AGENDA

PLANNING AND ZONING COMMITTEE

Planning and Zoning Committee: April 9, 2025 at 7:15 PM

Village Hall 740 Hillgrove Avenue, Western Springs, IL 60558

A. Call to Order

B. Approval of Minutes

1. February 6, 2025

C. Public Comment

D. Considerations

1. PC-2024-02 – McNaughton Development, LLC 5600 Wolf Road, Heritage Crossing, Major Amendment to a Planned Development, Major Change

E. New Business

F. Other Business

G. Adjournment

Individuals with disabilities who plan to attend / participate in this meeting and who require accommodations to allow them to observe and participate, or who have questions regarding accessibility of the meeting or facilities, are requested to contact Jill Izzo at 708-246-1800, extension 127.

Planning and Zoning Commission
Village Board Room
Thursday, March 06, 2025, 7:15 p.m.

Present: Chairman Phil Nawrocki
Member Jim Tyrrell
Heather Valone, Community Development Director
Ellen Bayer, Village Manager
Heidi Rudolph, Village President
Anne Skrodzki, Village Attorney

Call to Order: Chairman Nawrocki called the meeting to order at 7:35 pm.

Approval of Minutes: Member Tyrrell made a motion to approve the meeting minutes from February 6, 2025. Chairman Nawrocki seconded the motion. A voice vote was conducted, and the minutes were approved, with both Trustees voting aye.

Public Comment:
Resident Eric Herzog attended the meeting. Mr. Herzog commented that making changes to political signs could be opening pandora's box. Mr. Herzog also commented on potential changes to the size of political signs.

Text Amendments to Village Code Title 9 Chapter 10 Signs, Limitations on Municipal Regulations on Outdoor Political Signs on Residential Property and Placement of Political Signs and Election Activities at Polling Areas:

Director Valone provided a summary of the changes that the State of Illinois made related to political signs. Director Valone notes that these changes impacted the regulations of the Village. The State removed municipalities ability to restrict the time duration of political signs being posted. The location od political signs on election day was also restricted. Director Valone stated that the Village Code placed maximum time durations of political signs, however that is not loner permitted under the State's changes. The Village also restricts all signage within public rights-of-ways. However, the State's changes would allow for the placement of political signs within with public rights-of-ways if they were in a designated area at a polling place. Director Valone also discussed that the number of political signs could not be regulated.

President Rudolph asked what was considered a political sign.

Attorney Skrodzki disused the definition for political signs contained within Village Code. She also noted that the definition was not proposed to be amended.

Chairman Nawrocki and Member Tyrrell discussed the current permitted size of political signs and various alternative sizes and impacts.

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Member Tyrrell stated that he was recommending that the size remain a six square feet as currently regulated in code. Given that the number of signs could not be limited, having multiple signs that were 24 square feet in area seemed to large.

Chairman Nawrocki made a motion to recommend the item to the Village Board for discussion at the March 10, 2025 Village Board meeting.

Member Tyrrell seconded the motion. Director Valone then conducted a roll call, with Chairman Nawrocki voting "Aye" and Member Tyrrell also voting "Aye."

New Business: None

General updates and future meeting: The next Planning and Zoning meeting will be April 9th at 7:15pm.

Other Business: There is no other business to discuss this evening.

Adjournment: Chairman Nawrocki made a motion to adjourn the meeting. Trustee Tyrrell seconded the motion. A voice vote was conducted with both Trustees voting aye. Meeting is adjourned at 8:08 p.m.

Draft

AGENDA ITEM SUMMARY

PLANNING AND ZONING COMMITTEE

Planning and Zoning Committee: April 9, 2025

AGENDA ITEM D.1.

To: Planning and Zoning Committee
From: Heather Valone, Director of Community Development , Jeff Koza, Director of Engineering Services
CC: Ellen Baer, Village Manager, Casey Biernacki, Deputy Village Manager, Kelsey Fawell, Senior Planner, Michael Jurusik, Village Attorney, Anne Skrodzki, Village Attorney
RE: PC-2024-02 – McNaughton Development, LLC 5600 Wolf Road, Heritage Crossing, Major Amendment to a Planned Development, Major Change

Recommendation

Consider a recommendation to approve and advance the item for review and discussion of the Major Change for the Heritage Crossing Planned Development to the Villaeg Board.

Summary

On February 10, 2025, the Village Board approved Ordinance No. 25-3240 "An Ordinance Approving a Map Amendment to Rezone the 5600 South Wolf Road Property, Western Springs, Illinois, from the O – Limited Office Zoning District to the R4 – Multiple-Family Residence District; Approving an Application for a Conditional Use Permit for a Planned Development for the Construction and Operation of the Proposed 29 Unit Heritage Crossing Townhome Development Located at the 5600 South Wolf Road Property, Including the Approval of the Combined Preliminary / Final Development Plans, Subject to Village Plan Review Process, and Approval of Certain Development Allowances, Exceptions and Variations from the Village Zoning Regulations, Including a Waiver of the Five (5) Acre Minimum Lot Area Requirement and a Reduction of Certain Planned Development Requirements" ("O 25-3240") (Attachment 2). Section 3 of the O 25-3240 placed certain conditions on the approvals. Subsection 3(2)x required that the developer, McNaughton Development, LLC (the "Developer") revise the design of the stormwater bypass storm sewer that conveys the water from Wolf Road to the detention basin. The approved design contained a system of culverts and pipes below grade that manage the stormwater coming from Wolf Road. The condition required that the water be slowed to meet the Village's stormwater management code (Development Control Ordinance 10-11).

In order to address the Village's condition the Developer's engineer is recommending an increase of the size of the bypass culvert from an eight-foot by four-foot box culvert to a ten-foot by four-foot culvert. The Developer's engineer was unable to address the condition using the previously approved four by eight foot box culvert. In addition to increasing the size of the culvert, the Developer's engineer lowered the invert of the box culvert at the upstream end

near Wolf Road. In order to lower the culvert, the short open channel section between the Wolf Road culvert and the bypass culvert was modified with an increase in the height of the retaining walls and increasing the length of needed retaining walls. The Village's stormwater review consulting engineer Baxter & Woodman Consulting Engineers ("B&W") are currently reviewing these proposed changes to confirm they are in compliance with Village Code. Final review of the proposed changes by B&W will be completed in advance of the next Village Board meeting.

The Developer has also received comments from the Cook County Department of Transportation and Highways (the "CCDOTH"). CCDOTH comments have resulted in a change to the stormwater management facility located directly adjacent and partially within the Wolf Road right-of-way. As indicated in the Developer letter. CCDOTH is requiring the Developer to extend the existing culvert under Wolf Road along the abutment wall and northwesterly to the property line where it will daylight on to the property. There will be a rip rap transition point in this location as the stormwater continues into the proposed larger culvert as discussed above.

The Development Control Ordinance (the "DCO") Section 10-8-5 includes provisions for changes to Planned Developments after approval. The DCO has a three-tiered approach. A limited number of changes are permitted to be made administratively by the Director of Community Development during permitting. The second category is considered minor amendments (DCO Section 10-8-5D(3)). These changes are also limited to certain types of changes. Minor amendments are subject to Village Board approval. The third category is considered major changes. Drainage changes are specifically excluded as minor changes. As such, the proposed drainage changes are considered a major change to the Planned Development. Major changes require Village Board approval.

Conclusion

The Developer has updated the engineering plans in an attempt to comply with the conditions contained in O 25-3240 Section 3(2)x and CCDOTH. Provided the Village's stormwater review consulting engineer finds the proposed changes achieve the desired compliance with the ordinance condition, these changes will be a positive improvement to the development's stormwater management system and staff will recommend their approval..

Staff and the Village Attorney will be providing a copy of the draft ordinance for the Planning and Zoning Committee's review at the April 9, 2025 meeting. Staff will also be providing the B&W review comments for review in advance of the next Village Board meeting.

Attachments

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1. Applicant submittal package

2. Ordinance 25-3240 – *Attachments are omitted but available on the Village's website.*

Financial Impact

None.

Recommended Motion

I move to approve and advance the proposed Major Change to the Planned Development for review and discussion to the Village Board.

Strategic Plan Alignment

Economonic Development.

File Attachments

1. Applicant Submittal Package
2. O 25-3240

McNaughton DEVELOPMENT, LLC
YOUR LUXURY HOME BUILDER & DEVELOPER
40 YEARS OF EXCELLENCE 1983-2023

April 1, 2025

Heather Valone, AICP
Director of Community Development
Village of Western Springs
740 Hillgrove Ave.,
Western Springs, IL 60558

Re: Heritage Crossing

Dear Heather

I wanted to take this opportunity to explain what has transpired over the past several months as it relates to Heritage Court drainage system, the village review, and how DesignTek Engineering has concluded to modify the drainage system with a larger box culvert design that is now being proposed and is depicted in the development plans and the final stormwater report both dated March 17, 2025.

As the project was moving through the village's public hearing process, there were upwards of 70 comments that were pending and needing to be addressed. The main comment that triggered the need to re-evaluate the drainage system involved the request to bring the discharge velocity from the storm water/bypass drainage system to a velocity below 12 feet per second. It is important to note, that the design that was originally submitted included a 4'x6' box culvert to convey the offsite storm water through the site. This was an appropriate size to consider for the conveyance system, given the size matched what was previous constructed and installed under Wolf Road. However, in evaluating this design as it relates to the velocities being produced, it was determined that the culvert was slightly under designed for the flow rate and required a head on the upstream end for the design flows to be pushed through the culvert system. This head, and subsequent velocity, allowed the 4'x6' culvert to safely convey the flows without impacting upstream or downstream existing high-water levels. However, the velocity exceeded the mandated 12 feet per second. After reviewing the design using the 4'x6' box with multiple alternatives such as revising the slope, it was determined that the design presented in the March 17, 2025 plan is what was needed for the box culvert to meet the village's velocity requirements and all of the other conveyance and water elevation requirements (allowed us to match upstream and downstream existing elevations).

We then looked at enlarging the culvert, again, to reduce the velocity as requested by the Village. Through numerous iterations, DesignTek concluded the stormwater system with the 4'x10' culvert would improve the overall system by adequately conveying the storm water flows while lowering the velocity to levels below the requested velocity the village wanted to see

implemented. The newly proposed culvert size will carry the anticipated peak critical duration flows without any measurable surcharging. This is what allows the flow velocity to be reduced to the level acceptable to the Village. As a secondary advantage, the larger culvert size reduces any possibility that the culvert conveyance system becomes clogged due to debris or siltation given the almost 67% increase in cross sectional area in the culvert.

In addition to changing the size of the culvert within the development, the Cook County Highway Department is requiring us to extend the existing culvert which is under Wolf Road to the property line along the right-of-way. This work will be an extension of the existing poured in place concrete culvert north along the existing abutment wall and the northwesterly to the property line where it will daylight onto our site. There will be a rip rap transition point in this location as the stormwater then continues into the new 4' x 10' culvert. The extended Wolf Road culvert will be enclosed so not to effect site distance requirements and grade will be extended from the existing back of walk at a safe slope to eliminate the need for any fall protection (fencing/guardrail) within the site triangle.

If you have any additional questions, please feel free to let me know. We look forward to presenting this improvement to the planning and zoning committee on April 9th and the village board on April 14th.

Thank you.

Sincerely,

John Barry

April 1, 2025

Ms. Heather Valone
Director of Community Development
740 Hillgrove Avenue
Western Springs, Illinois 60558

RE: Heritage Crossing, Western Springs

Dear Ms. Valone

As the owner of the above referenced property please accept this letter as our authorization for McNaughton Development LLC to file an application for major amendment to the previously approved Heritage Crossing development.

If you have any questions, please feel free to contact me.

Thank you.

Sincerely,

Casey & Fran Gaik

FINAL ENGINEERING PLANS

FOR

HERITAGE CROSSING

WESTERN SPRINGS, ILLINOIS

LEGEND

EXISTING		PROPOSED
	SANITARY SEWER	
SS	SANITARY SERVICE	
	SANITARY MANHOLE	
	STORM SEWER	
	STORM SERVICE	
	CATCH BASIN	
	OPEN LID STORM MANHOLE	
	CLOSED LID STORM MANHOLE	
	STORM INLET	
	FLARED END SECTION	
WM	WATER MAIN	WM
WS	WATER SERVICE	WS
	VALVE VAULT	
	B-BOX	
	HYDRANT	
	VALVE BOX	
	STREET LIGHT	
	UTILITY POLE	
	RETAINING WALL	
	SILT FENCE	
XXX	CONTOUR	XXX
FM	FORCE MAIN	FM
XXX.X x	SPOT GRADES	XXX.XXx
	OVERFLOW ARROW	
TF XXX.XX	TOP OF FOUNDATION	TF=XXX.XX
FG XXX.XX	FINISH GRADE	FG=XXX.XX
FF XXX.XX	FINISH FLOOR	FF=XXX.XX
GF XXX.XX	GARAGE FLOOR	GF=XXX.XX

LEGAL DESCRIPTION

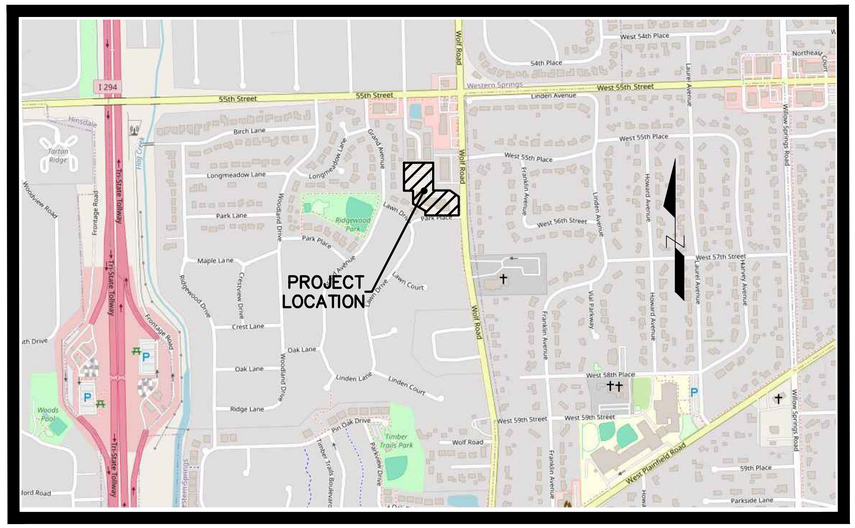
PARCEL 1: THE WEST 1/2 OF LOT 4 (EXCEPT THE NORTH 75 FEET THEREOF), LOTS 5 AND 6 IN MAXTED SUBDIVISION BEING A SUBDIVISION OF THE EAST 473 FEET OF THE NORTH 775.5 FEET (EXCEPT THE EAST 145.2 FEET OF THE WEST 178.2 FEET OF THE NORTH 350 FEET THEREOF) OF THE NORTH EAST 1/4 OF SECTION 18, TOWNSHIP 38 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

PARCEL 2: LOT 1 IN VIAL'S FAIRWAY, A SUBDIVISION OF PART OF THE NORTH EAST 1/4 OF SECTION 18, TOWNSHIP 38 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT RECORDED APRIL 17, 1957 AS DOCUMENT 16879637 IN COOK COUNTY, ILLINOIS.

OWNER:
McNAUGHTON DEVELOPMENT
11S220 JACKSON STREET
SUITE #101
BURR RIDGE, ILLINOIS 60527
(630) 325-3400

ENGINEER:
DESIGNTEK ENGINEERING, INC.
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326-4961

SURVEYOR:
DESIGNTEK ENGINEERING, INC.
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326-4961



LOCATION MAP
NOT TO SCALE

BENCHMARKS

BENCHMARK: (INITIAL) NGS PID: ME1716

BRASS DISK SET IN TOP OF CONCRETE MONUMENT LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF 55TH STREET AND WOLF ROAD. MONUMENT IS 80' NORTH OF THE CENTERLINE OF 55TH STREET AND 40' WEST OF THE CENTERLINE OF WOLF ROAD.

ELEVATION = 662.19' (NAVD 88)

BENCHMARK: (ON-SITE)

CROSS CUT IN TOP OF CURB LOCATED 47.71' SOUTH AND 3.55' EAST OF THE SOUTHEAST CORNER OF PARCEL 2 AS SHOWN HEREON.

ELEVATION = 665.70' (NAVD 88)

TOPOGRAPHIC SURVEY AND BOUNDARY NOTES:

THE TOPOGRAPHY AND BOUNDARY SHOWN HEREON WAS PREPARED BY WOLFPAK CONSULTING, LLC AND SUPPLIED BY THE CLIENT STATED HEREON.

TOPOGRAPHIC SURVEY AND BOUNDARY NOTES:

SUPPLEMENTAL TOPOGRAPHY SHOWN HEREON WAS PREPARED BY DESIGNTEK ENGINEERING, INC.

SITE DATA

AREA (PARCEL 1) =	40,163 SQ. FT. OR 0.92 ACRES
AREA (PARCEL 2) =	64,996 SQ. FT. OR 1.49 ACRES
TOTAL AREA =	105,159 SQ. FT. OR 2.41 ACRES

BASIS OF BEARING

THE WEST LINE OF LOTS 4, 5 AND 6 IN MAXTED SUBDIVISION = N 01°58'37" W (NAVD 88)

PARCEL IDENTIFICATION NUMBER

PARCEL ONE: 18-18-200-038-0000
PARCEL TWO: 18-18-200-017-0000

PERMIT TABLE

AGENCY	PERMIT #	APPROVAL DATE
MWRD	XXXXXXX	XX-XX-24
IEPA - WATER	XXXXXXX	XX-XX-24
IEPA - SANITARY	XXXXXXX	XX-XX-24
LaGRANGE HIGHLANDS - SANITARY SEWER MAIN	XXXXXXX	XX-XX-24
NPDES AND APPROPRIATE SCD	XXXXXXX	XX-XX-24
CCDOTH	XXXXXXX	XX-XX-24

Contact the Metropolitan Water Reclamation District of Greater Chicago 2 days before starting work.
P (708) 588-4055
E WMOJobStart@mwrd.org

INDEX OF PLAN SHEETS

1. COVER SHEET
2-3. PROJECT SPECIFICATIONS, GENERAL NOTES & EXHIBITS
4. EXISTING CONDITIONS & REMOVAL
5. SOIL EROSION & SEDIMENT CONTROL PLAN , NOTES & SPECIFICATIONS.
6. SOIL EROSION & SEDIMENT CONTROL DETAIL SHEET
7. GEOMETRIC PLAN
8. GRADING PLAN
9. UTILITY PLAN
10. UTILITY SERVICES PLAN
11. PLAN & PROFILE
12. INTERIM BY-PASS DRAINAGE SWALE PLAN
13-16. PROJECT CONSTRUCTION DETAILS
17-18. CROSS SECTION WOLF ROAD
19. ADA INTERSECTION DETAILS
20. WOLF ROAD DETAILS

NOTES:

1. THE EXACT LOCATION OF UNDERGROUND UTILITIES SUCH AS GAS, TELEPHONE, FIBER OPTIC, ELECTRIC, CABLE TV AND PIPE LINES ARE UNKNOWN. THE CONTRACTOR SHALL CONTACT JULIE (1-800-892-0123 OR 811) AND ALL OTHER UTILITY OWNERS WHICH ARE IN THE PROJECT LIMITS BEFORE COMMENCING EXCAVATION.

2. THE SUBSURFACE UTILITY QUALITY INFORMATION IN THIS PLAN IS LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI / ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILTIY DATA."

SURFACE WATER DRAINAGE CERTIFICATE

STATE OF ILLINOIS)
COUNTY OF WILL)

TO THE BEST OF OUR KNOWLEDGE AND BELIEF THE DRAINAGE OF SURFACE WATERS WILL NOT BE CHANGED BY THE CONSTRUCTION OF THESE LOT IMPROVEMENTS OR ANY PART THEREOF, OR THAT IF SUCH SURFACE WATER DRAINAGE WILL BE CHANGED, REASONABLE PROVISIONS HAVE BEEN MADE FOR THE COLLECTION AND DIVERSION OF SUCH WATERS INTO PUBLIC AREAS OR DRAINS WHICH THE OWNER HAS A RIGHT TO USE, AND THAT SUCH SURFACE WATERS WILL BE PLANNED FOR IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICES SO AS TO REDUCE THE LIKELIHOOD OF DAMAGE TO THE ADJOINING PROPERTIES BECAUSE OF THE CONSTRUCTION OF THESE LOT IMPROVEMENTS.

DATED 17TH DAY OF MARCH, 2025

LICENSED PROFESSIONAL ENGINEER
DENISE M. VIETH
062-059247
STATE OF ILLINOIS
exp 11/30/2025

Call Before You Dig
JULIE ILLINOIS ONE-CALL SYSTEM
CALL 1-800-892-0123 or 811
AT LEAST 48 HOURS (2 WORKING DAYS) BEFORE YOU DIG
WWW.ILLINOIS1CALL.COM

REVIEW SET
NOT FOR CONSTRUCTION

NO.	DATE	REVISIONS DESCRIPTION	BY
1	08-26-24	PER LOCAL LANDS SD	DMV
2	09-26-24	PER WESTERN SPRINGS REVIEW	DMV
3	10-17-24	PER VILLAGE REVIEW	SDD
4	11-04-24	PER CCDOTH REVIEW	DMV
5	12-12-24	PER VILLAGE REVIEW	DMV
6	01-27-25	PER DELIVERY REVISION	DMV
7	03-17-25	PER CCDOTH COMMENT	DMV
8	03-26-25	PER VILLAGE COMMENT	DMV

McNAUGHTON DEVELOPMENT
11S220 JACKSON ST. Ste. 101
BURR RIDGE, ILLINOIS 60527
(630) 325-3400

FINAL ENGINEERING PLANS
FOR
HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326-4961
FAX: (708) 326-4962
IL PROF. LIC. No.: 184-003740

DEI

PROJECT INFORMATION
Project No.: 24-0001
Scale: AS NOTED
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

1 OF 20

COVER SHEET

L:\Projects\2024\24-0001\Submittals\Plans\24-0001 Cover Sheet.dwg, 11x17 (1), 3/26/2025 4:15:24 PM, jay.dewitt

EARTHWORK

1. Topsoil Excavation Includes:
   a. Excavation of topsoil and other structurally unsuitable materials within those areas that will require earth excavation or compacted earth fill material, in order to achieve the plan subgrade elevations. The amount of topsoil to be stripped shall be verified in the field by a soils engineer.
   b. Placement of the excavated material in OWNER designated areas for future use within areas to be landscaped, and those areas not requiring structural fill material.
   c. Compaction of the excavated material where placed in areas not requiring structural fill material, shall be moderate.
   d. Excess materials, if not utilized as fill or if not stockpiled for future landscaping, shall be completely removed from the construction site and disposed of by the CONTRACTOR.
2. Earth Excavation Includes:
   a. Excavation of earth and other materials which are suitable for use as structural fill. The excavation shall be to within a tolerance of 0.3 feet (+) of the plan subgrade elevations. The (+) tolerance within pavement areas shall be such that the earth material shall "balance" as part of the fine grading operation.
   b. Placement of the earth and other suitable materials shall be within those areas requiring structural fill in order to achieve the plan subgrade elevations to within a tolerance of 0.3 feet (+). The fill material shall be placed in loose lifts that shall not exceed eight (8) inches in thickness, and the water content shall be adjusted in order to achieve the required compaction. Earth material may be placed within those portions of the building site not requiring structural fill, to within four (4) inches of the plan finished grade elevation. In areas requiring structural fill, however, the earth material shall not be placed over topsoil or other unsuitable materials unless specifically directed by a Soils Engineer with the concurrence of the OWNER.
   c. Compaction of the earth and other suitable materials, shall be to at least 95% of the maximum dry density as determined by the Modified Proctor Test, ASTM D1557 laboratory procedure within proposed pavement areas and building areas, an rear yards abutting to the proposed lakes. Moderate compaction is required elsewhere. All fill shall be placed in 8" lifts, loose measure.
   d. Excess materials, if not utilized as fill, shall be completely removed from the construction site and disposed of by the CONTRACTOR.
3. Unsuitable Material
   a. Unsuitable material shall be considered as material which is not suitable for the support of pavement and building construction, and is encountered below normal topsoil depths and the proposed subgrade elevation. The decision to remove said material, and to what extent, shall be made by a Soils Engineer with the concurrence of the OWNER in writing.
4. General

   The Grading CONTRACTOR shall:
   a. Maintain proper site drainage at all times during the course of construction, and prevent storm water from running into or standing in excavated areas.
   b. Spread and compact uniformly to the degree specified all excess trench spoil after completion of the underground improvements.
   c. Scarify and compact to the degree specified the upper twelve (12) inches of the suitable subgrade material, in all areas that may be soft due to excess moisture content. This applies to cut areas as well as fill areas.
   d. Provide water to add to dry material in order to adjust the moisture content for the purpose of achieving the specified compaction.
5. Testing and Final Acceptance
   a. The CONTRACTOR shall provide as a minimum, a fully loaded tri-axle dumptruck or similar equipment for proof rolling the pavement subgrade prior to the placement of the curb and gutter and the base material. In addition, the pavement aggregate base course shall also be proof rolled. The Village Engineer shall be notified 48 hours in advance of any proof roll.
   b. Specific compaction testing may be required by the OWNER in selected fill areas. The CONTRACTOR shall bear the cost of any compaction testing which does not meet specification as well as the responsibility and cost for the necessary correction(s).
   c. Approval of the pavement subgrade by the OWNER shall be required prior to the placement of the pavement materials.
   d. The subgrade soil shall be tested by a professional geotechnical engineer at the developer's expense and shall have a minimum designated Illinois Bearing Ratio (IBR equal to three (3).
   e. A soil investigation report shall be provided to the Village to verify the in situ IBR value. Pavement structures with subgrade soil having an IBR value less than three (3) shall have an increased pavement structure as necessary to carry the design traffic loading.
6. Method of Measurement
   a. As-built measurements of earthwork for the purpose of payment shall not apply. the quantities shown in the engineer's "quantity estimate" shall be utilized unless said quantities are adjusted by mutual consent of the owner and contractor prior to the signing and acceptance of a contract.
   b. The quantities as shown in the engineer's "quantity estimate" are those estimated by the engineer and are provided solely for the convenience of the contractor. the contractor by choosing to utilize these quantities in the preparation of his "lump sum" bid, also accepts their accuracy. the contractor is therefore encouraged to make his own independent earthwork calculation, and to visit the site prior to the preparation of his bid.
   c. Prior to the removal of unsuitable material, the contractor shall notify the owner for authorization to remove said material, upon authorization and removal, the contractor shall request that the unsuitable material shall be field measured by the engineer in place.
7. Basis of payment
   a. Payment for all earthwork shall be "lump sum". the contractor shall provide unit prices for earthwork for the purpose of contract adjustment, if required.
   b. Payment for the removal of unsuitable material shall be based on the quantities as field measured by the engineer. the contractor shall provide as part of his bid a unit price per cubic yard for the removal of unsuitable material. said unit price shall include the complete removal of the material, replacement with a suitable material obtained by the contractor from a borrow source, and compaction to the required specification.

UNDERGROUND UTILITIES - GENERAL

1. The Underground CONTRACTOR Shall:
   a. Adhere to the criteria for the separation between water mains and sanitary sewers, storm sewers, combined sewers, sewer services and septic fields according to the requirements stated in the IEPA Rules for Public Water Supplies (the formal citation is Title 35, Subtitle F, Chapter II, Parts 651–654). All sewer water main separations shall be constructed per the "Standard Specifications for Water and Sewer Main Construction in Illinois".
   b. Be responsible to place on grade, and coordinate with other CONTRACTORS, all underground utility structure frames such as manholes, catch basins, and inlets.
   c. Be aware of potential conflicts with existing utilities. The CONTRACTOR shall excavate around the existing utilities to determine their exact location and elevation prior to the construction of the proposed utility improvements. Should unforeseen conflicts be found, the CONTRACTOR shall contact the ENGINEER prior to constructing the proposed improvements.
   d. Adjust or reconstruct any existing utility structure to the satisfaction of the utility owner. Adjustments and/or reconstructions not called for on the plans shall be considered incidental to the contract. No more than two adjusting rings within a min. of four inches (4") and a max. of twelve inches (12") of adjusting rings.
   e. Provide poured concrete fillets conforming to the shape of the pipe in all sanitary and storm manholes, and inlets.
   f. Be responsible for maintaining the top of any utility trench at least three (3) feet away from any existing or proposed curb or pavement, in those instances where the trench runs parallel to said curb or pavement.
   g. Be responsible for the dewatering of utility trenches during construction and providing the necessary trench bracing that may be required to assure safe working conditions.
   h. Remove soft material that may be encountered at the pipe invert elevation to a depth of at least one (1) ft. below the bottom of the pipe, and backfill with compacted bedding material.
   i. No damage to the road subgrade with excessive water saturation from hydrant flushing or from leaks in the water distribution system. The cost of repair for such damage shall be borne by the CONTRACTOR. Hoses should be used to direct the water from hydrant flushing into the storm sewer system (if available).
   j. Repair any existing field drainage tile damaged during construction, and properly reroute and/or connect said tile to the nearest storm sewer outlet. All locations of encountered field drainage tile shall be properly indicated on the CONTRACTOR'S record drawing.
   k. Furnish one (1) set of Record drawings to the ENGINEER upon completion of the sanitary sewers and water mains. Drawings (or table of locations) shall indicate the location of all sanitary sewer wyes (measured from the nearest downstream manhole), sewer stubs, water service along main and b-boxes. The CONTRACTOR shall also furnish linear distance along water main from appurtenances to appurtenance (valve vault to tee, tee to bend, etc.).
   l. Be responsible for implementation of the "Soil Erosion and Sedimentation Control Measures" as applicable.
   m. Maintain erosion control measures (straw bales and filter fabric) until grass is established.
2. Method of Measurement
   a. All sanitary sewer, storm sewer, and water main pipe shall be measured in the field after its installation. Payment shall be based on these field measurements.
   b. All appurtenances such as manholes, catchbasins, inlets, valves and valve vaults, valve boxes, and fire hydrants, shall be paid for on the basis of in–place quantities.
   c. Trench backfill material shall be measured by multiplying the as–constructed length of pipe (where applicable) by the average depth of the pipe by the "Payment Quantities per foot of Conduit" listed in Table 1, pg. 138 and "Typical Detail of Conduit Installation", pg. 137 of the Standard Specification for Sewer and Water in Illinois. If requested, the CONTRACTOR shall provide load tickets to the ENGINEER for verification of the trench backfill material delivered to the construction site. Load tickets for bedding material shall be submitted separately.
3. Basis of Payment
   a. All sanitary sewer, water main, and storm sewer pipe shall be paid for at the contract unit price per LINEAL FOOT. The price shall include the necessary labor and material for a complete in–place installation, as well as all incidental construction, testing, bedding material, and connections to existing utilities.
   b. All appurtenances for the underground improvements shall be paid for at the contract unit price EACH, said price to include the necessary labor and material for a complete in–place installation. The price for manholes, inlets, and catchbasins shall also include the frame and grate and all incidental construction. The price for fire hydrants shall also include a six (6) inch valve and box, and all incidental construction.
   c. Trench backfill material shall be paid for at the contract unit price per CUBIC YARD. Compaction must be made by mechanical methods.
4. As–Built Water & Sanitary Services
   a. As–built locations shall be provided for all water and sanitary sewer stubs. They shall also be stamped on the curb.
5. Structure Castings
   a. Frames and lids (or grates) for sanitary, watermain and storm sewer structures shall be as indicated on the plans, and the cost of same shall be integrated into the representative structure costs. Each structure lid shall be cast with text identifying the type of structure (storm, sanitary, water).
   b. Manhole castings shall be adjusted to finished grade using precast adjusting rings set on bitumastic material. All structures shall have no more than two adjusting rings w/ a min. of four inches (4") and a max. of twelve inches (12") of adjusting rings.
   c. All frames shall be set on a mastic bed with all gaps tuck pointed.
   d. All castings shall be made in the U.S.A. with U.S.A. materials.
6. Trench Backfill
   a. Bedding, haunching and the initial backfill shall consist of IDOT CA–7, CA–11 OR CA–19 aggregate. The initial backfill shall be placed to at least 12" above the pipe.
   b. Final backfill of the trench shall be accomplished by careful replacement of the excavated material. Any pipe installed under or within a 45 degree angle of repose (1:1) from the top of pipe to the edge of pavement, driveway (when driveway location is known) or curb and gutter shall be backfilled to the top of the trench with compacted IDOT CA–7, CA–11 or CA–19 material.
   c. Compaction shall be in achieved using 8" lifts (uncompacted) and mechanical compaction to 95% density. All costs for compaction and testing shall be paid for by the Developer or Contractor. Results shall be copied to the Village Engineer.

SANITARY SEWER

1. Material shall be:
   a. Green polyvinyl chloride pipe (PVC) SDR 26.
   b. PVC SDR 26 or D.I.P. CL 52.
   c. sewer pipe and fittings shall be in accordance with ASTM D–3034 for sizes 4"–15" (100–375 mm).
2. Joints shall be:
   a. for PVC; flexible elastomeric seal joints, ASTM D–3139, pressure joint.
   b. for DIP; rubber gasket joints, ANSI A21.11
3. Bedding shall be as detailed on the Engineering Plan.
4. Minimum size for mains shall be eight inches (8") and the minimum size for services shall be 6".
5. Wyes or Tees shall be provided on the new sanitary sewers for proposed building services.
6. "Band Seal" or similar couplings shall be used when joining pipes of dissimilar materials.
7. All sanitary structures shall have an external wrap, MAC or approved equal.
8. Polyethylene encasement shall be provided for all DIP sanitary sewer in accordance with AWWA latest standards.
9. Prior to pipe laying and jointing, the trench shall be sufficiently dewatered to maintain the water level in the trench at or below the base of the bedding. State / Federal permits, license agreements or other required approvals shall be obtained prior to dewatering.
10. Where separation from water main cannot be maintained as required per Illinois specifications, the sanitary sewer shall be mechanical joint PVC pressure pipe meeting C–900 or C–905.
11. Sewers shall be laid straight in both horizontal and vertical planes between manholes with a minimum cover of 4 feet.
12. Sanitary sewers shall be located a minimum of 10 feeet from any building and meet separation requirements of the Standard Specifications for Water and Sewer Main Construction in Illinois.
13. Services shall be a minimum 6 inches and extend to the property line or beyond any utility located in the front yard of a lot being served (single–family development), or to within five (5) feet from the face of a proposed building being served (multi–family and commercial development). The termination points shall be clearly located with a green–topped 4 inch x 4 inch stake extending a minimum 3 feet above final grade. The service lines shall be connected to the sewer using a wye at the 10:00 and 2:00 positions. Service lines not immediately connected to the building to be served shall be tightly plugged, using a plug provided by the pipe manufacturer for such use.
14. Testing and Final Acceptance
   a. Sanitary sewer mains and services shall be tested for exfiltration of air under pressure and deflection for flexible thermoplastic pipe in accordance with the Standard Specifications for Water and Sewer Construction in Illinois prior to their final acceptance. Allowable testing limits shall be as described in the "Standard Specifications" unless the local requirements are more restrictive. Service stubs must be properly plugged and sealed and clearly located at their termination points prior to testing. All sewer mains, service lines and manholes shall be clean and free of debris prior to their final acceptance. Sanitary Sewer shall be inspected and tested in accordance with the local jurisdictional requirements for television inspection and reviewed by the Village Engineer. Two copies of all test results shall be provided to the Municipality.
   b. Sanitary Manhole structures shall be tested, prior to acceptance, for watertightness by either of the following methods in conformance with the requirements specified: ASTM C 969: "Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines." OR ASTM C 1244: "Standard Test Method for Concrete Sewer Manholes by the Negative Pressure (Vacuum) Test."
   c. All public sanitary sewer extensions shall be internally video taped by remote camera. Tapes shall be in color using VHS or CD–ROM format and submitted with written reports to the Village Engineer for review and approval priot to acceptance of the sewer improvements by the Village.
   d. LaGrange Highlands will be the agency responsible for sewer main acceptance.

WATER MAIN

1. The Village of Western Springs is the agency responsible for the water main.
2. All installations shall conform to the requirements of the Standard Specifications for Water and Sewer Main Construction in Illinois.
3. Material for main pipe and fittings shall be class 52 ductile iron pipe with poly wrap for the public water main per AWWA C–151, with mechanical and push–on joints complying with AWWA C–111.
4. Material for the services shall be soft temper, Type K, copper water tubing, conforming to ASTM latest standard w/ compression fittings, unless otherwise noted on the plans.
5. Sizes for main & service lines shall be as indicated on the Engineering Plan.
6. Connections to Village water system shall be made under full water service pressure. Unless noted on plans and Village approval granted for shutdown. Shutdown requests need to be made to municipal services department 4 days prior to desired shutdown date. Contractor required to distribute shutdown notices to any impacted customers 2 business days prior. Village to provide notice text.
   a. Tapping sleeves shall include two piece bolted sleeve type with mechanical joints, Mueller–H615, or equal with joint accessories.
   b. Tapping valves shall include fully ported gate valves complying with AWWA C500 and mechanical joints type, Mueller–H667 or equal. Tapping valves shall be placed in precast concrete vaults.
7. The shut–off valve or curb stop for services shall be located as shown on the plans and shall be installed with a valve box of design approved by the Municipality. The termination point shall be clearly located with a blue–topped 4 inch x 4 inch stake extending a minimum of 3 feet above and below final grade.
8. Valves: Mueller, Clow or equal mechanical joint, resilient wedge seat, cast iron, bronze–mounted, O–ring seal, bronze non–rising stems, gate valves. Valvesshall open left and be tested to 500 psi with a 250 psi working pressure.
9. Water services, where indicated on the "Quantity Estimate" as "long" or "short", shall include the necessary length of Type "K": copper water tube of the size shown on the plans, corporation stop, curb stop, and service box, and all necessary labor, tools, equipment, excavation & backfill, for a complete installation as shown on the Engineering plans. Trench backfill will be paid for separately, when required.
10. Valve Boxes
    a. Valve boxes shall be adjustable, 3–piece cast iron, 5–1/4 inch shaft roadway–type and no–tilit drop cover with "WATER" cast into it.
    b. Valve box stabilizer of PVC manufactured by Valve Box Stabilizer, Inc. for six–inch (6") and eight–inch (8") valve boxes shall be provided.
    c. Valve box must have additional upward or downward travel when adjusted to finished grade.
11. Valve Vaults
    a. All valve vaults shall be precast reinforced concrete only.
    b. All valve vaults shall have no more than two adjusting rings with a minimum of four inches (4") and a maximum of twelve inches (12") of adjusting rings.
    c. All lifting holes, joints between precast reinforced concrete sections, rubber gaskets cast into concrete structures need to be water tight and shall be tuckpointed with hydraulic cement.
    d. All castings shall be set on bitumastic material.
    e. Bitumastic material shall be placed between precast reinforced concrete sections.
    f. All valve vaults shall have neoprene coated or fiberglass steps.
    g. Vaults and boxes shall not be allowed under streets, sidewalks or driveways.

WATER MAIN

11. Fire Hydrants
    a. Fire Hydrants shall be Mueller super centurian 250. Factory painted safety red with 5–1/4 inch valve opening and shall be painted red.
    b. The hydrant shall be for a five foot (5') bury with mechanical joint shoe and have two 2–1/2 inch hose connections and one four and one–half inch (4–1/2") male pumper connection. Thread shall be National Standard.
    c. The hydrant shall have a break–away traffic flange and connections.
    d. All fire hydrants not in service shall be bagged.
    e. Hydrants leads shall be six–inch (6") swivel anchoring coupling. Hydrant tees shall be used in lieu of swivel anchoring coupling pipe where required to meet plan locations.
    f. The maximum distance between fire hydrants shall be 350 feet.
    g. All fire hydrants shall be kept clear of obstructions within three (3) feet in all directions. This shall include posts, fences, vehicles, growth, trash, storage, and any other material or objects.
    h. All fire hydrants to have a 10 pound anode bag attached to the hydrant.
12. Pipe Cover and Separation
    a. Cover over water pipes shall be a minimum of 5.5 feet.
    b. Horizontal and vertical separation shall meet requirements of the "Standard Specifications for Water and Sewer Main Construction in Illinois." Locations requiring alternative materials are noted on the plans.
13. Pipe Laying
    a. The contractor shall keep the trench free from water while the water main is being placed and until the pipe joint has been sealed to the satisfaction of the Village Engineer.
    b. Adequate provisions shall be made for the safety, storage, and protection of all water pipe prior to installation in the trench. Care shall be taken to prevent damage to the pipe castings, both inside and out. Provisions shall be made to keep the inside of the pipe clean throughout its storage period and to keep mud and/or other debris from being deposited therein. All pipe shall be thoroughly cleaned on the inside before laying of the pipe. Proper equipment shall be used for the safe handling, conveying, and laying of the pipe so as to prevent damage to water main materials and protective coatings and linings. Under no circumstances shall water main materials be dropped or dumped into the trench.
    c. In making joints, all portions of the jointing materials and the socket and spigot ends of the joining pipe shall be wiped clean of all foreign materials. The actual assembly of the jointing shall be in accordance with the manufacturer's installation instructions. During construction, until jointing operations are complete, the open ends of all pipes shall at all times be protected and sealed with temporary watertight plugs.
    d. During water main installation, to make a closure between two pipe ends, or between pipe end fittings, or between pipe end and valve, short lengths shall be used with proper connections or couplings. Repair sleeves shall not be used to make closures during new construction.
    e. All pipe and trenching shall be viewed and approved by the Municipality prior to cover and backfill.
    f. All bends of 22–1/2 degrees or greater, and all tees and plugs shall be thrust protected to prevent movement of the line under pressure. Thrust protection may also be attained by the use of a combination or retaining glands and threaded rods. All locations of thrust blocking or retaining glands/rods need to be marked on the as built drawing.
14. Testing and Disinfection
    a. Water main shall be tested in accordance with AWWA C–600 & the local jurisdictional requirements prior to it final acceptance. A 24 hour system pressure test needs to be performed as per the Standard Specifications. The pressure and leakage tests and disinfection of the mains shall be as described in the "Standard Specifications" unless the local requirements are more restrictive. All valve vaults shall be clean and free of debris and water, and individual service boxes shall be visible and clearly located prior to their final acceptance.
    b. The preferred point of application of the chlorinating agent shall be at the beginning of the pipeline extension or any valved section of it and through a corporation stop in the top of the newly laid pipe. The injector for delivering the chlorine gas into the pipe should be supplied from a tap on the pressure side of the gate valve controlling the flow into the pipeline extension.
    c. Water from the existing distribution system or any other source of supply shall be controlled so as to flow slowly into the newly laid pipeline during the application of chlorine–gas. The rate of chlorine mixture flow shall be in such proportion to the rate of water entering the pipe that the chlorine dose applied to the water entering the newly laid pipe shall be at least fifty parts–per–million (50ppm), or enough to meet the requirements during the retention period.
    d. Valves shall be manipulated so that the strong chlorine solution in the line being treated shall not flow back into the line supplying the water. The pipe section being chlorinated shall be kept at a lower pressure than the water system pressure.
    e. Treated water shall be retained in the pipe long enough to destroy all spore–forming bacteria. This retention period shall be at least twenty–four (24) hours. After the chlorine–treated water has been retained for the required time, the chlorine residual at the pipe extremities and at other representative points shall be at least twenty five parts–per–million (25ppm).
    f. In the process of chlorinating newly laid pipe, all valves or other appurtenances shall be operated while the pipeline is filled with the chlorinating agent.
    g. After all mains have been pressure tested, they shall be disinfected and tested according to the requirements of the Standards for Disinfecting Water Mains, AWWA C–601 and C–651, and as required by this Section. All disinfection, as required by this Section, shall be performed by an independent firm exhibiting experience in the methods and techniques of this operation, and shall be approved by the Village Public Works Department. The contractor shall obtain two samples of water from the main for bacteriological testing. A second series of samples shall be collected no less than 24 hours after the first set of samples has been collected. The contractor and the Village will be furnished with copies of the bacteriological report for their records.

STORM SEWER

1. All storm sewer shall conform to the requirements of The Standard Specifications for Water and Sewer Main Construction in Illinois
2. Storm sewers shall be reinforced concrete pipe conforming to ASTM C76 minimum Class III with O–ring joints conforming to ASTM C443.
3. Bedding shall be minimum of 6" of CA–7.
4. Minimum size shall be twelve inches (12").
5. Storm Structures
   a. Rear yard catch basins are not allowed.
   b. All storm structures shall be precast reinforced concrete only.
   c. All storm structures shall be set on a six–inch (6") CA–7 cushion.
   d. All storm structures shall have no more than two adjusting rings within a minimum of four inches (4") and a maximum of twelve inches (12") of adjusting rings.
   e. All lifting holes, joints between precast reinforced concrete sections, gaps between pipes and structures shall be tuckpointed with hydraulic cement.
   f. Bitumastic material shall be placed between precast reinforced concrete sections.
   g. All steps shall be fiberglass or neoprene coated.
   h. All structure connections shall be concrete sewer pipe, ASTM C14 for extra strength pipe
6. Storm sewer and all storm structures shall be clean and free of debris prior to their final acceptance. Storm Sewer shall be inspected and tested in accordance with the local jurisdictional requirements including television inspection for review by the Village Engineer.
7. All flared end sections less than 48" (effective diameter) require grates in accordance with IDOT specifications.
8. All castings shall be made in the USA with USA materials. Closed covers shall be stamped per Exhibit 2B. Open covers shall have the grates as specified in the plans.

PAVING CURBS AND SIDEWALK

1. Fine Grading
   a. Prior to the construction of the curb and gutter and the placement of the base material, the streets shall be fine graded to within 0.1 feet + of final subgrade elevation, to a point two (2) feet beyond the back of the proposed curb.
2. Curb and Gutter
   a. The curb and gutter shall be the type as detailed on the Engineering Plans.
   b. The curbs shall be backfilled after their construction and prior to the placement of the base course.
3. Pavement
   a. The pavement materials shall be as detailed on the Engineering Plans. Thickness specified shall be considered to be the minimum compacted thickness.
4. General. The Paving Contractor shall:
   a. Repair any base course and binder course failures prior to the installation of the final bituminous concrete surface course.
   b. Sweep clean the binder course prior to the installation of the final bituminous concrete surface course. Excessive cleaning of the binder course that may be required, and is not the fault of the Paving CONTRACTOR, shall be paid for on a time and material basis by prior agreement with the OWNER.
   c. Permit the bituminous concrete binder course to weather one (1) winter season prior to the installation of the bituminous concrete surface course.
   d. Street signs & Traffic signs.
5. Testing and Final Acceptance
   a. Prior to the placement of the base course, the subgrade must pass a proof roll test to be approved by the local jurisdictional authority. The Village shall be contacted at least 2 business days in advance of the proof roll. (See "Testing and Final Acceptance for Earthwork")
   b. Prior to placement of the bituminous concrete surface course, the CONTRACTOR if requested by the OWNER, shall obtain specimens of the binder course with a core drill where directed by the ENGINEER, for the purpose of thickness verification. Coring shall be in accordance with the applicable provisions of ART.406.15 of the Standard Specification entitled "Standard Specifications for Road and Bridge Construction". The cost for obtaining cores, which meet or exceed the specification, shall be borne by the OWNER.
   c. Deficiencies in the bituminous concrete binder course shall be adjusted for by increasing the plan thickness of the surface course with no additional cost to the OWNER.
   d. A nuclear density test must be conducted on asphalt pavement in accordance with IDOT standards.
   e. Final acceptance of the total pavement installation shall be subject to the testing and checking requirements cited above.
6. Method of Measurement
   a. Curb and Gutter, and base course shall be measured in the field by the CONTRACTOR. The quantities shall be submitted to the OWNER for verification.
   b. When requested by the OWNER, documentation for the installed base course, bituminous concrete binder, and surface, shall be submitted to the ENGINEER for verification. Deficiencies in total bituminous concrete pavement thickness shall be adjusted for in accordance with the requirements of the jurisdictional authority.
7. Basis of Payment
   a. Curb and Gutter will be paid for at the contract unit price per LINEAL FOOT.
   b. Prime Coat material will be paid for at the contract unit price per GALLON.
   c. Base Course will be paid for at the contract unit price per SQUARE YARD.
   d. Bituminous Concrete will be paid for at the contract unit price per SQUARE YARD.

REVIEW SET
NOT FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	BY
1	06–17–24	PER LAGRANGE HIGHLANDS SD	DMV
2	10–17–24	PER VILLAGE REVIEW	SDD
3	11–04–24	PER CDDOTH REVIEW	DMV
4	12–12–24	PER VILLAGE REVIEW	DMV
5	01–27–25	PER REVISED GEOMETRY	DMV
6	02–17–25	PER CDDOTH	DMV
7	03–26–25	PER VILLAGE COMMENT	DMV
8			

McNAUGHTON DEVELOPMENT
11S220 JACKSON ST. Ste. 101
BURR RIDGE, ILLINOIS 60527
(630) 325–3400

FINAL ENGINEERING PLANS
FOR
HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326–4961
FAX: (708) 326–4962
IL PROF. LIC. NO.: 184–003740

DEI

PROJECT INFORMATION
Project No.: 24–0001
Scale: NONE
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

2 OF 20

PROJECT SPECIFICATIONS

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GENERAL NOTES

1. Definition of Terms
   a. The CONTRACTOR is the individual, firm, partnership or corporation contracting with the OWNER for performance of the prescribed work.
   b. The OWNER is the individual, firm, partnership or corporation having the authority to award the contract for the prescribed work.
   c. The ENGINEER where specifically referred to in the Specifications shall be the OWNER'S representative.
2. All CONTRACTORS shall be responsible for the following, which shall also be incidental to the cost of construction:
   a. Examination of the Engineering Plans and Specifications and the existing site conditions prior to submitting a bid, and notifying the ENGINEER at once of any discrepancies.
   b. The obtaining of any necessary permits not previously applied for by the OWNER, and posting of the necessary bonds.
   c. The notification of the start of construction to theVillage of WESTERN SPRINGS Public Services Dept. at (708) 246–8540, utility companies, and the ENGINEER at least two (2) working days prior to said start. All existing utilities must be staked prior to construction. All construction, including equipment startup, shall be between the hours of 7:00 a.m. to 8:00 p.m. weekdays, and 8:00 a.m. to 7:00 p.m. weekends and holidays.
   d. Calling attention to the OWNER of any errors or discrepancies, which may be suspected in lines and grades, which are established by the OWNER. The CONTRACTOR shall not proceed with the work until the lines and grades which are believed to be in error have been verified or corrected by the OWNER. Additional staking that may be required due to CONTRACTOR negligence shall be paid for by the CONTRACTOR.
   e. The providing of safe and healthful working conditions throughout the prosecution of the construction work. This shall include, but not be limited to: the removal of debris, the protecting of construction hazards with barricades and the keeping of public street pavements clean of construction dirt and debris.
   f. The restoration to the original condition or better of any areas that are damaged by the CONTRACTOR during construction.
   g. The testing of materials, if required by the OWNER and/or the jurisdictional agencies.
   h. The guarantee of all materials and workmanship for a period of one (1) year upon final acceptance by the OWNER and other jurisdictional agencies.
   i. Trees shall be installed a minimum of five (5) feet horizontally from sanitary sewers, sanitary services, watermains, and water services. Trees and light poles shall be installed a minimum of ten (10) feet horizontally from utility structures and appurtenances, including but not limited to manholes, valve vaults, valve boxes and fire hydrants.
   j. The contractor shall be responsible for implementation & maintenance of all soil erosion & sedimentation control measures throughout the entire project.
   k. Contractors are required to obtain applicable permits from the Municipality.
3. The OWNER shall be responsible for the following:
   a. Scheduling the necessary preconstruction meeting(s) with the jurisdictional agencies at least two (2) working days prior to the commencement of work.
   b. Insurance certificates from all contractors, naming the Village of WESTERN SPRINGS as additional insured, prior to preconstruction meeting being set.
   c. Providing the CONTRACTOR with one (1) set of control line and grade stakes (at offsets mutually agreed upon) for the proper prosecution and control of the work.
   d. Applying for IEPA, IDOT, and all applicable County, Municipal and Sanitary District Permits. Other necessary permits shall be the responsibility of the CONTRACTOR.
4. The ENGINEER shall be responsible for the following:
   a. To periodically visit the construction site in order to better carry out the duties and responsibilities assigned by the OWNER and undertaken by the ENGINEER.
   b. The ENGINEER shall not, during such visits or as a result of such observations of the CONTRACTOR(s)' work in progress, supervise, direct or have control over the CONTRACTOR(s)' work nor shall the ENGINEER have authority over or responsibility for the means, methods, techniques, sequences or procedures of construction selected by the CONTRACTOR(s)', for safety precautions and programs incident to the work of the CONTRACTOR(s) or for any failure of the CONTRACTOR(s) to comply with laws, rules, regulations, ordinances, codes or orders applicable to the CONTRACTOR(s) furnishing and performing their work. Accordingly, the ENGINEER can neither guarantee the performance of the construction contracts by the CONTRACTOR(s) nor assume responsibility for the CONTRACTOR(s)' failure to furnish and perform their work in accordance with the Contract Documents.
5. Except where modified by the contract documents, all work proposed herein shall be in accordance with the following specifications, which are hereby made a part hereof:
   a. "Standard Specifications for Road and Bridge Construction", and "Supplemental Specifications and Recurring Special Provisions", latest edition, prepared by the Illinois Department of Transportation (IDOT Standard Specifications).
   b. Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition, as adopted by the Illinois Society of Professional Engineers, etal.
   c. Illinois Urban Manual, latest edition.
   d. Village of WESTERN SPRINGS Codes and Ordinances, current edition when these plans were approved.
   e. American With Disabilities Act, Standards for Accessible Design, latest ed.
6. In the event of a conflict between statements, which apply to the construction work, the OWNER should contact the Public Works Director for direction.

MWRD SPECIFICATIONS

A. Referenced Specifications
1. All construction shall be in accordance with the applicable sections of the following, except as modified herein or on the plans;
   a. Sstandard Sspecifications for Road and Bridge Construction (latest edition), by the Illinois Department of Transportation (IDOTt SS) for all improvements except sanitary sewer and water main construction;
   b. Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition (SSWS) for sanitary sewer and water main construction;
   c. Village of WESTERN SPRINGS municipal code (latest edition);
   d. The Metropolitan Water Reclamation District of Greater Chicago (NWRD) Watershed Management Ordinance and Technical Guidance Manual (latest edition);
   e. In case of conflict between the applicable ordinances noted, the more stringent shall take precedence and shall control all construction.

B. Notifications
1. The MWRD local sewer systems section field office must be notified at least two (2) working days prior to the commencement of any work (call 708–588–4055).
2. The Village of WESTERN SPRINGS Engineering Department and Public Works must be notified at least 24 hours prior to the start of construction and prior to each phase of work. Contractor shall determine items requiring inspection prior to start of construction or each work phase.
3. The Contractor shall notify all utility companies prior to beginning construction for the exact locations of utilities and for their protection during construction. If existing utilities are encountered that conflict in location with new construction, immediately notify the engineer so that the conflict can be resolved. call J.U.L.I.E. at 1–800–892–0123.

C. General Notes
1. All elevations shown on plans reference the north american vertical datum of 1988 (NAVD88). Conversion factor is XXXX ft.
2. MWRD, the Municipality and the Owner or Owner's Representative shall have the authority to inspect, approve, and reject the construction improvements.
3. The Contractor(s) shall indemnify the Owner, Engineer, Municipality, MWRD, and their Agents,from all liability involved with the construction, installation, or testing of this work on the project.
4. The proposed improvements must be constructed in accordance with the engineering plans as approved by mwrd and the municipality unless changes are approved by MWRD, the Municipality, or authorized agent. The construction details, as presented on the plans, must be followed. Proper construction techniques must be followed on the improvements indicated on the plans.
5. The location of various underground utilities which are shown on the plans are for information only and represent the best knowledge of the Engineer. Verify locations and elevations prior to beginning the construction operations.
6. Any existing pavement, sidewalk, driveway, etc., damaged during construction operations and not called for to be removed shall be replaced at the expense of the Contractor.
7. Material and compaction testing shall be performed in accordance with the requirements of the Municipality, MWRD, and Owner.
8. The Underground Contractor shall make all necessary arrangements to notify all inspection agencies.
9. All new and existing utility structures on site and in areas disturbed during construction shall be adjusted to finish grade prior to final inspection.
10. Record drawings shall be kept by the Contractor and submitted to the Engineer as soon as underground improvements are completed. Final payments to the Contractor shall be held until they are received. Any changes in length, location or alignment shall be shown in red. All wyes or bends shall be located from the downstream manhole. All valves, B–Boxes, tees or bends shall be tied to a fire hydrant.

D. Sanitary Sewer
1. The Contractor shall take measures to prevent any polluted water, such as ground and surface water, from entering the existing sanitary sewers.
2. A water–tight plug shall be installed in the downstream sewer pipe at the point of sewer connection prior to commencing any sewer construction. the plug shall remain in place until removal is authorized by the Municipality and/or MWRD after the sewers have been tested and accepted.
3. Discharging any unpolluted water into the sanitary sewer system for the purpose of sewer flushing of lines for the deflection test shall be prohibited without prior approval from the Municipality or MWRD.
4. All sanitary sewer construction shall be in accordance with the Standard Specifications for Water and Sewer Main Construction in Illinois (latest edition).
5. All floor drains shall discharge to the sanitary sewer system.
6. All downspouts and footing drains shall discharge to the storm sewer system.
7. All sanitary sewer pipe materials and joints (and storm sewer pipe materials and joints in a combined sewer area) shall conform to the following:

Pipe Material	Pipe Specifications	Joint Specifications
Vitrified Clay Pipe	ASTM C–700	ASTM C–425
Reinforced Concrete Sewer Pipe	ASTM C–76	ASTM C–443
Cast Iron Soil Pipe	ASTM A–74	ASTM C–564
Ductile Iron Pipe	ANSI A21.51	ANSI A21.11
Polyvinyl Chloride (PVC) Pipe 6–inch to 15–inch Diameter SDR 26 18–inch to 27–inch Diameter F/DY=46	ASTM D–3034 ASTM F–679	ASTM D–3212 ASTM D–3212
High Density Polyethylene (HDPE)	ASTM D–3350 ASTM D–3035	ASTM D–3261, F–2620 (heat fusion) ASTM D–3212, F–477 (gasketed)
Water Main Quality PVC 4–inch to 36–inch 4–inch to 12–inch 14–inch to 48–inch	ASTM D–2241 AWWA C900 AWWA C905	ASTM D–3139 ASTM D–3139 ASTM D–3139

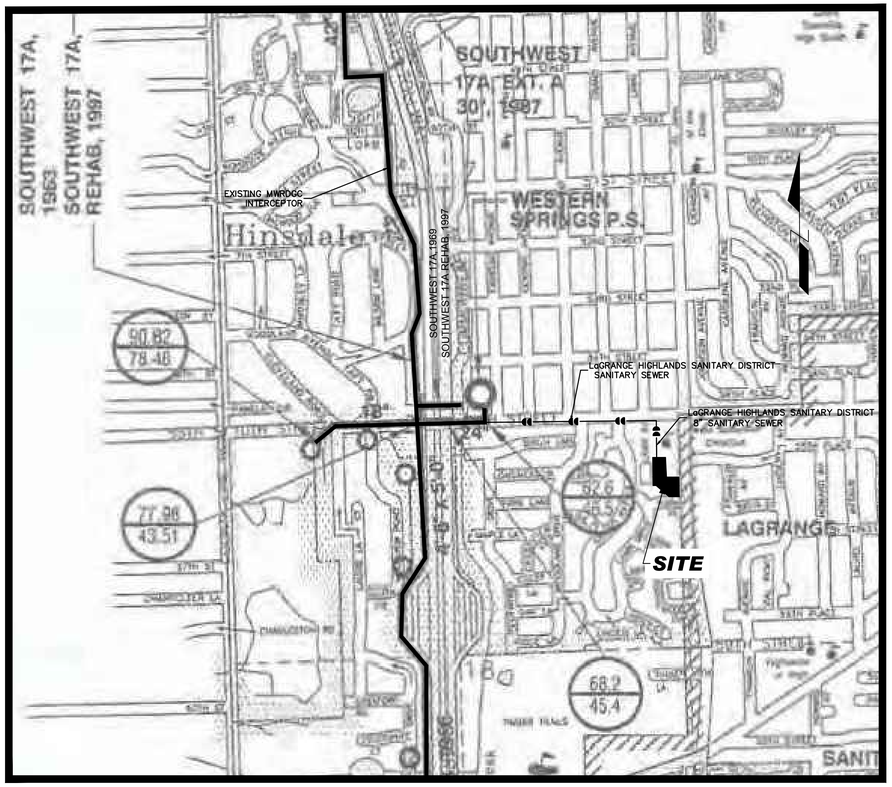
The following materials are allowed on a qualified basis subject to District review and approval prior to permit issuance. A special condition will be added to the permit when the pipe material below is used for sewer construction or a connection is made.

Pipe Material	Pipe Specification	Joint Specification
Polypropylene (PP) Pipe		
12–inch to 24–inch Double Wall	ASTM F–2736	ASTM D–3212,F–477
30–inch to 60–inch Triple Wall	ASTEM F–2764	ASTM D–3212, F–477

8. All sanitary sewer construction (and storm sewer construction in combined sewer areas), requires stone bedding with stone ¼" to 1" in size, with minimum bedding thickness equal to ¼ the outside diameter of the sewer pipe, but not less than four (4) inches or more than eight (8) inches. Material shall be CA–7, CA–11 or CA–13 and shall be extended at least 12" above the top of the pipe when using PVC.
9. Non–shear flexible–type couplings shall be used in the connection of sewer pipes of dissimilar pipe materials.
10. All manholes shall be provided with bolted, watertight covers. Sanitary lids shall be constructed with a concealed pickhole and watertight gasket with the word "sanitary" cast into the lid.
11. When connecting to an existing sewer main by means other than an existing wye, tee, or an existing manhole, one of the following methods shall be used:
   a. A circular saw–cut of sewer main by proper tools ("shewer–Tap" machine or similar) and proper installation of hubwye saddle or hub–tee saddle.
   b. Remove an entire section of pipe (breaking only the top of one bell) and replace with a wye or tee branch section.
   c. With pipe cutter, neatly and accurately cut out desired length of pipe for insertion of proper fitting, using "band seal" or similar couplings to hold it firmly in place.
12. Whenever a sanitary/combined sewer crosses under a watermain, the minimum vertical distance from the top of the sewer to the bottom of the watermain shall be 18 inches. Furthermore, a minimum horizontal distance of 10 feet between sanitary/combined sewers and watermains shall be maintained unless: the sewer is laid in a separate trench, keeping a minimum 18" vertical separation; or the sewer is laid in the same trench with the watermain located at the opposite side on a bench of undisturbed earth, keeping a minimum 18" vertical separation. If either the vertical or horizontal distances described above cannot be maintained, or the sewer crosses above the watermain, the sewer shall be constructed to water main standards or it shall be encased with a water main quality carrier pipe with ends sealed.
13. All existing septic systems shall be abandoned. Abandoned tanks shall be filled with a granular material or removed.
14. All sanitary manholes, (and storm manholes in combined sewer areas), shall have a minimum inside diameter of 48 inches, and shall be cast in place or pre–cast reinforced concrete.
15. All sanitary manholes, (and storm manholes in combined sewer areas), shall have precast "rubber boots" that conform to ASTM C–923 for all pipe connections. Precast sections shall consist of modified groove tongue and rubber gasket type joints.
16. All abandoned sanitary sewers shall be plugged at both ends with at least 2 feet long non–shrink concrete or mortar plug.
17. Except for foundation/footing drains provided to protect buildings, or perforated pipes associated with volume control facilities, drain tiles/field tiles/underdrains/perforated pipes are not allowed to be connected to or tributary to combined sewers, sanitary sewers, or storm sewers tributary to combined sewers in combined sewer areas. Construction of new facilities of this type is prohibited, and all existing drain tiles and perforated pipes encountered within the project area shall be plugged or removed, and shall not be connected to combined sewers, sanitary sewers, or storm sewers tributary to combined sewers.
18. A backflow preventer is required for all detention basins tributary to combined sewers. Required backflow preventers shall be inspected and exercised annually by the property owner to ensure proper operation, and any necessary maintenances shall be performed to ensure functionality. In the event of a sewer surcharge into an open detention basin tributary to combined sewers, the permittee shall ensure that clean up and wash out of sewage takes place within 48 hours of the storm event.

MWRD SPECIFICATIONS CONT'D

E. Erosion and Sediment Control
1. The contractor shall install the erosion and sediment control devices as shown on the approved erosion and sediment control plan.
2. Erosion and sediment control practices shall be functional prior to hydrologic disturbance of the site.
3. All design criteria, specifications, and installation of erosion and sediment control practices shall be in accordance with the Illinois urban manual.
4. A copy of the approved erosion and sediment control plan shall be maintained on the site at all times.
5. Inspections and documentation shall be performed, at a minimum:
   a. Upon completion of initial erosion and sediment control measures, prior to any soil disturbance.
   b. Once every seven (7) calendar days and within 24 hours of the end of a storm event with greater than 0.5 inch of rainfall or liquid equivalent precipitation.
6. Soil disturbance shall be conducted in such a manner as to minimize erosion. If stripping, clearing, grading, or landscaping are to be done in phases, the co–permittee shall plan for appropriate soil erosion and sediment control measures.
7. A stabilized mat of crushed stone meeting the standards of the illinois urban manual shall be installed at any point where traffic will be entering or leaving a construction site. Sediment or soil reaching an improved public right–of–way, street, alley or parking area shall be removed by scraping or street cleaning as accumulations warrant and transported to a controlled sediment disposal area.
8. Concrete washout facilities shall be constructed in accordance with the Illinois Urban Manual and shall be installed prior to any on site construction activities involving concrete.
9. Mortar washout facilities shall be constructed in addition to concrete washout facilities for any brick and mortar building envelope construction activities.
10. Temporary diversions shall be constructed as necessary to direct all runoff from hydrologically disturbed areas to an appropriate sediment trap or basin. Volume control facilities shall not be used as temporary sediment basins.
11. Disturbed areas of the site where construction activities have temporarily or permanently ceased shall be stabilized with temporary or permanent measures within seven (7) days.
12. All flood protection areas and volume control facilities shall, at a minimum, be protected with a double–row of silt fence (or equivalent).
13. Volume control facilities shall not be constructed until all of the contributing drainage area has been stabilized.
14. Soil stockpiles shall, at a minimum, be protected with perimeter sediment controls. Soil stockpiles shall not be placed in flood protection areas or their buffers.
15. Earthen embankment side slopes shall be stabilized with appropriate erosion control blanket.
16. Storm sewers that are or will be functioning during construction shall be protected by appropriate sediment control measures.
17. The contractor shall either remove or replace any existing drain tiles and incorporate them into the drainage plan for the development. Drain tiles cannot be tributary to a sanitary or combined sewer. Drain tiles allowed in combined sewer area for green infrastructure practices.
18. If dewatering services are used, adjoining properties and discharge locations shall be protected from erosion and sedimentation. Dewatering systems should be inspected daily during operational periods. the site inspector must be present at the commencement of dewatering activities.
19. The contrctor shall be responsible for trench dewatering and excavation for the installation of sanitary sewers, storm sewers, watermains as well as their services and other appurtenances. Any trench dewatering, which contains sediment shall pass through a sediment settling pond or equally effective sediment control device. Alternatives may include dewatering into a sump pit, filter bag or existing vegetated upslope area. sediment laden waters shall not be discharge to waterways, flood protection areas or the combined sewer system.
20. All permanent erosion control practices shall be initiated within seven (7) days following the completion of soil disturbing activities.
21. All erosion and sediment control measures shall be maintained and repaired as needed on a year–round basis during construction and any periods of construction shutdown until permanent stabilization is achieved.
22. All temporary erosion and sediment control measures shall be removed within thirty (30) days after permanent site stabilization.
23. The erosion and sediment control measures shown on the plans are the minimum requirements. additional measures may be required, as directed by the Engineer, Site Inspector, or MWRD.



SANITARY ROUTING EXHIBIT



STORM ROUTING EXHIBIT

REVIEW SET
NOT FOR CONSTRUCTION

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	06–27–24	PER LAGRANGE HIGHLANDS SD	DMV
2	10–17–24	PER MWRD REVIEW	DMV
3	10–19–24	PER VILLAGE REVIEW	SDD
4	11–04–24	PER CDDOTH REVIEW	DMV
5	12–12–24	PER VILLAGE REVIEW	DMV
6	01–27–25	PER REVISED GEOMETRY	DMV
7	02–25–25	PER MWRD COMMENTS	DMV
8	03–26–25	PER VILLAGE COMMENT	DMV

McNAUGHTON DEVELOPMENT
11S220 JACKSON ST. Ste. 101
BURR RIDGE, ILLINOIS 60527
(630) 325–3400

FINAL ENGINEERING PLANS
FOR
HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

PROJECT SPECIFICATIONS & GENERAL NOTES

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326–4961
FAX: (708) 326–4962
IL PROF. LIC. NO.: 184–003740

DEI

PROJECT INFORMATION
Project No.: 24–0001
Scale: NONE
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

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OF
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EXISTING CONDITIONS & REMOVAL PLAN

REMOVE EXISTING CONCRETE & ASPHALT PAVEMENT TO CONSTRUCT PROPOSED IMPROVEMENTS IN ACCORDANCE WITH VILLAGE SPECIFICATIONS (TYPICAL).
OBTAIN APPROVAL FROM ADJACENT H.O.A. PRIOR TO CONSTRUCTION TWO DAYS ADVANCED NOTICE IS REQUIRED FOR ALL WORK ON PRIVATE PROPERTY.

TREE PROTECTION FENGING (TYPICAL).

REMOVE EXISTING PAVEMENT & CURB AS NECESSARY TO CONSTRUCT PROPOSED IMPROVEMENTS IN ACCORDANCE WITH VILLAGE SPECIFICATIONS (TYPICAL).

EXISTING RETAINING WALL TO BE REMOVED TO LIMITS SHOWN.

CONTRACTOR SHALL COORDINATE WITH COMED TO BRACE POWER POLES ADJACENT TO RETAINING WALL DURING REMOVAL AND CONSTRUCTION OF NEW WALL.

REMOVE EXISTING TREE (TYPICAL).

REMOVE EXISTING LOW FLOW STORM SEWER & STRUCTURES TO CONSTRUCT PROPOSED IMPROVEMENTS (TYPICAL).

EXISTING BUILDING & ADJACENT WALKS SHALL BE REMOVED TO THE LIMITS SHOWN (TYPICAL

EXISTING STONE RIP-RAP SWALE TO BE REMOVED AS REQUIRED TO CONSTRUCT PROPOSED IMPROVEMENTS (TYPICAL).

PROVIDE 6' HIGH POST-DRIVEN CHAIN LINK CONSTRUCTION FENCE WITH METAL POSTS SPACED NO FURTHER THAN 10' APART AROUND SITE PERIMETER WITH LOCKABLE GATES AT CONSTRUCTION ENTRANCE (TYPICAL)

EXISTING BUILDING & ADJACENT WALKS, STAIRS, ENTRY'S & UTILITY SERVICES TO THE BUILDING SHALL BE REMOVED TO THE LIMITS SHOWN (TYPICAL).

REMOVE EXISTING WATER SERVICE ON-SITE ONLY

REMOVE EXISTING WATER SERVICE & B-BOX (TYP.) IN RIGHT-OF-WAY. DISCONNECTION SHALL BE MADE AT THE MAIN IN ACCORDANCE WITH VILLAGE SPECIFICATIONS. IT MAY BE NECESSARY TO REMOVE AND REPLACE CURB AND GUTTER. IF NEEDED, C&G SHALL BE SAWCUT PRIOR TO REMOVAL. ASPHALT PAVEMENT REPAIR WOULD REQUIRE A MINIMUM OF 24" WIDTH OF PAVEMENT TO BE SAWCUT, REMOVED AND REPLACED WITH EQUIVALENT PAVEMENT THICKNESS (SEE NOTE 9).

REMOVE EXISTING PAVEMENT & CURB AND GUTTER AS NECESSARY AT LOCATION OF EXISTING DRIVEWAY TO BE CLOSED/REMOVED IN ACCORDANCE WITH VILLAGE SPECIFICATIONS.

REMOVE EXISTING WATER SERVICE & B-BOX (TYP.) IN RIGHT-OF-WAY. DISCONNECTION SHALL BE MADE AT THE MAIN IN ACCORDANCE WITH VILLAGE SPECIFICATIONS. IT MAY BE NECESSARY TO REMOVE AND REPLACE CURB AND GUTTER. IF NEEDED, C&G SHALL BE SAWCUT PRIOR TO REMOVAL. ASPHALT PAVEMENT REPAIR WOULD REQUIRE A MINIMUM OF 24" WIDTH OF PAVEMENT TO BE SAWCUT, REMOVED AND REPLACED WITH EQUIVALENT PAVEMENT THICKNESS (SEE NOTE 9).

EXISTING BUILDING, ADJACENT WALKS & ENTRY'S & UTILITY SERVICES TO THE BUILDING SHALL BE REMOVED TO LIMITS SHOWN (TYPICAL).

REMOVE EXISTING TREE (TYPICAL).

REMOVE EXISTING PAVEMENT & CURB TO CONSTRUCT PROPOSED IMPROVEMENTS IN ACCORDANCE WITH VILLAGE SPECIFICATIONS (TYPICAL).

EXISTING STONE RIP-RAP SWALE TO BE REMOVED AS REQUIRED TO CONSTRUCT PROPOSED IMPROVEMENTS (TYPICAL).

REMOVE EXISTING STORM SEWER & STRUCTURES & BACKFILL TO CONSTRUCT PROPOSED IMPROVEMENTS (TYPICAL).

EXISTING GRATE, CONCRETE END SECTION, AND CHAIN LINK FENCE TO BE REMOVED TO LIMITS INDICATED. REMOVAL WILL ALLOW FOR EXTENSION OF 6'X4' CONCRETE BOX CULVERT.

EXISTING DRIVEWAY APRON AND SIDEWALK SHALL REMAIN IN PLACE DURING SITE CONSTRUCTION.

REMOVE 2' HMA FULL DEPTH PAVEMENT ADJACENT TO CURB & GUTTER REMOVAL. REMOVAL AND REPLACEMENT SHALL EXTEND 2 FEET BEYOND EXISTING TRANSITION ON BOTH ENDS OF DRIVEWAY. REMOVAL SHALL BE IN ACCORDANCE WITH CCDOTH PERMIT REQUIREMENTS.

EXISTING FENCE TO BE REMOVED AS NECESSARY TO MAKE PROPOSED IMPROVEMENTS (TYP.).

GRAPHIC SCALE
30 0 15 30
(IN FEET)
1 inch = 30 ft.

NOTES:

1. HERITAGE SPRINGS HOA SHALL BE NOTIFIED AT LEAST 2 DAYS IN ADVANCE FOR ALL WORK TO BE COMPLETED ON PRIVATE PROPERTY.

HERITAGE SPRINGS HOA
RON LEJCAR
rpmrekcar@gmail.com
(630) 841-5560

REVIEW SET
NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DMV
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FAX: (708) 326-4962
IL PROF. LIC. No.: 184-003740

DEI

PROJECT INFORMATION
Project No.: 24-0001
Scale: 1" = 30'
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDS

4
OF
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EXISTING CONDITIONS AND REMOVAL PLAN

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EROSION CONTROL & SEDIMENTATION NOTES

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS IN THE ILLINOIS URBAN MANUAL, LATEST EDITION, AND ALL OTHER AUTHORITIES HAVING JURISDICTION.
2. THE APPLICANT AND/OR CONTRACTOR IS RESPONSIBLE FOR INSURING THE OBTAINED PERMIT WITH THE COMPLETED SWPPP IS POSTED ON SITE IN A PROMINENT LOCATION BEFORE COMMENCEMENT OF ANY WORK ON SITE AND SHALL CONTACT THE VILLAGE AT LEAST 2 WORKING DAYS BEFORE THE START OF CONSTRUCTION, INSTALLATION OF SEDIMENT AND EROSION MEASURES AND COMPLETION OF FINAL LANDSCAPING.
3. THE VILLAGE SHALL BE PROVIDED WITH A COPY OF THE IEPA LETTER OF NOTIFICATION OF COVERAGE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
4. THE DEVELOPER IS RESPONSIBLE FOR HAVING THE SWPPP AND A STAMPED AND SIGNED COPY OF THE APPROVED SOIL EROSION AND SEDIMENT CONTROL PLAN ON SITE AT ALL TIMES AND BE PRESENTED WHEN REQUESTED BY ANY AUTHORIZED AGENCY.
5. THE DEVELOPER SHALL INSPECT THE SOIL EROSION AND SEDIMENT CONTROL PRACTICES EVERY SEVEN (7) DAYS AND AFTER 0.5" OR MORE RAINFALL. IMMEDIATE REPAIR SHALL BE MADE OF ANY DAMAGED EROSION CONTROL ELEMENTS THROUGHOUT THE CONSTRUCTION OF THE PROJECT.
6. ALL CONSTRUCTION TRAFFIC SHALL ENTER SITE ONLY AT PROPOSED STABILIZED CONSTRUCTION ENTRANCE AS SHOWN ON PLANS.
7. ALL DIRT, MUD, OR DEBRIS THAT REACHES THE PUBLIC ROADS SHALL BE CLEANED IMMEDIATELY BY THE CONTRACTOR.
8. TECHNIQUES SHALL BE EMPLOYED TO PREVENT THE BLOWING OF DUST OR SEDIMENT FROM THE SITE.
9. SILT FENCE, SILT BASINS, AND STABILIZED CONSTRUCTION ENTRANCE(S) SHALL BE CONSTRUCTED AS DETAILED ON THE FINAL ENGINEERING PLANS PRIOR TO THE START OF CONSTRUCTION AND SHALL REMAIN IN PLAN UNTIL THE DISTURBED AREA IS STABILIZED. IN ADDITION, SILT FENCE SHALL BE PROVIDED FOR AREAS DRAINING 200' AND GREATER IN ACCORDANCE WITH NRCS CODE 920.
10. SCHEDULE OF CONTROL MEASURE IMPLEMENTATION:
    A. CONSTRUCT THE APPLICABLE PORTIONS OF THE EROSION AND SEDIMENTATION CONTROLS PRIOR TO SITE CLEARING.
    B. CONTROL SITE DEVELOPMENT IN ACCORDANCE WITH THE SPECIFICATIONS.
    C. MAINTAIN INLET PROTECTION, CONSTRUCTION TRAFFIC SURFACES, CLEANING OF STORM STRUCTURES AND THE LIKE ON A REGULAR BASIS AFTER EACH HEAVY RAIN OR AS OTHERWISE REQUIRED.
11. THE ESTIMATED CONSTRUCTION SCHEDULE IS AS FOLLOWS:

DEMOLITION	WINTER	2025
MASS EARTHWORK	SPRING	2025
TEMPORARY BASIN STABILIZATION	SPRING	2025
UNDERGROUND IMPROVEMENTS	SPRING/SUMMER	2025
ROADWAY (CURB & PAVEMENT)	SUMMER	2025
BUILDING CONSTRUCTION	SUMMER	2025
FINAL GRADING	SUMMER	2025
BASIN STABILIZATION	SUMMER	2025
FINAL LANDSCAPING	SUMMER	2026

    THE ENTIRE SITE MUST BE STABILIZED, USING A HEAVY MULCH LAYER OR ANOTHER METHOD AT THE CLOSE OF THE CONSTRUCTION SEASON.
12. DISTURBED AREAS WITHIN ALL PUBLIC R.O.W.'S SHALL BE RESTORED W/ 6" MIN. TOPSOIL & SOD. RESTORATION SHALL OCCUR IMMEDIATELY AFTER COMPLETION OF CONSTRUCTION, WEATHER PERMITTING. ALL OTHER DISTURBED AREAS SHALL BE RESTORED WITH 4" TOPSOIL & SEED.
13. STRAW BALES ARE NOT PERMITTED IN AREAS OF CONCENTRATED FLOW. ROCK CHECK DAMS SHALL BE USED IN THESE AREAS. TECHNIQUES THAT DIVERT UPLAND RUNOFF PAST DISTURBED SLOPES SHALL BE EMPLOYED.
14. THE PROTECTION OF THE OPEN LID DRAINAGE STRUCTURES SHALL BE CONSTRUCTED AS SPECIFIED IN DETAILS. ALL OPEN LID DRAINAGE STRUCTURES LOCATED IN YARD AREAS AND THE SEDIMENTATION BASIN MUST BE PROTECTED PER INLET PROTECTION DETAILS UNTIL SUCH A TIME THAT THE LANDSCAPING IS IN PLACE AND EFFECTIVELY PREVENTING POTENTIAL SILTATION OF THESE STRUCTURES. ALL OPEN LID DRAINAGE STRUCTURES IN PAVED AREAS SHALL HAVE FILTER BASKETS INSTALLED UNDER THE LIDS. IN THE EVENT THE GRAVEL BASE IS NOT IN PLACE UPON INSTALLATION, INLET PROTECTION SHALL BE PROVIDED AS INDICATED PER INLET PROTECTION DETAIL.
15. EROSION CONTROL BLANKET (ECB) SHALL BE INSTALLED TO ALL DISTURBED AREAS WITH SLOPES EQUAL TO OR STEEPER THAN 5H:1V AND IN CRITICAL AREAS (EX: DETENTION BASIN PERIMETERS, STREAMBANKS, BERMS, ETC.) IMMEDIATELY UPON FINAL GRADING. S175 NORTH AMERICAN GREEN (OR SIMILAR) ECB SHALL BE USED. ECB WITH GREEN DYE IS NOT ACCEPTABLE.
16. SOIL STOCKPILES SHALL BE STABILIZED OR COVERED AT THE END OF EACH WORKDAY. STOCKPILES TO REMAIN IN PLACE FOR 14 DAYS OR MORE SHALL RECEIVE TEMPORARY SEEDING.
17. DURING DEWATER OPERATIONS, WATER WILL BE PUMPED INTO SEDIMENT BASINS OR SILT TRAPS. DEWATERING DIRECTLY INTO FIELD TILES OR STORMWATER STRUCTURES IS PROHIBITED.
18. AN INCIDENT OF NON-COMPLIANCE (ION) MUST BE COMPLETED AND SUBMITTED BY THE OWNER TO THE IEPA AND COPIED TO THE VILLAGE IF, AT ANY TIME, AN EROSION OR SEDIMENT CONTROL DEVICE FAILS.
19. A NOTICE OF TERMINATION (NOT) SHALL BE COMPLETED BY THE OWNER IN COMPLIANCE WITH THE NPDES PHASE II REQUIREMENTS WHEN ALL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE WITH A 70% ESTABLISHED RATE OF VEGETATION. THE NOTICE OF TERMINATION SHALL BE SENT TO THE IEPA AND THE VILLAGE.
20. THE CONTRACTOR SHALL TAKE THE NECESSARY STEPS TO CONTROL WASTE SUCH AS DISCARDED BUILDING MATERIALS, CONCRETE TRUCK WASHOUT, CHEMICALS, LITTER AND SANITARY WASTE AT THE CONSTRUCTION SITE THAT MAY CAUSE ADVERSE IMPACTS TO WATER QUALITY.

EROSION CONTROL LEGEND (E#)

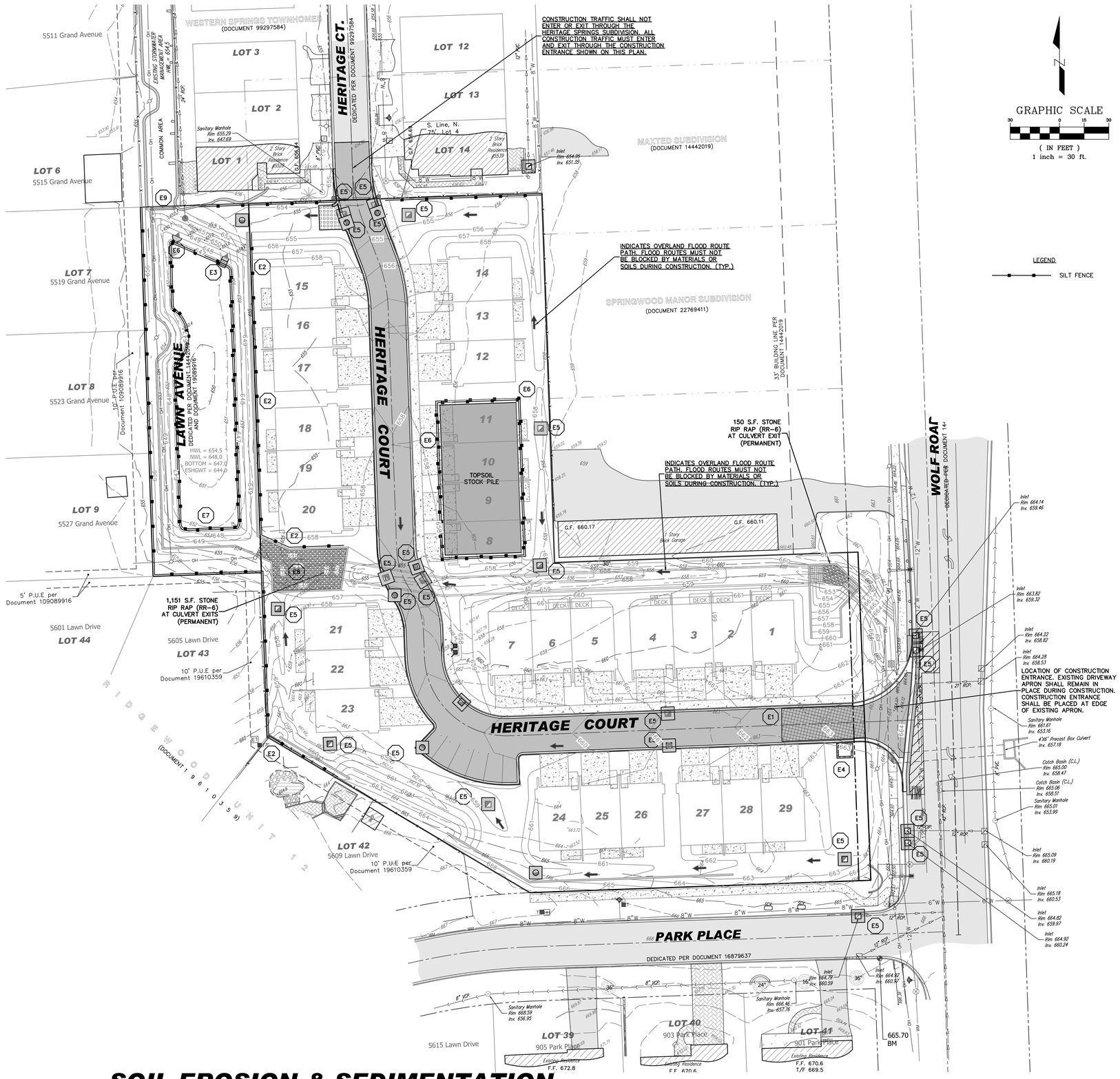
- (E1) CONSTRUCTION ENTRANCE PER NRCS SPECIFICATIONS
- (E2) SILT FENCE PER NRCS SPECIFICATIONS
- (E3) CULVERT / FES PROTECTION PER OR EQUIVALENT TO NRCS SPECIFICATIONS AND STANDARD DRAWING NO. IL-610
- (E4) CONCRETE WASHOUT AREA
- (E5) INLET PROTECTION PER OR EQUIVALENT TO NRCS SPECIFICATIONS
- (E6) CULVERT / FES PROTECTION PER OR EQUIVALENT TO NRCS SPECIFICATIONS AND STANDARD DRAWING NO. IL-508SF
- (E7) DOUBLE ROW OF SILT FENCE PER NRCS SPECIFICATIONS
- (E8) SEDIMENT FOREBAY (SEE MWRD DETAIL SHEET XX)
- (E9) ROLLED EROSION CONTROL

STABILIZATION TYPE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PERMANENT SEEDING			A			*	*					
DORMANT SEEDING	B										B	
TEMPORARY SEEDING			C			*	D*					
SODDING			E**									
MULCHING	F											

A. KENTUCKY BLUEGRASS 90 LBS/AC MIXED WITH PERENNIAL RYEGRASS 30 LBS/AC
B. KENTUCKY BLUEGRASS 135 LBS/AC MIXED WITH PERENNIAL RYEGRASS 45 LBS/AC + 2 TONS STRAW MULCH/AC
C. SPRING OATS 100 LBS/AC
D. WHEAT OR CEREAL RYE 150 LBS/AC
E. SOD
F. STRAW MULCH 2 TONS/AC

* IRRIGATION NEEDED DURING JUNE AND JULY.
** IRRIGATION NEEDED FOR 2 TO 3 WEEKS AFTER APPLYING SOD

SOIL PROTECTION CHART



SOIL EROSION & SEDIMENTATION CONTROL PLAN

REVIEW SET
NOT FOR CONSTRUCTION

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NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DMV
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DEI

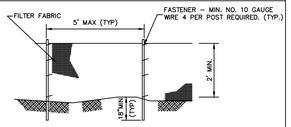
PROJECT INFORMATION
Project No.: 24-0001
Scale: 1" = 30'
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

5 OF 20

SOIL EROSION SEDIMENTATION & CONTROL PLAN

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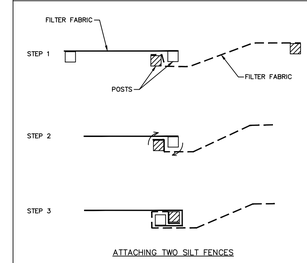
SILT FENCE PLAN



NOTES:
1. TEMPORARY SEDIMENT FENCE SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED. THEY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REMOVED IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.
2. FILTER FABRIC SHALL MEET THE REQUIREMENTS OF MATERIAL SPECIFICATION 509 GEOTEXTILE TABLE 1 OR 2, CLASS I WITH EQUIVALENT OPENING SIZE OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN.
3. FENCE POSTS SHALL BE WITHER STANDARD STEEL POST OR WOOD POST WITH A MINIMUM CROSS–SECTIONAL AREA OF 3.0 SQ. IN.

REFERENCE		STANDARD DWG. NO.
Project	NRCS Natural Resources Conservation Service	IL-620
Designed Date		SHEET 1 OF 2
Checked Date		DATE 11-20-01
Approved Date		

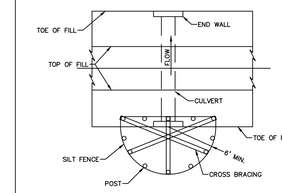
SILT FENCE



NOTES:
1. PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE.
2. ROTATE BOTH POSTS AT LEAST 180 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL.
3. DRIVE BOTH POSTS A MINIMUM OF 18 INCHES INTO THE GROUND AND BURY THE FLAP.

REFERENCE		STANDARD DWG. NO.
Project	NRCS Natural Resources Conservation Service	IL-620(W)
Designed Date		SHEET 1 OF 2
Checked Date		DATE 1-29-99
Approved Date		

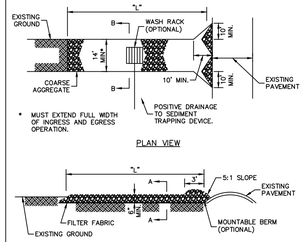
CULVERT INLET PROTECTION - SILT FENCE



NOTES:
1. THE SILT FENCE SHALL MEET THE REQUIREMENTS AS SHOWN ON STANDARD DRAWING IL-620 SILT FENCE EXCEPT THE MINIMUM POST SPACING SHALL BE 3 FEET AND THE TOPS OF POSTS SHALL BE CROSS BRACED.
2. SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT HAS ACCUMULATED TO ONE–HALF THE HEIGHT OF THE SLT FENCE.
3. THE MAXIMUM DRAINAGE AREA TO THE CULVERT BEING PROTECTED IS 1 ACRE.

