to 2-Year Pre

Stormwater modeling has been completed by JFSA. The results indicated that while there will be a minor increase in runoff during smaller storm events, the 100-year peak flow will be a reduction compared to existing conditions. Additionally, the proposed stormwater management design will reduce the extent of the 100-year floodplain.

7.7.6 Erosion Potential vs Additional Retention

As previously mentioned, the design relies on detention of stormwater runoff and not retention, as an infiltration-based design will not be permitted. Minimum orifice sizes are proposed which result in the maximum on-site storage volume. Modeling has also been completed by JFSA which indicates there will be a reduction in flow leaving the site during larger stormer events.

7.7.7 Implementation of LID

LID has been implemented with vegetated swales and depressed vegetated surface storage areas.

8.0 EROSION AND SEDIMENT CONTROL

8.1 Temporary Measures

Before construction begins, temporary silt fence, straw bale or rock flow check dams will be installed at all natural runoff outlets from the property. It is crucial that these controls be maintained throughout construction and inspection of sediment and erosion control will be facilitated by the Contractor or Contract Administration staff throughout the construction period.

Silt fences will be installed where shown on the final engineering plans, specifically along the downstream property limits. The Contractor, at their discretion or at the instruction of the City, Conservation Authority or the Contract Administrator shall increase the quantity of sediment and erosion controls on-site to ensure that the site is operating as intended and no additional sediment finds its way off site. The straw bale check dams, silt fence, and rip rap outlet treatments shall be inspected weekly and after rainfall events. Care shall be taken to properly remove sediment from the silt fences and check dams as required. Care shall be taken at the removal stage to ensure that any silt that has accumulated is properly handled and disposed of. Removal of silt fences without prior removal of the sediments shall not be permitted.

Although not anticipated, work through winter months shall be closely monitored for erosion along sloped areas. Should erosion be noted, the Contractor shall be alerted and shall take all necessary steps to rectify the situation. Should the Contractor's efforts fail at remediating the eroded areas, the Contractor shall contact the City and/or Conservation Authority to review the site conditions and determine the appropriate course of action. As the ground begins to thaw, the Contractor shall place silt fencing at all required locations as soon as ground conditions warrant. Please see the Erosion & Sediment Control Plan for additional details regarding the temporary measures to be installed and their appropriate OPSD references.

8.2 Permanent Measures

Rip-rap will be placed at all locations that have the potential for concentrated flow. It is crucial that the Contractor ensure that the geotextile is keyed in properly to ensure runoff does not undermine the rip rapped area. Additional rip rap is to be placed at erosion prone locations as identified by the Contractor / Contract Administrator / City or Conservation Authority.

It is expected that the Contractor will promptly ensure that all disturbed areas receive topsoil and seed/sod and that grass be established as soon as possible. Any areas of excess fill shall be removed or levelled as soon as possible and must be located a sufficient distance from any watercourse to ensure that no sediment is washed out into the watercourse. As the vegetation growth within the site provides a key component to the control of sediment for the site, it must be properly maintained once established. Once the construction is complete, it will be up to the landowner to maintain the vegetation and ensure that the vegetation is not overgrown or impeded by foreign objects.

9.0 SUMMARY

- A new 651 m² distillery and restaurant/retail building is proposed within Phase 1 at 5923 Ottawa Street.
- A new 926 m² distillery building is proposed within Phase 2.
- Domestic water servicing will be provided by a new drilled well for Phase 2, and an existing drilled well for Phase 1, designed by others.
- The Phase 2 building will be serviced by the Phase 1 well in the interim condition.
- Fire protection for Phases 1 and 2 will be provided by a remote hydrant system, sprinkler systems, and underground water storage tanks.
- Sanitary servicing will be provided by new on-site septic systems designed by Paterson.
- Storage for the 2- through 100-year storm events will be provided on the roof of the building and within proposed depressed surface storage areas. Runoff will discharge to the municipal ditch along Ottawa Street.
- Based on the hydrologic and hydraulic modeling completed by JFSA, there will be no negative downstream impact resulting from the stormwater management design.
- Quality control requirements will be achieved with oil and grit separator units as part of a treatment train approach.

10.0 CONCLUSIONS

This report has been provided to describe the servicing and stormwater management for the site located 5923 Ottawa Street.

This report is respectfully being submitted for review.

Regards,

Egis Canada Ltd.



Jessica Burden, P.Eng.
Project Engineer, Land Development
E: Jessica.burden@egis-group.com

A handwritten signature in dark ink that reads "Francis Valenti".

Francis Valenti, P.Eng.
Junior Project Engineer, Land Development
E: francis.valenti@egis-group.com

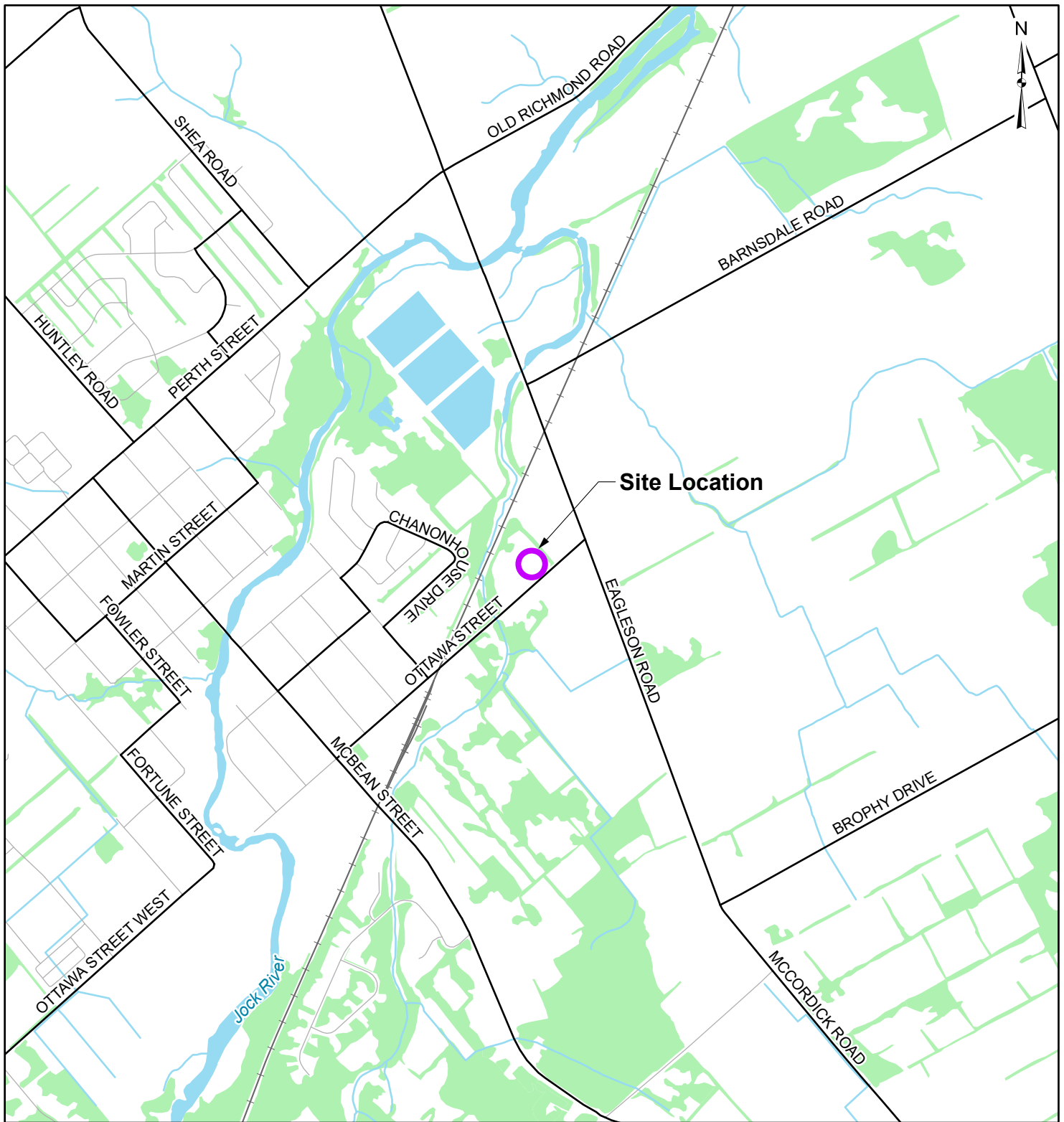
11.0 STATEMENT OF LIMITATIONS

This report was produced for the exclusive use of 99117756 Canada Inc. The purpose of the report is to assess the existing stormwater management system and provide recommendations and designs for the post-construction scenario that are in compliance with the guidelines and standards from the Ministry of the Environment, Conservation and Parks, City of Ottawa and local approval agencies. Egis Canada reviewed the site information and background documents listed in Section 2.0 of this report. While the previous data was reviewed by Egis Canada and site visits were performed, no field verification/measures of any information were conducted.

Any use of this review by a third party, or any reliance on decisions made based on it, without a reliance report is the responsibility of such third parties. Egis Canada accepts no responsibility for damages, if any, suffered by any third party as a result of decisions or actions made based on this review.

The findings, conclusions and/or recommendations of this report are only valid as of the date of this report. No assurance is made regarding any changes in conditions subsequent to this date. If additional information is discovered or becomes available at a future date, Egis Canada should be requested to re-evaluate the conclusions presented in this report, and provide amendments, if required.

APPENDIX A KEY PLAN



LEGEND

-  Site Location
-  Local Road
-  Major Road
-  Railroad
-  Watercourse
-  Waterbody
-  Wooded Area

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2024.



CLIENT:		99117756 CANADA INC.	
PROJECT:		5923 OTTAWA STREET, RICHMOND	
TITLE:		SITE LOCATION PLAN	
 115 Walgreen Road, RR3, Carp, ON K0A1L0 Tel: 613-836-2184 Fax: 613-836-3742		PROJECT NO: CCO-25-0415	FIGURE:
		Date	Sep., 04, 2024
		GIS	CZ
		Checked By	AG
		1	

APPENDIX B BACKGROUND DOCUMENTS

March 27, 2024

Bridgette Alchawa
Egis Canada Ltd.
Via email: bridgette.alchawa@egis-group.com

**Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control Application – 5923 Ottawa St**

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on March 21, 2024.

Pre-Consultation Preliminary Assessment

1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
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One (1) indicates that considerable major revisions are required while five (5) suggests that the proposal appears to meet the City's key land use policies and guidelines. This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please proceed to complete a Phase 2 Pre-consultation Application Form and submit it together with the necessary studies and/or plans to planningcirculations@ottawa.ca.
2. In your subsequent pre-consultation submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.
3. Please note, if your development proposal changes significantly in scope, design, or density before the Phase 3 pre-consultation, you may be required to complete or repeat the Phase 2 pre-consultation process.

Supporting Information and Material Requirements

1. The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.

- a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

Consultation with Technical Agencies

1. You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

Planning

Comments:

Questions:

1. What is the intent for the proposed bar/pub use. Restaurants are a prohibited use per 385r.

Response: It is understood that liquor can be sold if it is the product being produced. The current idea for the restaurant is to offer food that is easily prepared, (sandwiches, pizza, etc.) however, applicant suggested that they may be willing to consider different options based on zoning interpretation.

2. What is the idea for the severance component? May not have enough space to achieve the severance once the full build out of the lot is considered.
3. What is the timing of the severance? There are potential concerns regarding a pre-mature severance.

Response: The idea is for the severance to occur after the site plan application/approval and the establishment of the site.

Official Plan

1. The subject site is designated Village on Schedule B9 of the Official Plan.
2. The subject site is designated Village Industrial Area on Schedule A of the Village of Richmond Secondary Plan – Volume 2.
 - a. Uses permitted on lands designated Village Industrial Area include: light industrial uses, office, printing plant, service repair shop, small batch brewery, warehouse and heavy equipment and vehicle sales, rental and servicing, research, technology, nurseries, greenhouses, catering, places of assembly, broadcasting and training

- b. Maximum building height - four storeys
- c. Adequate buffering including landscaping and screening will be provided between uses in Industrial Areas to ensure that storage areas and parking areas are screened from adjacent properties

Zoning By-law

- 3. The subject site is zoned RG3 [385r] under the Zoning By-law. The purpose of the RG (Rural General Industrial) is to permit development of light industrial uses in Village designations; accommodate a range of light industrial uses and limited service commercial uses for the travelling public; and, regulate development in a manner that respects adjacent land uses and will have a minimal impact on the surrounding rural area. The RG3 subzone recognizes smaller parcels.
- 4. Permitted uses in the RG3 zone include [S.219 (1)]:
 - n. Light industrial uses
 - t. Warehouse
- 5. Conditional Permitted Uses - The following are permitted subject to the use being located on the same lot as a use listed above.
 - c. Bar
 - A bar must be ancillary to a permitted brewery, winery or distillery and, may not have a gross floor area exceeding the lesser of:
 - 300 square metres, or
 - 25% of the floor area of the brewery, winery or distillery to which it is ancillary.
- 6. The site is subject to Rural Exception 385r which lists restaurants as a prohibited use.**
- 7. The proposal must meet the following 385r Exception Provisions and the RG3 provisions provided in Section 219.
 - a. Minimum front yard – 15m
 - b. Maximum lot coverage – 35 percent
 - c. No maximum building height
- 8. Minimum parking space rates as required by S.101, Table 101.
 - a. Bars – 6 per 100sq.m of g.f.a
 - b. Light industrial use – 0.8 per 100sq.m of g.f.a
 - c. Retail Store – 3.4 per 100sq.m of g.f.a

9. A landscape buffer for the parking lot will be required in accordance Table 110.
10. Outdoor refuse collection and loading areas must be:
 - a. Located at least 9 metres from a lot line abutting a public street
 - b. Located at least 3 metres from any other lot line
 - c. Screened from view by an opaque screen with a minimum height of 2.0 metres
11. Bicycle parking must be provided in accordance with Section 111.
12. If loading spaces are provided, they must be in accordance with Section 113.

Discussion and Submission Requirements

13. Subject Exception Zone prohibits restaurants as a use.
14. Zoning by-law interpretation staff have confirmed that a bar/pub serving food and drink ancillary to the distillery and contained within the same structure would be aligned with the intent of the zoning.
15. If the bar/pub component were to be contained in a separate structure, it would be more closely aligned with a restaurant and would not be permitted under the current zoning.
16. A Site Plan will be required. The plan must be prepared as per the City's [Terms of Reference](#) and must address the following:
 - a. The site plan must clearly identify the required yard setbacks from all existing lot lines
 - b. The Site Plan must clearly identify all existing buildings
 - c. The required landscaped area must be included
 - d. Parking spaces must be clearly defined, as well as the access driveway, and any drive aisles throughout the site
17. A Landscape Plan will be required. The plan must be prepared in accordance with the [Landscape Plan Terms of Reference](#) and include all of the listed general elements as well as detail existing and proposed vegetation.
18. Plan of Survey showing the current site conditions prepared in accordance with the City's [Plan of Survey Terms of Reference](#).

Urban Design

Comments:

Submission Requirements:

19. Urban Design Brief is required.. Please see attached customized Terms of Reference to guide the preparation.
 - i. The Urban Design Brief should be structured by generally following the headings highlighted under Section 3 – Contents of these Terms of Reference.
 - ii. The proposal is not subject to the Urban Design Review Panel.
20. Additional drawings and studies are required as shown on the SPIL. Please follow the terms of references ([Planning application submission information and materials | City of Ottawa](#)) the prepare these drawings and studies.
 - i. Design Brief
 - ii. Site Plan
 - iii. Landscape Plan
 - iv. Elevations

Comments on Preliminary Design – Applicants are to provide a response to these comments in the Design Brief.

21. The following policies/guidelines apply:
 - a. Village Industrial within the Richmond Secondary Plan
 - b. Design Guidelines for Rural Villages
22. Please reference the direction within the Design Guidelines to help inform the design of the building as the design progresses. The architectural directions in the guidelines should guide the building design as closely as possible.
23. Please ensure that landscaping and tree planting is provided along Ottawa Street frontage.

24. Please ensure that the patio is a comfortable place for patrons and separated from road noise. Please provide screening and perimeter landscaping.

Feel free to contact Lisa Stern, Planner III, for follow-up questions.

Engineering

Comments:

25. Servicing

- a. A **Site Servicing Study** will be required with the Site Plan Control application. This report should be completed exceeding the minimum requirements laid out in the Site Servicing Study Terms of Reference. The report will serve to address how the design of the site complies with City design guidelines, Official Plan policies, among other evaluation criteria noted in the Terms of Reference. Stormwater management, which is a component of the Servicing Study, is required to mitigate the effects of urbanization on the hydrologic cycle including increased runoff and decreased infiltration, of rain and snowmelt. Without proper stormwater management, a site can negatively impact the environment by reducing baseflow, degrading water quality, and increasing flooding and erosion. This leads to reduced diversity of aquatic life, fewer opportunities for human uses of water resources, and loss of property and human life. The City looks to lessen these risks by reviewing development to ensure stormwater management practices are being implemented, infrastructure is resilient to future climate conditions, including extreme weather events, and using low impact development where feasible to manage smaller, infrequent events. The Official Plan, which receives authority through the Planning Act, identifies in Policy 6, section 2.2.3, that flooding is the costliest type of natural disaster in Canada.
- b. There is no public service capacity currently available to have the option of extending public services to the proposed development. Development therefore must be on the basis of private services. The Village has a limited municipal water network and limited sanitary network & pump station capacity. Any planned growth would need to include network, and possibly plant, upgrades to support proposed development, which is likely too onerous for the scope of this development.
- c. In terms of the Stormwater Management for the Site Plan Control application, the quantity criteria will be that the 100-yr post development peak flow rate must match the 2-year pre-development

peak flow rate. As part of complete Site Plan Control application, whether development or redevelopment, the report must identify and mitigate the impacts of additional runoff resulting from increased imperviousness through measures such as site-specific stormwater management postulated in policy 6, section 4.7.1 of the Official Plan.

- d. In terms of a Stormwater Management approach, runoff volume control should proceed in the following hierarchical order, with each step exhausted before proceeding to the next:
 - 1. Retention (infiltration, reuse, or evapotranspiration),
 - 2. Low Impact Development (LID) filtration, and
 - 3. Conventional Stormwater management. Conventional stormwater management, should proceed only once Maximum Extent Possible has been attained for Steps 1 and 2 for retention and filtration.
- e. The pre-development runoff coefficient or a maximum equivalent 'C' of 0.5, whichever is less as described in the Sewer Design Guidelines, Second Edition, document no. SDG002, October 2012, City of Ottawa, including technical bulletins ISDTB-2014-01, PIEDTB-2016-01, ISTB 2018-01, ISTB-2018-04, ISTB-2019-02, section 8.3.7.3.
- f. A calculated time of concentration cannot be less than 10 minutes as described in section 5.1.4 of the Sewer Design Guidelines.
- g. The water quality control should be an enhanced level treatment, 80% long term suspended sediment removal. The City will be looking for a treatment train approach for water quality treatment. Reporting of TSS removal shall be extensive and if peer reviewed and published papers are relied on for conclusions, the conclusions shall be patently clear and the report shall show overwhelming agreement.
- h. Runoff will need to be conveyed to a legal and sufficient outlet. If it is proposed to discharge storm water to the existing ditches in the ROW, the ditches will need to be shown to provide continuous flow to an outlet. This comment is sourced from the Official Plan which notes in policy 8, section 4.7.1, that proof of legal and sufficient outlet for proposed stormwater management and drainage systems will be required as a condition of future Site Plan Control.
 - i. The 1 in 100-year floodplain is present along the rear portion of the lot. Any site alteration within this area requires a permit from the Conservation Authority. The Official Plan, in section

10.1.1, notes that development and site alteration shall not be permitted in the 1 in 100 year flood plain.

- j. Low Impact Development (LID) is to be implemented as per the bulletin from the former MOECC (now MECP) titled Expectations RE: Stormwater Management released in February 2015. The infiltration target for the site is typically determined from an applicable higher-level study, which is confirmed through on-site infiltration/percolation testing. The reporting should identify the treatment train of processes proposed for the development. The Official Plan defines LID as a stormwater management strategy that seeks to mitigate the impacts of increased runoff and stormwater pollution by managing runoff as close to its source as possible. LID comprises a set of site design strategies that minimize runoff through distributed, small scale structural practices that mimic natural or predevelopment hydrology through the processes of infiltration, evapotranspiration, harvesting, filtration and detention of stormwater. These practices can effectively remove nutrients, pathogens and metals from runoff, and they reduce the volume and intensity of stormwater flows. The City has released a document titled 'Low Impact Development Technical Guidance Report – Implementation in Areas with Potential Hydrogeological Constraints' which aids sites which may have constraints such as low permeability or high groundwater.
- k. The anticipated water demands (average day, maximum daily, and maximum hour) must be presented and justified for any hydrogeological pumping test rate. The pumping rate should be the maximum daily demand rate. The Ottawa Design Guidelines – Water Distribution provide information for determining water demand rates for the proposed zoning or uses in Table 4.2 – Consumption Rates.

26. Fire Services

- a. The Site Servicing Study must include a section addressing the provision of a **water supply for fire suppression**, determination of the required fire flow, and confirmation of whether any on-site storage will be required. It is the responsibility of the owner to ensure that an adequate water supply for firefighting is provided. The FUS (Fire Underwriters Survey) methodology, as opposed to the OBC methodology shall be applied for all rural areas.
 - i. It is anticipated that mitigative measures, including on-site storage, will be required given the group F, division 1 for distilleries. This occupancy is considered a high hazard occupancy under the Ontario Building Code. There will be risks with regards to the flammable or explosive off-gasses or

vapours, that must be contemplated and appropriately mitigated by the reporting.

- ii. The project, due to the proposed occupancy, will not be eligible to forgo the requirement for on-site fire retention storage.
 - iii. As mentioned the Phase 1 meeting, the applicant could retain a fire safety consultant to aid in the preparation of the FUS calculations. The specialist fire-fighting consultant would review a number of factors and could propose an alternative approach satisfactory to Development Review and the City's Fire Protection Engineer, Allan Evans.
 - iv. Enhanced review will be invoked should the construction coefficient chosen be less than 1.
- b. Fire Routes now require designation with By-law through the Site Plan process by contacting fireroutes@ottawa.ca once preliminary Site Plan approval has been provided.

27. Grading

- a. A **Grading and Drainage Plan** will be required with the Site Plan Control application identifying the existing and proposed drainage patterns and their relationship with the surface runoff control. As part of a complete Site Plan Control application, the Grading and Drainage Plan should identify and implement site, grading, building, and servicing design measures to protect new development from flooding as per policy 6, section 4.7.1 of the Official Plan. The Grading and Drainage Plan forms part of the requirements for Site Plan Control applications noted in the Studies and Plan Identification List, provided with the feedback documents.
- b. The Plan should have a note that references the horizontal and vertical datums that were used and tied into to complete the project. The drawing should also make reference (on the face of the plan) to a site benchmark that can be used by anyone with a level to carry out checks on the particular project.

28. Erosion and Sediment Control

- a. An **Erosion and Sediment Control Plan** will be required with the Site Plan Control Application. Erosion and sediment control plans shall have regard to Canadian Standards Association (CSA) W202 Erosion and Sediment Control Inspection and Monitoring Standard (as amended).

29. Geotechnical

- a. A **Geotechnical Study** will be required with the Site Plan Control application. The report should provide sufficient soils and engineering information to confirm that the site(s) are suitable or can be made suitable for development based on the requirements of the Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa.
- b. It is highly likely that sensitive marine clays will be encountered on the site. If the presence of clays is confirmed, enhanced investigations must be undertaken with vane shear, Atterberg limits, shrinkage, size, grade raise restriction, consolidation, sensitivity, and liquefaction analysis-amongst others.
- c. As the site is potentially underlain by compressible marine clays, long term groundwater monitoring will be required to support the development. Groundwater elevations are anticipated to be high (shallow) given the location in Richmond. The capacity of the deposit to accept additional load depends on the groundwater level. The Stormwater Management and LID design will also be impacted by the groundwater level.

30. Hydrogeological and Terrain Analysis Requirements (private servicing)

- a. A **Hydrogeological and Terrain Analysis** will be required for the Site Plan Control application to establish that there is an adequate quantity and quality of groundwater to support the proposed development(s). The requirements for the Hydrogeological and Terrain Analysis Report are outlined in the City of Ottawa Hydrogeological and Terrain Analysis Guidelines, Section 5.0 for Site Plans. The study forms part of the requirements for Site Plan Control applications noted in the Studies and Plan Identification List, provided with the feedback documents.
- b. Note that the onsite well would provide groundwater which serves the public and thus may be considered a regulated small drinking water system under O.Reg. 319/08: Small Drinking Water Systems. The application would also need to contact and incorporate any requirements set by medical officers of health or Ottawa Public Health. Any requirements related to the regulated small drinking water system must be fulfilled prior to the use of the system. "drinking water system" means a system of works, excluding plumbing, that is established for the purpose of providing users of the system with drinking water and that includes, (a) any thing used for the collection, production, treatment, storage, supply or distribution of water and (b) a well or intake that serves as the source or entry point of raw water supply for the system;

- c. The supply well must be tested to confirm water quantity and quality suitability prior to site plan approval. Support must be provided for the pump test rate; which should be the maximum day rate. The rate should consider the actual use, or potential uses permitted through zoning if unknown.
- d. The parameters of water quality that will be tested will be the “subdivision suite” (known to local well testing laboratories), as well as trace metals and VOCs. Requirements are outlined in the Hydrogeological and Terrain Analysis Guidelines, City of Ottawa, March 2021. The report should also provide an assessment of adjacent land uses and concerns and determine if any other parameters need to be tested (e.g. petroleum hydrocarbons, etc.).
- e. The Hydrogeological and Terrain Analysis Report should outline potential on-site activities and risks to existing groundwater users and identify measures that should be implemented to protect the aquifer in the long-term.
- f. Bollards, or other means of preventing vehicle access, will need to be provided between areas with vehicle access and the existing or proposed well(s).
- g. Results from nearby wells indicate a potential for exceedances for hardness, colour, total dissolved solids (TDS), turbidity, chloride, iron, and sodium.
- h. A Septic System Impact Assessment must be completed as part of the Hydrogeological and Terrain Analysis Report, as per the City’s Hydrogeological and Terrain Analysis Report Guidelines and MECP Guideline D-5-4, please refer to the HGTA for the predictive assessment for commercial/industrial developments (not residential developments).
 - i. Note that compact gravel will be considered impermeable in the septic impact assessment unless accompanied by field testing to confirm infiltration rates.
 - ii. Since this application is a site plan (not lot creation or zoning) septic treatment (i.e. tertiary treatment with nitrate dilution) may be considered as part of the septic impact assessment calculations. A system certified though NSF or BNQ should be recommended.
- i. If the expected sewage daily design flow is 10,000 L/d or less, the septic permit from the Ottawa Septic System Office must be issued prior to Site Plan Approval being granted.

- j. If the sewage design flow from sewage systems exceeds 10,000 L/d, a Reasonable Use Assessment must accompany the application to the City. Sewage systems with design flows exceeding 10,000 L/d require the issuance of an Environmental Compliance Approval (ECA) from the MECP prior to Site Plan Approval being granted.
- k. Bollards, or other means of preventing vehicle access, will need to be provided between areas with vehicle access and the proposed septic system(s).
- l. Technical consultation with the hydrogeological report reviewer is encouraged, please contact the City hydrogeologist, Obai Mohammed and copy the project manager listed below to schedule a technical consultation.

31. Noise and Vibration

- a. A **Noise Control Study** is required with the Site Plan Control Application. Noise studies are required for new noise sensitive land uses in proximity to surface transportation (road and rail). The site is within the influence area of a Protected Transportation Corridor (identified on Schedule C2 of the Official Plan) for which the noise impacts must be contemplated. A Noise Feasibility Study is required for development proposals within 250 meters of a secondary main railway line or within 500 meters of a principal main railway line.
 - i. The Ministry of Ontario's NPC-300 Environmental Noise Guideline, for which the City's ENCG were based, defines a noise sensitive land use as a property of a person that accommodates a building used for a noise sensitive commercial purpose. The definition goes on to say that from a land use planning perspective, a noise sensitive land use may be comprised of spaces that are noise sensitive and spaces that are not noise sensitive. The outdoor living area (OLA) associated with a noise sensitive land use is considered a noise sensitive space.
 - ii. The City's Environmental Noise Control Guidelines identify that noise sensitive land uses includes other land uses that may contain outdoor and/or outdoor areas/spaces where an intruding noise may create an adverse effect, which appears to be the case for the proposal.
- b. The City will require a vibration study if there is proposed development within 75 metres of the railway right of way, based on Official Plan section 10.2.1.

- c. The owner of the rail corridor will be able to provide scoping for the future works in the rail corridor which will guide the classification as principal or secondary main rail line in terms of the preparation of the noise feasibility study.

32. Rail Safety

- a. A **Rail Proximity Study** will be required with the application to address rail safety, implement risk mitigation best practices, and to inform any development setbacks required based on proximity to the rail corridor. The Official Plan notes, in section 10.2.1, that land adjacent to all Protected Transportation Corridors and facilities shown on Schedule C2 must follow rail safety and risk mitigation best practices to determine appropriate development setbacks. The FCM-RAC Guidelines for New Development or its successor shall apply in this case.
 - i. One of the elements of the report will be to contemplate the use of safety barriers to reduce the risks associated with railway incidents by intercepting or deflecting derailed cars in order to reduce or eliminate potential loss of life and damage to property. The standard safety barrier is an earthen berm, which is intended to absorb the energy of derailed cars, slowing them down and limiting the distance they travel outside of the railway right-of-way. The berm works by intercepting the movement of a derailed car. As the car travels into the berm, it is pulled down by gravity, causing the car to begin to dig into the earth, and pulling it into the intervening earthen mass, slowing it down, and eventually bringing it to a stop.

33. An MECP Environmental Compliance Approval would be required for the proposed stormwater management facilities, LID works, or sewage works if the exemption requirements of O.Reg. 525/98 are not met. It appears based on the proposal that an ECA would be required given the industrial use. Please contact the Ministry of the Environment, Conservation and Parks, Ottawa District Office to arrange a pre-submission consultation.

- a. Please note that the process for ECAs is undergoing changes and may be different upon time of submission. Currently, once the development application has been submitted, a request can be made to the City to consider a Transfer of Review (ToR) ECA for SWM works (ponds, ditches, culverts, etc.) for private property, instead of a direct submission ECA. This is subject to approval by the City and MECP. Note that the ECA requirements are currently in transition towards the linear ECA process and more details may become available depending on application submission timeline. It is

recommended to check with the City when the development application is submitted to confirm the ECA process at that time.

34. Phase One Environmental Site Assessment

- a. A **Phase One Environmental Site Assessment (ESA)**, and possibly Phase Two ESA as deemed required by the Phase 1 ESA, is required for the proposed Site Plan Control application. This mandatory report serves to ensure that development only takes place on sites where the environmental conditions are suitable for the proposed use in accordance with provincial legislation and regulations. The City's Historic Land Use Inventory identifies that there is a potentially contaminating use of a Motor Vehicle Repair Shop, repair and service at 5949 Ottawa which should be contemplated by the environmental consultant.

35. Construction constraints

- a. More detailed constraints may be provided in the Phase 2 Pre-Application Consultation Meeting as the conceptual drawing has provided more detail.

36. Background studies

- a. Village of Richmond Master Servicing Study
- b. Village of Richmond Environmental Management Plan
- c. Village of Richmond Community Design Plan

37. Severance

- a. In terms of the requirements for a future proposed severance, there will be engineering conditions placed on the application. It is recommended that the applicant reach out to the Development Review All Wards group who now handles commenting on Committee of Adjustment applications.
 - i. It is anticipated that a condition will be for a Hydrogeological and Terrain Analysis report to demonstrate the adequacy of the groundwater and area/septic dilution to accommodate the development.
 - ii. It is anticipated that a condition for independent water, sanitary and storm servicing will be place. Each lot should have their own independent systems which do not cross the property line.

- iii. It is anticipated that Noise Studies, Phase 1 ESA, and Rail Safety reports would be required as conditions of the severance.

Feel free to contact Travis Smith, Infrastructure Project Manager, for follow-up questions.

Transportation

Comments:

38. A TIA is not required.

39. ROW Protection:

- a. Ensure that the development proposal complies with the Right-of-Way protection requirements of the Official Plan's Schedule C16.
- b. See [Schedule C16 of the Official Plan](#).
- c. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.
- d. ROW must be unincumbered and conveyed at no cost to the City. Note that conveyance of the ROW/corner triangle will be required prior to registration of the SP agreement. Additional information on the conveyance process can be provided upon request.

40. Clear throat requirement is 8m. Ensure this length is provided. The clear throat length is measured from the ends of the driveway curb return radii at the roadway and the point of first conflict on-site. Note the minimum throat length provided must be maintained with the future ROW protection (as applicable).

41. Signalization of Eagleson Road and Ottawa Street is identified on the Development Charges Bylaw. Warrants have not yet been met for this intersection.

42. As the proposed site is commercial/industrial, AODA legislation applies.

- a. Ensure all crosswalks located internally on the site provide a TWSI at the depressed curb, per requirements of the Integrated Accessibility Standards Regulation under the AODA.
- b. Clearly define accessible parking stalls and ensure they meet AODA standards (include an access aisle next to the parking stall and a pedestrian curb ramp at the end of the access aisle, as required).

- c. Please consider using the City's Accessibility Design Standards, which provide a summary of AODA requirements.
<https://ottawa.ca/en/city-hall/creating-equal-inclusive-and-diverse-city/accessibility-services/accessibility-design-standards-features#accessibility-design-standards>

43. On site plan:

- a. Ensure site access meets the City's Private Approach Bylaw.
- b. Show all details of the roads abutting the site; include such items as pavement markings, accesses and/or sidewalks.
- c. Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.
- d. Turning movement diagrams required for internal movements (loading areas, garbage).
- e. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible and fall within TAC guidelines (Figure 8.5.1).
- f. Show dimensions for site elements (i.e. lane/aisle widths, access width and throat length, parking stalls, sidewalks, pedestrian pathways, etc.).

Feel free to contact Josiane Gervais, Transportation Project Manager, for follow-up questions.

Environment

Comments:

- 44. Backs onto floodplain associated with Marlborough Creek. The village of Richmond EMP (2010) indicates that the floodplain on this property contains a "local woodlot". Since the site plan indicates that the woodlot in the floodplain will be retained, we have no significant natural heritage concerns with the proposal.
- 45. There is potential for species at risk on the site, particularly in the wooded portion of the site this can be addressed through a Tree Conservation Report since the most likely concerns are related to forest dwelling species like butternut trees, black ash, and bats (addressed through timing windows). Accordingly we recommend a Tree Conservation Report be prepared to address the potential presences of these species within 25 m of

the proposed site alteration. The TCR will also need to address the concerns of our Planning Foresters as well as the information above.

46. Bird-safe design - Please review and incorporate bird safe design elements. Some of the risk factors include glass and related design traps such as corner glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here:
https://documents.ottawa.ca/sites/documents/files/birdsafedesign_guidelines_en.pdf

Feel free to contact Matthew Hayley, Environmental Planner, for follow-up questions.

Forestry

Comments:

47. A tree permit will not be required as part of this application, as there are no City Trees within the right-of-way fronting the site, and impacts to private trees in the rural area are not regulated by the tree by-law.
48. The following Tree Conservation Report (TCR) guidelines have been adapted from the Schedule E of the Tree Protection By-law – for more information on these requirements please contact julian.alvarez-barkham@ottawa.ca
- a. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
 - i. An approved TCR is a requirement of Site Plan approval.
 - b. The TCR must contain 2 separate plans:
 - i. Plan/Map 1 - show existing conditions with tree cover information.
 - ii. Plan/Map 2 - show proposed development with tree cover information.
 - c. The TCR must list all trees on site, as well as off-site trees if the CRZ (critical root zone) extends into the developed area, by species, diameter, and health condition.
 - i. For ease of review, the Planning Forester suggests that all trees be numbered and referenced in an inventory table.
 - d. Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)

- e. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained.
 - i. Compensation may be required for the removal of city owned trees.
 - f. The removal of trees on a property line will require the permission of both property owners.
 - g. All retained trees must be shown, and all retained trees within the area impacted by the development process must be protected as per City guidelines available on the Tree Protection Specification or by searching Ottawa.ca.
 - i. The location of tree protection fencing must be shown on the plan;
 - ii. Show the critical root zone of the retained trees.
 - h. The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
49. The following Landscape Plan (LP) guidelines have been adapted from Schedule E of the Tree Protection By-law – for more information on these requirements please contact julian.alvarez-barkham@ottawa.ca
- a. Please ensure any retained trees are shown on the LP.
 - b. Minimum Setbacks
 - i. Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
 - ii. Maintain 2.5m from curb.
 - c. Coniferous species require a minimum 4.5m setback from curb, sidewalk, or MUP/cycle track/pathway.
 - d. Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas.
 - e. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.
 - f. Tree specifications
 - i. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
 - ii. Maximize the use of large deciduous species wherever possible to maximize future canopy coverage

- g. Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and if possible, include watering and warranty as described in the specification.
- h. No root barriers, dead-man anchor systems, or planters are permitted.
- i. No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)
- j. Hard surface planting
 - i. If there are hard surface plantings, a planting detail must be provided.
 - ii. Curb style planter design is highly recommended.
 - iii. No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- k. Trees are to be planted at grade.
- l. Soil Volume - Please demonstrate as per the **Landscape Plan Terms of Reference** that the available soil volumes for new plantings will meet or exceed the following:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

- i. It is strongly suggested that the proposed species list include a column listing the available soil volume.
- m. Sensitive Marine Clay - Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines.
- n. The City requests that consideration be given to planting native species wherever there is a high probability of survival to maturity.

- o. Efforts shall be made to provide as much future canopy cover as possible at a site level, through tree planting and tree retention. The Landscape Plan shall show/document that the proposed tree planting and retention will contribute to the City's overall canopy cover over time. **Please provide a projection of the future canopy cover for the site to 40 years.**

Feel free to contact Julian Alvarez-Barkham, Forester, for follow-up questions.

Parkland

Comments:

- 50. Parkland Dedication will be required in accordance with [By-law No. 2022-280](#).
- 51. The applicable parkland dedication rate for Industrial and Commercial uses is 2% of the gross land area. For Commercial and Industrial redevelopment, gross land area means the portion of the property that is impacted by the development, but not including any hazard lands or natural heritage features identified in the Official Plan, an approved Secondary Plan, or through an environmental impact study accepted by the City;
- 52. The applicant is advised that they must identify on the survey, site plan or supporting plan the portion of the property impacted by the development, for the purpose of calculating gross land area. The property appears to be impacted by floodplain. Floodplains may be excluded from the area subject to parkland dedication.
- 53. Parks & Facilities Planning is requesting payment of **Cash-in-lieu-of-Parkland** for this development. The value of the land, equivalent to the Parkland Dedication requirement, will be determined as of the day before planning approval is given for the development. A property valuation will be completed by the City prior to site plan approval at the owner's cost.
- 54. The conveyance of parkland or the payment of cash-in-lieu of parkland is required unless it can be demonstrated, that the required parkland conveyance or cash-in-lieu of parkland, or combination thereof, has been previously satisfied in accordance with the Planning Act.
- 55. The application notes a future severance of the lot. The owner is advised that if they provide CIL of parkland for the entirety of the subject property prior to severance, they should not be required to provide further parkland dedication at the time of lot creation.



Feel free to contact Anissa McAlpine, Parks Planner, for follow-up questions.

Conservation Authority

Comments:

- 56. No concerns with the proposal as no physical development is occurring within the floodplain or regulated area.

Feel free to contact Eric Lalande, Rideau Valley Conservation Authority, for follow-up questions.

Other

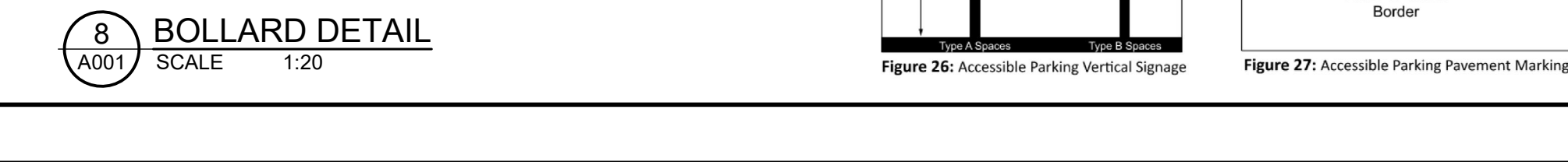
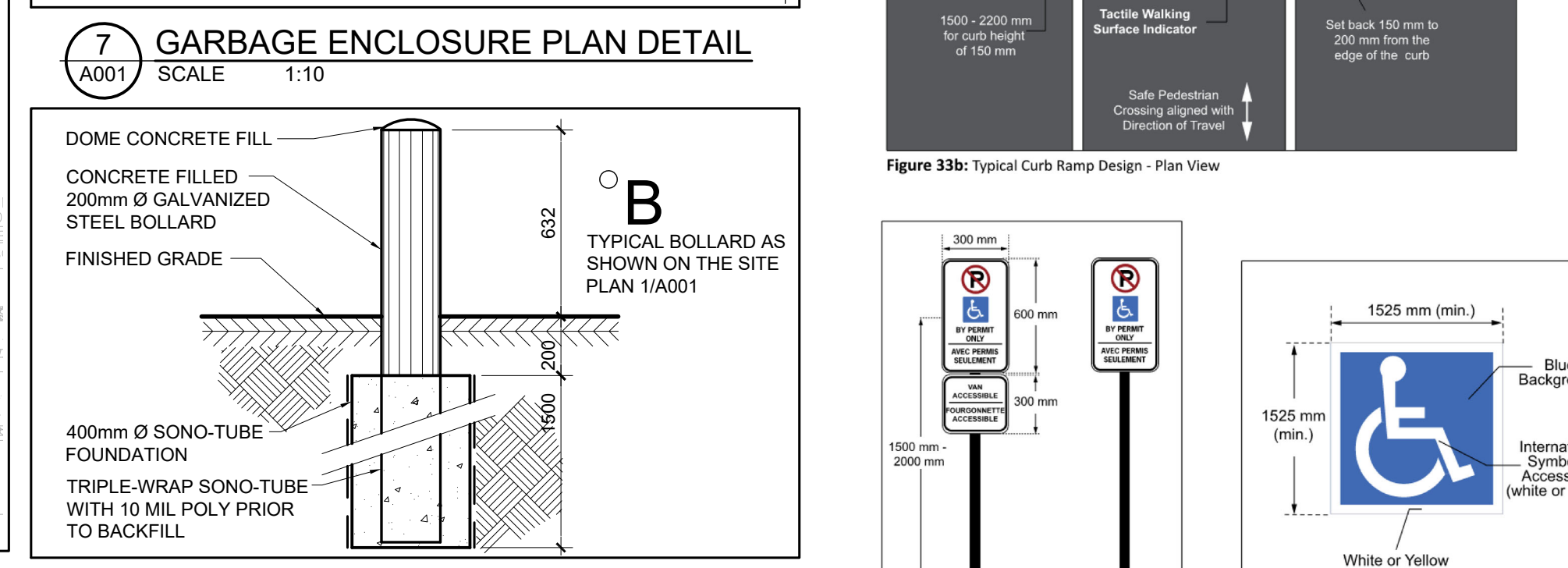
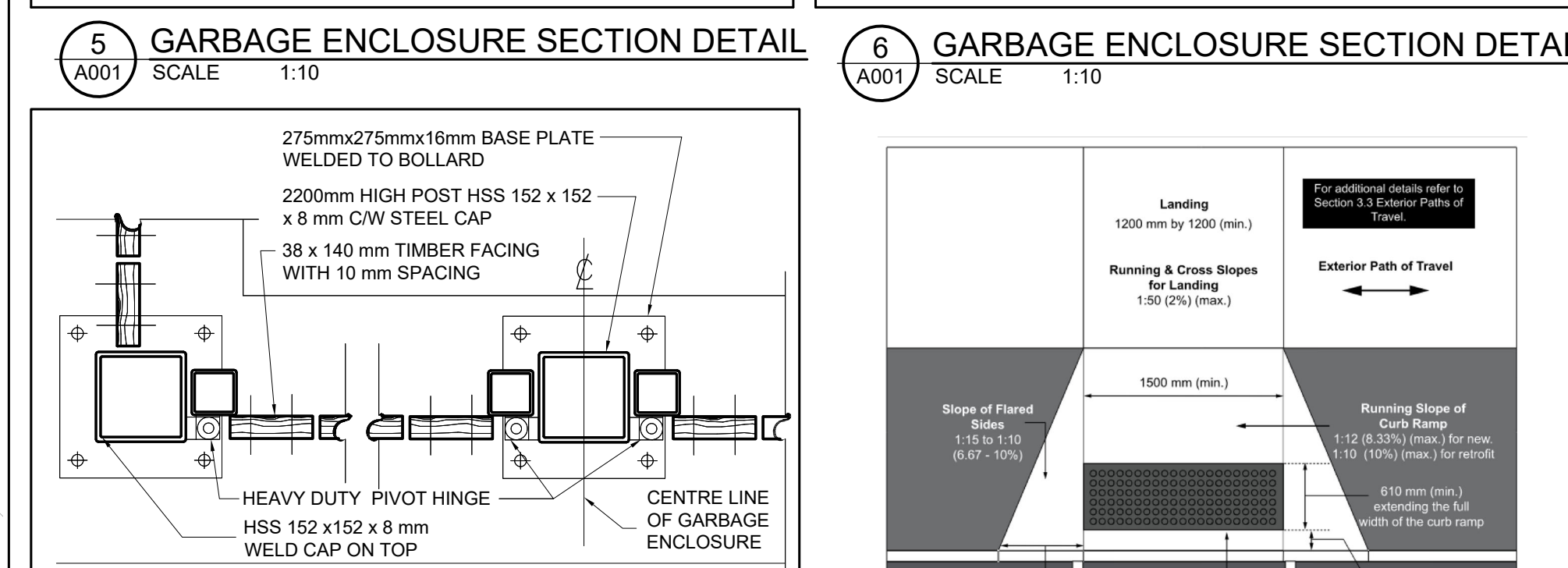
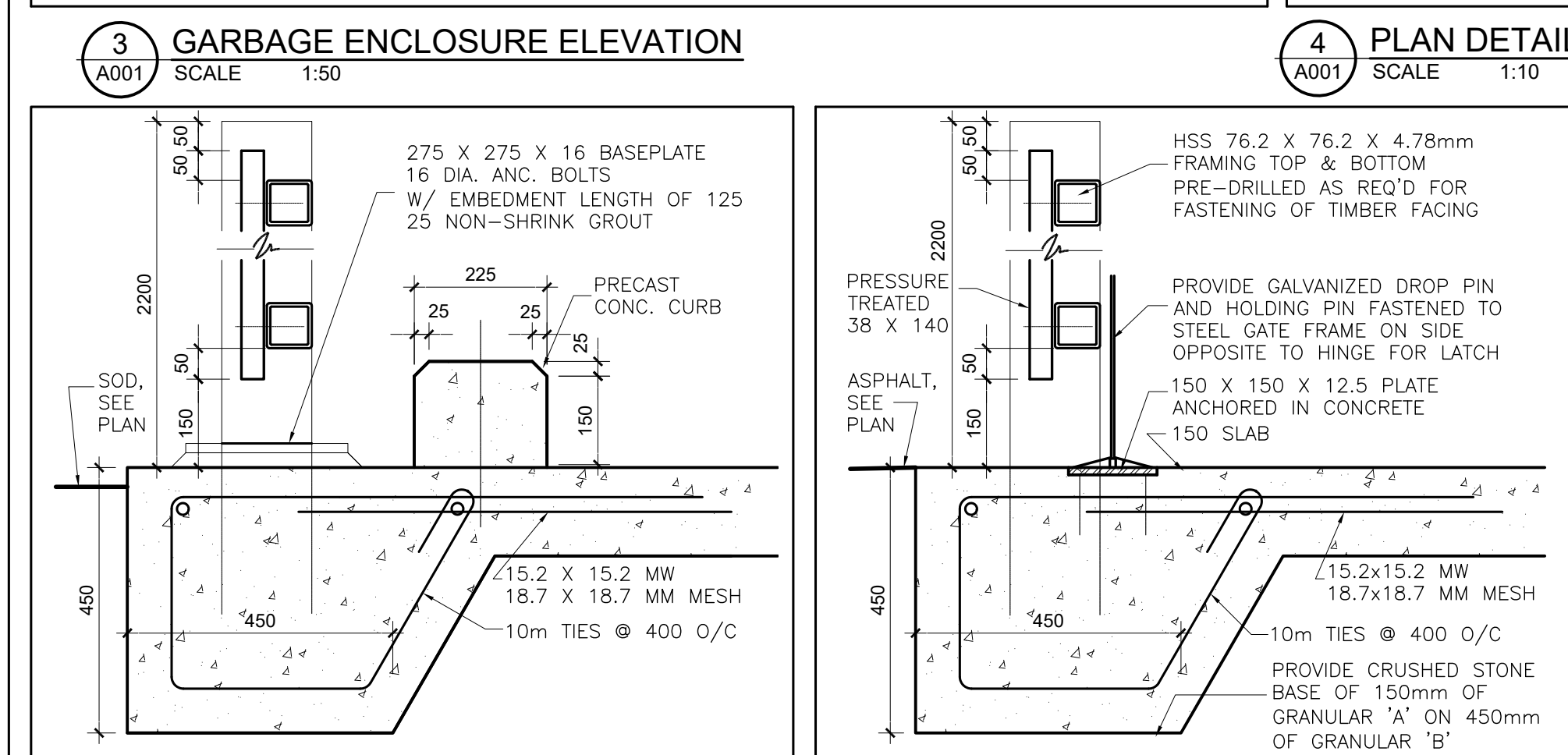
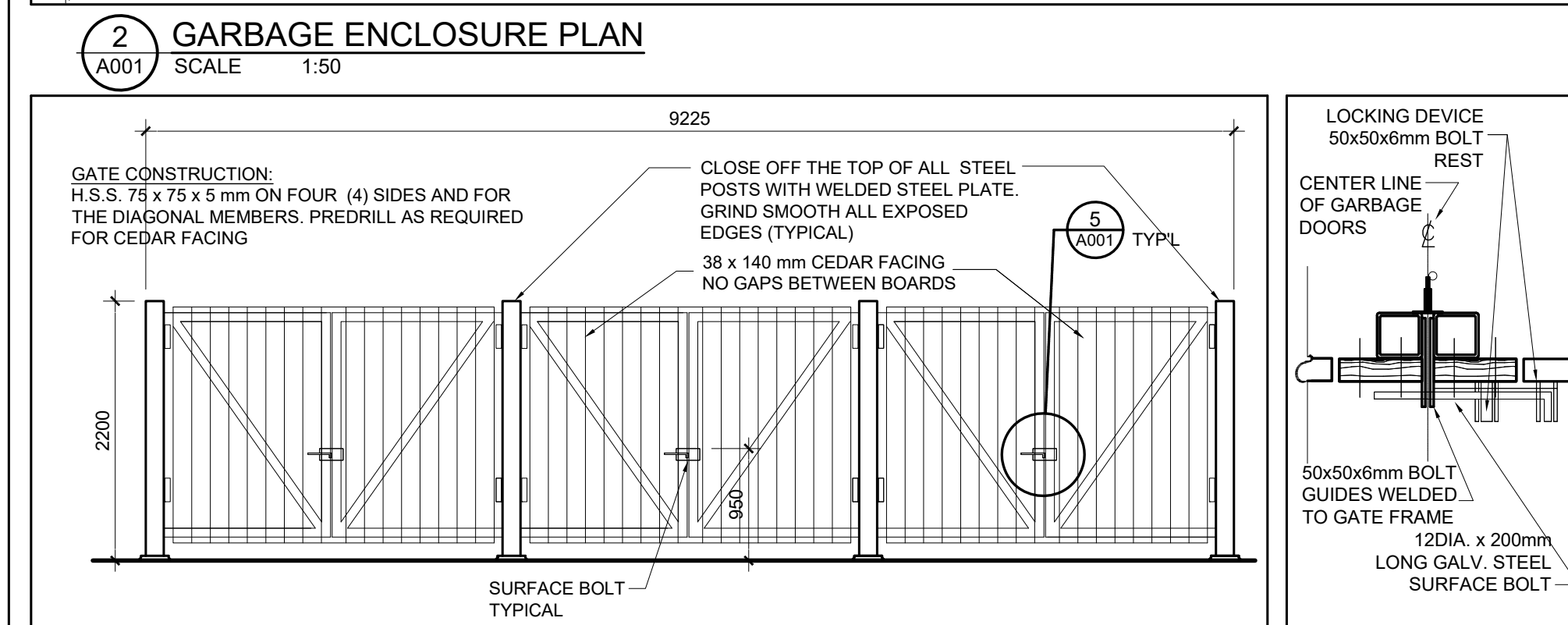
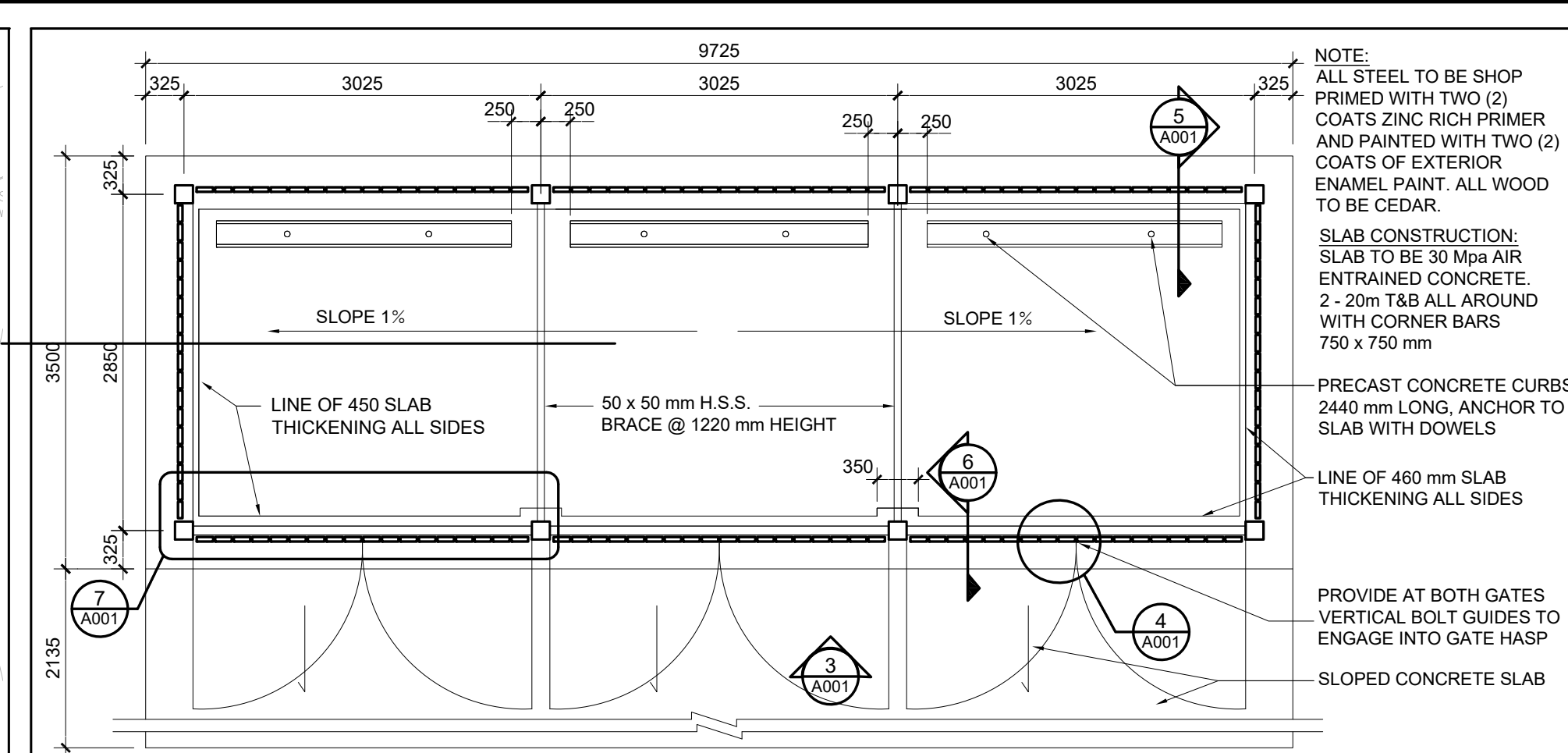
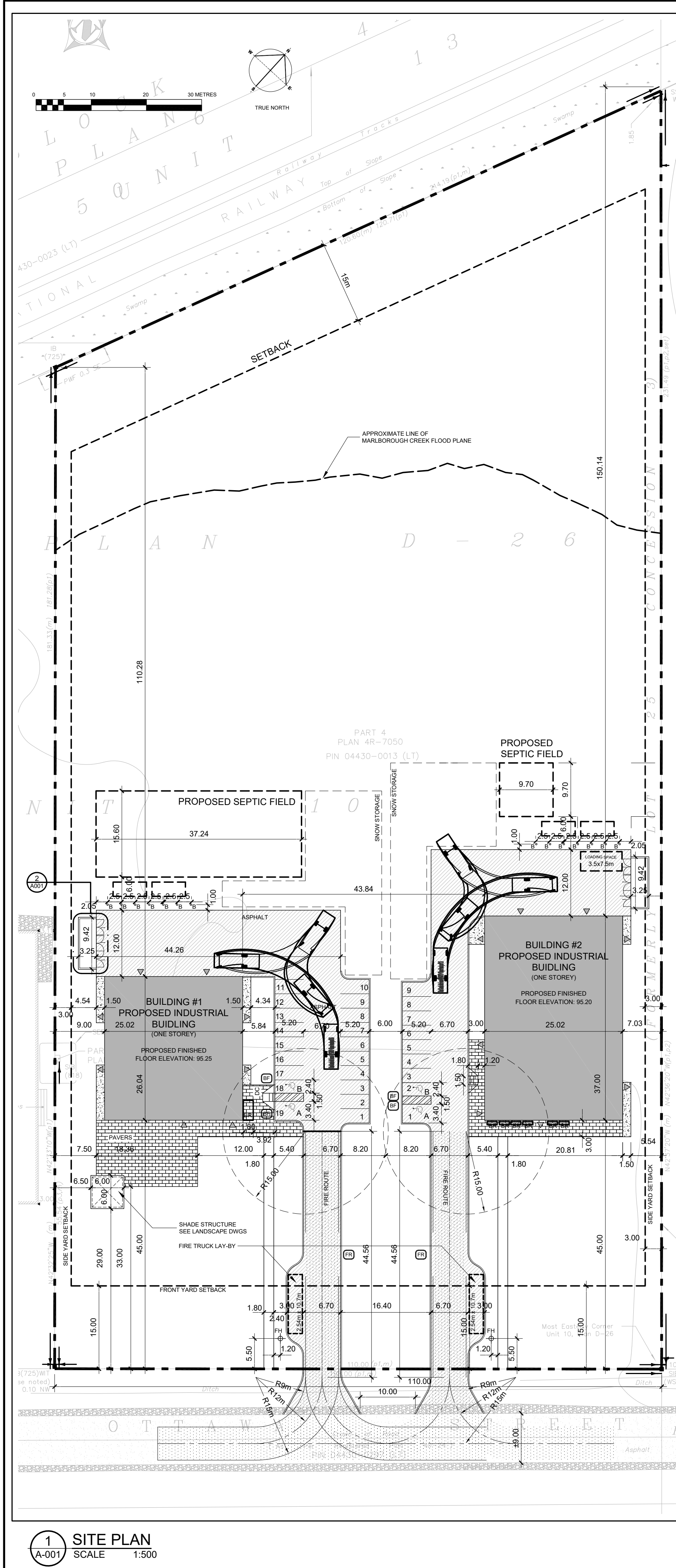
The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design. The HPDS was passed by Council on April 13, 2022.

- a. At this time, the HPDS is not in effect and Council has referred the 2023 HPDS Update Report back to staff with direction to bring forward an updated report to Committee with recommendations for revised phasing timelines, resource requirements and associated amendments to the Site Plan Control By-law by no later than Q1 2024.
- b. Please refer to the HPDS information attached and ottawa.ca/HPDS for more information.

Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

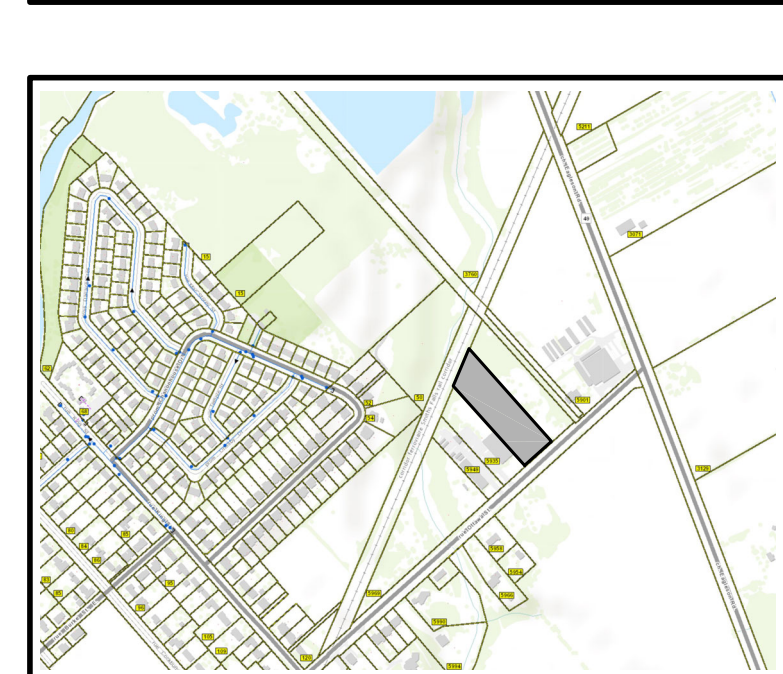
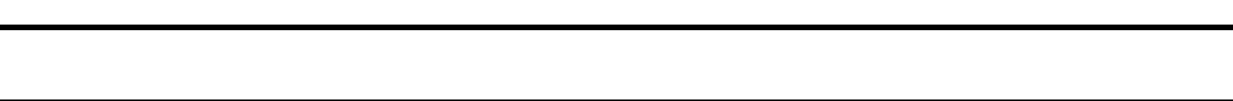
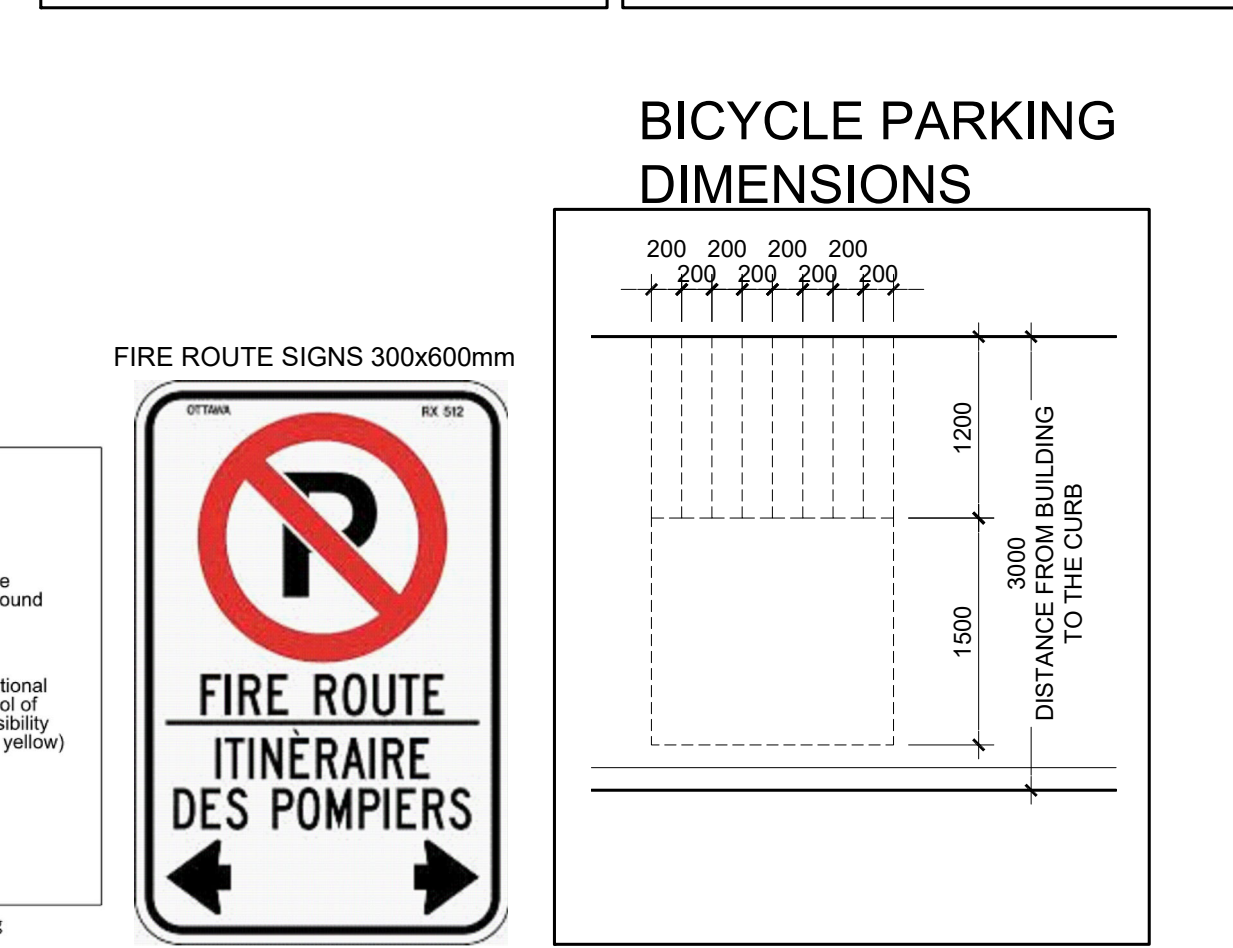
Yours Truly,
Stephan Kukkonen

c.c. Smith Travis - Infrastructure Project Manager
Josiane Gervais - Transportation Project Manager
Lisa Stern – Planner III (Urban Design)
Matthew Hayley – Environmental Planner
Julian Alvarez-Barkham – Planning Forester
Anissa McAlpine – Parks Planner
Eric Lalande – Rideau Valley Conservation Authority



ZONING INFORMATION		
NOTE: ALL ZONING DEFINITIONS AND REQUIREMENTS AS PER CITY OF OTTAWA ZONING BY-LAW 2008-250		
ZONING MECHANISM	REQUIRED	PROVIDED
DEFINITION	RG3 (385) RURAL GENERAL INDUSTRIAL ZONE	BUILDING #1: WAREHOUSE, RETAIL STORE, BAR (25%) BUILDING #2: WAREHOUSE
MIN. LOT WIDTH	30.0 m	110.0 m
MIN. LOT AREA	2,000 m ²	22,680 m ² (± 5.6 Acres)
MIN. FRONT YARD SETBACK	15.0 m	45.0 m
MIN. REAR YARD SETBACK	15.0 m	110.0 m
MIN. INTERIOR SIDE YARD SETBACK	3.0 m	9.0 m
MAX. LOT COVERAGE	35%	2.85%
PARKING LANDSCAPE BUFFER	FOR A PARKING LOT CONTAINING 10-100 SPACES: ABUTTING A STREET = 3 m NOT ABUTTING A STREET = 1.5 m	ABUTTING A STREET 3 m NOT ABUTTING A STREET 3 m
STANDARD PARKING SPACE	2.6m WIDTH x 5.2m LENGTH	2.6m WIDTH x 5.2m LENGTH
PARALLEL PARKING SPACE	2.6m WIDTH x 6.7m LENGTH	2.6m WIDTH x 6.7m LENGTH
ACCESSIBLE PARKING SPACE	3.4x5.2m (A); 2.4x5.2m(B)	3.4x5.2m (A); 2.4x5.2m(B)
PARKING REQUIREMENTS	BUILDING#1: LIGHT INDUSTRIAL USE (N49): 0.8 PER 100 m ² OF GFA (3.495 REQUIRED) RETAIL STORE (N79): 3.4 PER 100m ² OF GFA (2.75 REQUIRED) BAR (N15): 6 PER 100m ² OF GFA (6.48 REQUIRED) TOTAL REQUIRED: 12.725 BUILDING#2: LIGHT INDUSTRIAL USE (N49): 0.8 PER 100 m ² OF GFA (3.495 REQUIRED) RETAIL STORE (N79): 3.4 PER 100m ² OF GFA (2.75 REQUIRED) BAR (N15): 6 PER 100m ² OF GFA (6.48 REQUIRED) TOTAL REQUIRED: 12.725	BUILDING#1: 19 PARKING SPACES BUILDING#2: 9 PARKING SPACES
BARRIER FREE ACCESSIBLE	AS PER CITY OF OTTAWA ACCESSIBILITY DESIGN STANDARDS, PARAGRAPH 3.1.2, TABLE 3 1 TYPE 'A', 1 TYPE 'B'	BUILDING#1: 2 ACCESSIBLE PARKING SPACES (1xTYPE 'A' + 1xTYPE 'B') BUILDING#2: 2 ACCESSIBLE PARKING SPACES (1xTYPE 'A' + 1xTYPE 'B')
LOADING SPACES	GFA 350-999m ² - 0 required	0 PROVIDED
BICYCLE PARKING RATE	BUILDING#1: LIGHT INDUSTRIAL USE: 1 PER 1,000 m ² OF GFA (0.4385 REQUIRED) RETAIL STORE: 1 PER 250 m ² OF GFA (0.32 REQUIRED) BAR: 1 PER 1,500 m ² OF GFA (0.072) TOTAL REQUIRED: 0.8285 BUILDING#2: LIGHT INDUSTRIAL USE: 1 PER 1,000 m ² OF GFA (0.4385 REQUIRED)	BUILDING#1: 6 BICYCLE SPACES BUILDING#2: 6 BICYCLE SPACES

SYMBOL LEGEND:	
▲ ▼	BLDG ENTRANCE/EXIT
— FDC	FIRE DEPARTMENT CON
— FH	NEW FIRE HYDRANT
— WM	WATER METER
— DC	NEW DEPRESSED CURB
—	NEW CURB
—	PROPERTY LINE
—	NEW CHAIN LINK FENCE
— B	BOLLARD
— BR	BIKE RACKS
SIGNAGE LEGEND:	
— BF	BF PARKING
— FR	FIRE ROUTE
—	FIRE ROUTE (AS PER OBC 3.2.5): • 6m WIDE • 12m CENTRE LINE RADIUS • 3m CLEAR OF ANY OBSTRUCTIONS AND/OR BUILDINGS • 15m TO FRONT ENTRANCE • 90m MAX TO TURN AROUND FACILITIES
GROUND COVER LEGEND:	
— GRASS	CONCRETE
— ASPHALT	PAVERS



OWNER:

99117756 CANADA INC. c/o JACK GULAS
411 LEGGET DRIVE, SUITE 710, OTTAWA, ONTARIO, K2K 3C9

KEY PLAN

4	ISSUED FOR SPA	09OCT25
3	ISSUED FOR SPA	29JUL25
2	ISSUED FOR SPA	15MAY25
1	ISSUED FOR SITE PLAN CONTROL	07OCT24
no.	revision	date

N45 ARCHITECTURE INC.
71 Bank Street, 7th floor - Ottawa, Ontario, K1P 5N2
tel. 613.224.0095 fax 613.224.9811

project
FOXRUN RICHMOND
5923 OTTAWA STREET
OTTAWA, ON
project north
seal
ONTARIO ASSOCIATION OF ARCHITECTS
VLADIMIR POPOVIC
LICENCE 5918

drawing title	SITE PLAN	
scale	AS NOTED	drawn by NF
date	JUNE 2022	checked by VP
project number	24-826	drawing number A-001
CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.		revision -

APPENDIX C WATERMAIN CALCULATIONS

000-25-0415 - 5923 Ottawa Street - Water Demands - Phase 1

Project:	5923 Ottawa Street
Project No.:	000-25-0415
Designed By:	FV
Checked By:	AG
Date:	September 10, 2025
Development Area:	0.48 gross ha

Commercial	190 m2
Industrial - Light (Distillery)	432 m2

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS
Residential	280	L/c/d
Industrial - Light	35,000	L/gross ha/d
Industrial - Heavy	55,000	L/gross ha/d
Shopping Centres	2,500	L/(1000m ² /d)
Hospital	900	L/(bed/day)
Schools	70	L/(Student/d)
Trailer Park with no Hook-Ups	340	L/(space/d)
Trailer Park with Hook-Ups	800	L/(space/d)
Campgrounds	225	L/(campsite/d)
Mobile Home Parks	1,000	L/(Space/d)
Motels	150	L/(bed-space/d)
Hotels	225	L/(bed-space/d)
Tourist Commercial	28,000	L/gross ha/d
Other Commercial	28,000	L/gross ha/d
AVERAGE DAILY DEMAND	Residential	0.00 L/s
	Commercial/ Industrial/ Institutional	0.02 L/s

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS
Residential	9.5 x avg. day	L/c/d
Industrial	1.5 x avg. day	L/gross ha/d
Commercial	1.5 x avg. day	L/gross ha/d
Institutional	1.5 x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	Residential	0.00 L/s
	Commercial/ Industrial/ Institutional	0.04 L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT	UNITS
Residential	14.3 x avg. day	L/c/d
Industrial	1.8 x max. day	L/gross ha/d
Commercial	1.8 x max. day	L/gross ha/d
Institutional	1.8 x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	Residential	0.00 L/s
	Commercial/ Industrial/ Institutional	0.06 L/s

WATER DEMAND DESIGN FLOWS PER UNIT COUNT
CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

AVERAGE DAILY DEMAND	0.02	L/s
MAXIMUM DAILY DEMAND	0.04	L/s
MAXIMUM HOUR DEMAND	0.06	L/s

000-25-0415 - 5923 Ottawa Street - Water Demands - Phase 2

Project:	5923 Ottawa Street
Project No.:	000-25-0415
Designed By:	FV
Checked By:	AG
Date:	September 10, 2025
Development Area:	0.45 gross ha

Industrial - Light (Brewery)

926 m2

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS
Residential	280	L/c/d
Industrial - Light	35,000	L/gross ha/d
Industrial - Heavy	55,000	L/gross ha/d
Shopping Centres	2,500	L/(1000m ² /d)
Hospital	900	L/(bed/day)
Schools	70	L/(Student/d)
Trailer Park with no Hook-Ups	340	L/(space/d)
Trailer Park with Hook-Ups	800	L/(space/d)
Campgrounds	225	L/(campsite/d)
Mobile Home Parks	1,000	L/(Space/d)
Motels	150	L/(bed-space/d)
Hotels	225	L/(bed-space/d)
Tourist Commercial	28,000	L/gross ha/d
Other Commercial	28,000	L/gross ha/d
AVERAGE DAILY DEMAND	Residential	0.00 L/s
	Commercial/ Industrial/ Institutional	0.04 L/s

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS
Residential	9.5 x avg. day	L/c/d
Industrial	1.5 x avg. day	L/gross ha/d
Commercial	1.5 x avg. day	L/gross ha/d
Institutional	1.5 x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	Residential	0.00 L/s
	Commercial/ Industrial/ Institutional	0.06 L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT	UNITS
Residential	14.3 x avg. day	L/c/d
Industrial	1.8 x max. day	L/gross ha/d
Commercial	1.8 x max. day	L/gross ha/d
Institutional	1.8 x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	Residential	0.00 L/s
	Commercial/ Industrial/ Institutional	0.10 L/s

WATER DEMAND DESIGN FLOWS PER UNIT COUNT

CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

AVERAGE DAILY DEMAND	0.04	L/s
MAXIMUM DAILY DEMAND	0.06	L/s
MAXIMUM HOUR DEMAND	0.10	L/s

4

3

2

1

D

D

C

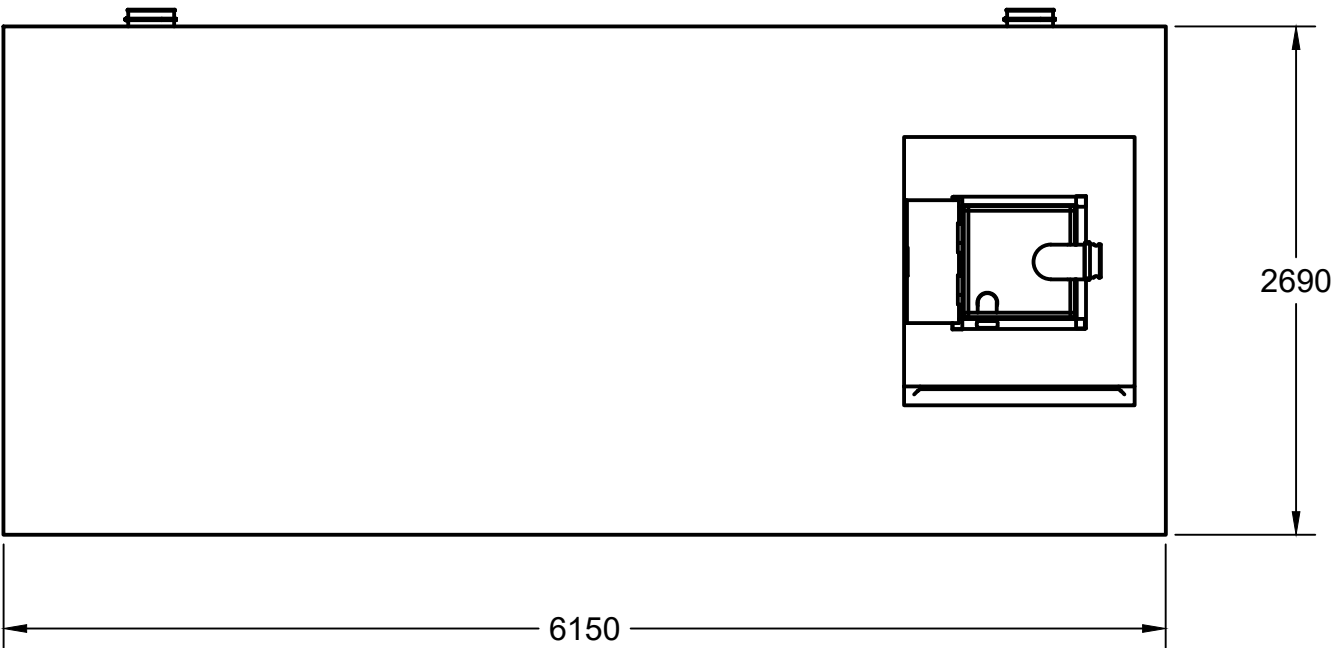
C

B

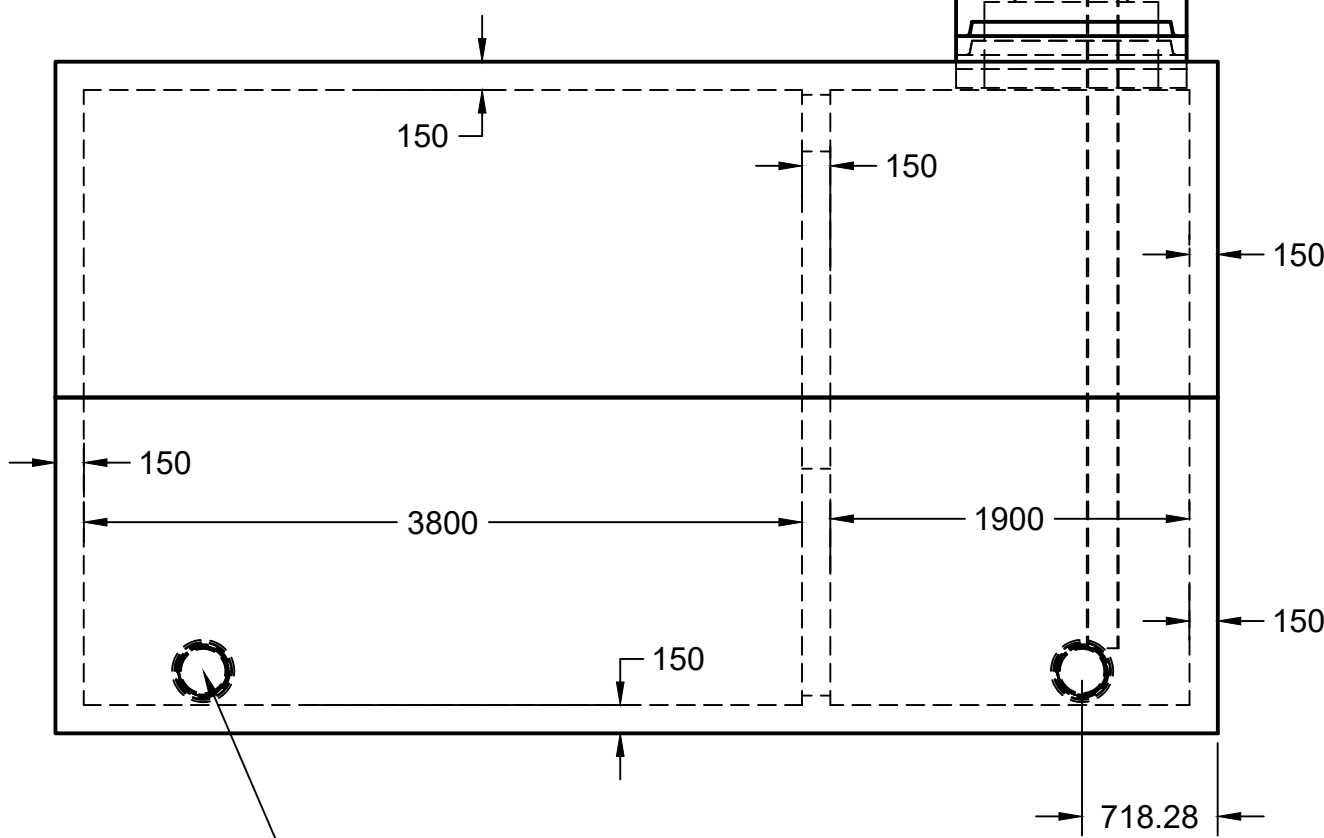
B

A

A



PRIMARY TANK: 610x610 City of Ottawa Spec
Fire Chute w/ 150Ø Female Dry Hydrant and
Drawdown Pipe
100Ø Storz Fitting for Water Chute
SECONDARY TANKS: 610x610 Aluminum
Access Hatch c/w 100Ø Gooseneck Vent fitted
with rodent screen



2- 200Ø Interconnection Bootseals
For Multiple Tank Cluster Systems

TOTAL VOLUME: 45000L

CONCRETE: 35MPa WITH 5-8% AIR ENTRAINMENT
NON SULPHATE RESISTANT

REINFORCING: GRADE 400W CONFORMING TO CSA G30.18
15M @ 200mm ON CENTRE EACH WAY
ADDITIONAL 15M AROUND PERIMETER AT SEAM BETWEEN

SECTIONS 15M x900mm ON DIAGONAL AT EACH CORNER OF LID OPENING

WEIGHT: TOP SECTION 19000KGS
BOTTOM SECTION 19000KGS
TOTAL 38000KGS

MAXIMUM BURIAL DEPTH: 1200MM OF GROUND COVER IN AREA OF
NON-VEHICULAR TRAFFIC

WATER TIGHTNESS: 2X ROWS CON-SEAL CS-102 MASTIC SEALANT BETWEEN
SECTIONS. SEALANT APPLIED ONSITE BY BOYD BROS CONCRETE
ACCORDING TO MANUFACTURER'S RECOMMENDED METHOD

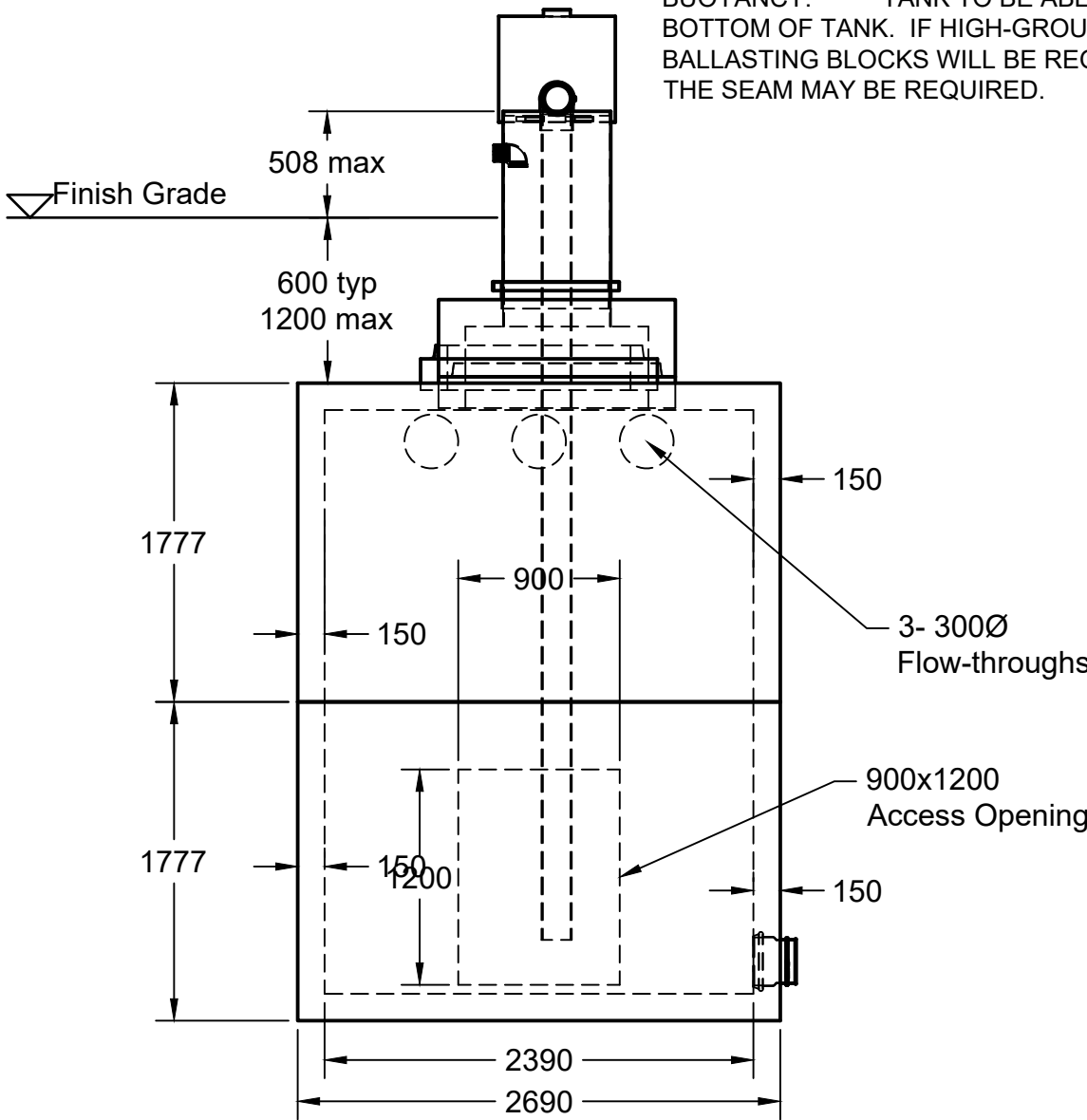
PIPE/WALL CONNECTIONS: 200mmØ Flexible Rubber Bootseal for PVC Supply Line

ACCESS OPENINGS:
PRIMARY TANK: 610X610 CITY OF OTTAWA SPEC FIRE CHUTE FOR FIRETRUCK
CONNECTION
SECONDARY ACCESS (OPTIONAL) :1200x1300 CAST-IN RISER FLANGE WITH
610X610 DRIP PROOF ALUMINUM ACCESS HATCH
900X1200 OPENING IN DIVIDER WALL FOR ACCESS TO BOTH CHAMBERS FROM
ONE ACCESS POINT

OPTIONAL STAINLESS STEEL BOLT-ON LADDER OPTIONAL

TANK DESIGN CONFORMS TO CSA STANDARD B66-15 WITH A NON-TRAFFIC LOAD ON TOP,
AND WITH HEAVY TRUCK LOADING DIRECTLY ADJACENT TO TANK TO ACCOMODATE FIRE
TRUCK TO BE WITHIN 1M OF WATER DRAW-DOWN CHUTE, AS PER FIRE DEPT.

BUOYANCY: TANK TO BE ABLE TO WITHSTAND GROUNDWATER UP 2.0M FROM
BOTTOM OF TANK. IF HIGH-GROUNDWATER LEVEL IS IN EXCESS OF THIS, ADDITIONAL
BALLASTING BLOCKS WILL BE REQUIRED. ADDITIONAL WATERPROOFING MEASURES AT
THE SEAM MAY BE REQUIRED.



5450 Cuddy St Osgoode, ON K0A 2W0
tel: (613) 826.2318 fax: (613) 826.3679
toll free: 888.846.6664
website: www.boydbrosconcrete.ca
email: info@boydbrosconcrete.ca

PROJECT
Boyd Bros Concrete

TITLE
45000 Fire Tank

DRAWN Rob Sanna 6/19/23 APPROVED		
SIZE C	DWG NAME 45000 Fire Tank	REV 3
SCALE 1:40	WEIGHT 35000kgs	SHEET 1/1



January 27, 2026

Jack Gulas
Stratford Foxrun
6286 Prince of Wales Drive
North Gower, ON
K0A 2T0

EMAIL: jack@stratfordfoxrun.com
CC: josh.laginski@outlook.com

Dear Jack:

**RE: 5923 OTTAWA STREET DISTILLERY WATER STORAGE VOLUME ESTIMATE
LRI FILE 2025-04-0654**

PROJECT DESCRIPTION

The project at 5923 Ottawa Street, Ottawa, ON includes two buildings on one site to be used for a mix of industrial and assembly occupancies. Building 1 includes a distillery, mezzanine-level offices, a bar/tasting area, a retail store, and an outdoor patio. Building 2 includes a brewery, some storage space, a bottling line, and associated office space for staff of the site's operations.

The buildings are subject to the 2024 Ontario Building Code (OBC), and as such, are required to be supplied with water for firefighting purposes. The site and surrounding area are not connected to a municipal water supply for firefighting. As a result, water must be stored on site for this purpose. This letter is intended to summarize LRI's analysis of the buildings, the OBC, and OFS documentation regarding the applicable rules and regulations which help assess the required amount of water to be stored on site.

For clarity, the analysis below is based upon the design information available at this time, and is considered an order of magnitude estimate, subject to refinement when the sprinkler and fire pump systems for the buildings are designed. This detailed design is most commonly completed following building permit submission. The objective of the analysis is to explain the fire safety rationale applied to the buildings and to assist the design team and reviewers in aligning on an acceptable water volume to be stored on a general basis.





BUILDING DESCRIPTION

The subject site includes two buildings: Building 1, and Building 2. These buildings have the following characteristics based on the provided architectural drawings:

Building 1:

- One storey in building height, with mezzanine
- 8.5 m in height
- 647 m² in building area
- Sprinklered throughout
- Occupancies include:
 - Distillery
 - Offices
 - Bar/assembly
 - Retail

Building 2:

- One storey in building height, with mezzanine
- 8.5 m in height
- 926 m² in building area
- Sprinklered throughout
- Occupancies include:
 - Mashing/bottling
 - Brewery
 - Storage mezzanine
 - Offices

CODE REQUIREMENTS

In conformance with OBC 3.2.5.7 “every building shall be provided with an adequate water supply for firefighting”. As clarified by OBC Appendix A-3.2.5.7.(2) for sprinklered buildings, “water supply additional to that required by the sprinkler systems should be provided for firefighting using fire hoses in accordance with the hose stream demands and water supply durations for different hazard classifications as specified in NFPA 13, “Installation of Sprinkler Systems”.

Since the buildings are sprinklered, the water storage volume estimate, therefore, needs to provide sufficient water for the sprinklers to operate, plus necessary hose demands from fire crews.

In conformance with Technical Bulletin IWSTB-2024-05, rural fire flow calculation methods are to follow the Appendix J flow chart. Specifically, since both buildings are required to be sprinklered for insurance reasons, the highlighted green path will be followed:

Appendix J

RURAL FIRE FLOW CALCULATION PROCESS

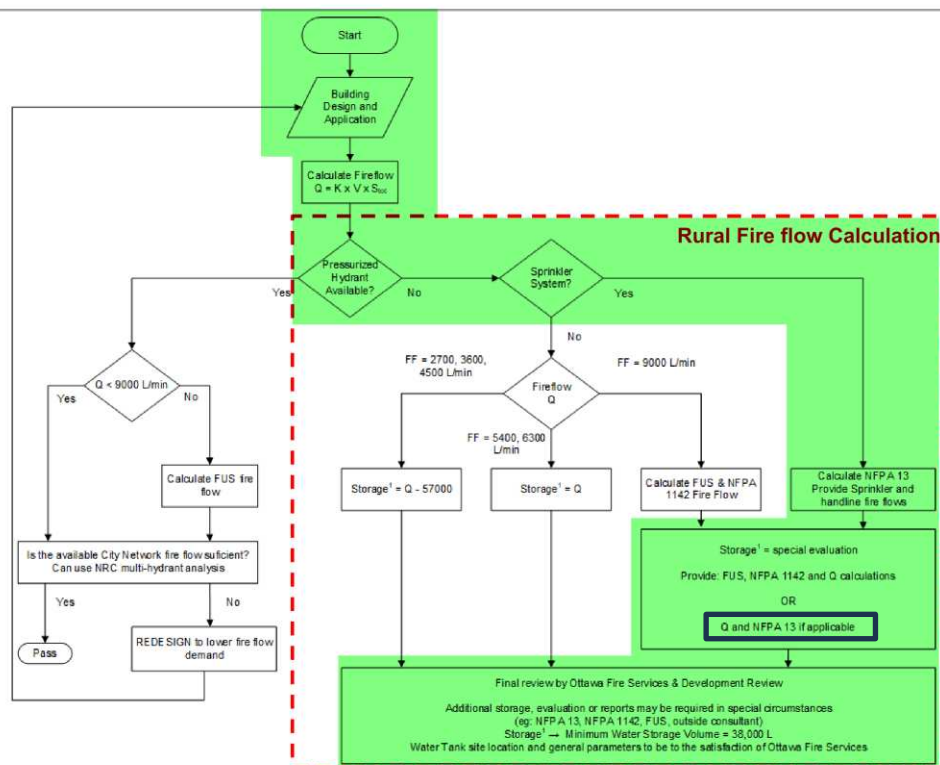


Figure J.1: Rural Fire Flow Calculation Process.

The following section outlines the methodology used for the storage volume estimates to permit OFS review.

METHODOLOGY

OBC-based Q volume analysis:

The following analysis uses the OBC-prescribed method to assess volumes based on the following inputs:

$Q = K \times V \times Stot$, where

Q = minimum supply of water in litres

K = water supply coefficient from the OBC

V = total building volume in cubic metres (m^3)

$Stot$ = total of spatial coefficient values from property line exposures on all sides.



Building 1:

Variable	Value	Notes
Q	177,100 L, with 5,400 LPM minimum flow rate	
K	23	Conservatively assumes Group F, Division 1 occupancy despite pending alternative solution. Also assumes compliant 3.2.2. noncombustible construction.
V	5,500	Based on area and building height
Stot	1.4	0.4 penalty assigned to southwest face with limiting distance of 9 m

Building 2:

Variable	Value	Notes
Q	173,949 L, with 5,400 LPM minimum flow rate	
K	17	Assumes Group F, Division 2 occupancy. Also assumes compliant 3.2.2. noncombustible construction.
V	7,871	Based on area and building height
Stot	1.3	0.3 penalty assigned to southeast face with limiting distance of 7 m

Based on the OBC volume Q analysis presented above, the calculated minimum supply of water required storage volumes of up to approximately 177,100 L for Building 1, or 173,949 L for Building 2. This translates to a minimum required flowrate of 5,400 LPM for both buildings at 30 minutes of supply duration.

As outlined in IWST-2024-05, for a proposed building equipped with a sprinkler system designed in accordance with NFPA 13, the OBC calculations noted above should be completed, and an additional NFPA 13 special evaluation may be carried out to determine the sprinkler water storage requirements.

NFPA 13-based volume analysis:

As the buildings will both be protected by automatic sprinkler systems, Appendix A demonstrates water volume calculations for the sprinkler systems anticipated to be designed for each building. It should be noted that these volumes are estimates, and final hydraulic designs will dictate the final volume requirements. At this time, the expected volume is to include sufficient water to supply the most demanding hydraulic area assuming one fire in one building at a time, includes for a 20% factor calculated based on water volumes discharged by the sprinklers, and considers NFPA 13-mandated hose demand calculations.



The calculations assume a sprinkler design on a “room area” method wherein different rooms must be individual enclosed fire compartments to permit the hydraulic area to be shrunk to the size of the room. This assumes that a fire separation will contain the fire during the time required for sprinkler operation.

The following tables summarize the assumed hazard classifications for the rooms. These assumptions are based off a combination of NFPA 13 compliance requirements, requirements described by the Distilled Spirits Council of the United States (DISCUS), and based on LRI’s expectation that the distillery/bar occupancy approach will require an alternative solution and correspondingly increases sprinkler density to improve suppression potential in support of that effort.

Room	Area (ft ²)	Expected Occupancy Classification
Building 1		
Grain Handling	238	Ordinary Hazard Group 2
Brewing/bottling	2,383	Ordinary Hazard Group 2 (aligns with DISCUS recommendations)
Boiler Room	277	Ordinary Hazard Group 1
Still house/still room	965	Extra Hazard Group 1 to support alternative solution approach
Office Mezzanine	1,182	Light Hazard
Kitchen	190	Ordinary Hazard Group 1*
Bar	1,632 (hydraulic area assumed limited to 1500 ft ²)	Light Hazard*
Retail	885	Ordinary Hazard Group 2
Building 2		
Mashing/brewing	6,050 (hydraulic area assumed limited to 2000 ft ² per DISCUS)	Ordinary Hazard Group 2
Bottling	2,370 (hydraulic area assumed limited to 3000 ft ² or room area DISCUS)	Ordinary Hazard Group 2
Office and admin area	1,095	Light Hazard
Storage mezzanine	1,185	Ordinary Hazard Group 2

* Note that depending on the hydraulic design, the kitchen and portions of the bar may end up being calculated together as a remote area. Their cumulative effect has been considered in Appendix A

As depicted in Appendix A, based on the NFPA 13 analysis presented above, expected storage volumes for both sprinkler and hose demand would result in required storage volumes of up to approximately 288,000 L for Building 1, or 243,000 L for Building 2. Both of these values are very high, and represent the provision of at least 100% of the NFPA 13-mandated volumes for both sprinkler operation and hose demands, for durations ranging between 30 minutes and 90 minutes (depending on NFPA 13 criteria). In order to provide a more reasonable estimate, in light of the IWSTRB documentation and OFS firefighting capacity, the following section evaluates the impact that water shuttling can have on the required storage volume.



Influence of OFS Superior Tanker Shuttle level on the required storage volume:

IWSTB 2024-05 does not explicitly clarify if or how OFS Superior Tanker Shuttle service contributes to NFPA 13-derived water storage volume analysis. As a result, engineering judgement and alignment with the AHJ is necessary.

In conformance with IWSTB 2024-05, OFS is capable of delivering 1,900 LPM within 5 minutes of arrival. As such, some credit should be permissible to account for the fire department's ability to replenish stored water volumes during a fire. As a result, the proposed storage volumes consider a reduction of 1,900 LPM for the NFPA 13 mandated duration of the fire as a reasonable value. This effectively replenishes the hose demand required for higher hazard occupancies and exceeds that required for lower hazard occupancies. The resultant conclusions presented below and in Appendix A represent an amount of water stored that exceeds the minimum required by IWSTB 2024-05, is comparable to OBC-required amounts for unsprinklered buildings, and represents the ability of the system to automatically supply the sprinklers for the NFPA 13-derived duration of the fire without extra volumes. In other words, sufficient water is expected to be stored to supply the sprinklers automatically, allow initial fire crews to have access to water for hose lines, and provide time for shuttling water to start supplementing the available stored water.

	Building 1	Building 2
OBC based Q Evaluation	177,100 L	173,949 L
NFPA 13 Evaluation	288,442 L	242,574 L
NFPA 13 Evaluation w/Superior Tanker Shuttle Service Reduction	118,117 L	129,024 L

CONCLUSION

This letter summarizes LRI's review of the proposed building project at 5923 Ottawa Street, and the required firefighting water volumes to be stored on site.

As the buildings are sprinklered, and in conformance with IWSTB 2024-05, a special assessment aligning with NFPA 13 has been provided. This is summarized in Appendix A.

The resultant water volume to be stored is expected to be designed to accommodate the highest required volume of either building, is to be shared between both buildings, and assumes one fire in one building at a time. This assumption is reasonable, especially given the large separation distance between both buildings on the same property.

At this time, for the purpose of development permitting and planning purposes and until the design develops such that proper fire protection design can be completed, it is recommended that the water storage volume match the OBC-mandated Q-values for a Group F, Division 1 occupancy for the distillery, and a Group F, Division 2 occupancy for the brewery and storage area. No reduction for OFS water shuttling has been accounted for in the recommended Q-value, and represents a conservative assumption. Based on this analysis, stored water volumes of 180,000 L are recommended at this time, with final volumes being determined based on detailed sprinkler and fire pump design criteria.



Sincerely,
LRI ENGINEERING

Matthew Hopley, M.Eng., P.Eng [AB]
Branch Manager - Alberta

Reviewed by,
LRI ENGINEERING



Jin Chen, P.Eng.
Associate

NFPA 13 Water Volume Estimate Analysis

LRI Engineering

Date

21-Aug-25

Site

5923 Ottawa Street

Prepared By

Matthew Hopley

Reviewed By

Jin Chen

Building 1												
Safety Margin on Sprinkler only 20%												
	Area (ft2)	Density (gpm/ft2)	Volume (gpm)	Duration (minutes)	Capacity (L)	Hose Demand (gpm)	Duration (minutes)	Capacity (L)	Combined (L)	Shuttling Allowance (lpm)	Duration (minutes)	Total Storage Volume (L)
Grain Handling (OH2)	238	0.2	47.6	60	10,810	250	60	56,700	69,672	-1,893	60	-43,878
Brewing and Bottling/Process (DISCUS)	3000	0.2	600	60	136,260	250	60	56,700	220,212	-1,893	60	106,662
Boiler Room (OH1)	277	0.15	41.55	60	9,436	250	60	56,700	68,023	-1,893	60	-45,527
Distillery (DISCUS)	965	0.2	193	90	65,745	500	90	170,100	248,995	-1,893	90	78,670
Distillery (as EH1 for AS)	965	0.3	289.5	90	98,618	500	90	170,100	288,442	-1,893	90	118,117
Office Mezzanine (LH)	1182	0.1	118.2	30	13,422	100	30	11,340	27,446	-1,893	30	-29,329
Kitchen (OH1)	190	0.15	28.5	60	6,472	250	60	56,700	64,467	-1,893	60	
Bar (LH) (limited to 1500 ft2)	1632	0.1	150	30	17,033	100	30	11,340	31,779	-1,893	30	
Kitchen + Bar					23,505	250	60	56,700	84,906	-1,893	60	-28,644
Retail (OH2)	885	0.15	132.75	60	30,148	250	60	56,700	92,877	-1,893	60	-20,673

Building 2												
Safety Margin on Sprinkler only 20%												
	Area (ft2)	Density (gpm/ft2)	Volume (gpm)	Duration (minutes)	Capacity (L)	Hose Demand (gpm)	Duration (minutes)	Capacity (L)	Combined (L)	Shuttling Allowance (lpm)	Duration (minutes)	Total Storage Volume (L)
Mashing (DISCUS), 2000 sqft max area	6050	0.2	400	60	90,840	250	60	56,700	165,708	-1,893	60	52,158
Bottling, 3000 sqft max area	2370	0.2	474	60	107,645	500	60	113,400	242,574	-1,893	60	129,024
Office and admin (light hazard)	1095	0.1	109.5	30	12,434	100	30	11,340	26,260	-1,893	30	-30,515
Storage mezzanine (OH2)	1185	0.2	237	60	53,823	250	60	56,700	121,287	-1,893	60	7,737



August 21, 2025

Jack Gulas
Stratford Foxrun
6286 Prince of Wales Drive
North Gower, ON
K0A 2T0

EMAIL: jack@stratfordfoxrun.com
CC: josh.laginski@outlook.com

Dear Jack:

**RE: 5923 OTTAWA STREET OCCUPANCY ALTERNATIVE SOLUTION ROADMAP
LRI FILE 2025-08-0269**

INTRODUCTION

The project at 5923 Ottawa Street, Ottawa, ON includes two buildings on one site to be used for a mix of industrial and assembly occupancies. This letter is intended to help provide relevant information regarding the intended design and compliance process relative to the occupancy classification for the distillery building (Building 1). This letter's framework (or roadmap) summarizes important parts of the analysis that have been undertaken for the project, as well as future elements to be incorporated into the design of the building to align the design and use of the building to meet the level of safety required by the OBC. The overall approach will require an alternative solution to be submitted as part of the building permit process. This letter is not considered to be a formal alternative solution, but is instead, intended to allow project stakeholders to understand what future submissions will include to help inform processes such as development permit approval.

CONCEPT DISCUSSION

Building 1 at 5923 Ottawa Street, Ottawa, ON will include a distillery, some mezzanine offices, a bar/tasting area, a retail store, and an outdoor patio. The second building (Building 2) is an industrial building intended to comply with the acceptable solutions of the building code and is understood to be treated primarily as a Group F, Division 2 major occupancy (with other lower hazard subsidiary occupancies).

Buildings are required to be classified as a function of their major occupancies. OBC Article 3.1.2.1 specifies that a building is to be classified in conformance with this Article and includes Appendix A, Division B-3.1.2.1.(1) which gives examples of various occupancies, including distilleries as an example of a Group F, Division 1 high hazard industrial occupancy.





Similarly, OFC Sentence 4.9.1.1.(2) outlines that the “parts of a building in which distilled beverage alcohol is distilled, processed or stored in bulk shall be classified as high hazard industrial occupancies”.

The definition of distillery is generally understood to have not considered the potential for smaller operations. Conversely, “craft” or “micro” distilleries are not defined in any meaningful sense within the Building/Fire codes. Notwithstanding, absent a definition of “sufficient quantities” and “special fire hazard”, the strict application of the Code to all distilleries in all cases fails to acknowledge that where the quantities of alcohol are moderate and where fire safety features are sufficient, the level of risk of craft distilleries can be managed to an extent where the hazard is comparable to a medium-hazard industrial occupancy.

As a result, consideration pertaining to the OBC and the construction of distilleries must be reviewed in order to develop a compliant structure. The approach to protection in this design intends to incorporate features which limit the potential for fires and explosion with multiple layers of active and passive fire safety features. Explosion risks are mitigated by reducing the probability of an explosion occurring in the first place, rather than mitigating the consequence of the explosion through deflagration venting which offers little protection to those near the hazard. In addition to the use of mitigating design features, the use of a risk index serves to quantify what can be considered a “special fire hazard”, and at what point a fire hazard is no longer “special”. This risk indexing demonstrates that in combination with the safety features described in this report, that restricting the size and risks posed by the distillery itself further meets the requirements of the Code.

As this is a small craft distillery which processes and produces significantly smaller amounts of products, it is proposed that the hazard associated with the operation is considerably lower than the original intent of the Code, which did not consider the potential for smaller craft-style distilleries. The conclusion of this report is that where a sufficiently small, appropriately fire-protected distillery is installed in a building, the level of risk presented by the craft distillery is at least as low as a comparable medium-hazard industrial Group F, Division 2 occupancy. The future alternative solution will also provide details on requirements from the Building and Fire Codes which are considered essential for distillery operations of any size. The sections of this letter below provide an overview of how the subject distillery will be assessed in terms of occupancy classification, and outline the provided means to mitigate the design related risk to a level that aligns with the OBC requirements for medium-hazard industrial occupancies.

BUILDING DESCRIPTION

The subject site includes a distillery within Building 1, which consists of the following:

- One storey in building height, with mezzanine
- 8.5 m in height
- 647 m² in building area
- Sprinklered throughout
- Occupancies include:
 - Distillery
 - Offices
 - Bar/assembly
 - Retail



DISTILLERY PROCESS DESCRIPTION

The distillery portion of the building (still house) consists of distillation equipment located in one fire compartment within Building 1. The still house will be fire separated from the remainder of the building and includes the following equipment that includes alcohol above 20% ABV (which is the concentration at which the OFC defines the subject liquids as distilled beverage alcohol).

- Four totes containing 2,000 L each (8,000 L);
- One Doubler containing 500 L;
- One Pot Still containing 3,500 L;
- Two column Stills containing approximately 100 L each during use (200 L);

The total volume of higher proof ethanol above 20% ABV then totals approximately 12,200 L at varying concentrations above 20% ABV, ranging up to 95% ABV at the highest concentration.

CODE REQUIREMENTS

When assessing required fire safety features, it is important to assess the overall risk that a given process presents, which considers both the probability and magnitude of various hazards. In order to effectively analyze, identify, and mitigate the relevant hazards, a rigorous, practical, repeatable, and industry-accepted methodology needs to be applied. The objective of the assessment is to review a proposed process (the distillery), assess the hazards, and where necessary, add mitigating measures to reduce the level of risk such that it aligns with that accepted by the OBC.

Ultimately, the assessment in the future alternative solution will demonstrate that the occupancy will present a comparable level of risk as that posed by a medium-hazard industrial occupancy. The assessment considers more simplistic properties, such as fuel load concentrations, but also incorporates more advanced assessments to better highlight where necessary process changes or additional protection may be required.

METHODOLOGY

To mitigate the potential damage and harm that could arise from a fire or explosion occurring from within the distillery portion of the building, extra protection measures will be provided to both reduce the probability of explosions and limit the consequences of a fire or explosion should one occur. A measure must be provided to demonstrate that the proposed design mitigates the risks of fires and explosions to the level required by Code to permit the classification of the unit as a Group F, Division 2 major occupancy. For this project, it is proposed to use the DOW Fire and Explosion risk index (DOW F&EI) to provide a quantitative, relative measurement of the site's risk profile.

Fire risk indexes serve a role in fire protection by striking a balance between qualitative approaches which may or may not provide adequate detail or granularity, and fully quantitative methods which can be expensive, labour intensive, slow, and which tend to require specialist knowledge to adequately judge. "[The DOW F&EI guide] is intended to provide a direct and logical approach for determining the probable "risk exposure" of a process plant and to suggest approaches to fire protection and loss prevention design. An important application of the F&EI is to help decide when a more detailed quantitative risk analysis is warranted, as well as the appropriate depth of such a study"¹.

¹ Society of Fire Protection Engineers, SFPE Handbook of Fire Protection Engineering, 5th Edition, page 3162



The DOW F&EI method was developed by the Dow Chemical corporation where the first edition was released in 1964. Since its first release, the index has been used by DOW and other entities in the chemical industry. The current version, the 7th edition was released in 1994 and is still in use today. The DOW F&EI is “the leading hazard index recognized by the chemical industry” and “provides key information to help evaluate the overall risk from fire and explosion”². The method follows a regimented step-by-step process which is applied to each process unit of a plant. Expertise in selecting specific penalty values is needed, but the available guide to how each should be applied helps explain the rationale behind selecting certain values.

The full DOW F&EI follows a thirteen-step process to determine a variety of outputs which includes the index score, the area of exposure, a damage factor, and additional economic measurements used to analyse process plant layouts and designs. For the purpose of this analysis, the critical output of the analysis is to assess the F&EI score. This score is a function of the process material factor, general process hazard penalties, and special process hazard penalties.

The base score without loss control credit factors applied will be reviewed. Furthermore, an offset version of the score will be reviewed considering the methods proposed by Gupta³. The base DOW F&EI score will be considered appropriate where it does not exceed the threshold for “intermediate” hazards (a score of 127 or lower in the DOW F&EI). The offset score will be evaluated, and relevant mitigating features will be added to achieve an offset score in the “moderate” hazard range (a score of 96 or lower). Scores below this threshold can generally be managed through standard fire protection and building design measures, would not represent a special fire hazard, and would more closely align with the hazards typical of a medium-hazard industrial occupancy.

DEGREE OF HAZARD FOR F&EI	
F&EI INDEX RANGE	DEGREE OF HAZARD
1 - 60	Light
61 - 96	Moderate
97 - 127	Intermediate
128 - 158	Heavy
159 - up	Severe

TYPICAL MITIGATING MEASURES

As outlined in the previous section, the use of the DOW F&EI analysis will firstly evaluate the proposed process and associated process units within the still house. Where a given process unit (or the collective group of units) produces an unacceptably high index score, the process can be adjusted to present a lower overall risk. Ways to address the raw hazard index score include process equipment changes like volume or operating pressure, ventilation within the process unit area, improving spill control or drainage, amongst other inherent features within the distillery area. The processes would be adjusted such that the raw score remains in the acceptable range (127 or lower) as indicated above, and then

² American Institute of Chemical Engineers, DOW’s Fire & Explosion Index Hazard Classification Guide, 7th Edition, 1994, Page 1.

³ J.P Gupta, G. Khemani, M. S. Mannan, “Calculation of Fire and Explosion Index (F&EI) value for the Dow Guide taking credit for the loss control measures”, Journal of Loss Prevention in the Process Industries, Issue 16, 2003, pages 235-241.



mitigating features are added to the building design to reduce that score to an “offset” value that is in the “moderate” range or below.

The following offset measures are used in the DOW F&EI and can be considered as the design develops and have been used in various distilleries, but for clarity, are not all necessarily required pending design development:

- Emergency power;
- Emergency cooling systems;
- Explosion control;
- Emergency shutdown systems;
- Computer control (as opposed to manual process units);
- Written/detailed operating instructions (including emergency procedures);
- Leak detection;
- Sprinkler systems;
- Hand extinguishers/monitors.

From an OBC and OFC perspective, the following features must be considered and, where deemed necessary, incorporated into a given design in order to assess a given craft distillery as a medium-hazard industrial occupancy and to meet the objective and functional statements:

Rapid fire spread mitigation	Explosion risk mitigation
Limited maximum capacities of flammable liquids	Flammable vapour detection
Emergency containment and drainage	Closures and if they must be integrated with an LEL detection system
Enhanced sprinkler protection within the distillery	Integration of LEL detection system and fire alarm system
Fire separations between occupancies and from exits	Ventilation throughout distillery
Noncombustible construction, with combustible elements only where it is permissible	Still pressure relief and tank venting routed to the outside, with flame arrestors on vents
Combustible content limits below those historically associated with high-hazard industrial occupancies, and which align well with modern medium-hazard industrial occupancies	Appropriate pressure relief of still equipment
	Still pressure monitoring
	Process interlocks (both for still piping and ventilation)
	Classified electrical equipment within hazardous areas
	Indirect fired stills, no open flames to heat process equipment
	Computer temperature still control



By completing this analysis, adjusting necessary design parameters within the context of the building permit submission package alongside the responsible Professionals, it will be shown that the process units and proposed occupancy classification can align with the requirements for a Group F, Division 2 medium-hazard industrial occupancy.

OTHER APPROVED DISTILLERIES

A range of distilleries have been analyzed and approved using the method outlined above, with LRI's involvement including:

- Ogham Craft Spirits Micro-Distillery, Ottawa, ON
- Burwood Distillery, Calgary, AB
- True Wild Distillery, Calgary, AB
- Spirit in Niagara Distillery, Niagara, ON

CONCLUSION

The proposed project to be located at 5923 Ottawa Street, Ottawa, includes two buildings located on one site. Building 1 includes a distillery area within the building to be used for the production of craft spirits. Since this necessarily involves the production and handling of distilled beverage alcohol, as indicated by the OBC Appendix and OFC, the acceptable solutions would ordinarily mandate this be classified as a Group F, Division 1 high hazard industrial occupancy. As explained in this letter, these requirements have historically been included as a result of prior production volume mandates and used for large-scale industrial processes. No consideration is given in either code for the size, volume, and protective features that might be included in a distillery which can thereby reduce the overall risk to a level below a "special fire hazard", the defining characteristic of this occupancy's definition.

As such, the distillery occupancy in Building 1 is proposed to be analyzed using a combination of fuel load assessment and semi-quantitative risk indexing to confirm the overall risk level that the craft distillery poses. Once analyzed, appropriate and necessary fire and explosion protection features will be added in order to mitigate the level of risk presented by the distillery to align with that permitted by Group F, Division 2, medium hazard industrial occupancies. As such, the OBC-related design features, and related engineering design, should consider the building as a Group F, Division 2 occupancy, while distillery-specific protective features will be incorporated as outlined above to protect the distillery and adjacent areas. This approach has been applied, accepted, and built in a number of jurisdictions using the same rationale and design approach, further demonstrating its acceptability in principal.

