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Hinds Brook Residential Development

PRELIMINARY STORMWATER MANAGEMENT REPORT

Homefield Communities

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Prepared by:

Tatham Engineering Limited
115 Sandford Fleming Drive, Suite 200
Collingwood, Ontario L9Y 5A6

T 705-444-2565
tathameng.com

Prepared for:

Homefield Management Ltd.
45 St. Clair Avenue West, Suite 1202
Toronto, Ontario M4V 1K9

Authored by:	Reviewed by:
	
Kyle Latter, B. Eng., EIT. Intern Engineer	Andrew Overholt, P.Eng. Engineer, Project Manager

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Issue	Date	Description
1	September 12, 2024	Final Report

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1 Introduction

Tatham Engineering Limited was retained by Homefield Communities to prepare a Preliminary Stormwater Management (SWM) Report in support of the proposed development of 496857 Grey Road 2 in the Town of The Blue Mountains. The location of the development site is illustrated in Figure 1 enclosed at the back of this report.

1.1 REPORT OBJECTIVE

The objective of this report is to review the existing and proposed surface water drainage conditions on and surrounding the site and propose a plan to mitigate impacts from the proposed development on local water resources. In particular, the following will be discussed:

- existing condition hydrology;
- proposed condition hydrology; and
- the stormwater management plan including:
  - water quality controls;
  - water quantity controls; and
  - stormwater conveyance.

1.2 REPORT STRUCTURE

The report is structured as follows:

- Chapter 1: introduction and report purpose;
- Chapter 2: existing conditions, detailing the condition of the site as it sits today;
- Chapter 3: proposed development, describing the development plan and SWM plan for the site;
- Chapter 4: water balance, describing the volume control measures;
- Chapter 5: Erosion and sediment control, describing the temporary and permanent erosion controls for the site; and
- Chapter 6: Summary.

2 Existing Conditions

2.1 SITE LOCATION

The location of the site is shown in Figure 1 enclosed at the back of this report. The site is 37.37 ha and is located south of Highway 26 and east of Grey Road 2. The development property is legally described as Part of Lot 29, Concession 8, Part 1 of 16R-2436, Town of The Blue Mountains, County of Grey. The municipal address of the site is 496857 Grey Road 2.

2.2 EXISTING SITE CONDITIONS

The site is generally bounded by an existing resort community and vacant land to the north, the Georgian Trail to the east, Grey Road 2 to the west and special agriculture, development and hazard land to the south. The subject property is designated as primary settlement area and hazard land in the Grey County Official Plan. The Town Official Plan designates the site as rural and hazard land. The site is zoned rural and hazard.

A significant portion of the site is regulated by the Grey Sauble Conservation Authority (GSCA) for wetland and natural hazards associated with Indian Brook which is present at the north extent of the property.

In reviewing the topographic survey of the site, the lands slope from the southwest to the northeast at an average gradient of approximately 2.5% under existing conditions. Runoff ultimately drains to the south side of the Georgian Trail embankment and is directed to Indian Brook and ultimately to Georgian Bay.

2.3 EXISTING CONDITION HYDROLOGIC ANALYSIS

The entire site drains north and east to Indian Brook. The extent and location of the existing drainage area is shown on Drawing DP.1, provided at the back of this report as Figure 2 for reference. For the following hydrologic analysis, the developable site area along with external areas that drain across the site under existing conditions have been delineated as catchment 100.

2.3.1 Hydrologic Modeling

An existing condition hydrologic model was prepared using Visual Otthymo 6 (VO6) hydrologic modeling software to quantify existing runoff rates from the internal and external areas that will be impacted by the development.

4-hour Chicago and 6, 12 and 24-hour Soil Conservation Service (SCS) type II design storm distributions were generated using intensity, duration, frequency (IDF) data from *the Town of The Blue Mountains Engineering Standards* (Effective May 29, 2023) for the 1:2 through 1:100-

year return frequency storms. The 25 mm 4-hour Chicago water quality storm and Regional Timmins Storm were also modeled.

Hydrologic modeling parameters were calculated based on curve numbers from the MTO *Drainage Management Manual* (2007) design chart 1.09.

Soil stratigraphy across the subject site has been characterized, by the *Preliminary Geotechnical Investigation – Proposed Residential Development, 496857 Grey Road 2, Town of The Blue Mountains, Ontario* prepared by DS Consultants Ltd., as:

- 0.05 to 0.23m thick topsoil layer; over
- 0.8 to 1.6 m thick earth fill layer consisting of sand, gravel sandy silt with some clay; over
- 1.6 m to termination depth (6.6 or 8.2 m) sand, gravel, silty sand till, sandy silt and gravelly sand.

The observed soil strata are in line with the Ontario soil survey complex characterization of the site as having Waterloo Sand Loam soils which correspond to a hydrologic soil group type A soil. Detailed hydrologic modeling parameter calculations are enclosed in Appendix A for reference. An existing condition VO6 model schematic and model output files are also enclosed in Appendix A for reference. The hydrologic modelling parameters are summarized in Table 1 and the hydrologic modelling peak flow results are summarized in Table 2.

Table 1: Existing Condition Hydrologic Modeling Parameters

CATCHMENT ID	DRAINAGE AREA (ha)	CURVE NUMBER	INITIAL ABSTRACTION (mm)	TIME TO PEAK (hr)
100	25.10	35.6	9.51	0.60

Table 2: Existing Condition Peak Flow Summary

STORM	CATCHMENT 100 PEAK FLOW (m^3/s)			
	4-hr Chicago	6-hr SCS	12-hr SCS	24-hr SCS
25mm	0.018	-	-	-
1:2 Year	0.042	0.050	0.091	0.199
1:5 Year	0.082	0.144	0.157	0.199
1:10 Year	0.127	0.185	0.239	0.371
1:25 Year	0.191	0.280	0.335	0.588
1:50 Year	0.236	0.334	0.445	0.588
1:100 Year	0.303	0.455	0.567	0.844
Regional (Timmins)	0.729	-	-	-

3 Proposed Development

The Hinds Brook Site Development Plan was prepared by Travis & Associates and is included with this report as Figure 3. The proposed development includes 9.8 ha of the development property's 37.37 ha total area as developable due to natural heritage and natural hazard constraints from existing wetland(s) on site and Indian Brook respectively.

Tatham has prepared a natural hazard assessment under separate cover to review the flood and erosion hazard limits associated with Indian Brook and Birks Natural Heritage Consultants Inc. has prepared an Environmental Impact Study (EIS) that evaluates the natural heritage features on site based on extensive field surveys which is provided under separate cover.

As a result of the natural hazards and natural heritage work completed to date, the development plan includes a 30 m setback from the Indian Brook permanent water level and a 15 m setback to retained wetland vegetation communities as shown on the Site Development Plan. The development proposes 376 townhouse units fronting private urban section 8.0m wide condominium roads. Access to the proposed development will be from Grey Road 2.

A SWM facility (SWMF), as detailed below, will be constructed in the northeast corner of the proposed development and a neighbourhood park is included near the centre of the development. Three additional parkettes are also included in the development plan along with a linear park south of the SWMF and a trail network through the natural heritage constraint area as an amenity for the community.

3.1 STORMWATER OBJECTIVES

Based on our review of the proposed development and pertinent design guidelines, the following analysis and SWM plan objectives are applicable to the subject development:

- Proposed condition peak flows must be controlled to existing condition levels for the 1:2-year through 1:100-year return frequency design storms to prevent flooding and erosion downstream;
- Erosion protection must be achieved by providing extended detention of the 25 mm water quality storm for 24-48 hours;
- The regulatory storm must be safely conveyed through the subject development to Indian Brook;
- The SWM facility must provide Level 1 "Enhanced" water quality treatment corresponding to 80% total suspended solids (TSS) removal;

- A water budget must be prepared to evaluate changes in infiltration and runoff from the site under existing and proposed conditions and present a plan to mitigate the infiltration deficit;
- Complete a thermal impact analysis to evaluate how the development may impact Indian Brook which is a cold water stream; and
- A siltation and erosion control plans are required to prevent sediment release to the environment and to mitigate erosion downstream during and after construction.

3.2 STORMWATER MANAGEMENT PLAN

The proposed stormwater management plan is outlined in the following sections and has been developed to address any potential adverse impacts the development will have on the local surface water features and on surface water quality and quantity.

The presented SWM plan has been developed recognizing the following design guidelines and documents:

- *Grey Sauble Conservation Authority – Policies and Procedures For Conservation Authority Plan Review and Permitting Activities,* May 2010;
- *Town of The Blue Mountains, Engineering Standards*, Effective May 29, 2023; and
- *Stormwater Management Planning and Design Manual*, The Ministry of the Environment, March 2003.

3.2.1 Evaluation of SWM Solutions

SWM solutions including lot level, Low Impact Development (LID) and end-of-pipe measures were evaluated to select the preferred solution or combination of solutions to satisfy the appropriate SWM design criteria and the requirements of the MECP and Town for the subject development. Lot level and LID measures are suitable for drainage areas less than 5 ha and typically rely on infiltration to provide water quality treatment and reduce runoff volumes. In general, infiltration controls should be installed at least 1.0 m above the seasonally high groundwater level, and the underlying native soil should have a minimum infiltration rate of 15 mm/hr. This groundwater elevation constraint will makes relying of LIDs impractical, however the sandy soil on site is conducive the infiltration-based practices. Therefore, LIDs can be implemented on a best-efforts basis to augment proposed condition infiltration but should not be relied on as part of the SWM quality or quantity control plan.

End-of-pipe SWM facilities (SWMFs) are suitable for drainage areas greater than 5 ha and include constructed wet ponds, constructed wetlands, and constructed wet pond/constructed wetland hybrids.

Given the drainage area of the site, an end of pipe SWMF is the preferred and SWM control for the site. The end of pipe SWMF will be located at the northeast corner of the site adjacent and outletting to Indian Brook.

After consideration of other design factors such as the flow length-to-width ratio, appropriate side sloping, environmental impact and integration into the surrounding landscape, the preferred alternative for the end of pipe facility is a constructed wetland with a sediment forebay.

3.2.2 Wetland Stormwater Management Facility Design

The proposed end of pipe SWMF has been designed as a constructed wetland in accordance with MECP guidelines to provide stormwater quantity storage and enhanced water quality protection. The facility has been designed with a top of wetland elevation of 184.00 m, a permanent pool elevation of 182.00 m and a bottom of wetland elevation of 181.70 m. The facility includes a sediment forebay with a bottom of forebay elevation of 181.00 m. The constructed wetland side slopes are 5H:1V maximum.

The constructed wetland has a pipe inlet to the sediment forebay. The inlet pipe to the forebay has been sized as 750 mm diameter at 1.0% based on the 1:5 year return frequency peak inflow to the forebay which is 0.996 m^3/s. An overland inlet spillway will provide a conveyance route to the constructed wetland for flows exceeding the storm sewer capacity. Wetland volume and discharge tables are included in Appendix B for reference and the wetland layout and details can be seen on Drawing PND.1 enclosed at the back of this report as Figure 4 for reference.

The engineered outlet system for the wetland includes the following:

- 300 mm diameter reverse graded bottom draw pipe with a 100 mm diameter low flow orifice control with an invert elevation of 182.00 m connected to ditch inlet catch basin 2;
- ditch inlet catchbasin 1 with a 2:1 grate set with a rim/sill elevation of 182.70 m with a secondary control 300 mm diameter outlet pipe with a 200 mm diameter orifice connecting to ditch inlet catchbasin 2;
- ditch inlet catchbasin 2 with a 2:1 grate set with a rim/ sill elevation of 183.20 m connecting to the outlet pipe;
- 450 mm diameter outlet pipe;
- 15 m bottom width trapezoidal emergency overflow spillway with a sill elevation of 183.50 m; and
- level spreader at the pipe outlet.

3.3 PROPOSED CONDITION HYDROLOGIC ANALYSIS

3.3.1 Proposed Drainage Plan

The proposed drainage conditions are shown on Drawing DP.2 provided at the back of this report as Figure 5 for reference. Under proposed conditions, the existing drainage patterns will be generally maintained. The drainage areas are described below:

- Drainage catchment 200 includes the majority of the developed area on site. This area will have a storm sewer system to collect and convey minor drainage, from the 1:5 year return frequency storm and less, to the SWM facility which then outlets to Indian Brook. Major storm drainage, greater than the 1:5 year return frequency storm, will drain overland generally following the internal road network, to the SWMF;
- Drainage catchment 201 is an undeveloped drainage area south of catchment 200 that will drain north to catchment 200 where it will be inlet to the same major and minor drainage systems described for catchment 200;
- Drainage catchment 202 includes the back two thirds of some of the proposed lots along with undeveloped upstream area. This drainage will be collected and conveyed uncontrolled to Indian Brook;
- Drainage catchment 203 will be collected and conveyed to the roadside ditch on the east side of Grey Road 2 which drains to Indian Brook.

3.3.2 Stormwater Quantity Control

Stormwater quantity control will be achieved by the wetland SWMF in the northeast corner of the site. Uncontrolled flow has been accounted for in the hydrologic modelling with the SWMF providing overcontrol to account for flows from uncontrolled catchments.

3.3.3 Hydrologic Modelling

A proposed condition VO6 hydrologic model was created to estimate runoff from the site under proposed conditions and to evaluate the performance of the proposed SWMF. A proposed condition VO6 model schematic, hydrologic modeling parameter calculations and model output files are enclosed in Appendix C for reference. The hydrologic modelling parameters are summarized below in Table 3, the SWMF performance is summarized in Table 4 and the hydrologic modelling peak flow results are summarized in Table 5.