REFERENCE		STANDARD DWG. NO.
Project	NRCS Natural Resources Conservation Service	IL-508SF
Designed Date		SHEET 1 OF 1
Checked Date		DATE 1-29-99
Approved Date		

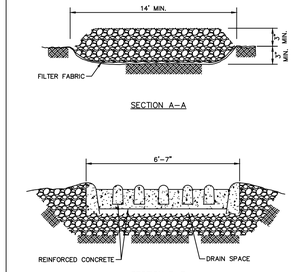
STABILIZED CONSTRUCTION ENTRANCE PLAN



NOTES:
1. FILTER FABRIC SHALL MEET THE REQUIREMENTS OF MATERIAL SPECIFICATION 592 GEOTEXTILE, TABLE 1 OR 2, CLASS I,II OR IV AND SHALL BE PLACED OVER CLEARED AREA PRIOR TO THE PLACING OF ROCK.
2. ROCK OR RECLAIMED CONCRETE SHALL MEET ONE OF THE FOLLOWING IDOT COARSE AGGREGATE GRADATION, CA–1, CA–2, CA–3, OR CA–4 AND BE PLACED ACCORDING TO CONSTRUCTION SPECIFICATION 25 ROCKFILL USING PLACEMENT METHOD 1 AND CLASS III COMPACTION.
3. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF WASHING SHALL BE CONSTRUCTED ACCORDING TO MANUFACTURERS SPECIFICATIONS.
4. IF WASH RACKS ARE USED THEY SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

REFERENCE		STANDARD DWG. NO.
Project	NRCS Natural Resources Conservation Service	IL-630
Designed Date		SHEET 1 OF 2
Checked Date		DATE 8-15-94
Approved Date		

STABILIZED CONSTRUCTION ENTRANCE PLAN



REFERENCE		STANDARD DWG. NO.
Project	NRCS Natural Resources Conservation Service	IL-630
Designed Date		SHEET 2 OF 2
Checked Date		DATE 8-15-94
Approved Date		

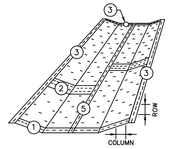
PIPE OUTLET SEDIMENT TRAP - ST I

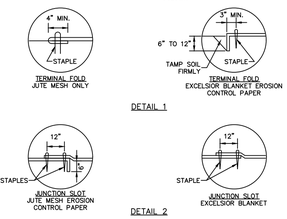
NOT TO SCALE

6. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE ABATED. ONCE CONSTRUCTED, THE TOP AND OUTSIDE FACE OF THE EMBANKMENT SHALL BE STABILIZED WITH SEED AND MULCH. POINTS OF CONCENTRATED INFLOW SHALL BE PROTECTED IN ACCORDANCE WITH GRADE STABILIZATION STRUCTURE CRITERIA. THE REMAINDER OF THE INTERIOR SLOPES SHOULD BE STABILIZED (ONE TIME) WITH SEED AND MULCH UPON TRAP COMPLETION AND MONITORED AND MAINTAINED EROSION FREE DURING THE LIFE OF THE TRAP.
7. THE STRUCTURE SHALL BE REMOVED AND AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
8. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
9. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
10. ABOVE THE WET STORAGE ELEVATION, THE RISER SHALL BE PERFORATED WITH 1/2" WIDE BY 6" LONG SLITS OR 1" DIAMETER HOLES SPACED 6" VERTICALLY AND HORIZONTALLY. NO PERFORATIONS WILL BE ALLOWED WITHIN 6" OF THE HORIZONTAL BARREL.
11. THE RISER SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH (WIRE) THEN WRAPPED WITH GEOTEXTILE CLASS E. THE FILTER CLOTH SHALL EXTEND 6" ABOVE THE HIGHEST SLIT AND 6" BELOW THE LOWEST SLIT. WHERE ENDS OF FILTER CLOTH COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND FASTENED TO PREVENT BYPASS. FILTER CLOTH SHALL BE REPLACED AS NECESSARY TO PREVENT CLOGGING.
12. STRAPS OR CONNECTING BANDS SHALL BE USED TO HOLD THE FILTER CLOTH AND WIRE FABRIC IN PLACE. THEY SHALL BE PLACED AT THE TOP AND BOTTOM OF THE CLOTH.
13. FILL MATERIAL AROUND THE PIPE SPILLWAY SHALL BE HAND COMPACTED IN 4" LAYERS. A MINIMUM OF 2' OF HAND–COMPACTED BACKFILL SHALL BE PLACED OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
14. THE RISER SHALL BE ANCHORED WITH EITHER A CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOTATION. CONCRETE BASES SHALL BE AT LEAST TWICE THE RISER DIAMETER AND 12" DEEP WITH THE RISER EMBEDDED 9". STEEL PLATE BASES SHALL BE AT LEAST TWICE THE RISER DIAMETER, 1/4" MINIMUM THICKNESS AND ATTACHED TO THE BOTTOM OF THE RISER BY A CONTINUOUS WELD TO FORM A WATERTIGHT CONNECTION. THEN PLACE 2' OF STONE, GRAVEL OR TAMPED EARTH ON THE PLATE.
15. ANTI SEEP COLLARS SHALL BE CONSTRUCTED IN ACCORDANCE WITH PLANS (REF. TABLE 16 AND DETAILS 13 AND 14).
16. CONCENTRIC TRASH RACK AND ANTI–VORTEX DEVICE DESIGN DETAILS ARE ON DETAIL 16.
17. REFER TO SECTION D FOR DEWATERING REQUIREMENTS OF SEDIMENT TRAPS.
18. OUTLET – AN OUTLET SHALL BE PROVIDED, WHICH INCLUDES A MEANS OF CONVEYING THE DISCHARGE IN AN EROSION FREE MANNER TO AN EXISTING STABLE CHANNEL.
19. WHERE DISCHARGE OCCURS AT THE PROPERTY LINE, LOCAL ORDINANCES AND DRAINAGE EASEMENT REQUIREMENTS SHALL BE MET.

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCE CONSERVATION SERVICE	PAGE D–15–8	WATERSHED PROTECTION DIVISION DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

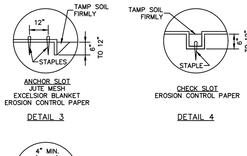
EROSION BLANKET PLAN





REFERENCE		STANDARD DWG. NO.
Project	NRCS Natural Resources Conservation Service	IL-530
Designed Date		SHEET 1 OF 2
Checked Date		DATE 5-24-94
Approved Date		

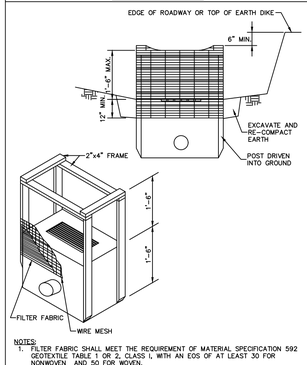
EROSION BLANKET PLAN



NOTES:
1. ON EROSION CONTROL PAPER, CHECK SLOTS, IN DITCH CHANNEL SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6% ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.
2. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'x 225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'x 150 ROLL OF MATERIAL.
3. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
4. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

REFERENCE		STANDARD DWG. NO.
Project	NRCS Natural Resources Conservation Service	IL-530
Designed Date		SHEET 2 OF 2
Checked Date		DATE 3-11-95
Approved Date		

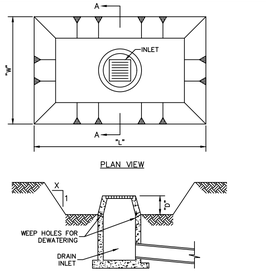
INLET PROTECTION - FABRIC DROP PLAN



NOTES:
1. FILTER FABRIC SHALL MEET THE REQUIREMENT OF MATERIAL SPECIFICATION 592 GEOTEXTILE TABLE 1 OR 2, CLASS I, WITH AN EOS OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN.
2. THE WIRE MESH SHALL HAVE A MAXIMUM OPENING OF AT LEAST 6 INCHES.
3. LIMIT DRAINAGE AREA TO THE INLET PROTECTION TO 1 ACRE.

REFERENCE		STANDARD DWG. NO.
Project	NRCS Natural Resources Conservation Service	IL-560
Designed Date		SHEET 1 OF 1
Checked Date		DATE 6-29-93
Approved Date		

INLET PROTECTION - EXCAVATED DRAIN PLAN



NOTES:
1. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED ON A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
2. THE SEDIMENT TRAP SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE CONSTRUCTION DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
3. ALL CUT SLOPES SHALL BE 2:1 OR FLATTER.

REFERENCE		STANDARD DWG. NO.
Project	NRCS Natural Resources Conservation Service	IL-555
Designed Date		SHEET 1 OF 1
Checked Date		DATE 3-11-93
Approved Date		

TABLE 1

ROCK RIPRAP SIZES AND THICKNESS

IDOT Gradation Number	d50 (in.)	dmax (in.)	Minimum Blanket Thickness (in.)
RR-3 1/	5	10	15
RR-4	9	14	20
RR-5	12	19	28
RR-6	15	22	32
RR-7	18	27	32

1/ Concrete block may be used to replace RR-3.

TABLE 2

MINIMUM IDOT ROCK SIZES AND APRON LENGTH FOR MAXIMUM AND MINIMUM TAILWATER CONDITIONS

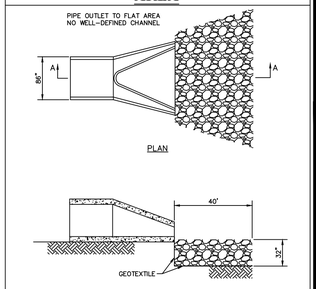
Culvert Dia. (in.)	Minimum Tailwater				Maximum Tailwater			
	5 fps 1/		10 fps 1/		5 fps 1/		10 fps 1/	
	Rock Gradation	La (ft.)	Rock Gradation	La (ft.)	Rock Gradation	La (ft.)	Rock Gradation	La (ft.)
12	No. 3	10	No. 3	12	No. 3	12	No. 3	15
18	No. 3	14	No. 4	16	No. 3	12	No. 3	16
24	No. 3	16	No. 4	20	No. 3	14	No. 4	17
30	No. 3	18	No. 4	22	No. 3	16	No. 4	20
36	No. 4	20	No. 5	24	No. 3	16	No. 4	22
48	No. 4	24	No. 6	28	No. 4	20	No. 4	24
60	No. 5	32	No. 6	36	No. 4	22	No. 5	26
72	No. 6	40	No. 6	44	No. 5	24	No. 5	29
96	No. 7	50	No. 7	54	No. 5	26	No. 5	32

1/ Maximum conduit velocity fps.

Rock Gradation source: Illinois Department of Transportation, 1997.

910 - 5

4'X6' " PIPE OUTLET TO FLAT AREA



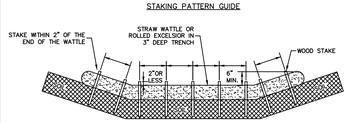
NOTES:
1. THE FILTER FABRIC SHALL MEET THE REQUIREMENTS IN MATERIAL SPECIFICATIONS 592 GEOTEXTILE TABLE 1 OR 2, CLASS I, II OR III.
2. THE ROCK RIPRAP SHALL MEET THE IDOT REQUIREMENTS FOR THE FOLLOWING GRADATION: RR RR–6 , QUALITY A.
3. THE RIPRAP SHALL BE PLACED ACCORDING TO CONSTRUCTION SPECIFICATION 61 LOOSE ROCK RIPRAP. THE ROCK MAY BE EQUIPMENT PLACED.

REFERENCE		STANDARD DWG. NO.
Project	NRCS Natural Resources Conservation Service	IL-610
Designed Date		SHEET 1 OF 1
Checked Date		DATE 9-15-93
Approved Date		

ROLLED EROSION CONTROL PRODUCTS

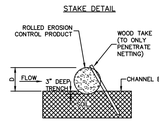
NOT TO SCALE

STAKING PATTERN GUIDE

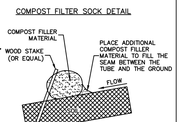


NOTES:
1. OVERLAP MINIMUM IS THE DIAMETER OF THE ROLL.
2. 4' SPACING FOR WATTLES.
3. 2' SPACING FOR ROLLED EXCELSIOR.
4. OR SPACE ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

STAKE DETAIL



COMPOST FILTER SOCK DETAIL



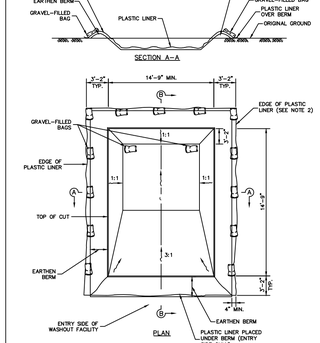
WHEN COMPOST FILTER SOCK DITCH CHECK IS USED, PLACE A COMPOST BERM UPSTREAM OF THE FILTER SOCK (SEE IUM 805). A TRENCH IS NOT REQUIRED.

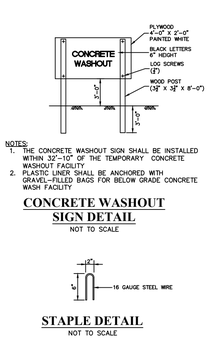
NOTES:
1. DRAWINGS ARE NOT TO SCALE
2. ENDS OF WATTLES OR ROLLED EXCELSIOR SHALL BE TURNED AT LEAST 6" UPSLOPE.
3. RECOMMENDED STAKES ARE 1 1/8" WIDE x 1 1/8" THICK x 30" LONG.
4. STAKES SHALL NOT EXTEND ABOVE THE STRAW WATTLE MORE THAN 2".
5. SPACING: THE TOE OF THE UPSTREAM DITCH CHECK SHALL CREATE A HORIZONTAL LINE WITH THE TOP OF THE DOWNSTREAM DITCH CHECK.
6. WHEN COMPOST FILTER SOCK DITCH CHECK IS USED, PLACE A COMPOST BERM UPSTREAM OF THE FILTER SOCK (SEE IUM 805). A TRENCH IS NOT REQUIRED.

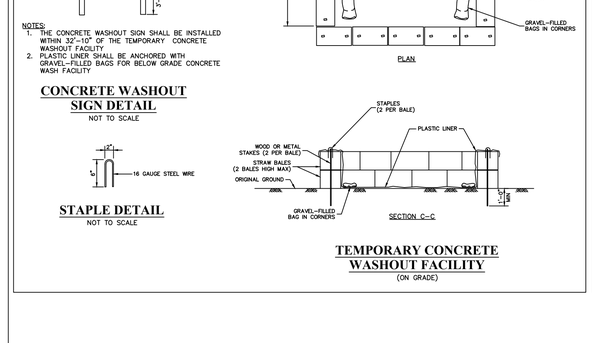
REFERENCE		STANDARD DWG. NO.
Project		IUM-514
Designed Date		SHEET 1 OF 1
Checked Date		DATE 8-19-11
Approved Date		

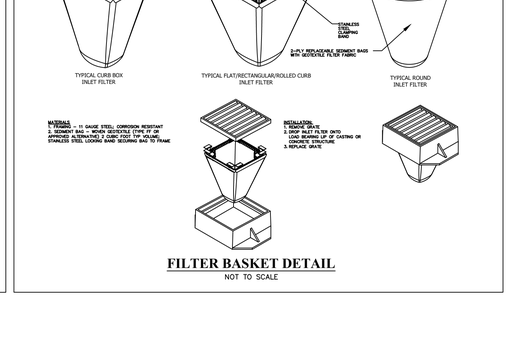
TEMPORARY CONCRETE WASHOUT FACILITY

(BELOW GRADE)









REVIEW SET
NOT FOR CONSTRUCTION

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	06–17–24	PER LAGRANGE HIGHLANDS SD	DMV
2	08–19–24	PER WDR REVIEW	SDD
3	10–17–24	PER VILLAGE REVIEW	SDD
4	11–04–24	PER CDDOTH REVIEW	DMV
5	12–12–24	PER VILLAGE REVIEW	DMV
6	01–27–25	PER REVISED GEOMETRY	DMV
7	02–24–25	PER VILLAGE COMMENTS	DMV
8	03–26–25	PER VILLAGE COMMENT	DMV

McNAUGHTON DEVELOPMENT
11S220 JACKSON ST. Ste. 101
BURR RIDGE, ILLINOIS 60527
(630) 325–3400

FINAL ENGINEERING PLANS
FOR
HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326–4961
FAX: (708) 326–4962
IL PROF. LIC. NO.: 184–003740

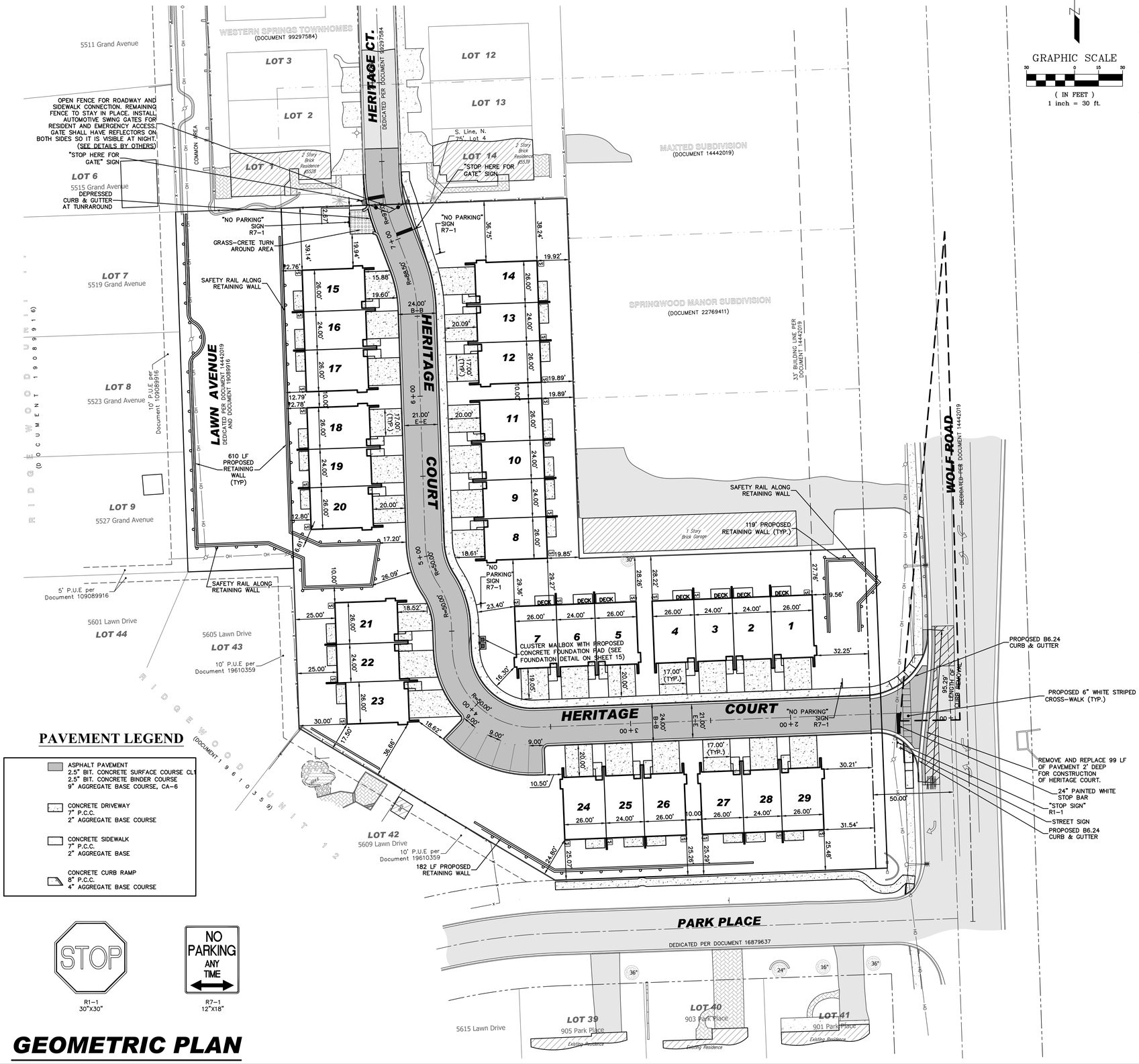
DEI

PROJECT INFORMATION
Project No.: 24–0001
Scale: 1" = 30'
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

6
OF
20

SOIL EROSION SEDIMENTATION & CONTROL DETAILS

L:\Projects\2024\24-0001\Engineering\GMD\Final\24-0001 TE.dwg Plot Date: 3/28/2025 4:15:54 PM By: dmdh



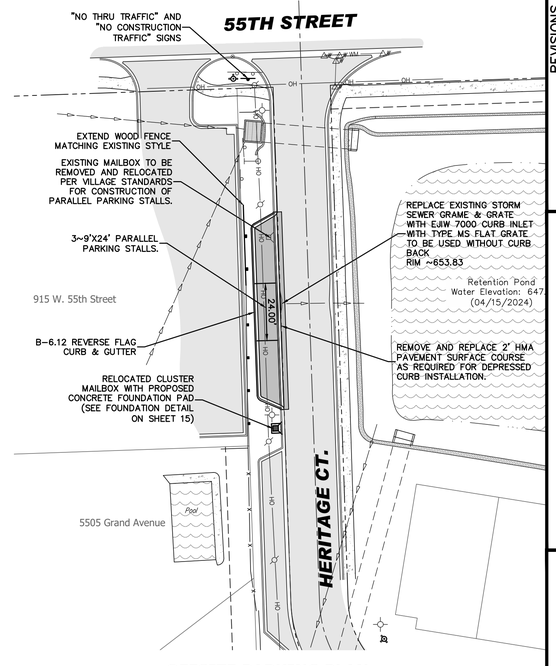
PAVEMENT LEGEND

- ASPHALT PAVEMENT
  2.5" BIT. CONCRETE SURFACE COURSE CL1
  2.5" BIT. CONCRETE BINDER COURSE
  9" AGGREGATE BASE COURSE, CA-6
- CONCRETE DRIVEWAY
  7" P.C.C.
  2" AGGREGATE BASE COURSE
- CONCRETE SIDEWALK
  7" P.C.C.
  2" AGGREGATE BASE
- CONCRETE CURB RAMP
  8" P.C.C.
  4" AGGREGATE BASE COURSE

R1-1
30"X30"

R7-1
12"X18"

GEOMETRIC PLAN



OFFSITE PARKING PLAN

NOTES:

1. ANY ENCROACHMENT INTO EXISTING MAINLINE PAVEMENT FOR CONSTRUCTION OF CURB AND GUTTER SHALL REQUIRE THAT THE PAVEMENT BE MILLED 4 INCHES AND RESURFACED PURSUANT TO IDOT DISTRICT 1 MIX CHART REQUIREMENTS FOR ONE FULL LANE WIDTH AND A MINIMUM LENGTH OF 6 FEET.

SITE DATA

LOT AREA:	105,159	S.F.
	(2.41	AC)
EXISTING COVERAGE:		
2 STORY BRICK BLDG:	20,030	S.F.
PARKING LOT (INCL. CURB):	45,730	S.F.
CONCRETE WALKS:	1,125	S.F.
LOADING DOCK DRIVE:	1,372	S.F.
ASPHALT WALK:	1,465	S.F.
RIP-RAP SWALES:	3,077	S.F.
TOTAL EXISTING IMPERVIOUS	= 72,799	S.F.
	(1.67	AC)
PROPOSED:		
HERITAGE COURT (INCL. CURB):	15,902	S.F.
SIDEWALK:	3,530	S.F.
MAILBOX PEDESTALS:	32	S.F.
G.C. TURN AROUND:	207	S.F.
FOUNDATIONS:	29,549	S.F.
FRONT PORCHES:	290	S.F.
FRONT WALKS & STEPS:	1,888	S.F.
REAR PATIOS:	2,316	S.F.
REAR DECKS:	504	S.F.
DRIVEWAYS:	11,123	S.F.
TOTAL PROPOSED IMPERVIOUS	= 65,341	S.F.
	(1.50	AC)

REVIEW SET
NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DMV
2	10-17-24	PER VILLAGE REVIEW	SDD
3	11-04-24	PER CDDOTH REVIEW	DMV
4	12-12-24	PER VILLAGE REVIEW	DMV
5	01-21-25	PER REVISED GEOMETRY	DMV
6	02-25-25	PER VILLAGE COMMENT	DMV
7	03-26-25	PER VILLAGE COMMENT	DMV
8			

McNAUGHTON DEVELOPMENT
11S220 JACKSON ST. Ste. 101
BURR RIDGE, ILLINOIS 60527
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FINAL ENGINEERING PLANS
FOR
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(708) 326-4961
FAX: (708) 326-4962
IL PROF. LIC. NO.: 184-003740

DEI

PROJECT INFORMATION

Project No.:	24-0001
Scale:	1" = 30'
Date:	MAY 22, 2024
Design By:	SDD
Drawn By:	DEI
Checked By:	SDD

7
OF
20

GEOMETRIC PLAN

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GRADING PLAN

NOTES:

1. WOLF ROAD AND PARK PLACE PARKWAY AREAS AND ANY DISTURBED AREAS (ON-SITE OR OFF-SITE) TO BE RESTORED WITH 4" PULVERIZED TOPSOIL AND SOD.
2. ALL DOWNSPOUT DISCHARGES MUST BE 5' MAXIMUM FROM BUILDINGS.

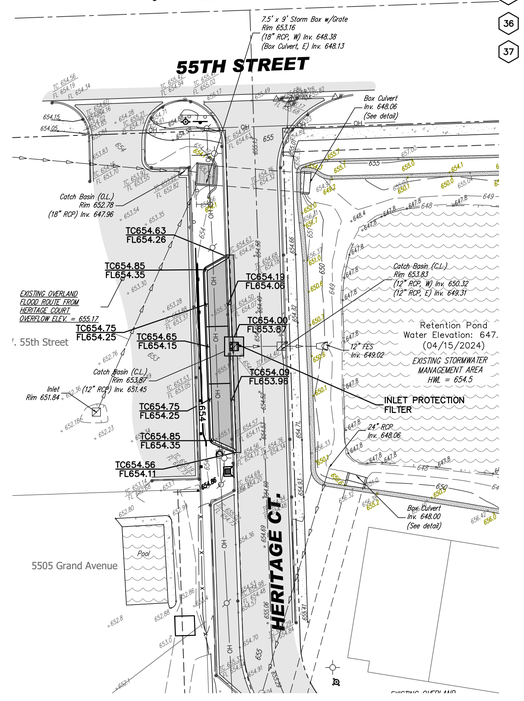
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= REVISIONS SINCE BOARD APPROVAL

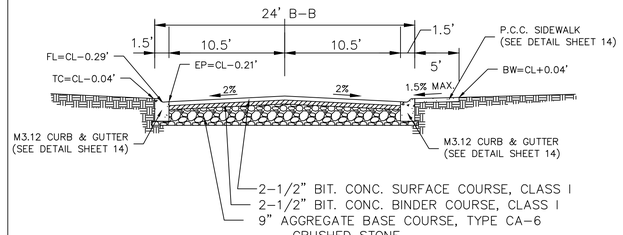
REVIEW SET
NOT FOR CONSTRUCTION

RETAINING WALL (XX)

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2 TW=656.50 BW=650.00 EX TW=655.98	13 TW=656.00 BW=650.50	24 TW=655.50 BW=660.00
3 TW=656.50 BW=650.00 EX TW=656.26	14 TW=657.00 BW=650.50	25 TW=666.00 BW=660.00
4 TW=656.50 BW=650.00 EX TW=656.25	15 TW=657.00 BW=650.00	26 TW=664.00 BW=661.00
5 TW=656.50 BW=650.00 EX TW=656.16	16 TW=658.00 BW=650.00	27 TW=662.50 BW=662.50
6 TW=656.50 BW=650.00 EX GND=656.00	17 TW=658.00 BW=650.00	28 TW=660.00 BW=660.00
7 TW=655.50 BW=650.00	18 TW=658.00 BW=650.00	29 TW=660.00 BW=656.30
8 TW=655.50 BW=650.00	19 TW=656.50 BW=650.00	30 TW=660.00 BW=652.70
9 TW=655.50 BW=650.00	20 TW=658.50 BW=650.00	31 TW=660.00 BW=652.00
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11 TW=656.50 BW=650.50	22 TW=665.00 BW=665.00	33 TW=660.00 BW=655.30
		34 TW=660.00 BW=660.00
		35 TW=662.50 BW=662.50
		36 TW=663.00 BW=660.50
		37 TW=663.00 BW=663.00



OFFSITE PARKING PLAN



TYPICAL ROADWAY SECTION

NOT TO SCALE

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DNV
2	10-17-24	PER WRF REVIEW	SDD
3	10-29-24	PER VILLAGE REVIEW	DMV
4	11-04-24	PER CDDOTH REVIEW	DMV
5	12-12-24	PER VILLAGE REVIEW	DMV
6	01-27-25	PER REVISED GEOMETRY	DMV
7	02-26-25	PER VILLAGE COMMENT	DMV
8	03-26-25	PER VILLAGE COMMENT	DMV

McNAUGHTON DEVELOPMENT
11S220 JACKSON ST. Ste. 101
BURR RIDGE, ILLINOIS 60527
(630) 325-3400

FINAL ENGINEERING PLANS
FOR
HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326-4961
FAX: (708) 326-4962
IL PROF. LIC. NO.: 184-003740

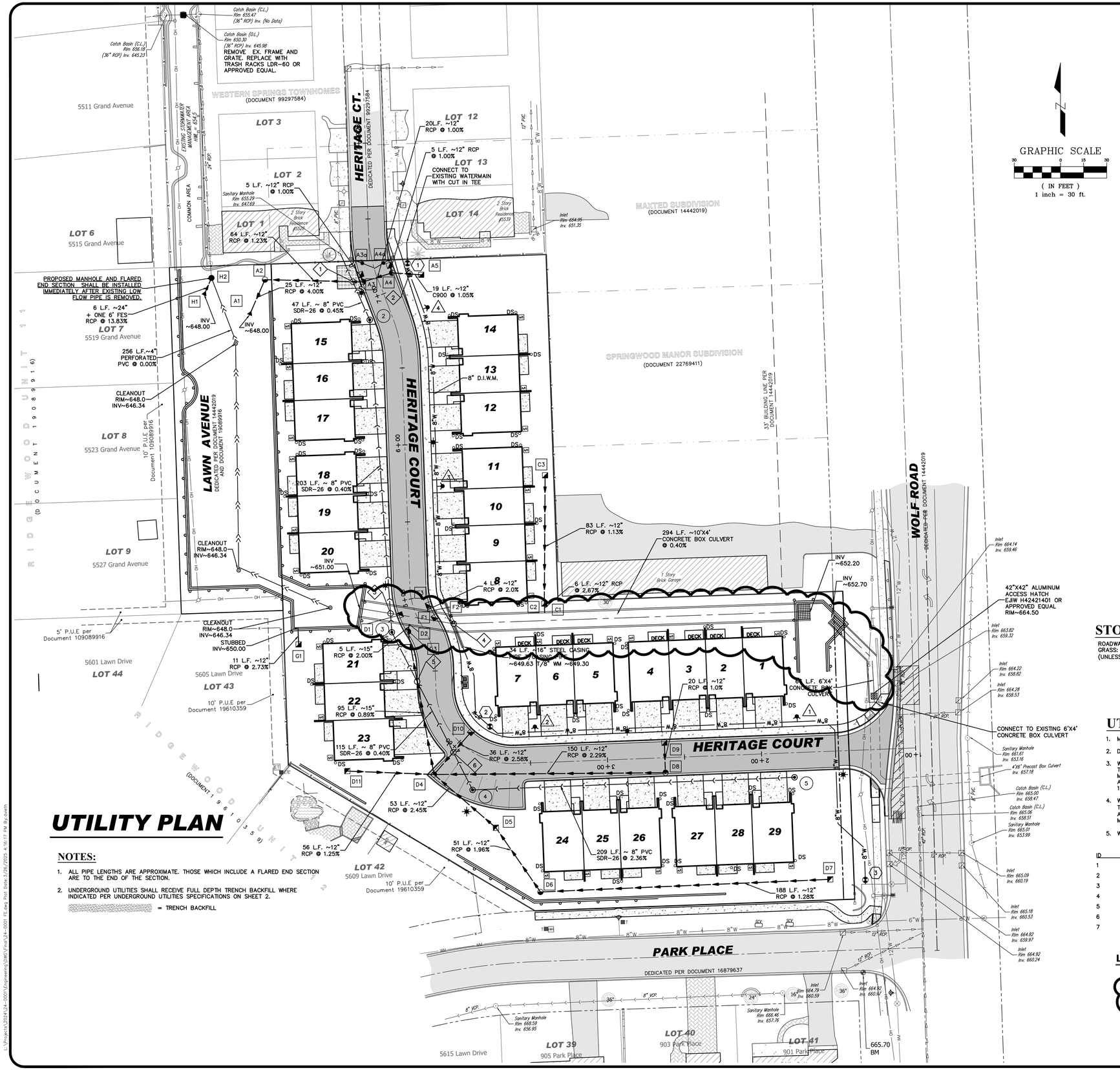
DEI

PROJECT INFORMATION
Project No.: 24-0001
Scale: 1" = 30'
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

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GRADING PLAN

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UTILITY PLAN

NOTES:

1. ALL PIPE LENGTHS ARE APPROXIMATE. THOSE WHICH INCLUDE A FLARED END SECTION ARE TO THE END OF THE SECTION.
2. UNDERGROUND UTILITIES SHALL RECEIVE FULL DEPTH TRENCH BACKFILL WHERE INDICATED PER UNDERGROUND UTILITIES SPECIFICATIONS ON SHEET 2.

= TRENCH BACKFILL

SANITARY STRUCTURES (XX)

1. EX. 48" M.H., C.L. EX. RIM 655.29 EX. INV 647.69 PR. INV 647.69
2. 48" M.H., C.L. RIM 656.00 INV 647.90
3. 48" M.H., C.L. RIM 657.00 INV 648.71
4. 48" M.H., C.L. RIM 657.95 INV 649.17
5. 48" M.H., C.L. RIM 663.10 INV 654.10

WATER VALVE VAULTS (XX)

1. 8" VALVE IN 60" VAULT RIM 654.90
2. 8" VALVE IN 60" VAULT RIM 659.00
3. 8" PRESSURE CONNECTION IN 60" VAULT RIM 664.80

FIRE HYDRANTS (XX)

1. FIRE HYDRANT ASSEMBLY FINISHED GRAD @ FH ~662.80
2. FIRE HYDRANT ASSEMBLY FINISHED GRAD @ FH ~660.10
3. FIRE HYDRANT ASSEMBLY FINISHED GRAD @ FH ~658.10
4. FIRE HYDRANT ASSEMBLY FINISHED GRAD @ FH ~656.00

STORM SEWER STRUCTURES (XX)

- A1 12" FES W/ GRATE INV 648.00
- A2 48" DIA. MH., O.L. RIM 653.50 INV 650.30 (E, 12") INV 649.00 (SW, 12")
- A3 48" DIA. CATCHBASIN, O.L. RIM 654.37 (FL) INV 651.09 (W&E, 12") INV 651.30 (N, 12")
- A3c 24" DIA. INLET RIM 654.35 (FL) INV 651.35 (N, 12")
- A4 48" DIA. MH., O.L. RIM 654.37 (FL) INV 651.29 (N,W&E 12")
- A4c 24" DIA. INLET RIM 654.35 (FL) INV 651.35 (S 12")
- A5 24" DIA. INLET RIM 654.50 INV 651.50 (W, 12")
- C1 CONNECT TO 10'X4' BOX CULVERT INV 653.40 (N, 12")
- C2 24" DIA. INLET RIM 656.80 INV 653.56 (N&S, 12")
- C3 24" DIA. INLET RIM 657.50 INV 654.50 (S, 12")
- D1 24" DIA. INLET RIM 656.70 (FL) T/CONC BOX CULVERT~655.94
- D2 CONNECT TO 10'X4' BOX CULVERT INV ~653.10 (S, 15")
- D3 60" DIA. M.H., O.L. RIM 656.75 (FL) INV 653.20 (NW&SE, 15")
- D4 72" DIA. M.H., O.L. RIM 657.30 INV 654.05 (NW, 15") INV 654.30 (NE, W, E&SE, 12")
- D5 24" DIA. INLET RIM 659.60 INV 655.60 (NW&SE, 12")
- D6 48" DIA. M.H., O.L. RIM 659.60 INV 656.60 (NW&E, 12")
- D7 24" DIA. INLET RIM 662.00 INV 659.00 (W, 12")
- D8 48" DIA. M.H., O.L. RIM 660.93 (FL) INV 657.73 (N&W, 12")
- D9 24" DIA. INLET RIM 660.93 (FL) INV 657.93 (S, 12")
- D10 24" DIA. INLET RIM 658.23 (FL) INV 655.23 (S, 12")
- D11 24" DIA. INLET RIM 658.00 INV 655.00 (E, 12")
- F1 24" DIA. INLET RIM 656.75 (FL) T/CONC BOX CULVERT~656.03
- F2 CONNECT TO 10'X4" BOX CULVERT INV 653.10 (N, 12")
- F3 24" DIA. INLET RIM 656.69 (FL) INV 653.18 (S, 12")
- G1 24" DIA. INLET RIM 657.20 INV 650.30 (N, 12")
- H1 24" FES W/ GRATE INV 648.00
- H2 48" DIA. MH., C.L. RIM 652.00 EX INV 646.34 (N, 24") PR INV 646.34 (SW, 24")

STORM SEWER GRATES

ROADWAY: EJIW 7525Z & EJIW 7525M
GRASS: EJIW 6527
(UNLESS OTHERWISE NOTED ON PLANS)

UTILITY CROSSING INFORMATION (XX)

1. MAINTAIN 18" MINIMUM VERTICAL SEPARATION BETWEEN WATERMAIN AND STORM/SANITARY SEWERS.
2. DEPTHS OF EXISTING WM ARE ASSUMED AND MUST BE FIELD VERIFIED PRIOR TO START OF CONSTRUCTION.
3. WHEN THE WM CROSSES BELOW A SEWER, THE SEWER MUST BE CONSTRUCTED WITH WM QUALITY PIPE & JOINTS THAT COMPLY WITH 35 IAC 653.119 OR ELSE EITHER PIPE MUST BE INSTALLED IN A CASING. THE PROTECTION MUST EXTEND ON EACH SIDE OF THE CROSSING UNTIL THE NORMAL DISTANCE FROM THE WM TO THE SEWER IS AT LEAST 10 FEET. IN ADDITION, THE WM MUST BE LOCATED AT LEAST 18 INCHES BELOW THE SEWER. THIS 18 INCHES IS A STRUCTURAL PROTECTION TO PREVENT THE SEWER FROM SETTLING AND BREAKING THE WM.
4. WHEN THE WM CROSSES ABOVE A SEWER AND IT IS NOT 18 INCHES ABOVE THE CROWN OF THE SEWER WHERE THE PIPE CROSSES, THE SEWER MUST BE CONSTRUCTED WITH WM QUALITY PIPE & JOINTS (COMPLIANCE SAME AS ABOVE) OR A CASING PIPE CAN BE INSTALLED AROUND THE WM OR THE SEWER. THE CASING PIPE MUST BE A MATERIAL THAT IS APPROVED FOR USE AS WM. CONCRETE IS NOT AN ACCEPTABLE ENCASEMENT.
5. WHEN THE ENCASEMENT OPTION IS USED, IT SHALL BE ONE CONTINUAL SECTION (NO JOINTS).

(XX)

ID	BOTTOM OF PIPE	TOP OF PIPE	VERTICAL SEPARATION	CROSSING INFO.
1	650.83	648.47	2.36'	STORM OVER SANITARY
2	651.24	649.18	2.06'	STORM OVER WATERMAIN (STORM SEWER TO BE C900 PIPE)
3	650.25	649.40	0.85'	STORM OVER SANITARY
4	650.42	648.92	1.50'	STORM OVER WATERMAIN (LOWER AND ENCASE WATERMAIN)
5	653.39	649.55	3.84'	STORM OVER SANITARY
6	654.58	649.75	4.83'	STORM OVER SANITARY
7	654.76	649.83	4.93'	STORM OVER SANITARY

LEGEND

= REVISIONS SINCE BOARD APPROVAL

REVIEW SET
NOT FOR CONSTRUCTION

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DMV
2	10-17-24	PER VILLAGE REVIEW	SDD
3	11-04-24	PER CDDOTH REVIEW	DMV
4	12-12-24	PER VILLAGE REVIEW	DMV
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6	03-17-25	PER VILLAGE COMMENTS	DMV
7	03-26-25	PER VILLAGE COMMENT	DMV
8			

McNAUGHTON DEVELOPMENT
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BURR RIDGE, ILLINOIS 60527
(630) 325-3400

FINAL ENGINEERING PLANS
FOR
HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326-4961
FAX: (708) 326-4962
IL PROF. LIC. No.: 184-003740

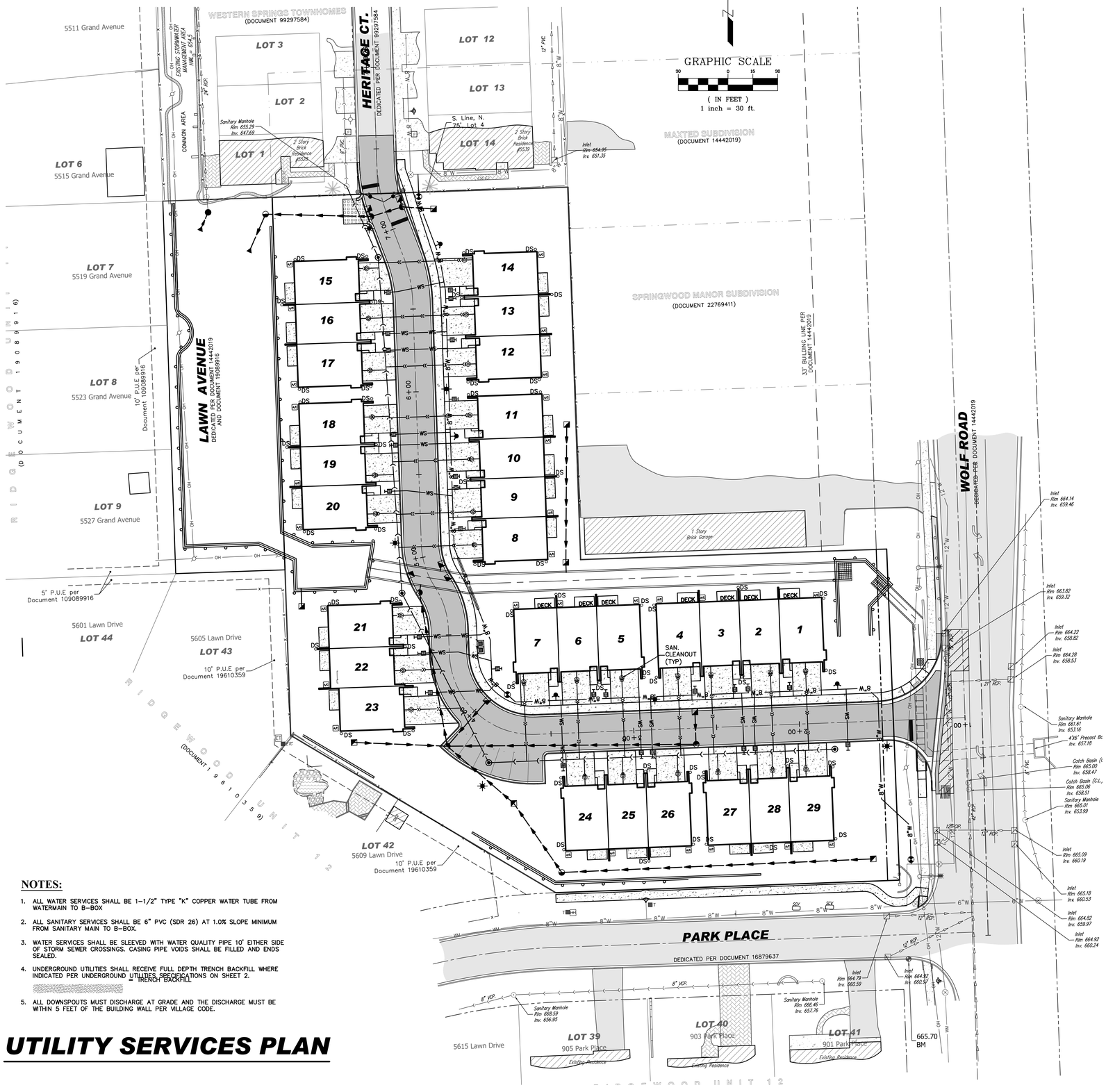
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PROJECT INFORMATION
Project No.: 24-0001
Scale: 1" = 30'
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

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UTILITY PLAN

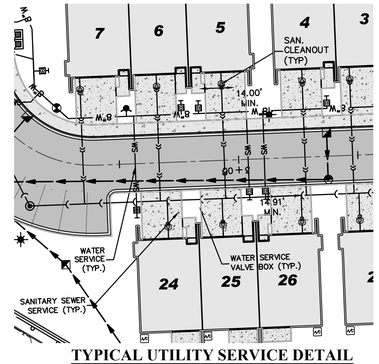
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NOTES:

1. ALL WATER SERVICES SHALL BE 1–1/2" TYPE "K" COPPER WATER TUBE FROM WATERMAIN TO B–BOX
2. ALL SANITARY SERVICES SHALL BE 6" PVC (SDR 26) AT 1.0% SLOPE MINIMUM FROM SANITARY MAIN TO B–BOX.
3. WATER SERVICES SHALL BE SLEEVED WITH WATER QUALITY PIPE 10' EITHER SIDE OF STORM SEWER CROSSINGS. CASING PIPE VOIDS SHALL BE FILLED AND ENDS SEALED.
4. UNDERGROUND UTILITIES SHALL RECEIVE FULL DEPTH TRENCH BACKFILL WHERE INDICATED PER UNDERGROUND UTILITIES SPECIFICATIONS ON SHEET 2.
   = TRENCH BACKFILL
5. ALL DOWNSPOUTS MUST DISCHARGE AT GRADE AND THE DISCHARGE MUST BE WITHIN 5 FEET OF THE BUILDING WALL PER VILLAGE CODE.

UTILITY SERVICES PLAN



TYPICAL UTILITY SERVICE DETAIL

REVIEW SET
NOT FOR
CONSTRUCTION

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DMV
2	10-17-24	PER WSFD FIRST REVIEW	SDD
3	10-29-24	PER VILLAGE REVIEW	SDD
4	11-04-24	PER CDDOTH REVIEW	DMV
5	12-12-24	PER VILLAGE REVIEW	DMV
6	01-27-25	PER REVISED GEOMETRY	DMV
7	02-25-25	PER CDDOTH COMMENTS	DMV
8	03-26-25	PER VILLAGE COMMENT	DMV

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(630) 325-3400

FINAL ENGINEERING PLANS
FOR
HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326-4961
FAX: (708) 326-4962
ILL PROF. LIC. NO.: 184-003740

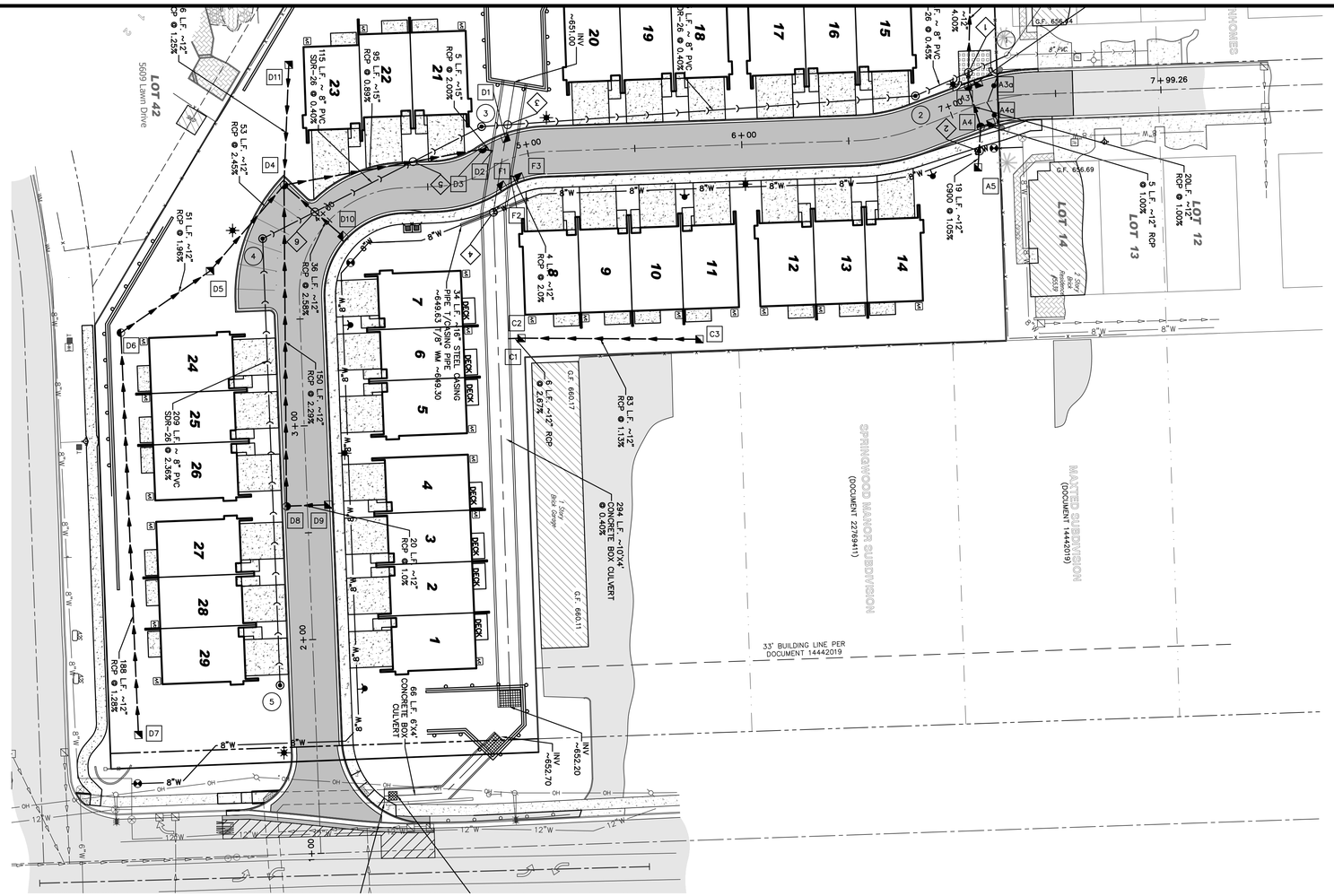
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PROJECT INFORMATION
Project No.: 24–0001
Scale: 1" = 30'
Date: MAY 22 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

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OF
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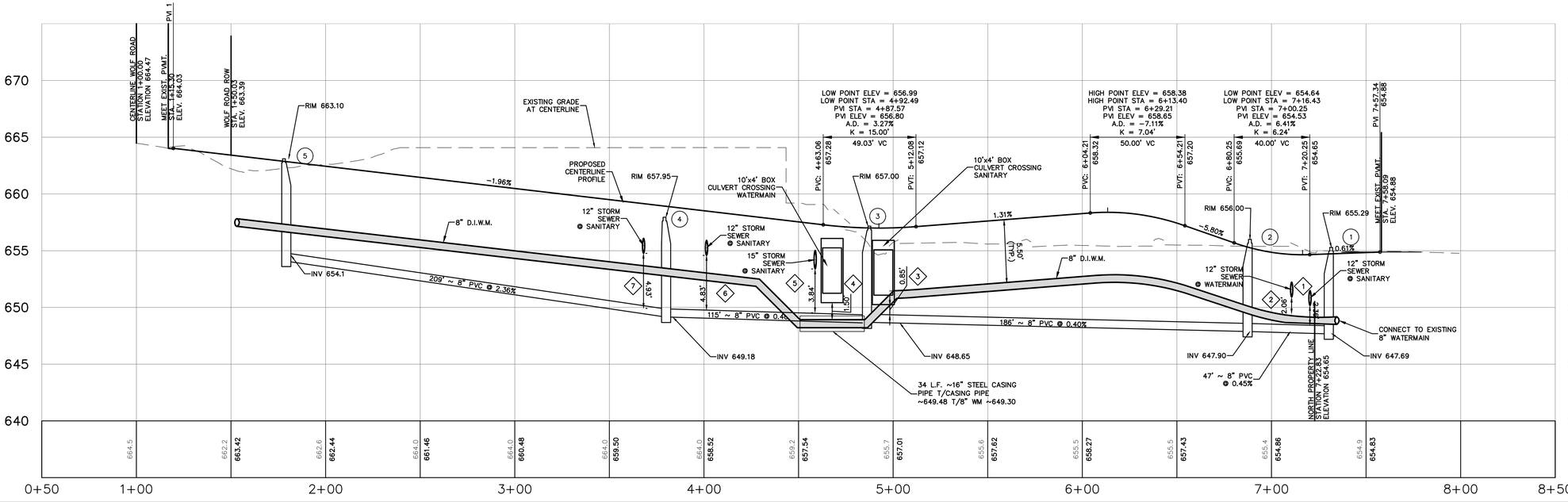
UTILITY SERVICES PLAN

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HERITAGE COURT

STATION: 0+50.00 TO 8+50.00



PROFILE SCALE
H: 1" = 30'
V: 1" = 5'

REVIEW SET
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CONSTRUCTION

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DMV
2	08-19-24	PER WOLF ROAD REVIEW	SDD
3	10-17-24	PER VILLAGE REVIEW	SDD
4	11-04-24	PER CDDOTH REVIEW	DMV
5	12-12-24	PER VILLAGE REVIEW	DMV
6	01-27-25	PER REVISED GEOMETRY	DMV
7	02-26-25	PER CDDOTH COMMENTS	DMV
8	03-26-25	PER VILLAGE COMMENT	DMV

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FINAL ENGINEERING PLANS
FOR
HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

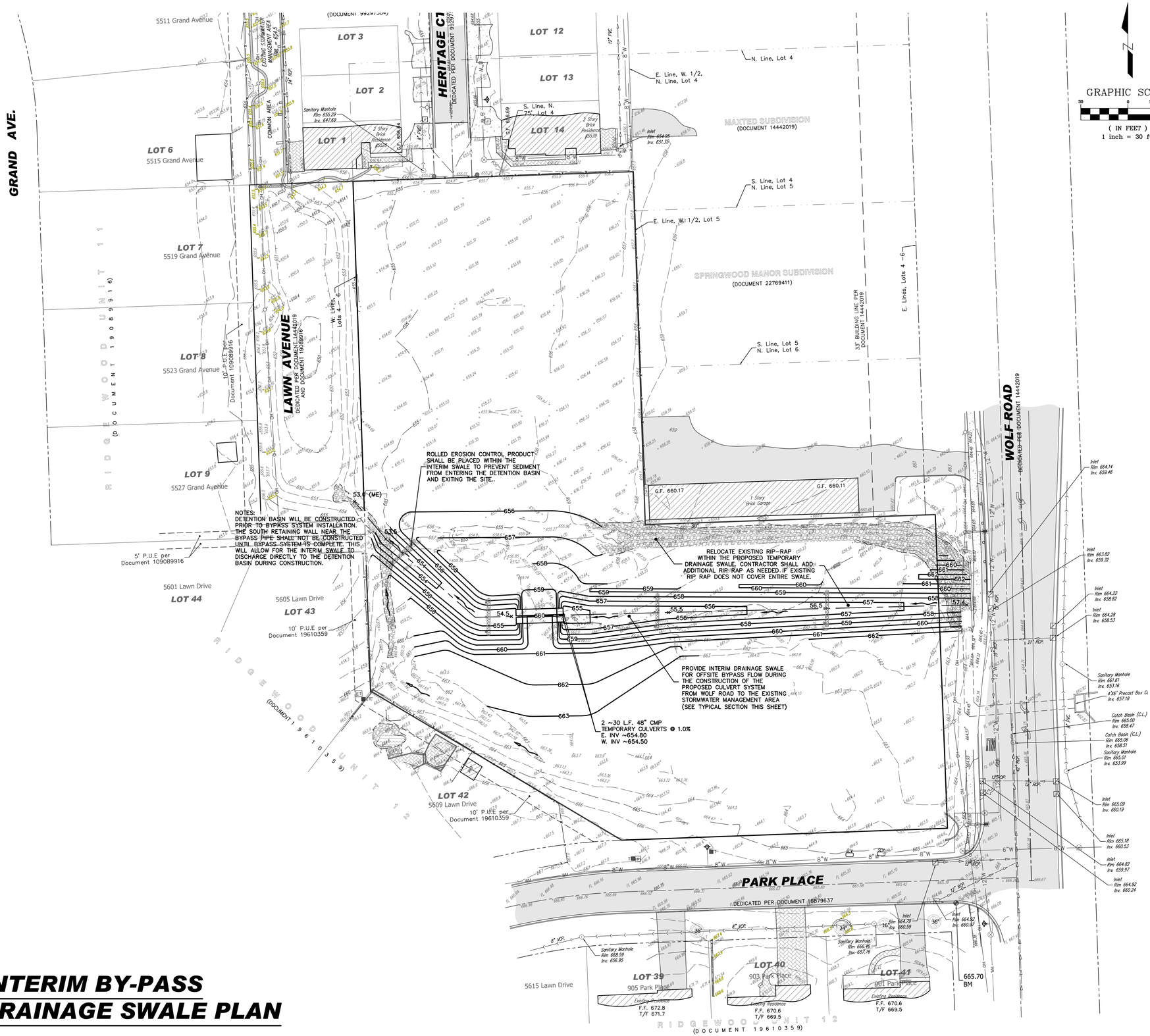
HERITAGE COURT PLAN & PROFILE 1+00 TO 8+50

DESIGNTEK ENGINEERING, INC.
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9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326-4961
FAX: (708) 326-4962
IL PROF. LIC. NO.: 184-003740

PROJECT INFORMATION
Project No.: 24-0001
Scale: AS SHOWN
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

11
OF
20

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INTERIM BY-PASS DRAINAGE SWALE PLAN

REVIEW SET
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REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DNV
2	10-17-24	PER WOLF ROAD REVIEW	SDD
3	10-17-24	PER VILLAGE REVIEW	SDD
4	11-04-24	PER CDDOTH REVIEW	DMV
5	12-12-24	PER VILLAGE REVIEW	DMV
6	01-27-25	PER REVISED GEOMETRY	DMV
7	02-17-25	PER CDDOTH REVIEW	DMV
8	03-26-25	PER VILLAGE COMMENT	DMV

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FINAL ENGINEERING PLANS
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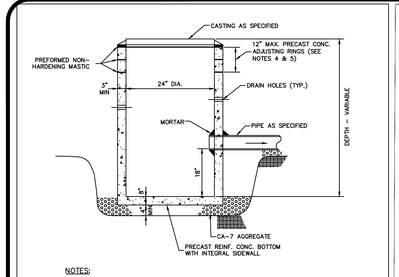
DESIGNTEK ENGINEERING, INC.
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PROJECT INFORMATION
Project No.: 24-0001
Scale: 1" = 30'
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDS

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OF
20

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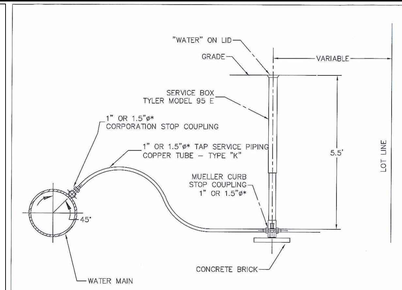


NOTES:

1. PROVIDE SELECT GRANULAR BACKFILL, CA- 11 AROUND CATCH BASIN TO SUBGRADE IN PAVED AREAS
2. ALTERNATE INLET BOTTOM – PRECAST REINFORCED CONCRETE BASE.
3. CONCRETE FILLETS SHALL BE MADE WITH NON-SHRINK MORTAR TO PROVIDE A SMOOTH TRANSITION BETWEEN THE CASTING AND ADJUSTING RING (OR TOP OF STRUCTURE).
4. WHEN ADJUSTMENTS ARE NECESSARY, THEY WILL BE PERFORMED WITH A MAXIMUM OF TWO (2) PRECAST CONCRETE RINGS SET IN A BED OF PREFORMED NON-HARDENING MASTIC (RUB-R-NEK OR APPROVED EQUAL) TO A MAX. HEIGHT OF TWELVE INCHES. TWO (2) INCH RINGS SHALL ONLY BE USED WHEN ADJUSTMENT IS LESS THAN THREE (3) INCHES.
5. NO MORTAR SHALL BE USED TO DRESS UP INTERIOR JOINTS OF ADJUSTING RINGS.
6. A MINIMUM OF FOUR (4), TWO (2) INCH DIAMETER DRAIN HOLES SHALL BE PROVIDED WITHIN ONE (1) FOOT OF THE LOWEST PIPE INVERT. THE HOLES SHALL BE DISTRIBUTED EQUIDISTANT AROUND THE PERIMETER OF THE STRUCTURE. A ONE (1) FOOT BY ONE (1) FOOT SECTION OF UNDERDRAIN FILTER CLOTH MATERIAL SHALL BE SUFFICIENTLY FIXED TO THE OUTSIDE OF THE MANHOLE WITH MASTIC MATERIALS TO PREVENT SLIPPAGE DURING BACKFILLING. THE HOLES SHALL BE EITHER PRECAST OR DRILLED. DRAIN HOLES ARE REQUIRED FOR ALL INLETS IN PAVED AREAS.

CATCH BASIN TYPE C

NOT TO SCALE

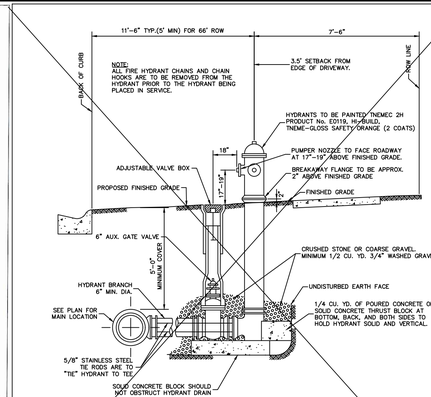


NOTES:

1. ALL FITTINGS SHALL BE COMPRESSION TYPE.
2. TRENCH BACKFILL (CA–7 CRUSHED LIMESTONE) SHALL BE USED UNDER AND WITHIN 2 FEET OF ALL PAVED AREAS (SIDEWALK, DRIVEWAY AND ROADWAY).
3. NO OPEN CUTTING OF PAVEMENT WILL BE PERMITTED. AUGER AND PUSH OR DIRECTIONAL BORE TO RECEIVING PIT IF MAIN IS UNDER PAVEMENT. SEE VILLAGE STANDARD DETAILS FOR PAVEMENT, SIDEWALK OR DRIVEWAY REPLACEMENT. ALL PAVEMENT, SIDEWALK, CURB AND DRIVEWAYS MUST BE SAW CUT FULL DEPTH PRIOR TO REMOVAL.
4. ON 4" WATER MAINS, AN ALL STAINLESS STEEL TAPPING CLAMP SHALL BE USED. IN ADDITION, THE HOLE DRILLED IN THE MAIN SHALL NOT EXCEED 1". EXCEPT FOR THE HOLE DRILLED IN THE MAIN, ALL HARDWARE FOR A 1.5" SERVICE SHALL BE SIZED FOR 1.5"ø.
5. Abandonment of existing water service requires removal of the corporation stop and placement of a stainless solid sleeve repair clamp.
6. NEW SERVICES SHALL BE TAPPED MIN. OF 2 FT. FROM EXISTING TAP.
7. RESTORATION OF PARKWAY SHALL BE MINIMUM 4" OF TOPSOIL AND SOD.
8. ANY DEVIATION FROM THIS PLAN SHALL BE APPROVED IN WRITING BY THE DEPARTMENT OF PUBLIC WORKS (708)2446–1800 EXT. 200

**SIZE DETERMINED BY FIXTURE LOAD PER ILLINOIS PLUMBING CODE*

VILLAGE OF WESTERN SPRINGS WATER SERVICE revised 6/28/2002

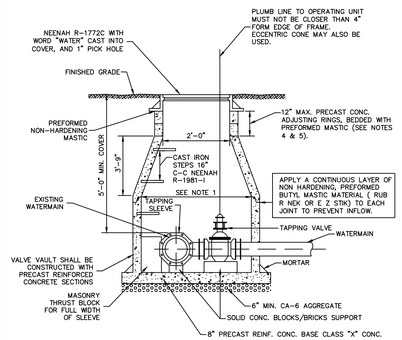


PERMITTED TYPES

FOR RESIDENTIAL AREAS ON 6" OR 8" MAINS	FOR ALL OTHER AREAS
WATEROUS TREND WB–77 4–3/4" VALVE OPENING	WATEROUS PACER WB–67 5–1/4" VALVE OPENING
CLOW F–2900 4–1/2" VALVE OPENING	CLOW F–2500 6–1/4" VALVE OPENING
MUELLER CENTURION A–421 4–1/2" VALVE OPENING	MUELLER CENTURION A–423 5–1/4" VALVE OPENING

FIRE HYDRANT

NOT TO SCALE

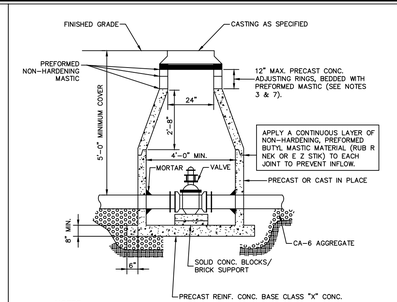


NOTES:

1. 60" DIA FOR ALL PRESSURE CONNECTIONS.
2. PIPE OPENINGS TO BE CAST INTO WALL.
3. PROVIDE CA–6 AGGREGATE BACKFILL AROUND WAULT TO SUBGRADE ELEVATION, IN PAVED AREAS.
4. NO MORE THAN 12 INCHES OF ADJUSTING RINGS MAY BE USED;HOWEVER NO MORE THAT ONE TWO INCH ADJUSTING RING OR NO MORE THAN TWO RINGS IN TOTAL MAY BE USED.
5. WHEN ADJUSTMENTS ARE NECESSARY, THEY WILL BE PERFORMED WITH A MAXIMUM OF TWO (2) PRECAST CONCRETE RINGS SET IN A BED OF PERFORMED NON–HARDENING MASTIC (RUB R NEK OR APPROVED EQUAL) TO A MAXIMUM HEIGHT OF TWELVE INCHES (12").

VALVE VAULT FOR PRESSURE CONNECTION

NOT TO SCALE



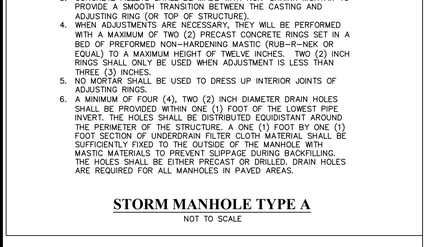
NOTES:

1. VAULT DIAMETER TO BE ONE FOOT LARGER, WHERE VALVE IS LOCATED AT TEE CONNECTION OF MAIN.
2. PROVIDE CA–6 AGGREGATE BACKFILL AROUND VAULT TO SUBGRADE ELEVATION, IN PAVED AREAS.
3. NO MORE THAN 12 INCHES OF ADJUSTING RINGS MAY BE USED. HOWEVER NO MORE THAN ONE, TWO INCH ADJUSTING RING OR NO MORE TAN TWO RINGS IN TOTAL MAY BE USED.
4. VALVE MUST BE ALIGNED WITH CENTER OF VAULT OPENING.
5. CONES MUST BE CONCENTRIC WITH VALVES 12" AND SMALLER.
6. BUTTERFLY VALES REQUIRE ECCENTRIC CONES.
7. WHEN ADJUSTMENTS ARE NECESSARY, THEY WILL BE PERFORMED WITH A MAXIMUM OF TWO (2) PRECAST CONCRETE RINGS SET IN A BED OF PREFORMED NON–HARDENING MASTIC (RUB R NEK OR APPROVED EQUAL) TO A MAXIMUM HEIGHT OF TWELVE INCHES (12").

VALVE VAULT TYPE A

(WATER TIGHT)

NOT TO SCALE

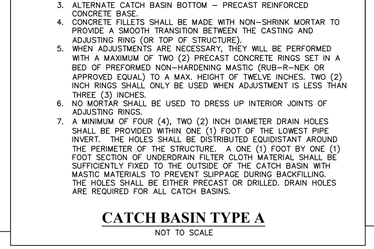


NOTES:

1. PROVIDE SELECT GRANULAR BACKFILL, CA– 11 AROUND MANHOLE TO SUBGRADE ELEVATION IN PAVED AREAS.
2. ALTERNATE MANHOLE BOTTOM – PRECAST REINFORCED CONCRETE
3. CONCRETE FILLETS SHALL BE MADE WITH NON–SHRINK MORTAR TO PROVIDE A SMOOTH TRANSITION BETWEEN THE CASTING AND ADJUSTING RING (OR TOP OF STRUCTURE).
4. WHEN ADJUSTMENTS ARE NECESSARY, THEY WILL BE PERFORMED WITH A MAXIMUM OF TWO (2) PRECAST CONCRETE RINGS SET IN A BED OF PREFORMED NON–HARDENING MASTIC (RUB–R–NEK OR EQUAL) TO A MAXIMUM HEIGHT OF TWELVE INCHES. TWO (2) INCH RINGS SHALL ONLY BE USED WHEN ADJUSTMENT IS LESS THAN THREE (3) INCHES.
5. NO MORTAR SHALL BE USED TO DRESS UP INTERIOR JOINTS OF ADJUSTING RINGS.
6. A MINIMUM OF FOUR (4), TWO (2) INCH DIAMETER DRAIN HOLES SHALL BE PROVIDED WITHIN ONE (1) FOOT OF THE LOWEST PIPE INVERT. THE HOLES SHALL BE DISTRIBUTED EQUIDISTANT AROUND THE PERIMETER OF THE STRUCTURE. A ONE (1) FOOT BY ONE (1) FOOT SECTION OF UNDERDRAIN FILTER CLOTH MATERIAL SHALL BE SUFFICIENTLY FIXED TO THE OUTSIDE OF THE MANHOLE WITH MASTIC MATERIALS TO PREVENT SLIPPAGE DURING BACKFILLING. THE HOLES SHALL BE EITHER PRECAST OR DRILLED. DRAIN HOLES ARE REQUIRED FOR ALL MANHOLES IN PAVED AREAS.

STORM MANHOLE TYPE A

NOT TO SCALE

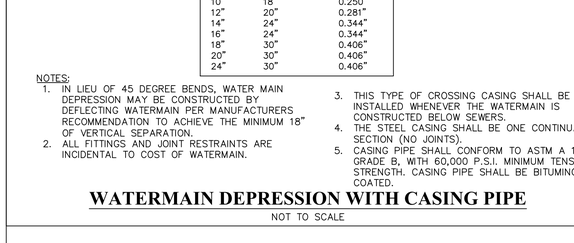


NOTES:

1. CATCH BASINS ARE TO BE USED IN PAVED AREAS ONLY.
2. PROVIDE SELECT GRANULAR BACKFILL, CA– 11 AROUND CATCH BASIN TO SUBGRADE ELEVATION.
3. ALTERNATE CATCH BASIN BOTTOM – PRECAST REINFORCED CONCRETE BASE.
4. CONCRETE FILLETS SHALL BE MADE WITH NON–SHRINK MORTAR TO PROVIDE A SMOOTH TRANSITION BETWEEN THE CASTING AND ADJUSTING RING (OR TOP OF STRUCTURE).
5. WHEN ADJUSTMENTS ARE NECESSARY, THEY WILL BE PERFORMED WITH A MAXIMUM OF TWO (2) PRECAST CONCRETE RINGS SET IN A BED OF PREFORMED NON–HARDENING MASTIC (RUB–R–NEK OR APPROVED EQUAL) TO A MAX. HEIGHT OF TWELVE INCHES. TWO (2) INCH RINGS SHALL ONLY BE USED WHEN ADJUSTMENT IS LESS THAN THREE (3) INCHES.
6. NO MORTAR SHALL BE USED TO DRESS UP INTERIOR JOINTS OF ADJUSTING RINGS.
7. A MINIMUM OF FOUR (4), TWO (2) INCH DIAMETER DRAIN HOLES SHALL BE PROVIDED WITHIN ONE (1) FOOT OF THE LOWEST PIPE INVERT. THE HOLES SHALL BE DISTRIBUTED EQUIDISTANT AROUND THE PERIMETER OF THE STRUCTURE. A ONE (1) FOOT BY ONE (1) FOOT SECTION OF UNDERDRAIN FILTER CLOTH MATERIAL SHALL BE SUFFICIENTLY FIXED TO THE OUTSIDE OF THE CATCH BASIN WITH MASTIC MATERIALS TO PREVENT SLIPPAGE DURING BACKFILLING. THE HOLES SHALL BE EITHER PRECAST OR DRILLED. DRAIN HOLES ARE REQUIRED FOR ALL CATCH BASINS.

CATCH BASIN TYPE A

NOT TO SCALE



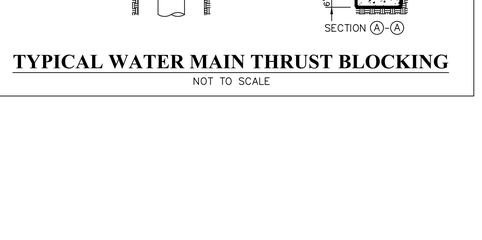
STEEL PIPE CASING		
WM DIA	STEEL CASING PIPE DIA	MIN. THICKNESS STEEL CASING
6"	12"	0.188"
8"	16"	0.219"
10"	18"	0.250"
12"	20"	0.281"
14"	24"	0.344"
16"	24"	0.344"
18"	30"	0.406"
20"	30"	0.406"
24"	30"	0.406"

NOTES:

1. IN LIEU OF 45 DEGREE BENDS, WATER MAIN DEPRESSION MAY BE CONSTRUCTED BY DEFLECTING WATERMAIN PER MANUFACTURERS RECOMMENDATION TO ACHIEVE THE MINIMUM 18" OF VERTICAL SEPARATION.
2. ALL FITTINGS AND JOINT RESTRAINTS ARE INCIDENTAL TO COST OF WATERMAIN.
3. THIS TYPE OF CROSSING CASING SHALL BE INSTALLED WHENEVER THE WATERMAIN IS CONSTRUCTED BELOW SEWERS.
4. THE STEEL CASING SHALL BE ONE CONTINUAL SECTION (NO JOINTS).
5. CASING PIPE SHALL CONFORM TO ASTM A 139, GRADE B, WITH 60,000 P.S.I. MINIMUM TENSILE STRENGTH. CASING PIPE SHALL BE BITUMINOUS COATED.

WATERMAIN DEPRESSION WITH CASING PIPE

NOT TO SCALE

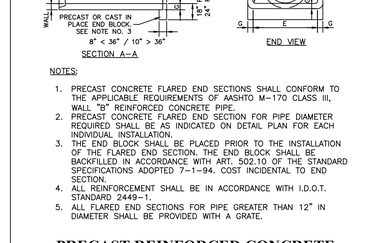


TYPICAL WATER MAIN THRUST BLOCKING

NOT TO SCALE

PIPE DIA.	APPROX. WT.(LBS)	WALL	A	B	C	D	E	G	R	SLOPE
12"	530	2"	4"	24"	4'–0 7/8"	6'–0 7/8"	24"	2"	9"	1:2.4
15"	740	2 1/4"	6"	27"	3'–10"	6'–1"	30"	2 1/4"	11"	1:2.4
18"	990	2 1/2"	9"	27"	3'–10"	6'–1"	36"	2 1/2"	12"	1:2.4
21"	1280	2 3/4"	9"	35"	38"	6'–1"	3'–6"	2 3/4"	13"	1:2.4
24"	1520	3"	9 1/2"	3'–7 1/2"	30"	6'–1 1/2"	4'–0"	3"	14"	1:2.5
30"	2190	3 1/2"	12"	4'–6"	19 3/4"	6'–1 3/4"	5'–0"	3 1/2"	15"	1:2.5
36"	4100	4"	15"	5'–3"	34 3/4"	8'–1 3/4"	6'–0"	4"	20"	1:2.5
48"	6530	5"	24"	6'–0"	28"	8'–2"	7'–0"	5"	22"	1:2.5
60"	8730	6"	35"	5'–0"	39"	8'–3"	8'–0"	5"	*	1:1.9

* RADIUS AS FURNISHED BY MANUFACTURER ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICLE DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H)

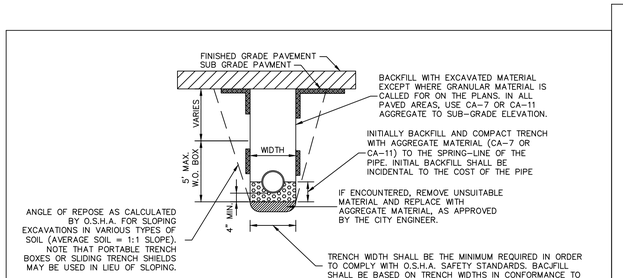


NOTES:

1. PRECAST CONCRETE FLARED END SECTIONS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M–170 CLASS III, WALL "B" REINFORCED CONCRETE PIPE.
2. PRECAST CONCRETE FLARED END SECTION FOR PIPE DIAMETER REQUIRED SHALL BE AS INDICATED ON DETAIL PLAN FOR EACH INDIVIDUAL INSTALLATION.
3. THE END BLOCK SHALL BE PLACED PRIOR TO THE INSTALLATION OF THE FLARED END SECTION. THE END BLOCK SHALL BE BACKFILLED IN ACCORDANCE WITH ART. 502.10 OF THE STANDARD SPECIFICATIONS ADOPTED 7–1–94. COST INCIDENTAL TO END SECTION.
4. ALL REINFORCEMENT SHALL BE IN ACCORDANCE WITH I.D.O.T. STANDARD 2449–1.
5. ALL FLARED END SECTIONS FOR PIPE GREATER THAN 12" IN DIAMETER SHALL BE PROVIDED WITH A GRATE.

PRECAST REINFORCED CONCRETE FLARED END SECTION

NOT TO SCALE

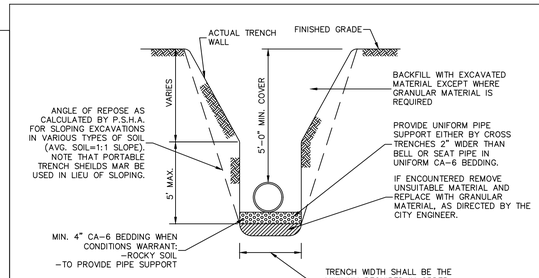


NOTE:
ALL TRENCHES UTILIZING TRENCH BACJFILL SHALL BE COMPACTED USING METHOD 1 IN CONFORMANCE WITH SEC. 550.07(a)–(METHOD 1) OF THE STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, AS ADOPTED 1–1–12 BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION.

TRENCH SECTION FOR BACKFILL DETERMINATION

FOR STORM SEWER

NOT TO SCALE

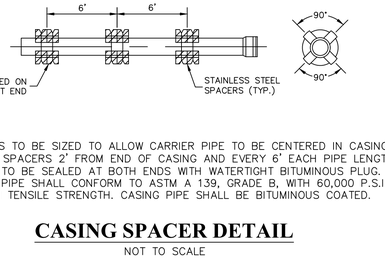


NOTES:

1. IN PAVED AREAS ALL TRENCHES SHALL BE JETTED IN CONFORMANCE WITH SEC. 550.07 (METHOD 3) OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ADOPTED 1–1–97 BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION.

TRENCH SECTION FOR WATER MAIN

NOT TO SCALE

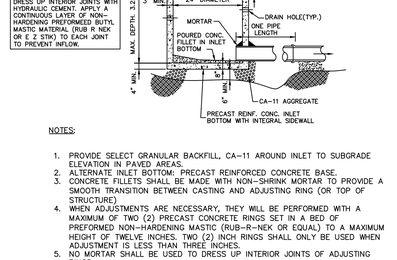


NOTES:

1. SPACERS TO BE SIZED TO ALLOW CARRIER PIPE TO BE CENTERED IN CASING LOCATE SPACERS 2' FROM END OF CASING AND EVERY 6' EACH PIPE LENGTH
2. CASING TO BE SEALED AT BOTH ENDS WITH WATERTIGHT BITUMINOUS PLUG.
3. CASING PIPE SHALL CONFORM TO ASTM A 139, GRADE B, WITH 60,000 P.S.I. MINIMUM TENSILE STRENGTH. CASING PIPE SHALL BE BITUMINOUS COATED.

CASING SPACER DETAIL

NOT TO SCALE



NOTES:

1. PROVIDE SELECT GRANULAR BACKFILL, CA–11 AROUND INLET TO SUBGRADE ELEVATION IN PAVED AREAS.
2. ALTERNATE INLET BOTTOM: PRECAST REINFORCED CONCRETE BASE.
3. CONCRETE FILLETS SHALL BE MADE WITH NON–SHRINK MORTAR TO PROVIDE A SMOOTH TRANSITION BETWEEN CASTING AND ADJUSTING RING (OR TOP OF STRUCTURE)
4. WHEN ADJUSTMENTS ARE NECESSARY, THEY WILL BE PERFORMED WITH A MAXIMUM OF TWO (2) PRECAST CONCRETE RINGS SET IN A BED OF PREFORMED NON–HARDENING MASTIC (RUB–R–NEK OR EQUAL) TO A MAXIMUM HEIGHT OF TWELVE INCHES. TWO (2) INCH RINGS SHALL ONLY BE USED WHEN ADJUSTMENT IS LESS THAN THREE INCHES.
5. NO MORTAR SHALL BE USED TO DRESS UP INTERIOR JOINTS OF ADJUSTING RINGS.
6. A MINIMUM OF FOUR (4), TWO (2) INCH DIAMETER DRAIN HOLES SHALL BE PROVIDED WITHIN ONE (1) FOOT OF THE LOWEST PIPE INVERT. THE HOLES SHALL BE DISTRIBUTED EQUIDISTANT AROUND THE PERIMETER OF THE STRUCTURE. A ONE (1) FOOT BY ONE (1) FOOT SECTION OF UNDERDRAIN FILTER CLOTH MATERIAL SHALL BE SUFFICIENTLY FIXED TO THE OUTSIDE OF THE MANHOLE WITH MASTIC MATERIALS TO PREVENT SLIPPAGE DURING BACKFILLING. THE HOLES SHALL BE EITHER PRECAST OR DRILLED. DRAIN HOLES ARE REQUIRED FOR ALL INLETS IN PAVED AREAS.

INLET TYPE A

NOT TO SCALE

REVIEW SET NOT FOR CONSTRUCTION

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	06–17–24	PER LAGRANGE HIGHLANDS SD	DNV
2	10–17–24	PER VILLAGE REVIEW	SDD
3	10–29–24	PER CDDOTH REVIEW	DMV
4	11–04–24	PER CDDOTH REVIEW	DMV
5	12–12–24	PER VILLAGE REVIEW	DMV
6	01–27–25	PER REVISED GEOMETRY	DMV
7	03–13–25	PER CDDOTH COMMENTS	DMV
8	03–26–25	PER VILLAGE COMMENTS	DMV

McNAUGHTON DEVELOPMENT
11S220 JACKSON ST. Ste. 101
BURR RIDGE, ILLINOIS 60527
(630) 325–3400

FINAL ENGINEERING PLANS
FOR
HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326–4961
FAX: (708) 326–4962
IL PROF. LIC. NO.: 184–003740

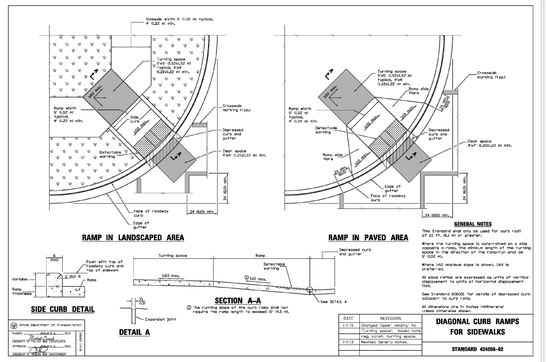
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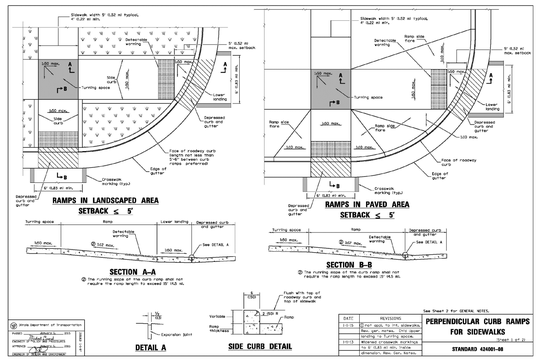
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Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

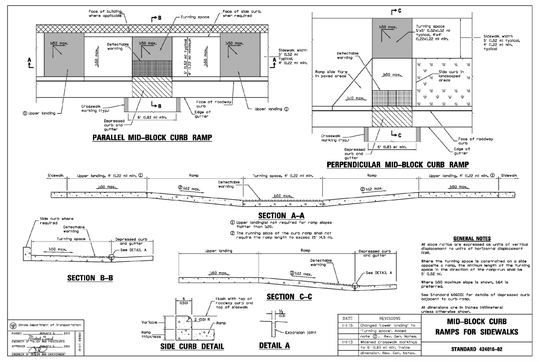
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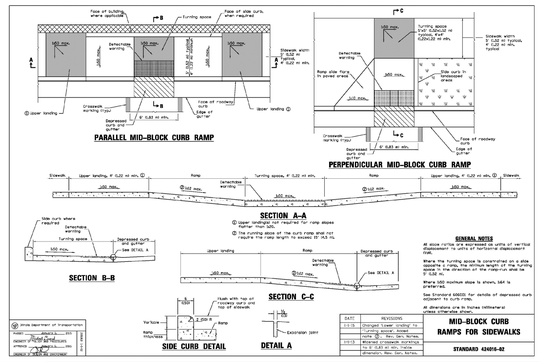
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REVISIONS			
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2	10-19-24	PER VILLAGE REVIEW	SDD
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4	12-12-24	PER VILLAGE REVIEW	DMV
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6	02-18-25	PER CDDOTH REVIEW	DMV
7	03-26-25	PER VILLAGE COMMENT	DMV
8			

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BURR RIDGE, ILLINOIS 60527
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FINAL ENGINEERING PLANS
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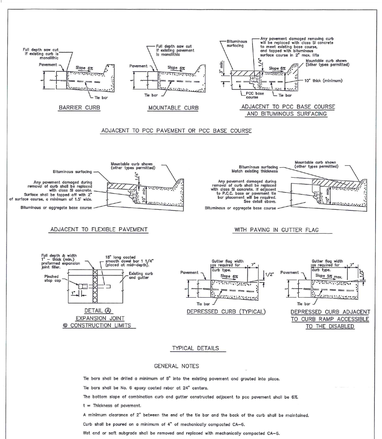
DESIGNTEK ENGINEERING, INC.
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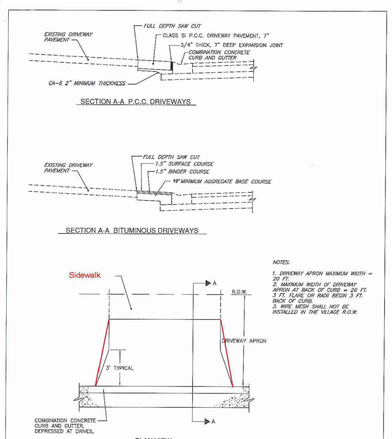
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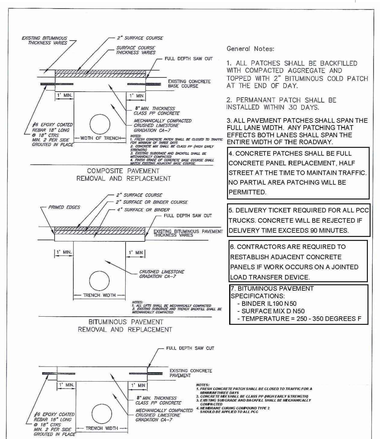
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Date: MAY 22, 2024
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Drawn By: DEI
Checked By: SDD

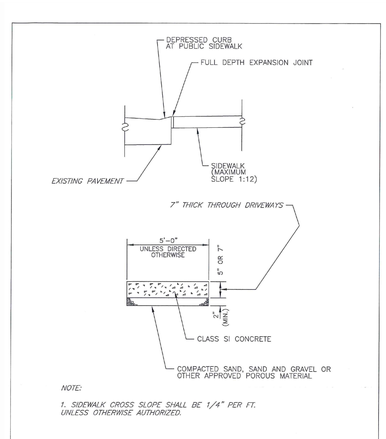
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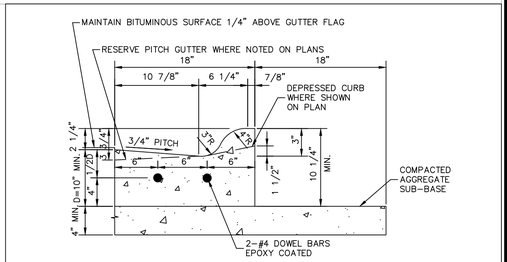
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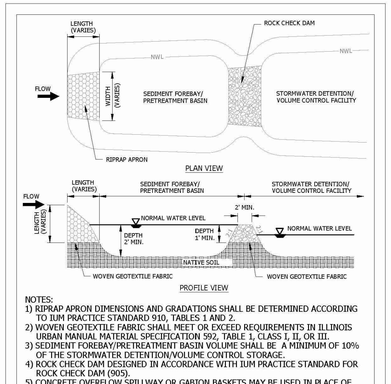


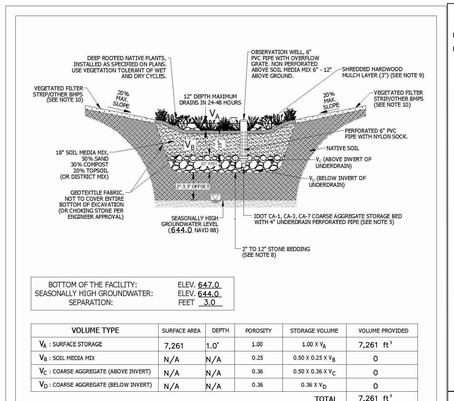


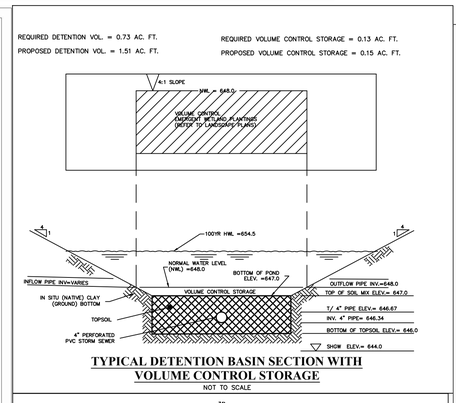




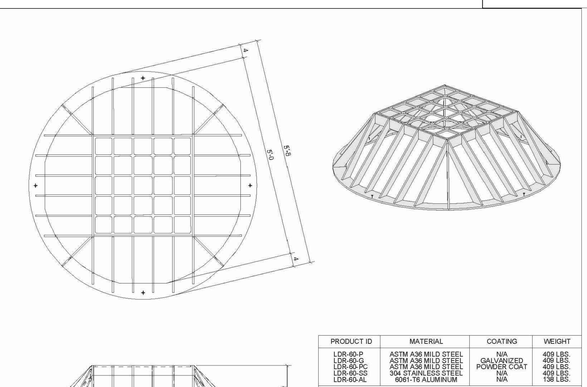


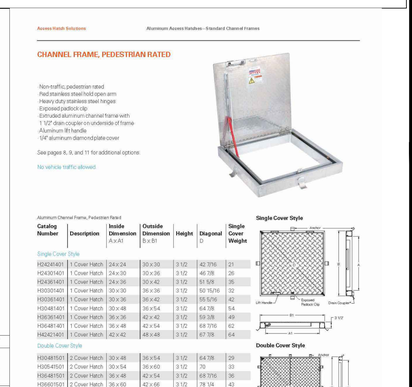






VOLUME TYPE	SURFACE AREA	DEPTH	POROSITY	STORAGE VOLUME	VOLUME PROVIDED
V_A : SURFACE STORAGE	7,261	1.0'	1.00	1.00 X V_A	7,261 ft³
V_B : SOIL MEDIA MIX	N/A	N/A	0.25	0.50 X 0.25 X V_B	0
V_C : COARSE AGGREGATE (ABOVE INVERT)	N/A	N/A	0.36	0.50 X 0.36 X V_C	0
V_D : COARSE AGGREGATE (BELOW INVERT)	N/A	N/A	0.36	0.36 X V_D	0
				TOTAL	7,261 ft³





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HADCO by @ignify

Outdoor

Poles and Brackets

P4030 Straight Round Smooth

P4030 Poles and Brackets

Straight Round Smooth



Project:
Location:
Cat.No.
Type:
Lamp:
Notes:

Qty: 1

Order guide

example: P4030 15 A T D

Product Code	Pole Height	Finish	Outlet Location	Outlet Options
P4030	14	A		
P4030	12'	A Black	T 12" Down from Top – Aligned with Hood Side	D Standard Duplex
	14'	B Grey	B 4" Up from Top of Base – Aligned with Hood Side	G GFI Duplex
	16'	N Verde		
	18'	M Bronze		
		J Green		

EPA reticulated on decorative hook fastling. For ASSHTO rating, contact factory.

Pole Data

Pole Model	Pole Shape	Pole Type	Shaft Dimension	Pole Fluted	Anchor Base Shape	Bolt Circle	Base Dim (in)	Hand Hole Dim (in)
P4030	Round	Straight	4	Smooth	round	6 to12	15 x 46135	6 x12

Pole Family	Catalog Number	Nominal Height (ft)	Tenon Section (in)	Wall Thickness (in)	EPA Rating 90 MPH (sq. ft)	EPA Rating 100 MPH (sq. ft)	Anchor Bolts (in)
P4030	P4030-12	12	3	0.125	10.69	11.81	3/4-10 tbs
P4030	P4030-14	14	3	0.125	12.16	7.38	3/4-10 tbs
P4030	P4030-16	16	3	0.125	12.11	6.00	3/4-10 tbs
P4030	P4030-18	18	3	0.125	11.40	4.83	3/4-10 tbs

Specifications

HOUSING:
356 HM high-strength, low-copper, proprietary cast aluminum alloy. 6005-T5 extruded aluminum. Anchor rods are hot dipped galvanized steel. Tenon is 356 HM sand cast aluminum.

FINISH:
A durable polyurethane enamel finish is applied after assembled,are shot blasted to create a surface profile which allows for the highest level of paint adhesion. Laboratory tested for superior weatherability and fade resistance in accordance with ASTM B-117-64 and ANSI/ASTM G53-77 specifications. For larger projects where a custom color is required, contact the factory for more information.

WARRANTY:
Please visit **www.signify.com/warranties** for more details on structural and finish warranty.

OUTLET:
Standard Duplex Outlet has universal metal weatherproof cover. Weatherproof while in use. Heavy-duty all-metal construction. Lockable security cover. Meets NEC 406.9 (B) Weather resistant. GFI Duplex: GFCI self-test fail-function indicator light, universal metal weatherproof cover. Weatherproof while in use. Heavy-duty all-metal construction. Lockable security cover. Meets NEC 406.9 (B) Weather resistant.

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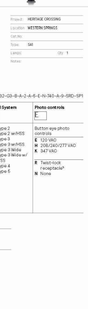
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HADCO by @ignify

Urban

Hagerstown

TX03 Post top



Hadco's **Hagerstown** LED post top gives you the ability to create a unique style through our modular post top concepts to blend into any residential and historic urban settings. With the latest LED technology you can seamlessly replace traditional HID technology to maximize energy savings and significantly reduce total cost of ownership. The Hagerstown luminaire provides excellent uniformity, traditional cosmetics look, with the benefits of modern technology.