Sincerely,
LRI ENGINEERING

Matthew Hopley, M.Eng., P.Eng [AB]
Branch Manager - Alberta

Reviewed by,
LRI ENGINEERING

Jin Chen, M.Eng., P.Eng.
Associate

APPENDIX D SANITARY DESIGN

000-25-0415 - 5923 Ottawa Street - Sanitary Demands - Phase 1

Project:	5923 Ottawa Street
Project No.:	000-25-0415
Designed By:	FV
Checked By:	JB
Date:	May 5, 2025

Site Area	0.48	Gross ha
Commercial Area (Retail)	90	m ²
Industrial - Light (Distillery)	432	m ²
Restaurant	363	m ²

DESIGN PARAMETERS

Institutional/ Commercial Peaking Factor	1.5
Mannings coefficient (n)	0.013
Infiltration allowance	0.33 L/s/Ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.02
Wet	0.13
Total	0.16

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d		0.0
Industrial - Light**	35,000	L/gross ha/d	0.04	0.02
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m ² /d)	90	0.00
Restaurant	125	L/(9.2m ² /d)	363	0.06
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m ² /d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

AVERAGE RESIDENTIAL FLOW	0.00	L/s
PEAK RESIDENTIAL FLOW	0.00	L/s
AVERAGE ICI FLOW	0.08	L/s
TOTAL PEAK ICI FLOW	0.12	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	0.10	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	0.14	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	0.27	L/s

000-25-0415 - 5923 Ottawa Street - Sanitary Demands - Phase 2

Project:	5923 Ottawa Street
Project No.:	000-25-0415
Designed By:	FV
Checked By:	JB
Date:	May 5, 2025

Site Area	0.45 Gross ha
Industrial - Light (Distillery)	926 m ²

DESIGN PARAMETERS

Institutional/ Commercial Peaking Factor	1.5
Mannings coefficient (n)	0.013
Infiltration allowance	0.33 L/s/Ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.02
Wet	0.13
Total	0.15

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d		0
Industrial - Light**	35,000	L/gross ha/d	0.04	0.02
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m ² /d)		0
Restaurant	125	L/(9.2m ² /d)		0
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m ² /d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

AVERAGE RESIDENTIAL FLOW	0.00	L/s
PEAK RESIDENTIAL FLOW	0.00	L/s
AVERAGE IQ FLOW	0.02	L/s
TOTAL PEAK IQ FLOW	0.03	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	0.04	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	0.05	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	0.17	L/s

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the *Building Code Act, 1992*

For use by Principal Authority			
Application number:		Permit number (if different):	
Date received:		Roll number:	
Application submitted to: Ottawa Septic System Office		RVCA RECEIVED JUN 09 2025 REFER TO: _____ SEPTIC FILE # 25-176 OTTAWA	
(Name of municipality, upper-tier municipality, board of health or conservation authority)			
A. Project information			
Building number, street name		Unit number	Lot/con.
5923 Ottawa street			
Municipality	Postal code	Plan number/other description	
Ottawa (Richmond)	K0A 2Z0		
Project value est. \$		Area of work (m ²)	
B. Purpose of application			
☒ New construction ☐ Addition to an existing building ☐ Alteration/repair ☐ Demolition ☐ Conditional Permit			
Proposed use of building		Current use of building	
Commercial			
Description of proposed work			
To construct a new class 4 sewage system, Eljen NSF 245 Denitrification treatment system: Eljen DN450			
Sewage System 'A'			
C. Applicant			
Applicant is: ☐ Owner or ☒ Authorized agent of owner			
Last name	First name	Corporation or partnership	
Van de Glind	Hendrik	Paterson Group Inc.	
Street address		Unit number	Lot/con.
9 Auriga Drive			
Municipality	Postal code	Province	E-mail
Ottawa	K2E 7T9	ON	hvandeglind@patersongroup.ca
Telephone number	Fax	Cell number	
613-226-7381			
D. Owner (if different from applicant)			
Last name	First name	Corporation or partnership	
Gulas	Jack	99117756 Canada Inc.	
Street address		Unit number	Lot/con.
411 Leggett Drive, Suite 710			
Municipality	Postal code	Province	E-mail
Ottawa	K2K 3C9	ON	jack@stratfordfoxrun.com
Telephone number	Fax	Cell number	
613-862-0087			

E. Builder (optional)				
Last name	First name	Corporation or partnership (if applicable)		
Street address	Unit number	Lot/con.		
Municipality	Postal code	Province	E-mail	
Telephone number	Fax	Cell number		

SEPTIC FILE #
 25-176
 OTTAWA

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 REFER TO: Yes ☒ No ☒
 Yes ☐ No ☒

F. Tarion Warranty Corporation (Ontario New Home Warranty Program)			
i. Is proposed construction for a new home as defined in the <i>Ontario New Home Warranties Plan Act</i> ? If no, go to section G.	☐	Yes	☒ No
ii. Is registration required under the <i>Ontario New Home Warranties Plan Act</i> ?	☐	Yes	☒ No
iii. If yes to (ii) provide registration number(s): _____			

G. Required Schedules	
i) Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.	
ii) Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.	

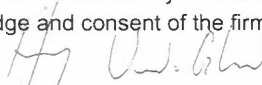
H. Completeness and compliance with applicable law		
i) This application meets all the requirements of clauses 1.3.1.3 (5) (a) to (d) of Division C of the <i>Building Code</i> (the application is made in the correct form and by the owner or authorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted). Payment has been made of all fees that are required, under the applicable by-law, resolution or regulation made under clause 7(1)(c) of the <i>Building Code Act, 1992</i> , to be paid when the application is made.	☒ Yes	☐ No
ii) This application is accompanied by the plans and specifications prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the <i>Building Code Act, 1992</i> .	☒ Yes	☐ No
iii) This application is accompanied by the information and documents prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the <i>Building Code Act, 1992</i> which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.	☒ Yes	☐ No
iv) The proposed building, construction or demolition will not contravene any applicable law.	☒ Yes	☐ No

I. Declaration of applicant	
<u>Hendrik Van de Glind, L.E.T., C.E.T. - Paterson Group</u> (print name) declare that: 1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge. 2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership. <u>June 6, 2025</u> Date Signature of applicant	

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666.

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information			
Building number, street name 5923 Ottawa Street		Unit no.	Lot/con.
Municipality Ottawa (Richmond)	Postal code K0A 2Z0	Plan number/ other description	
B. Individual who reviews and takes responsibility for design activities			
Name Hendrik Van de Glind, L.E.T., C.E.T.		Firm Paterson Group Inc.	
Street address 9 Auriga Drive		Unit no.	Lot/con.
Municipality Ottawa	Postal code K2E 7T9	Province ON	E-mail hvandeglind@patersongroup.ca
Telephone number 613-226-7381	Fax number	Cell number	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]			
☐ House ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings ☐ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection ☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☒ On-site Sewage Systems			
Description of designer's work On-site Sewage System Design			
D. Declaration of Designer			
I, <u>Hendrik Van de Glind, L.E.T., C.E.T. - Paterson Group</u> declare that (choose one as appropriate): (print name)			
I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.			
Individual BCIN: <u>111499</u>			
Firm BCIN: <u>29346</u>			
I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code.			
Individual BCIN: _____			
Basis for exemption from registration: _____			
The design work is exempt from the registration and qualification requirements of the Building Code.			
Basis for exemption from registration and qualification: _____			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge.			
2. I have submitted this application with the knowledge and consent of the firm.			
June 6, 2025 Date		 Signature of Designer	

NOTE:

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) (c) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of practice, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.



Schedule 2: Sewage System Installer Information

A. Project Information			
Building number, street name 5923 Ottawa Street		Unit number	Lot/con.
Municipality Ottawa (Richmond)	Postal code K0A 2Z0	Plan number/ other description	
B. Sewage system installer			
Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1, Division C?			
☐ Yes (Continue to Section C)		☐ No (Continue to Section E)	
		☒ Installer unknown at time of application (Continue to Section E)	
C. Registered installer information (where answer to B is "Yes")			
Name		BCIN	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number	Fax	Cell number	
D. Qualified supervisor information (where answer to section B is "Yes")			
Name of qualified supervisor(s)		Building Code Identification Number (BCIN)	
		25-176 OTTAWA	
E. Declaration of Applicant:			
I <u>Hendrik Van de Glind, L.E.T., C.E.T. - Paterson Group</u> declare that: (print name)			
I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;			
<u>OR</u>			
I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2, now that the installer is known.			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge.			
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.			
June 6, 2025		<u>H. Van de Glind</u> Signature of applicant	
Date			

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Schedule 4: Proposed Services

Complete Sections 1 through 7

Do Not Complete

Permit number: _____

Revision number: _____

Date _____

1 Engineered

- ☒ Yes
☐ No

2 Water supply

- ☒ Proposed
☐ Existing

3 Use

- ☐ Apartment
☐ Dwelling
☒ Commercial
☒ Industrial

4 Type of work proposed

- ☒ New Installation
☐ Replacement
☐ Alteration

5 Type of Well

- ☐ Dug/Bored/Sandpoint well
☒ Drilled well
☐ Municipal
☐ Other

6 Residential Sewage Design Flow Info.

Bedrooms _____
House (floor area) _____ m²
People _____
Total Fixture Units _____ (Schedule 8)
Residential Flow _____ L/day

7 Sewage Design Flow Other Occupancies

Design Flow 9367 L/day

Detailed sewage flow calculations:

Refer to PGI Drawings No. PH4924-2(rev.3)

8 Type of System

- ☐ Class 2 – Leaching Pit
☐ Class 3 – Cesspool

Treatment Unit Eljen GSF A-42 (DN450)

☐ Class 4 – Trench (Schedule 9)

- ☐ Fully raised
☐ Partially raised
☐ In-ground

☐ Class 4 – Filter Media (Schedule 10)

- ☐ Fully raised
☐ Partially raised
☐ In-ground

☐ Class 4 – Shallow Buried Trench

- ☐ Fully raised
☐ Partially raised
☐ In-ground

☒ Class 4 – BMEC Area Bed (Schedule 11)

- ☒ Fully raised
☐ Partially raised
☐ In-ground

☐ Class 4 – "Type A" Dispersal (Schedule 13)

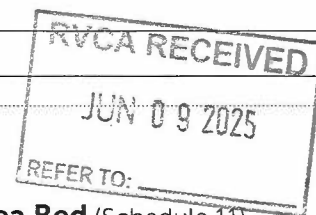
- ☐ Fully raised
☐ Partially raised
☐ In-ground

☐ Class 4 – "Type B" Dispersal (Schedule 14)

- ☐ Fully raised
☐ Partially raised
☐ In-ground

☐ Class 5 – Holding Tank (9000L min)

- ☐ Tank/Treatment Unit/Pump Chamber ONLY
☐ Effluent Filter/Risers ONLY
☐ Other _____



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Schedule 5: Sewage System Details

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Do Not Complete

Permit number:

Revision number:

Date

Complete below

Type of System Eljen GSF A-42 Modules (DN 450) (Schedule 4)

Septic/Holding Tank Size: 28,101 (Litres)

Make: _____

Septic Tank Effluent Filter Make: OBC Approved

Model: (Polylok PL-525 or equivalent)

Treatment Unit - Make & Model: Eljen GSF A-42 Modules (DN450)

Number of Units: 110

Refer to Typical Drawing #: PH4924-1&2(rev.3)

Pump ☒ Syphon ☐

Pump(s) required: Yes

Pump Rate: 391 + Charge L/15min Hour

Mantle Information

Native or imported = min. 15m in N/A direction(s)

Slope subgrade _____ % slope

_____ direction(s)

Note: Alarm required for all pumping systems

Installed ☐ Inside TBD By Installer @

☐ Outside time of Installation

Site to be Scarified (If clay) Yes ☒ No ☐

Clay Seal Required (If bedrock) Yes ☐ No ☐

☐ Trench

Distribution Pipe Length _____ m

Loading Area _____ m²

Type of Chamber _____

Length of Chamber _____ m

☐ Dispersal Bed

☒ BMEC ☐ Type A ☐ Type B

Stone N/A m²

Sand 837.9 m²

Pipe 134.2 m²

Linear Loading 11.2 L/m²

☐ Shallow Buried Trench

Pipe Length _____ m²

Pipe _____

☐ Filter Media Bed

Stone _____ m

Extended Base _____ m²

Pipe _____

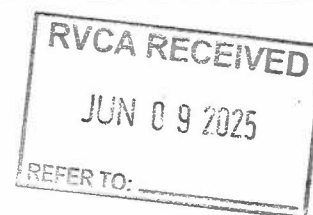
Weight of Filter Media _____ Kg

Loading Area _____ m²

☐ Tank/Treatment Unit/Pump Chamber Replacement **ONLY**

☐ Effluent Filter & Riser **ONLY**

Construction Notes:





Schedule 6: Soil and Water
Table Information (Minimum depth of test pit: 2 metres)

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JUN 09 2025

Do Not Complete

Permit number:

Revision number:

Date

Name of Applicant/Agent: Paterson Group Inc.

Date: June 17, 2024

Time:

Applicant/Agent Signature:

Inspector:

Date:

Time:

Inspector Signature:

EG ()	Soil Description
m	
m	
m	
m	
m	
m	
m	

Professional Engineers
Ontario

Licensed Engineering Technologist

Name: H. G. VAN DE GLIND
Number: 100647862
Limitations: Inspecting, designing, and assessing residential and commercial sewage systems, grading designs and soil analysis, and overseeing installation and compliance.

Association of Professional Engineers of Ontario

T-time 35 Min/cm

EG ()	Soil Description
m	
m	
m	
m	
m	
m	
m	

Test pits not available for inspection.
Engineer assumes all liability for soil and HGWT info/elev's.

T-time Min/cm

EG ()	Soil Description
m	
m	
m	
m	
m	
m	
m	

T-time Min/cm

EG ()	Soil Description
m	
m	
m	
m	
m	
m	
m	

T-time Min/cm

Legend

BR Bedrock
HGWT High ground water table
EG Existing grade

GWT Ground water table
M metres
T percolation rate



Schedule 7: Layout Section

Do Not Complete

Permit number:

Revision number:

Date

Scale: 1 Block = _____

- Dug Well
- Drilled Well

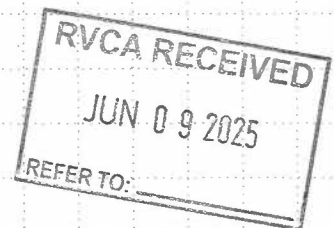
- ▲ Neighbouring Homes
- ◇ Benchmark

- Tile Drainage
- ___ Property Line

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Elevations (metric only)

B.M. 94.86 m

B.M Description Top of spike in hydro pole across
from East Property Line of 5935 Ottawa Street

Exact Location _____

Min. of 5 elevations in proposed system area (in X pattern)

X ₁ _____	X ₂ _____
X ₃ _____	X ₄ _____
X ₅ _____	X ₆ (toe) _____
X ₇ _____	X ₈ _____



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**Schedule 8: Fixture unit count****Do Not Complete**

Permit number:

Revision number:

Date

Fixtures	# Existing	+	# Proposed	X	unit count	=	Fixture Count
Bathroom							
Bathroom group (toilet, sink and tub or shower) installed in the same room		+		X	6	=	0.00
Bathtub with/without overhead shower		+		X	1.5	=	0.00
Shower stall		+		X	1.5	=	0.00
Wash basin (SINK) (1½ inch trap)	6	+		X	1.5	=	9.00
Watercloset (TOILET) tank operated	6	+		X	4	=	24.00
Bidet		+		X	1	=	0.00
Kitchen							
Dishwasher	2	+		X	1	=	2.00
Sink with/without garbage grinder(s), domestic and other small type single, double or 2 single with a common trap	5	+		X	1.5	=	7.50
Other							
Domestic washing machine		+		X	1.5	=	0.00
Combination sink and laundry tray single or double (Installed on 1½ trap)		+		X	1.5	=	0.00
Total*							= 42.50

***Insert the TOTAL in section 5 of Schedule 4 (O.Reg 151/13 Table 7.4.9.3)**

1. Sump pumps and floor drains are not to be connected to the sewage system. Connection of such fixtures to a sewage system may lead to a hydraulic failure of the said system. The above mentioned fixtures should be discharged separately to an approved Class 2 (leaching pit) sewage system.

2. Where laundry waste is not more than 20% of the total daily design sanitary sewage flow, it may discharge to a sewage system (Part 8, OBC, 8.1.3.1(2)).

Agent/Owner signature

June 6, 2025

Date

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N42°37'20"W

OTTAWA

SEPTIC FILE #

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NOTE:

SEWAGE SYSTEM 'B' HAS BEEN DESIGNED BASED ON PATERSON GROUP REPORT PH4924-LET.01

TOTAL DESIGN DAILY SANITARY SEWAGE FLOW (T.D.D.S.S.F.) OR "Q" = 600 L/DAY WHEN BALANCED OVER 7 DAYS.

NATIVE SOILS = GLACIAL TILL TO SILTY CLAY = T = 40 min/cm

MINIMUM NITRATE REDUCTION LEVEL REQUIRED = 50% AS PER PATERSON GROUP REPORT No. PH4924-LET.01

ELJEN DN450 SHALL BE USED TO ACHIEVE THE MINIMUM REQUIRED NITRATE REDUCTION.

PRESENTLY PROPOSED ELEVATIONS ARE BASED OFF THE EXISTING TOPOGRAPHIC INFORMATION. THE PROPOSED LOT GRADING AND DRAINAGE ASSOCIATED WITH THE PROPOSED ADDITION MAY AFFECT THESE ELEVATIONS.

NOTE:

SEWAGE SYSTEM 'A' HAS BEEN DESIGNED BASED ON PATERSON GROUP REPORT PH4924-LET.01

TOTAL DESIGN DAILY SANITARY SEWAGE FLOW (T.D.D.S.S.F.) OR "Q" = 9,367 L/DAY WHEN BALANCED OVER 7 DAYS.

NATIVE SOILS = GLACIAL TILL TO SILTY CLAY = T = 35 min/cm

MINIMUM NITRATE REDUCTION LEVEL REQUIRED = 50% AS PER PATERSON GROUP REPORT No. PH4924-LET.01

ELJEN DN450 SHALL BE USED TO ACHIEVE THE MINIMUM REQUIRED NITRATE REDUCTION.

PRESENTLY PROPOSED ELEVATIONS ARE BASED OFF THE EXISTING TOPOGRAPHIC INFORMATION. THE PROPOSED LOT GRADING AND DRAINAGE ASSOCIATED WITH THE PROPOSED ADDITION MAY AFFECT THESE ELEVATIONS.

PART 4
R.P. 4R-7050PART 1
R.P. 4R-13387

100mmØ PVC PIPE TO BE INSTALLED @ 2% (min.) SLOPE AND SHALL BE SLEEVED THROUGH A 150mmØ PVC SDR28 PIPE AND OVERLAIN BY 75mm T x 600mm W RIGID INSULATION BOARDS UNDER ASPHALT. PATERSON TO REVIEW COVER UPON COMPLETION OF LOT GRADING AND DRAINAGE.

TYP.
2 OUTLET DISTRIBUTION BOX C/W INLET Baffle AND POLYLOK FLOW EQUALIZERS
INLET INV. = 94.90m(min.)
OUTLET INV. = 94.80m (min.)

ELJEN SAMPLING PAN
• INSTALL COLLECTION PLATES AS PER MANUFACTURER SPECIFICATIONS

2 RUNS OF 4 ELJEN GSF A-42 MODULES
MODULAR BASE ELEV. @ HEAD = 94.42m
MODULAR BASE ELEV. @ FOOT = 94.40m

TYP.
100mmØ VENT PIPE INSTALLED IN 150mmØ LANDSCAPE VALVE COVER

TYP.
100mmØ SOLID PVC FOOTER PIPE
INV. = 94.58m

NOTE:

SNOW STORAGE SHALL NOT BE LOCATED OVER OR UPGRADIENT OF THE PROPOSED SEWAGE SYSTEM.

NOTE:

SNOW STORAGE SHALL NOT BE LOCATED OVER OR UPGRADIENT OF THE PROPOSED SEWAGE SYSTEM.

TYP.
100mmØ VENT PIPE INSTALLED IN 150mmØ LANDSCAPE VALVE COVER

100mmØ PERFORATED PVC SEPTIC PIPE
INSTALLED @ APPROX. 0.5% ON ELJEN MODULES
HEAD INV. = 94.83m
FOOT INV. = 94.78m

3m L - 100mmØ PVC PIPE WITH ELBOW @ 2% (min.) SLOPE

2 CELLS OF 5 RUNS OF 11 ELJEN GSF A-42 MODULES
MODULAR BASE ELEV. @ HEAD = 94.65m
MODULAR BASE ELEV. @ FOOT = 94.60m

ELJEN SAMPLING PAN
• INSTALL COLLECTION PLATES AS PER MANUFACTURER SPECIFICATIONS

ELJEN SPECIFIED SAND AREA
• 630 mm THICK (TOP OF MODULE TO BASE)
• 37.24m x 22.50m
• FOLLOWED BY 300 mm THICK OF SAND/LIGNOCELLULOSE LAYER
• FOLLOWED BY 50 mm THICK LAYER OF LIMESTONE

18,500L (min.) BALANCING TANK c/w TIME OPERATED EFFLUENT 1/2 H.P. DUPLEX PUMPS AND AUDIBLE / VISUAL HIGH WATER ALARM.
• TANK SHALL BE CPA APPROVED (OR ENGINEERED) FOR 1.2m (min.) OF COVER.
• TANK SHALL BE REVIEWED FOR BALLASTING REQUIREMENTS.
• PUMPING SYSTEM SHALL BE TIME DOSED TO OPERATE EVERY HOUR AND ALTERNATE BETWEEN CELLS.
• POLY RISER AND COVER ASSEMBLY
• INLET INV. = 94.40m±
• TOP OF TANK (max.) = 94.75m±
• FINISHED GRADE = 95.40m

NEW 3,600L PRETREATMENT TANK c/w
• TANK SHALL BE CPA APPROVED (OR ENGINEERED) FOR 1.2m (min.) OF COVER.
• TANK SHALL BE REVIEWED FOR BALLASTING REQUIREMENTS.
• POLYLOK PL-525 EFFLUENT FILTER
• POLY RISER & COVER ASSEMBLY (2)
• INLET INV. = 94.27m±
• OUTLET INV. = 94.22m±
• TOP OF TANK = 94.55m±
• FINISHED GRADE = 95.15m

38mmØ PVC SCH 40 PIPE FORCEMAIN
• SHALL BE INSTALLED TO GRAVITY DRAIN TO THE TANK.
• ENTIRE LENGTH OF FORCEMAIN SHALL BE BEDDED OF A MINIMUM OF 150mm OF OPSS GRANULAR A, AND SHALL BE COVERED WITH A MINIMUM OF 300mm OF OPSS GRANULAR A.
• ALL GRANULAR A MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 98% SPMDD.

100mmØ PERFORATED PVC SEPTIC PIPE INSTALLED @ APPROX. 0.5% ON ELJEN MODULES
HEAD INV. = 94.60m
FOOT INV. = 94.58m

ELJEN SPECIFIED SAND AREA
• 630 mm THICK (TOP OF MODULE TO BASE)
• 9.60m x 9.68m
• FOLLOWED BY 300 mm THICK OF SAND/LIGNOCELLULOSE LAYER
• FOLLOWED BY 50 mm THICK LAYER OF LIMESTONE

TYP.
2 x LARGE 4 OUTLET DISTRIBUTION BOX C/W INLET Baffle AND POLYLOK FLOW EQUALIZERS
INLET INV. = 95.10m(min.)
OUTLET INV. = 95.00m (min.)

EXISTING MONITORING WELL TO BE DECOMMISSIONED

PROPOSED INDUSTRIAL BUILDING (ONE STOREY)
PROPOSED FINISHED FLOOR ELEVATION: 95.25

100mmØ PVC PIPE TO BE INSTALLED @ 2% (min.) SLOPE AND SHALL BE SLEEVED THROUGH A 150mmØ PVC SDR28 PIPE AND OVERLAIN BY 75mm T x 600mm W RIGID INSULATION BOARDS UNDER ASPHALT.
OUTLET ELEV. @ PROPOSED BUILDING = 94.79m±

EXISTING DRILLED WELL TO BE DECOMMISSIONED

EXISTING DRILLED WELL No. 5935 2 Storey Block and Metal Clad Building

NEW 28,101L PRETREATMENT TANK c/w
• TANK SHALL BE CPA APPROVED (OR ENGINEERED) FOR 1.2m (min.) OF COVER.
• TANK SHALL BE REVIEWED FOR BALLASTING REQUIREMENTS
• POLYLOK PL-525 EFFLUENT FILTER
• POLY RISER & COVER ASSEMBLY (2)
• INLET INV. = 94.50m±
• OUTLET INV. = 94.45m±
• TOP OF TANK = 94.80m±
• FINISHED GRADE = 95.40m

TBM:
TOP OF SPIKE IN HYDRO POLE ACROSS FROM EAST PROPERTY LINE OF 5935 OTTAWA STREET
GEODETTIC ELEV. = 94.86m

NOTE:
INTERNAL GREASE TRAPS SHALL BE PROVIDED ON KITCHEN FIXTURES.

Professional Engineers
Ontario

Licensed Engineering Technologist

Name: H. G. VAN DE GLIND
Number: 100647862

Limitations: Inspecting, designing, and assessing residential and commercial sewage systems, grading designs and soil analysis, and overseeing installation and compliance.

Association of Professional Engineers of Ontario

LEGEND:

- 70.81 Existing Ground Surface Elev. (m)
- 72.70 Proposed Ground Surface Elev. (m)
- 72.70 Proposed Subgrade Elev. (m)
- (70.7) Groundwater Elev. (m) - Mar.6/22
- F.F.E. Finished Floor Elev. (m)
- Existing Structure
- Proposed Structure

All Units are in meters unless otherwise specified

BENCHMARK INFORMATION:

TBM: Top of Spike in Hydro Pole Across from East Property Line of 5935 Ottawa Street
Approximate Geodetic Elevation = 94.86m

REFERENCE:

Topographic Information obtained from Plan of Survey of Part of Unit 10 Index Plan D-26
Geographic Township of Goulbourn City of Ottawa, dated July 9, 2024, by egis Surveying Inc.

Baseplan Obtained from Site Plan No. A-001, dated May 2025, by N45 Architecture Inc.

Consultant

04/06/25	Issued for Septic Permit	3
14/05/25	Issued with Revised Site Plan	2
03/10/24	Issued with Revised Site Plan	1
20/09/24	Issued for Preliminary Review	0
DD/MM/YY	Description	Rev.

Client:

STRATFORD FOXRUN
PROPOSED WAREHOUSE / RESTAURANT
5923 OTTAWA STREET
OTTAWA (RICHMOND), ONTARIO

Drawing:

SEWAGE SYSTEM LAYOUT PLAN SEWAGE SYSTEM 'A' AND 'B'

Scale: 1:600
Date: 06/2025
Drawing no.: PH4924-1(rev.3)

Drawn by: HV
Checked by: MK

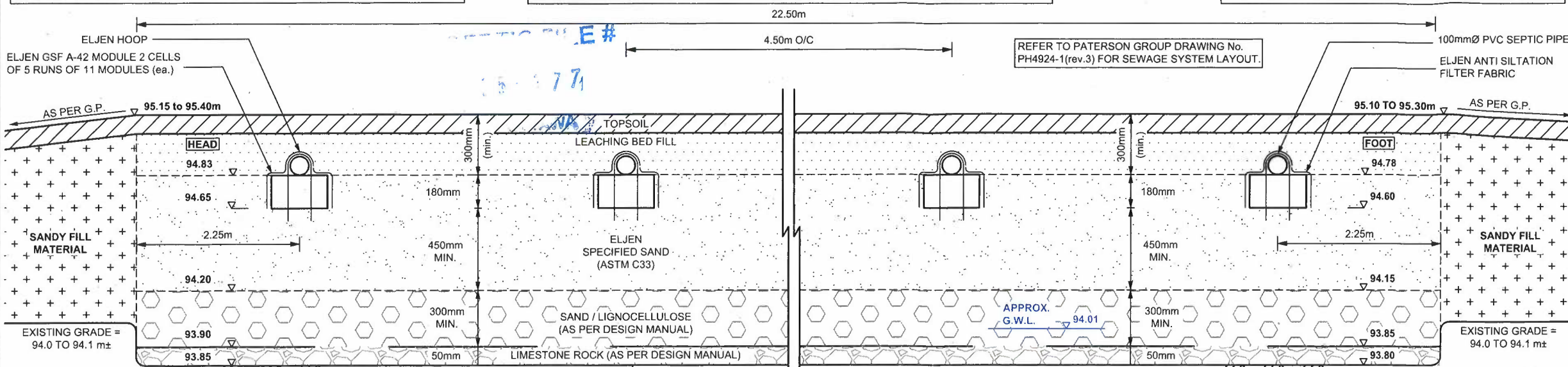


5 AURIGA DRIVE
OTTAWA, ON
K2E 7S8
TEL (613) 226-7351

COVER MATERIAL TO CONSIST OF LEACHING BED FILL FOLLOWED BY APPROX. 100mm OF SANDY TOPSOIL. LEACHING BED TO BE VEGETATED AS SOON AS POSSIBLE.

SEWAGE SYSTEM DESIGN, SPECIFICATION, DETAILS AND NOTES HAVE BEEN COMPLETED IN ACCORDANCE WITH ELJEN DENITRIFICATION SUPPLEMENTAL DESIGN AND INSTALLATION MANUAL.

FINAL GRADING SHALL BE SUITABLY SHAPED TO DIRECT SURFACE WATER AWAY FROM THE PROPOSED SEWAGE SYSTEM.



NOTES:

1) ESTIMATE OF DAILY SEWAGE FLOW (Q)

THE PROPOSED SEWAGE SYSTEM HAS BEEN DESIGNED TO SUPPORT A COMMERCIAL TYPE USAGE CONSISTING OF OFFICE, STORE, WAREHOUSE AND RESTAURANT SPACE. THE DAILY DESIGN SEWAGE FLOW RATE IS CALCULATED IN ACCORDANCE WITH O.B.C. TABLE 8.2.1.3.B. **INTERNAL GREASE TRAP SHALL BE PROVIDED FOR KITCHEN FIXTURES.**

OFFICE SPACE:
• (70m² / 9.3) x 75 L/DAY = 565 L/DAY
STORE SPACE:
• 75.25m² x 5 L/DAY = 376.25 L/DAY
WAREHOUSE SPACE:
• 2 LOADING BAY x 150 L/DAY = 300 L/DAY
RESTAURANT/BAR:
65 SEATS x 125 L/DAY = 8,125 L/DAY

TOTAL DESIGN DAILY SANITARY SEWAGE FLOW = 9,367 L/DAY

2) SOIL CONDITIONS

SOILS INFORMATION GATHERED BY PATERSON GROUP INC. ON JUNE 17, 2024. REFER TO PATERSON GROUP REPORT PG7381-1 FOR FULL SOILS BREAKDOWN.

BH 4-24, ELEV. 94.11m

0-0.13 TOPSOIL AND ORGANICS
0.13-3.33 GLACIAL TILL: DENSE BROWN SILTY SAND, TO SANDY SILT WITH GRAVEL, COBBLES AND BOULDERS, SOME TO TRACE CLAY

- G.W.L. @ 0.10m DEPTH (94.01m)

3) PRETREATMENT TANK

- TANK SHALL BE CONNECTED TO BUILDING BY A 150mm Ø PVC PIPE SLEEVED THROUGH A 200mm Ø PVC SDR 28 PIPE AND OVERLAIN WITH 50mm T x 600mm W RIGID INSULATION BOARDS (UNDER ROADWAY) AND SHALL BE INSTALLED AT 2.0% (min.) SLOPE TO THE PRETREATMENT TANK.
- MINIMUM WORKING CAPACITY OF PRETREATMENT TANK = (3 x Q) = 3 x 9,367 L/DAY = 28,101 L (min.)
- IT IS RECOMMENDED THAT A NEW 28,101L (min.) TWO-COMPARTMENT SEPTIC TANK BE INSTALLED.
- AN OBC APPROVED EFFLUENT FILTER (I.E. POLYLOK PL-525 EFFLUENT FILTER, OR EQUIVALENT) SHALL BE INSTALLED ON THE OUTLET PIPE IN THE PRETREATMENT TANK.
- THE ACCESS LIDS TO THE TANK OPENINGS SHALL BE EXTENDED TO THE GROUND SURFACE. INSTALL RISERS AND COVERS TO SUIT.
- ACCESS LIDS SHALL INCLUDE SAFETY DEVICES AS PER CSA B66-21.
- TANK SHALL BE CPA APPROVED (OR ENGINEERED) FOR 1.2m (min.) OF COVER MATERIAL.
- TANK SHALL BE REVIEWED FOR BALLASTING REQUIREMENTS.

4) BALANCING TANK

- INSTALL A 18,500L (min.) BALANCING TANK IN SERIES AND DOWNSTREAM FROM THE NEW SEPTIC TANK.
- A TIME OPERATED ALTERNATING DUPLEX PUMPING SYSTEM (I.E. MYERS ME3F, OR SIMILAR) AND A HIGH WATER ALARM SHALL BE INSTALLED IN THE BALANCING TANK.
- THE TIME OPERATIONAL PUMPING SYSTEM SHALL OPERATE EVERY HOUR (I.E. 391 L/DUSE + VOLUME TO CHARGE THE SYSTEM) AND SHALL ALTERNATE BETWEEN EACH CELL.
- A 3mm Ø DRAIN HOLE SHALL BE INSTALLED IN THE UNDERSIDE OF THE FORCEMAIN IN THE BALANCING TANK NEAR THE WALL CONNECTION.
- RISERS WITH A COVER SHALL BE INSTALLED OVER THE BALANCING TANK TO PROVIDE ACCESS FROM THE GROUND SURFACE.
- DISCHARGE PIPING FOR PUMP SHALL BE CONFIGURED SUCH THAT THE PUMP IS EASILY SERVICED FROM THE GROUND SURFACE.

5) DISTRIBUTION BOX / FORCEMAIN

- A 38mm Ø (NOMINAL) PVC SCH 40 FORCEMAIN (2) SHALL BE USED TO CARRY THE EFFLUENT FROM THE BALANCING TANK TO EACH 3m L x 100mm Ø PVC SEWER PIPE.
- 100mm SEWER PIPE SHALL DRAIN BY GRAVITY TO A 5 OUTLET DISTRIBUTION BOX.
- THE FORCE MAIN SHALL BE INSTALLED TO GRAVITY DRAIN TO THE BALANCING TANK.
- THE FORCE MAIN SHALL BE OVERLAIN WITH 50mm T x 600mm CW RIGID INSULATION.
- THE DISTRIBUTION BOX SHALL BE EQUIPPED WITH AN INLET Baffle AND OUTLET PIPES (5).
- EACH PIPING RUN SHALL BE FED BY A 5 OUTLET DISTRIBUTION BOX.
- THE DISTRIBUTION BOX SHALL BE CONNECTED TO THE DISTRIBUTION PIPING RUNS USING 100mm Ø SOLID PVC SEWER PIPE @ 2% (min.) SLOPE.

6) LEACHING BED SIZING CRITERIA

- NO. OF MODULES REQUIRED = Q/95 = 9,367/95 = 98.6 MODULES
- USE 2 CELLS OF 5 RUNS OF 11 (110) ELJEN GSF A-42 MODULES EACH
- SAND AREA REQUIRED = Q/400 = 9,367/(35)/400 = 819.7m²
- SAND AREA PROVIDED = 37.24m x 22.50m = 837.90m² (min.)

7) LEACHING BED CONSTRUCTION GUIDELINES

- REMOVE ALL EXISTING TOPSOIL, AND ANY FILL WITHIN LIMITS OF THE SAND AREA AND SUBEXCAVATE TO AT LEAST ELEVATION 93.80m TO 93.85m, WHICHEVER IS GREATER. RE-ESTABLISH THE SPECIFIED CONTACT LEVEL USING SELECT SAND FILL, WHERE REQUIRED.
- THE SUBGRADE SURFACE SHALL BE SCARIFIED, **UNDER DRY CONDITIONS**.
- PLACE A 50mm MIN. THICK LAYER OF LIMESTONE ROCK OVER THE SUITABLY PREPARED SUBGRADE.
- LIMESTONE ROCK SHALL NO SMALLER THAN 25mm IN DIAMETER UP TO 50mm IN DIAMETER. THE ROCK SHALL CONTAIN GREATER THAN 15% LIMESTONE AS PER ELJEN DENITRIFICATION SUPPLEMENTAL DESIGN AND INSTALLATION MANUAL.
- PLACE A 300mm THICK LAYER OF SAND / LIGNOCELLULOSE OVER THE LIMESTONE ROCK LAYER.
- SAND / LIGNOCELLULOSE SHALL CONSIST OF WOOD CHIPS OR SAW DUST FROM HARD WOOD TREES THAT HAVE NOT BEEN FURTHER PROCESSED BY CHEMICALS. THE 300mm SAND AND LIGNOCELLULOSE LAYER SHALL BE 50/50 EQUAL MIXTURE OF ASTM C33 SAND AND WOOD CHIPS FROM HARD WOOD TREES. THE MIXTURE MUST NOT EXCEED 60/40 IN FAVOR OF THE MORE WOOD TO SAND.
- PLACE A 450mm MIN. THICK LAYER OF ELJEN SPECIFIED SAND FILL OVER THE LEACHING BED FILL.
- THE ELJEN SPECIFIED SAND FILL SHALL CONSIST OF WASHED SAND MEETING THE REQUIREMENTS OF ASTM C33 "STANDARD SPECIFICATION FOR CONCRETE AGGREGATES" WITH LESS THAN 5% PASSING 0.075mm SIEVE. ELJEN SPECIFIED SAND FILL SHALL BE PRE-APPROVED BY THE CONSULTANT.
- THE MODULES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- THE MODULES SHALL BE INSTALLED AT A SLOPE OF 0.3% (min.) TO 0.5% (max.), END TO END AND WITH THE WHITE DEMARCATION LINE FACING UP.
- THE MODULAR BASE LEVEL (ELEV. 94.60m AT THE FOOT, TO 94.65m AT THE HEAD) SHALL BE ESTABLISHED WITH ELJEN SPECIFIED SAND FILL, HAVING A MINIMUM THICKNESS OF 450mm BELOW THE MODULES.
- THE ELJEN MODULES SHALL BE FED BY GRAVITY BY A 100mm Ø PVC SEWER PIPE @ 2% (min.) SLOPE FROM THE DISTRIBUTION BOX
- THE DISTRIBUTION PIPE SHALL CONSIST OF A 100mm Ø PERFORATED PVC PIPE CENTRED OVER THE MODULES. THE PIPE SHALL BE SECURED TO THE TOP OF THE MODULES USING AN ELJEN HOOP (MINIMUM 1 HOOP PER MODULE).
- THE INVERT LEVEL OF THE DISTRIBUTION PIPE SHALL BE SET ON THE MODULES AT ELEVATION 94.78m AT THE FOOT TO 94.83m AT THE HEAD. THE END OF THE PIPE RUNS SHALL BE CONNECTED TO A 100mm Ø SOLID PVC FOOTER PIPE
- INSTALL ELJEN SYSTEM SAMPLING DEVICE AS PER MANUFACTURER'S RECOMMENDATIONS.
- THE ELJEN ANTI-SILTATION FILTER FABRIC SHALL BE SPREAD LENGTHWISE OVER THE PERFORATED SEPTIC PIPE AND DOWN THE SIDES OF THE MODULES. ENSURE ENDS OF MODULES ARE ALSO COVERED WITH FABRIC.
- THE MODULES SHALL BE BACKFILLED, WITH ELJEN SPECIFIED SAND FILL TO AT LEAST THE TOP OF THE ELJEN MODULES, FOLLOWED BY 200mm (min.) OF LEACHING BED FILL, FOLLOWED BY 100mm OF SANDY TOPSOIL, WITHIN THE LIMITS OF THE SAND AREA. THE BED AREA SHOULD BE VEGETATED AS SOON AS POSSIBLE.
- LEACHING BED SAND FILL SHALL BE UNIFORM SAND WITH GRADING LIMITS SIMILAR TO 100% PASSING 13.2mm SIEVE, LESS THAN 5% PASSING 0.075mm SIEVE, AND HAVING A PERCOLATION TIME OF 6 TO 8 min/cm. LEACHING BED FILL SHALL BE PRE-APPROVED BY THE CONSULTANT.

- THE SIDES OF THE BED SHOULD BE SLOPED AT 3H:1V OR SHALLOWER.
- VENT SYSTEM SHALL BE INSTALLED ON THE FOOTER PIPE. CONNECT A 100mm Ø PVC VENT PIPE TO FOOTER PIPE, EXTENDING TO GROUND SURFACE. VENT PIPE TO BE INSTALLED IN 150mm Ø LANDSCAPE VALVE COVER.

8) MINIMUM CLEARANCE DISTANCE FROM DISTRIBUTION PIPE

- 5.6m FROM ANY PROPERTY LINE
- 7.6m FROM ANY STRUCTURE: 5.0m FROM ANY BASEMENTLESS STRUCTURE
- 17.6m FROM ANY DRILLED WELL
- 5.0m FROM ANY TREE (UNLESS OTHERWISE APPROVED)

9) MINIMUM CLEARANCE DISTANCE FROM TANK(S)

- 1.5m FROM ANY STRUCTURE
- 15.0m FROM ANY DRILLED OR DUG WELL
- 3.0m FROM ANY PROPERTY LINE

10) GENERAL

- SNOW STORAGE SHALL NOT BE LOCATED OVER OR UPGRADIENT OF THE PROPOSED SEWAGE SYSTEM.**
- THE SEWAGE SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT TRAFFIC LOADING.
- THE BACKFILLING OF THE SEWAGE SYSTEM SHOULD MINIMIZE THE RISK OF OVER COMPACTION WITH THE USE RUBBER TRACKED EQUIPMENT AND BY AVOIDING THE CREATION OF ANY CONSTRUCTION ROUTES OR PATHWAYS OVER THE SYSTEM.
- ANY NEW IRRIGATION / SPRINKLER SYSTEM SHOULD NOT BE USED IN PROXIMITY OF THE PROPOSED SEWAGE SYSTEM.
- ENSURE WALKWAYS AND/OR SHURBBERY ARE NOT PLACED WITHIN PROXIMITY OF THE TANKAGE.
- THE BACKWASH WATERS FROM ANY WATER TREATMENT UNIT, SUCH AS WATER SOFTENER, SHOULD NOT DISCHARGE INTO THE SEWAGE SYSTEM.
- THE SEWAGE SYSTEM HAS NOT BEEN DESIGNED FOR THE USE OF A GARBAGE DISPOSAL.
- SEWAGE SYSTEM INSTALLER SHALL BE QUALIFIED AND REGISTERED UNDER PART 8 OF THE ONTARIO BUILDING CODE AND SHALL BE AN AUTHORIZED ELJEN TREATMENT SYSTEM INSTALLER.
- ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LATEST BY-LAWS, CODES AND REGULATIONS.
- CONTRACTOR SHALL REVIEW DRAWINGS IN DETAIL AND SHALL INFORM THE CONSULTANT OF ANY ERRORS AND/OR OMISSIONS ON DESIGN DRAWINGS IMMEDIATELY.
- CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE AND PROTECT ALL EXISTING UNDERGROUND SERVICES.
- CONTRACTOR SHALL VISIT THE SITE AND REVIEW ALL DOCUMENTATION TO BECOME FAMILIAR WITH THE SITE AND SUBSURFACE SOIL CONDITIONS TO DETERMINE SUITABLE METHODS OF CONSTRUCTION.
- THE MANUFACTURER PROVIDES A LIMITED WARRANTY OF THE SYSTEM COMPONENTS. THE OWNER OF THE SYSTEM MUST SIGN A MAINTENANCE AGREEMENT WITH THE MANUFACTURER'S REPRESENTATIVE. THE HOMEOWNER IS RESPONSIBLE FOR THE ANNUAL FEES ASSOCIATED WITH THE MAINTENANCE.
- THE FIRM OF PATERSON GROUP INC. HAS PROVIDED DESIGN SERVICES ONLY FOR THE SUBJECT SEWAGE SYSTEM. THE DESIGN HAS BEEN CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES AND OUR INTERPRETATION OF PART 8 OF THE ONTARIO BUILDING CODE.
- INSPECTIONS BY THE CONSULTANT DURING THE INSTALLATION OF THE SYSTEM IS A REQUIREMENT OF SOME REGULATING AUTHORITIES AND IS STRONGLY RECOMMENDED BY THIS FIRM.
- THE PROPERTY LINE / SEPARATION DISTANCES SHOULD BE CONFIRMED PRIOR TO CONSTRUCTION.
- CONSTRUCTION INSPECTIONS DURING THE INSTALLATION OF THE SEWAGE SYSTEM MAY BE REQUIRED BY THE REGULATING AUTHORITY AND ARE STRONGLY RECOMMENDED BY THIS FIRM. IF THIS FIRM IS TO COMPLETE ANY CONSTRUCTION INSPECTION(S), ADDITIONAL FEES MAY BE APPLIED. CONFIRMATION OF PAYMENT WILL BE REQUIRED PRIOR TO THE INSPECTION.
- THE TEST HOLE INFORMATION PROVIDED, IS INTENDED TO BE USED FOR DESIGN PURPOSES ONLY, AND SHOULD NOT BE RELIED UPON FOR CONSTRUCTION PURPOSES. IF DISCREPANCIES ARE FOUND DURING THE CONSTRUCTION PROCESS, IT IS THE CLIENT'S RESPONSIBILITY TO CONTACT THIS FIRM TO MAKE ANY NECESSARY COMMENTS OR REVISIONS. ADDITIONAL REVISIONS ARE NOT CONSIDERED PART OF THE DESIGN WORKS AND WILL BE CONSIDERED AS AN ADDITIONAL COST.

SEPTIC FILE #
25-176
OTTAWA



Professional Engineers
Ontario

Licensed Engineering Technologist

Name: H. G. VAN DE GLIND

Number: 100647862

Limitations: Inspecting, designing, and assessing residential and commercial sewage systems, grading designs and soil analysis, and overseeing installation and compliance.

Association of Professional Engineers of Ontario

04/06/25	Issued for Septic Permit	3
14/05/25	Issued with Revised Site Plan	2
03/10/24	Issued with Revised Site Plan	1
20/09/24	Issued for Preliminary Review	0
DD/MM/YY	DESCRIPTION	REV.

Consultant:



PATERSON
GROUP

5 AURIGA DRIVE
OTTAWA, ON
K2E 7S9
TEL (613) 226-7361

Client:

STRATFORD FOXRUN

Project:

PROPOSED WAREHOUSE /
RESTAURANT

5923 OTTAWA STREET
OTTAWA (RICHMOND), ONTARIO

Drawing:

SEWAGE SYSTEM
DETAILS AND NOTES
SEWAGE SYSTEM 'A'

Scale:

N.T.S.

Drawn by:

HV

Date:

06/2025

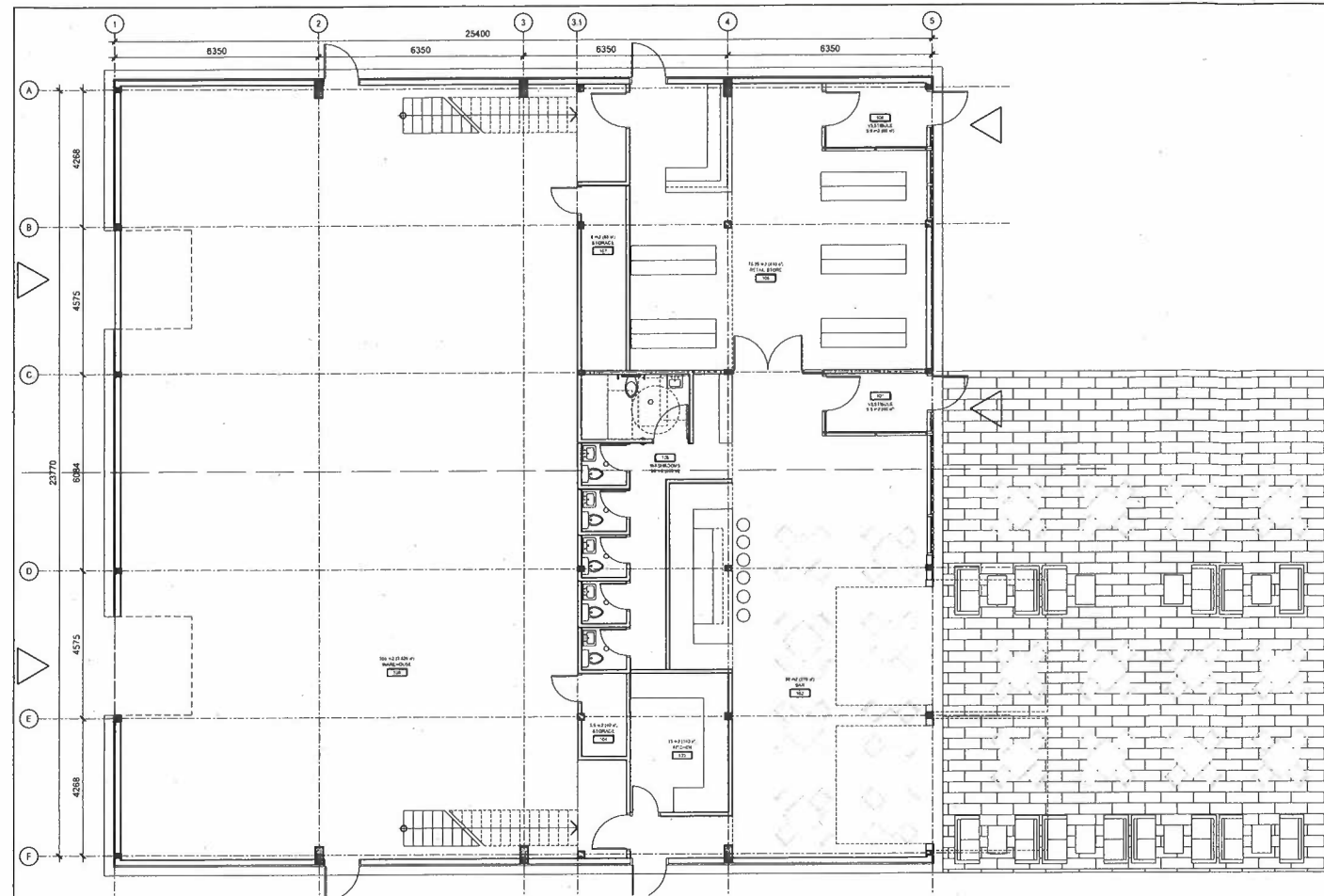
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MK

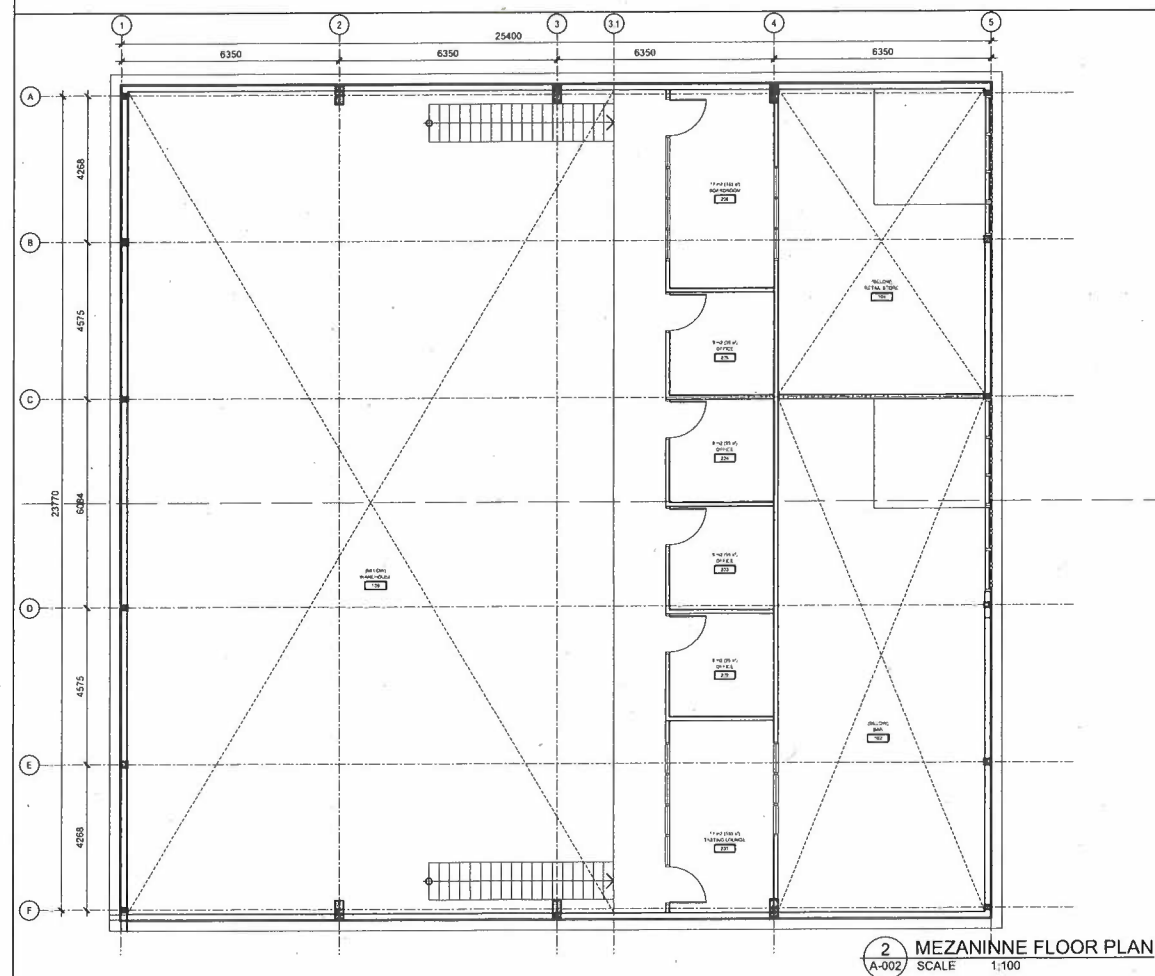
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PH4924-2(rev.3)

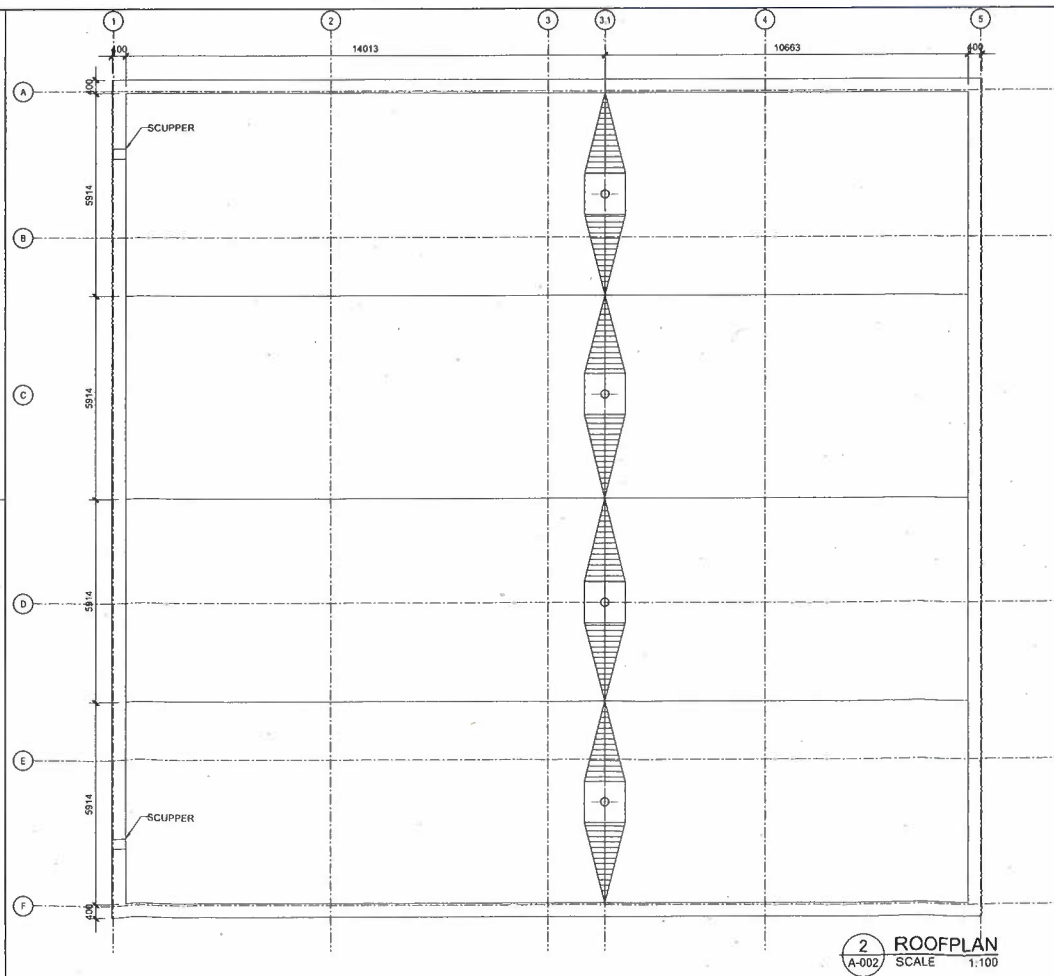
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jack gulas - 5923 ottawa street richmond\ph4924-2(rev.3).dwg



1 GROUND FLOOR PLAN
A-002 SCALE 1:100

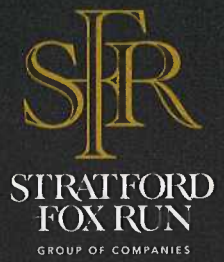


2 MEZANINNE FLOOR PLAN
A-002 SCALE 1:100



2 ROOFPLAN
A-002 SCALE 1:100

BUILDING 1
SEWAGE SYSTEM "A"
25-176



3	ISSUED FOR SPA	08MAY25
2	ISSUED FOR SITE PLAN CONTROL	19NOV24
1	ISSUED FOR SITE PLAN CONTROL	07OCT24
no.	revision	date

N45 ARCHITECTURE INC.
71 Bank Street, 7th floor - Ottawa, Ontario, K1P 5N2
tel. 613.224.0095 fax 613.224.9811

project	FOXRUN RICHMOND
5923 OTTAWA STREET OTTAWA, ON	
project north	seal ONTARIO ASSOCIATION OF ARCHITECTS VLADIMIR POPOVIC LICENCE 5918

drawing title	FLOOR PLANS
scale	AS NOTED
date	OCT 2022
project number	24-826
drawn by	NF
checked by	VP
drawing number	A-002
CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.	revision -



Permit
Part 8 – Sewage System
Ontario Building Code

Do Not Complete
Permit No 25-176
Revision No
Date
Related Application

A copy of this permit must be posted on the property at all time during construction. OBC, Division C — Part 1, Section 1.3.2.1

This permit verifies that the on-site sewage system was reviewed and approved for construction under the Ontario Building Code Act (Building Code Act, 1992, S.O. 1992, c. 23) and Ontario Building Code (O. Reg. 163/24) as amended.

Inspected & Recommended by: Matt Panciuk Owner: 99117756 Canada Inc.
Inspection Date & Time: Weather:
Address: 5923 Ottawa Street - System A Legal:
In the former Township/City of Goulbourn

Design Flow for Commercial / Institutional / Industrial (as per Table 8.2.13.B)

Q: 9,367 L/day

septic tank	28,101(min)	L	weigh bills for Eljen Sand	☒ yes	☐ no
effluent filter	Required		grain size analysis required	☒ yes	☐ no
pump rate	391 + Charge	L/15 MIN	site to be scarified	☒ yes	☐ no
treatment unit	Eljen GSF A42(DN 450)		clay seal inspection	☐ yes	☒ no
number of units	110		mantle required	☐ yes	☒ no
			sub-grade inspection	☒ yes	☐ no

ELEVATION ☐ In Ground ☐ Partially Raised ☒ Fully Raised

TYPE OF SYSTEM

☐ Trench

☒ Pipe and Stone or ☐ Chambers

type of chamber
loading area m²
total trench length m
trench configuration

☒ Dispersal Bed

☒ BMEC ☐ Type A ☐ Type B

stone m²
sand 837.9 m²
pipe 2 cells of 5 runs of 11 modules @ 4.5m o/c
weight of sand kg

☐ Shallow Buried Trench

pipe length m
orifice spacing m

☐ Filter Media Bed

stone m²
extended base m²
pipe
weight of filter media kg
loading area m²

☐ Class 5 Holding Tank

☐ Septic Tank Only

Manager, Septic System Approvals: Permit Date: August 5, 2025

Comments: 1. Scarification inspection required prior to placement of sand fill.
2. One existing monitoring well and one existing drilled well to be decommissioned on site by a licensed well driller and documentation of the decommissioned wells provided to the RVCA.

☒ maintenance/pumping required ☒ ESA permit # required ☐ engineer to verify
☐ Class 5 Holding Tank approval only valid for three years from date of issue ☒ subgrade ☐ squirt height

Manager, Septic System Approvals: Revision Date:

Comments:

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the *Building Code Act, 1992*

For use by Principal Authority			
Application number:		Permit number (if different):	
Date received:		Roll number:	
Application submitted to: Ottawa Septic System Office		RVCA RECEIVED JUN 09 2025 REFER TO: SEPTIC FILE # 25-177 OTTAWA	
(Name of municipality, upper-tier municipality, board of health or conservation authority)			
A. Project information			
Building number, street name		Unit number	Lot/con.
5923 Ottawa street			
Municipality	Postal code	Plan number/other description	
Ottawa (Richmond)	K0A 2Z0		
Project value est. \$		Area of work (m ²)	
B. Purpose of application			
☒ New construction ☐ Addition to an existing building ☐ Alteration/repair ☐ Demolition ☐ Conditional Permit			
Proposed use of building		Current use of building	
Commercial			
Description of proposed work			
To construct a new class 4 sewage system, Eljen NSF 245 Denitrification treatment system: Eljen DN450			
Sewage System 'B'			
C. Applicant			
Applicant is: ☐ Owner or ☒ Authorized agent of owner			
Last name	First name	Corporation or partnership	
Van de Glind	Hendrik	Paterson Group Inc.	
Street address		Unit number	Lot/con.
9 Auriga Drive			
Municipality	Postal code	Province	E-mail
Ottawa	K2E 7T9	ON	hvandeglind@patersongroup.ca
Telephone number	Fax	Cell number	
613-226-7381			
D. Owner (if different from applicant)			
Last name	First name	Corporation or partnership	
Gulas	Jack	99117756 Canada Inc.	
Street address		Unit number	Lot/con.
411 Legget Drive, Suite 710			
Municipality	Postal code	Province	E-mail
Ottawa	K2K 3C9	ON	jack@stratfordfoxrun.com
Telephone number	Fax	Cell number	
613.862.0087			

E. Builder (optional)			
Last name	First name	Corporation or partnership (if applicable)	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number	Fax	Cell number	

SEPTIC FILE #
 25-177
 P.A.W.A.

F. Tarion Warranty Corporation (Ontario New Home Warranty Program)			
i. Is proposed construction for a new home as defined in the <i>Ontario New Home Warranties Plan Act</i> ? If no, go to section G.	☐ Yes	☒ No	
ii. Is registration required under the <i>Ontario New Home Warranties Plan Act</i> ?	☐ Yes	☒ No	
iii. If yes to (ii) provide registration number(s): _____			

G. Required Schedules	
i) Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.	
ii) Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.	

H. Completeness and compliance with applicable law		
i) This application meets all the requirements of clauses 1.3.1.3 (5) (a) to (d) of Division C of the Building Code (the application is made in the correct form and by the owner or authorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted). Payment has been made of all fees that are required, under the applicable by-law, resolution or regulation made under clause 7(1)(c) of the <i>Building Code Act, 1992</i> , to be paid when the application is made.	☒ Yes	☐ No
ii) This application is accompanied by the plans and specifications prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the <i>Building Code Act, 1992</i> .	☒ Yes	☐ No
iii) This application is accompanied by the information and documents prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the <i>Building Code Act, 1992</i> which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.	☒ Yes	☐ No
iv) The proposed building, construction or demolition will not contravene any applicable law.	☒ Yes	☐ No

I. Declaration of applicant	
Hendrik Van de Glind, L.E.T., C.E.T. - Paterson Group (print name) declare that: 1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge. 2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership. June 6, 2025 Date Signature of applicant	

RVCA RECEIVED
 JUN 09 2025
 REFER TO: _____

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666.



Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information			
Building number, street name 5923 Ottawa Street		Unit no.	Lot/con.
Municipality Ottawa (Richmond)	Postal code K0A 2Z0	Plan number/ other description	
B. Individual who reviews and takes responsibility for design activities			
Name Hendrik Van de Glind, L.E.T., C.E.T.		Firm Paterson Group Inc.	
Street address 9 Auriga Drive		Unit no.	Lot/con.
Municipality Ottawa	Postal code K2E 7T9	Province ON	E-mail hvandeglind@patersongroup.ca
Telephone number 613-226-7381	Fax number	Cell number	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]			
☐ House	☐ HVAC – House	☐ Building Structural	
☐ Small Buildings	☐ Building Services	☐ Plumbing – House	
☐ Large Buildings	☐ Detection, Lighting and Power	☐ Plumbing – All Buildings	
☐ Complex Buildings	☐ Fire Protection	☒ On-site Sewage Systems	
Description of designer's work On-site Sewage System Design			
D. Declaration of Designer			
I, <u>Hendrik Van de Glind, L.E.T., C.E.T. - Paterson Group</u> declare that (choose one as appropriate): (print name)			
I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: <u>111499</u> Firm BCIN: <u>29346</u>			
I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: _____ Basis for exemption from registration: _____			
The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____			
I certify that: 1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm. June 6, 2025 Date Signature of Designer			

SEPTIC FILE #

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OTTAWA

RVCA RECEIVED

JUN 09 2025

REFER TO: _____

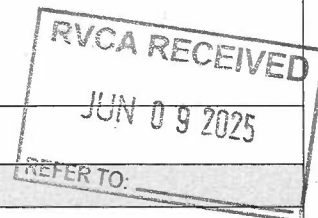
NOTE:

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) (c) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of practice, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.



Schedule 2: Sewage System Installer Information

A. Project Information			
Building number, street name 5923 Ottawa Street		Unit number	Lot/con.
Municipality Ottawa (Richmond)	Postal code K0A 2Z0	Plan number/ other description	
B. Sewage system installer			
Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1, Division C?			
☐ Yes (Continue to Section C)		☐ No (Continue to Section E)	
		☒ Installer unknown at time of application (Continue to Section E)	
C. Registered installer information (where answer to B is "Yes")			
Name		BCIN	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number	Fax	Cell number	
D. Qualified supervisor information (where answer to section B is "Yes")			
Name of qualified supervisor(s)		Building Code Identification Number (BCIN)	
E. Declaration of Applicant:			
I <u>Hendrik Van de Glind, L.E.T., C.E.T. - Paterson Group</u> declare that:			
(print name)			
I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;			
OR			
I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2, now that the installer is known.			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge.			
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.			
June 6, 2025		Signature of applicant	
Date		OTTAWA	



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Schedule 4: Proposed Services

Complete Sections 1 through 7

Do Not Complete

Permit number:

Revision number:

Date

1 Engineered

- ☒ Yes
☐ No

2 Water supply

- ☒ Proposed
☐ Existing

3 Use

- ☐ Apartment
☒ Dwelling
☒ Commercial
☐ Industrial

SEPTIC FILE #
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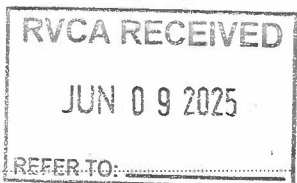
OTTAWA

4 Type of work proposed

- ☒ New Installation
☐ Replacement
☐ Alteration

5 Type of Well

- ☐ Dug/Bored/Sandpoint well
☒ Drilled well
☐ Municipal
☐ Other



6 Residential Sewage Design Flow Info.

Bedrooms _____
House (floor area) _____ m²
People _____
Total Fixture Units _____ (Schedule 8)
Residential Flow _____ L/day

7 Sewage Design Flow Other Occupancies

Design Flow 600 L/day

Detailed sewage flow calculations:

Refer to PGI Drawings No. PH4924-3(rev.3)

8 Type of System

- ☐ Class 2 – Leaching Pit
☐ Class 3 – Cesspool

Treatment Unit Eljen GSF A-42 (DN450)

☐ Class 4 – Trench (Schedule 9)

- ☐ Fully raised
☐ Partially raised
☐ In-ground

☐ Class 4 – Filter Media (Schedule 10)

- ☐ Fully raised
☐ Partially raised
☐ In-ground

☐ Class 4 – Shallow Buried Trench

- ☐ Fully raised
☐ Partially raised
☐ In-ground

☒ Class 4 – BMEC Area Bed (Schedule 11)

- ☒ Fully raised
☐ Partially raised
☐ In-ground

☐ Class 4 – "Type A" Dispersal (Schedule 13)

- ☐ Fully raised
☐ Partially raised
☐ In-ground

☐ Class 4 – "Type B" Dispersal (Schedule 14)

- ☐ Fully raised
☐ Partially raised
☐ In-ground

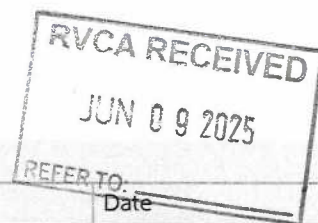
☐ Class 5 – Holding Tank (9000L min)

- ☐ Tank/Treatment Unit/Pump Chamber ONLY
☐ Effluent Filter/Risers ONLY
☐ Other _____



Schedule 5: Sewage System Details

OTTAWA



Do Not Complete

Permit number:

Revision number:

Complete below

Type of System Eljen GSF A-42 Modules (DN 450) (Schedule 4)

Septic/Holding Tank Size: 3,600 (Litres)

Make: _____

Septic Tank Effluent Filter Make: OBC Approved

Model: (Polylok PL-250 or equivalent)

Treatment Unit - Make & Model: Eljen GSF A-42 Modules (DN450)

Number of Units: 8

Refer to Typical Drawing #: PH4924-1&3(rev.3)

Pump ☒ Syphon ☐

Pump(s) required: Yes

Pump Rate: 25 + Charge L/15min Hour

Mantle Information

Native or imported = min. 15m in N/A direction(s)

Slope subgrade _____ % slope

_____ direction(s)

Note: Alarm required for all pumping systems

Installed ☐ Inside ☐ TBD By Installer @

☐ Outside time of Installation

Site to be Scarified (If clay) Yes ☒ No ☐

Clay Seal Required (If bedrock) Yes ☐ No ☐

☐ Trench

Distribution Pipe Length _____ m

Loading Area _____ m²

Type of Chamber _____

Length of Chamber _____ m

☐ Dispersal Bed

☒ BMEC ☐ Type A ☐ Type B

Stone N/A m²

Sand 92.9 m²

Pipe 9.76 m²

Linear Loading 6.5 L/m²

☐ Shallow Buried Trench

Pipe Length _____ m²

Pipe _____

☐ Filter Media Bed

Stone _____ m

Extended Base _____ m²

Pipe _____

Weight of Filter Media _____ Kg

Loading Area _____ m²

☐ Tank/Treatment Unit/Pump Chamber Replacement **ONLY**

☐ Effluent Filter & Riser **ONLY**

Construction Notes:



Schedule 6: Soil and Water

Table Information (Minimum depth of test pit: 2 metres)

Do Not Complete

Permit number:	Revision number:	Date
----------------	------------------	------

Name of Applicant/Agent: Paterson Group Inc.
Date: April 17, 2025 Time: 11:00 AM
Applicant/Agent Signature: [Signature]

Inspector: _____
Date: _____ Time: _____
Inspector Signature: _____

EG ()	Soil Description
— m —	—
— m —	—
— m —	—
— m —	—
— m —	—
— m —	—
— m —	—

 Professional Engineers Ontario
Licensed Engineering Technologist
Name: H. G. VAN DE GLIND
Number: 100647862
Limitations: Inspecting, designing, and assessing residential and commercial sewage systems, grading designs and soil analysis, and overseeing installation and compliance.
Association of Professional Engineers of Ontario

T-time 40 Min/cm

EG ()	Soil Description
— m —	—
— m —	—
— m —	—
— m —	—
— m —	—
— m —	—
— m —	—

Test pits not available for inspection.
Engineer assumes all liability for soil and HGWT info/elev's.

T-time _____ Min/cm

EG ()	Soil Description
— m —	—
— m —	—
— m —	—
— m —	—
— m —	—
— m —	—
— m —	—

T-time _____ Min/cm

EG ()	Soil Description
— m —	—
— m —	—
— m —	—
— m —	—
— m —	—
— m —	—
— m —	—

T-time _____ Min/cm

Legend

BR Bedrock
HGWT High ground water table
EG Existing grade

GWT Ground water table
M metres
T percolation rate



Schedule 7: Layout Section

Do Not Complete

Permit number:

Revision number:

Date

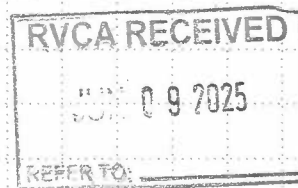
Scale: 1 Block = _____

- Dug Well
- Drilled Well

- ▲ Neighbouring Homes
- ◇ Benchmark

- Tile Drainage
- ___ Property Line

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OTTAWA



Elevations (metric only)

B.M. 94.86 m

B.M Description Top of spike in hydro pole across
from East Property Line of 5935 Ottawa Street

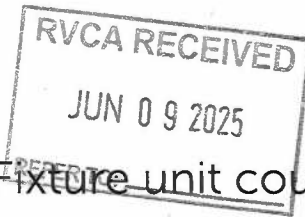
Exact Location _____

Min. of 5 elevations in proposed system area (in X pattern)

X ₁ _____	X ₂ _____
X ₃ _____	X ₄ _____
X ₅ _____	X ₆ (toe) _____
X ₇ _____	X ₈ _____



Schedule 8: Fixture unit count



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OTTAWA

Do Not Complete

Permit number: Revision number: Date

Fixtures	# Existing	+	# Proposed	X	unit count	=	Fixture Count
Bathroom							
Bathroom group (toilet, sink and tub or shower) installed in the same room		+		X	6	=	0.00
Bathtub with/without overhead shower		+		X	1.5	=	0.00
Shower stall		+		X	1.5	=	0.00
Wash basin (SINK) (1½ inch trap)	3	+		X	1.5	=	4.50
Watercloset (TOILET) tank operated	3	+		X	4	=	12.00
Bidet		+		X	1	=	0.00
Kitchen							
Dishwasher	1	+		X	1	=	1.00
Sink with/without garbage grinder(s), domestic and other small type single, double or 2 single with a common trap	1	+		X	1.5	=	1.50
Other							
Domestic washing machine		+		X	1.5	=	0.00
Combination sink and laundry tray single or double (Installed on 1½ trap)		+		X	1.5	=	0.00
Total*						=	19.00

*Insert the TOTAL in section 5 of Schedule 4 (0.Reg 151/13 Table 7.4.9.3)

1. Sump pumps and floor drains are not to be connected to the sewage system. Connection of such fixtures to a sewage system may lead to a hydraulic failure of the said system. The above mentioned fixtures should be discharged separately to an approved Class 2 (leaching pit) sewage system.

2. Where laundry waste is not more than 20% of the total daily design sanitary sewage flow, it may discharge to a sewage system (Part 8, OBC, 8.1.3.1(2)).

Hy U. G. W.

June 6, 2025

Agent/Owner signature

Date

NOTE:

SEWAGE SYSTEM 'B' HAS BEEN DESIGNED BASED ON PATERSON GROUP REPORT PH4924-LET.01

TOTAL DESIGN DAILY SANITARY SEWAGE FLOW (T.D.D.S.S.F.) OR "Q" = 600 L/DAY WHEN BALANCED OVER 7 DAYS.

NATIVE SOILS = GLACIAL TILL TO SILTY CLAY = T = 40 min/cm

MINIMUM NITRATE REDUCTION LEVEL REQUIRED = 50% AS PER PATERSON GROUP REPORT No. PH4924-LET.01

ELJEN DN450 SHALL BE USED TO ACHIEVE THE MINIMUM REQUIRED NITRATE REDUCTION.

PRESENTLY PROPOSED ELEVATIONS ARE BASED OFF THE EXISTING TOPOGRAPHIC INFORMATION. THE PROPOSED LOT GRADING AND DRAINAGE ASSOCIATED WITH THE PROPOSED ADDITION MAY AFFECT THESE ELEVATIONS.

NOTE:

SEWAGE SYSTEM 'A' HAS BEEN DESIGNED BASED ON PATERSON GROUP REPORT PH4924-LET.01

TOTAL DESIGN DAILY SANITARY SEWAGE FLOW (T.D.D.S.S.F.) OR "Q" = 9,367 L/DAY WHEN BALANCED OVER 7 DAYS.

NATIVE SOILS = GLACIAL TILL TO SILTY CLAY = T = 35 min/cm

MINIMUM NITRATE REDUCTION LEVEL REQUIRED = 50% AS PER PATERSON GROUP REPORT No. PH4924-LET.01

ELJEN DN450 SHALL BE USED TO ACHIEVE THE MINIMUM REQUIRED NITRATE REDUCTION.

PRESENTLY PROPOSED ELEVATIONS ARE BASED OFF THE EXISTING TOPOGRAPHIC INFORMATION. THE PROPOSED LOT GRADING AND DRAINAGE ASSOCIATED WITH THE PROPOSED ADDITION MAY AFFECT THESE ELEVATIONS.

PART 4
R.P. 4R-7050PART 1
R.P. 4R-13387

100mm Ø PVC PIPE TO BE INSTALLED @ 2% (min.) SLOPE AND SHALL BE SLEEVED THROUGH A 150mm Ø PVC SDR28 PIPE AND OVERLAIN BY 75mm T x 600mm W RIGID INSULATION BOARDS UNDER ASPHALT. PATERSON TO REVIEW COVER UPON COMPLETION OF LOT GRADING AND DRAINAGE.

TYP.
2 OUTLET DISTRIBUTION BOX C/W INLET Baffle AND POLYLOK FLOW EQUALIZERS
INLET INV. 94.90m (min.)
OUTLET INV. = 94.80m (min.)

ELJEN SAMPLING PAN
• INSTALL COLLECTION PLATES AS PER MANUFACTURER SPECIFICATIONS

2 RUNS OF 4 ELJEN GSF A-42 MODULES
MODULAR BASE ELEV. @ HEAD = 94.42m
MODULAR BASE ELEV. @ FOOT = 94.40m

TYP.
100mm Ø VENT PIPE INSTALLED IN 150mm Ø LANDSCAPE VALVE COVER

TYP.
100mm Ø SOLID PVC FOOTER PIPE
INV. = 94.58m

NOTE:
SNOW STORAGE SHALL NOT BE LOCATED OVER OR UPGRADIENT OF THE PROPOSED SEWAGE SYSTEM.

NOTE:
SNOW STORAGE SHALL NOT BE LOCATED OVER OR UPGRADIENT OF THE PROPOSED SEWAGE SYSTEM.

TYP.
100mm Ø VENT PIPE INSTALLED IN 150mm Ø LANDSCAPE VALVE COVER

TYP.
100mm Ø SOLID PVC FOOTER PIPE
INV. = 94.78m

100mm Ø PERFORATED PVC SEPTIC PIPE
INSTALLED @ APPROX. 0.5% ON ELJEN MODULES
HEAD INV. = 94.83m
FOOT INV. = 94.78m

3m L - 100mm Ø PVC PIPE WITH ELBOW @ 2% (min.) SLOPE

2 CELLS OF 5 RUNS OF 11 ELJEN GSF A-42 MODULES
MODULAR BASE ELEV. @ HEAD = 94.65m
MODULAR BASE ELEV. @ FOOT = 94.60m

ELJEN SAMPLING PAN
• INSTALL COLLECTION PLATES AS PER MANUFACTURER SPECIFICATIONS

ELJEN SPECIFIED SAND AREA
• 630 mm THICK (TOP OF MODULE TO BASE)
• 37.24m x 22.50m
• FOLLOWED BY 300 mm THICK OF SAND/LIGNOCELLULOSE LAYER
• FOLLOWED BY 50 mm THICK LAYER OF LIMESTONE

18,500L (min.) BALANCING TANK c/w TIME OPERATED EFFLUENT 1/2 H.P. DUPLEX PUMPS AND AUDIBLE / VISUAL HIGH WATER ALARM.

- TANK SHALL BE CPA APPROVED (OR ENGINEERED) FOR 1.2m (min.) OF COVER.
- TANK SHALL BE REVIEWED FOR BALLASTING REQUIREMENTS.
- PUMPING SYSTEM SHALL BE TIME DOSED TO OPERATE EVERY HOUR AND ALTERNATE BETWEEN CELLS.
- POLY RISER AND COVER ASSEMBLY
- INLET INV. = 94.40m±
- TOP OF TANK (max.) = 94.75m±
- FINISHED GRADE = 95.40m

NEW 3,600L PRETREATMENT TANK c/w

- TANK SHALL BE CPA APPROVED (OR ENGINEERED) FOR 1.2m (min.) OF COVER.
- TANK SHALL BE REVIEWED FOR BALLASTING REQUIREMENTS.
- POLYLOK PL-525 EFFLUENT FILTER
- POLY RISER & COVER ASSEMBLY (2)
- INLET INV. = 94.27m±
- OUTLET INV. = 94.22m±
- TOP OF TANK = 94.55m±
- FINISHED GRADE = 95.15m

PROPOSED INDUSTRIAL BUILDING
(ONE STOREY)

38mm Ø PVC SCH 40 PIPE FORCEMAIN

- SHALL BE INSTALLED TO GRAVITY DRAIN TO THE TANK.
- ENTIRE LENGTH OF FORCEMAIN SHALL BE BEDDED OF A MINIMUM OF 150mm OF OPSS GRANULAR A, AND SHALL BE COVERED WITH A MINIMUM OF 300mm OF OPSS GRANULAR A.
- ALL GRANULAR A MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 98% SPMDD.

100mm Ø PERFORATED PVC SEPTIC PIPE INSTALLED @ APPROX. 0.5% ON ELJEN MODULES
HEAD INV. = 94.60m
FOOT INV. = 94.58m

ELJEN SPECIFIED SAND AREA
• 630 mm THICK (TOP OF MODULE TO BASE)
• 9.60m x 9.68m
• FOLLOWED BY 300 mm THICK OF SAND/LIGNOCELLULOSE LAYER
• FOLLOWED BY 50 mm THICK LAYER OF LIMESTONE

TYP.
2 x LARGE 4 OUTLET DISTRIBUTION BOX C/W INLET Baffle AND POLYLOK FLOW EQUALIZERS
INLET INV. 95.10m (min.)
OUTLET INV. = 95.00m (min.)

EXISTING MONITORING WELL TO BE DECOMMISSIONED

PROPOSED INDUSTRIAL BUILDING
(ONE STOREY)

PROPOSED FINISHED FLOOR ELEVATION: 95.25

PAVERS

CONCRETE

CONCRETE

CONCRETE

CONCRETE

CONCRETE

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CONCRETE

100mm Ø PVC PIPE TO BE INSTALLED @ 2% (min.) SLOPE AND SHALL BE SLEEVED THROUGH A 150mm Ø PVC SDR28 PIPE AND OVERLAIN BY 75mm T x 600mm W RIGID INSULATION BOARDS UNDER ASPHALT. PATERSON TO REVIEW COVER UPON COMPLETION OF LOT GRADING AND DRAINAGE.

NEW 28,101L PRETREATMENT TANK c/w

- TANK SHALL BE CPA APPROVED (OR ENGINEERED) FOR 1.2m (min.) OF COVER.
- TANK SHALL BE REVIEWED FOR BALLASTING REQUIREMENTS
- POLYLOK PL-525 EFFLUENT FILTER
- POLY RISER & COVER ASSEMBLY (2)
- INLET INV. = 94.50m±
- OUTLET INV. = 94.45m±
- TOP OF TANK = 94.80m±
- FINISHED GRADE = 95.40m

TBM:
TOP OF SPIKE IN HYDRO POLE ACROSS FROM EAST PROPERTY LINE OF 5935 OTTAWA STREET
GEODETIC ELEV. = 94.86m

Professional Engineers
Ontario

Licensed Engineering Technologist

Name: H. G. VAN DE GLIND
Number: 100647862

Limitations: Inspecting, designing, and assessing residential and commercial sewage systems, grading designs and soil analysis, and overseeing installation and compliance.

Association of Professional Engineers of Ontario

LEGEND:	BENCHMARK INFORMATION:
Bore Hole Location	TBM: Top of Spike in Hydro Pole Across from East Property Line of 5935 Ottawa Street Approximate Geodetic Elevation = 94.86m
Existing Ground Surface Elev. (m)	REFERENCE:
Proposed Ground Surface Elev. (m)	Topographic Information obtained from Plan of Survey of Part of Unit 10 Index Plan D-26 Geographic Township of Goulbourn City of Ottawa, dated July 9, 2024, by egis Surveying Inc.
Proposed Subgrade Elev. (m)	Baseplan Obtained from Site Plan No. A-001, dated May 2025, by N45 Architecture Inc.
Groundwater Elev. (m) - Mar.6/22	
Finished Floor Elev. (m)	
Existing Structure	
Proposed Structure	

All Units are in meters unless otherwise specified

Consultant

04/06/25 Issued for Septic Permit 3

14/05/25 Issued with Revised Site Plan 2

03/10/24 Issued with Revised Site Plan 1

20/09/24 Issued for Preliminary Review 0

DD/MM/YY Description Rev.

Client:

Project:

Drawing:

Scale:

Date:

Drawing no.:

STRATFORD FOXRUN

PROPOSED WAREHOUSE / RESTAURANT
5923 OTTAWA STREET
OTTAWA (RICHMOND), ONTARIO

SEWAGE SYSTEM LAYOUT PLAN
SEWAGE SYSTEM 'A' AND 'B'

Scale: 1:600

Date: 06/2025

Drawing no.:

Checked by: MK

Drawn by: HV

PH4924-1(rev.3)

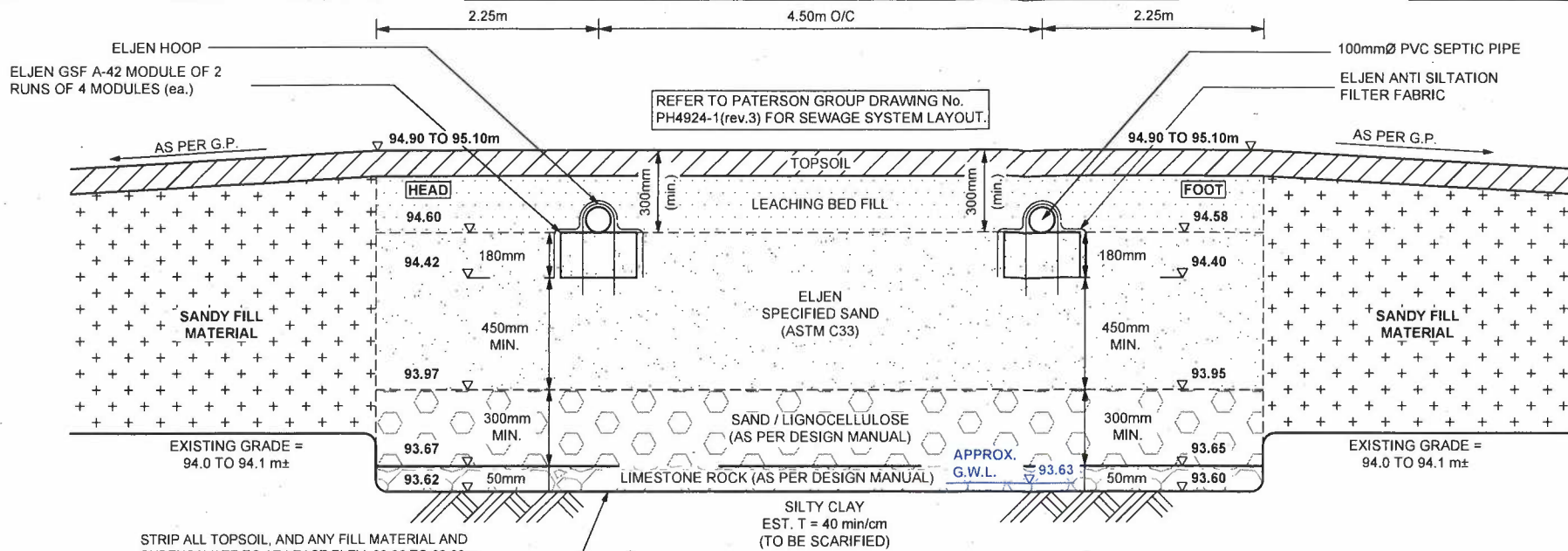


9 AURIGA DRIVE
OTTAWA, ON
K2E 7S5
TEL: (613) 228-7381

COVER MATERIAL TO CONSIST OF LEACHING BED FILL FOLLOWED BY APPROX. 100mm OF SANDY TOPSOIL. LEACHING BED TO BE VEGETATED AS SOON AS POSSIBLE.

SEWAGE SYSTEM DESIGN, SPECIFICATION, DETAILS AND NOTES HAVE BEEN COMPLETED IN ACCORDANCE WITH ELJEN DENITRIFICATION SUPPLEMENTAL DESIGN AND INSTALLATION MANUAL.

FINAL GRADING SHALL BE SUITABLY SHAPED TO DIRECT SURFACE WATER AWAY FROM THE PROPOSED SEWAGE SYSTEM.



NOTES:

1) ESTIMATE OF DAILY SEWAGE FLOW (Q)

THE PROPOSED SEWAGE SYSTEM HAS BEEN DESIGNED TO SUPPORT A COMMERCIAL TYPE USAGE CONSISTING OF OFFICE, AND WAREHOUSE SPACE. THE DAILY DESIGN SEWAGE FLOW RATE IS CALCULATED IN ACCORDANCE WITH O.B.C. TABLE 8.2.1.3.B.

OFFICE SPACE:

- 4 EMPLOYEES x 75 L/DAY = 300 L/DAY

WAREHOUSE SPACE:

- 2 LOADING BAY x 150 L/DAY = 300 L/DAY

TOTAL DESIGN DAILY SANITARY SEWAGE FLOW = 600 L/DAY

2) SOIL CONDITIONS

SOILS INFORMATION GATHERED BY PATERSON GROUP INC. ON APRIL 17, 2025. REFER TO PATERSON GROUP REPORT PG73781-1Rev.2 FOR FULL SOILS BREAKDOWN.

BH 1-25, ELEV. 94.07m

0-0.08	TOPSOIL AND ORGANICS
0.08-1.45	BROWN SILTY CLAY
1.45-6.60	GLACIAL TILL: BROWN SILTY SAND WITH GRAVEL, COBBLES BOULDERS AND CLAY (GREY @ 3.73m DEPTH)

- G.W.L. @ 0.05m DEPTH (93.54m)

1) PRETREATMENT TANK

- TANK SHALL BE CONNECTED TO BUILDING BY A 150mm Ø PVC PIPE SLEEVED THROUGH A 200mm Ø PVC SDR 28 PIPE AND OVERLAIN WITH 50mm T x 600mm W RIGID INSULATION BOARDS (UNDER ROADWAY) AND SHALL BE INSTALLED AT 2.0% (min.) SLOPE TO THE PRETREATMENT TANK.
- MINIMUM WORKING CAPACITY OF PRETREATMENT TANK = (3 x Q) OR 3,600 L (min.) = 3,600 L (min.)
- IT IS RECOMMENDED THAT A NEW 3,600L (min.) TWO-COMPARTMENT SEPTIC TANK BE INSTALLED.
- AN OBC APPROVED EFFLUENT FILTER (I.E. POLYLOK PL-525 EFFLUENT FILTER, OR EQUIVALENT) SHALL BE INSTALLED ON THE OUTLET PIPE IN THE PRETREATMENT TANK.
- THE ACCESS LIDS TO THE TANK OPENINGS SHALL BE EXTENDED TO THE GROUND SURFACE. INSTALL RISERS AND COVERS TO SUIT.
- ACCESS LIDS SHALL INCLUDE SAFETY DEVICES AS PER CSA B66-21.
- TANK SHALL BE CPA APPROVED (OR ENGINEERED) FOR 1.2m (min.) OF COVER MATERIAL.
- TANK SHALL BE REVIEWED FOR BALLASTING REQUIREMENTS.

4) BALANCING TANK

- INSTALL A 450L (min.) BALANCING TANK IN SERIES AND DOWNSTREAM FROM THE NEW SEPTIC TANK.
- A TIME OPERATED ALTERNATING DUPLEX PUMPING SYSTEM (I.E. MYERS ME3F, OR SIMILAR) AND A HIGH WATER ALARM SHALL BE INSTALLED IN THE BALANCING TANK.
- THE TIME OPERATIONAL PUMPING SYSTEM SHALL OPERATE EVERY HOUR (I.E. 25 L/DSE + VOLUME TO CHARGE THE SYSTEM) AND SHALL ALTERNATE BETWEEN EACH CELL.
- A 3mm Ø DRAIN HOLE SHALL BE INSTALLED IN THE UNDERSIDE OF THE FORCEMAIN IN THE BALANCING TANK NEAR THE WALL CONNECTION.
- RISERS WITH A COVER SHALL BE INSTALLED OVER THE BALANCING TANK TO PROVIDE ACCESS FROM THE GROUND SURFACE.
- DISCHARGE PIPING FOR PUMP SHALL BE CONFIGURED SUCH THAT THE PUMP IS EASILY SERVICED FROM THE GROUND SURFACE.

5) DISTRIBUTION BOX / FORCEMAIN

- A 38mm Ø (NOMINAL) PVC SCH 40 FORCEMAIN (2) SHALL BE USED TO CARRY THE EFFLUENT FROM THE BALANCING TANK TO EACH 3m L x 100mm Ø PVC SEWER PIPE.

- 100mm SEWER PIPE SHALL DRAIN BY GRAVITY TO A 2 OUTLET DISTRIBUTION BOX.
- THE FORCE MAIN SHALL BE INSTALLED TO GRAVITY DRAIN TO THE BALANCING TANK.
- THE FORCE MAIN SHALL BE OVERLAIN WITH 50mm T x 600mm C/W RIGID INSULATION.
- THE DISTRIBUTION BOX SHALL BE EQUIPPED WITH AN INLET BAFFLE AND OUTLET PIPES (2).
- EACH PIPING RUN SHALL BE FED BY A 2 OUTLET DISTRIBUTION BOX.
- THE DISTRIBUTION BOX SHALL BE CONNECTED TO THE DISTRIBUTION PIPING RUNS USING 100mm Ø SOLID PVC SEWER PIPE @ 2% (min.) SLOPE.

6) LEACHING BED SIZING CRITERIA

- NO. OF MODULES REQUIRED = $Q/95 = 600/95 = 6.3$ MODULES
- USE 2 RUNS OF 4 (8) ELJEN GSF A-42 MODULES EACH
- SAND AREA REQUIRED = $QT/400 = 600(40)/400 = 60m^2$
- SAND AREA PROVIDED = $9.60m \times 9.68m = 92.9m^2$ (min.)

7) LEACHING BED CONSTRUCTION GUIDELINES

- REMOVE ALL EXISTING TOPSOIL, AND ANY FILL WITHIN LIMITS OF THE SAND AREA AND SUBEXCAVATE TO AT LEAST ELEVATION 93.60m TO 93.62m, WHICHEVER IS GREATER. RE-ESTABLISH THE SPECIFIED CONTACT LEVEL USING SELECT SAND FILL, WHERE REQUIRED.
- THE SUBGRADE SURFACE SHALL BE SCARIFIED, UNDER DRY CONDITIONS.
- PLACE A 50mm MIN. THICK LAYER OF LIMESTONE ROCK OVER THE SUITABLY PREPARED SUBGRADE.
- LIMESTONE ROCK SHALL NO SMALLER THAN 25mm IN DIAMETER UP TO 50mm IN DIAMETER. THE ROCK SHALL CONTAIN GREATER THAN 15% LIMESTONE AS PER ELJEN DENITRIFICATION SUPPLEMENTAL DESIGN AND INSTALLATION MANUAL.
- PLACE A 300mm THICK LAYER OF SAND / LIGNOCELLULOSE OVER THE LIMESTONE ROCK LAYER.
- SAND / LIGNOCELLULOSE SHALL CONSIST OF WOOD CHIPS OR SAW DUST FROM HARD WOOD TREES THAT HAVE NOT BEEN FURTHER PROCESSED BY CHEMICALS. THE 300mm SAND AND LIGNOCELLULOSE LAYER SHALL BE 50/50 EQUAL MIXTURE OF ASTM C33 SAND AND WOOD CHIPS FROM HARD WOOD TREES. THE MIXTURE MUST NOT EXCEED 60/40 IN FAVOR OF THE MORE WOOD TO SAND.
- PLACE A 450mm MIN. THICK LAYER OF ELJEN SPECIFIED SAND FILL OVER THE LEACHING BED FILL.
- THE ELJEN SPECIFIED SAND FILL SHALL CONSIST OF WASHED SAND MEETING THE REQUIREMENTS OF ASTM C33 "STANDARD SPECIFICATION FOR CONCRETE AGGREGATES" WITH LESS THAN 5% PASSING 0.075mm SIEVE. ELJEN SPECIFIED SAND FILL SHALL BE PRE-APPROVED BY THE CONSULTANT.
- THE MODULES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- THE MODULES SHALL BE INSTALLED AT A SLOPE OF 0.3% (min.) TO 0.5% (max.), END TO END AND WITH THE WHITE DEMARCATION LINE FACING UP.
- THE MODULAR BASE LEVEL (ELEV. 94.40m AT THE FOOT, TO 94.42m AT THE HEAD) SHALL BE ESTABLISHED WITH ELJEN SPECIFIED SAND FILL, HAVING A MINIMUM THICKNESS OF 450mm BELOW THE MODULES.
- THE ELJEN MODULES SHALL BE FED BY GRAVITY BY A 100mm Ø PVC SEWER PIPE @ 2% (min.) SLOPE FROM THE DISTRIBUTION BOX.
- THE DISTRIBUTION PIPE SHALL CONSIST OF A 100mm Ø PERFORATED PVC PIPE CENTRED OVER THE MODULES. THE PIPE SHALL BE SECURED TO THE TOP OF THE MODULES USING AN ELJEN HOOP (MINIMUM 1 HOOP PER MODULE).
- THE INVERT LEVEL OF THE DISTRIBUTION PIPE SHALL BE SET ON THE MODULES AT ELEVATION 94.58m AT THE FOOT TO 94.60m AT THE HEAD. THE END OF THE PIPE RUNS SHALL BE CONNECTED TO A 100mm Ø SOLID PVC FOOTER PIPE.
- INSTALL ELJEN SYSTEM SAMPLING DEVICE AS PER MANUFACTURER'S RECOMMENDATIONS.
- THE ELJEN ANTI-SILTATION FILTER FABRIC SHALL BE SPREAD LENGTHWISE OVER THE PERFORATED SEPTIC PIPE AND DOWN THE SIDES OF THE MODULES. ENSURE ENDS OF MODULES ARE ALSO COVERED WITH FABRIC.
- THE MODULES SHALL BE BACKFILLED, WITH ELJEN SPECIFIED SAND FILL TO AT LEAST THE TOP OF THE ELJEN MODULES, FOLLOWED BY 200mm (min.) OF LEACHING BED FILL, FOLLOWED BY 100mm OF SANDY TOPSOIL, WITHIN THE LIMITS OF THE SAND AREA. THE BED AREA SHOULD BE VEGETATED AS SOON AS POSSIBLE.
- LEACHING BED SAND FILL SHALL BE UNIFORM SAND WITH GRADING LIMITS SIMILAR TO 100% PASSING 13.2mm SIEVE, LESS THAN 5% PASSING 0.075mm SIEVE, AND HAVING A PERCOLATION TIME OF 6 TO 8 min/cm. LEACHING BED FILL SHALL BE PRE-APPROVED BY THE CONSULTANT.
- THE SIDES OF THE BED SHOULD BE SLOPED AT 3H:1V OR SHALLOWER.
- VENT SYSTEM SHALL BE INSTALLED ON THE FOOTER PIPE. CONNECT A 100mm Ø PVC VENT PIPE TO FOOTER PIPE, EXTENDING TO GROUND SURFACE. VENT PIPE TO BE INSTALLED IN 150mm Ø LANDSCAPE VALVE COVER.

8) MINIMUM CLEARANCE DISTANCE FROM DISTRIBUTION PIPE

- 5.6m FROM ANY PROPERTY LINE
- 7.6m FROM ANY STRUCTURE: 5.0m FROM ANY BASEMENTLESS STRUCTURE
- 17.6m FROM ANY DRILLED WELL
- 5.0m FROM ANY TREE (UNLESS OTHERWISE APPROVED)

9) MINIMUM CLEARANCE DISTANCE FROM TANK(S)

- 1.5m FROM ANY STRUCTURE
- 15.0m FROM ANY DRILLED OR DUG WELL
- 3.0m FROM ANY PROPERTY LINE

10) GENERAL

- SNOW STORAGE SHALL NOT BE LOCATED OVER OR UPGRADIENT OF THE PROPOSED SEWAGE SYSTEM.
- THE SEWAGE SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT TRAFFIC LOADING.
- THE BACKFILLING OF THE SEWAGE SYSTEM SHOULD MINIMIZE THE RISK OF OVER COMPACTION WITH THE USE RUBBER TRACKED EQUIPMENT AND BY AVOIDING THE CREATION OF ANY CONSTRUCTION ROUTES OR PATHWAYS OVER THE SYSTEM.
- ANY NEW IRRIGATION / SPRINKLER SYSTEM SHOULD NOT BE USED IN PROXIMITY OF THE PROPOSED SEWAGE SYSTEM.
- ENSURE WALKWAYS AND/OR SHURBBERY ARE NOT PLACED WITHIN PROXIMITY OF THE TANKAGE.
- THE BACKWASH WATERS FROM ANY WATER TREATMENT UNIT, SUCH AS WATER SOFTENER, SHOULD NOT DISCHARGE INTO THE SEWAGE SYSTEM.
- THE SEWAGE SYSTEM HAS NOT BEEN DESIGNED FOR THE USE OF A GARBAGE DISPOSAL.
- SEWAGE SYSTEM INSTALLER SHALL BE QUALIFIED AND REGISTERED UNDER PART 8 OF THE ONTARIO BUILDING CODE AND SHALL BE AN AUTHORIZED ELJEN TREATMENT SYSTEM INSTALLER.
- ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LATEST BY-LAWS, CODES AND REGULATIONS.
- CONTRACTOR SHALL REVIEW DRAWINGS IN DETAIL AND SHALL INFORM THE CONSULTANT OF ANY ERRORS AND/OR OMISSIONS ON DESIGN DRAWINGS IMMEDIATELY.
- CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE AND PROTECT ALL EXISTING UNDERGROUND SERVICES.
- CONTRACTOR SHALL VISIT THE SITE AND REVIEW ALL DOCUMENTATION TO BECOME FAMILIAR WITH THE SITE AND SUBSURFACE SOIL CONDITIONS TO DETERMINE SUITABLE METHODS OF CONSTRUCTION.
- THE MANUFACTURER PROVIDES A LIMITED WARRANTY OF THE SYSTEM COMPONENTS. THE OWNER OF THE SYSTEM MUST SIGN A MAINTENANCE AGREEMENT WITH THE MANUFACTURER'S REPRESENTATIVE. THE HOMEOWNER IS RESPONSIBLE FOR THE ANNUAL FEES ASSOCIATED WITH THE MAINTENANCE.
- THE FIRM OF PATERSON GROUP INC. HAS PROVIDED DESIGN SERVICES ONLY FOR THE SUBJECT SEWAGE SYSTEM. THE DESIGN HAS BEEN CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES AND OUR INTERPRETATION OF PART 8 OF THE ONTARIO BUILDING CODE.
- INSPECTIONS BY THE CONSULTANT DURING THE INSTALLATION OF THE SYSTEM IS A REQUIREMENT OF SOME REGULATING AUTHORITIES AND IS STRONGLY RECOMMENDED BY THIS FIRM.
- THE PROPERTY LINE / SEPARATION DISTANCES SHOULD BE CONFIRMED PRIOR TO CONSTRUCTION.
- CONSTRUCTION INSPECTIONS DURING THE INSTALLATION OF THE SEWAGE SYSTEM MAY BE REQUIRED BY THE REGULATING AUTHORITY AND ARE STRONGLY RECOMMENDED BY THIS FIRM. IF THIS FIRM IS TO COMPLETE ANY CONSTRUCTION INSPECTION(S), ADDITIONAL FEES MAY BE APPLIED. CONFIRMATION OF PAYMENT WILL BE REQUIRED PRIOR TO THE INSPECTION.
- THE TEST HOLE INFORMATION PROVIDED, IS INTENDED TO BE USED FOR DESIGN PURPOSES ONLY, AND SHOULD NOT BE RELIED UPON FOR CONSTRUCTION PURPOSES. IF DISCREPANCIES ARE FOUND DURING THE CONSTRUCTION PROCESS, IT IS THE CLIENT'S RESPONSIBILITY TO CONTACT THIS FIRM TO MAKE ANY NECESSARY COMMENTS OR REVISIONS. ADDITIONAL REVISIONS ARE NOT CONSIDERED PART OF THE DESIGN WORKS AND WILL BE CONSIDERED AS AN ADDITIONAL COST.



Professional Engineers
Ontario

Licensed Engineering Technologist

Name: H. G. VAN DE GLIND

Number: 100647862

Limitations: inspecting, designing, and assessing residential and commercial sewage systems, grading designs and soil analysis, and overseeing installation and compliance.

Association of Professional Engineers of Ontario

04/06/25	Issued for Septic Permit	3
14/05/25	Issued with Revised Site Plan	2
03/10/24	Issued with Revised Site Plan	1
20/09/24	Issued for Preliminary Review	0
DD/MM/YY	DESCRIPTION	REV.

Consultant:



PATERSON
GROUP

9 AURIGA DRIVE
OTTAWA, ON
K2E 7S9
TEL (613) 226-7581

Client:

STRATFORD FOXRUN

Project:

**PROPOSED WAREHOUSE /
RESTAURANT**

**5923 OTTAWA STREET
OTTAWA (RICHMOND), ONTARIO**

Drawing:

**SEWAGE SYSTEM
DETAILS AND NOTES
SEWAGE SYSTEM 'B'**

Scale:

N.T.S.

Drawn by:

HV

Date:

06/2025

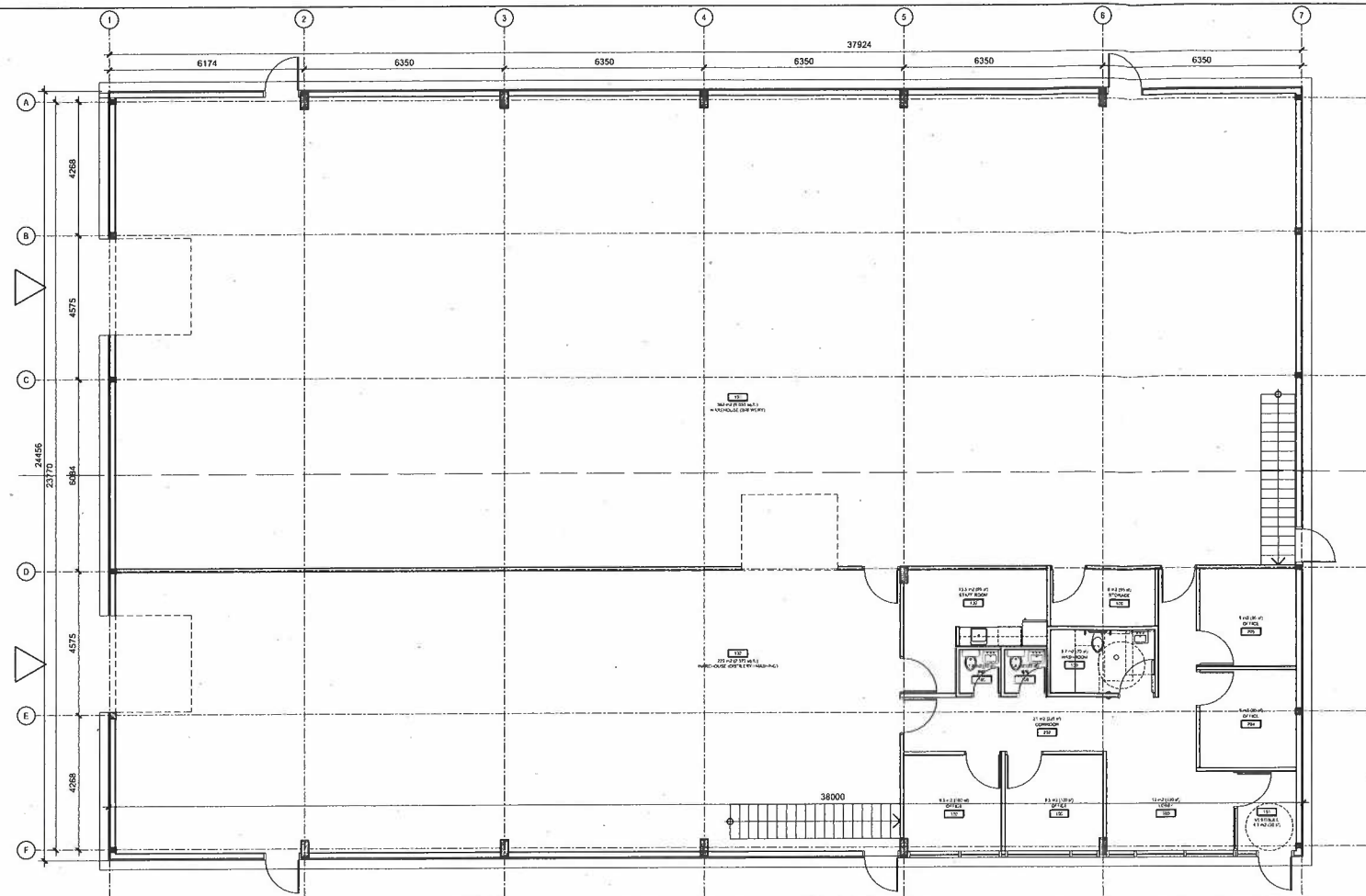
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MK

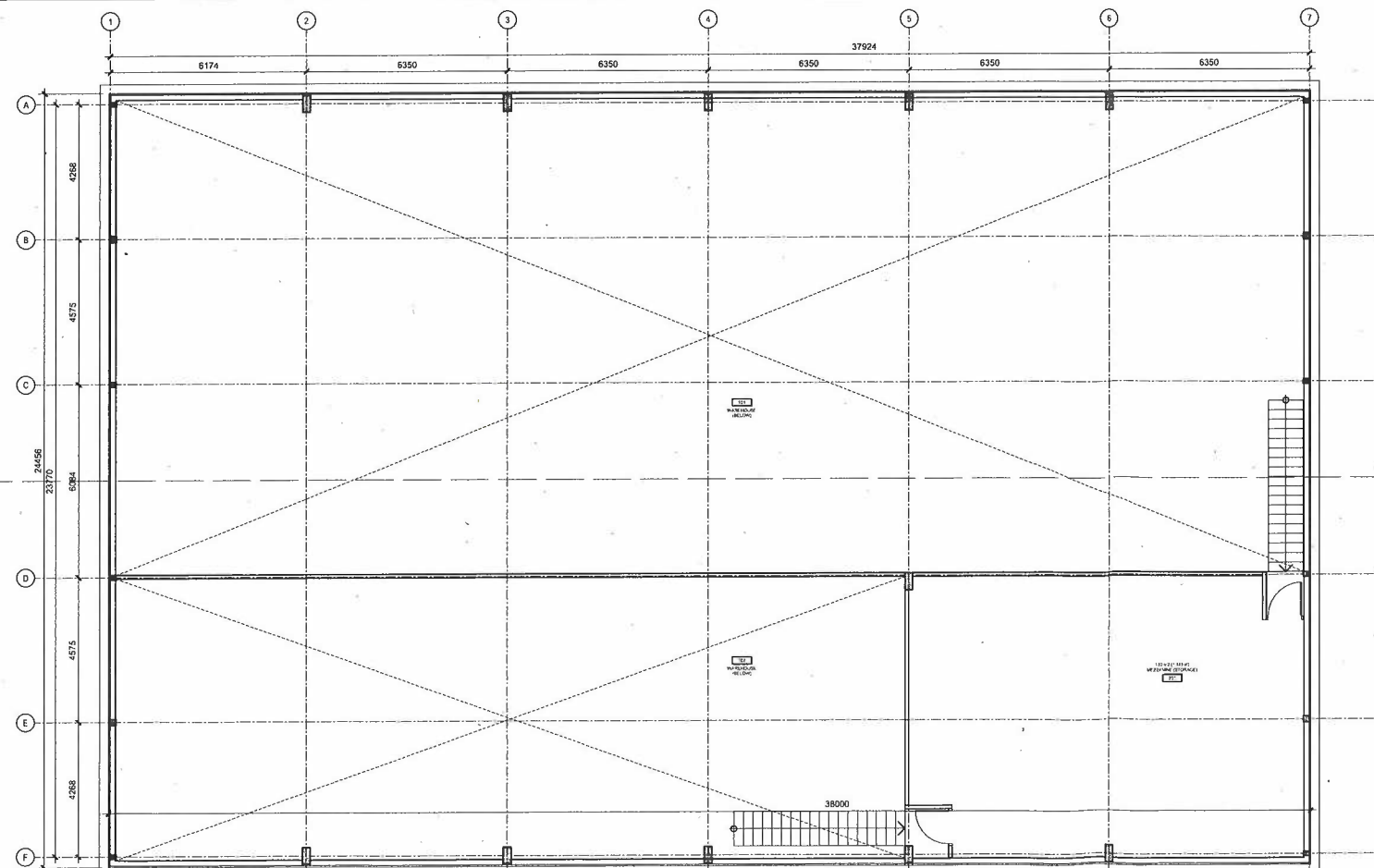
Drawing No.:

PH4924-3(rev.3)

p:\autocad drawings\hydrogeology\ph4924\ph4924 - stratford foxrun -
jack gulas - 5923 ottawa street richmond\ph4924-3(rev.3).dwg

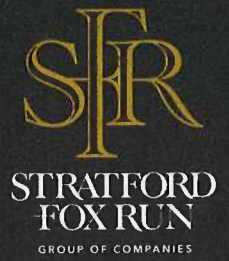


1 GROUND FLOOR PLAN
A-004 SCALE 1:100



2 MEZZANINE FLOOR PLAN
A-004 SCALE 1:100

BUILDING 2
SEWAGE SYSTEM "B"
25-177



01	ISSUED FOR SPA	08MAY25
no.	revision	date

N45 ARCHITECTURE INC.
71 Bank Street, 7th floor - Ottawa, Ontario, K1P 5N2
tel. 613.224.0095 fax 613.224.9811

project	FOX RUN RICHMOND
5923 OTTAWA STREET OTTAWA, ON	
project north	seal ONTARIO ASSOCIATION OF ARCHITECTS VLADIMIR POPOVIC LICENCE 5910

drawing title	BREWERY BUILDING
scale	AS NOTED
date	MARCH 2025
project number	24-826
drawn by	NF
checked by	VP
drawing number	A-004
CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.	revision -



Permit
Part 8 – Sewage System
Ontario Building Code

Do Not Complete
Permit No 25-177
Revision No _____
Date _____
Related Application _____

A copy of this permit must be posted on the property at all time during construction. OBC, Division C — Part 1, Section 1.3.2.1

This permit verifies that the on-site sewage system was reviewed and approved for construction under the Ontario Building Code Act (Building Code Act, 1992, S.O. 1992, c. 23) and Ontario Building Code (O. Reg. 163/24) as amended.