Table 3: Proposed Condition Hydrologic Modeling Parameters

CATCHMENT ID	DRAINAGE AREA (ha)	CURVE NUMBER/ % IMPERVIOUS	INITIAL ABSTRACTION (mm)	TIME TO PEAK (hr)
200	6.59	70%	5	-
201	5.70	41.6	8.97	0.26
202	12.60	39.5	8.90	0.51
203	0.21	32.0	10.00	0.11

Table 4: Wetland Stormwater Management Facility Performance Table

STORM	STORAGE VOLUME (m^3)				STAGE (m)				DISCHARGE (m^3/s)			
	4-hr Chicago	6-hr SCS	12-hr SCS	24-hr SCS	4-hr Chicago	6-hr SCS	12-hr SCS	24-hr SCS	4-hr Chicago	6-hr SCS	12-hr SCS	24-hr SCS
25mm	810	-	-	-	182.32	-	-	-	0.081	-	-	-
1:2 Year	1,290	1,260	1,680	2,270	182.49	182.48	182.61	182.78	0.129	0.126	0.168	0.227
1:5 Year	1,750	2,120	2,140	2,270	182.63	182.74	182.74	182.78	0.175	0.212	0.214	0.227
1:10 Year	2,190	2,300	2,480	3,070	182.76	182.79	182.84	182.99	0.219	0.230	0.248	0.307
1:25 Year	2,520	2,700	2,910	4,170	182.85	182.89	182.95	183.24	0.252	0.270	0.291	0.417
1:50Year	2,690	2,970	3,490	4,170	182.89	182.96	183.09	183.24	0.269	0.297	0.349	0.417
1:100 Year	3,120	3,610	4,100	5,020	183.00	183.12	183.23	183.42	0.312	0.361	0.410	0.502
Regional	5,470	-	-	-	183.52	-	-	-	0.547	-	-	-

Table 5: Proposed Condition Peak Flow Summary

STORM	ADDHYD 901 FLOW (m^3/s)			
	4-hr Chicago	6-hr SCS	12-hr SCS	24-hr SCS
25mm	0.024	-	-	-
	0.018	-	-	-
1:2 Year	0.041	0.048	0.077	0.157
	0.042	*0.050*	*0.091*	*0.199*
1:5 Year	0.070	0.114	0.123	0.157
	0.082	*0.144*	*0.157*	*0.199*
1:10 Year	0.102	0.147	0.212	0.347
	0.127	*0.185*	*0.239*	*0.371*
1:25 Year	0.163	0.262	0.321	0.502
	0.191	*0.280*	*0.335*	*0.588*
1:50 Year	0.218	0.320	0.399	0.502
	0.236	*0.334*	*0.445*	*0.588*
1:100 Year	0.295	0.407	0.486	0.798
	0.303	*0.455*	*0.567*	*0.844*
Regional	0.884	-	-	-
	0.729	-	-	-

Note that the value in italics represents the existing condition peak flows.

As demonstrated in Table 6, the proposed SWM plan reduces proposed condition peak flows from the site to below existing condition levels for all storm events modelled except for the 25 mm storm and the Regional storm.

3.4 CONVEYANCE

The hydraulic capacity of the proposed road network will be confirmed at detailed design to demonstrate that the regulatory peak flows can be conveyed to the SWMF without causing damage to the proposed townhome units while meeting depth, velocity and depth velocity product criteria for safe access/egress.

The proposed SWM facility can convey the regional storm (Timmins) peak flow at an elevation of 183.52 m while maintaining a 0.48m freeboard to the 184.00 m top of wetland elevation.

3.5 STORMWATER QUALITY CONTROL

3.5.1 SWM Pond Water Quality Volume

The end of pipe constructed wetland SWMF has been designed to provide enhanced level water quality protection, corresponding to 80% TSS removal, for its drainage area. Detailed water quality calculations are enclosed in Appendix B for reference. Table 6 summarizes the required and provided water quality volumes based on an upstream drainage area of 12.29 ha, a percent impervious of 38%, a water quality storm (25 mm) runoff volume of 916 m^3 and a percent directly connected impervious of 27% with no lot level controls.

Table 6: Water Quality Summary Table

WATER QUALITY VOLUME	VOLUME REQUIRED (m^3) FOR ENHANCED TREATMENT	VOLUME PROVIDED (m^3)
Permanent Pool	522	720
Extended Detention	916	1,993
Total Active Storage	1,844	8,155

As demonstrated in the table above, the storage volumes provided exceed all required water quality volumes. Therefore, the SWMF will provide at least enhanced level (80% TSS removal) water quality control.

3.5.2 Forebay Design

Detailed forebay design calculations are enclosed in Appendix B for reference. The forebay has been sized with appropriate settling length, dispersion length and cleanout frequency per the MECP SWM planning and design manual.

3.5.3 Drawdown Design

Drawdown design calculations are enclosed in Appendix B for reference. The water quality, 25 mm, storm drawdown time is approximately 36.0 hours and the extended detention volume drawdown time is approximately 60.6 hours.

3.5.4 Thermal Impact

The receiving watercourse for site drainage is Indian Brook which is a cold water stream.

Per the MECP *Stormwater Management Planning and Design Manual (2003)* Table 4.3, the average temperature increase for a wetland SWMF is 3.4°C whereas a traditional wet pond SWMF average temperature increase is 5.1°C. This is one of the reasons that a wetland facility was chosen for this project. Further to the selection of a wetland SWMF, the following best practices are proposed to help mitigate against thermal impacts:

- a bottom draw outlet;
- maximizing of the length to width ratio of the facility;
- plantings around the SWMF to provide shade; and
- a level spreader swale at the pond outlet to avoid point source discharge to Indian Brook.

Given the location of the site, at the downstream end of Indian Brook directly upstream of Georgian Bay, the runoff from the site will have little impact on the temperature of the stream. Based on the proposed wetland's tributary drainage area, which is 12.29 ha, and the overall drainage area of Indian Brook, which is 3,544.8 ha, we estimate that the proposed development will increase the instream temperature by approximately 3.4°C x (12.29 ha/3,544.8 ha) = 0.01°C. This analysis is conservative in that it assumes that the best management practices for thermal mitigation that will be implemented will not decrease the temperature increase for the facility below the average temperature increase noted in the MECP SWM manual.

4 Water Budget

A water budget calculation has been prepared to estimate the existing and proposed condition infiltration and runoff volumes for the development. The table below summarises the water balance results. Detailed water balance calculations using the Thornwaithe Method and climate data from the Environment Canada Thornbury SLAMA Climate Station (1984 to 2003) are enclosed herein Appendix D for reference.

Table 7: Water Balance Summary Table

TOTAL SURPLUS (m^3/yr)	INFILTRATION (m^3/yr)	RUNOFF (m^3/yr)	TOTAL INFILTRATION DEFICIT (m^3/yr)
76,428	30,065	46,363	14,210
76,428	*44,275*	*32,153*	

Value in Italics represents the existing volume

As demonstrated above, development of the site results in an increase in runoff and a decrease in infiltration compared with existing conditions.

4.1 MITIGATION

Per Figure 1a of the City of Toronto *Wet Weather Flow Management Guidelines* (November 2006), 50% and 90% of annual rainfall volume occurs during the 5 mm and 20 mm storms respectively. In reviewing the Thornbury SLAMA station historic normals data, on average, 660.2 mm of rainfall occurs in months where the average temperature is greater than 0°C, April through November. Therefore, with an infiltration target of the 5 mm storm, (14,210 m^3/yr) / (0.66 m x 0.5) = 43,061 m^2 of impervious area would need to be infiltrated to match existing infiltration rates. If the infiltration target is increased to the 20 mm storm, (14,210 m^3/yr) / (0.66 m x 0.9) = 23,923 m^2 of impervious area would need to be infiltrated to match existing infiltration rates.

Given the sandy soil on site, there is opportunity to implement infiltration-based LIDs to augment the post development infiltration and reduce runoff. However, the high groundwater observed across the site limits the feasibility of infiltration-based LIDs. Due to the groundwater constraint, a best-efforts approach to water balance should be implemented. The details of any proposed LIDs will be confirmed at detailed design. Based on the proposed development plan, there is opportunity to implement infiltration trenches along the north property line and along the south limit of the development. Rain gardens can also be implemented to collect and infiltrate roof drainage.

5 Erosion and Sediment Control

5.1 CONSTRUCTION PHASE

Erosion and sediment control will be implemented for all construction activities within the development site including vegetation clearing, topsoil stripping, road construction and stockpiling of materials. The basic principles considered to minimize erosion and sedimentation and the resultant negative environmental impacts include:

- Minimize disturbance activities where possible;
- Expose the smallest possible land area to erosion for the shortest amount of time;
- Institute erosion control measures as required immediately;
- Implement sediment control measures before the outset of construction activities; and
- Carry out regular inspection of erosion/sediment control measures and repair or maintain them, as necessary.

A temporary sediment basin will be installed at the location of the proposed wetland SWMF to mitigate sediment transport from the site during construction. The sediment basin will be designed to meet the criteria outlined in the Greater Golden Horseshoe Area Conservation Authorities' *Erosion and Sediment Control Guideline for Urban Construction (December 2006).* The temporary sediment basin will provide a minimum 125 m^3/ha of active storage volume with an extended detention zone drawdown time of 48 hours and achieve a minimum 125 m^3/ha of permanent pool storage volume with a 4:1 length-to-width ratio. In the event the 48-hour drawdown time is not achievable with the minimum diameter orifice and/or the 4:1 length-to-width ratio cannot be achieved; the permanent pool volume shall be increased to 185 m^3/ha. Details of the temporary sediment basin will be included with the engineering drawings included with the detailed design of the development.

5.2 PERMANENT CONTROLS

In addition to construction phase erosion, it is also important to consider sediment and erosion controls beyond the construction phase and consider permanent treatments for the culvert inlets/outlets, emergency overflow weirs, and the SWM facility which will be specified on the engineering drawings included with the detailed design of the development.

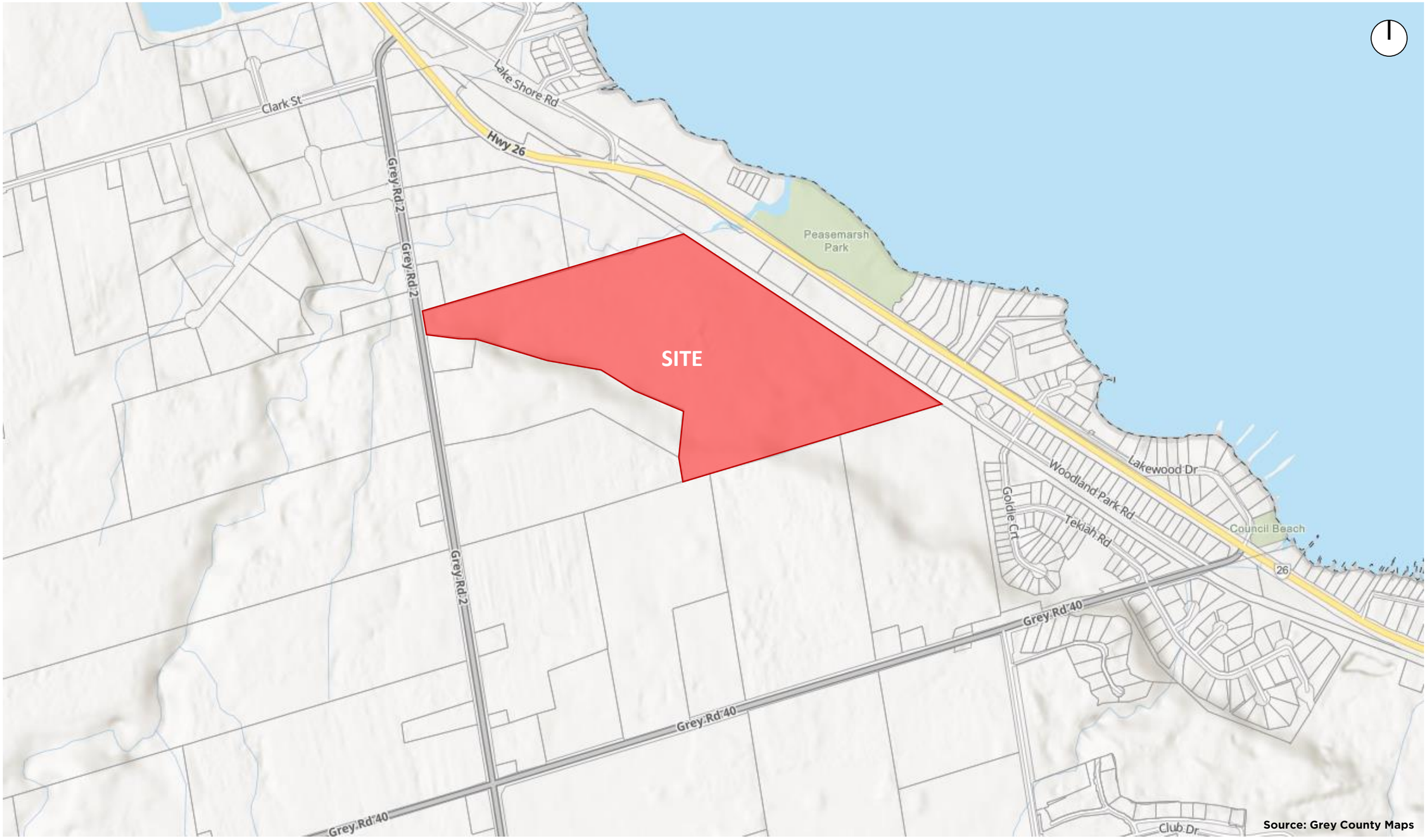
6 Summary

This report has been prepared to document the stormwater management plan developed in support of the proposed 496857 Grey Road 2 Residential Development. The SWM plan ensures the development can be constructed in accordance with all applicable Municipal and Provincial guidelines while minimizing the impact of the development on the local drainage systems.

Existing drainage patterns surrounding and through the site will generally be maintained under proposed conditions. Peak flows discharging from the site will be controlled to existing condition levels for the 1:2 though 1:100 year 4-hour Chicago and 6, 12 and 24-hour SCS Type II design storm events. The proposed SWMF has sufficient storage to attenuate flows to existing levels and has been designed to provide enhanced water quality treatment and safe conveyance of the regional storm to Indian Brook. The SWMF design considers the thermal impact that the development could have on Indian Brook and proposed mitigation measures to reduce said impact to the extend possible.