Project: HERITAGE CROSSING
Location: WESTERN SPRINGS
Cat.No.
Type: SM
Lamp:
Notes:

Qty: 1

Ordering guide

example: TX03-32-03-B-A-A-1-A-1-N-363-A-3-GBD-SP1

Series	LEDs	Gen.	Pods	Finish	Fasteners	Finishes	Optical System	Photo controls
TX03 Hagerstown LED post top	30 32 48 48 64 64	03 Gen3	B Octagonal fitter; R Round fitter w/sculpted petals; C Tall round tapered hourglass fitter; D Smooth tapered hourglass fitter; E Tapered fluted fitter w/sculpted flower petals(4); G Tall round fluted fitter; H Round contemporary fitter (5); A Tall round tapered w/round stepped fitter; L Round fluted long fitter; T Decorative leaf fitter w/sculpted petals	A Arlmet; B Verde; C Bronze; D Green; N Nickel; W No finish	1 Hex head bolts & nuts; 2 Slotted bolts	A Black; B White; N Verde; M Bronze; J Green	1 Type 2 Type 2 w/HSS; 2 Type 3; 3 Type 3 w/277V IVAD; 4 Type 3 Wide; 5 Type 3 Wide w/ HSS; 6 Type 4; 7 Type 5	Button eye photo controls; 1 120 VAC; 2 208/240/277V IVAD; 3 347 VAC; R Twist-lock receptacle*; N None

Ordering guide (continued)

Future Proof controls	Color Temps	Voltages	Drivers	Options	Surge protection
N R7 7-Pin Receptacle* N None	740 T30 3000K T40 4000K	A 120-277 VAC B 347-480 VAC	DA 4 hrs 25% reduction* DB 4 hrs 50% reduction* DC 4 hrs 75% reduction* DD 4 hrs 100% reduction* DE 6 hrs 75% reduction* DF 6 hrs 25% reduction* DG 6 hrs 50% reduction* DH 6 hrs 100% reduction* DJ Dimming** DL Compatible with DALI N No dimming SBD Sensor ready adaptable wattage selector SRD Sensor ready driver (factory configured)***	Current: 5 1000mA	SP1 10/10kVA (standard) SP2 20kV/20kA (optional)

1. Configurations with 48 (64) LED arrays boards are not compatible with the 1000mA (5) drive current.
2. 64LED are limited to 85C ambient rating with 1000mA drive current.
3. Consult factory.
4. Not compatible with GJ (Cast aluminum acrylic) or GK (Cast aluminum polycarbonate) lens options.

TX03 Hagerstown

Post top

Dimensions



Finials



Decorative Pods



TX03 Hagerstown

Post top

Lumen Charts

LED Module 3000K	LED qty=	System current	Color Temp.	Type 2 Average Luminaire Wattage**	Type 2 Lumens Output	Type 2 BUG Rating	Type 2 Efficacy	Type 3 Lumens Output	Type 3 BUG Rating	Type 3 Efficacy	Type 3W Lumens Output	Type 3W Efficacy
TX0332-03-x-740-1	32	350	4000	35.4	4284	B1-U2-G1	121	4280	B1-U2-G1	121	4419	B1-U2-G1
TX0332-03-x-740-5	32	530	4000	51.8	6977	B2-U3-G2	115	6972	B1-U3-G1	115	6958	B2-U2-G2
TX0332-03-x-740-7	32	700	4000	71.9	7839	B2-U3-G2	109	7833	B2-U3-G2	109	8068	B2-U3-G2
TX0348-03-x-740-1	32	900	4000	93.9	8581	B2-U3-G2	92	9528	B2-U3-G2	101	8925	B2-U3-G2
TX0332-03-x-740-5	48	1050	4000	107.7	10814	B2-U3-G2	100	10806	B2-U3-G2	100	11141	B3-U3-G3
TX0348-03-x-740-5	48	350	4000	51.4	6247	B2-U3-G2	122	6241	B2-U3-G2	121	6436	B2-U3-G2
TX0348-03-x-740-7	48	530	4000	76.6	8942	B2-U3-G2	118	8935	B2-U3-G2	118	9213	B2-U3-G2
TX0364-03-x-740-5	64	700	4000	105.6	11478	B3-U3-G3	110	11464	B3-U3-G3	110	11764	B3-U3-G3
TX0348-03-x-740-9	48	900	4000	136.8	13907	B3-U3-G3	102	13895	B3-U3-G3	102	14328	B3-U3-G3
TX0364-03-x-740-7	64	350	4000	69.7	8172	B2-U3-G2	119	8166	B2-U3-G2	119	8419	B2-U3-G2
TX0364-03-x-740-9	64	530	4000	105.6	11697	B3-U3-G3	111	11688	B3-U3-G3	111	12052	B3-U3-G3
TX0364-03-x-740-7	64	700	4000	138.4	14937	B3-U3-G3	108	14924	B3-U3-G3	108	15389	B3-U3-G3
TX0364-03-x-740-9	64	900	4000	179.9	19004	B3-U3-G3	106	19000	B3-U3-G3	106	19548	B3-U3-G3

LED Module 4000K	LED qty=	System current	Color Temp.	Type 4 Average Luminaire Wattage**	Type 4 Lumens Output	Type 4 BUG Rating	Type 4 Efficacy
TX0332-03-x-740-1	32	350	4000	35.4	4345	B1-U2-G1	123
TX0332-03-x-740-5	32	530	4000	51.8	6064	B1-U3-G2	117
TX0332-03-x-740-7	32	700	4000	71.9	7943	B2-U3-G2	110
TX0332-03-x-740-9	32	900	4000	93.9	9675	B2-U3-G2	103
TX0348-03-x-740-1	32	1050	4000	107.7	10971	B2-U3-G2	102
TX0348-03-x-740-5	48	350	4000	51.4	6328	B2-U3-G2	123
TX0348-03-x-740-5	48	530	4000	75.6	9072	B2-U3-G2	120
TX0348-03-x-740-7	48	700	4000	104.7	11054	B2-U3-G2	106
TX0348-03-x-740-9	48	900	4000	136.8	14109	B3-U3-G3	103
TX0364-03-x-740-3	64	350	4000	69.7	8291	B2-U3-G2	121
TX0364-03-x-740-5	64	530	4000	105.6	11867	B2-U3-G2	112
TX0364-03-x-740-7	64	700	4000	138.4	15154	B3-U3-G3	109
TX0364-03-x-740-9	64	900	4000	179.9	19054	B3-U3-G3	106

Lumen charts continued on next page.

* Configurations with 64 (64LED) arr ay boards are limited to a 25C ambient rating with the 900mA (9) drive current.

** System wattage or total luminaire wattage includes the LED module and the LED driver. Note: Equivalence should always be confirmed by a photometric report.

Note: Equivalence should always be confirmed by a photometric layout. Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Signify.

TX03 Hagerstown

Post top

Lumen Charts

LED Module 3000K	LED qty=	System current	Color Temp.	Type 2 Average Luminaire Wattage**	Type 2 Lumens Output	Type 2 BUG Rating	Type 2 Efficacy	Type 3 Lumens Output	Type 3 BUG Rating	Type 3 Efficacy	Type 3W Lumens Output	Type 3W Efficacy
TX0332-03-x-730-1	32	350	3000	35.4	4093	B2-U2-G1	116	4089	B2-U2-G1	116	4222	B2-U2-G1
TX0332-03-x-730-5	32	530	3000	51.8	6666	B2-U3-G2	108	6661	B1-U3-G1	108	6765	B2-U2-G2
TX0332-03-x-730-7	32	700	3000	71.9	7317	B2-U3-G2	102	7311	B2-U3-G2	102	7539	B2-U3-G2
TX0348-03-x-730-9	48	900	3000	93.9	8193	B2-U3-G2	95	8905	B2-U3-G2	95	9182	B2-U3-G2
TX0332-03-x-730-1	32	1050	3000	107.7	10107	B2-U3-G2	94	10099	B2-U3-G2	94	10049	B2-U3-G2
TX0348-03-x-730-5	48	350	3000	51.4	5938	B2-U3-G2	114	5933	B2-U3-G2	113	6015	B2-U2-G2
TX0348-03-x-730-7	48	530	3000	76.6	8357	B2-U3-G2	110	8350	B2-U3-G2	111	8610	B2-U3-G2
TX0364-03-x-730-5	64	700	3000	105.6	10971	B3-U3-G3	102	10952	B2-U3-G2	102	10994	B3-U3-G3
TX0348-03-x-730-9	48	900	3000	136.8	12997	B3-U3-G3	95	12986	B3-U3-G3	95	13393	B3-U3-G3
TX0364-03-x-730-7	64	350	3000	69.7	7697	B2-U3-G2	111	7691	B2-U3-G2	111	7869	B2-U3-G2
TX0364-03-x-730-9	64	530	3000	105.6	10932	B3-U3-G3	104	10923	B3-U3-G3	104	11263	B3-U3-G3
TX0364-03-x-730-7	64	700	3000	138.4	13960	B3-U3-G3	101	13949	B3-U3-G3	101	14382	B3-U3-G3
TX0364-03-x-730-9	64	900	3000	179.9	17825	B3-U3-G3	94	16811	B3-U3-G3	93	17354	B3-U3-G3

LED Module 4000K	LED qty=	System current	Color Temp.	Type 4 Average Luminaire Wattage**	Type 4 Lumens Output	Type 4 BUG Rating	Type 4 Efficacy	Type 5 Lumens Output	Type 5 BUG Rating	Type 5 Efficacy
TX0332-03-x-740-1	32	350	3000	35.4	4060	B1-U2-G1	115	4228	B2-U2-G1	119
TX0332-03-x-740-5	32	530	3000	51.8	6667	B1-U2-G2	108	5899	B2-U2-G1	114
TX0332-03-x-740-7	32	700	3000	71.9	7423	B2-U3-G2	103	7727	B3-U3-G2	107
TX0348-03-x-740-9	48	900	3000	93.9	9042	B2-U3-G2	96	8410	B4-U3-G2	100
TX0332-03-x-740-1	32	1050	3000	107.7	10253	B2-U3-G2	95	10673	B4-U3-G2	99
TX0348-03-x-740-5	48	350	3000	51.4	5923	B2-U3-G2	115	6165	B3-U3-G2	120
TX0348-03-x-740-5	48	530	3000	75.6	8478	B2-U3-G2	112	8825	B3-U3-G2	117
TX0348-03-x-740-7	48	700	3000	104.7	10808	B2-U3-G2	103	11288	B4-U3-G2	108
TX0348-03-x-740-9	48	900	3000	136.8	13195	B3-U3-G3	96	13725	B4-U3-G2	100
TX0364-03-x-740-3	64	350	3000	69.7	7748	B2-U3-G2	113	8085	B3-U3-G2	117
TX0364-03-x-740-5	64	530	3000	105.6	11091	B2-U3-G2	105	11548	B4-U3-G2	109
TX0364-03-x-740-7	64	700	3000	138.4	14163	B3-U3-G3	102	14742	B4-U3-G3	107
TX0364-03-x-740-9	64	900	3000	179.9	17970	B3-U3-G3	95	17768	B4-U3-G3	99

* Configurations with 64 (64LED) arr ay boards are limited to a 25C ambient rating with the 900mA (9) drive current.

** System wattage or total luminaire wattage includes the LED module and the LED driver. Note: Equivalence should always be confirmed by a photometric report.

Note: Equivalence should always be confirmed by a photometric layout. Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Signify.

TX03 Hagerstown

Post top

Specifications

Roof
Round 0.090" thick spun aluminum (12"x1"x 16"x1"W). Easy fixture replacement of either roof or bottom globe assembly if required.

Globe
Narrow body globe is constructed of clear injection-molded vertically ribbed UV. stabilized acrylic globe. Globe is mounted in a heavy cast aluminum mesh opening of 17"x7" and an outside mesh diameter of 9". Globe (less roof) has a 13"Hx14"x 14"W.

Cage
Cage for narrow body globes (B) is constructed of die-cast 360 aluminum alloy with bottom-hinged door providing 135° entry into the fitter assembly for easy access to the electrical components. Optional internal twist-lock photocell receptacle or optional button eye photocell. Easy access to photo eye through the door on the pod (15"x7"H x 11"x3"W).

Pods
Wrong lock to accept three #8 solid or stranded wire.heavy cast aluminum post construction. Pods are secured to the globe with stainless steel set screws (Hex head or Allen head as specified). All hardware is tie stainless steel and zinc dichromate.

Optional Decorative Pods
Octagonal fitter (A) is constructed of die-cast 360 aluminum alloy with bottom-hinged door providing 135° entry into the fitter assembly for easy access to the electrical components. Optional internal twist-lock photocell receptacle or optional button eye photocell. Easy access to photo eye through the door on the pod (15"x7"H x 11"x3"W).

Round fitter with sculpted petals (R) is constructed of die-cast 360 aluminum alloy with side-hinged door providing 180° entry into the fitter assembly for easy access to the electrical components. Optional internal twist-lock photo eye receptacle or optional button eye photocell. Easy access to photo eye through the door on the pod (15"x7"H x 11"x3"W).

Tapered fluted fitter with sculpted flower petals (E) is constructed of 356 HM High-Strength, Low-Copper cast aluminum. Optional internal button eye photocell. (17"H x 11"x3"W).

Smooth tapered hourglass fitter (D) is constructed of 356 HM High-Strength, Low-Copper cast aluminum. Optional internal button eye photocell. (17"H x 11"x3"W).

Tapered fluted fitter with sculpted flower petals (F) is constructed of 356 HM High-Strength, Low-Copper cast aluminum. Optional internal button eye photocell (16"H x 11"x3"W).

Tall round fluted fitter (G) is constructed of die-cast 360 aluminum alloy with removable door providing entry into the fitter assembly for easy access to the electrical components. Optional internal twist-lock photo eye receptacle or optional internal button eye photocell. Easy access to photo eye through the door on the pod (24"H x 11"W).

Round contemporary fitter (H) is constructed of die-cast 360 aluminum alloy with removable door providing entry into the fitter assembly for easy access to the electrical components. Optional internal twist-lock photo eye receptacle or optional internal button eye photocell. Easy access to photo eye through the door on the pod (15"H x 11"W).

Tapered fluted with round stepped fitter (A) and Round fluted long fitter (L) is constructed of 356 HM High-Strength, Low-Copper cast aluminum. Optional internal twist-lock photocell receptacle or optional button eye photocell. Easy access to photo eye through the door on the pod (15"H x 11"W).

Tall round fluted fitter (G) is constructed of die-cast 360 aluminum alloy with removable door providing entry into the fitter assembly for easy access to the electrical components. Optional internal twist-lock photo eye receptacle or optional internal button eye photocell. Tool-less access to photo eye through the door on the pod (24"H x 11"W).

Round fluted long fitter (L) is constructed of 356 HM High-Strength, Low-Copper cast aluminum with a side-hinged door providing entry into the fitter assembly for easy access to the electrical components. Optional internal twist-lock photo eye receptacle or button eye photocell. Tool-less access to photo eye through the door on the pod (32"H x 11"W).

Decorative leaf fitter with sculpted petals (T) is constructed of 356 HM High-Strength, Low-Copper cast aluminum with side-hinged door providing 180 degrees entry into the fitter assembly for easy access to the electrical components. Optional internal twist-lock photo eye receptacle or optional button eye photocell. Easy access to photo eye through the door on the pod (15"x7"H x 11"x3"W).



Finials
All finials are cast aluminum mounted with 1/4-20 stainless steel threaded studs. Standard finial is Hartford Acorn (H). Other finials are specified. Finish is Weathered Copper Green.



Fasteners
Used to secure post fitter to post tenon and globe to globe holder. Hex Head (2) and Slotted (1) are standard. Finishes feature Black cadmium stainless steel.

Light Engine
LEDgine is a long asset of five main components: Heat Sink, Lens, LED lamp, Optical System, and Driver. Electrical components are RoHS compliant.

LED Engine
Composed of high-performance white LEDs. Color temperature as per ANSI/NEMA (on - housing: White, 4,000 Kelvin nominal (3,985K to 4,465K per ANSI C78.377A) or Warm White, 3000 Kelvin nominal (3045K +/- 175K or 2870K to 3220K), CRI 70 Min. 75 Typical.

Heat Sink
Made of cast aluminum optimizing the LEDs efficiency and life. Product does not use any moving parts and is energized to jump passive cooling device.

Future Proof Control
R7 - Receptacle with 7 pin enabling dimming and additional functionality (to be determined). Can be used with a twist lock node or a shorting cap. Will ship with a shorting cap installed for ease of wiring. Can be ordered as a cap when you are ready to install your node.

Optical System
2: Type 2
3: Type 3
3L: Type 3 with House side shield
3H: Type 3 with House side shield
3W: Type 3 Wide
3WH: Type 3 Wide with House side shield
4: Type 4
5: Type 5

Allows options are all composed of high performance optical grade PMMA acrylic refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. Optical system is IP66 rated. Optical system is designed to meet LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Street side indicated.

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Post top

Driver
Driver comes standard with 0-10(V) dimming capability. High power factor of 95%. Electronic driver, operating range 50/60Hz. Auto adjusting universal voltage input from 120 to 277 VAC (50/60Hz) or 347-480 VAC (50/60Hz). Class I construction, THD of 20% or le. Maximum ambient operating temperature from 40°F (4°C) to 120°F (50°C). Certified in compliance to UL1310, cULus requirement (dry and damp locations). Driver is fully encased in potting tray with Tool-quick disconnect plug meeting to 221°F (105°C). The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating at temperatures that could damage the driver or components. Output is protected from short circuits, voltage overload and current overload conditions and recovery after correction. Standard built-in driver surge protection of 2.5kV (min).

Driver Options
SRD: Sensor Ready Driver including 5ft pigtail for sensor (sensor not including other functionalities), 24V auxiliary supply and a logical signal input (LSI) not connected to the top NEMA twist lock receptacle.
SRDR: Sensor Ready Driver including 5ft pigtail for sensor (sensor not including other functionalities) but with 24V auxiliary supply and a logical signal input (LSI) not connected to the top NEMA twist lock.
DA: 4 Hrs 25% Reduction
DB: 4 Hrs 50% Reduction
DC: 4 Hrs 75% Reduction
DD: 4 Hrs 100% Reduction
DE: 6 Hrs 75% Reduction
DF: 6 Hrs 25% Reduction
DG: 6 Hrs 50% Reduction
DH: 6 Hrs 100% Reduction
DJ: 8 Hrs 75% Reduction
DL: Pre-set driver compatible with the DALI hypertronic control system

Predicted Lumen Performance Data

Predicted lumen depreciation data				
Ambient Temperature (°C)	Driver as	Calculated L70 hours	L70 per TM-21	Lumen Maintenance % at 60,000 hours
25°C	up to 1050 mA	>100,000 hrs	>60,000 hrs	92.48%

1. Predicted performance derived from LED standards for future and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.
2. Predicted performance derived from LED standards for future and engineering design estimates.
3. Calculated per IESNA TM21-11. Published L70 hours limited to fifteen times actual test hours.

Surge Protection
Surge protector tested in accordance with ANSI/IEEE C62.41 per ANSI/IEEE C62.41.2 Scenario I Category C (High Exposure 10kV/10kA waveforms for Line Ground, Line Neutral and Neutral Ground) and in accordance with IEEE 802.3 (Ethernet of Energy) NEMLC (Municipal Solid State Street Lighting Consortium) model specification. Surge protector protects the electrical inventory requirements for High Test Level 10kV / 10kA. Option for SP2 20kV/20kA.

Finish
Color in accordance with the AAMA 2603 standard. Application of polyester powders (2.5 mils (min)/4.0 mils (max)) with a 1 mils / 24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish with superior UV and gloss. Salt spray tested as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard. The surface treatment achieves a minimum of 1000 hours salt spray resistance rating in accordance with testing performed as per ASTM B117 standard.

Luminaire Useful Life
Useful life is defined by energy consumption and delivered lumens for each option. Based on ISTMT in situ thermal testing in accordance with UL1598 and UL8750, using LM-80 data from LED manufacturers and engineering estimates. Luminaire useful life (ULL) is also expected to reach 100,000+ hours with <L70 lumen maintenance @ 25°C. Luminaire useful life accounts for LED lumen maintenance and additional factors, including LED life, driver life, PCB substrate life, solder joints and cycles and burning hours for nominal applications.

LED product manufacturing standard
The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

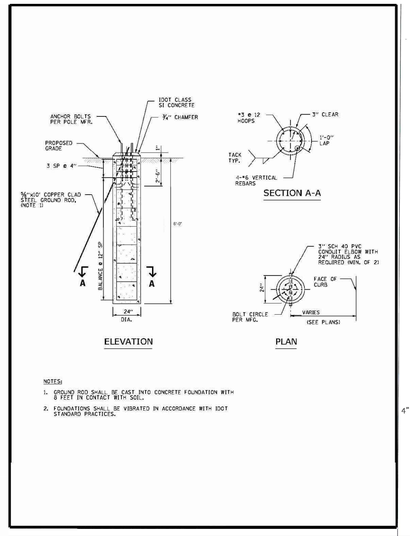
Quality Control
The manufacturer or must provide a written confirmation that its ISO 9001:2008 and ISO 14001:2004 International Quality Standards Certification.

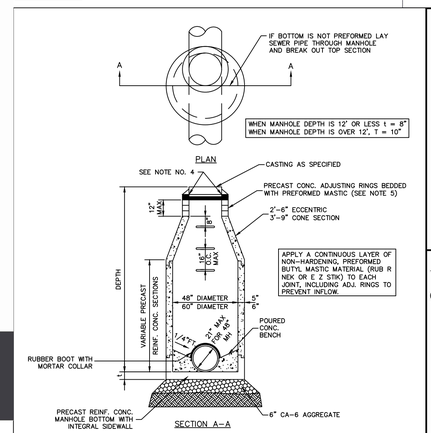
Vibration Resistance
Meets the IEC 60068-2-6:2007, American National Standard for Roadway Luminaire Vibration specifications for normal Applications.

Certifications and Compliance
cETL listed to Canadian safety standards for luminaires in accordance with CAN/CSA-C22.2 Standards no. 13.3-12 and UL1598 compliant. ETL listed to U.S. safety standards for wet locations. cETL listed to Canadian safety standards for wet locations. UL1993 & UL773 listed.

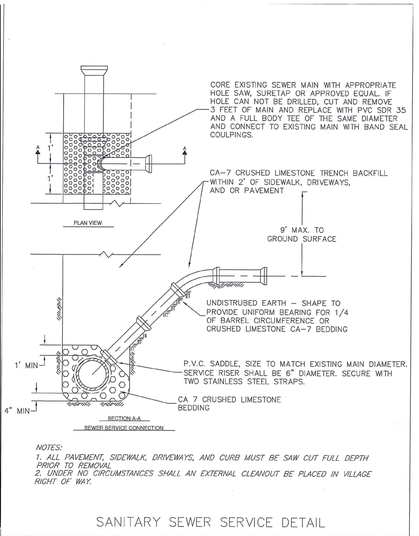
IP Rating: The LED optics chamber is IP66 rated. The LED driver is IP65 rated.

Warranty: 5 year extended warranty.

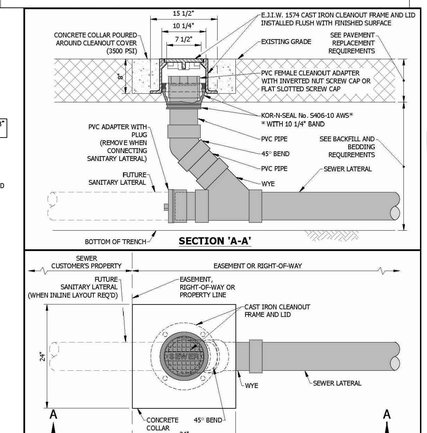




SANITARY MANHOLE
NOT TO SCALE



SANITARY SEWER SERVICE DETAIL


IF BOTTOM IS NOT PREFORMED LAY SEWER PIPE THROUGH MANHOLE AND BREAK OUT TOP SECTION
WHEN MANHOLE DEPTH IS 12' OR LESS t = 8"
WHEN MANHOLE DEPTH IS OVER 12', T = 10"
PLAN
CONCRETE COLLAR POURED AROUND CLEANOUT COVER (3000 PSI)
15 1/2"
10 1/4"
7 1/2"
EXISTING GRADE
SEE PAVEMENT REPLACEMENT REQUIREMENTS
PVC FEMALE CLEANOUT ADAPTER WITH INVERTED NUT SCREW CAP OR FLAT SLOTTED SCREW CAP
0.31 W. 1574 CAST IRON CLEANOUT FRAME AND LID INSTALLED FLUSH WITH FINISHED SURFACE
KOR-N-SEAL No. 5406-10 AWS* * WITH 10 1/4" BAND
PVC ADAPTER WITH PLUG (REMOVE WHEN CONNECTING SANITARY LATERAL)
PVC PIPE
SEE BACKFILL AND BEDDING REQU

FIRE STROBE 2000

EMERGENCY VEHICLE STROBE DETECTOR

The FIRE STROBE 2000 provides rapid access to automatic gates and secured areas. The FIRE STROBE 2000 opens gates when activated by an emergency vehicle equipped with the standard operational strobe. The most common frequency is (1440).

Now with STROBEWATCH™.





FEATURES:

RAPID DETECTION OF ANY EMERGENCY STROBE

- Fire
- Paramedics
- Police
- 911 Response Vehicles
- Double and Quad Flash Strobes
- 100% Digital

FIELD PROGRAMMABLE

- Coated Optics
- 2 Relay Outputs
- Relay Timing

EASE OF INSTALLATION

- FIRE STROBE 2000 can be installed on any existing gate system. Sensitive photodiode complete with PVC housing and lens assembly can be mounted in a variety of ways
- FIRE STROBE 2000 is designed to accommodate AC or DC operation
- Units are provided with a 12 VAC plug in transformer

MANUFACTURED BY:
ACCESS PRODUCTS, INC.
(858) 292-1561 FAX (858) 292-6955
www.firestrobe.com

DISTRIBUTED BY:

FIRE STROBE 2000 Technical Specifications

BASIC CONCEPT

The FIRE STROBE 2000 signal is received optically by line of sight. The range varies with the ambient light and intensity of the strobe emitter. A typical range varies from 150 feet to 500 feet. The detector will not allow false operation with unwanted signals from radio interference and/or flashing headlights or loud sounds.

The acquisition time from the emitter light source to the discriminate module is approximately 5 seconds.

The FIRE STROBE 2000 is widely used for security /electric gate access. It can be used for firehouse garage doors and other related access needed by emergency vehicles. This emergency-vehicle strobe detector provides rapid access to any gated community that has been serviced by fire and emergency equipment from the OPTICOM® STROBE SYSTEM.

INSTALLATION & TESTING

Complete installation instructions are provided with the FIRE STROBE 2000 for simple hook-up of the unit to interface with your gate or access control. Two dry contacts are also provided for bi-directional operation where needed.

The photoeye assembly is typically mounted 8 feet to 10 feet above the street level and is aimed for optimal strobe signal. (A total of (2) photoeye assemblies may be used). A 12 VAC power supply is provided with the FIRE STROBE 2000 system.

Testing can be accomplished with the optional fire strobe transmitter tester. This FIRE STROBE 2000 transmitter will enable a throughput of signals from the photoeye assembly to the relay output. This is a hand-held transmitter which operates via 9-volt battery.

TECHNICAL SPECIFICATIONS

1. Frequency 14.035 Hz+/- .25 Hz for class II signals. For OPTICOM® emitters, double, quad flash strobes 140-170 fpm, 100 % digital.
2. The FIRE STROBE 2000 is fully compatible with the OPTICOM® priority control emitter.
3. Now with Strobewatch™ programmable for double and quad flash, vehicle mounted strobes. These are usually found on police and other emergency vehicles.
4. The strobe acquisition time is .5 seconds.
5. The PC board construction is mounted in the enclosed 8" x 8" x 4" rain-tight NEMA J-Box.
6. The weight is approximately seven pounds.
7. The power requirements are 12/24 volts AC/DC non-polarity conscious, approximately 1 watt draw.

WARRANTY

The FIRE STROBE 2000 has a one year warranty when used according to the manufacturer's specifications. This warranty does not apply when the FIRE STROBE 2000 has been abused, over voltaged, or altered in any way. The warranty coverage is at the sole discretion of the manufacturer. This unit is to be used only for the operations described above.

*OPTICOM is a trademark of 3M.

INSTALLATION

⚠CAUTION

- *To AVOID damaging gas, power or other underground utility lines, contact underground utility locating companies BEFORE digging more than 18 inches (46 cm) deep.*
- ALWAYS wear protective gloves and eye protection when changing the battery or working around the battery compartment.

Installation Tips

Do's

- Weld a horizontal bar across entire gate on any installation for strength. Make sure that the operator is mounted level or it will not function properly.
- Make sure there is slack in the operator cable.
- The operator can be mounted on top of the gate frame.
- The operator must be installed at least 12" (30 cm) from the ground.





Don'ts

- DO NOT install upside down.
- DO NOT install next to sprinklers or any area that may expose the bottom of operator to water.
- DO NOT install on uphill or downhill gates.
- DO NOT install on ANY pedestrian passageways, doorways, or gates.
- DO NOT over-bend the operator cable. Doing this will cause the wires to eventually break.
- DO NOT weld the crossbar on just a few pickets, or they could bend.

INSTALLATION

Large Metal Control Box

The control box MUST be mounted within 5 feet (1.52 m) of the gate operator. Mount the control box as high as possible for best radio reception. Make sure the control box is level.

NOTE: *The Large Metal Solar Control Box (Model XLSOLARCONTUL) does not have the electrical outlets or the expansion board shown in the images.*

Wall or Column Mount

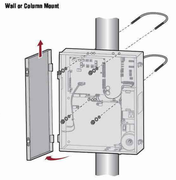
1. Open the control box. The control box door may be removed by opening the door 90°. Lift the door from the hinges and set aside until the installation is complete.
2. Remove the toroid assembly from the control box by loosening the three screws and lifting the assembly up and out.
3. Use knock outs located at the 4 corners of the control box and knock out using a screwdriver and hammer.
4. Secure the control box to mounting surface using the provided screws (4).

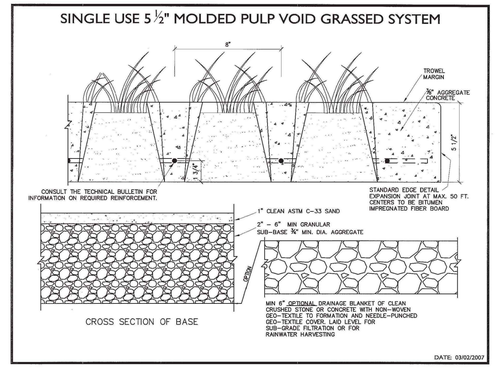
Post Mount

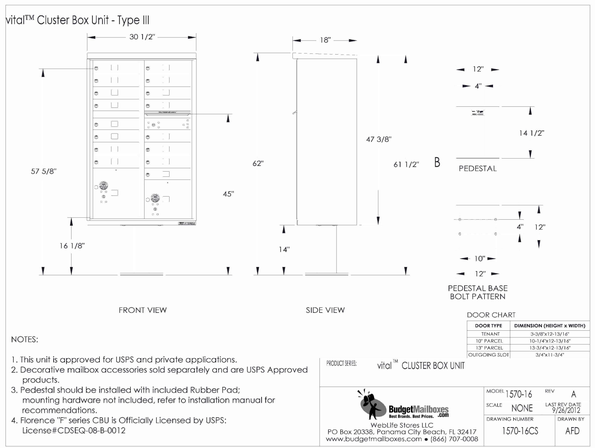
NOTE: *The post mount option is not recommended for the 33AH battery application.*

1. Open the control box. The control box door may be removed by opening the door 90°. Lift the door from the hinges and set aside until the installation is complete.
2. The control box can be mounted to a post with ½" bolts (refer to chart). The knock out will accommodate a 3/8" diameter ½" bolt. Select center mounting holes (top and bottom) and knock out using a screwdriver and hammer.
3. Secure the control box to mounting surface with U-bolts and rubber washers (not provided) to ensure a watertight seal.

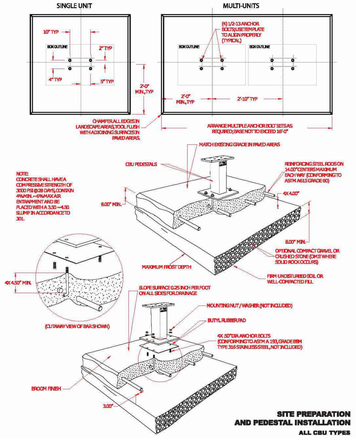
TYPE AND SIZE	"D" BOLT OPENING
Standard 3" Round Pipe	9-1/2"
Standard 4" Square Post	4"
Standard 6" Square Post	6"

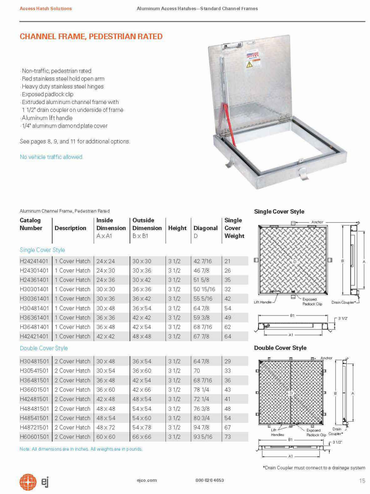


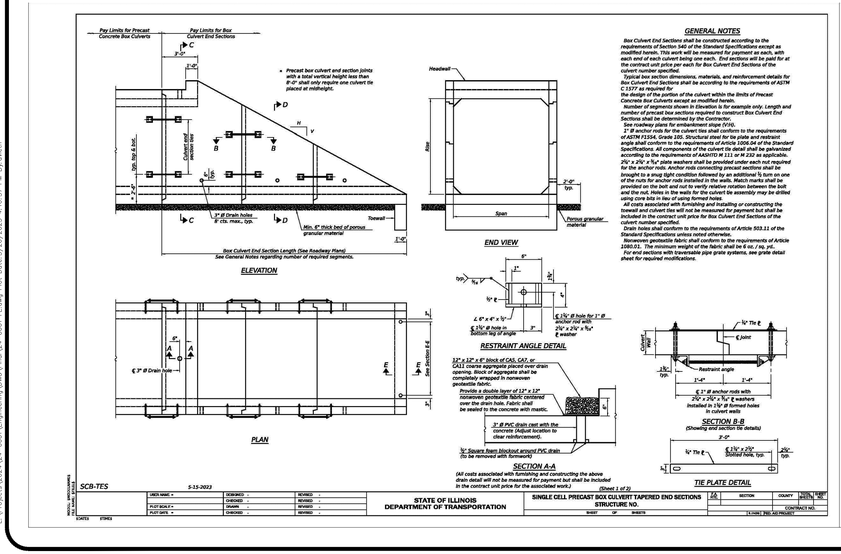


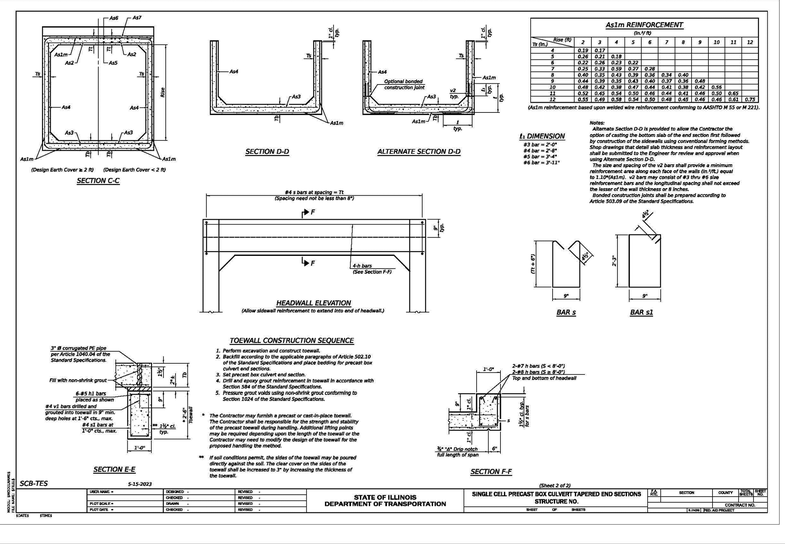


DOOR TYPE	DIMENSION (HEIGHT x WIDTH)
TENANT	3-3/8"X12-13/16"
10" PARCEL	10-1/4"X12-13/16"
13" PARCEL	13-3/4"X12-13/16"
OUTGOING SLOT	3/4"X11-3/4"









REVIEW SET
NOT FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DNV
2	10-19-24	PER WATERSHED REVIEW	SDD
3	11-04-24	PER VILLAGE REVIEW	DMV
4	11-04-24	PER CDDOTH REVIEW	DMV
5	12-12-24	PER VILLAGE REVIEW	DMV
6	01-27-25	PER REVISED GEOMETRY	DMV
7	02-24-25	PER WATERSHED REVIEW	DMV
8	03-26-25	PER VILLAGE COMMENT	DMV

McNAUGHTON DEVELOPMENT
11S220 JACKSON ST. Ste. 101
BURR RIDGE, ILLINOIS 60527
(630) 325-3400

FINAL ENGINEERING PLANS
FOR
HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326-4961
FAX (708) 326-4962
IL PROF. LIC. NO.: 184-003740

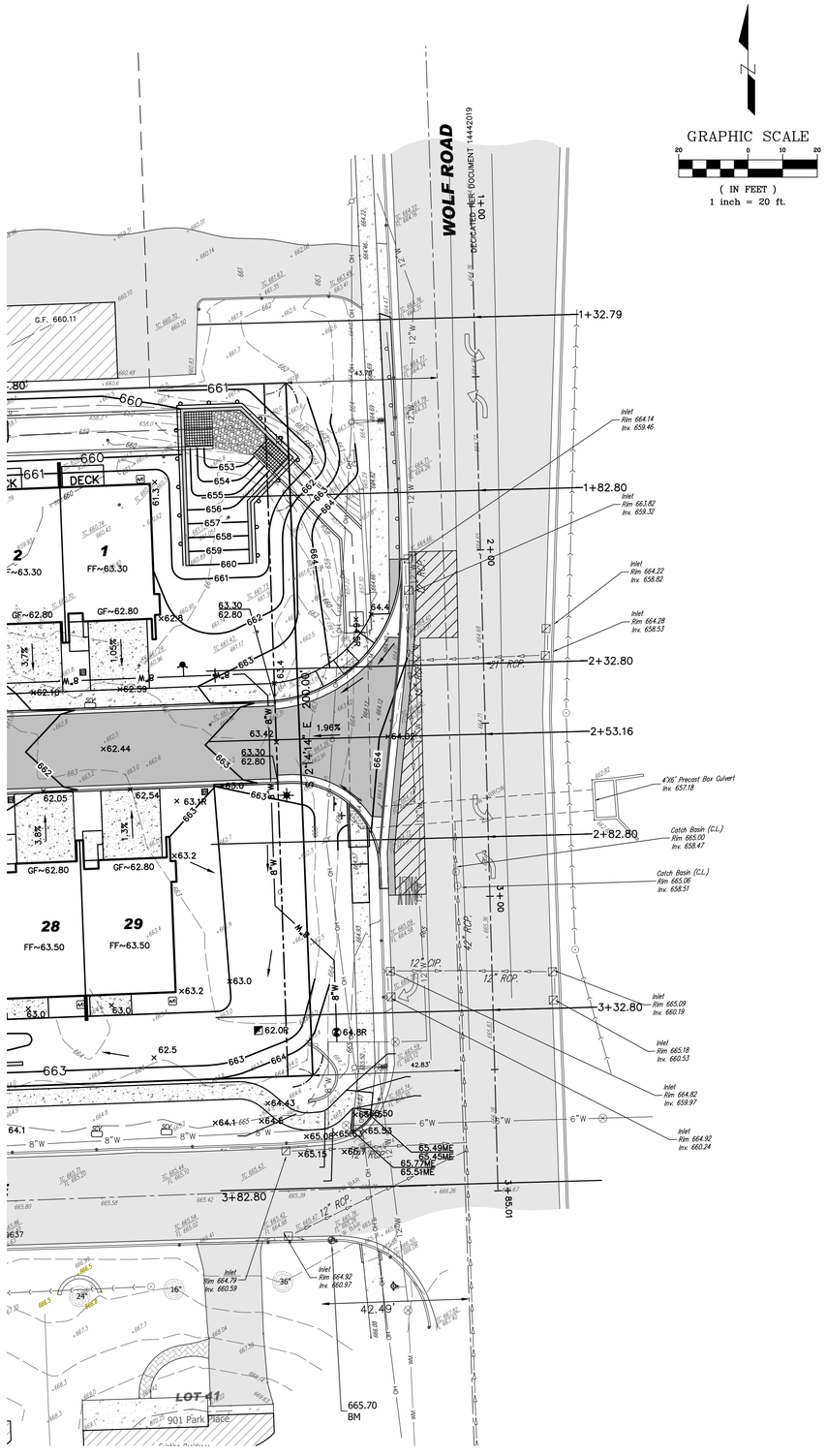
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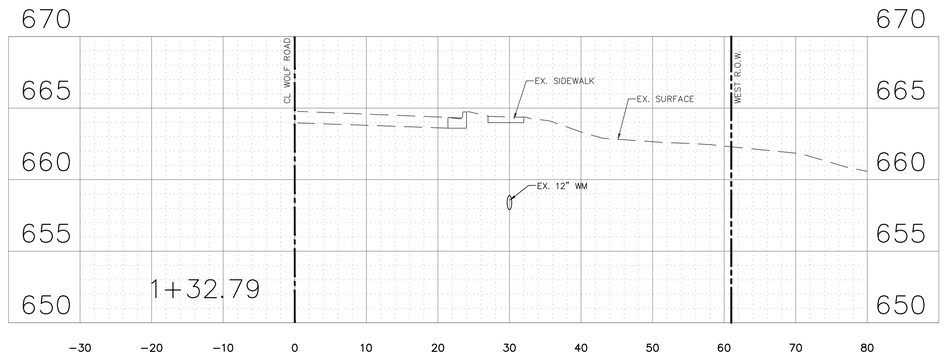
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Scale: NONE
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

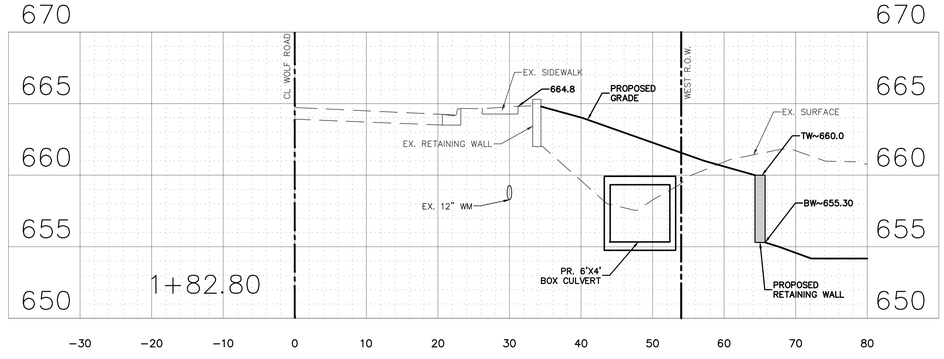
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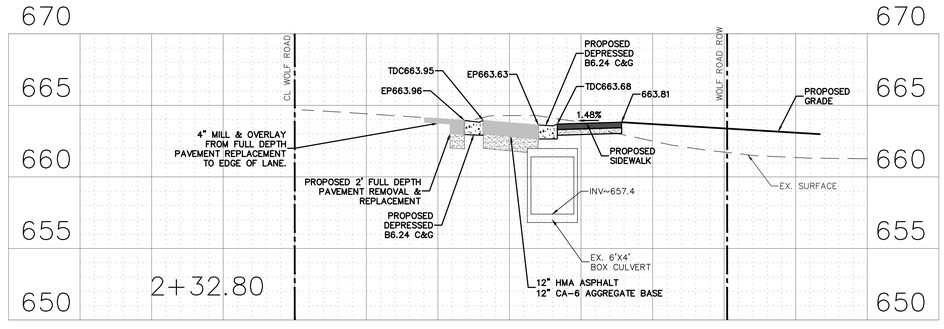
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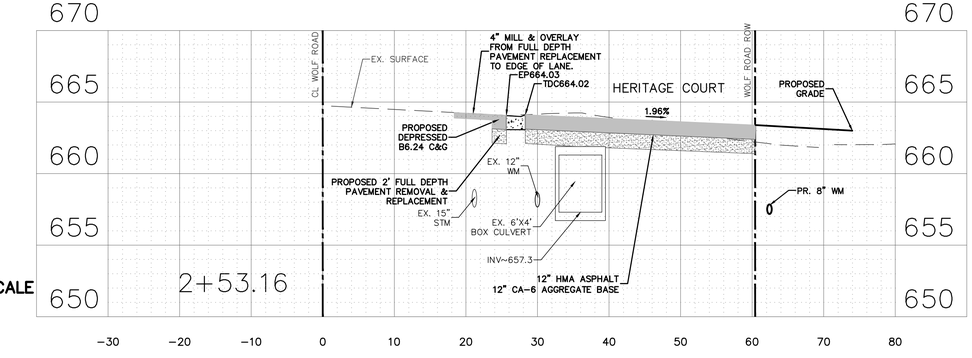
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CROSS-SECTION SCALE
H: 1" = 10'
V: 1" = 5'

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DNV
2	08-19-24	PER WDS REVIEW	SDD
3	10-17-24	PER VILLAGE REVIEW	SDD
4	11-04-24	PER CDDOTH REVIEW	DMV
5	12-12-24	PER VILLAGE REVIEW	DMV
6	01-27-25	PER REVISED GEOMETRY	DMV
7	02-25-25	PER WDS REVIEW	DMV
8	03-26-25	PER VILLAGE COMMENT	DMV

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FAX: (708) 326-4962
IL PROF. LIC. NO.: 184-003740

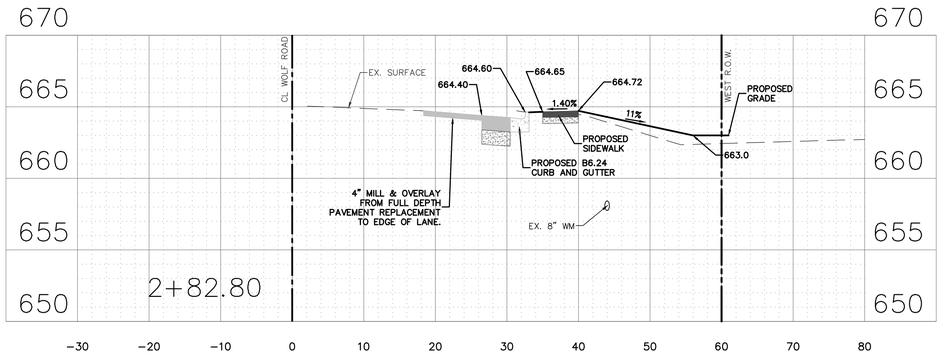
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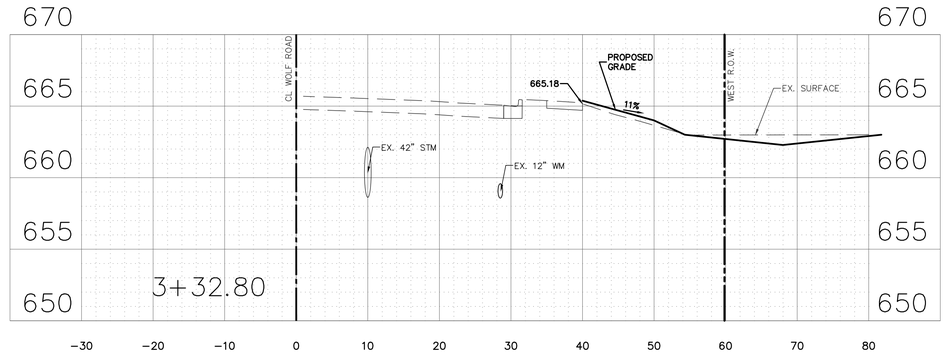
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Scale: AS SHOWN
Date: DATE
Design By: SDD
Drawn By: DJB
Checked By: SDD

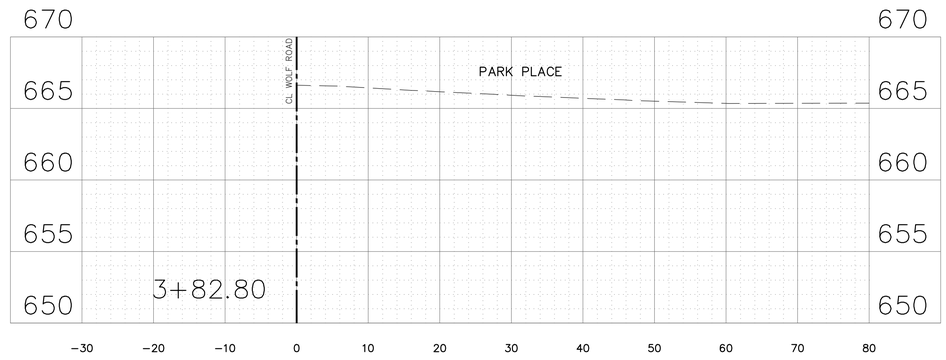
17
OF
20

CROSS SECTIONS STA. 1+32.79 TO 2+53.16

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CROSS-SECTION SCALE
H: 1" = 10'
V: 1" = 5'

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DMV
2	10-17-24	PER WSSD REVIEW	SDD
3	10-17-24	PER VILLAGE REVIEW	SDD
4	11-04-24	PER CDDOTH REVIEW	DMV
5	12-12-24	PER VILLAGE REVIEW	DMV
6	01-27-25	PER REVISED GEOMETRY	DMV
7	02-17-25	PER CDDOTH REVISION	DMV
8	03-26-25	PER VILLAGE COMMENT	DMV

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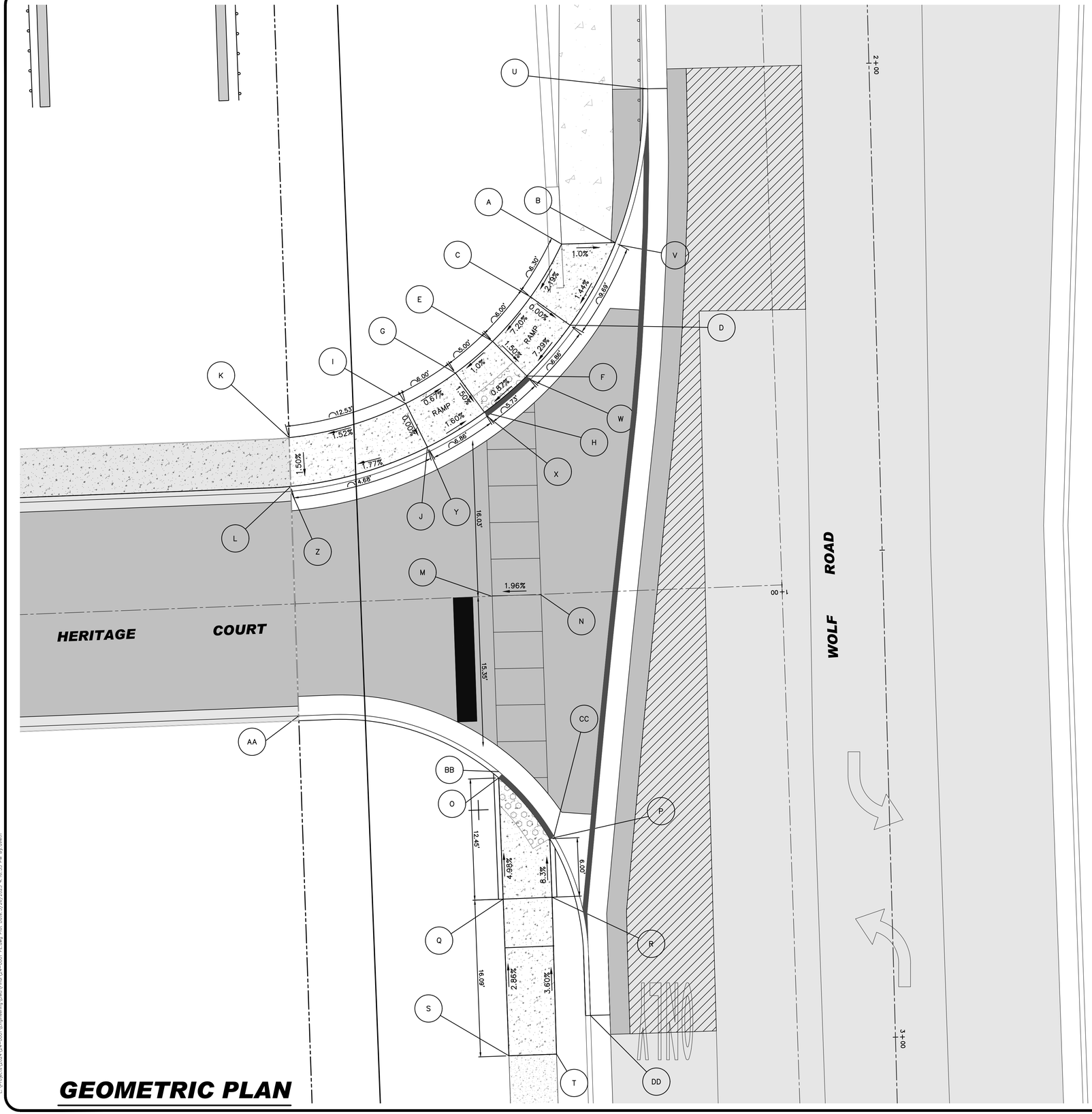
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PROJECT INFORMATION
Project No.: 24-0001
Scale: AS SHOWN
Date: DATE
Design By: SDD
Drawn By: DJB
Checked By: SDD

18
OF
20

CROSS SECTIONS STA. 2+82.80 TO 3+82.80

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GEOMETRIC PLAN

	STATION	OFFSET	ELEV.
A	2+17.70	32.03' R.	664.47ME
B	2+17.70	26.96' R.	664.42ME
C	2+23.03	33.37' R.	664.21
D	2+26.03	31.40' R.	664.21
E	2+27.48	39.38' R.	663.85
F	2+31.14	35.97' R.	663.78
G	2+30.63	43.28' R.	663.78
H	2+34.74	40.42' R.	663.71
I	2+33.62	48.48' R.	663.82
J	2+38.14	46.37' R.	663.82
K	2+36.79	60.53' R.	663.63
L	2+41.80	60.50' R.	663.56
M	2+53.63	40.21' R.	664.15
N	2+53.57	35.20' R.	664.05
O	2+72.59	39.99' R.	663.69
P	2+78.55	34.99' R.	663.81
Q	2+84.61	39.84' R.	664.31
R	2+84.56	34.93' R.	664.31
S	3+00.83	39.71' R.	694.77ME
T	3+00.79	34.82' R.	664.89ME
U	2+02.01	22.76' R.	664.14ME
V	2+17.98	26.08' R.	663.92
W	2+31.50	35.63' R.	663.65
X	2+35.15	40.14' R.	653.58
Y	2+38.61	46.15' R.	663.32
Z	2+42.30	60.49' R.	663.06
AA	2+65.37	60.33' R.	663.06
BB	2+71.65	39.96' R.	663.56
CC	2+78.44	34.48' R.	663.78
DD	2+96.92	31.23' R.	664.36ME

GRAPHIC SCALE

30 0 15 30

(IN FEET)
1 inch = 30 ft.

PAVEMENT LEGEND

- 4" MIL AND OVERLAY
- ASPHALT PAVEMENT CCDOTH ROW
  12" HMA CONCRETE SURFACE COURSE CL1
  12" AGGREGATE BASE COURSE, CA-6
- ASPHALT PAVEMENT
  2.5" BIT. CONCRETE SURFACE COURSE CL1
  2.5" BIT. CONCRETE BINDER COURSE
  9" AGGREGATE BASE COURSE, CA-6
- CONCRETE DRIVEWAY
  7" P.C.C.
  2" AGGREGATE BASE COURSE
- CONCRETE SIDEWALK
  7" P.C.C.
  2" AGGREGATE BASE
- CONCRETE CURB RAMP
  8" P.C.C.
  4" AGGREGATE BASE COURSE

REVIEW SET
NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DMV
2	08-19-24	PER WOLF ROAD REVIEW	SDD
3	10-17-24	PER VILLAGE REVIEW	SDD
4	11-04-24	PER CDDOTH REVIEW	DMV
5	12-12-24	PER VILLAGE REVIEW	DMV
6	01-27-25	PER REVISED GEOMETRY	DMV
7	02-25-25	PER CDDOTH REVISION	DMV
8	03-26-25	PER VILLAGE COMMENT	DMV

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IL PROF. LIC. NO.: 184-003740

DEI

PROJECT INFORMATION
Project No.: 24-0001
Scale: 1" = 30'
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

19
OF
20

ADA DETAIL

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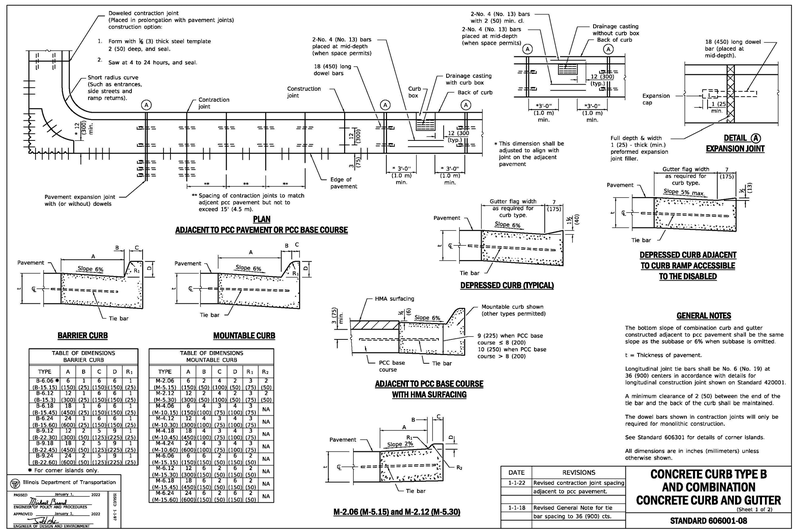


TABLE OF DIMENSIONS BARRIER CURB

TYPE	A	B	C	D	R_1	R_2
B-6.06 ● (B-15.15)	12	6 (150)	6 (150)	18 (450)	6 (150)	3 (75)
B-6.12 (B-15.3)	12	6 (150)	6 (150)	18 (450)	6 (150)	6 (150)
B-6.18 (B-15.45)	18	6 (150)	6 (150)	18 (450)	6 (150)	3 (75)
B-6.24 (B-15.60)	24	6 (150)	6 (150)	18 (450)	6 (150)	6 (150)
B-12.12 (B-22.30)	12	12 (300)	6 (150)	18 (450)	12 (300)	3 (75)
B-12.18 (B-22.45)	18	12 (300)	6 (150)	18 (450)	12 (300)	3 (75)
B-12.24 (B-22.60)	24	12 (300)	6 (150)	18 (450)	12 (300)	3 (75)

● For corner islands only.

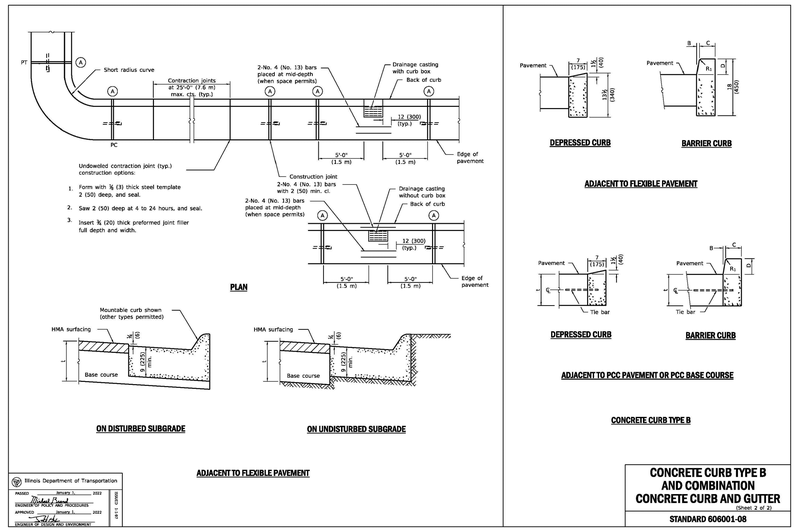
TABLE OF DIMENSIONS MOUNTABLE CURB

TYPE	A	B	C	D	R_1	R_2
M-2.06 (M-5.15)	6	3 (75)	3 (75)	10 (250)	3 (75)	3 (75)
M-2.12 (M-5.30)	12	3 (75)	3 (75)	10 (250)	3 (75)	3 (75)
M-6.06 (M-10.15)	6	3 (75)	3 (75)	10 (250)	3 (75)	NA
M-6.12 (M-10.30)	12	3 (75)	3 (75)	10 (250)	3 (75)	NA
M-6.18 (M-10.45)	18	3 (75)	3 (75)	10 (250)	3 (75)	NA
M-6.24 (M-10.60)	24	3 (75)	3 (75)	10 (250)	3 (75)	NA
M-12.06 (M-15.15)	6	6 (150)	6 (150)	15 (375)	6 (150)	NA
M-12.12 (M-15.30)	12	6 (150)	6 (150)	15 (375)	6 (150)	NA
M-12.18 (M-15.45)	18	6 (150)	6 (150)	15 (375)	6 (150)	NA
M-12.24 (M-15.60)	24	6 (150)	6 (150)	15 (375)	6 (150)	NA

Illinois Department of Transportation
PASSED January 1, 2022
Engineering Policy Memorandum
APPROVED January 1, 2022
ENGINEER OF POLICY AND PROCEDURES
APPLY CURVES
ENGINEER OF BRIDGES AND STRUCTURES

DATE	REVISIONS
1-1-22	Revised contraction joint spacing adjacent to pcc pavement.
1-1-18	Revised General Note for tie bar spacing to 36 (900) ctr.

CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER
(Sheet 1 of 2)
STANDARD 606001-08



Illinois Department of Transportation
PASSED January 1, 2022
Engineering Policy Memorandum
APPROVED January 1, 2022
ENGINEER OF BRIDGES AND STRUCTURES
APPLY CURVES
ENGINEER OF POLICY AND PROCEDURES

CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER
(Sheet 2 of 2)
STANDARD 606001-08

SPECIAL PROVISION FOR DETECTABLE WARNINGS (SPECIAL)

Effective: *10/01/18* (Modification of IDOT D1 Special Provision for Detectable Warnings (Special) in City of Chicago)
Revised: *4/13/21 (added Galvanized and Stainless Steel material options)*

Description:

Work under this item shall consist of installing cast iron or steel detectable warning tiles as shown on the plans. Work shall be performed according to Section 424 of the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, except as herein modified.

Materials:

Detectable warning tiles shall be of uniform quality, and free of surface defects. The detectable warnings shall be constructed out of one of the following:
1) Cast iron meeting requirements of ASTM A 48 Class 30 or better.
2) Galvanized steel – 10 gauge, C90 galvanization or better
3) Stainless steel – 10 gauge or better

The dome size and spacing of the detectable warnings shall meet all requirements of sections R305.1.1 and R305.1.2 of PROWAG.

The color of the detectable warning tiles is to be approved by the Engineer unless otherwise specified in the plans and comply with the requirements of section R305.1.3 of PROWAG.

If a concrete border is required for installation of the detectable warnings, it shall comply with section R305.2 of PROWAG.

Responsibility of the Contractor:

The contractor shall verify all dimensions with the product manufacturer. If using radial units, the contractor shall verify that the radius of the detectable warnings supplied by the manufacturer matches that of the curb radius.

The contractor shall ensure that the supplied detectable warnings allow placement of the rows of domes that are aligned parallel with the path of travel. Where detectable warnings are radial, dome orientation is not significant.

The contractor shall ensure a maximum vertical transition of ¼" between the edge of the detectable warnings and adjacent concrete.

Measurement and Payment:

This work will be paid for at the contract unit price per square foot for DETECTABLE WARNINGS (SPECIAL).

MUNICIPALITY, IL MUNICIPALITY, IL NAME TOWNSHIP	COUNTY HIGHWAY	XXX	COMPUTED: XXX	REVISIONS	DATE	COUNTY OF COOK DEPARTMENT OF TRANSPORTATION AND HIGHWAYS	PORTLAND CEMENT CONCRETE SIDEWALK CONSTRUCTION DETAIL COOK COUNTY DEPARTMENT OF TRANSPORTATION AND HIGHWAYS STANDARD C-003	C-XXX
	FISCAL YEAR	XXXX	DRAWN: XXX	COUNTY STANDARD	11/01/21			
	SECTION	XX-XXXX-XX-XX	CHECKED: XXX	NEW WARNING SIGNS C-3	11/01/21			NOT TO SCALE SHEET 2

L:\Projects\2024\24-0001\Engineering\DWG\Final\24-0001 FE.dwg Plot Date: 3/26/2025, 4:16:56 PM By: dvath

NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DNV
2	10-17-24	PER VILLAGE REVIEW	SDD
3	10-29-24	PER CCDOTH REVIEW	DMV
4	11-04-24	PER VILLAGE REVIEW	DMV
5	12-12-24	PER REVISED GEOMETRY	DMV
6	01-27-25	PER CCDOTH REVIEW	DMV
7	03-26-25	PER VILLAGE COMMENT	DMV
8			

McNAUGHTON DEVELOPMENT
11S220 JACKSON ST. Ste. 101
BURR RIDGE, ILLINOIS 60527
(630) 325-3400

FINAL ENGINEERING PLANS FOR HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326-4961
FAX: (708) 326-4962
IL PROF. LIC. NO.: 184-003740

PROJECT INFORMATION

Project No.: 24-0001
Scale: AS SHOWN
Date: DATE
Design By: SDD
Drawn By: DJB
Checked By: SDD

20 OF 20

CCDOTH DETAILS

HERITAGE CROSSING BYBPASS PIPE CALCULATIONS



Project File: Prelim By-Pass Storm Sewer - Box Culvert.stm	Number of lines: 2	Date: 3/10/2025

100-YEAR PEAK FLOW
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	62	0.00	0.00	0.00	0.00	0.00	0.0	0.4	0.0	360.0	368.3	10.88	48 x 120 b	0.40	650.50	650.75	653.70	654.17	654.50	657.50	Pipe - (3)
2	1	232	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	360.0	402.1	10.51	x 120 b	0.41	650.75	651.70	654.17	655.12	657.50	655.70	

Project File: Prelim By-Pass Storm Sewer - Box Culvert.stm

Number of lines: 2

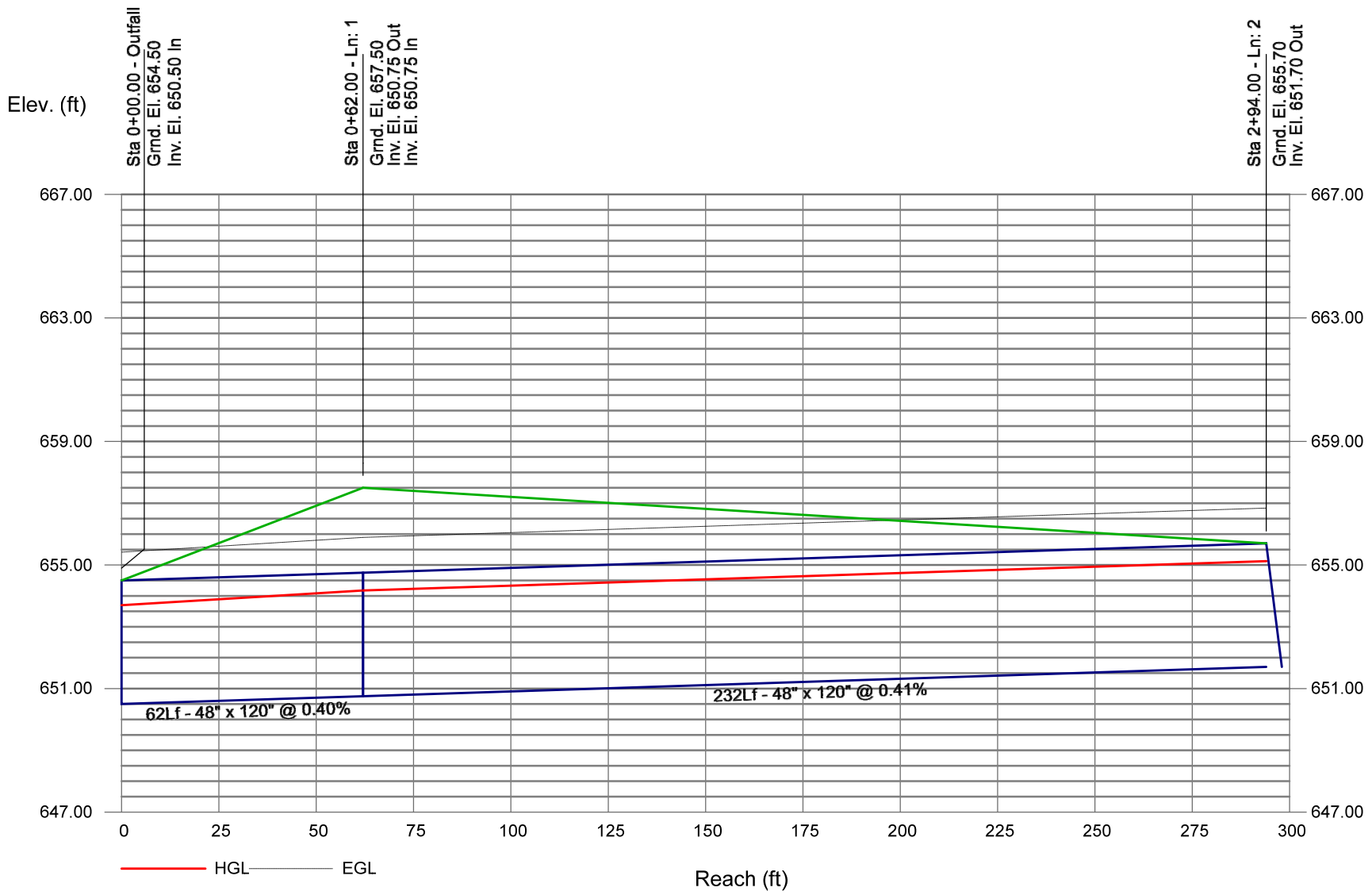
Run Date: 3/10/2025

NOTES:Intensity = 277.62 / (Inlet time + 20.10) ^ 0.97; Return period =Yrs. 100 ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: Prelim By-Pass Storm Sewer - Box Culvert.stm

100-YEAR PEAK FLOW



StormCAD Bentley Systems

2-YEAR PEAK FLOW
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	62	0.00	0.00	0.00	0.00	0.00	0.0	2.0	0.0	75.98	368.3	6.52	48 x 120 b	0.40	650.50	650.75	651.62	651.97	654.50	657.50	Pipe - (3)
2	1	232	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	75.98	371.2	6.25	48 x 120 b	0.41	650.75	651.70	651.97	652.92	657.50	655.70	Pipe - (1)

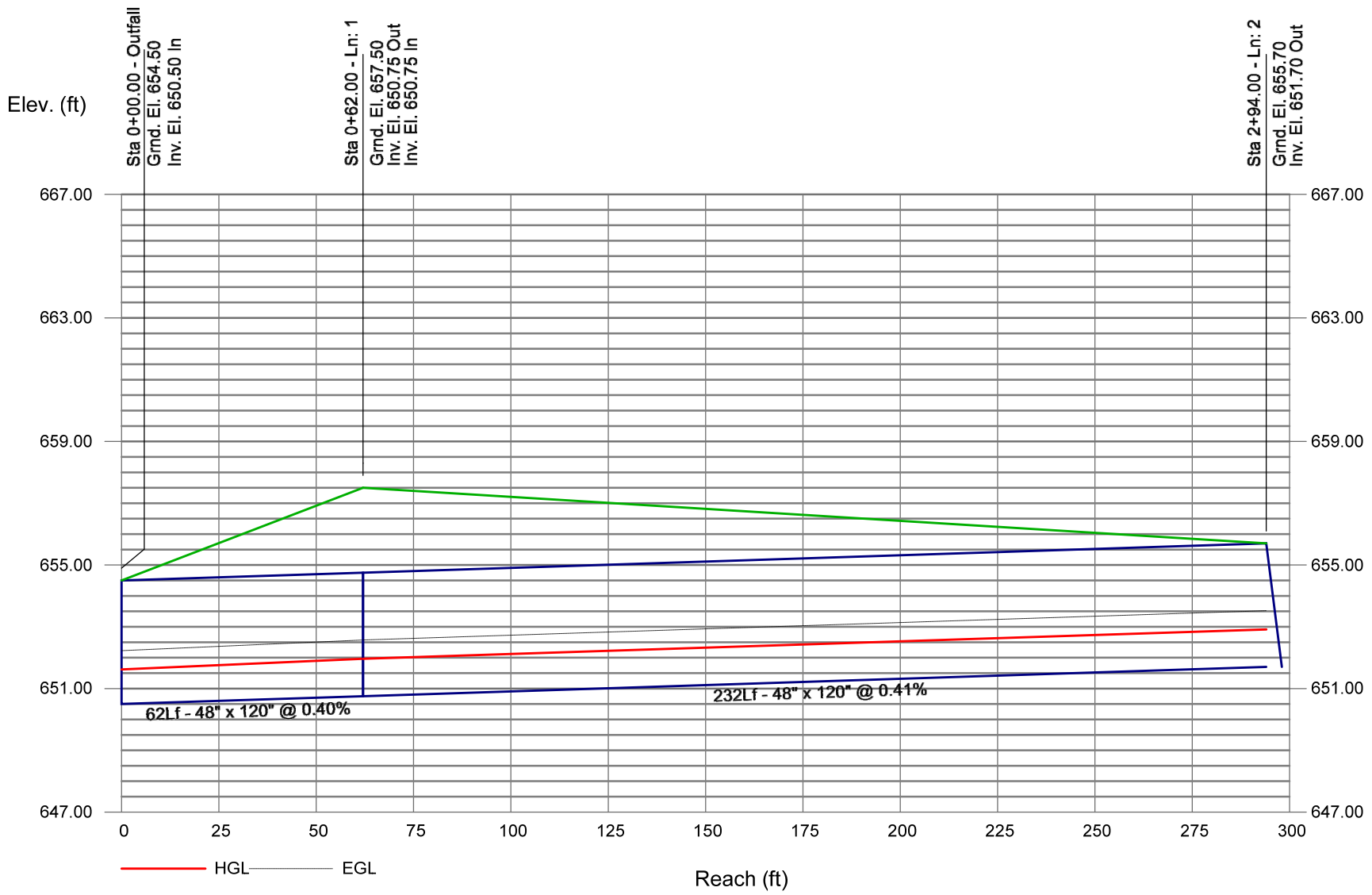
Project File: Prelim By-Pass Storm Sewer - Box Culvert. 2 year.stm | Number of lines: 2 | Run Date: 3/10/2025

NOTES:Intensity = 277.62 / (Inlet time + 20.10) ^ 0.97; Return period =Yrs. 100 ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: Prelim By-Pass Storm Sewer - Box Culvert. 2 year.stm

2-YEAR PEAK FLOW



Autodesk Storm and Sanitary Analysis

10-YEAR PEAK FLOW
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	62	0.00	0.00	0.00	0.00	0.00	0.0	0.9	0.0	163.1	368.3	8.42	48 x 120 b	0.40	650.50	650.75	652.36	652.77	654.50	657.50	Pipe - (3)
2	1	232	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	163.1	371.2	8.07	48 x 120 b	0.41	650.75	651.70	652.77	653.72	657.50	655.70	Pipe - (1)

Project File: Prelim By-Pass Storm Sewer - Box Culvert. 10 year.stm

Number of lines: 2

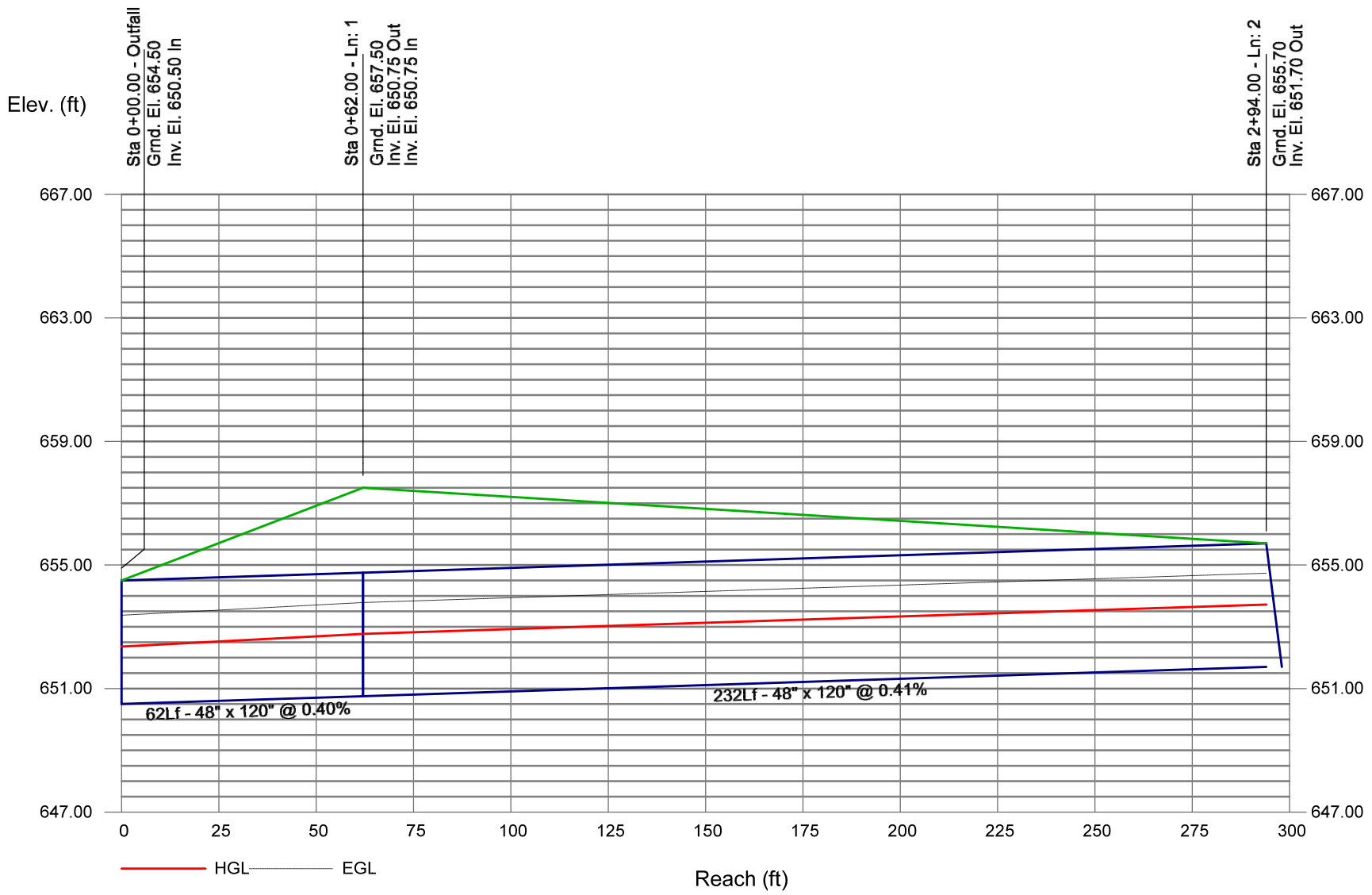
Run Date: 3/10/2025

NOTES:Intensity = 277.62 / (Inlet time + 20.10) ^ 0.97; Return period =Yrs. 100 ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: Prelim By-Pass Storm Sewer - Box Culvert. 10 year.stm

10-YEAR PEAK FLOW



Bentley Systems

DESIGNTEK ENGINEERING, INC.
CONSULTING AND SITE DESIGN ENGINEERS
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
PHONE: (708) 326-4961
FAX: (708) 326-4962

FINAL STORMWATER MANAGEMENT REPORT



FOR:

HERITAGE CROSSING
WSTERN SPRINGS, ILLINOIS

Prepared For:

McNaughton Development
11S220 Jackson Street – Suite 101
Burr Ridge, Illinois 60527
(630) 325-3400

March 17, 2025

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- 100yr-1hr Storm Event (peak flowrate & elevations)

Stormwater Management Analysis Proposed Conditions

- Analysis Documentation
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- 10yr-2hr Storm Event (peak flowrate & elevations)
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SUMMARY

The Heritage Crossing re-development is approximately 2.41 gross acres with the current use being professional office buildings and associated parking lot areas. An existing stormwater detention basin is located adjacent to the site in a 0.34-acre parcel dedicated as Lawn Avenue. This parcel will be included in the total site development area. The proposed re-development consists of twenty-nine residential single family attached units with related roadway, utilities, and a stormwater management area. The existing stormwater management facility (South Detention Pond) owned by the Village of Western Springs and maintained by the Heritage Springs HOA will be enhanced to provide the MWRD required volume control elements and will include increased stormwater storage volume to provide additional detention to attenuate more of the off-site upstream stormwater run-off prior to being released downstream. The FEMA FIRM map panel 17031CO467J effective 8/19/2008 indicates that there are no special flood hazard areas (floodplain) on the subject property (Zone "X"). The intent of this report is to convey the existing site conditions along with the final planning development and calculations that have been completed to support Final Engineering.

The existing site is not located in the FEMA mapped floodplain. Evidence has shown that the existing site and the Heritage Springs subdivision experience flooding during large storm events. DesignTek Engineering was contracted to complete a detailed flood analysis for the detention system maintained by the Heritage Springs HOA. An off-site area of approximately172.3 acres, to the south and east of Wolf Road was determined to be tributary to the subject site via an existing 6'x4' concrete box culvert that crosses under Wolf Road. The upstream off-site area is developed, and the area was divided into two sub-areas. They were delineated as Ashbrook Subdivision and LaGrange Highlands offsite with areas 42.90 acres and 129.40 acres, respectively. Time of concentrations and curve numbers were calculated for each area. MWRD permit number 99-0525 was obtained for the Ashbrook Subdivision. This information was used in HEC HMS computer modeling software to analyze the system and determine a 100-year critical duration peak flowrate of 359.61 cfs. This occurs during the 100-year 1-hour event. The high-water level (HWL) for the existing detention basin (Basin C) was determined to be 655.24. Basin C is the combination of the South Detention Basin and West Channel Between retaining Walls Basin included in the above MWRD permit.

To allow for the required Cook County DOTH site distance requirements the existing box culvert under Wolf Road will be extended 66 feet away from the proposed Heritage Court intersection. A bypass system will be constructed to collect and convey the peak discharge through a proposed 10'x4' concrete box culvert. The calculated peak HWL for Basin C was determined to be 655.16 for the proposed condition. This is a reduction of 0.08'. The site will be inundated with water at the north end of Heritage Court, near the property line. Under existing conditions this area was also inundated with water. Ponding water will not occur in front of the proposed driveways in Heritage Crossing. The proposed condition will have no significant impacts when compared to existing conditions. An interim bypass swale will be constructed on site to convey the discharge during rainfall events while the bypass system is being constructed. The swale was designed to carry the critical duration peak discharge of 359.61 cfs.

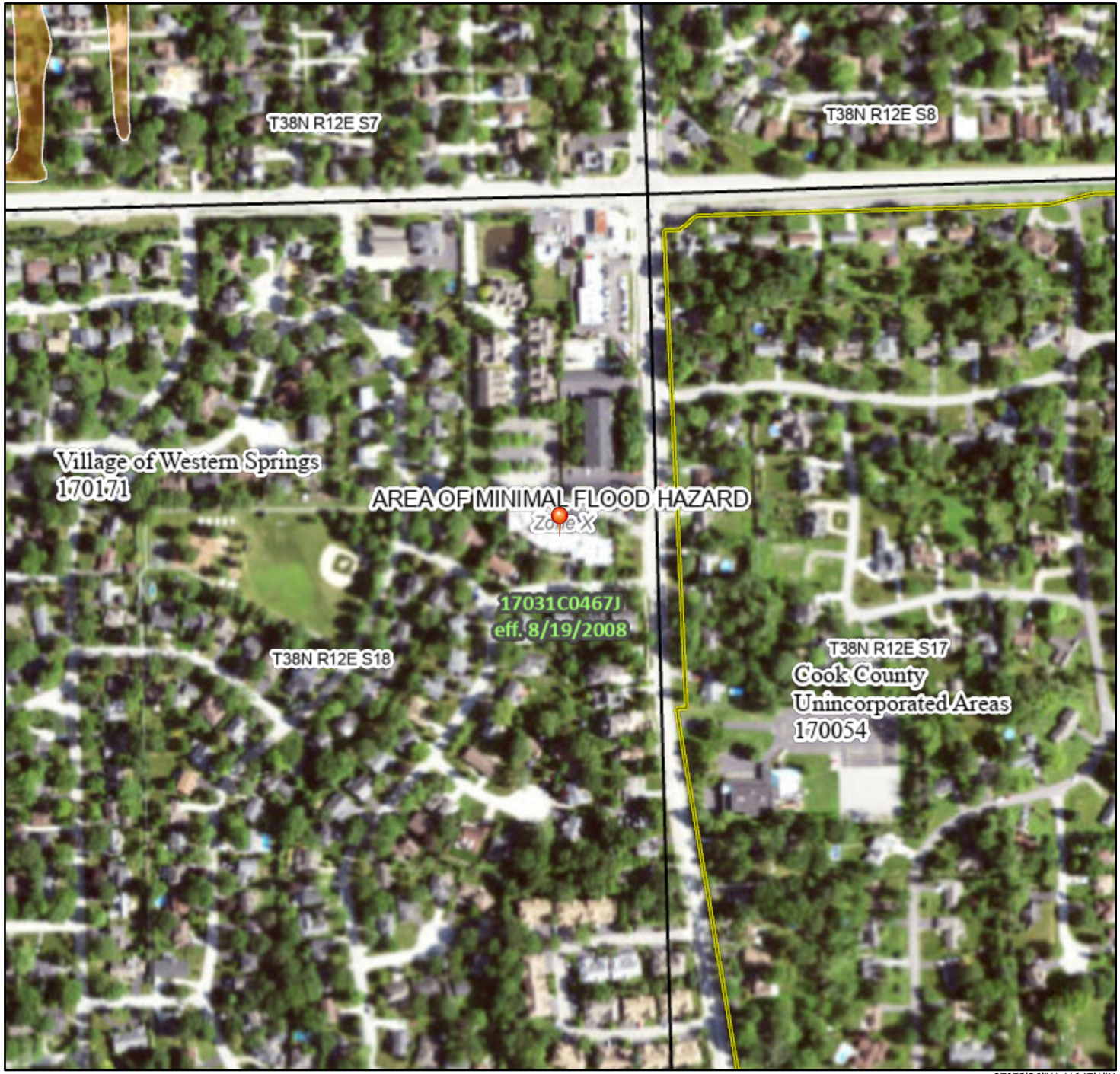
The existing condition (professional office buildings) has a total impervious area of 1.67 acres with the proposed re-development (residential) area of 1.50 acres. This equates to a total reduction in impervious area of 0.17 acres or 10%. Utilizing the proposed impervious area within the re-development site, the required MWRD volume control storage has been calculated to be 0.13 ac-ft. This volume is proposed as surface storage (elevations 647.0 – 648.0) below the NWL

in the stormwater management pond and has a proposed volume of 0.15 ac-ft. A PVC underdrain is proposed below the volume control area. Recent soil investigation for the existing south detention pond revealed that the Estimated Seasonal High Groundwater Table (ESHGWT) is at elevation 644.0, 3' feet below the proposed pond bottom. See enclosed Soil Investigation Report within the appendix section of this report for reference.

The previously issued MWRD permit (99-228) for the original development was obtained and is included in the appendix for reference. Upon examination the detention review sheet within the permit does not depict any detention volume requirements for the original development. Although the as-built plan dated (09-29-2007) for the original development depicts the volume provided for the subject "South Detention Pond" as 0.729 Ac-Ft. and based on the recent topographic survey for the proposed re-development we have calculated the South Detention Pond storage volume to currently be 0.76 Ac-Ft. which appears to match the original intent. Initial conversations with Village staff revealed that they have experienced stormwater flooding issues off-site and further downstream within the same tributary of the subject site and expansion of the existing stormwater facility, if possible, would be a regional benefit. Taking this into account the proposed re-development will include an expansion of the South Detention Pond volume to 1.64 Ac-Ft, increasing the storage volume by 0.85 Ac-Ft, which essentially doubles the volume. The 100-year peak flowrate for the development site will also be reduced to 13.96 cfs from the existing condition of 15.64 cfs (+/- 11% reduction). The proposed residential buildings also will not have basements and therefore no sump pump discharges will be tributary to the stormwater management area.

National Flood Hazard Layer FIRMette

87°54'14"W 41°47'28"N



87°53'36"W 41°47'1"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
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- Levee, Dike, or Floodwall

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- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/22/2024 at 1:31 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Cook County, Illinois

Heritage Crossing



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,140 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cook County, Illinois
Survey Area Data: Version 17, Aug 28, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 13, 2020—Jul 6, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
854B	Markham-Ashkum-Beecher complex, 1 to 6 percent slopes	3.0	100.0%
Totals for Area of Interest		**3.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cook County, Illinois

854B—Markham-Ashkum-Beecher complex, 1 to 6 percent slopes

Map Unit Setting

National map unit symbol: 28shj
Elevation: 510 to 930 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Markham and similar soils: 40 percent
Ashkum and similar soils: 30 percent
Beecher and similar soils: 25 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Markham

Setting

Landform: End moraines, ground moraines
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Thin mantle of loess or other silty material and in the underlying till

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 21 inches: silty clay loam
H3 - 21 to 32 inches: silty clay loam
H4 - 32 to 60 inches: silty clay loam

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: 20 to 55 inches to densic material
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R110XY010IL - Moist Glacial Drift Upland Savanna
Hydric soil rating: No

Description of Ashkum

Setting

Landform: End moraines, ground moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Colluvium and in the underlying till

Typical profile

H1 - 0 to 12 inches: silty clay loam
H2 - 12 to 29 inches: silty clay
H3 - 29 to 54 inches: silty clay loam
H4 - 54 to 60 inches: silty clay loam

Properties and qualities

Slope: 1 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R110XY008IL - Wet Glacial Drift Upland Prairie
Hydric soil rating: Yes

Description of Beecher

Setting

Landform: End moraines, ground moraines
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Thin mantle of loess or other silty material and in the underlying till

Typical profile

H1 - 0 to 7 inches: silt loam
H2 - 7 to 24 inches: silty clay loam
H3 - 24 to 36 inches: silty clay loam
H4 - 36 to 60 inches: silty clay loam

Properties and qualities

Slope: 2 to 4 percent
Depth to restrictive feature: 24 to 45 inches to densic material
Drainage class: Somewhat poorly drained

Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Ecological site: R110XY010IL - Moist Glacial Drift Upland Savanna
Hydric soil rating: No

Minor Components

Orthents, clayey

Percent of map unit: 5 percent
Landform: Lake plains, ground moraines
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F095XB010WI - Loamy and Clayey Upland
Hydric soil rating: No

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Associated Engineering & Technology, Inc.

1615 Pathway Drive, Naperville, IL 60565
Phone: (630) 420-8300
www.soiltesting.biz

CONFIDENTIAL

SOIL INVESTIGATION REPORT
5600 S. Wolf Road
(North of Park Place & S. Wolf Road)
Western Springs, IL 60480

AET Project Number: Geo – 9951
April 29, 2024

Prepared for:

McNaughton Development

Mr. John Barry
McNaughton Development
11S220 Jackson Street, Suite # 101
Burr Ridge, Illinois 60527

April 29, 2024

Soil Investigation Report
5600 S. Wolf Road
Western Springs, IL

AET Project Number: Geo – 9951

Gentleman / Madam,

Associated Engineering & Technology, Inc. (AE&T) has completed two (2) soil borings and sampling of soils to determine the Estimated Seasonal High Groundwater Level (ESHGWL) at the above referenced site in Western Springs, IL. The borings were done at the existing detention pond area and the locations are shown in the appendix of this report. The soil samples were analyzed in the laboratory for soil description, visual classification and moisture content by a geotechnical engineer. Munsell Chart and FEMA maps were also used to estimate the seasonal high groundwater elevations. Based upon our investigation the ESHGWL was noted to be at six (6) feet below the bottom of existing pond.

If you have any questions regarding this report, please contact us.

Sincerely,
Associated Engineering & Technology, Inc.



Ashok Medhi, M.S.
Geotechnical Engineer

Toby C. Mickey, P.E.
Senior Engineer

1.0 SOIL BORING

A total of two (2) soil borings were done were done at the proposed development to 10 feet depth each in accordance with American Society for Testing and Materials procedure for Standard Penetration Test and Split Barrel Sampling of Soils (ASTM 1586). The borings were done with a CME 45 drill rig mounted on All-Terrain Vehicle.

The soil samples were collected at 2-1/2 feet interval to a depth of 10 feet and thereafter at 5 feet interval. The boreholes were backfilled with auger cuttings after completion of drilling.

The soil samples were placed in glass containers and brought to our laboratory. A site plan showing the approximate soil boring locations is included in appendix. Log of the soil borings along with lab classifications are included in Appendix B.

2.0 LABORATORY TESTING

All samples were visually classified according to the Unified Soil Classification System (ASTM D-2488) by a geotechnical engineer. The Auger boring samples are disturbed and were generally used for classification testing (D2487, D2488), moisture content and pocket penetrometer test (ASTM D 854) to evaluate unconfined compressive strength for clayey and clayey silt soils. The primary purpose of this investigation was to determine the Estimated Seasonal High Groundwater Elevation. The boring logs with soil description are included in the Appendix.

3.0 SOIL DESCRIPTION & ANALYSIS

The sub-surface materials in the borings (B-1 & B-2) comprised 8 to 10 inches of black topsoil with roots.