Inspected & Recommended by: Matt Panciuk Owner: 99117756 Canada Inc.
Inspection Date & Time: _____ Weather: _____
Address: 5923 Ottawa Street - System B Legal: _____
In the former Township/City of Goulbourn

Design Flow for Commercial / Institutional / Industrial (as per Table 8.2.1.3.B)

Q: 600 L/day

septic tank	<u>3600(min)</u> L	weigh bills for Eljen Sand	☒ yes	☐ no
effluent filter	<u>YES</u>	grain size analysis required	☒ yes	☐ no
pump rate	<u>25 + Charge</u> L/15 MIN	site to be scarified	☒ yes	☐ no
treatment unit	<u>Eljen GSF A42(DN 450)</u>	clay seal inspection	☐ yes	☒ no
number of units	<u>8</u>	mantle required	☐ yes	☒ no
		sub-grade inspection	☒ yes	☐ no

ELEVATION ☐ In Ground ☐ Partially Raised ☒ Fully Raised

TYPE OF SYSTEM

☐ Trench

☒ Pipe and Stone or ☐ Chambers

type of chamber _____
loading area _____ m²
total trench length _____ m
trench configuration _____

☒ Dispersal Bed

☒ BMEC ☐ Type A ☐ Type B

stone _____ m²
sand 92.9 m²
pipe 2 runs of 4 modules @ 4.5m o/c
weight of sand _____ kg

☐ Shallow Buried Trench

pipe length _____ m
orifice spacing _____ m

☐ Filter Media Bed

stone _____ m²
extended base _____ m²
pipe _____
weight of filter media _____ kg
loading area _____ m²

☐ Class 5 Holding Tank

☐ Septic Tank Only

Manager, Septic System Approvals: [Signature] Permit Date: August 5, 2025

Comments: 1. Scarification inspection required prior to placement of sand fill.

☒ maintenance/pumping required

☒ ESA permit # required

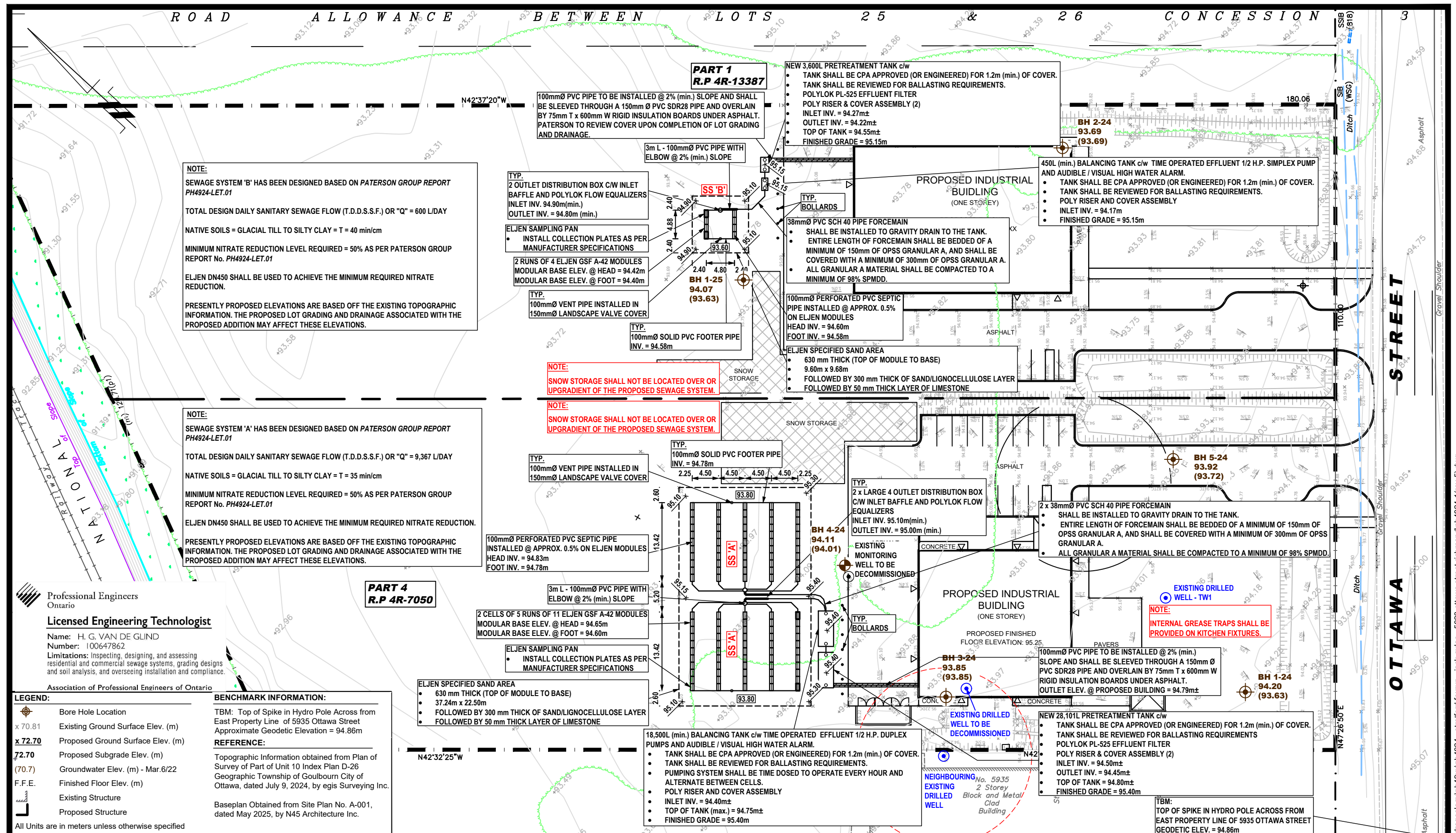
☐ engineer to verify

☐ Class 5 Holding Tank approval only valid for three years from date of issue

☒ subgrade
☐ squirt height

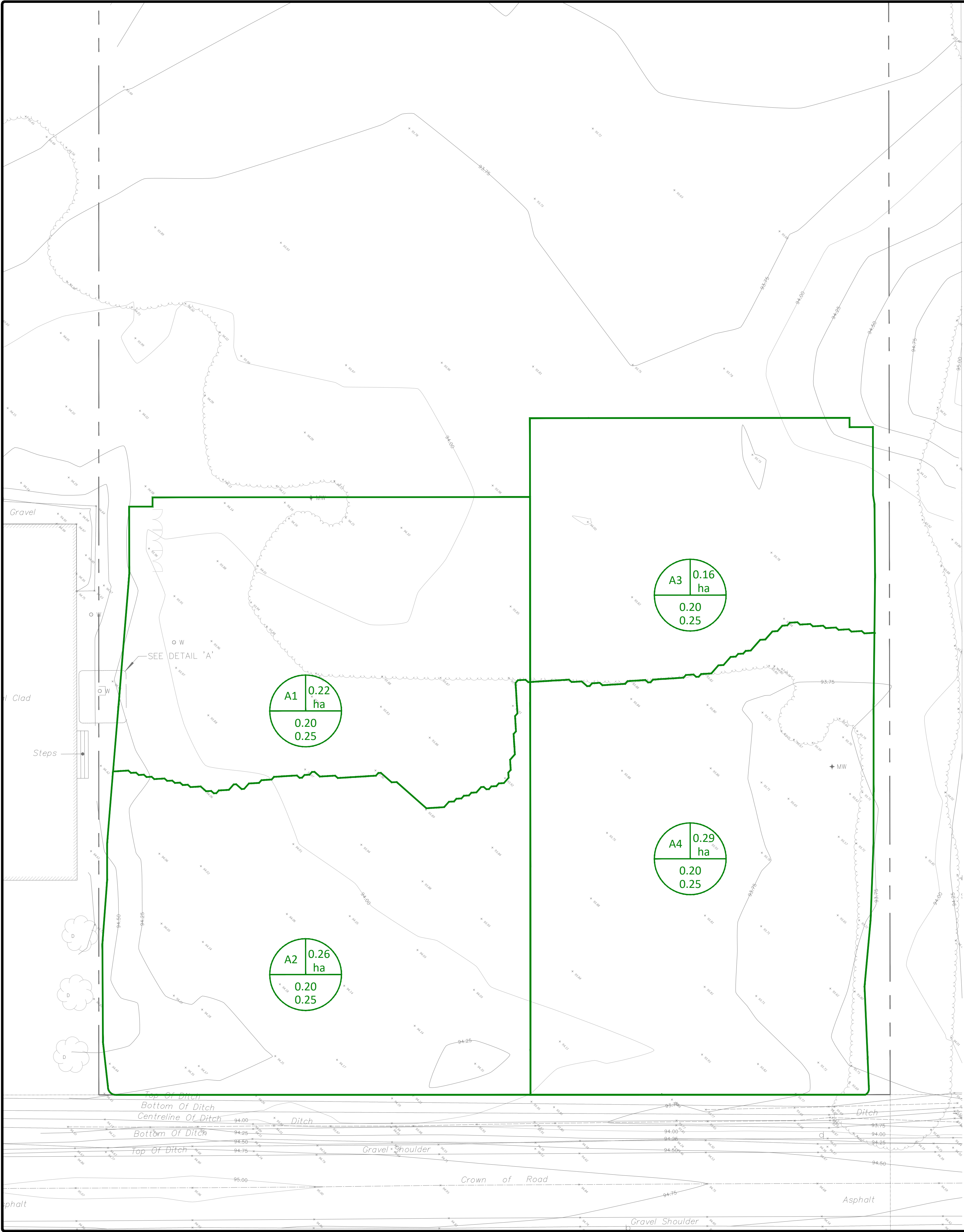
Manager, Septic System Approvals: _____ Revision Date: _____

Comments: _____



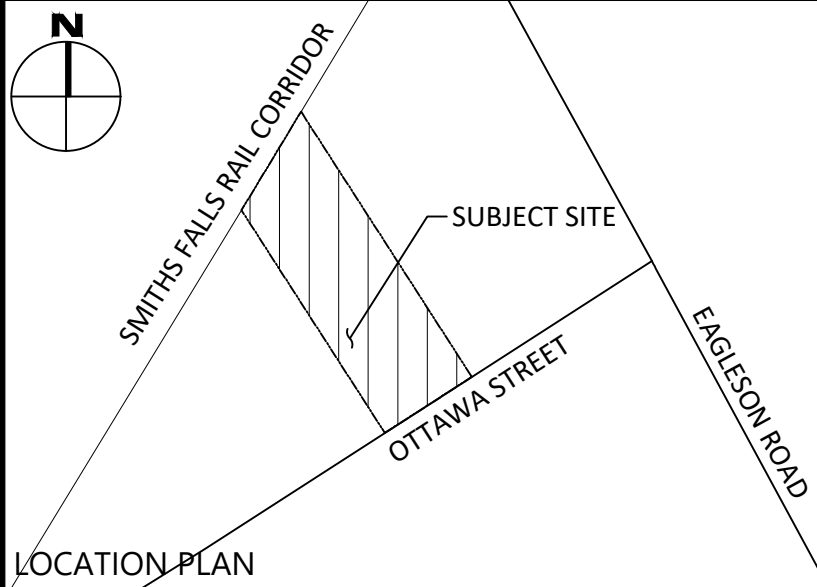
APPENDIX E PRE-DEVELOPMENT DRAINAGE PLAN

\\BAMAR_U\Infrastructure\2025\CCO-25-0415\99117756 Canada Inc. SPS Distillery & Warehouse_0303 Ottawa Street\12 Drawings\CCO-25-0415 - Presentation.dwg
User: JACQUELINE WINTERSEY, August 11, 2025, 2:41 PM, 100%
\\BAMAR_U\Infrastructure\2025\CCO-25-0415\99117756 Canada Inc. SPS Distillery & Warehouse_0303 Ottawa Street\12 Drawings\CCO-25-0415 - Presentation.dwg

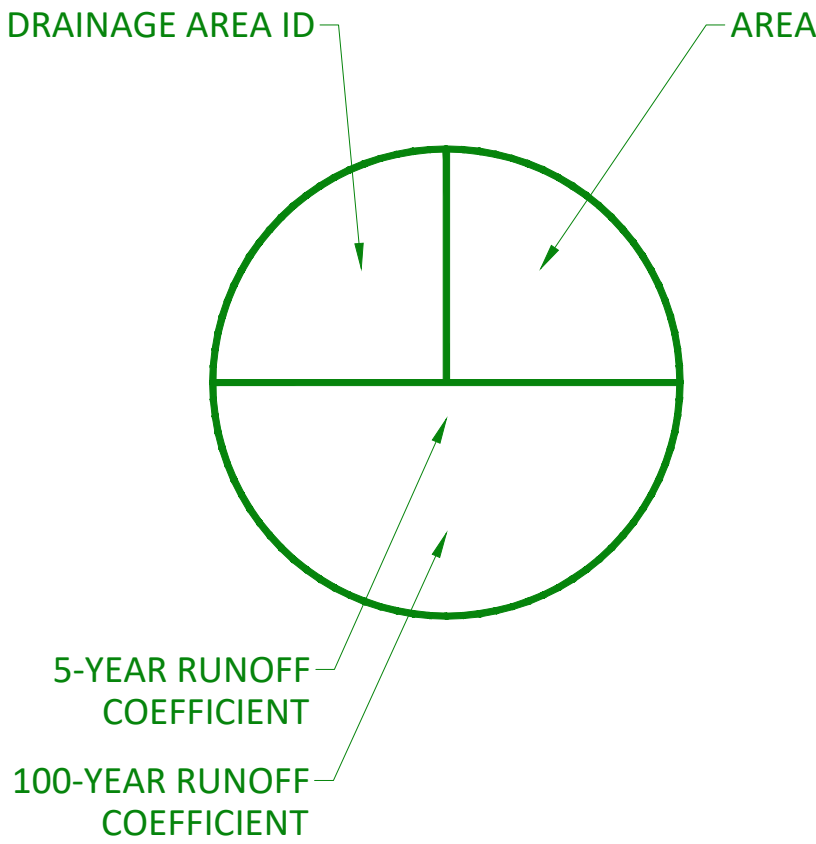


GENERAL NOTES

1. THE ORIGINAL TOPOGRAPHY, GROUND ELEVATION AND SURVEY DATA SHOWN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY, AND IMPLY NO GUARANTEE OF ACCURACY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.
2. THE CONTRACTOR IS TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY BEFORE COMMENCING CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT.
4. THE CONTRACTOR IS TO DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME ALL RESPONSIBILITY FOR EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE DRAWINGS. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
5. RESTORE ALL TRENCHES AND SURFACES OF PUBLIC ROAD ALLOWANCES TO CONDITION EQUAL OR BETTER THAN ORIGINAL CONDITION AND TO THE SATISFACTION OF THE CITY AUTHORITIES.
6. EXCAVATE AND DISPOSE OF ALL EXCESS EXCAVATED MATERIAL, SUCH AS ASPHALT, CURBING AND DEBRIS, OFF SITE AS DIRECTED BY THE ENGINEER AND THE CITY.
7. TOPSOIL TO BE STRIPPED AND STOCKPILED FOR REHABILITATION. CLEAN FILL TO BE PLACED IN FILL AREAS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
8. CONTRACTOR TO MINIMIZE THE ACTUAL LIMITS OF REMOVALS AND DISTURBED AREA WHEREVER POSSIBLE, AND SHALL MAKE THEIR OWN JUDGEMENT AND ACCOUNT FOR ALL MATERIAL AND LABOUR REQUIRED FOR ADEQUATELY REINSTATING THE AREA TO PRE-CONSTRUCTION CONDITIONS OR BETTER, AND BEAR THE COST OF THE SAME. NO ADDITIONAL PAYMENT WILL BE MADE FOR REINSTATEMENT WORK NOT SHOWN ON THE CONTRACT DRAWING AS A DIRECT RESULT FROM CONSTRUCTION.
9. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SAFETY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING THE SUPPLY, INSTALLATION, AND REMOVAL OF ALL NECESSARY SIGNAGE, DELINEATORS, MARKERS AND BARRIERS.
11. DO NOT ALTER GRADING OF THE SITE WITHOUT PRIOR APPROVAL OF THE ENGINEER/CITY.
12. ALL ROADWAY, PARKING LOT, AND GRADING WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH CITY STANDARDS AND SPECIFICATIONS. THE CONTRACTOR IS TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING.
13. CONTACT THE CITY FOR INSPECTION OF ROUGH GRADING OF PARKING LOTS, ROADWAYS AND LANDSCAPED AREAS PRIOR TO PLACEMENT OF ASPHALT AND TOPSOIL. ALL DEFICIENCIES NOTED SHALL BE RECTIFIED TO THE CITY'S SATISFACTION PRIOR TO PLACEMENT OF ANY ASPHALT, TOPSOIL, SEED & MULCH AND/OR SOD.
14. ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION, IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
15. ELECTRICAL, GAS, TELEPHONE AND TELEVISION SERVICE LOCATIONS ARE SUBJECT TO THE INDIVIDUAL AGENCY:
 - ELECTRICAL SERVICE - HYDRO ONE,
 - GAS SERVICE - ENBRIDGE,
 - TELEPHONE SERVICE - BELL CANADA,
 - TELEVISION SERVICE - ROGERS.
16. INSTALLATION TO BE IN ACCORDANCE WITH CURRENT CODES AND STANDARDS OF APPROVAL AGENCIES HYDRO ONE, BELL AND THE CITY.
17. CONTRACTOR TO ENSURE ALL APPLICABLE OPS SPECIFICATIONS ARE FOLLOWED DURING CONSTRUCTION.
18. ALL PROPOSED CURB TO BE CONCRETE BARRIER CURB UNLESS OTHERWISE SPECIFIED.



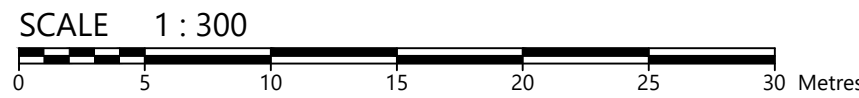
LEGEND



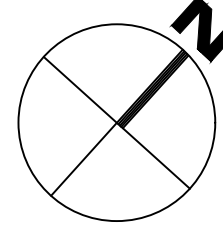
FOR REVIEW ONLY
NOT FOR CONSTRUCTION

2	ISSUED FOR REVIEW	AUG. 12, 2025
1	ISSUED FOR SITE PLAN CONTROL	JUN. 06, 2025
No.	Revisions	Date

Check and verify all dimensions before proceeding with the work Do not scale drawings



115 Walgreen Road, R.R.3
Carp, ON K0A 1L0
Tel: 613-836-2184
Fax: 613-836-3742
www.egis-group.com



Stamp:

Client:

99117756 CANADA INC.
411 LEGGET DRIVE, SUITE 710
OTTAWA, ON K2K 3C9

Project:

DISTILLERY & WAREHOUSE
5923 OTTAWA STREET

Drawing Title:

PRE-DEVELOPMENT DRAINAGE AREA PLAN

Scale:

1:300

Drawn By:

FV

Checked By:

AG

Designed By:

AG

Project Number:

CCO-25-0415

Drawing Number:

PRE

#XXXXX

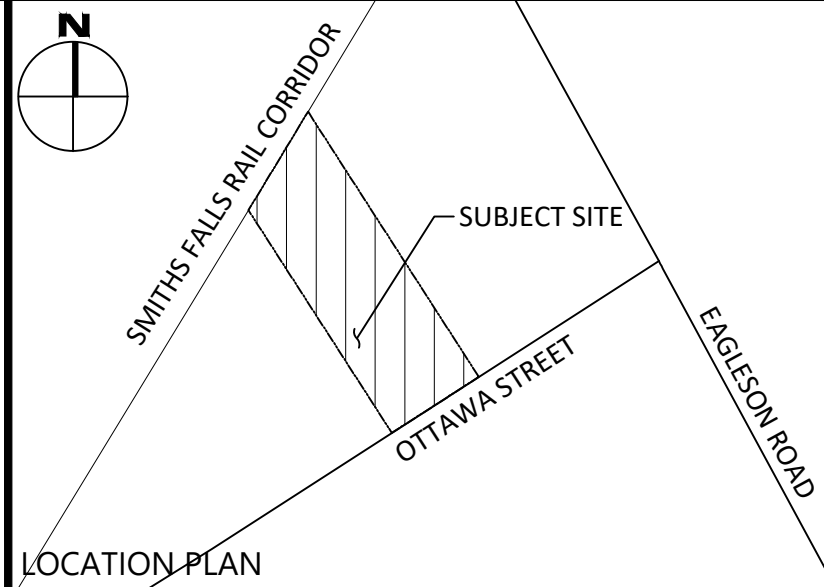
D07-12-25-0078

APPENDIX F POST-DEVELOPMENT DRAINAGE PLAN



1. THE ORIGINAL TOPOGRAPHY, GROUND ELEVATION AND SURVEY DATA SHOWN ARE SUPPLIED FOR THE CONTRACTOR'S USE ONLY AND ARE NOT A GUARANTEE OF ACCURACY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL DATA SHOWN ON THIS DRAWING.
2. THE CONTRACTOR IS TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY BEFORE COMMENCING CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT.
4. THE CONTRACTOR IS TO DETERMINE THE EXACT LOCATION OF ALL MATERIALS AND UTILITIES OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME ALL RESPONSIBILITY FOR EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN THE DRAWINGS, IT IS TO NOTIFY THE ENGINEER PROMPTLY.
5. RESTORE ALL TRENCHES AND SURFACES OF PUBLIC ROAD ALLOWANCES TO CONDITION EQUAL OR BETTER THAN ORIGINAL CONDITION AND TO THE SATISFACTION OF THE CITY AUTHORITIES.
6. EXCAVATE AND DISPOSE OF ALL EXCESS EXCAVATED MATERIAL, SUCH AS ASPHALT, CONCRETE, CURBS, OR CEMENT, AS DIRECTED BY THE ENGINEER AND THE CITY.
7. TOPSOIL TO BE STRIPPED AND STOCKPILED FOR REHABILITATION. CLEAN FILL TO BE PLACED IN AREAS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
8. CONTRACTOR TO MINIMIZE THE ACTUAL LIMITS OF DISTURBANCE AND TO BE AS NEARLY AS POSSIBLE, AND SHALL MAKE THEIR OWN JUDGEMENT AND ACCOUNT FOR ALL MATERIAL AND EQUIPMENT REQUIRED FOR ADEQUATELY REINSTATEMENT OF ROAD TO PRE-CONSTRUCTION CONDITIONS OR BETTER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF THE SAME. AND AN ADDITIONAL NOTE SHALL BE MADE FOR REINSTATEMENT WORK NOT SHOWN ON THE CONTRACT DRAWINGS AS A DIRECT RESULT FROM CONSTRUCTION.

9. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SAFETY MEASURES DURING CONSTRUCTION, INCLUDING THE SUPPLY, INSTALLATION, AND REMOVAL OF ALL TRAFFIC SIGNS, DELINEATORS, MARKERS AND BARRIERS.
11. DO NOT ALTER GRADING OF THE SITE WITHOUT PRIOR APPROVAL OF THE ENGINEER/CITY.
12. ALL ROADWAY, PARKING LOT, AND GRADING WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH THE CITY'S SPECIFICATIONS. HOWEVER, THE CONTRACTOR IS TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING.
13. CONTACT THE CITY FOR INSPECTION OF ROUGH GRADING, PARKING LOT, ROADWAYS AND UNDEVELOPED AREAS PRIOR TO PLACEMENT OF ASPHALT. ANY DEFICIENCIES NOTED SHALL BE RECTIFIED TO THE CITY'S SATISFACTION PRIOR TO PLACEMENT OF ANY ASPHALT, TOPSOIL, OR LANDSCAPE.
14. ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY.
15. ELECTRICAL, GAS, TELEPHONE AND TELEVISION SERVICE LOCATIONS ARE SUBJECT TO THE INDIVIDUAL AGENCY:
 - GAS SERVICE - ENBRIDGE
 - TELEPHONE SERVICE - BELL CANADA,
 - TELEVISION SERVICE - ROGERS
16. INSTALLATION TO BE IN ACCORDANCE WITH CURB, SIDEWALK AND STREET CLOSURE APPROVAL AGREES HYDRO ONE, BELL AND THE CITY.
17. CONTRACTOR TO ENSURE ALL APPLICABLE OPS SPECIFICATIONS ARE FOLLOWED DURING CONSTRUCTION.
18. ALL PROPOSED CURB TO BE CONCRETE BARRIER CURB UNLESS OTHERWISE SPECIFIED.



3	ISSUED FOR REVIEW	NOV. 17, 2025
2	ISSUED FOR REVIEW	AUG. 11, 2025
1	ISSUED FOR SITE PLAN CONTROL	JUN. 06, 2025
No.	Revisions	Date

SCALE 1 : 300



0 5 10 15 20 25 30 Metres



Drawing Title:

POST-DEVELOPMENT DRAINAGE AREA PLAN

POST

APPENDIX G STORMWATER MANAGEMENT CALCULATIONS

Tc (min)	Intensity (mm/ hr)		
	2-Year	5-Year	100-Year
20	52.0	70.3	120.0
10	76.8	104.2	178.6

C-Values	
Impervious	0.90
Gravel	0.60
Pervious	0.20

Pre-Development Runoff Coefficient

Drainage Area	Impervious Area (m ²)	Gravel (m ²)	Pervious Area (m ²)	Average C (2-Year)	Average C (100-Year)	
A1	0	0	2,219	0.20	0.25	Ph.1 Drainage to Rear Yard
A2	0	0	2,583	0.20	0.25	Ph.1 Drainage to Ottawa Street

Pre-Development Runoff Calculations

Drainage Area	Area (ha)	C 2/ 5-Year	C 100-Year	
A1	0.222	0.20	0.25	Ph.1 Drainage to Rear Yard
A2	0.258	0.20	0.25	Ph.1 Drainage to Ottawa Street
Total	0.480			

Post-Development Runoff Coefficient

Drainage Area	Impervious Area (m ²)	Gravel (m ²)	Pervious Area (m ²)	Average C (2-year)	Average C (100-year)	
B1	1,844	0	2,307	0.51	0.58	Ph.1 Surface Restricted
B2	651	0	0	0.90	1.00	Ph.2 Building - Restricted

Post-Development Runoff Calculations

Drainage Area	Area (ha)	C 2-Year	C 100-Year	
B1	0.415	0.51	0.58	Ph.1 Surface Restricted
B2	0.065	0.90	1.00	Ph.2 Building - Restricted
Total	0.480			

Tc (min)	Intensity (mm/ hr)		
	2-Year	5-Year	100-Year
20	52.0	70.3	120.0
10	76.8	104.2	178.6

C-Values	
Impervious	0.90
Gravel	0.60
Pervious	0.20

Pre-Development Runoff Coefficient

Drainage Area	Impervious Area (m ²)	Gravel (m ²)	Pervious Area (m ²)	Average C (2-Year)	Average C (100-Year)	
A3	0	0	1,604	0.20	0.25	Ph.2 Drainage to Rear Yard
A4	0	0	2,858	0.20	0.25	Ph.2 Drainage to Ottawa Street

Pre-Development Runoff Calculations

Drainage Area	Area (ha)	C 2/ 5-Year	C 100-Year	
A3	0.160	0.20	0.25	Ph.2 Drainage to Rear Yard
A4	0.286	0.20	0.25	Ph.2 Drainage to Ottawa Street
Total	0.446			

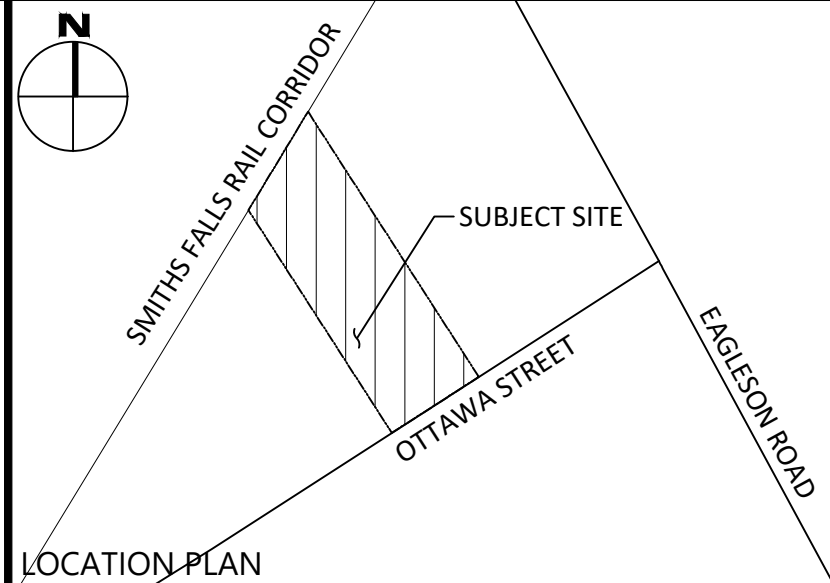
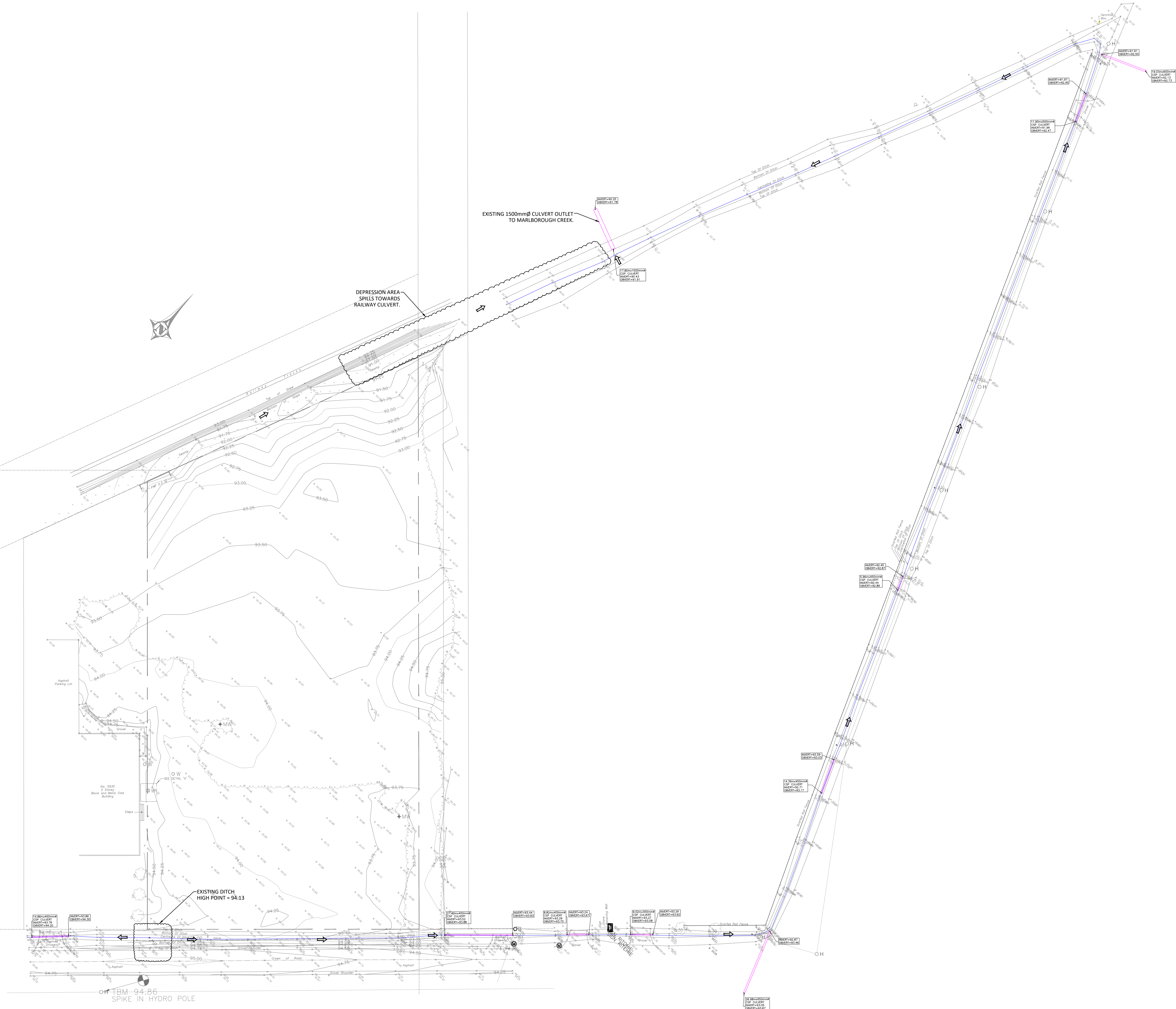
Post-Development Runoff Coefficient

Drainage Area	Impervious Area (m ²)	Gravel (m ²)	Pervious Area (m ²)	Average C (2-year)	Average C (100-year)	
B3	1,460	0	2,076	0.49	0.56	Ph.2 Surface Restricted
B4	926	0	0	0.90	1.00	Ph.2 Building - Restricted

Post-Development Runoff Calculations

Drainage Area	Area (ha)	C 2-Year	C 100-Year	
B3	0.354	0.49	0.56	Ph.2 Surface Restricted
B4	0.093	0.90	1.00	Ph.2 Building - Restricted
Total	0.446			

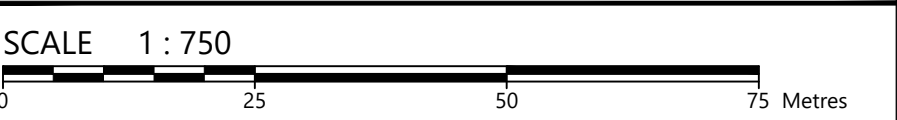
\\na\map\Infrastructure\2025\CCO-25-0415\99117756 Canada Inc. SPS Distillery & Warehouse, 5923 Ottawa Street\12 Drawings\Drainage\Figures\CCO-25-0415 - Presentation - Distilling
ASX PROJECTS - Thermal Paper August 02, 2025 11:41:10 AM C:\STANDARD.DWG



- LEGEND
- DRAINAGE DIRECTION
 - DRAINAGE DITCH
 - EXISTING CULVERT

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

1	ISSUED FOR REVIEW	AUG. 07, 2025
No.	Revisions	Date
Check and verify all dimensions before proceeding with the work. Do not scale drawings.		



115 Walgreen Road, R.R.3
Carp, ON K0A 1L0
Tel: 613-836-2184
Fax: 613-836-3742
www.egis-group.com

Stamp:

Client:
99117756 CANADA INC.
411 LEGGET DRIVE, SUITE 710
OTTAWA, ON K2K 3C9

Project:
DISTILLERY & WAREHOUSE
5923 OTTAWA STREET

Drawing Title:
EXISTING DITCH DRAINAGE FIGURE

Scale:	1:750	Project Number:	CCO-25-0415
Drawn By:	FV	Drawing Number:	C104
Checked By:	CJM		
Designed By:	FV		

D07-12-XX-XXXX

#XXXXX



Adjustable Accutrol Weir

Tag: _____

Adjustable Flow Control for Roof Drains

ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the flow rate for depths over 2" of head, set the slot in the adjustable upper cone according to the flow rate required. Refer to Table 1 below.

Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

EXAMPLE:

For example, if the adjustable upper cone is set to cover 1/2 of the weir opening, flow rates above 2" of head will be restricted to 2-1/2 gpm per inch of head.

Therefore, at 3" of head, the flow rate through the Accutrol Weir that has 1/2 the slot exposed will be:
[5 gpm (per inch of head) x 2 inches of head] + 2-1/2 gpm (for the third inch of head) = 12-1/2 gpm.

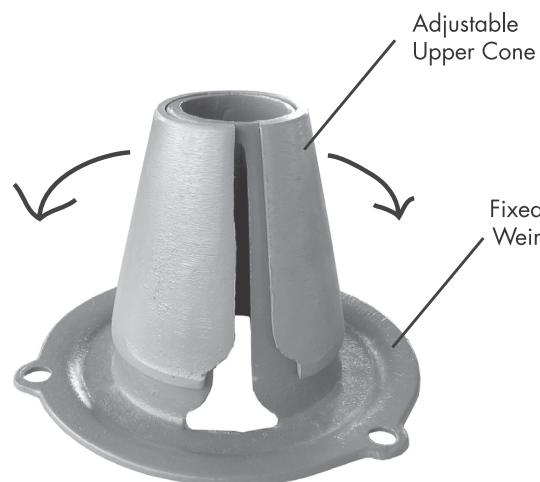
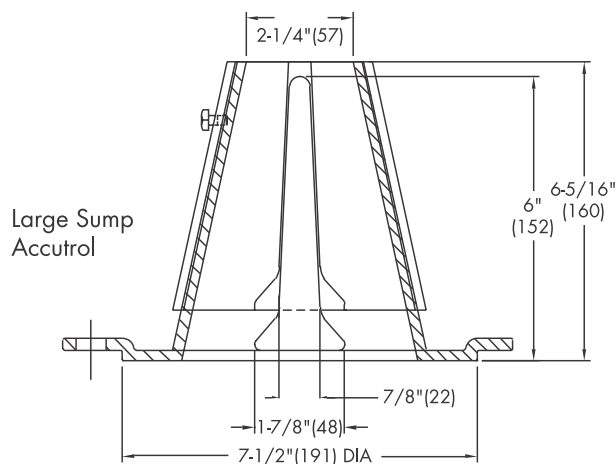


TABLE 1. Adjustable Accutrol Flow Rate Settings

Weir Opening Exposed	1"	2"	3"	4"	5"	6"
	Flow Rate (gallons per minute)					
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

Job Name _____

Contractor _____

Job Location _____

Contractor's P.O. No. _____

Engineer _____

Representative _____

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

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A Watts Water Technologies Company

Stormceptor®EF Sizing Report

Imbrium®Systems

ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

08/14/2025

Province:	Ontario	Project Name:	5923 Ottawa St. (Distillery and Warehouse)														
City:	Ottawa	Project Number:	COO-25-0415														
Nearest Rainfall Station:	OTTAWA CDA RCS	Designer Name:	Jessica Steffler														
Climate Station Id:	6105978	Designer Company:	Forterra Pipe & Precast														
Years of Rainfall Data:	20	Designer Email:	jessica.steffler@RinkerPipe.com														
Site Name:	Phase 1	Designer Phone:	519-239-6958														
Drainage Area (ha):	0.48	EOR Name:	Francis VALENTI														
Runoff Coefficient 'c':	0.59	EOR Company:	EGIS														
Particle Size Distribution:	CA ETV	EOR Email:	Francis.VALENTI@egis-group.com														
Target TSS Removal (%):	60.0	EOR Phone:	613-714-6895														
Required Water Quality Runoff Volume Capture (%):	90.00	Net Annual Sediment (TSS) Load Reduction Sizing Summary <table> <tr> <th>Stormceptor Model</th> <th>TSS Removal Provided (%)</th> </tr> <tr> <td>EFO4</td> <td>60</td> </tr> <tr> <td>EFO5</td> <td>63</td> </tr> <tr> <td>EFO6</td> <td>65</td> </tr> <tr> <td>EFO8</td> <td>68</td> </tr> <tr> <td>EFO10</td> <td>69</td> </tr> <tr> <td>EFO12</td> <td>70</td> </tr> </table>		Stormceptor Model	TSS Removal Provided (%)	EFO4	60	EFO5	63	EFO6	65	EFO8	68	EFO10	69	EFO12	70
Stormceptor Model	TSS Removal Provided (%)																
EFO4	60																
EFO5	63																
EFO6	65																
EFO8	68																
EFO10	69																
EFO12	70																
Estimated Water Quality Flow Rate (L/s):	9.14																
Oil / Fuel Spill Risk Site?	Yes																
Upstream Flow Control?	No																
Peak Conveyance (maximum) Flow Rate (L/s):	18.00																
Influent TSS Concentration (mg/L):	200																
Estimated Average Annual Sediment Load (kg/yr):	189																
Estimated Average Annual Sediment Volume (L/yr):	154																

Recommended Stormceptor EFO Model:

Estimated Net Annual Sediment (TSS) Load Reduction (%):

Water Quality Runoff Volume Capture (%):

EFO4

60

> 90



Stormceptor®EF Sizing Report

THIRD-PARTY TESTING AND VERIFICATION

► Stormceptor®EF and Stormceptor®EFO are the latest evolutions in the Stormceptor®oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators and performance has been third-party verified in accordance with the ISO 14034 Environmental Technology Verification (ETV) protocol.

PERFORMANCE

► Stormceptor®EF and EFO remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterways.

PARTICLE SIZE DISTRIBUTION (PSD)

► The Canadian ETV PSD shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5



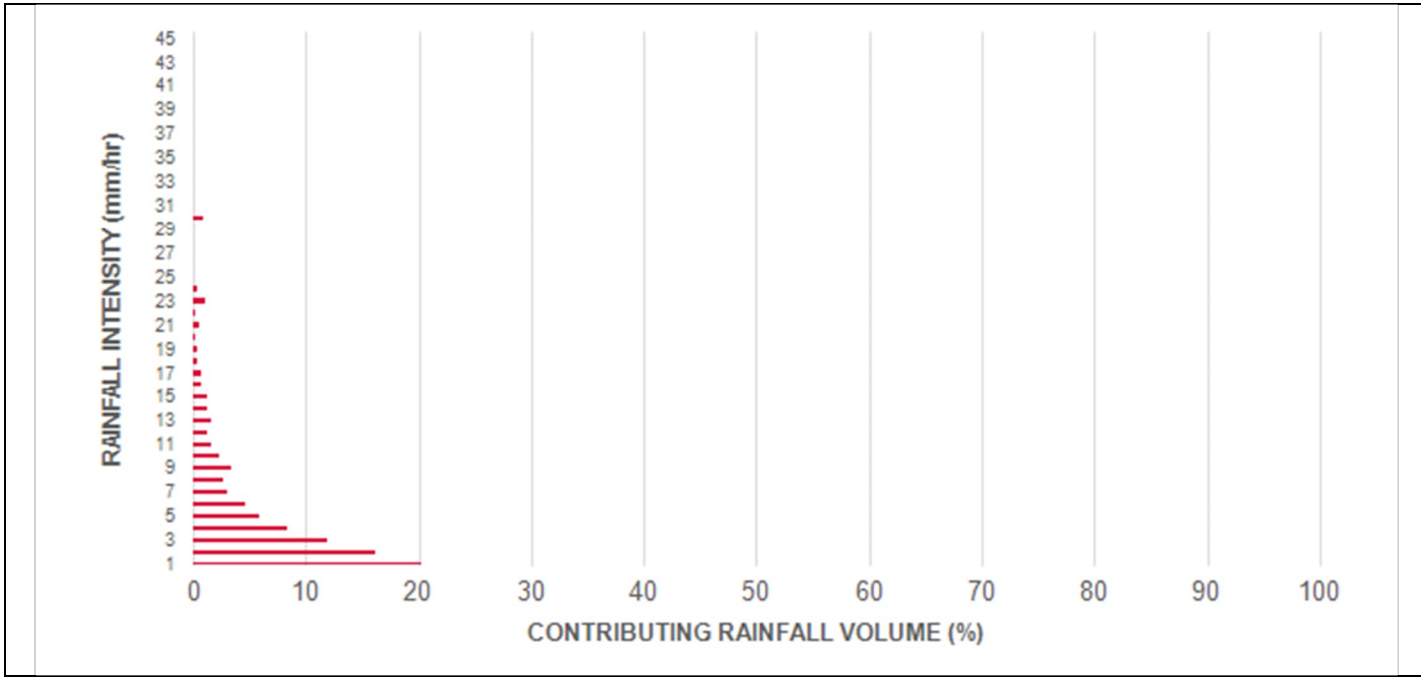
Stormceptor®EF Sizing Report

Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/ m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.6	8.6	0.39	24.0	20.0	70	6.1	6.1
1.00	20.3	29.0	0.79	47.0	39.0	70	14.3	20.4
2.00	16.2	45.2	1.57	94.0	79.0	66	10.6	31.0
3.00	12.0	57.2	2.36	142.0	118.0	62	7.4	38.4
4.00	8.4	65.6	3.15	189.0	157.0	58	4.9	43.3
5.00	5.9	71.6	3.94	236.0	197.0	55	3.3	46.6
6.00	4.6	76.2	4.72	283.0	236.0	53	2.5	49.0
7.00	3.1	79.3	5.51	331.0	276.0	52	1.6	50.6
8.00	2.7	82.0	6.30	378.0	315.0	51	1.4	52.0
9.00	3.3	85.3	7.09	425.0	354.0	50	1.7	53.7
10.00	2.3	87.6	7.87	472.0	394.0	48	1.1	54.8
11.00	1.6	89.2	8.66	520.0	433.0	47	0.7	55.5
12.00	1.3	90.5	9.45	567.0	472.0	46	0.6	56.1
13.00	1.7	92.2	10.23	614.0	512.0	45	0.8	56.9
14.00	1.2	93.5	11.02	661.0	551.0	44	0.5	57.4
15.00	1.2	94.6	11.81	709.0	590.0	42	0.5	57.9
16.00	0.7	95.3	12.60	756.0	630.0	42	0.3	58.2
17.00	0.7	96.1	13.38	803.0	669.0	42	0.3	58.5
18.00	0.4	96.5	14.17	850.0	709.0	42	0.2	58.7
19.00	0.4	96.9	14.96	898.0	748.0	41	0.2	58.8
20.00	0.2	97.1	15.75	945.0	787.0	41	0.1	58.9
21.00	0.5	97.5	16.53	992.0	827.0	41	0.2	59.1
22.00	0.2	97.8	17.32	1039.0	866.0	41	0.1	59.2
23.00	1.0	98.8	18.11	1086.0	905.0	41	0.4	59.6
24.00	0.3	99.1	18.90	1134.0	945.0	40	0.1	59.7
25.00	0.0	99.1	19.68	1181.0	984.0	40	0.0	59.7
30.00	0.9	100.0	23.62	1417.0	1181.0	37	0.3	60.1
35.00	0.0	100.0	27.56	1653.0	1378.0	34	0.0	60.1
40.00	0.0	100.0	31.49	1890.0	1575.0	30	0.0	60.1
45.00	0.0	100.0	35.43	2126.0	1771.0	27	0.0	60.1
Estimated Net Annual Sediment (TSS) Load Reduction =								60 %

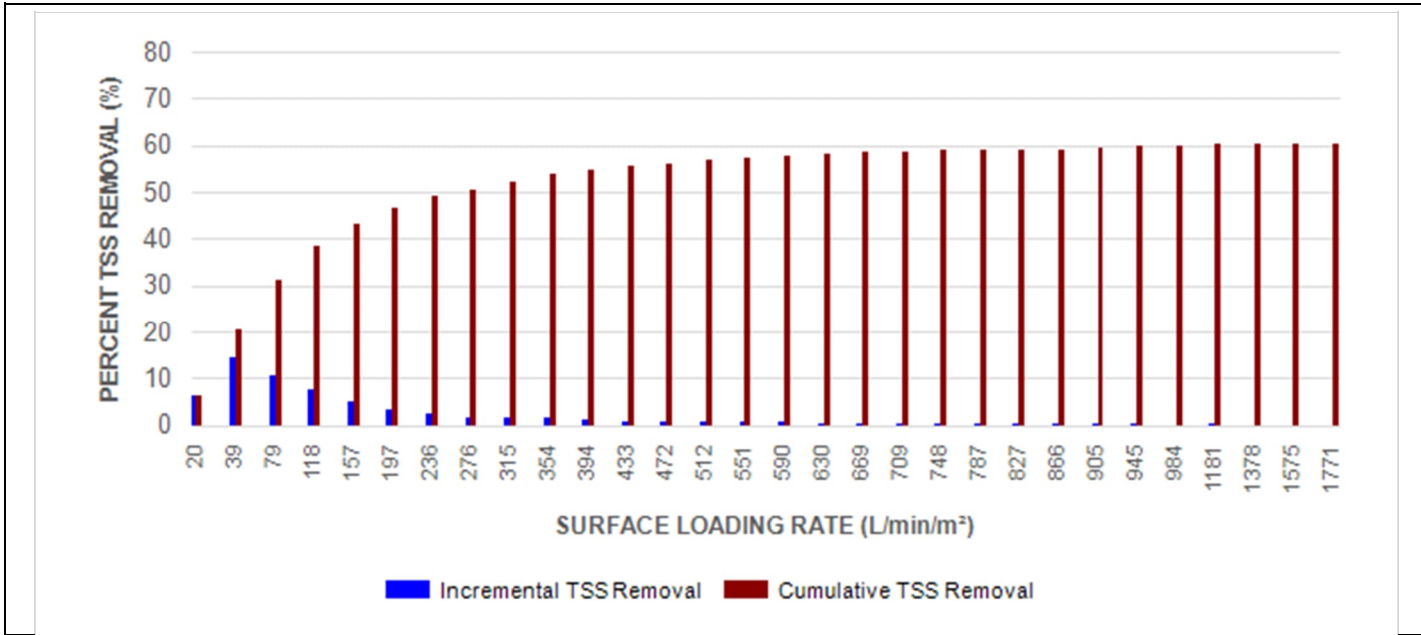
Climate Station ID: 6105978 Years of Rainfall Data: 20

Stormceptor®EF Sizing Report

RAINFALL DATA FROM OTTAWA CDA RCS RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL
FOR THE RECOMMENDED STORMCEPTOR® MODEL



Stormceptor®EF Sizing Report

Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF5 / EFO5	1.5	5	90	762	30	762	30	710	25
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

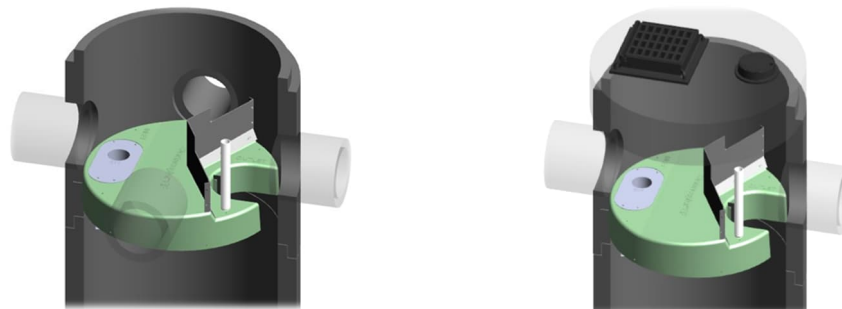
► Stormceptor®EF and EFO feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

DESIGN FLEXIBILITY

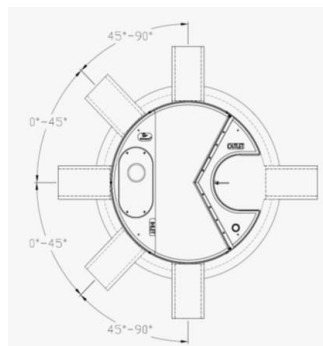
► Stormceptor®EF and EFO offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

► While Stormceptor®EF will capture and retain oil from dry weather spills and low intensity runoff, Stormceptor®EFO has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.



Stormceptor®EF Sizing Report



INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft³)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF5 / EFO5	1.5	5	1.62	5.3	420	111	305	10	2124	75	2612	5758
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

* Increased sump depth may be added to increase sediment storage capacity

** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft³)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/ EFO DRAWINGS

For standard details, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

STANDARD STORMCEPTOR EF/ EFO SPECIFICATION

For specifications, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

Stormceptor®EF Sizing Report

Table of TSS Removal vs Surface Loading Rate Based on Third-Party Test Results
 Stormceptor®EFO

SLR (L/min/m²)	TSS% REMOVAL	SLR (L/min/m²)	TSS% REMOVAL	SLR (L/min/m²)	TSS% REMOVAL	SLR (L/min/m²)	TSS% REMOVAL
1	70	660	42	1320	35	1980	24
30	70	690	42	1350	35	2010	24
60	67	720	41	1380	34	2040	23
90	63	750	41	1410	34	2070	23
120	61	780	41	1440	33	2100	23
150	58	810	41	1470	32	2130	22
180	56	840	41	1500	32	2160	22
210	54	870	41	1530	31	2190	22
240	53	900	41	1560	31	2220	21
270	52	930	40	1590	30	2250	21
300	51	960	40	1620	29	2280	21
330	50	990	40	1650	29	2310	21
360	49	1020	40	1680	28	2340	20
390	48	1050	39	1710	28	2370	20
420	47	1080	39	1740	27	2400	20
450	47	1110	38	1770	27	2430	20
480	46	1140	38	1800	26	2460	19
510	45	1170	37	1830	26	2490	19
540	44	1200	37	1860	26	2520	19
570	43	1230	37	1890	25	2550	19
600	42	1260	36	1920	25	2580	18
630	42	1290	36	1950	24	2600	26

Stormceptor®EF Sizing Report

STANDARD PERFORMANCE SPECIFICATION FOR “OIL GRIT SEPARATOR” (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit Separators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m ³ sediment / 265 L oil
	5 ft (1524 mm) Diameter OGS Units:	1.95 m ³ sediment / 420 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m ³ sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m ³ sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m ³ sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m ³ sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall

Stormceptor®EF Sizing Report

remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m² to 1400 L/min/m², and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m² and 1400 L/min/m² shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m² shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m². No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m².

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m² shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m², and shall be calculated using a simple proportioning formula, with 1400 L/min/m² in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m².

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**.

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m².

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators**, with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to assess whether light liquids captured after a spill are effectively retained at high flow rates.

Stormceptor®EF Sizing Report

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m² to 2600 L/min/m²) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**. However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

Stormceptor®EF Sizing Report

Imbrium®Systems																	
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION																	
08/14/2025																	
Province:	Ontario	Project Name:	5923 Ottawa St. (Distillery and Warehouse)														
City:	Ottawa	Project Number:	COO-25-0415														
Nearest Rainfall Station:	OTTAWA CDA RCS	Designer Name:	Jessica Steffler														
Climate Station Id:	6105978	Designer Company:	Forterra Pipe & Precast														
Years of Rainfall Data:	20	Designer Email:	jessica.steffler@RinkerPipe.com														
Site Name:	Phase 2	Designer Phone:	519-239-6958														
		EOR Name:	Francis VALENTI														
Drainage Area (ha):	0.45	EOR Company:	EGIS														
Runoff Coefficient 'c':	0.60	EOR Email:	Francis.VALENTI@egis-group.com														
		EOR Phone:	613-714-6895														
Particle Size Distribution:	CA ETV	Net Annual Sediment (TSS) Load Reduction Sizing Summary <table><tr><th>Stormceptor Model</th><th>TSS Removal Provided (%)</th></tr><tr><td>EFO4</td><td>60</td></tr><tr><td>EFO5</td><td>63</td></tr><tr><td>EFO6</td><td>66</td></tr><tr><td>EFO8</td><td>68</td></tr><tr><td>EFO10</td><td>69</td></tr><tr><td>EFO12</td><td>70</td></tr></table>		Stormceptor Model	TSS Removal Provided (%)	EFO4	60	EFO5	63	EFO6	66	EFO8	68	EFO10	69	EFO12	70
Stormceptor Model	TSS Removal Provided (%)																
EFO4	60																
EFO5	63																
EFO6	66																
EFO8	68																
EFO10	69																
EFO12	70																
Target TSS Removal (%):	60.0																
Required Water Quality Runoff Volume Capture (%):	90.00																
Estimated Water Quality Flow Rate (L/s):	8.71																
Oil / Fuel Spill Risk Site?	Yes																
Upstream Flow Control?	No																
Peak Conveyance (maximum) Flow Rate (L/s):	18.00																
Influent TSS Concentration (mg/L):	200																
Estimated Average Annual Sediment Load (kg/yr):	184																
Estimated Average Annual Sediment Volume (L/yr):	149																
Recommended Stormceptor EFO Model:		EFO4															
Estimated Net Annual Sediment (TSS) Load Reduction (%):		60															
Water Quality Runoff Volume Capture (%):		> 90															



Stormceptor®EF Sizing Report

THIRD-PARTY TESTING AND VERIFICATION

► Stormceptor®EF and Stormceptor®EFO are the latest evolutions in the Stormceptor®oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators and performance has been third-party verified in accordance with the ISO 14034 Environmental Technology Verification (ETV) protocol.

PERFORMANCE

► Stormceptor®EF and EFO remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterways.

PARTICLE SIZE DISTRIBUTION (PSD)

► The Canadian ETV PSD shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5



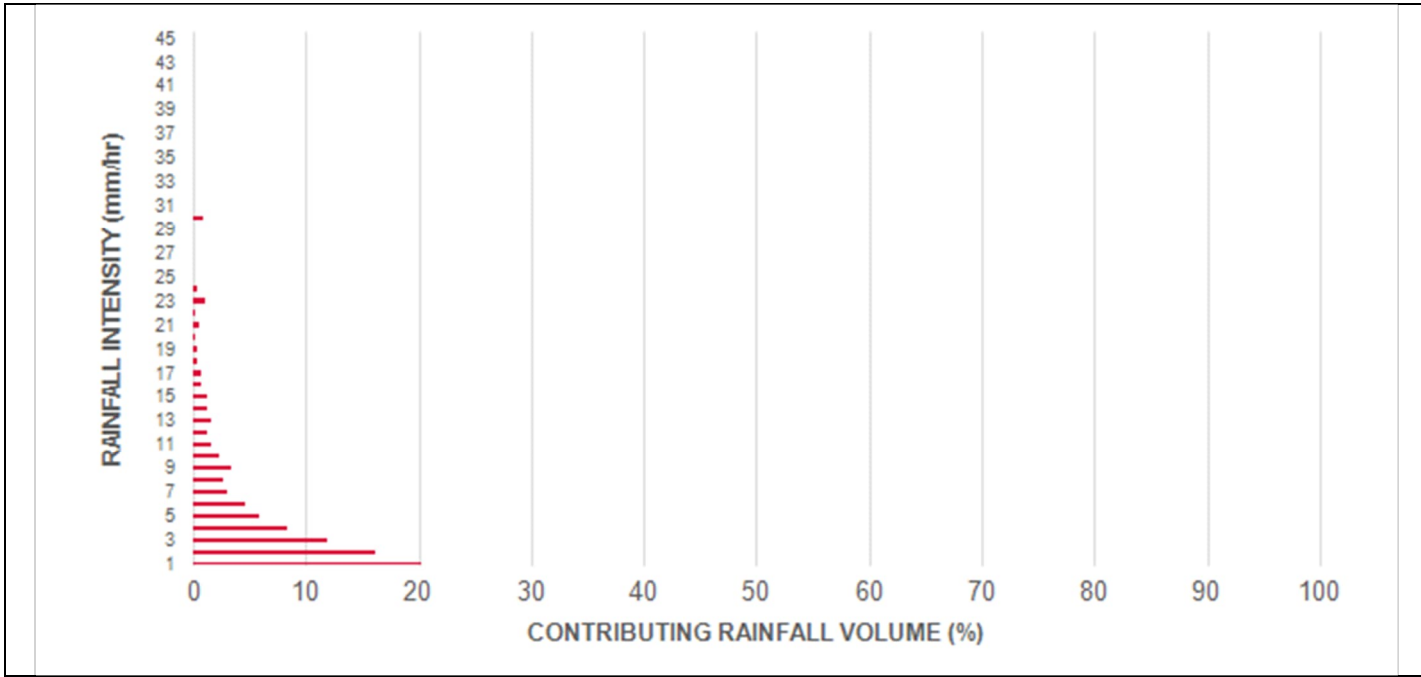
Stormceptor®EF Sizing Report

Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/ m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.6	8.6	0.38	23.0	19.0	70	6.1	6.1
1.00	20.3	29.0	0.75	45.0	38.0	70	14.3	20.4
2.00	16.2	45.2	1.50	90.0	75.0	66	10.6	31.0
3.00	12.0	57.2	2.25	135.0	113.0	62	7.4	38.4
4.00	8.4	65.6	3.00	180.0	150.0	58	4.9	43.3
5.00	5.9	71.6	3.75	225.0	188.0	56	3.3	46.6
6.00	4.6	76.2	4.50	270.0	225.0	53	2.5	49.1
7.00	3.1	79.3	5.25	315.0	263.0	52	1.6	50.7
8.00	2.7	82.0	6.00	360.0	300.0	51	1.4	52.1
9.00	3.3	85.3	6.76	405.0	338.0	50	1.7	53.8
10.00	2.3	87.6	7.51	450.0	375.0	49	1.1	54.9
11.00	1.6	89.2	8.26	495.0	413.0	48	0.7	55.6
12.00	1.3	90.5	9.01	540.0	450.0	47	0.6	56.2
13.00	1.7	92.2	9.76	585.0	488.0	46	0.8	57.0
14.00	1.2	93.5	10.51	631.0	525.0	44	0.5	57.6
15.00	1.2	94.6	11.26	676.0	563.0	43	0.5	58.1
16.00	0.7	95.3	12.01	721.0	600.0	42	0.3	58.4
17.00	0.7	96.1	12.76	766.0	638.0	42	0.3	58.7
18.00	0.4	96.5	13.51	811.0	676.0	42	0.2	58.8
19.00	0.4	96.9	14.26	856.0	713.0	41	0.2	59.0
20.00	0.2	97.1	15.01	901.0	751.0	41	0.1	59.1
21.00	0.5	97.5	15.76	946.0	788.0	41	0.2	59.3
22.00	0.2	97.8	16.51	991.0	826.0	41	0.1	59.4
23.00	1.0	98.8	17.26	1036.0	863.0	41	0.4	59.8
24.00	0.3	99.1	18.01	1081.0	901.0	41	0.1	59.9
25.00	0.0	99.1	18.77	1126.0	938.0	40	0.0	59.9
30.00	0.9	100.0	22.52	1351.0	1126.0	38	0.4	60.3
35.00	0.0	100.0	26.27	1576.0	1314.0	35	0.0	60.3
40.00	0.0	100.0	30.02	1801.0	1501.0	32	0.0	60.3
45.00	0.0	100.0	33.78	2027.0	1689.0	28	0.0	60.3
Estimated Net Annual Sediment (TSS) Load Reduction =								60 %

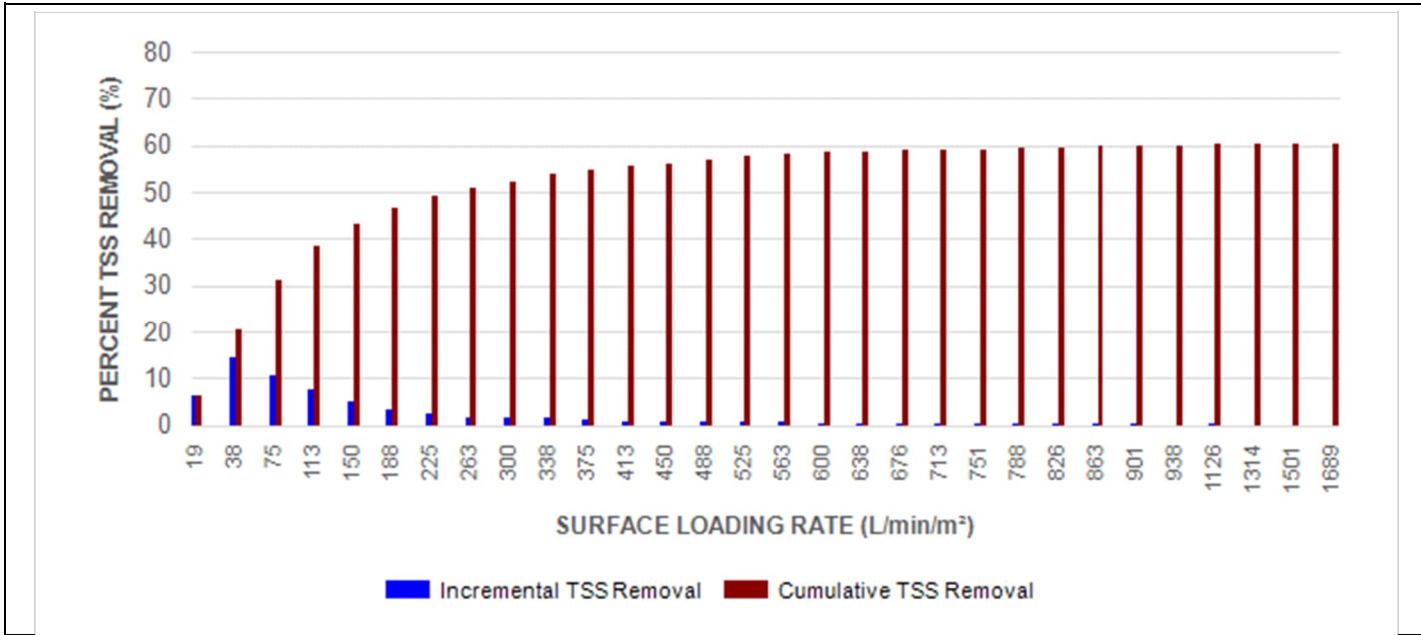
Climate Station ID: 6105978 Years of Rainfall Data: 20

Stormceptor®EF Sizing Report

RAINFALL DATA FROM OTTAWA CDA RCS RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL
FOR THE RECOMMENDED STORMCEPTOR® MODEL



Stormceptor®EF Sizing Report

Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF5 / EFO5	1.5	5	90	762	30	762	30	710	25
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

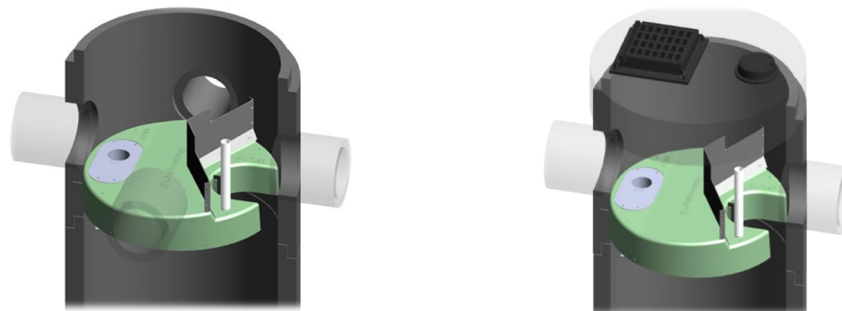
► Stormceptor®EF and EFO feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

DESIGN FLEXIBILITY

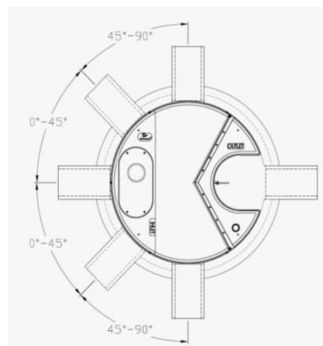
► Stormceptor®EF and EFO offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

► While Stormceptor®EF will capture and retain oil from dry weather spills and low intensity runoff, Stormceptor®EFO has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.



Stormceptor®EF Sizing Report



INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft³)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF5 / EFO5	1.5	5	1.62	5.3	420	111	305	10	2124	75	2612	5758
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

* Increased sump depth may be added to increase sediment storage capacity

** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft³)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/ EFO DRAWINGS

For standard details, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

STANDARD STORMCEPTOR EF/ EFO SPECIFICATION

For specifications, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

Stormceptor®EF Sizing Report

Table of TSS Removal vs Surface Loading Rate Based on Third-Party Test Results
 Stormceptor®EFO

SLR (L/min/m²)	TSS% REMOVAL	SLR (L/min/m²)	TSS% REMOVAL	SLR (L/min/m²)	TSS% REMOVAL	SLR (L/min/m²)	TSS% REMOVAL
1	70	660	42	1320	35	1980	24
30	70	690	42	1350	35	2010	24
60	67	720	41	1380	34	2040	23
90	63	750	41	1410	34	2070	23
120	61	780	41	1440	33	2100	23
150	58	810	41	1470	32	2130	22
180	56	840	41	1500	32	2160	22
210	54	870	41	1530	31	2190	22
240	53	900	41	1560	31	2220	21
270	52	930	40	1590	30	2250	21
300	51	960	40	1620	29	2280	21
330	50	990	40	1650	29	2310	21
360	49	1020	40	1680	28	2340	20
390	48	1050	39	1710	28	2370	20
420	47	1080	39	1740	27	2400	20
450	47	1110	38	1770	27	2430	20
480	46	1140	38	1800	26	2460	19
510	45	1170	37	1830	26	2490	19
540	44	1200	37	1860	26	2520	19
570	43	1230	37	1890	25	2550	19
600	42	1260	36	1920	25	2580	18
630	42	1290	36	1950	24	2600	26

Stormceptor®EF Sizing Report

STANDARD PERFORMANCE SPECIFICATION FOR “OIL GRIT SEPARATOR” (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit Separators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m ³ sediment / 265 L oil
	5 ft (1524 mm) Diameter OGS Units:	1.95 m ³ sediment / 420 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m ³ sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m ³ sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m ³ sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m ³ sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall

Stormceptor®EF Sizing Report

remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m² to 1400 L/min/m², and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m² and 1400 L/min/m² shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m² shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m². No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m².

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m² shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m², and shall be calculated using a simple proportioning formula, with 1400 L/min/m² in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m².

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**.

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m².

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators**, with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to assess whether light liquids captured after a spill are effectively retained at high flow rates.

Stormceptor®EF Sizing Report

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m² to 2600 L/min/m²) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**. However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

September 11, 2025

Project Number: P2710(e01)

Stratford Foxrun
6286 Prince of Wales Drive
North Gower, ON
K0A 2T0

Attention: Joshua Laginski, P.Eng

**Subject: Stratford Foxrun Development- 5923 Ottawa Street, Richmond
Ditch Hydrologic and Hydraulic Analysis**

RATIONALE FOR UPDATE

The following memo has been revised to address comments received from the City of Ottawa on July 3, 2025, titled “*Feedback Form – Completeness Review #1 Site Plan Control 5923 Ottawa Street*”. Updates in this memo include refinements to the site grading and stormwater management design, as well as the incorporation of additional calculations and supporting text for justification of selected model parameters, as requested by the city review comments provided. These updates ensure consistency with the latest design information and compliance with applicable City of Ottawa guidelines.

OVERVIEW

Egis Group has commissioned JFSA Canada Inc. to develop detailed hydrologic and hydraulic models for the proposed Stratford Foxrun development. This development, located at 5923 Ottawa Street in Richmond, Ontario, will include local depressions within the site that will act as stormwater management controls to mitigate increases in peak flows resulting from the development. The site will outlet into an existing roadside ditch on Ottawa Street before proceeding east to Eagleson Road and then turning north towards the rail corridor before finally discharging into Marlborough Creek, which is a tributary of the Jock River.

This memo presents a downstream hydrologic and hydraulic analysis of the aforementioned roadside ditch, specifically quantifying its capacity from 5923 Ottawa Street to the Marlborough Creek. **Figure 1** illustrates the development's location and extent, as well as the road site ditch relative to its outlet at Marlborough Creek.

Figure 1: Site Boundary and Existing Watercourse



HYDROLOGY

Existing Conditions

Drainage Areas

Existing drainage areas for this study were delineated using a comprehensive Digital Terrain Model (DTM). This DTM was developed from two primary sources: LiDAR data, obtained from the LIO (Land Information Ontario) Digital Terrain Model and flown in 2019-2020, and a detailed topographic survey of the existing ditch and associated crossings completed by Egis in January 2025. This combined data was then imported into GIS software. Watershed delineation algorithms were subsequently applied to the DTM to automatically define the drainage areas. These automated delineations were manually reviewed against relevant previous studies and existing drainage delineations for accuracy and consistency. **Figure A1 in Attachment A** provides a visual overview of the existing drainage areas within the study area.

Land Use

Land use data has been taken from Land Information Ontario's (LIO) Land Use Data and then discretized based on the respective subcatchments. **Figure A2 in Attachment A** provides a visual overview of the respective land use data for each of the subcatchments within the study area.

Soil/Infiltration Data

Soil data within the study area has been taken from the Soil Survey Complex Data available on Land Information Ontario (LIO). **Figure A3 in Attachment A** provides a visual overview of the respective soil type data for each of the subcatchments within the study area. A full breakdown of the soil data for each drainage area has also been provided in **Table A1 in Attachment A**.

Curve Number (CN)

Based on the underlying Land Use Type and Soil Classification at each location within a subcatchment, a Curve Number (CN) was calculated, based on applicable values outlined in Tables A2 and A3 in the SWMHYMO Manual. Each Curve Number was then weighted based on the total area within a given subcatchment to determine the weighted CN for that subcatchment. The CN values calculated were then converted to CN*. Note that the traditional CN procedure assumes that Initial Abstraction (IA) = 0.2S. However, the traditional CN method is subject to errors because of this assumption, particularly for smaller rainfall events. Instead, it is recommended that a modified CN* and a user-defined IA value be used for SWMHYMO modelling. Modified CN* values have been shown to correlate well with measured flows and perform well in continuous SWMHYMO modelling (as discussed in the July 1989 INTERHYMO / OTTHYMO 89 Manual). The CN values derived were converted to CN* based on the formula provided in the November 2002 Runoff Curve Number Method: Examination of the Initial Abstract Ratio paper, and applied to the hydrologic model.

$$CN^* = \frac{100}{1.879 \left[\frac{100}{CN-1} \right]^{1.15} + 1}$$

Table A1 in Attachment provides a full summary of the CN/CN* calculations for each of the predevelopment subcatchments.

Time to Peak (tp)

For natural areas within the study area, the time to peak values for each of the subcatchments has been calculated based on existing topography. Flow paths have been discretized based on the topographic data using GIS tools, and the longest major flow path within each subcatchment has been identified; refer to Figure B6 in Attachment B for the flow paths discretized for each subcatchment. The upstream and downstream topographic elevations and flow lengths were identified for each subcatchment and used in the calculations. For these natural subcatchments, the Federal Aviation Administration (FAA) method was determined to be the most appropriate method to calculate the Time to Peak.

Other methods, such as the Uplands method, were also included in that analysis. The FAA method was selected for use in the final model because it produced longer time-to-peak (Tp) values for the same catchments, resulting in lower peak flows under pre-development conditions. These lower peak flows were then used to establish allowable release rates for the proposed stormwater management facilities.

This approach results in a more conservative design, as the SWM controls are sized to ensure post-development flows do not exceed these lower pre-development thresholds. While the Uplands method is preferred in the Sewer Design Guidelines (Appendix 5-D), the FAA method remains suitable for flat, rural catchments with longer overland flow paths, which characterizes the study area. Therefore, the FAA-based design applied in this analysis is more conservative and protective of downstream infrastructure.

Full details of these calculations have been provided in **Table A2 in Attachment A**, along with other time-to-peak values using alternative tp calculation methods.

Existing SWMHYMO modelling

An existing conditions SWMHYMO model of the drainage areas was developed based on the pre-development drainage areas provided. To represent the existing undeveloped lands, CALIB NASHYDs have been used, with Initial Abstraction (IA)=4.67 mm, and Number of Linear Reservoirs (N)=3. Full input and summary files of the existing conditions model have been provided in Attachment A

Channel Routing

To account for channel routing throughout the study area, LiDAR has been used to approximate the channel cross-section and associated flow parameters (length & slope). **Figure A4 in Attachment A** outlines the major flow paths within the study area, which have been used to account for channel routing and time to peak calculations within the subcatchments.

Design & Historical Storms

The stormwater management analysis incorporates both standard design storms and historical storm events in accordance with the City of Ottawa's guidelines. The selected design storms include the 3-hour Chicago distribution and the 24-hour SCS distribution, which are consistent with standard practice for stormwater management design in the region.

The 3-hour Chicago storm is widely used for urban infrastructure analysis because it provides a balanced representation of peak intensity and total rainfall volume. This duration is sufficient to generate meaningful runoff volumes for sizing stormwater management controls while capturing peak intensities that challenge conveyance systems. Although shorter-duration storms (e.g., 1-hour 100-year) exhibit higher peak intensities, their lower total rainfall volume often results in less conservative storage sizing. Conversely, the 24-hour SCS storm is included to assess broader floodplain impacts and downstream conveyance performance.

In addition to these design storms, the following historical events were simulated as per City requirements: July 1, 1979, August 4, 1988, and August 8, 1996. These events provide additional validation of system performance under real-world conditions and help ensure resiliency of the proposed stormwater management system.

Proposed Conditions

Drainage Areas & Imperviousness

For the Stratford Foxrun development under proposed conditions, Egis provided JFSA with detailed design drawings that included drainage areas and associated imperviousness. The proposed development lot layout and the associated drainage areas have been provided in **Figure B1 of Attachment B**. To represent the proposed Stratford Foxrun development lands, DESIGN STANDHYDs have been used, with default parameters per the city of Ottawa Storm Sewer Design Guidelines.

Onsite SWM Controls

Egis's design for the proposed development included detailed grading of localized depressions within the site that will act as onsite stormwater management controls, along with corresponding stage-storage tables. These stage-storage tables were directly incorporated into the hydrologic model. This integration allowed for the determination of appropriate outlet configurations for these facilities, as well as an accurate assessment of the storage volumes provided by the proposed depressions. Full detailed Stage/Storage/Outflow curves have been provided in **Tables B1 and B2 in Attachment B**. Based on this analysis, both sites will have a **75 mm** orifice at the bottom of the localized depression area and a **30cm** overflow weir at an elevation of **94.40m** and for extreme events.

Results

Onsite Controls Summary

Table 2 provides a comprehensive overview of the maximum storage volumes achieved at each of these locations across various return periods, in addition to their associated peak outflows and maximum water levels.

Table 1: Site Release Rates / Required Storage Volume / Ponding Depth/WSE

Event	Site 1 (0.480 ha)				Site 2 (0.447 ha)			
	Peak Outflow (m ³ /s)	Pond Volume (m ³)	Pond WSE (m)	Depth (m)	Peak Outflow (m ³ /s)	Pond Volume (m ³)	Pond WSE (m)	Depth (m)
2YrCHI3Hr	0.033	34	94.113	0.273	0.031	38	94.058	0.348
5YrCHI3Hr	0.054	64	94.189	0.349	0.049	65	94.167	0.447
10YrCHI3Hr	0.072	85	94.231	0.391	0.064	84	94.220	0.490
25YrCHI3Hr	0.094	113	94.284	0.444	0.083	109	94.280	0.540
50YrCHI3Hr	0.109	134	94.323	0.483	0.096	129	94.323	0.573
100YrCHI3Hr	0.130	158	94.364	0.524	0.114	150	94.366	0.606
2YrSCS24Hr	0.036	43	94.139	0.299	0.034	45	94.091	0.321
5YrSCS24Hr	0.056	72	94.205	0.365	0.051	71	94.185	0.405
10YrSCS24Hr	0.070	91	94.244	0.404	0.064	89	94.232	0.442
25YrSCS24Hr	0.088	117	94.292	0.452	0.080	112	94.286	0.486
50YrSCS24Hr	0.101	136	94.327	0.487	0.090	130	94.325	0.515
100YrSCS24Hr	0.115	157	94.362	0.522	0.103	149	94.364	0.544
July 1st, 1979	0.091	206	94.443	0.603	0.082	192	94.449	0.619
August 4th, 1988	0.108	173	94.389	0.549	0.096	165	94.396	0.556
August 8th, 1996	0.071	146	94.344	0.504	0.065	139	94.344	0.494
100YrCHI+20%	0.165	203	94.438	0.598	0.144	188	94.439	0.579

Peak Flows at Key Locations

The model was run for both existing and proposed conditions, and peak flows were extracted from the key nodes within the watercourse (refer to **Figure A4** for locations). **Table 2** outlines the peak flows for various return periods at each node, covering both the 3-hour Chicago and 24-hour SCS storms for 2- to 100-year events, along with the stress test and historical events.

This analysis indicates minor increases in peak flows to the roadside ditch for lower return period events under post-development conditions (2YrCHI3Hr, 5YrCHI3Hr & 2YRSCS24Hr). However, for larger events (e.g., the 100-year storm), peak flows are equal to or less than those under existing conditions. For the lower return period events (2YrCHI3Hr, 5YrCHI3Hr & 2YRSCS24Hr) that exhibit slight increases in peak flows, the hydraulic modelling indicates that maximum velocities within the ditch remain below 1.5 m/s. This threshold aligns with the maximum permissible velocity for grassed roadside ditches without requiring bioengineering stabilization measures, as outlined in Section 2.3 of SD-9 Roadside Ditches (Conveyance Only) from the MTO Highway Drainage Design Standards. Therefore, it can be concluded that the modest increase in flow rates during smaller storm events will not result in adverse erosion within the grassed channel.

Additionally, both sites will utilize a **75 mm** orifice at the outlet to maximize the storage capacity of these depression areas; this is the smallest allowable outlet size per MECP SWM guidelines.

Table 2: Pre and Post Development Peak Flow Summary

Event	Node	J1		Node	J2		Node	J3		Node	J4	
	Pre	Post	Diff	Pre	Post	Diff	Pre	Post	Diff	Pre	Post	Diff
Area (ha)	0.85	1.23	0.38	4.62	5	0.38	4.93	5.31	0.38	5.52	5.9	0.38
2YrCHI3Hr	0.015	0.019	0.004	0.057	0.062	0.005	0.061	0.066	0.005	0.067	0.072	0.005
5YrCHI3Hr	0.026	0.027	0.001	0.102	0.102	0.000	0.109	0.109	0.000	0.121	0.122	0.001
10YrCHI3Hr	0.035	0.032	-0.003	0.136	0.132	-0.004	0.145	0.141	-0.004	0.162	0.159	-0.003
25YrCHI3Hr	0.047	0.038	-0.009	0.181	0.172	-0.009	0.194	0.185	-0.009	0.218	0.209	-0.009
50YrCHI3Hr	0.057	0.043	-0.014	0.219	0.205	-0.014	0.234	0.220	-0.014	0.263	0.249	-0.014
100YrCHI3Hr	0.067	0.048	-0.019	0.258	0.239	-0.019	0.277	0.258	-0.019	0.311	0.292	-0.019
2YrSCS24Hr	0.024	0.024	0.000	0.090	0.091	0.001	0.096	0.097	0.001	0.107	0.108	0.001
5YrSCS24Hr	0.038	0.032	-0.006	0.148	0.142	-0.006	0.158	0.152	-0.006	0.177	0.171	-0.006
10YrSCS24Hr	0.049	0.037	-0.012	0.189	0.178	-0.011	0.202	0.191	-0.011	0.227	0.216	-0.011
25YrSCS24Hr	0.062	0.044	-0.018	0.242	0.224	-0.018	0.259	0.242	-0.017	0.291	0.274	-0.017
50YrSCS24Hr	0.073	0.049	-0.024	0.284	0.260	-0.024	0.305	0.281	-0.024	0.343	0.320	-0.023
100YrSCS24Hr	0.084	0.055	-0.029	0.329	0.300	-0.029	0.354	0.325	-0.029	0.399	0.370	-0.029
July 1st, 1979	0.090	0.060	-0.030	0.372	0.345	-0.027	0.399	0.371	-0.028	0.448	0.420	-0.028
August 4th, 1988	0.079	0.053	-0.026	0.314	0.287	-0.027	0.338	0.313	-0.025	0.379	0.354	-0.025
August 8th, 1996	0.052	0.040	-0.012	0.210	0.199	-0.011	0.226	0.215	-0.011	0.254	0.243	-0.011
100YrCHI+20%	0.090	0.061	-0.029	0.346	0.321	-0.025	0.372	0.345	-0.027	0.419	0.392	-0.027

Table 2: Pre and Post Development Peak Flow Summary

Event	Node	J5		Node	J6		Node	J7		Node	J8	
	Pre	Post	Diff	Pre	Post	Diff	Pre	Post	Diff	Pre	Post	Diff
Area (ha)	6.86	7.23	0.37	1.01	1.02	0.01	1.83	1.46	-0.37	13.1	13.09	-0.01
2YrCHI3Hr	0.080	0.086	0.006	0.016	0.021	0.005	0.019	0.018	-0.001	0.141	0.146	0.005
5YrCHI3Hr	0.147	0.149	0.002	0.025	0.028	0.003	0.035	0.034	-0.001	0.264	0.265	0.001
10YrCHI3Hr	0.197	0.196	-0.001	0.034	0.034	0.000	0.047	0.047	0.000	0.361	0.357	-0.004
25YrCHI3Hr	0.267	0.260	-0.007	0.047	0.047	0.000	0.065	0.064	-0.001	0.493	0.483	-0.010
50YrCHI3Hr	0.323	0.312	-0.011	0.057	0.057	0.000	0.079	0.078	-0.001	0.602	0.586	-0.016
100YrCHI3Hr	0.384	0.368	-0.016	0.069	0.069	0.000	0.095	0.094	-0.001	0.721	0.700	-0.021
2YrSCS24Hr	0.128	0.130	0.002	0.023	0.023	0.000	0.032	0.031	-0.001	0.233	0.234	0.001
5YrSCS24Hr	0.215	0.211	-0.004	0.039	0.039	0.000	0.054	0.053	-0.001	0.400	0.393	-0.007
10YrSCS24Hr	0.277	0.268	-0.009	0.051	0.051	0.000	0.070	0.069	-0.001	0.517	0.505	-0.012
25YrSCS24Hr	0.357	0.342	-0.015	0.066	0.066	0.000	0.092	0.090	-0.002	0.675	0.656	-0.019
50YrSCS24Hr	0.421	0.400	-0.021	0.079	0.079	0.000	0.110	0.107	-0.003	0.800	0.776	-0.024
100YrSCS24Hr	0.491	0.465	-0.026	0.093	0.093	0.000	0.129	0.126	-0.003	0.939	0.906	-0.033
July 1st, 1979	0.557	0.530	-0.027	0.094	0.094	0.000	0.137	0.130	-0.007	1.057	1.018	-0.039
August 4th, 1988	0.462	0.440	-0.022	0.085	0.085	0.000	0.121	0.115	-0.006	0.883	0.857	-0.026
August 8th, 1996	0.308	0.300	-0.008	0.058	0.058	0.000	0.082	0.079	-0.003	0.586	0.576	-0.010
100YrCHI+20%	0.519	0.495	-0.024	0.095	0.095	0.000	0.131	0.129	-0.002	0.984	0.951	-0.033

HYDRAULICS

The detailed hydraulic analysis of the downstream study area was conducted using the US Army Corps of Engineers HEC-RAS software (version 6.6). The purpose of this hydraulic analysis is to assess the hydraulic impacts that the proposed Stratford Foxrun development may have on existing water levels for the applicable design storms.

Model Development & Parameters

The primary method used to establish cross-sections involved detailed topographic surveying, typically conducted at approximately 50-meter intervals along the watercourse. These measurements were supplemented with LiDAR data in the floodplain to enhance spatial coverage and resolution. This close spacing is essential for accurately representing the hydraulic characteristics and flow conveyance capacity of the existing channel. The selected interval aligns with HEC-RAS best practices for open-channel flow modelling in rural systems, particularly where channel geometry and slope are relatively uniform. In general, cross-section spacing between 30 and 100 meters is considered appropriate for natural channels, unless abrupt changes in geometry, slope, or hydraulic controls are present.

To ensure the model captured localized hydraulic effects, additional cross-sections were inserted at key hydraulic structures (e.g., culverts and driveway crossings) and at locations where notable changes in channel geometry or slope occurred. This approach allowed for an accurate representation of hydraulic behaviour without introducing unnecessary complexity or instability into the model. In areas not explicitly surveyed, supplementary cross-sections were generated by sampling the merged LiDAR and topographic Digital Terrain Model (DTM). This ensured that all critical sections were included to accurately reflect channel hydraulics. The extent and location of all model cross-sections are illustrated in **Figure C1** of **Attachment C**.

Existing hydraulic infrastructure, such as culverts, on the respective watercourses, was incorporated into the model based on the details obtained from the topographic surveys. Consistent with HEC-RAS technical guidelines, ineffective flow areas and expansion-contraction coefficients were appropriately applied at these locations. Typical Manning's values of 0.035 and 0.05 were applied to the roadside ditch channel bottom and over banks, respectively.

A normal downstream boundary condition was applied for all events due to the substantial difference in drainage area between Marlborough Creek and the roadside ditch. The study area at the confluence with Marlborough Creek has a drainage area of **13.1 ha**, with a channel length of **1.034 km** and an average slope of **0.6%**, based on detailed modelling presented in this report. In contrast, Marlborough Creek at the same location has a drainage area of **437.4 ha**, a channel length of **5.120 km**, and an average slope of **0.26%**, as per the Ontario Watershed Information Tool. Using the velocity method outlined in Chapter 15 of the USDA's Hydrology National Engineering Handbook, the time to peak for the study area was calculated to be **1.2 hours**, while the time to peak for Marlborough Creek was estimated at **8.8 hours**. A full summary of these calculations is provided in **Table 3** below. Given the significant difference in time to peak between the two systems, it is evident that peak flows from the study area and Marlborough Creek cannot coincide. Therefore, the application of a normal downstream boundary condition is considered appropriate.

Table 3: Watercourse Time to Peak Calculations

Parameter	Units	Study Area	Malbrough Creek
Area	(ha)	13.1	437.4
Channel Length	(m)	1034	5120
Slope	(%)	0.60%	0.26%
Flow Type	-	Short grass	Short grass
Average Velocity	(m/s)	0.165	0.108
Time of Concentration	(secs)	6,275	47,262
Time of Concentration	(hrs)	1.7	13.1
Time to Peak	(hrs)	1.2	8.8

Results

The pre- and post-development models were run for the full range of design storms (2- to 100-Year Events) to accurately establish the existing and proposed floodplain extents within the study area. **Figures C2 and C3** illustrate the flood extents for both existing and proposed conditions during the 24-hour SCS-type storms (the critical design storm). **Figure C4** provide a comparison between the 100-year floodplain under both existing and proposed conditions. From this figure, it is shown that the 100-year floodplain extents along the ditch are reduced under post-development conditions. This demonstrates that the proposed stormwater management solution is effective and that the proposed development will not worsen existing flood conditions along the ditch. **Attachment C** also includes pre- and post-development long- and cross-section plots, along with summary tables.

This analysis also revealed that flows in the roadside ditch overtop the banks during 5- to 10-year events (depending on the design storm). This is expected, as the typical level of service for driveway crossings is generally in this range. It's crucial to note that existing driveway crossings, not the channel itself, are constricting flows and causing them to overtop the bank. Upsizing several culverts along this stretch of roadside ditch would significantly reduce the floodplain in this area.

Along Eagleson Road, approximately halfway between the railway and the Ottawa Street intersection, flows will overtop the bank and spill west to the culvert under the railway. For a conservative design, the hydraulic modelling does not account for this spill, assuming all flows proceed to the next downstream cross-section. It's also important to emphasize that for all events (up to and including the 100-year event), water levels in the roadside ditch do not reach an elevation that would impede traffic on either Eagleson Road or Ottawa Street, as the flood extents do not touch the shoulder of the road. Furthermore, the maximum 100-year floodplain extents do not affect any nearby buildings, meaning the current and proposed flood extents pose no danger to existing structures.

CONCLUSION

In summary, JFSA Canada Inc.'s hydrologic and hydraulic modelling confirms that the proposed Stratford Foxrun development's stormwater management plan effectively mitigates downstream impacts. The on-site localized depressions, with **75 mm** orifice outlets, will manage post-development runoff, ensuring peak flows for major storm events (up to 100-year) remain at or below pre-development levels.

The HEC-RAS analysis further demonstrates that the proposed SWM measures will lead to a reduction in the 100-year floodplain extent along the receiving roadside ditch. While existing culverts contribute to minor, more frequent overtopping, the development itself will not worsen these conditions or cause flooding that impedes traffic or endangers structures during major events. The findings indicate that the proposed SWM strategy for this site is sufficient and will not adversely impact downstream lands.

Yours truly,
JFSA Canada Inc.



Jonathon Burnett, B.Eng, P.Eng
Water Resource Engineer



cc: J.F. Sabourin, M.Eng, P.Eng
Director of Water Resources Projects

Figures

Figure 1: Site Boundary and Existing Watercourse

Tables

Table 1: Site Release Rates / Required Storage Volume / Ponding Depth

Table 2: Peak Flows at Key Locations

Attachments

- Attachment A: Pre-Development Hydrology
- Attachment B: Post Development Hydrology
- Attachment C: Hydraulic Analysis



JFSA Canada Inc.
52 Springbrook Drive,
Ottawa, ON K2S 1B9
T 613-836-3884 F 613-836-0332

jfsa.com

Attachment A

Pre-Development Hydrology



Legend

- Jock River Tributary
- Pre-dev. Subcatchments

Google Hybrid

EXT1

Subcatchment Name

3.212 ha

Subcatchment Area (ha)

SCALE: 1:3000

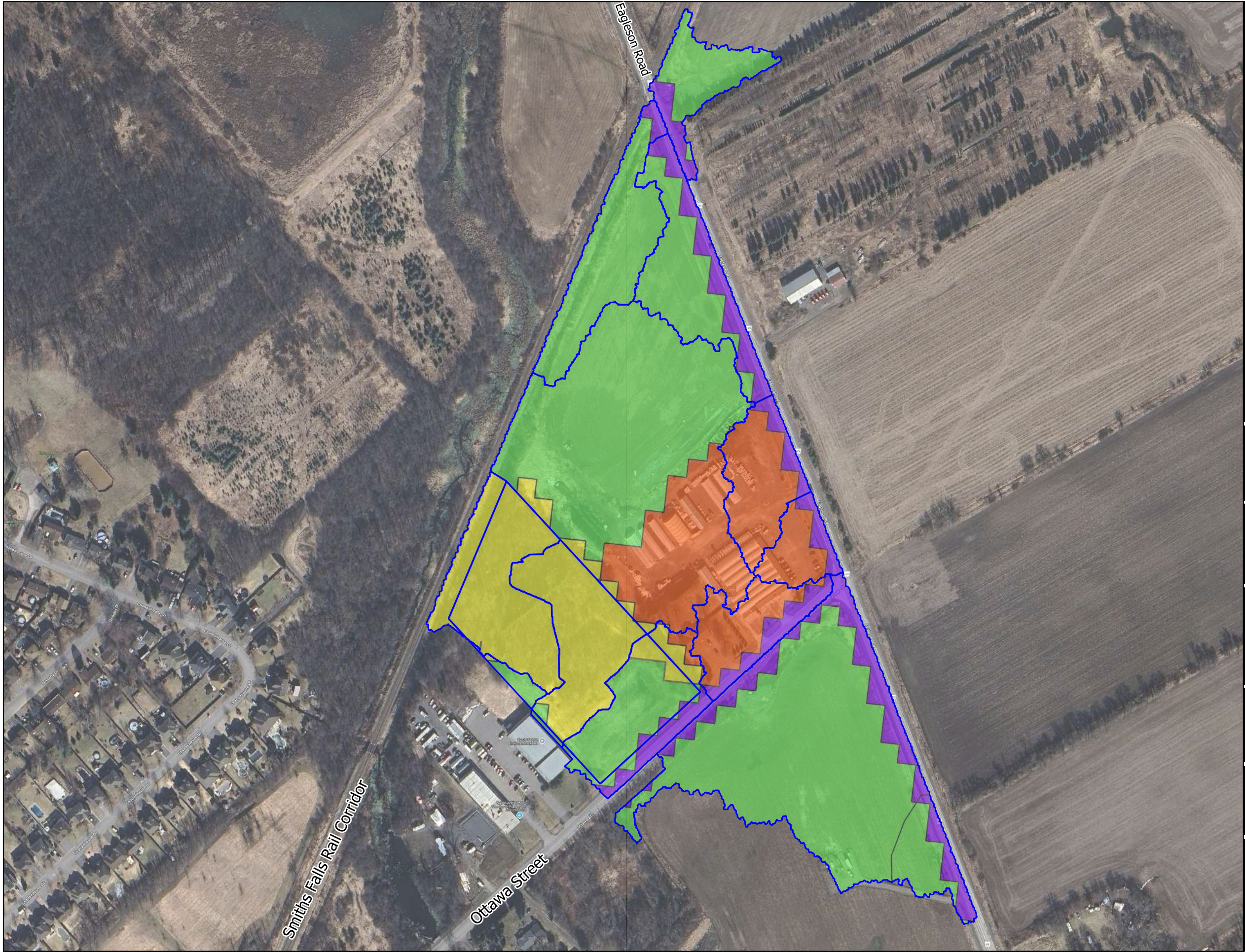
050100150 m



5923 Ottawa St – Richmond

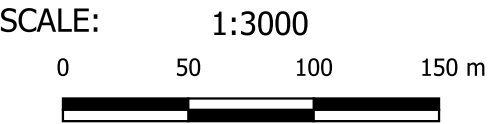
Figure A1: Existing Drainage Areas

PROJECT	P2710(e01)
DRAWN	MM
DATE	04-06-2025



Legend

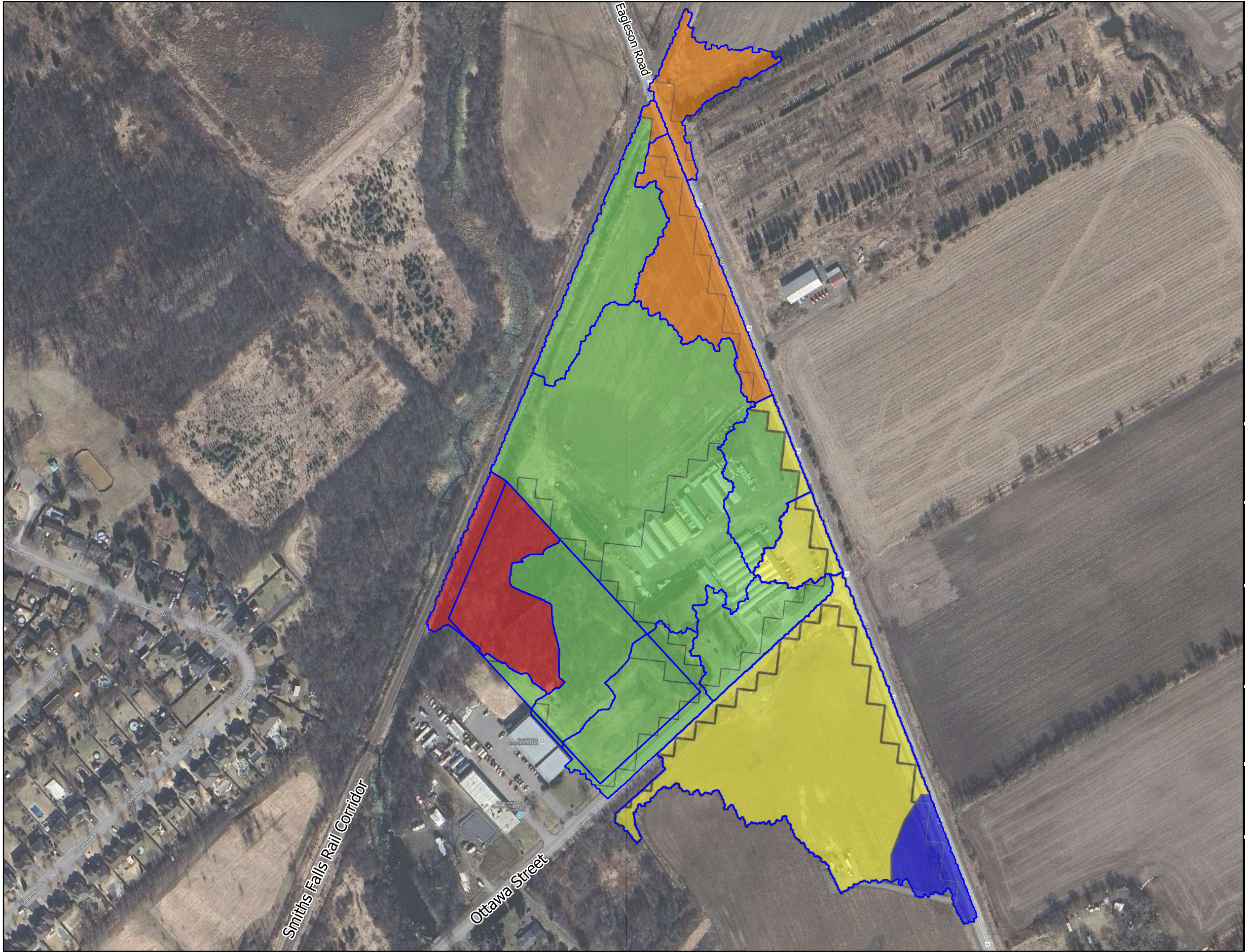
-  Pre-dev. Subcatchments
-  CN
-  Built Up Area - Pervious
-  Transportation
-  Forest
-  Tilled
- Google Hybrid



5923 Ottawa St – Richmond

Figure A2: Land Use Data

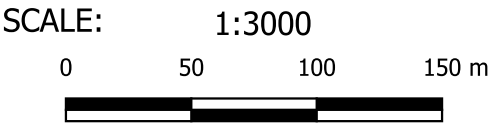
PROJECT	P2710(e01)
DRAWN	MM
DATE	04-06-2025



Legend

-  Pre-dev. Subcatchments
- Soil Name (Soil Type)
-  ERODED CHANNEL (D)
-  NORTH GOWER (D)
-  DALHOUSIE (D)
-  BRANDON (D)
-  GRENVILLE (B)

Google Hybrid



5923 Ottawa St – Richmond

Figure A3: Soil Type

PROJECT	P2710(e01)
DRAWN	MM
DATE	04-06-2025

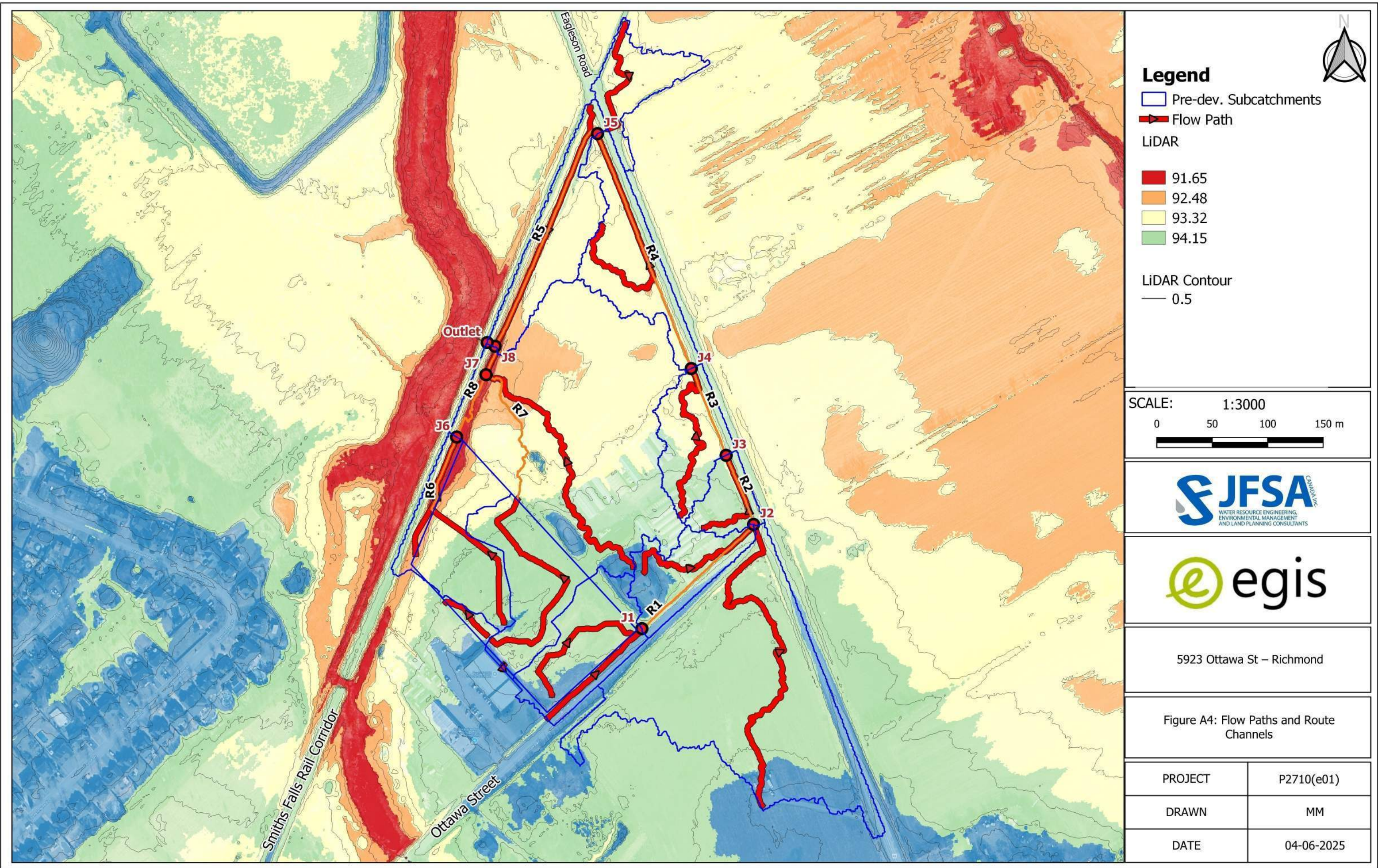


Table A1: Calculation of SCS Curve Number (CN) and Modified Curve Number (CN*)

EXT1 (3.212 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0.107	Transportation	GRENVILLE	Fair	B	98	3.3%	3.3
0.229	Tilled	GRENVILLE	Fair	B	69	7.1%	4.9
0.403	Transportation	BRANDON	Fair	D	98	12.5%	12.3
2.472	Tilled	BRANDON	Fair	D	84	77.0%	64.6
						CN	85
						CN*	80

EXT2 (0.285 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0.04	Built Up Area - Pervious	NORTH GOWER	Fair	D	80	14.0%	11.2
0.051	Tilled	NORTH GOWER	Fair	D	84	17.9%	15.0
0.067	Forest	NORTH GOWER	Fair	D	79	23.5%	18.6
0.127	Transportation	NORTH GOWER	Fair	D	98	44.6%	43.7
						CN	89
						CN*	85

EXT3 (0.56 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0	Forest	NORTH GOWER	Fair	D	79	0.0%	0.0
0.17	Transportation	NORTH GOWER	Fair	D	98	30.4%	29.8
0.39	Built Up Area - Pervious	NORTH GOWER	Fair	D	80	69.6%	55.7
						CN	85
						CN*	80

EXT4 (0.309 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0.074	Transportation	BRANDON	Fair	D	98	23.9%	23.5
0.235	Built Up Area - Pervious	BRANDON	Fair	D	80	76.1%	60.8
						CN	84
						CN*	79

EXT5 (0.594 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0.084	Transportation	BRANDON	Fair	D	98	14.1%	13.9
0.51	Built Up Area - Pervious	NORTH GOWER	Fair	D	80	85.9%	68.7
						CN	83
						CN*	76

Table A1: Calculation of SCS Curve Number (CN) and Modified Curve Number (CN*)

Pre10 (0.803 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0.803	Forest	ERODED CHANNEL	Fair	D	79	100.0%	79.0
						CN	79
						CN*	71

Pre11 (0.069 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0.004	Forest	NORTH GOWER	Fair	D	79	5.8%	4.6
0.065	Tilled	NORTH GOWER	Fair	D	84	94.2%	79.1
						CN	84
						CN*	78

Pre2 (0.565 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0.017	Transportation	NORTH GOWER	Fair	D	98	3.0%	2.9
0.066	Forest	NORTH GOWER	Fair	D	79	11.7%	9.2
0.483	Tilled	NORTH GOWER	Fair	D	84	85.5%	71.8
						CN	84
						CN*	78

Pre9 (0.83 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0	Built Up Area - Pervious	NORTH GOWER	Fair	D	80	0.0%	0.0
0.014	Tilled	NORTH GOWER	Fair	D	84	1.7%	1.4
0.815	Forest	NORTH GOWER	Fair	D	79	98.2%	77.6
						CN	79
						CN*	71