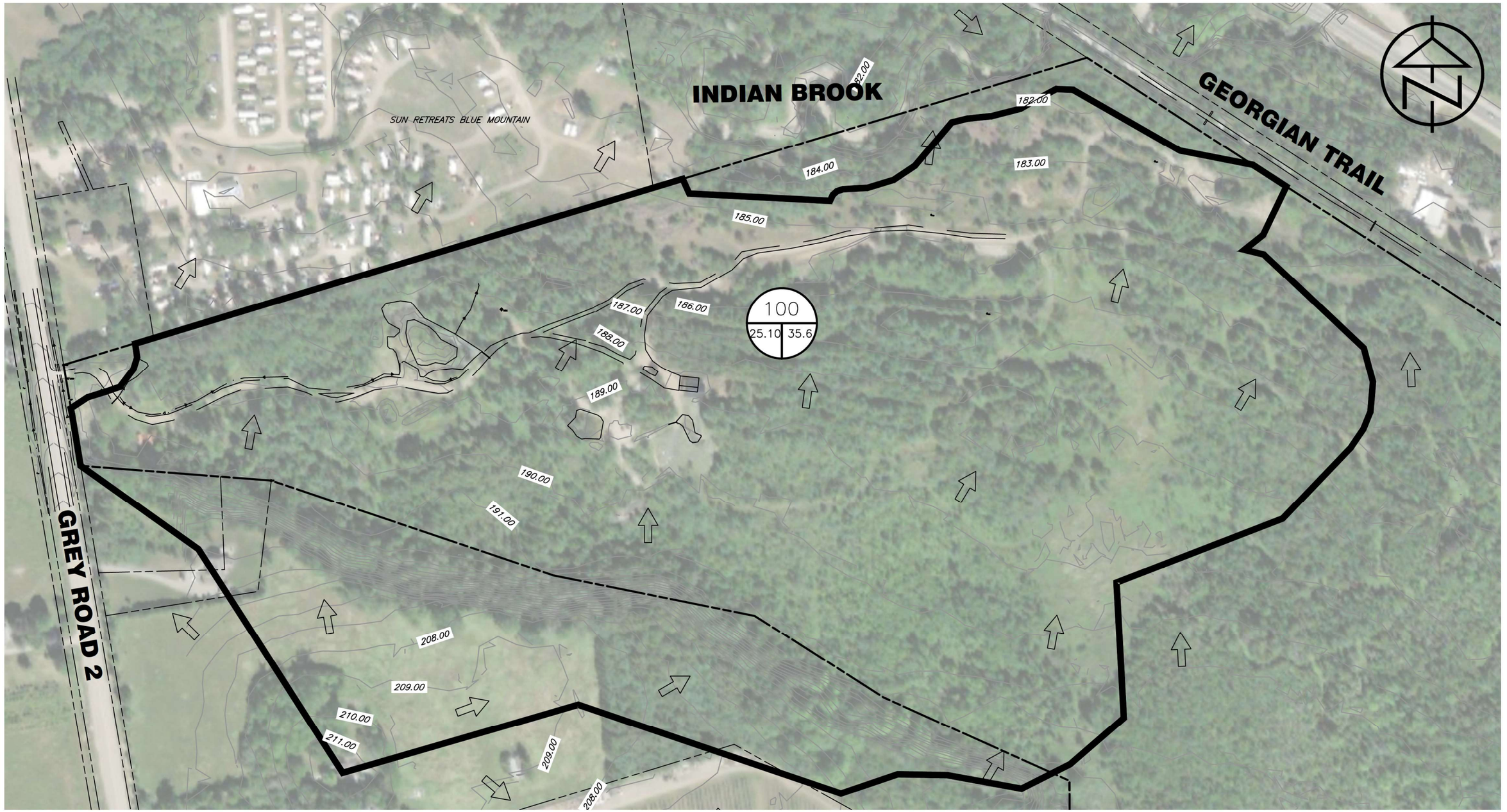
Based on site constraints with respect to groundwater, LIDs may be implemented on a best-efforts approach to augment proposed condition infiltration to reduce or eliminate the deficit compared with existing conditions.

Construction and maintenance of siltation and erosion control facilities and implementation of erosion and sediment control best management practices during and after site servicing and building construction will reduce the transportation of sediment from the site, improve the stormwater quality and mitigate environmental impacts to the surrounding area.



496857 GREY ROAD 2 – TRANSPORTATION IMPACT STUDY

Figure 1: Site Location



LEGEND

100 / 10.0 / 65.0

- DRAINAGE CATCHMENT ID
- CURVE #/ % IMPERVIOUS
- DRAINAGE AREA (HA)
- EXISTING DRAINAGE DIRECTION
- EXISTING DRAINAGE BOUNDARY

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HINDS BROOK
TOWN OF THE BLUE MOUNTAINS
EXISTING CONDITION DRAINAGE PLAN

DWG. No. **DP.1**

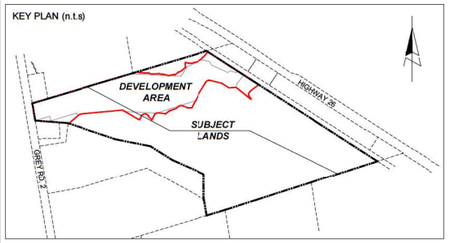
SCALE: 1:2500	DRAWN: RI	DATE: JUL./24	JOB NO. 123069

Drawing Name: 123069-DP-1.dwg, Plotted: Sep 03, 2024

HINDS BROOK
SITE DEVELOPMENT PLAN

496857 GREY RD. 2
PART OF LOT 29
CONCESSION 8
TOWN OF THE BLUE MOUNTAINS
COUNTY OF GREY

KEY PLAN (n.t.s)



SITE DEVELOPMENT CONCEPT SUMMARY

TOTAL SITE AREA: +/- 37.37 HA
TOTAL DEVELOPMENT AREA: +/- 9.8 HA
TOTAL NUMBER OF DWELLINGS: 376 ROWHOUSE DWELLINGS
DENSITY PER TOTAL DEVELOPMENT AREA: APPROX. 39 DWELLINGS / HA

RESIDENTIAL ROWHOUSE DWELLINGS

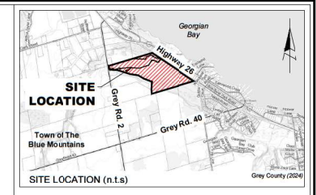
ROWHOUSE TYPE 1 - ROWHOUSE STANDARD (6.1m Frontage) - 54 Units
ROWHOUSE TYPE 1A - ROWHOUSE STANDARD (6.1m Frontage) - 46 Units
(reduced rear yard setback from min. 7.5m to min. 5.5m)
ROWHOUSE TYPE 2 - ROWHOUSE STANDARD (7.4m Frontage) - 42 Units
(reduced rear yard setback from min 7.5m to min 5.5m)
ROWHOUSE TYPE 3 - ROWHOUSE BACK TO BACK (6.7m Frontage) - 156 Units
ROWHOUSE TYPE 4 - ROWHOUSE (4.95m Frontage) - 62 Units
ROWHOUSE TYPE 4A - ROWHOUSE (4.95m Frontage) - 16 Units
(increased rear yard setback to min. 5.5m)

GENERAL NOTES

All site measurements are in Metric.
All proposed site development features and measurements are illustrated for project review and discussions.

Plan Drawing References:

- Zubek, Emo, Patten & Thomsen Ltd. O.L.S., Plan of Survey (2024)
- Tatham Engineering, Hinds Property, Conceptual Constraint Plan (2024)
- Birks Natural Heritage Consultant Inc., Natural Heritage Constraints Study (2024)
- Town of The Blue Mountains, Zoning By-Law 2018-65



SITE LOCATION (n.t.s)

LEGEND

- Property Boundary (+/-37.37 ha)
- Development Area (+/-9.8 ha) - per Natural Features Constraints
- Residential Rowhouse - Standard / Type 1 & 1A (100 Dwelling Units)
- Residential Rowhouse - Standard / Type 2 (46 Dwelling Units)
- Residential Rowhouse - Back To Back / Type 3 (156 Dwelling Units)
- Residential Rowhouse - Narrow / Type 4 & 4A (78 Dwelling Units)
- Neighbourhood Park & Parkette Areas (+/-1.24 ha or 12.6% of the Total Development Area)
- Retained Natural Heritage Areas - No Disturbance (+/-1.43 ha or 14.6% of the Total Development Area)
- SWM Pond (+/- 0.77 ha or 7.7% of the Total Development Area)
- Natural Heritage Constraint Area
- Natural Heritage Setback Area
- Temporary Snow Storage Areas
- Watercourse
- Natural Heritage Constraint Area Limit
- 15m Natural Heritage Area Setback
- Recreational Trail *(Alignment to be confirmed during construction)*
- 8m Wide Condominium Road
- Condominium Road Centerline *(6m R.O.W, 12m Radius on Curb Centerline)*
- Sidewalk *(1.5m)*

Additional On-Site Parking 55 Spaces *(Min. 2.75m x 5.5m)*

travis & associates
planning consultants
approvals facilitation
development managers
PO Box 323
Thornbury, ON
N0H 2P0
T.705-446-9977

homefield COMMUNITIES

SCALE 1:750 *(24" x 60" Page Format)*
0 10 20 40 60 80 Metres

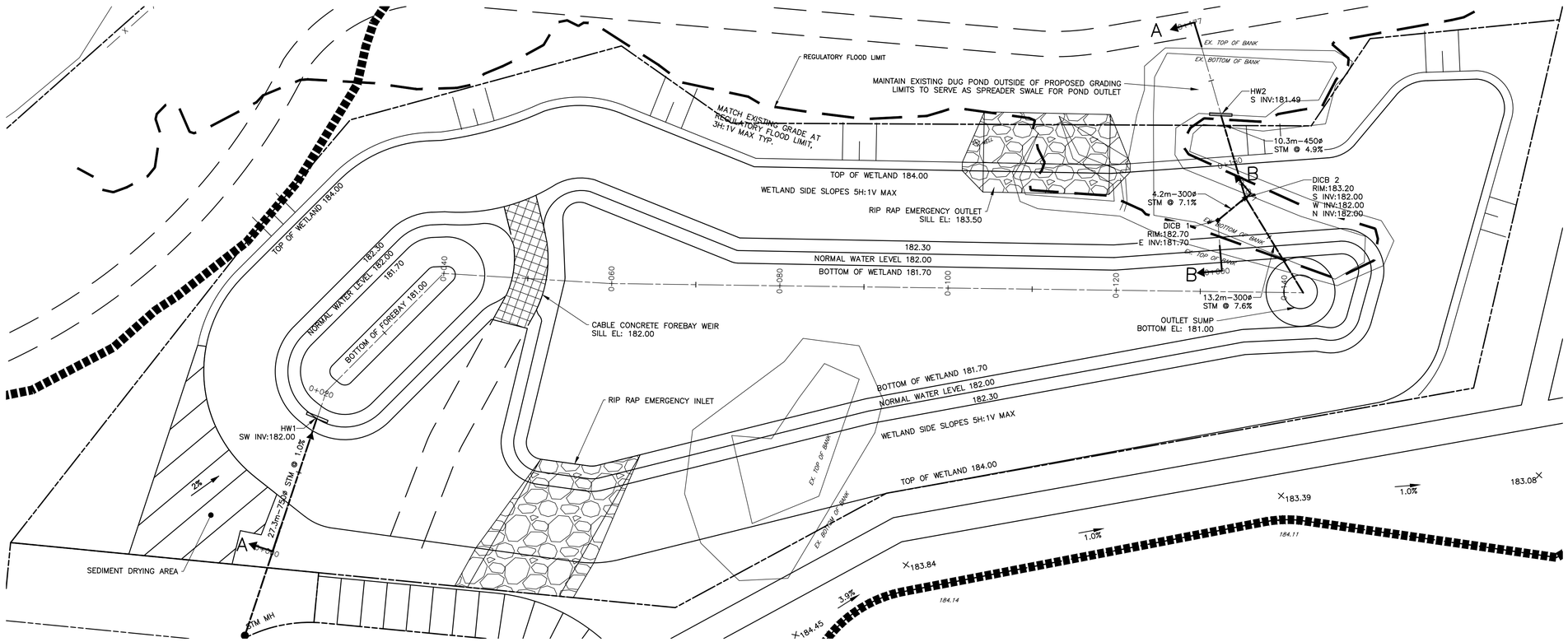
METRIC
DISTANCES ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.305

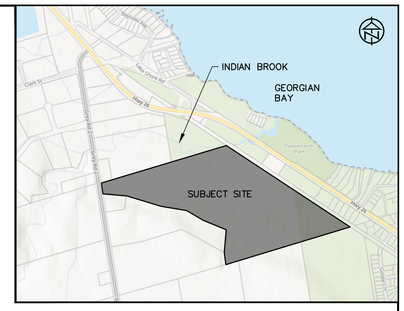
Revision #	Date D/M/Y	Description / Notes
1.	31/01/2024	PRELIMINARY DRAFT / ISSUED FOR REVIEW
2.	07/02/2024	REVISED DRAFT / ISSUED FOR REVIEW
3.	23/02/2024	REVISED DRAFT / ISSUED FOR REVIEW
4.	04/06/2024	REVISED DRAFT / ISSUED FOR REVIEW
5.	14/08/2024	REVISED DRAFT / ISSUED FOR REVIEW
6.	30/08/2024	REVISED DRAFT / ISSUED FOR REVIEW
7.	04/09/2024	REVISED DRAFT / ISSUED FOR REVIEW

File/CAD: T&A_HindsBrook-SitePlan.dwg
Date(d/m/y): 04/09/2024 Drafted by: D.C. Checked by: A.H./R.A./C.T.

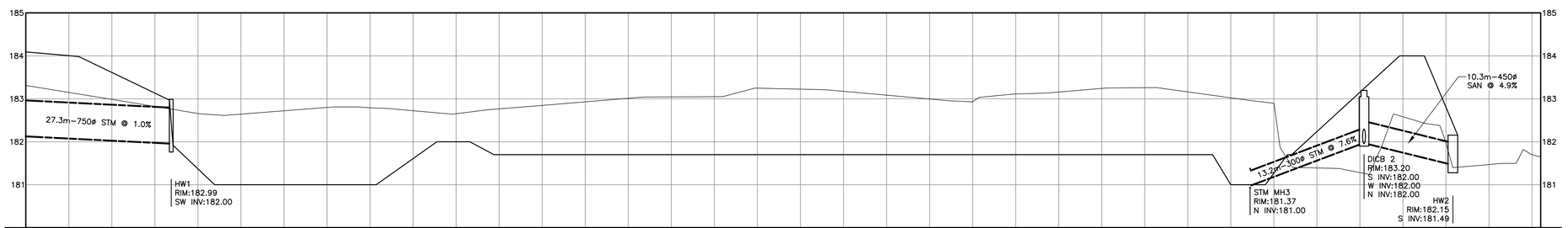
D-1

Date Plotted: September 4 2024



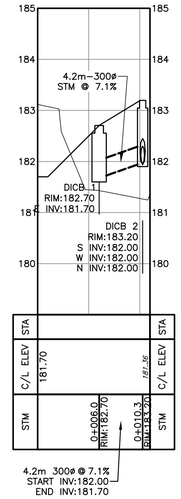


KEY PLAN



STA	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160
C/L ELEV	182.66 181.38	182.79 181.00	182.85 181.70	183.05 181.70	183.09 181.70	183.16 181.70	183.02 181.00	182.58 184.00
STM	27.3m 750ø @ 1.0% START INV:182.27 END INV:182.00	0+016.9 RIM:182.99					0+142.2 RIM:181.37	13.2m 300ø @ 7.6% START INV:182.00 END INV:181.00 / 0+155.5 RIM:183.20 / 10.3m 450ø @ 4.9% START INV:182.00 END INV:181.49 / 0+160.8 RIM:182.15

SECTION A–A



STA		STA
C/L ELEV	181.70	C/L ELEV
STM	0+006.0 RIM:182.70 / 0+010.3 RIM:183.20	STM

4.2m 300ø @ 7.1% START INV:182.00 END INV:181.70

SECTION B–B

DISCLAIMER AND COPYRIGHT

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

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BENCHMARKS

TBM#1 TOP OF NORTH WEST PROPERTY BAR EL. 191.91

NOTES

DEVELOPMENT PLAN FROM HINDS BROOK SITE DEVELOPMENT PLAN PREPARED BY TRAVIS & ASSOCIATED DATED SEP. 4, 2024.