It was underlain by very stiff to hard moist **brown silty Clay** with fine sand and gravel (CL) to depths of about 6.0 feet. Beneath it, medium dense moist **brownish gray fine to medium Sand** trace small gravel (SP) was noted to depths of 8 feet and changed color to **gray** Fine Sand trace small gravel (SP) to the boring depths of 10 feet.

Groundwater was **not** encountered during and after completion of the borings.

3.1 Estimated Seasonal High Ground Water Level

The Estimated seasonal high groundwater level (ESHGWL) at Borings B-1 and B-2 located at existing Detention Pond is at about (six) 6 feet. It is based upon visual classification of the soil samples, existing groundwater levels, site topography, soil conditions, color description and change of color from brown to brownish gray at 6 feet, FIRM maps and Munsell chart (10 YR**).**

Note: Soil colors are expressed in terms of hue, value, and chroma, in accordance with the standardized Munsell color system (Soil Survey Staff, 1951). Hue refers to the wavelength, value expresses the degree of lightness or darkness, whereas chroma notes the purity or strength of a particular color (Munsell, 1974). This system is used to describe the matrix or dominant soil color and the blotches of less-prevalent colors commonly called mottles.

Soil colors are commonly associated with the presence or absence of iron. Weathering of soil minerals is a slow process but with time causes the release of mineral constituents to the environment. Soluble weathering-products are removed from the soil profile, while more stable compounds will precipitate. Iron (Fe), released from a mineral, frequently coats soil particles with thin oxide-coatings. Well-aerated soils typically are yellowish brown-colored from these iron-oxide coatings. Depending on the intensity of the weathering cycles, the iron-oxides may display different colors.

5.0 Warranty / Limitations of liability

Associated Engineering & Technology, Inc. understands that the Boring log depicts conditions disclosed at the particular location and date indicated and may vary within 5 feet of vertical and lateral distance from the borings.
If significant variations or changes are in evidence during construction, it may then be necessary to re-evaluate the recommendations of this report.
In no event shall Associated Engineering & Technology, Inc. be liable for any indirect, special, consequential or incidental damages, of any kind or nature however caused and based on any theory of liability, arising out of or relating to this report, whether or not such party has been advised of the possibility of such damages.

APPENDICES

BORING LOCATION

BORING LOGS

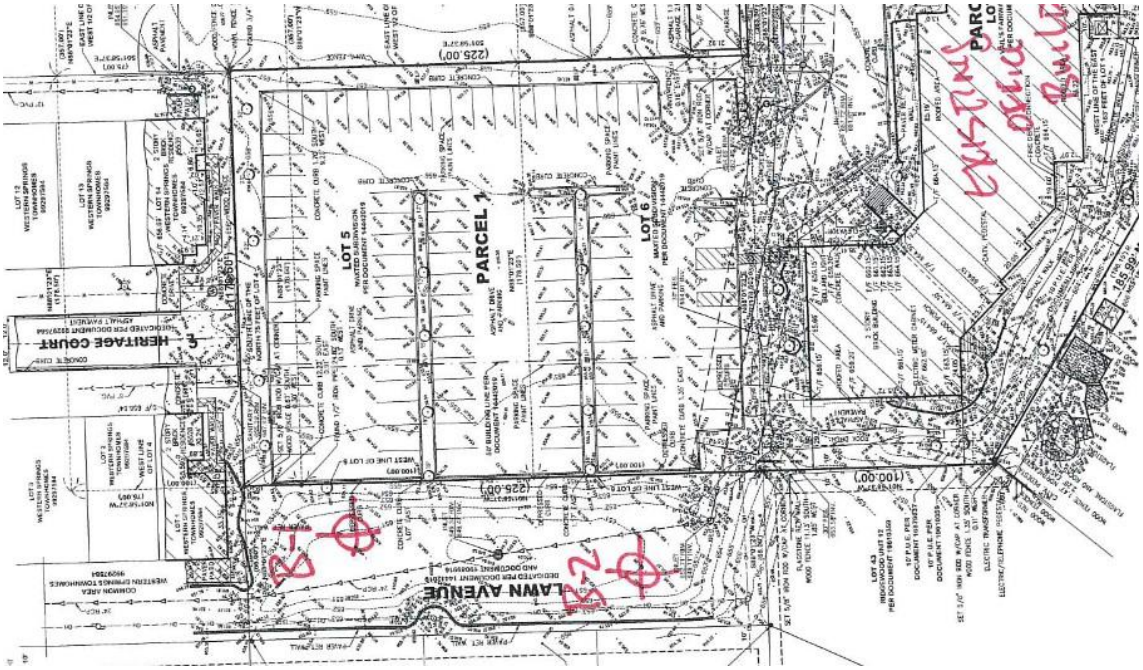
GENERAL NOTES &

USCS CLASSIFICATION CHART

MUNSELL CHART (10 YR)

BORING LOCATION PLAN

(Not to Scale)



BORING LOG

BORING NO. **B – 1**
LOCATION**: 5600 S. Wolf Road, Western Springs, IL** DATE: April 27, 2024

WATER LEVEL (ft)	MATERIAL DESCRIPTION	STRATA DEPTH (ft)	SAMPLE DEPTH (ft)	SAMPLE NUMBER	SAMPLE TYPE	SPT N-value	MOISTURE CONTENT (%)	Qu (TSF)	RECOVERY (IN.)	NOTE
	Topsoil & grass	0.9								
	Very stiff to hard Brown Silty Clay Sand and gravel (CL) -		2.5	1	AU		16.5	3.0	8	
None			5	2	AU		16	4.0	8	
	Medium dense moist Brownish gray fine to Medium SAND Trace gravel	6	7.5	3	AU				8	
	Medium dense moist Gray fine Sand (SP) Trace gravel	8								
	End of Boring	**10**	10	4	AU				8	

W/D: While Drilling **A/D: After Drilling,**

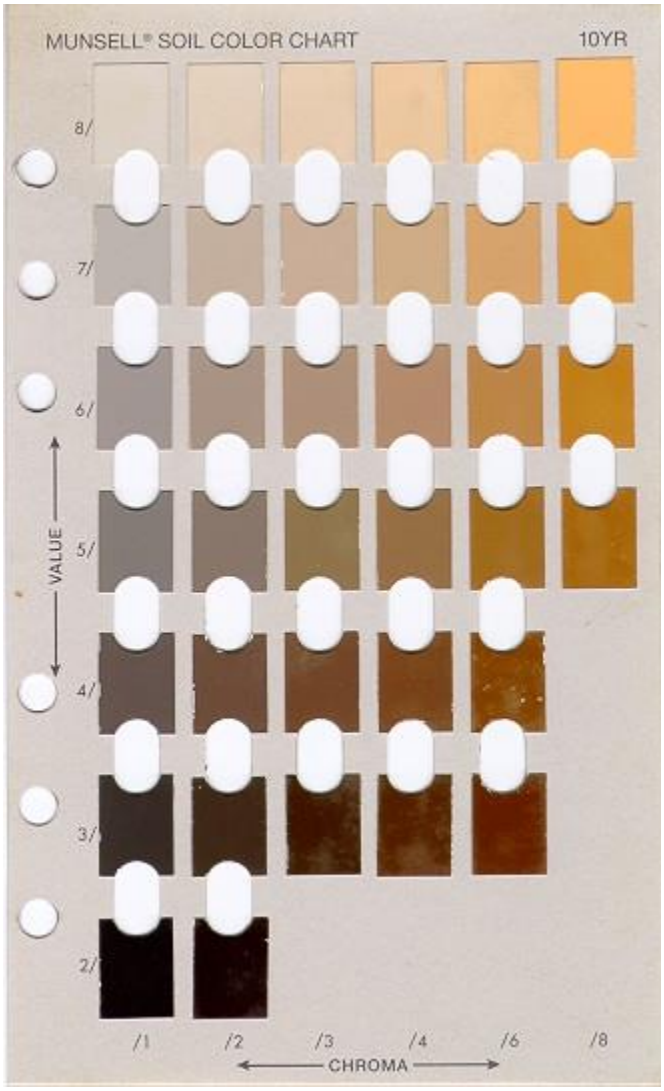
BORING LOG

BORING NO. **B – 2**
LOCATION**: 5600 S. Wolf Road, Western Springs, IL** DATE: April 27, 2024

WATER LEVEL (ft)	MATERIAL DESCRIPTION	STRATA DEPTH (ft)	SAMPLE DEPTH (ft)	SAMPLE NUMBER	SAMPLE TYPE	SPT N-value	MOISTURE CONTENT (%)	Qu (TSF)	RECOVERY (IN.)	NOTE
	Topsoil & grass	0.9								
	Hard moist Brown Silty Clay Trace fine sand And gravel (CL)		2.5	1	AU		15	4.0	8	
None			5	2	AU		15.5	4.0	8	
	Medium dense moist Brownish gray fine to Medium SAND Trace gravel	6	7.5	3	AU				8	
	Medium dense moist Gray fine Sand (SP) Trace gravel	8								
	End of Boring	**10**	10	4	AU				8	

W/D: While Drilling **A/D: After Drilling,**

MUNSELL SOIL COLOR CHART



Soil colors are expressed in terms of hue, value, and chroma, in accordance with the standardized Munsell color system (Soil Survey Staff, 1951). Hue refers to the wavelength, value expresses the degree of lightness or darkness, whereas chroma notes the purity or strength of a particular color (Munsell, 1974). This system is used to describe the matrix or dominant soil color and the blotches of less-prevalent colors commonly called mottles. Soil colors are commonly associated with the presence or absence of iron. Weathering of soil minerals is a slow process but with time causes the release of mineral constituents to the environment. Soluble weathering-products are removed from the soil profile, while more stable compounds will precipitate. Iron (Fe), released from a mineral, frequently coats soil particles with thin oxide-coatings. Well-aerated soils typically are yellowish brown-colored from these iron-oxide coatings. Depending on the intensity of the weathering cycles, the iron-oxides may display different colors.

GENERAL NOTES

In order to provide uniformity throughout our project, the following system has Been adopted to describe each soil sample. Rock Shale and other materials will be described in detail as encountered.

CONSISTENCY OF COHESIVE SOIL		RELATIVE DENSTY OF GRANULAR SOIL	
UNCONFINED COMPRESSIVE STRENGTH **QU(TSF)**	**CONSISTENCY**	**"N" VALUE (Blows/foot)**	**RELATIVE DENSITY**
<0.25	VERY SOFT	0 – 3	VERY LOOSE
0.26 – 0.49	SOFT	4 – 9	LOOSE
0.50 – 0.99	MEDIUM STIFF	10 – 29	MEDIUM DENSE
1.00 – 1.99	STIFF	30 – 49	DENSE
2.00 – 3.99	VERY STIFF	50 – 80	VERY DENSE
4.00 – 8.00	HARD	>80	EXTREMELY DENSE
> 8	VERY HARD		

- **Number of blows per foot required to drive a 2" O.D. split-spoon sampler using a140lb. Weight falling free for 30 inches, except where otherwise noted.**

COLOR AS DETERMINED ON THE FRESH, MOST SAMPLES

PREDOMINATE COLORS		SHADES	MODIFYING ADJECTIVE
Black	Yellow	Light	Vari-colored
Brown	Red	Dark	Streaked
Gray	Blue		Mottled

GRADATION DESCRIPTION AND TERMINOLOGY

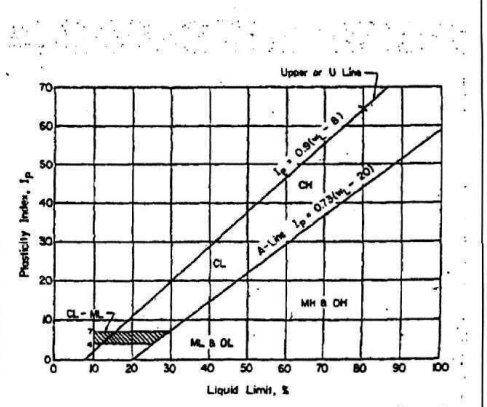
COMPONENTS	**SIZE RANGE**
BOULDER	OVER 8 INCHES
COBBLE	8 INCHES TO 30 INCHES
GRAVEL	3 INCHES TO #4 SIEVE (4.75 mm)
SAND	#4 SIEVE TO #200 SIEVE (0.075 mm)
SILT	PASSING # 200 SIEVE (0.075 mm)
CLAY	SMALLER THAN 0.005 mm.

DESCRIPTION OF COMPONENT ALSO PRESENT IN SAMPLE	**PERCENT OF DRY WEIGHT**
TRACE	1 – 9
LITTLE	10 –19
SOME	20 - 34
AND	35 - 50

GROUND WATER LEVEL

Water levels are those observed when boring were made, or as noted. Porosity of soil strata, variation of rainfall, Site topographic, ect., may cause changes on these levels.

Associated Engineering & Technology, INC.

MAJOR DIVISIONS			GROUP SYMBOL	TYPICAL NAMES	UNIFIED SOIL CLASSIFICATION SYSTEM
COARSE- GRAINED SOILS More than 50 % of coarse retained on # 4	GRAVEL 50% or more of coarse fraction Related of # 4 Sieve	LEAN GRAVEL	GW	WELL GRADED GRAVELS AND GRAVELS. SAND MIXTURES LITTLE OR NO FINE	CLASSIFICATION ON BASIS OF PERCENTAGE OF FINES GW,GP,SW, GM,GC,SM,SC borderline cases requiring use of dual symbols. Less than 5% passing sieve No.200 sieve More than 12% passing No.200 sieve 5% To 12% passing No.200 sieve
			GP	POORLY GRADED GRAVELS AND GRAVEL – SAND MIXT--URE LITTLE OR NO FINES	$CU = \frac{D60}{D10}$ GREATER THAN 4 $Cc = \frac{(D30)^2}{D10 \times D60}$ Between 1 and 3
		GRAVELS WITH FINE	GM	SILTY GRAVELS AND GRAVELS-SAND-SILT MIXTURE	NOT MEETING BOTH CRITERIA FOR GW
			GC	CLAYEY GRAVELS GRAVEL – SAND – CLAY MIXTURE	ATTERBERG LIMITS PLOT BELLOW "A" LINE OR PLASTICITY INDEX LESS THAN 4 / ATTERBERG LIMITS PLOT ABOVE"A" LINE AND PLASTICITY INDEX LESS THAN 7 — ATTERBERG LIMITS PLOTING IN HATCHED AREA ARE BORDERING CLASSIFICATION USE OF DUAL SYMBOLS
	SAND > 50 % of coarse fraction < # 4 sieve		SW	WELL GRADED SAND AND GRAVELY SAND, LITTLE OR NO FINES	$CU = \frac{D60}{D10}$ GREATER THAN 4 $Cc = \frac{(D30)^2}{D10 \times D60}$ Between 1 and 3
			SP	POORLY GRADED GRAVEL AND GRAVEL-SAND MIXTURE, LITTLE OR NO FINES	NOT MEETING BOTH CRITERIA FOR GW
			SM	SILTY – SANDS SAND SILT MIXTURE	ATTERBERG LIMITS PLOT BELLOW "A" LINE OR PLASTICITY INDEX LESS THAN 4 / ATTERBERG LIMITS PLOT ABOVE"A" LINE AND PLASTICITY INDEX LESS THAN 7 — ATTERBERG LIMITS PLOTING IN HATCHED AREA ARE BORDERING CLASSIFICATION USE OF DUAL SYMBOLS
			SC	CLAYEY SANDS SAND-CLAY MIXTURE	
FINE – GRAINED SOIL More than 50% passes on # 200 sieve	SILTS AND CLAY Liquid limit 50% or less		ML	INORGANIC SILTS,VERY FINE SAND,ROCKS,FLOUR SILTY OR CLAYEY FINE SANDS	
			CL	INORGANIC CLAYS, OF LOW TO HIGH PLASTICITY,GRAVELY CLAY, SANDY CLAYS, SILTY CLAYS, LEAN CLAY	
			OL	ORGANIC SILT AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	SILTS AND CLAY Liquid limit Grater than 50%		MH	INORGANIC SILTS,MICACEOUS DIATOMACEOUS FINE SAND OR SILTS, ELASTIC SILTS	
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY	
HIGHLY ORGANIC SOIL			PT	PEAT, HIGHLY ORGANIC SOIL	PLASTICITY CHART(USCG)

Associated Engineering & Technology, INC.

Existing Detention Basins
Stormwater Storage Volume Verification

Heritage Crossing - Western Springs, IL

8/20/2024

Existing Pond "A" (Siebert Engineers) & East Detention Pond (Kudrna & Associates As-builts from 2007)
Stage-StorageTables

1) Pond Storage:

STORMWATER VOLUME

Notes	Pond Elevation [feet]	Area [sf]	Depth [feet]	Volume [cubic feet]	Volume [acre feet]	Cumulative Volume [acre feet]
Bottom	649.6	0				0.0000
			0.45	10	0.000	
	650.0	65				0.0002
			1.00	383	0.009	
	651.0	849				0.0090
			1.00	1,371	0.031	
	652.0	1,970				0.0405
			1.00	2,288	0.053	
	653.0	2,622				0.0930
			1.00	3,004	0.069	
	654.0	3,402				0.1620
			0.50	1,919	0.044	
Design HWL	654.5	4,292				0.2060

2007 As-Builts (Kudrna & Associates, LTD) = 0.212 AC-FT

Heritage Crossing - Western Springs, IL

8/20/2024

Existing Pond "B" (Siebert Engineers) & North Retention Pond (Kudrna & Associates As-builts from 2007)
Stage-StorageTables

1) Pond Storage:

STORMWATER VOLUME

Notes	Pond Elevation [feet]	Area [sf]	Depth [feet]	Volume [cubic feet]	Volume [acre feet]	Cumulative Volume [acre feet]
NWL (Recent Topo Survey)	647.8	10,543				0.0000
			0.20	2,139	0.049	
	648.0	10,848				0.0491
			1.00	11,883	0.273	
	649.0	12,948				0.3219
			1.00	14,312	0.329	
	650.0	15,720				0.6504
			1.00	16,448	0.378	
	651.0	17,186				1.0280
			1.00	17,186	0.395	
	652.0	17,186				1.4226
			1.00	17,186	0.395	
	653.0	17,186				1.8171
			1.00	17,186	0.395	
	654.0	17,186				2.2116
			0.50	8,593	0.197	
Design HWL	654.5	17,186				2.4089
			0.50	8,826	0.203	
	655.0	18,123				2.6115
			1.00	18,123	0.416	
	656.0	18,123				3.0276
			0.30	5,437	0.125	
Overland Flow Out Elevation	656.3	18,123				3.1524

2007 As-Builts (Kudrna & Associates, LTD) = 2.201 AC-FT

Heritage Crossing - Western Springs, IL

8/20/2024

Existing Pond "C" (Siebert Engineers) & South Detention Pond (Kudrna & Associates As-builts from 2007)
Stage-StorageTables

1) Pond Storage:

STORMWATER VOLUME

Notes	Pond Elevation [feet]	Area [sf]	Depth [feet]	Volume [cubic feet]	Volume [acre feet]	Cumulative Volume [acre feet]
Bottom	649.4	0				0.0000
			0.60	101	0.002	
	650.0	506				0.0023
			1.00	2,244	0.052	
	651.0	4,685				0.0538
			1.00	5,880	0.135	
	652.0	7,163				0.1888
			1.00	8,277	0.190	
	653.0	9,443				0.3788
			1.00	10,449	0.240	
	654.0	11,489				0.6187
			0.50	5,962	0.137	
Design HWL	654.5	12,366				0.7556

2007 As-Builts (Kudrna & Associates, LTD) = 0.729 AC-FT

Heritage Crossing - Western Springs, IL

8/20/2024

Existing Pond "C" (Siebert Engineers) & West Channel Between Retaining Walls (Kudrna & Associates As-builts from 2007)
Stage-StorageTables

1) Pond Storage:

STORMWATER VOLUME

Notes	Pond Elevation [feet]	Area [sf]	Depth [feet]	Volume [cubic feet]	Volume [acre feet]	Cumulative Volume [acre feet]
Bottom	650.3	0				0.0000
			0.70	224	0.005	
	651.0	962				0.0052
			1.00	2,389	0.055	
	652.0	4,195				0.0600
			1.00	4,289	0.098	
	653.0	4,384				0.1585
			1.00	4,477	0.103	
	654.0	4,570				0.2612
			0.50	2,312	0.053	
Design HWL	654.5	4,679				0.3143

2007 As-Builts (Kudrna & Associates, LTD) = 0.309 AC-FT

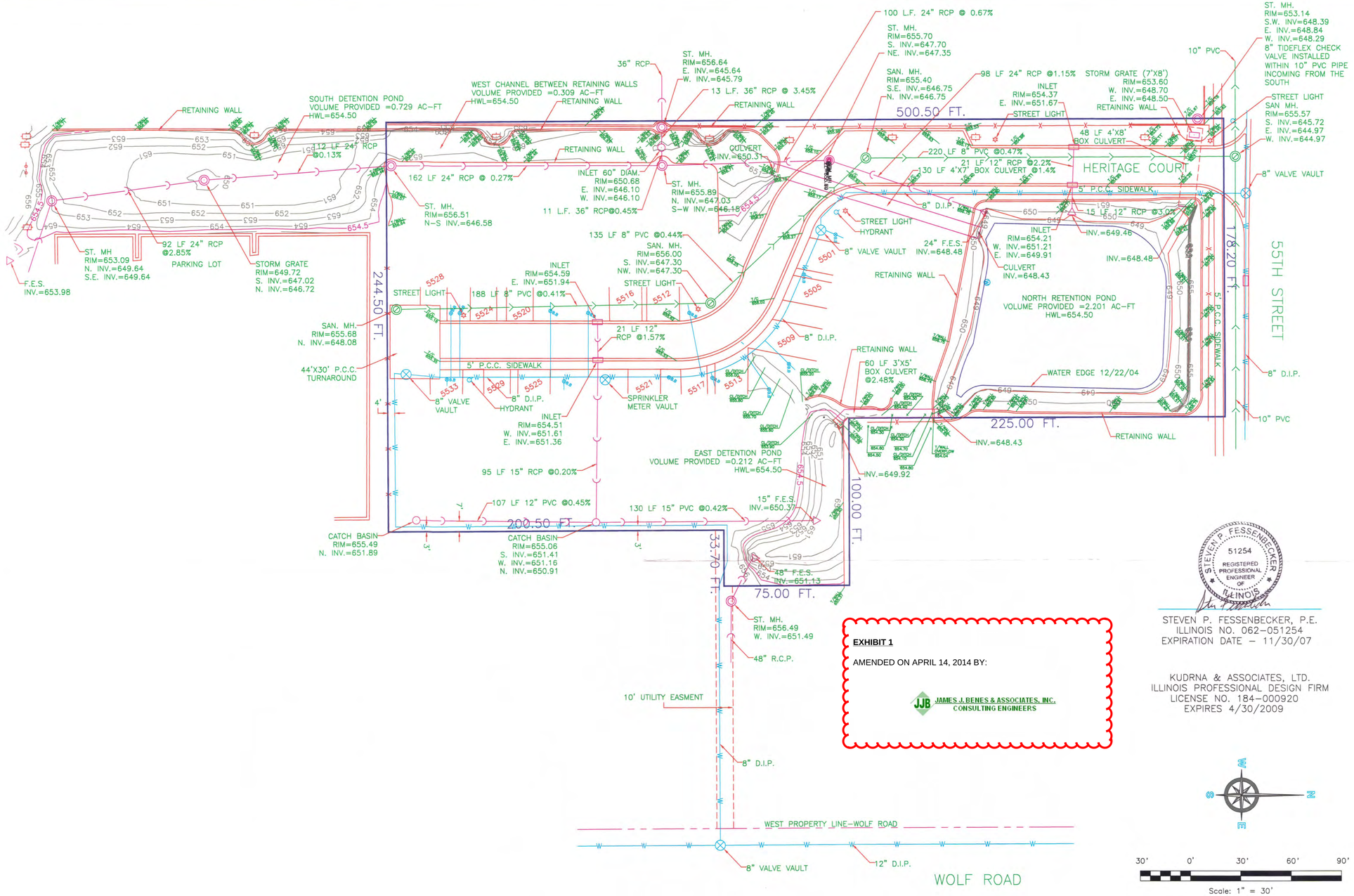


EXHIBIT 1

AMENDED ON APRIL 14, 2014 BY:

JAMES J. BENES & ASSOCIATES, INC.
CONSULTING ENGINEERS

LEGEND	ITEM	OWNERSHIP (MAINTENANCE RESPONSIBILITY)
W	8" WATER MAIN (Including Hydrants)	VILLAGE OF WESTERN SPRINGS
☼	STREET LIGHTS	HERITAGE SPRINGS HOMEOWNERS ASSOCIATION
	SANITARY SERVICES	HERITAGE SPRINGS HOMEOWNERS ASSOCIATION
	WATER SERVICES	HERITAGE SPRINGS HOMEOWNERS ASSOCIATION
	STORM SEWER	HERITAGE SPRINGS HOMEOWNERS ASSOCIATION
	DETENTION PONDS	HERITAGE SPRINGS HOMEOWNERS ASSOCIATION
	RETENTION POND	HERITAGE SPRINGS HOMEOWNERS ASSOCIATION
	8" SANITARY SEWER	LAGRANGE HIGHLANDS SANITARY DISTRICT

VILLAGE OF WESTERN SPRINGS

STEVEN P. FESSENBECKER
51254
REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

STEVEN P. FESSENBECKER, P.E.
ILLINOIS NO. 062-051254
EXPIRATION DATE - 11/30/07

KUDRNA & ASSOCIATES, LTD.
ILLINOIS PROFESSIONAL DESIGN FIRM
LICENSE NO. 184-000920
EXPIRES 4/30/2009

30' 0' 30' 60' 90'
Scale: 1" = 30'

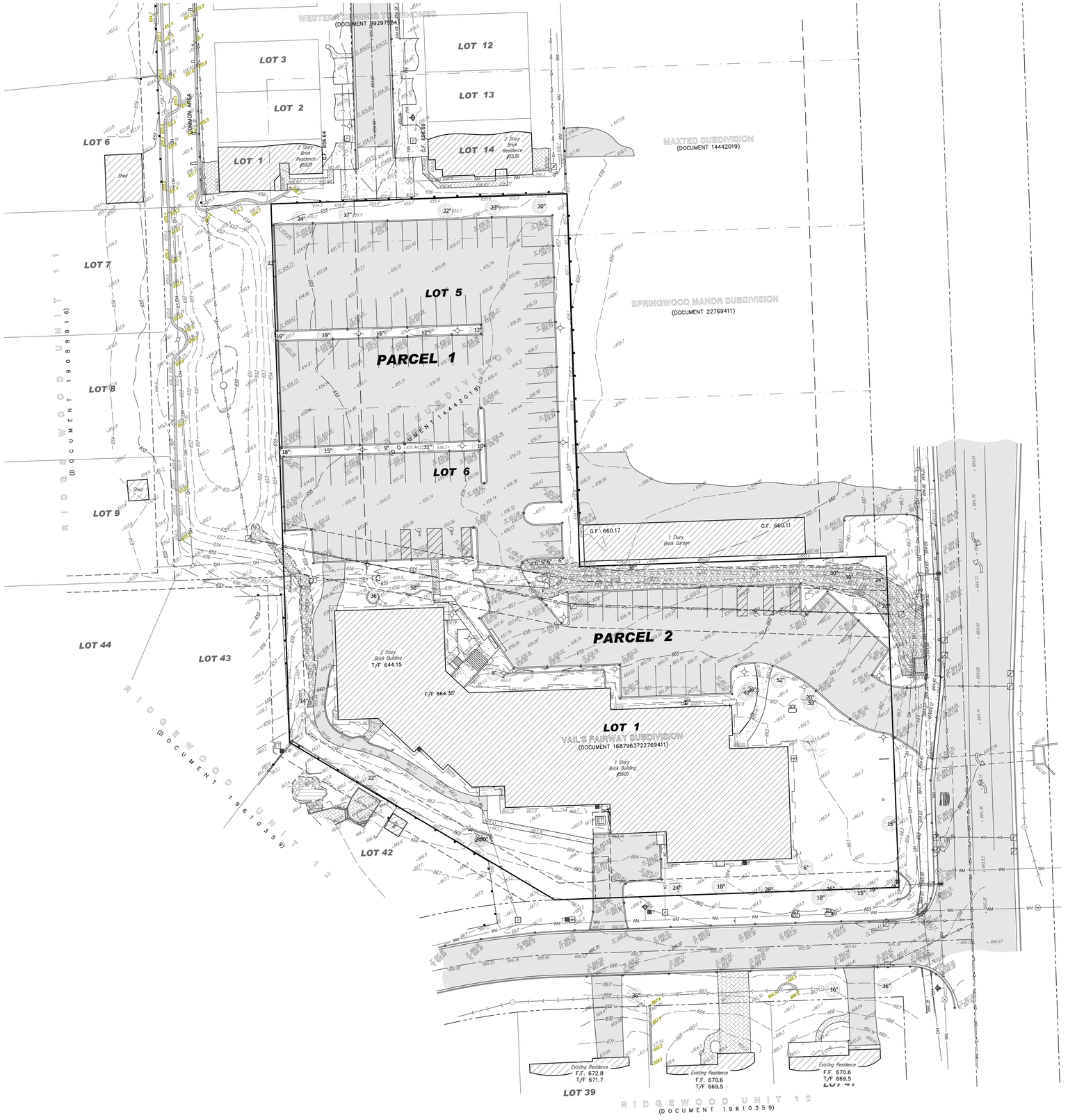
UTILITY AND GRADING AS-BUILT PLAN
HERITAGE SPRINGS TOWNHOMES
WESTERN SPRINGS, ILLINOIS

REVISIONS

KUDRNA & ASSOCIATES, LTD.
CIVIL ENGINEERING
PLANNING • DESIGN • LAND SURVEY • CONSTRUCTION MANAGEMENT
203 NORTH CASS AVENUE • WESTMONT, ILLINOIS • 60559 • (630) 969-3060
400 SOUTH GREEN STREET • SUITE 304 • CHICAGO, ILLINOIS • 60607 • (312) 738-1522

Checked By: GDL
Drawn By: AJP/FJS
Date: SEPTEMBER 29, 2007
Scale: 1"=30'
Job Number: 5294
Title: HERITAGE SPRINGS TOWNHOMES
Sheet: 1 of 1

P:\5294 00 - Community 55th and Wolf\dwg\5294-rev.dwg, 9/27/2007 2:53:11 PM



LEGEND

- ANCHOR
- B-BOX
- BENCHMARK
- GROUND FLOOD LIGHT
- POWER POLE
- SIGN
- SPRINKLER CONTROL VALVE
- HANDHOLD
- TRANSFORMER PAD
- CATCH BASIN
- STORM INLET
- FLARED END SECTION
- CLOSED LID MANHOLE
- WATER VALVE
- HYDRANT
- C CABLE TV PEDESTAL
- E ELECTRIC PEDESTAL
- T TELEPHONE PEDESTAL
- TEL., ELEC., CABLE PEDESTALS
- E ELECTRIC METER
- G GAS METER
- FIP FOUND IRON PIPE
- 10" DECIDUOUS TREE W/ TRUNK SIZE
- LIGHT POLE W/MAST ARM
- PARKING LOT LIGHT (1)

HATCHING

- ASPHALT SURFACE
- ADA DETECTABLE WARNING
- BRICK SURFACE
- BUILDING LIMITS
- CONCRETE SURFACE
- RIP-RAP
- WATER

LINE TYPES

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY LINE
- ADJACENT LOT LINE
- CENTERLINE
- EASEMENT LINE
- BUILDING SETBACK LINE
- WOOD FENCE
- GUARDRAIL
- OH OVERHEAD WIRES
- WM WATER MAIN
- SANITARY SEWER
- SS SANITARY SERVICE
- STORM SEWER
- EDGE OF WATER
- BARRIER CURB
- DEPRESSED CURB
- CURB & GUTTER
- DEPRESSED CURB & GUTTER
- RETAINING WALL
- ### CONTOUR LINE

ABBREVIATIONS

###	EXIST. SPOT ELEVATION
CMP	CORRUGATED METAL PIPE
D.E.	DRAINAGE EASEMENT
DIP	DUCTILE IRON PIPE
F.F.	FINISHED FLOOR
INV	INVERT
MH	MANHOLE
P.U.E.	PUBLIC UTILITY EASEMENT
RCP	REINFORCED CONCRETE PIPE
T/F	TOP OF FOUNDATION
U.E.	UTILITY EASEMENT
VCP	VITRIFIED CLAY PIPE
N	NORTH
S	SOUTH
E	EAST
W	WEST
(###.##')	RECORD/DEED
###.##	MEASURED

REVISIONS			
NO.	DATE	DESCRIPTION	BY

McNAUGHTON DEVELOPMENT

TOPOGRAPHIC MAP FOR 5600 SOUTH WOLF ROAD WESTERN SPRINGS, ILLINOIS

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326-4961
FAX: (708) 3264692
IL PROF. LIC. NO.: 184-003740

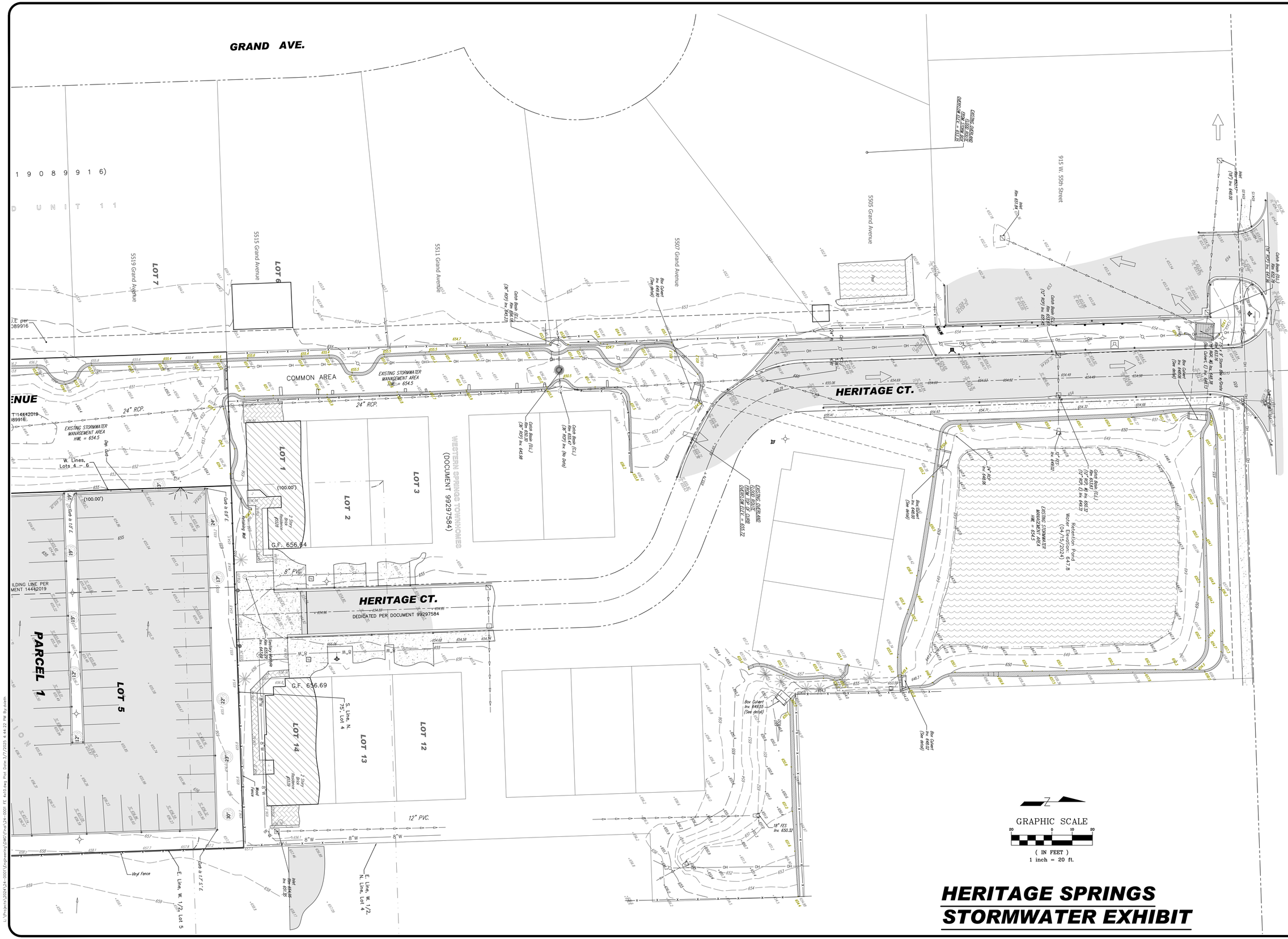
DEI

PROJECT INFORMATION
Project No.: 24-0001
Scale: 1" = 30'
Date: 04/02/2024
Field Date: BY OTHERS
Drawn By: SJL
Checked By: SDS

2 OF 2

EXISTING CONDITIONS - GRADING

L:\Projects\2024\24-0001\Survey\dwg\Topography\24-0001 Topo.dwg Plot Date:4/26/2024 8:47:08 AM By: SJL


GRAND AVE.
55TH STREET
HERITAGE CT.
HERITAGE CT.
DEDICATED PER DOCUMENT 99297584
COMMON AREA
EXISTING STORMWATER MANAGEMENT AREA HWE = 654.5
EXISTING STORMWATER MANAGEMENT AREA HWE = 654.5
24" RCP.
24" RCP.
12" PVC.
8" PVC
5515 Grand Avenue
5511 Grand Avenue
5507 Grand Avenue
5505 Grand Avenue
915 W. 55th Street
5519 Grand Avenue
LOT 7
LOT 6
LOT 1
LOT 2
LOT 3
LOT 5
LOT 14
LOT 13
LOT 12
PARCEL 1
WESTERN SPRINGS TOWNHOMES
(DOCUMENT 99297584)
(100.00')
G.F. 656.94
G.F. 656.69
2 Story Residence #5518
2 Story Brick Residence #5539
Retaining Wall
Shed
Vinyl Fence
Wood Fence
Gate a 0.9' E.
Gate a 10' E.
Gate a 17.5' E.
S. Line, N. 72' Lot 4
E. Line, W. 1/2, Lot 5
E. Line, W. 1/2, N. Line, Lot 4
W. Lines, Lots 4 – 6
Retention Pond Water Elevation: 647.8 (04/15/2024)
EXISTING OVERLAND FLOW TOP OF CURB ELEVATION = 655.12
Box Culvert Inv. 646.55 (See detail)
Box Culvert Inv. 646.55 (See detail)
Box Culvert Inv. 646.55 (See detail)
Box Culvert Inv. 646.55 (See detail)
Box Culvert Inv. 646.55 (See detail)
Box Culvert Inv. 646.55 (See detail)
Catch Basin (TC) Rim 653.83 (12" RCP) Inv. 649.37
Catch Basin (TC) Rim 653.29 (12" RCP) Inv. 649.29

Heritage Crossing
On-Site Reservoir & Peak Flow Rate Summary Analysis

Storage West Side Wolf Road

STORM EVENT	Existing Condition HWL	Proposed Condition HWL	Proposed Differential FEET
2YR - 1HR	658.87	654.16	-4.71
2YR - 2HR	658.88	654.19	-4.69
2YR - 3HR	658.85	654.12	-4.73
2YR - 6HR	658.73	653.87	-4.86
2YR - 12HR	658.58	653.60	-4.98
2YR - 24HR	658.41	653.33	-5.08
2YR - 48HR	657.56	653.14	-4.42
10YR - 1HR	659.46	655.46	-4.00
10YR - 2HR	659.46	655.46	-4.00
10YR - 3HR	659.39	655.31	-4.08
10YR - 6HR	659.18	654.83	-4.35
10YR - 12HR	658.93	654.29	-4.64
10YR - 24HR	658.69	653.80	-4.89
10YR - 48HR	658.52	653.49	-5.03
100YR - 1HR	660.35	657.42	-2.93
100YR - 2HR	660.32	657.34	-2.98
100YR - 3HR	660.17	656.92	-3.25
100YR - 6HR	659.84	656.36	-3.48
100YR - 12HR	659.42	655.37	-4.05
100YR - 24HR	659.11	654.69	-4.42
100YR - 48HR	658.86	654.14	-4.72

Basin "C"

STORM EVENT	Existing Condition HWL	Proposed Condition HWL	Proposed Differential FEET	Existing Discharge C.F.S.	Proposed Discharge C.F.S.
2YR - 1HR	650.75	650.63	-0.12	59.54	75.17
2YR - 2HR	650.80	650.72	-0.08	60.13	77.10
2YR - 3HR	650.69	650.62	-0.07	59.05	73.02
2YR - 6HR	650.28	650.23	-0.05	54.59	59..11
2YR - 12HR	649.51	649.49	-0.02	45.02	44.95
2YR - 24HR	648.76	648.75	-0.01	32.26	32.22
2YR - 48HR	648.31	648.31	0.00	23.95	23.93
10YR - 1HR	652.54	652.51	-0.03	75.73	162.74
10YR - 2HR	652.56	652.52	-0.04	75.96	162.98
10YR - 3HR	652.36	652.34	-0.02	74.48	151.73
10YR - 6HR	651.73	651.72	-0.01	69.14	118.16
10YR - 12HR	650.95	650.94	-0.01	61.89	83.03
10YR - 24HR	650.13	650.13	0.00	52.97	55.13
10YR - 48HR	649.15	649.14	-0.01	39.37	39.35
100YR - 1HR	655.24	655.16	-0.08	95.49	332.2
100YR - 2HR	655.21	655.11	-0.10	95.38	326.2
100YR - 3HR	654.70	654.51	-0.19	92.00	237.08
100YR - 6HR	653.73	653.79	0.06	85.65	237.08
100YR - 12HR	652.47	652.47	0.00	75.75	75.72
100YR - 24HR	651.52	651.52	0.00	67.42	67.38
100YR - 48HR	650.71	650.71	0.00	59.43	59.42

Basin "A" & "B"

STORM EVENT	Existing Condition HWL	Proposed Condition HWL	Proposed Differential FEET
2YR - 1HR	649.52	649.10	-0.42
2YR - 2HR	660.23	649.87	-10.36
2YR - 3HR	649.94	649.49	-0.45
2YR - 6HR	648.55	648.34	-0.21
2YR - 12HR	647.80	647.80	0.00
2YR - 24HR	647.80	647.80	0.00
2YR - 48HR	647.80	647.80	0.00
10YR - 1HR	653.43	653.40	-0.03

10YR - 2HR	653.42	653.41	-0.01
10YR - 3HR	653.40	653.39	-0.01
10YR - 6HR	653.33	653.32	-0.01
10YR - 12HR	653.29	653.29	0.00
10YR - 24HR	648.96	648.90	-0.06
10YR - 48HR	647.80	647.80	0.00
100YR - 1HR	654.22	654.19	-0.03
100YR - 2HR	654.21	654.18	-0.03
100YR - 3HR	654.08	654.01	-0.07
100YR - 6HR	653.72	653.74	0.02
100YR - 12HR	653.41	653.41	0.00
100YR - 24HR	653.31	653.31	0.00
100YR - 48HR	653.28	653.28	0.00

2.41 Acre Developmental Site (Peak Flow Rates)

STORM EVENT	Existing Condition CFS	Proposed Condition CFS	Proposed Reduction %
2YR - 1HR	3.91	2.97	-24.04%
2YR - 2HR	3.15	2.53	-19.68%
2YR - 3HR	2.53	2.10	-17.00%
2YR - 6HR	1.63	1.41	-13.50%
2YR - 12HR	1.05	0.93	-11.43%
2YR - 24HR	0.65	0.60	-7.69%
2YR - 48HR	0.45	0.43	-4.44%
10YR - 1HR	7.75	6.45	-16.77%
10YR - 2HR	5.91	5.14	-13.03%
10YR - 3HR	4.59	4.08	-11.11%
10YR - 6HR	3.01	2.62	-12.96%
10YR - 12HR	1.78	1.66	-6.74%
10YR - 24HR	1.05	1.02	-2.86%
10YR - 48HR	0.72	0.70	-2.78%
100YR - 1HR	15.64	13.96	-10.74%
100YR - 2HR	11.43	10.41	-8.92%
100YR - 3HR	9.07	8.21	-9.48%
100YR - 6HR	5.72	5.31	-7.17%
100YR - 12HR	3.14	3.04	-3.18%
100YR - 24HR	1.81	1.78	-1.66%
100YR - 48HR	1.21	1.19	-1.65%

Heritage Crossing
Off-Site Reservoir & Peak Flow Rate Summary Analysis

Storage East Side of Wolf Road

STORM EVENT	Existing Condition HWL	Proposed Condition HWL	Proposed Differential FEET
2YR - 1HR	660.53	660.49	-0.04
2YR - 2HR	660.57	660.53	-0.04
2YR - 3HR	660.48	660.44	-0.04
2YR - 6HR	660.12	660.08	-0.04
2YR - 12HR	659.73	659.70	-0.03
2YR - 24HR	659.35	659.32	-0.03
2YR - 48HR	659.08	659.05	-0.03
10YR - 1HR	662.37	662.31	-0.06
10YR - 2HR	662.37	662.31	-0.06
10YR - 3HR	662.15	662.10	-0.05
10YR - 6HR	661.48	661.43	-0.05
10YR - 12HR	660.71	660.66	-0.05
10YR - 24HR	660.02	659.98	-0.04
10YR - 48HR	659.57	659.54	-0.03
100YR - 1HR	664.98	664.96	-0.02
100YR - 2HR	664.96	664.94	-0.02
100YR - 3HR	664.86	664.79	-0.07
100YR - 6HR	663.84	663.58	-0.26
100YR - 12HR	662.24	662.18	-0.06
100YR - 24HR	661.28	661.23	-0.05
100YR - 48HR	660.49	660.45	-0.04

Off-Site Tributary Area East of Wolf Road (LaGrange Highlands)

STORM EVENT	Existing Condition CFS	Proposed Condition CFS	Proposed Differential CFS
2YR - 1HR	74.30	74.30	0.00
2YR - 2HR	75.98	75.98	0.00
2YR - 3HR	72.01	72.01	0.00
2YR - 6HR	58.07	58.07	0.00
2YR - 12HR	44.10	44.10	0.00
2YR - 24HR	31.65	31.65	0.00
2YR - 48HR	23.52	23.52	0.00
10YR - 1HR	163.13	163.13	0.00
10YR - 2HR	162.60	162.60	0.00
10YR - 3HR	150.72	150.72	0.00
10YR - 6HR	116.39	116.39	0.00
10YR - 12HR	81.52	81.52	0.00
10YR - 24HR	54.17	54.17	0.00
10YR - 48HR	38.67	38.67	0.00
100YR - 1HR	359.61	359.61	0.00
100YR - 2HR	349.64	349.64	0.00
100YR - 3HR	317.93	317.93	0.00
100YR - 6HR	257.01	257.01	0.00
100YR - 12HR	154.46	154.46	0.00
100YR - 24HR	106.91	106.91	0.00
100YR - 48HR	72.59	72.59	0.00

Off-Site Upstream Tributary Area Analysis Documentation

L:\Projects\2024\24-0001\Engineering\Storm Water\24-0001 Off-Site Upstream Tributary Area.dwg Plot Date:11/6/2024 1:27:17 PM By:sdudak

LAGRANGE HIGHLANDS OFF-SITE
TOTAL TRIBUTARY AREA
129.40 AC (0.20219 SQ/MI)

SUBJECT SITE

D

C

B

A

BASIN 1

BASIN 2

BASIN 3

ASHBROOK SUBDIVISION
TOTAL TRIBUTARY AREA
42.90 AC (0.06703 SQ/MI)
MWRD PERMIT 95-0525

TIME OF CONCENTRATION (Tc)
FLOW PATH (TYPICAL)

PLAINFIELD ROAD

WOLF ROAD

LEGEND

CHANNEL FLOW

SHALLOW CONCENTRATED FLOW

SHEET FLOW

N

GRAPHIC SCALE
200 0 100 200
(IN FEET)
1 inch = 200 ft.

EX1
OF
EX1

PROJECT INFORMATION
Project No.: 24-0001
Scale: 1" = 200'
Date: 04-11-24
Design By: SSD
Drawn By: AJS
Checked By: SSD

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326 - 4961
FAX: (708) 326 - 4962
DEI
IL PROF. LIC. NO.: 184 - 003740

TRIBUTARY AREA EXHIBIT
FOR
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

McNAUGHTON DEVELOPMENT
11S220 S. JACKSON STREET
BURR RIDGE, ILLINOIS
(630) 325-3400

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	07-12-24	PER VILLAGE REVIEW	SSD

UPSTREAM TRIBUTARY AREA EXHIBIT

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project: Heritage Crossing By: AJS Date: 10/31/2024

Location: Western Springs Chkd: SDS Date: 10/31/2024

Conditions (i.e. Present / Developed) Existing conditions - LaGrange Highlands Off-Site 129.4 Acre

NOTES: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet Flow: (Applicable to T_c only)		Segment ID	AB				
1 Surface Description (Table 3-1)			grass				
2 Manning's Roughness Coeff., '**n**' (Table 3-1)			0.24				
3 Flow Length, **L** (Total < 300 ft)		ft	100				
4 Two-year, 24-hour Rainfall, P_2		in	3.34	3.34			
5 Land slope, **S**		ft / ft	0.0200	0.0100			
6 $T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}S^{0.4}}$	Compute T_t	hr	0.23	+ 0.00	=	0.23	

Shallow Concentrated Flow:		Segment ID	BC				
7 Surface Description (paved or unpaved)			unpaved				
8 Flow Length, **L**		ft	2028				
9 Watercourse slope, **S**		ft / ft	0.0180				
10 Average Velocity, **V** (Figure 3-1)		ft / s	2.2				
11 $T_t =$ **L** / 3600**V**	Compute T_t	hr	0.26	+	=	0.26	

Channel Flow:		Segment ID	CD				
12 Cross Sectional Flow Area, **a**		ft^2					
13 Wetted Perimeter, p_w		ft					
14 Hydraulic Radius, **R** = **a**/p_w		ft					
15 Channel Slope, **S**		ft / ft					
16 Manning's Roughness Coeff., '**n**'							
17 **V** = [1.49$R^{2/3}S^{1/2}$]/**n**		ft / s	3	3			
18 Flow Length, **L**		ft	3436	0			
19 $T_t =$ **L** / 3600**V**	Compute T_t	hr	0.32	+ 0.00	=	0.32	
20 Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19)						hr	**0.81**

L:\Projects\2024\24-0001\Engineering\Storm Water\Reports - Preliminary\Initial Submittal\Tributary Area Calcs\[24-0001 Tc Calc.xls]Trib. to Site 129

Curve Number

Project: Heritage Crossing By: AJS Date: 10/31/2024

Location: Western Springs Chkd: SDS Date: 10/31/2024

Conditions (i.e. Present / Developed): Existing conditions - Tributary

Curve Number

Soil Name and Hydrologic Group (Appendix A)	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN			Area ☑ acres ☐ mi² ☐ %	Product of CN x Area
C	School / Church	94			23.1100	2172.34
C	Residential (town houses)	90			30.1400	2712.60
C	Residential 1/4 acre lots	83			31.5300	2616.99
C	Residential 1/2 acre lots	80			44.6200	3569.60
				Totals =	129.4000	11071.53

* Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{11071.53}{129.4000} = 85.56$; use CN = **85.56**



ASHBROOK SUBDIVISION

1" = 50'
10/31/95

STORM WATER MANAGEMENT PLAN

LEGEND

BASIN BOUNDARY

STORM STRUCTURE
DRAINAGE AREA LIMIT

INFRACON, INC.
CIVIL ENGINEERS • SITE PLANNERS • MUNICIPAL CONSULTANTS
495 CENTRAL AVE. NORTHFIELD, IL 60093 PH. (708) 446-1000 FAX (708) 446-1002

NOTE:
REFER TO SEPARATE MODEL AND SALES CENTER EXHIBIT BY DONVEN HOMES FOR MORE INFORMATION REGARDING MODEL PHASE SITE PLAN.

NOTE:
REFER TO SEPARATE PLANS FOR PROPOSED WOLF ROAD IMPROVEMENTS

EXISTING GRAVEL PARKING LOT TO BE REMOVED. GRAVEL TO BE REUSED ON-SITE AT TEMPORARY CONSTRUCTION ENTRANCE.

PROPOSED 5' WIDE P.C.C. SIDEWALK

18' WIDE EMERGENCY ACCESS DRIVE (SEE PAVEMENT DETAIL ON SHEET CE-21)

EXISTING BUILDINGS TO BE DEMOLISHED. EXSISTING SEPTIC TANK AND FIELD TO BE REMOVED.

EXISTING ACACIA RESIDENTIAL DEVELOPMENT

EXISTING PLEASANT VIEW ESTATES SUBDIVISION

MODEL PHASE

HIAWATHA (OAK STREET)

EDGEBROOK LANE

ASHBROOK LANE

GLENBROOK LANE

EDGEBROOK COURTYARD

MATCH LINE

MATCH LINE

LANDSCAPE TREATMENT REQUIRED WHERE SLOPES EXCEED 3:1 (REFER TO LANDSCAPING PLANS)

POND #1
(5.1 Ac-Ft)
NWL = 694.5
HWL = 701.0

POND #2
(5.2 Ac-Ft)
NWL = 691.5
HWL = 698.0

POND #3
(4.5 Ac-Ft)
NWL = 688.5
HWL = 695.0

LANDSCAPE TREATMENT REQUIRED WHERE SLOPES EXCEED 3:1 (REFER TO LANDSCAPING PLANS)

SEE SHEET CE-4 FOR CONTINUATION

SECTION A-A

15' MIN.
4:1 MAX. SLOPE (TYP.)
ELEV. = 701.00 (H.W.L.)

SECTION B-B

26' MIN.
4:1 MAX. SLOPE (TYP.)
ELEV. = 698.00 (H.W.L.)

SECTION C-C

TOP OF BERM ELEV. = 696.2 (TYP.)
5' WIDE BERM AT TOP
3:1 MAXIMUM SLOPE (TYP.)
10'
POND #3 NWL
BERM TO BE CONSTRUCTED OF COMPACTED CLAY W/ 6" TOPSOIL
MATCH EXISTING GRADE

GRADING PLAN (WEST)

REVISIONS

DATE	DESCRIPTION
2/21/95	PER VILLAGE, SAN. DIST., FIRE DEPT., & DEVELOPER

INFRACON, INC.
CIVIL ENGINEERS • SITE PLANNERS • MUNICIPAL CONSULTANTS
495 CENTRAL AVENUE NORTHFIELD, ILLINOIS 60093 PH. (708) 446-1000 FAX (708) 446-1002

DESIGN: T.M.L. | DRAFTING: M.J.
SCALE: 1" = 50' | DATE: 10/31/95

ASHBROOK SUBDIVISION
INDIAN HEAD PARK, ILLINOIS

PROJECT No. 95233

CE-3

SEE SHEET CE-3 FOR CONTINUATION

MATCH LINE

EXISTING ACACIA RESIDENTIAL DEVELOPMENT

EDGEBROOK LANE

EDGEBROOK COURT

ASHBROOK LANE

GLENBROOK LANE

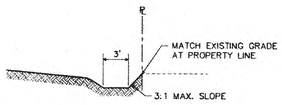
GLENBROOK COURT

POND #3
LANDSCAPE TREATMENT REQUIRED WHERE SLOPES EXCEED 3:1 (REFER TO LANDSCAPING PLANS)
(4.5 Ac-Ft)
NWL = 688.5
HWL = 695.0

TOP OF BERM ELEV. = 696.2 (TYP.)

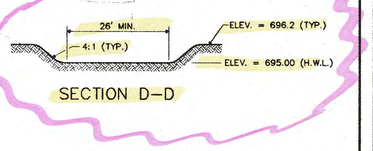
EXISTING PLEASANT VIEW ESTATES SUBDIVISION

EXISTING ACACIA ACRES SUBDIVISION



SECTION E-E

TYPICAL SWALE SECTION
ALONG EAST PROPERTY LINE



SECTION D-D

NOTE:
DOWNSPOUTS FOR HOMES ON LOTS 66 & 67 ARE TO BE CONNECTED TO STORM SEWER.

GRADING PLAN (EAST)

REVISIONS

DATE	DESCRIPTION
12/21/95	PER VILLAGE, SAN. DIST., FIRE DEPT., & DEVELOPER

INFRACON, INC.
CIVIL ENGINEERS • SITE PLANNERS • MUNICIPAL CONSULTANTS
495 CENTRAL AVENUE NORTHFIELD, ILLINOIS 60093 PH. (708) 446-1000 FAX (708) 446-1002

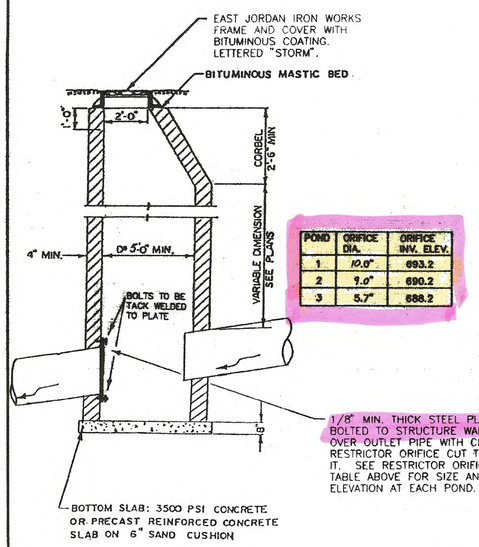
GRADING PLAN (EAST)

DESIGN: T.M.L. | DRAFTING: M.J.
SCALE: 1" = 50' | DATE: 10/31/95

ASHBROOK SUBDIVISION
INDIAN HEAD PARK, ILLINOIS

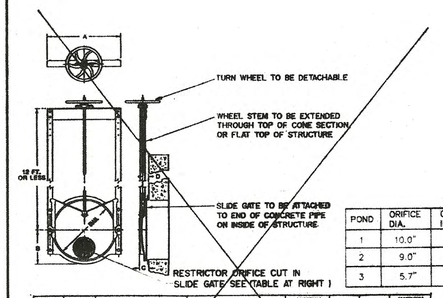
PROJECT No. 95233

CE - 4



POND	ORIFICE DIA.	ORIFICE INV. ELEV.
1	10.0"	693.2
2	9.0"	690.2
3	5.7"	688.2

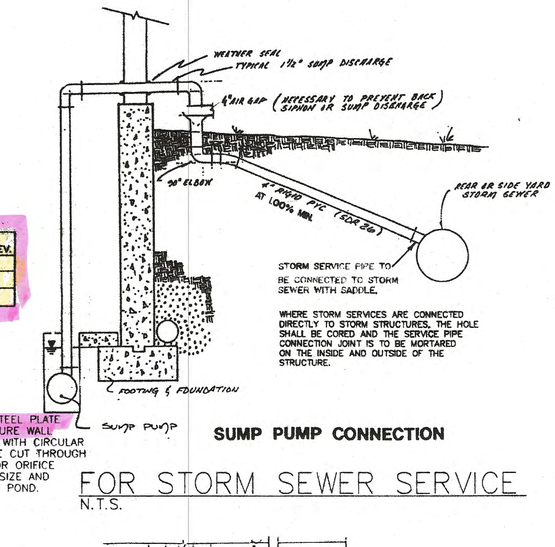
CATCH BASIN W/RESTRICTOR
N.T.S.



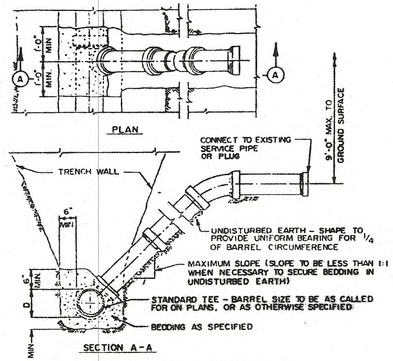
POND	ORIFICE DIA.	ORIFICE INV. ELEV.
1	10.0"	693.2
2	9.0"	690.2
3	5.7"	688.2

GATE SIZE (mm)	A	SPIGOT BACK GATE B	C	D	FLAT BACK GATE B	C	D	MINIMUM FRAME WEIGHT (KT)	STEM DIA.	TYPE LIFT	MAXIMUM WORKING HEAD (FT)
6	9.37	4.37	4.12	2.50	4.37	4.12	2.50	2	⅜	H1-10	20
8	11.37	5.12	3.37	1.75	5.37	4.12	2.50	2	⅜	H1-10	20
10	13.37	6.12	3.37	1.75	6.37	4.12	2.50	2	⅜	H1-10	20
12	15.37	7.12	3.37	1.75	7.37	4.12	2.50	3	⅜	H1-10	20
15	18.37	8.62	3.37	1.75	8.87	4.12	2.50	3	⅜	H1-10	20
18	22.87	10.50	3.37	2.25	10.75	5.12	3.12	3	1¼	H1-14	20
21	25.87	12.00	4.85	2.25	12.25	5.12	3.12	4	1¼	H1-14	16
24	28.87	13.50	4.85	2.25	13.75	5.12	3.12	4	1¼	H1-14	12
30	35.87	17.37	5.12	3.00	17.12	5.87	3.75	5	1¼	H1-14	10
36	41.87	20.37	5.75	3.00	20.12	6.50	3.75	6	1½	H2-24	8
42	47.87	23.40	5.75	3.00	23.12	6.50	3.75	6	1½	H2-30	8
48	53.87	26.75	5.75	3.00	26.12	6.87	4.12	7	1½	H8-24	7
54	61.0	29.25	7.75	4.87	29.25	7.75	4.87	8	2"	H8-30	5
60	68.0	32.25	9.0	5.50	32.25	9.0	5.50	8	2"	H8-30	4

SLIDE GATE RESTRICTOR DETAIL



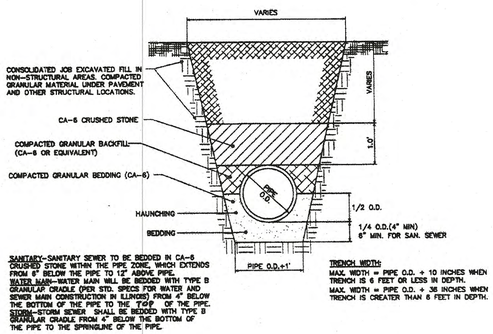
SUMP PUMP CONNECTION
FOR STORM SEWER SERVICE
N.T.S.



SANITARY SERVICE PIPE TO BE 6" MIN. DIA. SDR-26 PVC OR APPROVED EQUIVALENT.

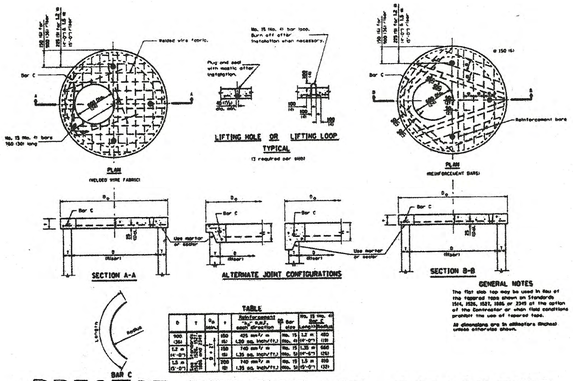
NOTES:
1. RISERS TO BE CONSTRUCTED IN LIEU OF WYES WHERE SEWER DEPTH EXCEEDS 12'-0" FOR PIPE MATERIAL AND CONCRETE. SEE SPECIFICATIONS.
2. ALL SANITARY SERVICES SHALL BE INSPECTED BY THE LA GRANGE HIGHLANDS SANITARY DISTRICT OR THE VILLAGE OF INDIAN HEAD PARK PRIOR TO THE TRENCH BEING BACKFILLED.

SANITARY SEWER SERVICE



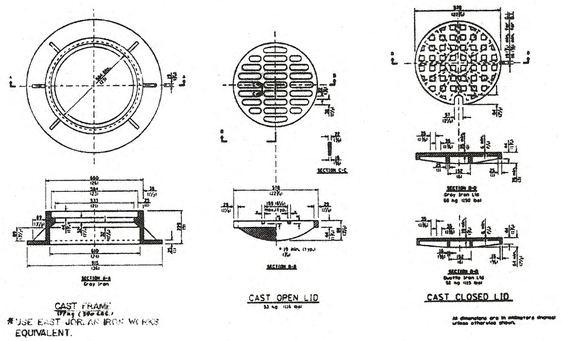
SANITARY-SANITARY SEWER TO BE BEDDED IN CA-6 CRUSHED STONE WITHIN THE PIPE ZONE, WHICH EXTENDS FROM 6" BELOW THE PIPE TO 12" ABOVE PIPE.
WATER MAIN-WATER MAIN WILL BE BEDDED WITH TYPE B GRANULAR CRADLE (PER STD. SPECS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS) FROM 4" BELOW THE BOTTOM OF THE PIPE TO THE TOP OF THE PIPE.
STORM-STORM SEWER SHALL BE BEDDED WITH TYPE B GRANULAR CRADLE FROM 4" BELOW THE BOTTOM OF THE PIPE TO THE SPRINGLINE OF THE PIPE.

PIPE BEDDING AND BACKFILL



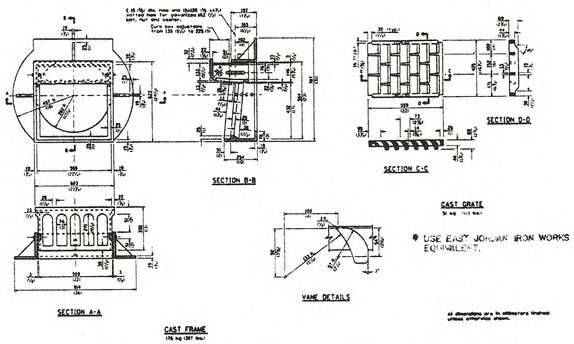
PRECAST REINFORCED CONCRETE FLAT SLAB TOP

TYPE 8 GRATE *
(FOR ALL OPEN LID STORM STRUCTURES IN GRASS AREAS)



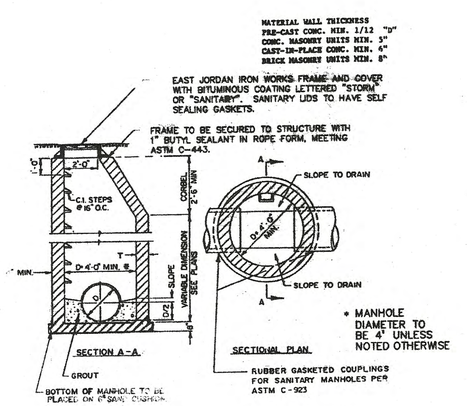
* USE EAST JORDAN IRON WORKS EQUIVALENT.

TYPE 1* FRAME AND LIDS
(FOR ALL CLOSED LID STRUCTURES OR STRUCTURES IN PAVEMENT AREAS OUTSIDE OF CURB AND GUTTER)



* USE EAST JORDAN IRON WORKS EQUIVALENT.

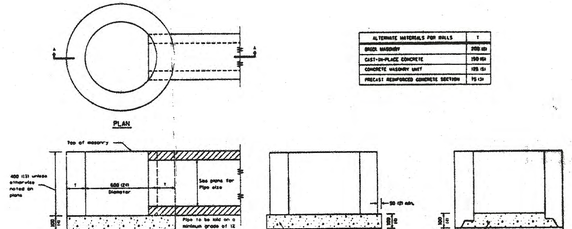
TYPE 3V* FRAME AND GRATE
(FOR ALL STORM STRUCTURES WITHIN B-6.12 CURB AND GUTTER)



* MANHOLE DIAMETER TO BE 4' UNLESS NOTED OTHERWISE

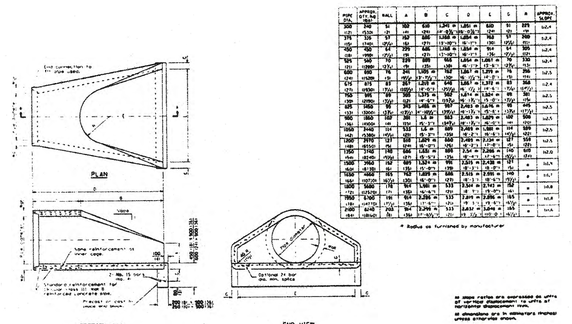
NOTE:
1. MANHOLE BARREL SECTIONS SHALL BE SEALED WITH 1" BUTYL JOINT SEALANT IN ROPE FORM, MEETING ASTM C-443.
2. SANITARY MANHOLES SHALL HAVE MONOLITHICALLY CAST BOTTOM SECTIONS.

STORM & SANITARY MANHOLE STRUCTURE



ALTERNATE MATERIALS FOR WALLS	f
BRICK MASONRY	3900 KN
CAST-IN-PLACE CONCRETE	3900 KN
CONCRETE MASONRY UNIT	1725 KN
PRECAST REINFORCED CONCRETE SECTION	7.5 KN

STORM INLET STRUCTURE



PRECAST REINFORCED CONCRETE FLARED END SECTION

REVISIONS

DATE	DESCRIPTION
12/20/95	PER VILLAGE, SAN. DIST., FIRE DEPT., AND DEVELOPER.
1/3/96	POND RESTRICTORS PER MWRD
1/26/96	PER VILLAGE, I.E.P.A., M.W.R.D. & DEVELOPER

INFRACON, INC.
CIVIL ENGINEERS • SITE PLANNERS • MUNICIPAL CONSULTANTS
495 CENTRAL AVENUE NORTHFIELD, ILLINOIS 60093 PH. (847) 446-1000 FAX (847) 446-1002

DESIGN: T.L. | DRAFTING: V.B. G.F. | DATE: 10/31/95 | SCALE: NONE

CONSTRUCTION STANDARDS

ASHBROOK SUBDIVISION
INDIAN HEAD PARK, ILLINOIS

PROJECT No. 95233

CE-23

ASHBROOK SUBDIVISION

Indian Head Park, Illinois

FINAL
STORM WATER MANAGEMENT CALCULATIONS

October 31, 1995
REVISED 1/22/96 (per MWRD) OFFICE COP

95-525

Prepared By:

INFRACON, Inc.
495 Central Avenue
Northfield, IL 60093
(708) 446 - 1000

LOCAL SEWER SYSTEMS SECTION
96 FEB -1 AM 10: 32
M.W.R.D. OF GRT. CHGO.

CONTENTS

Section

1. Storm Water Management Summary

2. HydroCAD 100-Year Storm Routing Calculations

3. Bypass Flow, Pond Overflow Weir Sizing, and Downstream Sewer Calculations

4. Proposed Storm Sewer Sizing Calculations

5. Miscellaneous Technical Reference Data

Exhibit: Storm Water Management Plan

SECTION 1

Storm Water Management Summary

Storm Water Management Summary

Existing Conditions:

The subject 37.9 acre property is located along the east side of Wolf Road between 60th and 63rd Streets in Indian Head Park, Illinois (refer to the location map included in this section). The site is lightly wooded and currently consists of a par three golf course with a small clubhouse building and gravel parking lot. It is bounded by single family homes to the west, north and east and the Acacia multi-family development along its entire southern border. Except for approximately one half acre in the southeast corner of the property, the parcel drains unrestricted in a northerly direction to a pair of 12" diameter storm sewer pipes at the north boundary which in turn discharge to an existing 24" x 18" corrugated metal pipe under 60th street. This culvert then conveys storm water to a drainage swale which flows northerly to Plainfield Road.

There are approximately 6.2 acres of tributary watershed to the west and south of the site (refer to the USGS map copies in section 3). This upstream area is comprised of three separate drainage areas. The first two are approximately 3.4 and 1.3 acres in size and drain to the property through separate 18" diameter culverts under Wolf Road. The third off-site area consists of an estimated 1.5 acres of rear yards of the adjacent Acacia development along the south boundary of the property. Record drawings for the Acacia development indicate that the majority of that site now drains to the southeast and away from the proposed Ashbrook Subdivision.

Proposed Development Conditions:

The proposed Ashbrook Subdivision will occupy 36.4 acres of the 37.9 gross acreage, with 1.5 acres being dedicated to the Wolf Road right-of-way. The development will consist of 25 multi-family buildings containing a total of 112 townhome units and 54 single family home sites. Wolf Road will be widened to provide a left turn lane into the site.

A proposed storm sewer system and drainage swales will convey storm water to three on-site storm water retention ponds which will provide the necessary detention storage in the event of a 100-year frequency storm event. The high water level on each of the three retention ponds has been designed at a minimum of 1.5 feet below the lowest adjacent proposed foundation elevation. Each pond will contain an overflow weir to accommodate the appropriate off-site 100-year bypass flow without exceeding a flow depth of 0.5 feet. The discharge from each pond will be restricted by a circular orifice cut into a metal plate permanently mounted (in accordance with MWRD regulations) over the outflow pipe inside of a downstream catch basin. The site release has been reduced beyond typical allowable rates so that only one of the two existing downstream 12" diameter storm sewer pipes will be needed to convey it. Finally, the existing 24" x 18" culvert under 60th Street, which is in poor condition, will be replaced with a brand new pipe of the same material and size.

Storm Water Management Calculations:

HydroCAD storm water modeling software, which employs the SCS TR-20 and TR-55 methods, was utilized along with Bulletin 70 rainfall intensities in determining the 100-year storm runoff hydrographs for the site and routing the resultant flows through the proposed retention ponds. Section 2 includes all data calculated for basin characteristics, times of concentration, runoff hydrographs, detention storage, and pond routing. The off-site bypass flows were calculated using the rational method and Bulletin 70 rainfall intensities and are shown in Section 3. Storm sewers on the site have been designed, utilizing the rational method and the Bulletin 70 rainfall data to convey a 10-year frequency storm flow. The calculations for these are in Section 4. Supporting technical reference data can be found in Section 5.

The primary calculated hydrologic information is as follows:

POND	TRIBUTARY BASIN AREA (Ac)	N.W.L. ELEV.	H.W.L. ELEV.	STORAGE VOLUME (Ac-Ft)	RESTRICTOR ORIFICE DIAMETER (in)	MAX.100-YR STORM RELEASE (cfs)
1	17.57	694.5	701.0	5.1	10.0	4.2
2	11.02	691.5	698.0	5.2	9.0	3.5
3	8.07	688.5	695.0	4.5	5.7	2.2

Total Development Area = 36.4 Ac

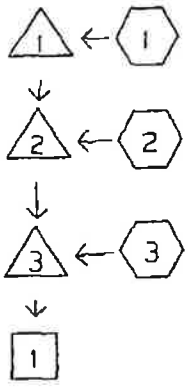
Total Proposed Detention Volume = 14.8 Ac-Ft

Proposed Site Release = 2.2 cfs (0.06 cfs/Ac)

SECTION 2

HydroCAD 100-Year Storm Routing Calculations

WATERSHED ROUTING ==========



SUBCATCHMENT REACH POND LINK

SUBCATCHMENT 1	= BASIN NO. 1	-> POND 1
SUBCATCHMENT 2	= BASIN NO. 2	-> POND 2
SUBCATCHMENT 3	= BASIN NO. 3	-> POND 3
REACH 1	= EXISTING 12" DIA. STORM PIPE	->
POND 1	= RETENTION POND NO. 1	-> POND 2
POND 1 secondary	= RETENTION POND NO. 1	-> POND 2
POND 2	= RETENTION POND NO. 2	-> POND 3
POND 2 secondary	= RETENTION POND NO. 2	-> POND 3
POND 3	= RETENTION POND NO. 3	-> REACH 1
POND 3 secondary	= RETENTION POND NO. 3	-> REACH 1

RUNOFF BY SCS TR-20 METHOD: TYPE II 24-HOUR RAINFALL= 7.4 IN, SCS U.H.

RUNOFF SPAN = 10-20 HRS, dt= .10 HRS, 101 POINTS

SUBCAT NUMBER	AREA (ACRE)	Tc (MIN)	--GROUND COVERS (%CN)--				WGT'D CN	C	PEAK (CFS)	Tpeak (HRS)	VOL (AF)
1	17.57	35.5	1%98	3%99	34%98	2%98	86	-	76.4	12.25	7.41
			9%98	52%74	-	-					
2	11.02	34.4	1%98	4%99	20%98	11%98	83	-	46.4	12.24	4.42
			64%74	-	-	-					
3	8.07	35.0	0%98	5%99	21%98	11%98	83	-	33.6	12.25	3.23
			63%74	-	-	-					

POND 3 INFLOW PEAK= 37.1 CFS @ 12.25 HOURS

HOUR	0.00	.10	.20	.30	.40	.50	.60	.70	.80	.90
10.00	1.0	1.0	1.1	1.2	1.2	1.3	1.4	1.5	1.6	1.8
11.00	2.0	2.3	2.6	3.0	3.4	4.0	4.8	6.2	8.8	13.8
12.00	21.5	30.7	36.4	36.2	31.7	25.7	20.4	16.7	14.0	12.0
13.00	10.5	9.5	8.7	8.1	7.6	7.2	6.9	6.7	6.4	6.3
14.00	6.1	6.0	5.9	5.8	5.7	5.6	5.5	5.5	5.4	5.4
15.00	5.3	5.3	5.3	5.2	5.2	5.1	5.1	5.1	5.0	5.0
16.00	4.9	4.9	4.9	4.8	4.8	4.8	4.7	4.7	4.7	4.7
17.00	4.7	4.7	4.7	4.6	4.6	4.6	4.6	4.6	4.6	4.6
18.00	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.4	4.4	4.4
19.00	4.4	4.4	4.4	4.4	4.3	4.3	4.3	4.3	4.3	4.3
20.00	4.3									

POND 3 TOTAL OUTFLOW PEAK= 2.2 CFS @ 20.00 HOURS

HOUR	0.00	.10	.20	.30	.40	.50	.60	.70	.80	.90
10.00	0.0	0.0	0.0	0.0	0.0	0.0	.1	.1	.1	.2
11.00	.2	.3	.3	.4	.5	.6	.7	.7	.8	.8
12.00	1.0	1.1	1.2	1.4	1.5	1.6	1.6	1.7	1.7	1.7
13.00	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9
14.00	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0
15.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
16.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1
17.00	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18.00	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
19.00	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2
20.00	2.2									

SECTION 3

Off-site Bypass Flow, Overflow Weir Sizing, and Downstream Sewer Calculations

INFRACON
495 Central Avenue, Suite 101
NORTHFIELD, ILLINOIS 60093
(708) 446-1000 FAX (708) 446-1002

JOB ASHBROOK SUBDIVISION
SHEET NO. 1 OF 1
CALCULATED BY TML DATE 9/30/95
CHECKED BY DATE
SCALE

SITE BYPASS FLOW

1. OFF-SITE AREA A ≈ 3.4 Ac ON WEST SIDE OF WOLF RD. (SEE ATTACHED USGS MAP'S)

ASSUME T_c = 20 MIN & C = 0.60

Q_{100} = C · I · A = 0.60 × 6.9"/HR × 3.4 ≈ 14.1 cfs

2. OFF-SITE AREA B ≈ 1.3 Ac ON WEST SIDE OF WOLF ROAD (SEE ATTACHED USGS MAPS)

ASSUME T_c = 20 min & C = 0.60

Q_{100} = 0.60 × 6.9"/HR × 1.3 ≈ 5.4 cfs

3. OFF-SITE AREA C ≈ 1.5 Ac ALONG ACACIA DEVELOPMENT TO SOUTH (BASED ON 1275' × 50' AVG BACK YARD AREA. REMAINING PORTION OF ACACIA DRAINS TO SOUTH PER SITE RECORD DRAWINGS.)

ASSUME T_c = 10 min & C = 0.50

Q_{100} = 0.50 × 10.02"/HR × 1.5 ≈ 7.5 cfs

∴ BYPASS FLOW THROUGH POND #1 = 5.4 + 7.5
= 12.9 cfs

BYPASS FLOW THROUGH POND #'S 2 & 3 = TOTAL BYPASS FLOW
= 27.0 cfs

PRODUCT 204-1 (Single Sheets) 205-1 (Packets) ACCO Inc., Gurnee, Mass. 01471. To Order PHONE TOLL FREE 1-800-225-6380

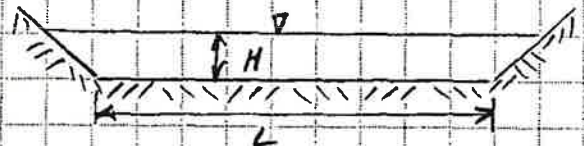
INFRACON
495 Central Avenue, Suite 101
NORTHFIELD, ILLINOIS 60093
(708) 446-1000 FAX (708) 446-1002

JOB ASHBROOK SUBDIVISION
SHEET NO. 1 OF 1
CALCULATED BY TML DATE 9/30/95
CHECKED BY _____ DATE _____
SCALE _____

POND OVERFLOW WEIRS (FOR 100-YR BYPASS FLOWS)

POND #1:

100-YR BYPASS FLOW = 12.9 CFS



LET H = 0.5' (LEAVING 1.0' FREEBOARD TO T/F'S)

$Q = 3LH^{3/2}$

$12.9 = 3L(0.5^{3/2}) \Rightarrow L = 12.2'$ MIN.

POND #'S 2 & 3:

100-YR BYPASS FLOW = 27.0 CFS

$Q = 3LH^{3/2}$

$27 = 3L(0.5)^{3/2} \Rightarrow L = 25.5'$ MIN.