Table A2: Time to Peak Calculations

Parameter	Units	EXT1	EXT2	EXT3	EXT4	EXT5	EXT6	EXT7	EXT8	EXT9	EXT9a	EXT10	Pre10	Pre11	Pre2	Pre9
Area	ha	3.211	0.285	0.560	0.309	0.594	0.864	0.471	0.834	3.571	0.011	0.203	0.803	0.069	0.566	0.829
CN	-	80	85	80	79	76	85	83	79	76	78	71	71	78	78	71
Ptotal to calc C from CN, use 2 yr 24 hr Chicago storm	P(mm)	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7
	la(mm)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
	RV(mm)	17.7	21.4	18.0	16.9	15.4	21.2	19.7	17.1	15.6	16.7	12.9	12.9	16.4	16.7	12.9
C (From Chicago storm)	-	0.363	0.439	0.370	0.348	0.317	0.436	0.404	0.351	0.319	0.342	0.265	0.265	0.337	0.342	0.265
Length of Channel	m	404	121	161	116	215	279	140	263	344	5	121	135	54	145	236
	ft	1327	397	527	381	705	916	459	862	1128	15	398	443	176	475	776
Elevation of Head Water	m	94.63	94.17	94.91	93.95	94.08	92.97	93.24	93.52	94.94	94.74	91.69	94.14	94.09	94.34	94.11
	ft	310	309	311	308	309	305	306	307	311	311	301	309	309	310	309
Elevation of Outlet	m	92.98	93.57	93.00	92.69	92.44	91.96	92.11	90.43	90.46	94.55	91.11	91.71	93.58	93.80	93.20
	ft	305	307	305	304	303	302	302	297	297	310	299	301	307	308	306
Average Slope	%	0.41%	0.50%	1.18%	1.08%	0.76%	0.36%	0.81%	1.17%	1.30%	4.28%	0.49%	1.80%	0.96%	0.38%	0.38%
Flow Type (Uplands)	-	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Kirpich																
Time of Concentration	mins	16	6	5	4	8	13	6	8	9	0	6	4	2	8	11
Time to Peak	min	11	4	4	3	5	9	4	5	6	0	4	3	2	5	7
Time to Peak	Hours	0.18	0.07	0.06	0.05	0.09	0.14	0.06	0.09	0.10	0.00	0.07	0.04	0.03	0.09	0.12
FAA (From Chicago storm)																
Time of Concentration	mins	65	30	29	26	41	51	29	37	43	3	38	26	18	41	58
Time to Peak	mins	43	20	19	17	27	34	19	25	29	2	25	17	12	27	38
Time to Peak	Hours	0.72	0.33	0.32	0.29	0.45	0.56	0.32	0.42	0.48	0.04	0.42	0.29	0.21	0.46	0.64
Barnsby Williams																
Time of Concentration	mins	25	9	9	7	14	20	9	15	17	0	9	7	4	11	17
Time to Peak	mins	17	6	6	5	9	13	6	10	11	0	6	5	3	7	11
Time to Peak	Hours	0.28	0.10	0.11	0.08	0.15	0.22	0.10	0.17	0.18	0.00	0.10	0.08	0.05	0.12	0.19
SCS																
Time of Concentration	mins	63	18	17	15	31	42	17	27	34	1	28	16	9	30	54
Time to Peak	mins	42	12	12	10	21	28	12	18	23	0	19	11	6	20	36
Time to Peak	Hours	0.70	0.20	0.19	0.16	0.34	0.47	0.19	0.30	0.38	0.01	0.31	0.18	0.10	0.34	0.61
Uplands																
Time of Concentration	mins	69	19	16	12	27	50	17	26	33	0	19	11	6	26	41
Time to Peak	mins	46	12	11	8	18	34	11	18	22	0	13	7	4	17	28
Time to Peak	Hours	0.76	0.21	0.18	0.13	0.30	0.56	0.19	0.29	0.36	0.00	0.21	0.12	0.07	0.28	0.46
Selected Method: FAA (From Chicago storm)																
Time to Peak	min	43	20	19	17	27	34	19	25	29	2	25	17	12	27	38
Time to Peak	Hours	0.72	0.33	0.32	0.29	0.45	0.56	0.32	0.42	0.48	0.04	0.42	0.29	0.21	0.46	0.64
Velocity	m/s	0.16	0.10	0.14	0.11	0.13	0.14	0.12	0.18	0.20	0.04	0.08	0.13	0.07	0.09	0.10

```

1  20      Metric units / ID numbers OFF
2  *#*****
   *****
3  *#  SWMHYMO  / INPUT DATA FILE
4  *#*****
   *****
5  *#  Project Name   : [5923 Ottawa St]
6  *#  Project Number: [P2710(e01)]
7  *#  Date           : [2025 FEB 05]
8  *#  Modeller       : [MM]
9  *#  Company        : JFSA Canada Inc.
10 *#  License #      : 2549237
11 *#*****
   *****
12 *# Model developed to simulate runoff from subcatchments under pre development conditions
13 *#*****
   *****
14 *%  25 mm Storm based on 2-Year, 3-Hour Chicago Storm
15 START          TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[002]
16                ["002YC3H.stm"] <--storm filename, one per line for NSTORM time
17 *%-----|-----
18 READ STORM      STORM_FILENAME=["STORM.001"]
19 *%-----|-----
20 *#*****
   *****
21 *#  EXT1
22 *#*****
   *****
23 CALIB NASHYD    NHYD=["EXT1"], DT[1] (min), AREA=[3.211] (ha),
24                DWF=[0] (cms), CN=[80],
25                IA=[4.67] (mm), N=[3], TP[0.72] (hrs),
26                RAINFALL[ , , -1]
27 *#*****
   *****
28 *#  EXT2
29 *#*****
   *****
30 CALIB NASHYD    NHYD=["EXT2"], DT[1] (min), AREA=[0.285] (ha),
31                DWF=[0] (cms), CN=[85],
32                IA=[4.67] (mm), N=[3], TP[0.33] (hrs),
33                RAINFALL[ , , -1]
34 *#*****
   *****
35 *#  EXT3
36 *#*****
   *****
37 CALIB NASHYD    NHYD=["EXT3"], DT[1] (min), AREA=[0.560] (ha),
38                DWF=[0] (cms), CN=[80],
39                IA=[4.67] (mm), N=[3], TP[0.32] (hrs),
40                RAINFALL[ , , -1]
41 *#*****
   *****
42 *#  EXT4
43 *#*****
   *****
44 CALIB NASHYD    NHYD=["EXT4"], DT[1] (min), AREA=[0.309] (ha),
45                DWF=[0] (cms), CN=[79],
46                IA=[4.67] (mm), N=[3], TP[0.29] (hrs),
47                RAINFALL[ , , -1]
48 *#*****
   *****
49 *#  EXT5
50 *#*****
   *****
51 CALIB NASHYD    NHYD=["EXT5"], DT[1] (min), AREA=[0.594] (ha),
52                DWF=[0] (cms), CN=[76],
53                IA=[4.67] (mm), N=[3], TP[0.45] (hrs),
54                RAINFALL[ , , -1]
55 *#*****

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*****
56 *# EXT6
57 *#*****
*****
58 CALIB NASHYD      NHYD=["EXT6"], DT[1] (min), AREA=[0.864] (ha),
59                   DWF=[0] (cms), CN=[85],
60                   IA=[4.67] (mm), N=[3], TP[0.56] (hrs),
61                   RAINFALL[ , , -1]
62 *#*****
*****
63 *# EXT7
64 *#*****
*****
65 CALIB NASHYD      NHYD=["EXT7"], DT[1] (min), AREA=[0.471] (ha),
66                   DWF=[0] (cms), CN=[83],
67                   IA=[4.67] (mm), N=[3], TP[0.32] (hrs),
68                   RAINFALL[ , , -1]
69 *#*****
*****
70 *# EXT8
71 *#*****
*****
72 CALIB NASHYD      NHYD=["EXT8"], DT[1] (min), AREA=[0.834] (ha),
73                   DWF=[0] (cms), CN=[79],
74                   IA=[4.67] (mm), N=[3], TP[0.42] (hrs),
75                   RAINFALL[ , , -1]
76 *#*****
*****
77 *# EXT9
78 *#*****
*****
79 CALIB NASHYD      NHYD=["EXT9"], DT[1] (min), AREA=[3.571] (ha),
80                   DWF=[0] (cms), CN=[76],
81                   IA=[4.67] (mm), N=[3], TP[0.48] (hrs),
82                   RAINFALL[ , , -1]
83 *#*****
*****
84 *# EXT9a
85 *#*****
*****
86 CALIB NASHYD      NHYD=["EXT9a"], DT[1] (min), AREA=[0.011] (ha),
87                   DWF=[0] (cms), CN=[78],
88                   IA=[4.67] (mm), N=[3], TP[0.04] (hrs),
89                   RAINFALL[ , , -1]
90 *#*****
*****
91 *# EXT10
92 *#*****
*****
93 CALIB NASHYD      NHYD=["EXT10"], DT[1] (min), AREA=[0.203] (ha),
94                   DWF=[0] (cms), CN=[71],
95                   IA=[4.67] (mm), N=[3], TP[0.42] (hrs),
96                   RAINFALL[ , , -1]
97 *#*****
*****
98 *# Pre2
99 *#*****
*****
100 CALIB NASHYD      NHYD=["Pre2"], DT[1] (min), AREA=[0.566] (ha),
101                   DWF=[0] (cms), CN=[78],
102                   IA=[4.67] (mm), N=[3], TP[0.46] (hrs),
103                   RAINFALL[ , , -1]
104 *#*****
*****
105 *# Pre9
106 *#*****
*****
107 CALIB NASHYD      NHYD=["Pre9"], DT[1] (min), AREA=[0.829] (ha),
108                   DWF=[0] (cms), CN=[71],

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109             IA=[4.67] (mm), N=[3], TP[0.64] (hrs),
110             RAINFALL[ , , -1]
111 *#*****
112 *# Pre10
113 *#*****
114 CALIB NASHYD      NHYD=["Pre10"], DT[1] (min), AREA=[0.803] (ha),
115                   DWF=[0] (cms), CN=[71],
116                   IA=[4.67] (mm), N=[3], TP[0.29] (hrs),
117                   RAINFALL[ , , -1]
118 *#*****
119 *# Pre11
120 *#*****
121 CALIB NASHYD      NHYD=["Pre11"], DT[1] (min), AREA=[0.069] (ha),
122                   DWF=[0] (cms), CN=[78],
123                   IA=[4.67] (mm), N=[3], TP[0.21] (hrs),
124                   RAINFALL[ , , -1]
125 *#*****
126 ADD HYD           NHYDsum=["J1"], NHYDs to add=["EXT2"+"Pre2"]
127 *%-----|-----|
128 * NOTE: Cross-section number 849.0434 is taken from HEC-RAS Model
129 ROUTE CHANNEL     NHYDout=["R1"], NHYDin=["J1"], RDT=[1] (min),
130                   CHLGTH=[143.151] (m), CHSLOPE=[0.394] (%), FPSLOPE=[0.394] (%),
131                   SECNUM=[849.0434], NSEG=[3],
132                   ( SEGROUGH, SEGDIST (m))=[0.08,18.95 -0.035,26.78 0.08,35.18] NSEG
133                   times
134                   ( DISTANCE (m), ELEVATION (m))=[0.48, 94.05]
135                   [3.19, 93.99]
136                   [6.85, 93.91]
137                   [10.48, 93.87]
138                   [17.45, 93.85]
139                   [18.95, 93.84]
140                   [20.36, 93.81]
141                   [22.3, 93.76]
142                   [22.53, 93.72]
143                   [23.98, 93.35]
144                   [24.35, 93.33]
145                   [24.65, 93.37]
146                   [25.04, 93.45]
147                   [26.04, 93.74]
148                   [26.44, 93.82]
149                   [26.78, 93.87]
150                   [29.14, 94.11]
151                   [33.98, 94.26]
152                   [35.18, 94.26]
153 *%-----|-----|
154 ADD HYD           NHYDsum=["J2"], NHYDs to add=["R1"+"EXT3"+"EXT1"]
155 *%-----|-----|
156 * NOTE: Cross-section number 737.5813 is taken from HEC-RAS Model
157 ROUTE CHANNEL     NHYDout=["R2"], NHYDin=["J2"], RDT=[1] (min),
158                   CHLGTH=[73.338] (m), CHSLOPE=[0.425] (%), FPSLOPE=[0.425] (%),
159                   SECNUM=[737.5813], NSEG=[3],
160                   ( SEGROUGH, SEGDIST (m))=[0.08,8.4 -0.035,16.42 0.08,22.6] NSEG
161                   times
162                   ( DISTANCE (m), ELEVATION (m))=[0, 93.52]
163                   [1.08, 93.5]
164                   [4.37, 93.48]
165                   [6.31, 93.45]
166                   [8.4, 93.38]
167                   [9.5, 93.31]
168                   [10.49, 93.23]
169                   [10.99, 93.18]
170                   [12.4, 92.94]
171                   [13.11, 92.84]
172                   [13.67, 92.92]

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171                                     [16.42, 93.6]
172                                     [16.91, 93.65]
173                                     [17.97, 93.65]
174                                     [19, 93.83]
175                                     [19.51, 93.89]
176                                     [21.06, 93.94]
177                                     [22.6, 93.95]
178 *%-----|-----
179 ADD HYD          NHYDsum=["J3"], NHYDs to add=["R2"+"EXT4"]
180 *%-----|-----
181 * NOTE: Cross-section number 675.4097 is taken from HEC-RAS Model
182 ROUTE CHANNEL    NHYDout=["R3"], NHYDin=["J3"], RDT=[1] (min),
183                  CHLGTH=[92.08] (m), CHSLOPE=[0.274] (%), FPSLOPE=[0.274] (%),
184                  SECNUM=[675.4097], NSEG=[3],
185                  ( SEGROUGH, SEGDIST (m))=[0.08,31.64 -0.035,42.44 0.08,48.87] NSEG
186                  times
187                  ( DISTANCE (m), ELEVATION (m))=[30.59, 93.12]
188                                     [31.64, 93.13]
189                                     [34.35, 93.08]
190                                     [35.18, 93.03]
191                                     [37.78, 92.72]
192                                     [38.25, 92.64]
193                                     [38.7, 92.61]
194                                     [39.74, 92.76]
195                                     [42.44, 93.41]
196                                     [42.89, 93.49]
197                                     [43.97, 93.57]
198                                     [44.92, 93.6]
199                                     [46.07, 93.67]
200                                     [48.87, 93.74]
201 *%-----|-----
202 ADD HYD          NHYDsum=["J4"], NHYDs to add=["R3"+"EXT5"]
203 *%-----|-----
204 * NOTE: Cross-section number 518.7506 is taken from HEC-RAS Model
205 ROUTE CHANNEL    NHYDout=["R4"], NHYDin=["J4"], RDT=[1] (min),
206                  CHLGTH=[251.495] (m), CHSLOPE=[0.19] (%), FPSLOPE=[0.19] (%),
207                  SECNUM=[518.7506], NSEG=[3],
208                  ( SEGROUGH, SEGDIST (m))=[0.08,51.48 -0.035,59.39 0.08,66.4] NSEG
209                  times
210                  ( DISTANCE (m), ELEVATION (m))=[0, 92.92]
211                                     [4.26, 92.9]
212                                     [48.31, 92.76]
213                                     [51.48, 92.76]
214                                     [53.64, 92.7]
215                                     [55.33, 92.29]
216                                     [55.44, 92.29]
217                                     [56.43, 92.37]
218                                     [56.97, 92.43]
219                                     [59.39, 93.27]
220                                     [59.74, 93.37]
221                                     [60.8, 93.52]
222                                     [63.31, 93.71]
223                                     [66.4, 93.76]
224 *%-----|-----
225 ADD HYD          NHYDsum=["J5"], NHYDs to add=["R4"+"EXT6"+"EXT7"]
226 *%-----|-----
227 * NOTE: Cross-section number 275.0857 is taken from HEC-RAS Model
228 ROUTE CHANNEL    NHYDout=["R5"], NHYDin=["J5"], RDT=[1] (min),
229                  CHLGTH=[237.343] (m), CHSLOPE=[0.644] (%), FPSLOPE=[0.644] (%),
230                  SECNUM=[275.0857], NSEG=[3],
231                  ( SEGROUGH, SEGDIST (m))=[0.08,40.82 -0.035,53.64 0.08,57.93] NSEG
232                  times
233                  ( DISTANCE (m), ELEVATION (m))=[36.16, 92.63]
234                                     [40.82, 92.97]
235                                     [41.39, 92.9]
236                                     [44.69, 91.72]
237                                     [45.24, 91.58]
238                                     [46.33, 91.43]
239                                     [47.41, 91.64]

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237 [47.87, 91.75]
238 [49.59, 92.2]
239 [50.99, 92.36]
240 [51.44, 92.48]
241 [53.18, 92.98]
242 [53.64, 93.15]
243 [55.92, 93.66]
244 [57.93, 93.68]
245 *%-----|-----
246 * NOTE: Cross-section number 124 is taken from HEC-RAS Model
247 ROUTE CHANNEL NHYDout=["R6"], NHYDin=["Pre10"], RDT=[1] (min),
248 CHLGTH=[77.414] (m), CHSLOPE=[0.776] (%), FPSLOPE=[0.776] (%),
249 SECNUM=[124], NSEG=[3],
250 ( SEGROUGH, SEGDIST (m))=[0.08,8.34 -0.035,31.31 0.08,84.97] NSEG
times
251 ( DISTANCE (m), ELEVATION (m))=[1.78, 93.73]
252 [4.51, 93.54]
253 [5.06, 93.31]
254 [7.25, 92.98]
255 [7.79, 92.77]
256 [8.34, 92.49]
257 [9.43, 91.93]
258 [9.68, 91.81]
259 [10.53, 91.27]
260 [12.64, 90.92]
261 [14.44, 90.9]
262 [16.54, 91.06]
263 [17.64, 91.06]
264 [30.22, 92.3]
265 [31.31, 92.45]
266 [33.5, 92.41]
267 [55.37, 93.11]
268 [57.01, 93.2]
269 [84.97, 93.43]
270 *%-----|-----
271 * NOTE: Cross-section number 74 is taken from HEC-RAS Model
272 ROUTE CHANNEL NHYDout=["R7"], NHYDin=["Pre9"], RDT=[1] (min),
273 CHLGTH=[159.151] (m), CHSLOPE=[1.576] (%), FPSLOPE=[1.576] (%),
274 SECNUM=[74], NSEG=[3],
275 ( SEGROUGH, SEGDIST (m))=[0.08,4.67 -0.035,81.24 0.08,82.88] NSEG
times
276 ( DISTANCE (m), ELEVATION (m))=[1.94, 93.64]
277 [4.67, 93.32]
278 [5.77, 93.15]
279 [7.41, 92.69]
280 [7.95, 92.37]
281 [9.36, 91.71]
282 [10.12, 91.22]
283 [10.49, 91.06]
284 [12.64, 90.89]
285 [16.16, 90.92]
286 [18.83, 91.66]
287 [19.59, 92.02]
288 [21.62, 92.39]
289 [24.87, 92.48]
290 [30.37, 92.55]
291 [34.37, 92.65]
292 [77.41, 92.82]
293 [80.6, 93.25]
294 [81.24, 93.48]
295 [82.88, 93.79]
296 *%-----|-----
297 ADD HYD NHYDsum=["J6"], NHYDs to add=["R6"+"EXT10"]
298 *%-----|-----
299 * NOTE: Cross-section number 49 is taken from HEC-RAS Model
300 ROUTE CHANNEL NHYDout=["R8"], NHYDin=["J6"], RDT=[1] (min),
301 CHLGTH=[78.801] (m), CHSLOPE=[0.522] (%), FPSLOPE=[0.522] (%),
302 SECNUM=[49], NSEG=[3],
303 ( SEGROUGH, SEGDIST (m))=[0.08,8.71 -0.035,20.59 0.08,116.73] NSEG

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304         times
305         ( DISTANCE (m), ELEVATION (m))=[0, 93.36]
306         [1.93, 93.63]
307         [4.61, 93.26]
308         [6.23, 93.1]
309         [8.19, 92.26]
310         [8.71, 91.84]
311         [9.86, 91.47]
312         [10.53, 91.04]
313         [13.84, 91]
314         [14.5, 91.11]
315         [16.97, 91.27]
316         [20.59, 91.76]
317         [23.3, 91.64]
318         [30.34, 91.85]
319         [35.29, 91.92]
320         [116.73, 92.96]
321 *%-----|-----
322 ADD HYD      NHYDsum=["J7"], NHYDs to add=["R8"+"R7"]
323 *%-----|-----
324 * NOTE: Cross-section number 7 is taken from HEC-RAS Model
325 ROUTE CHANNEL NHYDout=["R9"], NHYDin=["J7"], RDT=[1] (min),
326             CHLGTH=[29.445] (m), CHSLOPE=[0.887] (%), FPSLOPE=[0.887] (%),
327             SECNUM=[7], NSEG=[3],
328             ( SEGROUGH, SEGDIST (m))=[0.08,1.5 -0.035,22.44 0.08,100.08] NSEG
329             times
330             ( DISTANCE (m), ELEVATION (m))=[0, 93.4]
331             [1.5, 93.63]
332             [3.13, 93.62]
333             [4.76, 93.28]
334             [5.3, 93.25]
335             [6.52, 93.08]
336             [6.96, 92.95]
337             [10.57, 90.95]
338             [13.59, 90.67]
339             [15.83, 90.72]
340             [16.42, 90.85]
341             [18.66, 91.76]
342             [20.82, 91.86]
343             [22.44, 91.92]
344             [27.84, 91.98]
345             [30.15, 91.96]
346             [100.08, 92.61]
347 *%-----|-----
348 ADD HYD      NHYDsum=["J8"], NHYDs to add=["EXT9"+"R9"+"EXT8"+"R5"]
349 *%-----|-----
350 * Note: The pipe needs to be adjusted based on the Culvert-under-railway information
351 ROUTE PIPE    PTYPE=[1]circ, NHYDout=["Outlet"], RNUMBER=[1.0],
352             PDIAM=[525] (mm), PLNGTH=[8.407] (m), PROUGH=[0.013],
353             PSLOPE=[0.0001] (m/m),
354             NHYDin=["J8"], RDT=[1] (min)
355 *%-----|-----
356 *#####
357 *# STORMS
358 *#####
359 *% 2-Year, 3-Hour Chicago Storm
360 *START        TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[002]
361 *             ["002YC3H.stm"] <--storm filename, one per line for NSTORM time
362 *%-----|-----
363 *% 5-Year, 3-Hour Chicago Storm
364 *START        TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[005]
365 *             ["005YC3H.stm"] <--storm filename, one per line for NSTORM time
366 *%-----|-----
367 *% 10-Year, 3-Hour Chicago Storm
368 *START        TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[010]
369 *             ["010YC3H.stm"] <--storm filename, one per line for NSTORM time
370 *%-----|-----
371 *% 25-Year, 3-Hour Chicago Storm
372 *START        TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[025]

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370      ["025YC3H.stm"] <--storm filename, one per line for NSTORM time
371  *%-----|-----|
372  *% 50-Year, 3-Hour Chicago Storm
373  START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[050]
374      ["050YC3H.stm"] <--storm filename, one per line for NSTORM time
375  *%-----|-----|
376  *% 100-Year, 3-Hour Chicago Storm
377  START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[099]
378      ["100YC3H.stm"] <--storm filename, one per line for NSTORM time
379  *%-----|-----|
380  *% 2-Year, 24-Hour SCS Storm
381  START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[102]
382      ["SC24002x.stm"] <--storm filename, one per line for NSTORM time
383  *%-----|-----|
384  *% 5-Year, 24-Hour SCS Storm
385  START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[105]
386      ["SC24005x.stm"] <--storm filename, one per line for NSTORM time
387  *%-----|-----|
388  *% 10-Year, 24-Hour SCS Storm
389  START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[110]
390      ["SC24010x.stm"] <--storm filename, one per line for NSTORM time
391  *%-----|-----|
392  *% 25-Year, 24-Hour SCS Storm
393  START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[125]
394      ["SC24025x.stm"] <--storm filename, one per line for NSTORM time
395  *%-----|-----|
396  *% 50-Year, 24-Hour SCS Storm
397  START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[150]
398      ["SC24050x.stm"] <--storm filename, one per line for NSTORM time
399  *%-----|-----|
400  *% 100-Year, 24-Hour SCS Storm
401  START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[199]
402      ["SC24100x.stm"] <--storm filename, one per line for NSTORM time
403  *%-----|-----|
404  *% July 1st, 1979 Storm - Ottawa International Airport
405  START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1979]
406      ["19790701.stm"] <--storm filename, one per line for NSTORM time
407  *%-----|-----|
408  *% August 4th, 1988 Storm - Ottawa International Airport
409  START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1988]
410      ["19880804.stm"] <--storm filename, one per line for NSTORM time
411  *%-----|-----|
412  *% August 8th, 1996 Storm - Ottawa International Airport
413  START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1996]
414      ["19960808.stm"] <--storm filename, one per line for NSTORM time
415  *%-----|-----|
416  *% 100-Year, 3-Hour Chicago Storm + 20%
417  START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[9999]
418      ["100YC3H+.STM"] <--storm filename, one per line for NSTORM time
419  *%-----|-----|
420  FINISH

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00361: *****
00362: # EXT3A
00363: *****
00364: R0005:C00012-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00365: CALIB NASHYD 1.0 01:EXT3A .01 .003 No_date 1:00 13.07 .307 .000
00366: [CN= 78.0: N= 3.00: Tpe = .04]
00367: *****
00368: # EXT10
00369: *****
00370: R0005:C00013-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00371: CALIB NASHYD 1.0 01:EXT10 .20 .004 No_date 1:32 10.11 .238 .000
00372: [CN= 71.0: N= 3.00: Tpe = .28]
00373: *****
00374: # Pre2
00375: *****
00376: R0005:C00014-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00377: CALIB NASHYD 1.0 01:Pre2 .57 .015 No_date 1:35 13.08 .308 .000
00378: [CN= 78.0: N= 3.00: Tpe = .46]
00379: *****
00380: # Pre3
00381: *****
00382: R0005:C00015-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00383: CALIB NASHYD 1.0 01:Pre3 .83 .013 No_date 1:50 10.11 .238 .000
00384: [CN= 71.0: N= 3.00: Tpe = .64]
00385: *****
00386: # Pre10
00387: *****
00388: R0005:C00016-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00389: CALIB NASHYD 1.0 01:Pre10 .80 .021 No_date 1:21 10.11 .238 .000
00390: [CN= 71.0: N= 3.00: Tpe = .28]
00391: *****
00392: # Pre11
00393: *****
00394: R0005:C00017-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00395: CALIB NASHYD 1.0 01:Pre11 .07 .003 No_date 1:14 13.07 .308 .000
00396: [CN= 78.0: N= 3.00: Tpe = .21]
00397: *****
00398: R0005:C00018-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00399: ADD HYD 1.0 02:EXT2 .28 .012 No_date 1:23 17.32 n/a .000
00400: SUM= 1.0 01:Pre2 .57 .015 No_date 1:35 13.08 n/a .000
00401: 1.0 01:21 .85 .026 No_date 1:29 14.50 n/a .000
00402: ROUTE CHANNEL -> 1.0 02:1 .85 .026 No_date 1:29 14.50 n/a .000
00403: [RDY= 1.00] out<- 1.0 01:R1 .85 .026 No_date 1:36 14.50 n/a .000
00404: [L/S/n= 143./././394/.035]
00405: (Vmax=.291:Dmax=.195)
00406: *****
00407: R0005:C00019-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00408: ADD HYD 1.0 02:R1 .85 .025 No_date 1:36 14.50 n/a .000
00409: SUM= 1.0 02:EXT3 .56 .020 No_date 1:23 14.13 n/a .000
00410: 1.0 01:EXT1 3.21 .016 No_date 1:35 14.13 n/a .000
00411: 1.0 01:22 4.62 .102 No_date 1:43 14.20 n/a .000
00412: ROUTE CHANNEL -> 1.0 02:2 4.62 .102 No_date 1:43 14.20 n/a .000
00413: [RDY= 1.00] out<- 1.0 01:R2 4.62 .101 No_date 1:45 14.20 n/a .000
00414: [L/S/n= 71././423/.035]
00415: (Vmax=.412:Dmax=.195)
00416: *****
00417: R0005:C00020-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00418: ADD HYD 1.0 02:R2 4.62 .101 No_date 1:45 14.20 n/a .000
00419: SUM= 1.0 02:EXT4 .31 .011 No_date 1:21 13.59 n/a .000
00420: 1.0 01:EXT1 4.93 .109 No_date 1:43 14.16 n/a .000
00421: ROUTE CHANNEL -> 1.0 02:4 4.93 .109 No_date 1:43 14.16 n/a .000
00422: ROUTE CHANNEL -> 1.0 02:3 4.93 .108 No_date 1:47 14.16 n/a .000
00423: [RDY= 1.00] out<- 1.0 01:R3 4.93 .108 No_date 1:47 14.16 n/a .000
00424: [L/S/n= 92./274/.035]
00425: (Vmax=.337:Dmax=.195)
00426: *****
00427: R0005:C00021-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00428: ADD HYD 1.0 02:EXT3 .59 .014 No_date 1:34 12.13 n/a .000
00429: SUM= 1.0 01:24 5.52 .121 No_date 1:45 13.94 n/a .000
00430: ROUTE CHANNEL -> 1.0 02:16 5.52 .121 No_date 1:45 13.94 n/a .000
00431: [RDY= 1.00] out<- 1.0 01:24 5.52 .121 No_date 1:45 13.94 n/a .000
00432: [L/S/n= 79././322/.035]
00433: (Vmax=.251././190/.035)
00434: *****
00435: R0005:C00022-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00436: ADD HYD 1.0 02:R4 5.52 .112 No_date 1:58 13.94 n/a .000
00437: SUM= 1.0 02:EXT7 .47 .019 No_date 1:23 15.94 n/a .000
00438: 1.0 02:EXT7 6.86 .147 No_date 1:53 14.51 n/a .000
00439: ROUTE CHANNEL -> 1.0 01:25 6.86 .147 No_date 1:53 14.51 n/a .000
00440: [RDY= 1.00] out<- 1.0 01:R5 6.86 .144 No_date 2:00 14.51 n/a .000
00441: [L/S/n= 237././644/.035]
00442: (Vmax=.519:Dmax=.210)
00443: *****
00444: R0005:C00023-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00445: ROUTE CHANNEL -> 1.0 02:Pre10 .80 .021 No_date 1:21 10.11 n/a .000
00446: [RDY= 1.00] out<- 1.0 01:R6 .80 .021 No_date 1:24 10.11 n/a .000
00447: [L/S/n= 77././776/.035]
00448: (Vmax=.492:Dmax=.015)
00449: *****
00450: R0005:C00024-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00451: ROUTE CHANNEL -> 1.0 02:Pre9 .83 .013 No_date 1:50 10.11 n/a .000
00452: [RDY= 1.00] out<- 1.0 01:EXT7 4.83 .013 No_date 1:54 10.11 n/a .000
00453: [L/S/n= 159./1.576/.035]
00454: (Vmax=.797:Dmax=.004)
00455: *****
00456: R0005:C00025-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00457: ADD HYD 1.0 02:R6 .80 .021 No_date 1:24 10.26 n/a .000
00458: SUM= 1.0 01:EXT10 1.01 .025 No_date 1:25 10.23 n/a .000
00459: ROUTE CHANNEL -> 1.0 02:16 1.01 .025 No_date 1:25 10.23 n/a .000
00460: [RDY= 1.00] out<- 1.0 01:R8 1.01 .025 No_date 1:28 10.23 n/a .000
00461: [L/S/n= 79././322/.035]
00462: (Vmax=.423:Dmax=.018)
00463: *****
00464: R0005:C0003-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00465: ADD HYD 1.0 02:R8 1.01 .025 No_date 1:28 10.23 n/a .000
00466: SUM= 1.0 02:R7 .83 .013 No_date 1:54 10.14 n/a .000
00467: 1.0 02:R7 1.83 .035 No_date 1:34 10.19 n/a .000
00468: ROUTE CHANNEL -> 1.0 02:17 1.83 .035 No_date 1:34 10.19 n/a .000
00469: [RDY= 1.00] out<- 1.0 01:R9 1.83 .035 No_date 1:34 10.19 n/a .000
00470: [L/S/n= 29././887/.035]
00471: (Vmax=.543:Dmax=.238)
00472: *****
00473: R0005:C0004-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00474: ADD HYD 1.0 02:EXT9 3.57 .083 No_date 1:36 12.13 n/a .000
00475: SUM= 1.0 02:R9 1.83 .035 No_date 1:34 10.20 n/a .000
00476: 1.0 02:EXT8 .83 .024 No_date 1:31 13.59 n/a .000
00477: 1.0 02:EXT8 6.86 .144 No_date 2:00 14.51 n/a .000
00478: ROUTE CHANNEL -> 1.0 01:28 13.10 .264 No_date 1:49 13.20 n/a .000
00479: R0005:C0005-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00480: ROUTE PIPE -> 1.0 02:R8 13.10 .264 No_date 1:49 13.20 n/a .000
00481: [RDY= 1.00] out<- 1.0 01:Outlet 13.10 .264 No_date 1:49 13.20 n/a .000
00482: [L/S/n= 1././0162]
00483: (Vmax=.356:Dmax=.951)
00484: [Dtm=.55:Dmax=.1.04]
00485: *****
00486: # STORMS
00487: *****
00488: ** END OF RUN : 9
00489: *****
00490: *****
00491: *****
00492: *****
00493: *****
00494: *****
00495: *****
00496: RUN:COMMANDS
00497: R0010:C00001-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00498: START (TZERO=.00 hrs on 5)
00499: [METOUT= 2 (i=imperial, 2=metric output)]
00500: [METOUT= 1]
00501: [RUN= 0010]
00502: *****
00503: *****
00504: # JMWIND / INPUT DATA FILE
00505: *****
00506: # Project Name : [5923 Ottawa St]
00507: # Project Number: [P2710]
00508: # Date : [2025 FEB 05]
00509: # Modeller : [JW]
00510: # Company : JFSA Canada Inc.
00511: # License #: 2549237
00512: *****
00513: # Model developed to simulate runoff from subcatchments under pre development conditions
00514: *****
00515: R0010:C00002-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00516: READ STORMS
00517: FileNm= STORM.001
00518: Comment = CHICAGO STORM 10 Year, 3 Hours
00519: [RDY=1.00:IDRUM= 3.00:IDTOW= 49.50]
00520: *****
00521: # EXT1
00522: *****
00523: R0010:C00003-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00524: CALIB NASHYD 1.0 01:EXT1 3.21 .088 No_date 1:54 18.55 .375 .000
00525: [CN= 80.0: N= 3.00: Tpe = .21]
00526: *****
00527: # EXT2
00528: *****
00529: R0010:C00004-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00530: CALIB NASHYD 1.0 01:EXT2 .56 .027 No_date 1:23 18.55 .375 .000
00531: [CN= 85.0: N= 3.00: Tpe = .33]
00532: *****
00533: # EXT3
00534: *****
00535: R0010:C00005-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00536: CALIB NASHYD 1.0 01:EXT3 .56 .027 No_date 1:23 18.55 .375 .000
00537: [CN= 80.0: N= 3.00: Tpe = .21]
00538: *****
00539: # EXT4
00540: *****
00541: R0010:C00006-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00542: CALIB NASHYD 1.0 01:EXT4 .31 .013 No_date 1:20 17.89 n/a .000
00543: [CN= 79.0: N= 3.00: Tpe = .29]
00544: *****
00545: # EXT5
00546: *****
00547: R0010:C00007-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00548: CALIB NASHYD 1.0 01:EXT5 .59 .019 No_date 1:33 16.07 .325 .000
00549: [CN= 78.0: N= 3.00: Tpe = .45]
00550: *****
00551: # EXT6
00552: *****
00553: R0010:C00008-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00554: CALIB NASHYD 1.0 01:EXT6 .86 .035 No_date 1:41 22.42 .453 .000
00555: [CN= 83.0: N= 3.00: Tpe = .42]
00556: *****
00557: # EXT7
00558: *****
00559: R0010:C00009-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00560: CALIB NASHYD 1.0 01:Pre2 .57 .020 No_date 1:34 17.26 .349 .000
00561: [CN= 83.0: N= 3.00: Tpe = .32]
00562: *****
00563: # EXT8
00564: *****
00565: R0010:C00010-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00566: CALIB NASHYD 1.0 01:EXT8 .83 .032 No_date 1:31 17.89 .361 .000
00567: [CN= 79.0: N= 3.00: Tpe = .42]
00568: *****
00569: # EXT9
00570: *****
00571: R0010:C00011-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00572: CALIB NASHYD 1.0 01:EXT9 3.57 .111 No_date 1:36 16.08 .325 .000
00573: [CN= 76.0: N= 3.00: Tpe = .48]
00574: *****
00575: # EXT9a
00576: *****
00577: R0010:C00012-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00578: CALIB NASHYD 1.0 01:EXT9a .01 .001 No_date 1:00 17.25 .348 .000
00579: [CN= 78.0: N= 3.00: Tpe = .04]
00580: *****
00581: # EXT10
00582: *****
00583: R0010:C00013-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00584: CALIB NASHYD 1.0 01:EXT10 .20 .006 No_date 1:31 13.53 .273 .000
00585: [CN= 71.0: N= 3.00: Tpe = .81]
00586: *****
00587: # Pre2
00588: *****
00589: R0010:C00014-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00590: CALIB NASHYD 1.0 01:Pre2 .57 .020 No_date 1:34 17.26 .349 .000
00591: [CN= 78.0: N= 3.00: Tpe = .46]
00592: *****
00593: # Pre9
00594: *****
00595: R0010:C00015-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00596: CALIB NASHYD 1.0 01:Pre9 .83 .018 No_date 1:49 13.53 .273 .000
00597: [CN= 71.0: N= 3.00: Tpe = .29]
00598: *****
00599: # Pre10
00600: *****
00601: R0010:C00016-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00602: CALIB NASHYD 1.0 01:EXT10 .80 .029 No_date 1:21 13.53 .273 .000
00603: [CN= 71.0: N= 3.00: Tpe = .29]
00604: *****
00605: # Pre11
00606: *****
00607: R0010:C00017-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00608: CALIB NASHYD 1.0 01:Pre11 .07 .004 No_date 1:14 17.25 .348 .000
00609: [CN= 78.0: N= 3.00: Tpe = .21]
00610: *****
00611: R0010:C00018-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00612: ADD HYD 1.0 02:Pre2 .57 .020 No_date 1:34 17.26 n/a .000
00613: SUM= 1.0 01:21 .85 .035 No_date 1:28 18.99 n/a .000
00614: ROUTE CHANNEL -> 1.0 02:16 1.85 .035 No_date 1:28 18.99 n/a .000
00615: [L/S/n= 143././394/.035]
00616: (Vmax=.311:Dmax=.122)
00617: *****
00618: R0010:C00019-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00619: ROUTE CHANNEL -> 1.0 02:1 .85 .033 No_date 1:35 18.99 n/a .000
00620: ADD HYD 1.0 02:EXT3 .56 .020 No_date 1:23 17.56 n/a .000
00621: SUM= 1.0 02:EXT1 3.21 .088 No_date 1:54 18.55 n/a .000
00622: 1.0 02:EXT1 4.62 .136 No_date 1:42 18.63 n/a .000
00623: ROUTE CHANNEL -> 1.0 02:12 4.62 .136 No_date 1:42 18.63 n/a .000
00624: [L/S/n= 73././423/.035]
00625: (Vmax=.444:Dmax=.219)
00626: *****
00627: R0010:C0002-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00628: ADD HYD 1.0 02:R2 4.62 .135 No_date 1:45 18.63 n/a .000
00629: SUM= 1.0 01:EXT4 .31 .011 No_date 1:21 17.89 n/a .000
00630: 1.0 01:23 4.93 .145 No_date 1:42 18.59 n/a .000
00631: ROUTE CHANNEL -> 1.0 02:16 4.93 .145 No_date 1:46 18.59 n/a .000
00632: [L/S/n= 92./274/.035]
00633: (Vmax=.364:Dmax=.227)
00634: *****
00635: R0010:C00024-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00636: ADD HYD 1.0 02:R3 1.44 No_date 1:44 18.59 n/a .000
00637: SUM= 1.0 01:EXT5 .59 .019 No_date 1:33 16.07 n/a .000
00638: 1.0 02:EXT5 5.52 .121 No_date 1:45 13.94 n/a .000
00639: ROUTE CHANNEL -> 1.0 02:16 5.52 .121 No_date 1:45 13.94 n/a .000
00640: [L/S/n= 251././190/.035]
00641: (Vmax=.352:Dmax=.018)
00642: *****
00643: R0010:C00025-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00644: ROUTE CHANNEL -> 1.0 02:16 5.52 .121 No_date 1:44 18.32 n/a .000
00645: [RDY= 1.00] out<- 1.0 01:R8 5.52 .151 No_date 1:54 18.32 n/a .000
00646: [L/S/n= 251././190/.035]
00647: (Vmax=.352:Dmax=.018)
00648: *****
00649: R0010:C00026-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00650: ADD HYD 1.0 02:R8 5.52 .151 No_date 1:56 18.32 n/a .000
00651: SUM= 1.0 02:EXT6 .86 .035 No_date 1:41 22.42 n/a .000
00652: 1.0 02:EXT7 .47 .025 No_date 1:22 20.75 n/a .000
00653: ROUTE CHANNEL -> 1.0 01:25 6.86 .197 No_date 1:51 19.00 n/a .000
00654: [L/S/n= 237././644/.035]
00655: (Vmax=.543:Dmax=.238)
00656: *****
00657: R0010:C00028-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00658: ROUTE CHANNEL -> 1.0 02:Pre10 .80 .029 No_date 1:21 13.53 n/a .000
00659: [RDY= 1.00] out<- 1.0 01:R8 .80 .029 No_date 1:24 13.53 n/a .000
00660: [L/S/n= 77././776/.035]
00661: (Vmax=.462:Dmax=.021)
00662: *****
00663: R0010:C00029-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00664: ROUTE CHANNEL -> 1.0 02:Pre9 .83 .018 No_date 1:49 13.53 n/a .000
00665: [RDY= 1.00] out<- 1.0 01:R7 .83 .018 No_date 1:53 13.53 n/a .000
00666: [L/S/n= 159./1.576/.035]
00667: (Vmax=.797:Dmax=.004)
00668: *****
00669: R0010:C00030-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00670: ADD HYD 1.0 02:R8 1.83 .047 No_date 1:34 13.61 n/a .000
00671: SUM= 1.0 02:EXT8 .83 .032 No_date 1:31 17.89 n/a .000
00672: 1.0 02:EXT8 6.86 .144 No_date 2:00 14.51 n/a .000
00673: ROUTE CHANNEL -> 1.0 01:28 13.10 .264 No_date 1:47 17.38 n/a .000
00674: [RDY= 1.00] out<- 1.0 01:R8 1.01 .034 No_date 1:24 13.66 n/a .000
00675: [L/S/n= 29././822/.035]
00676: (Vmax=.423:Dmax=.023)
00677: *****
00678: R0010:C00032-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00679: ADD HYD 1.0 02:R8 1.01 .034 No_date 1:28 13.66 n/a .000
00680: SUM= 1.0 02:R7 .83 .018 No_date 1:53 13.55 n/a .000
00681: ROUTE CHANNEL -> 1.0 02:17 1.83 .047 No_date 1:33 13.61 n/a .000
00682: [RDY= 1.00] out<- 1.0 01:R7 1.83 .047 No_date 1:33 13.61 n/a .000
00683: [RDY= 1.00] out<- 1.0 01:R9 1.83 .047 No_date 1:34 13.61 n/a .000
00684: [L/S/n= 29././887/.035]
00685: (Vmax=.543:Dmax=.238)
00686: *****
00687: R0010:C00034-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00688: ADD HYD 1.0 02:R9 1.83 .047 No_date 1:34 13.62 n/a .000
00689: SUM= 1.0 02:EXT8 .83 .032 No_date 1:31 17.89 n/a .000
00690: 1.0 02:EXT8 6.86 .144 No_date 2:00 14.51 n/a .000
00691: ROUTE CHANNEL -> 1.0 01:28 13.10 .264 No_date 1:47 17.38 n/a .000
00692: [RDY= 1.00] out<- 1.0 01:R8 13.10 .264 No_date 1:47 17.38 n/a .000
00693: [L/S/n= 1././010/.013]
00694: (Vmax=.385:Dmax=.957)
00695: [Dtm=.53:Dmax=.1.71]
00696: *****
00697: # STORMS
00698: *****
00699: *****
00700: *****
00701: ** END OF RUN : 24
00702: *****
00703: *****
00704: *****
00705: *****
00706: *****
00707: *****
00708: *****
00709: RUN:COMMANDS
00710: R0020:C00001-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----RvMn-R.C-----DWfms
00711: START (TZERO=.00 hrs on 0)
00712: [METOUT= 2 (i=imperial, 2=metric output)]
00713: [METOUT= 1]
00714: [RUN= 0025]
00715: *****
00716: *****
00717: # JMWIND / INPUT DATA FILE
00718: *****
00719: # Project Name : [5923 Ottawa St]
00720: # Project Number: [P2710.001]
```

[illegible]

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010811 [RDT= 1.00] out<- 1.0 01:R5 6.86 .318 No_date 1:52 29.83 n/a .000
010812 [L/S/n= 227./, .644/.035]
010813 (Vmax=.658;Dmax=.288)
010814 R0059C00028-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010815 ROUTE CHANNEL -> 1.0 02:Pre0 80 .049 No_date 1:20 22.07 n/a .000
010816 [RDT= 1.00] out<- 1.0 01:R6 80 .048 No_date 1:23 22.07 n/a .000
010817 [L/S/n= 77./, .776/.035]
010818 (Vmax=.492;Dmax=.036)
010819 R0059C00029-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010820 ROUTE CHANNEL -> 1.0 02:Pre0 83 .029 No_date 1:48 22.07 n/a .000
010821 [RDT= 1.00] out<- 1.0 01:R7 83 .029 No_date 1:51 22.07 n/a .000
010822 [L/S/n= 159./, .157/.035]
010823 (Vmax=.797;Dmax=.009)
010824 R0059C00030-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010825 ADD HYD + 1.0 02:R6 80 .048 No_date 1:23 22.28 n/a .000
010826 [RDT= 1.00] out<- 1.0 02:EXT10 .20 .010 No_date 1:30 22.06 n/a .000
010827 SUM= 1.0 02:R7 83 .029 No_date 1:51 22.09 n/a .000
010828 R0059C00031-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010829 ROUTE CHANNEL -> 1.0 02:R6 1.01 .057 No_date 1:24 22.24 n/a .000
010830 [RDT= 1.00] out<- 1.0 01:R8 1.01 .056 No_date 1:27 22.24 n/a .000
010831 [L/S/n= 79./, .522/.035]
010832 (Vmax=.423;Dmax=.042)
010833 R0059C00032-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010834 ADD HYD + 1.0 02:R8 1.01 .056 No_date 1:27 22.24 n/a .000
010835 SUM= 1.0 02:R7 83 .029 No_date 1:51 22.09 n/a .000
010836 R0059C00033-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010837 ROUTE CHANNEL -> 1.0 02:R7 1.83 .079 No_date 1:32 22.17 n/a .000
010838 [RDT= 1.00] out<- 1.0 02:R7 1.83 .079 No_date 1:32 22.17 n/a .000
010839 [L/S/n= 29./, .887/.035]
010840 (Vmax=.543;Dmax=.054)
010841 R0059C00034-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010842 ADD HYD + 1.0 02:EXT9 3.57 .183 No_date 1:35 25.77 n/a .000
010843 [RDT= 1.00] out<- 1.0 02:R9 1.83 .079 No_date 1:33 22.18 n/a .000
010844 [L/S/n= 1.0 02:EXT8 83 .052 No_date 1:30 28.13 n/a .000
010845 SUM= 1.0 02:R5 6.86 .318 No_date 1:52 29.83 n/a .000
010846 [RDT= 1.00] out<- 1.0 02:R6 80 .048 No_date 1:23 22.07 n/a .000
010847 SUM= 1.0 02:R9 1.83 .079 No_date 1:32 22.17 n/a .000
010848 R0059C00035-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010849 ROUTE PIPE -> 1.0 02:R8 13.10 .602 No_date 1:44 27.56 n/a .000
010850 [RDT= 1.00] out<- 1.0 02:R8 13.10 .602 No_date 1:44 27.56 n/a .000
010851 [L/S/n= 8./, .010/.035]
010852 (Vmax=.481;Dmax=.046)
010853 [Dln=.53;Dused=.141]
010854 #####
010855 # STORM
010856 #####
010857 *** END OF RUN 1 98
010858
010859 RUN# COMMAND#
010860 R0099C00001-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010861 START
010862 [TZERO=.00 hrs on 0]
010863 [METOUT= 2 [1=Imperial, 2=metric output]]
010864 [METORM= 1]
010865 [INRUN=.0099]
010866 #####
010867 # SWHYMO / INPUT DATA FILE
010868 #####
010869 # Project Name : [5923 Ottawa St.]
010870 # Project Number: [92710 (e01)]
010871 # Date : [2020 FEB 05]
010872 # Modeler : [NM]
010873 # Company : [JFSa Canada Inc.]
010874 # License # : 2549237
010875 # Model developed to simulate runoff from subcatchments under pre development conditions
010876 #####
010877 R0099C00002-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010878 READ STORM
010879 Filename = STORM.001
010880 Comment = CHICAGO STORM 100 Year, 3 Hours
010881 [SDT=10.00;SDUR= 3.00;PTOT= 71.66]
010882 #####
010883 # EXT1
010884 #####
010885 R0099C00003-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010886 CALIB NASHYD 1.0 01:EXT1 3.21 .167 No_date 1:52 34.39 .480 .000
010887 [CN= 80.0; N= 3.00; Tpe=.72]
010888 #####
010889 # EXT2
010890 #####
010891 R0099C00004-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010892 CALIB NASHYD 1.0 01:EXT2 .28 .031 No_date 1:22 40.14 .560 .000
010893 [CN= 85.0; N= 3.00; Tpe=.48]
010894 #####
010895 # EXT3
010896 #####
010897 R0099C00005-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010898 CALIB NASHYD 1.0 01:EXT3 .59 .052 No_date 1:29 34.39 .480 .000
010899 [CN= 80.0; N= 3.00; Tpe=.52]
010900 #####
010901 # EXT4
010902 #####
010903 R0099C00006-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010904 CALIB NASHYD 1.0 01:EXT4 .31 .029 No_date 1:19 33.37 .466 .000
010905 [CN= 79.0; N= 3.00; Tpe=.48]
010906 #####
010907 # EXT5
010908 #####
010909 R0099C00007-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010910 CALIB NASHYD 1.0 01:EXT5 .59 .038 No_date 1:32 30.49 .425 .000
010911 [CN= 76.0; N= 3.00; Tpe=.45]
010912 #####
010913 # EXT6
010914 #####
010915 R0099C00008-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010916 CALIB NASHYD 1.0 01:EXT6 .86 .064 No_date 1:39 40.14 .560 .000
010917 [CN= 85.0; N= 3.00; Tpe=.56]
010918 #####
010919 # EXT7
010920 #####
010921 R0099C00009-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010922 CALIB NASHYD 1.0 01:EXT7 .47 .048 No_date 1:21 37.71 .526 .000
010923 [CN= 85.0; N= 3.00; Tpe=.46]
010924 #####
010925 # EXT8
010926 #####
010927 R0099C00010-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010928 CALIB NASHYD 1.0 01:EXT8 .20 .012 No_date 1:30 26.28 .367 .000
010929 [CN= 71.0; N= 3.00; Tpe=.42]
010930 #####
010931 # EXT9a
010932 #####
010933 R0099C00011-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010934 CALIB NASHYD 1.0 01:EXT9a .01 .003 No_date 1:00 32.37 .452 .000
010935 [CN= 78.0; N= 3.00; Tpe=.04]
010936 #####
010937 # EXT10
010938 #####
010939 R0099C00012-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010940 CALIB NASHYD 1.0 01:EXT10 .20 .012 No_date 1:30 26.28 .367 .000
010941 [CN= 71.0; N= 3.00; Tpe=.42]
010942 #####
010943 # EXT11
010944 #####
010945 R0099C00013-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010946 CALIB NASHYD 1.0 01:EXT11 .07 .008 No_date 1:13 32.37 .452 .000
010947 [CN= 78.0; N= 3.00; Tpe=.25]
010948 #####
010949 # EXT12
010950 #####
010951 R0099C00014-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010952 CALIB NASHYD 1.0 01:EXT12 .28 .031 No_date 1:22 40.14 n/a .000
010953 SUM= 1.0 02:R7 83 .029 No_date 1:51 22.09 n/a .000
010954 R0099C00015-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010955 ROUTE CHANNEL -> 1.0 02:R8 1.83 .079 No_date 1:32 22.17 n/a .000
010956 [RDT= 1.00] out<- 1.0 01:R1 85 .064 No_date 1:33 34.97 n/a .000
010957 [L/S/n= 143./, .396/.035]
010958 (Vmax=.375;Dmax=.162)
010959 R0099C00016-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfcm
010960 ADD HYD + 1.0 02:R1 85 .064 No_date 1:33 34.97 n/a .000
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01441# R0102/C00014-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01442# CALIB NASHVD 1.0 01:Pre11 .07 .003 No_date 12:07 26.60 343 .000
01443# [CN= 78.0; Nm= 3.00; Tpe= .46]
01444# # Pre9
01445# *****
01446# *****
01447# R0102/C00015-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01448# CALIB NASHVD 1.0 01:Pre9 .83 .012 No_date 12:37 12.99 268 .000
01449# [CN= 71.0; Nm= 3.00; Tpe= .44]
01450# *****
01451# # Pre10
01452# *****
01453# R0102/C00016-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01454# CALIB NASHVD 1.0 01:Pre10 .80 .020 No_date 12:12 12.99 268 .000
01455# [CN= 71.0; Nm= 3.00; Tpe= .44]
01456# *****
01457# # Pre11
01458# *****
01459# R0102/C00017-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01460# CALIB NASHVD 1.0 01:Pre11 .07 .003 No_date 12:07 26.60 343 .000
01461# [CN= 78.0; Nm= 3.00; Tpe= .21]
01462# *****
01463# R0102/C00018-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01464# ADD HYD + 1.0 02:EXT2 .28 .011 No_date 12:14 21.63 n/a .000
01465# + 1.0 02:EXT2 .57 .013 No_date 12:23 16.61 n/a .000
01466# SUM= 1.0 01:21 .85 .024 No_date 12:18 18.29 n/a .000
01467# R0102/C00019-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01468# ROUTE CHANNEL -> 1.0 02:21 .85 .024 No_date 12:18 18.29 n/a .000
01469# [RDT= 1.00] out<- 1.0 01:R1 .85 .022 No_date 12:25 18.29 n/a .000
01470# [L/S/n= 143./ / .394/.035]
01471# (Vmax= .278;Dmax= .103)
01472# R0102/C00020-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01473# ADD HYD + 1.0 02:R1 .85 .022 No_date 12:25 18.29 n/a .000
01474# + 1.0 02:EXT3 .56 .018 No_date 12:13 17.87 n/a .000
01475# + 1.0 01:EXT2 .31 .021 No_date 12:42 17.47 n/a .000
01476# SUM= 1.0 01:21 4.62 .090 No_date 12:30 17.95 n/a .000
01477# R0102/C00021-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01478# ROUTE CHANNEL -> 1.0 02:22 4.62 .090 No_date 12:30 17.95 n/a .000
01479# [RDT= 1.00] out<- 1.0 01:R2 4.62 .090 No_date 12:33 17.95 n/a .000
01480# [L/S/n= 73./ / .425/.035]
01481# (Vmax= .398;Dmax= .186)
01482# R0102/C00022-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01483# ADD HYD + 1.0 02:R2 4.62 .090 No_date 12:33 17.95 n/a .000
01484# + 1.0 02:EXT4 .31 .010 No_date 12:12 17.22 n/a .000
01485# SUM= 4.93 .096 No_date 12:30 17.90 n/a .000
01486# R0102/C00023-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01487# ROUTE CHANNEL -> 1.0 01:R3 4.93 .095 No_date 12:35 17.90 n/a .000
01488# [RDT= 1.00] out<- 1.0 01:R3 4.93 .095 No_date 12:35 17.90 n/a .000
01489# [L/S/n= 92./ / .274/.035]
01490# (Vmax= .324;Dmax= .193)
01491# R0102/C00024-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01492# ADD HYD + 1.0 02:EXT3 .59 .013 No_date 12:22 15.46 n/a .000
01493# + 1.0 02:EXT4 .52 .022 No_date 12:33 17.64 n/a .000
01494# SUM= 1.0 01:24 5.52 .107 No_date 12:33 17.64 n/a .000
01495# R0102/C00025-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01496# ROUTE CHANNEL -> 1.0 02:24 5.52 .107 No_date 12:33 17.64 n/a .000
01497# [RDT= 1.00] out<- 1.0 01:R4 5.52 .098 No_date 12:46 17.64 n/a .000
01498# [L/S/n= 251./ / .394/.035]
01499# (Vmax= .309;Dmax= .210)
01500# R0102/C00026-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01501# ADD HYD + 1.0 02:R4 5.52 .098 No_date 12:46 17.64 n/a .000
01502# + 1.0 02:EXT5 .20 .004 No_date 12:20 12.99 n/a .000
01503# + 1.0 02:EXT7 .47 .017 No_date 12:13 20.01 n/a .000
01504# SUM= 1.0 01:25 6.86 .128 No_date 12:40 18.31 n/a .000
01505# R0102/C00027-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01506# ROUTE CHANNEL -> 1.0 01:25 6.86 .128 No_date 12:40 18.31 n/a .000
01507# [RDT= 1.00] out<- 1.0 01:R5 6.86 .125 No_date 12:47 18.31 n/a .000
01508# [L/S/n= 237./ / .644/.035]
01509# (Vmax= .501;Dmax= .200)
01510# R0102/C00028-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01511# ROUTE CHANNEL -> 1.0 01:Pre10 .80 .020 No_date 12:12 12.99 n/a .000
01512# [RDT= 1.00] out<- 1.0 01:R6 3.80 .019 No_date 12:15 12.99 n/a .000
01513# [L/S/n= 77./ / .776/.035]
01514# (Vmax= .492;Dmax= .041)
01515# R0102/C00029-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01516# ADD HYD + 1.0 01:Pre9 .83 .012 No_date 12:37 12.99 n/a .000
01517# [RDT= 1.00] out<- 1.0 01:R7 4.83 .012 No_date 12:40 12.99 n/a .000
01518# [L/S/n= 159./ / .576/.035]
01519# (Vmax= .797;Dmax= .003)
01520# R0102/C00030-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01521# ADD HYD + 1.0 02:R6 .80 .019 No_date 12:15 13.03 n/a .000
01522# + 1.0 02:EXT10 .20 .004 No_date 12:20 12.99 n/a .000
01523# SUM= 1.0 01:26 1.01 .023 No_date 12:15 13.02 n/a .000
01524# R0102/C00031-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01525# ROUTE CHANNEL -> 1.0 02:26 1.01 .023 No_date 12:15 13.02 n/a .000
01526# [RDT= 1.00] out<- 1.0 01:R8 1.01 .023 No_date 12:19 13.02 n/a .000
01527# [L/S/n= 79./ / .797/.035]
01528# (Vmax= .423;Dmax= .017)
01529# R0102/C00032-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01530# ADD HYD + 1.0 02:R8 1.01 .023 No_date 12:19 13.02 n/a .000
01531# + 1.0 02:R7 .83 .011 No_date 12:40 13.00 n/a .000
01532# SUM= 1.0 01:27 1.83 .032 No_date 12:22 13.02 n/a .000
01533# R0102/C00033-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01534# ROUTE CHANNEL -> 1.0 02:27 1.83 .032 No_date 12:22 13.01 n/a .000
01535# [RDT= 1.00] out<- 1.0 01:R9 1.83 .032 No_date 12:23 13.01 n/a .000
01536# [L/S/n= 29./ / .887/.035]
01537# (Vmax= .543;Dmax= .004)
01538# R0102/C00034-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01539# ADD HYD + 1.0 02:EXT9 3.57 .074 No_date 12:25 15.46 n/a .000
01540# + 1.0 02:R9 1.83 .032 No_date 12:23 13.02 n/a .000
01541# + 1.0 02:EXT8 .83 .021 No_date 12:20 17.22 n/a .000
01542# SUM= 6.86 .129 No_date 12:47 18.31 n/a .000
01543# R0102/C00035-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01544# ROUTE PIPE -> 1.0 01:28 13.10 .223 No_date 12:35 16.72 n/a .000
01545# [RDT= 1.00] out<- 1.0 01:Outlet 13.10 .229 No_date 12:42 16.72 n/a .000
01546# [L/S/n= 143./ / .394/.035]
01547# (Vmax= .345;Dmax= .812)
01548# [Dtm= .55;Dusage= .99]
01549# *****
01550# *****
01551# # STORMS
01552# *****
01553# ** END OF RUN : 104
01554#
01555#
01556#
01557#
01558#
01559#
01560#
01561# RUN COMMANDS
01562# R0102/C00001-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01563# START =.00 hrs on 0]
01564# [METOUT= 2 (1=imperial, 2=metric output)]
01565# [NFORM= 1]
01566# [RUN= 1]
01567# *****
01568# *****
01569# # SWHYND / INPUT DATA FILE
01570# # Project Name : [5923 Ottawa St]
01571# # Project Number: [P2710(001)]
01572# # Date : [2025 FEB 05]
01573# # Modeler : [JFS]
01574# # Company : JFSA Canada Inc.
01575# # License # : 2549237
01576# # Model developed to simulate runoff from subcatchments under pre development conditions
01577# *****
01578# R0102/C00002-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01579# READ STORM
01580# Filename STORM.001
01581# Comment = 5 years RCSI Type 2 Storm 24 Hours step 10 min, City of Ottawa
01582# [RDT=1.00;SDUR= 24.00;PTOT= 64.11]
01583# *****
01584# # EXT1
01585# *****
01586# *****
01587# *****
01588# R0102/C00003-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01589# CALIB NASHVD 1.0 01:EXT1 3.21 .095 No_date 12:41 28.73 448 .000
01590# [CN= 80.0; Nm= 3.00; Tpe= .21]
01591# *****
01592# # EXT2
01593# *****
01594# *****
01595# R0102/C00004-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01596# CALIB NASHVD 1.0 01:EXT2 1.83 .018 No_date 12:13 33.88 529 .000
01597# [CN= 85.0; Nm= 3.00; Tpe= .33]
01598# *****
01599# # EXT3
01600# *****
01601# *****
01602# R0102/C00005-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01603# CALIB NASHVD 1.0 01:EXT3 .56 .030 No_date 12:13 28.73 448 .000
01604# [CN= 80.0; Nm= 3.00; Tpe= .21]
01605# *****
01606# # EXT4
01607# *****
01608# *****
01609# R0102/C00006-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01610# CALIB NASHVD 1.0 01:EXT4 .31 .017 No_date 12:11 27.82 434 .000
01611# [CN= 79.0; Nm= 3.00; Tpe= .29]
01612# *****
01613# # EXT5
01614# *****
01615# *****
01616# # EXT6
01617# *****
01618# *****
01619# R0102/C00008-----DtnIn-ID-INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01620# CALIB NASHVD 1.0 01:EXT6 .86 .037 No_date 12:29 33.88 529 .000
01621# [CN= 85.0; Nm= 3.00; Tpe= .34]
01622# *****
01623# *****
01624# *****
01625# *****
01626# *****
01627# *****
01628# *****
01629# *****
01630# *****
01631# *****
01632# *****
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01791# *****
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01794# *****
01795# *****
01796# *****
01797# *****
01798# *****
01799# *****
01800# *****
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02161+ 1.0 02:EXT10 .20 .011 No_date 12:20 36.34 n/a .000
02162+ 1.0 01:EXT5 1.01 .066 No_date 12:19 36.40 n/a .000
02163+ R0125:C00031-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02164+ ROUTE CHANNEL -> 1.0 02:EXT6 1.01 .066 No_date 12:19 36.40 n/a .000
02165+ RDY=1.001 out<- 1.0 01:EXT8 1.01 .065 No_date 12:18 36.40 n/a .000
02166+ [L/S/n= 79./ .522/.035]
02167+ (Vmax=.441;Dmax=.049)
02168+ R0125:C00022-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02169+ ADD HYD + 1.0 02:EXT8 1.01 .065 No_date 12:18 36.40 n/a .000
02170+ + 1.0 02:EXT7 .83 .033 No_date 12:19 36.36 n/a .000
02171+ SUM= 1.0 01:EXT7 1.83 .092 No_date 12:21 36.38 n/a .000
02172+ R0125:C00037-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02173+ ROUTE CHANNEL -> 1.0 02:EXT7 1.83 .092 No_date 12:21 36.38 n/a .000
02174+ RDY=1.001 out<- 1.0 01:EXT7 1.83 .092 No_date 12:22 36.38 n/a .000
02175+ [L/S/n= 29./ .887/.035]
02176+ (Vmax=.543;Dmax=.062)
02177+ R0125:C00034-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02178+ ADD HYD + 1.0 02:EXT9 3.57 .205 No_date 12:23 41.62 n/a .000
02179+ + 1.0 02:EXT8 1.83 .092 No_date 12:22 36.39 n/a .000
02180+ + 1.0 02:EXT7 .83 .033 No_date 12:19 36.36 n/a .000
02181+ + 1.0 02:EXT5 6.86 .352 No_date 12:19 47.13 n/a .000
02182+ SUM= 1.0 01:EXT8 13.10 .079 No_date 12:21 44.00 n/a .000
02183+ R0125:C00035-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02184+ ROUTE PIPE -> 1.0 02:EXT8 13.10 .079 No_date 12:21 44.00 n/a .000
02185+ RDY=1.001 out<- 1.0 01:Outlet 13.10 .074 No_date 12:19 44.00 n/a .000
02186+ [L/S/n= 8./ .010/.013]
02187+ (Vmax=.451;Dmax=1.210)
02188+ (Dtm=.53;Dused=1.47)
02189+ #####
02190+ # STORM
02191+ #####
02192+ ** END OF RUN 1 149
02193+
02194+
02195+
02196+
02197+
02198+
02199+
02200+ RUN:COMMAND#
02201+ R0150:C00001-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02202+ START
02203+ [TZERO=.00 hrs on 0]
02204+ [METFORM= 2 (1=imperial,2=metric output)]
02205+ [INSTORM= 1]
02206+ [NRUN=.019]
02207+
02208+ # SWHYMO / INPUT DATA FILE
02209+
02210+ # Project Name : [5923 Ottawa St]
02211+ # Project Number: [92710(e01)]
02212+ # Date : [2025 FEB 05]
02213+ # Modeler : [JPM]
02214+ # Company : [JFSA Canada Inc.]
02215+ # License #: [2549237]
02216+ *****
02217+ # Model developed to simulate runoff from subcatchments under pre development conditions
02218+ *****
02219+
02220+ R0150:C00002-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02221+ READ STORM
02222+ File name = STORM.001
02223+ Comment = 10 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa
02224+ [SDT=10.00;SDRM= 24.00;PTOT= 96.53]
02225+
02226+ # EXT1
02227+ R0150:C00003-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02228+ CALIB NASHYD 1.0 01:EXT1 3.21 .182 No_date 12:40 54.31 .563 .000
02229+ [CN= 80.0; N= 3.00; Tm= .72]
02230+
02231+ # EXT2
02232+ R0150:C00004-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02233+ CALIB NASHYD 1.0 01:EXT2 .28 .033 No_date 12:13 61.73 .640 .000
02234+ [CN= 85.0; N= 3.00; Tm= .46]
02235+
02236+ # EXT3
02237+ R0150:C00005-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02238+ CALIB NASHYD 1.0 01:EXT3 .83 .068 No_date 12:19 52.94 .589 .000
02239+ [CN= 80.0; N= 3.00; Tm= .32]
02240+
02241+ # EXT4
02242+ R0150:C00006-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02243+ CALIB NASHYD 1.0 01:EXT4 .31 .033 No_date 12:11 52.94 .548 .000
02244+ [CN= 79.0; N= 3.00; Tm= .42]
02245+
02246+ # EXT5
02247+ R0150:C00007-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02248+ CALIB NASHYD 1.0 01:EXT5 .47 .052 No_date 12:12 58.64 .608 .000
02249+ [CN= 83.0; N= 3.00; Tm= .46]
02250+
02251+ # EXT6
02252+ R0150:C00008-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02253+ CALIB NASHYD 1.0 01:EXT6 .86 .068 No_date 12:28 61.73 .640 .000
02254+ [CN= 85.0; N= 3.00; Tm= .56]
02255+
02256+ # EXT7
02257+ R0150:C00009-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02258+ CALIB NASHYD 1.0 01:EXT7 .47 .052 No_date 12:12 58.64 .608 .000
02259+ [CN= 83.0; N= 3.00; Tm= .46]
02260+
02261+ # EXT8
02262+ R0150:C00010-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02263+ CALIB NASHYD 1.0 01:EXT8 .83 .068 No_date 12:19 52.94 .589 .000
02264+ [CN= 80.0; N= 3.00; Tm= .32]
02265+
02266+ # EXT9
02267+ R0150:C00011-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02268+ CALIB NASHYD 1.0 01:EXT9 3.57 .242 No_date 12:23 49.04 .508 .000
02269+ [CN= 79.0; N= 3.00; Tm= .42]
02270+
02271+ # EXT10
02272+ R0150:C00012-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02273+ CALIB NASHYD 1.0 01:EXT10 .20 .013 No_date 12:19 43.13 .447 .000
02274+ [CN= 71.0; N= 3.00; Tm= .42]
02275+
02276+ # EXT11
02277+ R0150:C00013-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02278+ CALIB NASHYD 1.0 01:EXT11 .07 .009 No_date 12:06 51.60 .535 .000
02279+ [CN= 78.0; N= 3.00; Tm= .21]
02280+
02281+ # EXT12
02282+ R0150:C00014-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02283+ CALIB NASHYD 1.0 01:EXT12 .46 .024 No_date 12:19 55.00 n/a .000
02284+ [CN= 79.0; N= 3.00; Tm= .42]
02285+
02286+ # EXT13
02287+ R0150:C00015-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02288+ CALIB NASHYD 1.0 01:EXT13 .83 .079 No_date 12:19 61.42 .576 .000
02289+ [CN= 79.0; N= 3.00; Tm= .42]
02290+
02291+ # EXT14
02292+ R0150:C00016-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02293+ CALIB NASHYD 1.0 01:EXT14 .31 .038 No_date 12:11 61.42 .576 .000
02294+ [CN= 79.0; N= 3.00; Tm= .42]
02295+
02296+ # EXT15
02297+ R0150:C00017-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02298+ CALIB NASHYD 1.0 01:EXT15 .86 .078 No_date 12:28 70.92 .664 .000
02299+ [CN= 83.0; N= 3.00; Tm= .32]
02300+
02301+ # EXT16
02302+ R0150:C00018-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02303+ CALIB NASHYD 1.0 01:EXT16 .47 .050 No_date 12:12 57.15 .535 .000
02304+ [CN= 79.0; N= 3.00; Tm= .42]
02305+
02306+ # EXT17
02307+ R0150:C00019-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02308+ CALIB NASHYD 1.0 01:EXT17 .83 .079 No_date 12:19 61.42 .576 .000
02309+ [CN= 79.0; N= 3.00; Tm= .42]
02310+
02311+ # EXT18
02312+ R0150:C00020-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02313+ CALIB NASHYD 1.0 01:EXT18 .83 .079 No_date 12:19 61.42 .576 .000
02314+ [CN= 79.0; N= 3.00; Tm= .42]
02315+
02316+ # EXT19
02317+ R0150:C00021-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02318+ CALIB NASHYD 1.0 01:EXT19 3.57 .242 No_date 12:23 49.04 .508 .000
02319+ [CN= 79.0; N= 3.00; Tm= .42]
02320+
02321+ # EXT20
02322+ R0150:C00022-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02323+ CALIB NASHYD 1.0 01:EXT20 .20 .016 No_date 12:19 50.61 .474 .000
02324+ [L/S/n= 79./ .522/.035]
02325+ (Vmax=.384;Dmax=.169)
02326+ R0150:C00023-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02327+ ADD HYD + 1.0 02:EXT2 4.62 .070 No_date 12:30 54.44 n/a .000
02328+ + 1.0 02:EXT3 .56 .057 No_date 12:13 54.31 n/a .000
02329+ + 1.0 02:EXT4 .31 .032 No_date 12:11 52.94 n/a .000
02330+ SUM= 1.0 01:EXT2 4.62 .070 No_date 12:30 54.44 n/a .000
02331+ R0150:C00024-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02332+ ROUTE CHANNEL -> 1.0 01:EXT2 4.62 .070 No_date 12:30 54.44 n/a .000
02333+ RDY=1.001 out<- 1.0 01:EXT2 4.62 .070 No_date 12:30 54.44 n/a .000
02334+ [L/S/n= 79./ .522/.035]
02335+ (Vmax=.540;Dmax=.295)
02336+ R0150:C00025-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02337+ ADD HYD + 1.0 02:EXT2 4.62 .070 No_date 12:30 54.44 n/a .000
02338+ + 1.0 02:EXT3 .56 .057 No_date 12:13 54.31 n/a .000
02339+ + 1.0 02:EXT4 .31 .033 No_date 12:11 52.94 n/a .000
02340+ SUM= 1.0 01:EXT2 4.62 .070 No_date 12:30 54.44 n/a .000
02341+ R0150:C00026-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02342+ ROUTE CHANNEL -> 1.0 02:EXT3 4.93 .105 No_date 12:27 54.34 n/a .000
02343+ RDY=1.001 out<- 1.0 01:EXT3 4.93 .102 No_date 12:30 54.34 n/a .000
02344+ [L/S/n= 92./ .274/.035]
02345+ (Vmax=.442;Dmax=.305)
02346+ R0150:C00027-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02347+ ADD HYD + 1.0 02:EXT3 4.93 .102 No_date 12:30 54.34 n/a .000
02348+ + 1.0 02:EXT4 .59 .042 No_date 12:21 49.04 n/a .000
02349+ SUM= 1.0 01:EXT4 5.52 .143 No_date 12:28 53.77 n/a .000
02350+ R0150:C00028-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02351+ ROUTE CHANNEL -> 1.0 02:EXT4 5.52 .143 No_date 12:28 53.77 n/a .000
02352+ RDY=1.001 out<- 1.0 01:EXT4 5.52 .143 No_date 12:28 53.77 n/a .000
02353+ [L/S/n= 251./ .190/.035]
02354+ (Vmax=.438;Dmax=.348)
02355+ R0150:C00029-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02356+ ADD HYD + 1.0 02:EXT4 5.52 .143 No_date 12:28 53.77 n/a .000
02357+ + 1.0 02:EXT6 .86 .068 No_date 12:28 61.73 n/a .000
02358+ + 1.0 02:EXT7 .47 .052 No_date 12:12 58.64 n/a .000
02359+ SUM= 1.0 01:EXT5 6.86 .421 No_date 12:14 55.11 n/a .000
02360+ R0150:C00030-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02361+ ROUTE CHANNEL -> 1.0 02:EXT5 6.86 .421 No_date 12:14 55.11 n/a .000
02362+ RDY=1.001 out<- 1.0 01:EXT5 6.86 .421 No_date 12:14 55.11 n/a .000
02363+ [L/S/n= 77./ .776/.035]
02364+ (Vmax=.492;Dmax=.049)
02365+ R0150:C00031-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02366+ ROUTE CHANNEL -> 1.0 02:EXT6 .86 .068 No_date 12:11 43.14 n/a .000
02367+ RDY=1.001 out<- 1.0 01:EXT6 .86 .068 No_date 12:14 43.14 n/a .000
02368+ [L/S/n= 159./ .1576/.035]
02369+ (Vmax=.422;Dmax=.058)
02370+ R0150:C00032-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02371+ ROUTE CHANNEL -> 1.0 02:EXT6 .83 .040 No_date 12:35 43.14 n/a .000
02372+ RDY=1.001 out<- 1.0 01:EXT6 .83 .040 No_date 12:39 43.14 n/a .000
02373+ [L/S/n= 159./ .1576/.035]
02374+ (Vmax=.797;Dmax=.012)
02375+ R0150:C00033-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02376+ ADD HYD + 1.0 02:EXT6 .80 .066 No_date 12:14 43.21 n/a .000
02377+ + 1.0 02:EXT10 .20 .013 No_date 12:19 43.13 n/a .000
02378+ SUM= 1.0 01:EXT6 1.03 .079 No_date 12:15 51.64 n/a .000
02379+ R0150:C00034-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02380+ ROUTE CHANNEL -> 1.0 02:EXT6 1.03 .079 No_date 12:15 51.64 n/a .000
02381+ RDY=1.001 out<- 1.0 01:EXT6 1.03 .079 No_date 12:15 51.64 n/a .000
02382+ [L/S/n= 79./ .522/.035]
02383+ (Vmax=.421;Dmax=.058)
02384+ R0150:C00035-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02385+ ADD HYD + 1.0 02:EXT7 1.83 .110 No_date 12:22 43.18 n/a .000
02386+ + 1.0 02:EXT8 .83 .068 No_date 12:19 52.94 n/a .000
02387+ SUM= 1.0 01:EXT7 1.83 .110 No_date 12:21 43.17 n/a .000
02388+ R0150:C00036-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02389+ ROUTE CHANNEL -> 1.0 02:EXT7 1.83 .110 No_date 12:21 43.17 n/a .000
02390+ RDY=1.001 out<- 1.0 01:EXT7 1.83 .110 No_date 12:22 43.17 n/a .000
02391+ [L/S/n= 29./ .887/.035]
02392+ (Vmax=.543;Dmax=.074)
02393+ R0150:C00037-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02394+ ADD HYD + 1.0 02:EXT9 3.57 .242 No_date 12:23 49.04 n/a .000
02395+ + 1.0 02:EXT7 1.83 .110 No_date 12:22 43.18 n/a .000
02396+ + 1.0 02:EXT8 .83 .068 No_date 12:19 52.94 n/a .000
02397+ SUM= 1.0 01:EXT8 5.20 .416 No_date 12:19 55.11 n/a .000
02398+ R0150:C00038-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02399+ ROUTE CHANNEL -> 1.0 02:EXT8 5.20 .416 No_date 12:19 55.11 n/a .000
02400+ RDY=1.001 out<- 1.0 01:Outlet 13.10 .079 No_date 12:32 51.64 n/a .000
02401+ [L/S/n= 8./ .010/.013]
02402+ (Vmax=.470;Dmax=1.290)
02403+ (Dtm=.53;Dused=1.57)
02404+ #####
02405+ # STORM
02406+ #####
02407+ ** END OF RUN 1 198
02408+
02409+
02410+
02411+
02412+
02413+ RUN:COMMAND#
02414+ R0199:C00001-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02415+ START
02416+ [TZERO=.00 hrs on 0]
02417+ [METFORM= 2 (1=imperial,2=metric output)]
02418+ [INSTORM= 1]
02419+ [NRUN=.019]
02420+
02421+ # SWHYMO / INPUT DATA FILE
02422+
02423+ # Project Name : [5923 Ottawa St]
02424+ # Project Number: [92710(e01)]
02425+ # Date : [2025 FEB 05]
02426+ # Modeler : [JPM]
02427+ # Company : [JFSA Canada Inc.]
02428+ # License #: [2549237]
02429+ *****
02430+ # Model developed to simulate runoff from subcatchments under pre development conditions
02431+ *****
02432+ R0199:C00002-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02433+ READ STORM
02434+ File name = STORM.001
02435+ Comment = 10 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa
02436+ [SDT=10.00;SDRM= 24.00;PTOT= 106.73]
02437+
02438+ # EXT1
02439+ R0199:C00003-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02440+ CALIB NASHYD 1.0 01:EXT1 3.21 .212 No_date 12:39 62.92 .589 .000
02441+ [CN= 80.0; N= 3.00; Tm= .32]
02442+
02443+ # EXT2
02444+ R0199:C00004-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02445+ CALIB NASHYD 1.0 01:EXT2 .28 .037 No_date 12:13 70.91 .664 .000
02446+ [CN= 85.0; N= 3.00; Tm= .33]
02447+
02448+ # EXT3
02449+ R0199:C00005-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02450+ CALIB NASHYD 1.0 01:EXT3 .83 .068 No_date 12:13 62.92 .589 .000
02451+ [CN= 80.0; N= 3.00; Tm= .32]
02452+
02453+ # EXT4
02454+ R0199:C00006-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02455+ CALIB NASHYD 1.0 01:EXT4 .31 .038 No_date 12:11 61.42 .576 .000
02456+ [CN= 79.0; N= 3.00; Tm= .42]
02457+
02458+ # EXT5
02459+ R0199:C00007-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02460+ CALIB NASHYD 1.0 01:EXT5 .47 .050 No_date 12:12 57.15 .535 .000
02461+ [CN= 79.0; N= 3.00; Tm= .42]
02462+
02463+ # EXT6
02464+ R0199:C00008-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02465+ CALIB NASHYD 1.0 01:EXT6 .86 .078 No_date 12:28 70.92 .664 .000
02466+ [CN= 83.0; N= 3.00; Tm= .32]
02467+
02468+ # EXT7
02469+ R0199:C00009-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02470+ CALIB NASHYD 1.0 01:EXT7 .47 .050 No_date 12:12 57.15 .535 .000
02471+ [CN= 83.0; N= 3.00; Tm= .32]
02472+
02473+ # EXT8
02474+ R0199:C00010-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02475+ CALIB NASHYD 1.0 01:EXT8 .83 .079 No_date 12:19 61.42 .576 .000
02476+ [CN= 79.0; N= 3.00; Tm= .42]
02477+
02478+ # EXT9
02479+ R0199:C00011-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02480+ CALIB NASHYD 1.0 01:EXT9 3.57 .242 No_date 12:23 49.04 .508 .000
02481+ [CN= 79.0; N= 3.00; Tm= .42]
02482+
02483+ # EXT10
02484+ R0199:C00012-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02485+ CALIB NASHYD 1.0 01:EXT10 .20 .016 No_date 12:19 50.61 .474 .000
02486+ [L/S/n= 79./ .522/.035]
02487+ (Vmax=.384;Dmax=.169)
02488+ R0199:C00013-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02489+ ADD HYD + 1.0 02:EXT2 4.62 .070 No_date 12:30 54.44 n/a .000
02490+ + 1.0 02:EXT3 .56 .057 No_date 12:13 54.31 n/a .000
02491+ + 1.0 02:EXT4 .31 .032 No_date 12:11 52.94 n/a .000
02492+ SUM= 1.0 01:EXT2 4.62 .070 No_date 12:30 54.44 n/a .000
02493+ R0199:C00014-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02494+ ROUTE CHANNEL -> 1.0 02:EXT2 4.62 .070 No_date 12:30 54.44 n/a .000
02495+ RDY=1.001 out<- 1.0 01:EXT2 4.62 .070 No_date 12:30 54.44 n/a .000
02496+ [L/S/n= 79./ .522/.035]
02497+ (Vmax=.540;Dmax=.295)
02498+ R0199:C00015-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02499+ ADD HYD + 1.0 02:EXT2 4.62 .070 No_date 12:30 54.44 n/a .000
02500+ + 1.0 02:EXT3 .56 .057 No_date 12:13 54.31 n/a .000
02501+ + 1.0 02:EXT4 .31 .033 No_date 12:11 52.94 n/a .000
02502+ SUM= 1.0 01:EXT2 4.62 .070 No_date 12:30 54.44 n/a .000
02503+ R0199:C00016-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02504+ ROUTE CHANNEL -> 1.0 02:EXT3 4.93 .105 No_date 12:27 54.34 n/a .000
02505+ RDY=1.001 out<- 1.0 01:EXT3 4.93 .102 No_date 12:30 54.34 n/a .000
02506+ [L/S/n= 92./ .274/.035]
02507+ (Vmax=.442;Dmax=.305)
02508+ R0199:C00017-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02509+ ADD HYD + 1.0 02:EXT3 4.93 .102 No_date 12:30 54.34 n/a .000
02510+ + 1.0 02:EXT4 .59 .042 No_date 12:21 49.04 n/a .000
02511+ SUM= 1.0 01:EXT4 5.52 .143 No_date 12:28 53.77 n/a .000
02512+ R0199:C00018-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02513+ ROUTE CHANNEL -> 1.0 02:EXT4 5.52 .143 No_date 12:28 53.77 n/a .000
02514+ RDY=1.001 out<- 1.0 01:EXT4 5.52 .143 No_date 12:28 53.77 n/a .000
02515+ [L/S/n= 251./ .190/.035]
02516+ (Vmax=.438;Dmax=.348)
02517+ R0199:C00019-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02518+ ADD HYD + 1.0 02:EXT4 5.52 .143 No_date 12:28 53.77 n/a .000
02519+ + 1.0 02:EXT6 .86 .068 No_date 12:28 61.73 n/a .000
02520+ + 1.0 02:EXT7 .47 .052 No_date 12:12 58.64 n/a .000
02521+ SUM= 1.0 01:EXT5 6.86 .421 No_date 12:14 55.11 n/a .000
02522+ R0199:C00020-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02523+ ROUTE CHANNEL -> 1.0 02:EXT5 6.86 .421 No_date 12:14 55.11 n/a .000
02524+ RDY=1.001 out<- 1.0 01:EXT5 6.86 .421 No_date 12:14 55.11 n/a .000
02525+ [L/S/n= 77./ .776/.035]
02526+ (Vmax=.492;Dmax=.049)
02527+ R0199:C00021-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02528+ ROUTE CHANNEL -> 1.0 02:EXT6 .86 .068 No_date 12:11 43.14 n/a .000
02529+ RDY=1.001 out<- 1.0 01:EXT6 .86 .068 No_date 12:14 43.14 n/a .000
02530+ [L/S/n= 159./ .1576/.035]
02531+ (Vmax=.422;Dmax=.058)
02532+ R0199:C00022-----Dtn-ID:INVD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvm-R.C-----DWfms
02533+ ROUTE CHANNEL -> 1.0 02:EXT6 .83 .040 No_date 12:35 43.14 n/a .000
02534+ RDY=1.001 out<- 1.0 01:EXT6 .83 .040 No_date 12:39 43.14 n/a .000
02535+ [L/S/n= 159./ .1576/.035]
02536+ (Vmax=.797;Dmax=.012)
02537+ R0199:C00023-----Dtn
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025211 *****
025222 # Pre11 -----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025223 *****
025224 R1979:C0017-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025225 CALIB NASHYD 1.0 01:Pre11 .07 .010 No_date 12:06 59.96 .462 .000
025226 [CN= 78.0; N= 3.00; Tpe= .21]
025227 *****
025228 R1979:C0018-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025229 ADD HYD + 1.0 02:EXT2 .28 .037 No_date 12:13 70.91 n/a .000
025230 + 1.0 02:EXT1 3.21 .012 No_date 12:12 52.92 n/a .000
025231 SUM= 1.0 01:EXT .85 .084 No_date 12:17 63.63 n/a .000
025232 R1979:C0019-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025233 ROUTE CHANNEL -> 1.0 01:EXT1 .85 .084 No_date 12:17 63.63 n/a .000
025234 [RDT= 1.00] out<- 1.0 01:EXT1 .85 .081 No_date 12:22 63.63 n/a .000
025235 [L/S/n= 143./ .394/.035]
025236 (Vmax= .404;Dmax= .181)
025237 R1979:C0020-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025238 ADD HYD + 1.0 02:EXT1 .85 .081 No_date 12:22 63.63 n/a .000
025239 + 1.0 02:EXT3 .56 .066 No_date 12:13 62.92 n/a .000
025240 SUM= 1.0 01:EXT3 3.21 .012 No_date 12:12 52.92 n/a .000
025241 R1979:C0021-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025242 ROUTE CHANNEL -> 1.0 01:EXT2 4.62 .329 No_date 12:27 63.05 n/a .000
025243 + 1.0 01:EXT1 4.93 .354 No_date 12:27 62.95 n/a .000
025244 ROUTE CHANNEL -> 1.0 02:EXT2 4.62 .329 No_date 12:27 63.05 n/a .000
025245 [RDT= 1.00] out<- 1.0 01:EXT2 4.62 .329 No_date 12:29 63.05 n/a .000
025246 [L/S/n= 143./ .425/.035]
025247 (Vmax= .561;Dmax= .313)
025248 R1979:C0022-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025249 ADD HYD + 1.0 02:EXT2 4.62 .329 No_date 12:29 63.05 n/a .000
025250 + 1.0 02:EXT4 .31 .038 No_date 12:11 61.42 n/a .000
025251 SUM= 1.0 01:EXT3 4.93 .354 No_date 12:27 62.95 n/a .000
025252 R1979:C0023-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025253 ROUTE CHANNEL -> 1.0 01:EXT2 4.93 .354 No_date 12:27 62.95 n/a .000
025254 [RDT= 1.00] out<- 1.0 01:EXT3 4.93 .352 No_date 12:30 62.95 n/a .000
025255 [L/S/n= 92./ .274/.035]
025256 (Vmax= .459;Dmax= .323)
025257 R1979:C0024-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025258 ADD HYD + 1.0 02:EXT3 .59 .049 No_date 12:21 57.15 n/a .000
025259 + 1.0 02:EXT5 .52 .399 No_date 12:28 62.32 n/a .000
025260 SUM= 1.0 01:EXT4 4.93 .399 No_date 12:28 62.32 n/a .000
025261 R1979:C0025-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025262 ROUTE CHANNEL -> 1.0 01:EXT4 5.52 .399 No_date 12:28 62.32 n/a .000
025263 [RDT= 1.00] out<- 1.0 01:EXT4 5.52 .379 No_date 12:37 62.32 n/a .000
025264 [L/S/n= 251./ .190/.035]
025265 (Vmax= .456;Dmax= .372)
025266 R1979:C0026-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025267 ADD HYD + 1.0 02:EXT4 5.52 .379 No_date 12:37 62.32 n/a .000
025268 + 1.0 02:EXT6 .47 .060 No_date 12:12 67.60 n/a .000
025269 SUM= 1.0 01:EXT5 6.86 .491 No_date 12:33 63.77 n/a .000
025270 R1979:C0027-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025271 ROUTE CHANNEL -> 1.0 01:EXT5 6.86 .491 No_date 12:33 63.77 n/a .000
025272 [RDT= 1.00] out<- 1.0 01:EXT5 6.86 .485 No_date 12:38 63.77 n/a .000
025273 [L/S/n= 237./ .644/.035]
025274 (Vmax= .744;Dmax= .340)
025275 R1979:C0028-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025276 ROUTE CHANNEL -> 1.0 01:Pre10 .80 .080 No_date 12:11 50.61 n/a .000
025277 [RDT= 1.00] out<- 1.0 01:Pre10 .80 .078 No_date 12:14 50.61 n/a .000
025278 [L/S/n= 77./ .776/.035]
025279 (Vmax= .492;Dmax= .058)
025280 R1979:C0029-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025281 ROUTE CHANNEL -> 1.0 01:Pre9 .83 .047 No_date 12:35 50.61 n/a .000
025282 [RDT= 1.00] out<- 1.0 01:Pre7 .83 .047 No_date 12:38 50.61 n/a .000
025283 [L/S/n= 159./ .1576/.035]
025284 (Vmax= .797;Dmax= .014)
025285 R1979:C0030-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025286 ADD HYD + 1.0 02:EXT6 .80 .078 No_date 12:14 50.69 n/a .000
025287 + 1.0 02:EXT10 2.0 .016 No_date 12:19 50.61 n/a .000
025288 SUM= 1.0 01:EXT6 1.01 .093 No_date 12:14 50.67 n/a .000
025289 R1979:C0031-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025290 ROUTE CHANNEL -> 1.0 01:EXT6 1.01 .093 No_date 12:14 50.67 n/a .000
025291 [RDT= 1.00] out<- 1.0 01:EXT8 1.01 .091 No_date 12:18 50.67 n/a .000
025292 [L/S/n= 79./ .522/.035]
025293 (Vmax= .423;Dmax= .068)
025294 R1979:C0032-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025295 ADD HYD + 1.0 02:EXT8 1.83 .047 No_date 12:38 50.63 n/a .000
025296 + 1.0 02:EXT7 1.83 .129 No_date 12:38 50.63 n/a .000
025297 SUM= 1.0 01:EXT7 1.83 .129 No_date 12:38 50.63 n/a .000
025298 R1979:C0033-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025299 ROUTE CHANNEL -> 1.0 01:EXT7 1.83 .129 No_date 12:38 50.63 n/a .000
025300 [RDT= 1.00] out<- 1.0 01:EXT7 1.83 .129 No_date 12:38 50.63 n/a .000
025301 [L/S/n= 29./ .887/.035]
025302 (Vmax= .543;Dmax= .059)
025303 R1979:C0034-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025304 ADD HYD + 1.0 02:EXT9 3.57 .284 No_date 12:23 57.15 n/a .000
025305 + 1.0 02:EXT8 1.83 .129 No_date 12:38 50.63 n/a .000
025306 SUM= 1.0 02:EXT8 6.83 .079 No_date 12:19 61.43 n/a .000
025307 + 1.0 02:EXT9 6.86 .485 No_date 12:38 63.77 n/a .000
025308 SUM= 1.0 01:EXT8 13.10 .939 No_date 12:30 59.98 n/a .000
025309 R1979:C0035-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025310 ROUTE PIPE -> 1.0 01:OUTlet 13.10 .939 No_date 12:30 59.98 n/a .000
025311 [RDT= 1.00] out<- 1.0 01:OUTlet 13.10 .937 No_date 12:31 59.98 n/a .000
025312 [L/S/n= 13./ .101/.035]
025313 (Vmax= .489;Dmax= 1.369)
025314 [Dtn= .553;Dused= 1.67]
025315 *****
025316 ** STORMS
025317 *****
025318 ** END OF RUN : 1978
025319 *****
025320 *****
025321 *****
025322 *****
025323 *****
025324 # SWHINDO / INPUT DATA FILE
025325 *****
025326 # Project Name : [5923 Ottawa St]
025327 # Project Number : [27131601]
025328 # Date : [2025 FEB 05]
025329 # Modeler : [JFS]
025330 # Company : JFSA Canada Inc.
025331 # License # : 2549237
025332 *****
025333 # Model developed to simulate runoff from subcatchments under pre development conditions
025334 *****
025335 R1979:C0002-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025336 READ STORMS
025337 FileNm= STORM.001
025338 Comment = July 1st, 1979 Storm (3H) - Ottawa International Airport step 5 min
025339 [Dtn= 5.00;DUSE= 3.00;PROT= 83.99]
025340 *****
025341 # EXT1
025342 *****
025343 R1979:C0003-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025344 CALIB NASHYD 1.0 01:EXT1 3.21 .240 No_date 2:16 44.05 .524 .000
025345 [CN= 80.0; N= 3.00; Tpe= .33]
025346 *****
025347 # EXT2
025348 *****
025349 R1979:C0004-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025350 CALIB NASHYD 1.0 01:EXT2 .28 .039 No_date 1:50 50.68 .403 .000
025351 [CN= 80.0; N= 3.00; Tpe= .33]
025352 *****
025353 # EXT3
025354 *****
025355 R1979:C0005-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025356 CALIB NASHYD 1.0 01:EXT3 .56 .067 No_date 1:50 44.05 .524 .000
025357 [CN= 80.0; N= 3.00; Tpe= .33]
025358 *****
025359 # EXT4
025360 *****
025361 R1979:C0006-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025362 CALIB NASHYD 1.0 01:EXT4 .31 .038 No_date 1:48 42.84 .510 .000
025363 [CN= 79.0; N= 3.00; Tpe= .29]
025364 *****
025365 # EXT5
025366 *****
025367 R1979:C0007-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025368 CALIB NASHYD 1.0 01:EXT5 .59 .054 No_date 2:01 39.44 .470 .000
025369 [CN= 76.0; N= 3.00; Tpe= .45]
025370 *****
025371 R1979:C0008-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025372 CALIB NASHYD 1.0 01:EXT6 .86 .088 No_date 2:06 50.68 .603 .000
025373 [CN= 80.0; N= 3.00; Tpe= .45]
025374 *****
025375 # EXT6
025376 *****
025377 R1979:C0009-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025378 CALIB NASHYD 1.0 01:EXT7 .83 .085 No_date 1:58 42.85 .510 .000
025379 [CN= 76.0; N= 3.00; Tpe= .45]
025380 *****
025381 # EXT7
025382 *****
025383 R1979:C0010-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025384 CALIB NASHYD 1.0 01:EXT8 .83 .085 No_date 1:58 42.85 .510 .000
025385 [CN= 76.0; N= 3.00; Tpe= .45]
025386 *****
025387 # EXT8
025388 *****
025389 R1979:C0011-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025390 CALIB NASHYD 1.0 01:EXT9 .83 .085 No_date 1:58 42.85 .510 .000
025391 [CN= 76.0; N= 3.00; Tpe= .45]
025392 *****
025393 # EXT9
025394 *****
025395 R1979:C0012-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025396 CALIB NASHYD 1.0 01:EXT10 .20 .017 No_date 1:59 34.36 .409 .000
025397 [CN= 71.0; N= 3.00; Tpe= .42]
025398 *****
025399 # EXT10
025400 *****
025401 R1979:C0013-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025402 CALIB NASHYD 1.0 01:EXT11 .80 .079 No_date 1:48 34.37 n/a .000
025403 [CN= 71.0; N= 3.00; Tpe= .29]
025404 *****
025405 # EXT11
025406 *****
025407 R1979:C0014-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025408 CALIB NASHYD 1.0 01:EXT12 .28 .039 No_date 1:50 50.68 n/a .000
025409 [CN= 71.0; N= 3.00; Tpe= .42]
025410 *****
025411 # EXT12
025412 *****
025413 R1979:C0015-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025414 CALIB NASHYD 1.0 01:EXT13 .80 .079 No_date 1:48 34.37 n/a .000
025415 [CN= 71.0; N= 3.00; Tpe= .29]
025416 *****
025417 # EXT13
025418 *****
025419 R1979:C0016-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025420 CALIB NASHYD 1.0 01:EXT14 .80 .079 No_date 1:48 34.37 n/a .000
025421 [CN= 71.0; N= 3.00; Tpe= .29]
025422 *****
025423 # EXT14
025424 *****
025425 R1979:C0017-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025426 CALIB NASHYD 1.0 01:EXT15 .80 .079 No_date 1:48 34.37 n/a .000
025427 [CN= 71.0; N= 3.00; Tpe= .29]
025428 *****
025429 # EXT15
025430 *****
025431 R1979:C0018-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025432 CALIB NASHYD 1.0 01:EXT16 .80 .079 No_date 1:48 34.37 n/a .000
025433 [CN= 71.0; N= 3.00; Tpe= .29]
025434 *****
025435 # EXT16
025436 *****
025437 R1979:C0019-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025438 CALIB NASHYD 1.0 01:EXT17 .80 .079 No_date 1:48 34.37 n/a .000
025439 [CN= 71.0; N= 3.00; Tpe= .29]
025440 *****
025441 # EXT17
025442 *****
025443 R1979:C0020-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025444 CALIB NASHYD 1.0 01:EXT18 .80 .079 No_date 1:48 34.37 n/a .000
025445 [CN= 71.0; N= 3.00; Tpe= .29]
025446 *****
025447 # EXT18
025448 *****
025449 R1979:C0021-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025450 CALIB NASHYD 1.0 01:EXT19 .80 .079 No_date 1:48 34.37 n/a .000
025451 [CN= 71.0; N= 3.00; Tpe= .29]
025452 *****
025453 # EXT19
025454 *****
025455 R1979:C0022-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025456 CALIB NASHYD 1.0 01:EXT20 .80 .079 No_date 1:48 34.37 n/a .000
025457 [CN= 71.0; N= 3.00; Tpe= .29]
025458 *****
025459 # EXT20
025460 *****
025461 R1979:C0023-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025462 CALIB NASHYD 1.0 01:EXT21 .80 .079 No_date 1:48 34.37 n/a .000
025463 [CN= 71.0; N= 3.00; Tpe= .29]
025464 *****
025465 # EXT21
025466 *****
025467 R1979:C0024-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025468 CALIB NASHYD 1.0 01:EXT22 .80 .079 No_date 1:48 34.37 n/a .000
025469 [CN= 71.0; N= 3.00; Tpe= .29]
025470 *****
025471 # EXT22
025472 *****
025473 R1979:C0025-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025474 CALIB NASHYD 1.0 01:EXT23 .80 .079 No_date 1:48 34.37 n/a .000
025475 [CN= 71.0; N= 3.00; Tpe= .29]
025476 *****
025477 # EXT23
025478 *****
025479 R1979:C0026-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025480 CALIB NASHYD 1.0 01:EXT24 .80 .079 No_date 1:48 34.37 n/a .000
025481 [CN= 71.0; N= 3.00; Tpe= .29]
025482 *****
025483 # EXT24
025484 *****
025485 R1979:C0027-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025486 CALIB NASHYD 1.0 01:EXT25 .80 .079 No_date 1:48 34.37 n/a .000
025487 [CN= 71.0; N= 3.00; Tpe= .29]
025488 *****
025489 # EXT25
025490 *****
025491 R1979:C0028-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025492 CALIB NASHYD 1.0 01:EXT26 .80 .079 No_date 1:48 34.37 n/a .000
025493 [CN= 71.0; N= 3.00; Tpe= .29]
025494 *****
025495 # EXT26
025496 *****
025497 R1979:C0029-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025498 CALIB NASHYD 1.0 01:EXT27 .80 .079 No_date 1:48 34.37 n/a .000
025499 [CN= 71.0; N= 3.00; Tpe= .29]
025500 *****
025501 # EXT27
025502 *****
025503 R1979:C0030-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025504 CALIB NASHYD 1.0 01:EXT28 .80 .079 No_date 1:48 34.37 n/a .000
025505 [CN= 71.0; N= 3.00; Tpe= .29]
025506 *****
025507 # EXT28
025508 *****
025509 R1979:C0031-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025510 CALIB NASHYD 1.0 01:EXT29 .80 .079 No_date 1:48 34.37 n/a .000
025511 [CN= 71.0; N= 3.00; Tpe= .29]
025512 *****
025513 # EXT29
025514 *****
025515 R1979:C0032-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025516 CALIB NASHYD 1.0 01:EXT30 .80 .079 No_date 1:48 34.37 n/a .000
025517 [CN= 71.0; N= 3.00; Tpe= .29]
025518 *****
025519 # EXT30
025520 *****
025521 R1979:C0033-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025522 CALIB NASHYD 1.0 01:EXT31 .80 .079 No_date 1:48 34.37 n/a .000
025523 [CN= 71.0; N= 3.00; Tpe= .29]
025524 *****
025525 # EXT31
025526 *****
025527 R1979:C0034-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025528 CALIB NASHYD 1.0 01:EXT32 .80 .079 No_date 1:48 34.37 n/a .000
025529 [CN= 71.0; N= 3.00; Tpe= .29]
025530 *****
025531 # EXT32
025532 *****
025533 R1979:C0035-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025534 CALIB NASHYD 1.0 01:EXT33 .80 .079 No_date 1:48 34.37 n/a .000
025535 [CN= 71.0; N= 3.00; Tpe= .29]
025536 *****
025537 # EXT33
025538 *****
025539 R1979:C0036-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025540 CALIB NASHYD 1.0 01:EXT34 .80 .079 No_date 1:48 34.37 n/a .000
025541 [CN= 71.0; N= 3.00; Tpe= .29]
025542 *****
025543 # EXT34
025544 *****
025545 R1979:C0037-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025546 CALIB NASHYD 1.0 01:EXT35 .80 .079 No_date 1:48 34.37 n/a .000
025547 [CN= 71.0; N= 3.00; Tpe= .29]
025548 *****
025549 # EXT35
025550 *****
025551 R1979:C0038-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025552 CALIB NASHYD 1.0 01:EXT36 .80 .079 No_date 1:48 34.37 n/a .000
025553 [CN= 71.0; N= 3.00; Tpe= .29]
025554 *****
025555 # EXT36
025556 *****
025557 R1979:C0039-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025558 CALIB NASHYD 1.0 01:EXT37 .80 .079 No_date 1:48 34.37 n/a .000
025559 [CN= 71.0; N= 3.00; Tpe= .29]
025560 *****
025561 # EXT37
025562 *****
025563 R1979:C0040-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025564 CALIB NASHYD 1.0 01:EXT38 .80 .079 No_date 1:48 34.37 n/a .000
025565 [CN= 71.0; N= 3.00; Tpe= .29]
025566 *****
025567 # EXT38
025568 *****
025569 R1979:C0041-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025570 CALIB NASHYD 1.0 01:EXT39 .80 .079 No_date 1:48 34.37 n/a .000
025571 [CN= 71.0; N= 3.00; Tpe= .29]
025572 *****
025573 # EXT39
025574 *****
025575 R1979:C0042-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025576 CALIB NASHYD 1.0 01:EXT40 .80 .079 No_date 1:48 34.37 n/a .000
025577 [CN= 71.0; N= 3.00; Tpe= .29]
025578 *****
025579 # EXT40
025580 *****
025581 R1979:C0043-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025582 CALIB NASHYD 1.0 01:EXT41 .80 .079 No_date 1:48 34.37 n/a .000
025583 [CN= 71.0; N= 3.00; Tpe= .29]
025584 *****
025585 # EXT41
025586 *****
025587 R1979:C0044-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025588 CALIB NASHYD 1.0 01:EXT42 .80 .079 No_date 1:48 34.37 n/a .000
025589 [CN= 71.0; N= 3.00; Tpe= .29]
025590 *****
025591 # EXT42
025592 *****
025593 R1979:C0045-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025594 CALIB NASHYD 1.0 01:EXT43 .80 .079 No_date 1:48 34.37 n/a .000
025595 [CN= 71.0; N= 3.00; Tpe= .29]
025596 *****
025597 # EXT43
025598 *****
025599 R1979:C0046-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025600 CALIB NASHYD 1.0 01:EXT44 .80 .079 No_date 1:48 34.37 n/a .000
025601 [CN= 71.0; N= 3.00; Tpe= .29]
025602 *****
025603 # EXT44
025604 *****
025605 R1979:C0047-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025606 CALIB NASHYD 1.0 01:EXT45 .80 .079 No_date 1:48 34.37 n/a .000
025607 [CN= 71.0; N= 3.00; Tpe= .29]
025608 *****
025609 # EXT45
025610 *****
025611 R1979:C0048-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025612 CALIB NASHYD 1.0 01:EXT46 .80 .079 No_date 1:48 34.37 n/a .000
025613 [CN= 71.0; N= 3.00; Tpe= .29]
025614 *****
025615 # EXT46
025616 *****
025617 R1979:C0049-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025618 CALIB NASHYD 1.0 01:EXT47 .80 .079 No_date 1:48 34.37 n/a .000
025619 [CN= 71.0; N= 3.00; Tpe= .29]
025620 *****
025621 # EXT47
025622 *****
025623 R1979:C0050-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025624 CALIB NASHYD 1.0 01:EXT48 .80 .079 No_date 1:48 34.37 n/a .000
025625 [CN= 71.0; N= 3.00; Tpe= .29]
025626 *****
025627 # EXT48
025628 *****
025629 R1979:C0051-----DtnIn-ID-INHYD-----AREAhA-QFEARcMs-TpeakDate_hh:mm-----RvM-R.C-----DWfCms
025630 CALIB NASHYD 1.0 01:EXT49 .80 .079 No_date 1:48 34.37 n/a .000
025631 [CN= 71.0; N= 3.00; Tpe= .29
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03241) (Vmax=.543:Dmax=.056)-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03242) R1996:CO0010-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03243) ADD HYD + 1.0 02:EXT9 3.57 .177 No_date 3:36 32.07 n/a .000
03244) + 1.0 02:R9 1.83 .082 No_date 3:35 27.76 n/a .000
03245) + 1.0 02:EXT8 .83 .049 No_date 3:32 35.05 n/a .000
03246) + 1.0 02:R5 6.86 .302 No_date 3:50 36.76 n/a .000
03247) SUM= 13.10 .186 No_date 3:41 34.11 n/a .000
03248) R1996:CO0035-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03249) ROUTE PIPE -> 1.0 02:R8 13.10 .586 No_date 3:41 34.11 n/a .000
03250) + [RDT=1.00] out<- 13.10 .586 No_date 3:42 34.11 n/a .000
03251) [L/S/n= 8./ .010/.033]
03252) (Vmax=.493:Dmax=)-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03253) (Dln=.53:Dused=1.40)
03254) #####
03255) # STORMS
03256) #####
03257) *** END OF RUN : 1996
03258) #####
03259) #####
03260) #####
03261) #####
03262) #####
03263) #####
03264) #####
03265) RUN#:CONMAN#
03266) R9999:CO0001-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03267) START
03268) [TZERO = .00 hrs on 0]
03269) [MOUTP= 2 (1=imperial, 2=metric output)]
03270) [METFORM= 1]
03271) [NRUN = 9999]
03272) #####
03273) # SWHYHYD / INPUT DATA FILE
03274) #####
03275) # Project Name : [5923 Ottawa St]
03276) # Project Number: [P2710(e01)]
03277) # Date : [2025 FEB 05]
03278) # Modeller : [NM]
03279) # Company : JFSA Canada Inc.
03280) # License # : 254927
03281) #####
03282) # Model developed to simulate runoff from subcatchments under pre development conditions
03283) #####
03284) R9999:CO0002-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03285) HEAD STORM
03286) Filename = STORM.001
03287) Comment = CHICAGO STORM 100 Year, 3 Hours +20k Stress Test
03288) [SDT=10.0:SDUR= 3.00:PTOT= 86.00]
03289) #####
03290) # EXT1
03291) #####
03292) R9999:CO0003-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03293) CALIB NASHYD 1.0 01:EXT1 3.21 .224 No_date 1:51 45.67 .531 .000
03294) [Cm= 80.0: N= 3.00: Tpe=.72]
03295) #####
03296) # EXT2
03297) #####
03298) R9999:CO0004-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03299) CALIB NASHYD 1.0 01:EXT2 .28 .041 No_date 1:21 52.43 .610 .000
03300) [Cm= 83.0: N= 3.00: Tpe=.33]
03301) #####
03302) # EXT3
03303) #####
03304) R9999:CO0005-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03305) CALIB NASHYD 1.0 01:EXT3 .86 .070 No_date 1:21 45.67 .531 .000
03306) [Cm= 80.0: N= 3.00: Tpe=.32]
03307) #####
03308) # EXT4
03309) #####
03310) R9999:CO0006-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03311) CALIB NASHYD 1.0 01:EXT4 .31 .040 No_date 1:19 44.44 .517 .000
03312) [Cm= 79.0: N= 3.00: Tpe=.29]
03313) #####
03314) # EXT5
03315) #####
03316) R9999:CO0007-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03317) CALIB NASHYD 1.0 01:EXT5 .59 .052 No_date 1:31 40.94 .476 .000
03318) [Cm= 76.0: N= 3.00: Tpe=.45]
03319) #####
03320) # EXT6
03321) #####
03322) R9999:CO0008-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03323) CALIB NASHYD 1.0 01:EXT6 .86 .085 No_date 1:38 52.43 .610 .000
03324) [Cm= 85.0: N= 3.00: Tpe=.56]
03325) #####
03326) # EXT7
03327) #####
03328) R9999:CO0009-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03329) CALIB NASHYD 1.0 01:EXT7 .47 .064 No_date 1:21 49.60 .577 .000
03330) [Cm= 83.0: N= 3.00: Tpe=.29]
03331) #####
03332) # EXT8
03333) #####
03334) R9999:CO0010-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03335) CALIB NASHYD 1.0 01:EXT8 .83 .083 No_date 1:29 44.44 .517 .000
03336) [Cm= 79.0: N= 3.00: Tpe=.42]
03337) #####
03338) # EXT9
03339) #####
03340) R9999:CO0011-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03341) CALIB NASHYD 1.0 01:EXT9 3.57 .297 No_date 1:34 40.95 .476 .000
03342) [Cm= 76.0: N= 3.00: Tpe=.48]
03343) #####
03344) # EXT9a
03345) #####
03346) R9999:CO0012-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03347) CALIB NASHYD 1.0 01:EXT9a 4.01 .004 No_date 1:00 43.23 .503 .000
03348) [Cm= 78.0: N= 3.00: Tpe=.04]
03349) #####
03350) # EXT10
03351) #####
03352) R9999:CO0013-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03353) CALIB NASHYD 1.0 01:EXT10 .20 .016 No_date 1:29 35.74 .416 .000
03354) [Cm= 71.0: N= 3.00: Tpe=.42]
03355) #####
03356) # Pre2
03357) #####
03358) R9999:CO0014-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03359) CALIB NASHYD 1.0 01:Pre2 .57 .051 No_date 1:32 43.24 .503 .000
03360) [Cm= 78.0: N= 3.00: Tpe=.29]
03361) #####
03362) # Pre0
03363) #####
03364) R9999:CO0015-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03365) CALIB NASHYD 1.0 01:Pre0 .83 .048 No_date 1:47 35.74 .416 .000
03366) [Cm= 71.0: N= 3.00: Tpe=.44]
03367) #####
03368) # Pre10
03369) #####
03370) R9999:CO0016-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03371) CALIB NASHYD 1.0 01:Pre10 .80 .081 No_date 1:19 35.74 .416 .000
03372) [Cm= 71.0: N= 3.00: Tpe=.21]
03373) #####
03374) # Pre11
03375) #####
03376) R9999:CO0017-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03377) CALIB NASHYD 1.0 01:Pre11 .07 .011 No_date 1:13 43.23 .503 .000
03378) [Cm= 78.0: N= 3.00: Tpe=.21]
03379) #####
03380) R9999:CO0018-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03381) ADD HYD + 1.0 02:EXT2 .28 .041 No_date 1:21 52.43 .610 .000
03382) + 1.0 02:Pre2 .57 .051 No_date 1:32 43.24 n/a .000
03383) SUM= 1.0 01:21 .85 .090 No_date 1:26 46.32 n/a .000
03384) R9999:CO0019-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03385) ROUTE CHANNEL -> 1.0 02:R1 .85 .080 No_date 1:26 46.32 n/a .000
03386) [RDT=1.00] out<- 1.0 01:R1 .85 .087 No_date 1:32 46.32 n/a .000
03387) [L/S/n= 141./ .394/.035]
03388) (Vmax=.410:Dmax=.185)
03389) #####
03390) R9999:CO0020-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03391) ADD HYD + 1.0 02:R1 .85 .087 No_date 1:32 46.32 n/a .000
03392) + 1.0 02:EXT3 .56 .070 No_date 1:21 45.67 n/a .000
03393) + 1.0 02:EXT8 3.21 .224 No_date 1:51 45.67 n/a .000
03394) SUM= 1.0 01:22 4.62 .346 No_date 1:39 45.79 n/a .000
03395) R9999:CO0021-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03396) ROUTE CHANNEL -> 1.0 02:R2 4.62 .346 No_date 1:39 45.79 n/a .000
03397) [RDT=1.00] out<- 1.0 01:R2 4.62 .346 No_date 1:40 45.79 n/a .000
03398) [L/S/n= 71./ .423/.035]
03399) (Vmax=.568:Dmax=.320)
03400) #####
03401) R9999:CO0022-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03402) ADD HYD + 1.0 02:R2 4.62 .346 No_date 1:40 45.79 n/a .000
03403) + 1.0 02:EXT4 .31 .040 No_date 1:19 44.44 n/a .000
03404) SUM= 1.0 01:23 4.93 .372 No_date 1:38 45.70 n/a .000
03405) R9999:CO0023-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03406) ROUTE CHANNEL -> 1.0 02:R3 4.93 .372 No_date 1:38 45.70 n/a .000
03407) [RDT=1.00] out<- 1.0 01:R3 4.93 .369 No_date 1:40 45.70 n/a .000
03408) [L/S/n= 92./ .274/.035]
03409) (Vmax=.463:Dmax=.320)
03410) #####
03411) R9999:CO0024-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03412) ADD HYD + 1.0 02:R3 4.93 .369 No_date 1:40 45.70 n/a .000
03413) + 1.0 02:EXT8 .59 .052 No_date 1:31 40.94 n/a .000
03414) SUM= 1.0 01:24 5.52 .419 No_date 1:39 45.19 n/a .000
03415) R9999:CO0025-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03416) ROUTE CHANNEL -> 1.0 02:R4 5.52 .419 No_date 1:39 45.19 n/a .000
03417) [RDT=1.00] out<- 1.0 01:R4 5.52 .399 No_date 1:48 45.19 n/a .000
03418) [L/S/n= 251./ .190/.035]
03419) (Vmax=.463:Dmax=.380)
03420) #####
03421) R9999:CO0026-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03422) ADD HYD + 1.0 02:R4 5.52 .399 No_date 1:48 45.19 n/a .000
03423) + 1.0 02:EXT10 .20 .016 No_date 1:29 35.74 n/a .000
03424) SUM= 1.0 01:26 1.83 .048 No_date 1:29 35.74 n/a .000
03425) R9999:CO0027-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03426) ROUTE CHANNEL -> 1.0 02:R5 6.86 .302 No_date 3:50 36.76 n/a .000
03427) [RDT=1.00] out<- 1.0 01:R5 6.86 .513 No_date 1:49 46.41 n/a .000
03428) [L/S/n= 237./ .544/.035]
03429) (Vmax=.757:Dmax=.348)
03430) #####
03431) R9999:CO0028-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03432) ROUTE CHANNEL -> 1.0 02:Pre10 .80 .081 No_date 1:19 35.74 n/a .000
03433) [RDT=1.00] out<- 1.0 01:R6 .80 .080 No_date 1:22 35.74 n/a .000
03434) [L/S/n= 71./ .776/.035]
03435) (Vmax=.492:Dmax=.059)
03436) #####
03437) R9999:CO0029-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03438) ROUTE CHANNEL -> 1.0 02:Pre9 .83 .048 No_date 1:47 35.74 n/a .000
03439) [RDT=1.00] out<- 1.0 01:R7 .83 .048 No_date 1:50 35.74 n/a .000
03440) [L/S/n= 159./ .1576/.035]
03441) (Vmax=.797:Dmax=.014)
03442) #####
03443) R9999:CO0030-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03444) ADD HYD + 1.0 02:R6 .80 .080 No_date 1:22 36.02 n/a .000
03445) + 1.0 02:EXT10 .20 .016 No_date 1:29 35.74 n/a .000
03446) SUM= 1.0 01:26 1.01 .095 No_date 1:22 35.96 n/a .000
03447) R9999:CO0031-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03448) ROUTE CHANNEL -> 1.0 02:R6 1.01 .093 No_date 1:26 35.96 n/a .000
03449) [RDT=1.00] out<- 1.0 01:R8 1.01 .093 No_date 1:26 35.96 n/a .000
03450) [L/S/n= 79./ .522/.035]
03451) (Vmax=.423:Dmax=.070)
03452) #####
03453) R9999:CO0032-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03454) ADD HYD + 1.0 02:R8 .80 .048 No_date 1:22 36.02 n/a .000
03455) + 1.0 02:EXT10 .20 .016 No_date 1:29 35.74 n/a .000
03456) SUM= 1.0 01:27 1.83 .048 No_date 1:31 35.88 n/a .000
03457) R9999:CO0033-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03458) ROUTE CHANNEL -> 1.0 02:R7 1.83 .131 No_date 1:31 35.88 n/a .000
03459) [RDT=1.00] out<- 1.0 01:R9 1.83 .131 No_date 1:32 35.89 n/a .000
03460) [L/S/n= 28./ .887/.035]
03461) (Vmax=.543:Dmax=.089)
03462) #####
03463) R9999:CO0034-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03464) ADD HYD + 1.0 02:EXT9 3.57 .297 No_date 1:34 40.95 n/a .000
03465) + 1.0 02:R9 1.83 .048 No_date 1:50 35.77 n/a .000
03466) SUM= 1.0 01:28 13.10 .586 No_date 3:41 34.11 n/a .000
03467) R9999:CO0035-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03468) ROUTE PIPE -> 1.0 02:R5 13.10 .586 No_date 3:41 34.11 n/a .000
03469) [RDT=1.00] out<- 1.0 01:Outlet 13.10 .586 No_date 3:42 34.11 n/a .000
03470) [L/S/n= 8./ .010/.033]
03471) (Vmax=.493:Dmax=1.394)
03472) (Dln=.53:Dused=1.70)
03473) #####
03474) # STORMS
03475) #####
03476) R9999:CO0002-----Dtlm-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
03477) #####
03478) FINISH
03479) #####
03480) #####
03481) #####
03482) #####
03483) #####
03484) #####
03485) #####
03486) #####
03487) #####
03488) #####
03489) #####
03490) #####
03491) #####
03492) #####
03493) Simulation ended on 2025-09-10 at 20:42:50
03494) #####
03495) #####
```

Attachment B

Post-Development Hydrology



Legend

Post-development Subcatchments

Site Plan

EXT1
3.212 ha Subcatchment Name
Subcatchment Area (ha)

SCALE: 1:3000

0 50 100 150 m



5923 Ottawa St – Richmond

Figure B1: Proposed Drainage Areas

PROJECT	P2710(e01)
DRAWN	MM
DATE	04-06-2025

Table B1 - Site 1 - Stage/Storage/Outflow Curves

					Quality Control 1		Overflow		Total	
					Vertical Orifice		Broad Crested Weir			
					Dia (m)	0.075	L (m)	0.300		
					Area (m ²)	0.006	C _w	1.580		
					Invert (m)	93.84				
					C _v	0.61	C _w	Invert (m)	94.40	
					Q @ D	0.002	n contr.	2		
Elevation (m)	Storage 1 (m ³)	Storage 2 (m ³)	Total Volume (m ³)	Demarcation Points	Depth (m)	Outflow (m ³ /s)	Depth (m)	Outflow (m ³ /s)	Outflow (m ³ /s)	Storage (ha-m)
93.84		0.0	0.0	Pond Bottom	0.000	0.000	0.000	0.000	0.000	0.000
93.85		0.0	0.0		0.010	0.000	0.000	0.000	0.000	0.000
93.86		0.0	0.0		0.020	0.001	0.000	0.000	0.001	0.000
93.87		0.2	0.2		0.030	0.001	0.000	0.000	0.001	0.000
93.88		0.3	0.3		0.040	0.001	0.000	0.000	0.001	0.000
93.89		0.6	0.6		0.050	0.002	0.000	0.000	0.002	0.000
93.90		0.9	0.9		0.060	0.002	0.000	0.000	0.002	0.000
93.91		1.4	1.4		0.070	0.002	0.000	0.000	0.002	0.000
93.92		1.9	1.9		0.080	0.002	0.000	0.000	0.002	0.000
93.93		2.5	2.5		0.090	0.003	0.000	0.000	0.003	0.000
93.94		3.2	3.2		0.100	0.003	0.000	0.000	0.003	0.000
93.95		4.0	4.0		0.110	0.003	0.000	0.000	0.003	0.000
93.96		4.9	4.9		0.120	0.003	0.000	0.000	0.003	0.000
93.97		5.9	5.9		0.130	0.004	0.000	0.000	0.004	0.001
93.98		6.9	6.9		0.140	0.004	0.000	0.000	0.004	0.001
93.99		8.1	8.1		0.150	0.004	0.000	0.000	0.004	0.001
94.00		9.3	9.3		0.160	0.004	0.000	0.000	0.004	0.001
94.01	0.00	10.6	10.6		0.170	0.004	0.000	0.000	0.004	0.001
94.02	0.01	12.0	12.1		0.180	0.005	0.000	0.000	0.005	0.001
94.03	0.05	13.6	13.6		0.190	0.005	0.000	0.000	0.005	0.001
94.04	0.16	15.2	15.3		0.200	0.005	0.000	0.000	0.005	0.002
94.05	0.39	16.9	17.2		0.210	0.005	0.000	0.000	0.005	0.002
94.06	0.74	18.7	19.4		0.220	0.005	0.000	0.000	0.005	0.002
94.07	1.20	20.5	21.7		0.230	0.005	0.000	0.000	0.005	0.002
94.08	1.78	22.5	24.3		0.240	0.005	0.000	0.000	0.005	0.002
94.09	2.46	24.6	27.1		0.250	0.006	0.000	0.000	0.006	0.003
94.10	3.24	26.8	30.1		0.260	0.006	0.000	0.000	0.006	0.003
94.11	4.12	29.1	33.2		0.270	0.006	0.000	0.000	0.006	0.003
94.12	4.61	31.5	36.1		0.280	0.006	0.000	0.000	0.006	0.004
94.13	5.63	34.0	39.7		0.290	0.006	0.000	0.000	0.006	0.004
94.14	6.85	36.6	43.5		0.300	0.006	0.000	0.000	0.006	0.004
94.15	8.19	39.3	47.5		0.310	0.006	0.000	0.000	0.006	0.005
94.16	9.66	42.0	51.7		0.320	0.006	0.000	0.000	0.006	0.005
94.17	11.17	44.8	56.0		0.330	0.006	0.000	0.000	0.006	0.006
94.18	12.00	47.6	59.6		0.340	0.007	0.000	0.000	0.007	0.006
94.19	13.82	50.5	64.3		0.350	0.007	0.000	0.000	0.007	0.006
94.20	15.76	53.3	69.1		0.360	0.007	0.000	0.000	0.007	0.007
94.21	17.78	56.3	74.0		0.370	0.007	0.000	0.000	0.007	0.007
94.22	19.87	59.2	79.1		0.380	0.007	0.000	0.000	0.007	0.008
94.23	22.01	62.2	84.2		0.390	0.007	0.000	0.000	0.007	0.008
94.24	24.17	65.1	89.3		0.400	0.007	0.000	0.000	0.007	0.009
94.25	26.36	68.2	94.5		0.410	0.007	0.000	0.000	0.007	0.009
94.26	28.57	71.2	99.8		0.420	0.007	0.000	0.000	0.007	0.010
94.27	30.81	74.3	105.1		0.430	0.007	0.000	0.000	0.007	0.011
94.28	33.07	77.4	110.5		0.440	0.008	0.000	0.000	0.008	0.011
94.29	35.35	80.5	115.9		0.450	0.008	0.000	0.000	0.008	0.012
94.30	37.66	83.7	121.3		0.460	0.008	0.000	0.000	0.008	0.012
94.31	39.99	86.9	126.9		0.470	0.008	0.000	0.000	0.008	0.013
94.32	42.35	90.1	132.5		0.480	0.008	0.000	0.000	0.008	0.013
94.33	44.74	93.4	138.1		0.490	0.008	0.000	0.000	0.008	0.014
94.34	47.15	96.7	143.8		0.500	0.008	0.000	0.000	0.008	0.014
94.35	49.58	100.0	149.6		0.510	0.008	0.000	0.000	0.008	0.015
94.36	52.04	103.4	155.4		0.520	0.008	0.000	0.000	0.008	0.016
94.37	54.52	106.8	161.3		0.530	0.008	0.000	0.000	0.008	0.016
94.38	57.03	110.2	167.2		0.540	0.008	0.000	0.000	0.008	0.017
94.39	59.56	113.7	173.3		0.550	0.009	0.000	0.000	0.009	0.017
94.40	62.12	117.2	179.3	Max 100-Yr WSE*	0.560	0.009	0.000	0.000	0.009	0.018
94.41	64.70	120.8	185.5		0.570	0.009	0.010	0.000	0.009	0.019
94.42	67.31	124.4	191.7		0.580	0.009	0.020	0.001	0.010	0.019
94.43	69.95	128.0	197.9		0.590	0.009	0.030	0.002	0.011	0.020
94.44	72.61	131.7	204.3		0.600	0.009	0.040	0.004	0.013	0.020
94.45	75.29	135.4	210.7		0.610	0.009	0.050	0.005	0.014	0.021
94.46	78.00	139.1	217.1		0.620	0.009	0.060	0.007	0.016	0.022
94.47	80.74	142.9	223.7		0.630	0.009	0.070	0.008	0.018	0.022
94.48	83.50	146.8	230.3		0.640	0.009	0.080	0.010	0.019	0.023
94.49	86.29	150.7	237.0		0.650	0.009	0.090	0.012	0.021	0.024
94.50	89.10	154.6	243.7		0.660	0.009	0.100	0.014	0.023	0.024
94.51	91.94	158.6	250.5		0.670	0.009	0.110	0.016	0.026	0.025
94.52	94.81	162.6	257.4		0.680	0.010	0.120	0.018	0.028	0.026
94.53	97.70	166.7	264.4		0.690	0.010	0.130	0.020	0.030	0.026
94.54	100.61	170.8	271.4		0.700	0.010	0.140	0.023	0.032	0.027
94.55	103.56	175.0	278.5		0.710	0.010	0.150	0.025	0.035	0.028
94.56	106.53	179.2	285.7		0.720	0.010	0.160	0.027	0.037	0.029
94.57	109.52	183.5	293.0		0.730	0.010	0.170	0.029	0.039	0.029
94.58	112.54	187.8	300.3		0.740	0.010	0.180	0.032	0.042	0.030
94.59	115.59	192.2	307.7		0.750	0.010	0.190	0.034	0.044	0.031
94.60	118.66	196.6	315.2		0.760	0.010	0.200	0.037	0.047	0.032
94.61	119.86	201.1	320.9		0.770	0.010	0.210	0.039	0.049	0.032
94.62	121.07	205.6	326.7		0.780	0.010	0.220	0.042	0.052	0.033
94.63	124.27	210.2	334.5		0.790	0.010	0.230	0.044	0.055	0.033
94.64	125.49	214.9	340.4		0.800	0.010	0.240	0.047	0.057	0.034
94.65	125.52	219.6	345.1		0.810	0.010	0.250	0.049	0.060	0.035
94.66	126.70	224.3	351.0		0.820	0.011	0.260	0.052	0.063	0.035
94.67	127.87	229.2	357.0		0.830	0.011	0.270	0.055	0.065	0.036
94.68	131.15	234.1	365.2		0.840	0.011	0.280	0.057	0.068	0.037
94.69	132.31	239.0	371.3		0.850	0.011	0.290	0.060	0.070	0.037
94.70	132.31	244.0	376.3	Pond Spill	0.860	0.011	0.300	0.062	0.073	0.038

*Maximum allowable 100-year water level in the pond - not the simulated 100 year water level

Table B2 - Site 2 - Stage/Storage/Outflow Curves

					Quality Control 1		Emergency Overflow			
					Vertical Orifice		Broad Crested Weir			
					Dia (m)	0.075	L (m)	0.300		
					Area (m ²)	0.006	C _w	1.580		
					Invert (m)	93.71				
					C _v	0.61	Invert (m)	94.40		
					Q @ D	0.002	n contr.	2	Total	
Elevation (m)	Storage 3 (m ³)	Storage 4 (m ³)	Total Volume (m ³)	Demarcation Points	Depth (m)	Outflow (m ³ /s)	Depth (m)	Outflow (m ³ /s)	Outflow (m ³ /s)	Storage (ha-m)
93.71		0.0	0.0	Pond Bottom	0.000	0.000	0.000	0.000	0.000	0.000
93.72		0.0	0.0		0.010	0.000	0.000	0.000	0.000	0.000
93.73		0.0	0.0		0.020	0.001	0.000	0.000	0.001	0.000
93.74		0.1	0.1		0.030	0.001	0.000	0.000	0.001	0.000
93.75		0.3	0.3		0.040	0.001	0.000	0.000	0.001	0.000
93.76		0.6	0.6		0.050	0.002	0.000	0.000	0.002	0.000
93.77		1.0	1.0		0.060	0.002	0.000	0.000	0.002	0.000
93.78		1.6	1.6		0.070	0.002	0.000	0.000	0.002	0.000
93.79		2.3	2.3		0.080	0.002	0.000	0.000	0.002	0.000
93.80		3.2	3.2		0.090	0.003	0.000	0.000	0.003	0.000
93.81		4.3	4.3		0.100	0.003	0.000	0.000	0.003	0.000
93.82		5.4	5.4		0.110	0.003	0.000	0.000	0.003	0.001
93.83		6.5	6.5		0.120	0.003	0.000	0.000	0.003	0.001
93.84		7.7	7.7		0.130	0.004	0.000	0.000	0.004	0.001
93.85		8.9	8.9		0.140	0.004	0.000	0.000	0.004	0.001
93.86		10.2	10.2		0.150	0.004	0.000	0.000	0.004	0.001
93.87		11.4	11.4		0.160	0.004	0.000	0.000	0.004	0.001
93.88		12.7	12.7		0.170	0.004	0.000	0.000	0.004	0.001
93.89		13.9	13.9		0.180	0.005	0.000	0.000	0.005	0.001
93.90		15.2	15.2		0.190	0.005	0.000	0.000	0.005	0.002
93.91		16.5	16.5		0.200	0.005	0.000	0.000	0.005	0.002
93.92		17.8	17.8		0.210	0.005	0.000	0.000	0.005	0.002
93.93		19.1	19.1		0.220	0.005	0.000	0.000	0.005	0.002
93.94		20.5	20.5		0.230	0.005	0.000	0.000	0.005	0.002
93.95		21.8	21.8		0.240	0.005	0.000	0.000	0.005	0.002
93.96		23.2	23.2		0.250	0.006	0.000	0.000	0.006	0.002
93.97		24.6	24.6		0.260	0.006	0.000	0.000	0.006	0.002
93.98		26.0	26.0		0.270	0.006	0.000	0.000	0.006	0.003
93.99		27.4	27.4		0.280	0.006	0.000	0.000	0.006	0.003
94.00		28.9	28.9		0.290	0.006	0.000	0.000	0.006	0.003
94.01		30.4	30.4		0.300	0.006	0.000	0.000	0.006	0.003
94.02		31.8	31.8		0.310	0.006	0.000	0.000	0.006	0.003
94.03		33.4	33.4		0.320	0.006	0.000	0.000	0.006	0.003
94.04	0.0	34.9	34.9		0.330	0.006	0.000	0.000	0.006	0.003
94.05	0.1	36.4	36.6		0.340	0.007	0.000	0.000	0.007	0.004
94.06	0.4	38.0	38.4		0.350	0.007	0.000	0.000	0.007	0.004
94.07	0.8	39.6	40.4		0.360	0.007	0.000	0.000	0.007	0.004
94.08	1.3	41.2	42.5		0.370	0.007	0.000	0.000	0.007	0.004
94.09	1.8	42.9	44.7		0.380	0.007	0.000	0.000	0.007	0.004
94.10	2.5	44.5	47.0		0.390	0.007	0.000	0.000	0.007	0.005
94.11	3.3	46.2	49.5		0.400	0.007	0.000	0.000	0.007	0.005
94.12	4.1	48.0	52.1		0.410	0.007	0.000	0.000	0.007	0.005
94.13	4.5	49.7	54.2		0.420	0.007	0.000	0.000	0.007	0.005
94.14	5.6	51.5	57.1		0.430	0.007	0.000	0.000	0.007	0.006
94.15	6.7	53.3	60.0		0.440	0.008	0.000	0.000	0.008	0.006
94.16	8.0	55.1	63.1		0.450	0.008	0.000	0.000	0.008	0.006
94.17	8.5	57.0	65.5		0.460	0.008	0.000	0.000	0.008	0.007
94.18	10.0	58.9	68.9		0.470	0.008	0.000	0.000	0.008	0.007
94.19	11.6	60.8	72.4		0.480	0.008	0.000	0.000	0.008	0.007
94.20	13.3	62.7	76.0		0.490	0.008	0.000	0.000	0.008	0.008
94.21	15.1	64.7	79.8		0.500	0.008	0.000	0.000	0.008	0.008
94.22	17.0	66.7	83.8		0.510	0.008	0.000	0.000	0.008	0.008
94.23	19.1	68.8	87.8		0.520	0.008	0.000	0.000	0.008	0.009
94.24	21.1	70.9	92.0		0.530	0.008	0.000	0.000	0.008	0.009
94.25	23.2	73.0	96.2		0.540	0.008	0.000	0.000	0.008	0.010
94.26	25.4	75.1	100.5		0.550	0.009	0.000	0.000	0.009	0.010
94.27	27.5	77.3	104.8		0.560	0.009	0.000	0.000	0.009	0.010
94.28	29.7	79.5	109.2		0.570	0.009	0.000	0.000	0.009	0.011
94.29	31.9	81.8	113.7		0.580	0.009	0.000	0.000	0.009	0.011
94.30	34.1	84.1	118.2		0.590	0.009	0.000	0.000	0.009	0.012
94.31	36.4	86.4	122.8		0.600	0.009	0.000	0.000	0.009	0.012
94.32	38.7	88.7	127.4		0.610	0.009	0.000	0.000	0.009	0.013
94.33	41.0	91.1	132.1		0.620	0.009	0.000	0.000	0.009	0.013
94.34	43.3	93.6	136.9		0.630	0.009	0.000	0.000	0.009	0.014
94.35	45.7	96.1	141.7		0.640	0.009	0.000	0.000	0.009	0.014
94.36	48.1	98.6	146.7		0.650	0.009	0.000	0.000	0.009	0.015
94.37	50.5	101.2	151.7		0.660	0.009	0.000	0.000	0.009	0.015
94.38	52.9	103.8	156.7		0.670	0.009	0.000	0.000	0.009	0.016
94.39	55.4	106.5	161.9		0.680	0.010	0.000	0.000	0.010	0.016
94.40	57.9	109.2	167.1	Max 100-Yr WSE*	0.690	0.010	0.000	0.000	0.010	0.017
94.41	60.4	112.0	172.4		0.700	0.010	0.010	0.000	0.010	0.017
94.42	62.9	114.8	177.7		0.710	0.010	0.020	0.001	0.011	0.018
94.43	65.5	117.7	183.2		0.720	0.010	0.030	0.002	0.012	0.018
94.44	68.1	119.9	188.0		0.730	0.010	0.040	0.004	0.014	0.019
94.45	70.7	122.0	192.7		0.740	0.010	0.050	0.005	0.015	0.019
94.46	73.4	123.8	197.2		0.750	0.010	0.060	0.007	0.017	0.020
94.47	76.1	125.7	201.8		0.760	0.010	0.070	0.008	0.019	0.020
94.48	78.8	127.2	206.0		0.770	0.010	0.080	0.010	0.020	0.021
94.49	81.5	129.4	210.9		0.780	0.010	0.090	0.012	0.022	0.021
94.50	84.3	131.0	215.2		0.790	0.010	0.100	0.014	0.024	0.022
94.51	87.1	133.1	220.2		0.800	0.010	0.110	0.016	0.026	0.022
94.52	89.9	134.7	224.6		0.810	0.010	0.120	0.018	0.029	0.022
94.53	92.7	135.4	228.1		0.820	0.011	0.130	0.020	0.031	0.023
94.53	92.7	135.4	228.1		0.820	0.011	0.130	0.020	0.031	0.023
94.54	95.6	137.6	233.2		0.830	0.011	0.140	0.023	0.033	0.023
94.55	98.5	137.6	236.1		0.840	0.011	0.150	0.025	0.035	0.024
94.55	98.5	137.6	236.1		0.840	0.011	0.150	0.025	0.035	0.024
94.56	101.4	138.4	239.9		0.850	0.011	0.160	0.027	0.038	0.024
94.57	104.4	139.1	243.5		0.860	0.011	0.170	0.029	0.040	0.024
94.57	104.4	139.1	243.5		0.860	0.011	0.170	0.029	0.040	0.024
94.58	107.4	140.6	248.0		0.870	0.011	0.180	0.032	0.043	0.025
94.59	110.4	141.4	251.8		0.880	0.011	0.190	0.034	0.045	0.025
94.60	113.4	143.6	257.1		0.890	0.011	0.200	0.037	0.048	0.026
94.61	114.6	144.4	259.1		0.900	0.011	0.210	0.039	0.050	0.026
94.62	115.8	145.9	261.7		0.910	0.011	0.220	0.042	0.053	0.026
94.63	119.0	148.1	267.1		0.920	0.011	0.230	0.044	0.055	0.027
94.64	120.2	149.6	269.8		0.930	0.011	0.240	0.047	0.058	0.027
94.65	120.2	150.4	270.6		0.940	0.011	0.250	0.049	0.061	0.027
94.66	121.4	152.6	274.1		0.950	0.011	0.260	0.052	0.063	0.027
94.67	122.6	153.4	276.0		0.960	0.011	0.270	0.055	0.066	0.028
94.68	125.8	155.7	281.5		0.970	0.012	0.280	0.057	0.069	0.028
94.69	127.0	156.5	283.5		0.980	0.012	0.290	0.060	0.071	0.028
94.70	127.0	157.3	284.3	Pond Spill	0.990	0.012	0.300	0.062	0.074	0.028