TOPOGRAPHIC SURVEY BY BETTER MEASURES DECEMBER 2023.

LEGAL BOUNDARY PLAN FROM PLAN OF SURVEY OF PARK OF LOT 29, CONCESSION 8, TOWN OF THE BLUE MOUNTAINS, COUNTY OF GREY PREPARED BY ZUBEK, EMO, PATTEN & THOMSEN.

No.	REVISION DESCRIPTION	DATE

ENGINEER STAMP

STORMWATER MANAGEMENT REPORT
SEPT. 12, 2024

HINDS BROOK RESIDENTIAL DEVELOPMENT

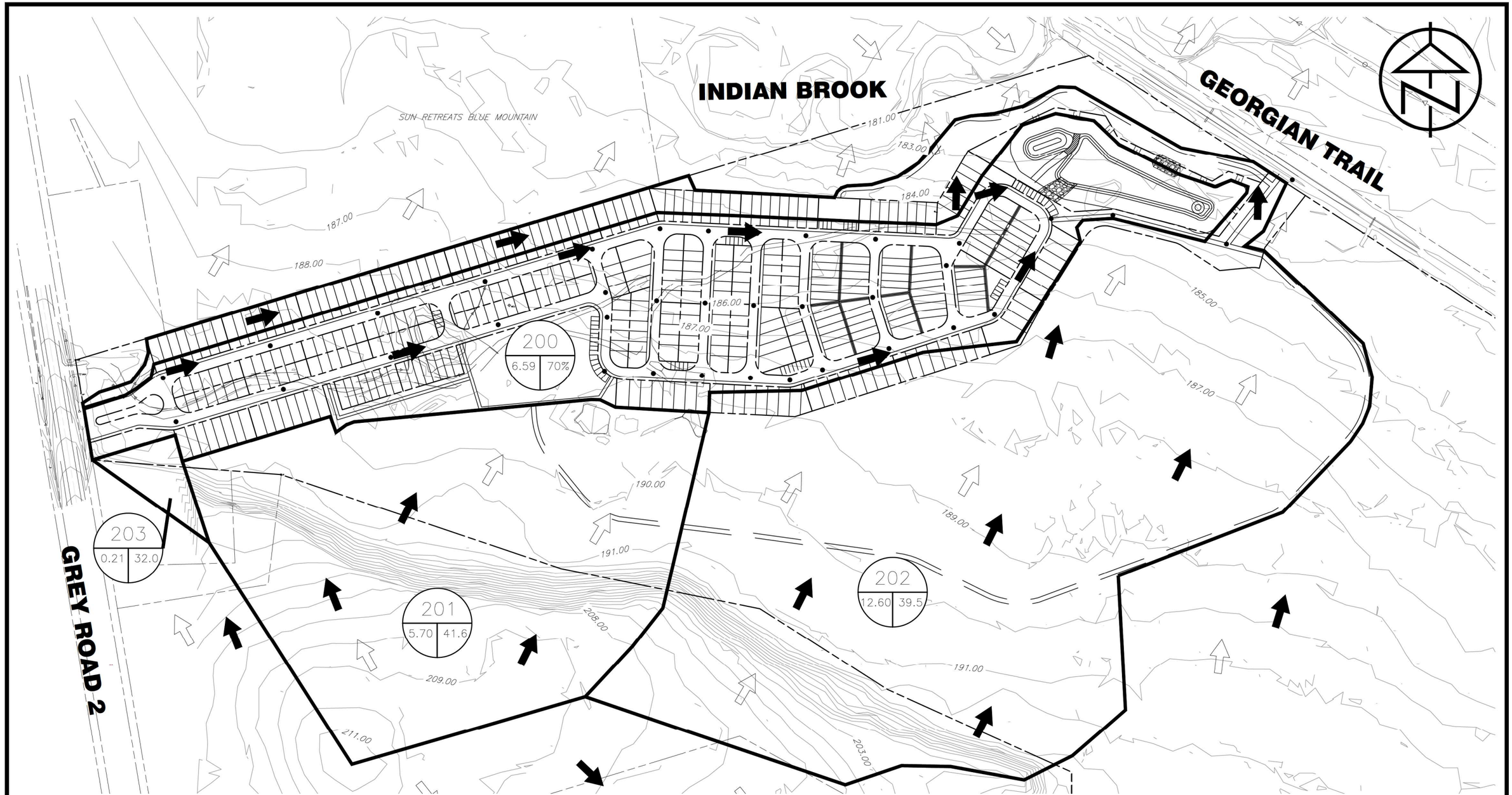
TOWN OF THE BLUE MOUNTAINS

TATHAM ENGINEERING

POND PLAN AND SECTIONS

DESIGN: AO	FILE: 123069	DWG: **PND.1**
DRAWN: KRL/AO	DATE: JUL/24	
CHECK: AO	SCALE: 1:300 H 1:60 V	

Drawing Name: 123069-LGX01_AO_Pond.dwg, Plotted: Sep 12, 2024



LEGEND

100 — DRAINAGE CATCHMENT ID
10.0 | 65.0 — CURVE #/ % IMPERVIOUS
DRAINAGE AREA (HA)

PROPOSED DRAINAGE DIRECTION

EXISTING DRAINAGE DIRECTION

PROPOSED DRAINAGE BOUNDARY

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TATHAM ENGINEERING

HINDS BROOK
TOWN OF THE BLUE MOUNTAINS
PROPOSED CONDITION DRAINAGE PLAN

DWG. No. **DP.2**

SCALE: 1:2500	DRAWN: KRL	DATE: JUL./24	JOB NO. 123069

Drawing Name: 123069-DP-2.dwg, Plotted: Sep 03, 2024

Appendix A:
Existing Condition Hydrology

PROJECT	Hinds Brook Residential Development	FILE	123069
		DATE	Sept. 3, 2024
SUBJECT	Existing Condition Otthymo Schematic	NAME	AO
		PAGE	1 OF 1


NASHYD


ROUTE PIPE


DUHYD


STANDHYD


ROUTE CHANNE


DIVERT HYD


ADDHYD


ROUTE RESERVC

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (NasHYD)

Project Details

Hinds Property	123069

Prepared By

Kyle Latter	Sept 3, 2024

Data Sources

Detailed Soil Survey Reports for Ontario, GSCA Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (2010), MTO Drainage Management Manual (1997)

Pre-Development Condition

Watershed:	GSCA
Catchment ID:	100
Catchment Area (ha):	25.10
Impervious %:	0%

Average Curve Number (CN), Runoff Coefficient (C) and Initial Abstraction (IA)

Soil Symbol		**Wsl**											
Soil Series		Waterloo											
Hydrologic Soils Group		A											
Soil Texture		Sandy Loam											
Runoff Coefficient Type		1											
Area (ha)		25.10											
Percentage of Catchment		100%											
Land Cover Category	**IA**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**
Impervious	2	0.03	100	0.95									
Gravel	3	0.40	89	0.09									
Woodland	10	20.89	32	0.08									
Pasture/Lawns	5	0.20	49	0.10									
Meadows	8	1.80	38	0.09									
Cultivated	7	1.62	62	0.22									
Waterbody	12	0.16	50	0.05									
Average CN		35.61											
Average C		0.09											
Average IA		9.51											

Time to Peak Calculations

Max. Catchment Elev. (m):	211.00
Min. Catchment Elev. (m):	182.00
Catchment Length (m):	700
Catchment Slope (%):	4.14%
Method: Airport Method	
Time of Concentration (mins):	54.45

Summary

Catchment CN:	35.6
Catchment C:	0.09
Catchment IA (mm):	9.51
Time of Concentration (hrs):	0.91
Catchment Time to Peak (hrs):	0.60
Catchment Time Step (mins):	7.26

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


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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DATE: 09/04/2024                          TIME: 09:09:28

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : a - 25mm 4 hour Chicago       **
  ************************************************

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                                  min     ha   '  cms   hrs     mm          cms

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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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DATE: 09/04/2024                          TIME: 09:09:29

USER:


COMMENTS: _____________________________________________________________
```

```
  ************************************************
  ** SIMULATION : b - 2yr 4hr 10min Chicago     **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    CHIC STORM                10.0
    [ Ptot= 36.07 mm ]
*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.04  2.25   1.45 0.04   0.000
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*
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        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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DATE: 09/04/2024                          TIME: 09:09:29

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : c - 5yr 4hr 10min Chicago     **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    CHIC STORM                10.0
    [ Ptot= 45.36 mm ]
*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.08  2.17   2.59 0.06   0.000
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        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


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DATE: 09/04/2024                          TIME: 09:09:29

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : d - 10yr 4hr 10min Chicago    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    CHIC STORM                10.0
    [ Ptot= 54.54 mm ]
*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.13  2.17   4.02 0.07   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
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       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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DATE: 09/04/2024                          TIME: 09:09:29

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : e - 25yr 4hr 10min Chicago    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    CHIC STORM                10.0
    [ Ptot= 65.03 mm ]
*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.19  2.17   5.99 0.09   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
======================


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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
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       O   O    T      T    H   H    Y    M   M  O   O
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DATE: 09/04/2024 TIME: 09:09:29

USER:

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : f - 50yr 4hr 10min Chicago    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    CHIC STORM                10.0
    [ Ptot= 70.73 mm ]
*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.24  2.08   7.20 0.10   0.000
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        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL
```

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

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

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DATE: 09/04/2024 TIME: 09:09:29

USER:

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : g - 100yr 4hr 10min Chicago   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    CHIC STORM                10.0
    [ Ptot= 79.93 mm ]
*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.30  2.08   9.36 0.12   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
=======================
```

```
       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\bb5
00072-cfa5-4d29-96f6-c79fab856337\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\bb5
00072-cfa5-4d29-96f6-c79fab856337\sc


DATE: 09/04/2024                          TIME: 09:09:29

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : h - 2yr 6hr 15min SCS Type II **
  ************************************************

  W/E COMMAND            HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                 min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
   READ STORM                15.0
   [ Ptot= 36.00 mm ]
   fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\dda7e9d9-
5342-4502-bd8e-2
   remark: 2yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.05  3.92   1.44 0.04   0.000
   [CN=35.6         ]
   [ N = 3.0:Tp 0.60]
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\fdd
35a31-7405-49cc-bc2a-3995120fc49d\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\fdd
35a31-7405-49cc-bc2a-3995120fc49d\sc


DATE: 09/04/2024                          TIME: 09:09:29

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : i - 5yr 6hr 15min SCS Type II **
```

```
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 54.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\b34013fb-
e31d-4a33-902b-2
    remark: 5yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.14  3.92   3.93 0.07   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
 FINISH

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

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


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\21b
5ac74-1058-49cb-9d97-badd2bff2a40\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\21b
5ac74-1058-49cb-9d97-badd2bff2a40\sc


DATE: 09/04/2024                          TIME: 09:09:28

USER:


COMMENTS: _____________________________________________________


  ***********************************************
  ** SIMULATION : j - 10yr 6hr 15min SCS Type I **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 60.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\d2d01f90-
3276-4924-afc7-d
    remark: 10yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.18  3.83   5.00 0.08   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\1f5f6891-d74f-4e22-8b9a-debb99de0c82\sc
Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\1f5f6891-d74f-4e22-8b9a-debb99de0c82\sc

DATE: 09/04/2024 TIME: 09:09:28

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COMMENTS: _____

****
** SIMULATION : k - 25yr 6hr 15min SCS Type I **
****

W/E	COMMAND	HYD ID	DT min	AREA ha	' Qpeak ' cms	Tpeak hrs	R.V. mm	R.C.	Qbase cms
	START @ 0.00 hrs								
	READ STORM		15.0						
	[Ptot= 72.00 mm]								
	fname : C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\9bb828d3-813c-482d-b0f4-f								
	remark: 25yr 6hr 15min SCS Type II (MTO)								
*									
**	CALIB NASHYD	0100	1 5.0	25.10	0.28	3.83	7.48	0.10	0.000
	[CN=35.6]								
	[N = 3.0:Tp 0.60]								
*									

==========

V V I SSSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

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

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\ecd16800-2905-4fa1-85ec-07b137f7c780\sc
Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\ecd16800-2905-4fa1-85ec-07b137f7c780\sc

DATE: 09/04/2024 TIME: 09:09:28

USER:

COMMENTS: _____

****
** SIMULATION : l - 50yr 6hr 15min SCS Type I **
****

W/E	COMMAND	HYD ID	DT min	AREA ha	' Qpeak ' cms	Tpeak hrs	R.V. mm	R.C.	Qbase cms
	START @ 0.00 hrs								
	READ STORM		15.0						
	[Ptot= 78.00 mm]								
	fname : C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\ec06fbe0-446d-430c-b7c8-9								

```
    remark: 50yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.33  3.83   8.88 0.11   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\5ea
96d9f-205a-4a46-b6c5-399fa8f1ff78\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\5ea
96d9f-205a-4a46-b6c5-399fa8f1ff78\sc


DATE: 09/04/2024                          TIME: 09:09:28

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : m - 100yr 6hr 15min SCS Type  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms


     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 90.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\b574c5f1-
d9a0-4810-9296-e
    remark: 100yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.45  3.83  12.00 0.13   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\5f4
9d9c2-942f-4ff0-92f9-78575ffc0084\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\5f4
9d9c2-942f-4ff0-92f9-78575ffc0084\sc
```

```
DATE: 09/04/2024                          TIME: 09:09:28

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COMMENTS: _____________________________________________________________


  ***********************************************
  ** SIMULATION : n- 2yr 12hr 15min SCS Type II **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot= 48.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\8ecba26e-
8541-499f-89d1-5
    remark: 2yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.09  6.83   2.97 0.06   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
=======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\cae
945eb-f64b-4654-9ab0-518e85606de7\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\cae
945eb-f64b-4654-9ab0-518e85606de7\sc


DATE: 09/04/2024                          TIME: 09:09:28

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COMMENTS: _____________________________________________________________


  ***********************************************
  ** SIMULATION : o - 5yr 12hr 15min SCS Type I **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot= 60.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\16814599-
5a24-4271-80f6-6
    remark: 5yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.16  6.83   5.00 0.08   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
=======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL
```

```
        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\5c7
3c2b2-a1c1-4a76-9217-1762df8038e9\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\5e7
3c2b2-a1c1-4a76-9217-1762df8038e9\sc


DATE: 09/04/2024                          TIME: 09:09:28

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : p - 10yr 12hr 15min SCS Type  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\f6a38152-
03b2-41a3-99be-0
    remark: 10yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.24  6.83   7.48 0.10   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
```

```
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\8fc
52406-12bb-4411-9e9b-a2d67f9ee8e3\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\8fc
52406-12bb-4411-9e9b-a2d67f9ee8e3\sc