PRODUCT 204-1 (Single Sheets) 205-1 (Padded) MEAD Inc., Groton, Mass. 01471 To Order PHONE TOLL FREE 1-800-225-6380

Stormwater Analysis
Existing Conditions

Curve Number

Project: Western Springs By: AJS Date: 1/26/2024

Location: NE Corner of Wolf Road and Park Place Chkd: SDS Date: 1/26/2024

Conditions (i.e. Present / Developed): Existing

Curve Number

Soil Name and Hydrologic Group (Appendix A)	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN			Area ☑ acres ☐ mi² ☐ %	Product of CN x Area
C	Lawn, good condition (grass cover > 75%)	74			0.6635	49.10
C	Pavement, parking, Curb and Gutter	98			1.6663	163.30
C	Rock Ditch	89			0.0802	7.14
				Totals =	2.4100	219.53

* Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{219.53}{2.4100} = 91.09$; use CN = **91.09**

Heritage Crossing - Western Springs, IL

3/9/2025

Existing Stormwater Storage East Side of Wolf Road
Stage-StorageTables

1) Pond Storage:

STORMWATER VOLUME

Notes	Pond Elevation [feet]	Area [sf]	Depth [feet]	Volume [cubic feet]	Volume [acre feet]	Cumulative Volume [acre feet]
Oulet	657.80	0				0.0000
			0.20	13	0.000	
	658.00	191				0.0003
			1.00	368	0.008	
	659.00	579				0.0087
			1.00	910	0.021	
	660.00	1,287				0.0296
			1.00	2,075	0.048	
	661.00	2,980				0.0773
			1.00	4,455	0.102	
	662.00	6,116				0.1795
			1.00	11,247	0.258	
	663.00	17,331				0.4377
			0.50	12,082	0.277	
	663.50	31,716				0.7151
			0.50	19,342	0.444	
	664.00	46,101				1.1591
			0.50	28,167	0.647	
	664.50	67,228				1.8058
			0.50	40,225	0.923	
	665.00	94,439				2.7292

Heritage Crossing - Western Springs, IL

8/20/2024

Existing Stormwater Storage West Side of Wolf Road
Stage-StorageTables

1) Pond Storage:

STORMWATER VOLUME

Notes	Pond Elevation [feet]	Area [sf]	Depth [feet]	Volume [cubic feet]	Volume [acre feet]	Cumulative Volume [acre feet]
Oulet	653.95	13				0.0000
			0.05	1	0.000	
	654.00	13				0.0000
			1.00	13	0.000	
	655.00	13				0.0003
			1.00	13	0.000	
	656.00	13				0.0006
			1.05	14	0.000	
	657.05	13				0.0009
			0.95	183	0.004	
	658.00	484				0.0051
			1.00	702	0.016	
	659.00	946				0.0212
			1.00	1,156	0.027	
	660.00	1,379				0.0478
			1.00	2,051	0.047	
	661.00	2,806				0.0948

Heritage Crossing - Western Springs, IL

8/20/2024

Existing Basin "C" & Adjacent Overland Flow Areas
Critical Duration Storm Event (100yr - 2hr)
Stage-StorageTables

1) Pond Storage:

STORMWATER VOLUME

Notes	Pond Elevation [feet]	Area [sf]	Depth [feet]	Volume [cubic feet]	Volume [acre feet]	Cumulative Volume [acre feet]
Bottom (36" pipe outlet)	645.98	0				0.0000
			0.49	2	0.000	
	646.47	13				0.0000
			2.90	38	0.001	
	649.37	13				0.0009
			0.63	126	0.003	
	650.00	506				0.0038
			1.00	2,614	0.060	
	651.00	5,647				0.0638
			1.00	8,338	0.191	
	652.00	11,358				0.2552
			1.00	12,572	0.289	
	653.00	13,827				0.5439
			1.00	14,929	0.343	
	654.00	16,059				0.8866
			0.50	8,275	0.190	
Design HWL	654.50	17,045				1.0765
			0.50	11,383	0.261	
	655.00	29,013				1.3379
			0.70	27,797	0.638	
Overflow at Heritage Ct.	655.70	51,472				1.9760
			0.30	16,943	0.389	
	656.00	61,632				2.3649
			0.10	6,357	0.146	
Top of Existing Wall	656.10	65,528				2.5109

Heritage Crossing - Western Springs, IL

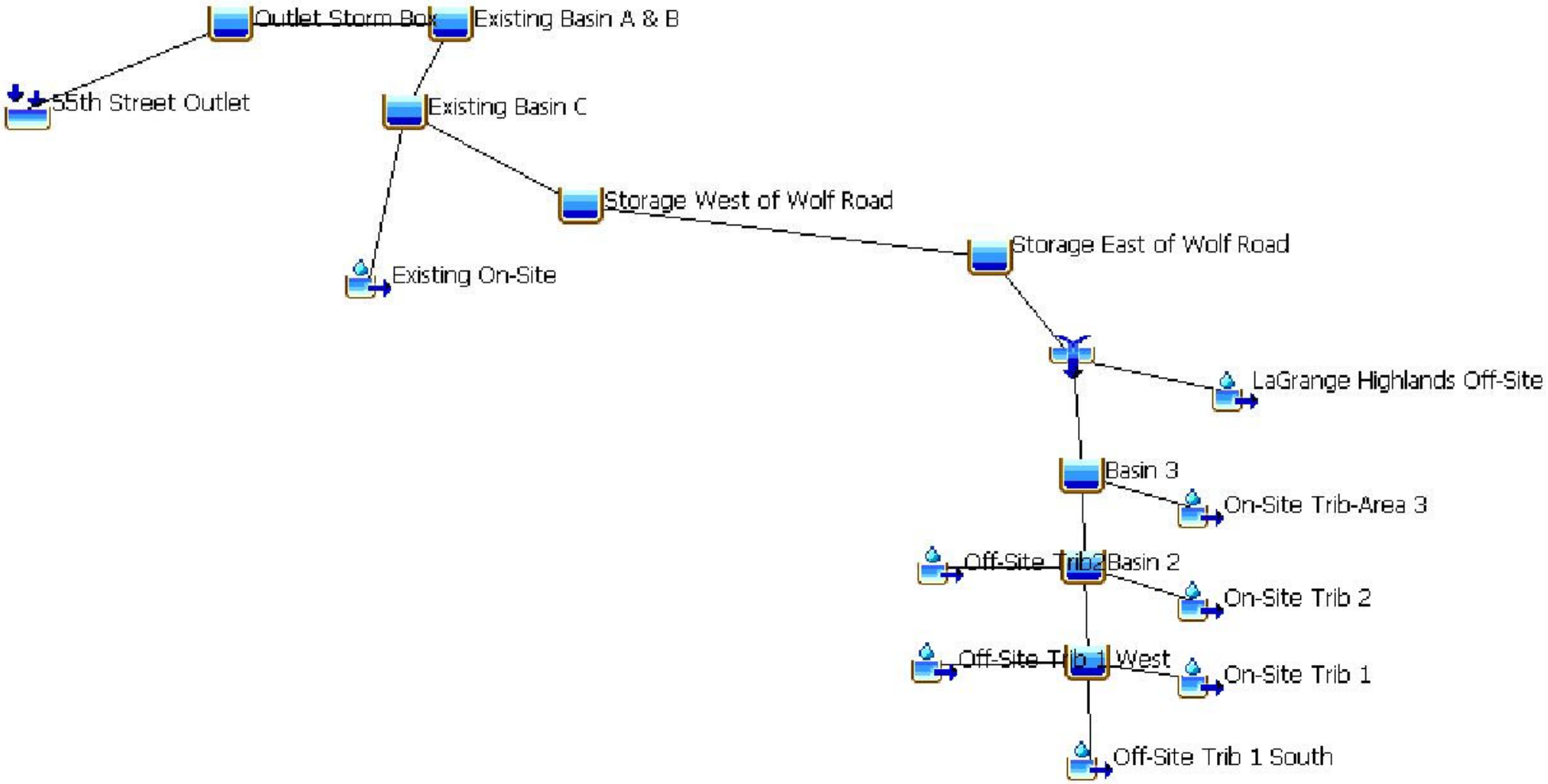
8/20/2024

Existing Basin "A" & "B" to Overland Flow Elevation
Stage-StorageTables

1) Pond Storage:

STORMWATER VOLUME

Notes	Pond Elevation [feet]	Area [sf]	Depth [feet]	Volume [cubic feet]	Volume [acre feet]	Cumulative Volume [acre feet]
NWL (Recent Topo Survey)	647.80	10,543				0.0000
			0.20	2,139	0.049	
	648.00	10,848				0.0491
			1.00	11,883	0.273	
	649.00	12,948				0.3219
			1.00	14,343	0.329	
	650.00	15,785				0.6512
			1.00	16,898	0.388	
	651.00	18,035				1.0391
			1.00	18,593	0.427	
	652.00	19,156				1.4659
			1.00	19,481	0.447	
	653.00	19,808				1.9131
			1.00	20,197	0.464	
	654.00	20,588				2.3768
			0.50	10,516	0.241	
Design HWL	654.50	21,478				2.6182
			0.50	11,816	0.271	
	655.00	25,854				2.8895
			1.00	28,871	0.663	
	656.00	31,998				3.5522
			0.31	10,009	0.230	
Overland Flow Elevation	656.31	32,574				3.7820


Outlet Storm Box
Existing Basin A & B
55th Street Outlet
Existing Basin C
Storage West of Wolf Road
Storage East of Wolf Road
Existing On-Site
LaGrange Highlands Off-Site
Basin 3
On-Site Trib-Area 3
Off-Site Trib2
Basin 2
On-Site Trib 2
Off-Site Trib 1
West
On-Site Trib 1
Off-Site Trib 1 South

Project: Existing condition
Simulation Run: 2YR_2HR
Simulation Start: 31 December 1999, 24:00
Simulation End: 2 January 2000, 24:00

HMS Version: 4.12
Executed: 07 March 2025, 20:55

Global Parameter Summary - Subbasin

Area (MI2)

Element Name	Area (MI2)
On - Site Trib 1	0.03
Off - Site Trib 1 South	0
Off - Site Trib 1 West	0
On - Site Trib 2	0.02
Off - Site Trib2	0.01
On - Site Trib - Area 3	0.01
LaGrange Highlands Off - Site	0.2
Existing On - Site	0

Downstream

Element Name	Downstream
On - Site Trib 1	Basin 1
Off - Site Trib 1 South	Basin 1
Off - Site Trib 1 West	Basin 1
On - Site Trib 2	Basin 2
Off - Site Trib2	Basin 2
On - Site Trib - Area 3	Basin 3
LaGrange Highlands Off - Site	Off - Site Tributary Area
Existing On - Site	Existing Basin C

Loss Rate: Scs

Element Name	Percent Impervious Area	Curve Number
On - Site Trib 1	0	86
Off - Site Trib 1 South	0	80
Off - Site Trib 1 West	0	83
On - Site Trib 2	0	83
Off - Site Trib2	0	83
On - Site Trib - Area 3	0	83
LaGrange Highlands Off - Site	0	86
Existing On - Site	0	91.09

Transform: Scs

Element Name	Lag	Unitgraph Type
On - Site Trib 1	21	Standard
Off - Site Trib 1 South	6	Standard
Off - Site Trib 1 West	12	Standard
On - Site Trib 2	20.4	Standard
Off - Site Trib2	12	Standard
On - Site Trib - Area 3	21	Standard
LaGrange Highlands Off - Site	29.2	Standard
Existing On - Site	6	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
On - Site Trib 1	0.03	11.72	01Jan2000, 00:54	0.8
Off - Site Trib 1 South	0	0.8	01Jan2000, 00:42	0.53
Off - Site Trib 1 West	0	0.81	01Jan2000, 00:45	0.65
Basin 1	0.03	3.6	01Jan2000, 02:13	0.77
On - Site Trib 2	0.02	5.83	01Jan2000, 00:55	0.65
Off - Site Trib2	0.01	2.12	01Jan2000, 00:45	0.65
Basin 2	0.05	3.07	01Jan2000, 03:53	0.72
On - Site Trib - Area 3	0.01	4.24	01Jan2000, 00:56	0.65
LaGrange Highlands Off - Site	0.2	75.41	01Jan2000, 01:05	0.8
Basin 3	0.07	1.48	01Jan2000, 09:37	0.69
Off - Site Tributary Area	0.27	75.98	01Jan2000, 01:05	0.78
Storage East of Wolf Road	0.27	75.95	01Jan2000, 01:06	0.78
Storage West of Wolf Road	0.27	75.94	01Jan2000, 01:06	0.77
Existing On - Site	0	3.15	01Jan2000, 00:33	1.12
Existing Basin C	0.27	16.79	01Jan2000, 01:07	0.05
Existing Basin A & B	0.27	0	31Dec1999, 24:00	0
Outlet Storm Box	0.27	0	31Dec1999, 24:00	0

55th Street Outlet	0.27	0	31Dec1999, 24:00	0

Subbasin: On-Site Trib 1

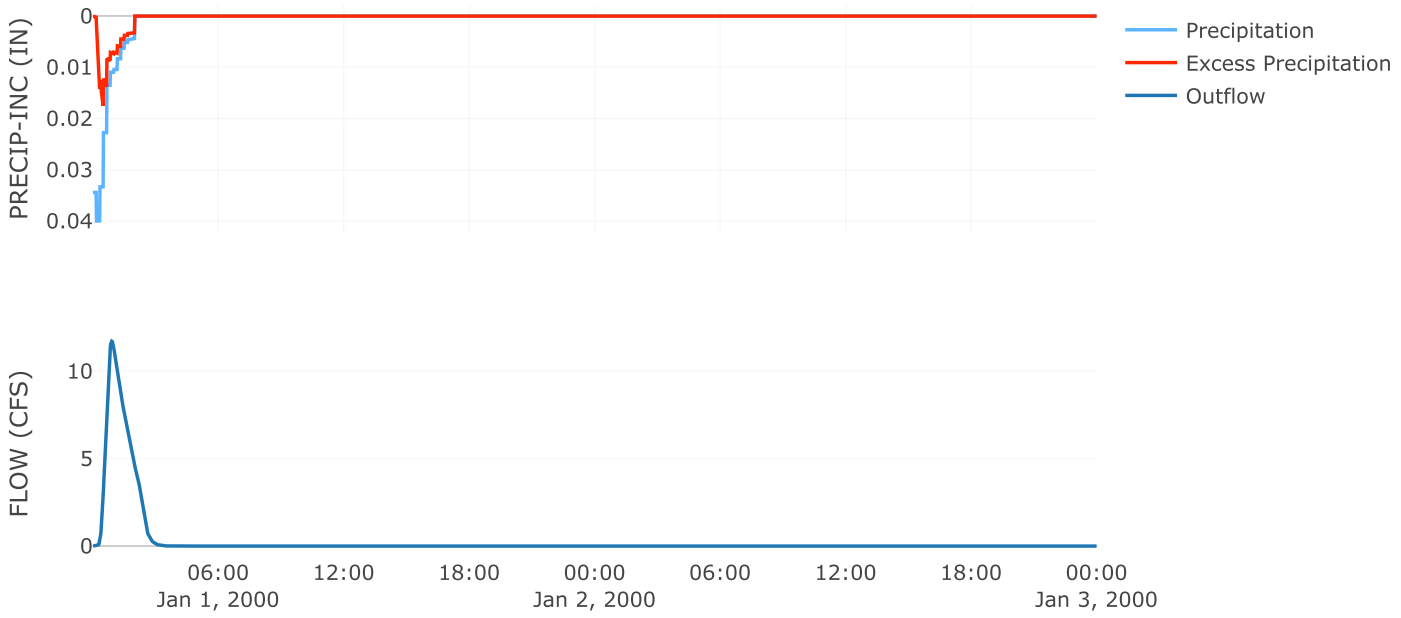
Area (MI2) : 0.03
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	86

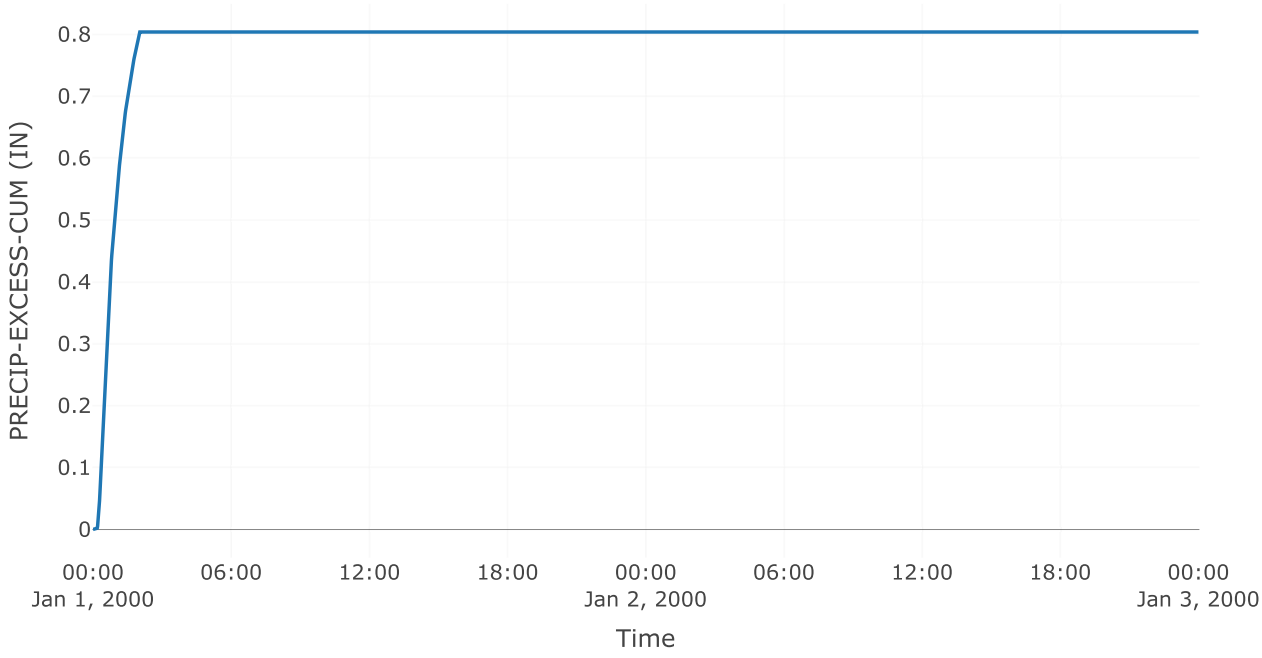
Transform: Scs	
Lag	21
Unitgraph Type	Standard

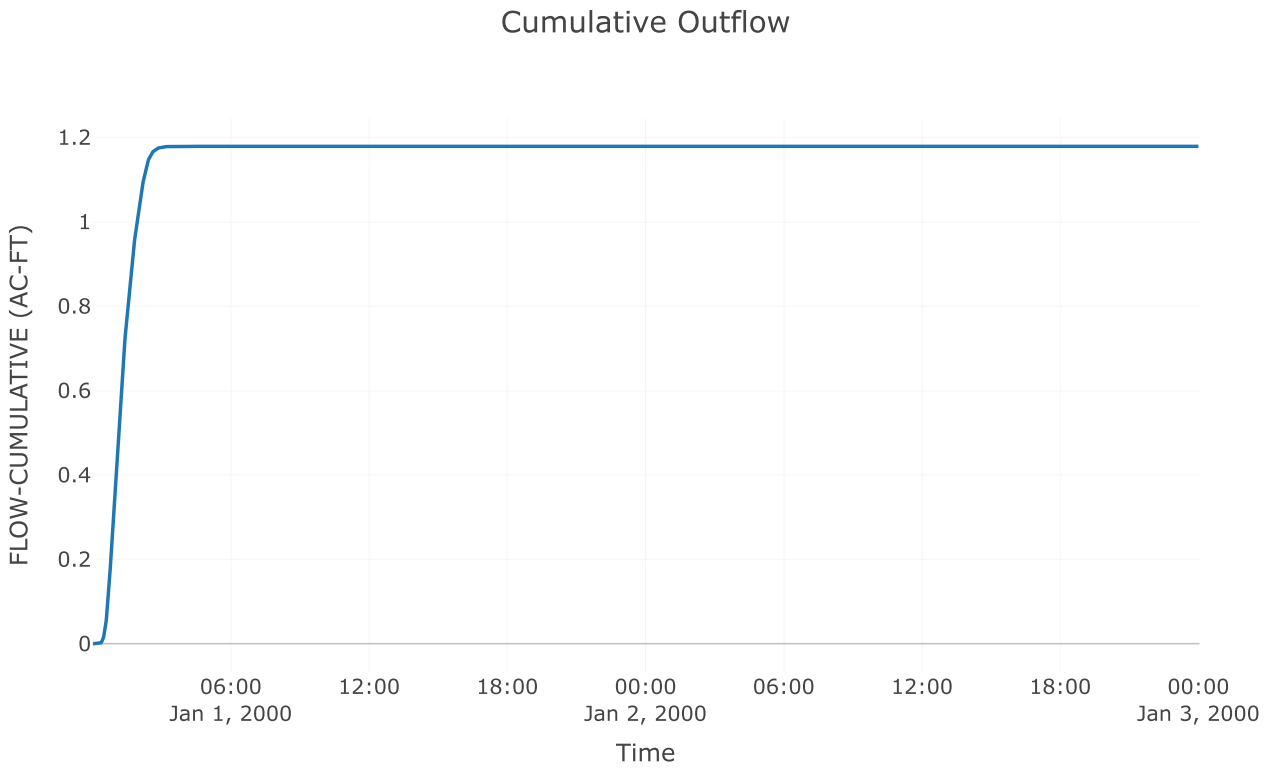
Results: On-Site Trib 1	
Peak Discharge (CFS)	11.72
Time of Peak Discharge	01Jan2000, 00:54
Volume (IN)	0.8
Precipitation Volume (AC - FT)	2.85
Loss Volume (AC - FT)	1.67
Excess Volume (AC - FT)	1.18
Direct Runoff Volume (AC - FT)	1.18
Baseflow Volume (AC - FT)	0

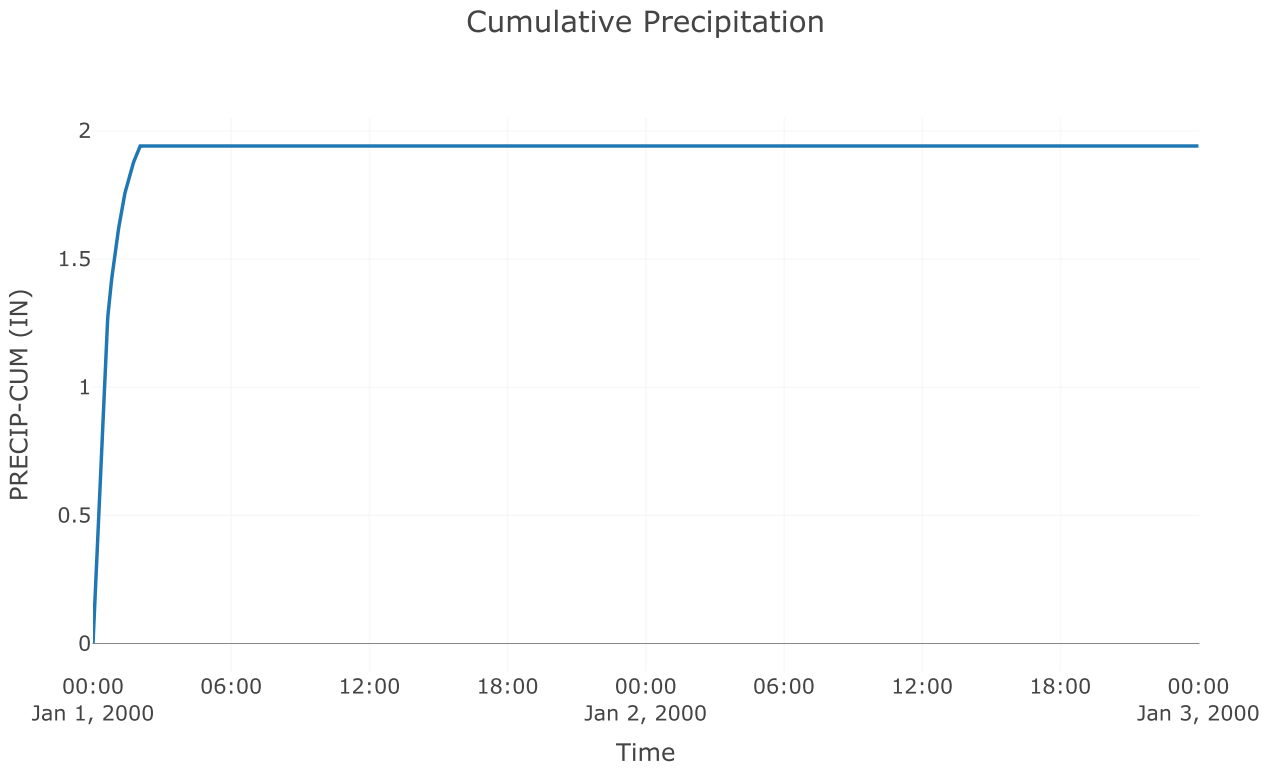
Precipitation and Outflow

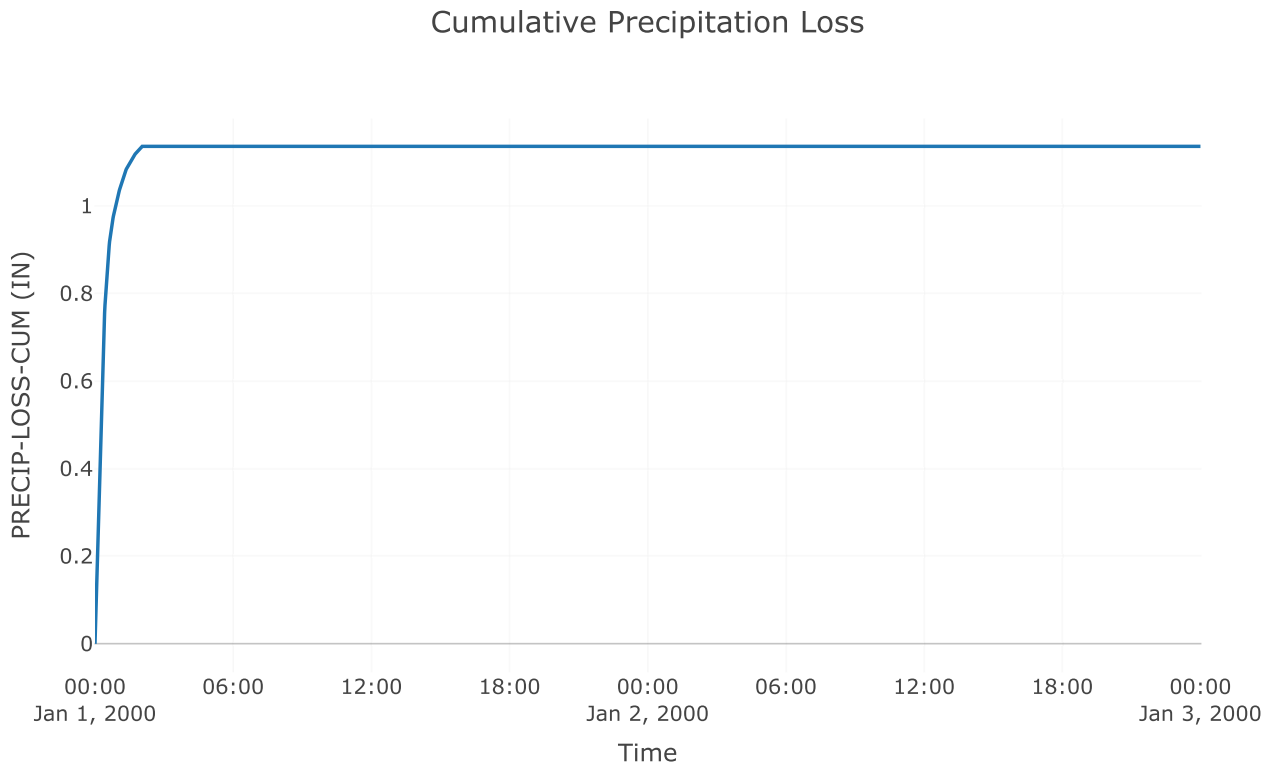


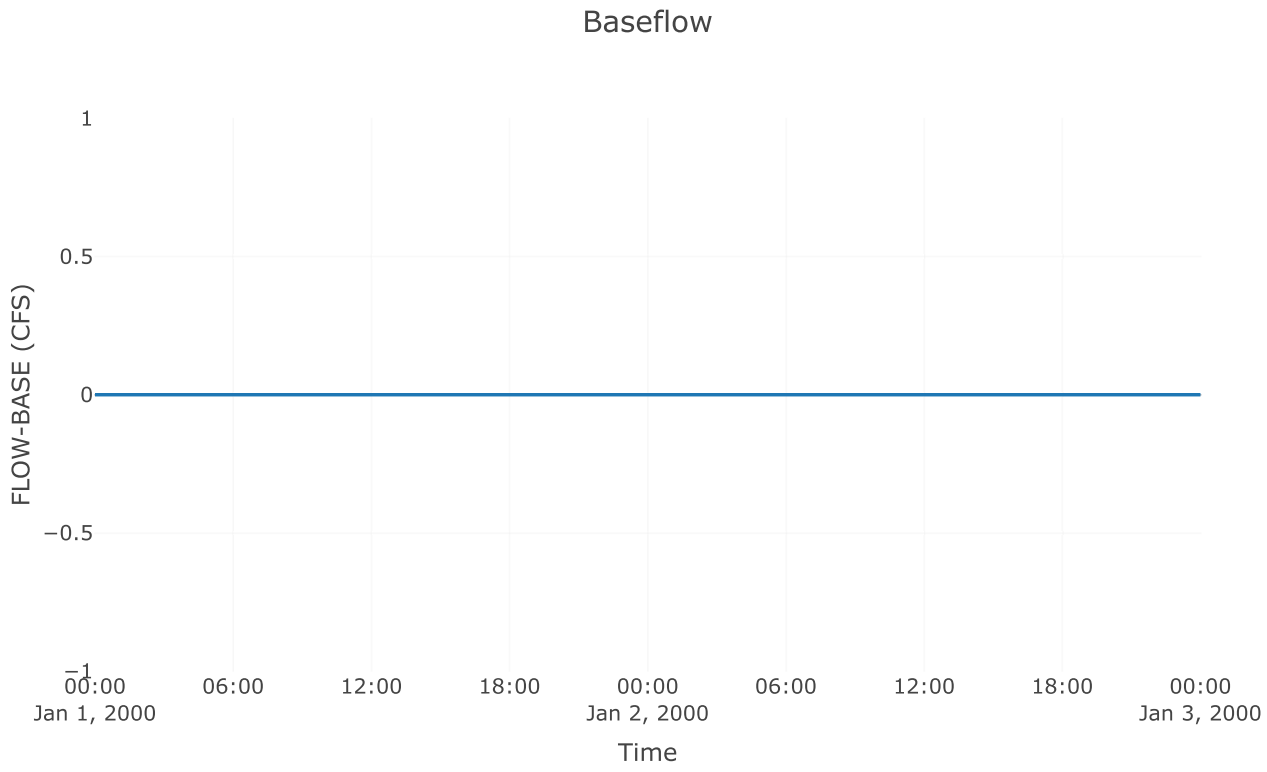
Cumulative Excess Precipitation

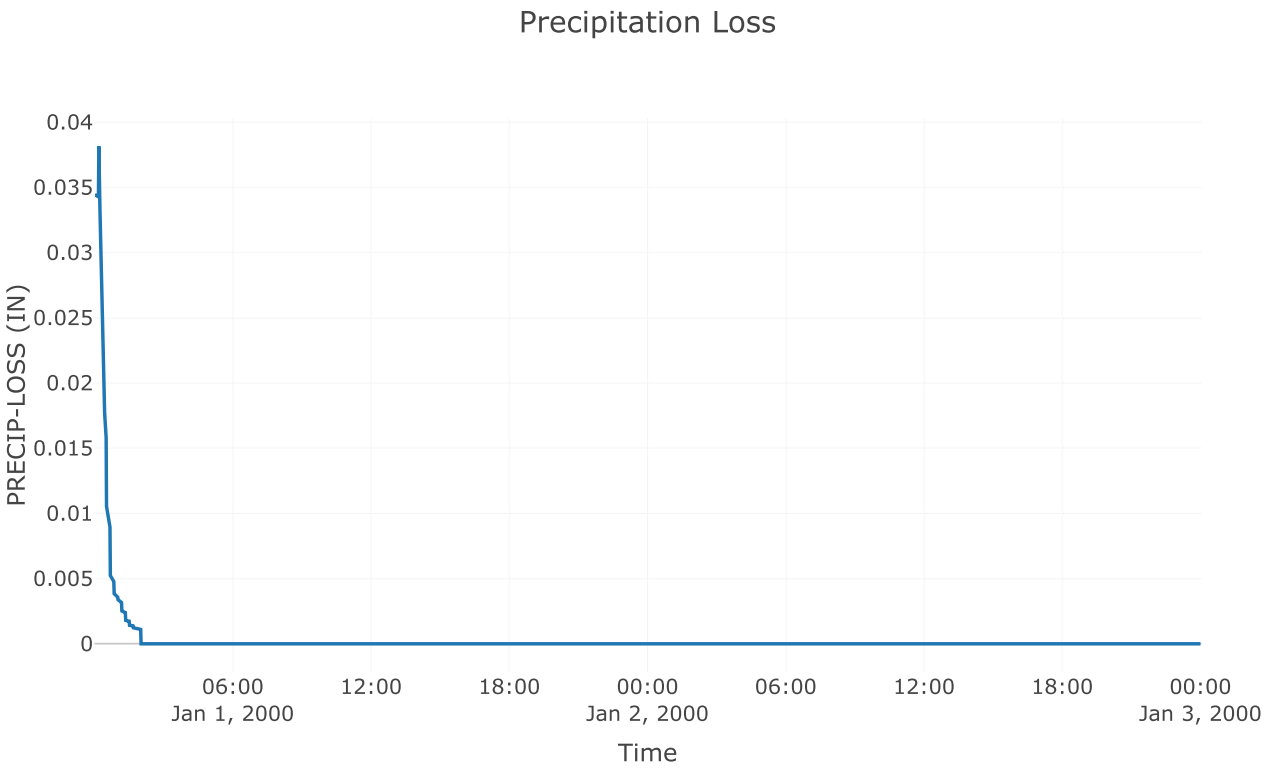


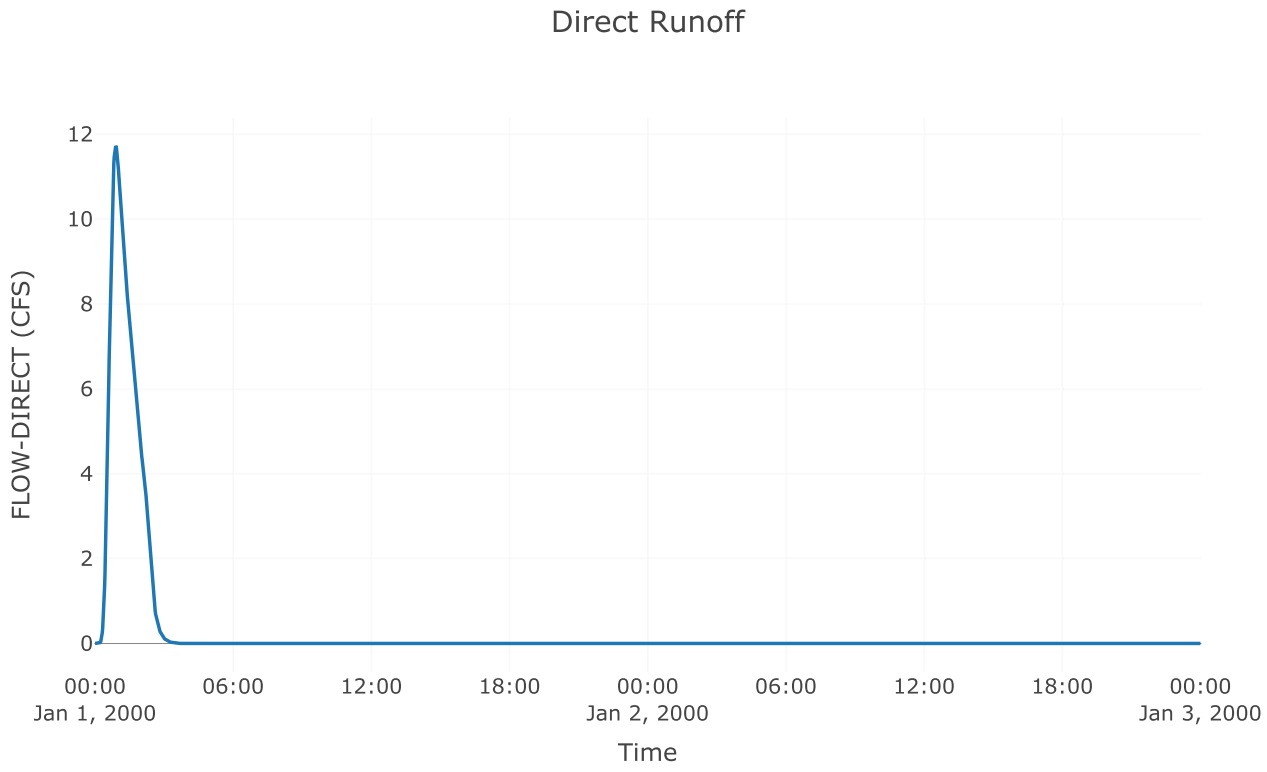

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
1.2
1
0.8
0.6
0.4
0.2
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

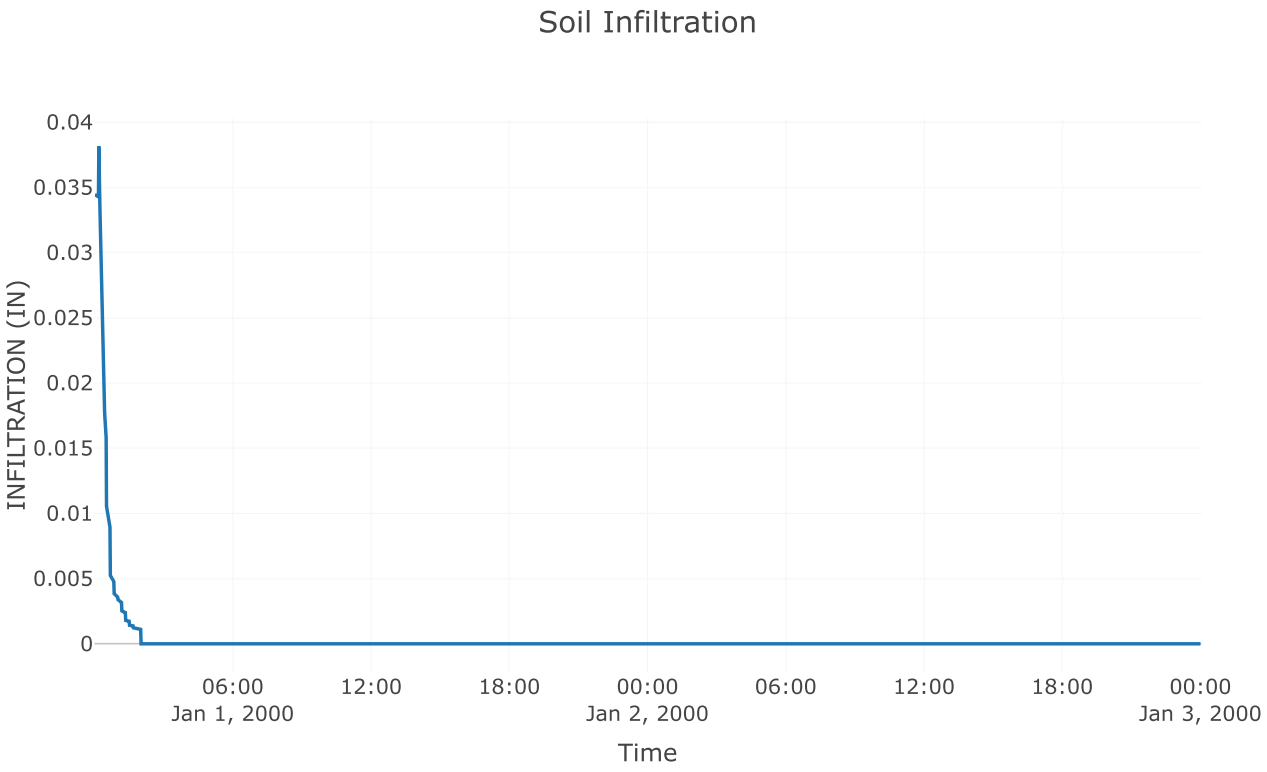

Cumulative Precipitation
PRECIP-CUM (IN)
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
12
10
8
6
4
2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib 1 South

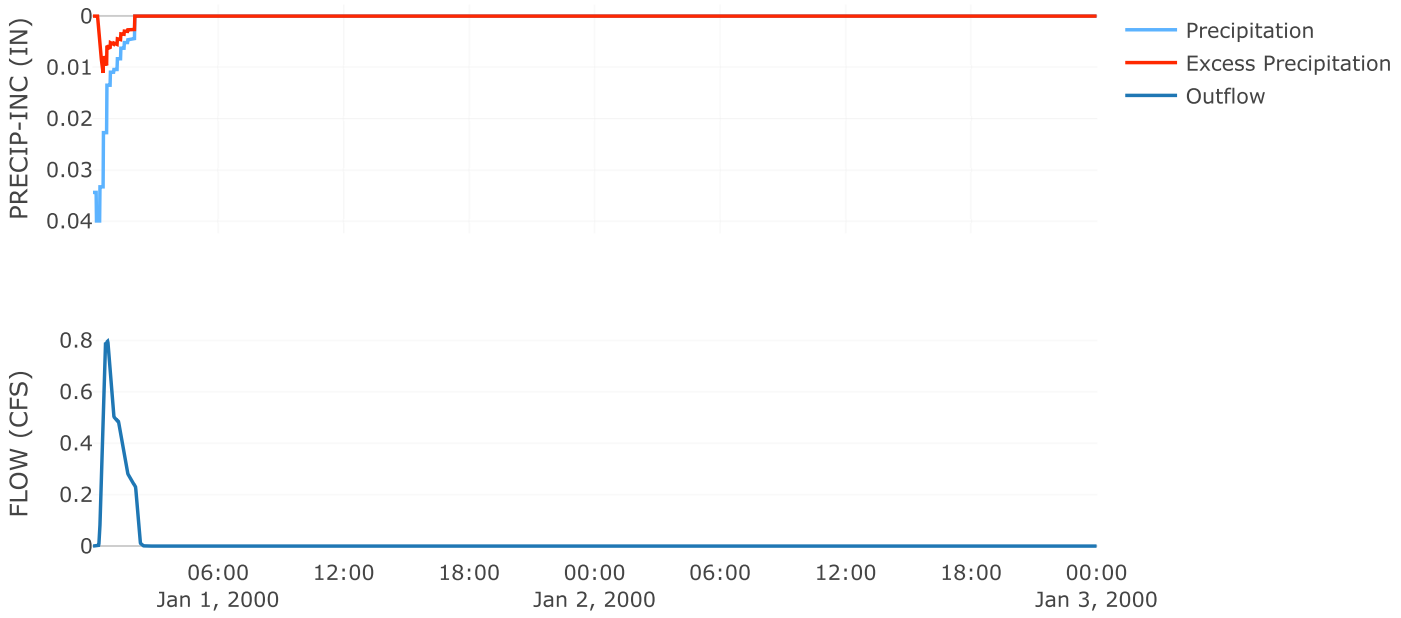
Area (MI2) : 0
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	80

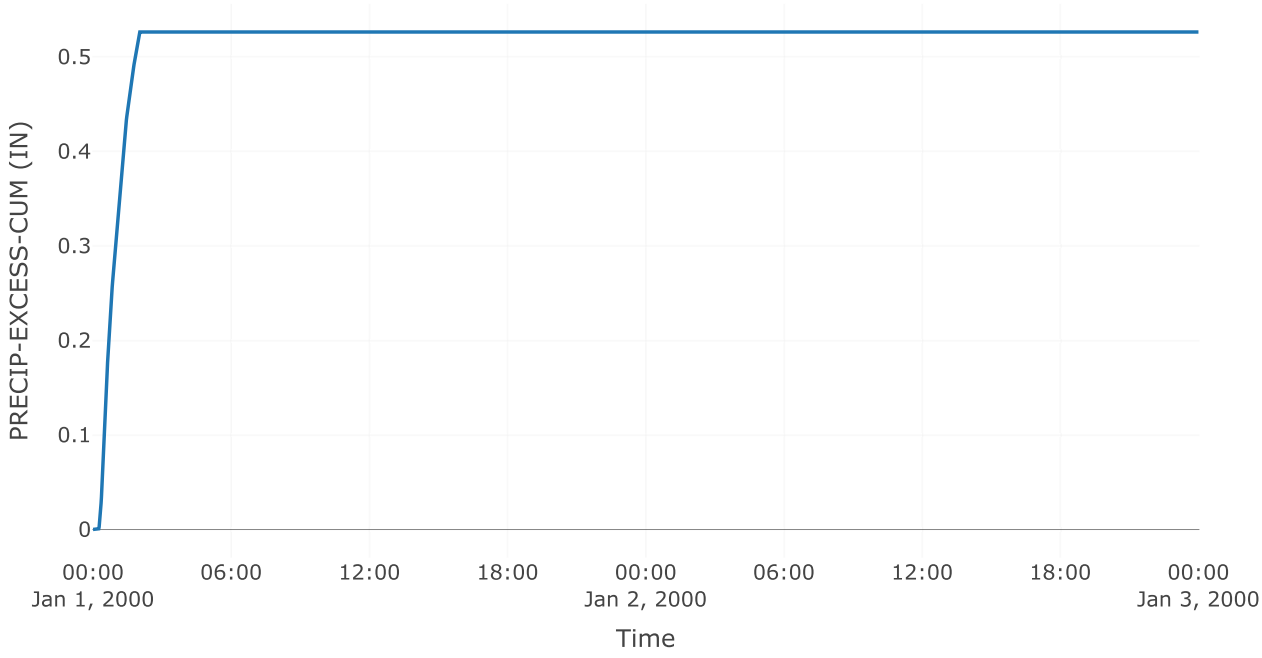
Transform: Scs	
Lag	6
Unitgraph Type	Standard

Results: Off-Site Trib 1 South	
Peak Discharge (CFS)	0.8
Time of Peak Discharge	01Jan2000, 00:42
Volume (IN)	0.53
Precipitation Volume (AC - FT)	0.24
Loss Volume (AC - FT)	0.18
Excess Volume (AC - FT)	0.07
Direct Runoff Volume (AC - FT)	0.07
Baseflow Volume (AC - FT)	0

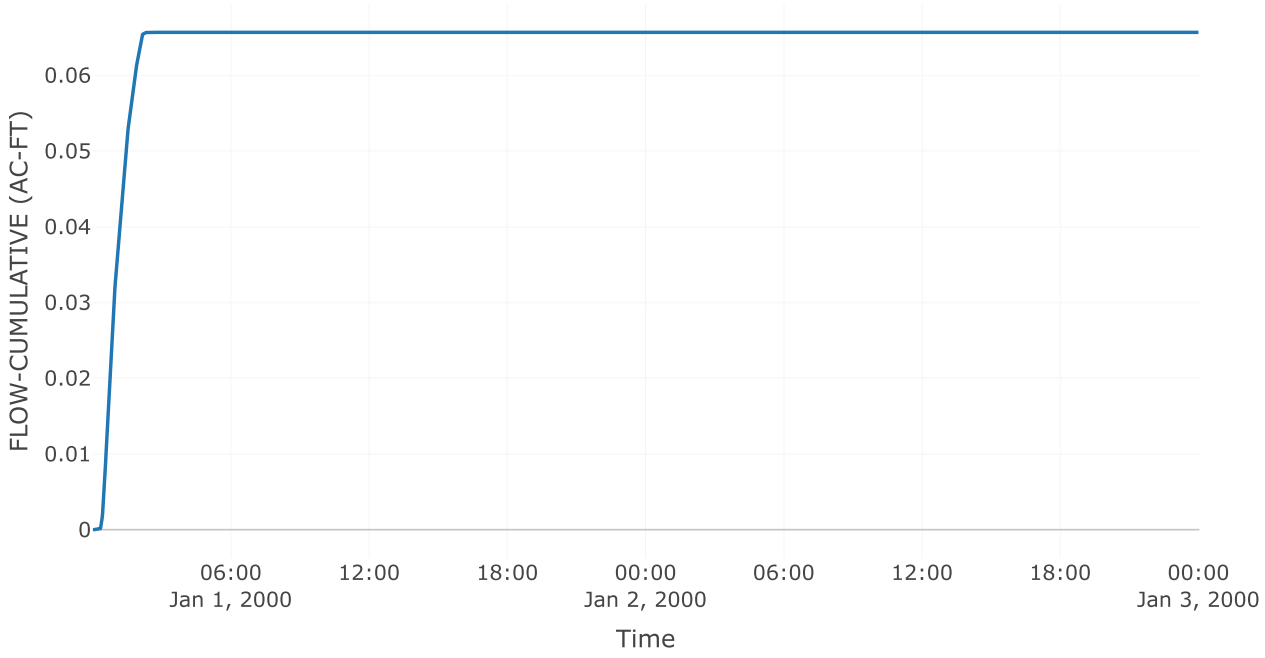
Precipitation and Outflow



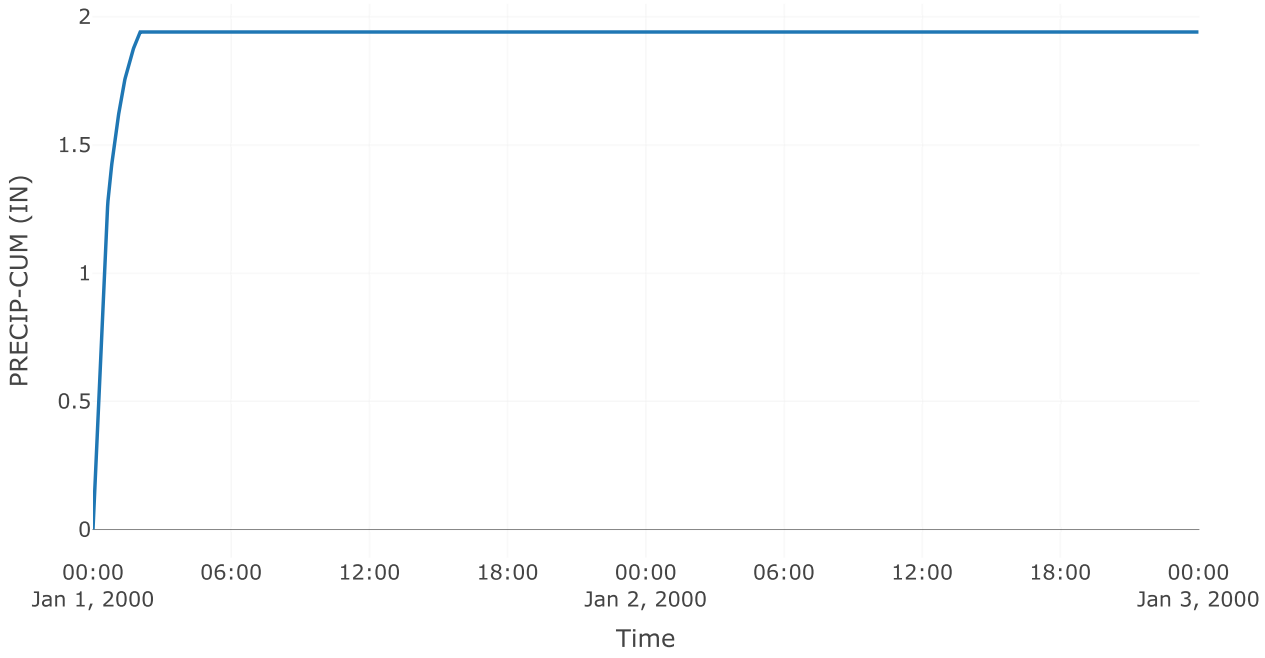
Cumulative Excess Precipitation

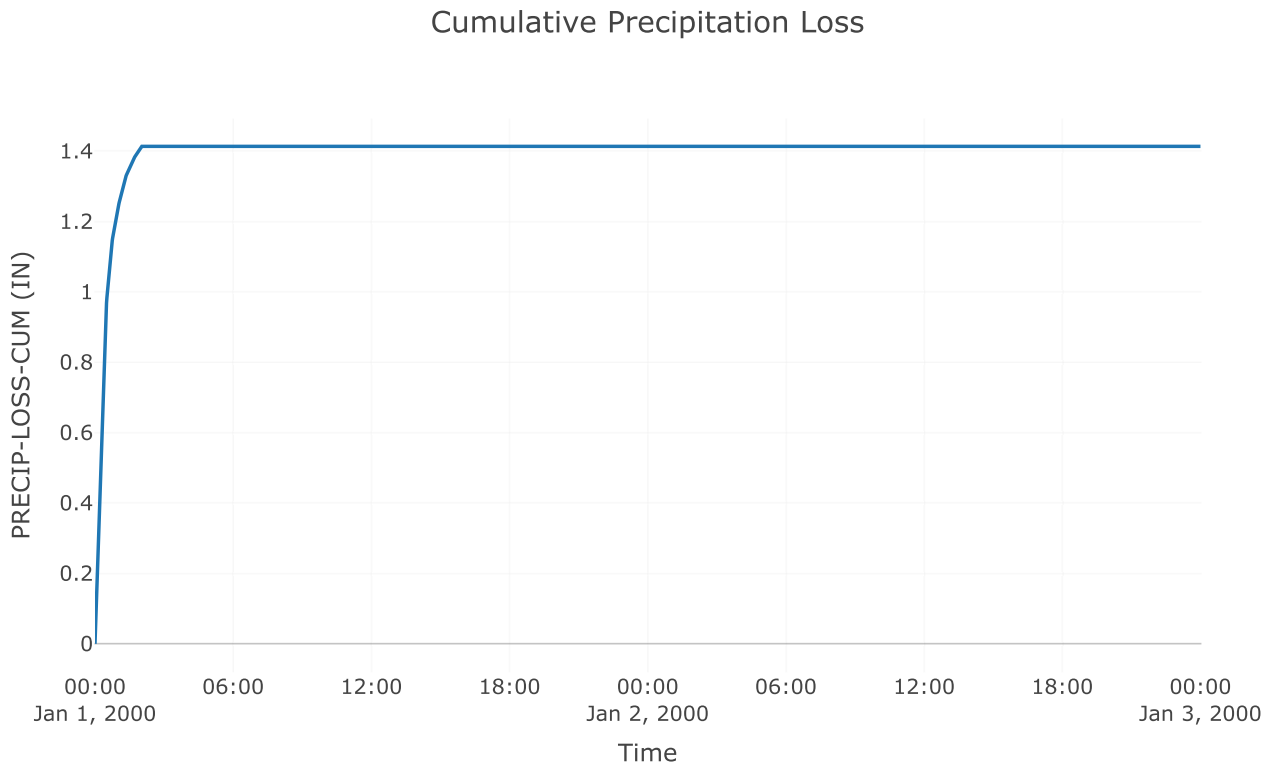


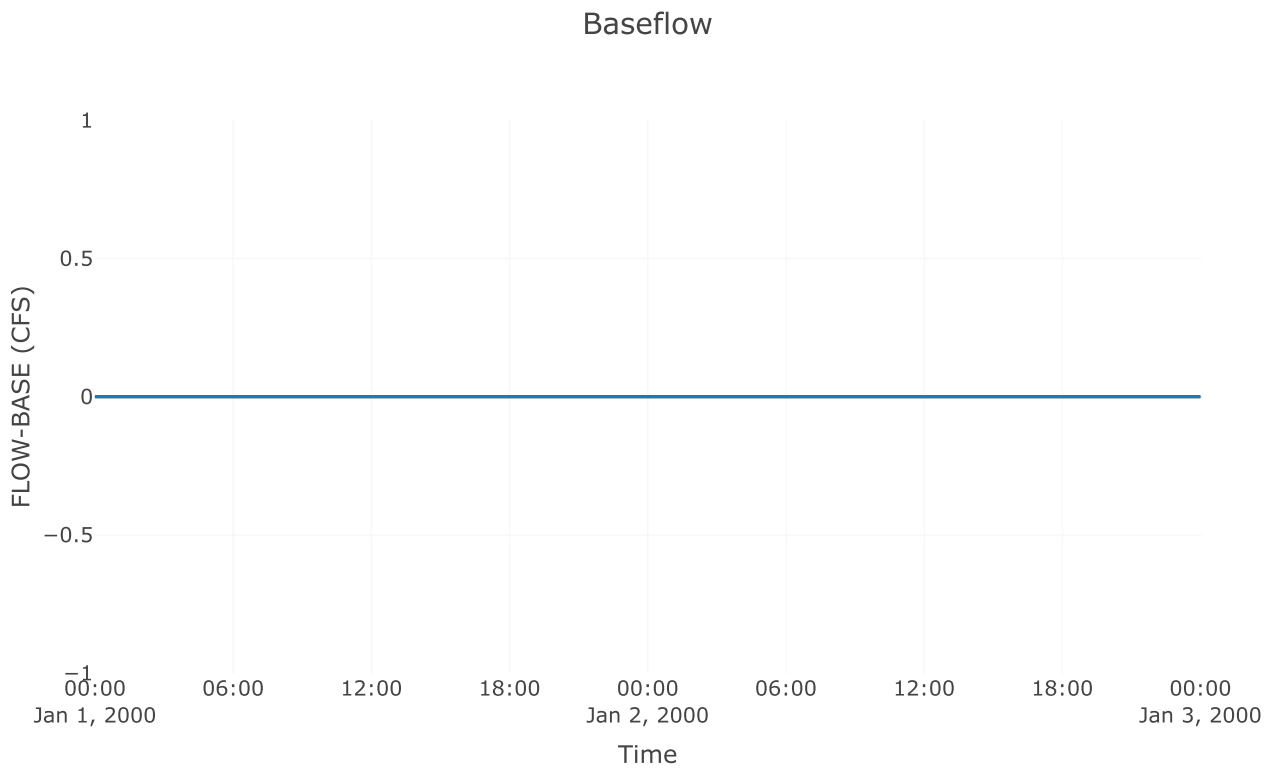
Cumulative Outflow

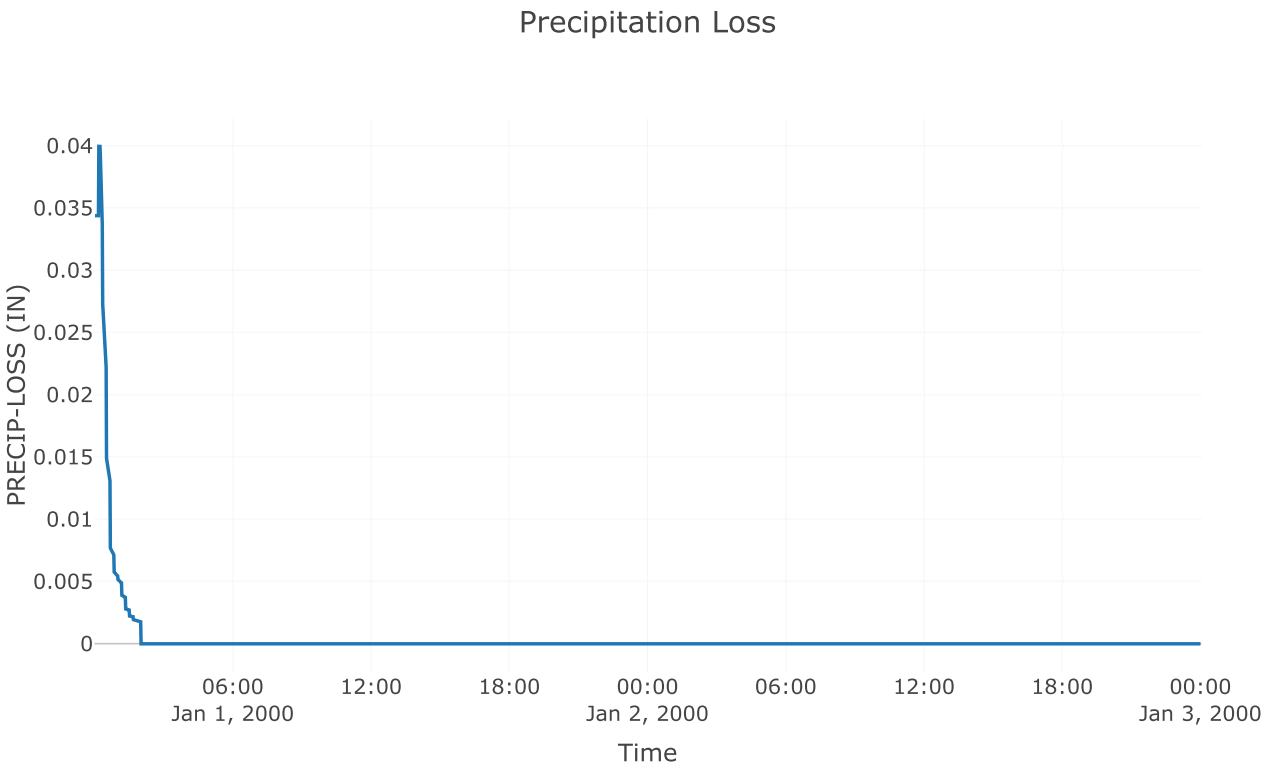


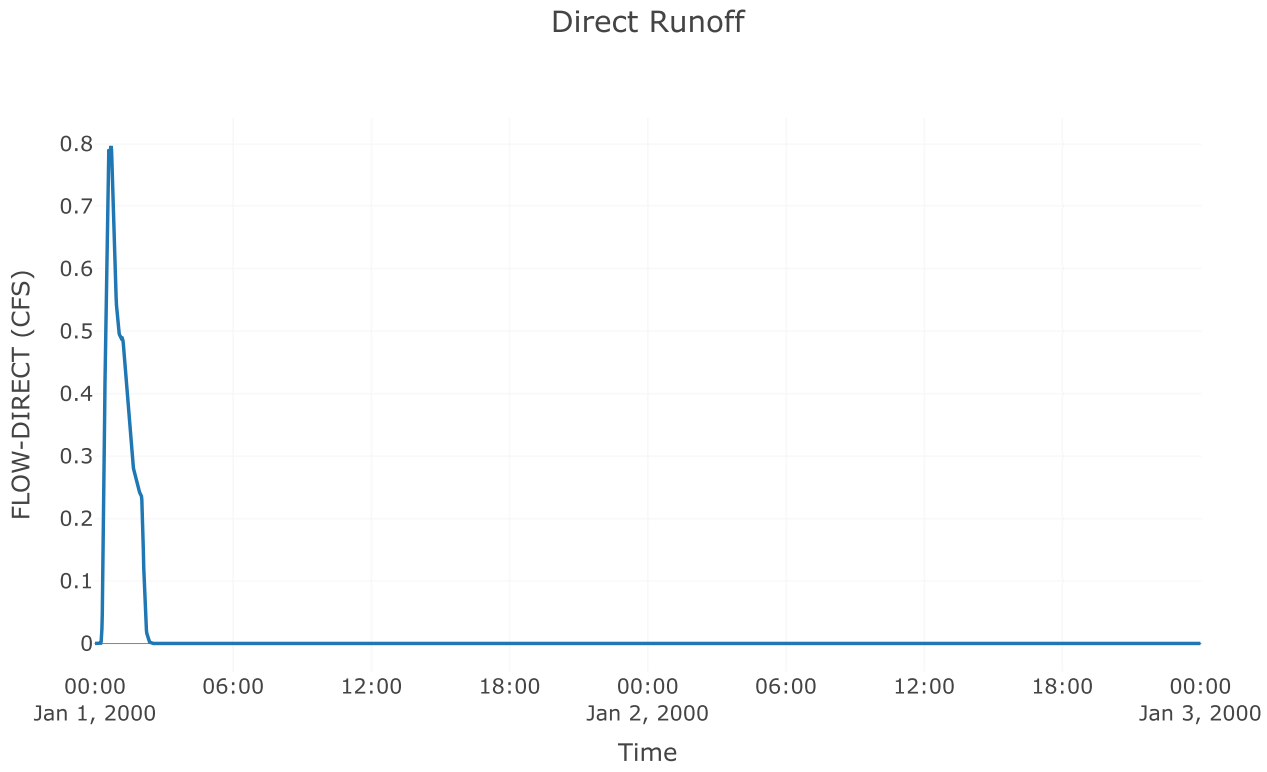
Cumulative Precipitation

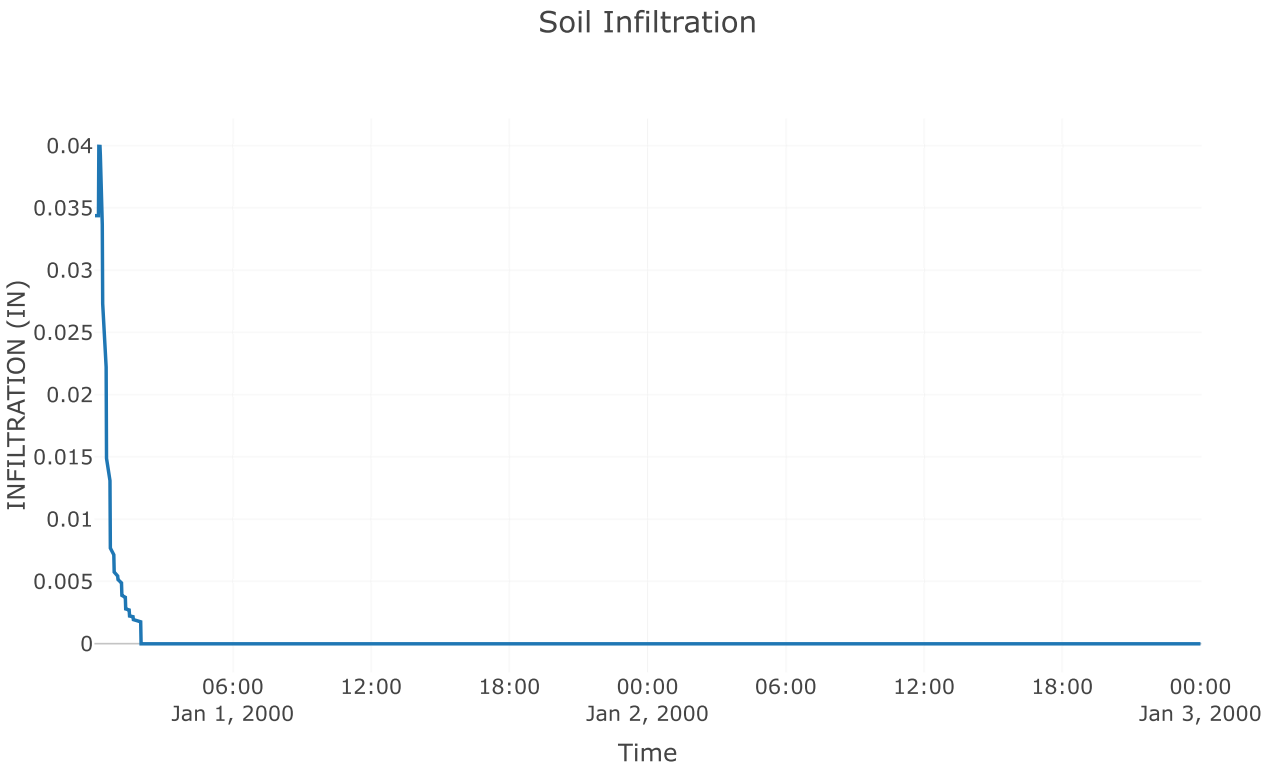



Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib 1 West

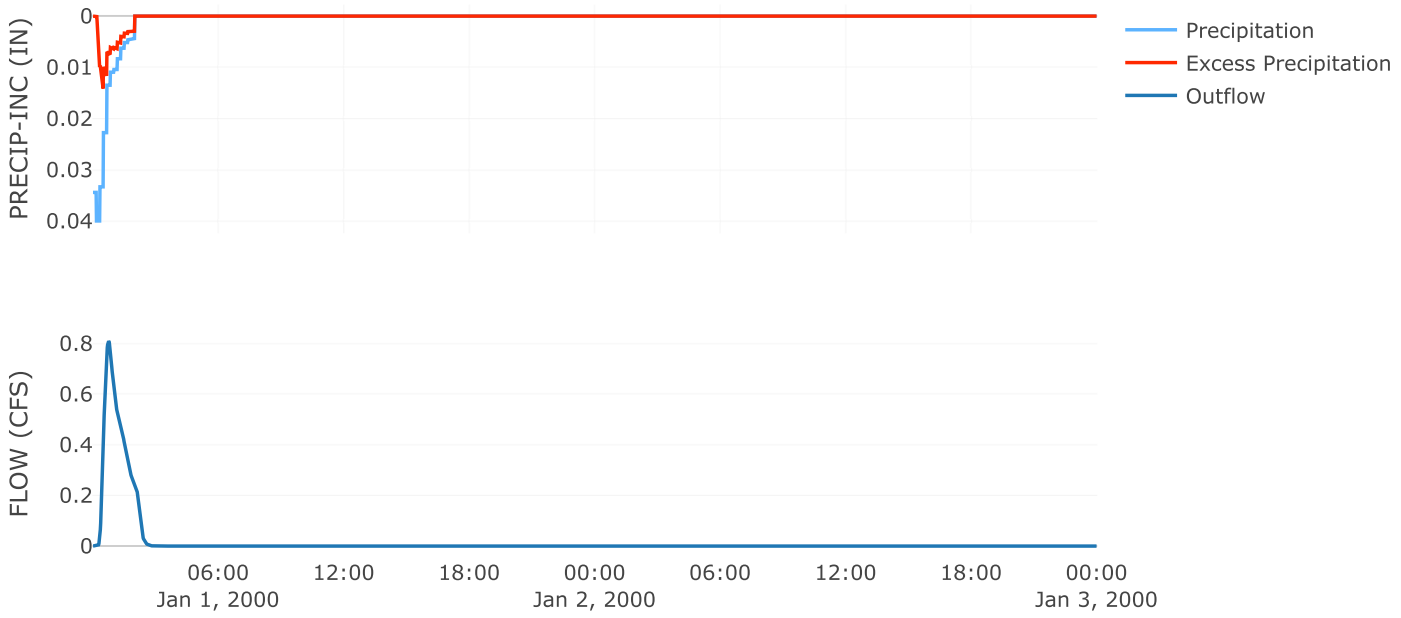
Area (MI2) : 0
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

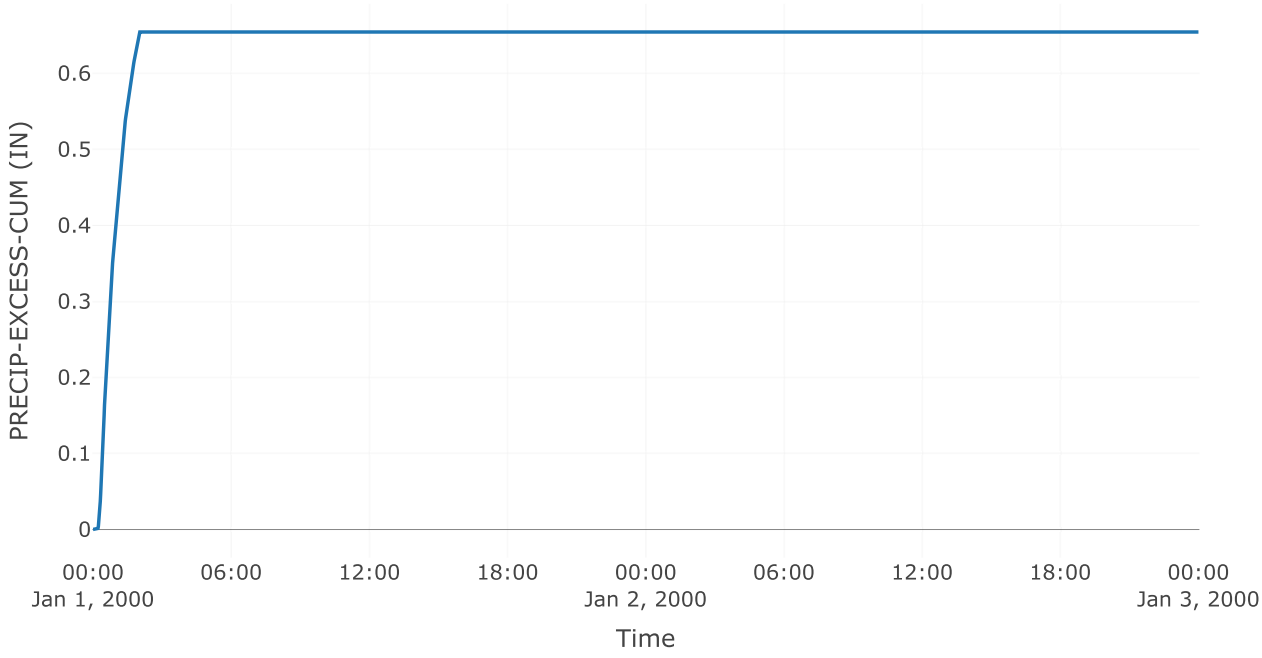
Transform: Scs	
Lag	12
Unitgraph Type	Standard

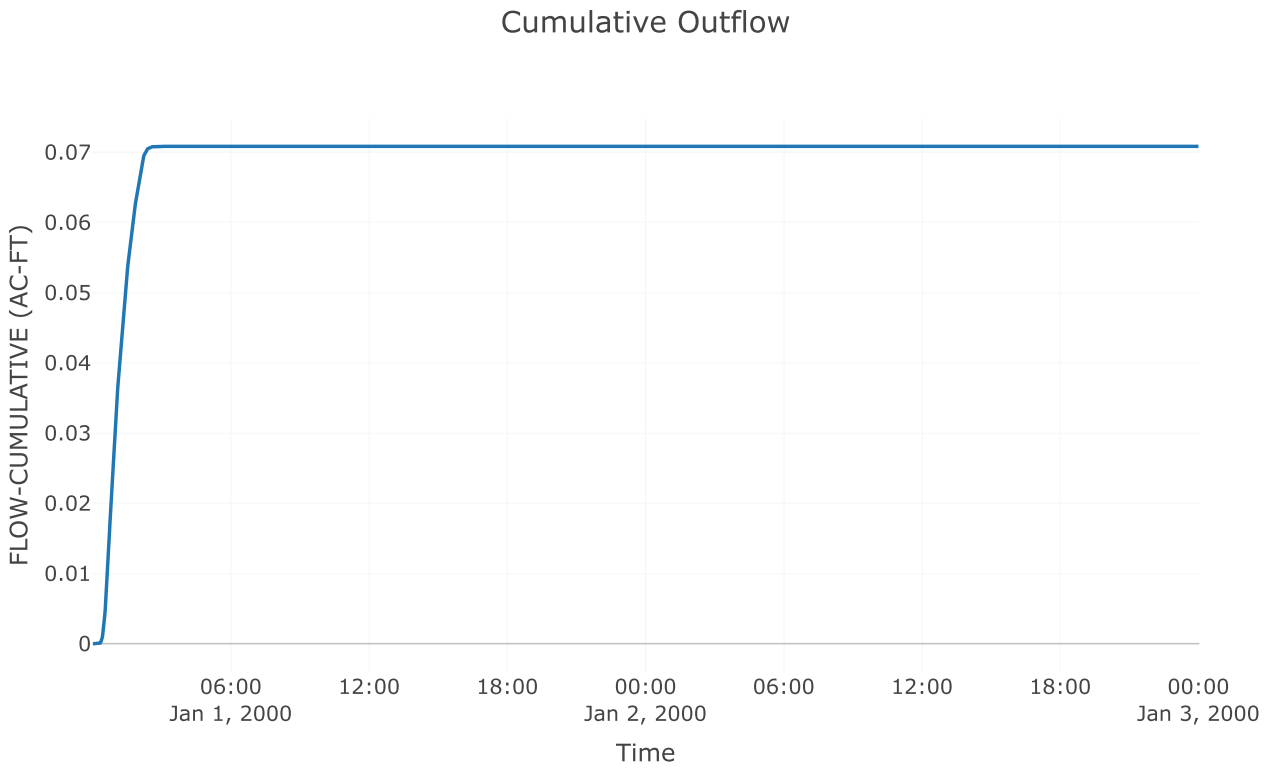
Results: Off-Site Trib 1 West	
Peak Discharge (CFS)	0.81
Time of Peak Discharge	01Jan2000, 00:45
Volume (IN)	0.65
Precipitation Volume (AC - FT)	0.21
Loss Volume (AC - FT)	0.14
Excess Volume (AC - FT)	0.07
Direct Runoff Volume (AC - FT)	0.07
Baseflow Volume (AC - FT)	0

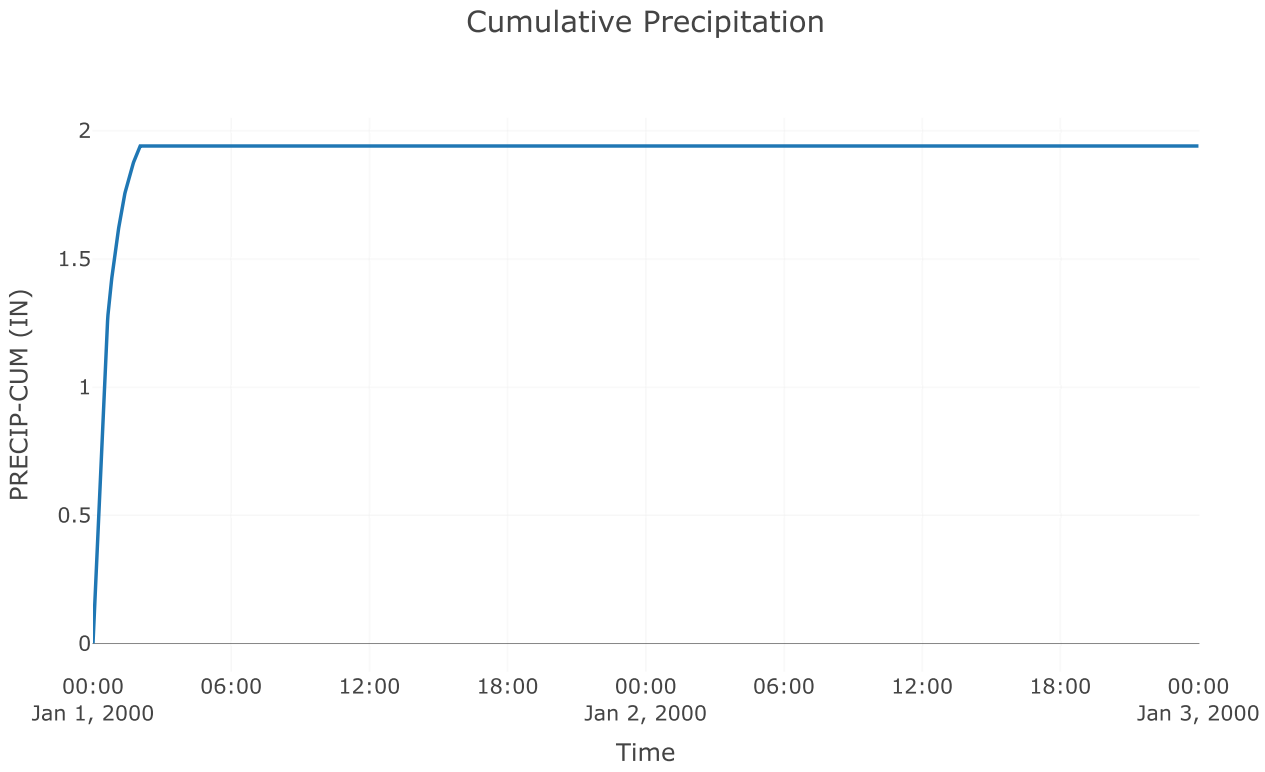
Precipitation and Outflow

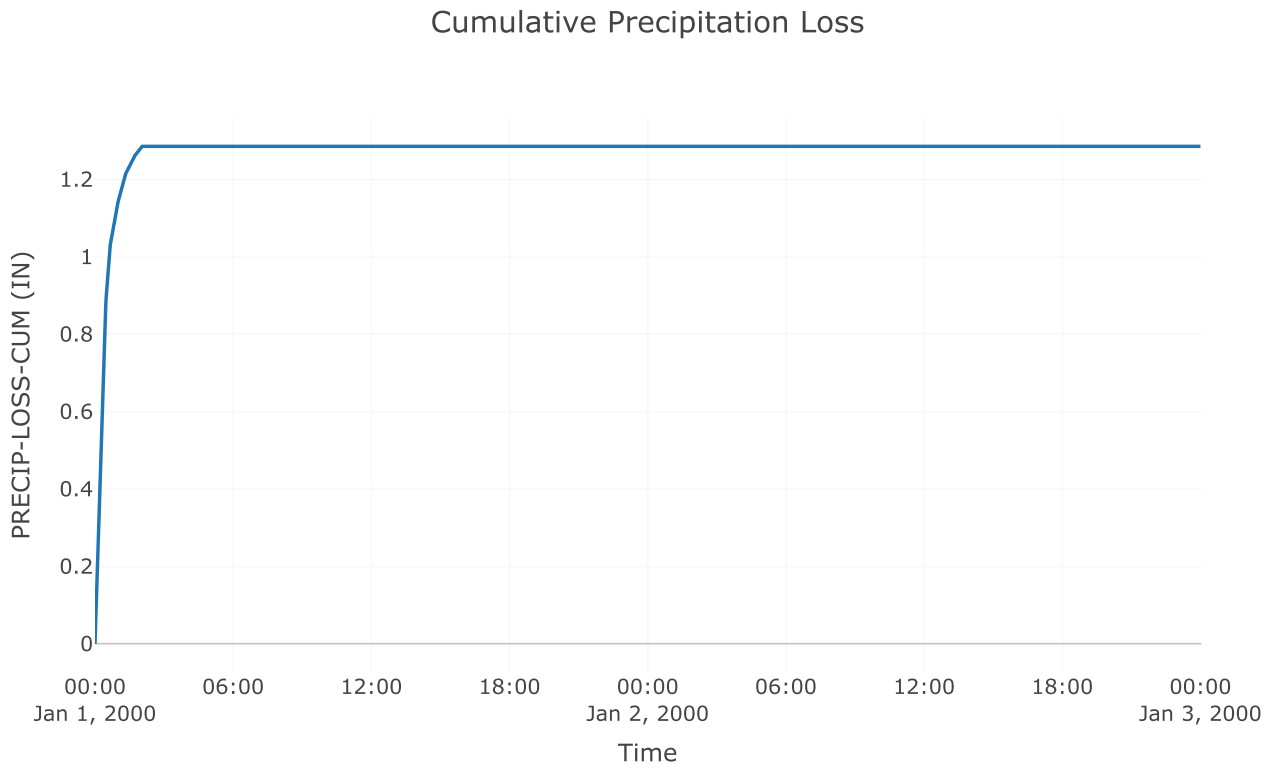


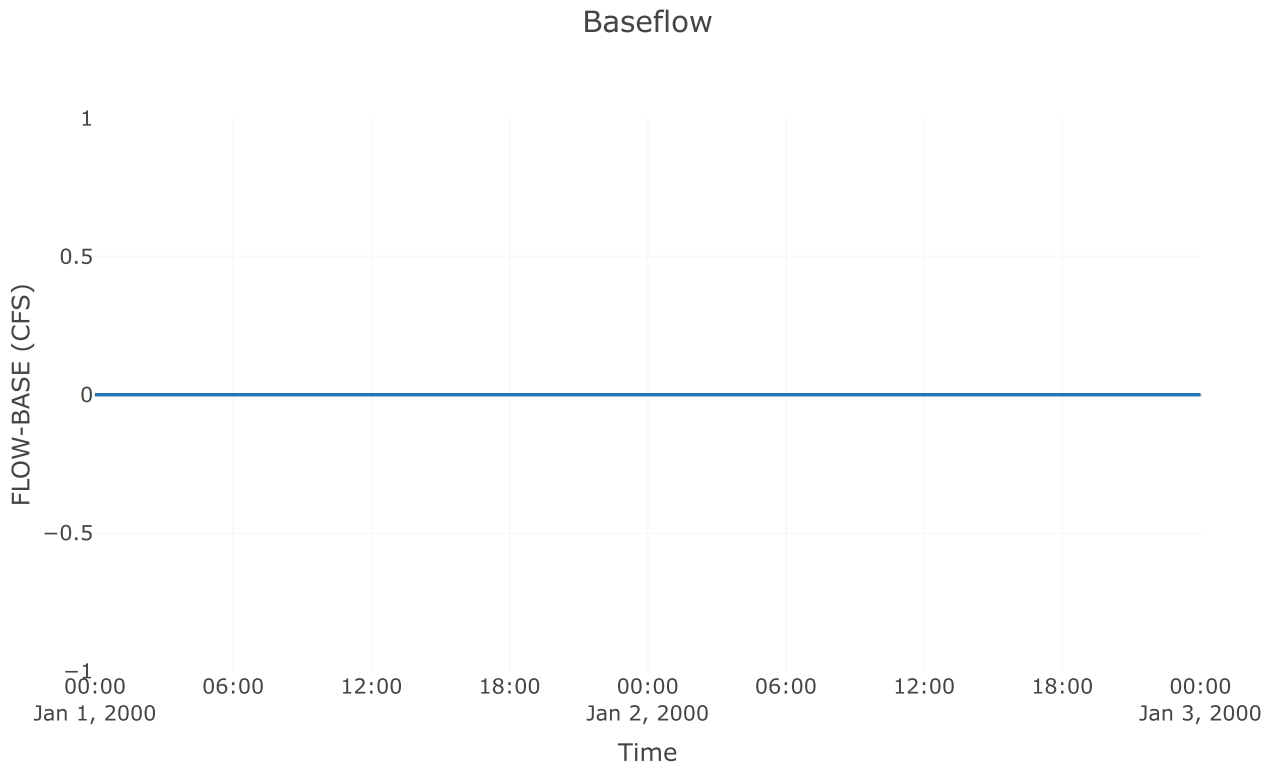
Cumulative Excess Precipitation

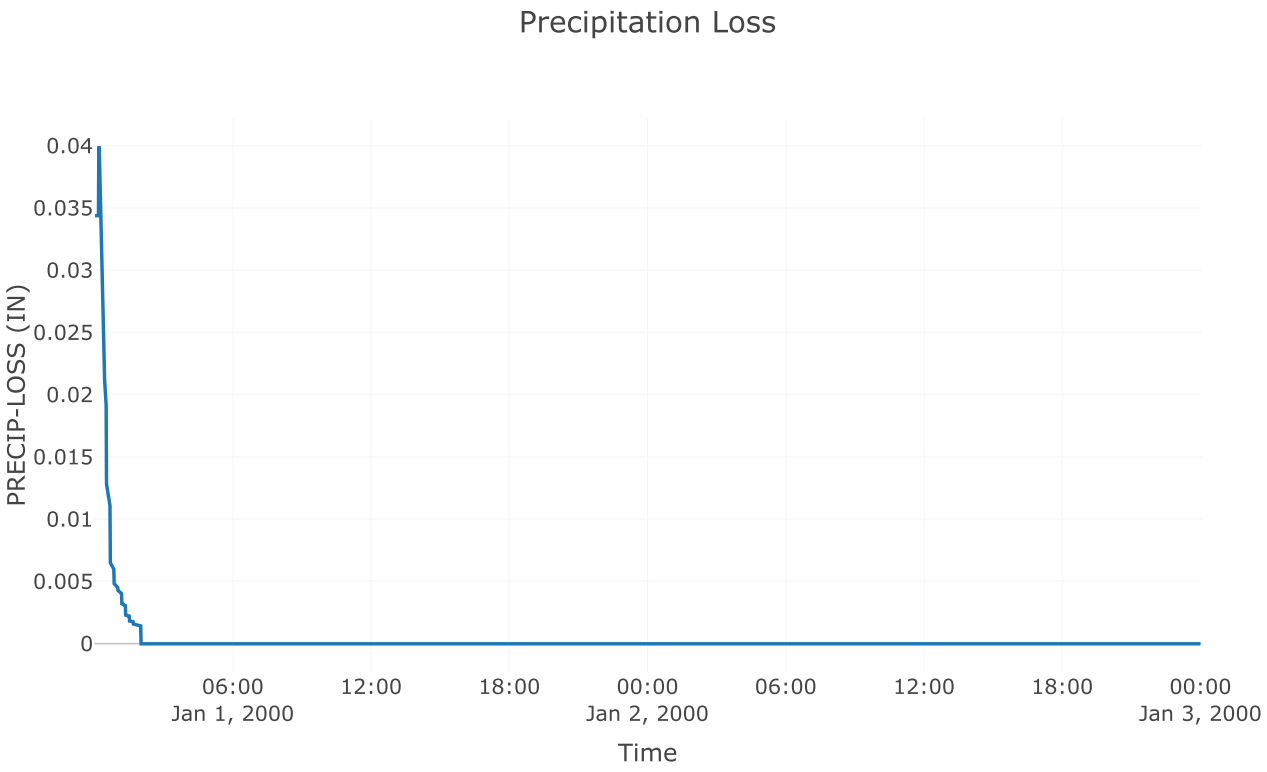


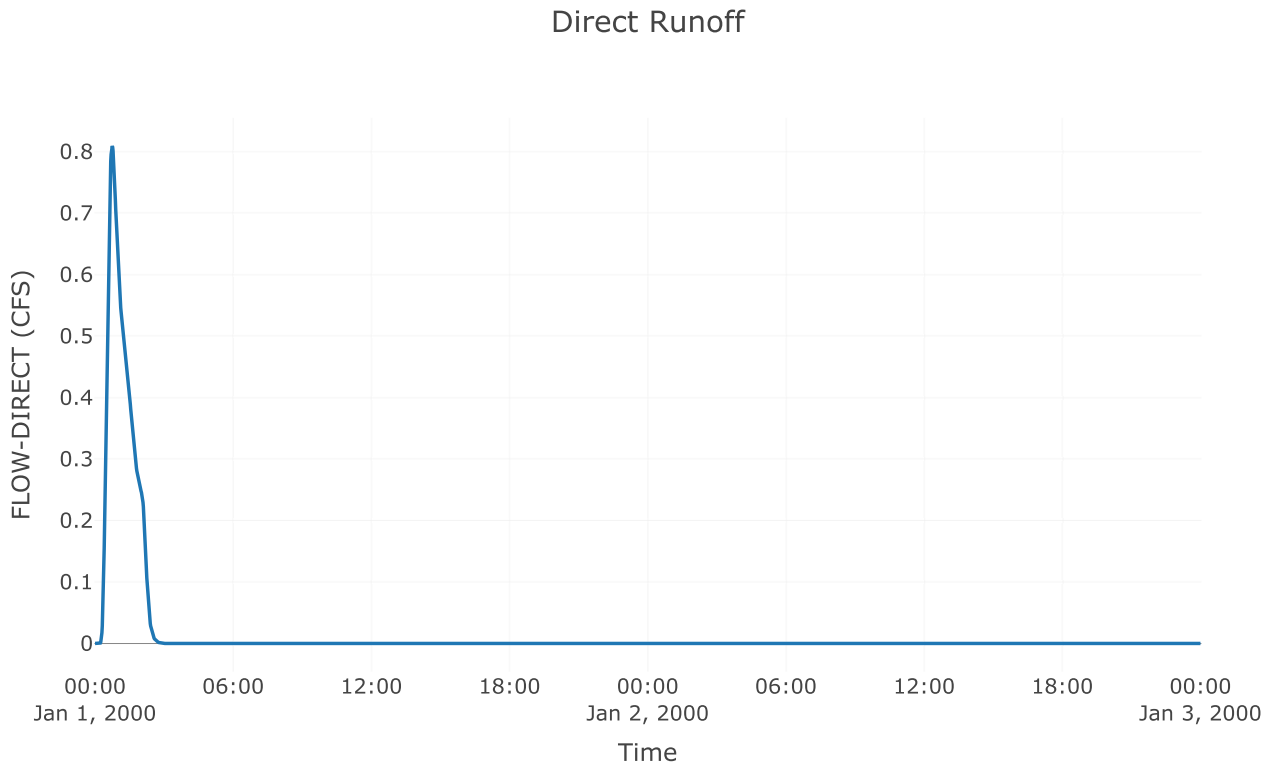

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

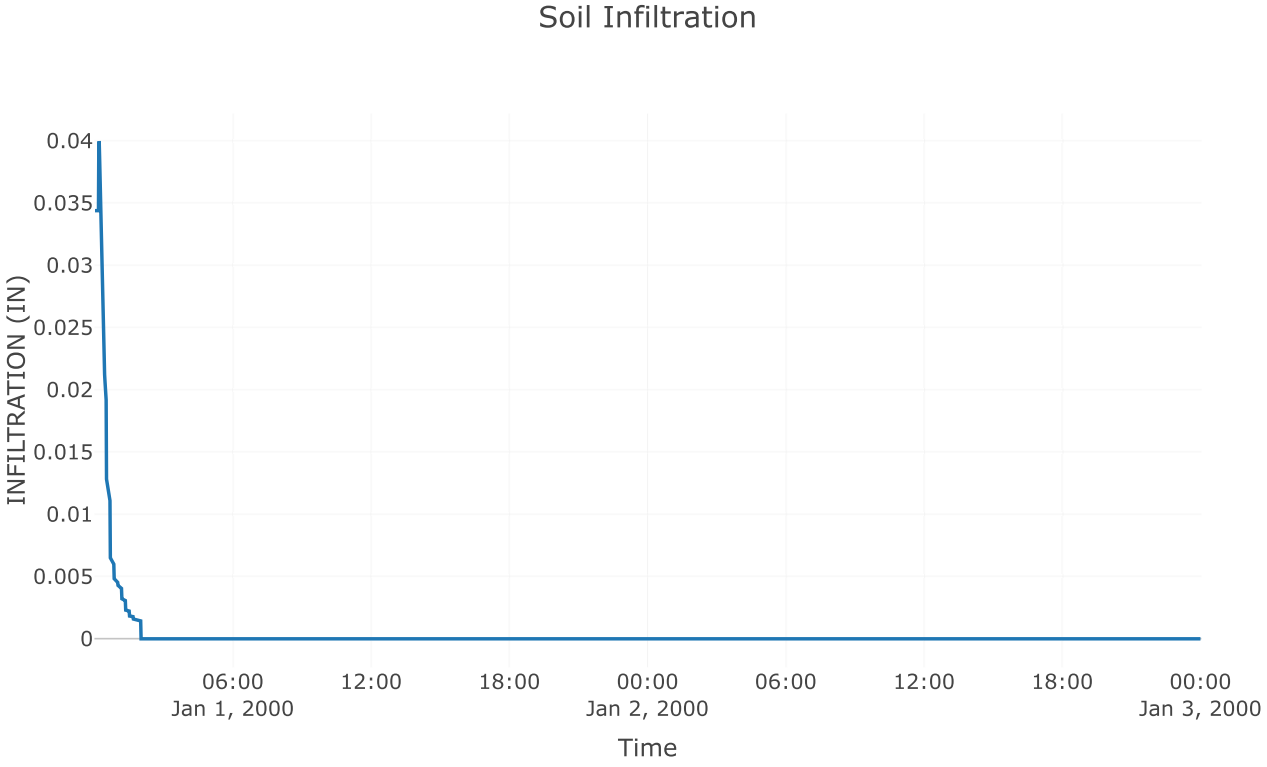

Cumulative Precipitation
PRECIP-CUM (IN)
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

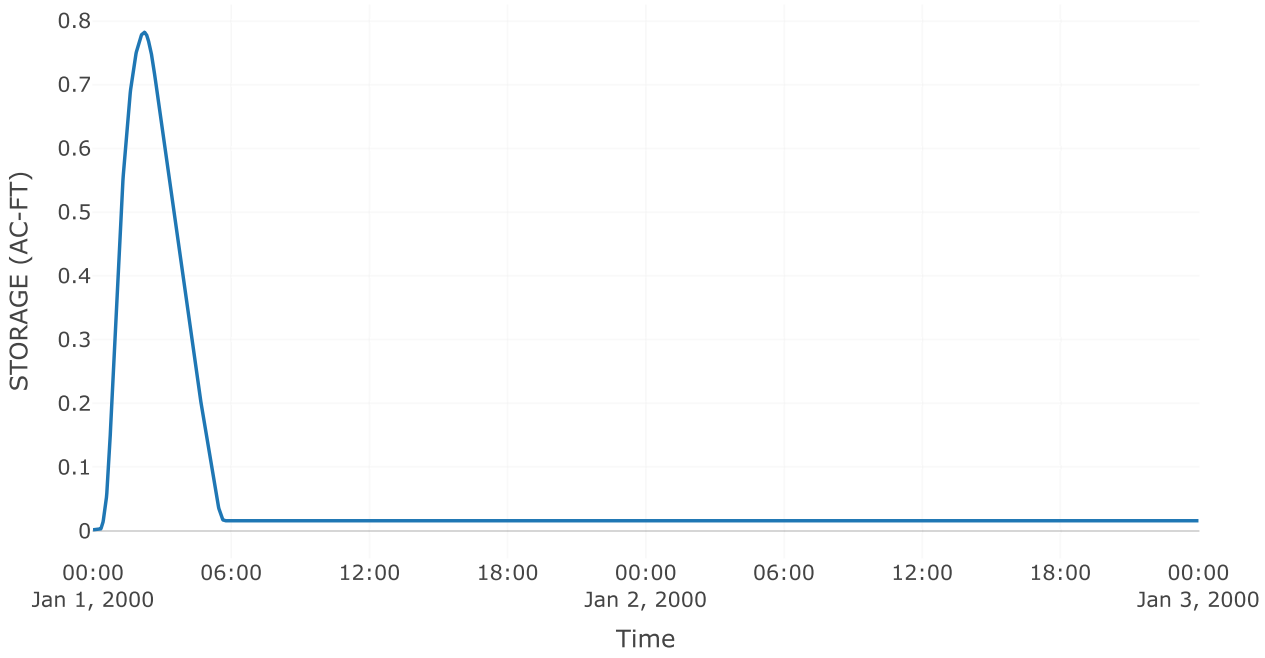

Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 1

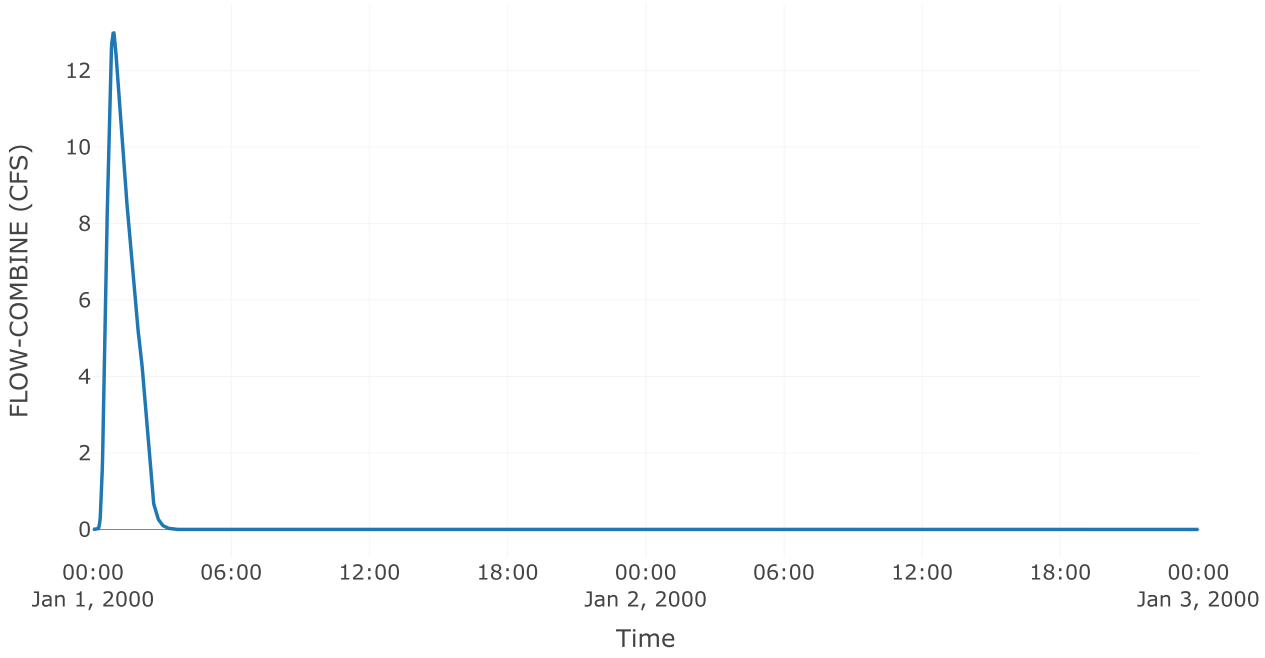
Downstream : Basin 2

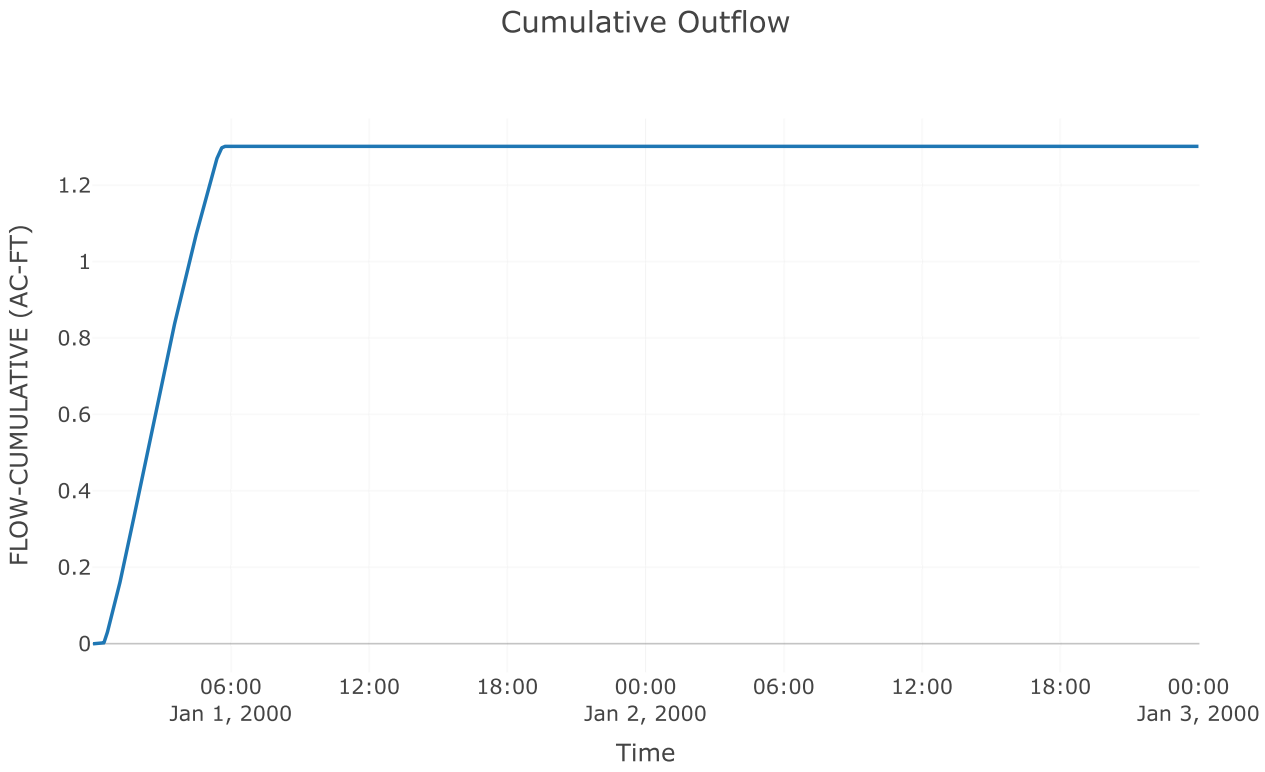
Results: Basin 1	
Peak Discharge (CFS)	3.6
Time of Peak Discharge	01Jan2000, 02:13
Volume (IN)	0.77
Peak Inflow (CFS)	13.01
Time of Peak Inflow	01Jan2000, 00:53
Inflow Volume (AC - FT)	1.32
Maximum Storage (AC - FT)	0.78
Peak Elevation (FT)	695.44
Discharge Volume (AC - FT)	1.3