```

1  20      Metric units / ID numbers OFF
2  *#*****
   *****
3  *#  SWMHYMO  / INPUT DATA FILE
4  *#*****
   *****
5  *#  Project Name   : [5923 Ottawa St]
6  *#  Project Number: [P2710(e01)]
7  *#  Date           : [2025 April 28]
8  *#  Modeller       : [MM]
9  *#  Company        : JFSA Canada Inc.
10 *#  License #      : 2549237
11 *#*****
   *****
12 *# Model developed to simulate runoff from subcatchments under post development
   conditions
13 *#*****
   *****
14 *%  25 mm Storm based on 2-Year, 3-Hour Chicago Storm
15 START          TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[002]
16                ["002YC3H.stm"] <--storm filename, one per line for NSTORM time
17 *%-----|-----
18 READ STORM      STORM_FILENAME=["STORM.001"]
19 *%-----|-----
20 *#*****
   *****
21 *%-----|-----
22 DEFAULT VALUES ICASEdef=[1],  read values only
23                DEFVAL_FILENAME=["Ottawa.val"]
24 *%-----|-----
25 *#*****
   *****
26 *#  EXT1
27 *#*****
   *****
28 CALIB NASHYD    NHYD=["EXT1"], DT[1] (min), AREA=[3.211] (ha),
29                DWF=[0] (cms), CN=[80],
30                IA=[4.67] (mm), N=[3], TP[0.72] (hrs),
31                RAINFALL[ , , -1]
32 *#*****
   *****
33 *#  EXT2
34 *#*****
   *****
35 CALIB NASHYD    NHYD=["EXT2"], DT[1] (min), AREA=[0.285] (ha),
36                DWF=[0] (cms), CN=[85],
37                IA=[4.67] (mm), N=[3], TP[0.33] (hrs),
38                RAINFALL[ , , -1]
39 *#*****
   *****
40 *#  EXT3
41 *#*****
   *****
42 CALIB NASHYD    NHYD=["EXT3"], DT[1] (min), AREA=[0.560] (ha),
43                DWF=[0] (cms), CN=[80],
44                IA=[4.67] (mm), N=[3], TP[0.32] (hrs),
45                RAINFALL[ , , -1]
46 *#*****
   *****
47 *#  EXT4
48 *#*****
   *****
49 CALIB NASHYD    NHYD=["EXT4"], DT[1] (min), AREA=[0.309] (ha),
50                DWF=[0] (cms), CN=[79],
51                IA=[4.67] (mm), N=[3], TP[0.29] (hrs),
52                RAINFALL[ , , -1]
53 *#*****
   *****
54 *#  EXT5

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55  *#*****
56  CALIB NASHYD      NHYD=["EXT5"], DT[1] (min), AREA=[0.594] (ha),
57                    DWF=[0] (cms), CN=[76],
58                    IA=[4.67] (mm), N=[3], TP[0.45] (hrs),
59                    RAINFALL[ , , -1]
60  *#*****
61  *# EXT6
62  *#*****
63  CALIB NASHYD      NHYD=["EXT6"], DT[1] (min), AREA=[0.864] (ha),
64                    DWF=[0] (cms), CN=[85],
65                    IA=[4.67] (mm), N=[3], TP[0.56] (hrs),
66                    RAINFALL[ , , -1]
67  *#*****
68  *# EXT7
69  *#*****
70  CALIB NASHYD      NHYD=["EXT7"], DT[1] (min), AREA=[0.471] (ha),
71                    DWF=[0] (cms), CN=[83],
72                    IA=[4.67] (mm), N=[3], TP[0.32] (hrs),
73                    RAINFALL[ , , -1]
74  *#*****
75  *# EXT8
76  *#*****
77  CALIB NASHYD      NHYD=["EXT8"], DT[1] (min), AREA=[0.834] (ha),
78                    DWF=[0] (cms), CN=[79],
79                    IA=[4.67] (mm), N=[3], TP[0.42] (hrs),
80                    RAINFALL[ , , -1]
81  *#*****
82  *# EXT9
83  *#*****
84  CALIB NASHYD      NHYD=["EXT9"], DT[1] (min), AREA=[3.571] (ha),
85                    DWF=[0] (cms), CN=[76],
86                    IA=[4.67] (mm), N=[3], TP[0.48] (hrs),
87                    RAINFALL[ , , -1]
88  *#*****
89  *# EXT9a
90  *#*****
91  CALIB NASHYD      NHYD=["EXT9a"], DT[1] (min), AREA=[0.011] (ha),
92                    DWF=[0] (cms), CN=[78],
93                    IA=[4.67] (mm), N=[3], TP[0.04] (hrs),
94                    RAINFALL[ , , -1]
95  *#*****
96  *# EXT10
97  *#*****
98  CALIB NASHYD      NHYD=["EXT10"], DT[1] (min), AREA=[0.203] (ha),
99                    DWF=[0] (cms), CN=[71],
100                   IA=[4.67] (mm), N=[3], TP[0.42] (hrs),
101                   RAINFALL[ , , -1]
102  *#*****
103  *# Pre2_1
104  *#*****
105  CALIB NASHYD      NHYD=["Pre2_1"], DT[1] (min), AREA=[0.013] (ha),
106                    DWF=[0] (cms), CN=[72],
107                    IA=[4.67] (mm), N=[3], TP[0.03] (hrs),
108                    RAINFALL[ , , -1]

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109  *#*****
110  *# Pre2_2
111  *#*****
112  CALIB NASHYD      NHYD=["Pre2_2"], DT[1] (min), AREA=[0.002] (ha),
113                   DWF=[0] (cms), CN=[78],
114                   IA=[4.67] (mm), N=[3], TP[0.02] (hrs),
115                   RAINFALL[ , , -1]
116  *#*****
117  *# Pre9_1
118  *#*****
119  CALIB NASHYD      NHYD=["Pre9_1"], DT[1] (min), AREA=[0.437] (ha),
120                   DWF=[0] (cms), CN=[71],
121                   IA=[4.67] (mm), N=[3], TP[0.38] (hrs),
122                   RAINFALL[ , , -1]
123  *#*****
124  *# Pre9_2
125  *#*****
126  CALIB NASHYD      NHYD=["Pre9_2"], DT[1] (min), AREA=[0.014] (ha),
127                   DWF=[0] (cms), CN=[59],
128                   IA=[4.67] (mm), N=[3], TP[0.03] (hrs),
129                   RAINFALL[ , , -1]
130  *#*****
131  *# Pre10_1
132  *#*****
133  CALIB NASHYD      NHYD=["Pre10_1"], DT[1] (min), AREA=[0.799] (ha),
134                   DWF=[0] (cms), CN=[71],
135                   IA=[4.67] (mm), N=[3], TP[0.29] (hrs),
136                   RAINFALL[ , , -1]
137  *#*****
138  *# Pre11_1
139  *#*****
140  CALIB NASHYD      NHYD=["Pre11_1"], DT[1] (min), AREA=[0.067] (ha),
141                   DWF=[0] (cms), CN=[78],
142                   IA=[4.67] (mm), N=[3], TP[0.21] (hrs),
143                   RAINFALL[ , , -1]
144  *#*****
145  *# Site 1
146  *#*****
147  DESIGN STANDHYD   NHYD=["S1-B1"], DT=[1] (min), AREA=[0.415] (ha),
148                   XIMP=[0.34], TIMP=[0.44], DWF=[0] (cms),
149                   LOSS=[1], SLOPE=[1.0] (%), RAINFALL=[ , , -1] (mm/hr)
150  *#*****
151  *# Site 1 - Roof
152  *#*****
153  DESIGN STANDHYD   NHYD=["S1-Roof"], DT=[1] (min), AREA=[0.065] (ha),
154                   XIMP=[0.99], TIMP=[0.99], DWF=[0] (cms),
155                   LOSS=[1], SLOPE=[0.5] (%), RAINFALL=[ , , -1] (mm/hr)
156  *%-----|-----
157  * Rooftop Storage-Outflow Curve for site 1 Facility - From EGIS Report
158  ROUTE RESERVOIR   NHYDout=["S1-Roof-Out"], NHYDin=["S1-Roof"], RDT=[1] (min),
159                   TABLE of ( OUTFLOW-STORAGE ) values
160                   (cms) - (ha-m)
161                   [ 0 , 0 ]
162                   [ 0.0008 , 0.0007 ]

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163         [ 0.001 , 0.001 ]
164         [ 0.0015 , 0.0015 ]
165         [ 0.0018 , 0.0017 ]
166         [ 0.0023 , 0.0022 ]
167         [ 0.0025 , 0.0024 ]
168         [ 0.0028 , 0.0027 ]
169         [ 0.003 , 0.0029 ]
170         [ 0.0033 , 0.0032 ]
171         [ 0.0038 , 0.0037 ]
172         [ 0.004 , 0.0039 ]
173         [ 0.0045 , 0.0044 ]
174         [ 0.0048 , 0.0046 ]
175         [ 0.0051 , 0.0049 ]
176         [ 0.0056 , 0.0054 ]
177         [ 0.0063 , 0.0061 ]
178         [ 0.0066 , 0.0064 ]
179         [ 0.0076 , 0.0073 ]
180         [ -1 , -1 ]
181         NHYDovf=["S1-Roof-Over"],
182     *%-----|-----
183     ADD HYD          NHYDsum=["SITE1-IN"], NHYDs to add=["S1-B1"+"S1-Roof-Out"+
184     "S1-Roof-Over"]
185     *%-----|-----
186     * Pond for Site 1: Stage-Storage-Outflow
187     ROUTE RESERVOIR    NHYDout=["SITE1-Out"], NHYDin=["SITE1-IN"], RDT=[1] (min),
188                       TABLE of ( OUTFLOW-STORAGE ) values
189                       (cms) - (ha-m)
190                       [ 0.00000 , 0 ]
191                       [ 0.00154 , 0.00006 ]
192                       [ 0.00246 , 0.00019 ]
193                       [ 0.00321 , 0.0004 ]
194                       [ 0.00382 , 0.00069 ]
195                       [ 0.00435 , 0.00106 ]
196                       [ 0.00481 , 0.00153 ]
197                       [ 0.00524 , 0.00217 ]
198                       [ 0.00563 , 0.00301 ]
199                       [ 0.006 , 0.00397 ]
200                       [ 0.00634 , 0.00517 ]
201                       [ 0.00667 , 0.00643 ]
202                       [ 0.00699 , 0.00791 ]
203                       [ 0.00729 , 0.00945 ]
204                       [ 0.00757 , 0.01105 ]
205                       [ 0.00785 , 0.01269 ]
206                       [ 0.00812 , 0.01438 ]
207                       [ 0.00838 , 0.01613 ]
208                       [ 0.00863 , 0.01793 ]
209                       [ 0.01129 , 0.01979 ]
210                       [ 0.0158 , 0.02171 ]
211                       [ 0.02137 , 0.0237 ]
212                       [ 0.0277 , 0.02574 ]
213                       [ 0.03457 , 0.02785 ]
214                       [ 0.04186 , 0.03003 ]
215                       [ 0.04945 , 0.03209 ]
216                       [ 0.05724 , 0.03404 ]
217                       [ 0.06516 , 0.0357 ]
218                       [ 0.07313 , 0.03763 ]
219                       [ -1 , -1 ]
220         NHYDovf=["SITE1-Over"],
221     *%-----|-----
222     *#*****
223     *# Site 2
224     *#*****
225     DESIGN STANDHYD    NHYD=["S2-B3"], DT=[1] (min), AREA=[0.354] (ha),
226                       XIMP=[0.31], TIMP=[0.41], DWF=[0] (cms),

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226                LOSS=[1], SLOPE=[1.0] (%), RAINFALL=[ , , -1] (mm/hr)
227 *#*****
227 *****
228 *# Site 2 - Roof
229 *#*****
229 *****
230 DESIGN STANDHYD      NHYD=["S2-Roof"], DT=[1] (min), AREA=[0.093] (ha),
231                      XIMP=[0.99], TIMP=[0.99], DWF=[0] (cms),
232                      LOSS=[1], SLOPE=[0.5] (%), RAINFALL=[ , , -1] (mm/hr)
233 *#*****
233 *****
234 * Rooftop Storage-Outflow Curve for site 2 Facility - From EGIS Report
235 ROUTE RESERVOIR      NHYDout=["S2-Roof-Out"], NHYDin=["S2-Roof"], RDT=[1] (min),
236                      TABLE of ( OUTFLOW-STORAGE ) values
237                      (cms) - (ha-m)
238                      [ 0 , 0 ]
239                      [ 0.0007 , 0 ]
240                      [ 0.0015 , 0.0001 ]
241                      [ 0.003 , 0.0002 ]
242                      [ 0.0037 , 0.0004 ]
243                      [ 0.0048 , 0.0007 ]
244                      [ 0.0053 , 0.0008 ]
245                      [ 0.0065 , 0.0014 ]
246                      [ 0.0072 , 0.0018 ]
247                      [ 0.0081 , 0.0025 ]
248                      [ 0.0084 , 0.0029 ]
249                      [ 0.0092 , 0.0042 ]
250                      [ 0.0099 , 0.006 ]
251                      [ 0.0104 , 0.0075 ]
252                      [ 0.0106 , 0.0083 ]
253                      [ 0.0112 , 0.0109 ]
254                      [ 0.0143 , 0.0128 ]
255                      [ 0.0174 , 0.0138 ]
256                      [ 0.0253 , 0.0158 ]
257                      [ 0.0276 , 0.0164 ]
258                      [ -1 , -1 ]
259                      NHYDovf=["S2-Roof-Over"],
260 *%-----|-----
261 ADD HYD          NHYDsum=["SITE2-IN"], NHYDs to add=["S2-B3"+"S2-Roof-Out"+
261 "S2-Roof-Over"]
262 *%-----|-----
263 * Pond for Site 2: Stage-Storage-Outflow
264 ROUTE RESERVOIR      NHYDout=["SITE2-Out"], NHYDin=["SITE2-IN"], RDT=[1] (min),
265                      TABLE of ( OUTFLOW-STORAGE
266                      (cms) - (ha-m)
267                      [ 0 , 0 ]
268                      [ 0.0022 , 0.0002 ]
269                      [ 0.003 , 0.0004 ]
270                      [ 0.0036 , 0.0008 ]
271                      [ 0.0042 , 0.0011 ]
272                      [ 0.0047 , 0.0015 ]
273                      [ 0.0051 , 0.0019 ]
274                      [ 0.0055 , 0.0023 ]
275                      [ 0.0059 , 0.0027 ]
276                      [ 0.0062 , 0.0032 ]
277                      [ 0.0066 , 0.0037 ]
278                      [ 0.0069 , 0.0042 ]
279                      [ 0.0072 , 0.0049 ]
280                      [ 0.0075 , 0.0057 ]
281                      [ 0.0078 , 0.0065 ]
282                      [ 0.008 , 0.0076 ]
283                      [ 0.0083 , 0.0088 ]
284                      [ 0.0085 , 0.01 ]
285                      [ 0.0088 , 0.0114 ]
286                      [ 0.009 , 0.0127 ]
287                      [ 0.0093 , 0.0142 ]
288                      [ 0.0095 , 0.0157 ]
289                      [ 0.0102 , 0.0172 ]
290                      [ 0.0136 , 0.0188 ]

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291 [ 0.0185 , 0.0202 ]
292 [ 0.0243 , 0.0215 ]
293 [ 0.0309 , 0.0228 ]
294 [ 0.0355 , 0.0236 ]
295 [ 0.0403 , 0.0244 ]
296 [ 0.0452 , 0.0252 ]
297 [ 0.0529 , 0.0262 ]
298 [ 0.0607 , 0.0271 ]
299 [ 0.0686 , 0.0282 ]
300 [ 0.074 , 0.0284 ]
301 [ 0.0766 , 0.0287 ]
302 [ 0.0793 , 0.0287 ]
303 [ 0.0819 , 0.0287 ]
304 [ 0.0819 , 0.0287 ]
305 [ 0.0846 , 0.0287 ]
306 [ 0.0872 , 0.0287 ]
307 [ 0.0898 , 0.0287 ]
308 [ 0.0924 , 0.0288 ]
309 [ 0.095 , 0.0288 ]
310 [ 0.0976 , 0.0288 ]
311 [ 0.1027 , 0.0288 ]
312 [ 0.1053 , 0.0288 ]
313 [ 0.1078 , 0.0288 ]
314 [ 0.1102 , 0.0288 ]
315 [ 0.1127 , 0.0288 ]
316 [ 0.1151 , 0.0289 ]
317 [ 0.1175 , 0.0289 ]
318 [ 0.1199 , 0.0289 ]
319 [ 0.1222 , 0.0289 ]
320 [ 0.129 , 0.0289 ]
321 [ 0.1355 , 0.0289 ]
322 [ 0.1417 , 0.0289 ]
323 [ 0.1474 , 0.0289 ]
324 [ 0.151 , 0.0289 ]
325 [ 0.156 , 0.0289 ]
326 [ -1 , -1 ]
327 NHYDovf=["SITE2-Over"],
328 *%-----|-----|
329 ADD HYD NHYDsum=["Site1"], NHYDs to add=["SITE1-Out"+"SITE1-Over"]
330 *%-----|-----|
331 ADD HYD NHYDsum=["Site2"], NHYDs to add=["SITE2-Out"+"SITE2-Over"]
332 *%-----|-----|
333 ADD HYD NHYDsum=["J1"], NHYDs to add=["EXT2"+"Pre2_1"+"Site1"+"Site2"]
334 *%-----|-----|
335 * NOTE: Cross-section number 849.0434 is taken from HEC-RAS Model
336 ROUTE CHANNEL NHYDout=["R1"], NHYDin=["J1"], RDT=[1](min),
337 CHLGTH=[143.151](m), CHSLOPE=[0.394](%), FPSLOPE=[0.394](%),
338 SECNUM=[849.0434], NSEG=[3],
339 ( SEGROUGH, SEGDIST (m))=[0.08,18.95 -0.035,26.78 0.08,35.18] NSEG
times
340 ( DISTANCE (m), ELEVATION (m))=[0.48, 94.05]
341 [3.19, 93.99]
342 [6.85, 93.91]
343 [10.48, 93.87]
344 [17.45, 93.85]
345 [18.95, 93.84]
346 [20.36, 93.81]
347 [22.3, 93.76]
348 [22.53, 93.72]
349 [23.98, 93.35]
350 [24.35, 93.33]
351 [24.65, 93.37]
352 [25.04, 93.45]
353 [26.04, 93.74]
354 [26.44, 93.82]
355 [26.78, 93.87]
356 [29.14, 94.11]
357 [33.98, 94.26]
358 [35.18, 94.26]

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359 *%-----|-----
360 ADD HYD      NHYDsum=["J2"], NHYDs to add=["R1"+"EXT3"+"EXT1"]
361 *%-----|-----
362 * NOTE: Cross-section number 737.5813 is taken from HEC-RAS Model
363 ROUTE CHANNEL NHYDout=["R2"], NHYDin=["J2"], RDT=[1] (min),
364              CHLGTH=[73.338] (m), CHSLOPE=[0.425] (%), FPSLOPE=[0.425] (%),
365              SECNUM=[737.5813], NSEG=[3],
366              ( SEGROUGH, SEGDIST (m))=[0.08,8.4 -0.035,16.42 0.08,22.6] NSEG
              times
              ( DISTANCE (m), ELEVATION (m))=[0, 93.52]
367              [1.08, 93.5]
368              [4.37, 93.48]
369              [6.31, 93.45]
370              [8.4, 93.38]
371              [9.5, 93.31]
372              [10.49, 93.23]
373              [10.99, 93.18]
374              [12.4, 92.94]
375              [13.11, 92.84]
376              [13.67, 92.92]
377              [16.42, 93.6]
378              [16.91, 93.65]
379              [17.97, 93.65]
380              [19, 93.83]
381              [19.51, 93.89]
382              [21.06, 93.94]
383              [22.6, 93.95]
384
385 *%-----|-----
386 ADD HYD      NHYDsum=["J3"], NHYDs to add=["R2"+"EXT4"]
387 *%-----|-----
388 * NOTE: Cross-section number 675.4097 is taken from HEC-RAS Model
389 ROUTE CHANNEL NHYDout=["R3"], NHYDin=["J3"], RDT=[1] (min),
390              CHLGTH=[92.08] (m), CHSLOPE=[0.274] (%), FPSLOPE=[0.274] (%),
391              SECNUM=[675.4097], NSEG=[3],
392              ( SEGROUGH, SEGDIST (m))=[0.08,31.64 -0.035,42.44 0.08,48.87] NSEG
              times
              ( DISTANCE (m), ELEVATION (m))=[30.59, 93.12]
393              [31.64, 93.13]
394              [34.35, 93.08]
395              [35.18, 93.03]
396              [37.78, 92.72]
397              [38.25, 92.64]
398              [38.7, 92.61]
399              [39.74, 92.76]
400              [42.44, 93.41]
401              [42.89, 93.49]
402              [43.97, 93.57]
403              [44.92, 93.6]
404              [46.07, 93.67]
405              [48.87, 93.74]
406
407 *%-----|-----
408 ADD HYD      NHYDsum=["J4"], NHYDs to add=["R3"+"EXT5"]
409 *%-----|-----
410 * NOTE: Cross-section number 518.7506 is taken from HEC-RAS Model
411 ROUTE CHANNEL NHYDout=["R4"], NHYDin=["J4"], RDT=[1] (min),
412              CHLGTH=[251.495] (m), CHSLOPE=[0.19] (%), FPSLOPE=[0.19] (%),
413              SECNUM=[518.7506], NSEG=[3],
414              ( SEGROUGH, SEGDIST (m))=[0.08,51.48 -0.035,59.39 0.08,66.4] NSEG
              times
              ( DISTANCE (m), ELEVATION (m))=[0, 92.92]
415              [4.26, 92.9]
416              [48.31, 92.76]
417              [51.48, 92.76]
418              [53.64, 92.7]
419              [55.33, 92.29]
420              [55.44, 92.29]
421              [56.43, 92.37]
422              [56.97, 92.43]
423              [59.39, 93.27]
424

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425                                     [59.74, 93.37]
426                                     [60.8, 93.52]
427                                     [63.31, 93.71]
428                                     [66.4, 93.76]
429 *%-----|-----
430 ADD HYD                               NHYDsum=["J5"], NHYDs to add=["R4"+"EXT6"+"EXT7"]
431 *%-----|-----
432 * NOTE: Cross-section number 275.0857 is taken from HEC-RAS Model
433 ROUTE CHANNEL                       NHYDout=["R5"], NHYDin=["J5"], RDT=[1] (min),
434                                     CHLGTH=[237.343] (m), CHSLOPE=[0.644] (%), FPSLOPE=[0.644] (%),
435                                     SECNUM=[275.0857], NSEG=[3],
436                                     ( SEGROUGH, SEGDIST (m))=[0.08,40.82 -0.035,53.64 0.08,57.93] NSEG
                                         times
437                                     ( DISTANCE (m), ELEVATION (m))=[36.16, 92.63]
438                                     [40.82, 92.97]
439                                     [41.39, 92.9]
440                                     [44.69, 91.72]
441                                     [45.24, 91.58]
442                                     [46.33, 91.43]
443                                     [47.41, 91.64]
444                                     [47.87, 91.75]
445                                     [49.59, 92.2]
446                                     [50.99, 92.36]
447                                     [51.44, 92.48]
448                                     [53.18, 92.98]
449                                     [53.64, 93.15]
450                                     [55.92, 93.66]
451                                     [57.93, 93.68]
452 *%-----|-----
453 ADD HYD                               NHYDsum=["Pre"], NHYDs to add=["Pre10_1"+"Pre9_2"+"Pre2_2"]
454 *%-----|-----
455 * NOTE: Cross-section number 124 is taken from HEC-RAS Model
456 ROUTE CHANNEL                       NHYDout=["R6"], NHYDin=["Pre"], RDT=[1] (min),
457                                     CHLGTH=[77.414] (m), CHSLOPE=[0.776] (%), FPSLOPE=[0.776] (%),
458                                     SECNUM=[124], NSEG=[3],
459                                     ( SEGROUGH, SEGDIST (m))=[0.08,8.34 -0.035,31.31 0.08,84.97] NSEG
                                         times
460                                     ( DISTANCE (m), ELEVATION (m))=[1.78, 93.73]
461                                     [4.51, 93.54]
462                                     [5.06, 93.31]
463                                     [7.25, 92.98]
464                                     [7.79, 92.77]
465                                     [8.34, 92.49]
466                                     [9.43, 91.93]
467                                     [9.68, 91.81]
468                                     [10.53, 91.27]
469                                     [12.64, 90.92]
470                                     [14.44, 90.9]
471                                     [16.54, 91.06]
472                                     [17.64, 91.06]
473                                     [30.22, 92.3]
474                                     [31.31, 92.45]
475                                     [33.5, 92.41]
476                                     [55.37, 93.11]
477                                     [57.01, 93.2]
478                                     [84.97, 93.43]
479 *%-----|-----
480 * NOTE: Cross-section number 74 is taken from HEC-RAS Model
481 ROUTE CHANNEL                       NHYDout=["R7"], NHYDin=["Pre9_1"], RDT=[1] (min),
482                                     CHLGTH=[159.151] (m), CHSLOPE=[1.576] (%), FPSLOPE=[1.576] (%),
483                                     SECNUM=[74], NSEG=[3],
484                                     ( SEGROUGH, SEGDIST (m))=[0.08,4.67 -0.035,81.24 0.08,82.88] NSEG
                                         times
485                                     ( DISTANCE (m), ELEVATION (m))=[1.94, 93.64]
486                                     [4.67, 93.32]
487                                     [5.77, 93.15]
488                                     [7.41, 92.69]
489                                     [7.95, 92.37]
490                                     [9.36, 91.71]

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491                                     [10.12, 91.22]
492                                     [10.49, 91.06]
493                                     [12.64, 90.89]
494                                     [16.16, 90.92]
495                                     [18.83, 91.66]
496                                     [19.59, 92.02]
497                                     [21.62, 92.39]
498                                     [24.87, 92.48]
499                                     [30.37, 92.55]
500                                     [34.37, 92.65]
501                                     [77.41, 92.82]
502                                     [80.6, 93.25]
503                                     [81.24, 93.48]
504                                     [82.88, 93.79]
505 *%-----|-----|
506 ADD HYD      NHYDsum=["J6"], NHYDs to add=["R6"+"EXT10"]
507 *%-----|-----|
508 * NOTE: Cross-section number 49 is taken from HEC-RAS Model
509 ROUTE CHANNEL NHYDout=["R8"], NHYDin=["J6"], RDT=[1] (min),
510               CHLGTH=[78.801] (m), CHSLOPE=[0.522] (%), FPSLOPE=[0.522] (%),
511               SECNUM=[49], NSEG=[3],
512               ( SEGROUGH, SEGDIST (m))=[0.08,8.71 -0.035,20.59 0.08,116.73] NSEG
513               times
514               ( DISTANCE (m), ELEVATION (m))=[0, 93.36]
515               [1.93, 93.63]
516               [4.61, 93.26]
517               [6.23, 93.1]
518               [8.19, 92.26]
519               [8.71, 91.84]
520               [9.86, 91.47]
521               [10.53, 91.04]
522               [13.84, 91]
523               [14.5, 91.11]
524               [16.97, 91.27]
525               [20.59, 91.76]
526               [23.3, 91.64]
527               [30.34, 91.85]
528               [35.29, 91.92]
529               [116.73, 92.96]
530 *%-----|-----|
531 ADD HYD      NHYDsum=["J7"], NHYDs to add=["R8"+"R7"]
532 *%-----|-----|
533 * NOTE: Cross-section number 7 is taken from HEC-RAS Model
534 ROUTE CHANNEL NHYDout=["R9"], NHYDin=["J7"], RDT=[1] (min),
535               CHLGTH=[29.445] (m), CHSLOPE=[0.887] (%), FPSLOPE=[0.887] (%),
536               SECNUM=[7], NSEG=[3],
537               ( SEGROUGH, SEGDIST (m))=[0.08,1.5 -0.035,22.44 0.08,100.08] NSEG
538               times
539               ( DISTANCE (m), ELEVATION (m))=[0, 93.4]
540               [1.5, 93.63]
541               [3.13, 93.62]
542               [4.76, 93.28]
543               [5.3, 93.25]
544               [6.52, 93.08]
545               [6.96, 92.95]
546               [10.57, 90.95]
547               [13.59, 90.67]
548               [15.83, 90.72]
549               [16.42, 90.85]
550               [18.66, 91.76]
551               [20.82, 91.86]
552               [22.44, 91.92]
553               [27.84, 91.98]
554               [30.15, 91.96]
555               [100.08, 92.61]
556 *%-----|-----|
557 ADD HYD      NHYDsum=["J8"], NHYDs to add=["EXT9"+"R9"+"EXT8"+"R5"]
558 *%-----|-----|
559 * Note: The pipe needs to be adjusted based on the Culvert-under-railway information

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558 ROUTE PIPE PTYPE=[1]circ, NHYDout=["Outlet"], RNUMBER=[1.0],
559 PDIAM=[525] (mm), PLNGTH=[8.407] (m), PROUGH=[0.013],
PSLOPE=[0.0001] (m/m),
560 NHYDin=["J8"], RDT=[1] (min)
561 *%-----|-----|
562 *#####|
563 *# STORMS
564 *#####|
565 *% 2-Year, 3-Hour Chicago Storm
566 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[002]
567 * ["002YC3H.stm"] <--storm filename, one per line for NSTORM time
568 *%-----|-----|
569 *% 5-Year, 3-Hour Chicago Storm
570 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[005]
571 * ["005YC3H.stm"] <--storm filename, one per line for NSTORM time
572 *%-----|-----|
573 *% 10-Year, 3-Hour Chicago Storm
574 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[010]
575 * ["010YC3H.stm"] <--storm filename, one per line for NSTORM time
576 *%-----|-----|
577 *% 25-Year, 3-Hour Chicago Storm
578 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[025]
579 * ["025YC3H.stm"] <--storm filename, one per line for NSTORM time
580 *%-----|-----|
581 *% 50-Year, 3-Hour Chicago Storm
582 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[050]
583 * ["050YC3H.stm"] <--storm filename, one per line for NSTORM time
584 *%-----|-----|
585 *% 100-Year, 3-Hour Chicago Storm
586 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[099]
587 * ["100YC3H.stm"] <--storm filename, one per line for NSTORM time
588 *%-----|-----|
589 *% 2-Year, 24-Hour SCS Storm
590 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[102]
591 * ["SC24002x.stm"] <--storm filename, one per line for NSTORM time
592 *%-----|-----|
593 *% 5-Year, 24-Hour SCS Storm
594 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[105]
595 * ["SC24005x.stm"] <--storm filename, one per line for NSTORM time
596 *%-----|-----|
597 *% 10-Year, 24-Hour SCS Storm
598 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[110]
599 * ["SC24010x.stm"] <--storm filename, one per line for NSTORM time
600 *%-----|-----|
601 *% 25-Year, 24-Hour SCS Storm
602 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[125]
603 * ["SC24025x.stm"] <--storm filename, one per line for NSTORM time
604 *%-----|-----|
605 *% 50-Year, 24-Hour SCS Storm
606 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[150]
607 * ["SC24050x.stm"] <--storm filename, one per line for NSTORM time
608 *%-----|-----|
609 *% 100-Year, 24-Hour SCS Storm
610 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[199]
611 * ["SC24100x.stm"] <--storm filename, one per line for NSTORM time
612 *%-----|-----|
613 *% July 1st, 1979 Storm - Ottawa International Airport
614 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1979]
615 * ["19790701.stm"] <--storm filename, one per line for NSTORM time
616 *%-----|-----|
617 *% August 4th, 1988 Storm - Ottawa International Airport
618 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1988]
619 * ["19880804.stm"] <--storm filename, one per line for NSTORM time
620 *%-----|-----|
621 *% August 8th, 1996 Storm - Ottawa International Airport
622 *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1996]
623 * ["19960808.stm"] <--storm filename, one per line for NSTORM time
624 *%-----|-----|
625 *% 100-Year, 3-Hour Chicago Storm + 20%

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```
626  START                                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[9999]
627                                     [ "100YC3H+.STM" ] <--storm filename, one per line for NSTORM time
628  *%-----|-----|
629  FINISH
```