DATE: 09/04/2024                          TIME: 09:09:28

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : q - 25yr 12hr 15min SCS Type  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
```

```
    READ STORM                15.0
    [ Ptot= 84.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\e5d42f3d-
98b2-4734-8562-4
    remark: 25yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.34  6.83  10.39 0.12   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
=======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\414
b1fef-13bc-4148-ab6c-3ede565dd20d\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\414
b1fef-13bc-4148-ab6c-3ede565dd20d\sc


DATE: 09/04/2024                          TIME: 09:09:28

USER:


COMMENTS: _____________________________________________________________
```

```
  ************************************************
  ** SIMULATION : r - 50yr 12hr 15min SCS Type  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 96.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\db10a4d8-
5cd6-42ab-9750-f
    remark: 50yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.44  6.83  13.70 0.14   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
=======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\bf1
3db87-9bfa-459e-a495-f7c924645758\sc
```

```
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\bf1
3db87-9bfa-459e-a495-f7c924645758\sc


DATE: 09/04/2024                          TIME: 09:09:29

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COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : s - 100yr 12hr 15min SCS Type **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot=108.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\bd3b43f3-
125c-4748-bc53-2
    remark: 100yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.57  6.83  17.38 0.16   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
=======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\780
a52c7-67b1-4909-af4b-2c33b85dc7cf\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\780
a52c7-67b1-4909-af4b-2c33b85dc7cf\sc


DATE: 09/04/2024                          TIME: 09:09:29

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : t - 2yr 24hr 15min SCS Type I **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\d2286d28-
2432-40bf-80e1-a
    remark: 2yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.20 12.83   7.48 0.10   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
=======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
```

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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\9b2
d953c-d129-455a-a06c-3e9f44e3d421\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\9b2
d953c-d129-455a-a06c-3e9f44e3d421\sc


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COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : u - 5yr 24hr 15min SCS Type I **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
   READ STORM                15.0
   [ Ptot= 72.00 mm ]
   fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\0ea19055-
1dbd-4724-be4f-4
   remark: 5yr 24hr 15min SCS Type II (MTO)
*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.20 12.83   7.48 0.10   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\c6d
6ab76-7b41-4d88-b146-f18cd35e9c4e\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\c6d
6ab76-7b41-4d88-b146-f18cd35e9c4e\sc


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COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : v - 10yr 24hr 15min SCS Type  **
  ************************************************
```

```
  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot= 96.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\b844e261-
66c2-4225-9091-5
    remark: 10yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.37 12.83  13.70 0.14   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                ***** S U M M A R Y   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\f6b
9992e-29c7-4db8-8384-194ffb79d86f\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\f6b
9992e-29c7-4db8-8384-194ffb79d86f\sc


DATE: 09/04/2024                          TIME: 09:09:29

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : w - 25yr 24hr 15min SCS Type  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot=120.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\9905e179-
fb81-472a-8275-a
    remark: 25yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.59 12.75  21.42 0.18   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                ***** S U M M A R Y   O U T P U T *****
```

```
  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\439
a3c72-37e3-4a47-bc42-09887b1176f6\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\439
a3c72-37e3-4a47-bc42-09887b1176f6\sc


DATE: 09/04/2024                          TIME: 09:09:29

USER:


COMMENTS: ____________________________________________________________


  ***********************************************
  ** SIMULATION : x- 50yr 24hr 15min SCS Type I **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA   ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha     '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot=120.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\d0c25f53-
4a05-42a9-b8fd-6
    remark: 50yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.59 12.75  21.42 0.18   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\848
abf76-0fa3-4921-8170-df198aeb3075\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\848
abf76-0fa3-4921-8170-df198aeb3075\sc


DATE: 09/04/2024                          TIME: 09:09:29

USER:


COMMENTS: ____________________________________________________________


  ***********************************************
  ** SIMULATION : y - 100yr 24hr 15min SCS Type **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA   ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha     '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot=144.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\21006139-
21f7-49b3-a867-a
    remark: 100yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.84 12.75  30.45 0.21   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
```

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


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\694
47931-dc9e-4e66-9f3f-6aa5232723f8\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\694
47931-dc9e-4e66-9f3f-6aa5232723f8\sc


DATE: 09/04/2024                          TIME: 09:09:29

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : z - TIMMINS                   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot=193.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\8431acc3-5dd5-4281-9216-0069cd3941a2\07cda0d7-
d2f9-4590-8741-b
    remark: TIMMINS