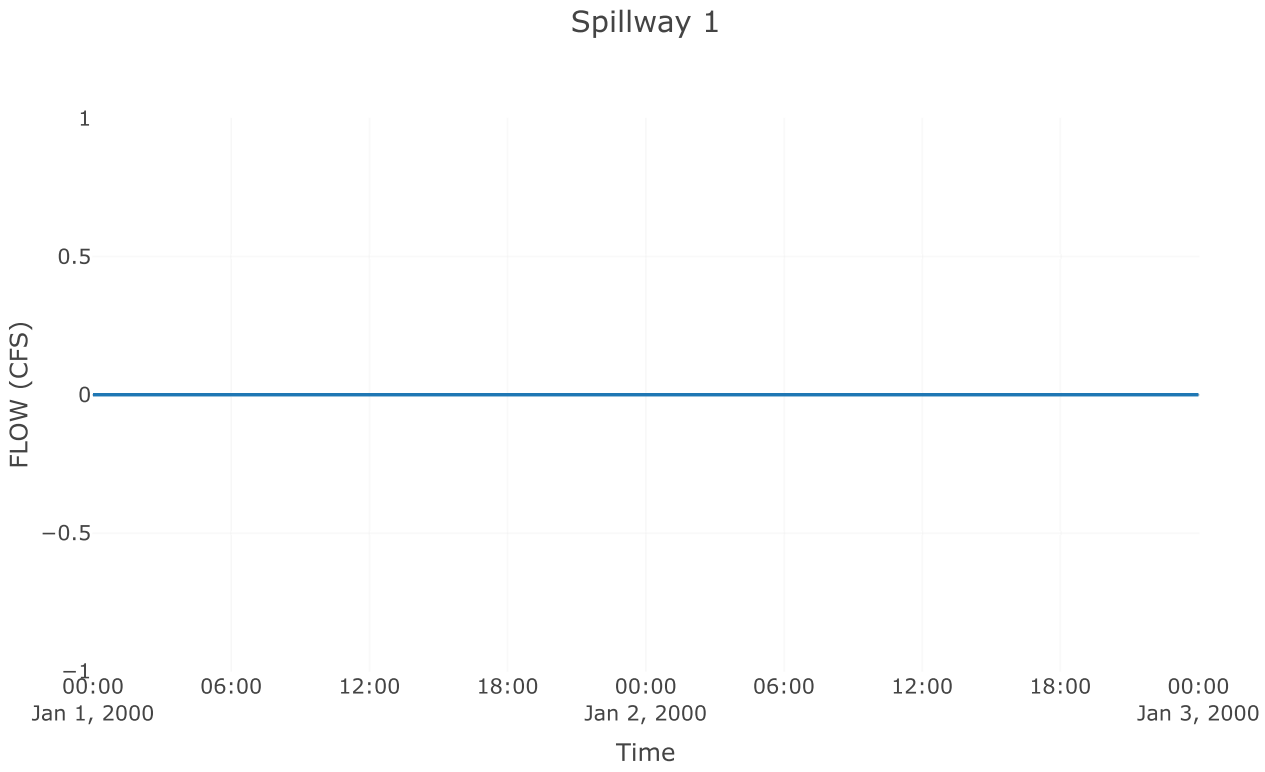
Storage

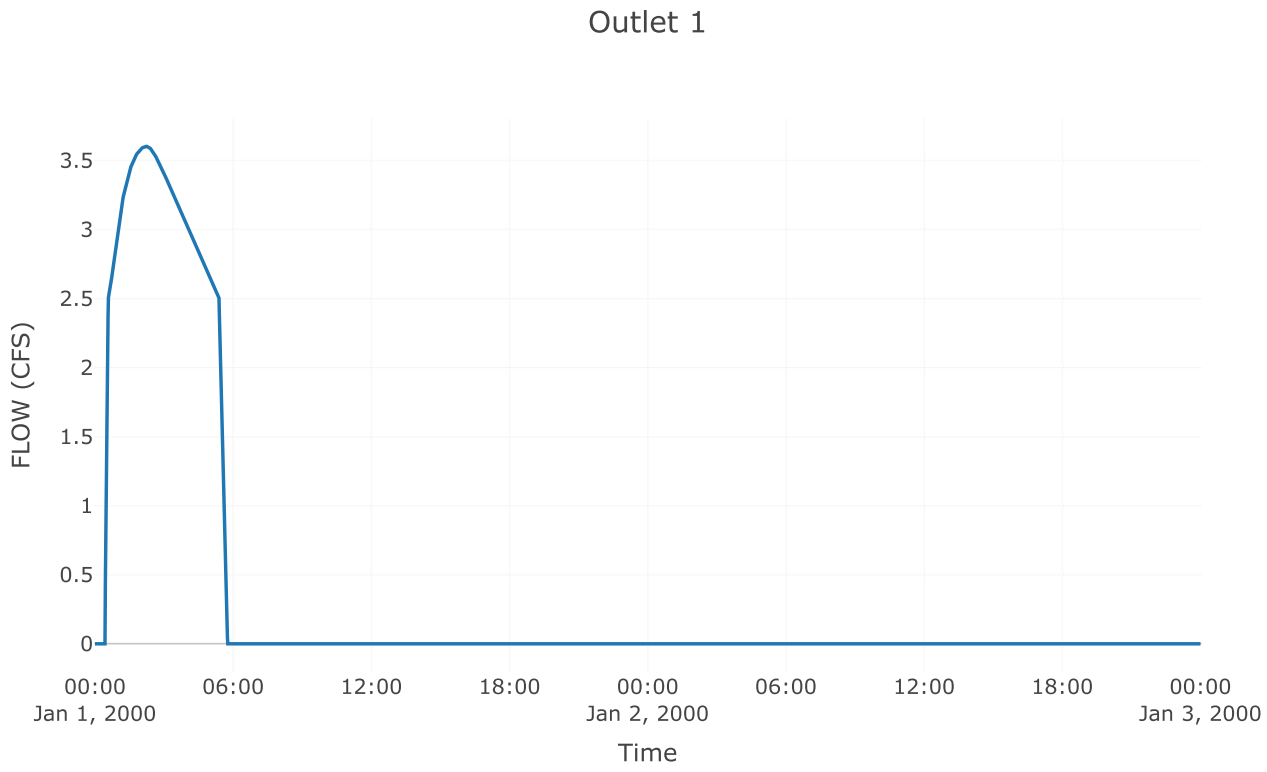


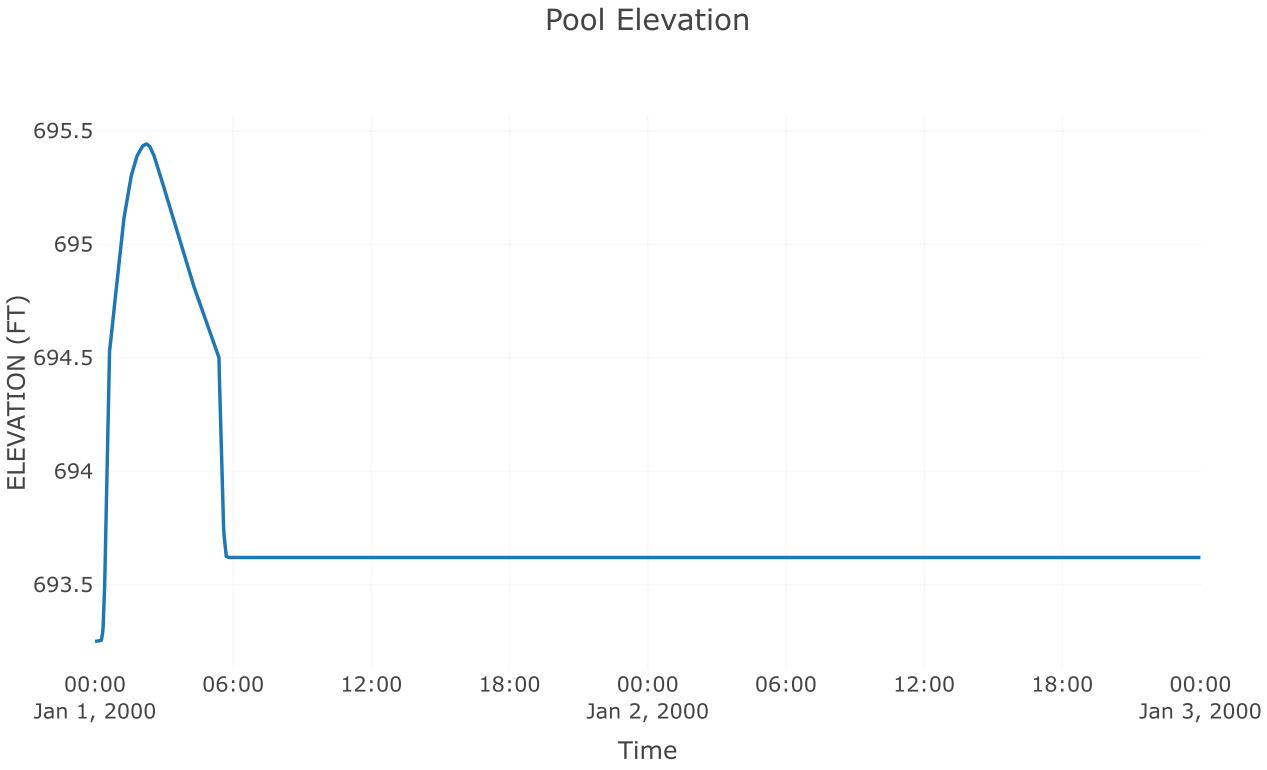
Combined Inflow

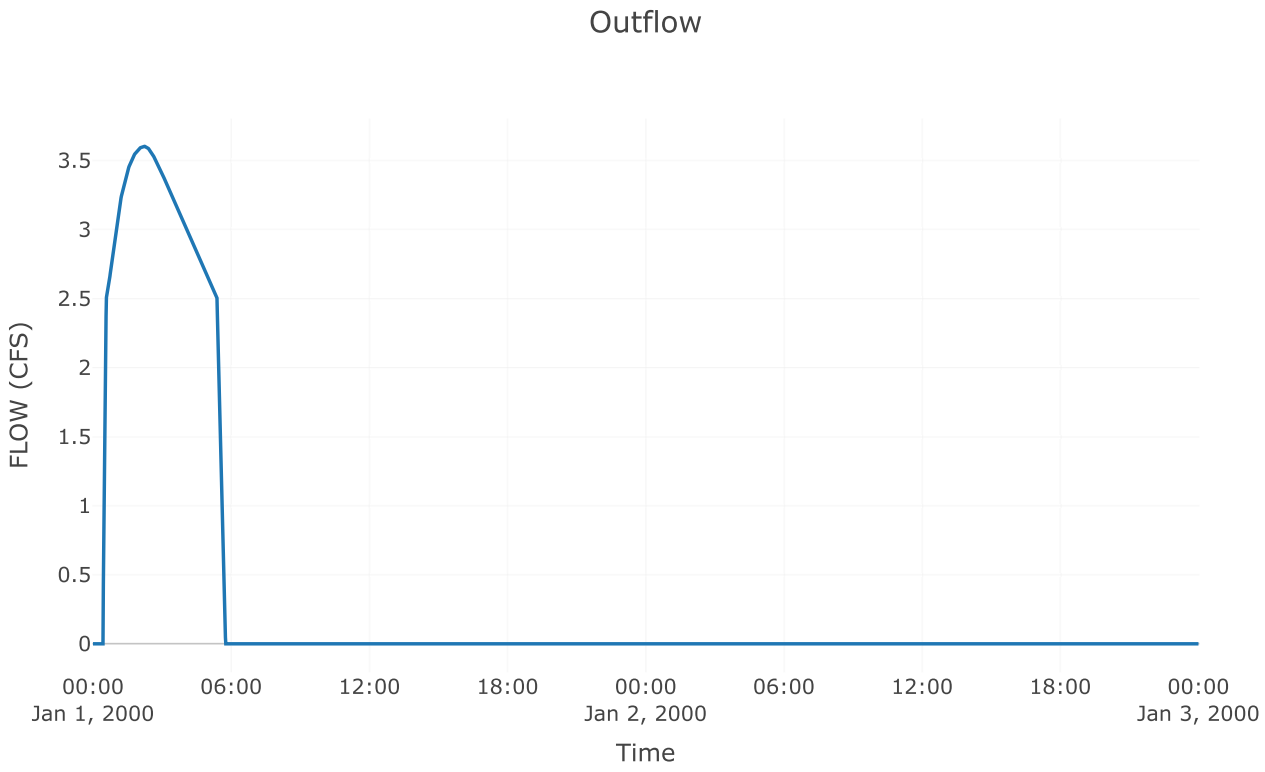



Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
1.2
1
0.8
0.6
0.4
0.2
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 1
FLOW (CFS)
3.5
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Pool Elevation
ELEVATION (FT)
695.5
695
694.5
694
693.5
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outflow
FLOW (CFS)
3.5
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: On-Site Trib 2

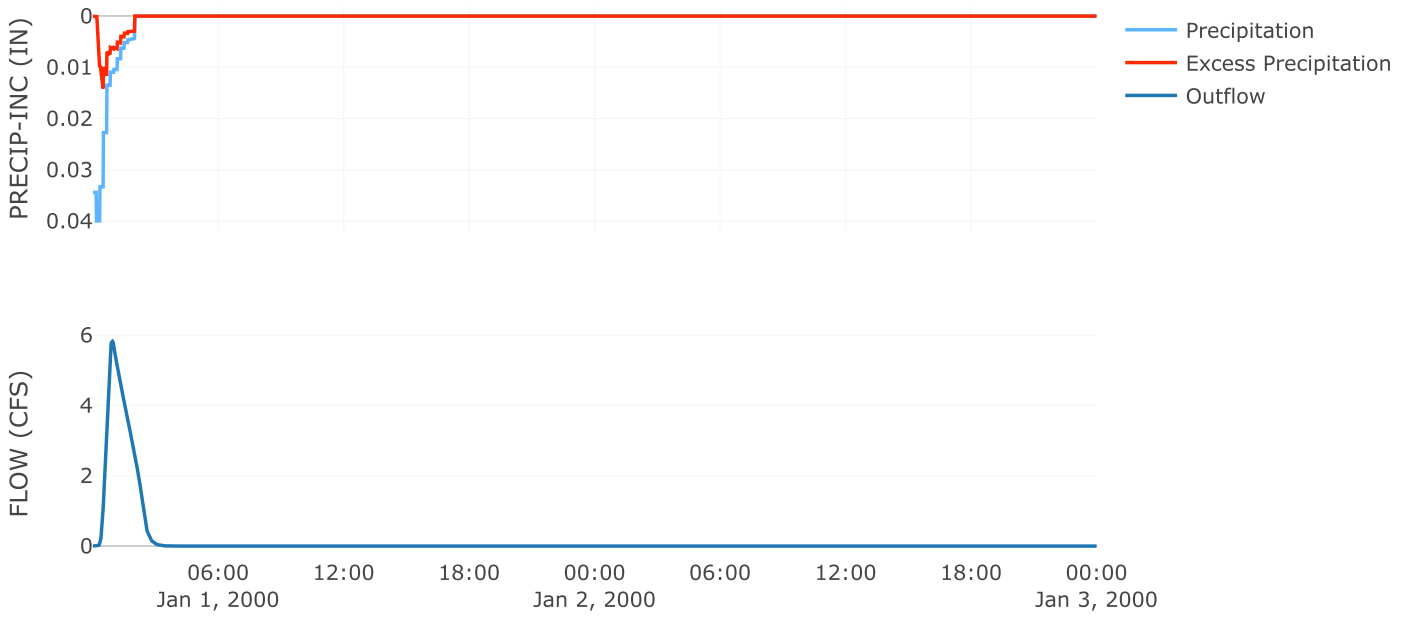
Area (MI2) : 0.02
Downstream : Basin 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

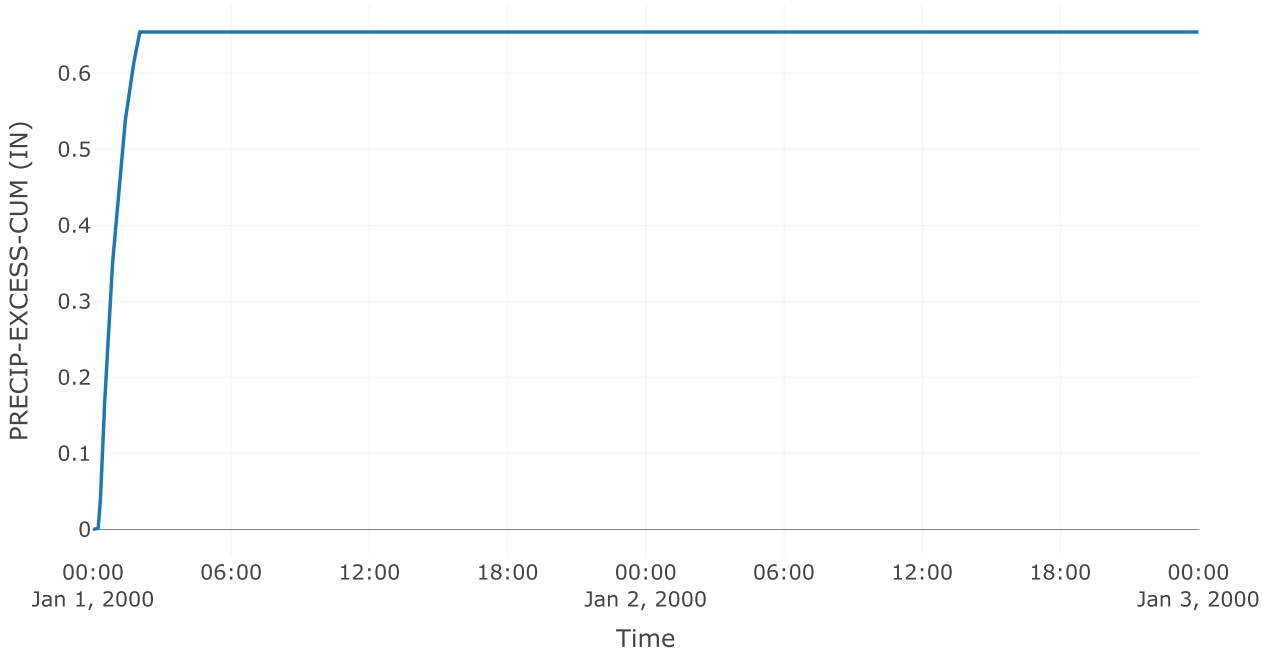
Transform: Scs	
Lag	20.4
Unitgraph Type	Standard

Results: On-Site Trib 2	
Peak Discharge (CFS)	5.83
Time of Peak Discharge	01Jan2000, 00:55
Volume (IN)	0.65
Precipitation Volume (AC - FT)	1.78
Loss Volume (AC - FT)	1.18
Excess Volume (AC - FT)	0.6
Direct Runoff Volume (AC - FT)	0.6
Baseflow Volume (AC - FT)	0

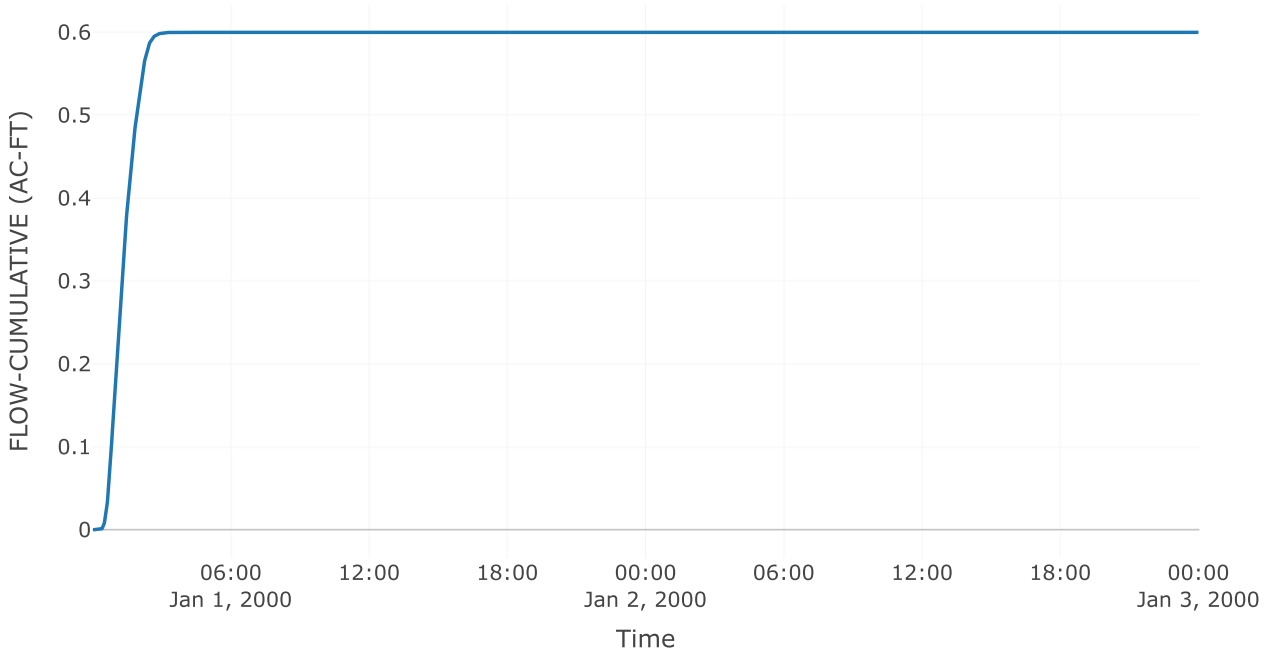
Precipitation and Outflow



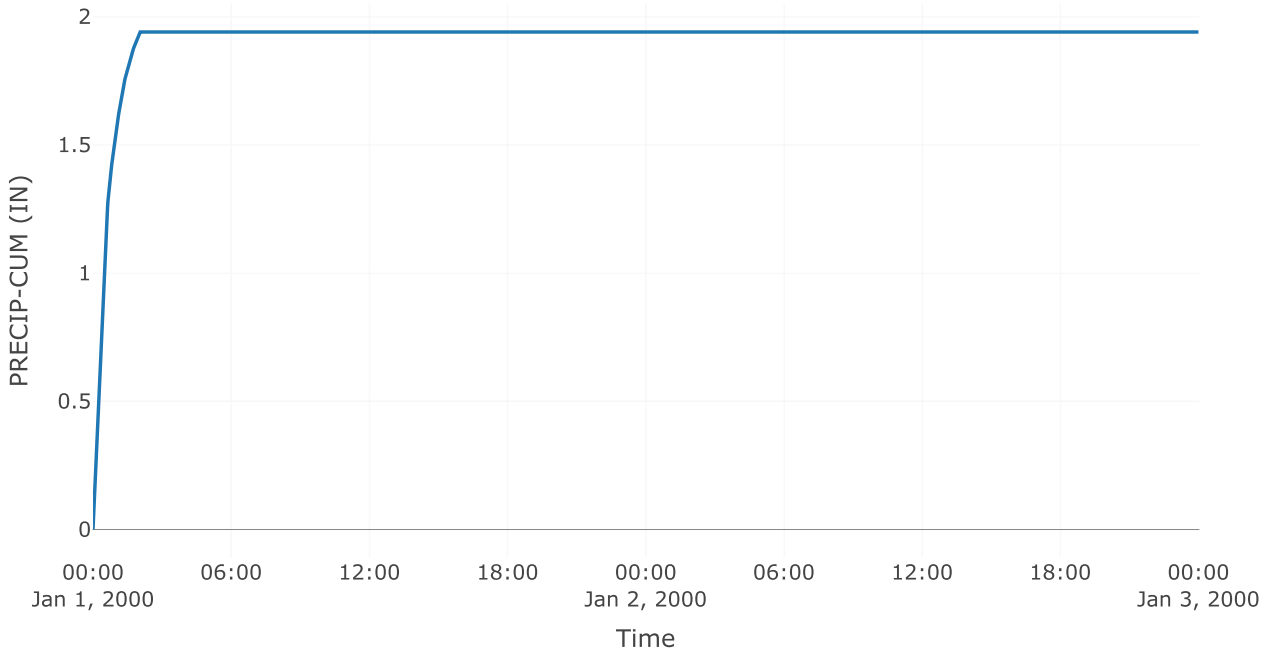
Cumulative Excess Precipitation

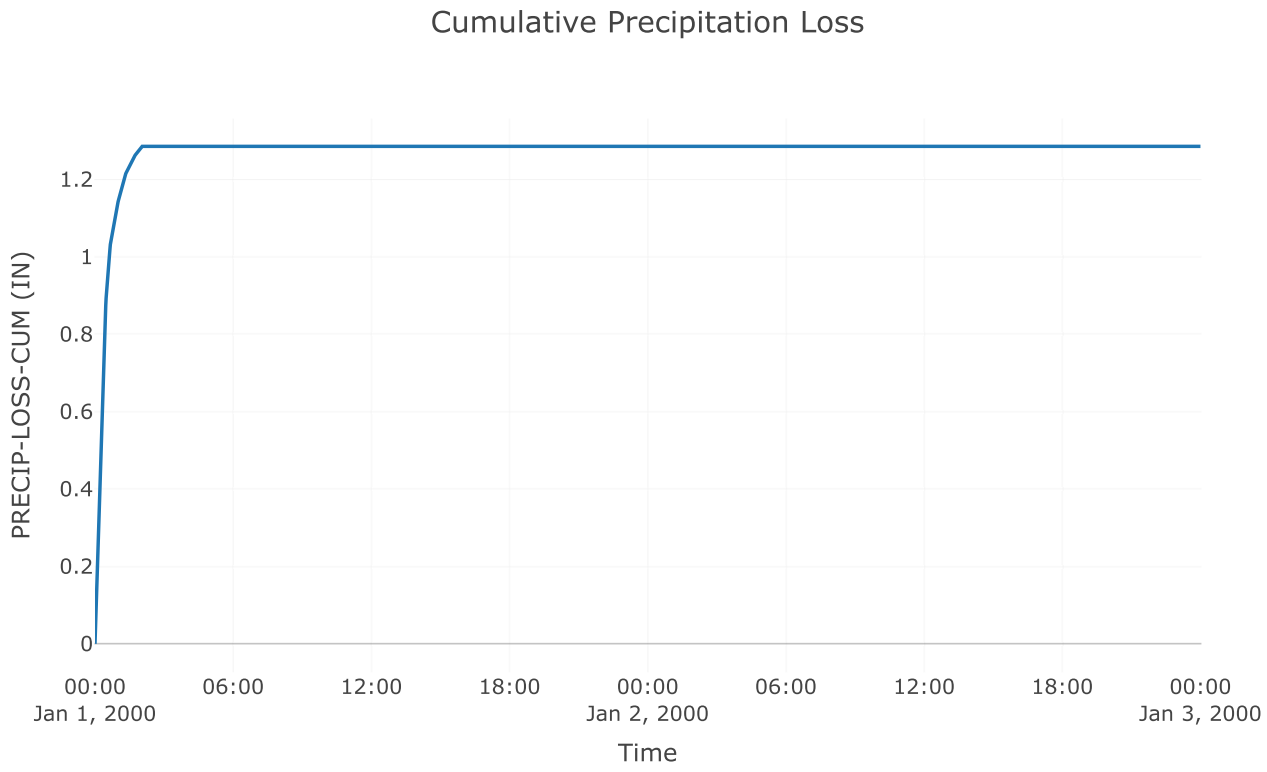


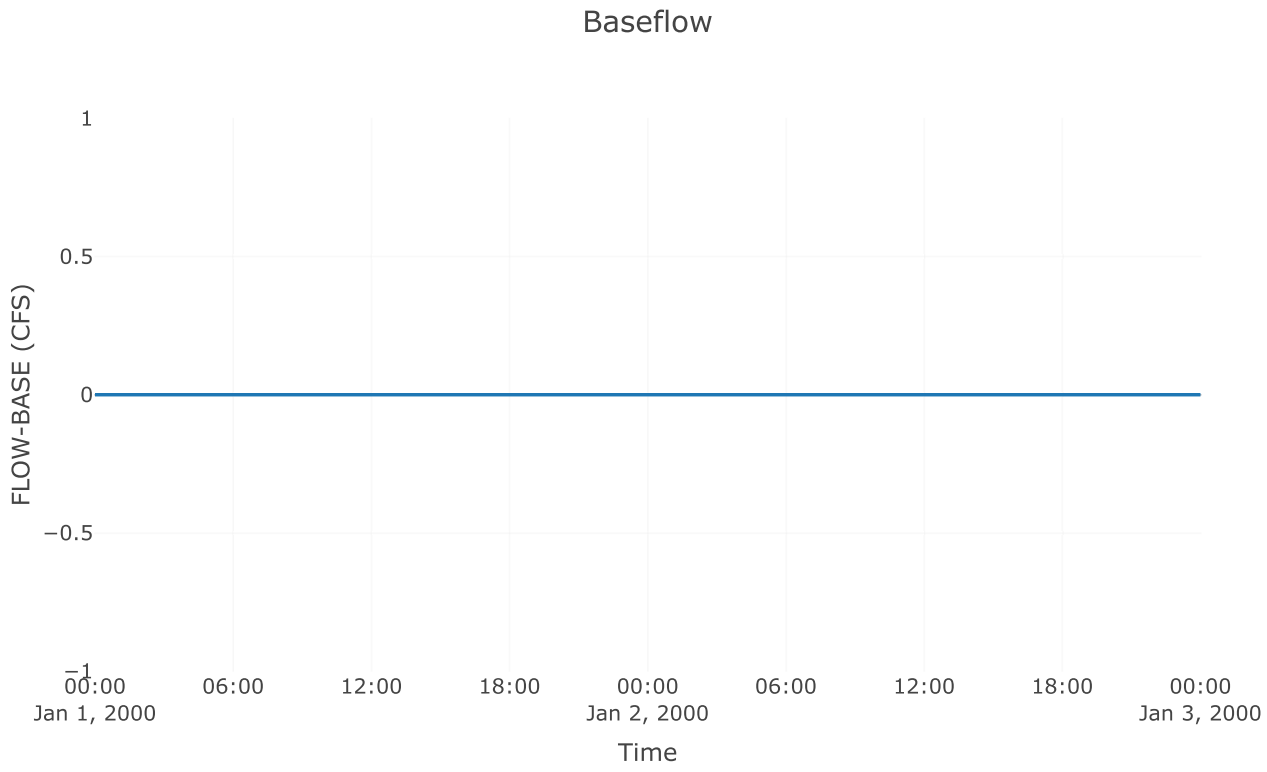
Cumulative Outflow

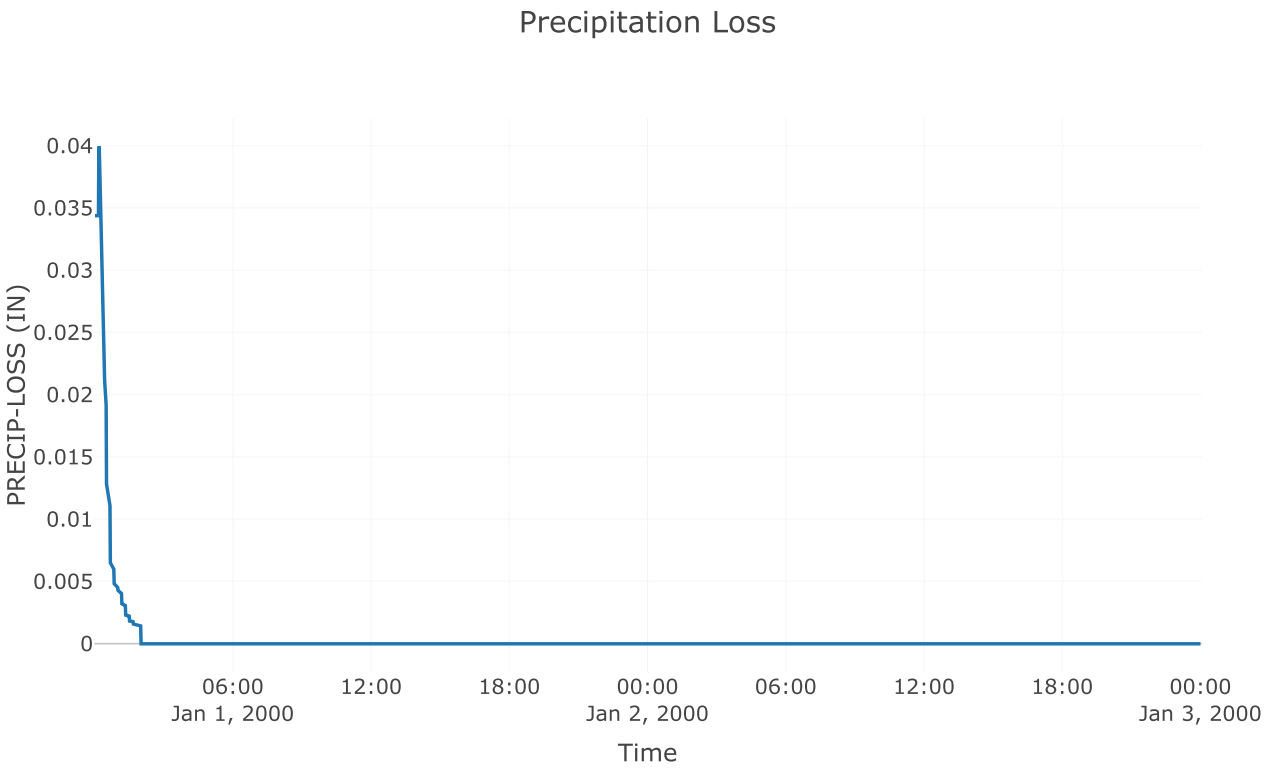


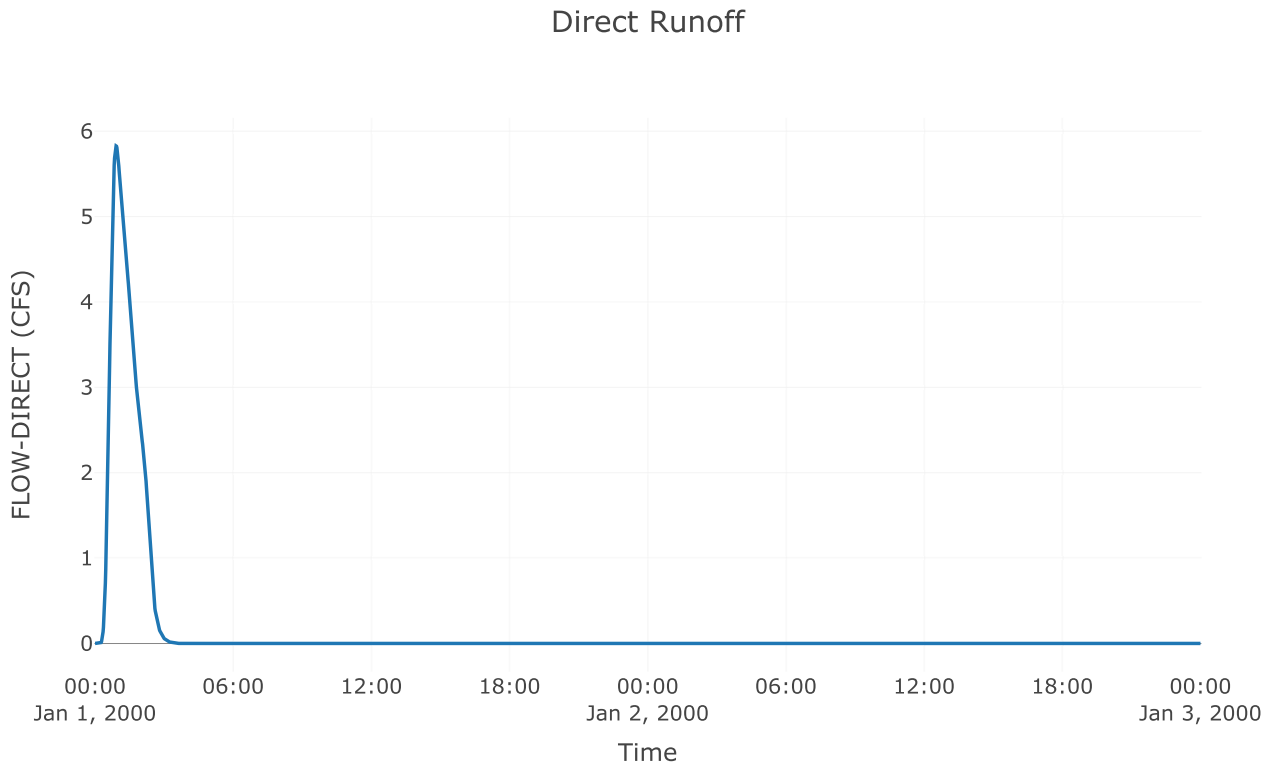
Cumulative Precipitation

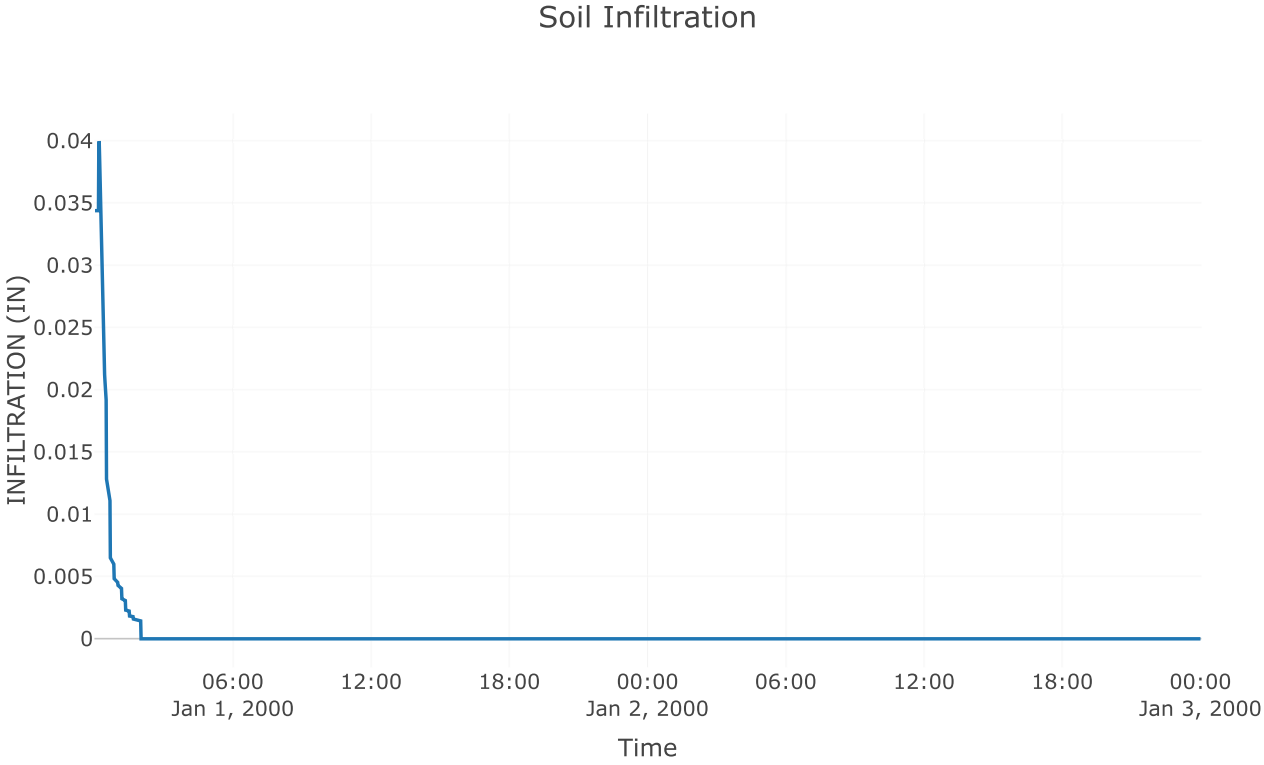



Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
6
5
4
3
2
1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib2

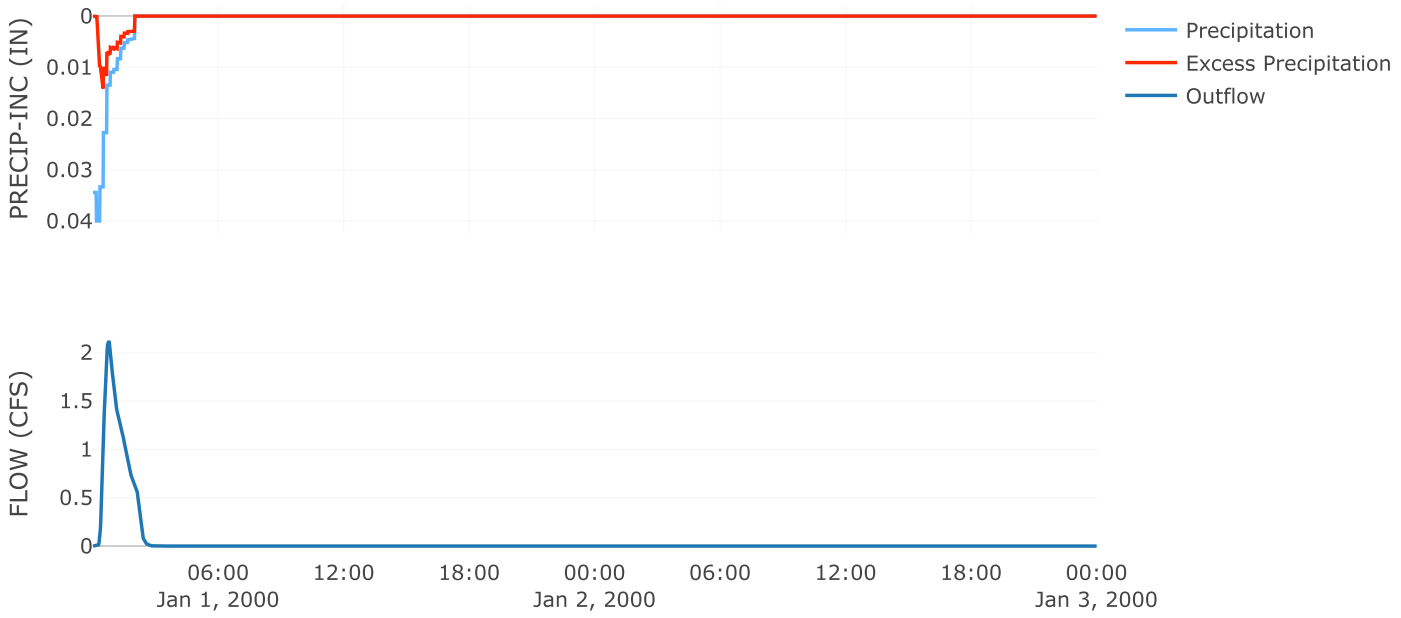
Area (MI2) : 0.01
Downstream : Basin 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

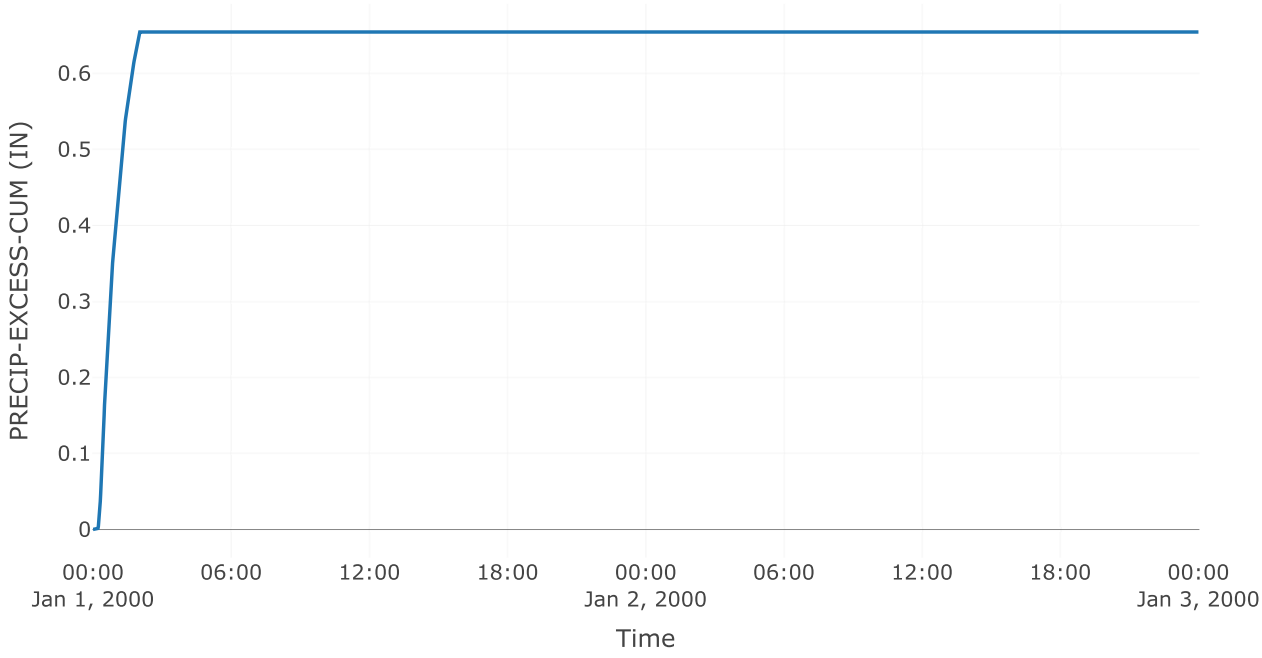
Transform: Scs	
Lag	12
Unitgraph Type	Standard

Results: Off-Site Trib2	
Peak Discharge (CFS)	2.12
Time of Peak Discharge	01Jan2000, 00:45
Volume (IN)	0.65
Precipitation Volume (AC - FT)	0.55
Loss Volume (AC - FT)	0.36
Excess Volume (AC - FT)	0.19
Direct Runoff Volume (AC - FT)	0.19
Baseflow Volume (AC - FT)	0

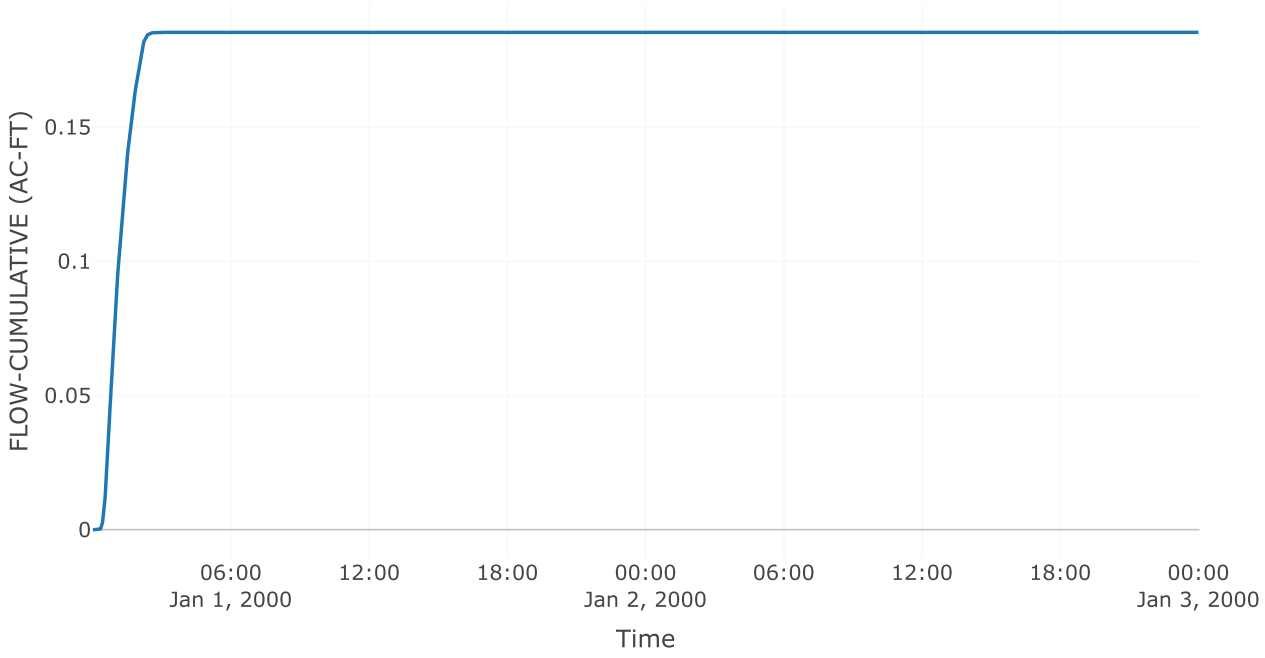
Precipitation and Outflow



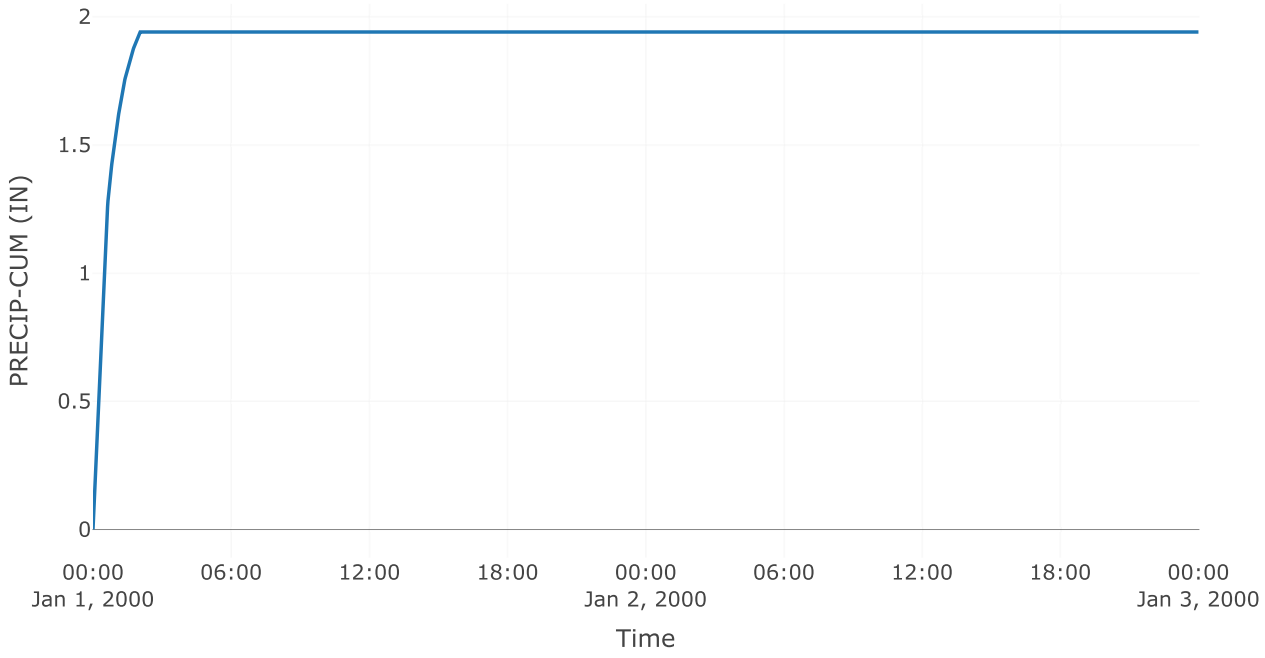
Cumulative Excess Precipitation

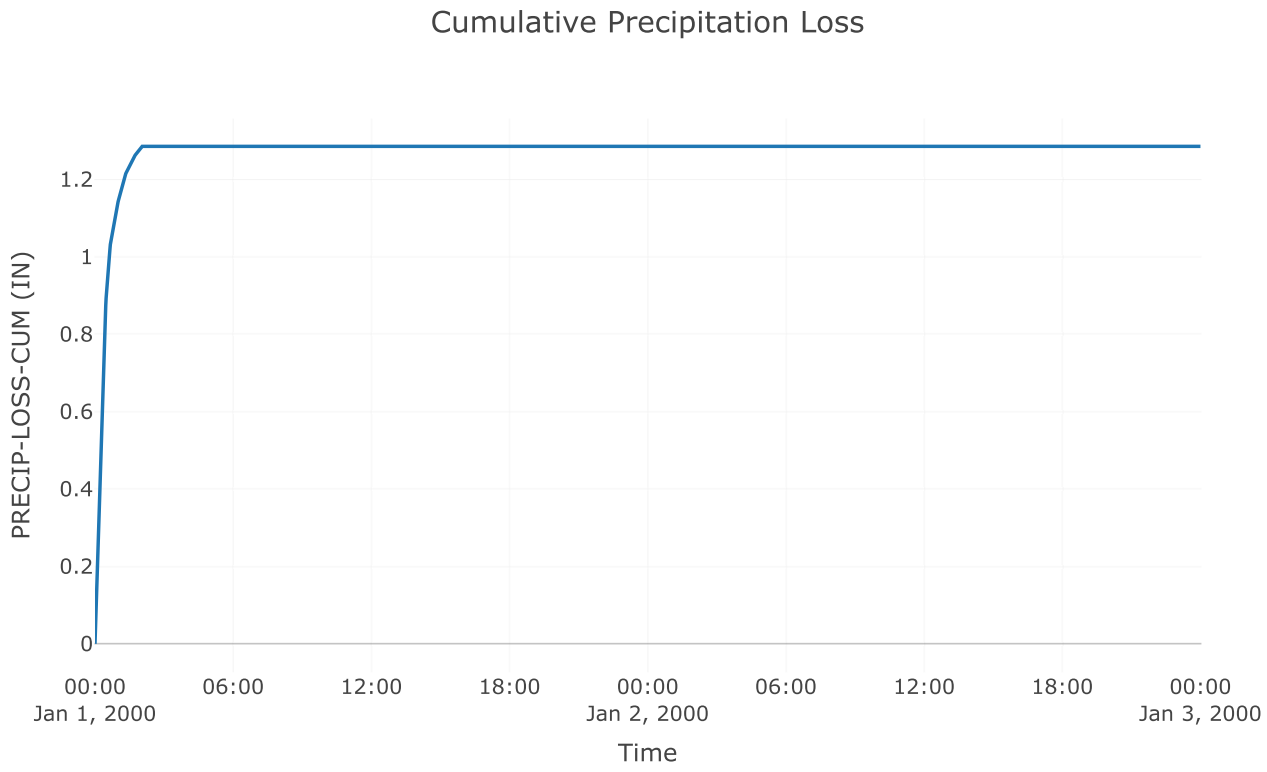


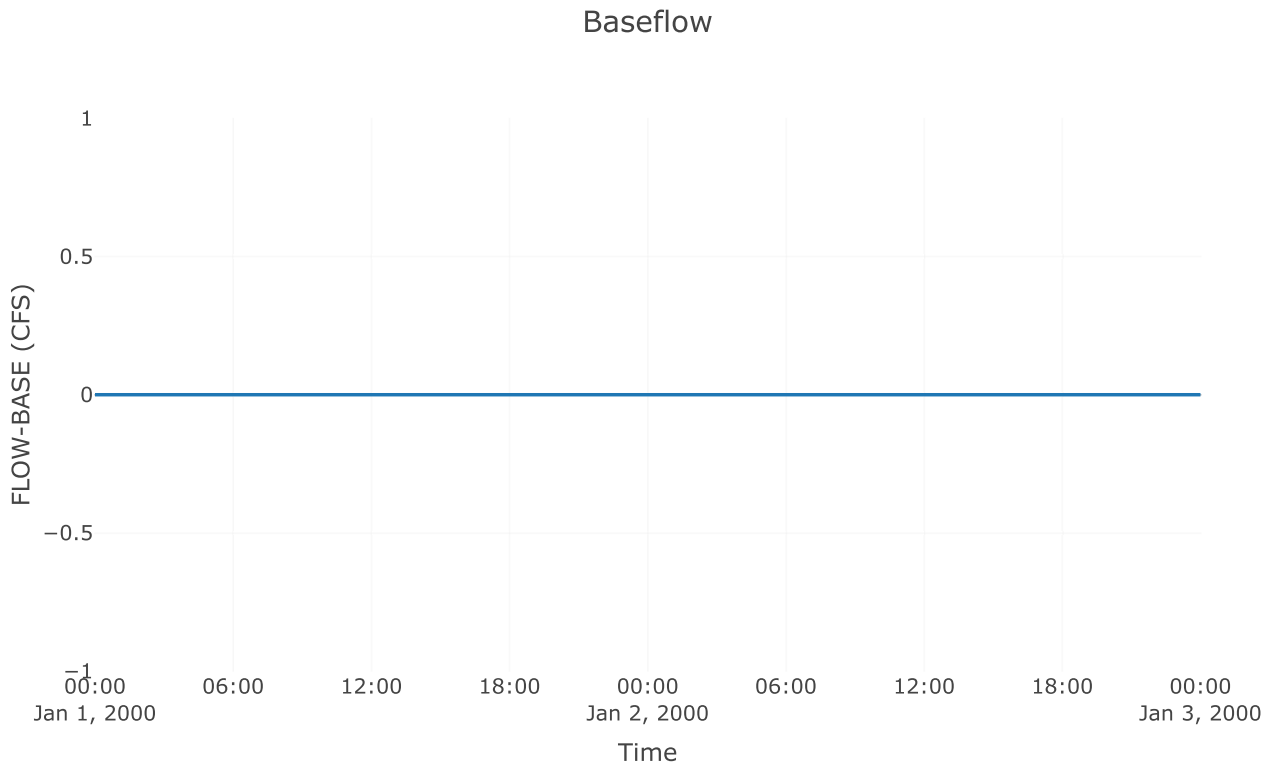
Cumulative Outflow

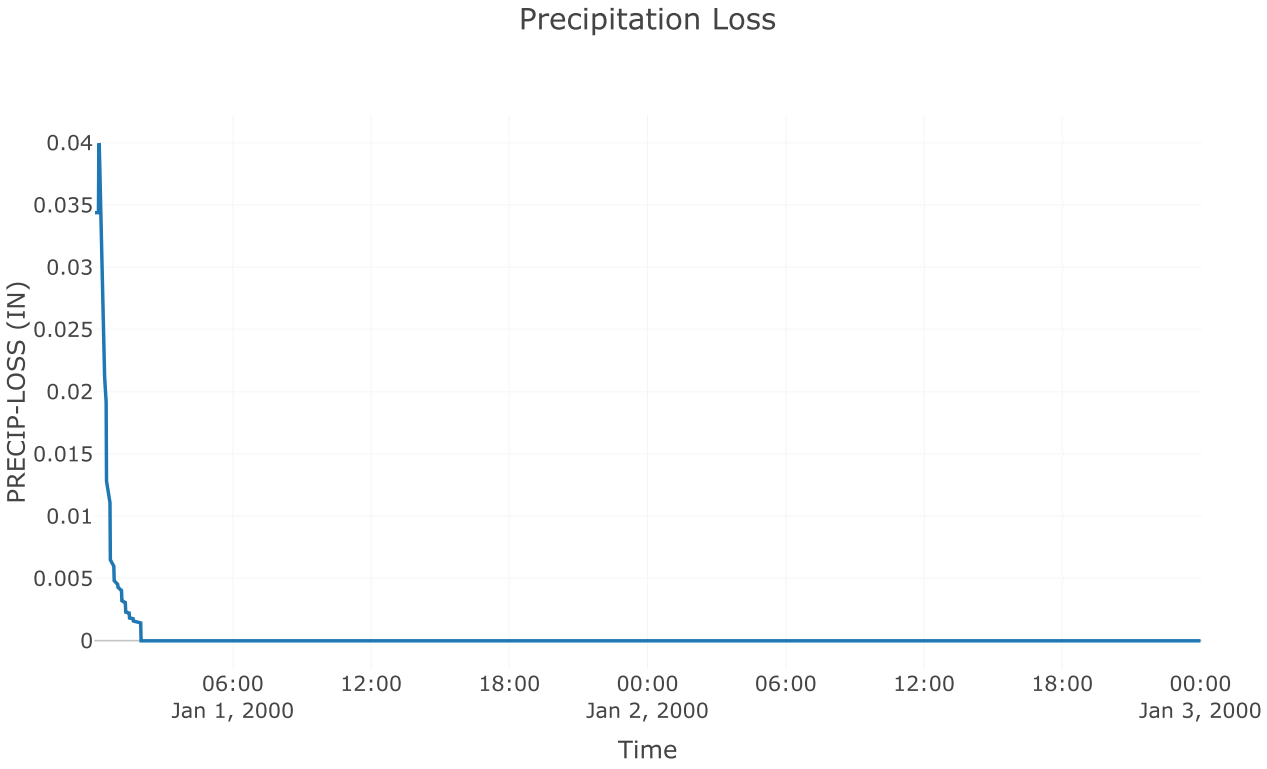


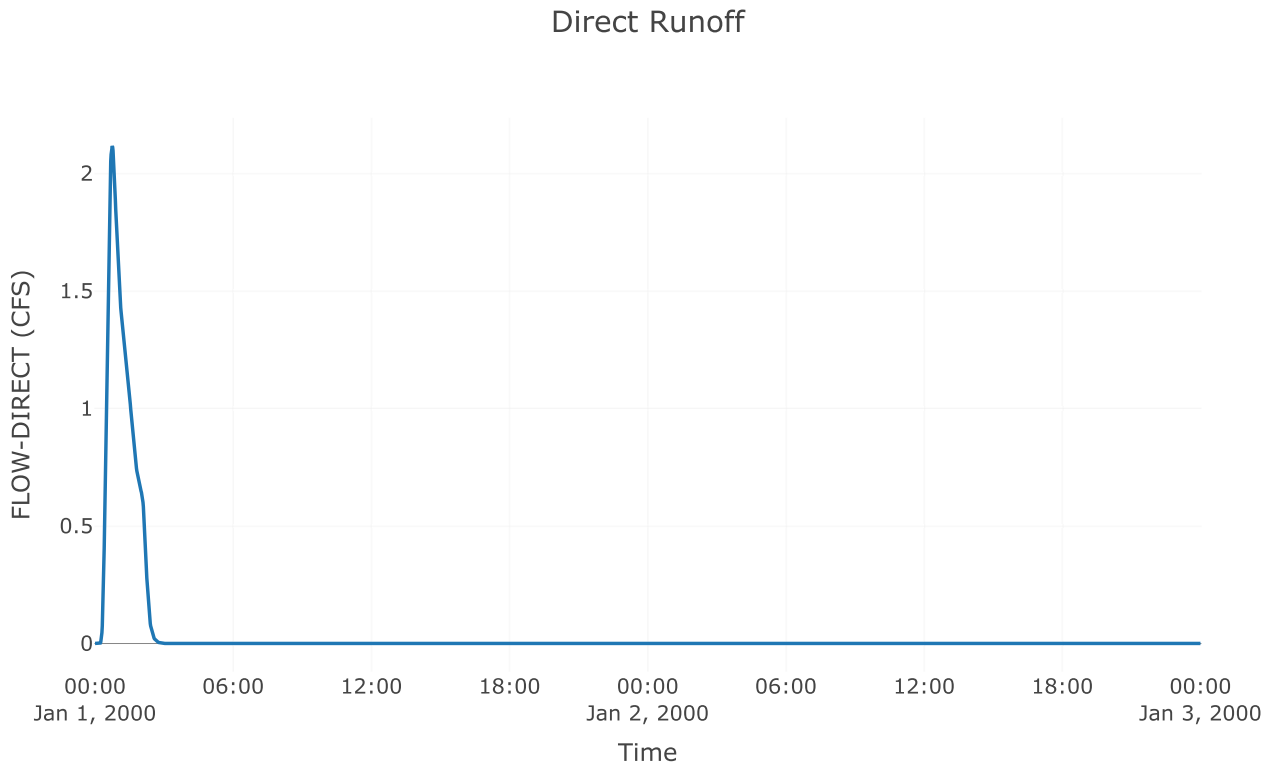
Cumulative Precipitation

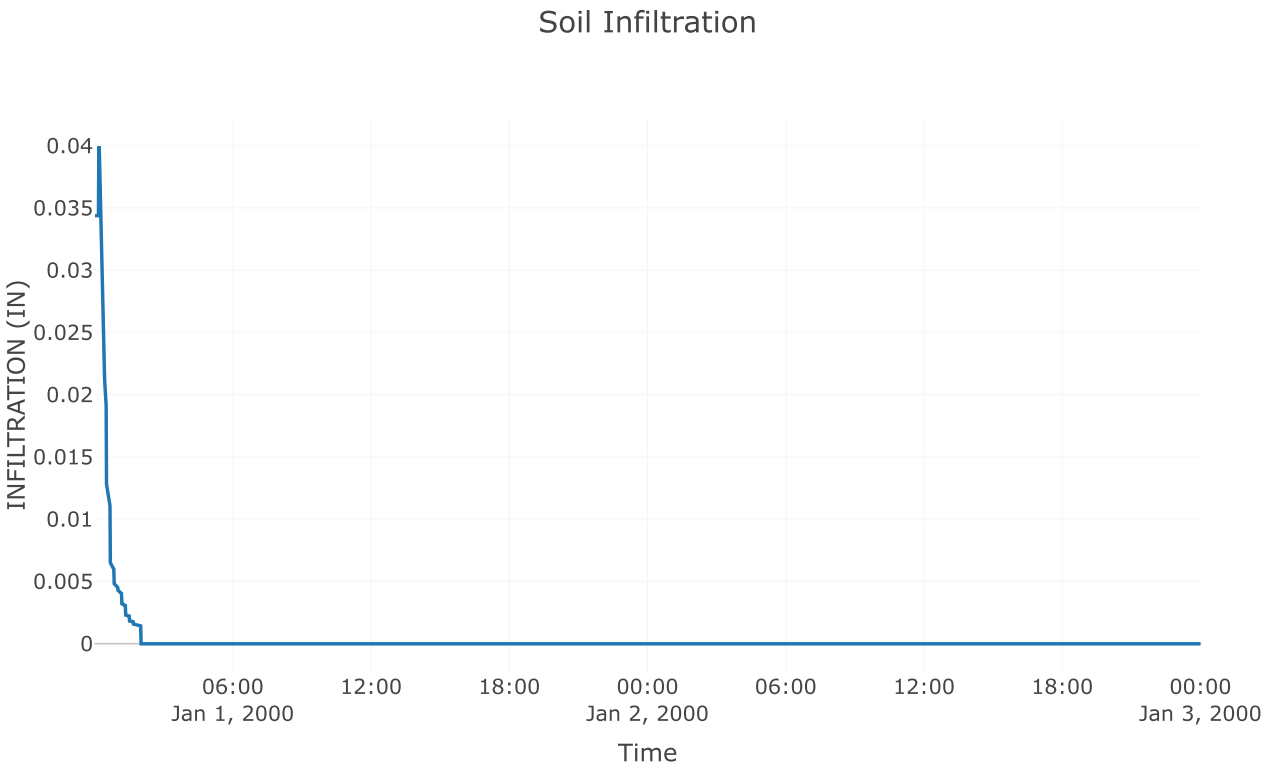



Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

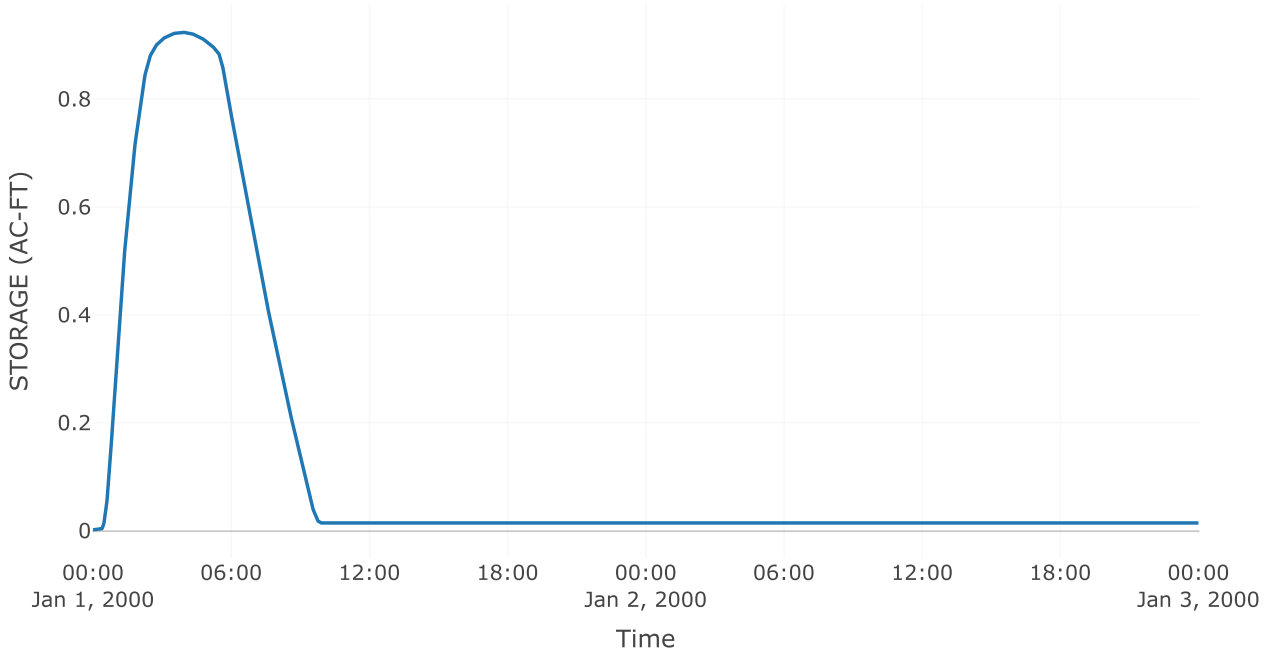

Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 2

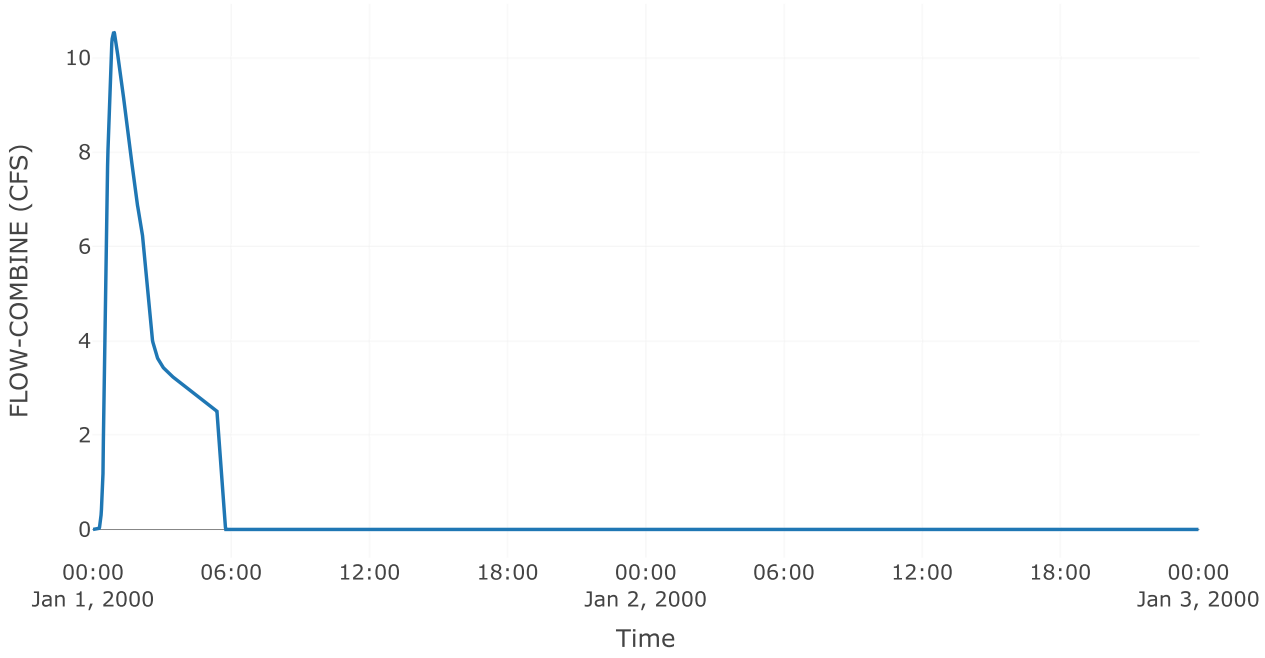
Downstream : Basin 3

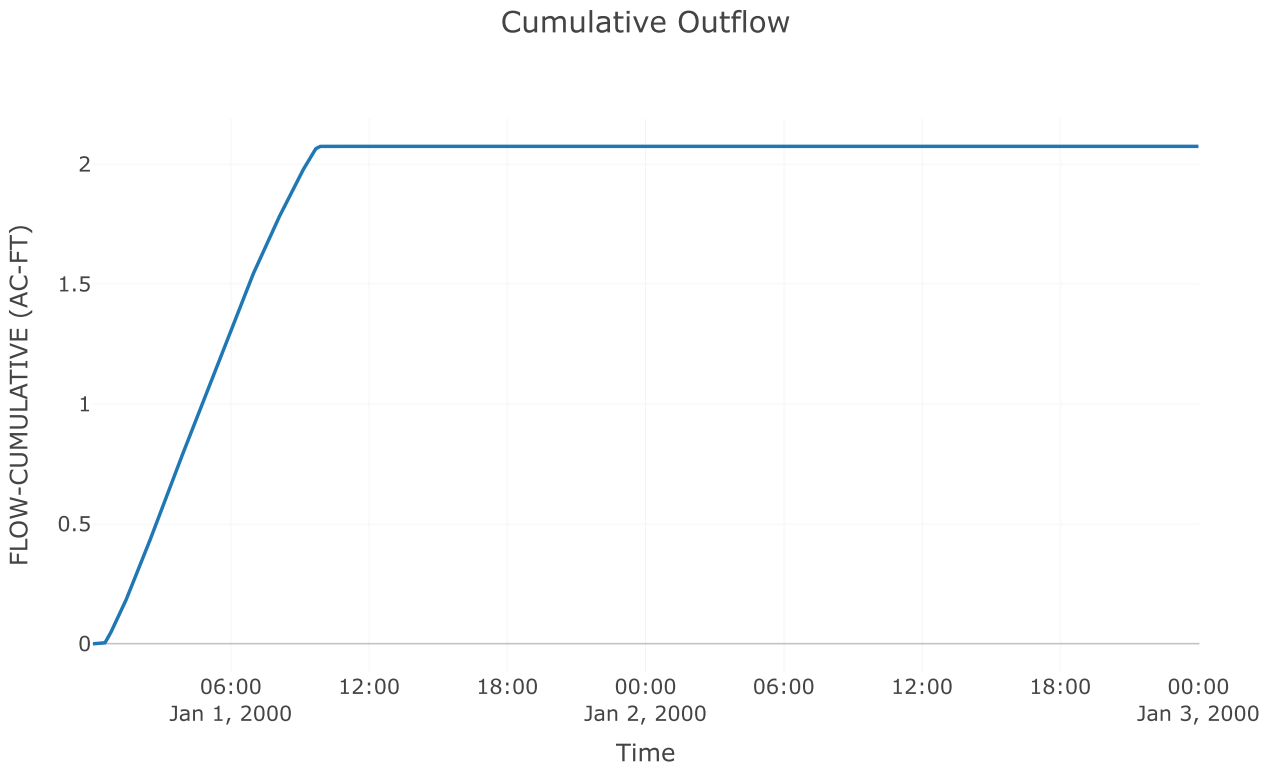
Results: Basin 2	
Peak Discharge (CFS)	3.07
Time of Peak Discharge	01Jan2000, 03:53
Volume (IN)	0.72
Peak Inflow (CFS)	10.55
Time of Peak Inflow	01Jan2000, 00:54
Inflow Volume (AC - FT)	2.09
Maximum Storage (AC - FT)	0.92
Peak Elevation (FT)	692.6
Discharge Volume (AC - FT)	2.07

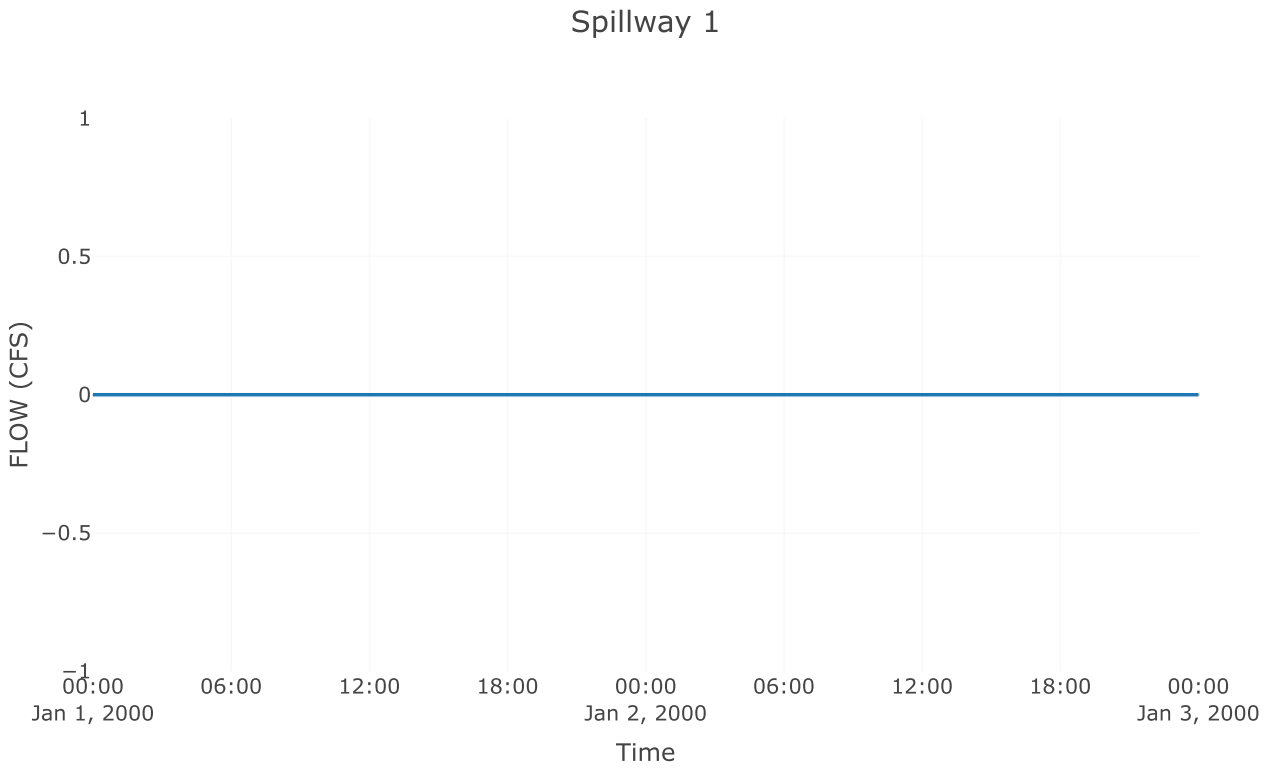
Storage



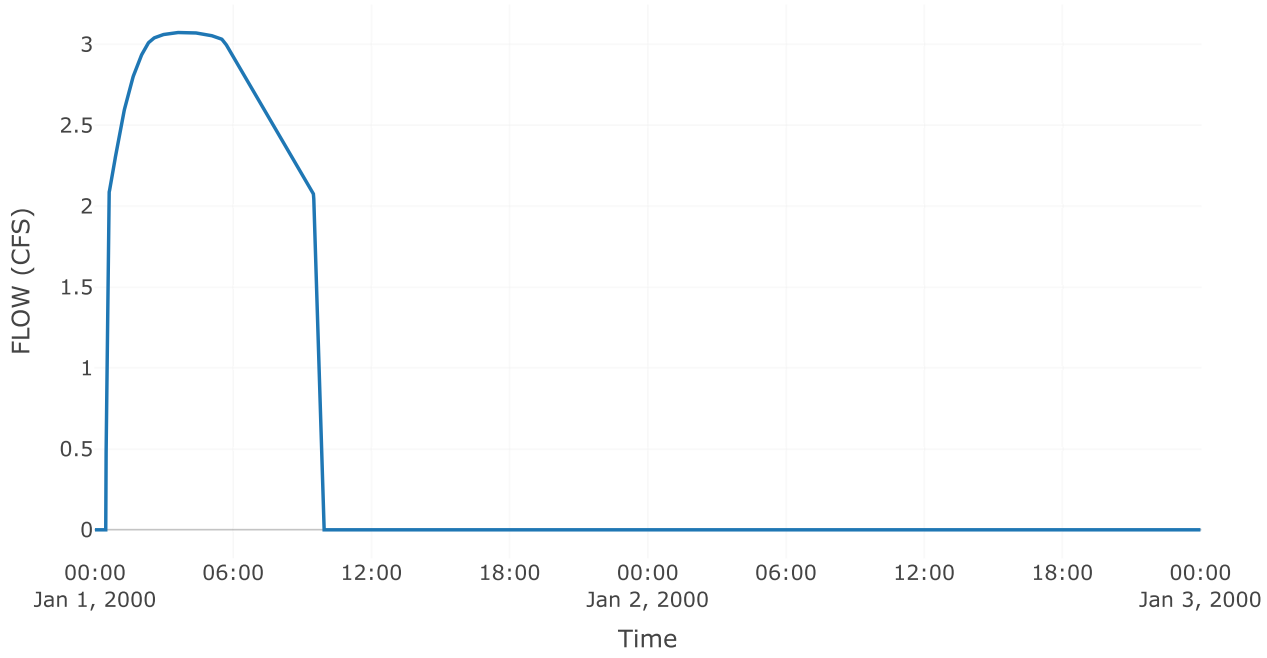
Combined Inflow



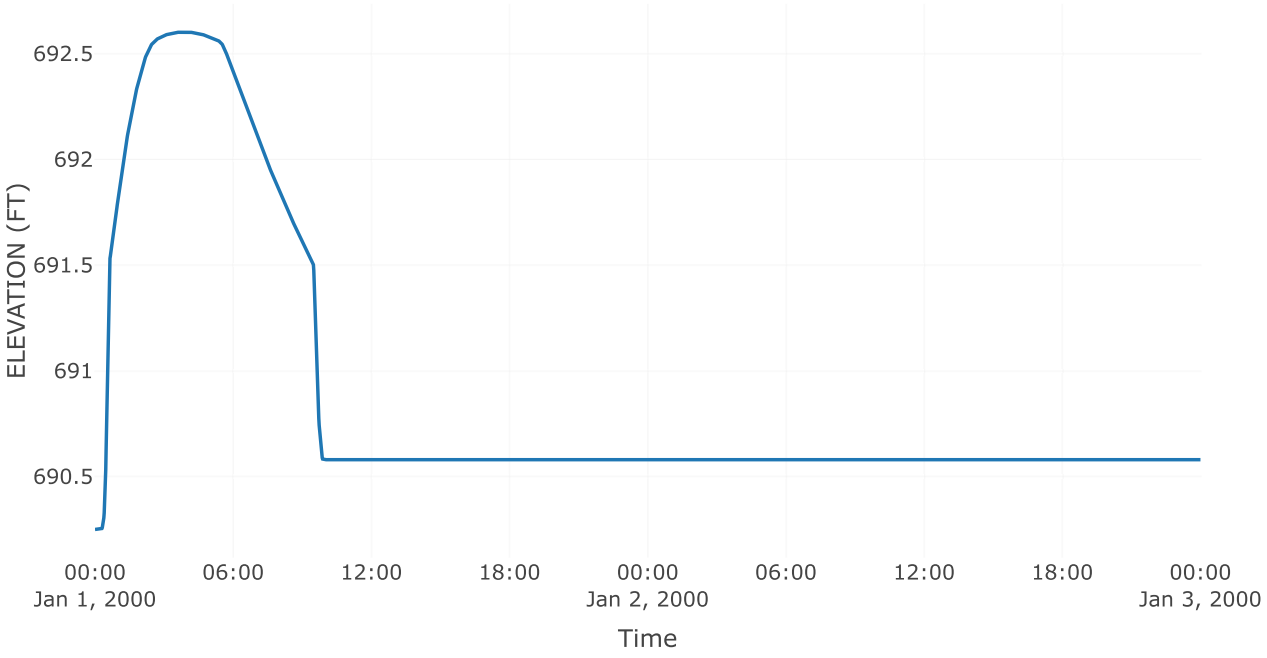

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
2
1.5
1
0.5
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

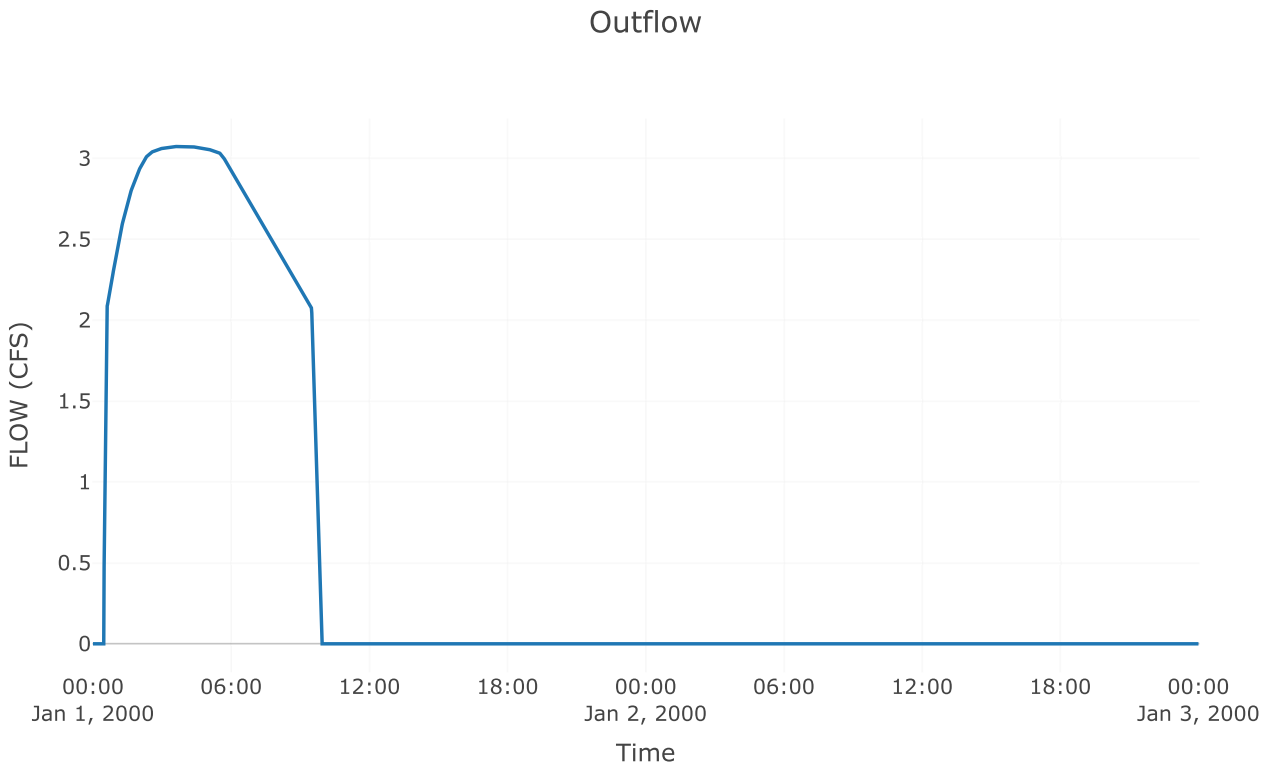

Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: On-Site Trib-Area 3

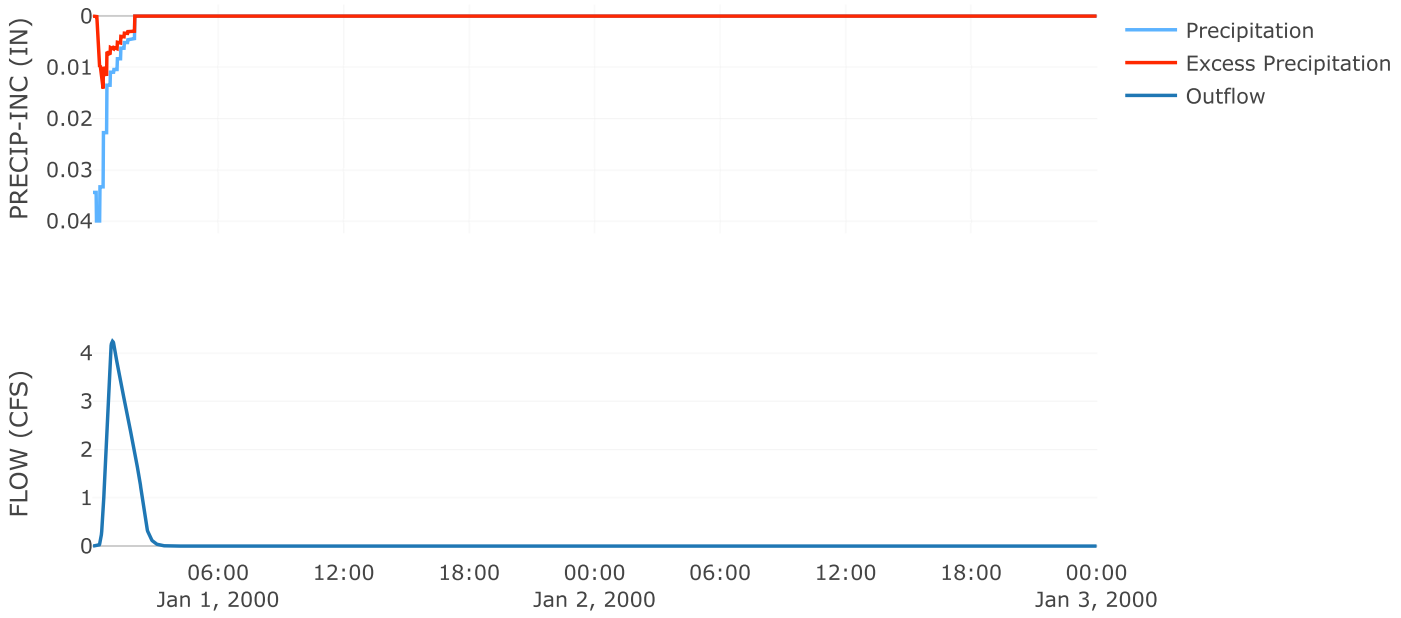
Area (MI2) : 0.01
Downstream : Basin 3

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

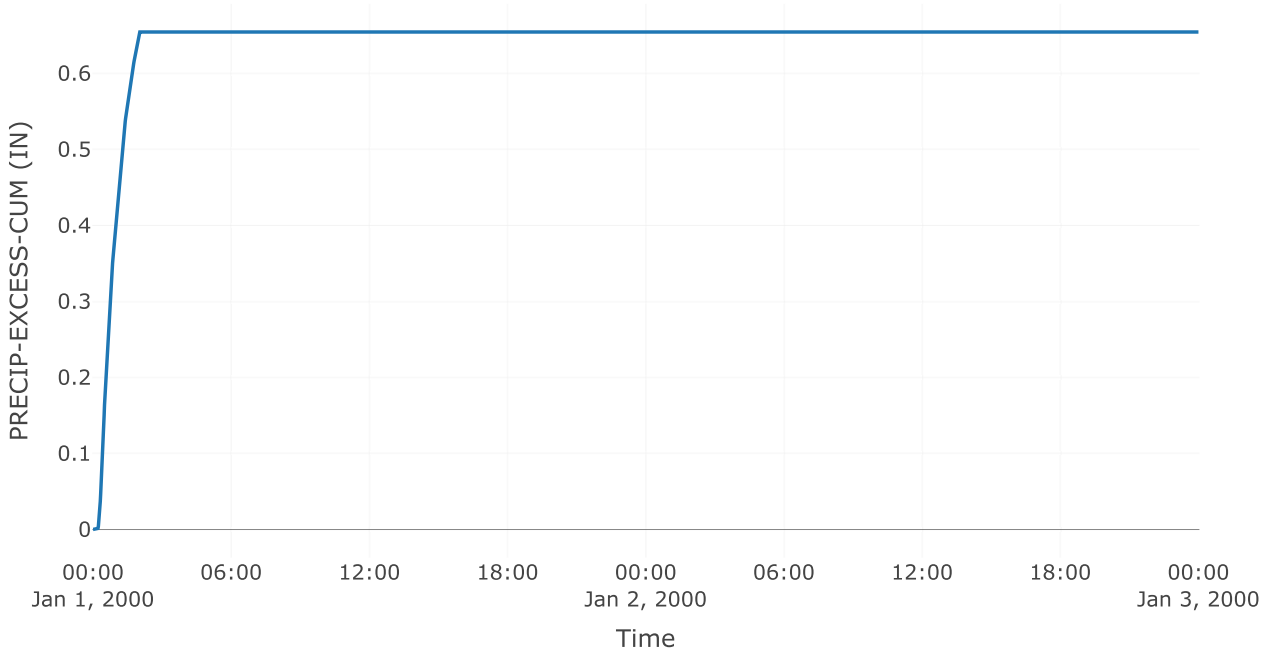
Transform: Scs	
Lag	21
Unitgraph Type	Standard

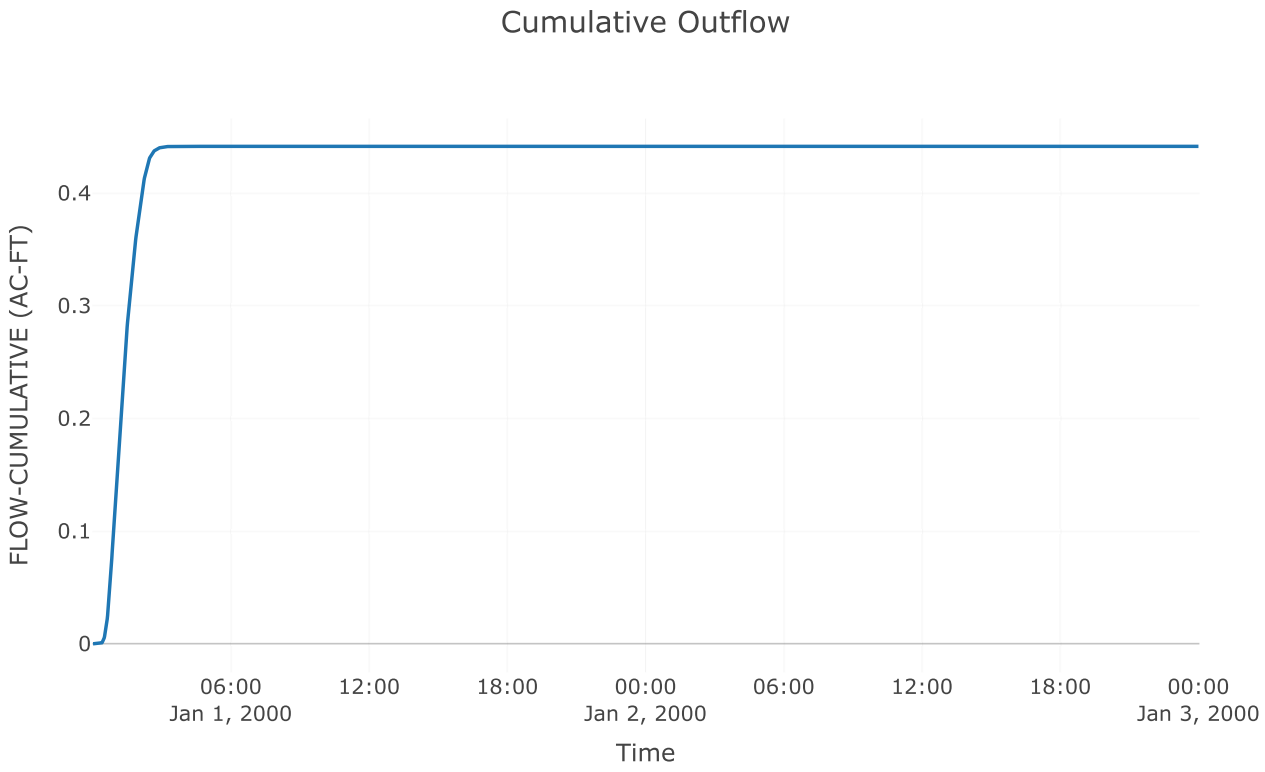
Results: On-Site Trib-Area 3	
Peak Discharge (CFS)	4.24
Time of Peak Discharge	01Jan2000, 00:56
Volume (IN)	0.65
Precipitation Volume (AC - FT)	1.31
Loss Volume (AC - FT)	0.87
Excess Volume (AC - FT)	0.44
Direct Runoff Volume (AC - FT)	0.44
Baseflow Volume (AC - FT)	0