```
00001 ===== SSSSS W W M M M H H Y Y M M M O O O 222 000 11 5555 =====
00002
00003 SSSSS W W M M M H H Y Y M M M O O O 222 000 11 5555
00004 S W W M M M M H H Y Y M M M O O O 2 0 0 11 5
00005 SSSSS W W M M M H H Y Y M M M O O O 2 0 0 11 5 Ver 5.500
00006 S W W M M M H H Y Y M M M O O O 222 0 0 11 555 FEB 2015
00007 SSSSS W W M M M H H Y Y M M M O O O 2 0 0 11 5
00008
00009 StormWater Management Hydrologic Model 222 000 11 555 =====
00010
00011 ***** SWMM990 Ver 5.100 *****
00012 ***** based on the principles of HMM and its successors *****
00013 ***** OTTHMM-SI and OTTHMM-99 *****
00014 ***** Distributed by: J.F. Sabourin and Associates Inc. *****
00015 ***** Ottawa, Ontario: (613) 836-3884 *****
00016 ***** Gatineau, Quebec: (819) 243-6858 *****
00017 ***** E-mail: jsabourin@jfasa.com *****
00018 *****
00019 *****
00020 *****
00021 *****
00022 *****
00023 *****
00024 ***** Licensed user: JFSaInc. *****
00025 ***** SERIAL#:2549237 *****
00026 *****
00027 *****
00028 ***** PROGRAM ARRAY DIMENSIONS *****
00029 ***** Maximum value for ID numbers: 1 1 *****
00030 ***** Max. number of rainfall points: 105408 *****
00031 *****
00032 *****
00033 *****
00034 *****
00035 *****
00036 ***** SUMMARY OUTPUT *****
00037 *****
00038 ***** RUN DATE: 2025-09-11 TIME: 20:19:56 RUN COUNTER: 011833 *****
00039 *****
00040 ***** Input file: C:\Temp\20250910-PostDev\Ott_St-Post_v11.dat *****
00041 ***** Output file: C:\Temp\20250910-PostDev\Ott_St-Post_v11.out *****
00042 ***** Summary file: C:\Temp\20250910-PostDev\Ott_St-Post_v11.sum *****
00043 ***** User comments: *****
00044 ***** 1. *****
00045 ***** 2. *****
00046 ***** 3. *****
00047 *****
00048 *****
00049 *****
00050 *****
00051 ***** SWMM990 / INPUT DATA FILE *****
00052 *****
00053 ***** Project Name : [5923 Ottawa St] *****
00054 ***** Project Number: [P2710(eb1)] *****
00055 ***** Date : [2025 April 28] *****
00056 ***** Modeler : [JFM] *****
00057 ***** Company : JFSa Canada Inc. *****
00058 ***** License # : 2549237 *****
00059 *****
00060 ***** Model developed to simulate runoff from subcatchments under post development conditions *****
00061 *****
00062 ***** ** END OF RUN : 1 *****
00063 *****
00064 *****
00065 *****
00066 *****
00067 *****
00068 *****
00069 *****
00070 ***** RUN COMMAND *****
00071 ***** R0002:C00001 *****
00072 ***** START *****
00073 ***** [TZERO = 0.0 hrs on 0] *****
00074 ***** [METOUT = 2 (1=Imperial, 2=metric output)] *****
00075 ***** [METFORM = 1] *****
00076 ***** [NRUN = 0002] *****
00077 *****
00078 ***** SWMM990 / INPUT DATA FILE *****
00079 *****
00080 ***** Project Name : [5923 Ottawa St] *****
00081 ***** Project Number: [P2710(eb1)] *****
00082 ***** Date : [2025 April 28] *****
00083 ***** Modeler : [JFM] *****
00084 ***** Company : JFSa Canada Inc. *****
00085 ***** License # : 2549237 *****
00086 *****
00087 ***** Model developed to simulate runoff from subcatchments under post development conditions *****
00088 *****
00089 ***** R0002:C00002 *****
00090 ***** READ STORM *****
00091 ***** Filename = STORM.001 *****
00092 ***** Comment = CHICAGO STORM 2 Year, 3 Hours *****
00093 ***** [SDT=10.00;SDUR= 3.00;PTOT= 31.86] *****
00094 *****
00095 ***** R0002:C00003 *****
00096 ***** DEFAULT VALUES *****
00097 ***** Filename = C:\Temp\20250910-PostDev\Ottawa.val *****
00098 ***** [CASEDEV = 1 (read and print data)] *****
00099 ***** [FileTitle File comment: [Parameters for City of Ottawa Projects]] *****
00100 ***** USE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM *****
00101 ***** Horton's infiltration equation parameters: *****
00102 ***** [Fw 16.10 mm/hr] [Fw1 20 mm/hr] [FCV 1.14 1/hr] [Fw .00 mm] *****
00103 ***** Parameters for IMPERVIOUS surfaces in STANDBY: *****
00104 ***** [Ipxres 4.67 mm] [IDP=40.00 mm] [IMH= .250] *****
00105 ***** Parameters for IMPERVIOUS surfaces in STANDBY: *****
00106 ***** [Ipxres 1.57 mm] [CL1= 1.50] [IMH= .013] *****
00107 ***** Parameters used in NASHVIT *****
00108 ***** [Ia= 4.67 mm] [N= 3.00] *****
00109 ***** Average monthly Pan Evaporation data in (mm) *****
00110 ***** JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC *****
00111 ***** .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 *****
00112 ***** Average monthly Potential Evapotranspiration in (mm) *****
00113 ***** JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC *****
00114 ***** .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 *****
00115 *****
00116 ***** EXT1 *****
00117 *****
00118 ***** R0002:C00004 *****
00119 ***** CALIB NASHVD 1.0 01:EXT1 3.21 .037 No_date 1:58 8.15 .256 .000 *****
00120 ***** [CN= 85.0; N= 3.00; Tpe = .56] *****
00121 *****
00122 ***** EXT2 *****
00123 *****
00124 ***** R0002:C00005 *****
00125 ***** CALIB NASHVD 1.0 01:EXT2 .59 .008 No_date 1:36 6.88 .216 .000 *****
00126 ***** [CN= 85.0; N= 3.00; Tpe = .33] *****
00127 *****
00128 ***** EXT3 *****
00129 *****
00130 ***** R0002:C00006 *****
00131 ***** CALIB NASHVD 1.0 01:EXT3 .56 .011 No_date 1:24 8.15 .256 .000 *****
00132 ***** [CN= 80.0; N= 3.00; Tpe = .22] *****
00133 *****
00134 ***** EXT4 *****
00135 *****
00136 ***** R0002:C00007 *****
00137 ***** CALIB NASHVD 1.0 01:EXT4 .31 .006 No_date 1:22 7.80 .245 .000 *****
00138 ***** [CN= 79.0; N= 3.00; Tpe = .29] *****
00139 *****
00140 ***** EXT5 *****
00141 *****
00142 ***** R0002:C00008 *****
00143 ***** CALIB NASHVD 1.0 01:EXT5 .59 .008 No_date 1:36 6.88 .216 .000 *****
00144 ***** [CN= 76.0; N= 3.00; Tpe = .45] *****
00145 *****
00146 ***** EXT6 *****
00147 *****
00148 ***** R0002:C00009 *****
00149 ***** CALIB NASHVD 1.0 01:EXT6 .86 .015 No_date 1:44 10.27 .322 .000 *****
00150 ***** [CN= 80.0; N= 3.00; Tpe = .56] *****
00151 *****
00152 ***** EXT7 *****
00153 *****
00154 ***** R0002:C00010 *****
00155 ***** CALIB NASHVD 1.0 01:EXT7 .01 .001 No_date 1:00 7.47 .234 .000 *****
00156 ***** [CN= 83.0; N= 3.00; Tpe = .32] *****
00157 *****
00158 ***** EXT8 *****
00159 *****
00160 ***** R0002:C00011 *****
00161 ***** CALIB NASHVD 1.0 01:EXT8 .83 .013 No_date 1:33 7.81 .245 .000 *****
00162 ***** [CN= 79.0; N= 3.00; Tpe = .22] *****
00163 *****
00164 ***** EXT9 *****
00165 *****
00166 ***** R0002:C00012 *****
00167 ***** CALIB NASHVD 1.0 01:EXT9 3.57 .045 No_date 1:38 6.88 .216 .000 *****
00168 ***** [CN= 76.0; N= 3.00; Tpe = .48] *****
00169 *****
00170 ***** EXT5 *****
00171 *****
00172 ***** R0002:C00013 *****
00173 ***** CALIB NASHVD 1.0 01:EXT5a .01 .001 No_date 1:00 7.47 .234 .000 *****
00174 ***** [CN= 76.0; N= 3.00; Tpe = .04] *****
00175 *****
00176 ***** EXT10 *****
00177 *****
00178 ***** R0002:C00014 *****
00179 ***** CALIB NASHVD 1.0 01:EXT10 .20 .002 No_date 1:34 5.64 .177 .000 *****
00180 ***** [CN= 71.0; N= 3.00; Tpe = .42] *****
00181 *****
00182 *****
00183 *****
00184 ***** R0002:C00015 *****
00185 ***** CALIB NASHVD 1.0 01:Pre2.1 .00 .000 No_date 1:00 7.46 .234 .000 *****
00186 ***** [CN= 72.0; N= 3.00; Tpe = .03] *****
00187 *****
00188 *****
00189 *****
00190 ***** R0002:C00016 *****
00191 ***** CALIB NASHVD 1.0 01:Pre2.2 .00 .000 No_date 1:00 7.46 .234 .000 *****
00192 ***** [CN= 70.0; N= 3.00; Tpe = .01] *****
00193 *****
00194 *****
00195 *****
00196 ***** R0002:C00017 *****
00197 ***** CALIB NASHVD 1.0 01:Pre2.1 .44 .003 No_date 1:30 5.64 .177 .000 *****
00198 ***** [CN= 71.0; N= 3.00; Tpe = .38] *****
00199 *****
00200 *****
00201 *****
00202 *****
00203 *****
00204 *****
00205 *****
00206 *****
00207 *****
00208 ***** R0002:C00019 *****
00209 ***** CALIB NASHVD 1.0 01:Pre10.1 .80 .011 No_date 1:22 5.65 .177 .000 *****
00210 ***** [CN= 71.0; N= 3.00; Tpe = .39] *****
00211 *****
00212 *****
00213 *****
00214 ***** R0002:C00020 *****
00215 ***** CALIB NASHVD 1.0 01:Pre1.1 .00 .002 No_date 1:15 7.47 .235 .000 *****
00216 ***** [CN= 78.0; N= 3.00; Tpe = .21] *****
00217 *****
00218 *****
00219 *****
00220 ***** R0002:C00021 *****
00221 ***** DESIGN STANDARD 1.0 01:81-B1 .42 .032 No_date 1:00 13.81 .433 .000 *****
00222 ***** [XIMP= 24;TIMP= 44] *****
00223 ***** [SLP=1.00;DT= 1.00] *****
00224 ***** [LOSS= 1 : HORTON] *****
00225 *****
00226 *****
00227 *****
00228 ***** R0002:C00022 *****
00229 ***** DESIGN STANDARD 1.0 01:81-Roof .06 .014 No_date 1:00 30.00 .942 .000 *****
00230 ***** [XIMP= 99;TIMP= 99] *****
00231 ***** [SLP= .50;DT= 1.00] *****
00232 ***** [LOSS= 1 : HORTON] *****
00233 ***** R0002:C00023 *****
00234 ***** ROUTE RESERVOIR -> 1.0 01:81-Roof .06 .014 No_date 1:00 30.00 n/a .000 *****
00235 ***** out <= 1.0 01:81-Roof-Ov .00 .001 No_date 1:31 30.00 n/a .000 *****
00236 ***** overflow <= 1.0 01:81-Roof-Ov .00 .000 No_date 0:00 .00 n/a .000 *****
00237 ***** [MRoof=40.11178-e2 n3, ToOfVVol=1.000E+00 n3, N=0v0 0, ToOfDrOfV= 0.hrs] *****
00238 ***** R0002:C00024 *****
00239 ***** ADD HYD 1.0 01:81-B1 .42 .032 No_date 1:00 13.81 n/a .000 *****
00240 ***** out <= 1.0 01:81-Roof-Ov .06 .001 No_date 1:31 30.00 n/a .000 *****
00241 ***** overflow <= 1.0 01:81-Roof-Ov .00 .000 No_date 0:00 .00 n/a .000 *****
00242 ***** SUM= 1.0 01:8122-IN .48 .033 No_date 1:00 16.00 n/a .000 *****
00243 ***** R0002:C00025 *****
00244 ***** ROUTE RESERVOIR -> 1.0 01:8122-IN .48 .033 No_date 1:00 16.00 n/a .000 *****
00245 ***** out <= 1.0 01:8122-Roof-Ov .06 .001 No_date 1:40 16.00 n/a .000 *****
00246 ***** overflow <= 1.0 01:8122-Roof-Ov .00 .000 No_date 0:00 .00 n/a .000 *****
00247 ***** [MRoof=40.11178-e2 n3, ToOfVVol=1.000E+00 n3, N=0v0 0, ToOfDrOfV= 0.hrs] *****
00248 *****
00249 *****
00250 *****
00251 ***** R0002:C00026 *****
00252 ***** DESIGN STANDARD 1.0 01:82-B3 .35 .023 No_date 1:00 13.02 .409 .000 *****
00253 ***** [XIMP= 31;TIMP= 41] *****
00254 ***** [SLP=1.00;DT= 1.00] *****
00255 ***** [LOSS= 1 : HORTON] *****
00256 *****
00257 *****
00258 *****
00259 ***** R0002:C00027 *****
00260 ***** DESIGN STANDARD 1.0 01:82-Roof .09 .020 No_date 1:00 30.02 .942 .000 *****
00261 ***** [XIMP= 99;TIMP= 99] *****
00262 ***** [SLP= .50;DT= 1.00] *****
00263 ***** [LOSS= 1 : HORTON] *****
00264 *****
00265 ***** R0002:C00028 *****
00266 ***** ROUTE RESERVOIR -> 1.0 01:82-Roof .09 .020 No_date 1:00 30.02 n/a .000 *****
00267 ***** out <= 1.0 01:82-Roof-Ov .00 .000 No_date 1:31 30.00 n/a .000 *****
00268 ***** overflow <= 1.0 01:82-Roof-Ov .00 .000 No_date 0:00 .00 n/a .000 *****
00269 ***** [MRoof=40.11178-e2 n3, ToOfVVol=1.000E+00 n3, N=0v0 0, ToOfDrOfV= 0.hrs] *****
00270 ***** R0002:C00029 *****
00271 ***** ADD HYD 1.0 01:82-B3 .35 .023 No_date 1:00 13.02 n/a .000 *****
00272 ***** out <= 1.0 01:82-Roof-Ov .09 .006 No_date 1:30 30.02 n/a .000 *****
00273 ***** overflow <= 1.0 01:82-Roof-Ov .00 .000 No_date 0:00 .00 n/a .000 *****
00274 ***** SUM= 1.0 01:8122-IN .45 .031 No_date 1:00 16.56 n/a .000 *****
00275 ***** R0002:C00030 *****
00276 ***** ROUTE RESERVOIR -> 1.0 01:8122-IN .45 .031 No_date 1:00 16.56 n/a .000 *****
00277 ***** out <= 1.0 01:8122-Roof-Ov .06 .001 No_date 1:40 16.56 n/a .000 *****
00278 ***** overflow <= 1.0 01:8122-Roof-Ov .00 .000 No_date 0:00 .00 n/a .000 *****
00279 ***** [MRoof=40.11178-e2 n3, ToOfVVol=1.000E+00 n3, N=0v0 0, ToOfDrOfV= 0.hrs] *****
00280 *****
00281 *****
00282 *****
00283 *****
00284 ***** R0002:C00032 *****
00285 ***** ADD HYD 1.0 01:8122-IN .48 .007 No_date 1:40 16.00 n/a .000 *****
00286 ***** out <= 1.0 01:8122-Roof-Ov .00 .000 No_date 0:00 .00 n/a .000 *****
00287 ***** SUM= 1.0 01:8122-IN .48 .006 No_date 1:40 16.00 n/a .000 *****
00288 ***** R0002:C00033 *****
00289 ***** ADD HYD 1.0 01:EXT2 .28 .007 No_date 1:25 10.26 n/a .000 *****
00290 ***** out <= 1.0 01:8122-Roof-Ov .01 .001 No_date 1:00 16.00 n/a .000 *****
00291 ***** overflow <= 1.0 01:8122-Roof-Ov .48 .006 No_date 1:40 16.00 n/a .000 *****
00292 ***** SUM= 1.0 01:8122-IN .45 .007 No_date 1:40 16.56 n/a .000 *****
00293 *****
00294 ***** R0002:C00034 *****
00295 ***** ROUTE CHANNEL -> 1.0 01:8122-IN 1.23 .019 No_date 1:27 14.76 n/a .000 *****
00296 ***** [RDT= 1.00] out <= 1.0 01:81 1.23 .019 No_date 1:36 14.76 n/a .000 *****
00297 ***** [L/S/N= 142.0 / 274 / 035] *****
00298 ***** (Vmax = 359.0;Dmax = 160) *****
00299 ***** R0002:C00035 *****
00300 ***** ADD HYD 1.0 01:81 1.23 .019 No_date 1:36 14.76 n/a .000 *****
00301 ***** out <= 1.0 01:EXT3 .56 .011 No_date 1:24 8.15 n/a .000 *****
00302 ***** SUM= 1.0 01:8122-B3 3.21 .015 No_date 1:40 15.75 n/a .000 *****
00303 *****
00304 ***** R0002:C00036 *****
00305 ***** ROUTE CHANNEL -> 1.0 01:8122-IN 1.46 .022 No_date 1:46 14.77 n/a .000 *****
00306 ***** [RDT= 1.00] out <= 1.0 01:82 5.00 .062 No_date 1:46 9.77 n/a .000 *****
00307 ***** [L/S/N= 73.0 / 425 / 035] *****
00308 ***** (Vmax = 359.0;Dmax = 160) *****
00309 ***** R0002:C00037 *****
00310 ***** ADD HYD 1.0 01:82 5.00 .062 No_date 1:46 9.77 n/a .000 *****
00311 ***** out <= 1.0 01:EXT4 .31 .006 No_date 1:22 7.80 n/a .000 *****
00312 ***** SUM= 1.0 01:8122-B3 5.31 .066 No_date 1:46 9.66 n/a .000 *****
00313 ***** R0002:C00038 *****
00314 ***** ROUTE CHANNEL -> 1.0 01:23 5.31 .066 No_date 1:46 9.66 n/a .000 *****
00315 ***** [RDT= 1.00] out <= 1.0 01:83 5.31 .065 No_date 1:55 9.66 n/a .000 *****
00316 ***** [L/S/N= 92.0 / 274 / 035] *****
00317 ***** (Vmax = 294.0;Dmax = 145) *****
00318 ***** R0002:C00039 *****
00319 ***** ADD HYD 1.0 01:83 5.31 .065 No_date 1:51 9.66 n/a .000 *****
00320 ***** out <= 1.0 01:EXT5 .59 .008 No_date 1:36 6.88 n/a .000 *****
00321 ***** SUM= 1.0 01:24 5.90 .072 No_date 1:49 9.38 n/a .000 *****
00322 ***** R0002:C00040 *****
00323 ***** ROUTE CHANNEL -> 1.0 01:24 5.90 .072 No_date 1:49 9.38 n/a .000 *****
00324 ***** [RDT= 1.00] out <= 1.0 01:84 5.90 .067 No_date 2:05 9.38 n/a .000 *****
00325 ***** [L/S/N= 251.0 / 190 / 035] *****
00326 ***** (Vmax = 273.0;Dmax = 178) *****
00327 ***** R0002:C00041 *****
00328 ***** ADD HYD 1.0 01:84 5.90 .067 No_date 2:05 9.38 n/a .000 *****
00329 ***** out <= 1.0 01:EXT6 .86 .015 No_date 1:44 10.27 n/a .000 *****
00330 ***** SUM= 1.0 01:EXT7 .47 .011 No_date 1:24 8.33 n/a .000 *****
00331 ***** R0002:C00042 *****
00332 ***** ROUTE CHANNEL -> 1.0 01:25 7.23 .086 No_date 1:58 9.48 n/a .000 *****
00333 ***** [RDT= 1.00] out <= 1.0 01:85 7.23 .084 No_date 2:05 9.48 n/a .000 *****
00334 ***** [L/S/N= 237.0 / 644 / 035] *****
00335 ***** (Vmax = 797.0;Dmax = 102) *****
00336 ***** R0002:C00043 *****
00337 ***** ADD HYD 1.0 01:Pre1.0 .80 .011 No_date 1:22 5.65 n/a .000 *****
00338 ***** out <= 1.0 01:Pre2.2 .01 .001 No_date 1:00 3.62 n/a .000 *****
00339 ***** SUM= 1.0 01:86 1.02 .021 No_date 4:19 5.75 n/a .000 *****
00340 ***** R0002:C00044 *****
00341 ***** ROUTE CHANNEL -> 1.0 01:Pre .81 .011 No_date 1:22 5.62 n/a .000 *****
00342 ***** [RDT= 1.00] out <= 1.0 01:Pre 1.02 .013 No_date 1:30 5.75 n/a .000 *****
00343 ***** [L/S/N= 92.0 / 274 / 035] *****
00344 ***** (Vmax = 492.0;Dmax = 98) *****
00345 ***** R0002:C00045 *****
00346 ***** ROUTE CHANNEL -> 1.0 01:Pre2.1 .44 .005 No_date 1:30 5.64 n/a .000 *****
00347 ***** [RDT= 1.00] out <= 1.0 01:87 1.02 .011 No_date 1:34 5.64 n/a .000 *****
00348 ***** [L/S/N= 129.0 / 576 / 035] *****
00349 ***** (Vmax = 797.0;Dmax = 102) *****
00350 ***** R0002:C00046 *****
00351 ***** ADD HYD 1.0 01:86 1.02 .021 No_date 4:19 5.75 n/a .000 *****
00352 ***** out <= 1.0 01:EXT10 .20 .002 No_date 1:34 5.64 n/a .000 *****
00353 ***** SUM= 1.0 01:86 1.02 .021 No_date 4:19 5.75 n/a .000 *****
00354 ***** R0002:C00047 *****
00355 ***** ROUTE CHANNEL -> 1.0 01:87 1.02 .021 No_date 4:19 5.75 n/a .000 *****
00356 ***** [RDT= 1.00] out <= 1.0 01:88 1.02 .013 No_date 1:30 5.75 n/a .000 *****
00357 ***** [L/S/N= 79.0 / 522 / 035] *****
00358 ***** (Vmax = 423.0;Dmax = 61) *****
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01081# Average monthly Potential Evapotranspiration in (mm)
01082# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01083# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01084# *****
01085# EXT1
01086# *****
01087# R0025:C00004-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01088# CALIB NASHYD 1.0 01:EXT1 3.21 .118 No_date 1:53 24.50 .421 .000
01089# [Cm 80.0: Nm 3.00: Tpe = .72]
01090# *****
01091# EXT2
01092# *****
01093# R0025:C00005-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01094# CALIB NASHYD 1.0 01:EXT2 .28 .022 No_date 1:22 29.15 .501 .000
01095# [Cm 80.0: Nm 3.00: Tpe = .33]
01096# *****
01097# EXT3
01098# *****
01099# R0025:C00006-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01100# CALIB NASHYD 1.0 01:EXT3 .56 .036 No_date 1:22 24.50 .421 .000
01101# [Cm 80.0: Nm 3.00: Tpe = .32]
01102# *****
01103# EXT4
01104# *****
01105# R0025:C00007-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01106# CALIB NASHYD 1.0 01:EXT4 .31 .020 No_date 1:20 23.69 .407 .000
01107# [Cm 79.0: Nm 3.00: Tpe = .29]
01108# *****
01109# EXT5
01110# *****
01111# R0025:C00008-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01112# CALIB NASHYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 .368 .000
01113# [Cm 76.0: Nm 3.00: Tpe = .45]
01114# *****
01115# EXT6
01116# *****
01117# R0025:C00009-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01118# CALIB NASHYD 1.0 01:EXT6 .86 .046 No_date 1:40 29.15 .501 .000
01119# [Cm 85.0: Nm 3.00: Tpe = .56]
01120# *****
01121# EXT7
01122# *****
01123# R0025:C00010-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01124# CALIB NASHYD 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 .467 .000
01125# [Cm 72.0: Nm 3.00: Tpe = .41]
01126# *****
01127# EXT8
01128# *****
01129# R0025:C00011-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01130# CALIB NASHYD 1.0 01:EXT8 .83 .043 No_date 1:30 23.69 .407 .000
01131# [Cm 79.0: Nm 3.00: Tpe = .42]
01132# *****
01133# EXT9
01134# *****
01135# R0025:C00012-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01136# CALIB NASHYD 1.0 01:EXT9 3.57 .151 No_date 1:35 21.44 .368 .000
01137# [Cm 78.0: Nm 3.00: Tpe = .48]
01138# *****
01139# EXT10
01140# *****
01141# R0025:C00013-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01142# CALIB NASHYD 1.0 01:EXT10 .01 .002 No_date 1:00 22.90 .393 .000
01143# [Cm 78.0: Nm 3.00: Tpe = .04]
01144# *****
01145# EXT11
01146# *****
01147# R0025:C00014-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01148# CALIB NASHYD 1.0 01:EXT11 .20 .008 No_date 1:31 18.23 .313 .000
01149# [Cm 71.0: Nm 3.00: Tpe = .42]
01150# *****
01151# Pres_1
01152# *****
01153# R0025:C00015-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01154# CALIB NASHYD 1.0 01:Pres_1 .01 .002 No_date 1:00 18.82 .323 .000
01155# [Cm 72.0: Nm 3.00: Tpe = .04]
01156# *****
01157# Pres_2
01158# *****
01159# R0025:C00016-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01160# CALIB NASHYD 1.0 01:Pres_2 .00 .000 No_date 1:00 22.97 .393 .000
01161# [Cm 78.0: Nm 3.00: Tpe = .02]
01162# *****
01163# Pres_3
01164# *****
01165# R0025:C00017-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01166# CALIB NASHYD 1.0 01:Pres_3 .44 .018 No_date 1:27 18.23 .313 .000
01167# [Cm 78.0: Nm 3.00: Tpe = .01]
01168# *****
01169# Pres_4
01170# *****
01171# R0025:C00018-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01172# CALIB NASHYD 1.0 01:Pres_4 .01 .001 No_date 1:00 12.46 .214 .000
01173# [Cm 59.0: Nm 3.00: Tpe = .03]
01174# *****
01175# Pres_5
01176# *****
01177# R0025:C00019-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01178# CALIB NASHYD 1.0 01:Pres_5 .80 .040 No_date 1:20 18.23 .313 .000
01179# [Cm 71.0: Nm 3.00: Tpe = .29]
01180# *****
01181# Pres_6
01182# *****
01183# R0025:C00020-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01184# CALIB NASHYD 1.0 01:Pres_6 .07 .005 No_date 1:13 22.90 .393 .000
01185# [Cm 78.0: Nm 3.00: Tpe = .01]
01186# *****
01187# Site 1
01188# *****
01189# R0025:C00021-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01190# DESIGN STANHYD 1.0 01:Site-1 42 .092 No_date 1:00 34.33 .393 .000
01191# [XfM=34.7TfM=44]
01192# [SLP=1.00Df=1.00]
01193# [LOGS=1: HORTONS]
01194# *****
01195# Site 1 - Roof
01196# *****
01197# R0025:C00022-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01198# DESIGN STANHYD 1.0 01:Site-Roof .06 .026 No_date 1:00 56.27 .966 .000
01199# [XfM=99.7TfM=99]
01200# [SLP=1.00Df=1.00]
01201# [LOGS=1: HORTONS]
01202# *****
01203# R0025:C00023-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01204# ROUTE RESERVOIR -> 1.0 01:Site-Roof .06 .026 No_date 1:00 56.27 n/a .000
01205# outflow <= 1.0 01:Site-Roof-Out .06 .003 No_date 1:30 56.27 n/a .000
01206# overflow <= 1.0 01:Site-Roof-Over .00 .000 No_date 0:00 .00 n/a .000
01207# [MetToUsed=2468E-02 m3, TotDurVol=0.000E+00 m3, N-Over= 0, TotDurOver= 0 hrs]
01208# R0025:C00024-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01209# ADD HYD 1.0 01:Site-1 42 .092 No_date 1:00 34.33 n/a .000
01210# + 1.0 01:Site-Roof-Out .06 .003 No_date 1:30 56.27 n/a .000
01211# + 1.0 01:Site-Roof-Over .00 .000 No_date 0:00 .00 n/a .000
01212# SUM= 1.0 01:SITE1-IN 48 .094 No_date 1:00 37.47 n/a .000
01213# ROUTE RESERVOIR -> 1.0 01:SITE1-IN 48 .094 No_date 1:00 37.47 n/a .000
01214# outflow <= 1.0 01:SITE1-Out 48 .008 No_date 1:46 37.47 n/a .000
01215# overflow <= 1.0 01:SITE1-Over 00 .000 No_date 0:00 .00 n/a .000
01216# [MetToUsed=1128E-01 m3, TotDurVol=0.000E+00 m3, N-Over= 0, TotDurOver= 0 hrs]
01217# *****
01218# Site 2
01219# *****
01220# R0025:C00026-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01221# DESIGN STANHYD 1.0 01:Site-2 35 .076 No_date 1:00 33.45 .574 .000
01222# [XfM=31.7TfM=41]
01223# [SLP=1.00Df=1.00]
01224# [LOGS=1: HORTONS]
01225# *****
01226# Site 2 - Roof
01227# *****
01228# R0025:C00027-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01229# DESIGN STANHYD 1.0 01:Site-Roof .09 .037 No_date 1:00 56.28 .967 .000
01230# [XfM=99.7TfM=99]
01231# [SLP=1.00Df=1.00]
01232# [LOGS=1: HORTONS]
01233# *****
01234# R0025:C00028-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01235# ROUTE RESERVOIR -> 1.0 01:Site-Roof .09 .037 No_date 1:00 56.28 n/a .000
01236# outflow <= 1.0 01:Site-Roof-Out 09 .008 No_date 1:11 56.29 n/a .000
01237# overflow <= 1.0 01:Site-Roof-Over 00 .000 No_date 0:00 .00 n/a .000
01238# [MetToUsed=2497E-02 m3, TotDurVol=0.000E+00 m3, N-Over= 0, TotDurOver= 0 hrs]
01239# R0025:C00029-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01240# ADD HYD 1.0 01:Site-Roof-Out 09 .008 No_date 1:11 56.29 n/a .000
01241# + 1.0 01:Site-Roof-Over 00 .000 No_date 0:00 .00 n/a .000
01242# + 1.0 01:SITE2-IN 45 .083 No_date 1:00 38.20 n/a .000
01243# SUM= 1.0 01:SITE2-IN 45 .083 No_date 1:00 38.20 n/a .000
01244# R0025:C00030-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01245# ROUTE RESERVOIR -> 1.0 01:SITE2-IN 45 .083 No_date 1:00 38.20 n/a .000
01246# outflow <= 1.0 01:SITE2-Out 45 .009 No_date 2:01 38.20 n/a .000
01247# overflow <= 1.0 01:SITE2-Over 00 .000 No_date 0:00 .00 n/a .000
01248# [MetToUsed=1094E-01 m3, TotDurVol=0.000E+00 m3, N-Over= 0, TotDurOver= 0 hrs]
01249# R0025:C00031-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01250# ADD HYD 1.0 01:SITE2-Out 45 .009 No_date 2:01 38.20 n/a .000
01251# + 1.0 01:SITE2-Over 00 .000 No_date 0:00 .00 n/a .000
01252# + 1.0 01:SITE1-IN 48 .094 No_date 1:00 37.47 n/a .000
01253# SUM= 1.0 01:SITE2-Out 45 .009 No_date 2:01 38.20 n/a .000
01254# + 1.0 01:SITE2-Over 00 .000 No_date 0:00 .00 n/a .000
01255# + 1.0 01:SITE1-IN 48 .094 No_date 1:00 37.47 n/a .000
01256# SUM= 1.0 01:SITE2-Out 45 .009 No_date 2:01 38.20 n/a .000
01257# + 1.0 01:SITE2-Over 00 .000 No_date 0:00 .00 n/a .000
01258# + 1.0 01:SITE1-IN 48 .094 No_date 1:00 37.47 n/a .000
01259# ADD HYD 1.0 01:EXT2 .28 .022 No_date 1:22 29.15 n/a .000
01260# + 1.0 01:Pres_1 .01 .002 No_date 1:00 18.82 n/a .000
01261# + 1.0 01:SITE1-IN 48 .094 No_date 1:46 37.47 n/a .000
01262# *****
01263# R0025:C00034-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01264# ROUTE CHANNEL -> 1.0 01:EXT1 1.23 .038 No_date 1:22 35.61 n/a .000
01265# [RDT=1.00] out<- 1.0 01:EXT1 1.23 .038 No_date 1:22 35.61 n/a .000
01266# [L/S/n= 143.7 / 394 / 035]
01267# (Vmax= .313;Dmax= .126)
01268# R0025:C00035-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01269# ADD HYD 1.0 01:EXT1 1.23 .037 No_date 1:30 35.61 n/a .000
01270# + 1.0 01:EXT3 3.21 .118 No_date 1:53 24.50 n/a .000
01271# SUM= 1.0 01:EXT1 1.23 .037 No_date 1:30 35.61 n/a .000
01272# ROUTE CHANNEL -> 1.0 01:EXT1 1.23 .038 No_date 1:22 35.61 n/a .000
01273# [RDT=1.00] out<- 1.0 01:EXT1 1.23 .038 No_date 1:22 35.61 n/a .000
01274# [L/S/n= 73.7 / 425 / 035]
01275# (Vmax= .475;Dmax= .243)
01276# R0025:C00037-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01277# ADD HYD 1.0 01:EXT2 5.00 .172 No_date 1:44 27.23 n/a .000
01278# + 1.0 01:EXT4 5.31 .185 No_date 1:41 27.02 n/a .000
01279# SUM= 1.0 01:EXT2 5.00 .172 No_date 1:44 27.23 n/a .000
01280# ROUTE CHANNEL -> 1.0 01:EXT2 5.00 .172 No_date 1:44 27.23 n/a .000
01281# [RDT=1.00] out<- 1.0 01:EXT2 5.00 .172 No_date 1:44 27.23 n/a .000
01282# [L/S/n= 82.7 / 274 / 035]
01283# (Vmax= .388;Dmax= .250)
01284# R0025:C00039-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01285# ROUTE CHANNEL -> 1.0 01:EXT3 5.31 .184 No_date 1:44 27.02 n/a .000
01286# [RDT=1.00] out<- 1.0 01:EXT3 5.31 .184 No_date 1:44 27.02 n/a .000
01287# [L/S/n= 251.7 / 196 / 035]
01288# (Vmax= .381;Dmax= .280)
01289# R0025:C00041-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01290# ADD HYD 1.0 01:EXT6 .86 .046 No_date 1:40 29.15 n/a .000
01291# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01292# SUM= 1.0 01:EXT6 .86 .046 No_date 1:40 29.15 n/a .000
01293# ROUTE CHANNEL -> 1.0 01:EXT6 .86 .046 No_date 1:40 29.15 n/a .000
01294# [RDT=1.00] out<- 1.0 01:EXT6 .86 .046 No_date 1:40 29.15 n/a .000
01295# [L/S/n= 159.3 / 576 / 035]
01296# (Vmax= .797;Dmax= .095)
01297# R0025:C00042-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01298# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01299# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01300# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01301# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01302# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01303# [L/S/n= 237.7 / 644 / 035]
01304# (Vmax= .418;Dmax= .264)
01305# R0025:C00043-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01306# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01307# + 1.0 01:Pres_2 .00 .000 No_date 1:00 22.87 n/a .000
01308# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01309# ROUTE CHANNEL -> 1.0 01:Pres_2 .00 .000 No_date 1:00 22.87 n/a .000
01310# [RDT=1.00] out<- 1.0 01:Pres_2 .00 .000 No_date 1:00 22.87 n/a .000
01311# R0025:C00044-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01312# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01313# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01314# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01315# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01316# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01317# [L/S/n= 159.3 / 576 / 035]
01318# (Vmax= .797;Dmax= .095)
01319# R0025:C00046-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01320# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01321# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01322# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01323# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01324# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01325# [L/S/n= 251.7 / 196 / 035]
01326# (Vmax= .381;Dmax= .280)
01327# R0025:C00047-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01328# ADD HYD 1.0 01:EXT6 .86 .046 No_date 1:40 29.15 n/a .000
01329# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01330# SUM= 1.0 01:EXT6 .86 .046 No_date 1:40 29.15 n/a .000
01331# ROUTE CHANNEL -> 1.0 01:EXT6 .86 .046 No_date 1:40 29.15 n/a .000
01332# [RDT=1.00] out<- 1.0 01:EXT6 .86 .046 No_date 1:40 29.15 n/a .000
01333# [L/S/n= 159.3 / 576 / 035]
01334# (Vmax= .797;Dmax= .095)
01335# R0025:C00048-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01336# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01337# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01338# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01339# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01340# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01341# [L/S/n= 251.7 / 196 / 035]
01342# (Vmax= .381;Dmax= .280)
01343# R0025:C00049-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01344# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01345# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01346# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01347# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01348# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01349# [L/S/n= 159.3 / 576 / 035]
01350# (Vmax= .797;Dmax= .095)
01351# R0025:C00050-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01352# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01353# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01354# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01355# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01356# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01357# [L/S/n= 251.7 / 196 / 035]
01358# (Vmax= .381;Dmax= .280)
01359# R0025:C00051-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01360# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01361# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01362# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01363# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01364# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01365# [L/S/n= 159.3 / 576 / 035]
01366# (Vmax= .797;Dmax= .095)
01367# R0025:C00052-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01368# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01369# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01370# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01371# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01372# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01373# [L/S/n= 251.7 / 196 / 035]
01374# (Vmax= .381;Dmax= .280)
01375# R0025:C00053-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01376# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01377# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01378# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01379# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01380# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01381# [L/S/n= 159.3 / 576 / 035]
01382# (Vmax= .797;Dmax= .095)
01383# R0025:C00054-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01384# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01385# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01386# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01387# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01388# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01389# [L/S/n= 251.7 / 196 / 035]
01390# (Vmax= .381;Dmax= .280)
01391# R0025:C00055-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01392# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01393# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01394# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01395# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01396# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01397# [L/S/n= 159.3 / 576 / 035]
01398# (Vmax= .797;Dmax= .095)
01399# R0025:C00056-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01400# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01401# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01402# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01403# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01404# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01405# [L/S/n= 251.7 / 196 / 035]
01406# (Vmax= .381;Dmax= .280)
01407# R0025:C00057-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01408# ADD HYD 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01409# + 1.0 01:EXT7 .47 .034 No_date 1:22 27.17 n/a .000
01410# SUM= 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01411# ROUTE CHANNEL -> 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01412# [RDT=1.00] out<- 1.0 01:EXT5 .59 .026 No_date 1:33 21.44 n/a .000
01413# [L/S/n= 159.3 / 576 / 035]
01414# (Vmax= .797;Dmax= .095)
01415# R0025:C00058-----DtnIn-ID:INHYD-----AREAhA-Q
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01441> CALIB NASHVD 1.0 01:EXT6 .86 .055 No_date 1:40 34.45 .532 .000
01442> [Cm 83.0: N= 3.00: Tpe = .42]
01443> *****
01444> # EXT7
01445> *****
01446> R0505/C00010-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01447> CALIB NASHVD 1.0 01:EXT8 .47 .041 No_date 1:21 32.24 .498 .000
01448> [Cm 83.0: N= 3.00: Tpe = .32]
01449> *****
01450> # EXT8
01451> *****
01452> R0505/C00011-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01453> CALIB NASHVD 1.0 01:EXT8 .83 .052 No_date 1:30 28.33 .437 .000
01454> [Cm 79.0: N= 3.00: Tpe = .42]
01455> *****
01456> # EXT9
01457> *****
01458> R0505/C00012-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01459> CALIB NASHVD 1.0 01:EXT9 3.57 .183 No_date 1:35 25.77 .398 .000
01460> [Cm 76.0: N= 3.00: Tpe = .42]
01461> *****
01462> # EXT9a
01463> *****
01464> R0505/C00013-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01465> CALIB NASHVD 1.0 01:EXT9a .01 .002 No_date 1:00 27.43 .423 .000
01466> [Cm 78.0: N= 3.00: Tpe = .04]
01467> *****
01468> # EXT10
01469> *****
01470> R0505/C00014-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01471> CALIB NASHVD 1.0 01:EXT10 .20 .010 No_date 1:30 22.06 .340 .000
01472> [Cm 72.0: N= 3.00: Tpe = .03]
01473> *****
01474> # Pre2_1
01475> *****
01476> R0505/C00015-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01477> CALIB NASHVD 1.0 01:Pre2_1 .01 .002 No_date 1:00 22.75 .351 .000
01478> [Cm 72.0: N= 3.00: Tpe = .03]
01479> *****
01480> # Pre2_2
01481> *****
01482> R0505/C00016-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01483> CALIB NASHVD 1.0 01:Pre2_2 .00 .000 No_date 1:00 27.40 .423 .000
01484> [Cm 78.0: N= 3.00: Tpe = .02]
01485> *****
01486> # Pre3_1
01487> *****
01488> R0505/C00017-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01489> CALIB NASHVD 1.0 01:Pre3_1 .44 .022 No_date 1:27 22.07 .340 .000
01490> [Cm 71.0: N= 3.00: Tpe = .03]
01491> *****
01492> # Pre3_2
01493> *****
01494> R0505/C00018-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01495> CALIB NASHVD 1.0 01:Pre3_2 .01 .002 No_date 1:00 25.27 .236 .000
01496> [Cm 59.0: N= 3.00: Tpe = .03]
01497> *****
01498> # Pre10_1
01499> *****
01500> R0505/C00019-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01501> CALIB NASHVD 1.0 01:Pre10_1 .80 .048 No_date 1:20 22.07 .340 .000
01502> [Cm 72.0: N= 3.00: Tpe = .03]
01503> *****
01504> # Pre1_1
01505> *****
01506> R0505/C00020-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01507> CALIB NASHVD 1.0 01:Pre1_1 .07 .006 No_date 1:13 27.44 .423 .000
01508> [Cm 78.0: N= 3.00: Tpe = .21]
01509> *****
01510> # Site 1
01511> *****
01512> R0505/C00021-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01513> DESIGN STANDHYD 1.0 01:Site-1 .42 .107 No_date 1:00 40.11 .619 .000
01514> [XMP= 34.7Tpe=.44]
01515> [SLP= 1.00DT= 1.00]
01516> [LOGS= 1 : HORTONS]
01517> *****
01518> # Site 1 - Roof
01519> *****
01520> R0505/C00022-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01521> DESIGN STANDHYD 1.0 01:Site-Roof .06 .029 No_date 1:00 62.84 .970 .000
01522> [XMP= 99.7Tpe=.99]
01523> [SLP= 50.0DT= 1.00]
01524> [LOGS= 1 : HORTONS]
01525> *****
01526> R0505/C00023-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01527> ROUTE RESERVOIR -> 1.0 01:Site-Roof .06 .029 No_date 1:00 62.84 n/a .000
01528> overFlow <= 1.0 01:Site-Roof-Ov .00 .000 No_date 0:00 .00 n/a .000
01529> [MxTotSed= 27576.02 m3, TotDvVol=.0000E+00 m3, N-Ovrf= 0, TotDvOvrf= 0 hrs]
01530> R0505/C00024-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01531> ADD HYD + 1.0 01:Site-Roof .42 .107 No_date 1:00 40.11 n/a .000
01532> + 1.0 01:Site-Roof-Ov .20 .020 No_date 1:00 62.84 n/a .000
01533> + 1.0 01:Site-Roof-Ov .00 .000 No_date 0:00 .00 n/a .000
01534> SUM= 1.0 01:SITE1-IN .48 .109 No_date 1:00 43.19 n/a .000
01535> R0505/C00025-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01536> ROUTE RESERVOIR -> 1.0 01:SITE1-IN .48 .109 No_date 1:00 43.19 n/a .000
01537> overFlow <= 1.0 01:SITE1-Out .48 .109 No_date 1:00 43.19 n/a .000
01538> overFlow <= 1.0 01:SITE1-Over .00 .000 No_date 0:00 .00 n/a .000
01539> [MxTotSed= 13436.01 m3, TotDvVol=.0000E+00 m3, N-Ovrf= 0, TotDvOvrf= 0 hrs]
01540> *****
01541> # Site 2
01542> *****
01543> R0505/C00026-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01544> DESIGN STANDHYD 1.0 01:Site-2 .35 .088 No_date 1:00 38.93 .401 .000
01545> [XMP= 31.7Tpe=.41]
01546> [SLP= 1.00DT= 1.00]
01547> [LOGS= 1 : HORTONS]
01548> *****
01549> # Site 2 - Roof
01550> *****
01551> R0505/C00027-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01552> DESIGN STANDHYD 1.0 01:Site-Roof .09 .041 No_date 1:00 62.84 .970 .000
01553> [XMP= 99.7Tpe=.99]
01554> [SLP= 50.0DT= 1.00]
01555> [LOGS= 1 : HORTONS]
01556> *****
01557> R0505/C00028-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01558> ROUTE RESERVOIR -> 1.0 01:Site-Roof .09 .041 No_date 1:00 62.84 n/a .000
01559> overFlow <= 1.0 01:Site-Roof-Ov .00 .000 No_date 1:11 62.85 n/a .000
01560> overFlow <= 1.0 01:Site-Roof-Ov .00 .000 No_date 0:00 .00 n/a .000
01561> [MxTotSed= 26836.02 m3, TotDvVol=.0000E+00 m3, N-Ovrf= 0, TotDvOvrf= 0 hrs]
01562> R0505/C00029-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01563> ADD HYD + 1.0 01:Site-Roof .35 .088 No_date 1:00 38.93 n/a .000
01564> + 1.0 01:Site-Roof-Ov .09 .008 No_date 1:11 62.85 n/a .000
01565> + 1.0 01:Site-Roof-Ov .00 .000 No_date 0:00 .00 n/a .000
01566> SUM= 1.0 01:SITE1-IN .45 .096 No_date 1:00 43.90 n/a .000
01567> R0505/C00030-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01568> ROUTE RESERVOIR -> 1.0 01:SITE1-IN .45 .096 No_date 1:00 43.90 n/a .000
01569> overFlow <= 1.0 01:SITE1-Out .45 .009 No_date 2:05 43.90 n/a .000
01570> overFlow <= 1.0 01:SITE1-Over .00 .000 No_date 0:00 .00 n/a .000
01571> [MxTotSed= 12886.01 m3, TotDvVol=.0000E+00 m3, N-Ovrf= 0, TotDvOvrf= 0 hrs]
01572> R0505/C00031-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01573> ADD HYD + 1.0 01:SITE1-Out .48 .008 No_date 1:50 43.19 n/a .000
01574> + 1.0 01:SITE1-Over .00 .000 No_date 0:00 .00 n/a .000
01575> + 1.0 01:SITE1 .48 .008 No_date 1:50 43.19 n/a .000
01576> R0505/C00032-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01577> ADD HYD + 1.0 01:SITE1-Out .45 .009 No_date 2:05 43.90 n/a .000
01578> + 1.0 01:SITE1-Over .00 .000 No_date 0:00 .00 n/a .000
01579> SUM= 1.0 01:SITE2 .45 .009 No_date 2:05 43.90 n/a .000
01580> R0505/C00033-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01581> ADD HYD + 1.0 01:EXT7 .28 .026 No_date 1:22 34.45 n/a .000
01582> + 1.0 01:Pre2_1 .01 .002 No_date 1:00 22.75 n/a .000
01583> + 1.0 01:SITE1 .48 .008 No_date 1:50 43.19 n/a .000
01584> + 1.0 01:SITE2 .45 .009 No_date 2:05 43.90 n/a .000
01585> SUM= 1.0 01:21 .123 .043 No_date 1:22 41.20 n/a .000
01586> R0505/C00034-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01587> ROUTE CHANNEL -> 1.0 01:R1 1.23 .043 No_date 1:22 41.20 n/a .000
01588> [RD= 1.00] out<= 1.0 01:R1 1.23 .041 No_date 1:29 41.20 n/a .000
01589> [L/S= 143 / .394 / .035]
01590> *****
01591> R0505/C00035-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01592> ADD HYD + 1.0 01:21 1.23 .041 No_date 1:29 41.20 n/a .000
01593> + 1.0 01:EXT3 .56 .044 No_date 1:22 29.25 n/a .000
01594> + 1.0 01:EXT1 3.21 .142 No_date 1:53 29.25 n/a .000
01595> SUM= 1.0 01:22 5.00 .205 No_date 1:41 32.18 n/a .000
01596> R0505/C00036-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01597> ROUTE CHANNEL -> 1.0 01:23 5.31 .220 No_date 1:39 31.96 n/a .000
01598> [RD= 1.00] out<= 1.0 01:23 5.31 .219 No_date 1:43 31.96 n/a .000
01599> [L/S= 92 / .274 / .035]
01600> *****
01601> R0505/C00037-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01602> ADD HYD + 1.0 01:23 5.31 .220 No_date 1:39 31.96 n/a .000
01603> + 1.0 01:EXT4 .31 .025 No_date 1:19 28.33 n/a .000
01604> SUM= 1.0 01:23 5.31 .220 No_date 1:39 31.96 n/a .000
01605> R0505/C00038-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01606> ROUTE CHANNEL -> 1.0 01:23 5.31 .220 No_date 1:39 31.96 n/a .000
01607> [RD= 1.00] out<= 1.0 01:23 5.31 .219 No_date 1:43 31.96 n/a .000
01608> [L/S= 92 / .274 / .035]
01609> *****
01610> R0505/C00039-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01611> ADD HYD + 1.0 01:23 5.31 .219 No_date 1:43 31.96 n/a .000
01612> + 1.0 01:24 5.90 .249 No_date 1:41 31.33 n/a .000
01613> SUM= 1.0 01:24 5.90 .249 No_date 1:41 31.33 n/a .000
01614> R0505/C00040-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01615> ROUTE CHANNEL -> 1.0 01:24 5.90 .249 No_date 1:41 31.33 n/a .000
01616> [RD= 1.00] out<= 1.0 01:24 5.90 .236 No_date 1:52 31.33 n/a .000
01617> [L/S= 92 / .274 / .035]
01618> *****
01619> R0505/C00041-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01620> ADD HYD + 1.0 01:24 5.90 .236 No_date 1:52 31.33 n/a .000
01621> *****
01622> + 1.0 01:EXT6 .86 .055 No_date 1:40 34.45 n/a .000
01623> *****
01624> R0505/C00042-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01625> ROUTE CHANNEL -> 1.0 01:25 7.23 .312 No_date 1:46 31.76 n/a .000
01626> [RD= 1.00] out<= 1.0 01:R5 7.23 .308 No_date 1:53 31.76 n/a .000
01627> [L/S= 159 / .444 / .035]
01628> *****
01629> R0505/C00043-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01630> ADD HYD + 1.0 01:Pre10_1 .44 .022 No_date 1:27 22.07 n/a .000
01631> + 1.0 01:Pre2_1 .01 .002 No_date 1:00 25.27 n/a .000
01632> + 1.0 01:Pre2_2 .00 .000 No_date 1:00 27.40 n/a .000
01633> SUM= 1.0 01:Pre2 .81 .049 No_date 1:20 21.96 n/a .000
01634> R0505/C00044-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01635> ROUTE CHANNEL -> 1.0 01:Pre2 .81 .049 No_date 1:20 21.96 n/a .000
01636> [RD= 1.00] out<= 1.0 01:R6 1.02 .057 No_date 1:24 22.23 n/a .000
01637> [L/S= 176 / .764 / .035]
01638> *****
01639> R0505/C00045-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01640> ROUTE CHANNEL -> 1.0 01:R7 .44 .022 No_date 1:31 22.07 n/a .000
01641> [RD= 1.00] out<= 1.0 01:R7 .44 .022 No_date 1:31 22.07 n/a .000
01642> [L/S= 159 / .444 / .035]
01643> *****
01644> R0505/C00046-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01645> ADD HYD + 1.0 01:EXT10 .20 .010 No_date 1:30 22.06 n/a .000
01646> + 1.0 01:EXT9 .83 .052 No_date 1:30 25.77 .398 .000
01647> SUM= 1.0 01:EXT9 1.02 .057 No_date 1:24 22.23 n/a .000
01648> R0505/C00047-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01649> ROUTE CHANNEL -> 1.0 01:R8 1.02 .057 No_date 1:24 22.23 n/a .000
01650> [RD= 1.00] out<= 1.0 01:R8 1.02 .057 No_date 1:24 22.23 n/a .000
01651> [L/S= 79 / .522 / .035]
01652> *****
01653> R0505/C00048-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01654> ADD HYD + 1.0 01:R8 1.02 .057 No_date 1:27 22.39 n/a .000
01655> + 1.0 01:R7 .44 .022 No_date 1:30 22.07 n/a .000
01656> SUM= 1.0 01:R7 .88 .078 No_date 1:28 22.42 n/a .000
01657> R0505/C00049-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01658> ROUTE CHANNEL -> 1.0 01:R7 1.46 .078 No_date 1:28 22.42 n/a .000
01659> [RD= 1.00] out<= 1.0 01:R9 1.46 .078 No_date 1:29 22.42 n/a .000
01660> [L/S= 23 / .887 / .035]
01661> *****
01662> R0505/C00050-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01663> ADD HYD + 1.0 01:EXT9 3.57 .183 No_date 1:35 25.77 n/a .000
01664> + 1.0 01:R9 1.46 .078 No_date 1:29 22.39 n/a .000
01665> + 1.0 01:EXT8 .83 .052 No_date 1:30 25.77 .398 .000
01666> + 1.0 01:R5 7.23 .308 No_date 1:53 31.76 n/a .000
01667> SUM= 1.0 01:R5 13.09 .586 No_date 1:42 28.88 n/a .000
01668> R0505/C00051-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01669> ROUTE PIPE -> 1.0 01:R8 13.09 .586 No_date 1:42 28.88 n/a .000
01670> [RD= 1.00] out<= 1.0 01:Outlet 13.09 .585 No_date 1:42 28.88 n/a .000
01671> [L/S= 8 / .010 / .013]
01672> *****
01673> [Dine .53/Dosed= 1.40]
01674> #####
01675> *****
01676> *****
01677> *****
01678> *****
01679> *****
01680> *****
01681> *****
01682> *****
01683> *****
01684> *****
01685> RUN# / COMMAND#
01686> R099/C00001-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01687> START *****
01688> [ZERO = .00 hrs on 0]
01689> [NETOUT= 2 (1=imperial, 2=metric output)]
01690> [NETSUM= 1]
01691> [SUM= .0099]
01692> *****
01693> # SWHYNO / INPUT DATA FILE
01694> *****
01695> # STORM
01696> # Project Name : [S923 Ottawa St]
01697> # Project Number: [P2710(a01)]
01698> # Date : [2022 April 28]
01699> # Modeler : [JRM]
01700> # License # : [JFSa Canada Inc.]
01701> *****
01702> # Model developed from subcatchment to subcatchment development
01703> *****
01704> R099/C00002-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01705> HEAD STORM *****
01706> File name = STORM.001
01707> Comment = CH2CMM 100 Year 3 Hours
01708> [SDT=10.00SD= 3.00PTOT= 71.66]
01709> *****
01710> R099/C00003-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01711> DEFAULT VALUES *****
01712> File name = C:\Temp\20250910-PostDev\Ottawa_val
01713> ICASEDY = 1 (read and print data)
01714> FileTitle= File comment: (Parameters for City of Ottawa Projects)
01715> THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDHYD COM
01716> Horton's infiltration equation parameters:
01717> [Pw 76.20 mm/hr] [IC= 4.14 /hr] [Fw .00 mm]
01718> Parameters for Pervious surfaces in STANDHYD:
01719> [Iapex 4.67 mm] [ISD=40.00 mm] [Mn= .250]
01720> Parameters for Imperious surfaces in STANDHYD:
01721> [Ialimp 1.57 mm] [CL= 1.50] [Mn= .013]
01722> Parameters use HORTONS
01723> [Ia= 4.67 mm] [W= 3.00]
01724> Average monthly Pan Evaporation data in (mm)
01725> JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01726> .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01727> Average monthly Precipitation in (mm)
01728> JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01729> .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01730> *****
01731> # EXT1
01732> *****
01733> R099/C00004-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01734> CALIB NASHVD 1.0 01:EXT1 3.21 .167 No_date 1:52 34.39 .480 .000
01735> [Cm 80.0: N= 3.00: Tpe = .21]
01736> *****
01737> # EXT2
01738> *****
01739> R099/C00005-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01740> CALIB NASHVD 1.0 01:EXT2 .40 .031 No_date 1:22 40.14 .560 .000
01741> [Cm 85.0: N= 3.00: Tpe = .33]
01742> *****
01743> # EXT3
01744> *****
01745> R099/C00006-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01746> CALIB NASHVD 1.0 01:EXT3 .56 .052 No_date 1:21 34.39 .480 .000
01747> [Cm 80.0: N= 3.00: Tpe = .21]
01748> *****
01749> # EXT4
01750> *****
01751> R099/C00007-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01752> CALIB NASHVD 1.0 01:EXT4 .32 .029 No_date 1:19 33.37 .466 .000
01753> [Cm 79.0: N= 3.00: Tpe = .29]
01754> *****
01755> # EXT5
01756> *****
01757> R099/C00008-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01758> CALIB NASHVD 1.0 01:EXT5 .59 .038 No_date 1:32 30.49 .425 .000
01759> [Cm 76.0: N= 3.00: Tpe = .45]
01760> *****
01761> # EXT6
01762> *****
01763> R099/C00009-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01764> CALIB NASHVD 1.0 01:EXT6 .86 .064 No_date 1:39 40.14 .560 .000
01765> [Cm 80.0: N= 3.00: Tpe = .21]
01766> *****
01767> # EXT7
01768> *****
01769> R099/C00010-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01770> CALIB NASHVD 1.0 01:EXT7 .40 .031 No_date 1:22 37.71 .526 .000
01771> [Cm 83.0: N= 3.00: Tpe = .32]
01772> *****
01773> # EXT8
01774> *****
01775> R099/C00011-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01776> CALIB NASHVD 1.0 01:EXT8 .83 .062 No_date 1:29 33.37 .466 .000
01777> [Cm 78.0: N= 3.00: Tpe = .42]
01778> *****
01779> # EXT9
01780> *****
01781> R099/C00012-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01782> CALIB NASHVD 1.0 01:EXT9 3.57 .183 No_date 1:35 25.77 .398 .000
01783> [Cm 76.0: N= 3.00: Tpe = .48]
01784> *****
01785> # EXT9a
01786> *****
01787> R099/C00013-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01788> CALIB NASHVD 1.0 01:EXT9a .01 .003 No_date 1:00 22.07 .340 .000
01789> [Cm 78.0: N= 3.00: Tpe = .04]
01790> *****
01791> # EXT10
01792> *****
01793> R099/C00014-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01794> CALIB NASHVD 1.0 01:EXT10 .20 .012 No_date 1:30 22.06 .340 .000
01795> [Cm 71.0: N= 3.00: Tpe = .03]
01796> *****
01797> # Pre_1
01798> *****
01799> R099/C00015-----DtnIn-ID:INVD-----AREAh-QFEARCs-TpeaDate_hh:mm-----RvM-R.C-----DWfMcs
01800> CALIB NASHVD 1.0 01:Pre2_1 .01 .002 No_date 1:00 22.75 .351 .000
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[illegible]

```
02161 [SLP=.010DT=1.00]
02162 [LOS=1 : HORTONS]
02163 *****
02164 # Site 1 - Roof
02165 *****
02166 R0102:C0002-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02167 DESIGN STANDHYD 1.0 01:01-Roof .06 .011 Mo_date 12:00 46.49 .959 .000
02168 [XIMP=.99;TIMP=.99]
02169 [SLP=.50;DT=1.00]
02170 *****
02171 R0102:C0003-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02172 ROUTE RESERVOIR -> 1.0 01:01-Roof .06 .011 Mo_date 12:00 46.49 n/a .000
02173 out <= 1.0 01:01-Roof-Out .06 .001 Mo_date 12:07 46.49 n/a .000
02174 overflow <= 1.0 01:01-Roof-Over .00 .000 Mo_date 0:00 .00 n/a .000
02175 (MaxStoUsed=.193E+02 m3, TotOvVol=.000E+00 m3, N-Ovrf= 0, TotDirOvrf= .0 hrs)
02176 R0102:C0004-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02177 ADD HYD + 1.0 01:01-Roof .06 .004 Mo_date 12:00 22.82 n/a .000
02178 + 1.0 01:01-Roof-Out .06 .001 Mo_date 12:07 46.49 n/a .000
02179 + 1.0 01:01-Roof-Over .00 .000 Mo_date 0:00 .00 n/a .000
02180 SUM= 1.0 01:01-Roof-Over .48 .036 Mo_date 12:00 25.82 n/a .000
02181 R0102:C0005-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02182 ROUTE RESERVOIR -> 1.0 01:01-Roof-Out .48 .036 Mo_date 12:00 25.82 n/a .000
02183 out <= 1.0 01:01-Roof-Out .48 .006 Mo_date 12:35 25.82 n/a .000
02184 overflow <= 1.0 01:01-Roof-Over .00 .000 Mo_date 0:00 .00 n/a .000
02185 (MaxStoUsed=.423E+02 m3, TotOvVol=.000E+00 m3, N-Ovrf= 0, TotDirOvrf= .4 hrs)
02186 *****
02187 # Site 2
02188 *****
02189 R0102:C0006-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02190 DESIGN STANDHYD 1.0 01:02-R3 .35 .028 Mo_date 12:00 21.46 .442 .000
02191 [XIMP=.31;TIMP=.41]
02192 [SLP=.010DT=1.00]
02193 [LOS=1 : HORTONS]
02194 *****
02195 # Site 2 - Roof
02196 *****
02197 R0102:C0007-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02198 DESIGN STANDHYD 1.0 01:02-Roof .09 .015 Mo_date 12:00 46.49 .959 .000
02199 [XIMP=.99;TIMP=.99]
02200 [SLP=.50;DT=1.00]
02201 [LOS=1 : HORTONS]
02202 *****
02203 R0102:C0008-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02204 ROUTE RESERVOIR -> 1.0 01:02-Roof .09 .015 Mo_date 12:00 46.49 n/a .000
02205 out <= 1.0 01:02-Roof-Out .09 .006 Mo_date 12:03 46.49 n/a .000
02206 overflow <= 1.0 01:02-Roof-Over .00 .000 Mo_date 0:00 .00 n/a .000
02207 (MaxStoUsed=.423E+02 m3, TotOvVol=.000E+00 m3, N-Ovrf= 0, TotDirOvrf= .0 hrs)
02208 R0102:C0009-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02209 ADD HYD + 1.0 01:02-R3 .35 .028 Mo_date 12:00 21.44 n/a .000
02210 + 1.0 01:02-Roof-Out .09 .006 Mo_date 12:03 46.49 n/a .000
02211 + 1.0 01:02-Roof-Over .00 .000 Mo_date 0:00 .00 n/a .000
02212 SUM= 1.0 01:02-Roof-Over .48 .036 Mo_date 12:00 26.65 n/a .000
02213 R0102:C0010-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02214 ROUTE RESERVOIR -> 1.0 01:02-R3 .45 .034 Mo_date 12:00 26.65 n/a .000
02215 out <= 1.0 01:02-R3-Out .45 .007 Mo_date 12:38 26.65 n/a .000
02216 overflow <= 1.0 01:02-R3-Over .00 .000 Mo_date 0:00 .00 n/a .000
02217 (MaxStoUsed=.449E+02 m3, TotOvVol=.000E+00 m3, N-Ovrf= 0, TotDirOvrf= .0 hrs)
02218 R0102:C0011-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02219 ADD HYD + 1.0 01:02-R3 .48 .006 Mo_date 12:35 25.82 n/a .000
02220 + 1.0 01:01-Roof-Out .48 .006 Mo_date 12:35 25.82 n/a .000
02221 + 1.0 01:01-Roof-Over .00 .000 Mo_date 0:00 .00 n/a .000
02222 SUM= 1.0 01:01-Roof-Over .48 .006 Mo_date 12:35 25.82 n/a .000
02223 R0102:C0012-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02224 ADD HYD + 1.0 01:02-R3 .45 .007 Mo_date 12:38 26.65 n/a .000
02225 + 1.0 01:02-Roof-Over .00 .000 Mo_date 0:00 .00 n/a .000
02226 SUM= 1.0 01:02-Roof-Over .00 .000 Mo_date 0:00 .00 n/a .000
02227 R0102:C0013-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02228 ADD HYD + 1.0 01:02-R3 .01 .001 Mo_date 12:00 13.44 n/a .000
02229 + 1.0 01:01-Roof-Out .48 .006 Mo_date 12:35 25.82 n/a .000
02230 + 1.0 01:01-Roof-Over .45 .007 Mo_date 12:38 26.65 n/a .000
02231 SUM= 1.0 01:01-Roof-Over .48 .006 Mo_date 12:35 25.82 n/a .000
02232 R0102:C0014-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02233 ROUTE CHANNEL -> 1.0 01:01 1.23 .024 Mo_date 12:16 25.02 n/a .000
02234 [RDY=1.00] out <= 1.0 01:01 1.23 .023 Mo_date 12:13 25.02 n/a .000
02235 [L/S= 143 / .394;Q35]
02236 [Vmax=.279;Dmax=.103]
02237 R0102:C0015-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02238 ADD HYD + 1.0 01:01 1.23 .023 Mo_date 12:13 25.02 n/a .000
02239 + 1.0 01:01-Roof-Out .36 .018 Mo_date 12:13 17.87 n/a .000
02240 SUM= 1.0 01:01-Roof-Out .36 .018 Mo_date 12:13 17.87 n/a .000
02241 R0102:C0016-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02242 ROUTE CHANNEL -> 1.0 01:02 5.00 .091 Mo_date 12:31 19.62 n/a .000
02243 [RDY=1.00] out <= 1.0 01:02 5.00 .091 Mo_date 12:31 19.62 n/a .000
02244 [L/S= 71 / .423;Q35]
02245 [Vmax=.399;Dmax=.186]
02246 R0102:C0017-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02247 ADD HYD + 1.0 01:02 5.00 .091 Mo_date 12:33 19.62 n/a .000
02248 + 1.0 01:01-Roof-Out .31 .010 Mo_date 12:12 17.22 n/a .000
02249 SUM= 1.0 01:01-Roof-Out .31 .010 Mo_date 12:12 17.22 n/a .000
02250 R0102:C0018-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02251 ROUTE CHANNEL -> 1.0 01:03 5.31 .097 Mo_date 12:30 19.48 n/a .000
02252 [RDY=1.00] out <= 1.0 01:03 5.31 .096 Mo_date 12:34 19.48 n/a .000
02253 [L/S= 92 / .274;Q35]
02254 [Vmax=.321;Dmax=.150]
02255 R0102:C0019-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02256 ADD HYD + 1.0 01:03 5.31 .096 Mo_date 12:34 19.48 n/a .000
02257 + 1.0 01:02-R3 .59 .013 Mo_date 12:22 15.46 n/a .000
02258 SUM= 1.0 01:02-R3 .59 .013 Mo_date 12:22 15.46 n/a .000
02259 R0102:C0020-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02260 ROUTE CHANNEL -> 1.0 01:04 5.90 .108 Mo_date 12:32 19.08 n/a .000
02261 [RDY=1.00] out <= 1.0 01:04 5.90 .108 Mo_date 12:32 19.08 n/a .000
02262 [L/S= 140 / .424;Q35]
02263 [Vmax=.310;Dmax=.110]
02264 R0102:C0021-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02265 ADD HYD + 1.0 01:04 5.90 .100 Mo_date 12:45 19.08 n/a .000
02266 + 1.0 01:02-R3 .72 .017 Mo_date 12:13 20.01 n/a .000
02267 SUM= 1.0 01:02-R3 .72 .017 Mo_date 12:13 20.01 n/a .000
02268 R0102:C0022-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02269 ROUTE CHANNEL -> 1.0 01:05 7.23 .130 Mo_date 12:39 19.44 n/a .000
02270 [RDY=1.00] out <= 1.0 01:05 7.23 .130 Mo_date 12:39 19.44 n/a .000
02271 [L/S= 237 / .644;Q35]
02272 [Vmax=.503;Dmax=.201]
02273 R0102:C0023-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02274 ADD HYD + 1.0 01:05 7.23 .128 Mo_date 12:46 19.44 n/a .000
02275 + 1.0 01:02-R3 .80 .020 Mo_date 12:12 12.99 n/a .000
02276 SUM= 1.0 01:02-R3 .80 .020 Mo_date 12:12 12.99 n/a .000
02277 R0102:C0024-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02278 ROUTE CHANNEL -> 1.0 01:06 8.81 .020 Mo_date 12:12 12.93 n/a .000
02279 [RDY=1.00] out <= 1.0 01:06 8.81 .020 Mo_date 12:12 12.93 n/a .000
02280 [L/S= 77 / .776;Q35]
02281 [Vmax=.492;Dmax=.104]
02282 R0102:C0025-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02283 ROUTE CHANNEL -> 1.0 01:07 1.44 .009 Mo_date 12:18 12.99 n/a .000
02284 [RDY=1.00] out <= 1.0 01:07 1.44 .009 Mo_date 12:12 12.99 n/a .000
02285 [L/S= 159 / .576;Q35]
02286 [Vmax=.797;Dmax=.003]
02287 R0102:C0026-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02288 ADD HYD + 1.0 01:06 1.02 .023 Mo_date 12:15 12.97 n/a .000
02289 + 1.0 01:02-R3 .81 .019 Mo_date 12:15 12.96 n/a .000
02290 SUM= 1.0 01:02-R3 .81 .019 Mo_date 12:15 12.96 n/a .000
02291 R0102:C0027-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02292 ROUTE CHANNEL -> 1.0 01:07 1.46 .031 Mo_date 12:19 13.01 n/a .000
02293 [RDY=1.00] out <= 1.0 01:07 1.46 .031 Mo_date 12:20 13.01 n/a .000
02294 [L/S= 29 / .887;Q35]
02295 [Vmax=.443;Dmax=.017]
02296 R0102:C0028-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02297 ADD HYD + 1.0 01:08 1.02 .023 Mo_date 12:15 12.97 n/a .000
02298 + 1.0 01:02-R3 .81 .019 Mo_date 12:15 12.96 n/a .000
02299 SUM= 1.0 01:02-R3 .81 .019 Mo_date 12:15 12.96 n/a .000
02300 R0102:C0029-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02301 ROUTE CHANNEL -> 1.0 01:08 1.46 .031 Mo_date 12:19 13.01 n/a .000
02302 [RDY=1.00] out <= 1.0 01:08 1.46 .031 Mo_date 12:20 13.01 n/a .000
02303 [L/S= 29 / .887;Q35]
02304 [Vmax=.443;Dmax=.017]
02305 R0102:C0030-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02306 ADD HYD + 1.0 01:08 1.02 .023 Mo_date 12:15 12.97 n/a .000
02307 + 1.0 01:02-R3 .81 .019 Mo_date 12:15 12.96 n/a .000
02308 SUM= 1.0 01:02-R3 .81 .019 Mo_date 12:15 12.96 n/a .000
02309 R0102:C0031-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02310 ROUTE CHANNEL -> 1.0 01:09 1.46 .031 Mo_date 12:19 13.01 n/a .000
02311 [RDY=1.00] out <= 1.0 01:09 1.46 .031 Mo_date 12:20 13.01 n/a .000
02312 [L/S= 29 / .887;Q35]
02313 [Vmax=.443;Dmax=.017]
02314 R0102:C0032-----Dtain-ID:NYDV-----AREAhA-QFEARcm-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
02315 ROUTE PIPE -> 1.0 01:09 13.09 .234 Mo_date 12:13 17.50 n/a .000
02316 [RDY=1.00] out <= 1.0 01:09 13.09 .232 Mo_date 12:13 17.50 n/a .000
02317 [L/S= 10 / .011;Q35]
02318 [Vmax=.346;Dmax=.813]
02319 [Dinv=.55;Dused=.99]
02320 *****
02321 # STORMS
02322 *****
02323 *****
02324 *****
02325 *****
02326 *****
02327 *****
02328 *****
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***JFS*Ainc**

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028811 [L/S/m= 143./ .394/.035]
02882 (Vmax= .316;Dmax= .129)
02883 R0110:C00035 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02884 ADD HYD + 1.0 02:01 1.23 .036 No_date 12:21 43.37 n/a .000
02885 SUM= 1.0 02:01 1.23 .036 No_date 12:11 35.46 n/a .000
02886 + 1.0 02:EXT1 3.21 .121 No_date 12:40 36.46 n/a .000
02887 [L/S/m= 92./ .277/.035]
02888 R0110:C00036 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02889 ROUTE CHANNEL > 1.0 02:12 5.00 .178 No_date 12:29 38.15 n/a .000
02890 (RDTE 1.00) out<- 1.0 01:02 5.00 .177 No_date 12:31 38.15 n/a .000
02891 [L/S/m= 73./ .425/.035]
02892 (Vmax= .478;Dmax= .253)
02893 R0110:C00037 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02894 ADD HYD + 1.0 02:02 5.00 .177 No_date 12:31 38.15 n/a .000
02895 SUM= 1.0 02:EXT3 5.31 .190 No_date 12:11 37.99 n/a .000
02896 + 1.0 02:EXT4 5.31 .191 No_date 12:12 37.99 n/a .000
02897 R0110:C00038 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02898 ROUTE CHANNEL > 1.0 02:23 5.31 .191 No_date 12:28 37.99 n/a .000
02899 (RDTE 1.00) out<- 1.0 01:03 5.31 .190 No_date 12:31 37.99 n/a .000
02900 [L/S/m= 92./ .277/.035]
02901 (Vmax= .391;Dmax= .253)
02902 R0110:C00039 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02903 ADD HYD + 1.0 02:03 5.31 .190 No_date 12:31 37.99 n/a .000
02904 SUM= 1.0 02:EXT5 5.31 .190 No_date 12:22 32.39 n/a .000
02905 + 1.0 02:EXT6 5.90 .216 No_date 12:10 37.43 n/a .000
02906 R0110:C00040 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02907 ROUTE CHANNEL > 1.0 02:14 5.90 .216 No_date 12:30 37.43 n/a .000
02908 (RDTE 1.00) out<- 1.0 01:04 5.90 .204 No_date 12:40 37.43 n/a .000
02909 [L/S/m= 251./ .190/.035]
02910 (Vmax= .384;Dmax= .284)
02911 R0110:C00041 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02912 ADD HYD + 1.0 02:04 5.90 .204 No_date 12:40 37.43 n/a .000
02913 SUM= 1.0 02:EXT6 8.6 .046 No_date 12:29 42.40 n/a .000
02914 + 1.0 02:EXT7 7.23 .268 No_date 12:15 38.18 n/a .000
02915 R0110:C00042 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02916 ROUTE CHANNEL > 1.0 02:15 7.23 .268 No_date 12:15 38.18 n/a .000
02917 (RDTE 1.00) out<- 1.0 01:05 7.23 .264 No_date 12:41 38.18 n/a .000
02918 [L/S/m= 237./ .644/.035]
02919 (Vmax= .623;Dmax= .457)
02920 R0110:C00043 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02921 ADD HYD + 1.0 02:05 8.6 .043 No_date 12:11 38.00 n/a .000
02922 SUM= 1.0 02:Pre2_2 .01 .000 No_date 12:00 19.72 n/a .000
02923 + 1.0 02:Pre2_2 .01 .000 No_date 12:00 34.35 n/a .000
02924 R0110:C00044 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02925 ROUTE CHANNEL > 1.0 01:06 8.1 .043 No_date 12:11 27.87 n/a .000
02926 (RDTE 1.00) out<- 1.0 01:06 8.1 .043 No_date 12:14 27.87 n/a .000
02927 [L/S/m= 77./ .774/.035]
02928 (Vmax= .492;Dmax= .321)
02929 R0110:C00045 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02930 ADD HYD + 1.0 02:06 8.1 .043 No_date 12:14 27.87 n/a .000
02931 SUM= 1.0 02:EXT10 1.20 .008 No_date 12:20 27.99 n/a .000
02932 + 1.0 02:EXT11 1.02 .051 No_date 12:15 27.94 n/a .000
02933 R0110:C00046 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02934 ROUTE CHANNEL > 1.0 02:16 1.02 .051 No_date 12:15 27.94 n/a .000
02935 (RDTE 1.00) out<- 1.0 01:07 1.46 .069 No_date 12:10 28.00 n/a .000
02936 [L/S/m= 159./ .1574/.035]
02937 (Vmax= .791;Dmax= .535)
02938 R0110:C00047 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02939 ADD HYD + 1.0 02:07 1.20 .008 No_date 12:20 27.99 n/a .000
02940 SUM= 1.0 02:EXT10 1.02 .051 No_date 12:15 27.94 n/a .000
02941 R0110:C00048 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02942 ROUTE CHANNEL > 1.0 02:16 1.02 .051 No_date 12:15 27.94 n/a .000
02943 (RDTE 1.00) out<- 1.0 01:07 1.46 .069 No_date 12:10 28.00 n/a .000
02944 [L/S/m= 79./ .522/.035]
02945 (Vmax= .423;Dmax= .337)
02946 R0110:C00049 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02947 ADD HYD + 1.0 02:08 1.02 .050 No_date 12:18 27.97 n/a .000
02948 SUM= 1.0 02:EXT11 1.02 .050 No_date 12:19 28.00 n/a .000
02949 R0110:C00050 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02950 ROUTE CHANNEL > 1.0 02:17 1.46 .069 No_date 12:10 28.00 n/a .000
02951 (RDTE 1.00) out<- 1.0 01:09 1.46 .069 No_date 12:20 28.00 n/a .000
02952 [L/S/m= 29./ .887/.035]
02953 (Vmax= .543;Dmax= .447)
02954 R0110:C00051 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02955 ADD HYD + 1.0 02:09 1.46 .069 No_date 12:20 28.02 n/a .000
02956 SUM= 1.0 02:EXT12 7.23 .264 No_date 12:41 38.18 n/a .000
02957 + 1.0 02:EXT13 13.09 .505 No_date 12:30 35.30 n/a .000
02958 R0110:C00052 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02959 ROUTE PIPE > 1.0 02:18 13.09 .505 No_date 12:30 35.30 n/a .000
02960 (RDTE 1.00) out<- 1.0 01:07 13.09 .505 No_date 12:32 35.30 n/a .000
02961 [L/S/m= 8./ .010/.035]
02962 (Vmax= .419;Dmax= 1.085)
02963 R0110:C00053 -----Dtn-ID-INHYD-----AREAh-QFEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
02964 ROUTE CHANNEL > 1.0 02:17 1.46 .069 No_date 12:10 28.00 n/a .000
02965 (RDTE 1.00) out<- 1.0 01:07 1.46 .069 No_date 12:20 28.00 n/a .000
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03060 *****
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032411 [RDT= 1.00] out<- 1.0 01:R5 7.23 .338 No_date 12:19 48.09 n/a .000
03242 [L/S/N= 227./, 644./,035]
03243 (Vmax=.671;Dmax=.295)
03244 R0125:C00043-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03245 And HYD + 1.0 02:PRE1.1 .81 .056 No_date 12:11 36.35 n/a .000
03246 + 1.0 02:PRE2 .01 .002 No_date 12:00 26.12 n/a .000
03247 + 1.0 02:PRE3 .00 .000 No_date 12:00 43.92 n/a .000
03248 SUM= 1.0 01:PRE .81 .057 No_date 12:11 36.19 n/a .000
03249 R0125:C00044-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03250 ROUTE CHANNEL -> 1.0 01:PRE .81 .057 No_date 12:11 36.19 n/a .000
03251 [RDT= 1.00] out<- 1.0 01:R6 .81 .056 No_date 12:14 36.19 n/a .000
03252 [L/S/N= 159./,157./,035]
03253 (Vmax=.492;Dmax=.041)
03254 R0125:C00045-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03255 ROUTE CHANNEL -> 1.0 01:PRE1.1 .44 .026 No_date 12:17 36.35 n/a .000
03256 [RDT= 1.00] out<- 1.0 01:R7 .44 .025 No_date 12:21 36.35 n/a .000
03257 [L/S/N= 159./,157./,035]
03258 (Vmax=.797;Dmax=.008)
03259 R0125:C00046-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03260 And HYD + 1.0 02:EXT10 .20 .011 No_date 12:20 36.34 n/a .000
03261 + 1.0 02:EXT10 .20 .011 No_date 12:20 36.34 n/a .000
03262 SUM= 1.0 01:PRE 1.02 .066 No_date 12:15 36.27 n/a .000
03263 R0125:C00047-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03264 ROUTE CHANNEL -> 1.0 02:PRE 1.02 .066 No_date 12:15 36.27 n/a .000
03265 [RDT= 1.00] out<- 1.0 01:R8 1.02 .065 No_date 12:18 36.27 n/a .000
03266 [L/S/N= 79./,522./,035]
03267 (Vmax=.423;Dmax=.049)
03268 R0125:C00048-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03269 ADD HYD + 1.0 02:EXT9 3.57 .205 No_date 12:23 41.62 n/a .000
03270 + 1.0 02:EXT9 1.46 .090 No_date 12:19 36.34 n/a .000
03271 SUM= 1.0 01:PRE 1.46 .090 No_date 12:19 36.34 n/a .000
03272 R0125:C00049-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03273 ROUTE CHANNEL -> 1.0 02:PRE 1.46 .090 No_date 12:19 36.34 n/a .000
03274 [RDT= 1.00] out<- 1.0 01:R7 1.46 .090 No_date 12:19 36.34 n/a .000
03275 [L/S/N= 29./,887./,035]
03276 (Vmax=.543;Dmax=.061)
03277 R0125:C00050-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03278 ADD HYD + 1.0 02:EXT9 3.57 .205 No_date 12:23 41.62 n/a .000
03279 + 1.0 02:EXT9 1.46 .090 No_date 12:19 36.34 n/a .000
03280 SUM= 1.0 01:PRE 1.46 .090 No_date 12:19 36.34 n/a .000
03281 + 1.0 02:EXT9 1.46 .090 No_date 12:19 36.34 n/a .000
03282 SUM= 1.0 01:PRE 1.46 .090 No_date 12:19 36.34 n/a .000
03283 R0125:C00051-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03284 ROUTE PIPE -> 1.0 02:PRE 13.09 .656 No_date 12:29 44.84 n/a .000
03285 [RDT= 1.00] out<- 1.0 01:R8 13.09 .656 No_date 12:31 44.84 n/a .000
03286 [L/S/N= 8./,010./,035]
03287 (Vmax=.437;Dmax=.049)
03288 (Dms=.53;Dused=1.44)
03289 #####
03290 # STORM
03291 #####
03292 ** END OF RUN : 149
03293
03294
03295
03296
03297
03298
03299
03300 R0125:COMMAND#
03301 R0125:C00001-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03302 START
03303 [TZERO = .0 hrs on 0]
03304 [METWOT= 2 (1=Imperial, 2=metric output)]
03305 [METWOT= 1]
03306 [NRUN = 0150]
03307
03308 # SWHYND / INPUT DATA FILE
03309
03310 # Project Name : [5923 Ottawa St]
03311 # Project Number: [92710(001)]
03312 # Date : [0225 April 28]
03313 # Modeller : [JFS]
03314 # Company : [OWA Canada Inc.]
03315 # License #: [254927]
03316 #####
03317 # Model developed to simulate the post development conditions
03318 #####
03319 R0125:C00002-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03320 READ STORM
03321 Filename = STORM.001
03322 [C= 50 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa]
03323 [SDT=10.00;IDDR= 24.00;PTOT= 96.53]
03324
03325 R0125:C00003-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03326 DEFAULT VALUES
03327 Filename = C:\Temp\20250910-PostDev\Ottawa.val
03328 ICAREGV = 1 (read and print data)
03329 FilterFile File comment: [Parameters for City of Ottawa Projects]
03330 THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARHYD COM
03331 Horton's infiltration equation parameters:
03332 [F= 16.23 mm/hr] [F=13.20 mm/hr] [COAXY 4.14 1/h] [F= .00 mm]
03333 Parameters for FFWHOV surfaces in STANDHYD:
03334 [Iax= 4.67 mm] [LGR=40.00 m] [DHW= 230]
03335 Parameters for FFWHOV surfaces in STANDHYD:
03336 [Iax= 1.57 mm] [CL=1.50] [DHW= .03]
03337 Parameters used in STANDHYD:
03338 [I= 4.67 mm] [N= 3.00]
03339 Average monthly Pan Evaporation data in (mm)
03340 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
03341 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
03342 Average monthly Potential Transpiration (mm)
03343 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
03344 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
03345 #####
03346 # EXT1
03347 #####
03348 R0125:C00004-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03349 CALIB NASHYD 1.0 01:EXT1 3.21 .182 No_date 12:40 54.31 .563 .000
03350 [C= 85.0; N= 3.00; Tpe=.33]
03351 # EXT2
03352 #####
03353 R0125:C00005-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03354 CALIB NASHYD 1.0 01:EXT2 .28 .033 No_date 12:13 61.73 .440 .000
03355 [C= 85.0; N= 3.00; Tpe=.33]
03356 #####
03357 R0125:C00006-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03358 # EXT3
03359 #####
03360 R0125:C00006-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03361 CALIB NASHYD 1.0 01:EXT3 .56 .057 No_date 12:13 54.31 .563 .000
03362 [C= 85.0; N= 3.00; Tpe=.33]
03363 # EXT4
03364 #####
03365 R0125:C00007-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03366 CALIB NASHYD 1.0 01:EXT4 .31 .033 No_date 12:11 52.94 .548 .000
03367 [C= 79.0; N= 3.00; Tpe=.29]
03368 # EXT5
03369 #####
03370 R0125:C00008-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03371 CALIB NASHYD 1.0 01:EXT5 .59 .042 No_date 12:21 49.04 .508 .000
03372 [C= 76.0; N= 3.00; Tpe=.45]
03373 # EXT6
03374 #####
03375 R0125:C00009-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03376 CALIB NASHYD 1.0 01:EXT6 .86 .068 No_date 12:28 61.73 .440 .000
03377 [C= 85.0; N= 3.00; Tpe=.33]
03378 # EXT7
03379 #####
03380 R0125:C00010-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03381 CALIB NASHYD 1.0 01:EXT7 .47 .052 No_date 12:12 58.44 .408 .000
03382 [C= 83.0; N= 3.00; Tpe=.32]
03383 # EXT8
03384 #####
03385 R0125:C00011-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03386 CALIB NASHYD 1.0 01:EXT8 .83 .068 No_date 12:19 52.94 .548 .000
03387 [C= 79.0; N= 3.00; Tpe=.42]
03388 # EXT9
03389 #####
03390 R0125:C00012-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03391 CALIB NASHYD 1.0 01:EXT9 .59 .042 No_date 12:21 49.04 .508 .000
03392 [C= 76.0; N= 3.00; Tpe=.45]
03393 # EXT10
03394 #####
03395 R0125:C00013-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03396 CALIB NASHYD 1.0 01:EXT10 .20 .013 No_date 12:19 43.13 .447 .000
03397 [C= 72.0; N= 3.00; Tpe=.03]
03398 # EXT11
03399 #####
03400 R0125:C00014-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03401 CALIB NASHYD 1.0 01:EXT11 .01 .003 No_date 12:00 44.25 .438 .000
03402 [C= 72.0; N= 3.00; Tpe=.03]
03403 # EXT12
03404 #####
03405 R0125:C00015-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03406 CALIB NASHYD 1.0 01:EXT12 .01 .002 No_date 12:00 51.60 .535 .000
03407 [C= 78.0; N= 3.00; Tpe=.04]
03408 # EXT13
03409 #####
03410 R0125:C00016-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03411 CALIB NASHYD 1.0 01:EXT13 .01 .002 No_date 12:00 51.60 .535 .000
03412 [C= 78.0; N= 3.00; Tpe=.04]
03413 # EXT14
03414 #####
03415 R0125:C00017-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03416 CALIB NASHYD 1.0 01:EXT14 .01 .002 No_date 12:00 51.60 .535 .000
03417 [C= 78.0; N= 3.00; Tpe=.04]
03418 # EXT15
03419 #####
03420 R0125:C00018-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03421 CALIB NASHYD 1.0 01:EXT15 .01 .002 No_date 12:00 51.60 .535 .000
03422 [C= 78.0; N= 3.00; Tpe=.04]
03423 # EXT16
03424 #####
03425 R0125:C00019-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03426 CALIB NASHYD 1.0 01:EXT16 .01 .002 No_date 12:00 51.60 .535 .000
03427 [C= 78.0; N= 3.00; Tpe=.04]
03428 # EXT17
03429 #####
03430 R0125:C00020-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03431 CALIB NASHYD 1.0 01:EXT17 .01 .002 No_date 12:00 51.60 .535 .000
03432 [C= 78.0; N= 3.00; Tpe=.04]
03433 # EXT18
03434 #####
03435 R0125:C00021-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03436 CALIB NASHYD 1.0 01:EXT18 .01 .002 No_date 12:00 51.60 .535 .000
03437 [C= 78.0; N= 3.00; Tpe=.04]
03438 # EXT19
03439 #####
03440 R0125:C00022-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03441 CALIB NASHYD 1.0 01:EXT19 .01 .002 No_date 12:00 51.60 .535 .000
03442 [C= 78.0; N= 3.00; Tpe=.04]
03443 # EXT20
03444 #####
03445 R0125:C00023-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03446 CALIB NASHYD 1.0 01:EXT20 .01 .002 No_date 12:00 51.60 .535 .000
03447 [C= 78.0; N= 3.00; Tpe=.04]
03448 # EXT21
03449 #####
03450 R0125:C00024-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03451 CALIB NASHYD 1.0 01:EXT21 .01 .002 No_date 12:00 51.60 .535 .000
03452 [C= 78.0; N= 3.00; Tpe=.04]
03453 # EXT22
03454 #####
03455 R0125:C00025-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03456 CALIB NASHYD 1.0 01:EXT22 .01 .002 No_date 12:00 51.60 .535 .000
03457 [C= 78.0; N= 3.00; Tpe=.04]
03458 # EXT23
03459 #####
03460 R0125:C00026-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03461 CALIB NASHYD 1.0 01:EXT23 .01 .002 No_date 12:00 51.60 .535 .000
03462 [C= 78.0; N= 3.00; Tpe=.04]
03463 # EXT24
03464 #####
03465 R0125:C00027-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03466 CALIB NASHYD 1.0 01:EXT24 .01 .002 No_date 12:00 51.60 .535 .000
03467 [C= 78.0; N= 3.00; Tpe=.04]
03468 # EXT25
03469 #####
03470 R0125:C00028-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03471 CALIB NASHYD 1.0 01:EXT25 .01 .002 No_date 12:00 51.60 .535 .000
03472 [C= 78.0; N= 3.00; Tpe=.04]
03473 # EXT26
03474 #####
03475 R0125:C00029-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03476 CALIB NASHYD 1.0 01:EXT26 .01 .002 No_date 12:00 51.60 .535 .000
03477 [C= 78.0; N= 3.00; Tpe=.04]
03478 # EXT27
03479 #####
03480 R0125:C00030-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03481 CALIB NASHYD 1.0 01:EXT27 .01 .002 No_date 12:00 51.60 .535 .000
03482 [C= 78.0; N= 3.00; Tpe=.04]
03483 # EXT28
03484 #####
03485 R0125:C00031-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03486 CALIB NASHYD 1.0 01:EXT28 .01 .002 No_date 12:00 51.60 .535 .000
03487 [C= 78.0; N= 3.00; Tpe=.04]
03488 # EXT29
03489 #####
03490 R0125:C00032-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03491 CALIB NASHYD 1.0 01:EXT29 .01 .002 No_date 12:00 51.60 .535 .000
03492 [C= 78.0; N= 3.00; Tpe=.04]
03493 # EXT30
03494 #####
03495 R0125:C00033-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03496 CALIB NASHYD 1.0 01:EXT30 .01 .002 No_date 12:00 51.60 .535 .000
03497 [C= 78.0; N= 3.00; Tpe=.04]
03498 # EXT31
03499 #####
03500 R0125:C00034-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03501 CALIB NASHYD 1.0 01:EXT31 .01 .002 No_date 12:00 51.60 .535 .000
03502 [C= 78.0; N= 3.00; Tpe=.04]
03503 # EXT32
03504 #####
03505 R0125:C00035-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03506 CALIB NASHYD 1.0 01:EXT32 .01 .002 No_date 12:00 51.60 .535 .000
03507 [C= 78.0; N= 3.00; Tpe=.04]
03508 # EXT33
03509 #####
03510 R0125:C00036-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03511 CALIB NASHYD 1.0 01:EXT33 .01 .002 No_date 12:00 51.60 .535 .000
03512 [C= 78.0; N= 3.00; Tpe=.04]
03513 # EXT34
03514 #####
03515 R0125:C00037-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03516 CALIB NASHYD 1.0 01:EXT34 .01 .002 No_date 12:00 51.60 .535 .000
03517 [C= 78.0; N= 3.00; Tpe=.04]
03518 # EXT35
03519 #####
03520 R0125:C00038-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03521 CALIB NASHYD 1.0 01:EXT35 .01 .002 No_date 12:00 51.60 .535 .000
03522 [C= 78.0; N= 3.00; Tpe=.04]
03523 # EXT36
03524 #####
03525 R0125:C00039-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03526 CALIB NASHYD 1.0 01:EXT36 .01 .002 No_date 12:00 51.60 .535 .000
03527 [C= 78.0; N= 3.00; Tpe=.04]
03528 # EXT37
03529 #####
03530 R0125:C00040-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03531 CALIB NASHYD 1.0 01:EXT37 .01 .002 No_date 12:00 51.60 .535 .000
03532 [C= 78.0; N= 3.00; Tpe=.04]
03533 # EXT38
03534 #####
03535 R0125:C00041-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03536 CALIB NASHYD 1.0 01:EXT38 .01 .002 No_date 12:00 51.60 .535 .000
03537 [C= 78.0; N= 3.00; Tpe=.04]
03538 # EXT39
03539 #####
03540 R0125:C00042-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03541 CALIB NASHYD 1.0 01:EXT39 .01 .002 No_date 12:00 51.60 .535 .000
03542 [C= 78.0; N= 3.00; Tpe=.04]
03543 # EXT40
03544 #####
03545 R0125:C00043-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03546 CALIB NASHYD 1.0 01:EXT40 .01 .002 No_date 12:00 51.60 .535 .000
03547 [C= 78.0; N= 3.00; Tpe=.04]
03548 # EXT41
03549 #####
03550 R0125:C00044-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03551 CALIB NASHYD 1.0 01:EXT41 .01 .002 No_date 12:00 51.60 .535 .000
03552 [C= 78.0; N= 3.00; Tpe=.04]
03553 # EXT42
03554 #####
03555 R0125:C00045-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03556 CALIB NASHYD 1.0 01:EXT42 .01 .002 No_date 12:00 51.60 .535 .000
03557 [C= 78.0; N= 3.00; Tpe=.04]
03558 # EXT43
03559 #####
03560 R0125:C00046-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03561 CALIB NASHYD 1.0 01:EXT43 .01 .002 No_date 12:00 51.60 .535 .000
03562 [C= 78.0; N= 3.00; Tpe=.04]
03563 # EXT44
03564 #####
03565 R0125:C00047-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03566 CALIB NASHYD 1.0 01:EXT44 .01 .002 No_date 12:00 51.60 .535 .000
03567 [C= 78.0; N= 3.00; Tpe=.04]
03568 # EXT45
03569 #####
03570 R0125:C00048-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03571 CALIB NASHYD 1.0 01:EXT45 .01 .002 No_date 12:00 51.60 .535 .000
03572 [C= 78.0; N= 3.00; Tpe=.04]
03573 # EXT46
03574 #####
03575 R0125:C00049-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03576 CALIB NASHYD 1.0 01:EXT46 .01 .002 No_date 12:00 51.60 .535 .000
03577 [C= 78.0; N= 3.00; Tpe=.04]
03578 # EXT47
03579 #####
03580 R0125:C00050-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03581 CALIB NASHYD 1.0 01:EXT47 .01 .002 No_date 12:00 51.60 .535 .000
03582 [C= 78.0; N= 3.00; Tpe=.04]
03583 # EXT48
03584 #####
03585 R0125:C00051-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03586 CALIB NASHYD 1.0 01:EXT48 .01 .002 No_date 12:00 51.60 .535 .000
03587 [C= 78.0; N= 3.00; Tpe=.04]
03588 # EXT49
03589 #####
03590 R0125:C00052-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03591 CALIB NASHYD 1.0 01:EXT49 .01 .002 No_date 12:00 51.60 .535 .000
03592 [C= 78.0; N= 3.00; Tpe=.04]
03593 # EXT50
03594 #####
03595 R0125:C00053-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03596 CALIB NASHYD 1.0 01:EXT50 .01 .002 No_date 12:00 51.60 .535 .000
03597 [C= 78.0; N= 3.00; Tpe=.04]
03598 # EXT51
03599 #####
03600 R0125:C00054-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03601 CALIB NASHYD 1.0 01:EXT51 .01 .002 No_date 12:00 51.60 .535 .000
03602 [C= 78.0; N= 3.00; Tpe=.04]
03603 # EXT52
03604 #####
03605 R0125:C00055-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03606 CALIB NASHYD 1.0 01:EXT52 .01 .002 No_date 12:00 51.60 .535 .000
03607 [C= 78.0; N= 3.00; Tpe=.04]
03608 # EXT53
03609 #####
03610 R0125:C00056-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03611 CALIB NASHYD 1.0 01:EXT53 .01 .002 No_date 12:00 51.60 .535 .000
03612 [C= 78.0; N= 3.00; Tpe=.04]
03613 # EXT54
03614 #####
03615 R0125:C00057-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03616 CALIB NASHYD 1.0 01:EXT54 .01 .002 No_date 12:00 51.60 .535 .000
03617 [C= 78.0; N= 3.00; Tpe=.04]
03618 # EXT55
03619 #####
03620 R0125:C00058-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03621 CALIB NASHYD 1.0 01:EXT55 .01 .002 No_date 12:00 51.60 .535 .000
03622 [C= 78.0; N= 3.00; Tpe=.04]
03623 # EXT56
03624 #####
03625 R0125:C00059-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03626 CALIB NASHYD 1.0 01:EXT56 .01 .002 No_date 12:00 51.60 .535 .000
03627 [C= 78.0; N= 3.00; Tpe=.04]
03628 # EXT57
03629 #####
03630 R0125:C00060-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03631 CALIB NASHYD 1.0 01:EXT57 .01 .002 No_date 12:00 51.60 .535 .000
03632 [C= 78.0; N= 3.00; Tpe=.04]
03633 # EXT58
03634 #####
03635 R0125:C00061-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03636 CALIB NASHYD 1.0 01:EXT58 .01 .002 No_date 12:00 51.60 .535 .000
03637 [C= 78.0; N= 3.00; Tpe=.04]
03638 # EXT59
03639 #####
03640 R0125:C00062-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03641 CALIB NASHYD 1.0 01:EXT59 .01 .002 No_date 12:00 51.60 .535 .000
03642 [C= 78.0; N= 3.00; Tpe=.04]
03643 # EXT60
03644 #####
03645 R0125:C00063-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03646 CALIB NASHYD 1.0 01:EXT60 .01 .002 No_date 12:00 51.60 .535 .000
03647 [C= 78.0; N= 3.00; Tpe=.04]
03648 # EXT61
03649 #####
03650 R0125:C00064-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03651 CALIB NASHYD 1.0 01:EXT61 .01 .002 No_date 12:00 51.60 .535 .000
03652 [C= 78.0; N= 3.00; Tpe=.04]
03653 # EXT62
03654 #####
03655 R0125:C00065-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03656 CALIB NASHYD 1.0 01:EXT62 .01 .002 No_date 12:00 51.60 .535 .000
03657 [C= 78.0; N= 3.00; Tpe=.04]
03658 # EXT63
03659 #####
03660 R0125:C00066-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03661 CALIB NASHYD 1.0 01:EXT63 .01 .002 No_date 12:00 51.60 .535 .000
03662 [C= 78.0; N= 3.00; Tpe=.04]
03663 # EXT64
03664 #####
03665 R0125:C00067-----Dtn-ID-INHYD-----AREAh-QFEARms-TpeakDate_hh:mm-----
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```
036011 ADD HYD + 1.0 02:EXT9 3.57 .242 No_date 12:23 49.04 n/a .000
036022 + 1.0 02:EXT9 1.46 .107 No_date 12:19 43.15 n/a .000
036033 + 1.0 02:EXT8 .83 .068 No_date 12:19 52.94 n/a .000
036044 + 1.0 02:EXT8 .23 .396 No_date 12:38 55.95 n/a .000
036055 SUM= 1.0 01:ST8 13.09 .776 No_date 12:28 52.45 n/a .000
036066 R0199:CO0001-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
036077 ROUTE RESERVOIR -> 1.0 01:ST8 13.09 .776 No_date 12:28 52.45 n/a .000
036088 * (RD=1.00) out<- 1.0 01:Outlet 13.09 .775 No_date 12:30 52.45 n/a .000
036099 [L/S/m= 87. /0107.033]
036100 (Vmax= 483:Imax= 1.25)
036111 Dtlm= 53:Dosed= 1.55)
036122 *****
036133 * STORMS
036144 *****
036155 ** END OF RUN : 198
036166 *****
036177 *****
036188 *****
036199 *****
036200 *****
036211 *****
036222 *****
036233 RUN:COMMAND#
036244 R0199:CO0001-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
036255 START
036266 (TZERO = .00 hrs on 0)
036277 (METOUT= 2 [Imperial, 2-metric output])
036288 (INSTORM= 1)
036299 (NRUN = 019)
036300 *****
036311 # SWHYMO / INPUT DATA FILE
036322 *****
036333 # Project Name : [5923 Ottawa St]
036344 # Project Number: [P2710(01)]
036355 # Date : [2025 April 28]
036366 # Modeller : [JFS]
036377 # Company : JFS Canada Inc.
036388 # License # : 2549237
036399 *****
036400 # Model developed to simulate runoff from subcatchments under post development conditions
036411 *****
036422 R0199:CO0002-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
036433 READ STORM
036444 Filename = STORM.001
036455 Comments = 100 Year SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa
036466 (SDT=10.00:SDUR= 24.00:PDOT= 106.73)
036477 *****
036488 R0199:CO0003-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
036499 DEFAULT VALUES
036500 Filename = C:\Temp\20250910-PostDev\Ottawa.val
036511 ICAREV = 1 (read and print data)
036522 FileTitle File comment: [Parameters for City of Ottawa Projects]
036533 *****
036544 THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
036555 Parameters for INFILTRATION equation parameters:
036566 [Fw= 16.20 mm/hr] [Fw1= 20 mm/hr] [DCAV= 4.14 /hr] [F= .00 mm]
036577 [Iapex= 4.67 mm] [Iap=40.00 n/s] [DWT= .250]
036588 Parameters for IMPERVIOUS surfaces in STANDARD:
036599 [Iapex= 1.57 mm] [Iap=1.50] [DWT= .03]
036600 Parameters used in NALM:
036611 [Iw= 4.67 mm] [Cv= 3.00]
036622 Average monthly Pan Evaporation data in (mm)
036633 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
036644 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
036655 Average monthly Potential Evapotranspiration in (mm)
036666 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
036677 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
036688 *****
036699 # EXTS
036700 *****
036711 R0199:CO0004-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
036722 CALIB NASHYD 1.0 01:EXT4 3.21 .212 No_date 12:39 62.92 .589 .000
036733 [Cv= 80.0: N= 3.00: Tpe= .72]
036744 *****
036755 # EXTS
036766 *****
036777 R0199:CO0005-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
036788 CALIB NASHYD 1.0 01:EXT2 .28 .037 No_date 12:13 70.91 .664 .000
036799 [Cv= 85.0: N= 3.00: Tpe= .33]
036800 *****
036811 # EXTS
036822 *****
036833 R0199:CO0006-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
036844 CALIB NASHYD 1.0 01:EXT3 .56 .066 No_date 12:13 62.92 .589 .000
036855 [Cv= 78.0: N= 3.00: Tpe= .04]
036866 *****
036877 # EXTS
036888 *****
036899 R0199:CO0007-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
036900 CALIB NASHYD 1.0 01:EXT4 .31 .031 .084 No_date 12:13 50.61 .474 .000
036911 [Cv= 79.0: N= 3.00: Tpe= .29]
036922 *****
036933 # EXTS
036944 *****
036955 R0199:CO0008-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
036966 CALIB NASHYD 1.0 01:EXT5 .59 .049 No_date 12:21 57.15 .535 .000
036977 [Cv= 78.0: N= 3.00: Tpe= .04]
036988 *****
036999 # EXTS
037000 *****
037011 R0199:CO0009-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037022 CALIB NASHYD 1.0 01:EXT4 .86 .078 No_date 12:28 70.92 .664 .000
037033 [Cv= 85.0: N= 3.00: Tpe= .56]
037044 *****
037055 # EXTS
037066 *****
037077 R0199:CO0010-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037088 CALIB NASHYD 1.0 01:EXT7 .47 .060 No_date 12:12 67.60 .633 .000
037099 [Cv= 81.0: N= 3.00: Tpe= .32]
037100 *****
037111 # EXTS
037122 *****
037133 R0199:CO0011-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037144 CALIB NASHYD 1.0 01:EXT8 .83 .079 No_date 12:19 61.42 .576 .000
037155 [Cv= 78.0: N= 3.00: Tpe= .02]
037166 *****
037177 # EXTS
037188 *****
037199 R0199:CO0012-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037200 CALIB NASHYD 1.0 01:EXT8 3.37 .084 No_date 12:17 57.15 .535 .000
037211 [Cv= 76.0: N= 3.00: Tpe= .48]
037222 *****
037233 # EXTS
037244 *****
037255 R0199:CO0013-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037266 CALIB NASHYD 1.0 01:EXT9a .01 .003 No_date 12:00 59.96 .562 .000
037277 [Cv= 78.0: N= 3.00: Tpe= .04]
037288 *****
037299 # EXTS
037300 *****
037311 R0199:CO0014-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037322 CALIB NASHYD 1.0 01:EXT10 .20 .016 No_date 12:19 50.61 .474 .000
037333 [Cv= 71.0: N= 3.00: Tpe= .42]
037344 *****
037355 # Pre2_1
037366 *****
037377 R0199:CO0015-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037388 CALIB NASHYD 1.0 01:Pre2_1 .01 .003 No_date 12:00 51.86 .486 .000
037399 [Cv= 72.0: N= 3.00: Tpe= .03]
037400 *****
037411 # Pre2_2
037422 *****
037433 R0199:CO0016-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037444 CALIB NASHYD 1.0 01:Pre2_2 .00 .001 No_date 12:00 59.95 .562 .000
037455 [Cv= 78.0: N= 3.00: Tpe= .02]
037466 *****
037477 # Pre2_3
037488 *****
037499 R0199:CO0017-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037500 CALIB NASHYD 1.0 01:Pre2_3 3.44 .084 No_date 12:17 50.61 .474 .000
037511 [Cv= 71.0: N= 3.00: Tpe= .38]
037522 *****
037533 # Pre2_3
037544 *****
037555 R0199:CO0018-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037566 CALIB NASHYD 1.0 01:Pre2_2 .01 .002 No_date 12:00 37.39 .350 .000
037577 [Cv= 59.0: N= 3.00: Tpe= .04]
037588 *****
037599 # Pre1_1
037600 *****
037611 R0199:CO0019-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037622 CALIB NASHYD 1.0 01:Pre2_1 .80 .079 No_date 12:11 50.61 .474 .000
037633 [Cv= 71.0: N= 3.00: Tpe= .29]
037644 *****
037655 # Pre1_1
037666 *****
037677 R0199:CO0020-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037688 CALIB NASHYD 1.0 01:Pre1_1 .07 .010 No_date 12:06 59.96 .562 .000
037699 [Cv= 78.0: N= 3.00: Tpe= .21]
037700 *****
037711 # Site 1
037722 *****
037733 R0199:CO0021-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037744 DESIGN STANDARDY 1.0 01:ST-B1 .42 .112 No_date 12:00 60.12 .563 .000
037755 [Cv= 80.0: N= 3.00: Tpe= .44]
037766 [SLP=1.00:DT=1.00]
037777 [LOSS=1 : HORTON]
037788 *****
037799 # Site 1 - Roof
037800 *****
037811 R0199:CO0022-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037822 DESIGN STANDARDY 1.0 01:ST-B1 .06 .024 No_date 12:00 104.42 .978 .000