*
 ** CALIB NASHYD         0100  1  5.0   25.10    0.73  7.33  52.36 0.27   0.000
    [CN=35.6         ]
    [ N = 3.0:Tp 0.60]
*
```

Appendix B:
SWMF Design

Hinds Brook
Pond Volume Table

			Outlet Sump				Wetland Cell						Forebay 1						Total	
	Elev.	Depth	Areas		Volumes		Areas		Volumes				Areas		Volumes				Volumes	
	(m)	(m)	Area (m^2)	Avg. Area (m^2)	Dead (m^3)	Accum. Dead (m^3)	Area (m^2)	Avg. Area (m^2)	Dead (m^3)	Accum. Dead (m^3)	Live (m^3)	Accum. Live (m^3)	Area (m^2)	Avg. Area (m^2)	Dead (m^3)	Accum. Dead (m^3)	Live (m^3)	Accum. Live (m^3)	Total Dead (m^3)	Total Live (m^3)
Bottom of Forebay/Outlet	**181.00**	**0.0**	**12**	**0**	**0**	**0**							**55**	**0**	**0**	**0**			**0**	**0**
	181.10	0.1	18	15	1	1							82	68	7	7			8	0
	181.20	0.2	24	21	2	4							108	95	9	16			20	0
	181.30	0.3	30	27	3	6							135	121	12	28			35	0
	181.40	0.4	35	33	3	9							161	148	15	43			53	0
	181.50	0.5	41	38	4	13							188	175	17	61			74	0
	181.60	0.6	47	44	4	18							214	201	20	81			99	0
Bottom of Wetland Cell	**181.70**	**0.7**	**53**	**50**	**5**	**23**	**1493**	747	75	0			**241**	**228**	**23**	**104**			**126**	**0**
	181.80	0.8				23	1614	1554	155	155			283	262	26	130			308	0
	181.90	0.9				23	1736	1675	168	323			325	304	30	160			506	0
Permanent Pool	**182.00**	**1.0**				**23**	**1857**	1796	180	503	0	0	**367**	**346**	**35**	**195**	0	0	**720**	**0**
	182.10	1.1				23	1985	1921		503	192	192	413	390		195	39	39	720	231
	182.20	1.2				23	2112	2049		503	205	397	460	437		195	44	83	720	480
	182.30	**1.3**				**23**	**2240**	2176		503	218	615	**506**	**483**		**195**	48	131	**720**	**746**
	182.40	1.4				23	2383	2312		503	231	846	550	528		195	53	184	720	1029
	182.50	1.5				23	2526	2455		503	245	1091	593	571		195	57	241	720	1332
	182.60	1.6				23	2669	2598		503	260	1351	637	615		195	62	302	720	1653
Extended Detention Level	182.70	1.7				23	2812	2741		503	274	1625	681	659		195	66	368	720	1993
	182.80	1.8				23	2955	2884		503	288	1913	724	702		195	70	439	720	2352
	182.90	1.9				23	3098	3027		503	303	2216	768	746		195	75	513	720	2729
	183.00	2.0				23	3241	3170		503	317	2533	812	790		195	79	592	720	3125
	183.10	2.1				23	3384	3313		503	331	2864	855	833		195	83	675	720	3540
	183.20	2.2				23	3528	3456		503	346	3210	899	877		195	88	763	720	3973
	183.30	2.3				23	3671	3599		503	360	3570	942	921		195	92	855	720	4425
	183.40	2.4				23	3814	3742		503	374	3944	986	964		195	96	952	720	4896
Emergency Spillway	183.50	2.5				23	3957	3885		503	389	4333	1030	1008		195	101	1052	720	5385
	183.60	2.6				23	4100	4028		503	403	4735	1073	1052		195	105	1158	720	5893
	183.70	2.7				23	4243	4171		503	417	5153	1117	1095		195	110	1267	720	6420
	183.80	2.8				23	4386	4314		503	431	5584	1161	1139		195	114	1381	720	6965
	183.90	2.9				23	4529	4457		503	446	6030	1204	1183		195	118	1499	720	7529
Top of Pond	**184.00**	**3.0**				**23**	**4672**	**4630**		**503**	**463**	**6493**	**1248**	**1226**		**195**	**123**	**1622**	**720**	**8115**

Hinds Brook
Pond Discharge Table

ORIFICE/PIPE CONTROLS

	Low Flow Orifice	DICB 1 Orifice	Outlet Pipe	
diameter =	100	200	450	mm
area =	0.0079	0.0314	0.1590	m^2
Orifice C =	0.63	0.63	0.80	
Invert =	182.00	182.00	182.00	m

ORIFICE EQUATION Q = C x A x (2gH)^0.5

where Q = flow rate (cms)
C = constant
A = area of opening(sq. m)
H = net head on the orifice
g = Acceleration due to gravity

WEIR CONTROLS

	DICB 1	DICB 2		Emergency Outlet Spillway	
Length of Weir	0.6	0.6	m	15	m
Weir Sill Elevation	182.70	183.20	m	183.50	m
Weir constant K	1.837	1.837		1.7	
Slope of DICB Grate (H:1)	2	2		5	

WEIR FORMULA Q = K x L x H^1.5

where Q = flow rate (cms)
K = constant
L = length (m)
H = head on the weir (m)

TRAPEZOIDAL WEIR DISCHARGE

Water Level	Depth	LOW FLOW ORIFICE FLOW		DICB 1					DICB 2		OUTLET PIPE		TOTAL FLOW	Emergency Outlet Spillway		TOTAL FLOW
		Low Flow Orifice		DICB1 GRATE CONTROL		DICB 1 ORIFICE CONTROL		Total DICB 1 Flow	DICB 2 GRATE CONTROL		OUTLET PIPE CONTROL		From Control Structure			Structure + Emergency Weir
		Head	Discharge	Head	Discharge	Head	Discharge	Discharge	Head	Discharge	Head	Discharge	Discharge	Head	Discharge	Discharge
(m)	(m)	(m)	(m^3/s)	(m)	(m^3/s)	(m)	(m^3/s)	(m^3/s)	(m)	(m^3/s)	(m)	(m^3/s)	(m^3/s)	(m)	(m^3/s)	(cms)
182.00	0.00	0.00	0.0000	0.00	0.0000	0.00	0.0000	**0.0000**	0.00	0.0000	0.00	0.0000	**0.0000**	0.00	0.0000	**0.0000**
182.10	0.10	0.05	0.0049	0.00	0.0000	0.10	0.0082	**0.0000**	0.00	0.0000	0.10	0.0137	**0.0049**	0.00	0.0000	**0.0049**
182.20	0.20	0.15	0.0085	0.00	0.0000	0.10	0.0277	**0.0000**	0.00	0.0000	0.20	0.0504	**0.0085**	0.00	0.0000	**0.0085**
182.30	0.30	0.25	0.0110	0.00	0.0000	0.20	0.0392	**0.0000**	0.00	0.0000	0.07	0.1543	**0.0110**	0.00	0.0000	**0.0110**
182.40	0.40	0.35	0.0130	0.00	0.0000	0.30	0.0480	**0.0000**	0.00	0.0000	0.17	0.2358	**0.0130**	0.00	0.0000	**0.0130**
182.50	0.50	0.45	0.0147	0.00	0.0000	0.40	0.0554	**0.0000**	0.00	0.0000	0.27	0.2955	**0.0147**	0.00	0.0000	**0.0147**
182.60	0.60	0.55	0.0163	0.00	0.0000	0.50	0.0620	**0.0000**	0.00	0.0000	0.37	0.3451	**0.0163**	0.00	0.0000	**0.0163**
182.70	0.70	0.65	0.0177	0.00	0.0000	0.60	0.0679	**0.0000**	0.00	0.0000	0.47	0.3884	**0.0177**	0.00	0.0000	**0.0177**
182.80	0.80	0.75	0.0190	0.10	0.0395	0.70	0.0733	**0.0395**	0.00	0.0000	0.57	0.4274	**0.0585**	0.00	0.0000	**0.0585**
182.90	0.90	0.85	0.0202	0.20	0.1227	0.80	0.0784	**0.0784**	0.00	0.0000	0.67	0.4630	**0.0986**	0.00	0.0000	**0.0986**
183.00	1.00	0.95	0.0214	0.30	0.2513	0.90	0.0832	**0.0832**	0.00	0.0000	0.77	0.4961	**0.1045**	0.00	0.0000	**0.1045**
183.10	1.10	1.05	0.0225	0.40	0.4251	1.00	0.0877	**0.0877**	0.00	0.0000	0.87	0.5272	**0.1101**	0.00	0.0000	**0.1101**
183.20	1.20	1.15	0.0235	0.50	0.6442	1.10	0.0919	**0.0919**	0.00	0.0000	0.97	0.5565	**0.1155**	0.00	0.0000	**0.1155**
183.30	1.30	1.25	0.0245	0.60	0.9087	1.20	0.0960	**0.0960**	0.10	0.0395	1.07	0.5843	**0.1600**	0.00	0.0000	**0.1600**
183.40	1.40	1.35	0.0255	0.70	1.2184	1.30	0.1000	**0.1000**	0.20	0.1227	1.17	0.6109	**0.2481**	0.00	0.0000	**0.2481**
183.50	1.50	1.45	0.0264	0.80	1.5735	1.40	0.1037	**0.1037**	0.30	0.2513	1.27	0.6364	**0.3814**	0.00	0.0000	**0.3814**
183.60	1.60	1.55	0.0273	0.90	1.9738	1.50	0.1074	**0.1074**	0.40	0.4251	1.37	0.6609	**0.5597**	0.10	0.7355	**1.2952**
183.70	1.70	1.65	0.0282	1.00	2.4195	1.60	0.1109	**0.1109**	0.50	0.6442	1.47	0.6845	**0.6845**	0.20	2.2134	**2.8979**
183.80	1.80	1.75	0.0290	1.10	2.9105	1.70	0.1143	**0.1143**	0.60	0.9087	1.57	0.7073	**0.7073**	0.30	4.2323	**4.9396**
183.90	1.90	1.85	0.0298	1.20	3.4467	1.80	0.1176	**0.1176**	0.70	1.2184	1.67	0.7294	**0.7294**	0.40	6.7422	**7.4716**
184.00	2.00	1.95	0.0306	1.30	4.0283	1.90	0.1208	**0.1208**	0.80	1.5735	1.77	0.7509	**0.7509**	0.50	9.7231	**10.4739**

TATHAM ENGINEERING

Water Quality Requirements

Project Details

Hinds Property	123069

Prepared By

KRL	Sept. 3, 2024

Water Quality Sizing Criteria

Methodology & Data Source	Volumetric water quality criteria as presented in Table 3.2 in Ministry of Environment, Conservation and Parks (MECP) Stormwater Management Planning & Design Manual (SWMPDM) March 2003.

Contributing Catchments

Catchment ID	Area (ha)	Impervious (%)
200	6.59	70%
201	5.70	1%
Total	**12.29**	**38.0%**

Treatment Method Details

SWM Facility Type	Wetlands
Target Treatment Leve	Enhanced Level
Treatment Percentage	80%

Treatment Requirements

Water Quality Storage Requirement	1,014	m^3
Extended Detention Volume (40 m^3)	492	m^3
Permanent Pool Volume Required	522	m^3
25 mm Storm Runoff Depth	7.45	mm
25 mm Storm Runoff Volume	916	m^3
Required Extended Detention Volume	916	m^3
Erosion Control Storage Required	1,844	m^3

Permanent Pool Volume Provided	720	**Provided** >	**Required**
Extended Detention Storage Provided	1,993	**Provided** >	**Required**
Active Storage Provided	8,155	**Provided** >	**Required**

TATHAM ENGINEERING

Pond Drawdown Time

Project Details		Prepared By	
Hinds Brook Residential Developmer	123069	AO	Sept. 3, 2024

Pond Drawdown Time Calculation

Methodology & Data Source	Falling head orifice equation which assumes a constant pond surface area, per Equation 4.10 of Ministry of Environment, Conservation and Parks (MECP) Stormwater Management Planning & Design Manual (SWMPDM) March 2003.

Drawdown Time (t) = $$\frac{2 \times A_p}{C \times A_o \times 2g^{0.5}} (h_1^{0.5} - h_2^{0.5})$$

Pond Operation Characteristics

Orifice Diameter	=	100.0	mm
Cross Sectional Area of Orifice (A_o)	=	0.0079	m^2
Orifice Discharge Coefficient (C)	=	0.63	
Starting Water Level	=	182.00	m
Starting Surface Area	=	2224	m^2
25 mm Rainfall Water Level	=	182.32	m
25 mm Rainfall Water Level Surface Area	=	2800	m^2
Extended Detention Zone Water Level	=	182.70	m
Extended Detention Zone Surface Area	=	3493	m^2
Gravitational Acceleration Constant (g)	=	9.81	m/s^2

25 mm Storm Event Drawdown Time

Average Surface Area (A_p)	=	2512	m^2
Starting Water Elevation Above Orifice (h_1)	–	0.32	m
Ending Water Elevation Above Orifice (h_2)	=	0.00	m

t_{25mm} = 36.0 hours

Extended Detention Zone Drawdown Time

Average Surface Area (A_p)	=	2859	m^2
Starting Water Elevation Above Orifice (h_1)	=	0.70	m
Ending Water Elevation Above Orifice (h_2)	=	0.00	m

t_{ExtDet} = 60.6 hours

TATHAM ENGINEERING

Forebay Design Requirements

Project Details

Hinds Property	123069

Prepared By

KRL	Sept. 3, 2024

Forebay Design Criteria

Methodology & Data Source	Forebay dimensions per equations 4.5, 4.6, 4.7, and forebay cleanout frequency per Table 6.3 of Ministry of Environment, Conservation and Parks (MECP) Stormwater Management Planning & Design Manual (SWMPDM) March 2003.

Design Forebay Characteristics

Forebay Length (L)	=	37	m
Forebay Width (W)	=	16	m
Forebay Length-to-Width Ratio (r)	=	2.3	
Depth of Permanent Pool	=	1.0	m
Water Quality Outflow (Q_{qual})	=	0.011	m^3/s
Settling Velocity (V_s)	=	0.0003	m/s
Forebay Velocity (V_f)	=	0.50	m/s
Cleanout Sediment Depth	=	0.50	m
Cleanout Sediment Volume (Vol)	=	61	m^3

Catchment Characteristics

Contributing Sewer Area (A_{se})	=	12.29	ha
Area Avg. Impervious	=	22%	
Sediment Loading (Load)	=	0.60	m^3/ha
Forebay Inlet Flow Rate (Q_5)	=	0.996	m^3/s
Target Removal Effciency (Ef	=	80%	

Settling Length

$$L = \sqrt{\frac{r \times Q_{qual}}{V_s}} = 9.1 \text{ m}$$

Dispersion Length

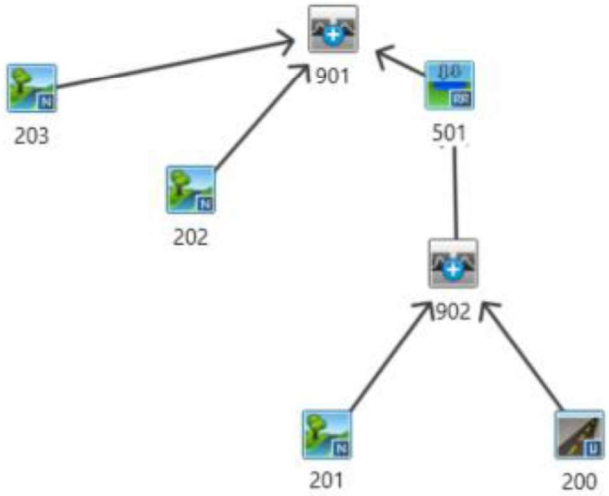
$$L = \frac{8 \times Q_5}{d \times V_f} = 31.9 \text{ m}$$

Forebay Cleanout Frequency

$$\text{Cleanout} = \frac{Vol}{Load \times A_{sew} \times Eff} = 10 \text{ years}$$

Appendix C:
Proposed Condition Hydrology

PROJECT	Hinds Brook Residential Development	FILE	123069
		DATE	Sept. 3, 2024
SUBJECT	Proposed Condition Otthymo Schematic	NAME	AO
		PAGE	1 OF 1



NASHYD

ROUTE PIPE

DUHYD

STANDHYD

ROUTE CHANNE

DIVERT HYD

ADDHYD

ROUTE RESERVC

TATHAM ENGINEERING

Percent Impervious Calculations Post-Development

Project Details

Hinds Property	123069

Prepared By

KRL	Sept 3, 2024

Data Sources	Town of The Blue Mountains, Engineering Standards, May 29, 2023.

Watershed: GSCA

Impervious Area and Runoff Coefficient (C) for Catchment

Catchment ID		200	201	202	203	
Catchment Area		6.59	5.70	12.60	0.21	
Land Cover Category	**XIMP**	**Area (ha)**	**Area (ha)**	**Area (ha)**	**Area (ha)**	**TIMP**
Paved	0.95		0.02	0.03		1.00
Gravel	0.50		0.05	0.29		0.60
Woodland	0.00		3.91	8.35	0.21	0.00
Pasture/Lawns	0.00	0.50	0.10			0.00
Meadows	0.00			1.35		0.00
Cultivated	0.00		1.62	1.35		0.00
Multi Residential	0.55	6.09		1.23		0.75
Waterbody	0.95					0.50
TIMP		69%	1%	9%	0%	
XIMP		51%	1%	7%	0%	

Notes:

TIMP - Total Impervious Area
XIMP - Directly Connected Impervious Area
TIMP, XIMP & C values averaged/estimated & should be adjusted to reflect site-specific parameters

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (NasHYD)

Project Details

Hinds Property	123069

Prepared By

Kyle Latter	Sept 3, 2024

Data Sources

Detailed Soil Survey Reports for Ontario, GSCA Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (2010), MTO Drainage Management Manual (1997)

Post Development Condition

Watershed:	GSCA
Catchment ID:	201
Catchment Area (ha):	5.70
Impervious %:	0%

Average Curve Number (CN), Runoff Coefficient (C) and Initial Abstraction (IA)

Soil Symbol		**Wsl**											
Soil Series		Waterloo											
Hydrologic Soils Group		A											
Soil Texture		Sandy Loam											
Runoff Coefficient Type		1											
Area (ha)		5.70											
Percentage of Catchment		100%											
Land Cover Category	**IA**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**
Impervious	2	0.02	100	0.95									
Gravel	3	0.05	89	0.14									
Woodland	10	3.91	32	0.12									
Pasture/Lawns	5	0.10	49	0.15									
Meadows	8		38	0.14									
Cultivated	7	1.62	62	0.30									
Waterbody	12		50	0.05									
Average CN		41.56											
Average C		0.17											
Average IA		8.97											

Time to Peak Calculations

Max. Catchment Elev. (m):	211.00
Min. Catchment Elev. (m):	189.00
Catchment Length (m):	255
Catchment Slope (%):	8.63%
Method: Airport Method	
Time of Concentration (mins):	23.65

Summary

Catchment CN:	41.6
Catchment C:	0.17
Catchment IA (mm):	8.97
Time of Concentration (hrs):	0.39
Catchment Time to Peak (hrs):	0.26
Catchment Time Step (mins):	3.15

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (NasHYD)

Project Details

Hinds Property	123069

Prepared By

Kyle Latter	Sept 3, 2024

Data Sources

Detailed Soil Survey Reports for Ontario, GSCA Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (2010), MTO Drainage Management Manual (1997)

Post Development Condition

Watershed:	GSCA
Catchment ID:	202
Catchment Area (ha):	12.60
Impervious %:	8%

Average Curve Number (CN), Runoff Coefficient (C) and Initial Abstraction (IA)

Soil Symbol		**Wsl**											
Soil Series		Waterloo											
Hydrologic Soils Group		A											
Soil Texture		Sandy Loam											
Runoff Coefficient Type		1											
Area (ha)		12.60											
Percentage of Catchment		100%											
Land Cover Category	**IA**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**
Impervious	2	0.95	100	0.95									
Gravel	3	0.29	89	0.09									
Woodland	10	9.70	32	0.08									
Pasture/Lawns	5	0.31	49	0.10									
Meadows	8	1.35	38	0.09									
Cultivated	7		62	0.22									
Waterbody	12		50	0.05									
Average CN		39.50											
Average C		0.15											
Average IA		8.90											

Time to Peak Calculations

Max. Catchment Elev. (m):	209.00
Min. Catchment Elev. (m):	182.00
Catchment Length (m):	600
Catchment Slope (%):	4.50%
Method: Airport Method	
Time of Concentration (mins):	46.31

Summary

Catchment CN:	39.5
Catchment C:	0.15
Catchment IA (mm):	8.90
Time of Concentration (hrs):	0.77
Catchment Time to Peak (hrs):	0.51
Catchment Time Step (mins):	6.17

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (NasHYD)

Project Details

Hinds Property	123069

Prepared By

Kyle Latter	Sept 3, 2024

Data Sources

Detailed Soil Survey Reports for Ontario, GSCA Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (2010), MTO Drainage Management Manual (1997)

Post Development Condition

Watershed:	GSCA
Catchment ID:	203
Catchment Area (ha):	0.21
Impervious %:	

Average Curve Number (CN), Runoff Coefficient (C) and Initial Abstraction (IA)

Soil Symbol		**Wsl**											
Soil Series		Waterloo											
Hydrologic Soils Group		A											
Soil Texture		Sandy Loam											
Runoff Coefficient Type		1											
Area (ha)		0.21											
Percentage of Catchment		100%											
Land Cover Category	**IA**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**
Impervious	2		100	0.95									
Gravel	3		89	0.20									
Woodland	10	0.21	32	0.18									
Pasture/Lawns	5		49	0.22									
Meadows	8		38	0.20									
Cultivated	7		62	0.40									
Waterbody	12		50	0.05									
Average CN		32.00											
Average C		0.18											
Average IA		10.00											

Time to Peak Calculations

Max. Catchment Elev. (m):	202.00
Min. Catchment Elev. (m):	191.00
Catchment Length (m):	65
Catchment Slope (%):	16.92%
Method: Airport Method	
Time of Concentration (mins):	9.51

Summary

Catchment CN:	32.0
Catchment C:	0.18
Catchment IA (mm):	10.00
Time of Concentration (hrs):	0.16
Catchment Time to Peak (hrs):	0.11
Catchment Time Step (mins):	1.27

```
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USER:


COMMENTS: _____________________________________________________________


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                                  min     ha   '  cms   hrs     mm          cms

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    remark: 25mm 4 hour Chicago

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 ** CALIB STANDHYD       0200  1  5.0    6.59    0.27  2.67  13.34 0.53   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    0.27  2.67   7.45  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.01  4.58   7.35  n/a   0.000
```

```
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.01  3.33   0.64  n/a   0.000
*
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e7ad8-e1fb-4b0d-8180-b3a2e7ef4304\sc
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C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\101
e7ad8-e1fb-4b0d-8180-b3a2e7ef4304\sc


DATE: 09/04/2024                          TIME: 01:57:49

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : b - 2yr 4hr 10min Chicago     **
  ************************************************

  W/E COMMAND            HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                                    min     ha    '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    CHIC STORM                10.0
    [ Ptot= 36.07 mm ]
*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.03  2.08   1.77 0.05   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    CHIC STORM                10.0
    [ Ptot= 36.07 mm ]
*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.00  1.42   1.18 0.03   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    CHIC STORM                10.0
    [ Ptot= 36.07 mm ]
*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.02  1.67   1.76 0.05   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    CHIC STORM                10.0
    [ Ptot= 36.07 mm ]
*
 *  CALIB STANDHYD       0200  1  5.0    6.59    0.67  1.33  20.39 0.57   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    0.67  1.33  11.75  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.01  4.17  11.65  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.03  2.08   1.76  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.04  2.17   6.61  n/a   0.000
*
================================================================================
=======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL
```

```
        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\597
a65cd-8643-4651-8df6-32b9af484cd8\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\597
a65cd-8643-4651-8df6-32b9af484cd8\sc


DATE: 09/04/2024                          TIME: 01:57:51

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : c - 5yr 4hr 10min Chicago     **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    CHIC STORM                10.0
    [ Ptot= 45.36 mm ]
*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.06  2.00   3.12 0.07   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    CHIC STORM                10.0
    [ Ptot= 45.36 mm ]
*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.00  1.42   2.13 0.05   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    CHIC STORM                10.0
    [ Ptot= 45.36 mm ]
*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.04  1.58   3.11 0.07   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    CHIC STORM                10.0
    [ Ptot= 45.36 mm ]
*
 *  CALIB STANDHYD       0200  1  5.0    6.59    0.95  1.33  26.64 0.59   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    0.96  1.33  15.73  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.02  4.17  15.63  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.06  2.00   3.11  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.07  2.00   9.24  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
```

```
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\5f9
6e3cc-58c4-4e31-9673-35f5836123f0\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\5f9
6e3cc-58c4-4e31-9673-35f5836123f0\sc

DATE: 09/04/2024                          TIME: 01:57:51

USER:

COMMENTS: _____________________________________________________

  ************************************************
  ** SIMULATION : d - 10yr 4hr 10min Chicago    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    CHIC STORM               10.0
    [ Ptot= 54.54 mm ]
*
 ** CALIB NASHYD        0202  1  5.0   12.60    0.08  2.00   4.79 0.09   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    CHIC STORM               10.0
    [ Ptot= 54.54 mm ]
*
 ** CALIB NASHYD        0203  1  5.0    0.21    0.00  1.42   3.33 0.06   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    CHIC STORM               10.0
    [ Ptot= 54.54 mm ]
*
 ** CALIB NASHYD        0201  1  5.0    5.70    0.06  1.58   4.77 0.09   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    CHIC STORM               10.0
    [ Ptot= 54.54 mm ]
*
 *  CALIB STANDHYD       0200  1  5.0    6.59    1.13  1.33  33.09 0.61   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.15  1.33  19.96  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.04  4.08  19.86  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.09  2.00   4.77  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.10  2.00  12.16  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\79d
0ce6d-7f4e-47e8-a097-3963037d8ed8\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\79d
0ce6d-7f4e-47e8-a097-3963037d8ed8\sc

DATE: 09/04/2024                          TIME: 01:57:52

USER:

COMMENTS: _____________________________________________________
```

```
  ************************************************
  ** SIMULATION : e - 25yr 4hr 10min Chicago    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    CHIC STORM                10.0
    [ Ptot= 65.03 mm ]
*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.13  2.00   7.08 0.11   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    CHIC STORM                10.0
    [ Ptot= 65.03 mm ]
*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.00  1.42   5.00 0.08   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    CHIC STORM                10.0
    [ Ptot= 65.03 mm ]
*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.09  1.58   7.06 0.11   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    CHIC STORM                10.0
    [ Ptot= 65.03 mm ]
*
 *  CALIB STANDHYD        0200  1  5.0    6.59    1.43  1.33  40.74 0.63   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]   0902  3  5.0   12.29    1.47  1.33  25.12  n/a   0.000
*
 ** Reservoir
    OUTFLOW:              0501  1  5.0   12.29    0.08  4.00  25.02  n/a   0.000
*
    ADD [  0202+  0203]   0901  3  5.0   12.81    0.13  2.00   7.04  n/a   0.000
*
    ADD [  0901+  0501]   0901  1  5.0   25.10    0.16  2.25  15.84  n/a   0.000
*
================================================================================
======================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
```

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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\4f8
c843f-e3a2-4442-8f04-7aa9e4da7af3\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\4f8
c843f-e3a2-4442-8f04-7aa9e4da7af3\sc


DATE: 09/04/2024                          TIME: 01:57:51

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : f - 50yr 4hr 10min Chicago    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    CHIC STORM                10.0
    [ Ptot= 70.73 mm ]
*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.16  2.00   8.48 0.12   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
```

```
*
    CHIC STORM                10.0
    [ Ptot= 70.73 mm ]
*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.00  1.33   6.03 0.09   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    CHIC STORM                10.0
    [ Ptot= 70.73 mm ]
*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.11  1.58   8.46 0.12   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    CHIC STORM                10.0
    [ Ptot= 70.73 mm ]
*
 *  CALIB STANDHYD        0200  1  5.0    6.59    1.64  1.33  45.00 0.64   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.68  1.33  28.05  n/a   0.000
*
 ** Reservoir
    OUTFLOW:              0501  1  5.0   12.29    0.09  3.67  27.95  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.16  2.00   8.44  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.22  2.17  17.99  n/a   0.000
*
================================================================================
=======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\b7a
022aa-4f64-421d-ae84-2771fdbfb160\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\b7a
022aa-4f64-421d-ae84-2771fdbfb160\sc


DATE: 09/04/2024                          TIME: 01:57:52

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : g - 100yr 4hr 10min Chicago   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    CHIC STORM                10.0
    [ Ptot= 79.93 mm ]
*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.20  2.00  10.96 0.14   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    CHIC STORM                10.0
    [ Ptot= 79.93 mm ]
*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.01  1.33   7.87 0.10   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    CHIC STORM                10.0
    [ Ptot= 79.93 mm ]
*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.14  1.58  10.94 0.14   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
```

```
    CHIC STORM                10.0
    [ Ptot= 79.93 mm ]
*
 *  CALIB STANDHYD       0200  1  5.0    6.59    1.82  1.33  52.02 0.65   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.88  1.33  32.97  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.10  4.00  32.87  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.20  2.00  10.91  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.30  2.08  21.67  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\583
06e63-98e7-415d-8c6e-ff970af90c13\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\583
06e63-98e7-415d-8c6e-ff970af90c13\sc


DATE: 09/04/2024                          TIME: 01:57:51

USER:
```

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : h - 2yr 6hr 15min SCS Type II **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\dda7e9d9-
5342-4502-bd8e-2
    remark: 2yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.03  3.83   1.76 0.05   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\dda7e9d9-
5342-4502-bd8e-2
    remark: 2yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.00  3.25   1.17 0.03   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\dda7e9d9-
5342-4502-bd8e-2
    remark: 2yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.02  3.42   1.75 0.05   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
```

```
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\dda7e9d9-
5342-4502-bd8e-2
    remark: 2yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB STANDHYD       0200  1  5.0    6.59    0.53  3.25  20.34 0.56   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    0.54  3.25  11.72  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.01  6.33  11.62  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.03  3.83   1.75  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.05  3.83   6.59  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\83c
0877e-556d-4d51-b1c1-245cef6014b0\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\83c
0877e-556d-4d51-b1c1-245cef6014b0\sc

DATE: 09/04/2024                          TIME: 01:57:52

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : i - 5yr 6hr 15min SCS Type II **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 54.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\b34013fb-
e31d-4a33-902b-2
    remark: 5yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.10  3.75   4.68 0.09   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                15.0
    [ Ptot= 54.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\b34013fb-
e31d-4a33-902b-2
    remark: 5yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.00  3.25   3.25 0.06   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                15.0
    [ Ptot= 54.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\b34013fb-
e31d-4a33-902b-2
    remark: 5yr 6hr 15min SCS Type II (MTO)
```

```
*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.07  3.42   4.67 0.09   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                15.0
    [ Ptot= 54.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\b34013fb-
e31d-4a33-902b-2
    remark: 5yr 6hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    0.85  3.25  32.70 0.61   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    0.90  3.25  19.70  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.03  6.25  19.60  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.10  3.75   4.66  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.11  3.75  11.98  n/a   0.000
*
================================================================================
=======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\409
1ef8f-d29b-48b0-bcfe-d34fa2ae6d0b\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\409
1ef8f-d29b-48b0-bcfe-d34fa2ae6d0b\sc


DATE: 09/04/2024                          TIME: 01:57:50

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : j - 10yr 6hr 15min SCS Type I **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 60.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\d2d01f90-
3276-4924-afc7-d
    remark: 10yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.12  3.75   5.93 0.10   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                15.0
    [ Ptot= 60.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\d2d01f90-
3276-4924-afc7-d
    remark: 10yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.00  3.25   4.16 0.07   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                15.0
    [ Ptot= 60.00 mm ]
```

```
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\d2d01f90-
3276-4924-afc7-d
    remark: 10yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.09  3.42   5.91 0.10   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                15.0
    [ Ptot= 60.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\d2d01f90-
3276-4924-afc7-d
    remark: 10yr 6hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    0.97  3.25  37.03 0.62   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.03  3.25  22.60  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.05  5.33  22.50  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.12  3.75   5.90  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.15  3.92  14.03  n/a   0.000
*
================================================================================
=======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                ***** S U M M A R Y   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\681
4add8-0e7c-474d-88cf-a783b1ec0d19\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\681
4add8-0e7c-474d-88cf-a783b1ec0d19\sc


DATE: 09/04/2024                          TIME: 01:57:52

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : k - 25yr 6hr 15min SCS Type I **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\9bb828d3-
813c-482d-b0f4-f
    remark: 25yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.19  3.75   8.81 0.12   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\9bb828d3-
813c-482d-b0f4-f
    remark: 25yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.01  3.25   6.27 0.09   0.000
```

```
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                 15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\9bb828d3-
813c-482d-b0f4-f
    remark: 25yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.13  3.42   8.78 0.12   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                 15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\9bb828d3-
813c-482d-b0f4-f
    remark: 25yr 6hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    1.20  3.25  45.96 0.64   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.30  3.25  28.72  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.10  4.83  28.62  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.19  3.75   8.76  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.26  3.83  18.49  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


```
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```


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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\68c
d400a-2f7f-492d-b79c-30896142895c\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\68c
d400a-2f7f-492d-b79c-30896142895c\sc


DATE: 09/04/2024                          TIME: 01:57:52

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : 1 - 50yr 6hr 15min SCS Type I **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot= 78.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\ec06fbe0-
446d-430c-b7c8-9
    remark: 50yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.22  3.75  10.42 0.13   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                 15.0
    [ Ptot= 78.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\ec06fbe0-
```

```
446d-430c-b7c8-9
    remark: 50yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.01  3.25   7.47 0.10   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                 15.0
    [ Ptot= 78.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\ec06fbe0-
446d-430c-b7c8-9
    remark: 50yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.16  3.42  10.40 0.13   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                 15.0
    [ Ptot= 78.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\ec06fbe0-
446d-430c-b7c8-9
    remark: 50yr 6hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    1.32  3.25  50.54 0.65   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.44  3.25  31.92  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.10  4.83  31.82  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.22  3.75  10.37  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.32  3.75  20.88  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL
```

```
        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M  M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\635
96ed1-2f13-4a69-a267-ac5128898fcc\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\635
96ed1-2f13-4a69-a267-ac5128898fcc\sc


DATE: 09/04/2024                          TIME: 01:57:51

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : m - 100yr 6hr 15min SCS Type  **
  ************************************************

  W/E COMMAND            HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                 min     ha    '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot= 90.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\b574c5f1-
d9a0-4810-9296-e
    remark: 100yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.30  3.75  13.99 0.16   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
```

```
*
    READ STORM                15.0
    [ Ptot= 90.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\b574c5f1-
d9a0-4810-9296-e
    remark: 100yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.01  3.25  10.14 0.11   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                15.0
    [ Ptot= 90.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\b574c5f1-
d9a0-4810-9296-e
    remark: 100yr 6hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.22  3.42  13.96 0.16   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                15.0
    [ Ptot= 90.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\b574c5f1-
d9a0-4810-9296-e
    remark: 100yr 6hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    1.57  3.25  59.91 0.67   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.74  3.25  38.60  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.11  5.00  38.50  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.30  3.75  13.93  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.41  3.75  25.96  n/a   0.000
*
================================================================================
=======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
```

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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\37b
58560-c802-4e18-a28c-af573ee8310c\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\37b
58560-c802-4e18-a28c-af573ee8310c\sc


DATE: 09/04/2024                          TIME: 01:57:50

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : n- 2yr 12hr 15min SCS Type II **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 48.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\8ecba26e-
8541-499f-89d1-5
    remark: 2yr 12hr 15min SCS Type II (MTO)
```