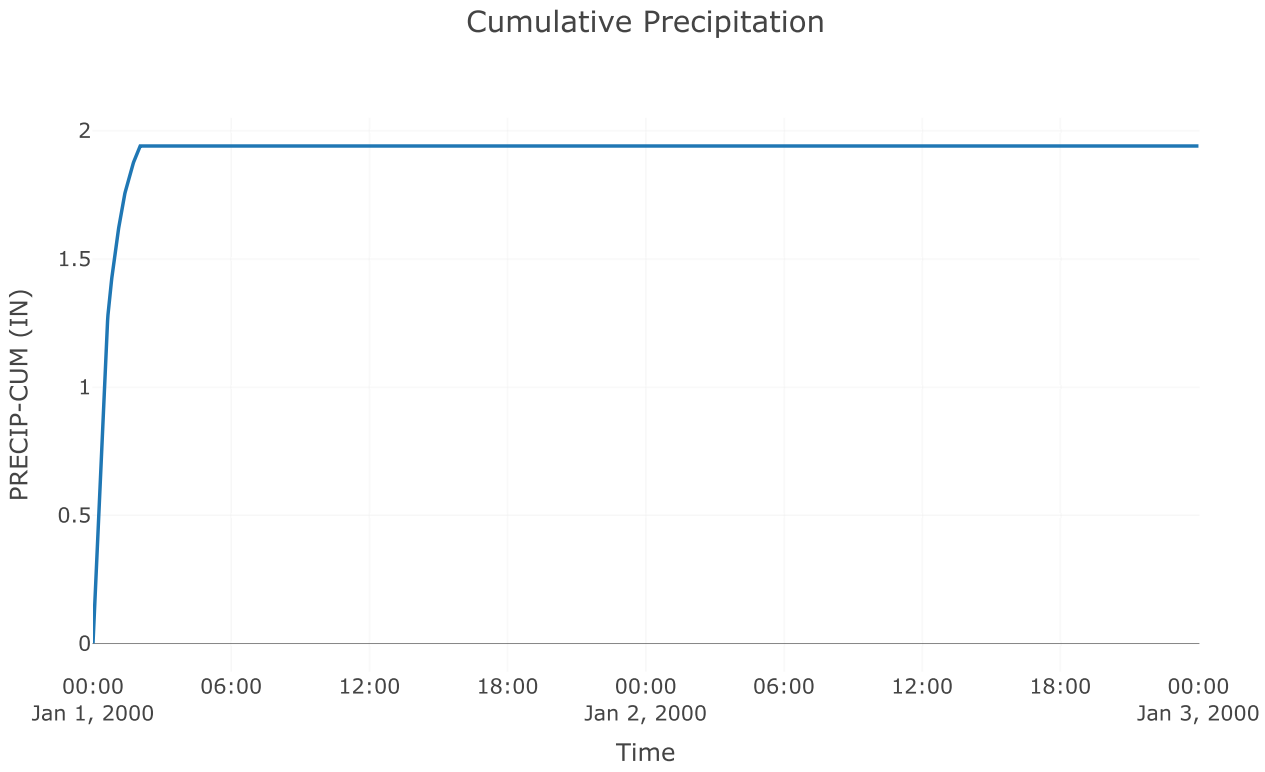
Precipitation and Outflow

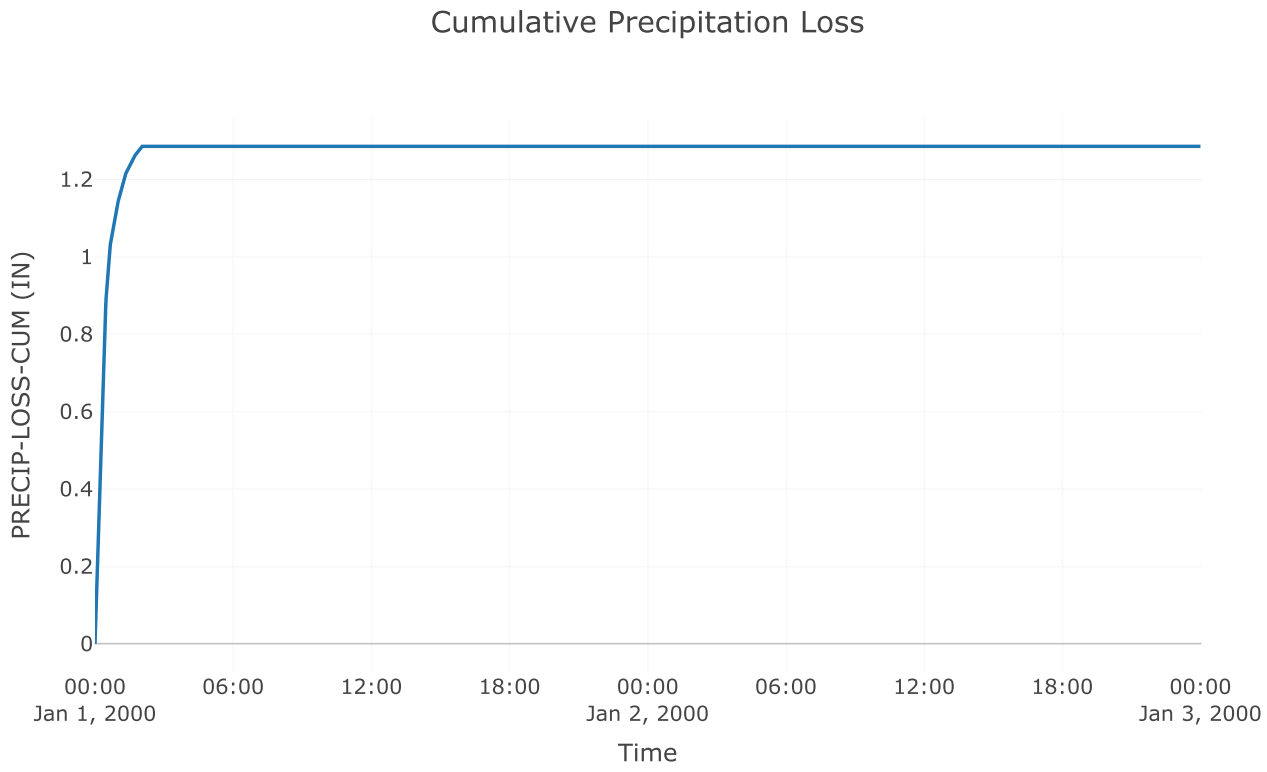


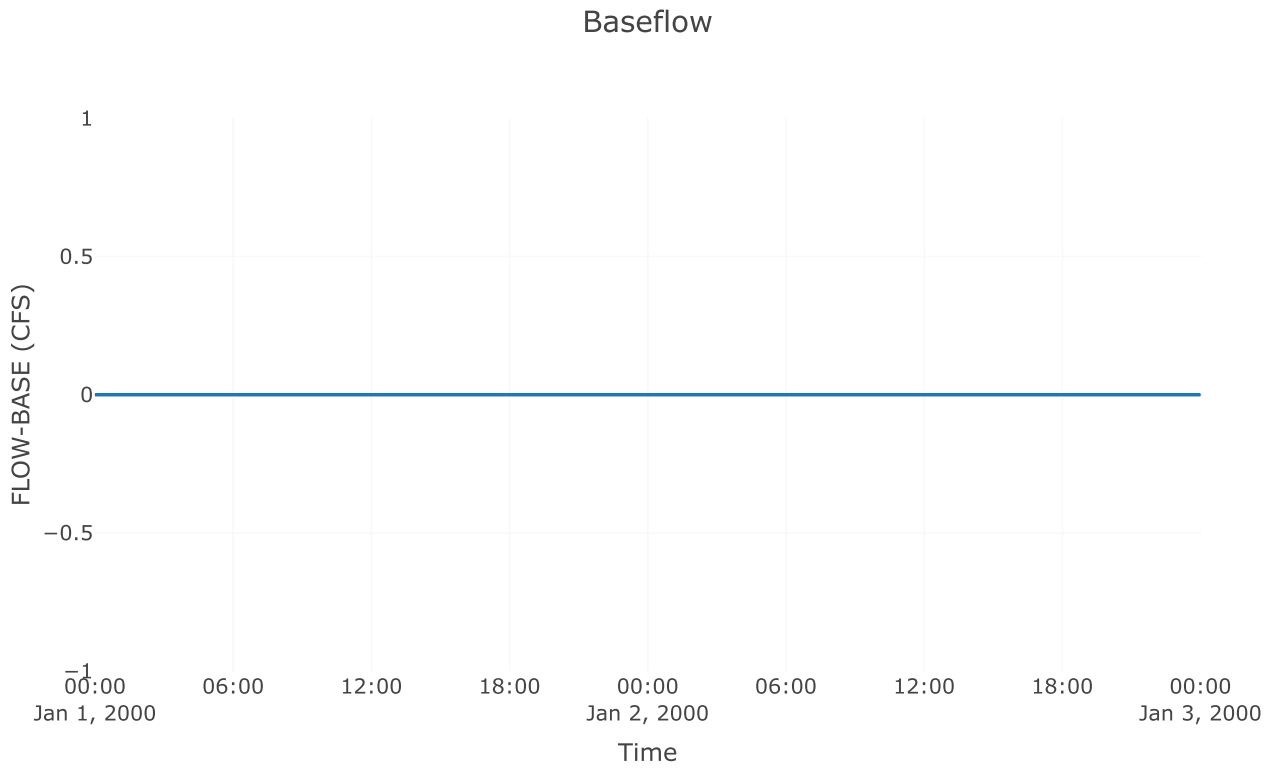
Cumulative Excess Precipitation

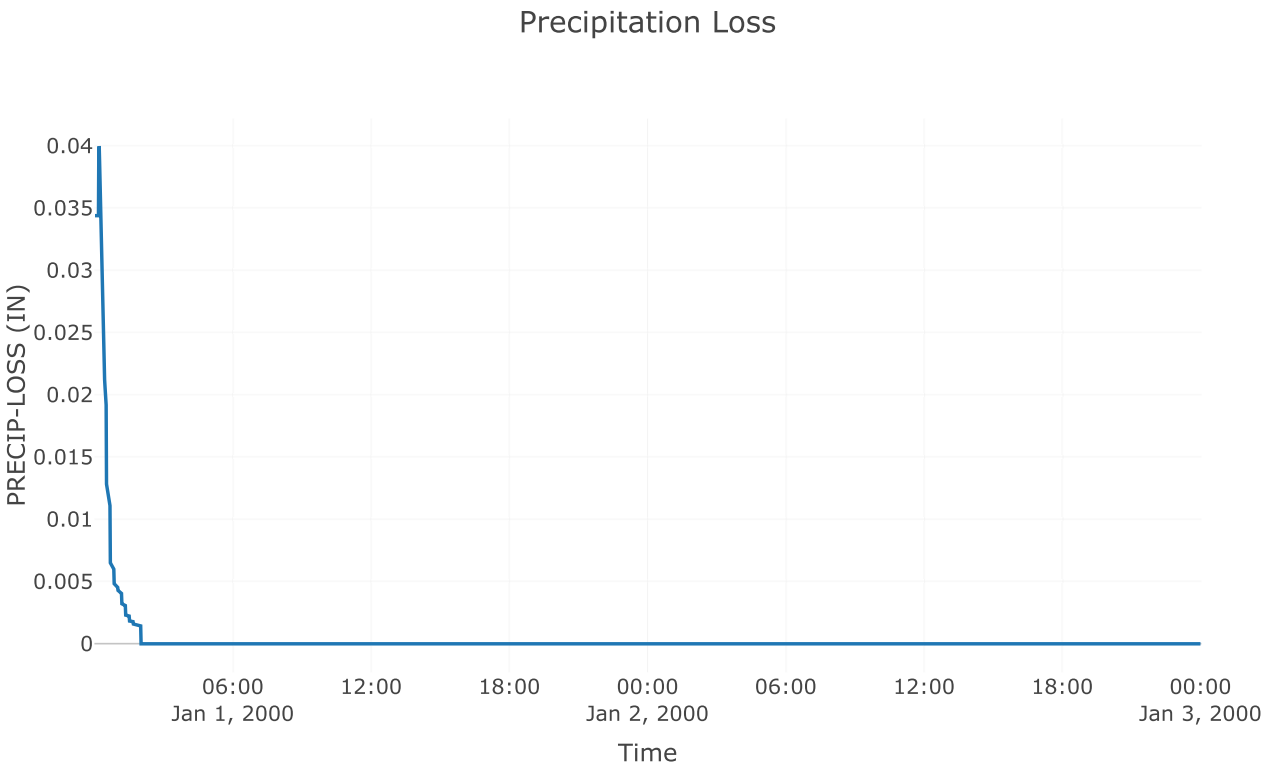


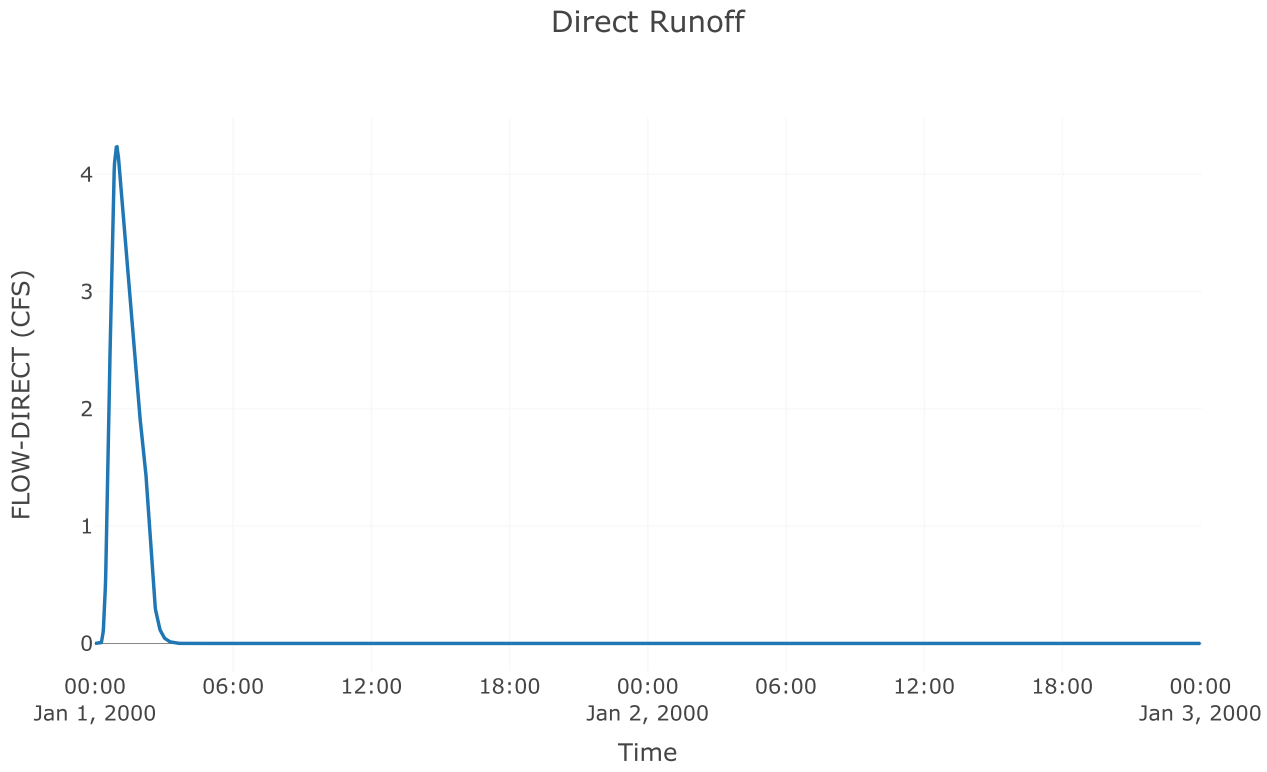

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0.4
0.3
0.2
0.1
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

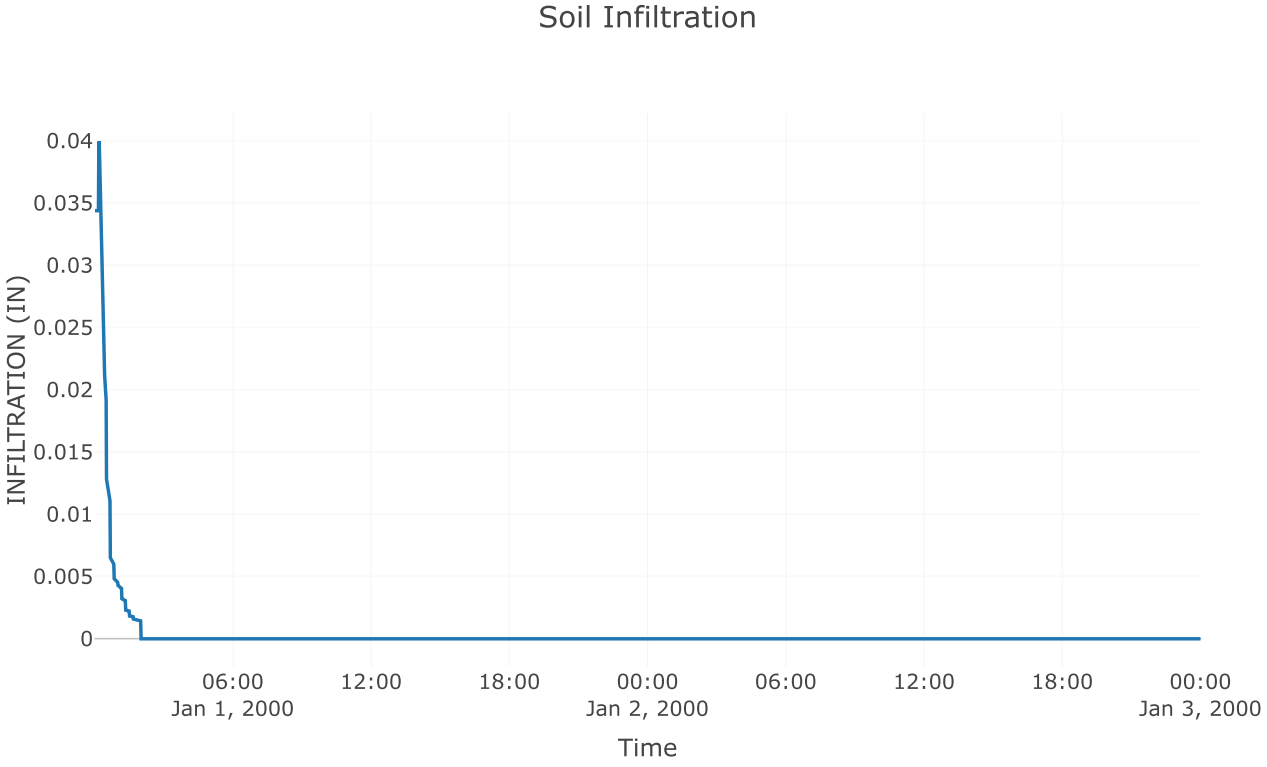

Cumulative Precipitation
PRECIP-CUM (IN)
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
4
3
2
1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: LaGrange Highlands Off-Site

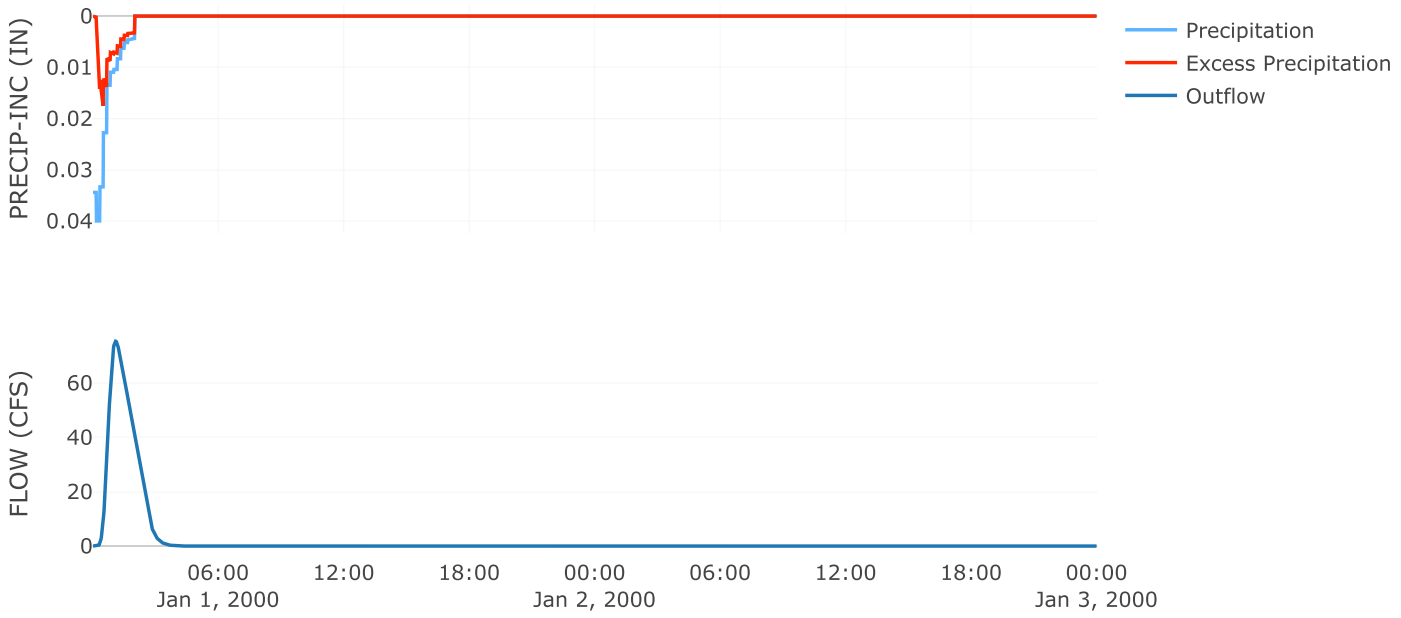
Area (MI2) : 0.2
Downstream : Off - Site Tributary Area

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	86

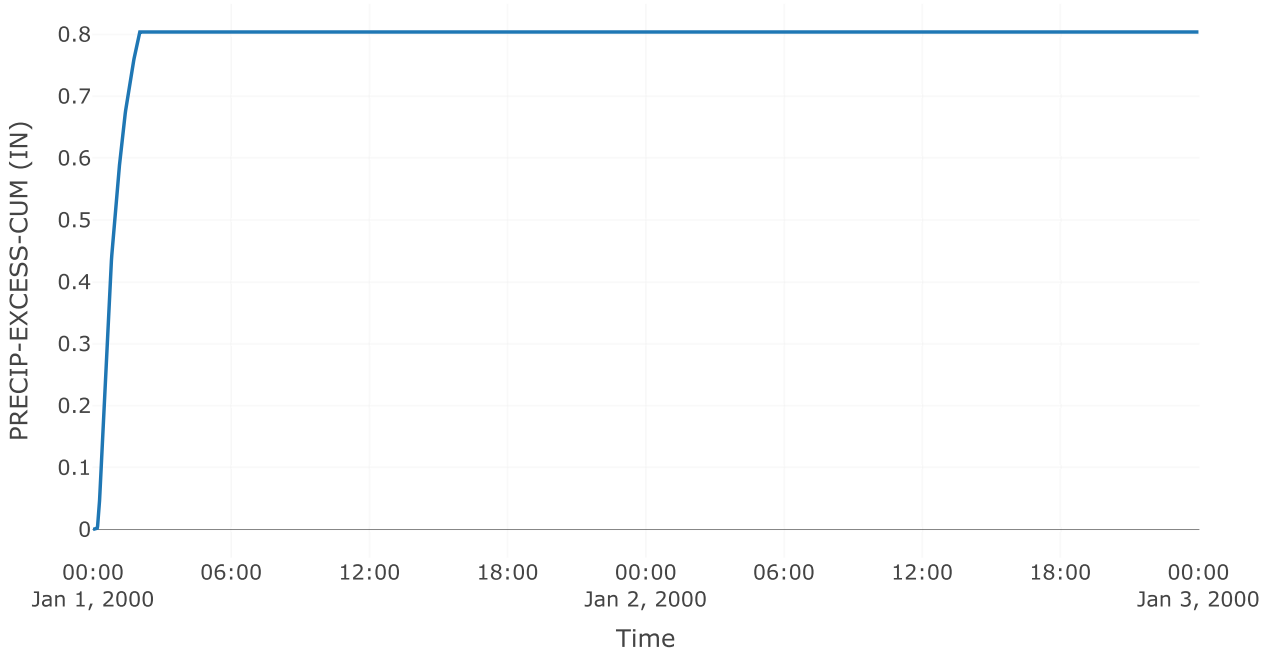
Transform: Scs	
Lag	29.2
Unitgraph Type	Standard

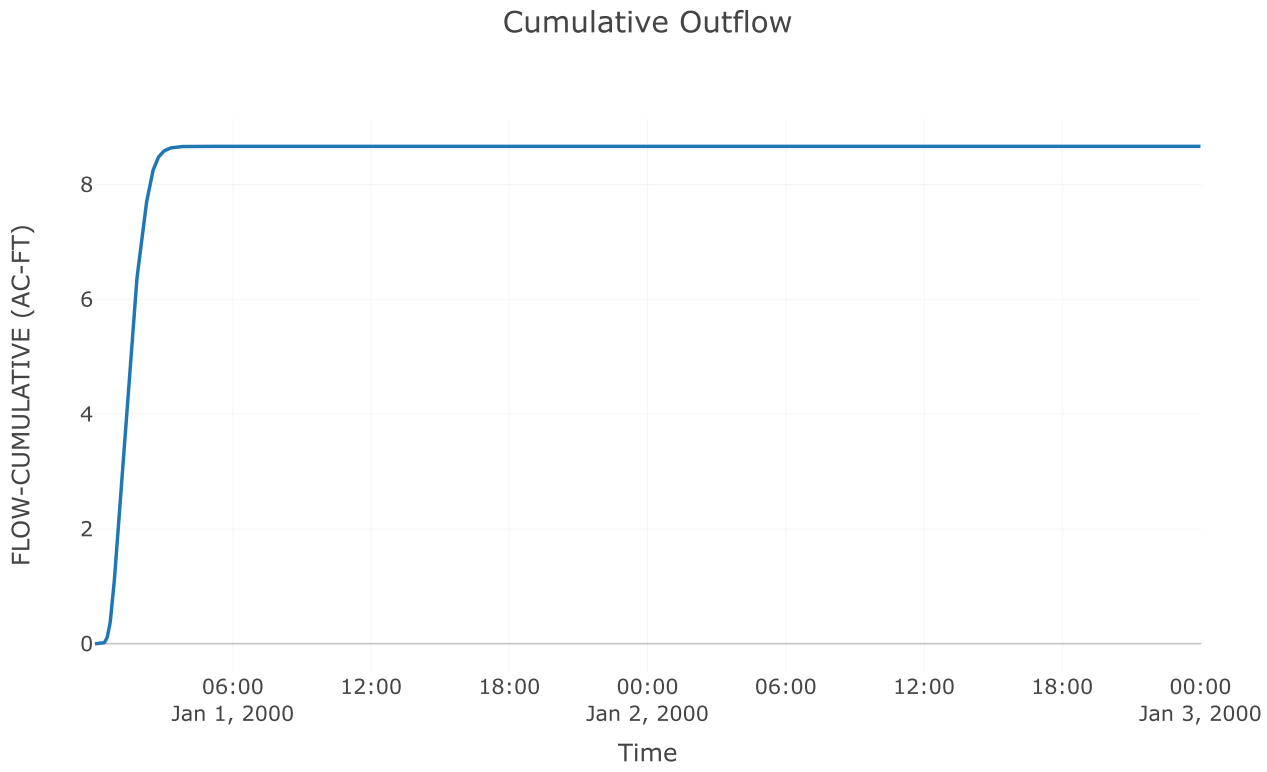
Results: LaGrange Highlands Off-Site	
Peak Discharge (CFS)	75.41
Time of Peak Discharge	01Jan2000, 01:05
Volume (IN)	0.8
Precipitation Volume (AC - FT)	20.92
Loss Volume (AC - FT)	12.25
Excess Volume (AC - FT)	8.67
Direct Runoff Volume (AC - FT)	8.67
Baseflow Volume (AC - FT)	0

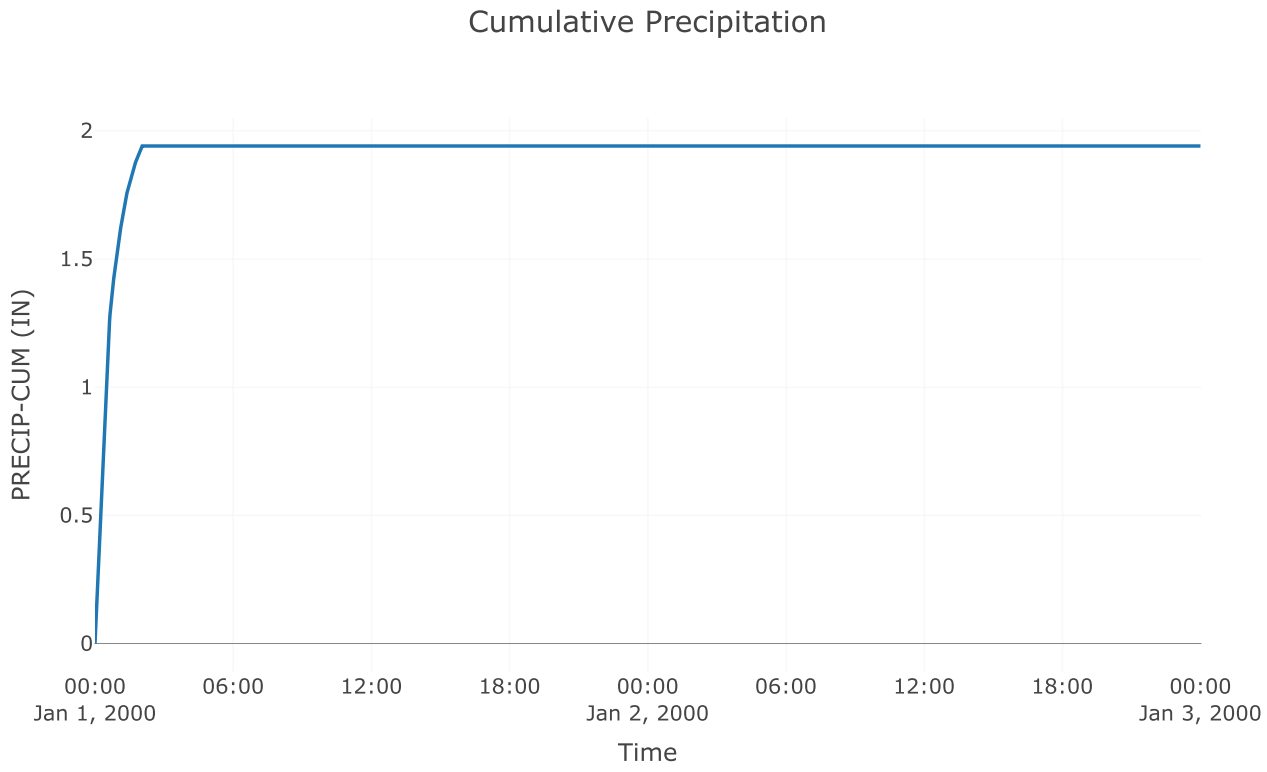
Precipitation and Outflow

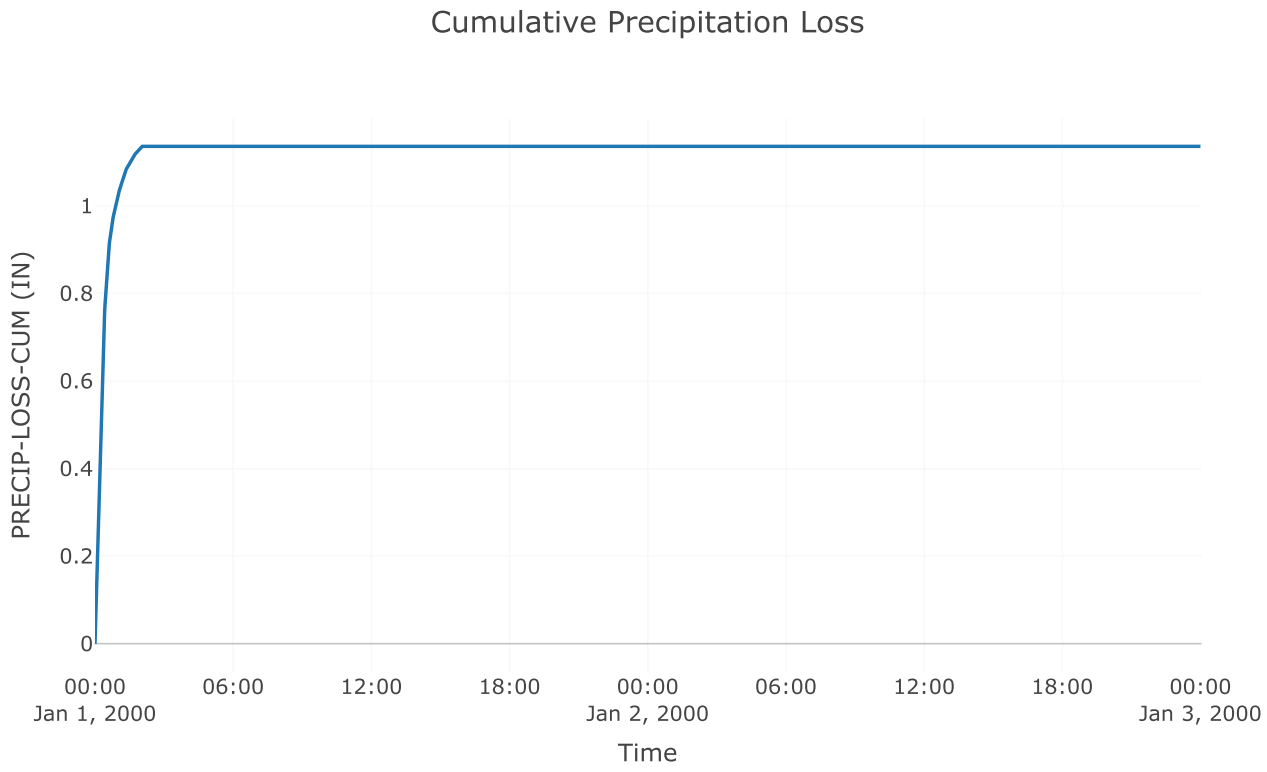


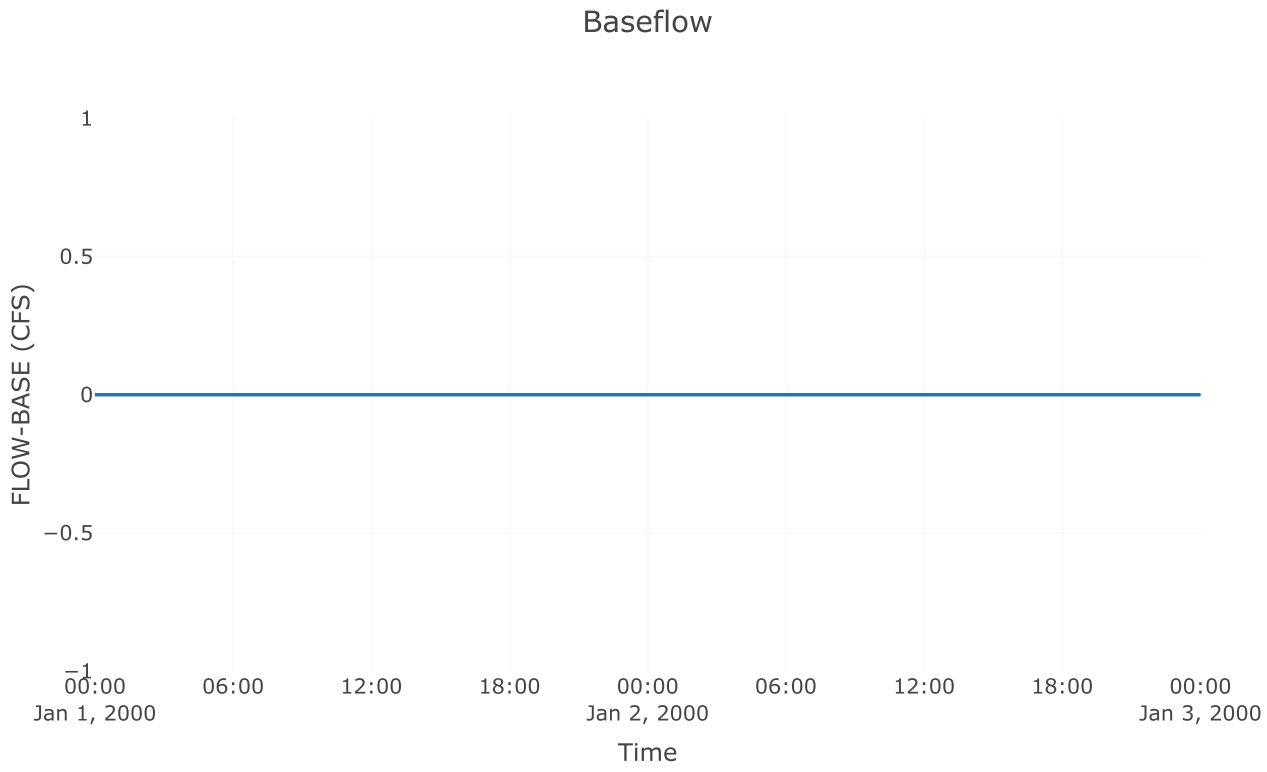
Cumulative Excess Precipitation

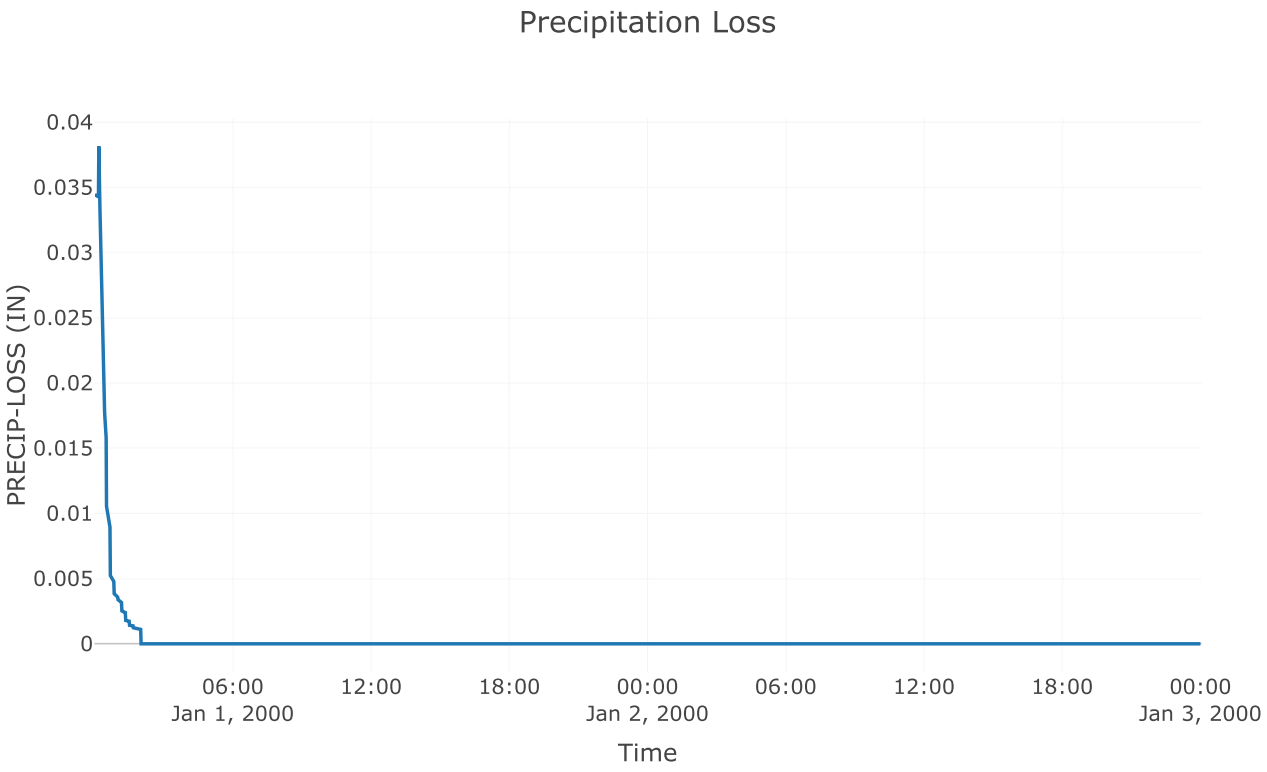


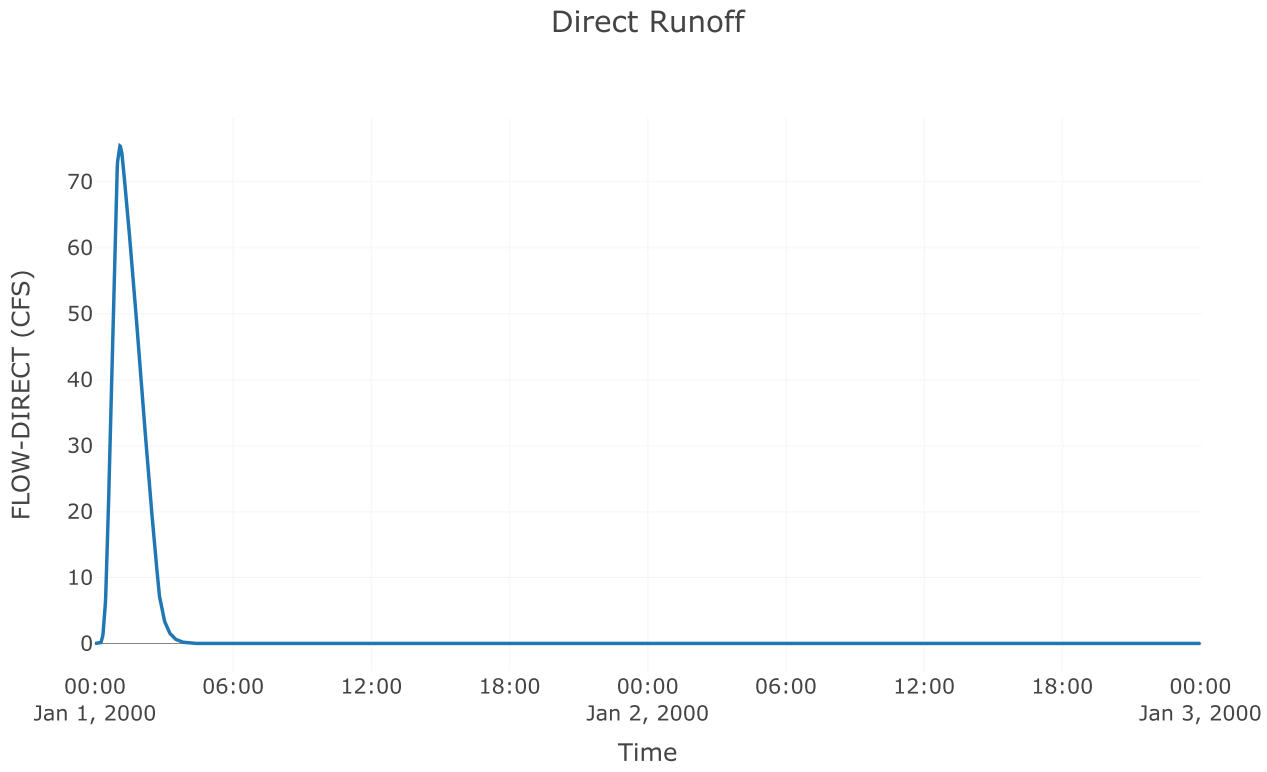

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0
2
4
6
8
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

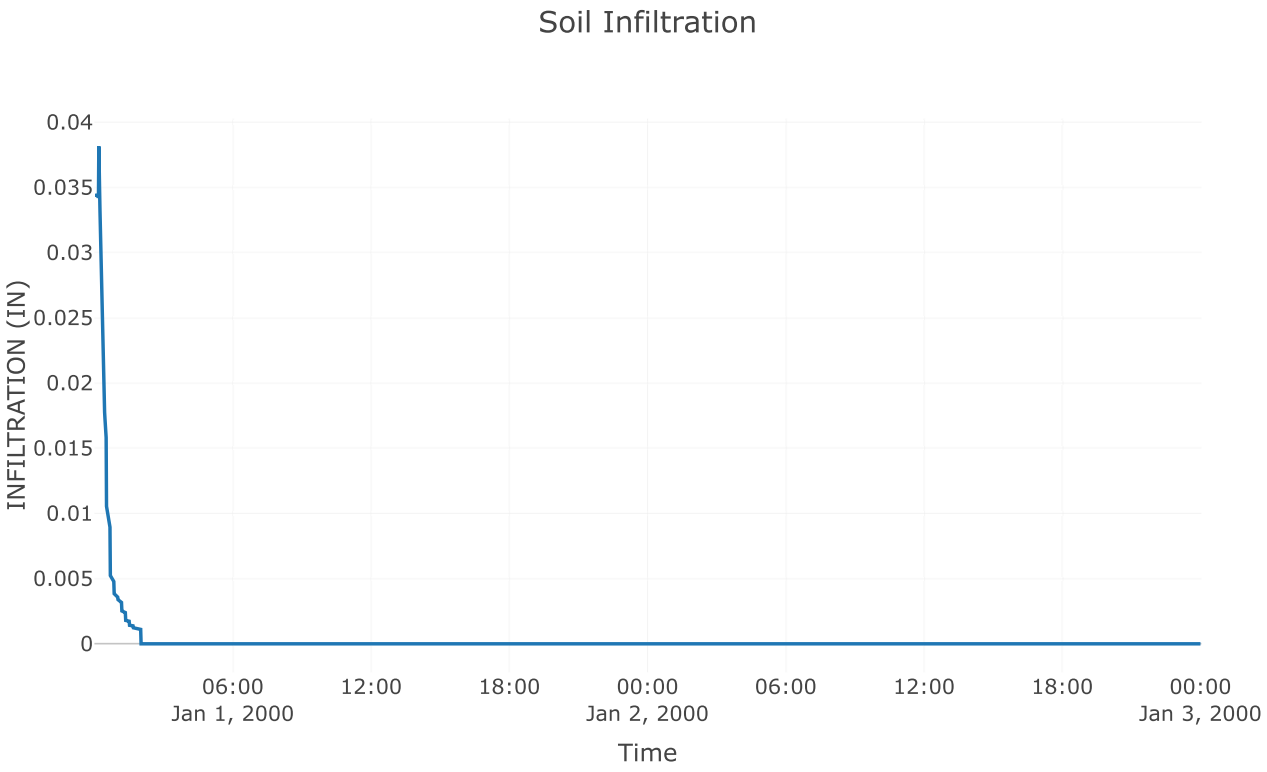

Cumulative Precipitation
PRECIP-CUM (IN)
0
0.5
1
1.5
2
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
70
60
50
40
30
20
10
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

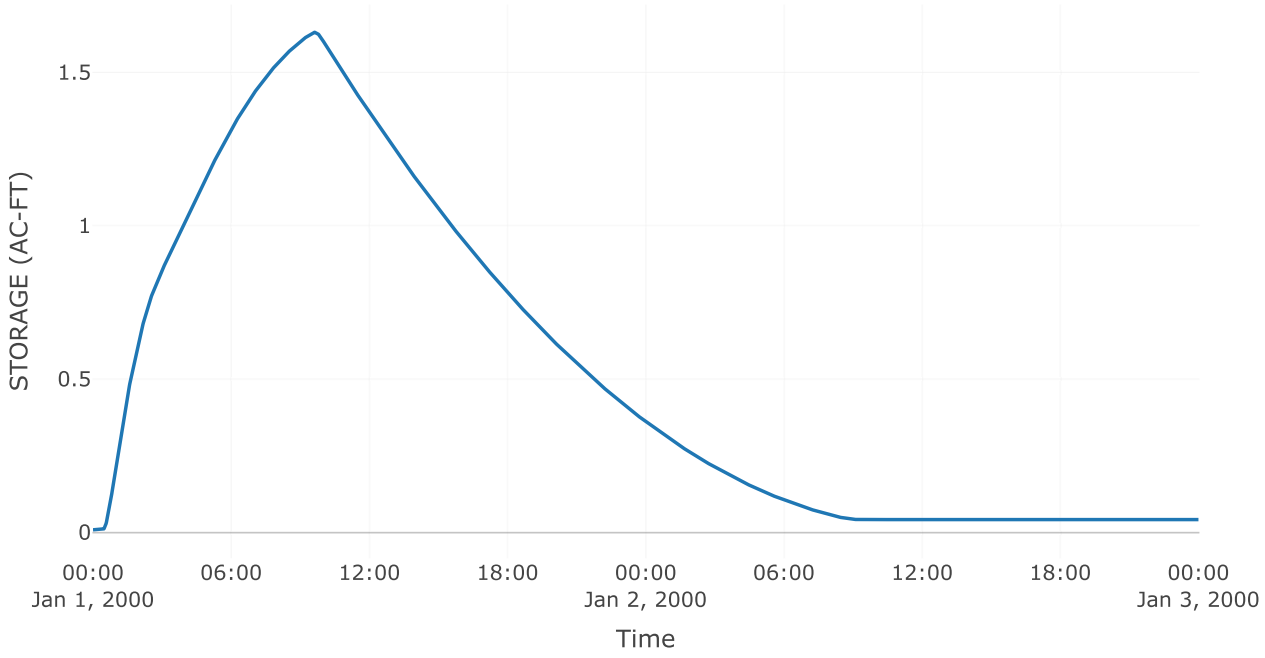

Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 3

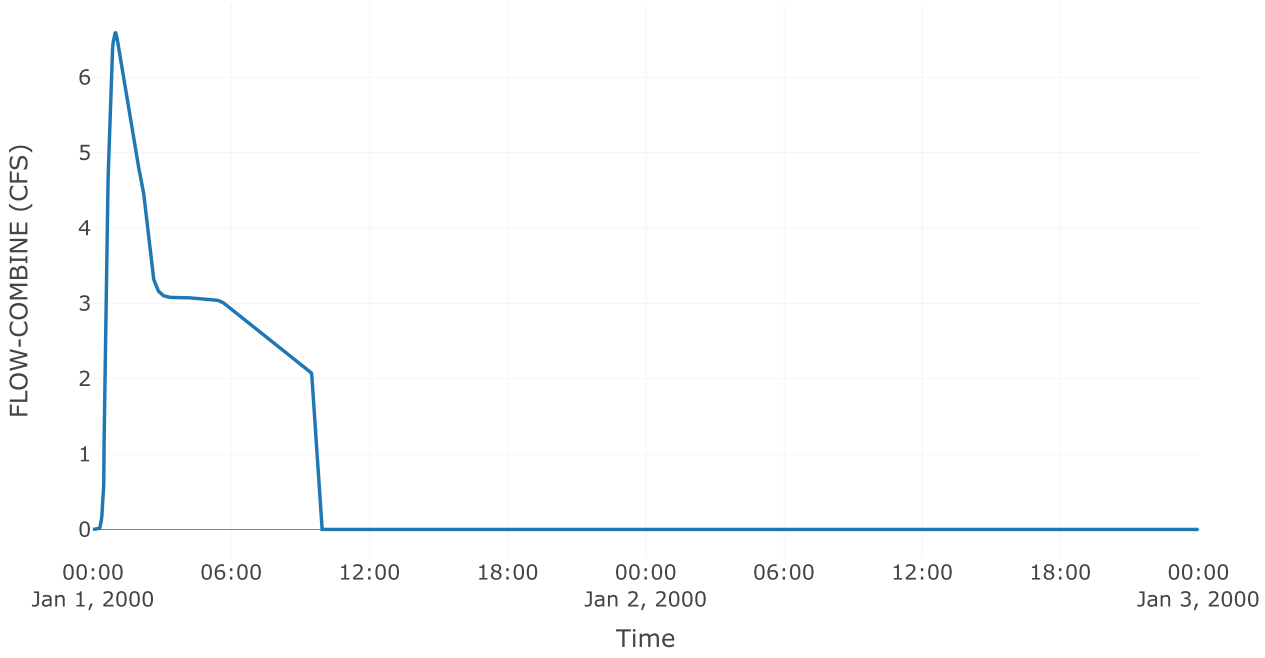
Downstream : Off - Site Tributary Area

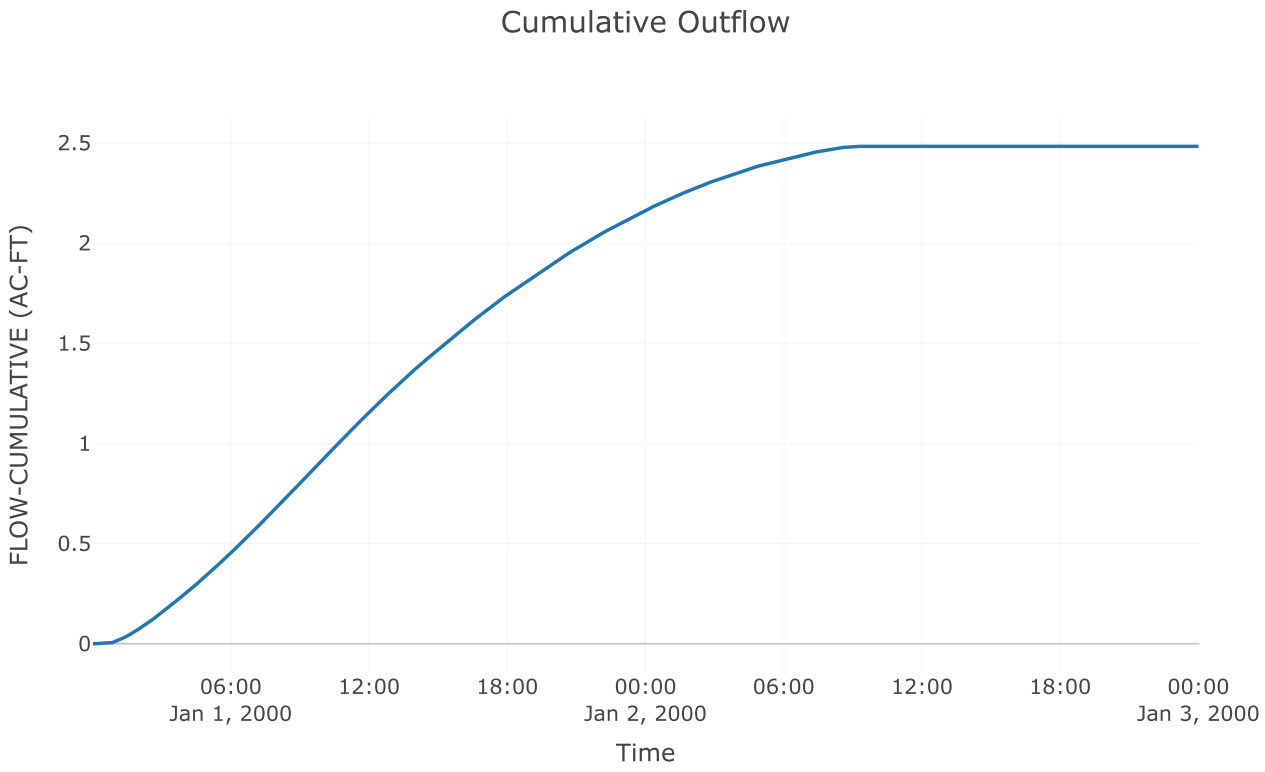
Results: Basin 3	
Peak Discharge (CFS)	1.48
Time of Peak Discharge	01Jan2000, 09:37
Volume (IN)	0.69
Peak Inflow (CFS)	6.6
Time of Peak Inflow	01Jan2000, 00:58
Inflow Volume (AC - FT)	2.52
Maximum Storage (AC - FT)	1.63
Peak Elevation (FT)	690.81
Discharge Volume (AC - FT)	2.48

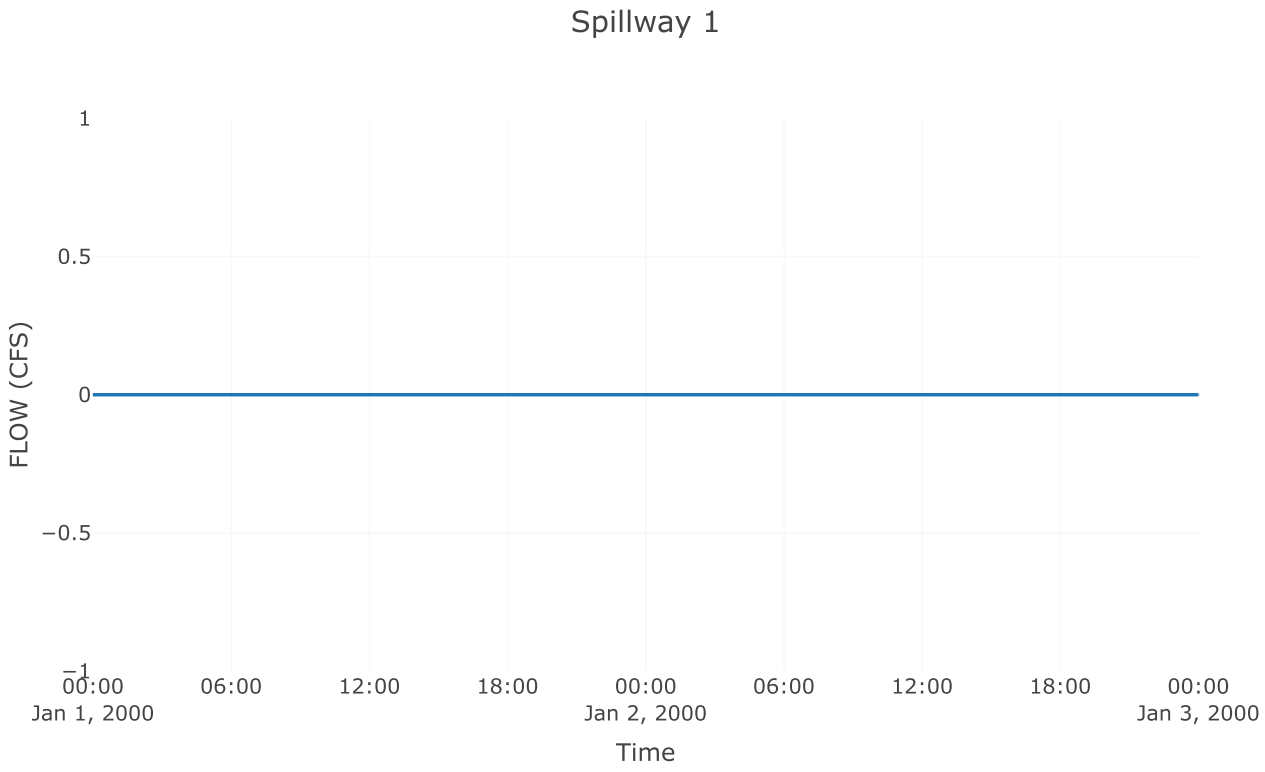
Storage

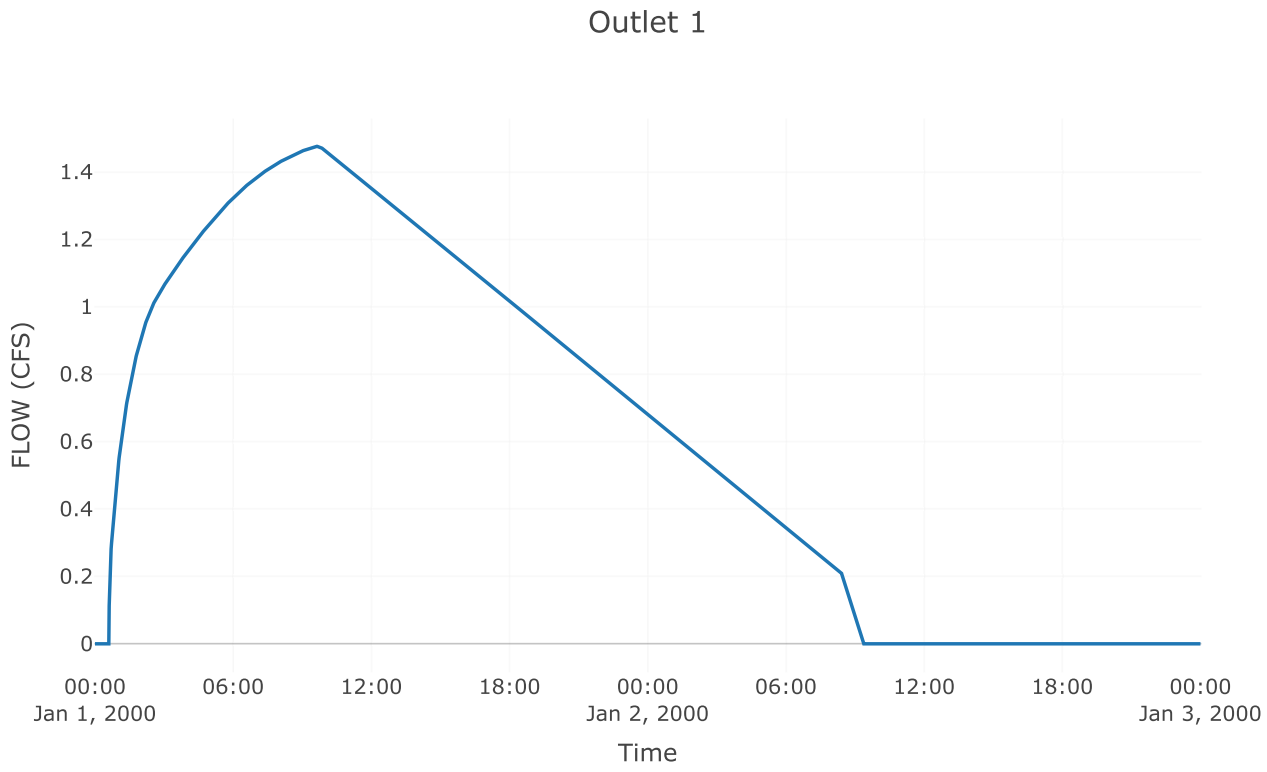


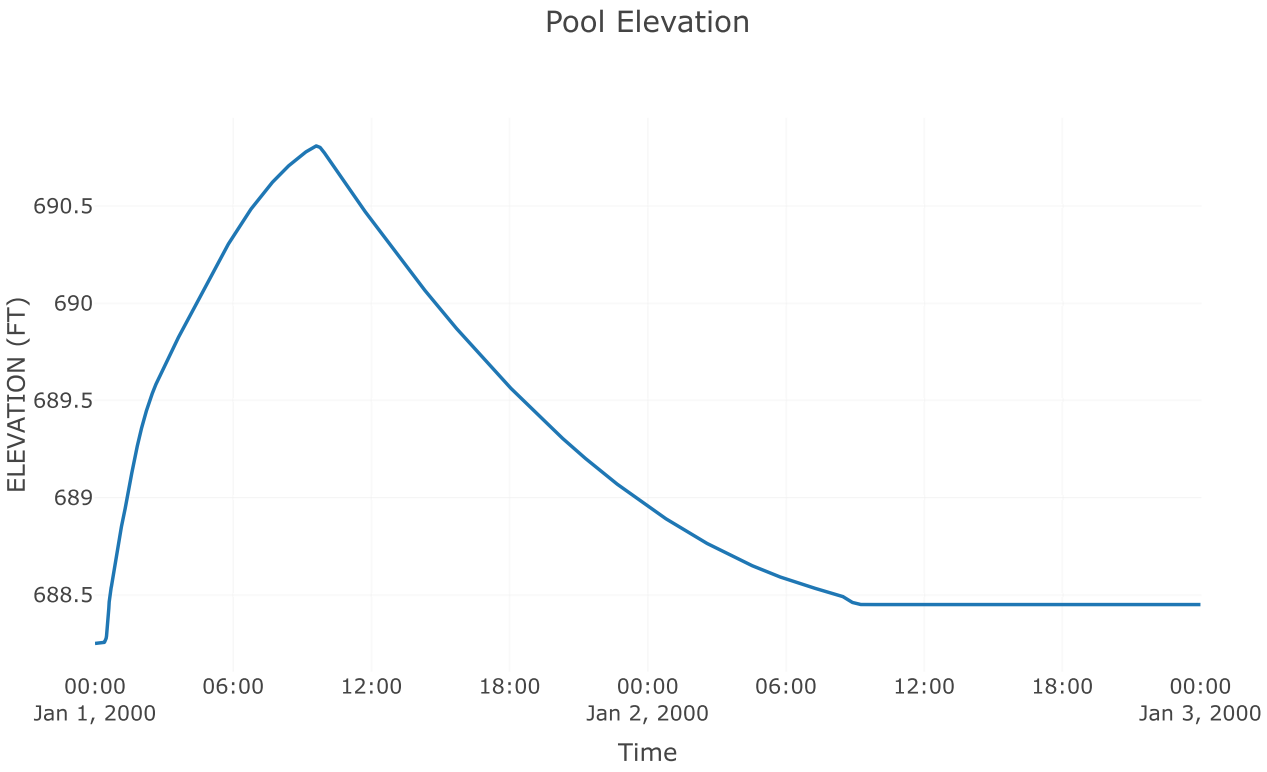
Combined Inflow

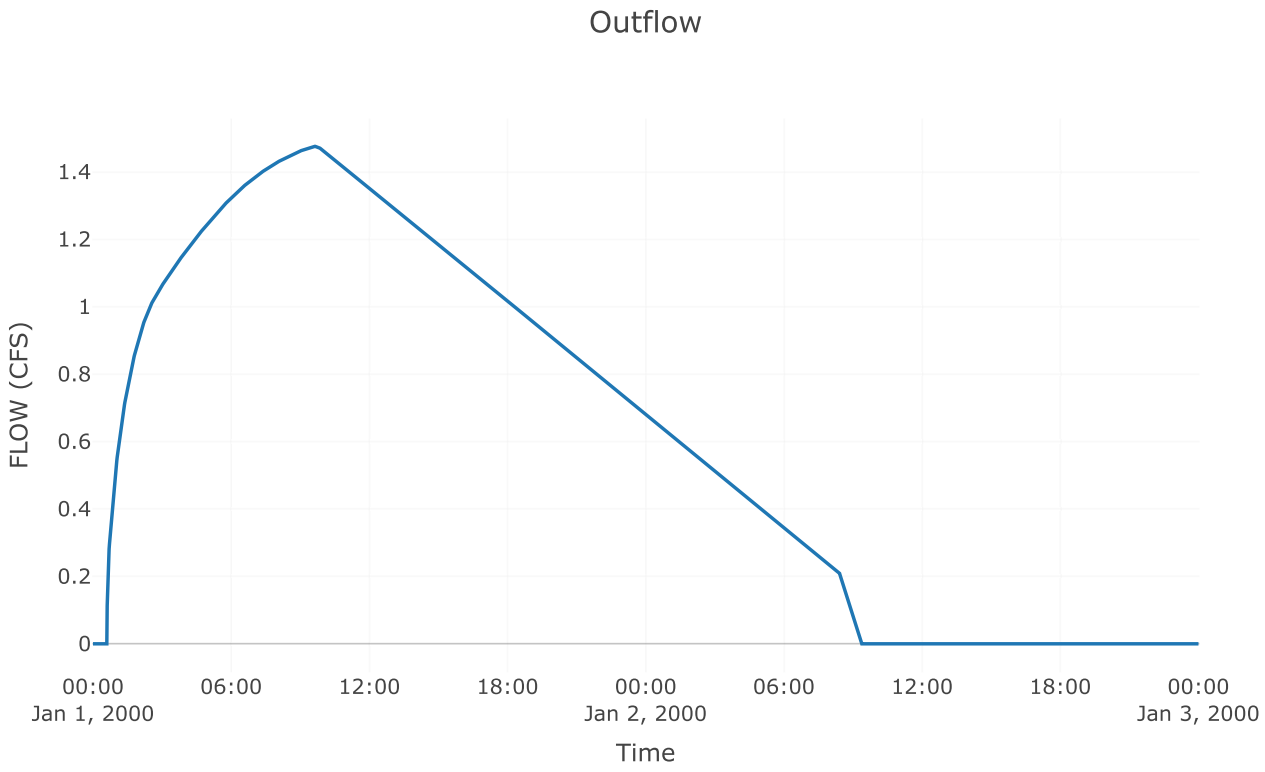



Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
2.5
2
1.5
1
0.5
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 1
FLOW (CFS)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Pool Elevation
ELEVATION (FT)
690.5
690
689.5
689
688.5
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

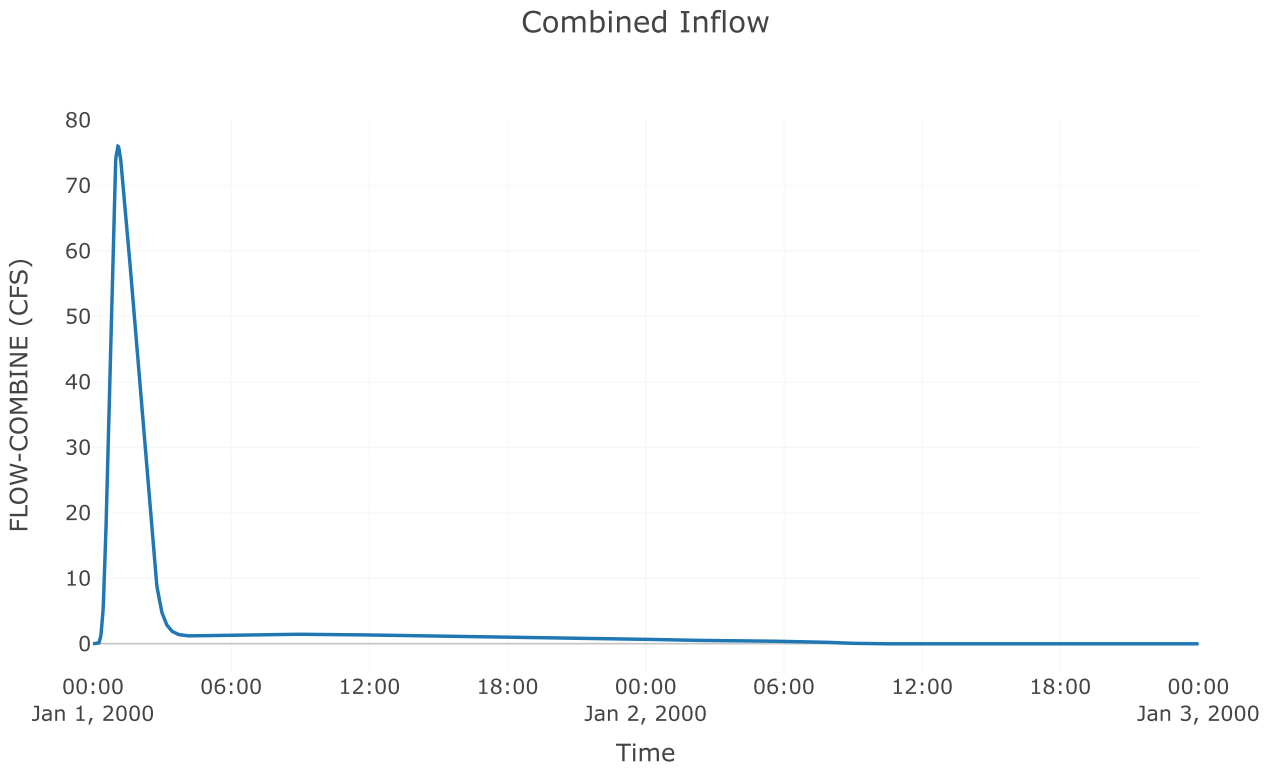

Outflow
FLOW (CFS)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

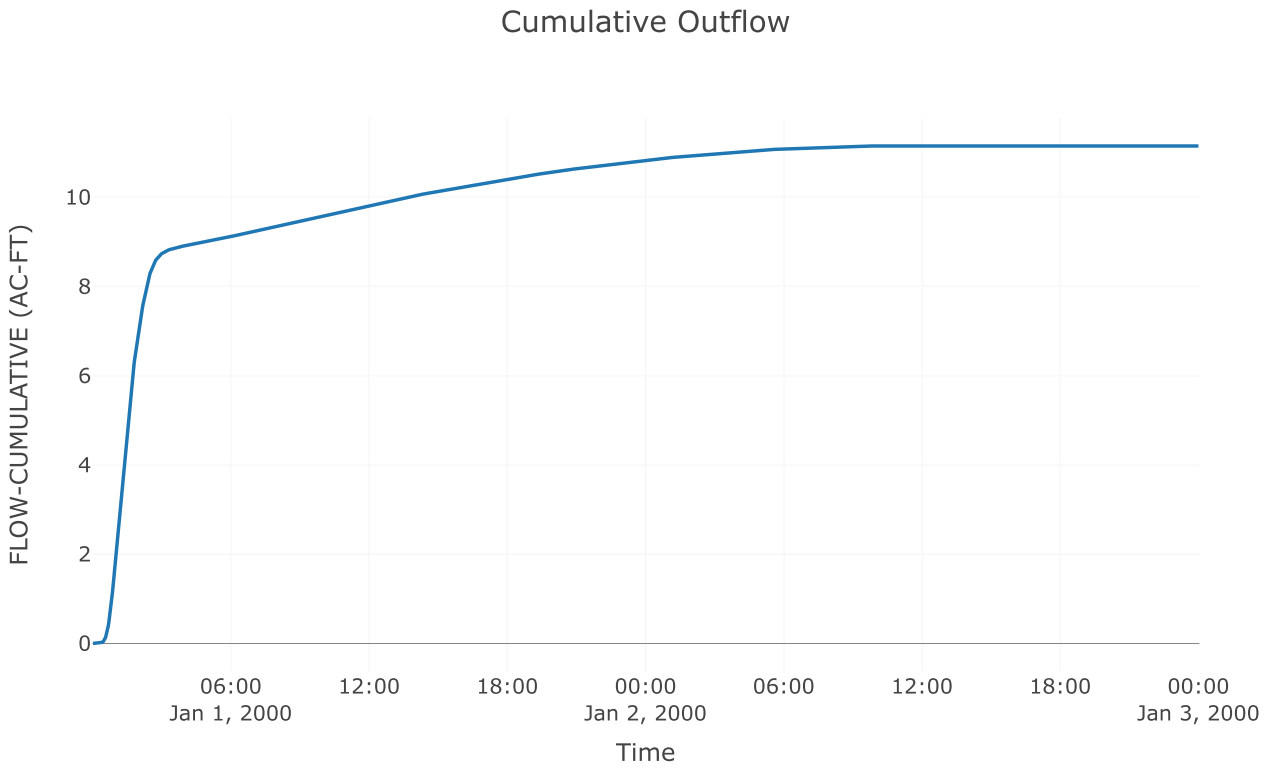
Junction: Off-Site Tributary Area

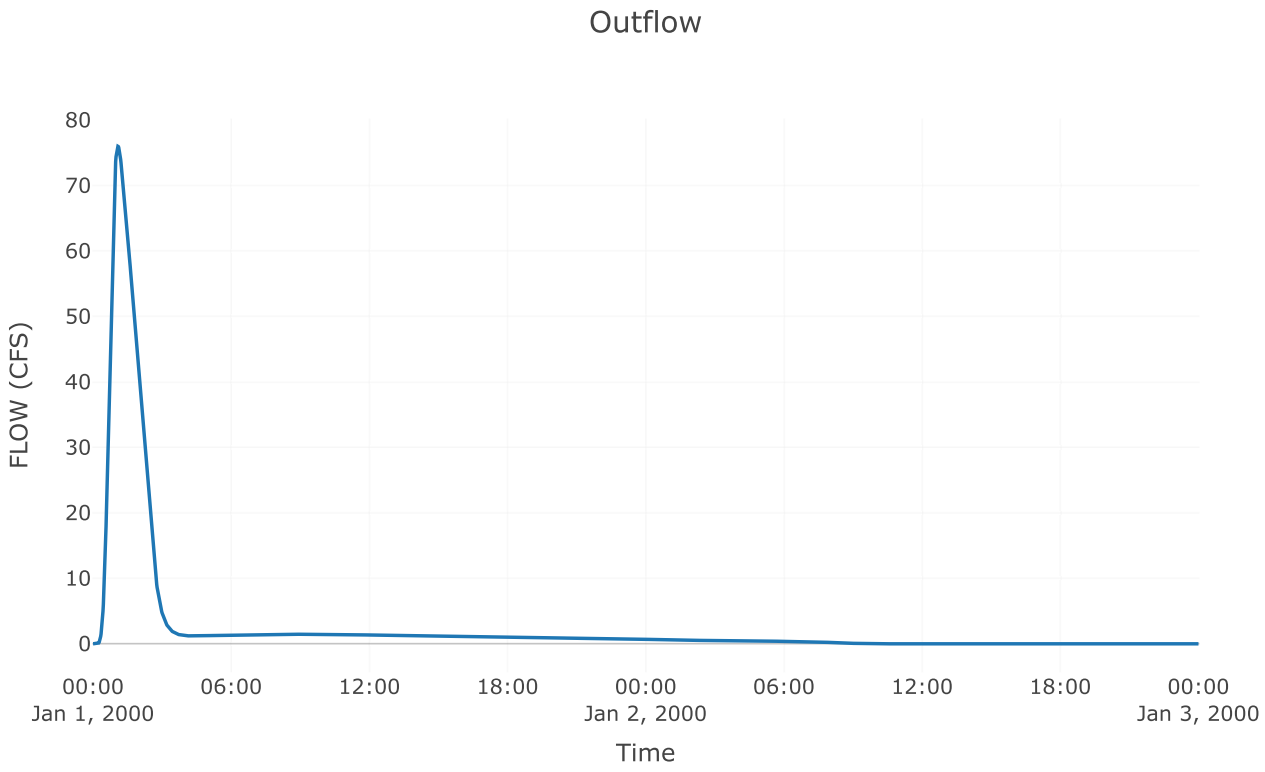
Downstream : Storage East of Wolf Road

Results: Off-Site Tributary Area

Peak Discharge (CFS)	75.98
Time of Peak Discharge	01Jan2000, 01:05
Volume (IN)	0.78


Combined Inflow
FLOW-COMBINE (CFS)
80
70
60
50
40
30
20
10
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
10
8
6
4
2
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

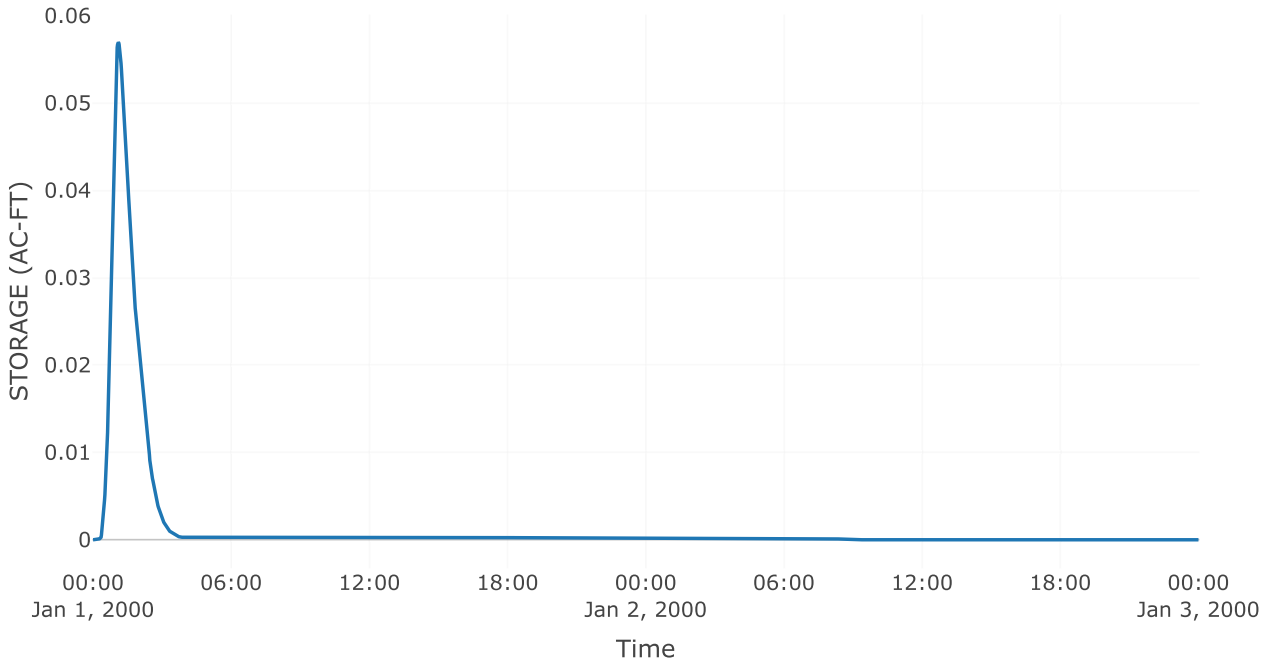

Outflow
80
70
60
50
40
30
20
10
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Storage East of Wolf Road

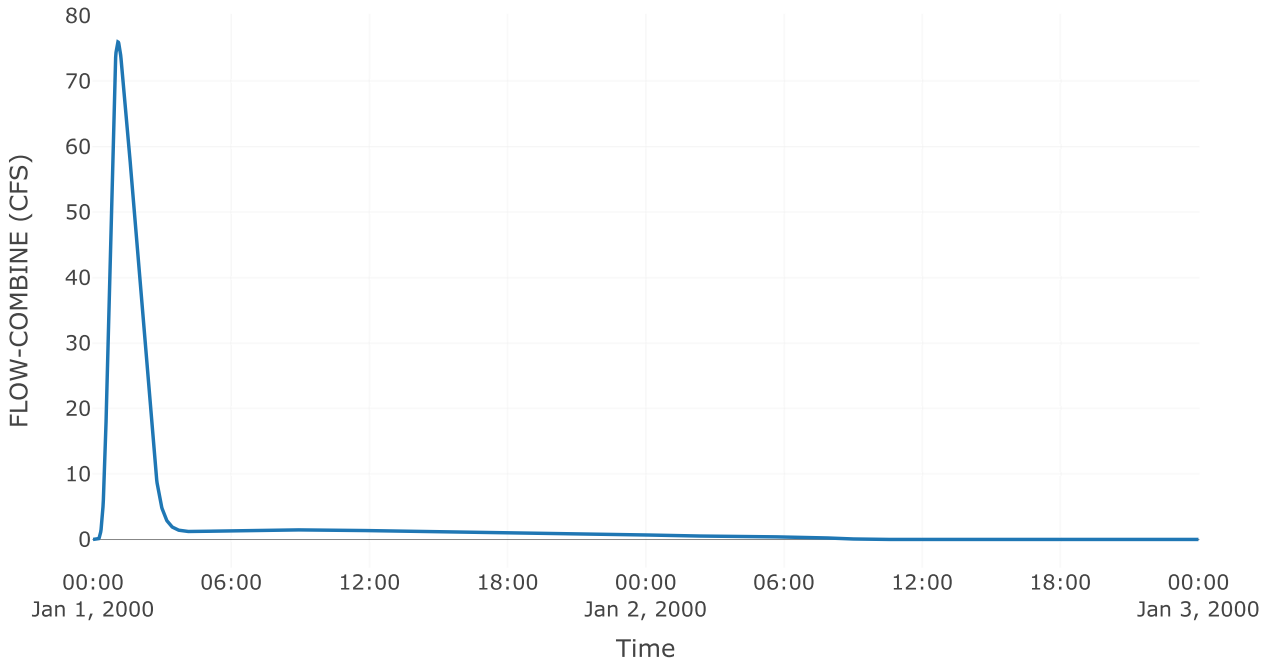
Downstream : Storage West of Wolf Road

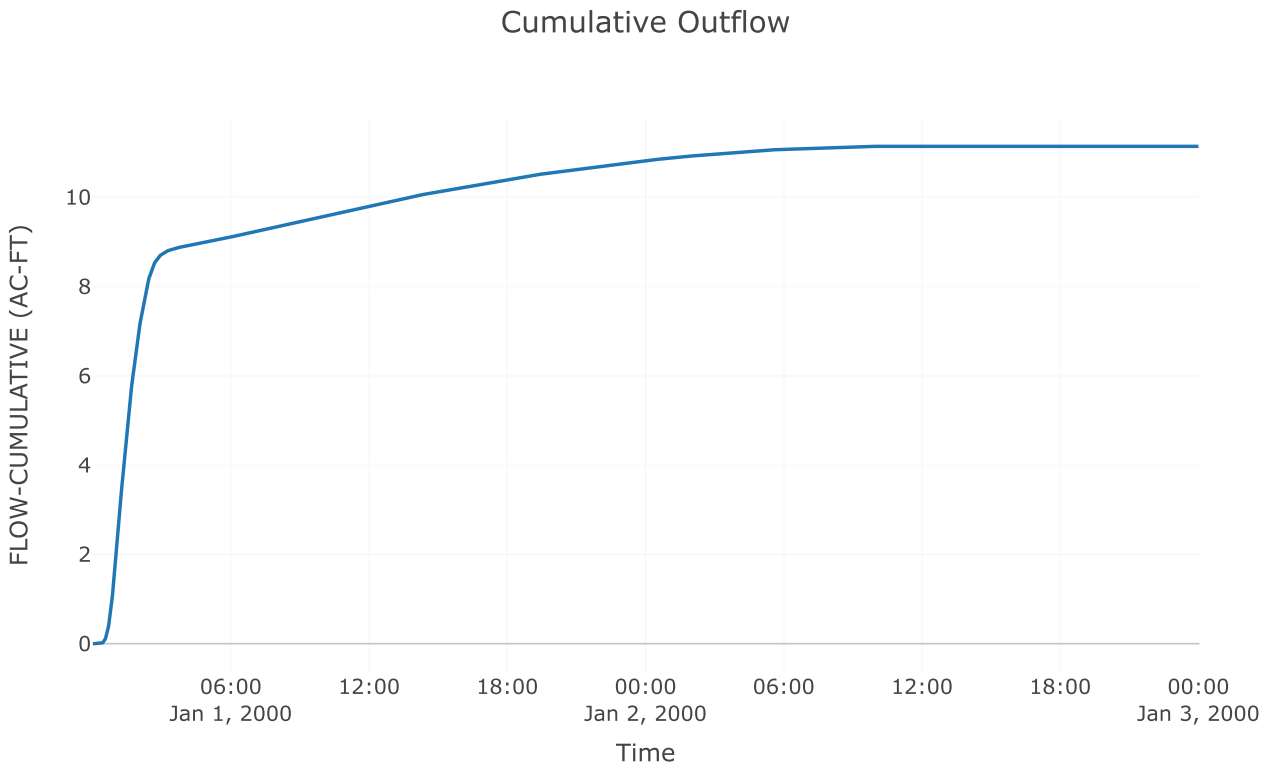
Results: Storage East of Wolf Road	
Peak Discharge (CFS)	75.95
Time of Peak Discharge	01Jan2000, 01:06
Volume (IN)	0.78
Peak Inflow (CFS)	75.98
Time of Peak Inflow	01Jan2000, 01:05
Inflow Volume (AC - FT)	11.15
Maximum Storage (AC - FT)	0.06
Peak Elevation (FT)	660.57
Discharge Volume (AC - FT)	11.14