037833 [XIMP=99:TIMP=99]
037844 [SLP=.50:DT=1.00]
037855 [LOSS=1 : HORTON]
037866 R0199:CO0023-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037877 ROUTE RESERVOIR -> 1.0 01:ST-B1 .06 .024 No_date 12:00 104.42 n/a .000
037888 out<- 1.0 01:ST-B1-Roof-Ov .06 .003 No_date 12:05 104.42 n/a .000
037899 overflow<- 1.0 01:ST-B1-Roof-Ov .00 .000 No_date 0:00 n/a .000
037900 (MaxRoute=4.39E+02 m3, TotOutV=1.000E+00 m3, N-Over= 0, TotInOutV= 0 hrs)
037911 R0199:CO0024-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037922 ADD HYD + 1.0 01:ST-B1 .42 .112 No_date 12:00 60.12 n/a .000
037933 + 1.0 02:ST-B1-Roof-Ov .06 .003 No_date 12:05 104.42 n/a .000
037944 + 1.0 02:ST-B1-Roof-Ov .00 .000 No_date 0:00 n/a .000
037955 SUM= 1.0 01:ST-B1-IN .48 .115 No_date 12:00 66.12 n/a .000
037966 R0199:CO0025-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
037977 ROUTE RESERVOIR -> 1.0 01:ST-B1 .48 .115 No_date 12:00 104.42 n/a .000
037988 out<- 1.0 01:ST-B1-Out .48 .008 No_date 12:44 66.12 n/a .000
037999 overflow<- 1.0 01:ST-B1-Out .00 .000 No_date 0:00 n/a .000
038000 (MaxRoute=4.39E+01 m3, TotOutV=1.000E+00 m3, N-Over= 0, TotInOutV= 0 hrs)
038011 *****
038022 # Site 2
038033 *****
038044 R0199:CO0026-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038055 DESIGN STANDARDY 1.0 01:ST-B3 .39 .094 No_date 12:00 58.00 .343 .000
038066 [XIMP=11:TIMP=41]
038077 [SLP=1.00:DT=1.00]
038088 [LOSS=1 : HORTON]
038099 *****
038100 # Site 2 - Roof
038111 *****
038122 R0199:CO0027-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038133 DESIGN STANDARDY 1.0 01:ST-Roof .09 .034 No_date 12:00 104.44 .979 .000
038144 [XIMP=99:TIMP=99]
038155 [SLP=.50:DT=1.00]
038166 [LOSS=1 : HORTON]
038177 *****
038188 R0199:CO0028-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038199 ROUTE RESERVOIR -> 1.0 01:ST-Roof .09 .034 No_date 12:00 104.44 n/a .000
038200 out<- 1.0 01:ST-Roof-Out .09 .008 No_date 12:02 104.45 n/a .000
038211 overflow<- 1.0 01:ST-Roof-Out .00 .000 No_date 0:00 n/a .000
038222 (MaxRoute=4.287E+02 m3, TotOutV=1.000E+00 m3, N-Over= 0, TotInOutV= 0 hrs)
038233 R0199:CO0029-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038244 ADD HYD + 1.0 01:ST-B3 .39 .094 No_date 12:00 58.00 n/a .000
038255 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038266 + 1.0 01:ST-Roof-Out .00 .000 No_date 0:00 n/a .000
038277 SUM= 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038288 R0199:CO0030-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038299 ROUTE RESERVOIR -> 1.0 01:ST-B3-IN .45 .103 No_date 12:00 67.66 n/a .000
038300 out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038311 overflow<- 1.0 01:ST-B3-Out .00 .000 No_date 0:00 n/a .000
038322 (MaxRoute=4.148E+01 m3, TotOutV=1.000E+00 m3, N-Over= 0, TotInOutV= 0 hrs)
038333 R0199:CO0031-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038344 ADD HYD + 1.0 01:ST-B3-Out .48 .008 No_date 12:44 66.12 n/a .000
038355 + 1.0 01:ST-B3-Out .00 .000 No_date 0:00 n/a .000
038366 + 1.0 01:ST-B3-Out .00 .000 No_date 12:44 66.12 n/a .000
038377 SUM= 1.0 01:ST-B3-Out .48 .008 No_date 12:44 66.12 n/a .000
038388 R0199:CO0032-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038399 ADD HYD + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038400 + 1.0 01:ST-B3-Out .00 .000 No_date 0:00 n/a .000
038411 R0199:CO0033-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038422 ADD HYD + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038433 + 1.0 01:ST-B3-Out .01 .003 No_date 12:00 51.86 n/a .000
038444 + 1.0 01:ST-B3-Out .48 .008 No_date 12:44 66.12 n/a .000
038455 + 1.0 01:ST-B3-Out .00 .000 No_date 12:56 67.66 n/a .000
038466 SUM= 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038477 R0199:CO0034-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038488 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038499 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038500 (L/S/m= 143. /394. /035)
038511 (Vmax= .357:Imax= 1.49)
038522 R0199:CO0035-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038533 ADD HYD + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038544 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038555 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038566 SUM= 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038577 R0199:CO0036-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038588 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038599 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038600 (L/S/m= 13. /425. /035)
038611 (Vmax= .548:Imax= .302)
038622 R0199:CO0037-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038633 ADD HYD + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038644 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038655 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038666 SUM= 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038677 R0199:CO0038-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038688 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038699 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038700 (L/S/m= 92. /274. /035)
038711 (Vmax= .447:Imax= .359)
038722 R0199:CO0039-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038733 ADD HYD + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038744 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038755 SUM= 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038766 R0199:CO0040-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038777 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038788 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038799 (L/S/m= 251. /190. /035)
038800 (Vmax= .447:Imax= .359)
038811 R0199:CO0041-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038822 ADD HYD + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038833 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038844 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038855 SUM= 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038866 R0199:CO0042-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038877 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038888 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038899 (L/S/m= 237. /644. /035)
038900 (Vmax= .732:Imax= .333)
038911 R0199:CO0043-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038922 ADD HYD + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038933 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038944 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038955 SUM= 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038966 R0199:CO0044-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
038977 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038988 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
038999 (L/S/m= 158. /1576. /035)
039000 (Vmax= .791:Imax= .011)
039011 R0199:CO0045-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
039022 ADD HYD + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039033 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039044 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039055 SUM= 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039066 R0199:CO0046-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
039077 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039088 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039099 (L/S/m= 79. /522. /035)
039100 (Vmax= .423:Imax= .068)
039111 R0199:CO0047-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
039122 ADD HYD + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039133 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039144 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039155 SUM= 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039166 R0199:CO0048-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
039177 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039188 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039199 (L/S/m= 29. /897. /035)
039200 (Vmax= .543:Imax= .086)
039211 R0199:CO0049-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
039222 ADD HYD + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039233 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039244 + 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039255 SUM= 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039266 R0199:CO0050-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
039277 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039288 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039299 (L/S/m= 87. /0107.033)
039300 (Vmax= 483:Imax= 1.25)
039311 R0199:CO0051-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
039322 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039333 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039344 (L/S/m= 29. /897. /035)
039355 (Vmax= .543:Imax= .086)
039366 R0199:CO0052-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
039377 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039388 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039399 (L/S/m= 29. /897. /035)
039400 (Vmax= .543:Imax= .086)
039411 R0199:CO0053-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
039422 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039433 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039444 (L/S/m= 29. /897. /035)
039455 (Vmax= .543:Imax= .086)
039466 R0199:CO0054-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
039477 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039488 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039499 (L/S/m= 29. /897. /035)
039500 (Vmax= .543:Imax= .086)
039511 R0199:CO0055-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
039522 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039533 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039544 (L/S/m= 29. /897. /035)
039555 (Vmax= .543:Imax= .086)
039566 R0199:CO0056-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
039577 ROUTE CHANNEL -> 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039588 (RD=1.00) out<- 1.0 01:ST-B3-Out .45 .009 No_date 12:56 67.66 n/a .000
039599 (L/S/m= 29. /897. /035)
039600 (Vmax= .543:Imax= .086)
039611 R0199:CO0057-----Dtlm-ID:INVD-----AREAh-QFEARcm-TpeakDate_hh:mm-----
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03961 # License # : 2549237
03962 #####
03963 # Model developed to simulate runoff from subcatchments under post development conditions
03964 #####
03965 R1979-C00002-----
03966 READ STORM
03967 Filename = STORM.001
03968 Comment = July 1st, 1979 Storm (3H) - Ottawa International Airport step 5 min
03969 [SDT= 5.00;SDRM= 3.00;PTOT= 83.99]
03970 #####
03971 R1979-C00003-----
03972 DEFAULT VALUES
03973 Filename = C:\Temp\20250910-PostDev\Ottawa.val
03974 ICARESD= 1 (read and print data)
03975 FileTitle= File comment: [Parameters for City of Ottawa Projects]
03976 THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
03977 Horton's infiltration equation parameters:
03978 [Fw= 76.20 mm/hr] [Fw=13.20 mm/hr] [DCAV= 4.14 /hr] [F= .00 mm]
03979 Parameters for PERVIOUS surfaces in STANDHYD:
03980 [Iaper= 4.67 mm] [LGP=40.00 n] [MNP= .250]
03981 Parameters for IMPVIOUS surfaces in STANDHYD:
03982 [Iaper= 1.57 mm] [Cfil= 1.50] [DNI= .013]
03983 Parameters used in NASHYD:
03984 [Iaw= 4.67 mm] [N= 3.00]
03985 Average monthly Pan Evaporation data in (mm)
03986 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
03987 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
03988 Average monthly Potential Evapotranspiration in (mm)
03989 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
03990 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
03991 #####
03992 # EXT1
03993 #####
03994 R1979-C00004-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
03995 CALIB NASHYD 1.0 01:EXT1 3.21 .040 No_date 2:16 44.05 .524 .000
03996 [Cm= 80.0; N= 3.00; Tpe= .72]
03997 #####
03998 # EXT2
03999 #####
04000 R1979-C00005-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04001 CALIB NASHYD 1.0 01:EXT2 .28 .039 No_date 1:50 50.68 .603 .000
04002 [Cm= 80.0; N= 3.00; Tpe= .72]
04003 #####
04004 # EXT3
04005 #####
04006 R1979-C00006-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04007 CALIB NASHYD 1.0 01:EXT3 .56 .067 No_date 1:50 44.05 .524 .000
04008 [Cm= 80.0; N= 3.00; Tpe= .32]
04009 #####
04010 # EXT4
04011 #####
04012 R1979-C00007-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04013 CALIB NASHYD 1.0 01:EXT4 .31 .038 No_date 1:48 42.84 .510 .000
04014 [Cm= 79.0; N= 3.00; Tpe= .29]
04015 #####
04016 # EXT5
04017 #####
04018 R1979-C00008-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04019 CALIB NASHYD 1.0 01:EXT5 .59 .054 No_date 2:01 39.44 .470 .000
04020 [Cm= 76.0; N= 3.00; Tpe= .40]
04021 #####
04022 # EXT6
04023 #####
04024 R1979-C00009-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04025 CALIB NASHYD 1.0 01:EXT6 .86 .088 No_date 2:06 50.68 .603 .000
04026 [Cm= 85.0; N= 3.00; Tpe= .56]
04027 #####
04028 # EXT7
04029 #####
04030 R1979-C00010-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04031 CALIB NASHYD 1.0 01:EXT7 .47 .061 No_date 1:49 47.90 .570 .000
04032 [Cm= 82.0; N= 3.00; Tpe= .40]
04033 #####
04034 # EXT8
04035 #####
04036 R1979-C00011-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04037 CALIB NASHYD 1.0 01:EXT8 .83 .085 No_date 1:58 42.85 .510 .000
04038 [Cm= 79.0; N= 3.00; Tpe= .42]
04039 #####
04040 # EXT9
04041 #####
04042 R1979-C00012-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04043 CALIB NASHYD 1.0 01:EXT9 3.57 .311 No_date 2:03 39.44 .470 .000
04044 [Cm= 76.0; N= 3.00; Tpe= .48]
04045 #####
04046 # EXT10
04047 #####
04048 R1979-C00013-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04049 CALIB NASHYD 1.0 01:EXT10 .01 .002 No_date 1:30 41.67 .496 .000
04050 [Cm= 76.0; N= 3.00; Tpe= .04]
04051 #####
04052 # EXT10
04053 #####
04054 R1979-C00014-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04055 CALIB NASHYD 1.0 01:EXT10 .20 .017 No_date 1:59 34.37 .409 .000
04056 [Cm= 71.0; N= 3.00; Tpe= .42]
04057 #####
04058 # Pre1_1
04059 #####
04060 R1979-C00015-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04061 CALIB NASHYD 1.0 01:Pre1_1 .01 .002 No_date 1:30 35.32 .421 .000
04062 [Cm= 76.0; N= 3.00; Tpe= .04]
04063 #####
04064 # Pre1_2
04065 #####
04066 R1979-C00016-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04067 CALIB NASHYD 1.0 01:Pre1_2 .00 .000 No_date 1:30 41.63 .496 .000
04068 [Cm= 78.0; N= 3.00; Tpe= .02]
04069 #####
04070 # Pre1_3
04071 #####
04072 R1979-C00017-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04073 CALIB NASHYD 1.0 01:Pre1_3 .44 .038 No_date 1:55 34.37 .409 .000
04074 [Cm= 71.0; N= 3.00; Tpe= .38]
04075 #####
04076 # Pre1_4
04077 #####
04078 R1979-C00018-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04079 CALIB NASHYD 1.0 01:Pre1_4 .01 .002 No_date 1:30 24.59 .293 .000
04080 [Cm= 59.0; N= 3.00; Tpe= .04]
04081 #####
04082 # Pre1_5
04083 #####
04084 R1979-C00019-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04085 CALIB NASHYD 1.0 01:Pre1_5 .00 .078 No_date 1:48 34.37 .409 .000
04086 [Cm= 71.0; N= 3.00; Tpe= .29]
04087 #####
04088 # Pre1_6
04089 #####
04090 R1979-C00020-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04091 CALIB NASHYD 1.0 01:Pre1_6 .07 .009 No_date 1:43 41.67 .496 .000
04092 [Cm= 76.0; N= 3.00; Tpe= .21]
04093 #####
04094 # Site 1
04095 #####
04096 R1979-C00021-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04097 DESIGN STANDHYD 1.0 01:Site1-81 4.2 .088 No_date 1:30 59.24 .705 .000
04098 [XMP= 34.71MP= 44]
04099 [SLP= 50.0DT= 1.00]
04100 [LOGS= 1 : HORTONS]
04101 #####
04102 # Site 1 - Roof
04103 #####
04104 R1979-C00022-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04105 DESIGN STANDHYD 1.0 01:Site1-81 .06 .019 No_date 1:30 82.00 .976 .000
04106 [XMP= 99.71MP= 99]
04107 [SLP= 50.0DT= 1.00]
04108 [LOGS= 1 : HORTONS]
04109 #####
04110 R1979-C00023-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04111 ROUTE RESERVOIR -> 1.0 01:Site1-Roof 0.06 .004 No_date 2:01 82.00 n/a .000
04112 out <= 1.0 01:Site1-Roof-Ov 0.00 .000 No_date 0:00 .00 n/a .000
04113 [MktotSed= .3896E-02 m3, TotDurVol= .0000E+00 m3, N-Ovrf= 0, TotDurOvrf= 0 hrs]
04114 R1979-C00024-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04115 ADD HYD + 1.0 01:Site1-Roof 0.06 .004 No_date 2:01 82.00 n/a .000
04116 SUM= 1.0 01:SITE1-IN 48 .094 No_date 1:30 62.32 n/a .000
04117 1.0 01:SITE1-OUT 48 .013 No_date 2:14 62.32 n/a .000
04118 ROUTE RESERVOIR -> 1.0 01:SITE1-OUT 48 .013 No_date 2:14 62.32 n/a .000
04119 out <= 1.0 01:SITE1-OUT 48 .013 No_date 2:14 62.32 n/a .000
04120 [MktotSed= .2061E-01 m3, TotDurVol= .0000E+00 m3, N-Ovrf= 0, TotDurOvrf= 0 hrs]
04121 #####
04122 # Site 2
04123 #####
04124 R1979-C00025-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04125 DESIGN STANDHYD 1.0 01:Site2-83 .35 .073 No_date 1:30 58.02 .691 .000
04126 [XMP= 31.71MP= 41]
04127 [SLP= 50.0DT= 1.00]
04128 [LOGS= 1 : HORTONS]
04129 #####
04130 # Site 2 - Roof
04131 #####
04132 R1979-C00026-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04133 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04134 [XMP= 50.0DT= 1.00]
04135 [LOGS= 1 : HORTONS]
04136 #####
04137 # EXT1
04138 #####
04139 R1979-C00027-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04140 CALIB NASHYD 1.0 01:EXT1 3.21 .197 No_date 2:30 41.34 .513 .000
04141 [Cm= 80.0; N= 3.00; Tpe= .72]
04142 #####
04143 R1979-C00028-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04144 ROUTE RESERVOIR -> 1.0 01:Site2-Roof 0.09 .027 No_date 1:30 82.00 n/a .000
04145 out <= 1.0 01:Site2-Roof-Ov 0.00 .000 No_date 0:00 .00 n/a .000
04146 [MktotSed= .3896E-02 m3, TotDurVol= .0000E+00 m3, N-Ovrf= 0, TotDurOvrf= 0 hrs]
04147 ADD HYD + 1.0 01:Site2-Roof 0.09 .027 No_date 1:30 82.00 n/a .000
04148 SUM= 1.0 01:SITE1-IN 48 .094 No_date 1:30 62.32 n/a .000
04149 1.0 01:SITE1-OUT 48 .013 No_date 2:14 62.32 n/a .000
04150 ROUTE RESERVOIR -> 1.0 01:SITE1-OUT 48 .013 No_date 2:14 62.32 n/a .000
04151 out <= 1.0 01:SITE1-OUT 48 .013 No_date 2:14 62.32 n/a .000
04152 [MktotSed= .2061E-01 m3, TotDurVol= .0000E+00 m3, N-Ovrf= 0, TotDurOvrf= 0 hrs]
04153 #####
04154 # EXT2
04155 #####
04156 R1979-C00029-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04157 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04158 [XMP= 50.0DT= 1.00]
04159 [LOGS= 1 : HORTONS]
04160 #####
04161 # EXT3
04162 #####
04163 R1979-C00030-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04164 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04165 [XMP= 50.0DT= 1.00]
04166 [LOGS= 1 : HORTONS]
04167 #####
04168 # EXT4
04169 #####
04170 R1979-C00031-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04171 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04172 [XMP= 50.0DT= 1.00]
04173 [LOGS= 1 : HORTONS]
04174 #####
04175 # EXT5
04176 #####
04177 R1979-C00032-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04178 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04179 [XMP= 50.0DT= 1.00]
04180 [LOGS= 1 : HORTONS]
04181 #####
04182 # EXT6
04183 #####
04184 R1979-C00033-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04185 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04186 [XMP= 50.0DT= 1.00]
04187 [LOGS= 1 : HORTONS]
04188 #####
04189 # EXT7
04190 #####
04191 R1979-C00034-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04192 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04193 [XMP= 50.0DT= 1.00]
04194 [LOGS= 1 : HORTONS]
04195 #####
04196 # EXT8
04197 #####
04198 R1979-C00035-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04199 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04200 [XMP= 50.0DT= 1.00]
04201 [LOGS= 1 : HORTONS]
04202 #####
04203 # EXT9
04204 #####
04205 R1979-C00036-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04206 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04207 [XMP= 50.0DT= 1.00]
04208 [LOGS= 1 : HORTONS]
04209 #####
04210 # EXT10
04211 #####
04212 R1979-C00037-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04213 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04214 [XMP= 50.0DT= 1.00]
04215 [LOGS= 1 : HORTONS]
04216 #####
04217 # EXT11
04218 #####
04219 R1979-C00038-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04220 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04221 [XMP= 50.0DT= 1.00]
04222 [LOGS= 1 : HORTONS]
04223 #####
04224 # EXT12
04225 #####
04226 R1979-C00039-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04227 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04228 [XMP= 50.0DT= 1.00]
04229 [LOGS= 1 : HORTONS]
04230 #####
04231 # EXT13
04232 #####
04233 R1979-C00040-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04234 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04235 [XMP= 50.0DT= 1.00]
04236 [LOGS= 1 : HORTONS]
04237 #####
04238 # EXT14
04239 #####
04240 R1979-C00041-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04241 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04242 [XMP= 50.0DT= 1.00]
04243 [LOGS= 1 : HORTONS]
04244 #####
04245 # EXT15
04246 #####
04247 R1979-C00042-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04248 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04249 [XMP= 50.0DT= 1.00]
04250 [LOGS= 1 : HORTONS]
04251 #####
04252 # EXT16
04253 #####
04254 R1979-C00043-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04255 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04256 [XMP= 50.0DT= 1.00]
04257 [LOGS= 1 : HORTONS]
04258 #####
04259 # EXT17
04260 #####
04261 R1979-C00044-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04262 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04263 [XMP= 50.0DT= 1.00]
04264 [LOGS= 1 : HORTONS]
04265 #####
04266 # EXT18
04267 #####
04268 R1979-C00045-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04269 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04270 [XMP= 50.0DT= 1.00]
04271 [LOGS= 1 : HORTONS]
04272 #####
04273 # EXT19
04274 #####
04275 R1979-C00046-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04276 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04277 [XMP= 50.0DT= 1.00]
04278 [LOGS= 1 : HORTONS]
04279 #####
04280 # EXT20
04281 #####
04282 R1979-C00047-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04283 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04284 [XMP= 50.0DT= 1.00]
04285 [LOGS= 1 : HORTONS]
04286 #####
04287 # EXT21
04288 #####
04289 R1979-C00048-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04290 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04291 [XMP= 50.0DT= 1.00]
04292 [LOGS= 1 : HORTONS]
04293 #####
04294 # EXT22
04295 #####
04296 R1979-C00049-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04297 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04298 [XMP= 50.0DT= 1.00]
04299 [LOGS= 1 : HORTONS]
04300 #####
04301 # EXT23
04302 #####
04303 R1979-C00050-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04304 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04305 [XMP= 50.0DT= 1.00]
04306 [LOGS= 1 : HORTONS]
04307 #####
04308 # EXT24
04309 #####
04310 R1979-C00051-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04311 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04312 [XMP= 50.0DT= 1.00]
04313 [LOGS= 1 : HORTONS]
04314 #####
04315 # EXT25
04316 #####
04317 R1979-C00052-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04318 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04319 [XMP= 50.0DT= 1.00]
04320 [LOGS= 1 : HORTONS]
04321 #####
04322 # EXT26
04323 #####
04324 R1979-C00053-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04325 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04326 [XMP= 50.0DT= 1.00]
04327 [LOGS= 1 : HORTONS]
04328 #####
04329 # EXT27
04330 #####
04331 R1979-C00054-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04332 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04333 [XMP= 50.0DT= 1.00]
04334 [LOGS= 1 : HORTONS]
04335 #####
04336 # EXT28
04337 #####
04338 R1979-C00055-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04339 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04340 [XMP= 50.0DT= 1.00]
04341 [LOGS= 1 : HORTONS]
04342 #####
04343 # EXT29
04344 #####
04345 R1979-C00056-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04346 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04347 [XMP= 50.0DT= 1.00]
04348 [LOGS= 1 : HORTONS]
04349 #####
04350 # EXT30
04351 #####
04352 R1979-C00057-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04353 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04354 [XMP= 50.0DT= 1.00]
04355 [LOGS= 1 : HORTONS]
04356 #####
04357 # EXT31
04358 #####
04359 R1979-C00058-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04360 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04361 [XMP= 50.0DT= 1.00]
04362 [LOGS= 1 : HORTONS]
04363 #####
04364 # EXT32
04365 #####
04366 R1979-C00059-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04367 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04368 [XMP= 50.0DT= 1.00]
04369 [LOGS= 1 : HORTONS]
04370 #####
04371 # EXT33
04372 #####
04373 R1979-C00060-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04374 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04375 [XMP= 50.0DT= 1.00]
04376 [LOGS= 1 : HORTONS]
04377 #####
04378 # EXT34
04379 #####
04380 R1979-C00061-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04381 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04382 [XMP= 50.0DT= 1.00]
04383 [LOGS= 1 : HORTONS]
04384 #####
04385 # EXT35
04386 #####
04387 R1979-C00062-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04388 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04389 [XMP= 50.0DT= 1.00]
04390 [LOGS= 1 : HORTONS]
04391 #####
04392 # EXT36
04393 #####
04394 R1979-C00063-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04395 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04396 [XMP= 50.0DT= 1.00]
04397 [LOGS= 1 : HORTONS]
04398 #####
04399 # EXT37
04400 #####
04401 R1979-C00064-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04402 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04403 [XMP= 50.0DT= 1.00]
04404 [LOGS= 1 : HORTONS]
04405 #####
04406 # EXT38
04407 #####
04408 R1979-C00065-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04409 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04410 [XMP= 50.0DT= 1.00]
04411 [LOGS= 1 : HORTONS]
04412 #####
04413 # EXT39
04414 #####
04415 R1979-C00066-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04416 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04417 [XMP= 50.0DT= 1.00]
04418 [LOGS= 1 : HORTONS]
04419 #####
04420 # EXT40
04421 #####
04422 R1979-C00067-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04423 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04424 [XMP= 50.0DT= 1.00]
04425 [LOGS= 1 : HORTONS]
04426 #####
04427 # EXT41
04428 #####
04429 R1979-C00068-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04430 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04431 [XMP= 50.0DT= 1.00]
04432 [LOGS= 1 : HORTONS]
04433 #####
04434 # EXT42
04435 #####
04436 R1979-C00069-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04437 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04438 [XMP= 50.0DT= 1.00]
04439 [LOGS= 1 : HORTONS]
04440 #####
04441 # EXT43
04442 #####
04443 R1979-C00070-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04444 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04445 [XMP= 50.0DT= 1.00]
04446 [LOGS= 1 : HORTONS]
04447 #####
04448 # EXT44
04449 #####
04450 R1979-C00071-----DtnIn-ID:INHYD-----AREAh-QFEARcs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
04451 DESIGN STANDHYD 1.0 01:Site2-Roof .09 .027 No_date 1:30 82.00 .976 .000
04452 [XMP= 50.0DT= 1.00]
04453 [LOGS= 1 : H
```

```
04321# # EXT2
04322# *****
04323# R1988:C00005-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04324# CALIB NASHYD 1.0 01:EXT2 .28 .035 No_date 2:11 47.74 .592 .000
04325# [CN= 85.0: N= 3.00: Tpe=.33]
04326# *****
04327# # EXT3
04328# *****
04329# R1988:C00004-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04330# CALIB NASHYD 1.0 01:EXT3 .83 .06 .061 No_date 2:11 41.34 .513 .000
04331# [CN= 80.0: N= 3.00: Tpe=.32]
04332# *****
04333# # EXT4
04334# *****
04335# R1988:C00007-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04336# CALIB NASHYD 1.0 01:EXT4 .31 .035 No_date 2:10 40.18 .499 .000
04337# [CN= 79.0: N= 3.00: Tpe=.48]
04338# *****
04339# # EXT5
04340# *****
04341# R1988:C00008-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04342# CALIB NASHYD 1.0 01:EXT5 .59 .046 No_date 2:17 36.52 .458 .000
04343# [CN= 76.0: N= 3.00: Tpe=.45]
04344# *****
04345# # EXT6
04346# *****
04347# R1988:C00009-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04348# CALIB NASHYD 1.0 01:EXT6 .86 .074 No_date 2:21 47.74 .592 .000
04349# [CN= 85.0: N= 3.00: Tpe=.56]
04350# *****
04351# # EXT7
04352# *****
04353# R1988:C00010-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04354# CALIB NASHYD 1.0 01:EXT7 .47 .055 No_date 2:11 45.05 .559 .000
04355# [CN= 81.0: N= 3.00: Tpe=.48]
04356# *****
04357# # EXT8
04358# *****
04359# R1988:C00011-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04360# CALIB NASHYD 1.0 01:EXT8 .09 .074 No_date 2:10 39.04 .489 .000
04361# [CN= 79.0: N= 3.00: Tpe=.42]
04362# *****
04363# # EXT9
04364# *****
04365# R1988:C00012-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04366# CALIB NASHYD 1.0 01:EXT9 3.57 .266 No_date 2:18 36.92 .458 .000
04367# [CN= 76.0: N= 3.00: Tpe=.48]
04368# *****
04369# # EXT10
04370# *****
04371# R1988:C00013-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04372# CALIB NASHYD 1.0 01:EXT10 .01 .003 No_date 2:00 39.05 .485 .000
04373# [CN= 78.0: N= 3.00: Tpe=.04]
04374# *****
04375# # EXT10
04376# *****
04377# R1988:C00014-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04378# CALIB NASHYD 1.0 01:EXT10 .20 .014 No_date 2:16 32.08 .398 .000
04379# [CN= 71.0: N= 3.00: Tpe=.42]
04380# *****
04381# # Fre2_1
04382# *****
04383# R1988:C00015-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04384# CALIB NASHYD 1.0 01:Fre2_1 .01 .003 No_date 2:00 39.96 .409 .000
04385# [CN= 72.0: N= 3.00: Tpe=.01]
04386# *****
04387# # Fre2_2
04388# *****
04389# R1988:C00016-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04390# CALIB NASHYD 1.0 01:Fre2_2 .00 .001 No_date 2:00 39.04 .484 .000
04391# [CN= 78.0: N= 3.00: Tpe=.02]
04392# *****
04393# # Fre3_1
04394# *****
04395# R1988:C00017-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04396# CALIB NASHYD 1.0 01:Fre3_1 .44 .033 No_date 2:14 32.08 .398 .000
04397# [CN= 72.0: N= 3.00: Tpe=.48]
04398# *****
04399# # Fre3_2
04400# *****
04401# R1988:C00018-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04402# CALIB NASHYD 1.0 01:Fre3_2 .01 .003 No_date 2:00 32.83 .283 .000
04403# [CN= 59.0: N= 3.00: Tpe=.03]
04404# *****
04405# # Fre3_1
04406# *****
04407# R1988:C00019-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04408# CALIB NASHYD 1.0 01:Fre3_1 .80 .072 No_date 2:10 32.08 .398 .000
04409# [CN= 71.0: N= 3.00: Tpe=.29]
04410# *****
04411# # Fre3_1
04412# *****
04413# R1988:C00020-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04414# CALIB NASHYD 1.0 01:Fre3_1 .07 .009 No_date 2:06 39.96 .485 .000
04415# [CN= 78.0: N= 3.00: Tpe=.21]
04416# *****
04417# # Site 1
04418# *****
04419# R1988:C00021-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04420# DESIGN STANDHYD 1.0 01:Site-1 42 .104 No_date 2:00 34.85 .481 .000
04421# [XMP=.34:TMP=.44]
04422# [SLP=.30:DT=.100]
04423# [LOGS= 1 : HORTONS]
04424# *****
04425# # Site 1 - Roof
04426# *****
04427# R1988:C00022-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04428# DESIGN STANDHYD 1.0 01:Site-Roof .06 .028 No_date 2:00 78.59 .975 .000
04429# [XMP=.99:TMP=.99]
04430# [SLP=.100:DT=.100]
04431# [LOGS= 1 : HORTONS]
04432# *****
04433# R1988:C00023-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04434# ROUTE RESERVOIR -> 1.0 02:Site-Roof .06 .028 No_date 2:00 78.59 n/a .000
04435# outflow <= 1.0 02:Site-Roof-01 .06 .040 No_date 2:03 78.59 n/a .000
04436# overflow <= 1.0 02:Site-Roof-02 .00 .000 No_date 0:00 .00 n/a .000
04437# (MetToUsed=.3573E-02 n3, TotDurVol=.0000E+00 n3, N-Over= 0, TotDurOvr= 0 hrs)
04438# ADD HYD SUM= 1.0 02:Site-Roof .06 .040 No_date 2:00 54.85 n/a .000
04439# + 1.0 02:Site-Roof-01 .06 .040 No_date 2:03 78.59 n/a .000
04440# + 1.0 02:Site-Roof-02 .00 .000 No_date 0:00 .00 n/a .000
04441# 1.0 02:SITE1-IN .48 .108 No_date 2:00 58.06 n/a .000
04442# R1988:C00025-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04443# ROUTE RESERVOIR -> 1.0 02:SITE1-IN .48 .108 No_date 2:00 58.06 n/a .000
04444# outflow <= 1.0 02:SITE1-Over .48 .009 No_date 2:00 58.06 n/a .000
04445# overflow <= 1.0 02:SITE1-Over .00 .000 No_date 0:00 .00 n/a .000
04446# (MetToUsed=.1725E-01 n3, TotDurVol=.0000E+00 n3, N-Over= 0, TotDurOvr= 0 hrs)
04447# # Site 2
04448# *****
04449# R1988:C00026-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04450# DESIGN STANDHYD 1.0 01:Site-2 35 .088 No_date 2:00 53.63 .665 .000
04451# [XMP=.41:TMP=.41]
04452# [SLP=.100:DT=.100]
04453# [LOGS= 1 : HORTONS]
04454# *****
04455# # Site 2 - Roof
04456# *****
04457# R1988:C00027-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04458# DESIGN STANDHYD 1.0 01:Site-Roof .09 .040 No_date 2:00 78.59 .975 .000
04459# [XMP=.91:TMP=.99]
04460# [SLP=.50:DT=.100]
04461# [LOGS= 1 : HORTONS]
04462# *****
04463# *****
04464# R1988:C00028-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04465# ROUTE RESERVOIR -> 1.0 02:Site-Roof .09 .040 No_date 2:00 78.59 n/a .000
04466# outflow <= 1.0 02:Site-Roof-01 .09 .040 No_date 2:02 78.61 n/a .000
04467# overflow <= 1.0 02:Site-Roof-02 .00 .000 No_date 0:00 .00 n/a .000
04468# (MetToUsed=.3220E-02 n3, TotDurVol=.0000E+00 n3, N-Over= 0, TotDurOvr= 0 hrs)
04469# R1988:C00029-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04470# ADD HYD SUM= 1.0 02:Site-Roof .09 .040 No_date 2:00 58.83 n/a .000
04471# + 1.0 02:Site-Roof-01 .09 .040 No_date 2:02 78.61 n/a .000
04472# + 1.0 02:Site-Roof-02 .00 .000 No_date 0:00 .00 n/a .000
04473# 1.0 02:SITE2-IN .45 .096 No_date 2:00 58.83 n/a .000
04474# R1988:C00030-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04475# ROUTE RESERVOIR -> 1.0 02:SITE2-IN .45 .096 No_date 2:00 58.83 n/a .000
04476# outflow <= 1.0 02:SITE2-Over .45 .010 No_date 2:00 58.83 n/a .000
04477# overflow <= 1.0 02:SITE2-Over .00 .000 No_date 0:00 .00 n/a .000
04478# (MetToUsed=.1650E-01 n3, TotDurVol=.0000E+00 n3, N-Over= 0, TotDurOvr= 0 hrs)
04479# R1988:C00031-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04480# ADD HYD SUM= 1.0 02:SITE1-Over .48 .009 No_date 2:00 58.06 n/a .000
04481# + 1.0 02:SITE1-Over .00 .000 No_date 0:00 .00 n/a .000
04482# 1.0 02:SITE2-IN .45 .010 No_date 2:00 58.06 n/a .000
04483# R1988:C00032-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04484# ADD HYD SUM= 1.0 02:SITE2-Over .45 .010 No_date 2:00 58.83 n/a .000
04485# + 1.0 02:SITE2-Over .00 .000 No_date 0:00 .00 n/a .000
04486# 1.0 02:SITE2-IN .45 .010 No_date 2:00 58.83 n/a .000
04487# R1988:C00033-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04488# ADD HYD SUM= 1.0 02:EXT2 .28 .035 No_date 2:11 47.74 n/a .000
04489# + 1.0 02:Fre2_1 .01 .003 No_date 2:00 39.96 n/a .000
04490# + 1.0 02:SITE1-IN .48 .009 No_date 2:00 58.06 n/a .000
04491# + 1.0 02:SITE2-IN .45 .010 No_date 2:00 58.83 n/a .000
04492# 1.0 02:SITE2-Over .45 .010 No_date 2:00 58.06 n/a .000
04493# R1988:C00034-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04494# ROUTE CHANNEL -> 1.0 02:J1 1.23 .053 No_date 2:11 55.67 n/a .000
04495# (FV= 1.0: I= 0.1: S= 1.23 .051 No_date 2:15 55.67 n/a .000)
04496# [L/S/m= 143./ .394/.035]
04497# *****
04498# R1988:C00035-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04499# ADD HYD SUM= 1.0 02:R1 1.23 .051 No_date 2:15 55.67 n/a .000
04500# + 1.0 02:EXT3 .56 .061 No_date 2:11 41.34 n/a .000
04501# *****
04502# *****
04503# R1988:C00036-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04504# ROUTE CHANNEL -> 1.0 02:J2 5.00 .287 No_date 2:20 44.86 n/a .000
04505# (FV= 1.0: I= 0.1: S= 5.00 .286 No_date 2:22 44.86 n/a .000)
04506# [L/S/m= 73./ .425/.035]
04507# *****
04508# R1988:C00037-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04509# ADD HYD SUM= 1.0 02:R2 5.00 .286 No_date 2:22 44.86 n/a .000
04510# + 1.0 02:EXT4 .59 .035 No_date 2:10 40.18 n/a .000
04511# 1.0 01:J3 5.31 .313 No_date 2:20 44.58 n/a .000
04512# R1988:C00038-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04513# ROUTE CHANNEL -> 1.0 02:J3 5.31 .313 No_date 2:20 44.58 n/a .000
04514# (FV= 1.0: I= 0.1: S= 5.31 .313 No_date 2:22 44.58 n/a .000)
04515# [L/S/m= 82./ .274/.035]
04516# *****
04517# R1988:C00039-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04518# ADD HYD SUM= 1.0 02:R3 5.31 .309 No_date 2:22 44.58 n/a .000
04519# + 1.0 02:EXT5 .59 .046 No_date 2:17 36.92 n/a .000
04520# 1.0 01:J4 5.90 .354 No_date 2:21 43.81 n/a .000
04521# R1988:C00040-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04522# ROUTE CHANNEL -> 1.0 02:J4 5.90 .354 No_date 2:21 43.81 n/a .000
04523# (FV= 1.0: I= 0.1: S= 5.90 .332 No_date 2:29 43.81 n/a .000)
04524# [L/S/m= 251./ .196/.035]
04525# *****
04526# R1988:C00041-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04527# ADD HYD SUM= 1.0 02:R4 5.90 .332 No_date 2:29 43.81 n/a .000
04528# + 1.0 02:EXT6 .86 .074 No_date 2:21 47.74 n/a .000
04529# 1.0 02:EXT7 .47 .055 No_date 2:11 45.05 n/a .000
04530# 1.0 01:J5 7.23 .440 No_date 2:25 44.36 n/a .000
04531# R1988:C00042-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04532# ROUTE CHANNEL -> 1.0 02:J5 7.23 .440 No_date 2:25 44.36 n/a .000
04533# (FV= 1.0: I= 0.1: S= 7.23 .433 No_date 2:30 44.36 n/a .000)
04534# [L/S/m= 237./ .644/.035]
04535# *****
04536# R1988:C00043-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04537# ADD HYD SUM= 1.0 02:R5 7.23 .433 No_date 2:30 44.36 n/a .000
04538# + 1.0 02:Fre3_2 .01 .003 No_date 2:00 39.96 n/a .000
04539# + 1.0 02:Fre2_1 .00 .001 No_date 2:00 39.04 n/a .000
04540# 1.0 01:J6 7.23 .440 No_date 2:25 44.36 n/a .000
04541# R1988:C00044-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04542# ROUTE CHANNEL -> 1.0 02:J6 7.23 .440 No_date 2:25 44.36 n/a .000
04543# (FV= 1.0: I= 0.1: S= 7.23 .433 No_date 2:30 44.36 n/a .000)
04544# [L/S/m= 97./ .776/.035]
04545# *****
04546# R1988:C00045-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04547# ROUTE CHANNEL -> 1.0 02:J7 4.4 .033 No_date 2:17 32.08 n/a .000
04548# (FV= 1.0: I= 0.1: S= 4.4 .033 No_date 2:17 32.08 n/a .000)
04549# [L/S/m= 159./ .576/.035]
04550# *****
04551# R1988:C00046-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04552# ADD HYD SUM= 1.0 02:R6 4.4 .033 No_date 2:17 32.08 n/a .000
04553# + 1.0 02:EXT10 .20 .014 No_date 2:16 32.08 n/a .000
04554# 1.0 01:J7 4.4 .033 No_date 2:17 32.08 n/a .000
04555# R1988:C00047-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04556# ROUTE CHANNEL -> 1.0 02:J7 4.4 .033 No_date 2:17 32.08 n/a .000
04557# (FV= 1.0: I= 0.1: S= 4.4 .033 No_date 2:17 32.08 n/a .000)
04558# [L/S/m= 78./ .522/.035]
04559# *****
04560# R1988:C00048-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04561# ADD HYD SUM= 1.0 02:R7 4.4 .033 No_date 2:17 32.08 n/a .000
04562# + 1.0 02:EXT8 .86 .074 No_date 2:21 47.74 n/a .000
04563# 1.0 01:J8 4.4 .033 No_date 2:17 32.08 n/a .000
04564# R1988:C00049-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04565# ROUTE CHANNEL -> 1.0 02:J8 4.4 .033 No_date 2:17 32.08 n/a .000
04566# (FV= 1.0: I= 0.1: S= 4.4 .033 No_date 2:17 32.08 n/a .000)
04567# [L/S/m= 29./ .887/.035]
04568# *****
04569# R1988:C00050-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04570# ADD HYD SUM= 1.0 02:R8 4.4 .033 No_date 2:17 32.08 n/a .000
04571# + 1.0 02:R9 1.46 .115 No_date 2:16 32.23 n/a .000
04572# 1.0 01:J9 4.4 .033 No_date 2:17 32.08 n/a .000
04573# + 1.0 02:R5 7.23 .440 No_date 2:25 44.36 n/a .000
04574# 1.0 01:J8 4.4 .033 No_date 2:17 32.08 n/a .000
04575# R1988:C00051-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04576# ROUTE PIPE -> 1.0 02:R9 13.09 .857 No_date 2:22 40.74 n/a .000
04577# (FV= 1.0: I= 0.1: S= 13.09 .856 No_date 2:23 40.74 n/a .000)
04578# [L/S/m= 8./ .010/.013]
04579# *****
04580# *****
04581# *****
04582# *****
04583# *****
04584# *****
04585# *****
04586# *****
04587# *****
04588# *****
04589# *****
04590# *****
04591# *****
04592# *****
04593# R1988:C00001-----DtnIn-ID:INVD-----AREAh-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
04594# START *****
04595# (ZERO = .00 hrs on 0)
04596# (METOUT= 2 (Imperial, 2=metric output))
04597# (METUNIT= 1)
04598# (NRUN = 1996)
04599# *****
04600# *****
04601# *****
04602# *****
04603# *****
04604# *****
04605# *****
04606# *****
04607# *****
04608# *****
04609# *****
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04672# *****
04673# *****
04674# *****
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04676# *****
04677# *****
04678# *****
04679# *****
04680# *****
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JFSAinc.

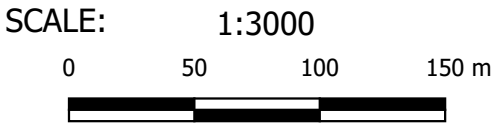
Attachment C

Hydraulic Analysis



Legend

- Site Boundary
- Jock River Tributary
- Centerline
- HEC-RAS XS



5923 Ottawa St – Richmond

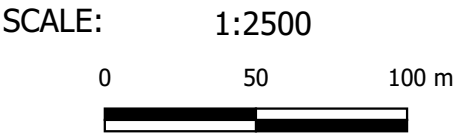
Figure C1: HEC-RAS Cross Sections

PROJECT	P2710(e01)
DRAWN	MM
DATE	10 Sept 2025



Legend

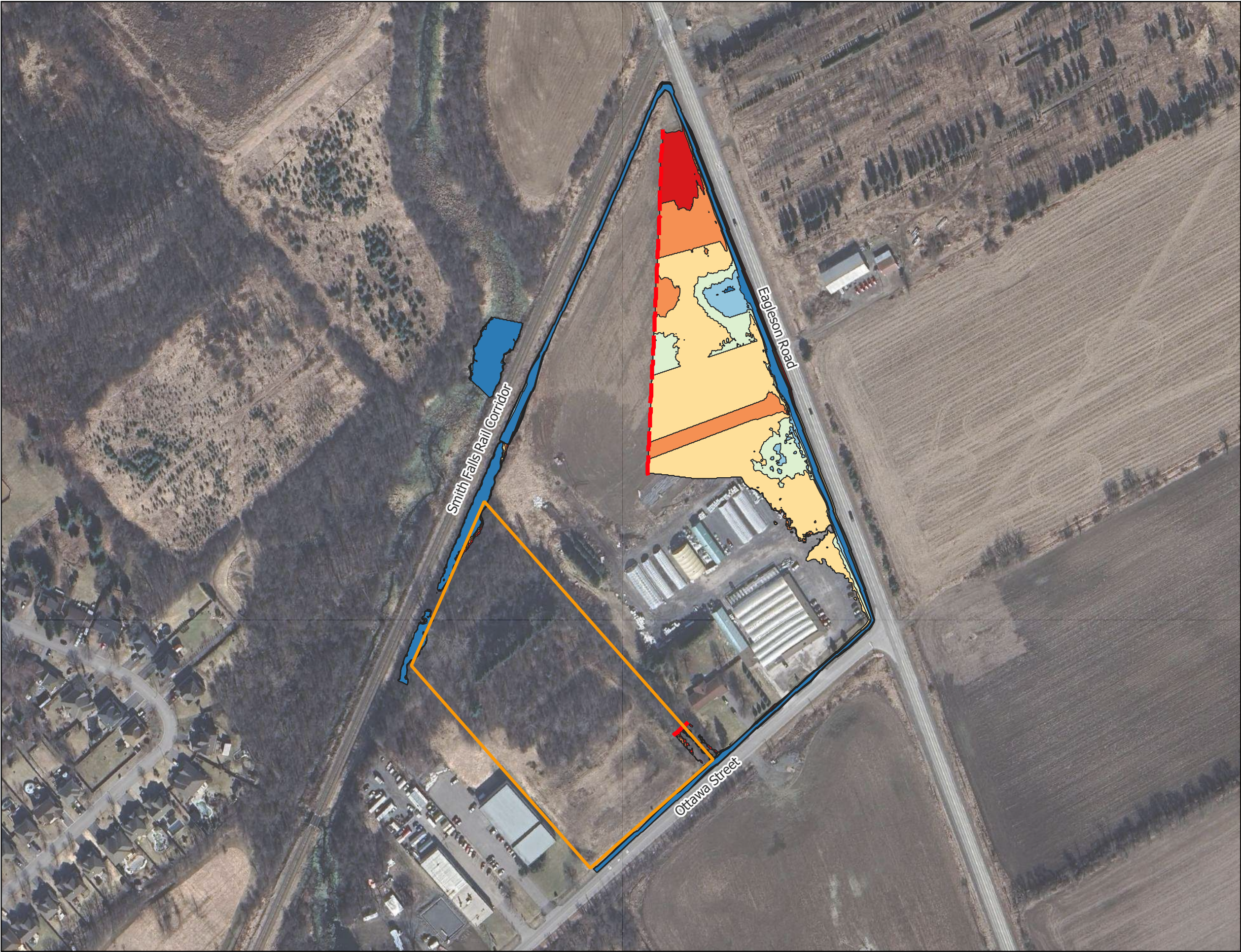
- Site Boundary
- Pre-Development Flood Extents
 - 2YrSCS24Hr
 - 5YrSCS24Hr
 - 10YrSCS24Hr
 - 25YrSCS24Hr
 - 50YrSCS24Hr
 - 100YrSCS24Hr
- Spill Line



5923 Ottawa St - Richmond

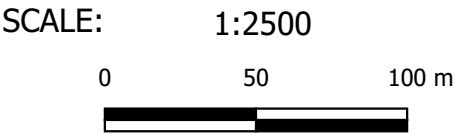
Figure C2: Pre-Development Flood Extents

PROJECT	P2719(e01)
DRAWN	BT
DATE	5 June 2025



Legend

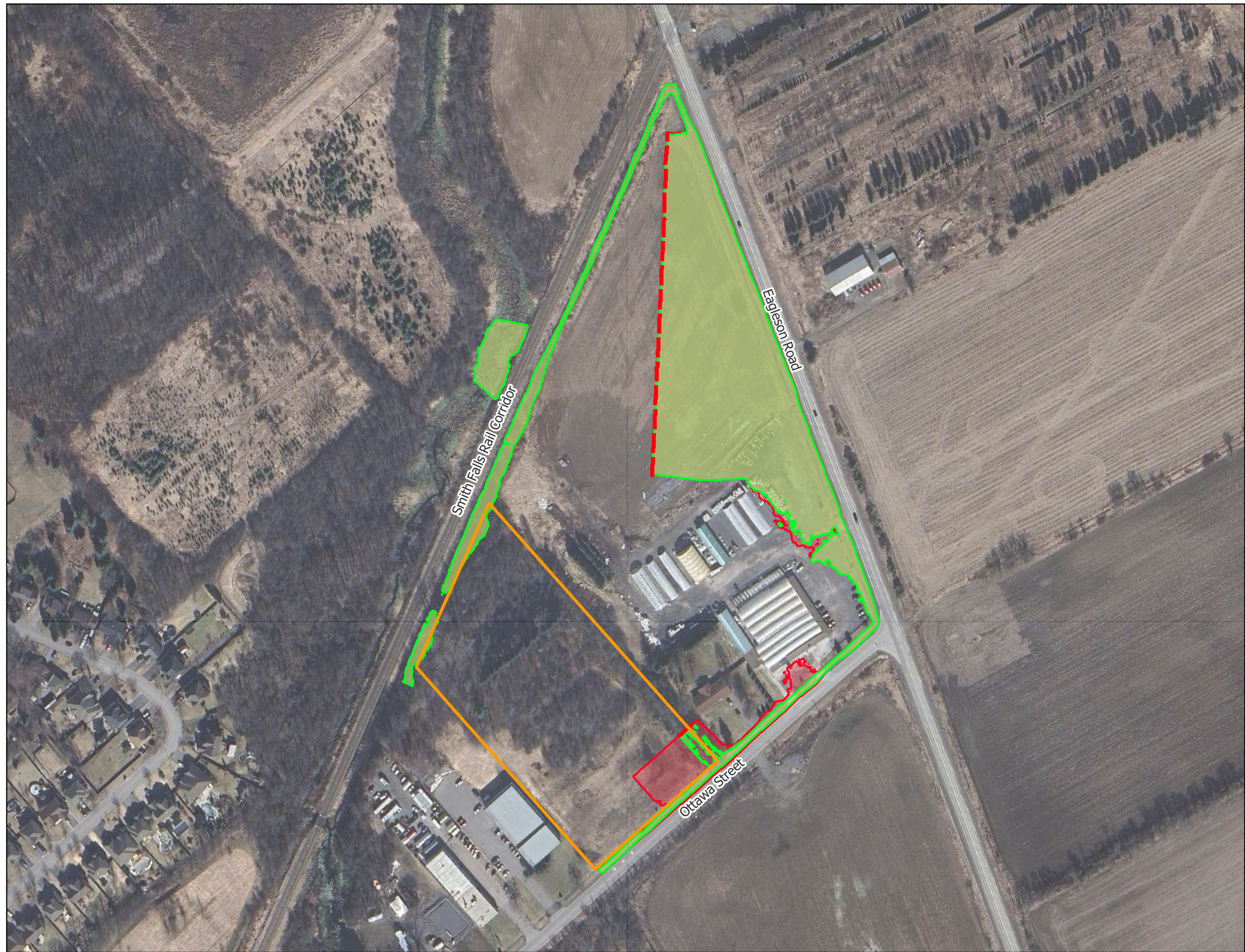
- Site Boundary
- Post-Development Flood Extents
 - 2YrSCS24Hr
 - 5YrSCS24Hr
 - 10YrSCS24Hr
 - 25YrSCS24Hr
 - 50YrSCS24Hr
 - 100YrSCS24Hr
- Spill Line



5923 Ottawa St - Richmond

Figure C3: Post-Development Flood Extents

PROJECT	P2719(e01)
DRAWN	BT
DATE	10 Sept 2025



Legend

-  Site Boundary
-  Spill Line
-  Pre-Development 100yr
-  Post-Dev 100yr

SCALE: 1:2500

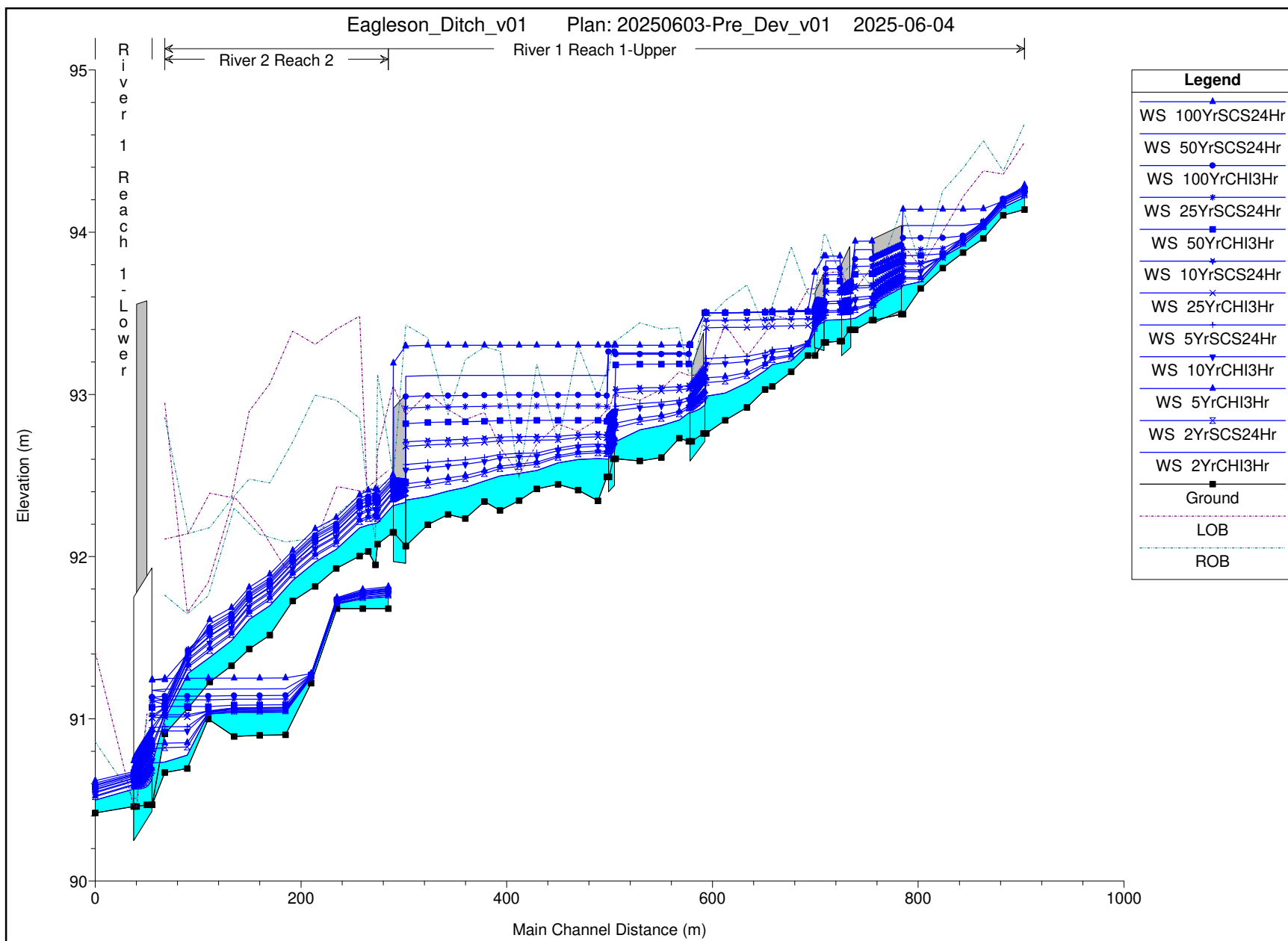
0 50 100 m



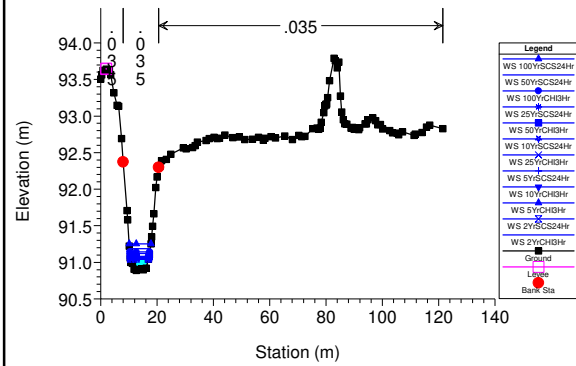
5923 Ottawa St - Richmond

Figure C4: 100-yr Floodplain Extents Comparison

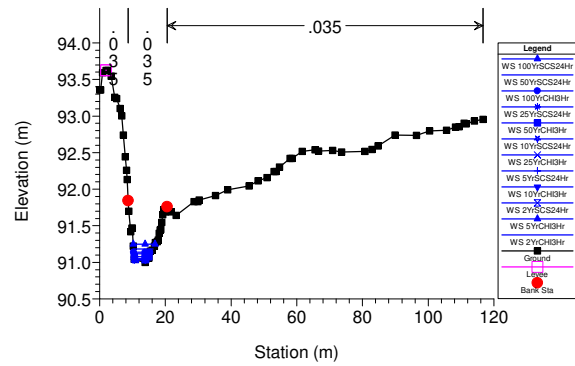
PROJECT	P2719(e01)
DRAWN	BT
DATE	10 Sept 2025



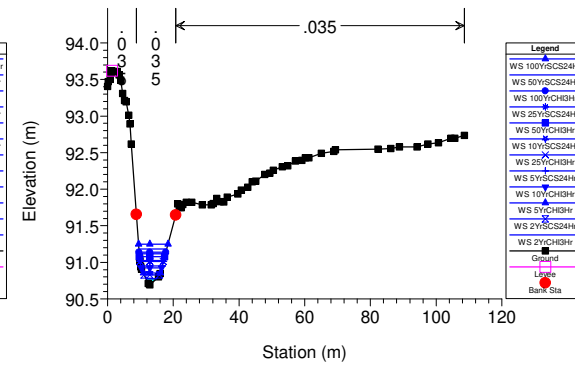
Eagleson_Ditch_v01 Plan: 20250603-Pre_Dev_v01 2025-06-04



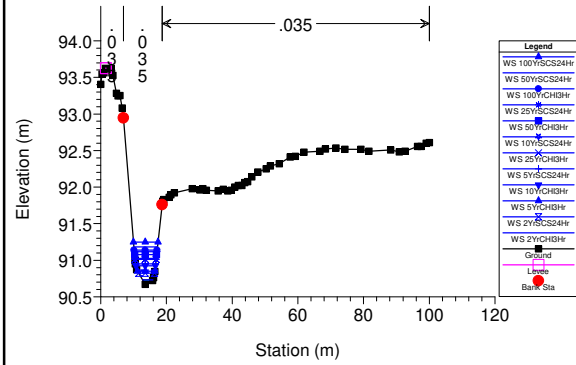
Eagleson_Ditch_v01 Plan: 20250603-Pre_Dev_v01 2025-06-04



Eagleson_Ditch_v01 Plan: 20250603-Pre_Dev_v01 2025-06-04



Eagleson_Ditch_v01 Plan: 20250603-Pre_Dev_v01 2025-06-04



River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
River 2	Reach 2	224	2YrCHI3Hr	0.02	91.68	91.75	91.71	91.75	0.000626	0.08	0.20	5.09	0.13
River 2	Reach 2	224	5YrCHI3Hr	0.03	91.68	91.76	91.72	91.76	0.000730	0.10	0.26	5.99	0.15
River 2	Reach 2	224	10YrCHI3Hr	0.03	91.68	91.77	91.72	91.77	0.000742	0.11	0.32	6.48	0.15
River 2	Reach 2	224	25YrCHI3Hr	0.05	91.68	91.78	91.73	91.79	0.000756	0.12	0.39	6.61	0.16
River 2	Reach 2	224	50YrCHI3Hr	0.06	91.68	91.79	91.73	91.79	0.000763	0.13	0.44	6.71	0.16
River 2	Reach 2	224	100YrCHI3Hr	0.07	91.68	91.80	91.74	91.80	0.000773	0.14	0.50	6.81	0.16
River 2	Reach 2	224	2YrSCS24Hr	0.02	91.68	91.76	91.72	91.76	0.000717	0.09	0.25	5.79	0.14
River 2	Reach 2	224	5YrSCS24Hr	0.04	91.68	91.78	91.73	91.78	0.000753	0.11	0.35	6.53	0.15
River 2	Reach 2	224	10YrSCS24Hr	0.05	91.68	91.79	91.73	91.79	0.000757	0.12	0.41	6.65	0.16
River 2	Reach 2	224	25YrSCS24Hr	0.07	91.68	91.80	91.74	91.80	0.000769	0.14	0.48	6.78	0.16
River 2	Reach 2	224	50YrSCS24Hr	0.08	91.68	91.81	91.74	91.81	0.000794	0.15	0.54	6.88	0.17
River 2	Reach 2	224	100YrSCS24Hr	0.09	91.68	91.81	91.75	91.82	0.000800	0.16	0.60	6.99	0.17
River 2	Reach 2	199	2YrCHI3Hr	0.02	91.68	91.74	91.71	91.74	0.000450	0.07	0.24	6.76	0.11
River 2	Reach 2	199	5YrCHI3Hr	0.03	91.68	91.75	91.71	91.75	0.000479	0.08	0.31	6.96	0.12
River 2	Reach 2	199	10YrCHI3Hr	0.03	91.68	91.76	91.71	91.76	0.000481	0.09	0.38	7.14	0.12
River 2	Reach 2	199	25YrCHI3Hr	0.05	91.68	91.77	91.72	91.77	0.000549	0.10	0.45	7.32	0.13
River 2	Reach 2	199	50YrCHI3Hr	0.06	91.68	91.78	91.72	91.78	0.000569	0.11	0.50	7.42	0.14
River 2	Reach 2	199	100YrCHI3Hr	0.07	91.68	91.78	91.73	91.78	0.000591	0.12	0.56	7.51	0.14
River 2	Reach 2	199	2YrSCS24Hr	0.02	91.68	91.75	91.71	91.75	0.000474	0.08	0.30	6.91	0.12
River 2	Reach 2	199	5YrSCS24Hr	0.04	91.68	91.76	91.72	91.76	0.000522	0.10	0.41	7.20	0.13
River 2	Reach 2	199	10YrSCS24Hr	0.05	91.68	91.77	91.72	91.77	0.000558	0.11	0.47	7.37	0.14
River 2	Reach 2	199	25YrSCS24Hr	0.07	91.68	91.78	91.72	91.78	0.000582	0.12	0.55	7.49	0.14
River 2	Reach 2	199	50YrSCS24Hr	0.08	91.68	91.79	91.73	91.79	0.000628	0.13	0.60	7.57	0.15
River 2	Reach 2	199	100YrSCS24Hr	0.09	91.68	91.80	91.73	91.80	0.000634	0.14	0.66	7.67	0.15
River 2	Reach 2	174	2YrCHI3Hr	0.02	91.68	91.71	91.70	91.71	0.009341	0.22	0.07	3.33	0.47
River 2	Reach 2	174	5YrCHI3Hr	0.03	91.68	91.71	91.70	91.72	0.010728	0.27	0.09	3.51	0.52
River 2	Reach 2	174	10YrCHI3Hr	0.03	91.68	91.72	91.71	91.73	0.009147	0.28	0.12	3.68	0.49
River 2	Reach 2	174	25YrCHI3Hr	0.05	91.68	91.73	91.72	91.73	0.010482	0.33	0.14	3.80	0.54
River 2	Reach 2	174	50YrCHI3Hr	0.06	91.68	91.73	91.72	91.74	0.010789	0.35	0.16	3.90	0.56
River 2	Reach 2	174	100YrCHI3Hr	0.07	91.68	91.74	91.72	91.75	0.011338	0.38	0.18	3.99	0.58
River 2	Reach 2	174	2YrSCS24Hr	0.02	91.68	91.71	91.70	91.72	0.009099	0.24	0.09	3.51	0.48
River 2	Reach 2	174	5YrSCS24Hr	0.04	91.68	91.73	91.71	91.73	0.009102	0.29	0.13	3.75	0.50
River 2	Reach 2	174	10YrSCS24Hr	0.05	91.68	91.73	91.72	91.74	0.010830	0.34	0.15	3.84	0.55
River 2	Reach 2	174	25YrSCS24Hr	0.07	91.68	91.74	91.72	91.74	0.010024	0.36	0.18	4.01	0.55
River 2	Reach 2	174	50YrSCS24Hr	0.08	91.68	91.74	91.73	91.75	0.010794	0.40	0.20	4.08	0.57
River 2	Reach 2	174	100YrSCS24Hr	0.09	91.68	91.75	91.73	91.76	0.010716	0.42	0.22	4.15	0.58
River 2	Reach 2	149	2YrCHI3Hr	0.02	91.22	91.25	91.25	91.26	0.049600	0.35	0.05	3.45	0.99
River 2	Reach 2	149	5YrCHI3Hr	0.03	91.22	91.26	91.26	91.27	0.037267	0.35	0.07	4.39	0.89
River 2	Reach 2	149	10YrCHI3Hr	0.03	91.22	91.26	91.26	91.27	0.052915	0.44	0.08	4.47	1.07
River 2	Reach 2	149	25YrCHI3Hr	0.05	91.22	91.27	91.27	91.28	0.039832	0.45	0.10	4.68	0.97
River 2	Reach 2	149	50YrCHI3Hr	0.06	91.22	91.27	91.27	91.28	0.037244	0.47	0.12	4.80	0.95
River 2	Reach 2	149	100YrCHI3Hr	0.07	91.22	91.27	91.27	91.29	0.034157	0.49	0.14	4.94	0.93
River 2	Reach 2	149	2YrSCS24Hr	0.02	91.22	91.26	91.26	91.26	0.052399	0.39	0.06	3.96	1.03
River 2	Reach 2	149	5YrSCS24Hr	0.04	91.22	91.26	91.26	91.27	0.052134	0.46	0.08	4.53	1.07
River 2	Reach 2	149	10YrSCS24Hr	0.05	91.22	91.27	91.27	91.28	0.037535	0.46	0.11	4.74	0.95
River 2	Reach 2	149	25YrSCS24Hr	0.07	91.22	91.27	91.27	91.29	0.044620	0.53	0.13	4.83	1.05
River 2	Reach 2	149	50YrSCS24Hr	0.08	91.22	91.28	91.28	91.29	0.037650	0.53	0.15	5.00	0.98
River 2	Reach 2	149	100YrSCS24Hr	0.09	91.22	91.28	91.28	91.30	0.038788	0.57	0.16	5.05	1.01
River 2	Reach 2	124	2YrCHI3Hr	0.02	90.90	91.04	90.93	91.04	0.000032	0.03	0.48	5.07	0.03
River 2	Reach 2	124	5YrCHI3Hr	0.03	90.90	91.05	90.93	91.05	0.000060	0.05	0.53	5.26	0.05
River 2	Reach 2	124	10YrCHI3Hr	0.03	90.90	91.06	90.94	91.06	0.000112	0.06	0.57	6.50	0.06
River 2	Reach 2	124	25YrCHI3Hr	0.05	90.90	91.07	90.95	91.07	0.000154	0.07	0.64	6.76	0.08
River 2	Reach 2	124	50YrCHI3Hr	0.06	90.90	91.09	90.95	91.09	0.000135	0.07	0.76	7.17	0.07
River 2	Reach 2	124	100YrCHI3Hr	0.07	90.90	91.14	90.95	91.14	0.000050	0.06	1.21	8.10	0.05
River 2	Reach 2	124	2YrSCS24Hr	0.02	90.90	91.05	90.93	91.05	0.000054	0.04	0.51	5.22	0.05
River 2	Reach 2	124	5YrSCS24Hr	0.04	90.90	91.06	90.94	91.06	0.000129	0.07	0.60	6.60	0.07
River 2	Reach 2	124	10YrSCS24Hr	0.05	90.90	91.07	90.95	91.07	0.000166	0.08	0.66	6.83	0.08
River 2	Reach 2	124	25YrSCS24Hr	0.07	90.90	91.12	90.95	91.12	0.000074	0.06	1.04	7.89	0.06
River 2	Reach 2	124	50YrSCS24Hr	0.08	90.90	91.19	90.96	91.19	0.000031	0.05	1.55	8.50	0.04
River 2	Reach 2	124	100YrSCS24Hr	0.09	90.90	91.25	90.96	91.25	0.000017	0.04	2.15	9.67	0.03
River 2	Reach 2	99	2YrCHI3Hr	0.02	90.90	91.04	90.92	91.04	0.000010	0.02	0.80	7.44	0.02
River 2	Reach 2	99	5YrCHI3Hr	0.03	90.90	91.05	90.92	91.05	0.000018	0.03	0.87	7.51	0.03
River 2	Reach 2	99	10YrCHI3Hr	0.03	90.90	91.06	90.93	91.06	0.000027	0.04	0.93	7.57	0.03
River 2	Reach 2	99	25YrCHI3Hr	0.05	90.90	91.07	90.93	91.07	0.000041	0.05	1.00	7.64	0.04
River 2	Reach 2	99	50YrCHI3Hr	0.06	90.90	91.09	90.94	91.09	0.000040	0.05	1.14	7.79	0.04
River 2	Reach 2	99	100YrCHI3Hr	0.07	90.90	91.14	90.94	91.14	0.000020	0.04	1.61	8.25	0.03
River 2	Reach 2	99	2YrSCS24Hr	0.02	90.90	91.05	90.92	91.05	0.000016	0.03	0.86	7.49	0.03
River 2	Reach 2	99	5YrSCS24Hr	0.04	90.90	91.06	90.93	91.06	0.000032	0.04	0.96	7.60	0.04
River 2	Reach 2	99	10YrSCS24Hr	0.05	90.90	91.07	90.94	91.07	0.000045	0.05	1.02	7.67	0.04
River 2	Reach 2	99	25YrSCS24Hr	0.07	90.90	91.12	90.94	91.12	0.000026	0.05	1.43	8.07	0.03
River 2	Reach 2	99	50YrSCS24Hr	0.08	90.90	91.19	90.94	91.19	0.000014	0.04	1.96	8.55	0.03
River 2	Reach 2	99	100YrSCS24Hr	0.09	90.90	91.25	90.95	91.25	0.000009	0.04	2.54	9.03	0.02
River 2	Reach 2	74	2YrCHI3Hr	0.02	90.89	91.04	90.91	91.04	0.000011	0.02	0.72	6.36	0.02
River 2	Reach 2	74	5YrCHI3Hr	0.03	90.89	91.05	90.92	91.05	0.000021	0.03	0.78	6.44	0.03
River 2	Reach 2	74	10YrCHI3Hr	0.03	90.89	91.06	90.92	91.06	0.000033	0.04	0.83	6.50	0.04
River 2	Reach 2	74	25YrCHI3Hr	0.05	90.89	91.07	90.93	91.07	0.000050	0.05	0.89	6.57	0.05
River 2	Reach 2	74	50YrCHI3Hr	0.06	90.89	91.08	90.93	91.08	0.000049	0.06	1.01	6.70	0.05
River 2	Reach 2	74	100YrCHI3Hr	0.07	90.89	91.14	90.93	91.14	0.000025	0.05	1.42	7.09	0.03
River 2	Reach 2	74	2YrSCS24Hr	0.02	90.89	91.05	90.92	91.05	0.000019	0.03	0.77	6.42	0.03
River 2	Reach 2	74	5YrSCS24Hr	0.04	90.89	91.06	90.92	91.06	0.000039	0.05	0.85	6.53	0.04
River 2	Reach 2	74	10YrSCS24Hr	0.05	90.89	91.07	90.93	91.07	0.000055	0.06	0.91	6.59	0.05
River 2	Reach 2	74	25YrSCS24Hr	0.07	90.89	91.12	90.93	91.12	0.000033	0.05	1.26	6.96	0.04
River 2	Reach 2	74	50YrSCS24Hr	0.08	90.89	91.18	90.93	91.18	0.000018	0.05	1.72	7.34	0.03
River 2	Reach 2	74	100YrSCS24Hr	0.09	90.89	91.25	90.94	91.25	0.000012	0.04	2.22	7.71	0.03

HEC-RAS Plan: 20250603-Pre_Dev_v01 (Continued)

River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
River 2	Reach 2	49	2YrCHI3Hr	0.02	91.00	91.03	91.03	91.04	0.048683	0.40	0.04	2.56	1.01
River 2	Reach 2	49	5YrCHI3Hr	0.03	91.00	91.04	91.04	91.05	0.045843	0.43	0.06	3.06	1.01
River 2	Reach 2	49	10YrCHI3Hr	0.03	91.00	91.04	91.04	91.05	0.036151	0.43	0.08	3.50	0.92
River 2	Reach 2	49	25YrCHI3Hr	0.05	91.00	91.05	91.05	91.06	0.042954	0.52	0.09	3.52	1.03
River 2	Reach 2	49	50YrCHI3Hr	0.06	91.00	91.08	91.05	91.08	0.005537	0.28	0.20	4.07	0.41
River 2	Reach 2	49	100YrCHI3Hr	0.07	91.00	91.14	91.05	91.14	0.000508	0.14	0.50	4.96	0.14
River 2	Reach 2	49	2YrSCS24Hr	0.02	91.00	91.04	91.04	91.04	0.038802	0.40	0.06	3.06	0.93
River 2	Reach 2	49	5YrSCS24Hr	0.04	91.00	91.04	91.04	91.06	0.043713	0.48	0.08	3.50	1.02
River 2	Reach 2	49	10YrSCS24Hr	0.05	91.00	91.05	91.05	91.06	0.037160	0.51	0.10	3.53	0.97
River 2	Reach 2	49	25YrSCS24Hr	0.07	91.00	91.12	91.05	91.12	0.001066	0.17	0.38	4.82	0.19
River 2	Reach 2	49	50YrSCS24Hr	0.08	91.00	91.18	91.06	91.18	0.000237	0.11	0.73	5.93	0.10
River 2	Reach 2	49	100YrSCS24Hr	0.09	91.00	91.25	91.06	91.25	0.000083	0.08	1.15	6.63	0.06
River 2	Reach 2	28	2YrCHI3Hr	0.02	90.69	90.78	90.74	90.78	0.001301	0.13	0.15	3.26	0.20
River 2	Reach 2	28	5YrCHI3Hr	0.03	90.69	90.85	90.75	90.85	0.000163	0.07	0.47	5.17	0.08
River 2	Reach 2	28	10YrCHI3Hr	0.05	90.69	90.93	90.75	90.93	0.000046	0.05	0.89	6.29	0.04
River 2	Reach 2	28	25YrCHI3Hr	0.06	90.69	91.01	90.76	91.01	0.000019	0.04	1.48	7.14	0.03
River 2	Reach 2	28	50YrCHI3Hr	0.08	90.69	91.08	90.77	91.08	0.000012	0.04	1.96	7.68	0.03
River 2	Reach 2	28	100YrCHI3Hr	0.09	90.69	91.14	90.78	91.14	0.000009	0.04	2.47	8.16	0.02
River 2	Reach 2	28	2YrSCS24Hr	0.03	90.69	90.83	90.74	90.83	0.000330	0.09	0.35	4.66	0.11
River 2	Reach 2	28	5YrSCS24Hr	0.05	90.69	90.95	90.76	90.95	0.000036	0.05	1.07	6.57	0.04
River 2	Reach 2	28	10YrSCS24Hr	0.07	90.69	91.03	90.76	91.03	0.000019	0.04	1.58	7.26	0.03
River 2	Reach 2	28	25YrSCS24Hr	0.09	90.69	91.12	90.78	91.12	0.000011	0.04	2.28	7.99	0.02
River 2	Reach 2	28	50YrSCS24Hr	0.11	90.69	91.18	90.78	91.18	0.000008	0.04	2.82	8.48	0.02
River 2	Reach 2	28	100YrSCS24Hr	0.13	90.69	91.25	90.79	91.25	0.000007	0.04	3.40	8.98	0.02
River 2	Reach 2	7	2YrCHI3Hr	0.02	90.67	90.73	90.71	90.74	0.003117	0.17	0.11	3.14	0.29
River 2	Reach 2	7	5YrCHI3Hr	0.03	90.67	90.85	90.72	90.85	0.000075	0.06	0.60	5.18	0.05
River 2	Reach 2	7	10YrCHI3Hr	0.05	90.67	90.92	90.73	90.92	0.000028	0.05	1.02	5.92	0.04
River 2	Reach 2	7	25YrCHI3Hr	0.06	90.67	91.01	90.73	91.01	0.000014	0.04	1.56	6.43	0.03
River 2	Reach 2	7	50YrCHI3Hr	0.08	90.67	91.08	90.74	91.08	0.000010	0.04	1.99	6.71	0.02
River 2	Reach 2	7	100YrCHI3Hr	0.09	90.67	91.14	90.74	91.14	0.000008	0.04	2.42	6.98	0.02
River 2	Reach 2	7	2YrSCS24Hr	0.03	90.67	90.82	90.72	90.82	0.000130	0.07	0.46	4.72	0.07
River 2	Reach 2	7	5YrSCS24Hr	0.05	90.67	90.95	90.73	90.95	0.000023	0.05	1.18	6.12	0.03
River 2	Reach 2	7	10YrSCS24Hr	0.07	90.67	91.03	90.73	91.03	0.000014	0.04	1.65	6.49	0.03
River 2	Reach 2	7	25YrSCS24Hr	0.09	90.67	91.12	90.74	91.12	0.000009	0.04	2.26	6.88	0.02
River 2	Reach 2	7	50YrSCS24Hr	0.11	90.67	91.18	90.75	91.18	0.000007	0.04	2.72	7.15	0.02
River 2	Reach 2	7	100YrSCS24Hr	0.13	90.67	91.25	90.75	91.25	0.000006	0.04	3.21	7.44	0.02
River 1	Reach 1-Upper	908	2YrCHI3Hr	0.02	94.14	94.22	94.18	94.22	0.001587	0.14	0.10	2.34	0.22
River 1	Reach 1-Upper	908	5YrCHI3Hr	0.03	94.14	94.23	94.19	94.23	0.001806	0.18	0.15	2.64	0.24
River 1	Reach 1-Upper	908	10YrCHI3Hr	0.03	94.14	94.24	94.20	94.24	0.002004	0.20	0.17	2.81	0.26
River 1	Reach 1-Upper	908	25YrCHI3Hr	0.05	94.14	94.25	94.20	94.26	0.002189	0.22	0.21	3.02	0.27
River 1	Reach 1-Upper	908	50YrCHI3Hr	0.06	94.14	94.26	94.21	94.27	0.002278	0.24	0.24	3.18	0.28
River 1	Reach 1-Upper	908	100YrCHI3Hr	0.07	94.14	94.27	94.21	94.27	0.002320	0.25	0.26	3.32	0.29
River 1	Reach 1-Upper	908	2YrSCS24Hr	0.02	94.14	94.23	94.19	94.23	0.001752	0.17	0.14	2.59	0.23
River 1	Reach 1-Upper	908	5YrSCS24Hr	0.04	94.14	94.25	94.20	94.25	0.002058	0.21	0.18	2.87	0.26
River 1	Reach 1-Upper	908	10YrSCS24Hr	0.05	94.14	94.26	94.20	94.26	0.002199	0.23	0.22	3.05	0.27
River 1	Reach 1-Upper	908	25YrSCS24Hr	0.06	94.14	94.27	94.21	94.27	0.002241	0.25	0.25	3.26	0.28
River 1	Reach 1-Upper	908	50YrSCS24Hr	0.07	94.14	94.28	94.22	94.28	0.002406	0.26	0.28	3.39	0.29
River 1	Reach 1-Upper	908	100YrSCS24Hr	0.08	94.14	94.29	94.22	94.29	0.002029	0.26	0.33	3.64	0.27
River 1	Reach 1-Upper	887	2YrCHI3Hr	0.02	94.10	94.15	94.14	94.16	0.007507	0.23	0.07	2.30	0.44
River 1	Reach 1-Upper	887	5YrCHI3Hr	0.03	94.10	94.17	94.15	94.17	0.005953	0.25	0.10	2.78	0.41
River 1	Reach 1-Upper	887	10YrCHI3Hr	0.03	94.10	94.18	94.15	94.18	0.005054	0.26	0.14	3.08	0.39
River 1	Reach 1-Upper	887	25YrCHI3Hr	0.05	94.10	94.19	94.16	94.20	0.004392	0.26	0.18	3.42	0.37
River 1	Reach 1-Upper	887	50YrCHI3Hr	0.06	94.10	94.20	94.17	94.20	0.004802	0.29	0.20	3.57	0.39
River 1	Reach 1-Upper	887	100YrCHI3Hr	0.07	94.10	94.21	94.17	94.21	0.004705	0.30	0.22	3.76	0.39
River 1	Reach 1-Upper	887	2YrSCS24Hr	0.02	94.10	94.17	94.15	94.17	0.006295	0.25	0.10	2.71	0.42
River 1	Reach 1-Upper	887	5YrSCS24Hr	0.04	94.10	94.18	94.15	94.19	0.004885	0.26	0.15	3.16	0.38
River 1	Reach 1-Upper	887	10YrSCS24Hr	0.05	94.10	94.19	94.16	94.20	0.004587	0.27	0.18	3.44	0.38
River 1	Reach 1-Upper	887	25YrSCS24Hr	0.06	94.10	94.20	94.17	94.20	0.005786	0.31	0.20	3.56	0.43
River 1	Reach 1-Upper	887	50YrSCS24Hr	0.07	94.10	94.21	94.17	94.22	0.003925	0.29	0.25	3.98	0.36
River 1	Reach 1-Upper	887	100YrSCS24Hr	0.08	94.10	94.19	94.18	94.20	0.014690	0.48	0.18	3.39	0.67
River 1	Reach 1-Upper	868	2YrCHI3Hr	0.02	93.96	94.02	94.01	94.03	0.006049	0.24	0.06	1.78	0.41
River 1	Reach 1-Upper	868	5YrCHI3Hr	0.03	93.96	94.04	94.01	94.04	0.007801	0.31	0.08	1.98	0.48
River 1	Reach 1-Upper	868	10YrCHI3Hr	0.03	93.96	94.04	94.02	94.05	0.010621	0.37	0.09	2.05	0.56
River 1	Reach 1-Upper	868	25YrCHI3Hr	0.05	93.96	94.05	94.03	94.06	0.013422	0.44	0.11	2.15	0.64
River 1	Reach 1-Upper	868	50YrCHI3Hr	0.06	93.96	94.06	94.04	94.07	0.010577	0.43	0.13	2.35	0.58
River 1	Reach 1-Upper	868	100YrCHI3Hr	0.07	93.96	94.06	94.04	94.07	0.010976	0.46	0.15	2.45	0.60
River 1	Reach 1-Upper	868	2YrSCS24Hr	0.02	93.96	94.03	94.01	94.04	0.007224	0.29	0.08	1.96	0.46
River 1	Reach 1-Upper	868	5YrSCS24Hr	0.04	93.96	94.04	94.02	94.05	0.011359	0.39	0.10	2.08	0.58
River 1	Reach 1-Upper	868	10YrSCS24Hr	0.05	93.96	94.05	94.03	94.06	0.012976	0.44	0.11	2.19	0.63
River 1	Reach 1-Upper	868	25YrSCS24Hr	0.06	93.96	94.07	94.04	94.08	0.007363	0.39	0.16	2.55	0.49
River 1	Reach 1-Upper	868	50YrSCS24Hr	0.07	93.96	94.06	94.05	94.07	0.019525	0.57	0.13	2.31	0.78
River 1	Reach 1-Upper	868	100YrSCS24Hr	0.08	93.96	94.14	94.05	94.15	0.001168	0.21	0.40	3.98	0.21
River 1	Reach 1-Upper	848	2YrCHI3Hr	0.02	93.87	93.92	93.90	93.92	0.004686	0.19	0.08	2.57	0.35
River 1	Reach 1-Upper	848	5YrCHI3Hr	0.03	93.87	93.93	93.91	93.94	0.003787	0.21	0.12	2.98	0.33
River 1	Reach 1-Upper	848	10YrCHI3Hr	0.03	93.87	93.95	93.92	93.95	0.002708	0.21	0.17	3.15	0.29
River 1	Reach 1-Upper	848	25YrCHI3Hr	0.05	93.87	93.97	93.92	93.97	0.002043	0.21	0.22	3.34	0.26
River 1	Reach 1-Upper	848	50YrCHI3Hr	0.06	93.87	93.97	93.93	93.97	0.002676	0.25	0.23	3.37	0.30
River 1	Reach 1-Upper	848	100YrCHI3Hr	0.07	93.87	93.98	93.93	93.98	0.002517	0.26	0.26	3.47	0.30
River 1	Reach 1-Upper	848	2YrSCS24Hr	0.02	93.87	93.93	93.91	93.93	0.004188	0.21	0.11	2.93	0.34
River 1	Reach 1-Upper	848	5YrSCS24Hr	0.04	93.87	93.95	93.92	93.96	0.002536	0.21	0.18	3.19	0.28
River 1	Reach 1-Upper	848	10YrSCS24Hr	0.05	93.87	93.97	93.92	93.97	0.002100	0.22	0.23	3.35	0.27
River 1	Reach 1-Upper	848	25YrSCS24Hr	0.06	93.87	93.96	93.93	93.97	0.004423	0.30	0.21	3.29	0.38
River 1	Reach 1-Upper	848	50YrSCS24Hr	0.07	93.87	94.04	93.93	94.04	0.000430	0.15	0.50	3.98	0.13

HEC-RAS Plan: 20250603-Pre_Dev_v01 (Continued)

River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
River 1	Reach 1-Upper	848	100YrSCS24Hr	0.08	93.87	94.14	93.94	94.14	0.000088	0.09	0.94	4.75	0.06
River 1	Reach 1-Upper	828	2YrCHI3Hr	0.02	93.78	93.85	93.82	93.85	0.002687	0.16	0.09	2.47	0.27
River 1	Reach 1-Upper	828	5YrCHI3Hr	0.03	93.78	93.86	93.83	93.86	0.004045	0.22	0.12	2.90	0.34
River 1	Reach 1-Upper	828	10YrCHI3Hr	0.03	93.78	93.85	93.83	93.86	0.010289	0.33	0.10	2.68	0.54
River 1	Reach 1-Upper	828	25YrCHI3Hr	0.05	93.78	93.84	93.84	93.86	0.040257	0.61	0.08	2.23	1.04
River 1	Reach 1-Upper	828	50YrCHI3Hr	0.06	93.78	93.87	93.85	93.87	0.011893	0.40	0.14	3.16	0.59
River 1	Reach 1-Upper	828	100YrCHI3Hr	0.07	93.78	93.96	93.85	93.97	0.000365	0.13	0.50	4.07	0.12
River 1	Reach 1-Upper	828	2YrSCS24Hr	0.02	93.78	93.86	93.82	93.86	0.003210	0.19	0.12	2.95	0.30
River 1	Reach 1-Upper	828	5YrSCS24Hr	0.04	93.78	93.85	93.84	93.86	0.014294	0.39	0.10	2.58	0.63
River 1	Reach 1-Upper	828	10YrSCS24Hr	0.05	93.78	93.84	93.84	93.86	0.036015	0.59	0.08	2.34	0.99
River 1	Reach 1-Upper	828	25YrSCS24Hr	0.06	93.78	93.90	93.85	93.90	0.002459	0.25	0.25	3.50	0.29
River 1	Reach 1-Upper	828	50YrSCS24Hr	0.07	93.78	94.04	93.86	94.04	0.000005	0.02	5.50	35.21	0.01
River 1	Reach 1-Upper	828	100YrSCS24Hr	0.08	93.78	94.14	93.86	94.14	0.000001	0.01	9.06	35.66	0.01
River 1	Reach 1-Upper	807	2YrCHI3Hr	0.02	93.65	93.70	93.70	93.71	0.039865	0.46	0.03	1.40	0.97
River 1	Reach 1-Upper	807	5YrCHI3Hr	0.03	93.65	93.72	93.71	93.73	0.011679	0.35	0.07	1.90	0.57
River 1	Reach 1-Upper	807	10YrCHI3Hr	0.03	93.65	93.76	93.71	93.76	0.002625	0.22	0.16	2.63	0.29
River 1	Reach 1-Upper	807	25YrCHI3Hr	0.05	93.65	93.80	93.72	93.80	0.000718	0.16	0.30	3.53	0.16
River 1	Reach 1-Upper	807	50YrCHI3Hr	0.06	93.65	93.86	93.73	93.86	0.000227	0.12	0.51	4.43	0.10
River 1	Reach 1-Upper	807	100YrCHI3Hr	0.07	93.65	93.96	93.73	93.96	0.000003	0.02	5.71	34.82	0.01
River 1	Reach 1-Upper	807	2YrSCS24Hr	0.02	93.65	93.71	93.70	93.72	0.021814	0.43	0.06	1.70	0.76
River 1	Reach 1-Upper	807	5YrSCS24Hr	0.04	93.65	93.77	93.71	93.77	0.001862	0.20	0.19	2.86	0.25
River 1	Reach 1-Upper	807	10YrSCS24Hr	0.05	93.65	93.81	93.72	93.81	0.000588	0.15	0.33	3.67	0.15
River 1	Reach 1-Upper	807	25YrSCS24Hr	0.06	93.65	93.89	93.73	93.89	0.000119	0.10	0.70	6.11	0.07
River 1	Reach 1-Upper	807	50YrSCS24Hr	0.07	93.65	94.04	93.74	94.04	0.000001	0.01	8.37	35.13	0.01
River 1	Reach 1-Upper	807	100YrSCS24Hr	0.08	93.65	94.14	93.74	94.14	0.000000	0.01	11.92	35.53	0.01
River 1	Reach 1-Upper	789	2YrCHI3Hr	0.02	93.49	93.67	93.53	93.67	0.000035	0.04	0.33	3.14	0.04
River 1	Reach 1-Upper	789	5YrCHI3Hr	0.03	93.49	93.72	93.54	93.72	0.000038	0.06	0.45	3.66	0.04
River 1	Reach 1-Upper	789	10YrCHI3Hr	0.03	93.49	93.76	93.55	93.76	0.000039	0.07	0.54	4.24	0.04
River 1	Reach 1-Upper	789	25YrCHI3Hr	0.05	93.49	93.80	93.56	93.80	0.000037	0.07	0.65	4.99	0.04
River 1	Reach 1-Upper	789	50YrCHI3Hr	0.06	93.49	93.86	93.57	93.86	0.000030	0.07	0.78	5.73	0.04
River 1	Reach 1-Upper	789	100YrCHI3Hr	0.07	93.49	93.96	93.57	93.96	0.000016	0.06	1.04	8.28	0.03
River 1	Reach 1-Upper	789	2YrSCS24Hr	0.02	93.49	93.71	93.54	93.71	0.000038	0.06	0.43	3.55	0.04
River 1	Reach 1-Upper	789	5YrSCS24Hr	0.04	93.49	93.77	93.55	93.77	0.000038	0.07	0.56	4.42	0.04
River 1	Reach 1-Upper	789	10YrSCS24Hr	0.05	93.49	93.81	93.56	93.81	0.000037	0.07	0.67	5.12	0.04
River 1	Reach 1-Upper	789	25YrSCS24Hr	0.06	93.49	93.89	93.57	93.89	0.000025	0.07	0.87	6.17	0.04
River 1	Reach 1-Upper	789	50YrSCS24Hr	0.07	93.49	94.04	93.57	94.04	0.000011	0.06	1.22	10.07	0.03
River 1	Reach 1-Upper	789	100YrSCS24Hr	0.08	93.49	94.14	93.58	94.14	0.000008	0.06	1.46	23.56	0.02
River 1	Reach 1-Upper	764		Culvert									
River 1	Reach 1-Upper	759	2YrCHI3Hr	0.02	93.46	93.53	93.50	93.53	0.002563	0.21	0.07	1.74	0.28
River 1	Reach 1-Upper	759	5YrCHI3Hr	0.03	93.46	93.56	93.51	93.56	0.002115	0.23	0.11	2.11	0.27
River 1	Reach 1-Upper	759	10YrCHI3Hr	0.03	93.46	93.59	93.52	93.60	0.001088	0.21	0.16	2.56	0.21
River 1	Reach 1-Upper	759	25YrCHI3Hr	0.05	93.46	93.66	93.53	93.66	0.000396	0.18	0.26	3.40	0.14
River 1	Reach 1-Upper	759	50YrCHI3Hr	0.06	93.46	93.74	93.54	93.74	0.000161	0.15	0.39	4.37	0.09
River 1	Reach 1-Upper	759	100YrCHI3Hr	0.07	93.46	93.83	93.54	93.84	0.000081	0.13	0.53	6.02	0.07
River 1	Reach 1-Upper	759	2YrSCS24Hr	0.02	93.46	93.55	93.51	93.56	0.002355	0.23	0.10	2.03	0.28
River 1	Reach 1-Upper	759	5YrSCS24Hr	0.04	93.46	93.61	93.52	93.61	0.000864	0.21	0.18	2.73	0.19
River 1	Reach 1-Upper	759	10YrSCS24Hr	0.05	93.46	93.67	93.53	93.67	0.000343	0.17	0.28	3.54	0.13
River 1	Reach 1-Upper	759	25YrSCS24Hr	0.06	93.46	93.79	93.54	93.79	0.000109	0.14	0.46	4.99	0.08
River 1	Reach 1-Upper	759	50YrSCS24Hr	0.07	93.46	93.89	93.54	93.89	0.000058	0.12	0.61	6.73	0.06
River 1	Reach 1-Upper	759	100YrSCS24Hr	0.08	93.46	93.95	93.55	93.95	0.000051	0.12	0.69	7.38	0.06
River 1	Reach 1-Upper	743	2YrCHI3Hr	0.02	93.40	93.47	93.45	93.47	0.006174	0.30	0.05	1.27	0.43
River 1	Reach 1-Upper	743	5YrCHI3Hr	0.03	93.40	93.53	93.46	93.54	0.001159	0.20	0.13	1.95	0.21
River 1	Reach 1-Upper	743	10YrCHI3Hr	0.03	93.40	93.58	93.47	93.58	0.000560	0.19	0.19	2.40	0.16
River 1	Reach 1-Upper	743	25YrCHI3Hr	0.05	93.40	93.66	93.48	93.66	0.000255	0.16	0.29	3.39	0.11
River 1	Reach 1-Upper	743	50YrCHI3Hr	0.06	93.40	93.74	93.49	93.74	0.000125	0.14	0.40	5.00	0.08
River 1	Reach 1-Upper	743	100YrCHI3Hr	0.07	93.40	93.83	93.50	93.83	0.000071	0.13	0.52	7.13	0.07
River 1	Reach 1-Upper	743	2YrSCS24Hr	0.02	93.40	93.52	93.46	93.52	0.001463	0.21	0.11	1.84	0.23
River 1	Reach 1-Upper	743	5YrSCS24Hr	0.04	93.40	93.60	93.47	93.60	0.000466	0.18	0.21	2.59	0.14
River 1	Reach 1-Upper	743	10YrSCS24Hr	0.05	93.40	93.67	93.48	93.67	0.000228	0.16	0.30	3.72	0.11
River 1	Reach 1-Upper	743	25YrSCS24Hr	0.06	93.40	93.79	93.49	93.79	0.000091	0.14	0.46	6.17	0.07
River 1	Reach 1-Upper	743	50YrSCS24Hr	0.07	93.40	93.89	93.50	93.89	0.000054	0.12	0.59	7.75	0.06
River 1	Reach 1-Upper	743	100YrSCS24Hr	0.08	93.40	93.94	93.51	93.95	0.000049	0.13	0.66	9.45	0.06
River 1	Reach 1-Upper	733		Culvert									
River 1	Reach 1-Upper	728	2YrCHI3Hr	0.02	93.33	93.46	93.38	93.46	0.000507	0.12	0.12	1.51	0.14
River 1	Reach 1-Upper	728	5YrCHI3Hr	0.03	93.33	93.52	93.40	93.52	0.000283	0.13	0.20	1.94	0.11
River 1	Reach 1-Upper	728	10YrCHI3Hr	0.03	93.33	93.56	93.41	93.56	0.000213	0.13	0.26	2.26	0.10
River 1	Reach 1-Upper	728	25YrCHI3Hr	0.05	93.33	93.63	93.42	93.63	0.000137	0.13	0.36	2.78	0.08
River 1	Reach 1-Upper	728	50YrCHI3Hr	0.06	93.33	93.70	93.43	93.70	0.000088	0.13	0.45	3.31	0.07
River 1	Reach 1-Upper	728	100YrCHI3Hr	0.07	93.33	93.78	93.43	93.78	0.000060	0.12	0.56	4.21	0.06
River 1	Reach 1-Upper	728	2YrSCS24Hr	0.02	93.33	93.51	93.39	93.51	0.000306	0.13	0.19	1.87	0.11
River 1	Reach 1-Upper	728	5YrSCS24Hr	0.04	93.33	93.58	93.41	93.58	0.000196	0.14	0.28	2.37	0.10
River 1	Reach 1-Upper	728	10YrSCS24Hr	0.05	93.33	93.64	93.42	93.64	0.000129	0.13	0.37	2.86	0.08
River 1	Reach 1-Upper	728	25YrSCS24Hr	0.06	93.33	93.74	93.43	93.74	0.000071	0.12	0.51	3.65	0.06
River 1	Reach 1-Upper	728	50YrSCS24Hr	0.07	93.33	93.82	93.44	93.82	0.000049	0.12	0.63	6.17	0.06
River 1	Reach 1-Upper	728	100YrSCS24Hr	0.08	93.33	93.85	93.45	93.85	0.000053	0.13	0.67	10.91	0.06
River 1	Reach 1-Upper	715	2YrCHI3Hr	0.02	93.32	93.46	93.36	93.46	0.000165	0.09	0.17	2.22	0.08
River 1	Reach 1-Upper	715	5YrCHI3Hr	0.03	93.32	93.52	93.37	93.52	0.000134	0.10	0.25	2.80	0.08
River 1	Reach 1-Upper	715	10YrCHI3Hr	0.03	93.32	93.56	93.38	93.56	0.000117	0.11	0.31	3.23	0.08
River 1	Reach 1-Upper	715	25YrCHI3Hr	0.05	93.32	93.63	93.39	93.63	0.000086	0.12	0.41	3.92	0.07
River 1	Reach 1-Upper	715	50YrCHI3Hr	0.06	93.32	93.70	93.39	93.70	0.000061	0.11	0.51	4.63	0.06
River 1	Reach 1-Upper	715	100YrCHI3Hr	0.07	93.32	93.77	93.40	93.78	0.000044	0.11	0.61	9.10	0.05

HEC-RAS Plan: 20250603-Pre_Dev_v01 (Continued)

River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
River 1	Reach 1-Upper	715	2YrSCS24Hr	0.02	93.32	93.51	93.36	93.51	0.000138	0.10	0.24	2.70	0.08
River 1	Reach 1-Upper	715	5YrSCS24Hr	0.04	93.32	93.57	93.38	93.57	0.000112	0.11	0.33	3.38	0.08
River 1	Reach 1-Upper	715	10YrSCS24Hr	0.05	93.32	93.64	93.39	93.64	0.000083	0.12	0.42	4.03	0.07
River 1	Reach 1-Upper	715	25YrSCS24Hr	0.06	93.32	93.74	93.40	93.74	0.000051	0.11	0.56	5.03	0.06
River 1	Reach 1-Upper	715	50YrSCS24Hr	0.07	93.32	93.82	93.40	93.82	0.000037	0.11	0.68	14.68	0.05
River 1	Reach 1-Upper	715	100YrSCS24Hr	0.08	93.32	93.85	93.41	93.85	0.000010	0.04	2.56	20.21	0.02
River 1	Reach 1-Upper	705	Culvert										
River 1	Reach 1-Upper	698	2YrCHI3Hr	0.02	93.24	93.31	93.29	93.31	0.009120	0.33	0.05	1.10	0.51
River 1	Reach 1-Upper	698	5YrCHI3Hr	0.03	93.24	93.31	93.30	93.32	0.019233	0.50	0.05	1.16	0.75
River 1	Reach 1-Upper	698	10YrCHI3Hr	0.03	93.24	93.31	93.31	93.33	0.027628	0.62	0.06	1.19	0.91
River 1	Reach 1-Upper	698	25YrCHI3Hr	0.05	93.24	93.42	93.32	93.43	0.000867	0.20	0.23	2.01	0.19
River 1	Reach 1-Upper	698	50YrCHI3Hr	0.06	93.24	93.51	93.33	93.51	0.000225	0.14	0.41	2.80	0.10
River 1	Reach 1-Upper	698	100YrCHI3Hr	0.07	93.24	93.51	93.34	93.51	0.000299	0.16	0.42	2.61	0.12
River 1	Reach 1-Upper	698	2YrSCS24Hr	0.02	93.24	93.31	93.30	93.32	0.015768	0.45	0.05	1.16	0.68
River 1	Reach 1-Upper	698	5YrSCS24Hr	0.04	93.24	93.32	93.31	93.34	0.027115	0.63	0.06	1.22	0.90
River 1	Reach 1-Upper	698	10YrSCS24Hr	0.05	93.24	93.47	93.32	93.47	0.000368	0.15	0.32	2.29	0.13
River 1	Reach 1-Upper	698	25YrSCS24Hr	0.06	93.24	93.51	93.33	93.51	0.000261	0.15	0.41	2.61	0.11
River 1	Reach 1-Upper	698	50YrSCS24Hr	0.07	93.24	93.51	93.34	93.52	0.000345	0.17	0.42	2.63	0.13
River 1	Reach 1-Upper	698	100YrSCS24Hr	0.08	93.24	93.52	93.35	93.52	0.000432	0.20	0.43	2.65	0.14
River 1	Reach 1-Upper	681	2YrCHI3Hr	0.02	93.14	93.21	93.18	93.21	0.004396	0.23	0.07	1.57	0.36
River 1	Reach 1-Upper	681	5YrCHI3Hr	0.03	93.14	93.24	93.19	93.24	0.001938	0.21	0.12	1.83	0.26
River 1	Reach 1-Upper	681	10YrCHI3Hr	0.03	93.14	93.27	93.20	93.27	0.001159	0.19	0.18	2.04	0.21
River 1	Reach 1-Upper	681	25YrCHI3Hr	0.05	93.14	93.42	93.21	93.42	0.000083	0.08	0.57	3.09	0.06
River 1	Reach 1-Upper	681	50YrCHI3Hr	0.06	93.14	93.51	93.22	93.51	0.000037	0.07	0.87	4.07	0.04
River 1	Reach 1-Upper	681	100YrCHI3Hr	0.07	93.14	93.51	93.22	93.51	0.000050	0.08	0.88	4.10	0.05
River 1	Reach 1-Upper	681	2YrSCS24Hr	0.02	93.14	93.23	93.19	93.24	0.002334	0.22	0.11	1.78	0.28
River 1	Reach 1-Upper	681	5YrSCS24Hr	0.04	93.14	93.29	93.20	93.29	0.000854	0.18	0.21	2.14	0.18
River 1	Reach 1-Upper	681	10YrSCS24Hr	0.05	93.14	93.46	93.21	93.46	0.000050	0.07	0.70	3.45	0.05
River 1	Reach 1-Upper	681	25YrSCS24Hr	0.06	93.14	93.51	93.22	93.51	0.000043	0.07	0.88	4.08	0.05
River 1	Reach 1-Upper	681	50YrSCS24Hr	0.07	93.14	93.51	93.23	93.51	0.000058	0.08	0.89	4.12	0.05
River 1	Reach 1-Upper	681	100YrSCS24Hr	0.08	93.14	93.52	93.23	93.52	0.000073	0.09	0.90	4.16	0.06
River 1	Reach 1-Upper	663	2YrCHI3Hr	0.02	93.05	93.18		93.18	0.000677	0.14	0.11	1.31	0.15
River 1	Reach 1-Upper	663	5YrCHI3Hr	0.03	93.05	93.22		93.23	0.000607	0.15	0.17	1.60	0.15
River 1	Reach 1-Upper	663	10YrCHI3Hr	0.03	93.05	93.26		93.26	0.000492	0.15	0.23	1.84	0.14
River 1	Reach 1-Upper	663	25YrCHI3Hr	0.05	93.05	93.42		93.42	0.000064	0.07	0.63	3.25	0.05
River 1	Reach 1-Upper	663	50YrCHI3Hr	0.06	93.05	93.51		93.51	0.000032	0.06	0.96	4.42	0.04
River 1	Reach 1-Upper	663	100YrCHI3Hr	0.07	93.05	93.51		93.51	0.000043	0.07	0.97	4.46	0.05
River 1	Reach 1-Upper	663	2YrSCS24Hr	0.02	93.05	93.21		93.22	0.000676	0.16	0.15	1.53	0.16
River 1	Reach 1-Upper	663	5YrSCS24Hr	0.04	93.05	93.28		93.28	0.000393	0.14	0.26	1.97	0.13
River 1	Reach 1-Upper	663	10YrSCS24Hr	0.05	93.05	93.46		93.46	0.000042	0.06	0.78	3.77	0.04
River 1	Reach 1-Upper	663	25YrSCS24Hr	0.06	93.05	93.51		93.51	0.000037	0.06	0.96	4.44	0.04
River 1	Reach 1-Upper	663	50YrSCS24Hr	0.07	93.05	93.51		93.51	0.000050	0.08	0.97	4.48	0.05
River 1	Reach 1-Upper	663	100YrSCS24Hr	0.08	93.05	93.51		93.52	0.000064	0.09	0.99	4.53	0.06
River 1	Reach 1-Upper	656	2YrCHI3Hr	0.06	93.03	93.15	93.12	93.16	0.008107	0.46	0.12	1.65	0.53
River 1	Reach 1-Upper	656	5YrCHI3Hr	0.10	93.03	93.19	93.14	93.20	0.006746	0.51	0.20	1.91	0.51
River 1	Reach 1-Upper	656	10YrCHI3Hr	0.14	93.03	93.23	93.16	93.24	0.004212	0.48	0.29	2.15	0.42
River 1	Reach 1-Upper	656	25YrCHI3Hr	0.18	93.03	93.42	93.18	93.42	0.000424	0.23	0.79	3.69	0.15
River 1	Reach 1-Upper	656	50YrCHI3Hr	0.22	93.03	93.51	93.20	93.51	0.000220	0.20	1.16	4.65	0.11
River 1	Reach 1-Upper	656	100YrCHI3Hr	0.26	93.03	93.51	93.21	93.51	0.000302	0.24	1.17	4.66	0.13
River 1	Reach 1-Upper	656	2YrSCS24Hr	0.09	93.03	93.18	93.14	93.19	0.007190	0.50	0.18	1.85	0.52
River 1	Reach 1-Upper	656	5YrSCS24Hr	0.15	93.03	93.26	93.17	93.27	0.003060	0.44	0.34	2.29	0.36
River 1	Reach 1-Upper	656	10YrSCS24Hr	0.19	93.03	93.46	93.18	93.46	0.000269	0.21	0.96	4.20	0.12
River 1	Reach 1-Upper	656	25YrSCS24Hr	0.24	93.03	93.51	93.20	93.51	0.000267	0.23	1.17	4.65	0.12
River 1	Reach 1-Upper	656	50YrSCS24Hr	0.28	93.03	93.51	93.22	93.51	0.000363	0.26	1.17	4.66	0.14
River 1	Reach 1-Upper	656	100YrSCS24Hr	0.33	93.03	93.51	93.23	93.51	0.000481	0.30	1.18	4.68	0.16
River 1	Reach 1-Upper	638	2YrCHI3Hr	0.06	92.92	93.07	93.00	93.08	0.002802	0.32	0.18	1.81	0.32
River 1	Reach 1-Upper	638	5YrCHI3Hr	0.10	92.92	93.14	93.04	93.14	0.001935	0.33	0.31	2.24	0.28
River 1	Reach 1-Upper	638	10YrCHI3Hr	0.14	92.92	93.20	93.05	93.21	0.001072	0.29	0.48	2.76	0.22
River 1	Reach 1-Upper	638	25YrCHI3Hr	0.18	92.92	93.41	93.07	93.42	0.000128	0.15	1.31	5.26	0.08
River 1	Reach 1-Upper	638	50YrCHI3Hr	0.22	92.92	93.50	93.09	93.51	0.000082	0.14	1.86	6.83	0.07
River 1	Reach 1-Upper	638	100YrCHI3Hr	0.26	92.92	93.50	93.10	93.51	0.000114	0.16	1.86	6.84	0.08
River 1	Reach 1-Upper	638	2YrSCS24Hr	0.09	92.92	93.12	93.03	93.12	0.002288	0.34	0.27	2.11	0.30
River 1	Reach 1-Upper	638	5YrSCS24Hr	0.15	92.92	93.24	93.06	93.24	0.000804	0.26	0.57	3.07	0.19
River 1	Reach 1-Upper	638	10YrSCS24Hr	0.19	92.92	93.46	93.08	93.46	0.000092	0.14	1.57	6.15	0.07
River 1	Reach 1-Upper	638	25YrSCS24Hr	0.24	92.92	93.50	93.10	93.51	0.000100	0.15	1.86	6.83	0.08
River 1	Reach 1-Upper	638	50YrSCS24Hr	0.28	92.92	93.50	93.11	93.51	0.000137	0.18	1.87	6.84	0.09
River 1	Reach 1-Upper	638	100YrSCS24Hr	0.33	92.92	93.51	93.13	93.51	0.000184	0.20	1.87	6.85	0.10
River 1	Reach 1-Upper	617	2YrCHI3Hr	0.06	92.84	93.01	92.95	93.01	0.003253	0.32	0.18	1.96	0.34
River 1	Reach 1-Upper	617	5YrCHI3Hr	0.10	92.84	93.11	92.98	93.11	0.000952	0.24	0.43	2.97	0.20
River 1	Reach 1-Upper	617	10YrCHI3Hr	0.14	92.84	93.19	93.00	93.19	0.000453	0.19	0.70	3.82	0.14
River 1	Reach 1-Upper	617	25YrCHI3Hr	0.18	92.84	93.41	93.01	93.41	0.000070	0.09	1.97	8.09	0.06
River 1	Reach 1-Upper	617	50YrCHI3Hr	0.22	92.84	93.50	93.03	93.50	0.000037	0.08	2.93	15.17	0.05
River 1	Reach 1-Upper	617	100YrCHI3Hr	0.26	92.84	93.50	93.04	93.50	0.000051	0.09	2.93	15.17	0.05
River 1	Reach 1-Upper	617	2YrSCS24Hr	0.09	92.84	93.08	92.97	93.09	0.001277	0.26	0.35	2.70	0.23
River 1	Reach 1-Upper	617	5YrSCS24Hr	0.15	92.84	93.23	93.00	93.23	0.000340	0.18	0.84	4.32	0.13
River 1	Reach 1-Upper	617	10YrSCS24Hr	0.19	92.84	93.46	93.02	93.46	0.000046	0.08	2.37	10.22	0.05
River 1	Reach 1-Upper	617	25YrSCS24Hr	0.24	92.84	93.50	93.04	93.50	0.000045	0.09	2.93	15.17	0.05
River 1	Reach 1-Upper	617	50YrSCS24Hr	0.28	92.84	93.50	93.05	93.50	0.000062	0.10	2.93	15.17	0.06
River 1	Reach 1-Upper	617	100YrSCS24Hr	0.33	92.84	93.50	93.06	93.50	0.000083	0.12	2.93	15.18	0.07
River 1	Reach 1-Upper	598	2YrCHI3Hr	0.06	92.76	92.99	92.86	92.99	0.000555	0.18	0.33	2.52	0.15
River 1	Reach 1-Upper	598	5YrCHI3Hr	0.11	92.76	93.10	92.89	93.10	0.000269	0.18	0.61	3.40	0.12
River 1	Reach 1-Upper	598	10YrCHI3Hr	0.15	92.76	93.19	92.91	93.19	0.000175	0.18	0.82	5.45	0.10

HEC-RAS Plan: 20250603-Pre_Dev_v01 (Continued)

River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
River 1	Reach 1-Upper	598	25YrCHI3Hr	0.19	92.76	93.41	92.93	93.41	0.000054	0.14	1.39	9.84	0.06
River 1	Reach 1-Upper	598	50YrCHI3Hr	0.23	92.76	93.50	92.94	93.50	0.000020	0.08	4.94	31.21	0.04
River 1	Reach 1-Upper	598	100YrCHI3Hr	0.28	92.76	93.50	92.96	93.50	0.000028	0.09	4.93	31.21	0.04
River 1	Reach 1-Upper	598	2YrSCS24Hr	0.10	92.76	93.07	92.88	93.07	0.000322	0.18	0.53	3.17	0.12
River 1	Reach 1-Upper	598	5YrSCS24Hr	0.16	92.76	93.22	92.91	93.22	0.000147	0.17	0.91	6.16	0.09
River 1	Reach 1-Upper	598	10YrSCS24Hr	0.20	92.76	93.46	92.93	93.46	0.000045	0.13	1.50	22.56	0.06
River 1	Reach 1-Upper	598	25YrSCS24Hr	0.26	92.76	93.50	92.95	93.50	0.000025	0.09	4.94	31.21	0.04
River 1	Reach 1-Upper	598	50YrSCS24Hr	0.30	92.76	93.50	92.96	93.50	0.000034	0.10	4.93	31.21	0.05
River 1	Reach 1-Upper	598	100YrSCS24Hr	0.35	92.76	93.50	92.98	93.50	0.000046	0.12	4.93	31.21	0.05
River 1	Reach 1-Upper	589		Culvert									
River 1	Reach 1-Upper	581	2YrCHI3Hr	0.06	92.71	92.89	92.81	92.89	0.002032	0.27	0.23	2.59	0.28
River 1	Reach 1-Upper	581	5YrCHI3Hr	0.11	92.71	92.93	92.84	92.93	0.001970	0.33	0.33	3.40	0.29
River 1	Reach 1-Upper	581	10YrCHI3Hr	0.15	92.71	92.96	92.86	92.97	0.001571	0.34	0.42	4.10	0.27
River 1	Reach 1-Upper	581	25YrCHI3Hr	0.19	92.71	93.04	92.88	93.04	0.000858	0.32	0.60	5.44	0.21
River 1	Reach 1-Upper	581	50YrCHI3Hr	0.23	92.71	93.19	92.89	93.19	0.000244	0.24	0.98	9.64	0.12
River 1	Reach 1-Upper	581	100YrCHI3Hr	0.28	92.71	93.25	92.90	93.25	0.000213	0.24	1.13	30.32	0.12
River 1	Reach 1-Upper	581	2YrSCS24Hr	0.10	92.71	92.92	92.83	92.92	0.002062	0.32	0.30	3.18	0.29
River 1	Reach 1-Upper	581	5YrSCS24Hr	0.16	92.71	92.98	92.86	92.99	0.001381	0.34	0.46	4.41	0.25
River 1	Reach 1-Upper	581	10YrSCS24Hr	0.20	92.71	93.05	92.88	93.06	0.000735	0.31	0.65	5.75	0.20
River 1	Reach 1-Upper	581	25YrSCS24Hr	0.26	92.71	93.25	92.90	93.25	0.000187	0.23	1.13	30.32	0.11
River 1	Reach 1-Upper	581	50YrSCS24Hr	0.30	92.71	93.26	92.91	93.26	0.000245	0.26	1.15	30.62	0.12
River 1	Reach 1-Upper	581	100YrSCS24Hr	0.35	92.71	93.30	92.92	93.30	0.000057	0.11	4.83	35.67	0.06
River 1	Reach 1-Upper	572	2YrCHI3Hr	0.06	92.73	92.84	92.82	92.85	0.009130	0.45	0.13	1.96	0.55
River 1	Reach 1-Upper	572	5YrCHI3Hr	0.11	92.73	92.90	92.84	92.90	0.004896	0.43	0.26	2.58	0.43
River 1	Reach 1-Upper	572	10YrCHI3Hr	0.15	92.73	92.94	92.86	92.95	0.002649	0.37	0.39	3.10	0.33
River 1	Reach 1-Upper	572	25YrCHI3Hr	0.19	92.73	93.03	92.88	93.03	0.001021	0.28	0.70	4.09	0.22
River 1	Reach 1-Upper	572	50YrCHI3Hr	0.23	92.73	93.19	92.89	93.19	0.000155	0.14	2.22	26.73	0.09
River 1	Reach 1-Upper	572	100YrCHI3Hr	0.28	92.73	93.25	92.90	93.25	0.000074	0.11	4.09	35.89	0.06
River 1	Reach 1-Upper	572	2YrSCS24Hr	0.10	92.73	92.88	92.84	92.89	0.005898	0.44	0.22	2.42	0.47
River 1	Reach 1-Upper	572	5YrSCS24Hr	0.16	92.73	92.96	92.86	92.97	0.002084	0.34	0.46	3.34	0.30
River 1	Reach 1-Upper	572	10YrSCS24Hr	0.20	92.73	93.05	92.88	93.05	0.000824	0.26	0.78	4.31	0.20
River 1	Reach 1-Upper	572	25YrSCS24Hr	0.26	92.73	93.25	92.90	93.25	0.000065	0.10	4.09	35.88	0.06
River 1	Reach 1-Upper	572	50YrSCS24Hr	0.30	92.73	93.26	92.91	93.26	0.000079	0.12	4.37	36.88	0.07
River 1	Reach 1-Upper	572	100YrSCS24Hr	0.35	92.73	93.30	92.92	93.30	0.000050	0.10	6.26	42.85	0.05
River 1	Reach 1-Upper	555	2YrCHI3Hr	0.06	92.61	92.81	92.71	92.81	0.000983	0.20	0.31	2.93	0.20
River 1	Reach 1-Upper	555	5YrCHI3Hr	0.11	92.61	92.87	92.74	92.87	0.000748	0.21	0.52	3.73	0.18
River 1	Reach 1-Upper	555	10YrCHI3Hr	0.15	92.61	92.93	92.75	92.93	0.000479	0.19	0.76	4.46	0.15
River 1	Reach 1-Upper	555	25YrCHI3Hr	0.19	92.61	93.02	92.77	93.02	0.000238	0.16	1.22	5.62	0.11
River 1	Reach 1-Upper	555	50YrCHI3Hr	0.23	92.61	93.19	92.78	93.19	0.000031	0.08	4.98	37.27	0.04
River 1	Reach 1-Upper	555	100YrCHI3Hr	0.28	92.61	93.25	92.80	93.25	0.000018	0.06	7.39	40.94	0.03
River 1	Reach 1-Upper	555	2YrSCS24Hr	0.10	92.61	92.85	92.73	92.85	0.000851	0.21	0.45	3.50	0.19
River 1	Reach 1-Upper	555	5YrSCS24Hr	0.16	92.61	92.95	92.76	92.95	0.000402	0.18	0.87	4.75	0.14
River 1	Reach 1-Upper	555	10YrSCS24Hr	0.20	92.61	93.04	92.77	93.04	0.000197	0.15	1.34	5.96	0.10
River 1	Reach 1-Upper	555	25YrSCS24Hr	0.26	92.61	93.25	92.79	93.25	0.000016	0.06	7.39	40.94	0.03
River 1	Reach 1-Upper	555	50YrSCS24Hr	0.30	92.61	93.26	92.81	93.26	0.000020	0.07	7.70	41.13	0.03
River 1	Reach 1-Upper	555	100YrSCS24Hr	0.35	92.61	93.30	92.82	93.30	0.000015	0.06	9.71	43.21	0.03
River 1	Reach 1-Upper	534	2YrCHI3Hr	0.06	92.59	92.78	92.69	92.78	0.001540	0.24	0.25	2.41	0.24
River 1	Reach 1-Upper	534	5YrCHI3Hr	0.11	92.59	92.85	92.72	92.86	0.001007	0.24	0.46	3.30	0.21
River 1	Reach 1-Upper	534	10YrCHI3Hr	0.15	92.59	92.92	92.74	92.92	0.000570	0.21	0.74	8.51	0.16
River 1	Reach 1-Upper	534	25YrCHI3Hr	0.19	92.59	93.02	92.76	93.02	0.000095	0.11	3.36	40.28	0.07
River 1	Reach 1-Upper	534	50YrCHI3Hr	0.23	92.59	93.19	92.78	93.19	0.000006	0.04	11.46	51.16	0.02
River 1	Reach 1-Upper	534	100YrCHI3Hr	0.28	92.59	93.25	92.79	93.25	0.000004	0.03	14.61	51.39	0.02
River 1	Reach 1-Upper	534	2YrSCS24Hr	0.10	92.59	92.83	92.71	92.83	0.001214	0.25	0.39	3.03	0.22
River 1	Reach 1-Upper	534	5YrSCS24Hr	0.16	92.59	92.94	92.75	92.95	0.000422	0.19	1.07	17.97	0.14
River 1	Reach 1-Upper	534	10YrSCS24Hr	0.20	92.59	93.04	92.76	93.04	0.000064	0.09	4.23	42.61	0.06
River 1	Reach 1-Upper	534	25YrSCS24Hr	0.26	92.59	93.25	92.78	93.25	0.000003	0.03	14.61	51.39	0.01
River 1	Reach 1-Upper	534	50YrSCS24Hr	0.30	92.59	93.26	92.80	93.26	0.000004	0.03	14.99	51.42	0.02
River 1	Reach 1-Upper	534	100YrSCS24Hr	0.35	92.59	93.30	92.81	93.30	0.000004	0.03	17.46	51.60	0.02
River 1	Reach 1-Upper	510	2YrCHI3Hr	0.06	92.60	92.71	92.67	92.72	0.005825	0.43	0.14	2.60	0.46
River 1	Reach 1-Upper	510	5YrCHI3Hr	0.11	92.60	92.82	92.70	92.83	0.001169	0.34	0.32	4.18	0.24
River 1	Reach 1-Upper	510	10YrCHI3Hr	0.15	92.60	92.90	92.72	92.90	0.000712	0.32	0.45	5.29	0.20
River 1	Reach 1-Upper	510	25YrCHI3Hr	0.19	92.60	93.01	92.73	93.01	0.000421	0.31	0.62	14.09	0.16
River 1	Reach 1-Upper	510	50YrCHI3Hr	0.23	92.60	93.18	92.75	93.19	0.000180	0.26	0.90	109.29	0.11
River 1	Reach 1-Upper	510	100YrCHI3Hr	0.28	92.60	93.25	92.77	93.25	0.000000	0.01	42.37	109.53	0.00
River 1	Reach 1-Upper	510	2YrSCS24Hr	0.10	92.60	92.79	92.69	92.80	0.001503	0.34	0.28	3.79	0.26
River 1	Reach 1-Upper	510	5YrSCS24Hr	0.16	92.60	92.93	92.72	92.93	0.000617	0.32	0.49	5.78	0.19
River 1	Reach 1-Upper	510	10YrSCS24Hr	0.20	92.60	93.03	92.74	93.04	0.000378	0.31	0.66	15.54	0.15
River 1	Reach 1-Upper	510	25YrSCS24Hr	0.26	92.60	93.25	92.76	93.25	0.000000	0.01	42.37	109.53	0.00
River 1	Reach 1-Upper	510	50YrSCS24Hr	0.30	92.60	93.26	92.78	93.26	0.000000	0.01	43.19	109.55	0.01
River 1	Reach 1-Upper	510	100YrSCS24Hr	0.35	92.60	93.30	92.79	93.30	0.000000	0.01	48.45	109.72	0.00
River 1	Reach 1-Upper	505		Culvert									
River 1	Reach 1-Upper	502	2YrCHI3Hr	0.07	92.49	92.60	92.57	92.61	0.007956	0.50	0.13	2.20	0.54
River 1	Reach 1-Upper	502	5YrCHI3Hr	0.12	92.49	92.65	92.60	92.67	0.006462	0.60	0.20	2.74	0.52
River 1	Reach 1-Upper	502	10YrCHI3Hr	0.16	92.49	92.68	92.62	92.70	0.006042	0.66	0.25	3.06	0.52
River 1	Reach 1-Upper	502	25YrCHI3Hr	0.22	92.49	92.73	92.64	92.76	0.004047	0.66	0.33	4.01	0.45
River 1	Reach 1-Upper	502	50YrCHI3Hr	0.26	92.49	92.83	92.66	92.85	0.001665	0.54	0.48	5.45	0.31
River 1	Reach 1-Upper	502	100YrCHI3Hr	0.31	92.49	92.99	92.68	93.00	0.000619	0.43	0.72	104.79	0.20
River 1	Reach 1-Upper	502	2YrSCS24Hr	0.11	92.49	92.64	92.59	92.65	0.006729	0.58	0.19	2.62	0.53
River 1	Reach 1-Upper	502	5YrSCS24Hr	0.18	92.49	92.69	92.63	92.71	0.005546	0.67	0.27	3.21	0.51
River 1	Reach 1-Upper	502	10YrSCS24Hr	0.23	92.49	92.75	92.65	92.77	0.003381	0.64	0.36	4.41	0.42
River 1	Reach 1-Upper	502	25YrSCS24Hr	0.29	92.49	92.92	92.67	92.94	0.000902	0.47	0.62	7.34	0.24
River 1	Reach 1-Upper	502	50YrSCS24Hr	0.34	92.49	93.11	92.69	93.12	0.000353	0.38	0.90	105.15	0.16

HEC-RAS Plan: 20250603-Pre_Dev_v01 (Continued)

River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
River 1	Reach 1-Upper	502	100YrSCS24Hr	0.40	92.49	93.30	92.71	93.30	0.000000	0.01	51.89	105.65	0.00
River 1	Reach 1-Upper	493	2YrCHI3Hr	0.07	92.34	92.60	92.42	92.60	0.000124	0.09	0.72	4.59	0.07
River 1	Reach 1-Upper	493	5YrCHI3Hr	0.12	92.34	92.65	92.45	92.65	0.000198	0.13	0.96	5.44	0.10
River 1	Reach 1-Upper	493	10YrCHI3Hr	0.16	92.34	92.68	92.46	92.68	0.000233	0.14	1.13	5.98	0.10
River 1	Reach 1-Upper	493	25YrCHI3Hr	0.22	92.34	92.74	92.48	92.74	0.000196	0.14	1.51	6.84	0.10
River 1	Reach 1-Upper	493	50YrCHI3Hr	0.26	92.34	92.84	92.49	92.84	0.000098	0.12	2.27	8.59	0.07
River 1	Reach 1-Upper	493	100YrCHI3Hr	0.31	92.34	93.00	92.50	93.00	0.000001	0.02	28.79	101.37	0.01
River 1	Reach 1-Upper	493	2YrSCS24Hr	0.11	92.34	92.64	92.44	92.64	0.000183	0.12	0.90	5.23	0.09
River 1	Reach 1-Upper	493	5YrSCS24Hr	0.18	92.34	92.70	92.46	92.70	0.000231	0.15	1.22	6.23	0.11
River 1	Reach 1-Upper	493	10YrSCS24Hr	0.23	92.34	92.76	92.48	92.76	0.000169	0.14	1.63	7.02	0.09
River 1	Reach 1-Upper	493	25YrSCS24Hr	0.29	92.34	92.93	92.50	92.93	0.000047	0.09	3.20	13.20	0.05
River 1	Reach 1-Upper	493	50YrSCS24Hr	0.34	92.34	93.12	92.51	93.12	0.000001	0.01	41.12	102.01	0.01
River 1	Reach 1-Upper	493	100YrSCS24Hr	0.40	92.34	93.30	92.52	93.30	0.000000	0.01	60.16	102.98	0.00
River 1	Reach 1-Upper	474	2YrCHI3Hr	0.07	92.41	92.60	92.50	92.60	0.000594	0.14	0.47	4.97	0.15
River 1	Reach 1-Upper	474	5YrCHI3Hr	0.12	92.41	92.64	92.53	92.65	0.000595	0.17	0.72	5.95	0.16
River 1	Reach 1-Upper	474	10YrCHI3Hr	0.16	92.41	92.67	92.54	92.68	0.000563	0.18	0.90	6.59	0.15
River 1	Reach 1-Upper	474	25YrCHI3Hr	0.22	92.41	92.73	92.56	92.74	0.000352	0.16	1.33	7.87	0.13
River 1	Reach 1-Upper	474	50YrCHI3Hr	0.26	92.41	92.84	92.57	92.84	0.000001	0.01	25.75	91.49	0.01
River 1	Reach 1-Upper	474	100YrCHI3Hr	0.31	92.41	93.00	92.58	93.00	0.000000	0.01	40.12	92.20	0.01
River 1	Reach 1-Upper	474	2YrSCS24Hr	0.11	92.41	92.63	92.52	92.63	0.000605	0.16	0.65	5.71	0.16
River 1	Reach 1-Upper	474	5YrSCS24Hr	0.18	92.41	92.69	92.55	92.69	0.000512	0.18	1.00	6.89	0.15
River 1	Reach 1-Upper	474	10YrSCS24Hr	0.23	92.41	92.75	92.56	92.75	0.000285	0.15	1.49	8.28	0.12
River 1	Reach 1-Upper	474	25YrSCS24Hr	0.29	92.41	92.93	92.57	92.93	0.000001	0.01	33.86	91.89	0.01
River 1	Reach 1-Upper	474	50YrSCS24Hr	0.34	92.41	93.12	92.58	93.12	0.000000	0.01	51.33	92.74	0.00
River 1	Reach 1-Upper	474	100YrSCS24Hr	0.40	92.41	93.30	92.59	93.30	0.000000	0.01	68.65	93.59	0.00
River 1	Reach 1-Upper	454	2YrCHI3Hr	0.07	92.44	92.58	92.50	92.58	0.001576	0.24	0.28	2.85	0.24
River 1	Reach 1-Upper	454	5YrCHI3Hr	0.12	92.44	92.62	92.53	92.63	0.001689	0.29	0.41	3.31	0.26
River 1	Reach 1-Upper	454	10YrCHI3Hr	0.16	92.44	92.65	92.55	92.66	0.001595	0.31	0.52	3.64	0.26
River 1	Reach 1-Upper	454	25YrCHI3Hr	0.22	92.44	92.72	92.56	92.72	0.000913	0.28	0.79	4.34	0.21
River 1	Reach 1-Upper	454	50YrCHI3Hr	0.26	92.44	92.84	92.57	92.84	0.000012	0.04	12.27	82.88	0.03
River 1	Reach 1-Upper	454	100YrCHI3Hr	0.31	92.44	93.00	92.59	93.00	0.000002	0.02	25.28	83.36	0.01
River 1	Reach 1-Upper	454	2YrSCS24Hr	0.11	92.44	92.61	92.52	92.62	0.001709	0.28	0.38	3.19	0.26
River 1	Reach 1-Upper	454	5YrSCS24Hr	0.18	92.44	92.67	92.55	92.67	0.001416	0.30	0.58	3.81	0.25
River 1	Reach 1-Upper	454	10YrSCS24Hr	0.23	92.44	92.74	92.56	92.74	0.000715	0.26	0.88	4.56	0.18
River 1	Reach 1-Upper	454	25YrSCS24Hr	0.29	92.44	92.93	92.58	92.93	0.000003	0.03	19.62	83.15	0.01
River 1	Reach 1-Upper	454	50YrSCS24Hr	0.34	92.44	93.12	92.60	93.12	0.000001	0.02	35.41	83.72	0.01
River 1	Reach 1-Upper	454	100YrSCS24Hr	0.40	92.44	93.30	92.61	93.30	0.000000	0.01	51.02	84.29	0.00
River 1	Reach 1-Upper	434	2YrCHI3Hr	0.07	92.42	92.53	92.49	92.54	0.003245	0.30	0.23	2.89	0.34
River 1	Reach 1-Upper	434	5YrCHI3Hr	0.12	92.42	92.58	92.51	92.59	0.002201	0.32	0.38	3.34	0.30
River 1	Reach 1-Upper	434	10YrCHI3Hr	0.16	92.42	92.62	92.52	92.62	0.001702	0.32	0.51	3.67	0.27
River 1	Reach 1-Upper	434	25YrCHI3Hr	0.22	92.42	92.72	92.54	92.72	0.000099	0.09	4.19	44.55	0.07
River 1	Reach 1-Upper	434	50YrCHI3Hr	0.26	92.42	92.84	92.55	92.84	0.000011	0.04	12.14	73.98	0.02
River 1	Reach 1-Upper	434	100YrCHI3Hr	0.31	92.42	93.00	92.56	93.00	0.000002	0.02	23.78	74.52	0.01
River 1	Reach 1-Upper	434	2YrSCS24Hr	0.11	92.42	92.57	92.50	92.57	0.002433	0.31	0.34	3.22	0.31
River 1	Reach 1-Upper	434	5YrSCS24Hr	0.18	92.42	92.64	92.53	92.64	0.001593	0.30	0.59	4.31	0.26
River 1	Reach 1-Upper	434	10YrSCS24Hr	0.23	92.42	92.74	92.54	92.74	0.000062	0.08	5.30	52.04	0.05
River 1	Reach 1-Upper	434	25YrSCS24Hr	0.29	92.42	92.93	92.55	92.93	0.000003	0.03	18.72	74.29	0.01
River 1	Reach 1-Upper	434	50YrSCS24Hr	0.34	92.42	93.12	92.57	93.12	0.000001	0.02	32.84	74.94	0.01
River 1	Reach 1-Upper	434	100YrSCS24Hr	0.40	92.42	93.30	92.58	93.30	0.000000	0.01	46.84	75.66	0.00
River 1	Reach 1-Upper	416	2YrCHI3Hr	0.07	92.34	92.51	92.42	92.51	0.000622	0.15	0.44	4.70	0.15
River 1	Reach 1-Upper	416	5YrCHI3Hr	0.12	92.34	92.57	92.45	92.57	0.000424	0.17	0.75	5.83	0.14
River 1	Reach 1-Upper	416	10YrCHI3Hr	0.16	92.34	92.62	92.46	92.62	0.000159	0.12	2.27	28.78	0.09
River 1	Reach 1-Upper	416	25YrCHI3Hr	0.22	92.34	92.72	92.48	92.72	0.000031	0.07	5.56	35.85	0.04
River 1	Reach 1-Upper	416	50YrCHI3Hr	0.26	92.34	92.84	92.48	92.84	0.000008	0.05	10.70	48.52	0.02
River 1	Reach 1-Upper	416	100YrCHI3Hr	0.31	92.34	93.00	92.49	93.00	0.000002	0.03	20.27	66.96	0.01
River 1	Reach 1-Upper	416	2YrSCS24Hr	0.11	92.34	92.56	92.44	92.56	0.000463	0.17	0.67	5.55	0.14
River 1	Reach 1-Upper	416	5YrSCS24Hr	0.18	92.34	92.64	92.47	92.64	0.000108	0.11	2.88	30.23	0.07
River 1	Reach 1-Upper	416	10YrSCS24Hr	0.23	92.34	92.74	92.48	92.74	0.000024	0.07	6.41	39.28	0.04
River 1	Reach 1-Upper	416	25YrSCS24Hr	0.29	92.34	92.93	92.49	92.93	0.000004	0.04	15.73	65.04	0.02
River 1	Reach 1-Upper	416	50YrSCS24Hr	0.34	92.34	93.12	92.50	93.12	0.000001	0.02	28.42	67.40	0.01
River 1	Reach 1-Upper	416	100YrSCS24Hr	0.40	92.34	93.30	92.51	93.30	0.000000	0.02	41.01	68.07	0.01
River 1	Reach 1-Upper	398	2YrCHI3Hr	0.07	92.28	92.50	92.40	92.50	0.000933	0.21	0.31	2.50	0.19
River 1	Reach 1-Upper	398	5YrCHI3Hr	0.12	92.28	92.56	92.42	92.56	0.000915	0.26	0.47	2.86	0.20
River 1	Reach 1-Upper	398	10YrCHI3Hr	0.16	92.28	92.61	92.44	92.61	0.000752	0.26	0.62	3.16	0.19
River 1	Reach 1-Upper	398	25YrCHI3Hr	0.22	92.28	92.71	92.46	92.72	0.000355	0.22	1.01	4.66	0.14