```
*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.06  6.75   3.57 0.07   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                15.0
    [ Ptot= 48.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\8ecba26e-
8541-499f-89d1-5
    remark: 2yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.00  6.25   2.45 0.05   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                15.0
    [ Ptot= 48.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\8ecba26e-
8541-499f-89d1-5
    remark: 2yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.04  6.42   3.56 0.07   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                15.0
    [ Ptot= 48.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\8ecba26e-
8541-499f-89d1-5
    remark: 2yr 12hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    0.61  6.25  28.47 0.59   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    0.65  6.25  16.92  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.02 10.67  16.82  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.06  6.75   3.55  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.08  6.75  10.05  n/a   0.000
*
```

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


      V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\cfa
aeec8-e5cb-4624-afc3-1f35919cb3c4\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\cfa
aeec8-e5cb-4624-afc3-1f35919cb3c4\sc


DATE: 09/04/2024                          TIME: 01:57:52

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : o - 5yr 12hr 15min SCS Type I **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms


      START @  0.00 hrs
      --------------------
    READ STORM                15.0
```

```
    [ Ptot= 60.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\16814599-
5a24-4271-80f6-6
    remark: 5yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.11  6.75   5.93 0.10   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                 15.0
    [ Ptot= 60.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\16814599-
5a24-4271-80f6-6
    remark: 5yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.00  6.25   4.16 0.07   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                 15.0
    [ Ptot= 60.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\16814599-
5a24-4271-80f6-6
    remark: 5yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.08  6.42   5.91 0.10   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                 15.0
    [ Ptot= 60.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\16814599-
5a24-4271-80f6-6
    remark: 5yr 12hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    0.81  6.25  37.03 0.62   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    0.87  6.25  22.60  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.03 10.25  22.50  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.11  6.75   5.90  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.12  6.75  14.03  n/a   0.000
*
================================================================================
=======================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\eb8
dd69c-000c-42fe-a095-eeb01cccbef1\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\eb8
dd69c-000c-42fe-a095-eeb01cccbef1\sc


DATE: 09/04/2024                          TIME: 01:57:53

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : p - 10yr 12hr 15min SCS Type  **
  ************************************************

  W/E COMMAND            HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
```

```
                                min     ha    '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\f6a38152-
03b2-41a3-99be-0
    remark: 10yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.16  6.67   8.81 0.12   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\f6a38152-
03b2-41a3-99be-0
    remark: 10yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.01  6.25   6.27 0.09   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\f6a38152-
03b2-41a3-99be-0
    remark: 10yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.11  6.42   8.78 0.12   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\f6a38152-
03b2-41a3-99be-0
    remark: 10yr 12hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    1.01  6.25  45.96 0.64   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.10  6.25  28.72  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.07  8.25  28.62  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.16  6.67   8.76  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.21  6.83  18.49  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\261
17b93-ada7-4a48-b8cd-012bab24b18d\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\261
17b93-ada7-4a48-b8cd-012bab24b18d\sc


DATE: 09/04/2024                          TIME: 01:57:50

USER:


COMMENTS: _____________________________________________________________
```

```
  ***********************************************
  ** SIMULATION : q - 25yr 12hr 15min SCS Type  **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 84.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\e5d42f3d-
98b2-4734-8562-4
    remark: 25yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.22  6.67  12.15 0.14   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                15.0
    [ Ptot= 84.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\e5d42f3d-
98b2-4734-8562-4
    remark: 25yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.01  6.25   8.76 0.10   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                15.0
    [ Ptot= 84.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\e5d42f3d-
98b2-4734-8562-4
    remark: 25yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.16  6.42  12.12 0.14   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                15.0
    [ Ptot= 84.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\e5d42f3d-
98b2-4734-8562-4
    remark: 25yr 12hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    1.22  6.25  55.19 0.66   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.35  6.25  35.22  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.10  7.50  35.12  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.22  6.67  12.10  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.32  6.75  23.37  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\238
e7360-47aa-4f8d-9b5a-71119d942689\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\238
e7360-47aa-4f8d-9b5a-71119d942689\sc


DATE: 09/04/2024                          TIME: 01:57:50

USER:
```

```
COMMENTS: _____________________________________________________


  ***********************************************
  ** SIMULATION : r - 50yr 12hr 15min SCS Type  **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 96.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\db10a4d8-
5cd6-42ab-9750-f
    remark: 50yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.29  6.67  15.93 0.17   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                15.0
    [ Ptot= 96.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\db10a4d8-
5cd6-42ab-9750-f
    remark: 50yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.01  6.25  11.60 0.12   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                15.0
    [ Ptot= 96.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\db10a4d8-
5cd6-42ab-9750-f
    remark: 50yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.21  6.42  15.90 0.17   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                15.0
    [ Ptot= 96.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\db10a4d8-
5cd6-42ab-9750-f
    remark: 50yr 12hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    1.43  6.25  64.69 0.67   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.60  6.25  42.06  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.11  8.25  41.96  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.29  6.67  15.86  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.40  6.67  28.64  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                ***** S U M M A R Y   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\503
b1d13-3cb4-45b3-86a0-45eb72b9784a\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\503
b1d13-3cb4-45b3-86a0-45eb72b9784a\sc
```

```
DATE: 09/04/2024                          TIME: 01:57:51

USER:

COMMENTS: _____________________________________________________


  ***********************************************
  ** SIMULATION : s - 100yr 12hr 15min SCS Type **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot=108.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\bd3b43f3-
125c-4748-bc53-2
    remark: 100yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.37  6.67  20.12 0.19   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                15.0
    [ Ptot=108.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\bd3b43f3-
125c-4748-bc53-2
    remark: 100yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.01  6.25  14.78 0.14   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                15.0
    [ Ptot=108.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\bd3b43f3-
125c-4748-bc53-2
    remark: 100yr 12hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.27  6.42  20.08 0.19   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                15.0
    [ Ptot=108.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\bd3b43f3-
125c-4748-bc53-2
    remark: 100yr 12hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    1.76  6.25  74.41 0.69   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.97  6.25  49.21  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.13  8.25  49.11  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.37  6.67  20.03  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.49  6.67  34.27  n/a   0.000
*
================================================================================
======================


      V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                ***** S U M M A R Y   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
```

```
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\1f1
314f2-c48f-4dbf-99be-bdb8254b6f35\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\1f1
314f2-c48f-4dbf-99be-bdb8254b6f35\sc


DATE: 09/04/2024                          TIME: 01:57:50

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : t - 2yr 24hr 15min SCS Type I **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\d2286d28-
2432-40bf-80e1-a
    remark: 2yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.13 12.67   8.81 0.12   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\d2286d28-
2432-40bf-80e1-a
    remark: 2yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.00 12.25   6.27 0.09   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\d2286d28-
2432-40bf-80e1-a
    remark: 2yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.10 12.42   8.78 0.12   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\d2286d28-
2432-40bf-80e1-a
    remark: 2yr 24hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    0.92 12.25  45.96 0.64   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.00 12.25  28.72  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.05 14.25  28.62  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.13 12.67   8.76  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.16 12.83  18.49  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****
```

```
  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\fcc
9d558-9ebd-4c65-b898-66e79c59bf46\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\fcc
9d558-9ebd-4c65-b898-66e79c59bf46\sc


DATE: 09/04/2024                          TIME: 01:57:53

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : u - 5yr 24hr 15min SCS Type I **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\0ea19055-
1dbd-4724-be4f-4
    remark: 5yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.13 12.67   8.81 0.12   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\0ea19055-
1dbd-4724-be4f-4
    remark: 5yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.00 12.25   6.27 0.09   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\0ea19055-
1dbd-4724-be4f-4
    remark: 5yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.10 12.42   8.78 0.12   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                15.0
    [ Ptot= 72.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\0ea19055-
1dbd-4724-be4f-4
    remark: 5yr 24hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    0.92 12.25  45.96 0.64   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.00 12.25  28.72  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.05 14.25  28.62  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.13 12.67   8.76  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.16 12.83  18.49  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\d56b5e1d-02c0-437d-b8ff-91800c889395\sc
Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\d56b5e1d-02c0-437d-b8ff-91800c889395\sc

DATE: 09/04/2024 TIME: 01:57:53

USER:

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : v - 10yr 24hr 15min SCS Type  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot= 96.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\b844e261-
66c2-4225-9091-5
    remark: 10yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.25 12.67  15.93 0.17   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                 15.0
    [ Ptot= 96.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\b844e261-
66c2-4225-9091-5
    remark: 10yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.01 12.25  11.60 0.12   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                 15.0
    [ Ptot= 96.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\b844e261-
66c2-4225-9091-5
    remark: 10yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.18 12.42  15.90 0.17   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                 15.0
    [ Ptot= 96.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\b844e261-
66c2-4225-9091-5
    remark: 10yr 24hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    1.30 12.25  64.69 0.67   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    1.44 12.25  42.06  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.10 13.58  41.96  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.25 12.67  15.86  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.35 12.67  28.64  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL
```

```
        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\9a9
50214-a085-47fa-aff4-486bc1a2c9f1\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\9a9
50214-a085-47fa-aff4-486bc1a2c9f1\sc


DATE: 09/04/2024                          TIME: 01:57:52

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : w - 25yr 24hr 15min SCS Type  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot=120.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\9905e179-
fb81-472a-8275-a
    remark: 25yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.39 12.67  24.68 0.21   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                 15.0
    [ Ptot=120.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\9905e179-
fb81-472a-8275-a
    remark: 25yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.01 12.25  18.28 0.15   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                 15.0
    [ Ptot=120.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\9905e179-
fb81-472a-8275-a
    remark: 25yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.28 12.42  24.64 0.21   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                 15.0
    [ Ptot=120.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\9905e179-
fb81-472a-8275-a
    remark: 25yr 24hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    1.82 12.25  84.33 0.70   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    2.05 12.25  56.65  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.13 13.67  56.55  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.39 12.67  24.57  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.50 12.67  40.23  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
```

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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\31b
6e33d-b028-4764-8d2c-1942b4eb0a0c\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\31b
6e33d-b028-4764-8d2c-1942b4eb0a0c\sc


DATE: 09/04/2024                          TIME: 01:57:50

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : x- 50yr 24hr 15min SCS Type I **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot=120.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\d0c25f53-
4a05-42a9-b8fd-6
    remark: 50yr 24hr 15min SCS Type II (MTO)
*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.39 12.67  24.68 0.21   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                15.0
    [ Ptot=120.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\d0c25f53-
4a05-42a9-b8fd-6
    remark: 50yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.01 12.25  18.28 0.15   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                15.0
    [ Ptot=120.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\d0c25f53-
4a05-42a9-b8fd-6
    remark: 50yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.28 12.42  24.64 0.21   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                15.0
    [ Ptot=120.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\d0c25f53-
4a05-42a9-b8fd-6
    remark: 50yr 24hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    1.82 12.25  84.33 0.70   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    2.05 12.25  56.65  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.13 13.67  56.55  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.39 12.67  24.57  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.50 12.67  40.23  n/a   0.000
*
```

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


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\fd2
c345a-7603-42ee-9337-9e8fe862252c\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\fd2
c345a-7603-42ee-9337-9e8fe862252c\sc


DATE: 09/04/2024                          TIME: 01:57:53

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : y - 100yr 24hr 15min SCS Type **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot=144.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\21006139-
21f7-49b3-a867-a
    remark: 100yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.55 12.67  34.82 0.24   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                15.0
    [ Ptot=144.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\21006139-
21f7-49b3-a867-a
    remark: 100yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.02 12.25  26.16 0.18   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                15.0
    [ Ptot=144.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\21006139-
21f7-49b3-a867-a
    remark: 100yr 24hr 15min SCS Type II (MTO)

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.40 12.42  34.77 0.24   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                15.0
    [ Ptot=144.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\21006139-
21f7-49b3-a867-a
    remark: 100yr 24hr 15min SCS Type II (MTO)

*
 *  CALIB STANDHYD       0200  1  5.0    6.59    2.28 12.25 104.68 0.73   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    2.60 12.25  72.25  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.28 13.08  72.16  n/a   0.000
```

```
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.55 12.67  34.68  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.80 12.75  53.03  n/a   0.000
*
 FINISH

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

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


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\37f
28b37-3601-41e8-b0c6-bfe78466c86e\sc
  Summary filename:
C:\Users\AOverholt\AppData\Local\Civica\VH5\aa605678-1583-44ac-b73f-6faaa416c9b9\37f
28b37-3601-41e8-b0c6-bfe78466c86e\sc


DATE: 09/04/2024                          TIME: 01:57:50

USER:


COMMENTS: _____________________________________________________________
```

```
  ************************************************
  ** SIMULATION : z - TIMMINS                   **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\07cda0d7-
d2f9-4590-8741-b
    remark: TIMMINS

*
 ** CALIB NASHYD         0202  1  5.0   12.60    0.44  7.25  59.13 0.31   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.51]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\07cda0d7-
d2f9-4590-8741-b
    remark: TIMMINS

*
 ** CALIB NASHYD         0203  1  5.0    0.21    0.01  7.00  45.48 0.24   0.000
    [CN=32.0         ]
    [ N = 3.0:Tp 0.11]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\07cda0d7-
d2f9-4590-8741-b
    remark: TIMMINS

*
 ** CALIB NASHYD         0201  1  5.0    5.70    0.23  7.00  59.06 0.31   0.000
    [CN=39.5         ]
    [ N = 3.0:Tp 0.26]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname :
C:\Users\AOverholt\AppData\Local\Temp\15311b00-02ec-41e9-a097-75d28a83d5a5\07cda0d7-
d2f9-4590-8741-b
```

```
    remark: TIMMINS

*
 ** CALIB STANDHYD       0200  1  5.0    6.59    0.63  7.00 147.77 0.77   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0200+  0201]  0902  3  5.0   12.29    0.86  7.00 106.63  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0501  1  5.0   12.29    0.53  9.00 106.53  n/a   0.000
*
    ADD [  0202+  0203]  0901  3  5.0   12.81    0.44  7.25  58.91  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0   25.10    0.88  9.00  82.23  n/a   0.000
*
```

Appendix D:
Water Budget Calculations

TATHAM ENGINEERING

Water Budget
Climate Normal Data

Project Details

Hinds Property	123069

Prepared By

Andrew Overholt	Sept. 3, 2024

Water Budget Details

Methodology	Thornthwaite Method
Climate Data & Source	Thornbury SLAMA
	Climate Normal Data for 1984 to 2003 (Environment Canada)
Thornthwaite Coefficient	1.056

Month	Temp (°C)	Precip (mm)	Heat Index	PET (mm)	Daylight Factor	Adjusted PET (mm)	AET (mm)	Surplus (mm)	Deficit (mm)
Jan.	-6.3	100	0.0	0.0	0.77	0.0	0.0	100.0	0.0
Feb.	-5.4	68.4	0.0	0.0	0.87	0.0	0.0	68.4	0.0
Mar.	-1.5	64	0.0	0.0	1.00	0.0	0.0	64.0	0.0
Apr.	5.5	65.3	1.2	28.9	1.12	32.5	32.5	32.8	0.0
May	11.5	82.7	3.5	71.4	1.23	88.0	82.7	0.0	5.3
Jun.	16.7	79.1	6.2	107.1	1.29	138.1	79.1	0.0	59.0
Jul.	19.8	72.1	8.0	129.6	1.26	163.5	72.1	0.0	91.4
Aug.	19.2	78.2	7.7	115.9	1.17	135.1	78.2	0.0	56.9
Sep.	15.5	95.9	5.5	80.0	1.04	83.4	83.4	12.5	0.0
Oct.	9.1	87.3	2.5	41.4	0.92	37.9	37.9	49.4	0.0
Nov.	3.1	99.6	0.5	11.3	0.80	9.0	9.0	90.6	0.0
Dec.	-2.7	99.4	0.0	0.0	0.74	0.0	0.0	99.4	0.0
Total	**-**	**992**	**35.1**	**585.4**	**-**	**687.5**	**474.9**	**517.1**	**212.6**

Additional Notes

PET = Potential Evapotranspiration; AET = Actual Evapotranspiration

Equations

$PET = 16\left(\frac{L}{12}\right)\left(\frac{N}{30}\right)\left(\frac{10T_d}{I}\right)^{\alpha}$ Where

PET is the estimated potential evapotranspiration (mm/month)

T_d is the average daily temperature (degrees Celsius; if this is negative, use 0) of the month being calculated

N is the number of days in the month being calculated

L is the average day length (hours) of the month being calculated

$\alpha = (6.75 \times 10^{-7})I^3 - (7.71 \times 10^{-5})I^2 + (1.792 \times 10^{-2})I + 0.49239$

$I = \sum_{i=1}^{12}\left(\frac{T_{m_i}}{5}\right)^{1.514}$ is a heat index which depends on the 12 monthly mean temperatures T_{m_i}.[1]

TATHAM ENGINEERING

Water Budget

Pre and Post Development Comparison

Project Details

Hinds Property	123069

Prepared By

Andrew Overholt	Sept. 3, 2024

Pre-Development Catchment Details

Area (ha)	25.10
Pervious Area (ha)	25.07
Impervious Area (ha)	0.03

Post Development Catchment Details

Area (ha)	25.10
Pervious Area (ha)	19.36
Impervious Area (ha)	5.74

Infiltration Factor

Infiltration Factor	Pre-Development		Post Development	
	Pervious	Impervious	Pervious	Impervious
Topography	0.100	0.0	0.110	0.0
Soil	0.300	0.0	0.300	0.0
Land Cover	0.180	0.0	0.100	0.0
Infiltration Factor	0.580	0.0	0.510	0.0

Water Budget

Water Budget	Pervious	Impervious	Total	Pervious	Impervious	Total
Water Surplus (m^3)	76,337	91	76,428	58,950	17,478	76,428
Infiltration (m^3)	44,275	0	44,275	30,065	0	30,065
Runoff (m^3)	32,062	91	32,153	28,885	17,478	46,363
Reduction in Infiltration Volume (m^3)						**14,210**

Additional Notes

Infiltration Factors

Topography	Flat Land, average slope < 0.6 m/km	0.3
	Rolling Land, average slope 2.8 m to 3.8 m/km	0.2
	Hilly Land, average slope 28 m to 47 m/km	0.1
Soils	Tight impervious clay	0.1
	Medium combinations of clay and loam	0.2
	Open Sandy loam	0.4
Cover	Cultivated Land	0.1
	Woodland	0.2

(Stormwater Planning and Design Manual. MOE, 2003.)