River 1	Reach 1-Upper	398	50YrCHI3Hr	0.26	92.28	92.84	92.47	92.84	0.000076	0.12	4.26	46.30	0.07
River 1	Reach 1-Upper	398	100YrCHI3Hr	0.31	92.28	93.00	92.49	93.00	0.000008	0.05	12.80	58.61	0.02
River 1	Reach 1-Upper	398	2YrSCS24Hr	0.11	92.28	92.54	92.42	92.55	0.000935	0.25	0.43	2.77	0.20
River 1	Reach 1-Upper	398	5YrSCS24Hr	0.18	92.28	92.63	92.44	92.63	0.000660	0.26	0.69	3.29	0.18
River 1	Reach 1-Upper	398	10YrSCS24Hr	0.23	92.28	92.74	92.46	92.74	0.000295	0.21	1.13	5.59	0.12
River 1	Reach 1-Upper	398	25YrSCS24Hr	0.29	92.28	92.93	92.48	92.93	0.000020	0.07	8.81	58.42	0.03
River 1	Reach 1-Upper	398	50YrSCS24Hr	0.34	92.28	93.12	92.50	93.12	0.000003	0.03	19.93	58.96	0.01
River 1	Reach 1-Upper	398	100YrSCS24Hr	0.40	92.28	93.30	92.51	93.30	0.000001	0.02	30.94	59.51	0.01
River 1	Reach 1-Upper	383	2YrCHI3Hr	0.07	92.34	92.47	92.42	92.47	0.004536	0.39	0.17	1.90	0.41
River 1	Reach 1-Upper	383	5YrCHI3Hr	0.12	92.34	92.53	92.45	92.54	0.002876	0.39	0.31	2.30	0.34
River 1	Reach 1-Upper	383	10YrCHI3Hr	0.16	92.34	92.59	92.47	92.59	0.001737	0.36	0.45	2.62	0.28
River 1	Reach 1-Upper	383	25YrCHI3Hr	0.22	92.34	92.70	92.49	92.71	0.000630	0.27	0.80	3.29	0.18
River 1	Reach 1-Upper	383	50YrCHI3Hr	0.26	92.34	92.83	92.50	92.84	0.000255	0.21	1.27	4.01	0.12
River 1	Reach 1-Upper	383	100YrCHI3Hr	0.31	92.34	92.99	92.52	93.00	0.000100	0.16	2.02	5.50	0.08
River 1	Reach 1-Upper	383	2YrSCS24Hr	0.11	92.34	92.51	92.44	92.52	0.003262	0.40	0.27	2.21	0.36
River 1	Reach 1-Upper	383	5YrSCS24Hr	0.18	92.34	92.61	92.47	92.62	0.001389	0.34	0.52	2.77	0.25
River 1	Reach 1-Upper	383	10YrSCS24Hr	0.23	92.34	92.73	92.49	92.73	0.000520	0.26	0.88	3.42	0.16
River 1	Reach 1-Upper	383	25YrSCS24Hr	0.29	92.34	92.93	92.51	92.93	0.000147	0.18	1.66	4.73	0.09

HEC-RAS Plan: 20250603-Pre_Dev_v01 (Continued)

River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
River 1	Reach 1-Upper	383	50YrSCS24Hr	0.34	92.34	93.12	92.53	93.12	0.000005	0.04	15.00	51.87	0.02
River 1	Reach 1-Upper	383	100YrSCS24Hr	0.40	92.34	93.30	92.54	93.30	0.000002	0.03	24.70	52.43	0.01
River 1	Reach 1-Upper	364	2YrCHI3Hr	0.07	92.23	92.43	92.33	92.43	0.001355	0.26	0.26	2.01	0.23
River 1	Reach 1-Upper	364	5YrCHI3Hr	0.12	92.23	92.50	92.36	92.50	0.001099	0.29	0.42	2.37	0.22
River 1	Reach 1-Upper	364	10YrCHI3Hr	0.16	92.23	92.57	92.38	92.57	0.000740	0.27	0.59	2.71	0.19
River 1	Reach 1-Upper	364	25YrCHI3Hr	0.22	92.23	92.70	92.40	92.70	0.000331	0.22	0.98	3.34	0.13
River 1	Reach 1-Upper	364	50YrCHI3Hr	0.26	92.23	92.83	92.42	92.83	0.000166	0.18	1.48	4.20	0.10
River 1	Reach 1-Upper	364	100YrCHI3Hr	0.31	92.23	92.99	92.43	92.99	0.000050	0.12	4.53	43.93	0.06
River 1	Reach 1-Upper	364	2YrSCS24Hr	0.11	92.23	92.48	92.35	92.48	0.001197	0.29	0.37	2.27	0.23
River 1	Reach 1-Upper	364	5YrSCS24Hr	0.18	92.23	92.60	92.39	92.60	0.000621	0.26	0.67	2.85	0.17
River 1	Reach 1-Upper	364	10YrSCS24Hr	0.23	92.23	92.72	92.41	92.73	0.000283	0.21	1.07	3.47	0.12
River 1	Reach 1-Upper	364	25YrSCS24Hr	0.29	92.23	92.92	92.43	92.93	0.000099	0.15	1.93	5.59	0.08
River 1	Reach 1-Upper	364	50YrSCS24Hr	0.34	92.23	93.12	92.44	93.12	0.000012	0.07	9.97	44.25	0.03
River 1	Reach 1-Upper	364	100YrSCS24Hr	0.40	92.23	93.30	92.46	93.30	0.000003	0.04	18.26	45.01	0.01
River 1	Reach 1-Upper	347	2YrCHI3Hr	0.07	92.26	92.40	92.33	92.41	0.001382	0.24	0.27	2.45	0.23
River 1	Reach 1-Upper	347	5YrCHI3Hr	0.12	92.26	92.49	92.35	92.49	0.000808	0.25	0.49	2.80	0.19
River 1	Reach 1-Upper	347	10YrCHI3Hr	0.16	92.26	92.56	92.36	92.56	0.000488	0.23	0.71	3.12	0.15
River 1	Reach 1-Upper	347	25YrCHI3Hr	0.22	92.26	92.69	92.38	92.70	0.000213	0.19	1.16	3.69	0.11
River 1	Reach 1-Upper	347	50YrCHI3Hr	0.26	92.26	92.83	92.40	92.83	0.000107	0.15	1.71	4.28	0.08
River 1	Reach 1-Upper	347	100YrCHI3Hr	0.31	92.26	92.99	92.41	92.99	0.000050	0.13	2.54	7.35	0.06
River 1	Reach 1-Upper	347	2YrSCS24Hr	0.11	92.26	92.46	92.34	92.47	0.000932	0.25	0.43	2.71	0.20
River 1	Reach 1-Upper	347	5YrSCS24Hr	0.18	92.26	92.59	92.37	92.59	0.000403	0.22	0.80	3.25	0.14
River 1	Reach 1-Upper	347	10YrSCS24Hr	0.23	92.26	92.72	92.39	92.72	0.000183	0.18	1.26	3.81	0.10
River 1	Reach 1-Upper	347	25YrSCS24Hr	0.29	92.26	92.92	92.41	92.92	0.000071	0.14	2.13	5.02	0.07
River 1	Reach 1-Upper	347	50YrSCS24Hr	0.34	92.26	93.12	92.42	93.12	0.000020	0.09	6.30	37.59	0.04
River 1	Reach 1-Upper	347	100YrSCS24Hr	0.40	92.26	93.30	92.43	93.30	0.000005	0.06	13.35	38.07	0.02
River 1	Reach 1-Upper	328	2YrCHI3Hr	0.07	92.20	92.37	92.28	92.38	0.001873	0.30	0.22	1.82	0.27
River 1	Reach 1-Upper	328	5YrCHI3Hr	0.12	92.20	92.47	92.32	92.47	0.001020	0.29	0.42	2.24	0.21
River 1	Reach 1-Upper	328	10YrCHI3Hr	0.16	92.20	92.55	92.34	92.55	0.000618	0.26	0.61	2.58	0.17
River 1	Reach 1-Upper	328	25YrCHI3Hr	0.22	92.20	92.69	92.36	92.69	0.000277	0.21	1.02	3.16	0.12
River 1	Reach 1-Upper	328	50YrCHI3Hr	0.26	92.20	92.83	92.38	92.83	0.000152	0.17	1.51	4.11	0.09
River 1	Reach 1-Upper	328	100YrCHI3Hr	0.31	92.20	92.99	92.40	92.99	0.000074	0.14	2.26	5.12	0.07
River 1	Reach 1-Upper	328	2YrSCS24Hr	0.11	92.20	92.44	92.31	92.45	0.001182	0.29	0.36	2.14	0.23
River 1	Reach 1-Upper	328	5YrSCS24Hr	0.18	92.20	92.58	92.34	92.58	0.000513	0.25	0.70	2.71	0.16
River 1	Reach 1-Upper	328	10YrSCS24Hr	0.23	92.20	92.72	92.36	92.72	0.000240	0.21	1.11	3.28	0.11
River 1	Reach 1-Upper	328	25YrSCS24Hr	0.29	92.20	92.92	92.39	92.92	0.000098	0.15	1.92	4.61	0.07
River 1	Reach 1-Upper	328	50YrSCS24Hr	0.34	92.20	93.12	92.40	93.12	0.000035	0.11	4.57	29.52	0.05
River 1	Reach 1-Upper	328	100YrSCS24Hr	0.40	92.20	93.30	92.42	93.30	0.000009	0.06	10.13	29.96	0.02
River 1	Reach 1-Upper	306	2YrCHI3Hr	0.07	92.07	92.35	92.18	92.35	0.000722	0.25	0.27	1.49	0.18
River 1	Reach 1-Upper	306	5YrCHI3Hr	0.12	92.07	92.45	92.23	92.45	0.000689	0.30	0.40	1.84	0.18
River 1	Reach 1-Upper	306	10YrCHI3Hr	0.16	92.07	92.53	92.25	92.54	0.000559	0.31	0.52	2.13	0.17
River 1	Reach 1-Upper	306	25YrCHI3Hr	0.22	92.07	92.68	92.28	92.68	0.000321	0.29	0.74	2.69	0.13
River 1	Reach 1-Upper	306	50YrCHI3Hr	0.26	92.07	92.82	92.30	92.82	0.000203	0.28	0.95	3.29	0.11
River 1	Reach 1-Upper	306	100YrCHI3Hr	0.31	92.07	92.99	92.32	92.99	0.000131	0.26	1.20	4.54	0.09
River 1	Reach 1-Upper	306	2YrSCS24Hr	0.11	92.07	92.42	92.21	92.43	0.000712	0.29	0.37	1.75	0.18
River 1	Reach 1-Upper	306	5YrSCS24Hr	0.18	92.07	92.57	92.26	92.57	0.000497	0.31	0.58	2.25	0.16
River 1	Reach 1-Upper	306	10YrSCS24Hr	0.23	92.07	92.71	92.28	92.71	0.000290	0.29	0.79	2.81	0.13
River 1	Reach 1-Upper	306	25YrSCS24Hr	0.29	92.07	92.91	92.31	92.92	0.000156	0.27	1.10	3.90	0.10
River 1	Reach 1-Upper	306	50YrSCS24Hr	0.34	92.07	93.11	92.33	93.11	0.000098	0.25	1.39	20.53	0.08
River 1	Reach 1-Upper	306	100YrSCS24Hr	0.40	92.07	93.30	92.36	93.30	0.000072	0.24	1.67	20.98	0.07
River 1	Reach 1-Upper	300		Culvert									
River 1	Reach 1-Upper	294	2YrCHI3Hr	0.07	92.15	92.32	92.23	92.32	0.001567	0.31	0.22	2.08	0.26
River 1	Reach 1-Upper	294	5YrCHI3Hr	0.12	92.15	92.37	92.26	92.38	0.001840	0.41	0.29	2.34	0.30
River 1	Reach 1-Upper	294	10YrCHI3Hr	0.16	92.15	92.39	92.28	92.41	0.002165	0.49	0.33	2.48	0.33
River 1	Reach 1-Upper	294	25YrCHI3Hr	0.22	92.15	92.42	92.30	92.44	0.002528	0.57	0.38	2.64	0.36
River 1	Reach 1-Upper	294	50YrCHI3Hr	0.26	92.15	92.45	92.32	92.47	0.002769	0.63	0.41	2.76	0.38
River 1	Reach 1-Upper	294	100YrCHI3Hr	0.31	92.15	92.47	92.33	92.49	0.002956	0.69	0.45	2.87	0.40
River 1	Reach 1-Upper	294	2YrSCS24Hr	0.11	92.15	92.36	92.25	92.36	0.001762	0.39	0.28	2.28	0.29
River 1	Reach 1-Upper	294	5YrSCS24Hr	0.18	92.15	92.40	92.28	92.41	0.002296	0.51	0.35	2.52	0.34
River 1	Reach 1-Upper	294	10YrSCS24Hr	0.23	92.15	92.43	92.30	92.45	0.002610	0.59	0.39	2.66	0.37
River 1	Reach 1-Upper	294	25YrSCS24Hr	0.29	92.15	92.46	92.33	92.48	0.002895	0.67	0.43	2.82	0.40
River 1	Reach 1-Upper	294	50YrSCS24Hr	0.34	92.15	92.48	92.35	92.51	0.003128	0.73	0.47	2.94	0.42
River 1	Reach 1-Upper	294	100YrSCS24Hr	0.40	92.15	92.50	92.36	92.54	0.003396	0.80	0.50	3.05	0.44
River 1	Reach 1-Upper	279	2YrCHI3Hr	0.08	92.08	92.21	92.21	92.24	0.029991	0.80	0.10	1.51	0.99
River 1	Reach 1-Upper	279	5YrCHI3Hr	0.15	92.08	92.25	92.24	92.29	0.026320	0.91	0.16	1.84	0.98
River 1	Reach 1-Upper	279	10YrCHI3Hr	0.20	92.08	92.28		92.32	0.017826	0.87	0.23	2.04	0.83
River 1	Reach 1-Upper	279	25YrCHI3Hr	0.27	92.08	92.32		92.36	0.013314	0.86	0.31	2.27	0.74
River 1	Reach 1-Upper	279	50YrCHI3Hr	0.32	92.08	92.34		92.38	0.011695	0.87	0.37	2.42	0.71
River 1	Reach 1-Upper	279	100YrCHI3Hr	0.38	92.08	92.37		92.41	0.010643	0.88	0.43	2.57	0.69
River 1	Reach 1-Upper	279	2YrSCS24Hr	0.13	92.08	92.23	92.23	92.28	0.029039	0.90	0.14	1.75	1.01
River 1	Reach 1-Upper	279	5YrSCS24Hr	0.22	92.08	92.29		92.33	0.015917	0.86	0.25	2.10	0.80
River 1	Reach 1-Upper	279	10YrSCS24Hr	0.28	92.08	92.32		92.36	0.012955	0.86	0.32	2.30	0.74
River 1	Reach 1-Upper	279	25YrSCS24Hr	0.36	92.08	92.36		92.40	0.011055	0.88	0.41	2.51	0.70
River 1	Reach 1-Upper	279	50YrSCS24Hr	0.42	92.08	92.38		92.42	0.010063	0.89	0.47	2.66	0.67
River 1	Reach 1-Upper	279	100YrSCS24Hr	0.49	92.08	92.41		92.45	0.009502	0.91	0.54	2.81	0.66
River 1	Reach 1-Upper	277	2YrCHI3Hr	0.08	91.95	92.20		92.21	0.000695	0.21	0.39	2.70	0.17
River 1	Reach 1-Upper	277	5YrCHI3Hr	0.15	91.95	92.26		92.26	0.000856	0.28	0.54	3.02	0.20
River 1	Reach 1-Upper	277	10YrCHI3Hr	0.20	91.95	92.29		92.30	0.000927	0.32	0.64	3.19	0.21
River 1	Reach 1-Upper	277	25YrCHI3Hr	0.27	91.95	92.33		92.33	0.001006	0.37	0.76	3.41	0.23
River 1	Reach 1-Upper	277	50YrCHI3Hr	0.32	91.95	92.35		92.36	0.001068	0.41	0.85	3.55	0.24
River 1	Reach 1-Upper	277	100YrCHI3Hr	0.38	91.95	92.38		92.39	0.001131	0.44	0.95	3.69	0.25
River 1	Reach 1-Upper	277	2YrSCS24Hr	0.13	91.95	92.25		92.25	0.000826	0.26	0.50	2.94	0.20

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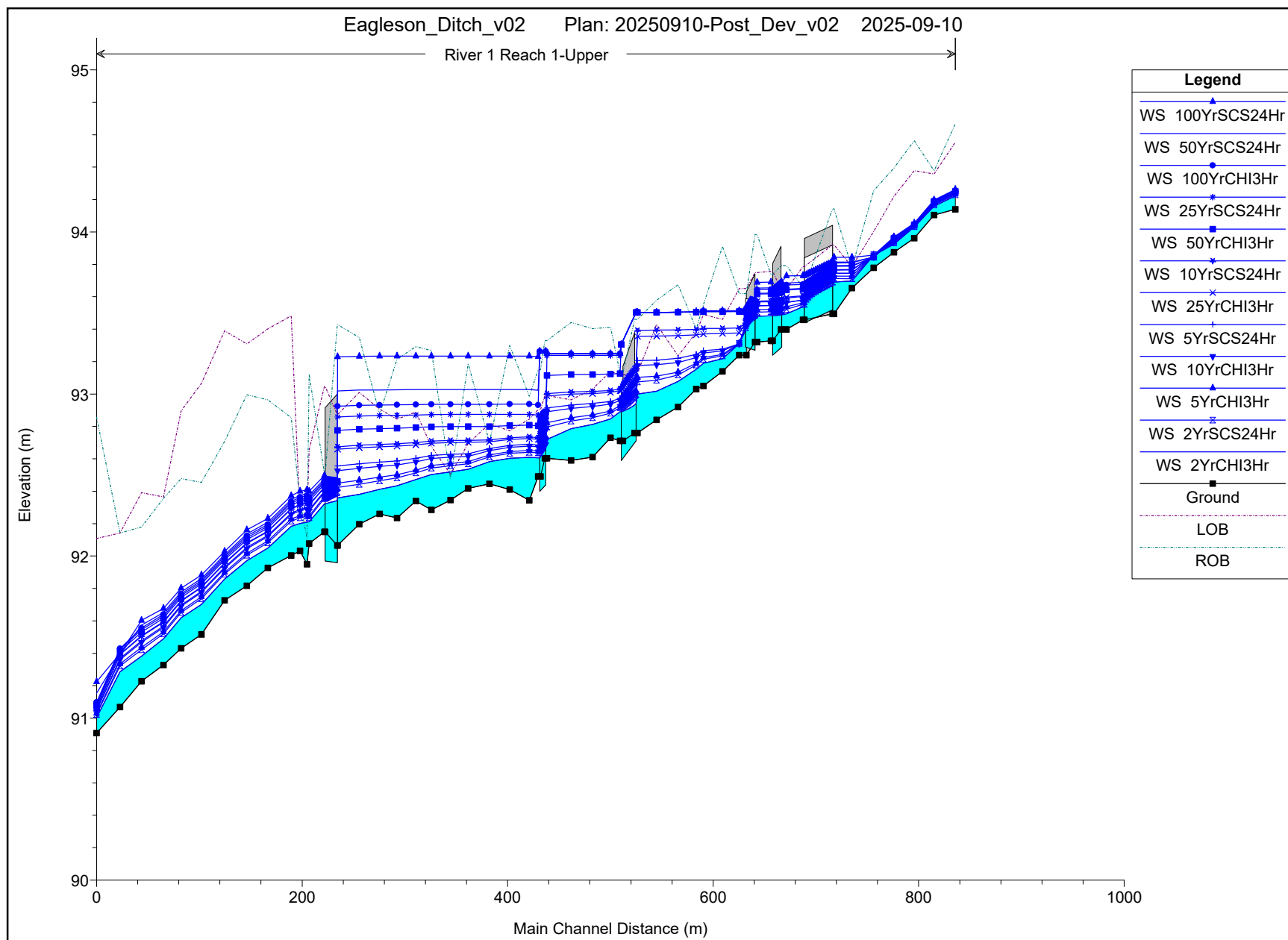
River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
River 1	Reach 1-Upper	277	5YrSCS24Hr	0.22	91.95	92.30		92.31	0.000941	0.33	0.68	3.25	0.22
River 1	Reach 1-Upper	277	10YrSCS24Hr	0.28	91.95	92.33		92.34	0.001018	0.38	0.78	3.43	0.23
River 1	Reach 1-Upper	277	25YrSCS24Hr	0.36	91.95	92.37		92.38	0.001104	0.43	0.91	3.63	0.25
River 1	Reach 1-Upper	277	50YrSCS24Hr	0.42	91.95	92.39		92.40	0.001159	0.46	1.00	3.77	0.26
River 1	Reach 1-Upper	277	100YrSCS24Hr	0.49	91.95	92.42		92.43	0.001229	0.50	1.09	3.91	0.27
River 1	Reach 1-Upper	270	2YrCHI3Hr	0.08	92.03	92.20		92.20	0.001692	0.27	0.29	2.60	0.26
River 1	Reach 1-Upper	270	5YrCHI3Hr	0.15	92.03	92.25		92.25	0.001753	0.33	0.45	3.07	0.27
River 1	Reach 1-Upper	270	10YrCHI3Hr	0.20	92.03	92.28		92.29	0.001743	0.36	0.55	3.36	0.28
River 1	Reach 1-Upper	270	25YrCHI3Hr	0.27	92.03	92.32		92.33	0.001732	0.40	0.68	3.72	0.29
River 1	Reach 1-Upper	270	50YrCHI3Hr	0.32	92.03	92.34		92.35	0.001721	0.42	0.78	4.13	0.29
River 1	Reach 1-Upper	270	100YrCHI3Hr	0.38	92.03	92.37		92.38	0.001663	0.45	0.90	5.00	0.29
River 1	Reach 1-Upper	270	2YrSCS24Hr	0.13	92.03	92.24		92.24	0.001760	0.32	0.40	2.95	0.27
River 1	Reach 1-Upper	270	5YrSCS24Hr	0.22	92.03	92.29		92.30	0.001717	0.37	0.58	3.47	0.28
River 1	Reach 1-Upper	270	10YrSCS24Hr	0.28	92.03	92.32		92.33	0.001734	0.40	0.70	3.76	0.29
River 1	Reach 1-Upper	270	25YrSCS24Hr	0.36	92.03	92.36		92.37	0.001687	0.44	0.84	4.62	0.29
River 1	Reach 1-Upper	270	50YrSCS24Hr	0.42	92.03	92.38		92.39	0.001617	0.46	0.97	5.51	0.29
River 1	Reach 1-Upper	270	100YrSCS24Hr	0.49	92.03	92.41		92.42	0.001578	0.48	1.11	5.76	0.29
River 1	Reach 1-Upper	261	2YrCHI3Hr	0.08	92.00	92.18	92.10	92.18	0.002216	0.32	0.25	2.09	0.30
River 1	Reach 1-Upper	261	5YrCHI3Hr	0.15	92.00	92.23	92.13	92.24	0.002543	0.41	0.36	2.34	0.33
River 1	Reach 1-Upper	261	10YrCHI3Hr	0.20	92.00	92.26	92.15	92.27	0.002719	0.46	0.43	2.48	0.35
River 1	Reach 1-Upper	261	25YrCHI3Hr	0.27	92.00	92.29	92.18	92.31	0.002882	0.51	0.52	2.66	0.37
River 1	Reach 1-Upper	261	50YrCHI3Hr	0.32	92.00	92.32	92.19	92.33	0.003012	0.55	0.59	2.78	0.38
River 1	Reach 1-Upper	261	100YrCHI3Hr	0.38	92.00	92.34	92.21	92.36	0.003124	0.58	0.66	2.90	0.39
River 1	Reach 1-Upper	261	2YrSCS24Hr	0.13	92.00	92.22	92.12	92.22	0.002466	0.39	0.33	2.27	0.32
River 1	Reach 1-Upper	261	5YrSCS24Hr	0.22	92.00	92.27	92.16	92.28	0.002719	0.47	0.46	2.53	0.35
River 1	Reach 1-Upper	261	10YrSCS24Hr	0.28	92.00	92.30	92.18	92.31	0.002908	0.52	0.54	2.68	0.37
River 1	Reach 1-Upper	261	25YrSCS24Hr	0.36	92.00	92.33	92.20	92.35	0.003077	0.57	0.63	2.84	0.38
River 1	Reach 1-Upper	261	50YrSCS24Hr	0.42	92.00	92.36	92.22	92.38	0.003155	0.60	0.70	2.97	0.39
River 1	Reach 1-Upper	261	100YrSCS24Hr	0.49	92.00	92.38	92.24	92.40	0.003314	0.63	0.77	3.10	0.41
River 1	Reach 1-Upper	239	2YrCHI3Hr	0.08	91.93	92.05	92.03	92.07	0.018146	0.68	0.12	1.54	0.79
River 1	Reach 1-Upper	239	5YrCHI3Hr	0.15	91.93	92.09	92.07	92.12	0.014163	0.75	0.20	1.88	0.73
River 1	Reach 1-Upper	239	10YrCHI3Hr	0.20	91.93	92.12	92.09	92.15	0.012598	0.78	0.25	2.06	0.71
River 1	Reach 1-Upper	239	25YrCHI3Hr	0.27	91.93	92.15	92.12	92.19	0.011181	0.82	0.33	2.23	0.69
River 1	Reach 1-Upper	239	50YrCHI3Hr	0.32	91.93	92.18	92.13	92.21	0.010479	0.85	0.38	2.36	0.68
River 1	Reach 1-Upper	239	100YrCHI3Hr	0.38	91.93	92.20	92.15	92.24	0.009912	0.88	0.44	2.49	0.67
River 1	Reach 1-Upper	239	2YrSCS24Hr	0.13	91.93	92.08	92.06	92.11	0.014943	0.73	0.18	1.79	0.75
River 1	Reach 1-Upper	239	5YrSCS24Hr	0.22	91.93	92.13	92.10	92.16	0.012137	0.79	0.27	2.10	0.70
River 1	Reach 1-Upper	239	10YrSCS24Hr	0.28	91.93	92.16	92.12	92.19	0.011036	0.83	0.34	2.26	0.68
River 1	Reach 1-Upper	239	25YrSCS24Hr	0.36	91.93	92.19	92.14	92.23	0.010147	0.86	0.41	2.43	0.67
River 1	Reach 1-Upper	239	50YrSCS24Hr	0.42	91.93	92.22	92.16	92.26	0.009585	0.89	0.47	2.56	0.66
River 1	Reach 1-Upper	239	100YrSCS24Hr	0.49	91.93	92.24	92.18	92.28	0.009080	0.91	0.54	2.69	0.65
River 1	Reach 1-Upper	218	2YrCHI3Hr	0.08	91.82	91.97	91.89	91.97	0.002000	0.29	0.27	2.48	0.28
River 1	Reach 1-Upper	218	5YrCHI3Hr	0.15	91.82	92.02	91.92	92.02	0.002151	0.37	0.40	2.72	0.30
River 1	Reach 1-Upper	218	10YrCHI3Hr	0.20	91.82	92.05	91.94	92.05	0.002198	0.40	0.49	2.86	0.31
River 1	Reach 1-Upper	218	25YrCHI3Hr	0.27	91.82	92.08	91.96	92.09	0.002327	0.45	0.59	3.03	0.33
River 1	Reach 1-Upper	218	50YrCHI3Hr	0.32	91.82	92.11	91.98	92.12	0.002390	0.49	0.67	3.15	0.34
River 1	Reach 1-Upper	218	100YrCHI3Hr	0.38	91.82	92.13	91.99	92.14	0.002438	0.52	0.75	3.27	0.34
River 1	Reach 1-Upper	218	2YrSCS24Hr	0.13	91.82	92.00	91.92	92.01	0.002117	0.35	0.37	2.66	0.30
River 1	Reach 1-Upper	218	5YrSCS24Hr	0.22	91.82	92.06	91.95	92.06	0.002238	0.42	0.51	2.91	0.32
River 1	Reach 1-Upper	218	10YrSCS24Hr	0.28	91.82	92.09	91.96	92.10	0.002340	0.46	0.60	3.05	0.33
River 1	Reach 1-Upper	218	25YrSCS24Hr	0.36	91.82	92.12	91.98	92.13	0.002418	0.50	0.71	3.22	0.34
River 1	Reach 1-Upper	218	50YrSCS24Hr	0.42	91.82	92.14	92.00	92.16	0.002473	0.53	0.79	3.36	0.35
River 1	Reach 1-Upper	218	100YrSCS24Hr	0.49	91.82	92.17	92.02	92.19	0.002504	0.56	0.88	3.53	0.35
River 1	Reach 1-Upper	197	2YrCHI3Hr	0.08	91.73	91.85	91.84	91.87	0.016181	0.66	0.12	1.55	0.75
River 1	Reach 1-Upper	197	5YrCHI3Hr	0.15	91.73	91.90	91.87	91.93	0.013293	0.73	0.20	1.87	0.72
River 1	Reach 1-Upper	197	10YrCHI3Hr	0.20	91.73	91.93	91.89	91.96	0.012335	0.78	0.25	2.02	0.71
River 1	Reach 1-Upper	197	25YrCHI3Hr	0.27	91.73	91.96	91.92	91.99	0.011527	0.84	0.32	2.18	0.70
River 1	Reach 1-Upper	197	50YrCHI3Hr	0.32	91.73	91.98	91.94	92.02	0.010809	0.87	0.37	2.29	0.69
River 1	Reach 1-Upper	197	100YrCHI3Hr	0.38	91.73	92.00	91.96	92.04	0.010540	0.91	0.42	2.39	0.68
River 1	Reach 1-Upper	197	2YrSCS24Hr	0.13	91.73	91.89	91.87	91.91	0.013973	0.71	0.18	1.81	0.72
River 1	Reach 1-Upper	197	5YrSCS24Hr	0.22	91.73	91.93	91.90	91.97	0.012083	0.80	0.27	2.06	0.70
River 1	Reach 1-Upper	197	10YrSCS24Hr	0.28	91.73	91.96	91.92	92.00	0.011418	0.84	0.33	2.20	0.70
River 1	Reach 1-Upper	197	25YrSCS24Hr	0.36	91.73	91.99	91.95	92.03	0.010650	0.89	0.40	2.34	0.69
River 1	Reach 1-Upper	197	50YrSCS24Hr	0.42	91.73	92.02	91.97	92.06	0.010407	0.93	0.45	2.44	0.69
River 1	Reach 1-Upper	197	100YrSCS24Hr	0.49	91.73	92.04	91.99	92.08	0.010221	0.96	0.51	2.55	0.69
River 1	Reach 1-Upper	174	2YrCHI3Hr	0.08	91.52	91.70	91.63	91.71	0.004212	0.41	0.19	1.80	0.40
River 1	Reach 1-Upper	174	5YrCHI3Hr	0.15	91.52	91.75	91.67	91.76	0.004464	0.50	0.30	2.17	0.43
River 1	Reach 1-Upper	174	10YrCHI3Hr	0.20	91.52	91.78	91.69	91.79	0.004633	0.55	0.36	2.31	0.45
River 1	Reach 1-Upper	174	25YrCHI3Hr	0.27	91.52	91.81	91.72	91.83	0.004788	0.61	0.44	2.47	0.46
River 1	Reach 1-Upper	174	50YrCHI3Hr	0.32	91.52	91.83	91.74	91.85	0.004947	0.65	0.50	2.58	0.48
River 1	Reach 1-Upper	174	100YrCHI3Hr	0.38	91.52	91.85	91.76	91.88	0.005078	0.69	0.56	2.69	0.49
River 1	Reach 1-Upper	174	2YrSCS24Hr	0.13	91.52	91.74	91.66	91.75	0.004366	0.47	0.27	2.08	0.42
River 1	Reach 1-Upper	174	5YrSCS24Hr	0.22	91.52	91.78	91.70	91.80	0.004685	0.57	0.38	2.35	0.45
River 1	Reach 1-Upper	174	10YrSCS24Hr	0.28	91.52	91.81	91.73	91.83	0.004821	0.62	0.45	2.49	0.46
River 1	Reach 1-Upper	174	25YrSCS24Hr	0.36	91.52	91.84	91.75	91.87	0.005024	0.67	0.53	2.65	0.48
River 1	Reach 1-Upper	174	50YrSCS24Hr	0.42	91.52	91.87	91.77	91.89	0.005141	0.71	0.59	2.76	0.49
River 1	Reach 1-Upper	174	100YrSCS24Hr	0.49	91.52	91.89	91.79	91.92	0.005179	0.75	0.66	2.87	0.50
River 1	Reach 1-Upper	154	2YrCHI3Hr	0.08	91.43	91.61	91.56	91.62	0.004328	0.39	0.21	2.16	0.40
River 1	Reach 1-Upper	154	5YrCHI3Hr	0.15	91.43	91.66	91.59	91.67	0.004181	0.46	0.32	2.60	0.41
River 1	Reach 1-Upper	154	10YrCHI3Hr	0.20	91.43	91.69	91.61	91.70	0.004190	0.49	0.40	2.83	0.42
River 1	Reach 1-Upper	154	25YrCHI3Hr	0.27	91.43	91.72	91.64	91.74	0.004087	0.53	0.50	3.11	0.42
River 1	Reach 1-Upper	154	50YrCHI3Hr	0.32	91.43	91.75	91.65	91.76	0.003985	0.56	0.58	3.28	0.43
River 1	Reach 1-Upper	154	100YrCHI3Hr	0.38	91.43	91.77	91.67	91.79	0.003882	0.58	0.66	3.44	0.43

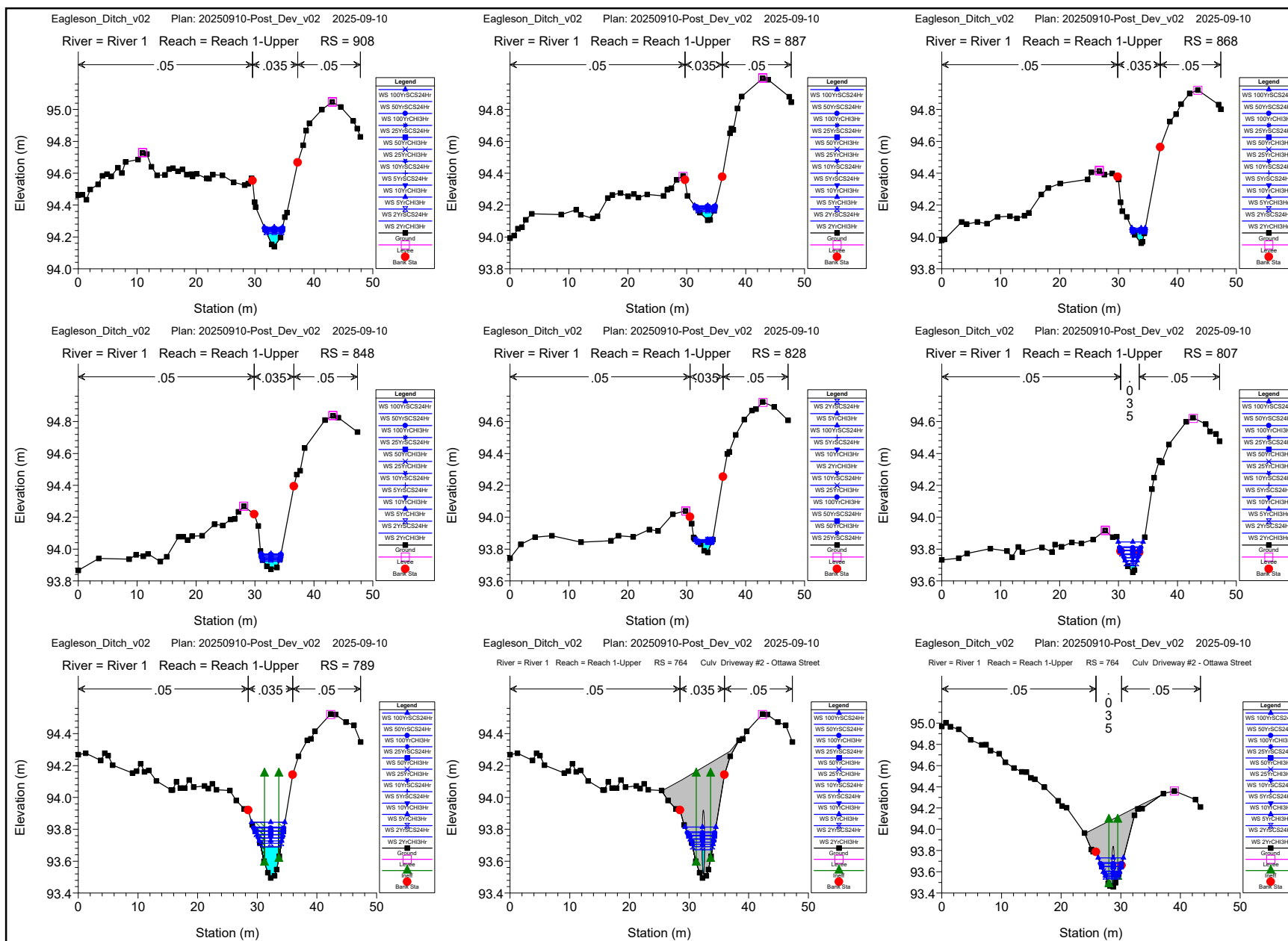
HEC-RAS Plan: 20250603-Pre_Dev_v01 (Continued)

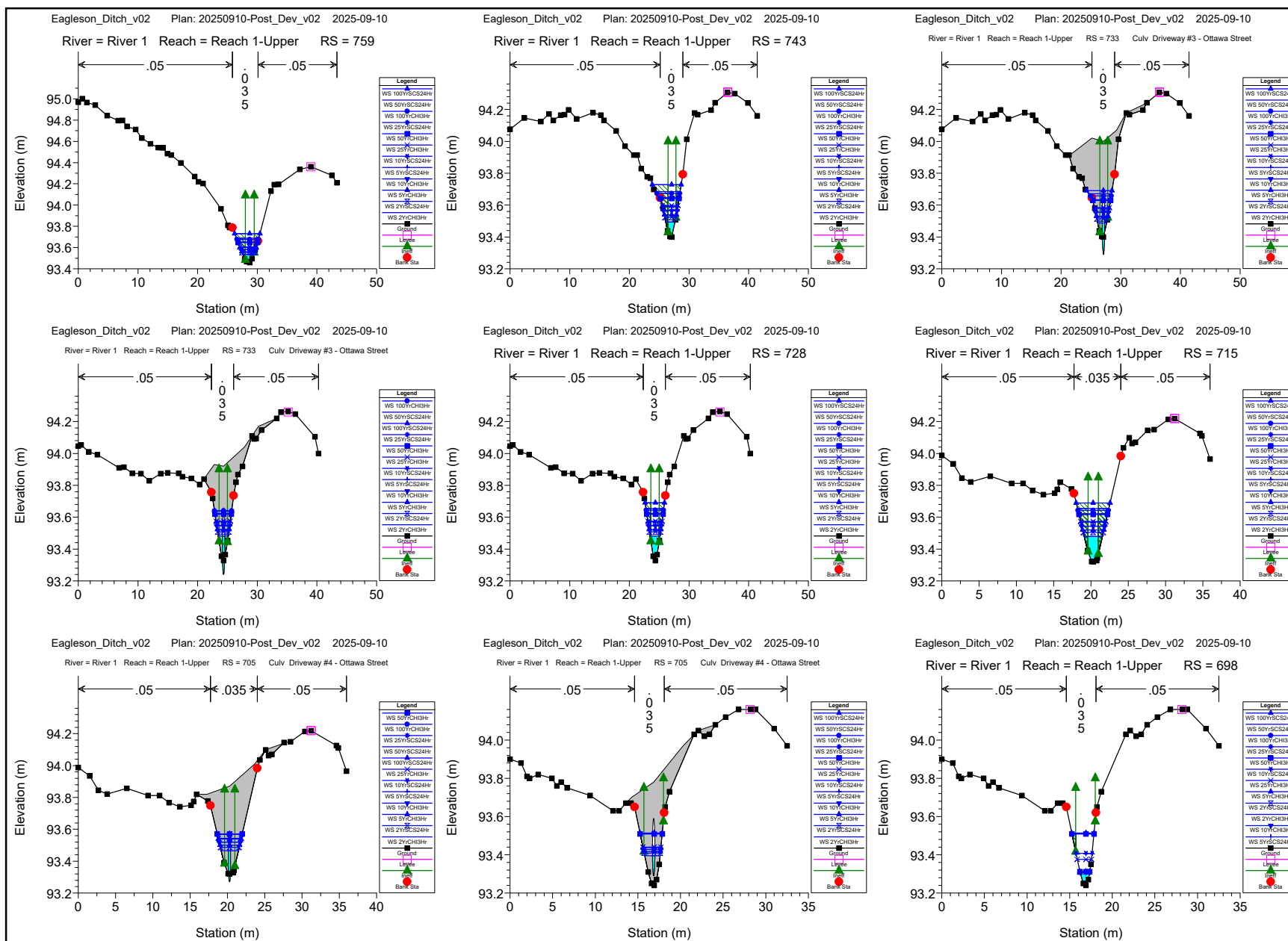
River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
River 1	Reach 1-Upper	154	2YrSCS24Hr	0.13	91.43	91.65	91.58	91.66	0.004251	0.44	0.29	2.49	0.41
River 1	Reach 1-Upper	154	5YrSCS24Hr	0.22	91.43	91.70	91.62	91.71	0.004167	0.51	0.43	2.91	0.42
River 1	Reach 1-Upper	154	10YrSCS24Hr	0.28	91.43	91.73	91.64	91.74	0.004071	0.54	0.51	3.14	0.43
River 1	Reach 1-Upper	154	25YrSCS24Hr	0.36	91.43	91.76	91.66	91.78	0.003925	0.57	0.62	3.37	0.43
River 1	Reach 1-Upper	154	50YrSCS24Hr	0.42	91.43	91.79	91.68	91.80	0.003830	0.60	0.71	3.53	0.43
River 1	Reach 1-Upper	154	100YrSCS24Hr	0.49	91.43	91.81	91.70	91.83	0.003747	0.62	0.79	3.69	0.43
River 1	Reach 1-Upper	137	2YrCHI3Hr	0.08	91.33	91.48	91.46	91.50	0.012189	0.63	0.13	1.39	0.66
River 1	Reach 1-Upper	137	5YrCHI3Hr	0.15	91.33	91.53	91.50	91.56	0.011338	0.73	0.20	1.65	0.67
River 1	Reach 1-Upper	137	10YrCHI3Hr	0.20	91.33	91.56	91.52	91.59	0.011017	0.79	0.25	1.80	0.67
River 1	Reach 1-Upper	137	25YrCHI3Hr	0.27	91.33	91.60	91.55	91.63	0.010550	0.84	0.32	1.99	0.67
River 1	Reach 1-Upper	137	50YrCHI3Hr	0.32	91.33	91.62	91.57	91.66	0.010206	0.88	0.37	2.12	0.67
River 1	Reach 1-Upper	137	100YrCHI3Hr	0.38	91.33	91.65	91.59	91.69	0.009820	0.90	0.42	2.25	0.66
River 1	Reach 1-Upper	137	2YrSCS24Hr	0.13	91.33	91.52	91.49	91.54	0.011464	0.71	0.18	1.58	0.67
River 1	Reach 1-Upper	137	5YrSCS24Hr	0.22	91.33	91.57	91.53	91.60	0.010898	0.80	0.27	1.85	0.67
River 1	Reach 1-Upper	137	10YrSCS24Hr	0.28	91.33	91.60	91.55	91.64	0.010487	0.85	0.33	2.01	0.67
River 1	Reach 1-Upper	137	25YrSCS24Hr	0.36	91.33	91.63	91.58	91.68	0.009938	0.89	0.40	2.20	0.67
River 1	Reach 1-Upper	137	50YrSCS24Hr	0.42	91.33	91.66	91.60	91.70	0.009574	0.92	0.46	2.33	0.66
River 1	Reach 1-Upper	137	100YrSCS24Hr	0.49	91.33	91.69	91.62	91.73	0.009283	0.95	0.52	2.46	0.66
River 1	Reach 1-Upper	116	2YrCHI3Hr	0.08	91.23	91.38	91.32	91.39	0.003082	0.36	0.22	2.06	0.35
River 1	Reach 1-Upper	116	5YrCHI3Hr	0.15	91.23	91.43	91.35	91.44	0.002930	0.42	0.35	2.36	0.35
River 1	Reach 1-Upper	116	10YrCHI3Hr	0.20	91.23	91.47	91.37	91.48	0.002864	0.46	0.43	2.55	0.36
River 1	Reach 1-Upper	116	25YrCHI3Hr	0.27	91.23	91.51	91.39	91.52	0.002818	0.50	0.54	2.77	0.36
River 1	Reach 1-Upper	116	50YrCHI3Hr	0.32	91.23	91.54	91.41	91.55	0.002807	0.52	0.62	2.92	0.36
River 1	Reach 1-Upper	116	100YrCHI3Hr	0.38	91.23	91.56	91.42	91.58	0.002814	0.55	0.70	3.06	0.37
River 1	Reach 1-Upper	116	2YrSCS24Hr	0.13	91.23	91.42	91.34	91.43	0.002964	0.41	0.31	2.29	0.35
River 1	Reach 1-Upper	116	5YrSCS24Hr	0.22	91.23	91.48	91.37	91.49	0.002843	0.47	0.46	2.61	0.36
River 1	Reach 1-Upper	116	10YrSCS24Hr	0.28	91.23	91.51	91.39	91.53	0.002817	0.50	0.55	2.79	0.36
River 1	Reach 1-Upper	116	25YrSCS24Hr	0.36	91.23	91.55	91.42	91.57	0.002792	0.54	0.66	3.00	0.37
River 1	Reach 1-Upper	116	50YrSCS24Hr	0.42	91.23	91.58	91.43	91.60	0.002600	0.55	0.76	3.16	0.36
River 1	Reach 1-Upper	116	100YrSCS24Hr	0.49	91.23	91.61	91.45	91.63	0.002607	0.58	0.85	3.28	0.36
River 1	Reach 1-Upper	95	2YrCHI3Hr	0.08	91.07	91.28	91.23	91.29	0.006001	0.51	0.16	1.35	0.48
River 1	Reach 1-Upper	95	5YrCHI3Hr	0.15	91.07	91.33	91.27	91.35	0.006981	0.63	0.23	1.60	0.53
River 1	Reach 1-Upper	95	10YrCHI3Hr	0.20	91.07	91.36	91.30	91.39	0.007514	0.71	0.28	1.73	0.56
River 1	Reach 1-Upper	95	25YrCHI3Hr	0.27	91.07	91.39	91.33	91.43	0.008051	0.78	0.34	1.89	0.59
River 1	Reach 1-Upper	95	50YrCHI3Hr	0.32	91.07	91.42	91.35	91.45	0.008531	0.84	0.38	1.99	0.61
River 1	Reach 1-Upper	95	100YrCHI3Hr	0.38	91.07	91.42	91.37	91.47	0.011364	0.98	0.39	2.01	0.71
River 1	Reach 1-Upper	95	2YrSCS24Hr	0.13	91.07	91.32	91.26	91.34	0.006833	0.61	0.21	1.53	0.52
River 1	Reach 1-Upper	95	5YrSCS24Hr	0.22	91.07	91.37	91.30	91.40	0.007484	0.72	0.30	1.78	0.56
River 1	Reach 1-Upper	95	10YrSCS24Hr	0.28	91.07	91.40	91.33	91.43	0.008260	0.80	0.35	1.90	0.60
River 1	Reach 1-Upper	95	25YrSCS24Hr	0.36	91.07	91.43	91.36	91.47	0.008800	0.87	0.41	2.08	0.63
River 1	Reach 1-Upper	95	50YrSCS24Hr	0.42	91.07	91.39	91.38	91.47	0.022828	1.30	0.32	1.85	0.99
River 1	Reach 1-Upper	95	100YrSCS24Hr	0.49	91.07	91.41	91.41	91.50	0.022422	1.34	0.37	1.95	0.99
River 1	Reach 1-Upper	72	2YrCHI3Hr	0.08	90.91	91.00	91.00	91.03	0.030836	0.74	0.11	1.93	0.99
River 1	Reach 1-Upper	72	5YrCHI3Hr	0.15	90.91	91.03	91.03	91.07	0.028202	0.84	0.18	2.40	0.99
River 1	Reach 1-Upper	72	10YrCHI3Hr	0.20	90.91	91.05	91.05	91.09	0.027394	0.90	0.22	2.63	0.99
River 1	Reach 1-Upper	72	25YrCHI3Hr	0.27	90.91	91.07	91.07	91.12	0.026901	0.98	0.27	2.82	1.01
River 1	Reach 1-Upper	72	50YrCHI3Hr	0.32	90.91	91.08	91.08	91.14	0.025605	1.02	0.32	2.96	1.00
River 1	Reach 1-Upper	72	100YrCHI3Hr	0.38	90.91	91.11	91.10	91.16	0.016324	0.92	0.42	3.23	0.82
River 1	Reach 1-Upper	72	2YrSCS24Hr	0.13	90.91	91.02	91.02	91.06	0.027869	0.80	0.16	2.30	0.97
River 1	Reach 1-Upper	72	5YrSCS24Hr	0.22	90.91	91.05	91.05	91.10	0.028793	0.94	0.23	2.67	1.02
River 1	Reach 1-Upper	72	10YrSCS24Hr	0.28	90.91	91.07	91.07	91.12	0.025957	0.98	0.28	2.86	0.99
River 1	Reach 1-Upper	72	25YrSCS24Hr	0.36	90.91	91.09	91.09	91.15	0.025859	1.06	0.34	3.02	1.01
River 1	Reach 1-Upper	72	50YrSCS24Hr	0.42	90.91	91.17	91.11	91.19	0.006772	0.70	0.60	3.69	0.55
River 1	Reach 1-Upper	72	100YrSCS24Hr	0.49	90.91	91.24	91.12	91.26	0.002972	0.55	0.89	4.14	0.38
River 1	Reach 1-Lower	56	2YrCHI3Hr	0.14	90.47	90.73	90.57	90.73	0.000365	0.19	0.73	10.09	0.13
River 1	Reach 1-Lower	56	5YrCHI3Hr	0.26	90.47	90.84	90.60	90.85	0.000293	0.23	1.14	14.27	0.13
River 1	Reach 1-Lower	56	10YrCHI3Hr	0.36	90.47	90.92	90.62	90.92	0.000277	0.26	1.40	17.00	0.13
River 1	Reach 1-Lower	56	25YrCHI3Hr	0.49	90.47	91.01	90.64	91.01	0.000267	0.29	1.71	19.79	0.13
River 1	Reach 1-Lower	56	50YrCHI3Hr	0.60	90.47	91.07	90.66	91.08	0.000264	0.31	1.93	20.02	0.13
River 1	Reach 1-Lower	56	100YrCHI3Hr	0.72	90.47	91.13	90.68	91.14	0.000264	0.34	2.15	20.02	0.14
River 1	Reach 1-Lower	56	2YrSCS24Hr	0.23	90.47	90.82	90.59	90.82	0.000307	0.22	1.05	13.08	0.13
River 1	Reach 1-Lower	56	5YrSCS24Hr	0.40	90.47	90.95	90.63	90.95	0.000273	0.27	1.50	18.26	0.13
River 1	Reach 1-Lower	56	10YrSCS24Hr	0.52	90.47	91.02	90.65	91.02	0.000269	0.29	1.75	19.92	0.13
River 1	Reach 1-Lower	56	25YrSCS24Hr	0.68	90.47	91.11	90.67	91.12	0.000263	0.33	2.07	20.02	0.14
River 1	Reach 1-Lower	56	50YrSCS24Hr	0.80	90.47	91.17	90.70	91.18	0.000261	0.35	2.30	20.02	0.14
River 1	Reach 1-Lower	56	100YrSCS24Hr	0.94	90.47	91.24	90.71	91.25	0.000262	0.37	2.53	20.02	0.14
River 1	Reach 1-Lower	50		Culvert									
River 1	Reach 1-Lower	38	2YrCHI3Hr	0.14	90.46	90.57	90.53	90.58	0.004969	0.42	0.33	30.00	0.43
River 1	Reach 1-Lower	38	5YrCHI3Hr	0.26	90.46	90.60	90.55	90.62	0.006999	0.60	0.44	34.38	0.54
River 1	Reach 1-Lower	38	10YrCHI3Hr	0.36	90.46	90.61	90.57	90.64	0.008612	0.72	0.50	35.69	0.61
River 1	Reach 1-Lower	38	25YrCHI3Hr	0.49	90.46	90.63	90.60	90.67	0.010692	0.87	0.56	36.54	0.70
River 1	Reach 1-Lower	38	50YrCHI3Hr	0.60	90.46	90.64	90.62	90.69	0.012409	0.99	0.61	36.97	0.76
River 1	Reach 1-Lower	38	100YrCHI3Hr	0.72	90.46	90.66	90.64	90.72	0.014104	1.11	0.65	37.73	0.82
River 1	Reach 1-Lower	38	2YrSCS24Hr	0.23	90.46	90.59	90.55	90.61	0.006395	0.56	0.42	33.55	0.51
River 1	Reach 1-Lower	38	5YrSCS24Hr	0.40	90.46	90.62	90.58	90.65	0.009230	0.77	0.52	36.26	0.64
River 1	Reach 1-Lower	38	10YrSCS24Hr	0.52	90.46	90.64	90.60	90.68	0.011069	0.90	0.57	36.60	0.71
River 1	Reach 1-Lower	38	25YrSCS24Hr	0.68	90.46	90.65	90.63	90.71	0.013373	1.06	0.64	37.45	0.79
River 1	Reach 1-Lower	38	50YrSCS24Hr	0.80	90.46	90.66	90.64	90.74	0.015442	1.19	0.68	38.06	0.86
River 1	Reach 1-Lower	38	100YrSCS24Hr	0.94	90.46	90.67	90.66	90.76	0.018005	1.32	0.71	38.54	0.94
River 1	Reach 1-Lower	0	2YrCHI3Hr	0.14	90.42	90.50	90.46	90.50	0.001001	0.13	1.06	18.74	0.18
River 1	Reach 1-Lower	0	5YrCHI3Hr	0.26	90.42	90.53	90.47	90.53	0.001000	0.17	1.59	20.04	0.19
River 1	Reach 1-Lower	0	10YrCHI3Hr	0.36	90.42	90.54	90.48	90.55	0.001000	0.19	1.92	20.29	0.19

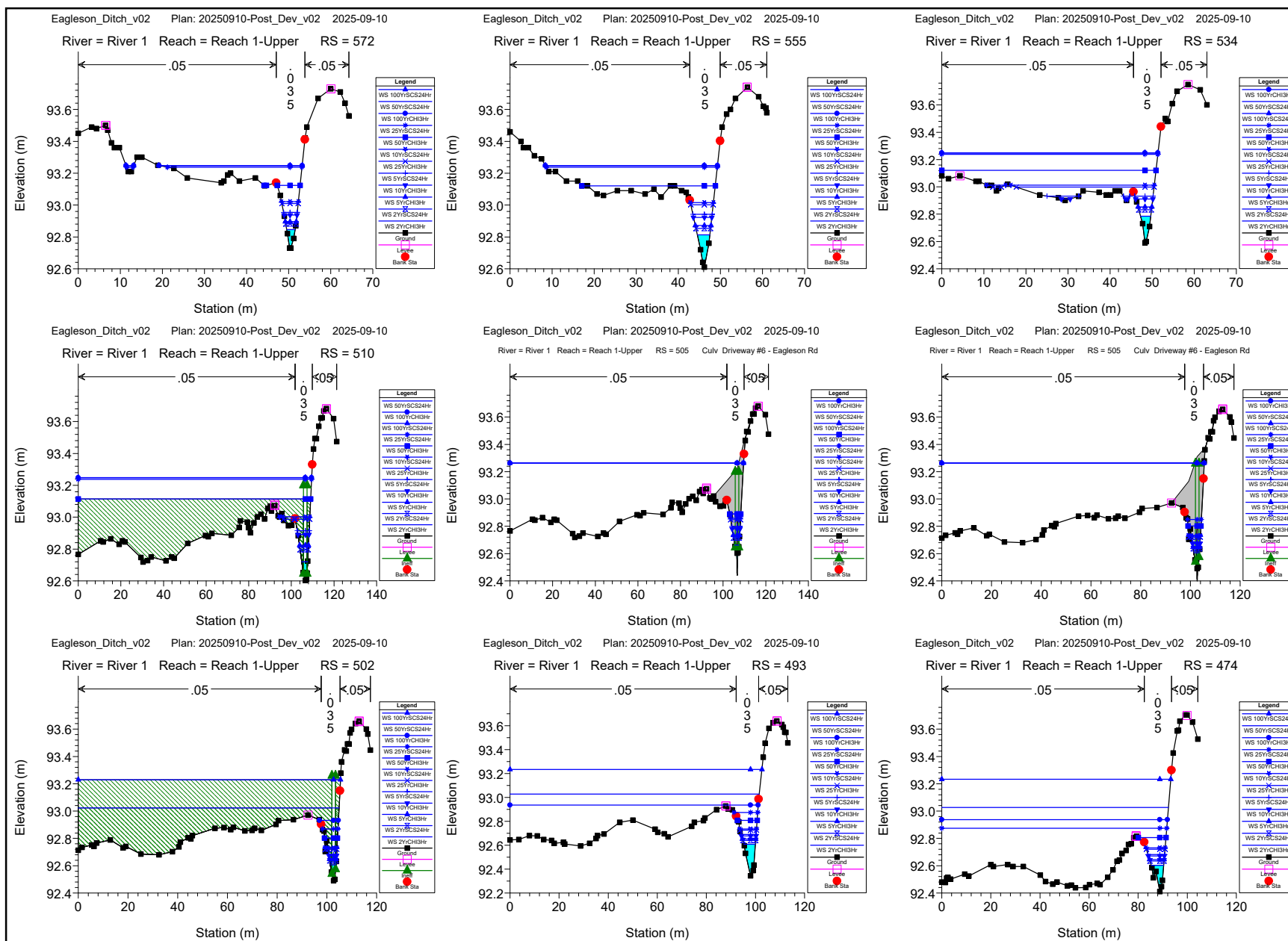
HEC-RAS Plan: 20250603-Pre_Dev_v01 (Continued)

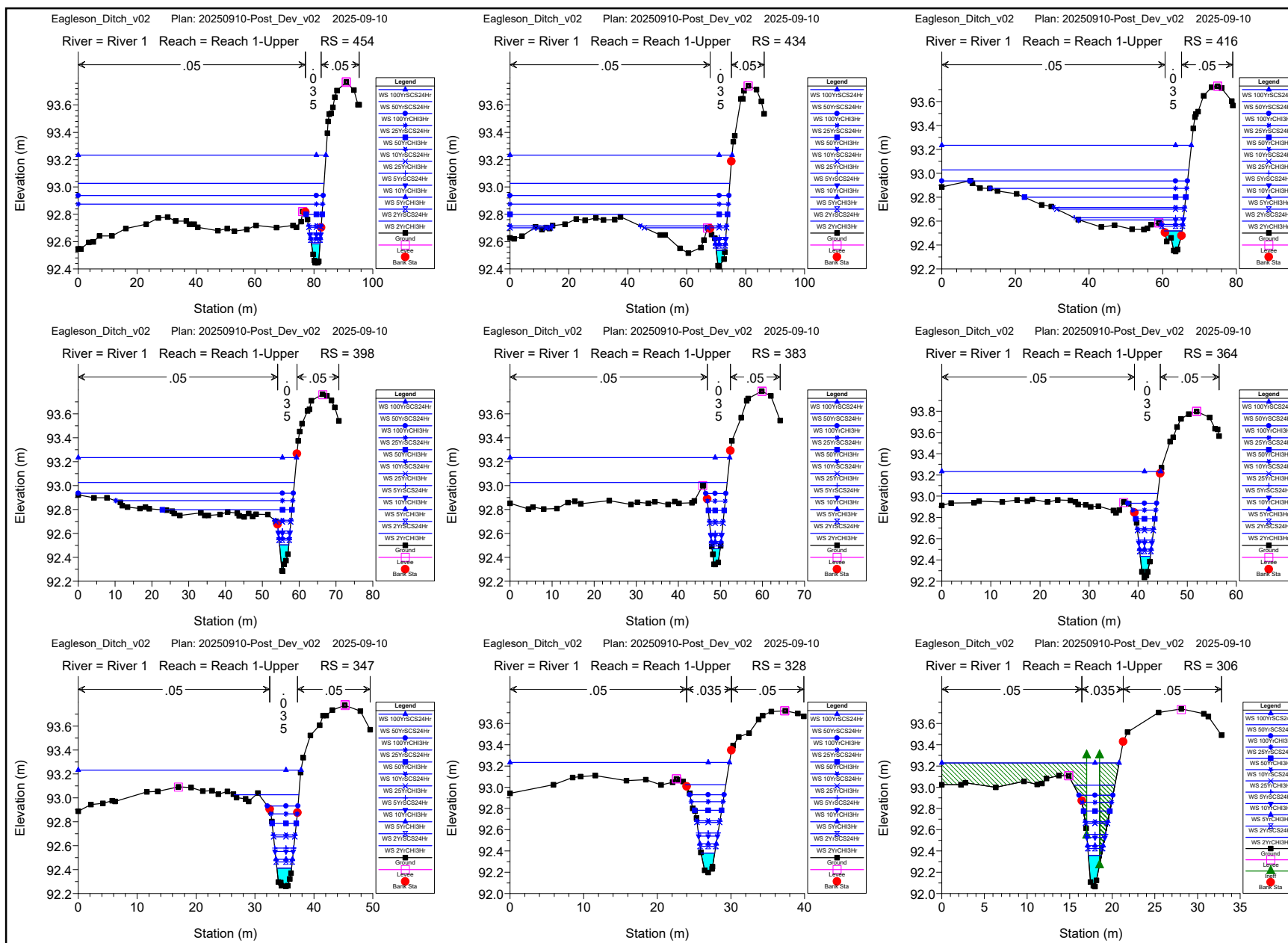
River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
River 1	Reach 1-Lower	0	25YrCHI3Hr	0.49	90.42	90.56	90.49	90.57	0.001001	0.21	2.33	20.58	0.20
River 1	Reach 1-Lower	0	50YrCHI3Hr	0.60	90.42	90.58	90.49	90.58	0.001000	0.23	2.64	20.80	0.20
River 1	Reach 1-Lower	0	100YrCHI3Hr	0.72	90.42	90.59	90.50	90.60	0.001000	0.24	2.98	21.46	0.21
River 1	Reach 1-Lower	0	2YrSCS24Hr	0.23	90.42	90.52	90.46	90.52	0.001000	0.16	1.47	19.96	0.19
River 1	Reach 1-Lower	0	5YrSCS24Hr	0.40	90.42	90.55	90.48	90.55	0.001001	0.20	2.05	20.38	0.20
River 1	Reach 1-Lower	0	10YrSCS24Hr	0.52	90.42	90.57	90.48	90.57	0.001001	0.22	2.40	20.63	0.20
River 1	Reach 1-Lower	0	25YrSCS24Hr	0.68	90.42	90.59	90.49	90.59	0.001000	0.24	2.85	21.31	0.21
River 1	Reach 1-Lower	0	50YrSCS24Hr	0.80	90.42	90.60	90.50	90.61	0.001001	0.25	3.18	21.58	0.21
River 1	Reach 1-Lower	0	100YrSCS24Hr	0.94	90.42	90.62	90.51	90.62	0.001000	0.27	3.51	21.78	0.21

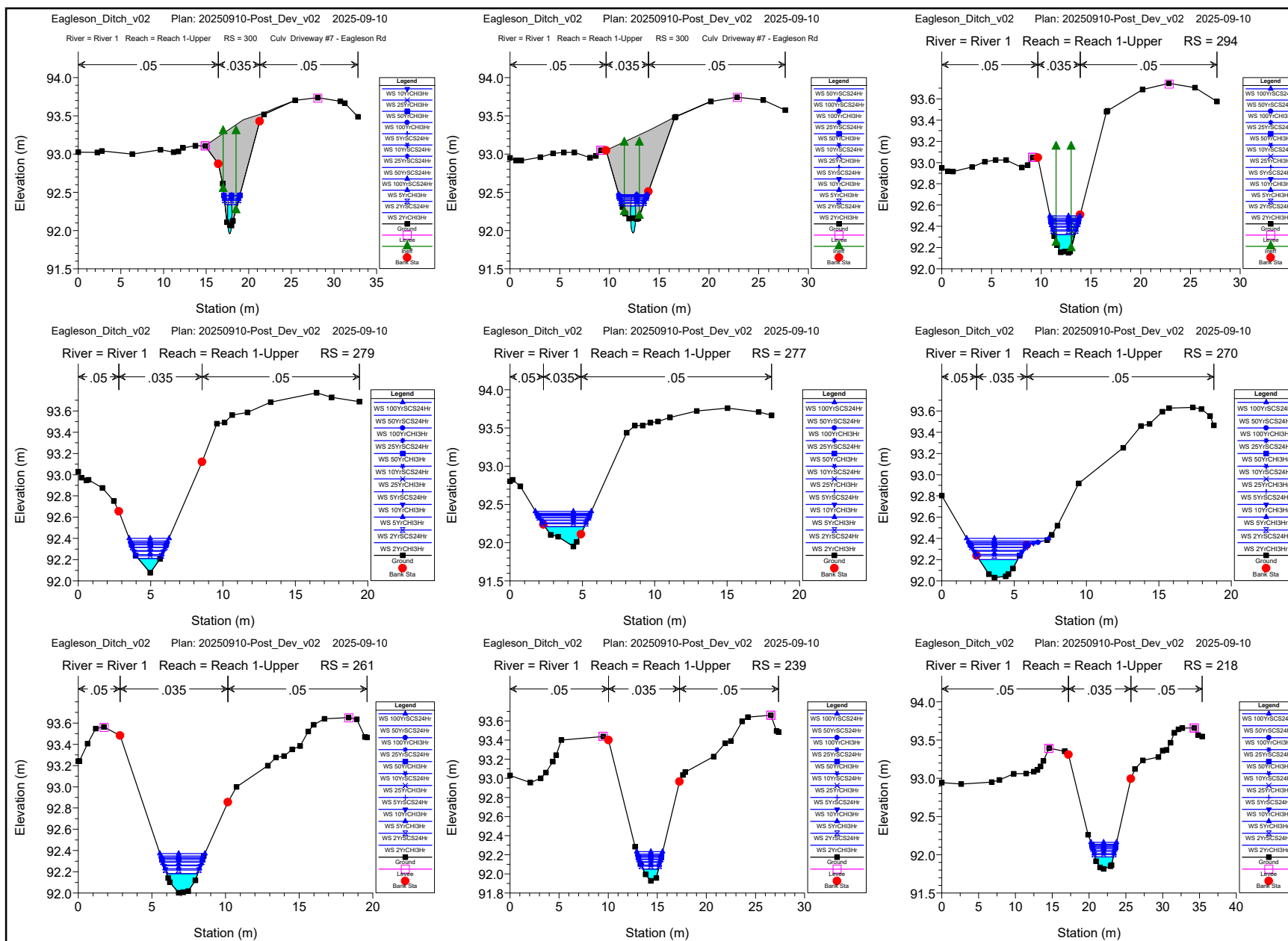


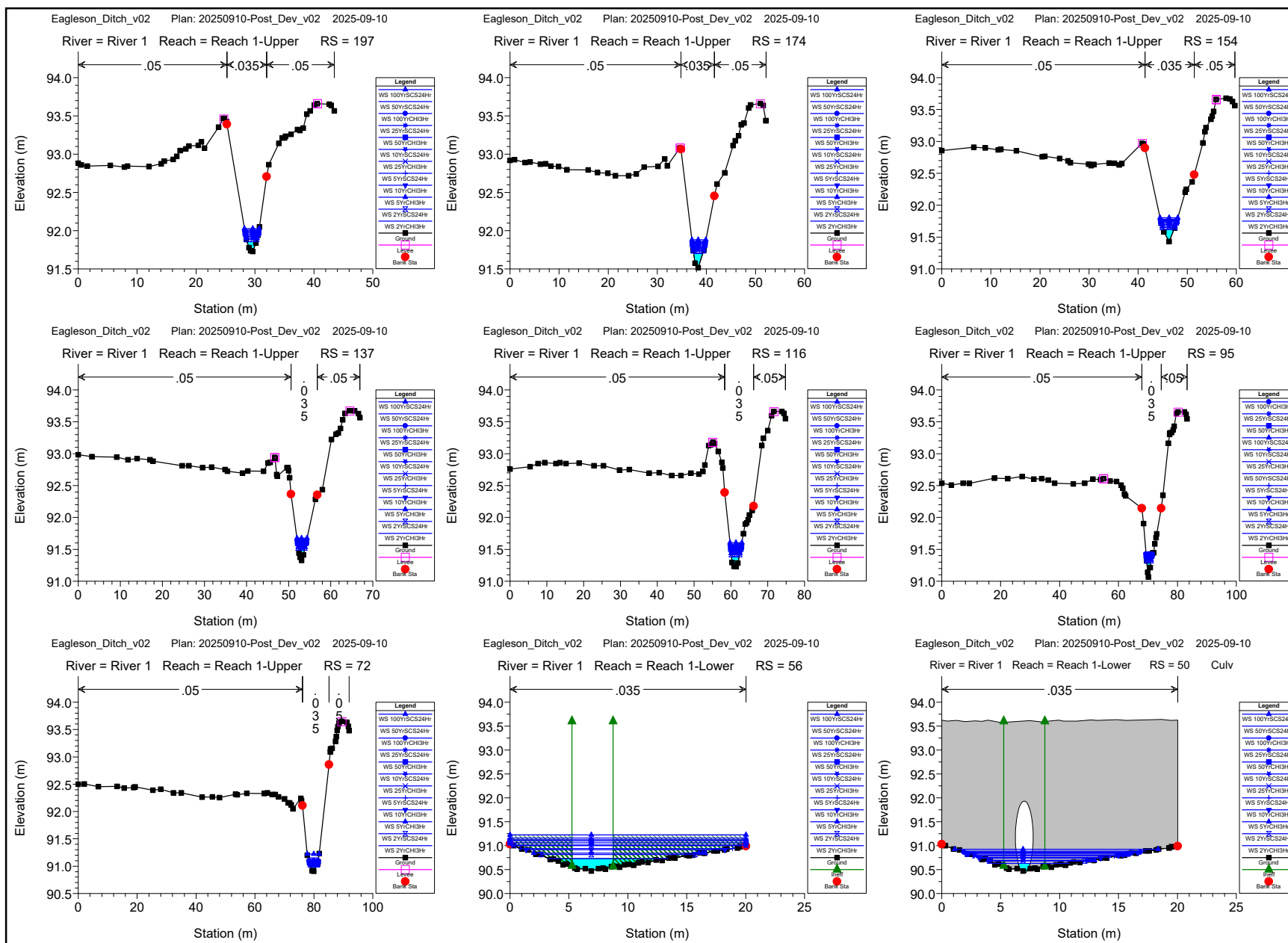


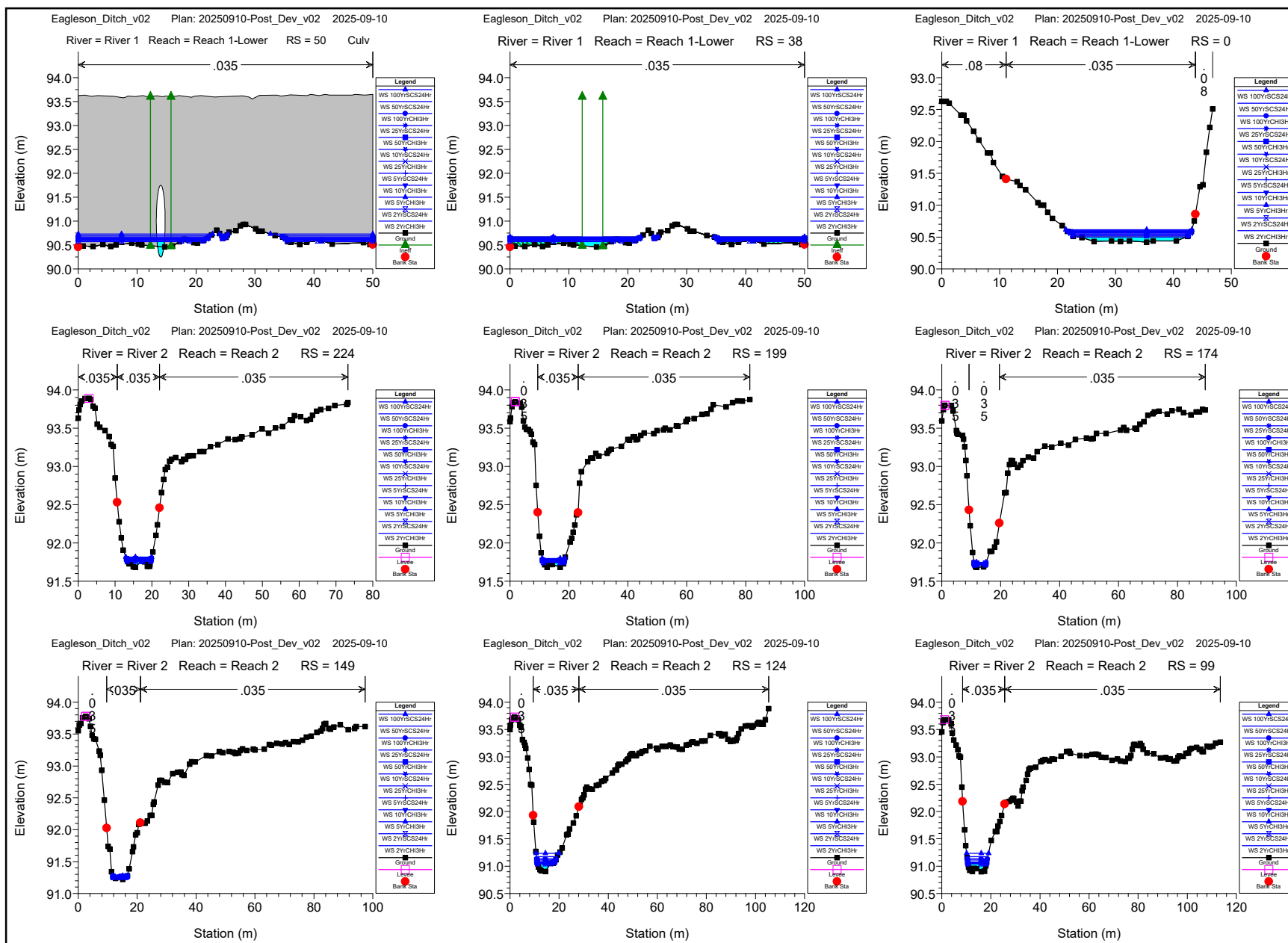




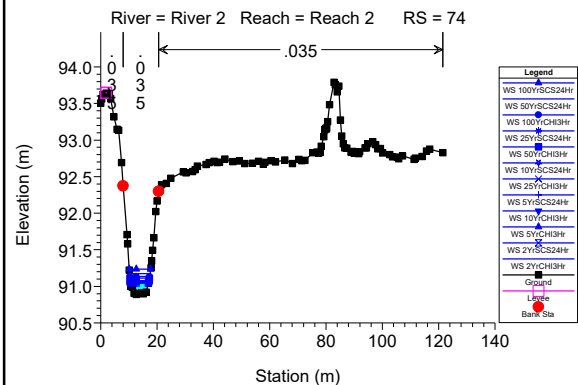




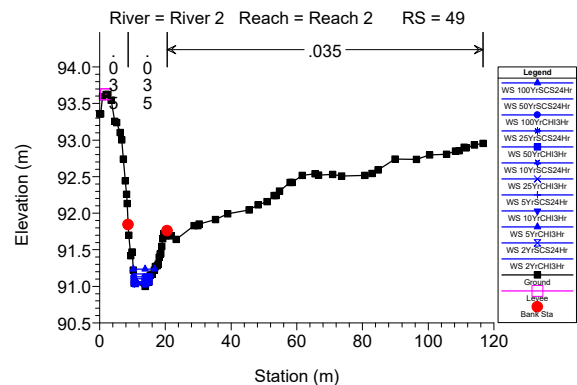




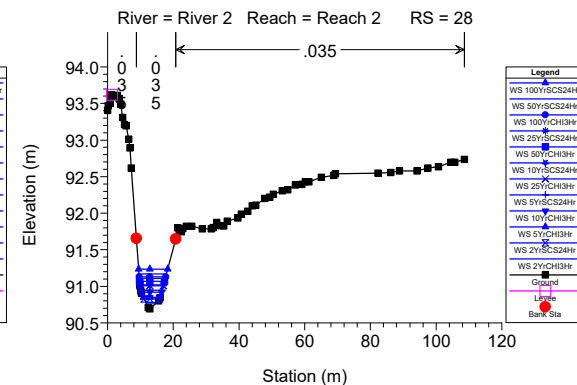
Eagleson_Ditch_v02 Plan: 20250910-Post_Dev_v02 2025-09-10



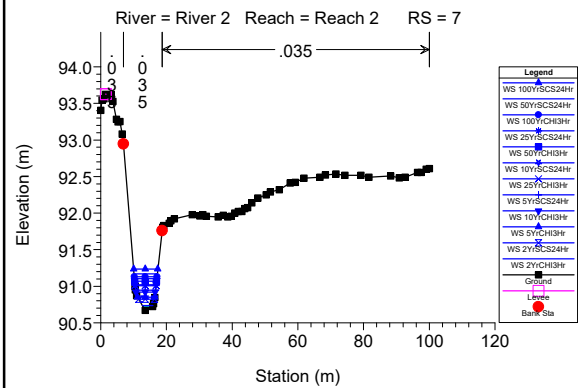
Eagleson_Ditch_v02 Plan: 20250910-Post_Dev_v02 2025-09-10



Eagleson_Ditch_v02 Plan: 20250910-Post_Dev_v02 2025-09-10



Eagleson_Ditch_v02 Plan: 20250910-Post_Dev_v02 2025-09-10



HEC-RAS Plan: 20250910-Post_Dev_v02 River: River 1 Reach: Reach 1-Upper

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1-Upper	908	2YrCHI3Hr	0.02	94.14	94.22	94.18	94.22	0.001632	0.16	0.12	2.47	0.22
Reach 1-Upper	908	5YrCHI3Hr	0.03	94.14	94.23	94.19	94.23	0.001834	0.18	0.15	2.66	0.24
Reach 1-Upper	908	10YrCHI3Hr	0.03	94.14	94.24	94.19	94.24	0.001946	0.19	0.17	2.76	0.25
Reach 1-Upper	908	25YrCHI3Hr	0.04	94.14	94.25	94.20	94.25	0.002058	0.21	0.18	2.87	0.26
Reach 1-Upper	908	50YrCHI3Hr	0.04	94.14	94.25	94.20	94.25	0.002138	0.22	0.20	2.95	0.27
Reach 1-Upper	908	100YrCHI3Hr	0.05	94.14	94.26	94.20	94.26	0.002189	0.23	0.21	3.04	0.27
Reach 1-Upper	908	2YrSCS24Hr	0.02	94.14	94.23	94.19	94.23	0.001752	0.17	0.14	2.59	0.23
Reach 1-Upper	908	5YrSCS24Hr	0.03	94.14	94.24	94.19	94.24	0.001946	0.19	0.17	2.76	0.25
Reach 1-Upper	908	10YrSCS24Hr	0.04	94.14	94.24	94.20	94.25	0.002043	0.20	0.18	2.85	0.26
Reach 1-Upper	908	25YrSCS24Hr	0.04	94.14	94.25	94.20	94.25	0.002153	0.22	0.20	2.97	0.27
Reach 1-Upper	908	50YrSCS24Hr	0.05	94.14	94.26	94.20	94.26	0.002199	0.23	0.22	3.05	0.27
Reach 1-Upper	908	100YrSCS24Hr	0.06	94.14	94.26	94.21	94.26	0.002259	0.24	0.23	3.15	0.28
Reach 1-Upper	887	2YrCHI3Hr	0.02	94.10	94.16	94.14	94.16	0.007210	0.24	0.08	2.48	0.44
Reach 1-Upper	887	5YrCHI3Hr	0.03	94.10	94.17	94.15	94.17	0.005770	0.25	0.11	2.82	0.40
Reach 1-Upper	887	10YrCHI3Hr	0.03	94.10	94.18	94.15	94.18	0.005292	0.25	0.13	2.98	0.39
Reach 1-Upper	887	25YrCHI3Hr	0.04	94.10	94.18	94.15	94.19	0.004885	0.26	0.15	3.16	0.38
Reach 1-Upper	887	50YrCHI3Hr	0.04	94.10	94.19	94.16	94.19	0.004480	0.26	0.17	3.32	0.37
Reach 1-Upper	887	100YrCHI3Hr	0.05	94.10	94.19	94.16	94.20	0.004579	0.27	0.18	3.42	0.38
Reach 1-Upper	887	2YrSCS24Hr	0.02	94.10	94.17	94.15	94.17	0.006295	0.25	0.10	2.71	0.42
Reach 1-Upper	887	5YrSCS24Hr	0.03	94.10	94.18	94.15	94.18	0.005292	0.25	0.13	2.98	0.39
Reach 1-Upper	887	10YrSCS24Hr	0.04	94.10	94.18	94.15	94.19	0.004912	0.26	0.14	3.14	0.38
Reach 1-Upper	887	25YrSCS24Hr	0.04	94.10	94.19	94.16	94.19	0.004434	0.26	0.17	3.35	0.37
Reach 1-Upper	887	50YrSCS24Hr	0.05	94.10	94.19	94.16	94.20	0.004587	0.27	0.18	3.44	0.38
Reach 1-Upper	887	100YrSCS24Hr	0.06	94.10	94.20	94.16	94.20	0.004863	0.29	0.19	3.53	0.39
Reach 1-Upper	868	2YrCHI3Hr	0.02	93.96	94.03	94.01	94.03	0.006094	0.26	0.07	1.89	0.41
Reach 1-Upper	868	5YrCHI3Hr	0.03	93.96	94.04	94.02	94.04	0.008117	0.32	0.09	1.99	0.49
Reach 1-Upper	868	10YrCHI3Hr	0.03	93.96	94.04	94.02	94.04	0.009697	0.35	0.09	2.03	0.53
Reach 1-Upper	868	25YrCHI3Hr	0.04	93.96	94.04	94.02	94.05	0.011359	0.39	0.10	2.08	0.58
Reach 1-Upper	868	50YrCHI3Hr	0.04	93.96	94.04	94.03	94.05	0.012637	0.42	0.10	2.12	0.62
Reach 1-Upper	868	100YrCHI3Hr	0.05	93.96	94.05	94.03	94.06	0.013009	0.44	0.11	2.18	0.63
Reach 1-Upper	868	2YrSCS24Hr	0.02	93.96	94.03	94.01	94.04	0.007224	0.29	0.08	1.96	0.46
Reach 1-Upper	868	5YrSCS24Hr	0.03	93.96	94.04	94.02	94.04	0.009697	0.35	0.09	2.03	0.53
Reach 1-Upper	868	10YrSCS24Hr	0.04	93.96	94.04	94.02	94.05	0.011232	0.39	0.10	2.07	0.58
Reach 1-Upper	868	25YrSCS24Hr	0.04	93.96	94.04	94.03	94.05	0.013016	0.43	0.10	2.13	0.63
Reach 1-Upper	868	50YrSCS24Hr	0.05	93.96	94.05	94.03	94.06	0.012976	0.44	0.11	2.19	0.63
Reach 1-Upper	868	100YrSCS24Hr	0.06	93.96	94.05	94.04	94.06	0.011619	0.44	0.12	2.30	0.60
Reach 1-Upper	848	2YrCHI3Hr	0.02	93.87	93.92	93.90	93.93	0.004549	0.20	0.09	2.73	0.35
Reach 1-Upper	848	5YrCHI3Hr	0.03	93.87	93.94	93.91	93.94	0.003629	0.21	0.13	3.01	0.32
Reach 1-Upper	848	10YrCHI3Hr	0.03	93.87	93.94	93.91	93.95	0.002995	0.21	0.15	3.10	0.30
Reach 1-Upper	848	25YrCHI3Hr	0.04	93.87	93.95	93.92	93.96	0.002536	0.21	0.18	3.19	0.28
Reach 1-Upper	848	50YrCHI3Hr	0.04	93.87	93.96	93.92	93.96	0.002177	0.21	0.21	3.28	0.27
Reach 1-Upper	848	100YrCHI3Hr	0.05	93.87	93.97	93.92	93.97	0.002108	0.22	0.22	3.34	0.27
Reach 1-Upper	848	2YrSCS24Hr	0.02	93.87	93.93	93.91	93.93	0.004188	0.21	0.11	2.93	0.34
Reach 1-Upper	848	5YrSCS24Hr	0.03	93.87	93.94	93.91	93.95	0.002995	0.21	0.15	3.10	0.30
Reach 1-Upper	848	10YrSCS24Hr	0.04	93.87	93.95	93.92	93.95	0.002574	0.21	0.18	3.18	0.29
Reach 1-Upper	848	25YrSCS24Hr	0.04	93.87	93.96	93.92	93.96	0.002104	0.21	0.21	3.30	0.26
Reach 1-Upper	848	50YrSCS24Hr	0.05	93.87	93.97	93.92	93.97	0.002100	0.22	0.23	3.35	0.27
Reach 1-Upper	848	100YrSCS24Hr	0.06	93.87	93.97	93.92	93.97	0.002380	0.23	0.23	3.38	0.28
Reach 1-Upper	828	2YrCHI3Hr	0.02	93.78	93.86	93.82	93.86	0.002644	0.17	0.11	2.77	0.27
Reach 1-Upper	828	5YrCHI3Hr	0.03	93.78	93.86	93.83	93.86	0.004666	0.23	0.12	2.86	0.37
Reach 1-Upper	828	10YrCHI3Hr	0.03	93.78	93.86	93.83	93.86	0.007085	0.28	0.11	2.81	0.45
Reach 1-Upper	828	25YrCHI3Hr	0.04	93.78	93.85	93.84	93.86	0.014294	0.39	0.10	2.58	0.63
Reach 1-Upper	828	50YrCHI3Hr	0.04	93.78	93.84	93.84	93.86	0.029914	0.53	0.08	2.30	0.90
Reach 1-Upper	828	100YrCHI3Hr	0.05	93.78	93.84	93.84	93.86	0.034267	0.57	0.08	2.34	0.97
Reach 1-Upper	828	2YrSCS24Hr	0.02	93.78	93.86	93.82	93.86	0.003210	0.19	0.12	2.95	0.30
Reach 1-Upper	828	5YrSCS24Hr	0.03	93.78	93.86	93.83	93.86	0.007085	0.28	0.11	2.81	0.45
Reach 1-Upper	828	10YrSCS24Hr	0.04	93.78	93.85	93.84	93.86	0.012962	0.37	0.10	2.61	0.60
Reach 1-Upper	828	25YrSCS24Hr	0.04	93.78	93.84	93.84	93.86	0.035615	0.57	0.08	2.22	0.98
Reach 1-Upper	828	50YrSCS24Hr	0.05	93.78	93.84	93.84	93.86	0.036015	0.59	0.08	2.34	0.99
Reach 1-Upper	828	100YrSCS24Hr	0.06	93.78	93.86	93.85	93.87	0.020193	0.48	0.11	2.83	0.76
Reach 1-Upper	807	2YrCHI3Hr	0.02	93.65	93.70	93.70	93.71	0.044163	0.52	0.04	1.46	1.04
Reach 1-Upper	807	5YrCHI3Hr	0.03	93.65	93.73	93.71	93.73	0.007733	0.31	0.09	2.04	0.47
Reach 1-Upper	807	10YrCHI3Hr	0.03	93.65	93.75	93.71	93.75	0.003849	0.25	0.13	2.40	0.35
Reach 1-Upper	807	25YrCHI3Hr	0.04	93.65	93.77	93.71	93.77	0.001862	0.20	0.19	2.86	0.25
Reach 1-Upper	807	50YrCHI3Hr	0.04	93.65	93.79	93.72	93.79	0.001072	0.17	0.25	3.27	0.20
Reach 1-Upper	807	100YrCHI3Hr	0.05	93.65	93.81	93.72	93.81	0.000618	0.15	0.32	3.62	0.15
Reach 1-Upper	807	2YrSCS24Hr	0.02	93.65	93.71	93.70	93.72	0.021814	0.43	0.06	1.70	0.76
Reach 1-Upper	807	5YrSCS24Hr	0.03	93.65	93.75	93.71	93.75	0.003849	0.25	0.13	2.40	0.35
Reach 1-Upper	807	10YrSCS24Hr	0.04	93.65	93.77	93.71	93.77	0.002057	0.21	0.18	2.79	0.26
Reach 1-Upper	807	25YrSCS24Hr	0.04	93.65	93.79	93.72	93.79	0.000946	0.17	0.26	3.34	0.18
Reach 1-Upper	807	50YrSCS24Hr	0.05	93.65	93.81	93.72	93.82	0.000538	0.15	0.34	3.71	0.14
Reach 1-Upper	807	100YrSCS24Hr	0.06	93.65	93.84	93.73	93.85	0.000286	0.13	0.46	4.22	0.11
Reach 1-Upper	789	2YrCHI3Hr	0.02	93.49	93.69	93.53	93.69	0.000037	0.05	0.38	3.33	0.04
Reach 1-Upper	789	5YrCHI3Hr	0.03	93.49	93.73	93.54	93.73	0.000036	0.06	0.47	3.77	0.04
Reach 1-Upper	789	10YrCHI3Hr	0.03	93.49	93.74	93.55	93.74	0.000038	0.06	0.51	4.05	0.04
Reach 1-Upper	789	25YrCHI3Hr	0.04	93.49	93.77	93.55	93.77	0.000038	0.07	0.56	4.42	0.04
Reach 1-Upper	789	50YrCHI3Hr	0.04	93.49	93.79	93.55	93.79	0.000038	0.07	0.61	4.75	0.04

HEC-RAS Plan: 20250910-Post_Dev_v02 River: River 1 Reach: Reach 1-Upper (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1-Upper	789	100YrCHI3Hr	0.05	93.49	93.81	93.56	93.81	0.000036	0.07	0.66	5.08	0.04
Reach 1-Upper	789	2YrSCS24Hr	0.02	93.49	93.71	93.54	93.71	0.000038	0.06	0.43	3.55	0.04
Reach 1-Upper	789	5YrSCS24Hr	0.03	93.49	93.74	93.55	93.74	0.000038	0.06	0.51	4.05	0.04
Reach 1-Upper	789	10YrSCS24Hr	0.04	93.49	93.76	93.55	93.76	0.000038	0.07	0.56	4.37	0.04
Reach 1-Upper	789	25YrSCS24Hr	0.04	93.49	93.79	93.56	93.79	0.000037	0.07	0.62	4.81	0.04
Reach 1-Upper	789	50YrSCS24Hr	0.05	93.49	93.81	93.56	93.81	0.000035	0.07	0.67	5.17	0.04
Reach 1-Upper	789	100YrSCS24Hr	0.06	93.49	93.84	93.56	93.84	0.000032	0.07	0.75	5.59	0.04
Reach 1-Upper	764	Culvert										
Reach 1-Upper	759	2YrCHI3Hr	0.02	93.46	93.54	93.50	93.54	0.002883	0.23	0.08	1.83	0.30
Reach 1-Upper	759	5YrCHI3Hr	0.03	93.46	93.56	93.51	93.56	0.001988	0.23	0.12	2.15	0.26
Reach 1-Upper	759	10YrCHI3Hr	0.03	93.46	93.58	93.51	93.58	0.001375	0.22	0.14	2.40	0.23
Reach 1-Upper	759	25YrCHI3Hr	0.04	93.46	93.61	93.52	93.61	0.000864	0.21	0.18	2.73	0.19
Reach 1-Upper	759	50YrCHI3Hr	0.04	93.46	93.65	93.52	93.65	0.000433	0.18	0.24	3.23	0.14
Reach 1-Upper	759	100YrCHI3Hr	0.05	93.46	93.68	93.53	93.68	0.000309	0.17	0.29	3.59	0.12
Reach 1-Upper	759	2YrSCS24Hr	0.02	93.46	93.55	93.51	93.56	0.002355	0.23	0.10	2.03	0.28
Reach 1-Upper	759	5YrSCS24Hr	0.03	93.46	93.58	93.51	93.58	0.001375	0.22	0.14	2.40	0.23
Reach 1-Upper	759	10YrSCS24Hr	0.04	93.46	93.60	93.52	93.60	0.000932	0.21	0.18	2.67	0.19
Reach 1-Upper	759	25YrSCS24Hr	0.04	93.46	93.65	93.52	93.65	0.000408	0.17	0.25	3.29	0.14
Reach 1-Upper	759	50YrSCS24Hr	0.05	93.46	93.69	93.53	93.69	0.000262	0.16	0.31	3.73	0.11
Reach 1-Upper	759	100YrSCS24Hr	0.06	93.46	93.73	93.53	93.73	0.000176	0.15	0.37	4.23	0.10
Reach 1-Upper	743	2YrCHI3Hr	0.02	93.40	93.49	93.45	93.50	0.002754	0.25	0.08	1.55	0.30
Reach 1-Upper	743	5YrCHI3Hr	0.03	93.40	93.54	93.46	93.54	0.001046	0.20	0.13	2.00	0.20
Reach 1-Upper	743	10YrCHI3Hr	0.03	93.40	93.57	93.47	93.57	0.000686	0.19	0.17	2.25	0.17
Reach 1-Upper	743	25YrCHI3Hr	0.04	93.40	93.60	93.47	93.60	0.000466	0.18	0.21	2.59	0.14
Reach 1-Upper	743	50YrCHI3Hr	0.04	93.40	93.64	93.48	93.64	0.000265	0.16	0.27	3.11	0.11
Reach 1-Upper	743	100YrCHI3Hr	0.05	93.40	93.67	93.48	93.67	0.000207	0.16	0.31	3.83	0.10
Reach 1-Upper	743	2YrSCS24Hr	0.02	93.40	93.52	93.46	93.52	0.001463	0.21	0.11	1.84	0.23
Reach 1-Upper	743	5YrSCS24Hr	0.03	93.40	93.57	93.47	93.57	0.000686	0.19	0.17	2.25	0.17
Reach 1-Upper	743	10YrSCS24Hr	0.04	93.40	93.59	93.47	93.59	0.000495	0.18	0.20	2.53	0.15
Reach 1-Upper	743	25YrSCS24Hr	0.04	93.40	93.65	93.48	93.65	0.000254	0.16	0.27	3.18	0.11
Reach 1-Upper	743	50YrSCS24Hr	0.05	93.40	93.68	93.48	93.69	0.000181	0.15	0.32	4.15	0.10
Reach 1-Upper	743	100YrSCS24Hr	0.06	93.40	93.73	93.49	93.73	0.000134	0.14	0.38	4.85	0.09
Reach 1-Upper	733	Culvert										
Reach 1-Upper	728	2YrCHI3Hr	0.02	93.33	93.48	93.39	93.48	0.000387	0.13	0.15	1.68	0.12
Reach 1-Upper	728	5YrCHI3Hr	0.03	93.33	93.52	93.40	93.52	0.000273	0.13	0.21	1.98	0.11
Reach 1-Upper	728	10YrCHI3Hr	0.03	93.33	93.55	93.40	93.55	0.000233	0.13	0.24	2.16	0.10
Reach 1-Upper	728	25YrCHI3Hr	0.04	93.33	93.58	93.41	93.58	0.000196	0.14	0.28	2.37	0.10
Reach 1-Upper	728	50YrCHI3Hr	0.04	93.33	93.62	93.41	93.62	0.000131	0.13	0.34	2.70	0.08
Reach 1-Upper	728	100YrCHI3Hr	0.05	93.33	93.64	93.42	93.64	0.000117	0.13	0.38	2.90	0.08
Reach 1-Upper	728	2YrSCS24Hr	0.02	93.33	93.51	93.39	93.51	0.000306	0.13	0.19	1.87	0.11
Reach 1-Upper	728	5YrSCS24Hr	0.03	93.33	93.55	93.40	93.55	0.000233	0.13	0.24	2.16	0.10
Reach 1-Upper	728	10YrSCS24Hr	0.04	93.33	93.57	93.41	93.57	0.000202	0.14	0.27	2.34	0.10
Reach 1-Upper	728	25YrSCS24Hr	0.04	93.33	93.62	93.41	93.62	0.000128	0.13	0.35	2.74	0.08
Reach 1-Upper	728	50YrSCS24Hr	0.05	93.33	93.66	93.42	93.66	0.000106	0.12	0.39	2.98	0.08
Reach 1-Upper	728	100YrSCS24Hr	0.06	93.33	93.69	93.42	93.69	0.000091	0.12	0.44	3.24	0.07
Reach 1-Upper	715	2YrCHI3Hr	0.02	93.32	93.48	93.36	93.48	0.000151	0.10	0.20	2.44	0.08
Reach 1-Upper	715	5YrCHI3Hr	0.03	93.32	93.52	93.37	93.52	0.000132	0.11	0.26	2.85	0.08
Reach 1-Upper	715	10YrCHI3Hr	0.03	93.32	93.54	93.37	93.54	0.000123	0.11	0.29	3.09	0.08
Reach 1-Upper	715	25YrCHI3Hr	0.04	93.32	93.57	93.38	93.57	0.000112	0.11	0.33	3.38	0.08
Reach 1-Upper	715	50YrCHI3Hr	0.04	93.32	93.62	93.38	93.62	0.000081	0.11	0.39	3.82	0.07
Reach 1-Upper	715	100YrCHI3Hr	0.05	93.32	93.64	93.39	93.64	0.000075	0.11	0.43	4.07	0.06
Reach 1-Upper	715	2YrSCS24Hr	0.02	93.32	93.51	93.36	93.51	0.000138	0.10	0.24	2.70	0.08
Reach 1-Upper	715	5YrSCS24Hr	0.03	93.32	93.54	93.37	93.54	0.000123	0.11	0.29	3.09	0.08
Reach 1-Upper	715	10YrSCS24Hr	0.04	93.32	93.57	93.38	93.57	0.000114	0.11	0.32	3.33	0.08
Reach 1-Upper	715	25YrSCS24Hr	0.04	93.32	93.62	93.39	93.62	0.000080	0.11	0.40	3.86	0.07
Reach 1-Upper	715	50YrSCS24Hr	0.05	93.32	93.65	93.39	93.65	0.000070	0.11	0.44	4.19	0.06
Reach 1-Upper	715	100YrSCS24Hr	0.06	93.32	93.69	93.39	93.69	0.000062	0.11	0.49	4.53	0.06
Reach 1-Upper	705	Culvert										
Reach 1-Upper	698	2YrCHI3Hr	0.02	93.24	93.31	93.29	93.32	0.010647	0.37	0.05	1.15	0.56
Reach 1-Upper	698	5YrCHI3Hr	0.03	93.24	93.31	93.30	93.33	0.018452	0.50	0.05	1.17	0.74
Reach 1-Upper	698	10YrCHI3Hr	0.03	93.24	93.31	93.31	93.33	0.030771	0.62	0.05	1.15	0.95
Reach 1-Upper	698	25YrCHI3Hr	0.04	93.24	93.38	93.31	93.38	0.002195	0.26	0.15	1.67	0.28
Reach 1-Upper	698	50YrCHI3Hr	0.04	93.24	93.51	93.32	93.51	0.000131	0.11	0.41	2.59	0.08
Reach 1-Upper	698	100YrCHI3Hr	0.05	93.24	93.51	93.32	93.51	0.000158	0.12	0.41	2.60	0.09
Reach 1-Upper	698	2YrSCS24Hr	0.02	93.24	93.31	93.30	93.32	0.016098	0.46	0.05	1.16	0.69
Reach 1-Upper	698	5YrSCS24Hr	0.03	93.24	93.31	93.31	93.33	0.033358	0.64	0.05	1.14	0.98
Reach 1-Upper	698	10YrSCS24Hr	0.04	93.24	93.41	93.31	93.41	0.000855	0.18	0.20	1.88	0.18
Reach 1-Upper	698	25YrSCS24Hr	0.04	93.24	93.51	93.32	93.51	0.000135	0.11	0.41	2.59	0.08
Reach 1-Upper	698	50YrSCS24Hr	0.05	93.24	93.51	93.32	93.51	0.000162	0.12	0.41	2.61	0.09
Reach 1-Upper	698	100YrSCS24Hr	0.06	93.24	93.51	93.33	93.52	0.000196	0.13	0.42	2.63	0.10
Reach 1-Upper	681	2YrCHI3Hr	0.02	93.14	93.22	93.19	93.22	0.003726	0.23	0.08	1.65	0.34
Reach 1-Upper	681	5YrCHI3Hr	0.03	93.14	93.24	93.20	93.25	0.001985	0.21	0.13	1.84	0.26
Reach 1-Upper	681	10YrCHI3Hr	0.03	93.14	93.27	93.20	93.27	0.001166	0.19	0.17	2.00	0.21
Reach 1-Upper	681	25YrCHI3Hr	0.04	93.14	93.37	93.20	93.37	0.000122	0.09	0.42	2.74	0.07

HEC-RAS Plan: 20250910-Post_Dev_v02 River: River 1 Reach: Reach 1-Upper (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1-Upper	681	50YrCHI3Hr	0.04	93.14	93.51	93.21	93.51	0.000021	0.05	0.87	4.05	0.03
Reach 1-Upper	681	100YrCHI3Hr	0.05	93.14	93.51	93.21	93.51	0.000026	0.06	0.88	4.08	0.04
Reach 1-Upper	681	2YrSCS24Hr	0.02	93.14	93.24	93.19	93.24	0.002292	0.21	0.11	1.78	0.27
Reach 1-Upper	681	5YrSCS24Hr	0.03	93.14	93.28	93.20	93.28	0.000837	0.17	0.19	2.07	0.18
Reach 1-Upper	681	10YrSCS24Hr	0.04	93.14	93.41	93.20	93.41	0.000067	0.07	0.52	2.97	0.05
Reach 1-Upper	681	25YrSCS24Hr	0.04	93.14	93.51	93.21	93.51	0.000022	0.05	0.87	4.07	0.03
Reach 1-Upper	681	50YrSCS24Hr	0.05	93.14	93.51	93.21	93.51	0.000027	0.06	0.88	4.09	0.04
Reach 1-Upper	681	100YrSCS24Hr	0.06	93.14	93.51	93.22	93.51	0.000033	0.06	0.89	4.13	0.04
Reach 1-Upper	663	2YrCHI3Hr	0.02	93.05	93.19		93.19	0.000887	0.16	0.12	1.35	0.18
Reach 1-Upper	663	5YrCHI3Hr	0.03	93.05	93.22		93.23	0.000652	0.16	0.17	1.60	0.16
Reach 1-Upper	663	10YrCHI3Hr	0.03	93.05	93.25		93.25	0.000460	0.15	0.22	1.80	0.13
Reach 1-Upper	663	25YrCHI3Hr	0.04	93.05	93.37		93.37	0.000079	0.08	0.48	2.67	0.06
Reach 1-Upper	663	50YrCHI3Hr	0.04	93.05	93.51		93.51	0.000018	0.05	0.96	4.41	0.03
Reach 1-Upper	663	100YrCHI3Hr	0.05	93.05	93.51		93.51	0.000022	0.05	0.96	4.44	0.03
Reach 1-Upper	663	2YrSCS24Hr	0.02	93.05	93.22		93.22	0.000662	0.16	0.15	1.54	0.16
Reach 1-Upper	663	5YrSCS24Hr	0.03	93.05	93.27		93.27	0.000342	0.13	0.24	1.90	0.12
Reach 1-Upper	663	10YrSCS24Hr	0.04	93.05	93.40		93.40	0.000049	0.06	0.57	3.04	0.05
Reach 1-Upper	663	25YrSCS24Hr	0.04	93.05	93.51		93.51	0.000019	0.05	0.96	4.42	0.03
Reach 1-Upper	663	50YrSCS24Hr	0.05	93.05	93.51		93.51	0.000023	0.05	0.97	4.46	0.03
Reach 1-Upper	663	100YrSCS24Hr	0.06	93.05	93.51		93.51	0.000028	0.06	0.98	4.50	0.04
Reach 1-Upper	656	2YrCHI3Hr	0.06	93.03	93.15	93.12	93.16	0.007897	0.46	0.13	1.69	0.53
Reach 1-Upper	656	5YrCHI3Hr	0.10	93.03	93.19	93.14	93.20	0.006746	0.51	0.20	1.91	0.51
Reach 1-Upper	656	10YrCHI3Hr	0.13	93.03	93.23	93.16	93.24	0.004563	0.48	0.27	2.12	0.43
Reach 1-Upper	656	25YrCHI3Hr	0.17	93.03	93.36	93.18	93.37	0.000762	0.28	0.62	2.87	0.19
Reach 1-Upper	656	50YrCHI3Hr	0.20	93.03	93.51	93.19	93.51	0.000191	0.19	1.16	4.64	0.10
Reach 1-Upper	656	100YrCHI3Hr	0.24	93.03	93.51	93.20	93.51	0.000260	0.22	1.17	4.65	0.12
Reach 1-Upper	656	2YrSCS24Hr	0.09	93.03	93.18	93.14	93.19	0.007161	0.50	0.18	1.86	0.52
Reach 1-Upper	656	5YrSCS24Hr	0.14	93.03	93.24	93.17	93.25	0.003570	0.45	0.31	2.22	0.39
Reach 1-Upper	656	10YrSCS24Hr	0.18	93.03	93.40	93.18	93.40	0.000513	0.24	0.73	3.49	0.16
Reach 1-Upper	656	25YrSCS24Hr	0.22	93.03	93.51	93.20	93.51	0.000228	0.21	1.16	4.65	0.11
Reach 1-Upper	656	50YrSCS24Hr	0.26	93.03	93.51	93.21	93.51	0.000307	0.24	1.17	4.66	0.13
Reach 1-Upper	656	100YrSCS24Hr	0.30	93.03	93.51	93.22	93.51	0.000401	0.28	1.17	4.67	0.15
Reach 1-Upper	638	2YrCHI3Hr	0.06	92.92	93.08	93.01	93.08	0.002811	0.33	0.19	1.85	0.33
Reach 1-Upper	638	5YrCHI3Hr	0.10	92.92	93.14	93.04	93.14	0.001935	0.33	0.31	2.24	0.28
Reach 1-Upper	638	10YrCHI3Hr	0.13	92.92	93.19	93.05	93.20	0.001151	0.29	0.45	2.68	0.23
Reach 1-Upper	638	25YrCHI3Hr	0.17	92.92	93.36	93.07	93.36	0.000204	0.17	1.05	4.59	0.10
Reach 1-Upper	638	50YrCHI3Hr	0.20	92.92	93.50	93.08	93.50	0.000071	0.13	1.86	6.83	0.06
Reach 1-Upper	638	100YrCHI3Hr	0.24	92.92	93.50	93.10	93.51	0.000098	0.15	1.86	6.83	0.08
Reach 1-Upper	638	2YrSCS24Hr	0.09	92.92	93.12	93.03	93.12	0.002263	0.34	0.27	2.12	0.30
Reach 1-Upper	638	5YrSCS24Hr	0.14	92.92	93.22	93.06	93.22	0.000920	0.27	0.52	2.92	0.20
Reach 1-Upper	638	10YrSCS24Hr	0.18	92.92	93.40	93.07	93.40	0.000146	0.16	1.22	5.04	0.09
Reach 1-Upper	638	25YrSCS24Hr	0.22	92.92	93.50	93.09	93.51	0.000085	0.14	1.86	6.83	0.07
Reach 1-Upper	638	50YrSCS24Hr	0.26	92.92	93.50	93.10	93.51	0.000115	0.16	1.86	6.84	0.08
Reach 1-Upper	638	100YrSCS24Hr	0.30	92.92	93.50	93.12	93.51	0.000152	0.18	1.87	6.84	0.09
Reach 1-Upper	617	2YrCHI3Hr	0.06	92.84	93.02	92.95	93.02	0.002976	0.32	0.19	2.05	0.33
Reach 1-Upper	617	5YrCHI3Hr	0.10	92.84	93.11	92.98	93.11	0.000952	0.24	0.43	2.97	0.20
Reach 1-Upper	617	10YrCHI3Hr	0.13	92.84	93.18	92.99	93.18	0.000487	0.20	0.66	3.68	0.15
Reach 1-Upper	617	25YrCHI3Hr	0.17	92.84	93.36	93.01	93.36	0.000104	0.11	1.56	6.63	0.07
Reach 1-Upper	617	50YrCHI3Hr	0.20	92.84	93.50	93.02	93.50	0.000032	0.07	2.93	15.16	0.04
Reach 1-Upper	617	100YrCHI3Hr	0.24	92.84	93.50	93.04	93.50	0.000044	0.09	2.93	15.17	0.05
Reach 1-Upper	617	2YrSCS24Hr	0.09	92.84	93.08	92.97	93.09	0.001249	0.26	0.35	2.72	0.23
Reach 1-Upper	617	5YrSCS24Hr	0.14	92.84	93.21	93.00	93.21	0.000388	0.18	0.77	4.08	0.13
Reach 1-Upper	617	10YrSCS24Hr	0.18	92.84	93.39	93.01	93.39	0.000078	0.10	1.82	7.56	0.06
Reach 1-Upper	617	25YrSCS24Hr	0.22	92.84	93.50	93.03	93.50	0.000038	0.08	2.93	15.17	0.05
Reach 1-Upper	617	50YrSCS24Hr	0.26	92.84	93.50	93.04	93.50	0.000052	0.09	2.93	15.17	0.05
Reach 1-Upper	617	100YrSCS24Hr	0.30	92.84	93.50	93.06	93.50	0.000069	0.11	2.93	15.18	0.06
Reach 1-Upper	598	2YrCHI3Hr	0.06	92.76	93.00	92.86	93.00	0.000514	0.18	0.36	2.60	0.15
Reach 1-Upper	598	5YrCHI3Hr	0.11	92.76	93.10	92.89	93.10	0.000269	0.18	0.61	3.40	0.12
Reach 1-Upper	598	10YrCHI3Hr	0.14	92.76	93.18	92.91	93.18	0.000184	0.18	0.80	5.26	0.10
Reach 1-Upper	598	25YrCHI3Hr	0.19	92.76	93.36	92.92	93.36	0.000070	0.15	1.25	8.76	0.07
Reach 1-Upper	598	50YrCHI3Hr	0.22	92.76	93.50	92.94	93.50	0.000018	0.07	4.94	31.21	0.03
Reach 1-Upper	598	100YrCHI3Hr	0.26	92.76	93.50	92.95	93.50	0.000024	0.09	4.94	31.21	0.04
Reach 1-Upper	598	2YrSCS24Hr	0.10	92.76	93.07	92.88	93.08	0.000317	0.18	0.54	3.19	0.12
Reach 1-Upper	598	5YrSCS24Hr	0.15	92.76	93.20	92.91	93.21	0.000160	0.17	0.87	5.82	0.10
Reach 1-Upper	598	10YrSCS24Hr	0.19	92.76	93.39	92.93	93.39	0.000059	0.14	1.34	9.49	0.06
Reach 1-Upper	598	25YrSCS24Hr	0.24	92.76	93.50	92.94	93.50	0.000021	0.08	4.94	31.21	0.04
Reach 1-Upper	598	50YrSCS24Hr	0.28	92.76	93.50	92.96	93.50	0.000029	0.09	4.93	31.21	0.04
Reach 1-Upper	598	100YrSCS24Hr	0.33	92.76	93.50	92.97	93.50	0.000039	0.11	4.93	31.21	0.05
Reach 1-Upper	589		Culvert									
Reach 1-Upper	581	2YrCHI3Hr	0.06	92.71	92.89	92.81	92.89	0.002034	0.27	0.24	2.66	0.28
Reach 1-Upper	581	5YrCHI3Hr	0.11	92.71	92.93	92.84	92.93	0.001970	0.33	0.33	3.40	0.29
Reach 1-Upper	581	10YrCHI3Hr	0.14	92.71	92.96	92.86	92.97	0.001627	0.34	0.41	4.01	0.27
Reach 1-Upper	581	25YrCHI3Hr	0.19	92.71	93.02	92.88	93.03	0.000990	0.33	0.56	5.14	0.22
Reach 1-Upper	581	50YrCHI3Hr	0.22	92.71	93.13	92.89	93.13	0.000386	0.27	0.83	7.07	0.15
Reach 1-Upper	581	100YrCHI3Hr	0.26	92.71	93.25	92.90	93.25	0.000184	0.23	1.13	30.32	0.11
Reach 1-Upper	581	2YrSCS24Hr	0.10	92.71	92.92	92.84	92.92	0.002055	0.32	0.31	3.20	0.29

HEC-RAS Plan: 20250910-Post_Dev_v02 River: River 1 Reach: Reach 1-Upper (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1-Upper	581	5YrSCS24Hr	0.15	92.71	92.97	92.86	92.98	0.001468	0.34	0.44	4.26	0.26
Reach 1-Upper	581	10YrSCS24Hr	0.19	92.71	93.03	92.88	93.04	0.000901	0.32	0.59	5.33	0.21
Reach 1-Upper	581	25YrSCS24Hr	0.24	92.71	93.24	92.89	93.24	0.000175	0.22	1.11	29.51	0.10
Reach 1-Upper	581	50YrSCS24Hr	0.28	92.71	93.25	92.90	93.25	0.000220	0.25	1.13	30.33	0.12
Reach 1-Upper	581	100YrSCS24Hr	0.33	92.71	93.25	92.91	93.25	0.000294	0.29	1.13	30.33	0.14
Reach 1-Upper	572	2YrCHI3Hr	0.06	92.73	92.85	92.82	92.86	0.008674	0.45	0.14	2.02	0.54
Reach 1-Upper	572	5YrCHI3Hr	0.11	92.73	92.90	92.84	92.90	0.004896	0.43	0.26	2.58	0.43
Reach 1-Upper	572	10YrCHI3Hr	0.14	92.73	92.94	92.86	92.94	0.002847	0.38	0.38	3.03	0.34
Reach 1-Upper	572	25YrCHI3Hr	0.19	92.73	93.01	92.87	93.01	0.001251	0.30	0.62	3.87	0.24
Reach 1-Upper	572	50YrCHI3Hr	0.22	92.73	93.12	92.88	93.12	0.000367	0.19	1.14	5.93	0.13
Reach 1-Upper	572	100YrCHI3Hr	0.26	92.73	93.25	92.90	93.25	0.000064	0.10	4.09	35.88	0.06
Reach 1-Upper	572	2YrSCS24Hr	0.10	92.73	92.88	92.84	92.89	0.005817	0.44	0.22	2.44	0.46
Reach 1-Upper	572	5YrSCS24Hr	0.15	92.73	92.95	92.86	92.96	0.002326	0.36	0.43	3.23	0.31
Reach 1-Upper	572	10YrSCS24Hr	0.19	92.73	93.02	92.88	93.03	0.001095	0.28	0.67	4.01	0.22
Reach 1-Upper	572	25YrSCS24Hr	0.24	92.73	93.24	92.89	93.24	0.000067	0.10	3.72	33.49	0.06
Reach 1-Upper	572	50YrSCS24Hr	0.28	92.73	93.25	92.90	93.25	0.000076	0.11	4.10	35.90	0.06
Reach 1-Upper	572	100YrSCS24Hr	0.33	92.73	93.25	92.92	93.25	0.000102	0.13	4.10	35.94	0.07
Reach 1-Upper	555	2YrCHI3Hr	0.06	92.61	92.81	92.71	92.81	0.000982	0.20	0.32	2.99	0.20
Reach 1-Upper	555	5YrCHI3Hr	0.11	92.61	92.87	92.74	92.87	0.000748	0.21	0.52	3.73	0.18
Reach 1-Upper	555	10YrCHI3Hr	0.14	92.61	92.92	92.75	92.92	0.000505	0.19	0.73	4.38	0.15
Reach 1-Upper	555	25YrCHI3Hr	0.19	92.61	93.00	92.77	93.00	0.000277	0.17	1.12	5.37	0.12
Reach 1-Upper	555	50YrCHI3Hr	0.22	92.61	93.12	92.78	93.12	0.000080	0.11	2.69	31.73	0.07
Reach 1-Upper	555	100YrCHI3Hr	0.26	92.61	93.25	92.79	93.25	0.000015	0.06	7.39	40.94	0.03
Reach 1-Upper	555	2YrSCS24Hr	0.10	92.61	92.85	92.73	92.86	0.000843	0.21	0.46	3.51	0.19
Reach 1-Upper	555	5YrSCS24Hr	0.15	92.61	92.94	92.76	92.94	0.000435	0.19	0.82	4.62	0.14
Reach 1-Upper	555	10YrSCS24Hr	0.19	92.61	93.02	92.77	93.02	0.000251	0.16	1.19	5.53	0.11
Reach 1-Upper	555	25YrSCS24Hr	0.24	92.61	93.24	92.79	93.24	0.000016	0.06	6.96	40.67	0.03
Reach 1-Upper	555	50YrSCS24Hr	0.28	92.61	93.25	92.80	93.25	0.000018	0.07	7.39	40.94	0.03
Reach 1-Upper	555	100YrSCS24Hr	0.33	92.61	93.25	92.81	93.25	0.000025	0.08	7.39	40.94	0.04
Reach 1-Upper	534	2YrCHI3Hr	0.06	92.59	92.79	92.69	92.79	0.001542	0.25	0.26	2.47	0.24
Reach 1-Upper	534	5YrCHI3Hr	0.11	92.59	92.85	92.72	92.86	0.001007	0.24	0.46	3.30	0.21
Reach 1-Upper	534	10YrCHI3Hr	0.14	92.59	92.91	92.74	92.91	0.000612	0.21	0.68	6.64	0.17
Reach 1-Upper	534	25YrCHI3Hr	0.19	92.59	93.00	92.76	93.00	0.000148	0.12	2.58	34.75	0.09
Reach 1-Upper	534	50YrCHI3Hr	0.22	92.59	93.12	92.77	93.12	0.000015	0.05	8.09	50.92	0.03
Reach 1-Upper	534	100YrCHI3Hr	0.26	92.59	93.25	92.78	93.25	0.000003	0.03	14.61	51.39	0.01
Reach 1-Upper	534	2YrSCS24Hr	0.10	92.59	92.83	92.71	92.84	0.001197	0.25	0.39	3.05	0.22
Reach 1-Upper	534	5YrSCS24Hr	0.15	92.59	92.93	92.74	92.93	0.000491	0.20	0.89	13.42	0.15
Reach 1-Upper	534	10YrSCS24Hr	0.19	92.59	93.01	92.76	93.01	0.000110	0.11	3.08	38.60	0.07
Reach 1-Upper	534	25YrSCS24Hr	0.24	92.59	93.24	92.78	93.24	0.000003	0.03	14.06	51.35	0.01
Reach 1-Upper	534	50YrSCS24Hr	0.28	92.59	93.25	92.79	93.25	0.000004	0.03	14.61	51.39	0.02
Reach 1-Upper	534	100YrSCS24Hr	0.33	92.59	93.25	92.80	93.25	0.000005	0.04	14.61	51.39	0.02
Reach 1-Upper	510	2YrCHI3Hr	0.06	92.60	92.72	92.68	92.73	0.004446	0.41	0.16	2.77	0.41
Reach 1-Upper	510	5YrCHI3Hr	0.11	92.60	92.82	92.70	92.83	0.001169	0.34	0.32	4.18	0.24
Reach 1-Upper	510	10YrCHI3Hr	0.14	92.60	92.89	92.71	92.90	0.000746	0.33	0.43	5.14	0.20
Reach 1-Upper	510	25YrCHI3Hr	0.19	92.60	92.99	92.73	92.99	0.000465	0.32	0.59	11.84	0.17
Reach 1-Upper	510	50YrCHI3Hr	0.22	92.60	93.11	92.75	93.12	0.000243	0.28	0.79	109.05	0.13
Reach 1-Upper	510	100YrCHI3Hr	0.26	92.60	93.25	92.76	93.25	0.000000	0.01	42.37	109.53	0.00
Reach 1-Upper	510	2YrSCS24Hr	0.10	92.60	92.80	92.69	92.80	0.001471	0.34	0.28	3.82	0.26
Reach 1-Upper	510	5YrSCS24Hr	0.15	92.60	92.91	92.72	92.92	0.000658	0.32	0.47	5.55	0.19
Reach 1-Upper	510	10YrSCS24Hr	0.19	92.60	93.00	92.73	93.01	0.000435	0.31	0.61	13.01	0.16
Reach 1-Upper	510	25YrSCS24Hr	0.24	92.60	93.24	92.75	93.24	0.000000	0.01	41.20	109.49	0.00
Reach 1-Upper	510	50YrSCS24Hr	0.28	92.60	93.25	92.77	93.25	0.000000	0.01	42.37	109.53	0.00
Reach 1-Upper	510	100YrSCS24Hr	0.33	92.60	93.25	92.78	93.25	0.000000	0.01	42.37	109.53	0.01
Reach 1-Upper	505		Culvert									
Reach 1-Upper	502	2YrCHI3Hr	0.07	92.49	92.61	92.57	92.62	0.007737	0.51	0.14	2.26	0.54
Reach 1-Upper	502	5YrCHI3Hr	0.12	92.49	92.65	92.60	92.67	0.006529	0.60	0.20	2.74	0.53
Reach 1-Upper	502	10YrCHI3Hr	0.16	92.49	92.67	92.62	92.70	0.006103	0.66	0.24	3.03	0.52
Reach 1-Upper	502	25YrCHI3Hr	0.21	92.49	92.72	92.64	92.74	0.004564	0.67	0.31	3.72	0.47
Reach 1-Upper	502	50YrCHI3Hr	0.25	92.49	92.80	92.65	92.82	0.002112	0.57	0.43	5.24	0.34
Reach 1-Upper	502	100YrCHI3Hr	0.29	92.49	92.93	92.67	92.94	0.000855	0.47	0.63	7.55	0.23
Reach 1-Upper	502	2YrSCS24Hr	0.11	92.49	92.64	92.59	92.65	0.006707	0.58	0.19	2.62	0.53
Reach 1-Upper	502	5YrSCS24Hr	0.17	92.49	92.68	92.62	92.71	0.005738	0.66	0.26	3.15	0.51
Reach 1-Upper	502	10YrSCS24Hr	0.22	92.49	92.73	92.64	92.75	0.004158	0.66	0.33	3.95	0.45
Reach 1-Upper	502	25YrSCS24Hr	0.27	92.49	92.87	92.66	92.88	0.001286	0.51	0.53	6.24	0.27
Reach 1-Upper	502	50YrSCS24Hr	0.32	92.49	93.02	92.68	93.03	0.000528	0.42	0.76	104.88	0.19
Reach 1-Upper	502	100YrSCS24Hr	0.37	92.49	93.23	92.70	93.24	0.000228	0.34	1.08	105.45	0.13
Reach 1-Upper	493	2YrCHI3Hr	0.07	92.34	92.61	92.42	92.61	0.000133	0.10	0.75	4.68	0.08
Reach 1-Upper	493	5YrCHI3Hr	0.12	92.34	92.65	92.45	92.65	0.000201	0.13	0.96	5.45	0.10
Reach 1-Upper	493	10YrCHI3Hr	0.16	92.34	92.68	92.46	92.68	0.000231	0.14	1.12	5.93	0.10
Reach 1-Upper	493	25YrCHI3Hr	0.21	92.34	92.73	92.47	92.73	0.000214	0.15	1.42	6.71	0.10
Reach 1-Upper	493	50YrCHI3Hr	0.25	92.34	92.81	92.49	92.81	0.000122	0.12	2.01	8.05	0.08
Reach 1-Upper	493	100YrCHI3Hr	0.29	92.34	92.94	92.50	92.94	0.000003	0.02	22.75	101.14	0.01
Reach 1-Upper	493	2YrSCS24Hr	0.11	92.34	92.64	92.44	92.64	0.000184	0.12	0.90	5.25	0.09
Reach 1-Upper	493	5YrSCS24Hr	0.17	92.34	92.69	92.46	92.69	0.000232	0.14	1.18	6.13	0.11
Reach 1-Upper	493	10YrSCS24Hr	0.22	92.34	92.74	92.48	92.74	0.000200	0.15	1.49	6.81	0.10
Reach 1-Upper	493	25YrSCS24Hr	0.27	92.34	92.87	92.49	92.87	0.000073	0.11	2.58	9.70	0.06

HEC-RAS Plan: 20250910-Post_Dev_v02 River: River 1 Reach: Reach 1-Upper (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1-Upper	493	50YrSCS24Hr	0.32	92.34	93.03	92.50	93.03	0.000001	0.02	31.90	101.53	0.01
Reach 1-Upper	493	100YrSCS24Hr	0.37	92.34	93.23	92.52	93.23	0.000000	0.01	52.95	102.61	0.00
Reach 1-Upper	474	2YrCHI3Hr	0.07	92.41	92.60	92.50	92.60	0.000597	0.15	0.49	5.07	0.15
Reach 1-Upper	474	5YrCHI3Hr	0.12	92.41	92.64	92.53	92.65	0.000602	0.17	0.72	5.95	0.16
Reach 1-Upper	474	10YrCHI3Hr	0.16	92.41	92.67	92.54	92.67	0.000570	0.18	0.88	6.52	0.16
Reach 1-Upper	474	25YrCHI3Hr	0.21	92.41	92.72	92.55	92.72	0.000404	0.17	1.23	7.58	0.13
Reach 1-Upper	474	50YrCHI3Hr	0.25	92.41	92.81	92.56	92.81	0.000152	0.13	1.98	11.32	0.09
Reach 1-Upper	474	100YrCHI3Hr	0.29	92.41	92.94	92.57	92.94	0.000001	0.01	34.63	91.93	0.01
Reach 1-Upper	474	2YrSCS24Hr	0.11	92.41	92.63	92.52	92.64	0.000604	0.16	0.66	5.73	0.16
Reach 1-Upper	474	5YrSCS24Hr	0.17	92.41	92.68	92.54	92.68	0.000532	0.18	0.96	6.77	0.15
Reach 1-Upper	474	10YrSCS24Hr	0.22	92.41	92.73	92.56	92.73	0.000363	0.16	1.31	7.81	0.13
Reach 1-Upper	474	25YrSCS24Hr	0.27	92.41	92.87	92.57	92.87	0.000001	0.01	28.89	91.64	0.01
Reach 1-Upper	474	50YrSCS24Hr	0.32	92.41	93.03	92.58	93.03	0.000000	0.01	42.95	92.33	0.00
Reach 1-Upper	474	100YrSCS24Hr	0.37	92.41	93.23	92.59	93.23	0.000000	0.01	62.09	93.27	0.00
Reach 1-Upper	454	2YrCHI3Hr	0.07	92.44	92.58	92.51	92.59	0.001604	0.25	0.29	2.89	0.25
Reach 1-Upper	454	5YrCHI3Hr	0.12	92.44	92.62	92.53	92.63	0.001687	0.29	0.42	3.32	0.26
Reach 1-Upper	454	10YrCHI3Hr	0.16	92.44	92.65	92.54	92.66	0.001616	0.31	0.51	3.60	0.26
Reach 1-Upper	454	25YrCHI3Hr	0.21	92.44	92.70	92.56	92.71	0.001084	0.29	0.72	4.18	0.22
Reach 1-Upper	454	50YrCHI3Hr	0.25	92.44	92.80	92.57	92.80	0.000421	0.22	1.17	5.42	0.14
Reach 1-Upper	454	100YrCHI3Hr	0.29	92.44	92.94	92.58	92.94	0.000003	0.02	20.32	83.17	0.01
Reach 1-Upper	454	2YrSCS24Hr	0.11	92.44	92.61	92.52	92.62	0.001708	0.28	0.38	3.20	0.26
Reach 1-Upper	454	5YrSCS24Hr	0.17	92.44	92.66	92.55	92.67	0.001485	0.31	0.56	3.74	0.25
Reach 1-Upper	454	10YrSCS24Hr	0.22	92.44	92.72	92.56	92.72	0.000949	0.28	0.77	4.30	0.21
Reach 1-Upper	454	25YrSCS24Hr	0.27	92.44	92.87	92.58	92.87	0.000007	0.03	15.12	82.99	0.02
Reach 1-Upper	454	50YrSCS24Hr	0.32	92.44	93.03	92.59	93.03	0.000001	0.02	27.84	83.45	0.01
Reach 1-Upper	454	100YrSCS24Hr	0.37	92.44	93.23	92.60	93.23	0.000000	0.01	45.11	84.07	0.01
Reach 1-Upper	434	2YrCHI3Hr	0.07	92.42	92.54	92.49	92.54	0.003131	0.30	0.24	2.93	0.33
Reach 1-Upper	434	5YrCHI3Hr	0.12	92.42	92.58	92.51	92.59	0.002184	0.32	0.39	3.35	0.30
Reach 1-Upper	434	10YrCHI3Hr	0.16	92.42	92.61	92.52	92.62	0.001764	0.32	0.50	3.63	0.27
Reach 1-Upper	434	25YrCHI3Hr	0.21	92.42	92.70	92.53	92.70	0.000136	0.10	3.47	39.92	0.08
Reach 1-Upper	434	50YrCHI3Hr	0.25	92.42	92.80	92.55	92.80	0.000022	0.05	9.17	73.84	0.03
Reach 1-Upper	434	100YrCHI3Hr	0.29	92.42	92.94	92.56	92.94	0.000003	0.03	19.34	74.32	0.01
Reach 1-Upper	434	2YrSCS24Hr	0.11	92.42	92.57	92.50	92.57	0.002416	0.31	0.34	3.23	0.31
Reach 1-Upper	434	5YrSCS24Hr	0.17	92.42	92.63	92.52	92.64	0.001606	0.31	0.56	4.00	0.26
Reach 1-Upper	434	10YrSCS24Hr	0.22	92.42	92.71	92.54	92.71	0.000108	0.09	4.02	43.59	0.07
Reach 1-Upper	434	25YrSCS24Hr	0.27	92.42	92.87	92.55	92.87	0.000006	0.03	14.69	74.10	0.02
Reach 1-Upper	434	50YrSCS24Hr	0.32	92.42	93.03	92.56	93.03	0.000001	0.02	26.07	74.63	0.01
Reach 1-Upper	434	100YrSCS24Hr	0.37	92.42	93.23	92.57	93.23	0.000000	0.01	41.53	75.37	0.01
Reach 1-Upper	416	2YrCHI3Hr	0.07	92.34	92.52	92.42	92.52	0.000594	0.15	0.47	4.81	0.15
Reach 1-Upper	416	5YrCHI3Hr	0.12	92.34	92.57	92.45	92.57	0.000421	0.17	0.75	5.85	0.14
Reach 1-Upper	416	10YrCHI3Hr	0.16	92.34	92.61	92.46	92.61	0.000173	0.13	2.14	28.43	0.09
Reach 1-Upper	416	25YrCHI3Hr	0.21	92.34	92.70	92.47	92.70	0.000038	0.08	4.95	34.66	0.05
Reach 1-Upper	416	50YrCHI3Hr	0.25	92.34	92.80	92.48	92.80	0.000012	0.05	8.86	43.80	0.03
Reach 1-Upper	416	100YrCHI3Hr	0.29	92.34	92.94	92.49	92.94	0.000004	0.04	16.28	66.50	0.02
Reach 1-Upper	416	2YrSCS24Hr	0.11	92.34	92.56	92.44	92.56	0.000460	0.17	0.67	5.57	0.14
Reach 1-Upper	416	5YrSCS24Hr	0.17	92.34	92.63	92.46	92.63	0.000124	0.11	2.65	29.68	0.08
Reach 1-Upper	416	10YrSCS24Hr	0.22	92.34	92.71	92.47	92.71	0.000032	0.07	5.42	35.57	0.04
Reach 1-Upper	416	25YrSCS24Hr	0.27	92.34	92.87	92.49	92.87	0.000006	0.04	12.48	53.40	0.02
Reach 1-Upper	416	50YrSCS24Hr	0.32	92.34	93.03	92.49	93.03	0.000002	0.03	22.33	67.07	0.01
Reach 1-Upper	416	100YrSCS24Hr	0.37	92.34	93.23	92.50	93.23	0.000001	0.02	36.24	67.81	0.01
Reach 1-Upper	398	2YrCHI3Hr	0.07	92.28	92.50	92.40	92.51	0.000938	0.22	0.33	2.54	0.20
Reach 1-Upper	398	5YrCHI3Hr	0.12	92.28	92.56	92.42	92.56	0.000913	0.26	0.48	2.86	0.20
Reach 1-Upper	398	10YrCHI3Hr	0.16	92.28	92.60	92.44	92.61	0.000768	0.26	0.61	3.13	0.19
Reach 1-Upper	398	25YrCHI3Hr	0.21	92.28	92.70	92.46	92.70	0.000401	0.23	0.93	4.03	0.14
Reach 1-Upper	398	50YrCHI3Hr	0.25	92.28	92.80	92.47	92.80	0.000150	0.16	2.51	35.14	0.09
Reach 1-Upper	398	100YrCHI3Hr	0.29	92.28	92.94	92.48	92.94	0.000018	0.07	9.30	58.44	0.03
Reach 1-Upper	398	2YrSCS24Hr	0.11	92.28	92.54	92.42	92.55	0.000934	0.25	0.43	2.78	0.20
Reach 1-Upper	398	5YrSCS24Hr	0.17	92.28	92.62	92.44	92.62	0.000689	0.26	0.67	3.24	0.18
Reach 1-Upper	398	10YrSCS24Hr	0.22	92.28	92.71	92.46	92.71	0.000365	0.22	0.99	4.50	0.14
Reach 1-Upper	398	25YrSCS24Hr	0.27	92.28	92.87	92.48	92.87	0.000042	0.10	5.90	48.09	0.05
Reach 1-Upper	398	50YrSCS24Hr	0.32	92.28	93.03	92.49	93.03	0.000006	0.04	14.60	58.70	0.02
Reach 1-Upper	398	100YrSCS24Hr	0.37	92.28	93.23	92.50	93.23	0.000001	0.02	26.77	59.29	0.01
Reach 1-Upper	383	2YrCHI3Hr	0.07	92.34	92.47	92.42	92.48	0.004360	0.39	0.19	1.94	0.40
Reach 1-Upper	383	5YrCHI3Hr	0.12	92.34	92.53	92.45	92.54	0.002848	0.39	0.31	2.30	0.34
Reach 1-Upper	383	10YrCHI3Hr	0.16	92.34	92.58	92.46	92.59	0.001812	0.36	0.43	2.59	0.28
Reach 1-Upper	383	25YrCHI3Hr	0.21	92.34	92.69	92.48	92.69	0.000720	0.28	0.74	3.18	0.19
Reach 1-Upper	383	50YrCHI3Hr	0.25	92.34	92.79	92.50	92.80	0.000334	0.22	1.11	3.78	0.13
Reach 1-Upper	383	100YrCHI3Hr	0.29	92.34	92.93	92.51	92.94	0.000138	0.17	1.71	4.83	0.09
Reach 1-Upper	383	2YrSCS24Hr	0.11	92.34	92.51	92.44	92.52	0.003235	0.40	0.27	2.21	0.36
Reach 1-Upper	383	5YrSCS24Hr	0.17	92.34	92.60	92.47	92.61	0.001493	0.35	0.49	2.71	0.26
Reach 1-Upper	383	10YrSCS24Hr	0.22	92.34	92.70	92.49	92.70	0.000650	0.28	0.78	3.26	0.18
Reach 1-Upper	383	25YrSCS24Hr	0.27	92.34	92.87	92.51	92.87	0.000205	0.19	1.42	4.21	0.11
Reach 1-Upper	383	50YrSCS24Hr	0.32	92.34	93.03	92.52	93.03	0.000014	0.06	10.30	51.61	0.03
Reach 1-Upper	383	100YrSCS24Hr	0.37	92.34	93.23	92.53	93.23	0.000002	0.03	21.02	52.21	0.01
Reach 1-Upper	364	2YrCHI3Hr	0.07	92.23	92.43	92.33	92.44	0.001347	0.27	0.27	2.04	0.23
Reach 1-Upper	364	5YrCHI3Hr	0.12	92.23	92.50	92.36	92.51	0.001091	0.29	0.42	2.38	0.22

HEC-RAS Plan: 20250910-Post_Dev_v02 River: River 1 Reach: Reach 1-Upper (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1-Upper	364	10YrCHI3Hr	0.16	92.23	92.56	92.38	92.57	0.000763	0.28	0.57	2.68	0.19
Reach 1-Upper	364	25YrCHI3Hr	0.21	92.23	92.68	92.40	92.68	0.000366	0.23	0.92	3.24	0.14
Reach 1-Upper	364	50YrCHI3Hr	0.25	92.23	92.79	92.41	92.79	0.000203	0.19	1.31	3.88	0.11
Reach 1-Upper	364	100YrCHI3Hr	0.29	92.23	92.93	92.43	92.93	0.000094	0.15	1.98	5.87	0.07
Reach 1-Upper	364	2YrSCS24Hr	0.11	92.23	92.48	92.35	92.49	0.001191	0.29	0.37	2.28	0.23
Reach 1-Upper	364	5YrSCS24Hr	0.17	92.23	92.59	92.38	92.59	0.000655	0.27	0.64	2.80	0.18
Reach 1-Upper	364	10YrSCS24Hr	0.22	92.23	92.69	92.40	92.70	0.000339	0.22	0.97	3.32	0.13
Reach 1-Upper	364	25YrSCS24Hr	0.27	92.23	92.87	92.42	92.87	0.000135	0.17	1.64	4.67	0.09
Reach 1-Upper	364	50YrSCS24Hr	0.32	92.23	93.03	92.44	93.03	0.000033	0.10	5.95	44.01	0.05
Reach 1-Upper	364	100YrSCS24Hr	0.37	92.23	93.23	92.45	93.23	0.000005	0.04	15.12	44.59	0.02
Reach 1-Upper	347	2YrCHI3Hr	0.07	92.26	92.41	92.33	92.41	0.001311	0.25	0.29	2.48	0.23
Reach 1-Upper	347	5YrCHI3Hr	0.12	92.26	92.49	92.35	92.49	0.000799	0.25	0.49	2.81	0.19
Reach 1-Upper	347	10YrCHI3Hr	0.16	92.26	92.55	92.36	92.56	0.000505	0.23	0.69	3.09	0.16
Reach 1-Upper	347	25YrCHI3Hr	0.21	92.26	92.67	92.38	92.68	0.000235	0.19	1.09	3.61	0.11
Reach 1-Upper	347	50YrCHI3Hr	0.25	92.26	92.79	92.39	92.79	0.000131	0.16	1.52	4.09	0.09
Reach 1-Upper	347	100YrCHI3Hr	0.29	92.26	92.93	92.41	92.93	0.000067	0.13	2.17	5.17	0.06
Reach 1-Upper	347	2YrSCS24Hr	0.11	92.26	92.46	92.34	92.47	0.000924	0.25	0.43	2.71	0.20
Reach 1-Upper	347	5YrSCS24Hr	0.17	92.26	92.58	92.37	92.58	0.000426	0.22	0.77	3.20	0.14
Reach 1-Upper	347	10YrSCS24Hr	0.22	92.26	92.69	92.38	92.69	0.000218	0.19	1.15	3.67	0.11
Reach 1-Upper	347	25YrSCS24Hr	0.27	92.26	92.87	92.40	92.87	0.000091	0.15	1.87	4.46	0.07
Reach 1-Upper	347	50YrSCS24Hr	0.32	92.26	93.03	92.41	93.03	0.000042	0.12	2.84	10.46	0.05
Reach 1-Upper	347	100YrSCS24Hr	0.37	92.26	93.23	92.43	93.23	0.000008	0.06	10.68	37.82	0.02
Reach 1-Upper	328	2YrCHI3Hr	0.07	92.20	92.38	92.29	92.38	0.001752	0.30	0.24	1.87	0.27
Reach 1-Upper	328	5YrCHI3Hr	0.12	92.20	92.47	92.32	92.47	0.001008	0.29	0.42	2.25	0.21
Reach 1-Upper	328	10YrCHI3Hr	0.16	92.20	92.54	92.33	92.54	0.000638	0.26	0.60	2.55	0.17
Reach 1-Upper	328	25YrCHI3Hr	0.21	92.20	92.67	92.36	92.67	0.000304	0.22	0.95	3.08	0.13
Reach 1-Upper	328	50YrCHI3Hr	0.25	92.20	92.78	92.37	92.78	0.000178	0.19	1.34	3.69	0.10
Reach 1-Upper	328	100YrCHI3Hr	0.29	92.20	92.93	92.39	92.93	0.000093	0.15	1.96	4.66	0.07
Reach 1-Upper	328	2YrSCS24Hr	0.11	92.20	92.44	92.31	92.45	0.001172	0.29	0.37	2.14	0.23
Reach 1-Upper	328	5YrSCS24Hr	0.17	92.20	92.57	92.34	92.57	0.000541	0.26	0.67	2.67	0.16
Reach 1-Upper	328	10YrSCS24Hr	0.22	92.20	92.68	92.36	92.69	0.000283	0.22	1.00	3.14	0.12
Reach 1-Upper	328	25YrSCS24Hr	0.27	92.20	92.86	92.38	92.87	0.000127	0.16	1.67	4.31	0.08
Reach 1-Upper	328	50YrSCS24Hr	0.32	92.20	93.02	92.40	93.02	0.000064	0.13	2.44	5.46	0.06
Reach 1-Upper	328	100YrSCS24Hr	0.37	92.20	93.23	92.41	93.23	0.000014	0.07	8.02	29.79	0.03
Reach 1-Upper	306	2YrCHI3Hr	0.07	92.07	92.36	92.19	92.36	0.000723	0.26	0.28	1.53	0.18
Reach 1-Upper	306	5YrCHI3Hr	0.12	92.07	92.45	92.22	92.45	0.000687	0.30	0.40	1.84	0.18
Reach 1-Upper	306	10YrCHI3Hr	0.16	92.07	92.53	92.25	92.53	0.000564	0.31	0.51	2.11	0.17
Reach 1-Upper	306	25YrCHI3Hr	0.21	92.07	92.66	92.27	92.66	0.000340	0.29	0.71	2.60	0.14
Reach 1-Upper	306	50YrCHI3Hr	0.25	92.07	92.78	92.29	92.78	0.000232	0.28	0.89	3.10	0.12
Reach 1-Upper	306	100YrCHI3Hr	0.29	92.07	92.92	92.31	92.93	0.000151	0.26	1.11	3.98	0.10
Reach 1-Upper	306	2YrSCS24Hr	0.11	92.07	92.42	92.22	92.43	0.000711	0.29	0.37	1.75	0.18
Reach 1-Upper	306	5YrSCS24Hr	0.17	92.07	92.56	92.26	92.56	0.000514	0.31	0.56	2.21	0.16
Reach 1-Upper	306	10YrSCS24Hr	0.22	92.07	92.67	92.28	92.68	0.000325	0.29	0.74	2.67	0.13
Reach 1-Upper	306	25YrSCS24Hr	0.27	92.07	92.86	92.31	92.86	0.000182	0.27	1.01	3.45	0.11
Reach 1-Upper	306	50YrSCS24Hr	0.32	92.07	93.02	92.32	93.02	0.000121	0.25	1.25	4.84	0.09
Reach 1-Upper	306	100YrSCS24Hr	0.37	92.07	93.23	92.34	93.23	0.000077	0.24	1.57	20.82	0.07
Reach 1-Upper	300		Culvert									
Reach 1-Upper	294	2YrCHI3Hr	0.07	92.15	92.32	92.23	92.33	0.001574	0.32	0.23	2.11	0.26
Reach 1-Upper	294	5YrCHI3Hr	0.12	92.15	92.37	92.26	92.38	0.001843	0.41	0.30	2.35	0.30
Reach 1-Upper	294	10YrCHI3Hr	0.16	92.15	92.39	92.27	92.40	0.002090	0.48	0.33	2.47	0.32
Reach 1-Upper	294	25YrCHI3Hr	0.21	92.15	92.42	92.30	92.44	0.002418	0.56	0.38	2.62	0.35
Reach 1-Upper	294	50YrCHI3Hr	0.25	92.15	92.44	92.31	92.46	0.002632	0.61	0.41	2.73	0.37
Reach 1-Upper	294	100YrCHI3Hr	0.29	92.15	92.46	92.33	92.49	0.002788	0.66	0.44	2.84	0.39
Reach 1-Upper	294	2YrSCS24Hr	0.11	92.15	92.36	92.25	92.36	0.001772	0.39	0.28	2.29	0.29
Reach 1-Upper	294	5YrSCS24Hr	0.17	92.15	92.40	92.28	92.41	0.002190	0.50	0.34	2.51	0.33
Reach 1-Upper	294	10YrSCS24Hr	0.22	92.15	92.42	92.30	92.44	0.002481	0.57	0.38	2.64	0.36
Reach 1-Upper	294	25YrSCS24Hr	0.27	92.15	92.45	92.32	92.48	0.002750	0.64	0.43	2.79	0.39
Reach 1-Upper	294	50YrSCS24Hr	0.32	92.15	92.48	92.34	92.50	0.002924	0.70	0.46	2.90	0.40
Reach 1-Upper	294	100YrSCS24Hr	0.37	92.15	92.50	92.35	92.53	0.003160	0.76	0.49	3.01	0.42
Reach 1-Upper	279	2YrCHI3Hr	0.09	92.08	92.21	92.21	92.25	0.030968	0.83	0.10	1.54	1.01
Reach 1-Upper	279	5YrCHI3Hr	0.15	92.08	92.25	92.24	92.29	0.025757	0.90	0.16	1.85	0.97
Reach 1-Upper	279	10YrCHI3Hr	0.20	92.08	92.28		92.32	0.017921	0.87	0.23	2.03	0.83
Reach 1-Upper	279	25YrCHI3Hr	0.26	92.08	92.31		92.35	0.013590	0.86	0.30	2.25	0.75
Reach 1-Upper	279	50YrCHI3Hr	0.31	92.08	92.34		92.38	0.011935	0.87	0.36	2.40	0.71
Reach 1-Upper	279	100YrCHI3Hr	0.37	92.08	92.36		92.40	0.010878	0.88	0.42	2.54	0.69
Reach 1-Upper	279	2YrSCS24Hr	0.13	92.08	92.24	92.24	92.28	0.028026	0.89	0.15	1.77	1.00
Reach 1-Upper	279	5YrSCS24Hr	0.21	92.08	92.29		92.33	0.016973	0.87	0.24	2.08	0.82
Reach 1-Upper	279	10YrSCS24Hr	0.27	92.08	92.32		92.36	0.013275	0.86	0.31	2.27	0.74
Reach 1-Upper	279	25YrSCS24Hr	0.34	92.08	92.35		92.39	0.011320	0.87	0.39	2.47	0.70
Reach 1-Upper	279	50YrSCS24Hr	0.40	92.08	92.38		92.42	0.010426	0.89	0.45	2.61	0.68
Reach 1-Upper	279	100YrSCS24Hr	0.47	92.08	92.40		92.44	0.009682	0.90	0.52	2.76	0.67
Reach 1-Upper	277	2YrCHI3Hr	0.09	91.95	92.21		92.21	0.000715	0.22	0.40	2.73	0.18
Reach 1-Upper	277	5YrCHI3Hr	0.15	91.95	92.26		92.26	0.000859	0.28	0.55	3.02	0.20
Reach 1-Upper	277	10YrCHI3Hr	0.20	91.95	92.29		92.29	0.000926	0.32	0.64	3.19	0.21
Reach 1-Upper	277	25YrCHI3Hr	0.26	91.95	92.32		92.33	0.000998	0.37	0.75	3.39	0.23
Reach 1-Upper	277	50YrCHI3Hr	0.31	91.95	92.35		92.36	0.001055	0.40	0.84	3.52	0.24

HEC-RAS Plan: 20250910-Post_Dev_v02 River: River 1 Reach: Reach 1-Upper (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1-Upper	277	100YrCHI3Hr	0.37	91.95	92.37		92.38	0.001115	0.43	0.92	3.65	0.25
Reach 1-Upper	277	2YrSCS24Hr	0.13	91.95	92.25		92.25	0.000829	0.26	0.51	2.95	0.20
Reach 1-Upper	277	5YrSCS24Hr	0.21	91.95	92.30		92.30	0.000956	0.33	0.66	3.23	0.22
Reach 1-Upper	277	10YrSCS24Hr	0.27	91.95	92.33		92.34	0.001007	0.37	0.77	3.41	0.23
Reach 1-Upper	277	25YrSCS24Hr	0.34	91.95	92.36		92.37	0.001088	0.42	0.88	3.60	0.24
Reach 1-Upper	277	50YrSCS24Hr	0.40	91.95	92.39		92.40	0.001147	0.45	0.97	3.73	0.25
Reach 1-Upper	277	100YrSCS24Hr	0.47	91.95	92.41		92.42	0.001203	0.48	1.06	3.86	0.26
Reach 1-Upper	270	2YrCHI3Hr	0.09	92.03	92.20		92.20	0.001702	0.28	0.31	2.65	0.26
Reach 1-Upper	270	5YrCHI3Hr	0.15	92.03	92.25		92.26	0.001752	0.33	0.45	3.08	0.28
Reach 1-Upper	270	10YrCHI3Hr	0.20	92.03	92.28		92.29	0.001743	0.36	0.54	3.36	0.28
Reach 1-Upper	270	25YrCHI3Hr	0.26	92.03	92.31		92.32	0.001731	0.40	0.67	3.69	0.29
Reach 1-Upper	270	50YrCHI3Hr	0.31	92.03	92.34		92.35	0.001733	0.42	0.76	3.96	0.29
Reach 1-Upper	270	100YrCHI3Hr	0.37	92.03	92.36		92.37	0.001677	0.44	0.86	4.77	0.29
Reach 1-Upper	270	2YrSCS24Hr	0.13	92.03	92.24		92.24	0.001762	0.32	0.41	2.96	0.27
Reach 1-Upper	270	5YrSCS24Hr	0.21	92.03	92.29		92.29	0.001769	0.37	0.57	3.43	0.28
Reach 1-Upper	270	10YrSCS24Hr	0.27	92.03	92.32		92.33	0.001732	0.40	0.68	3.72	0.29
Reach 1-Upper	270	25YrSCS24Hr	0.34	92.03	92.35		92.36	0.001702	0.43	0.81	4.41	0.29
Reach 1-Upper	270	50YrSCS24Hr	0.40	92.03	92.38		92.39	0.001650	0.45	0.93	5.21	0.29
Reach 1-Upper	270	100YrSCS24Hr	0.47	92.03	92.40		92.41	0.001589	0.48	1.06	5.67	0.29
Reach 1-Upper	261	2YrCHI3Hr	0.09	92.00	92.18	92.10	92.19	0.002251	0.33	0.26	2.11	0.30
Reach 1-Upper	261	5YrCHI3Hr	0.15	92.00	92.23	92.13	92.24	0.002551	0.41	0.36	2.34	0.33
Reach 1-Upper	261	10YrCHI3Hr	0.20	92.00	92.26	92.15	92.27	0.002717	0.45	0.43	2.48	0.35
Reach 1-Upper	261	25YrCHI3Hr	0.26	92.00	92.29	92.17	92.30	0.002863	0.50	0.52	2.64	0.36
Reach 1-Upper	261	50YrCHI3Hr	0.31	92.00	92.31	92.19	92.33	0.002989	0.54	0.58	2.75	0.38
Reach 1-Upper	261	100YrCHI3Hr	0.37	92.00	92.34	92.21	92.35	0.003096	0.57	0.64	2.86	0.39
Reach 1-Upper	261	2YrSCS24Hr	0.13	92.00	92.22	92.12	92.22	0.002475	0.39	0.33	2.28	0.32
Reach 1-Upper	261	5YrSCS24Hr	0.21	92.00	92.26	92.16	92.28	0.002821	0.47	0.45	2.51	0.36
Reach 1-Upper	261	10YrSCS24Hr	0.27	92.00	92.29	92.18	92.31	0.002885	0.51	0.53	2.66	0.37
Reach 1-Upper	261	25YrSCS24Hr	0.34	92.00	92.33	92.20	92.34	0.003049	0.56	0.61	2.81	0.38
Reach 1-Upper	261	50YrSCS24Hr	0.40	92.00	92.36	92.22	92.37	0.003150	0.59	0.68	2.92	0.39
Reach 1-Upper	261	100YrSCS24Hr	0.47	92.00	92.37	92.23	92.39	0.003253	0.62	0.75	3.06	0.40
Reach 1-Upper	239	2YrCHI3Hr	0.09	91.93	92.05	92.04	92.07	0.017641	0.69	0.12	1.58	0.78
Reach 1-Upper	239	5YrCHI3Hr	0.15	91.93	92.09	92.07	92.12	0.014089	0.75	0.20	1.89	0.73
Reach 1-Upper	239	10YrCHI3Hr	0.20	91.93	92.12	92.09	92.15	0.012625	0.78	0.25	2.05	0.71
Reach 1-Upper	239	25YrCHI3Hr	0.26	91.93	92.15	92.11	92.18	0.011287	0.82	0.32	2.22	0.69
Reach 1-Upper	239	50YrCHI3Hr	0.31	91.93	92.17	92.13	92.21	0.010600	0.84	0.37	2.34	0.68
Reach 1-Upper	239	100YrCHI3Hr	0.37	91.93	92.20	92.15	92.23	0.010052	0.87	0.42	2.45	0.67
Reach 1-Upper	239	2YrSCS24Hr	0.13	91.93	92.08	92.06	92.11	0.014856	0.73	0.18	1.80	0.74
Reach 1-Upper	239	5YrSCS24Hr	0.21	91.93	92.13	92.10	92.16	0.012234	0.79	0.27	2.09	0.70
Reach 1-Upper	239	10YrSCS24Hr	0.27	91.93	92.15	92.12	92.19	0.011165	0.82	0.33	2.24	0.69
Reach 1-Upper	239	25YrSCS24Hr	0.34	91.93	92.19	92.14	92.22	0.010287	0.86	0.40	2.40	0.67
Reach 1-Upper	239	50YrSCS24Hr	0.40	91.93	92.21	92.16	92.25	0.009763	0.88	0.45	2.52	0.66
Reach 1-Upper	239	100YrSCS24Hr	0.47	91.93	92.23	92.17	92.27	0.009233	0.90	0.52	2.64	0.65
Reach 1-Upper	218	2YrCHI3Hr	0.09	91.82	91.97	91.90	91.98	0.002011	0.30	0.29	2.50	0.28
Reach 1-Upper	218	5YrCHI3Hr	0.15	91.82	92.02	91.92	92.02	0.002154	0.37	0.41	2.72	0.30
Reach 1-Upper	218	10YrCHI3Hr	0.20	91.82	92.05	91.94	92.05	0.002195	0.40	0.49	2.86	0.31
Reach 1-Upper	218	25YrCHI3Hr	0.26	91.82	92.08	91.96	92.09	0.002317	0.45	0.58	3.01	0.33
Reach 1-Upper	218	50YrCHI3Hr	0.31	91.82	92.10	91.97	92.11	0.002380	0.48	0.65	3.13	0.34
Reach 1-Upper	218	100YrCHI3Hr	0.37	91.82	92.12	91.99	92.14	0.002427	0.51	0.72	3.24	0.34
Reach 1-Upper	218	2YrSCS24Hr	0.13	91.82	92.00	91.92	92.01	0.002121	0.35	0.37	2.66	0.30
Reach 1-Upper	218	5YrSCS24Hr	0.21	91.82	92.05	91.94	92.06	0.002229	0.42	0.51	2.90	0.32
Reach 1-Upper	218	10YrSCS24Hr	0.27	91.82	92.08	91.96	92.09	0.002328	0.45	0.59	3.03	0.33
Reach 1-Upper	218	25YrSCS24Hr	0.34	91.82	92.11	91.98	92.13	0.002406	0.50	0.69	3.19	0.34
Reach 1-Upper	218	50YrSCS24Hr	0.40	91.82	92.14	92.00	92.15	0.002454	0.52	0.77	3.31	0.35
Reach 1-Upper	218	100YrSCS24Hr	0.47	91.82	92.16	92.01	92.18	0.002479	0.55	0.85	3.47	0.35
Reach 1-Upper	197	2YrCHI3Hr	0.09	91.73	91.86	91.84	91.88	0.015766	0.67	0.13	1.59	0.75
Reach 1-Upper	197	5YrCHI3Hr	0.15	91.73	91.90	91.87	91.93	0.013264	0.74	0.20	1.88	0.72
Reach 1-Upper	197	10YrCHI3Hr	0.20	91.73	91.92	91.89	91.96	0.012348	0.78	0.25	2.01	0.71
Reach 1-Upper	197	25YrCHI3Hr	0.26	91.73	91.95	91.92	91.99	0.011605	0.83	0.31	2.16	0.70
Reach 1-Upper	197	50YrCHI3Hr	0.31	91.73	91.98	91.94	92.01	0.010864	0.86	0.36	2.27	0.69
Reach 1-Upper	197	100YrCHI3Hr	0.37	91.73	92.00	91.95	92.04	0.010606	0.90	0.41	2.36	0.69
Reach 1-Upper	197	2YrSCS24Hr	0.13	91.73	91.89	91.87	91.91	0.013909	0.72	0.18	1.81	0.72
Reach 1-Upper	197	5YrSCS24Hr	0.21	91.73	91.93	91.90	91.96	0.012137	0.79	0.27	2.05	0.70
Reach 1-Upper	197	10YrSCS24Hr	0.27	91.73	91.96	91.92	91.99	0.011514	0.84	0.32	2.18	0.70
Reach 1-Upper	197	25YrSCS24Hr	0.34	91.73	91.99	91.95	92.03	0.010714	0.88	0.39	2.32	0.69
Reach 1-Upper	197	50YrSCS24Hr	0.40	91.73	92.01	91.96	92.05	0.010482	0.92	0.44	2.41	0.69
Reach 1-Upper	197	100YrSCS24Hr	0.47	91.73	92.03	91.98	92.08	0.010295	0.95	0.49	2.51	0.69
Reach 1-Upper	174	2YrCHI3Hr	0.09	91.52	91.70	91.64	91.71	0.004240	0.42	0.20	1.84	0.40
Reach 1-Upper	174	5YrCHI3Hr	0.15	91.52	91.75	91.67	91.76	0.004464	0.50	0.30	2.18	0.43
Reach 1-Upper	174	10YrCHI3Hr	0.20	91.52	91.78	91.70	91.79	0.004630	0.55	0.36	2.30	0.45
Reach 1-Upper	174	25YrCHI3Hr	0.26	91.52	91.81	91.72	91.82	0.004764	0.60	0.43	2.46	0.46
Reach 1-Upper	174	50YrCHI3Hr	0.31	91.52	91.83	91.74	91.85	0.004920	0.64	0.48	2.56	0.47
Reach 1-Upper	174	100YrCHI3Hr	0.37	91.52	91.85	91.76	91.87	0.005045	0.68	0.54	2.67	0.48
Reach 1-Upper	174	2YrSCS24Hr	0.13	91.52	91.74	91.67	91.75	0.004376	0.48	0.27	2.09	0.42
Reach 1-Upper	174	5YrSCS24Hr	0.21	91.52	91.78	91.70	91.80	0.004673	0.56	0.37	2.34	0.45
Reach 1-Upper	174	10YrSCS24Hr	0.27	91.52	91.81	91.72	91.83	0.004791	0.61	0.44	2.47	0.46
Reach 1-Upper	174	25YrSCS24Hr	0.34	91.52	91.84	91.75	91.86	0.004993	0.67	0.51	2.62	0.48

HEC-RAS Plan: 20250910-Post_Dev_v02 River: River 1 Reach: Reach 1-Upper (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1-Upper	174	50YrSCS24Hr	0.40	91.52	91.86	91.77	91.89	0.005106	0.70	0.57	2.72	0.49
Reach 1-Upper	174	100YrSCS24Hr	0.47	91.52	91.88	91.78	91.91	0.005150	0.73	0.63	2.83	0.50
Reach 1-Upper	154	2YrCHI3Hr	0.09	91.43	91.62	91.56	91.63	0.004316	0.40	0.22	2.21	0.40
Reach 1-Upper	154	5YrCHI3Hr	0.15	91.43	91.66	91.59	91.67	0.004196	0.46	0.33	2.61	0.41
Reach 1-Upper	154	10YrCHI3Hr	0.20	91.43	91.69	91.61	91.70	0.004192	0.49	0.40	2.83	0.42
Reach 1-Upper	154	25YrCHI3Hr	0.26	91.43	91.72	91.63	91.74	0.004098	0.53	0.49	3.08	0.42
Reach 1-Upper	154	50YrCHI3Hr	0.31	91.43	91.74	91.65	91.76	0.004007	0.55	0.56	3.25	0.43
Reach 1-Upper	154	100YrCHI3Hr	0.37	91.43	91.77	91.67	91.78	0.003907	0.58	0.64	3.40	0.43
Reach 1-Upper	154	2YrSCS24Hr	0.13	91.43	91.65	91.58	91.66	0.004250	0.44	0.29	2.50	0.41
Reach 1-Upper	154	5YrSCS24Hr	0.21	91.43	91.70	91.62	91.71	0.004172	0.50	0.42	2.89	0.42
Reach 1-Upper	154	10YrSCS24Hr	0.27	91.43	91.72	91.64	91.74	0.004085	0.53	0.50	3.11	0.42
Reach 1-Upper	154	25YrSCS24Hr	0.34	91.43	91.76	91.66	91.77	0.003951	0.57	0.60	3.33	0.43
Reach 1-Upper	154	50YrSCS24Hr	0.40	91.43	91.78	91.67	91.80	0.003859	0.59	0.68	3.48	0.43
Reach 1-Upper	154	100YrSCS24Hr	0.47	91.43	91.80	91.69	91.82	0.003775	0.61	0.76	3.63	0.43
Reach 1-Upper	137	2YrCHI3Hr	0.09	91.33	91.49	91.46	91.51	0.011391	0.63	0.14	1.43	0.65
Reach 1-Upper	137	5YrCHI3Hr	0.15	91.33	91.53	91.50	91.56	0.011329	0.73	0.20	1.66	0.67
Reach 1-Upper	137	10YrCHI3Hr	0.20	91.33	91.56	91.52	91.59	0.011021	0.78	0.25	1.80	0.67
Reach 1-Upper	137	25YrCHI3Hr	0.26	91.33	91.59	91.55	91.63	0.010598	0.84	0.31	1.97	0.67
Reach 1-Upper	137	50YrCHI3Hr	0.31	91.33	91.62	91.57	91.65	0.010270	0.87	0.36	2.09	0.67
Reach 1-Upper	137	100YrCHI3Hr	0.37	91.33	91.64	91.58	91.68	0.009883	0.90	0.41	2.22	0.67
Reach 1-Upper	137	2YrSCS24Hr	0.13	91.33	91.52	91.49	91.55	0.011458	0.71	0.18	1.59	0.67
Reach 1-Upper	137	5YrSCS24Hr	0.21	91.33	91.57	91.53	91.60	0.010925	0.80	0.26	1.84	0.67
Reach 1-Upper	137	10YrSCS24Hr	0.27	91.33	91.60	91.55	91.63	0.010544	0.84	0.32	1.99	0.67
Reach 1-Upper	137	25YrSCS24Hr	0.34	91.33	91.63	91.58	91.67	0.010099	0.89	0.39	2.16	0.67
Reach 1-Upper	137	50YrSCS24Hr	0.40	91.33	91.65	91.60	91.69	0.009709	0.91	0.44	2.29	0.66
Reach 1-Upper	137	100YrSCS24Hr	0.47	91.33	91.68	91.61	91.72	0.009370	0.93	0.50	2.42	0.66
Reach 1-Upper	116	2YrCHI3Hr	0.09	91.23	91.38	91.32	91.39	0.003211	0.37	0.23	2.08	0.35
Reach 1-Upper	116	5YrCHI3Hr	0.15	91.23	91.44	91.35	91.44	0.002924	0.42	0.35	2.37	0.35
Reach 1-Upper	116	10YrCHI3Hr	0.20	91.23	91.47	91.37	91.48	0.002866	0.46	0.43	2.54	0.36
Reach 1-Upper	116	25YrCHI3Hr	0.26	91.23	91.50	91.39	91.52	0.002818	0.49	0.53	2.75	0.36
Reach 1-Upper	116	50YrCHI3Hr	0.31	91.23	91.53	91.41	91.54	0.002810	0.52	0.60	2.89	0.36
Reach 1-Upper	116	100YrCHI3Hr	0.37	91.23	91.56	91.42	91.57	0.002804	0.54	0.68	3.03	0.37
Reach 1-Upper	116	2YrSCS24Hr	0.13	91.23	91.42	91.34	91.43	0.002958	0.41	0.32	2.29	0.35
Reach 1-Upper	116	5YrSCS24Hr	0.21	91.23	91.48	91.37	91.49	0.002849	0.47	0.45	2.59	0.36
Reach 1-Upper	116	10YrSCS24Hr	0.27	91.23	91.51	91.39	91.52	0.002820	0.50	0.54	2.77	0.36
Reach 1-Upper	116	25YrSCS24Hr	0.34	91.23	91.54	91.41	91.56	0.002805	0.53	0.64	2.96	0.37
Reach 1-Upper	116	50YrSCS24Hr	0.40	91.23	91.57	91.43	91.59	0.002678	0.55	0.73	3.11	0.36
Reach 1-Upper	116	100YrSCS24Hr	0.47	91.23	91.60	91.45	91.62	0.002583	0.57	0.82	3.24	0.36
Reach 1-Upper	95	2YrCHI3Hr	0.09	91.07	91.29	91.23	91.30	0.006154	0.52	0.16	1.38	0.48
Reach 1-Upper	95	5YrCHI3Hr	0.15	91.07	91.33	91.27	91.35	0.006882	0.63	0.24	1.61	0.53
Reach 1-Upper	95	10YrCHI3Hr	0.20	91.07	91.36	91.30	91.39	0.007544	0.71	0.28	1.73	0.56
Reach 1-Upper	95	25YrCHI3Hr	0.26	91.07	91.39	91.33	91.42	0.007915	0.77	0.34	1.88	0.58
Reach 1-Upper	95	50YrCHI3Hr	0.31	91.07	91.41	91.35	91.45	0.008499	0.83	0.37	1.97	0.61
Reach 1-Upper	95	100YrCHI3Hr	0.37	91.07	91.43	91.37	91.47	0.009495	0.90	0.41	2.07	0.65
Reach 1-Upper	95	2YrSCS24Hr	0.13	91.07	91.32	91.26	91.34	0.006702	0.60	0.21	1.55	0.52
Reach 1-Upper	95	5YrSCS24Hr	0.21	91.07	91.37	91.30	91.39	0.007595	0.72	0.29	1.76	0.57
Reach 1-Upper	95	10YrSCS24Hr	0.27	91.07	91.39	91.33	91.43	0.008212	0.79	0.34	1.88	0.60
Reach 1-Upper	95	25YrSCS24Hr	0.34	91.07	91.42	91.36	91.46	0.008586	0.86	0.40	2.03	0.62
Reach 1-Upper	95	50YrSCS24Hr	0.40	91.07	91.39	91.38	91.46	0.019163	1.20	0.33	1.87	0.91
Reach 1-Upper	95	100YrSCS24Hr	0.47	91.07	91.40	91.40	91.49	0.023191	1.34	0.35	1.90	1.00
Reach 1-Upper	72	2YrCHI3Hr	0.09	90.91	91.00	91.00	91.03	0.030446	0.75	0.12	1.98	0.99
Reach 1-Upper	72	5YrCHI3Hr	0.15	90.91	91.03	91.03	91.07	0.029306	0.85	0.18	2.40	1.01
Reach 1-Upper	72	10YrCHI3Hr	0.20	90.91	91.05	91.05	91.09	0.027108	0.89	0.22	2.63	0.99
Reach 1-Upper	72	25YrCHI3Hr	0.26	90.91	91.06	91.06	91.11	0.027545	0.98	0.27	2.80	1.02
Reach 1-Upper	72	50YrCHI3Hr	0.31	90.91	91.08	91.08	91.13	0.025861	1.01	0.31	2.94	1.00
Reach 1-Upper	72	100YrCHI3Hr	0.37	90.91	91.10	91.09	91.15	0.022250	1.01	0.36	3.09	0.95
Reach 1-Upper	72	2YrSCS24Hr	0.13	90.91	91.02	91.02	91.06	0.029339	0.82	0.16	2.29	1.00
Reach 1-Upper	72	5YrSCS24Hr	0.21	90.91	91.05	91.05	91.09	0.027610	0.92	0.23	2.67	1.00
Reach 1-Upper	72	10YrSCS24Hr	0.27	90.91	91.07	91.07	91.12	0.025875	0.97	0.28	2.84	0.99
Reach 1-Upper	72	25YrSCS24Hr	0.34	90.91	91.09	91.09	91.14	0.025973	1.05	0.33	2.99	1.01
Reach 1-Upper	72	50YrSCS24Hr	0.40	90.91	91.15	91.10	91.18	0.008061	0.73	0.55	3.56	0.59
Reach 1-Upper	72	100YrSCS24Hr	0.47	90.91	91.22	91.11	91.24	0.003417	0.57	0.82	4.07	0.40

APPENDIX H CITY OF OTTAWA DESIGN CHECKLIST

4. Development Servicing Study Checklist

The following section describes the checklist of the required content of servicing studies. It is expected that the proponent will address each one of the following items for the study to be deemed complete and ready for review by City of Ottawa Infrastructure Approvals staff.

The level of required detail in the Servicing Study will increase depending on the type of application. For example, for Official Plan amendments and re-zoning applications, the main issues will be to determine the capacity requirements for the proposed change in land use and confirm this against the existing capacity constraint, and to define the solutions, phasing of works and the financing of works to address the capacity constraint. For subdivisions and site plans, the above will be required with additional detailed information supporting the servicing within the development boundary.

4.1 General Content

Criteria	Location (if applicable)
☐ Executive Summary (for larger reports only).	N/A
☐ Date and revision number of the report.	On Cover
☐ Location map and plan showing municipal address, boundary, and layout of proposed development.	Appendix A
☐ Plan showing the site and location of all existing services.	Site Servicing Plan (C102)
☐ Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	1.1 Purpose 1.2 Site Description 6.0 Proposed Stormwater Management
☐ Summary of pre-consultation meetings with City and other approval agencies.	Appendix B
☐ Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defensible design criteria.	1.1 Purpose 1.2 Site Description 6.0 Proposed Stormwater Management
☐ Statement of objectives and servicing criteria.	3.0 Pre-Consultation Summary

☐ Identification of existing and proposed infrastructure available in the immediate area.	N/ A
☐ Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	Ste Grading Plan (C101)
☐ Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	Ste Grading Plan (C101)
☐ Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	N/ A
☐ Proposed phasing of the development, if applicable.	N/ A
☐ Reference to geotechnical studies and recommendations concerning servicing.	Section 2.0 Background Studies, Standards and References
☐ All preliminary and formal site plan submissions should have the following information: ○ Metric scale ○ North arrow (including construction North) ○ Key plan ○ Name and contact information of applicant and property owner ○ Property limits including bearings and dimensions ○ Existing and proposed structures and parking areas ○ Easements, road widening and rights-of-way ○ Adjacent street names	Ste Grading Plan (C101)

4.2 Development Servicing Report: Water

Criteria	Location (if applicable)
☐ Confirm consistency with Master Servicing Study, if available	N/ A
☐ Availability of public infrastructure to service proposed development	N/ A
☐ Identification of system constraints	N/ A
☐ Identify boundary conditions	Appendix C
☐ Confirmation of adequate domestic supply and pressure	N/ A
☐ Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	Appendix C
☐ Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.	N/ A
☐ Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design	N/ A
☐ Address reliability requirements such as appropriate location of shut-off valves	N/ A
☐ Check on the necessity of a pressure zone boundary modification.	N/ A
☐ Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range	Appendix C, Section 4.2 Proposed Water Servicing

☐ Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	Site Servicing Plan (C101)
☐ Description of off-site required feeder mains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	N/A
☐ Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Appendix C
☐ Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	N/A

4.3 Development Servicing Report: Wastewater

Criteria	Location (if applicable)
☐ Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).	N/A
☐ Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A
☐ Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.	N/A
☐ Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 5.2 Proposed Sanitary Servicing

☐ Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)	Section 5.2 Proposed Sanitary Servicing
☐ Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	N/ A
☐ Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 5.2 Proposed Sanitary Servicing
☐ Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	N/ A
☐ Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/ A
☐ Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/ A
☐ Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/ A
☐ Special considerations such as contamination, corrosive environment etc.	N/ A

4.4 Development Servicing Report: Stormwater Checklist

Criteria	Location (if applicable)
☐ Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Section 6.0 Storm Sewer Servicing & Section 7.0 Proposed Stormwater Management
☐ Analysis of available capacity in existing public infrastructure.	N/A
☐ A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Pre & Post-Development Plans
☐ Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5-year event (dependent on the receiving sewer design) to 100-year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	Section 6.0 Storm Sewer Servicing & Section 7.0 Proposed Stormwater Management
☐ Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Section 6.0 Storm Sewer Servicing & Section 7.0 Proposed Stormwater Management
☐ Description of the stormwater management concept with facility locations and descriptions with references and supporting information.	Section 6.0 Storm Sewer Servicing & Section 7.0 Proposed Stormwater Management
☐ Set-back from private sewage disposal systems.	N/A
☐ Watercourse and hazard lands setbacks.	N/A
☐ Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	N/A
☐ Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A
☐ Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5-year return period) and major events (1:100-year return period).	Appendix G

☐ Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	Site Grading Plan (C101)
☐ Calculate pre-and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	Appendix G, Section 7.0 Proposed Stormwater Management
☐ Any proposed diversion of drainage catchment areas from one outlet to another.	Section 6.0 Storm Sewer Servicing & Section 7.0 Proposed Stormwater Management
☐ Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Section 6.0 Storm Sewer Servicing & Section 7.0 Proposed Stormwater Management
☐ If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.	N/ A
☐ Identification of potential impacts to receiving watercourses	N/ A
☐ Identification of municipal drains and related approval requirements.	N/ A
☐ Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 6.0 Storm Sewer Servicing & Section 7.0 Proposed Stormwater Management
☐ 100-year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Site Grading Plan (C101)
☐ Inclusion of hydraulic analysis including hydraulic grade line elevations.	N/ A

☐ Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 8.0 Sediment & Erosion Control
☐ Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/ A
☐ Identification of fill constraints related to floodplain and geotechnical investigation.	N/ A

4.5 Approval and Permit Requirements: Checklist

The Servicing Study shall provide a list of applicable permits and regulatory approvals necessary for the proposed development as well as the relevant issues affecting each approval. The approval and permitting shall include but not be limited to the following:

Criteria	Location (if applicable)
☐ Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.	N/ A
☐ Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	N/ A
☐ Changes to Municipal Drains.	N/ A
☐ Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	N/ A

4.6 Conclusion Checklist

Criteria	Location (if applicable)
☐ Clearly stated conclusions and recommendations	Section 9.0 Summary Section 10.0 Recommendations
☐ Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.	All are stamped
☐ All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	All are stamped