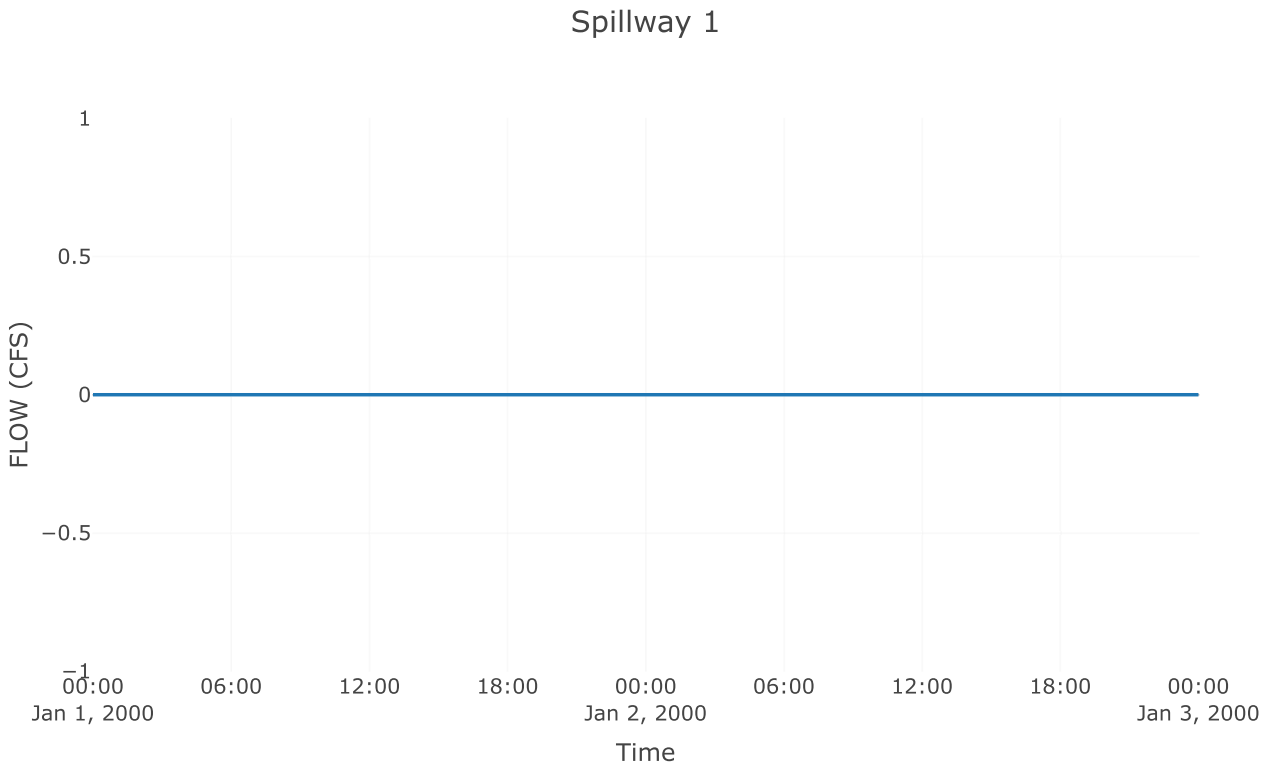
Storage

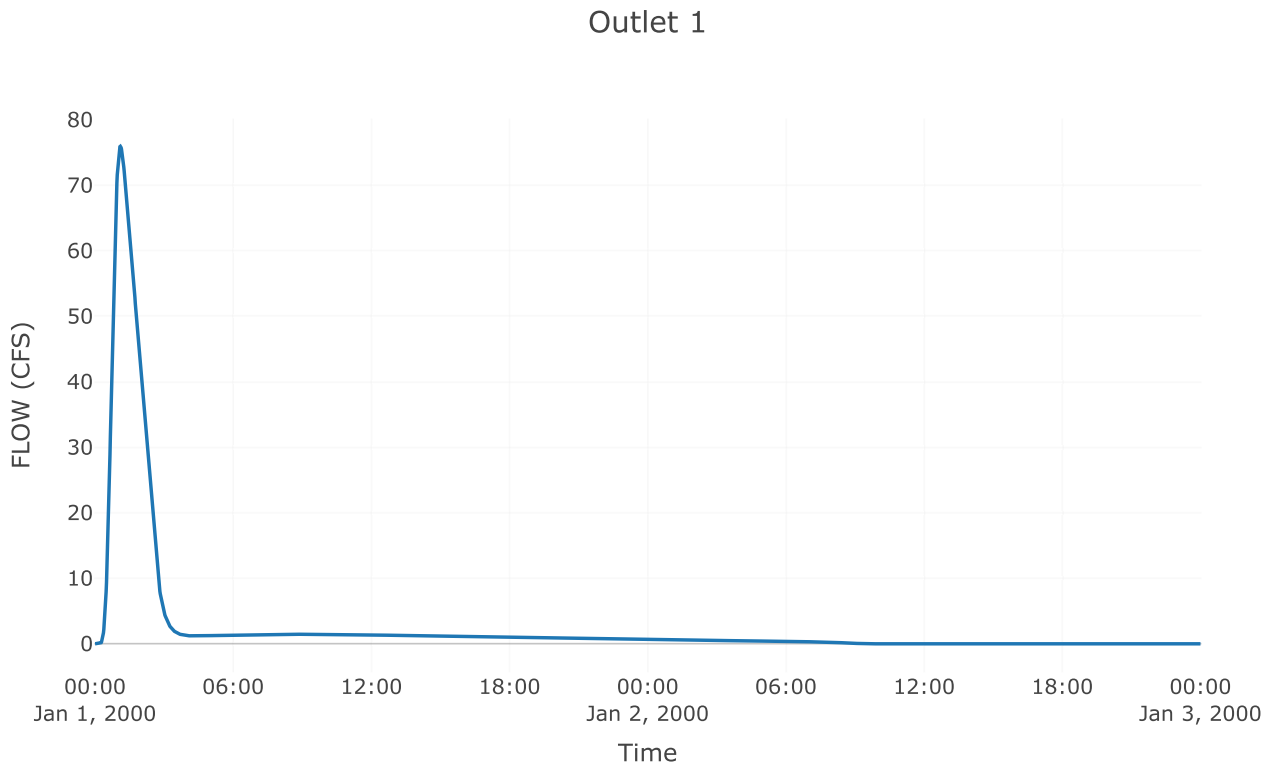


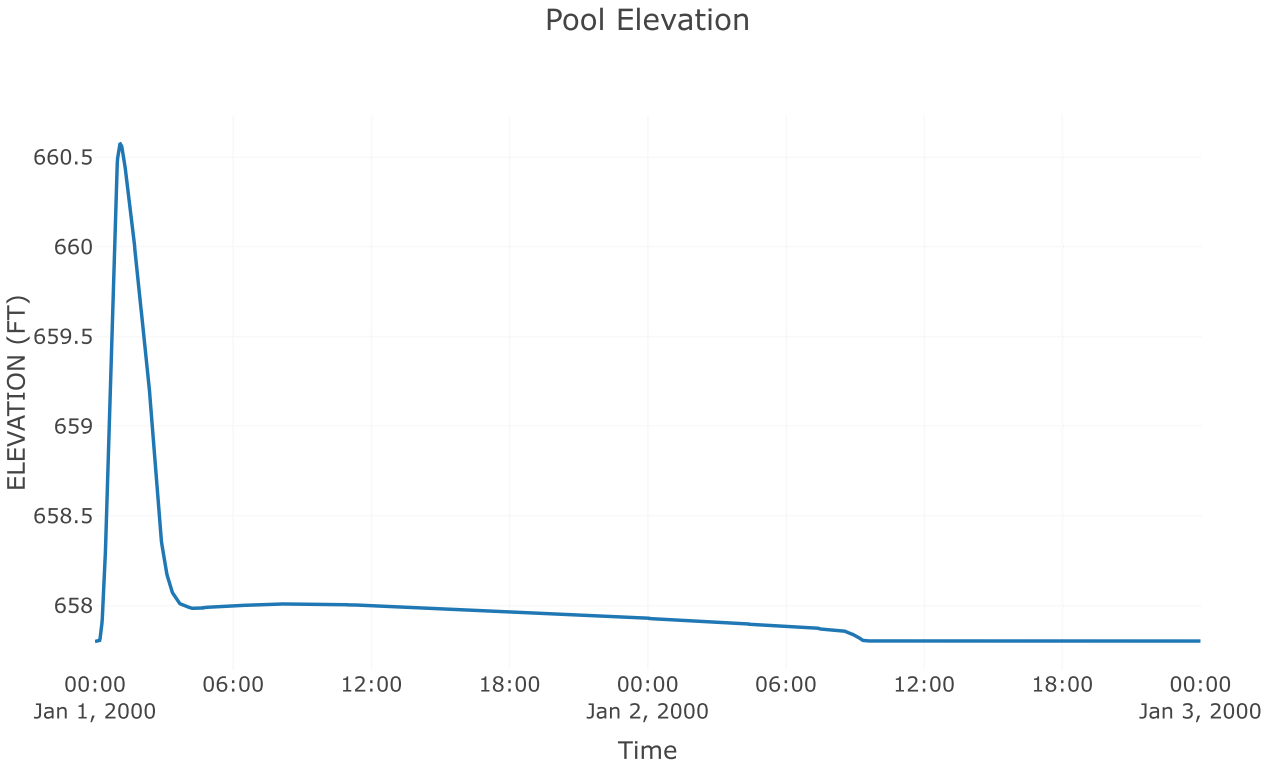
Combined Inflow

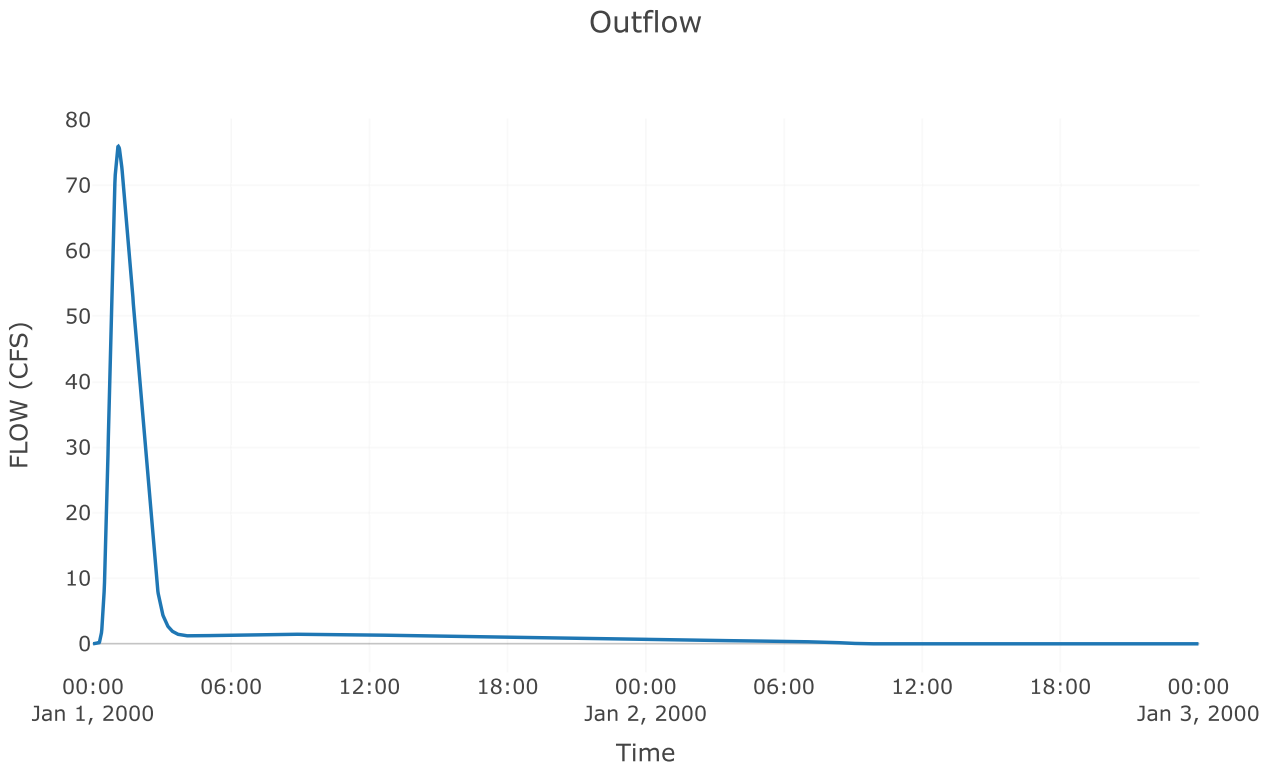



Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
10
8
6
4
2
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 1
FLOW (CFS)
80
70
60
50
40
30
20
10
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Pool Elevation
ELEVATION (FT)
660.5
660
659.5
659
658.5
658
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

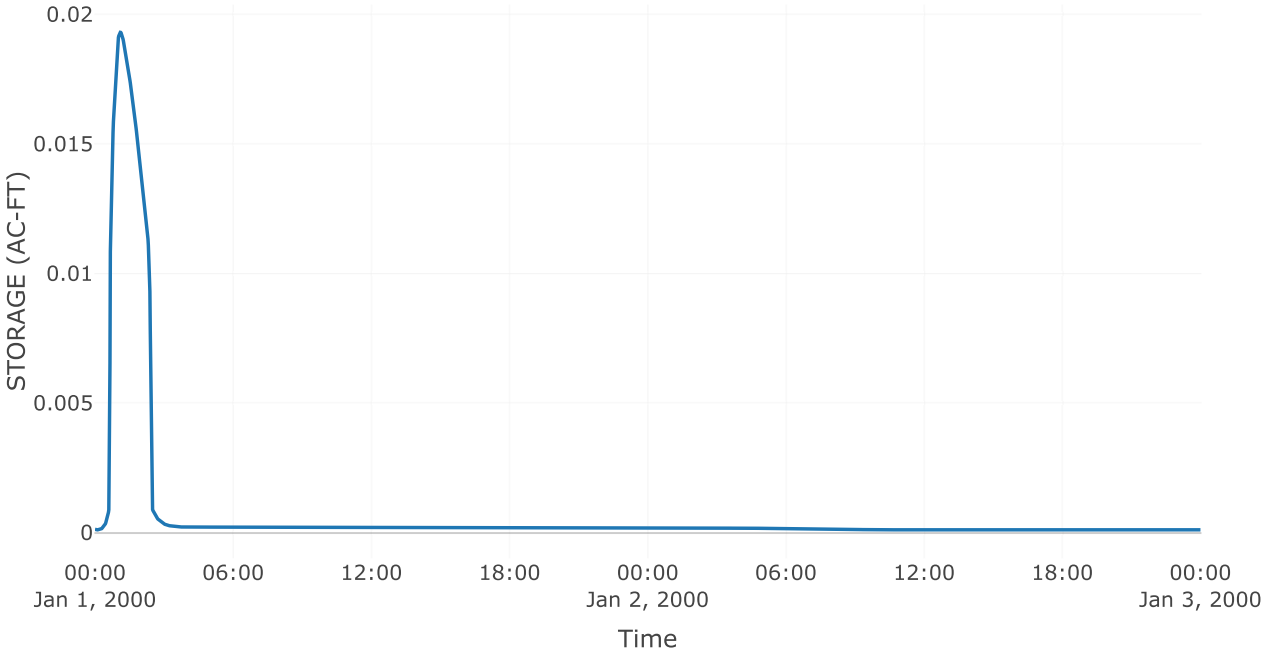

Outflow
80
70
60
50
40
30
20
10
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Storage West of Wolf Road

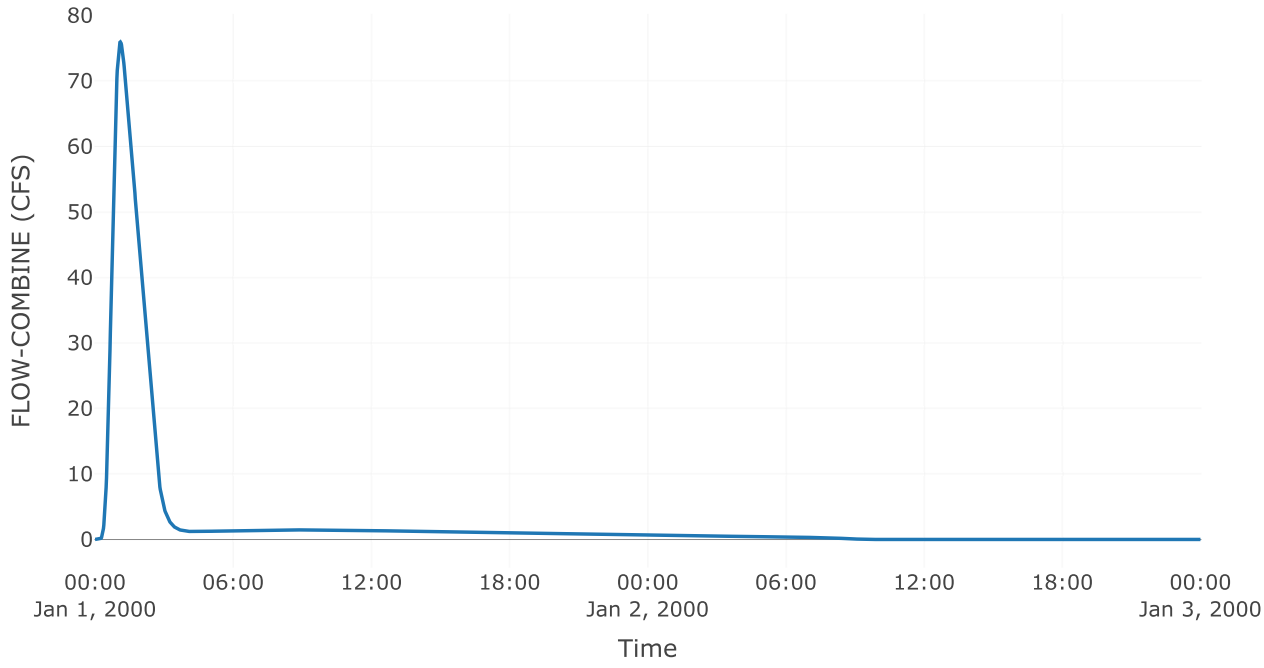
Downstream : Existing Basin C

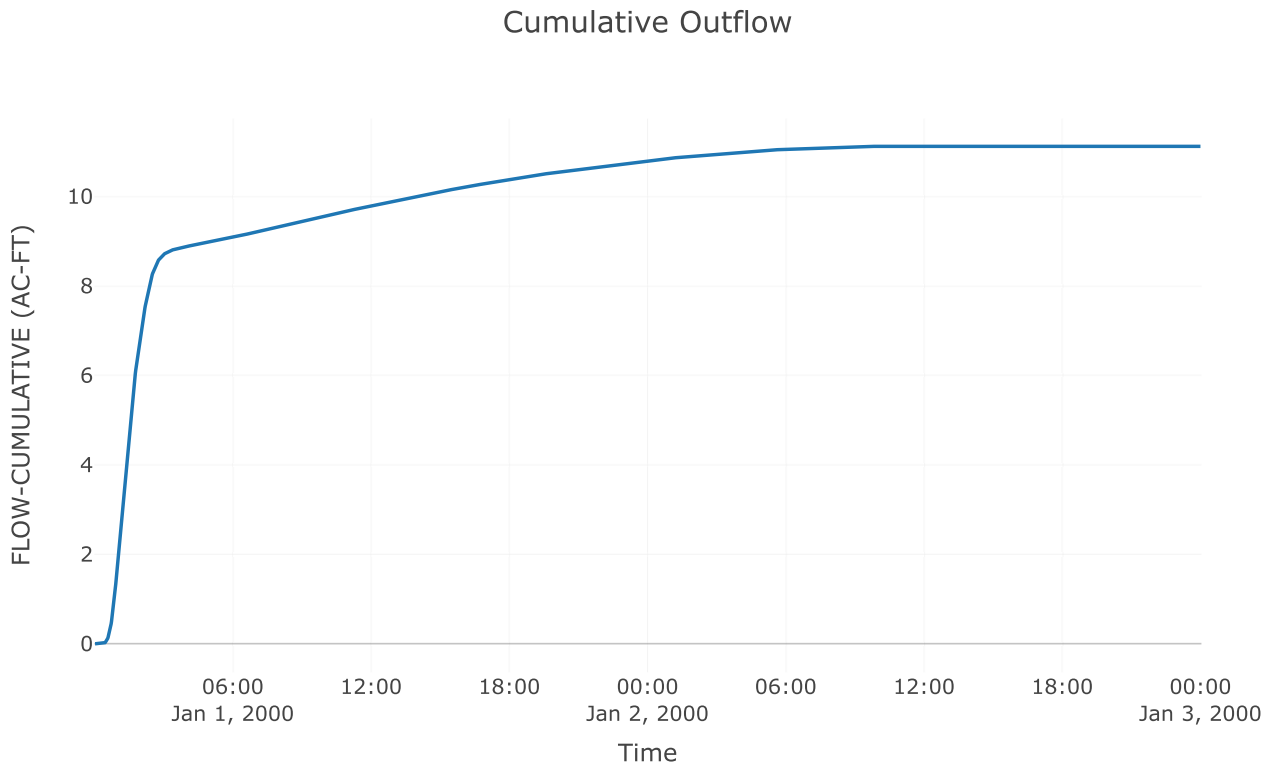
Results: Storage West of Wolf Road	
Peak Discharge (CFS)	75.94
Time of Peak Discharge	01Jan2000, 01:06
Volume (IN)	0.77
Peak Inflow (CFS)	75.95
Time of Peak Inflow	01Jan2000, 01:06
Inflow Volume (AC - FT)	11.14
Maximum Storage (AC - FT)	0.02
Peak Elevation (FT)	658.88
Discharge Volume (AC - FT)	11.12

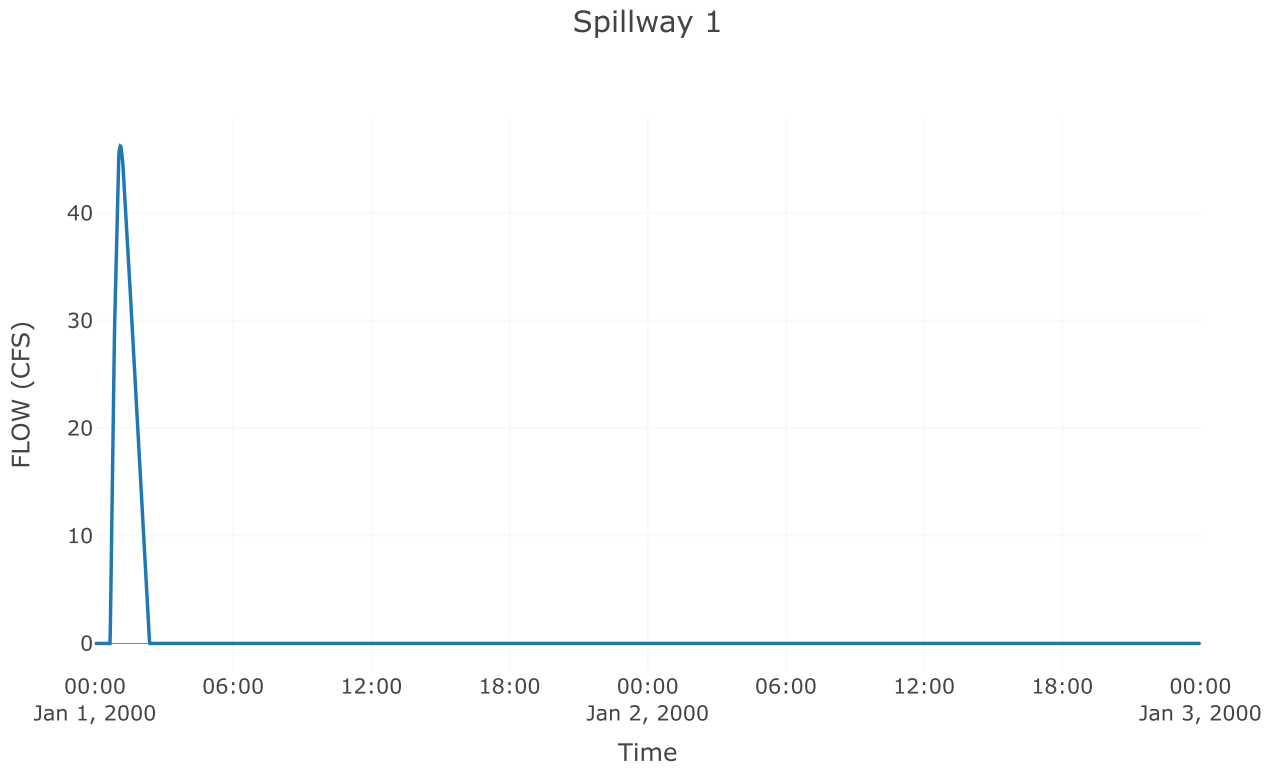
Storage

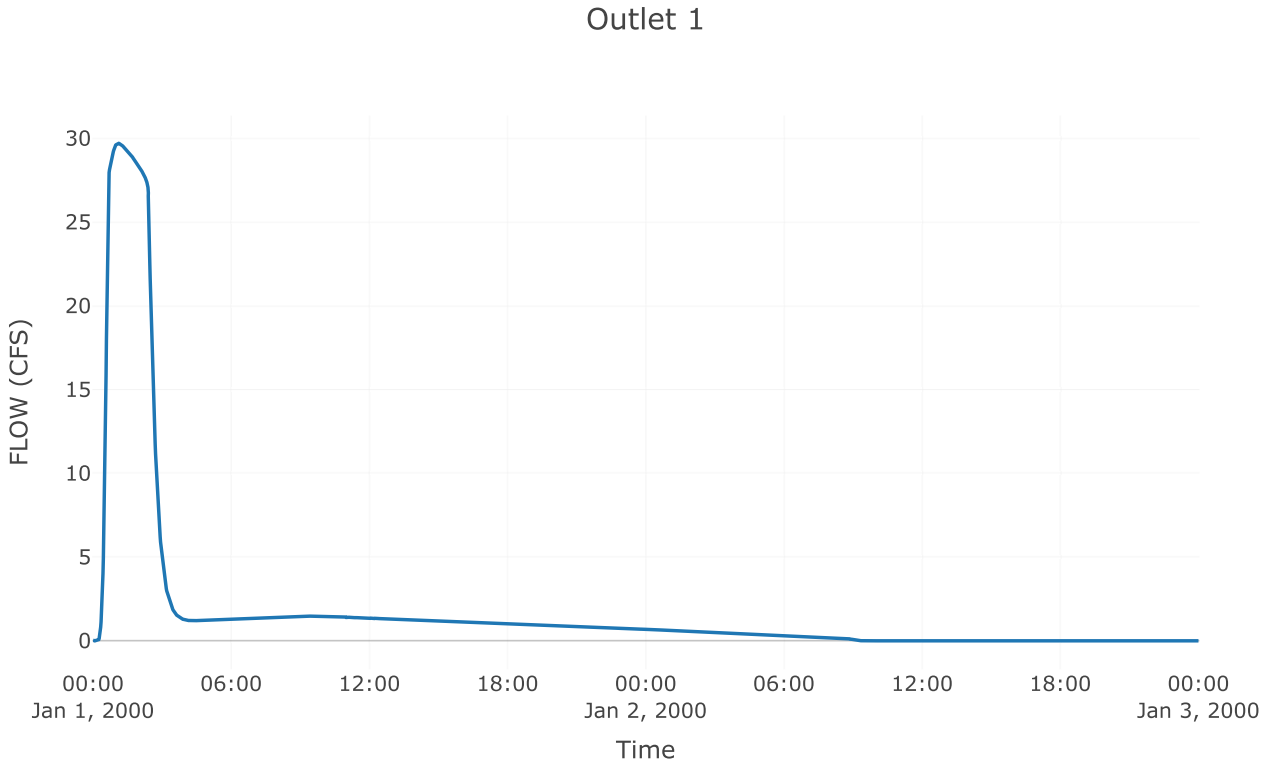


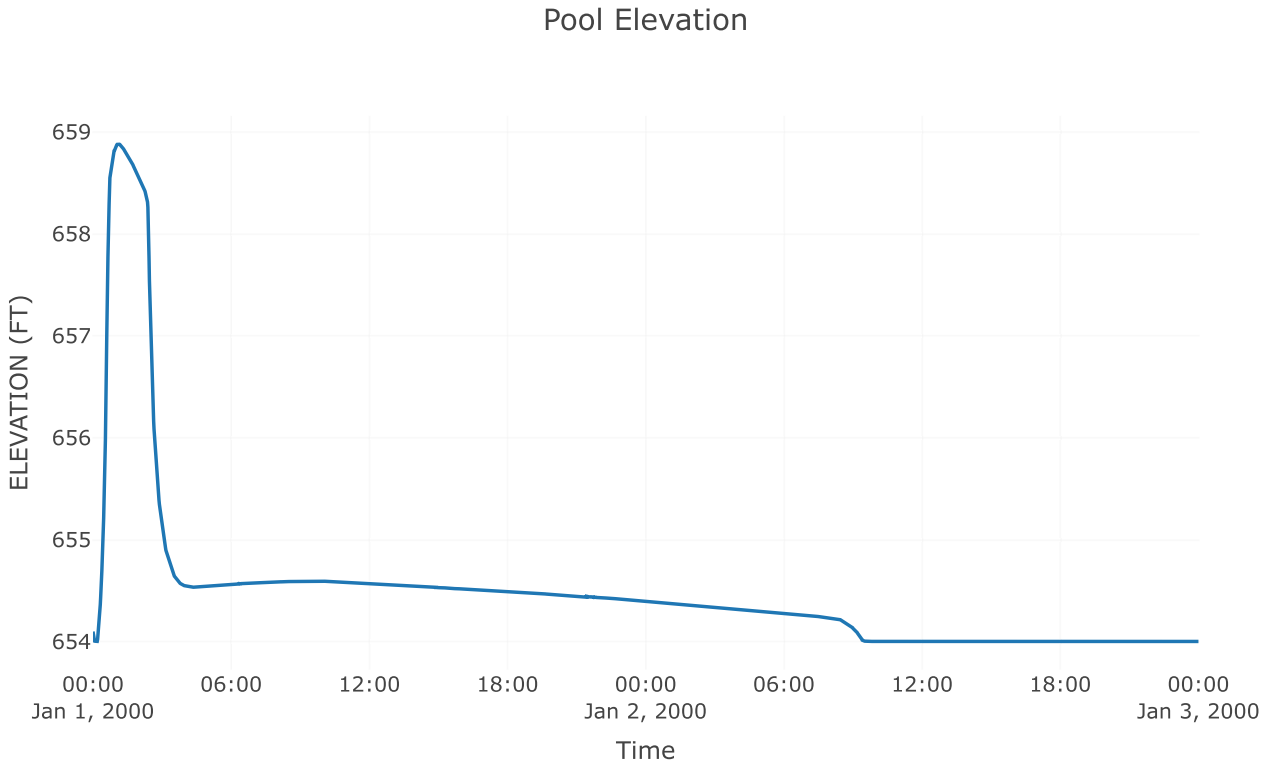
Combined Inflow

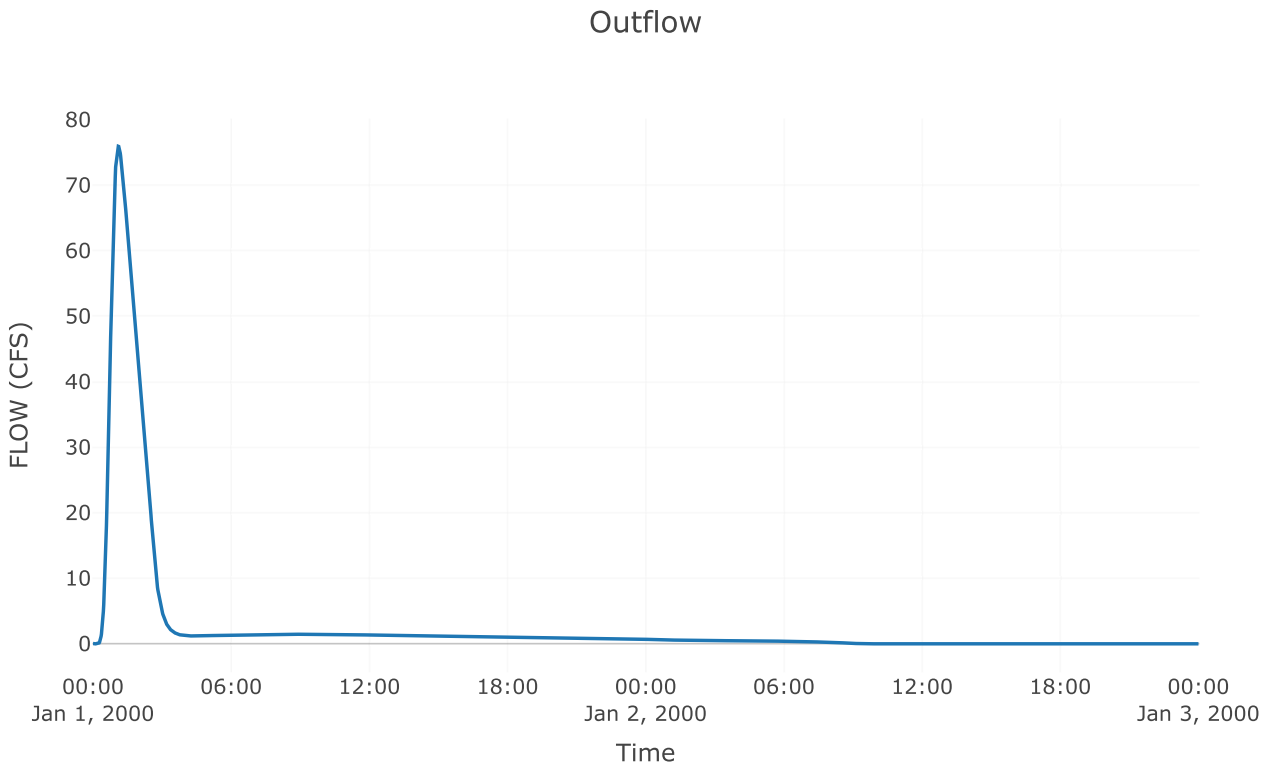



Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0
2
4
6
8
10
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Spillway 1
FLOW (CFS)
0
10
20
30
40
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 1
FLOW (CFS)
30
25
20
15
10
5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Pool Elevation
ELEVATION (FT)
659
658
657
656
655
654
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outflow
80
70
60
50
40
30
20
10
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Existing On-Site

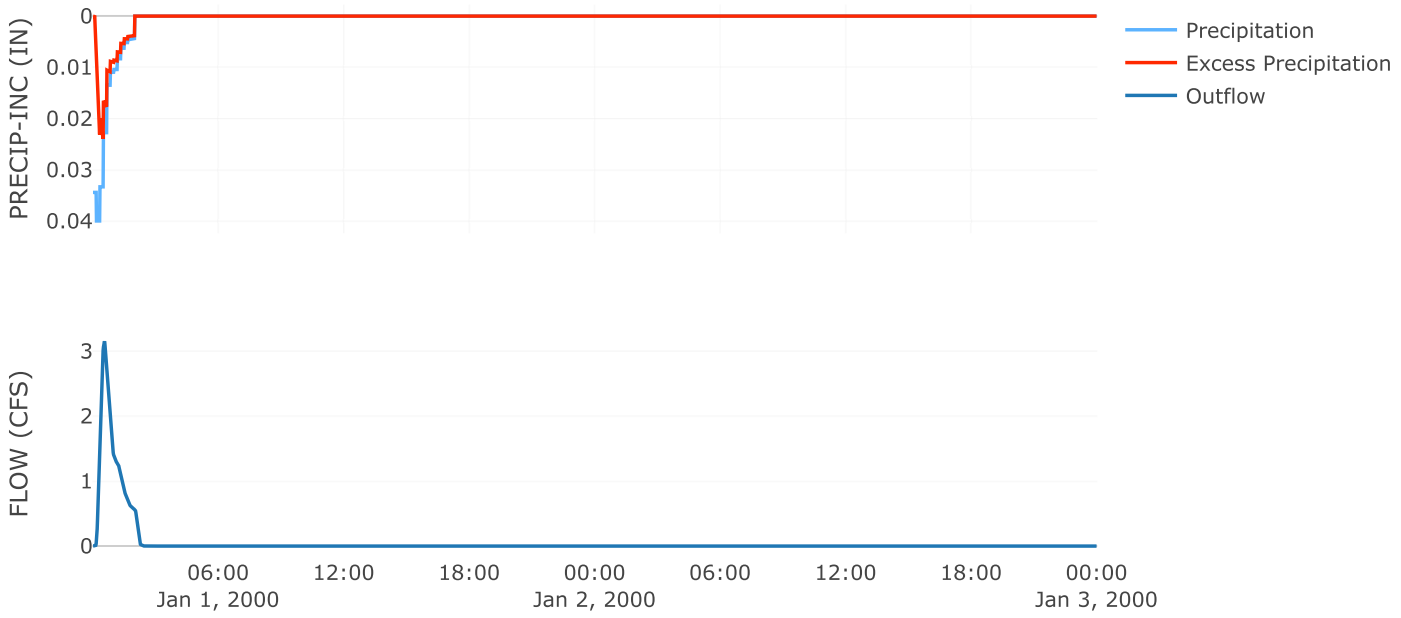
Area (MI2) : 0
Downstream : Existing Basin C

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	91.09

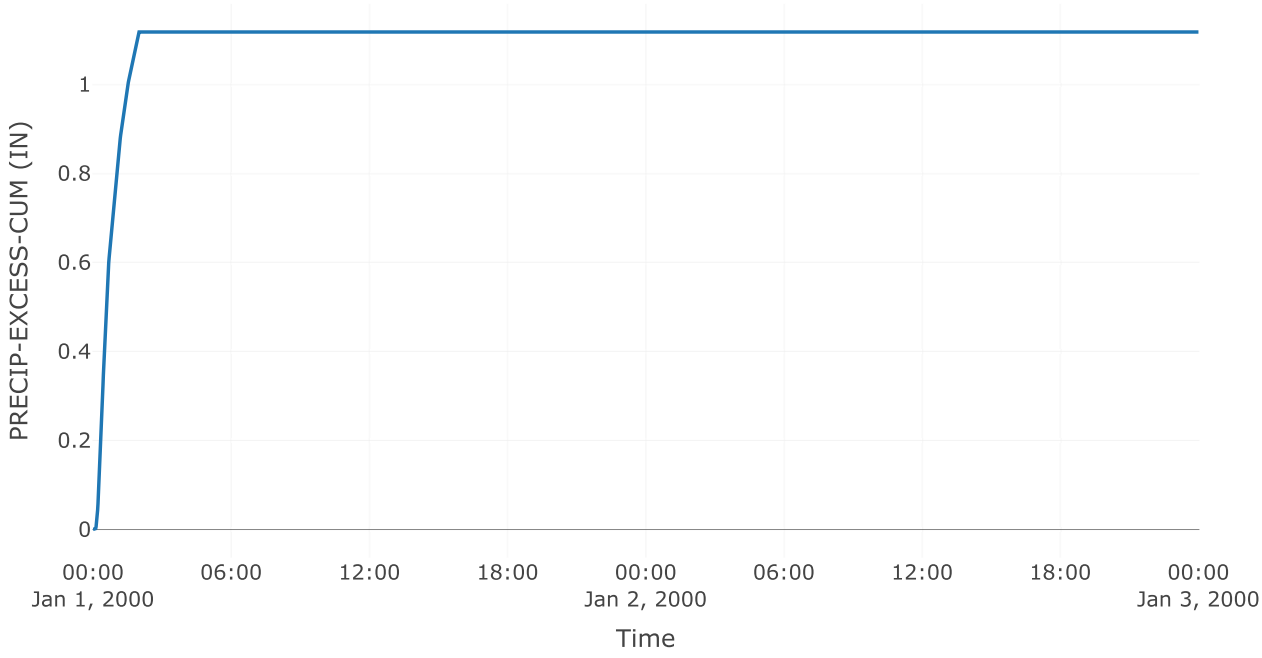
Transform: Scs	
Lag	6
Unitgraph Type	Standard

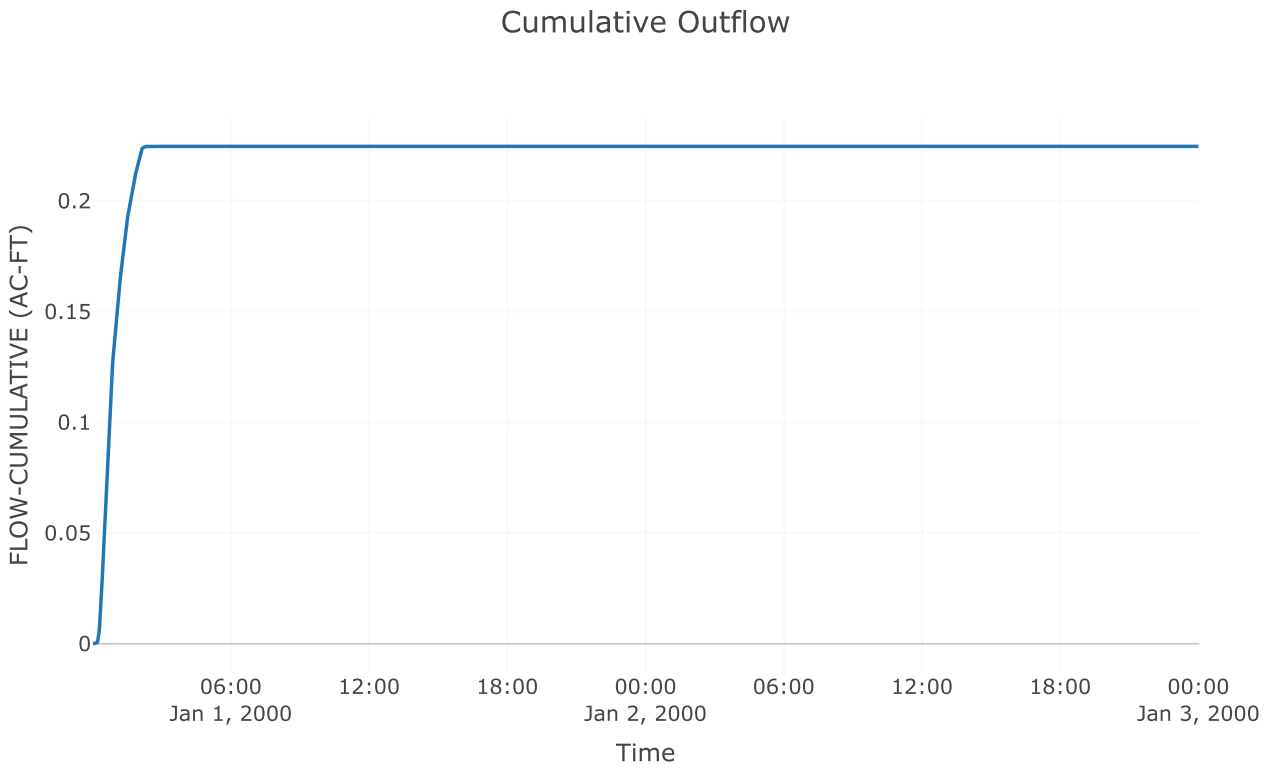
Results: Existing On-Site	
Peak Discharge (CFS)	3.15
Time of Peak Discharge	01Jan2000, 00:33
Volume (IN)	1.12
Precipitation Volume (AC - FT)	0.39
Loss Volume (AC - FT)	0.17
Excess Volume (AC - FT)	0.22
Direct Runoff Volume (AC - FT)	0.22
Baseflow Volume (AC - FT)	0

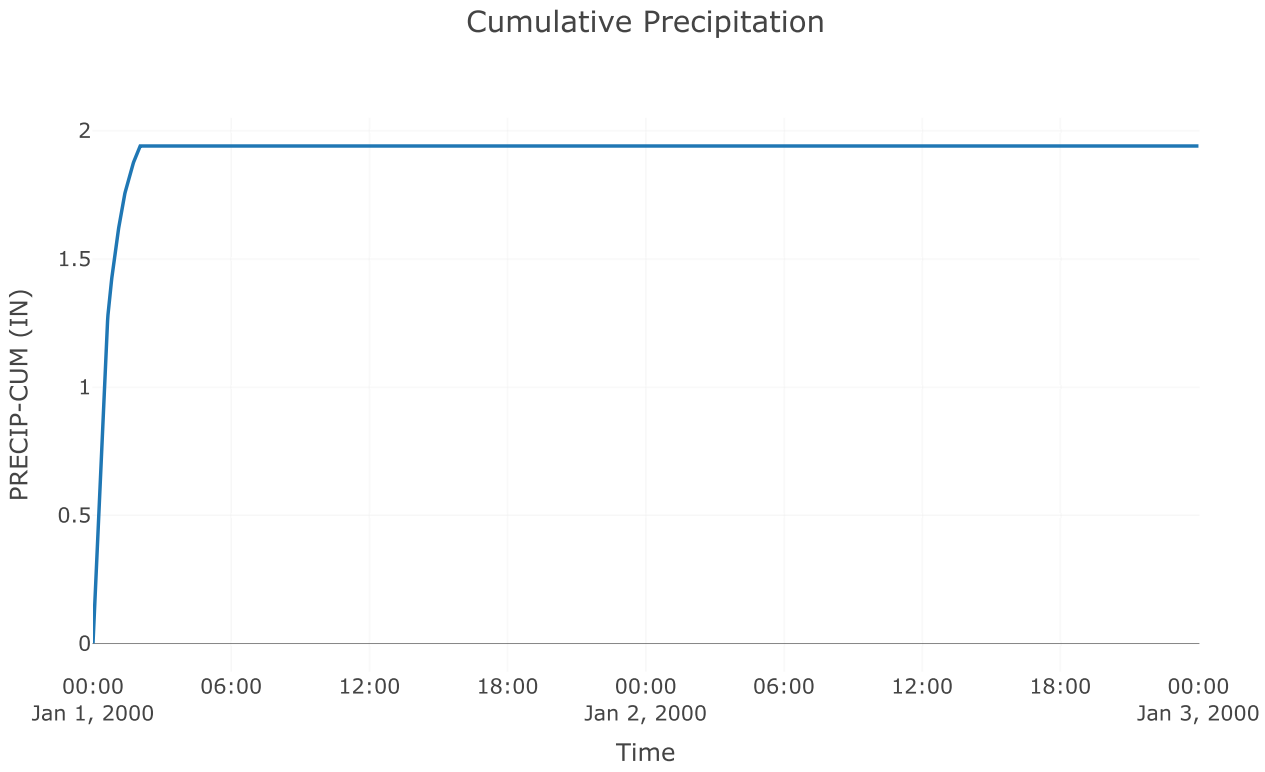
Precipitation and Outflow

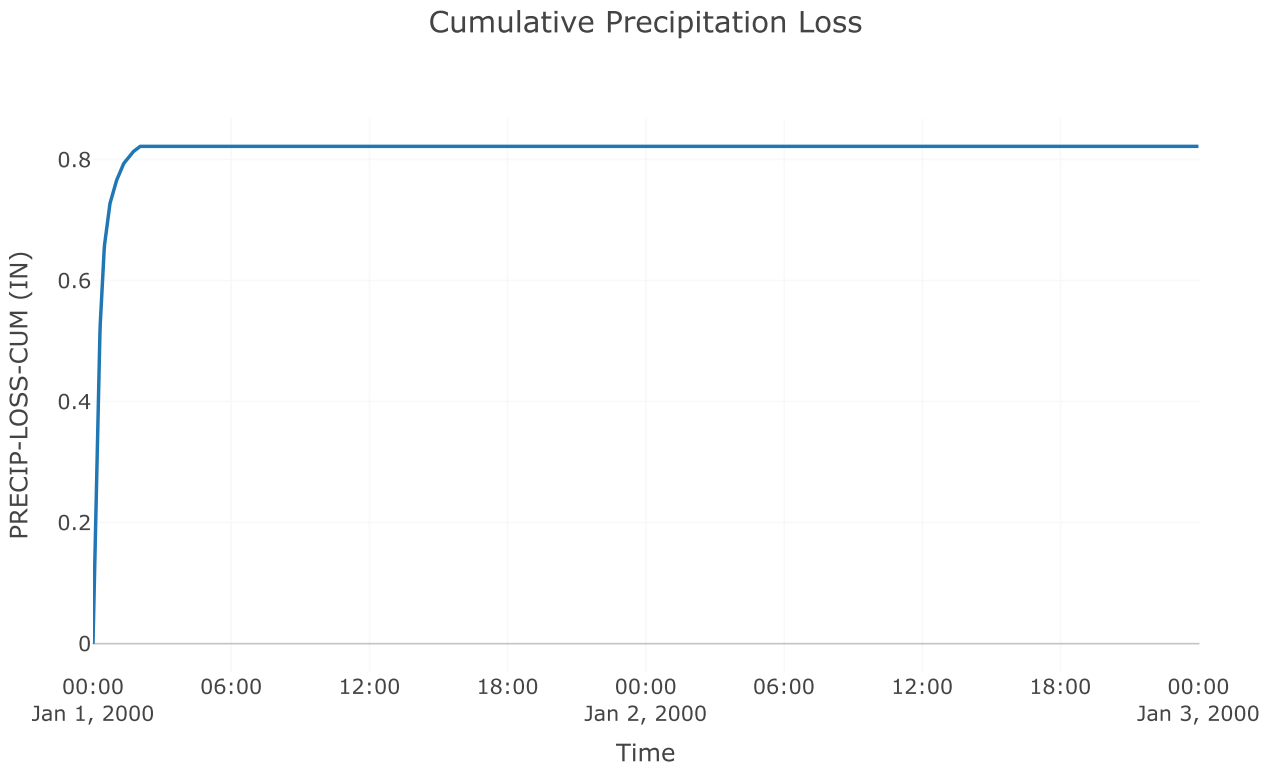


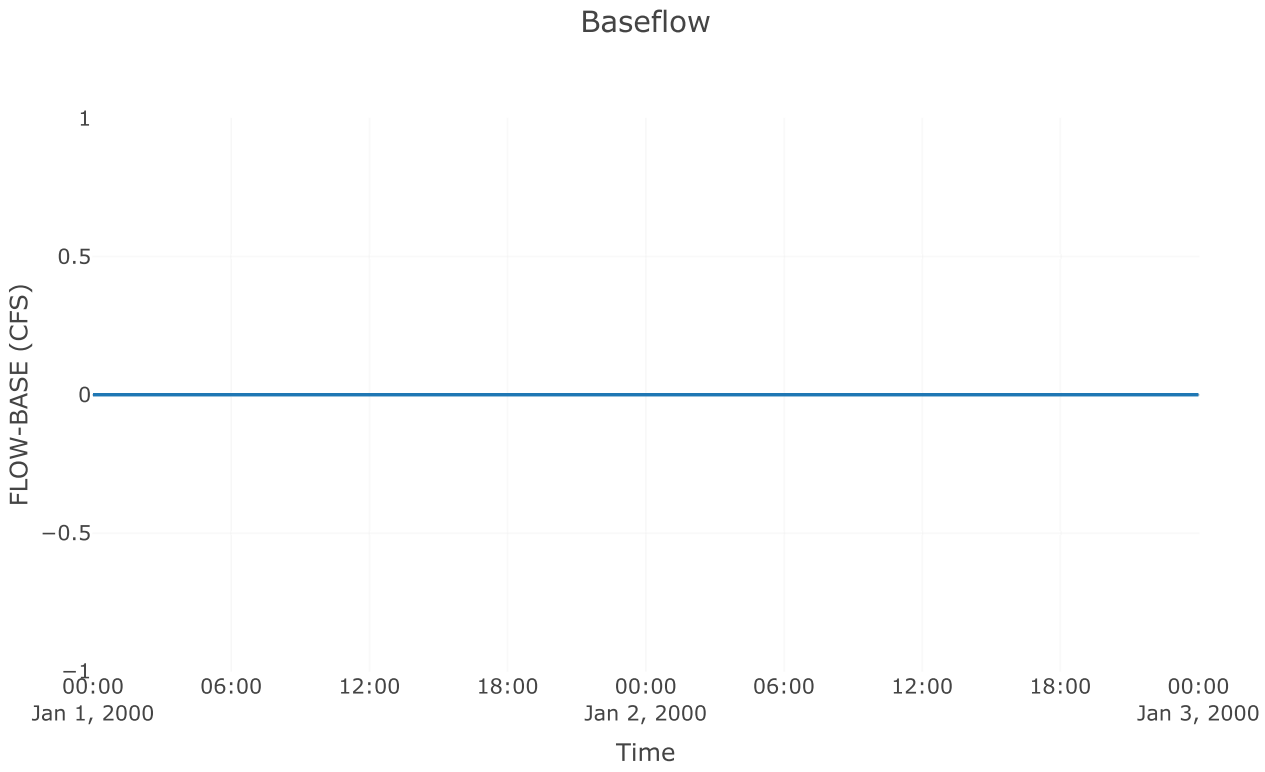
Cumulative Excess Precipitation

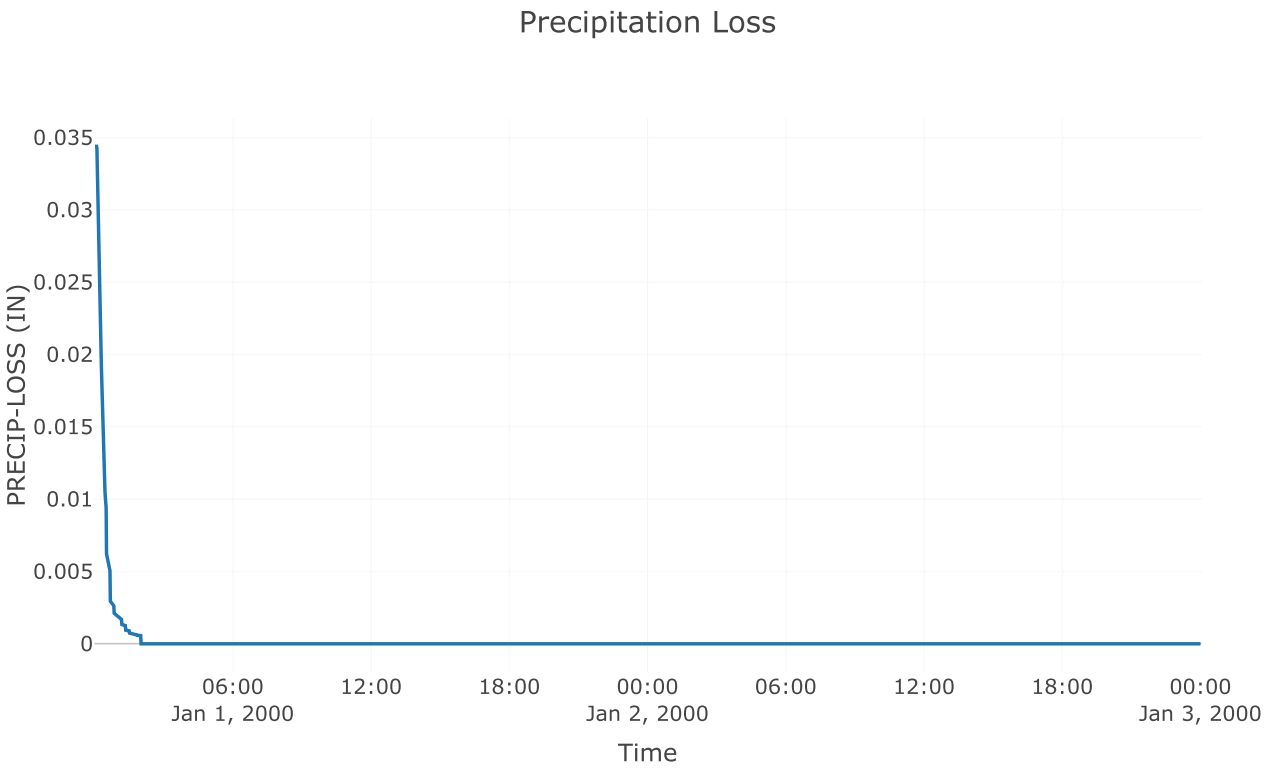


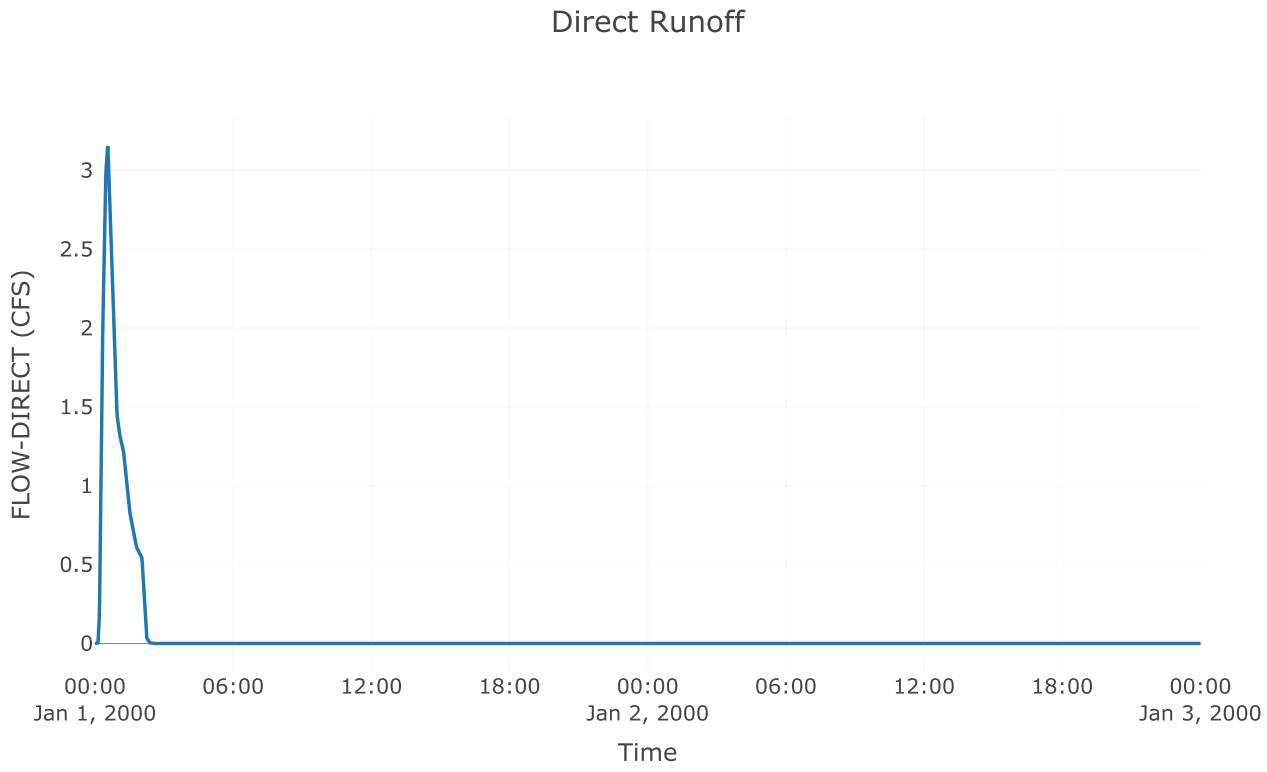

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0.2
0.15
0.1
0.05
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

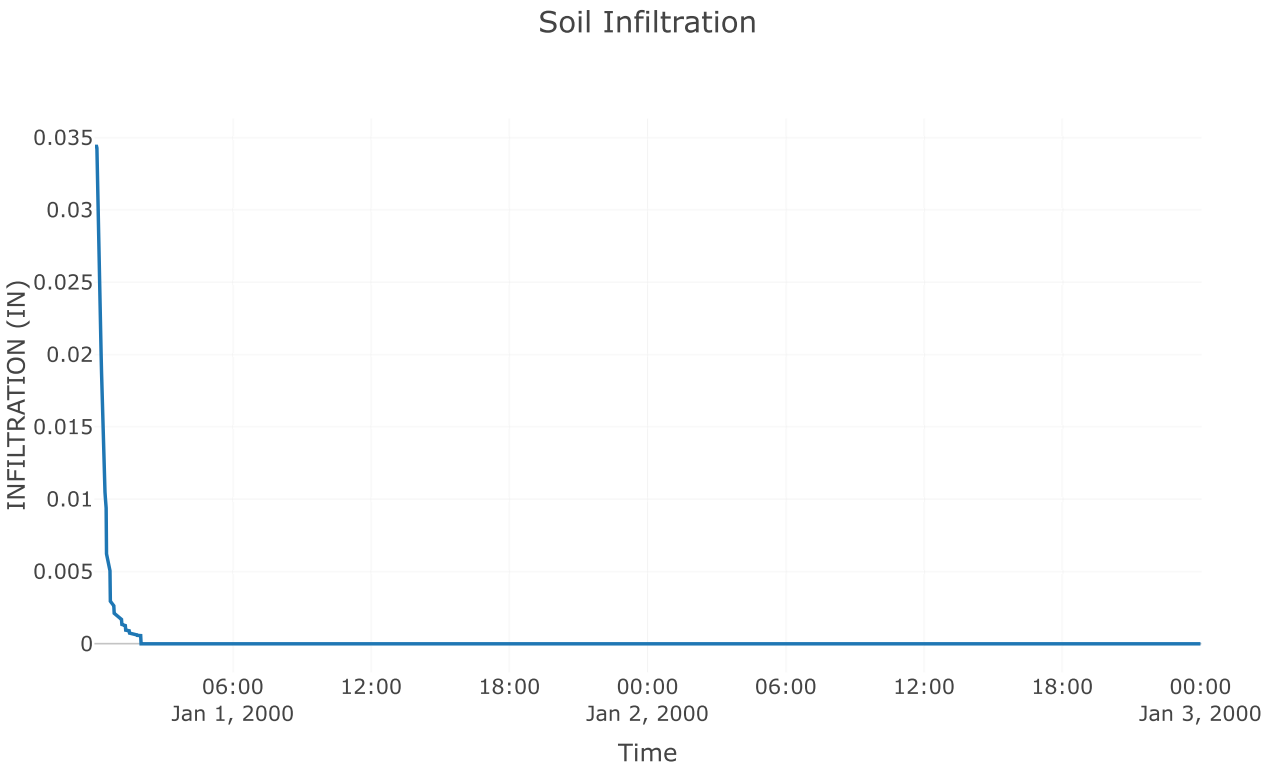

Cumulative Precipitation
PRECIP-CUM (IN)
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

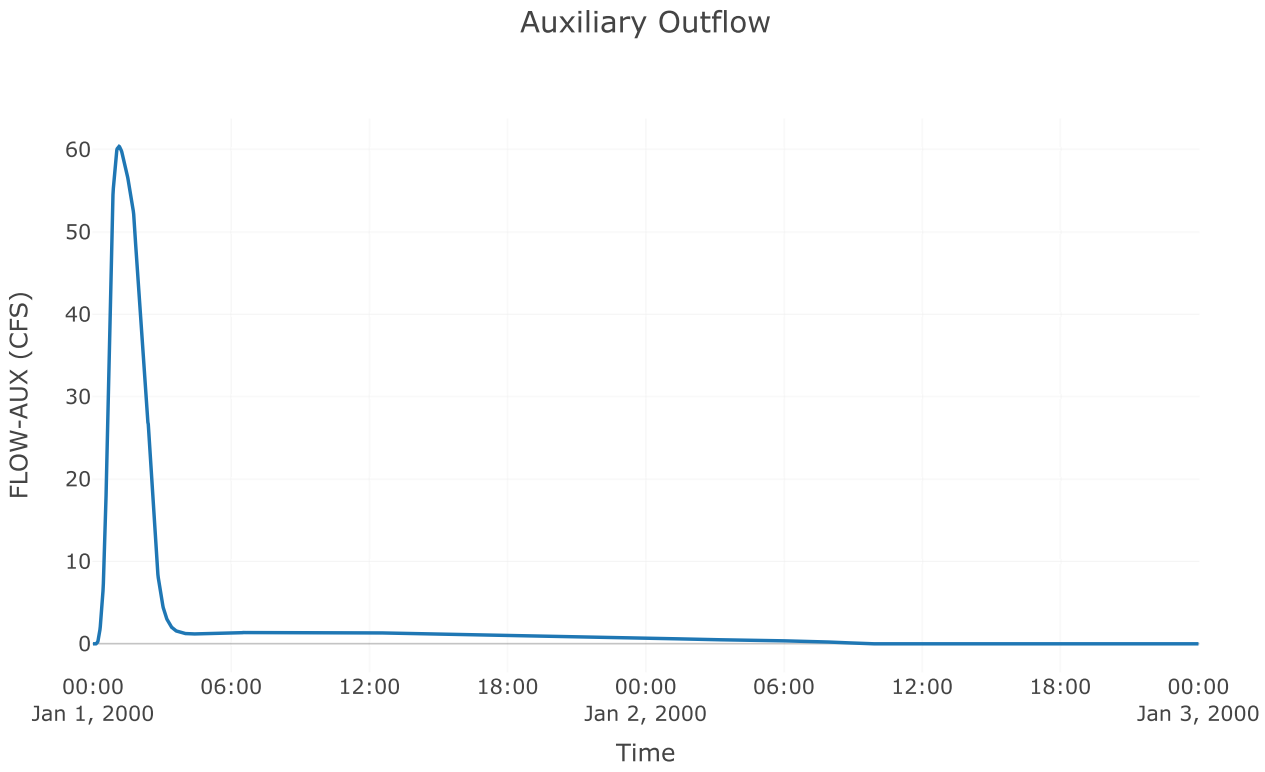

Direct Runoff
FLOW-DIRECT (CFS)
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

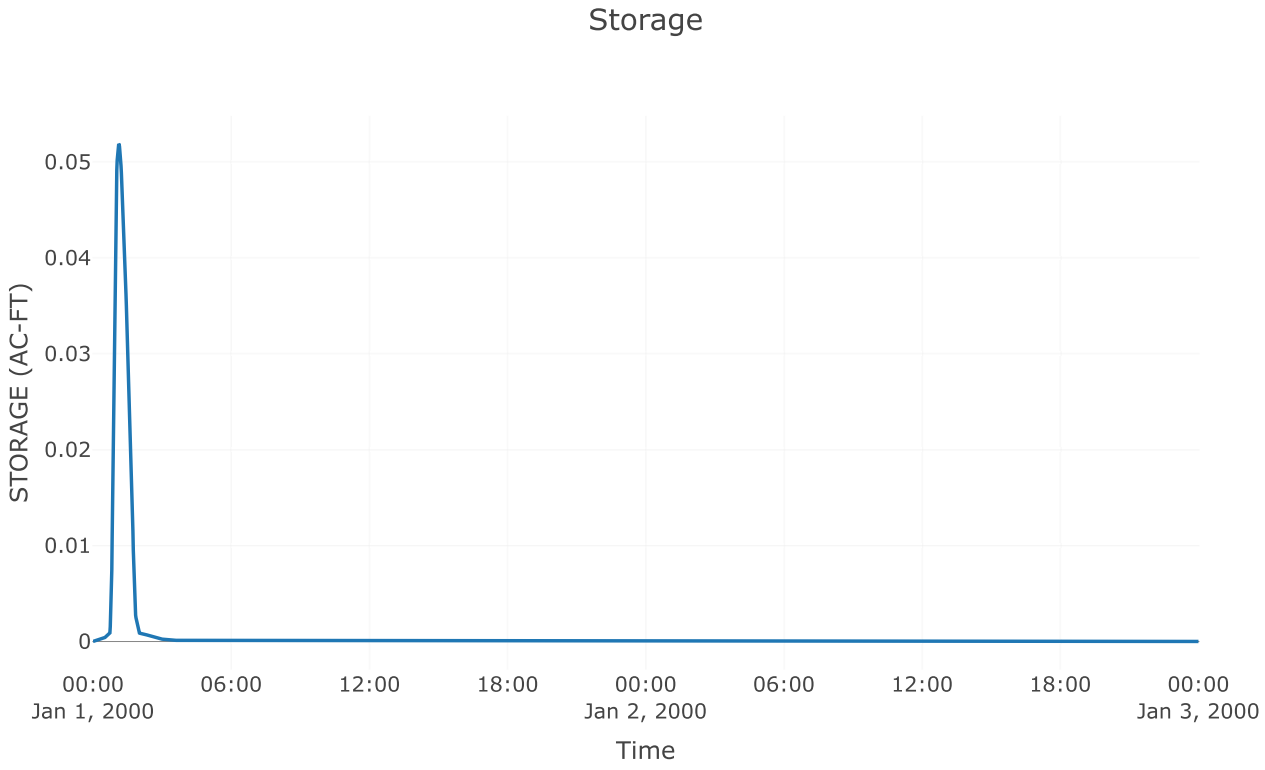

Soil Infiltration
INFILTRATION (IN)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Existing Basin C

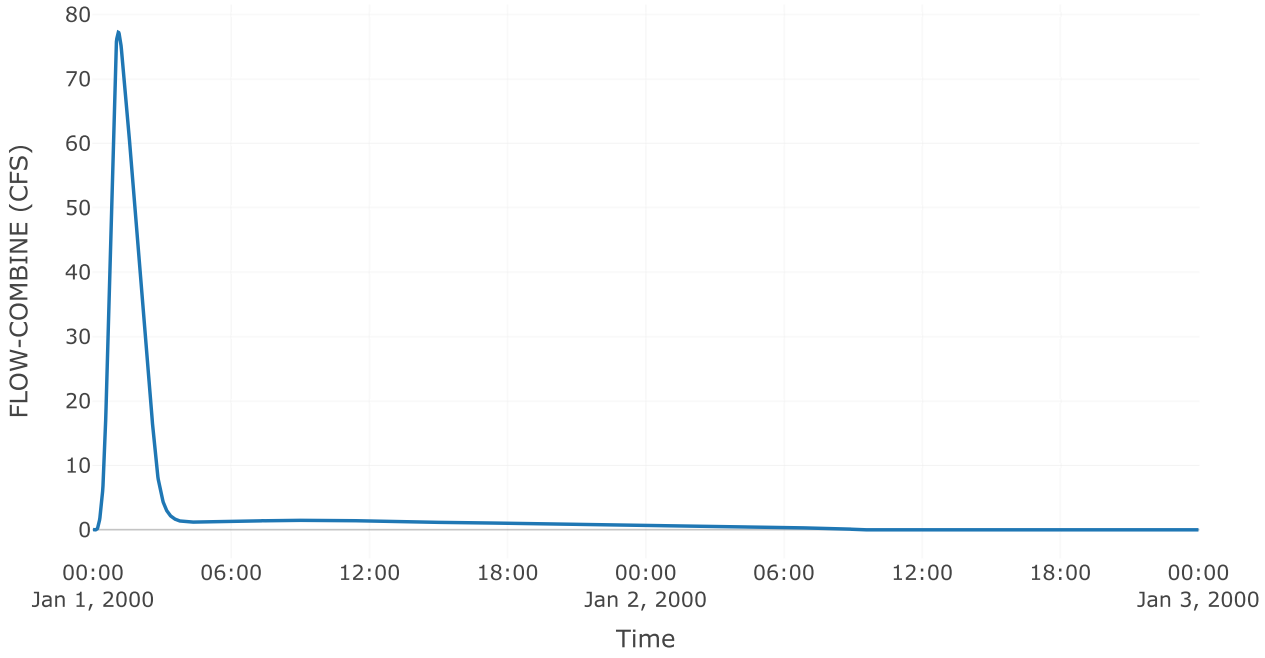
Downstream : Existing Basin A & B

Results: Existing Basin C	
Peak Discharge (CFS)	16.79
Time of Peak Discharge	01Jan2000, 01:07
Volume (IN)	0.05
Peak Inflow (CFS)	77.24
Time of Peak Inflow	01Jan2000, 01:06
Inflow Volume (AC - FT)	11.34
Maximum Storage (AC - FT)	0.05
Peak Elevation (FT)	650.8
Discharge Volume (AC - FT)	0.8

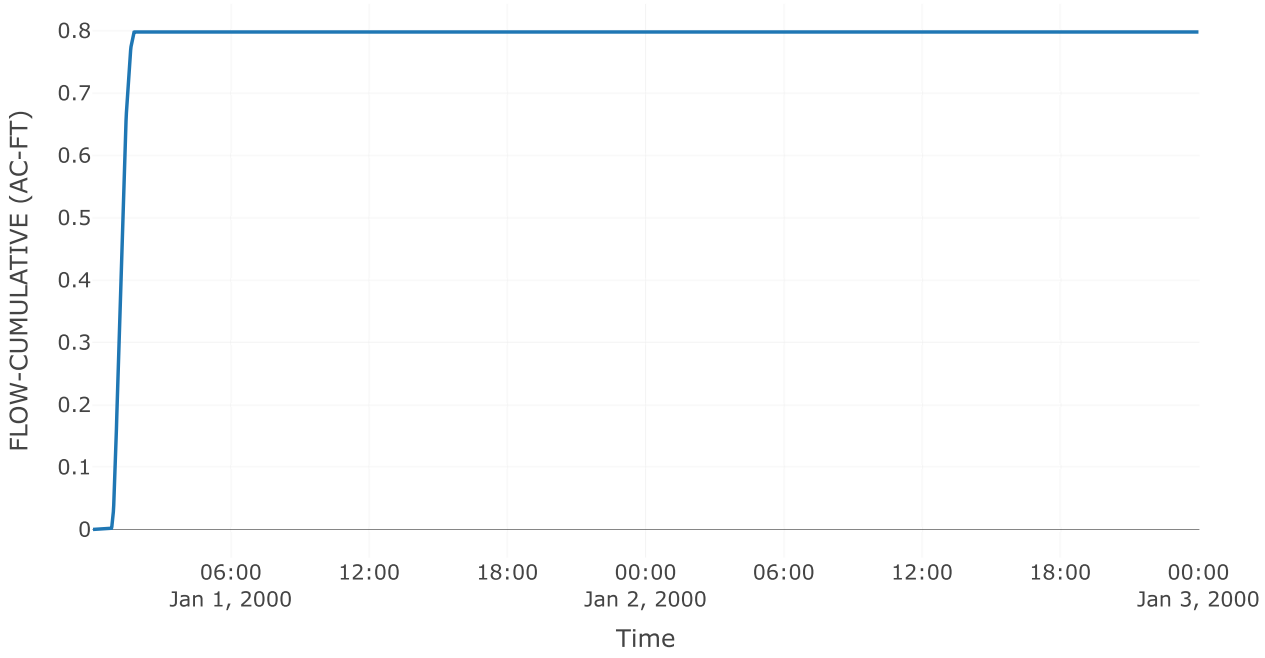

Auxiliary Outflow
FLOW-AUX (CFS)
60
50
40
30
20
10
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

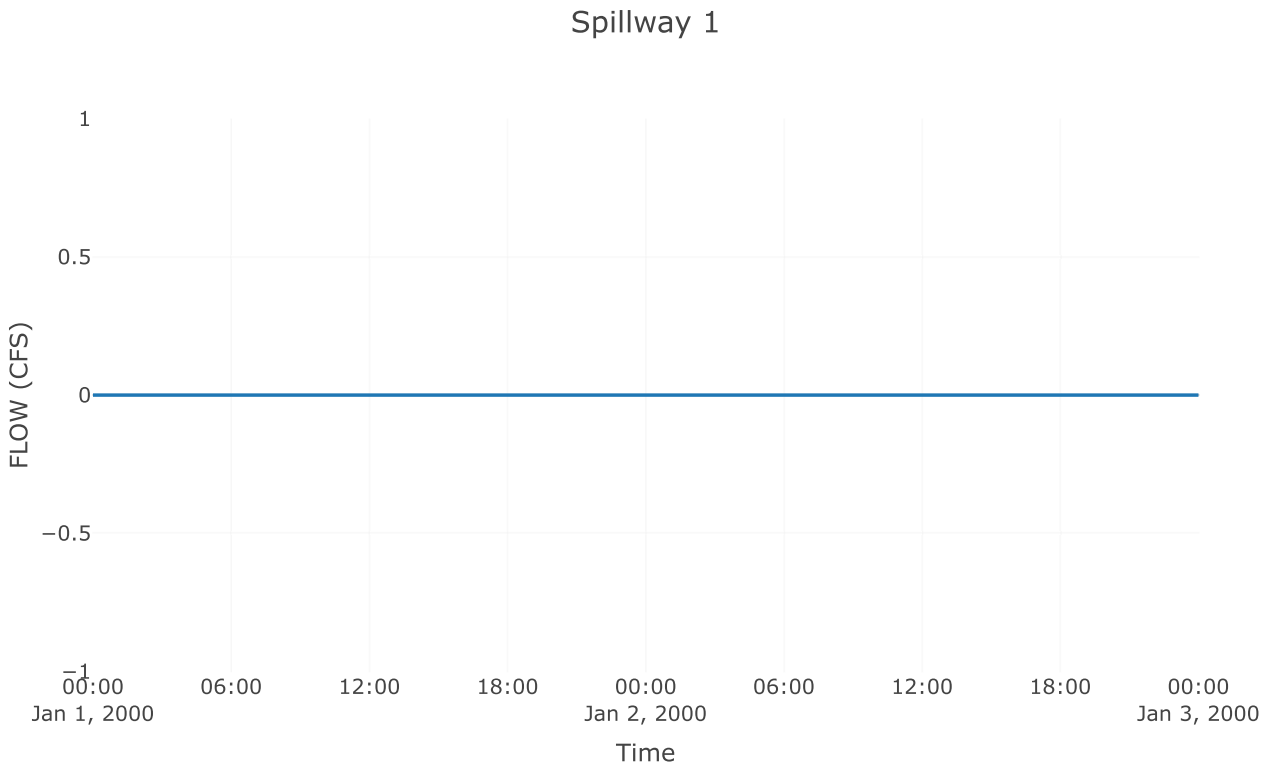

Storage
STORAGE (AC-FT)
0.05
0.04
0.03
0.02
0.01
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

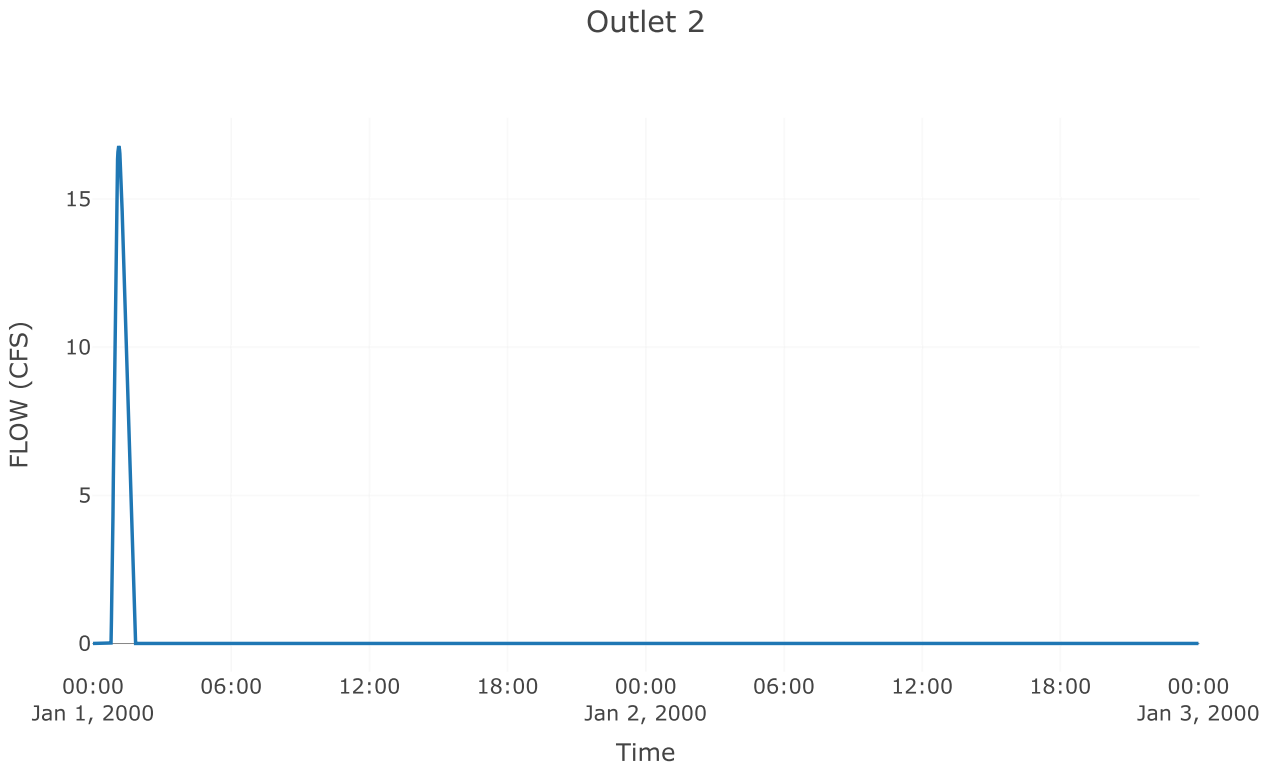
Combined Inflow

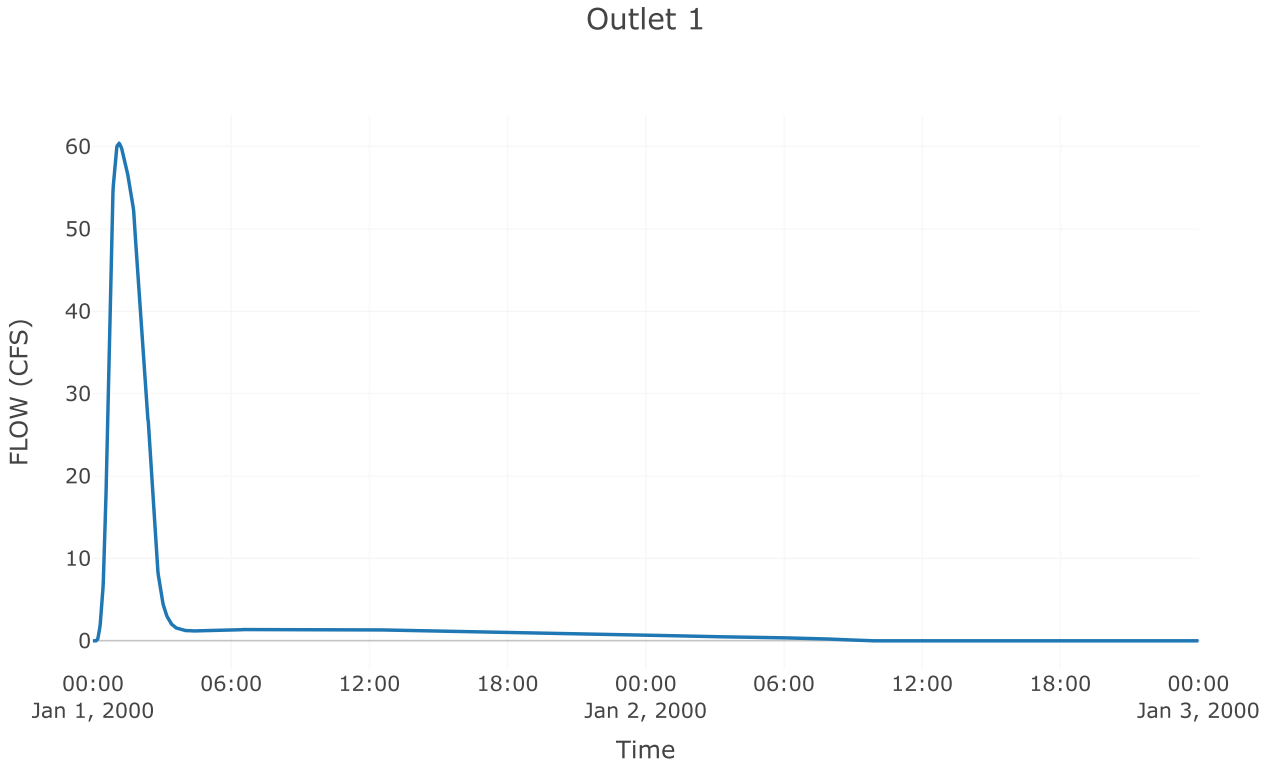


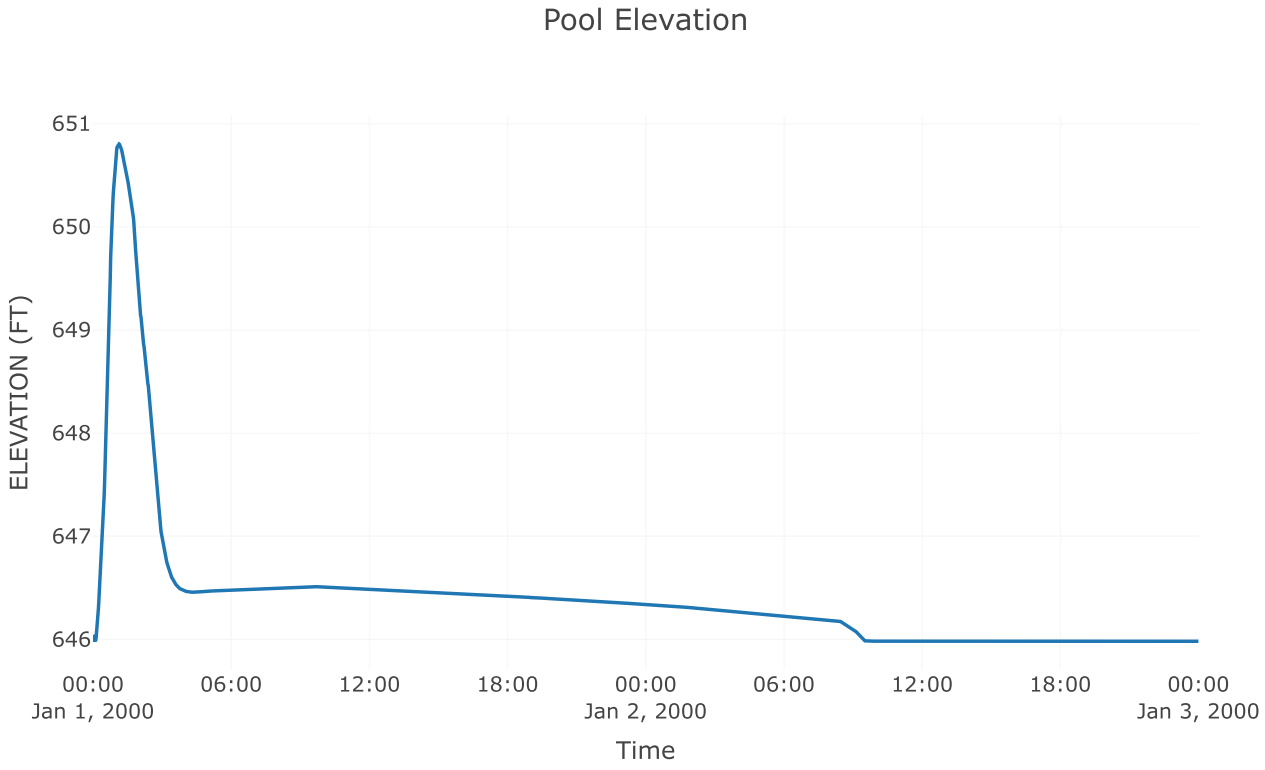
Cumulative Outflow

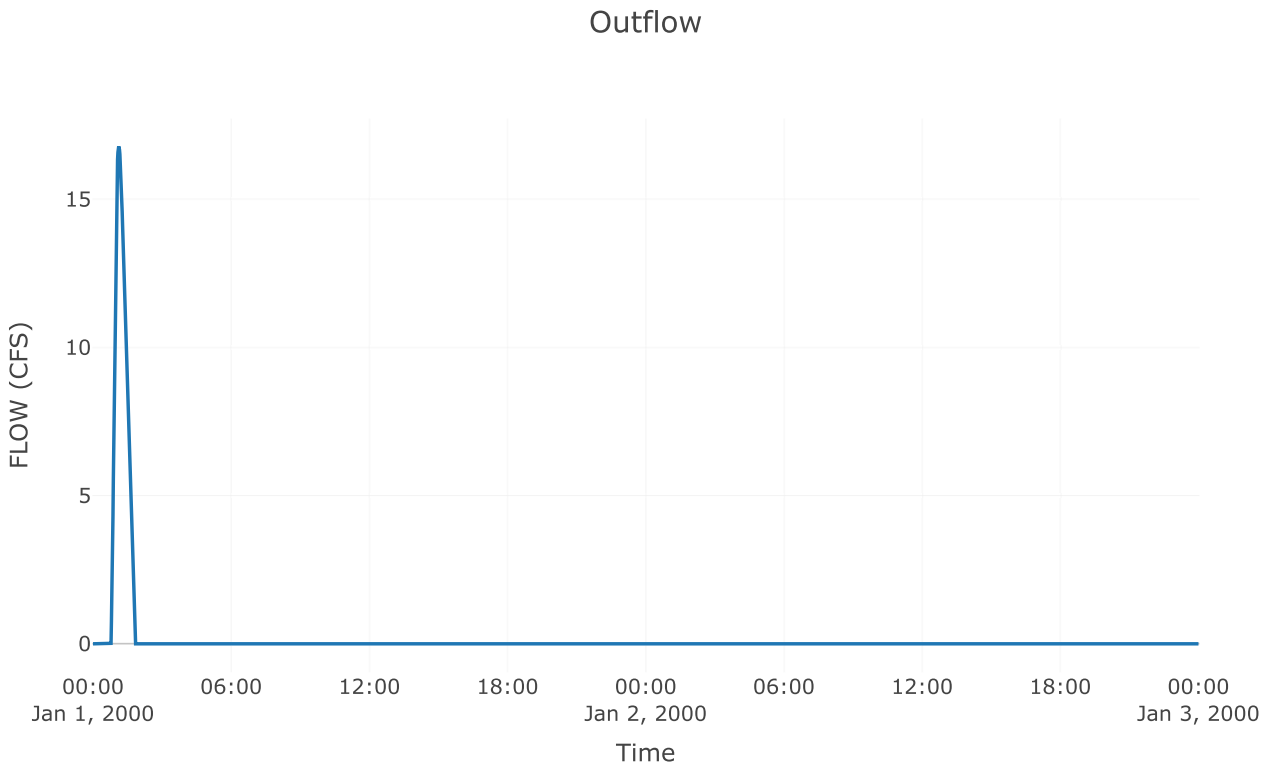



Spillway 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 2
15
10
5
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 1
FLOW (CFS)
60
50
40
30
20
10
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

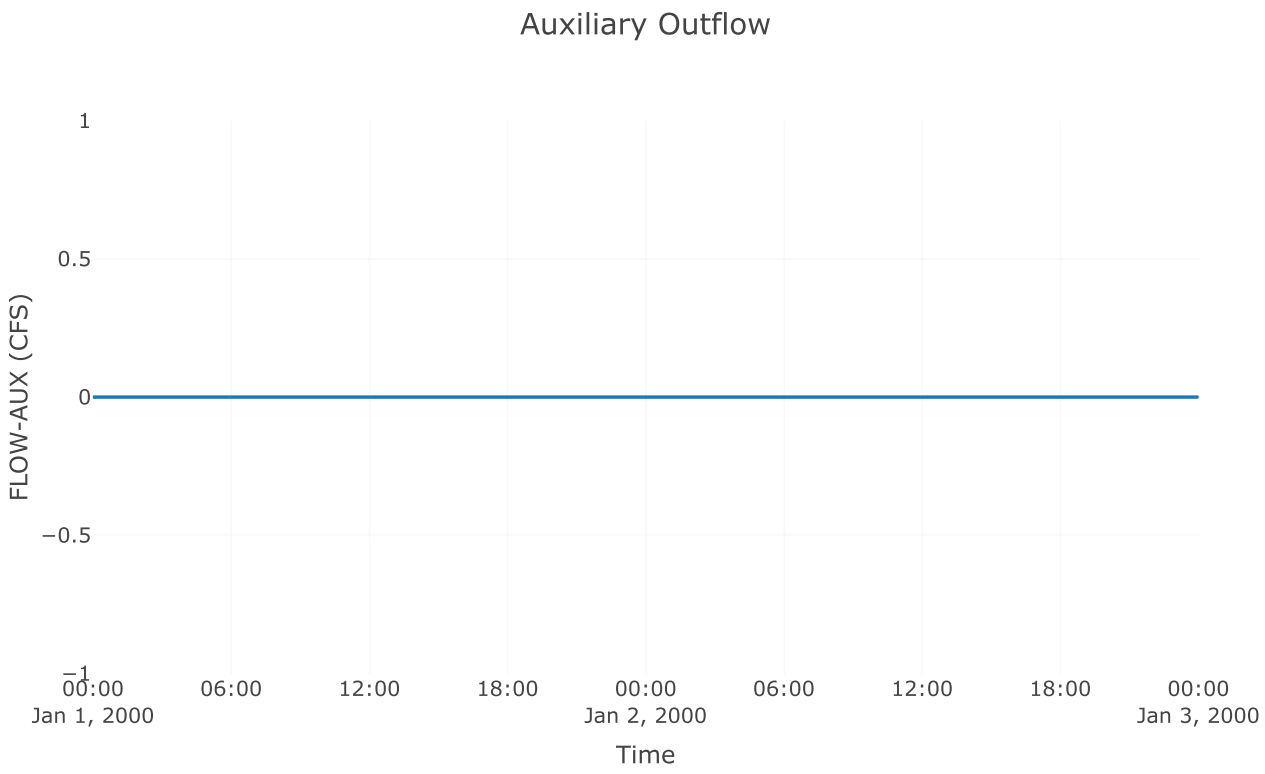

Pool Elevation
ELEVATION (FT)
651
650
649
648
647
646
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

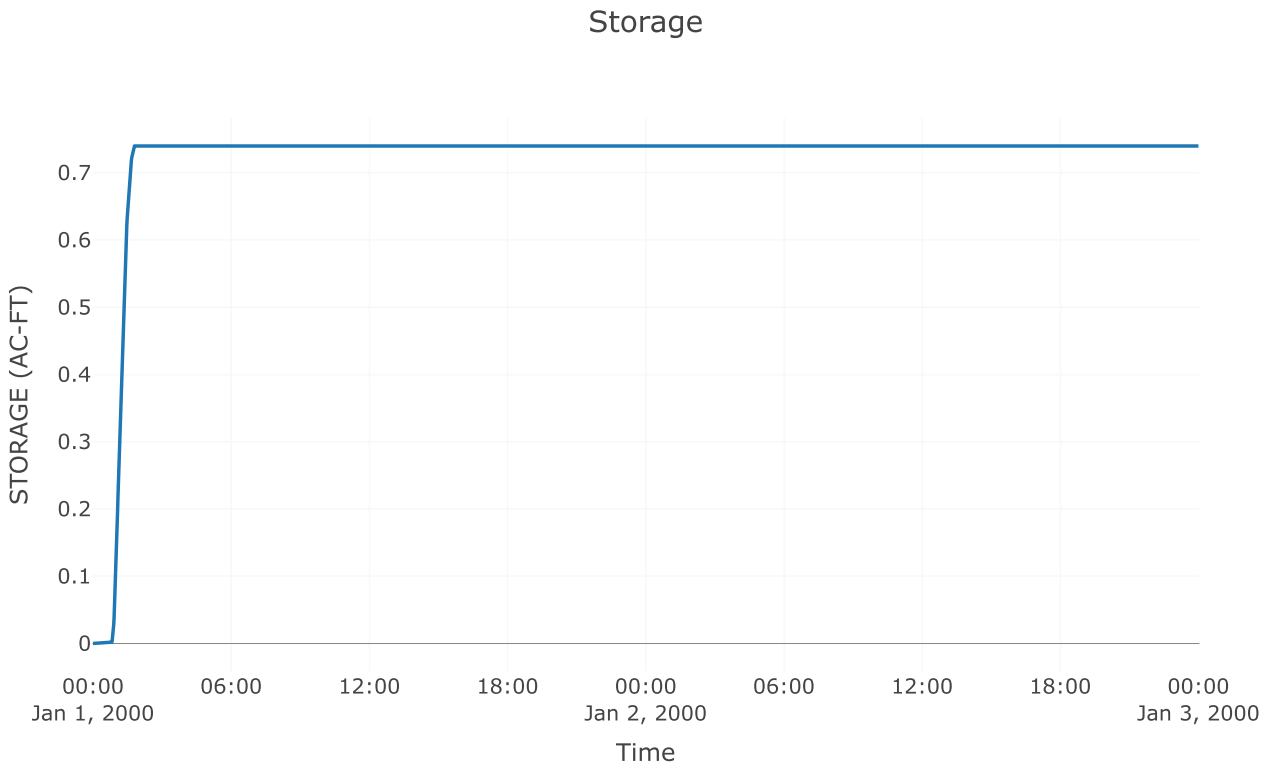

Outflow
FLOW (CFS)
15
10
5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

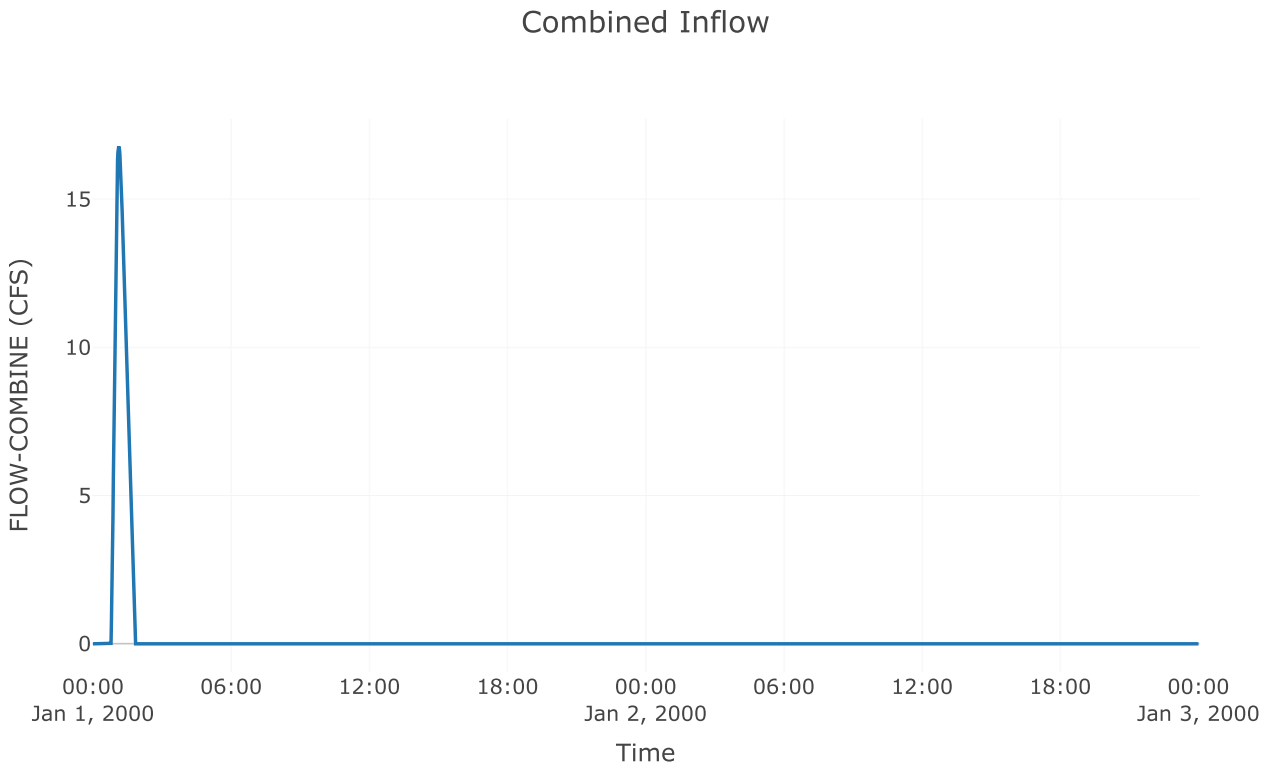
Reservoir: Existing Basin A & B

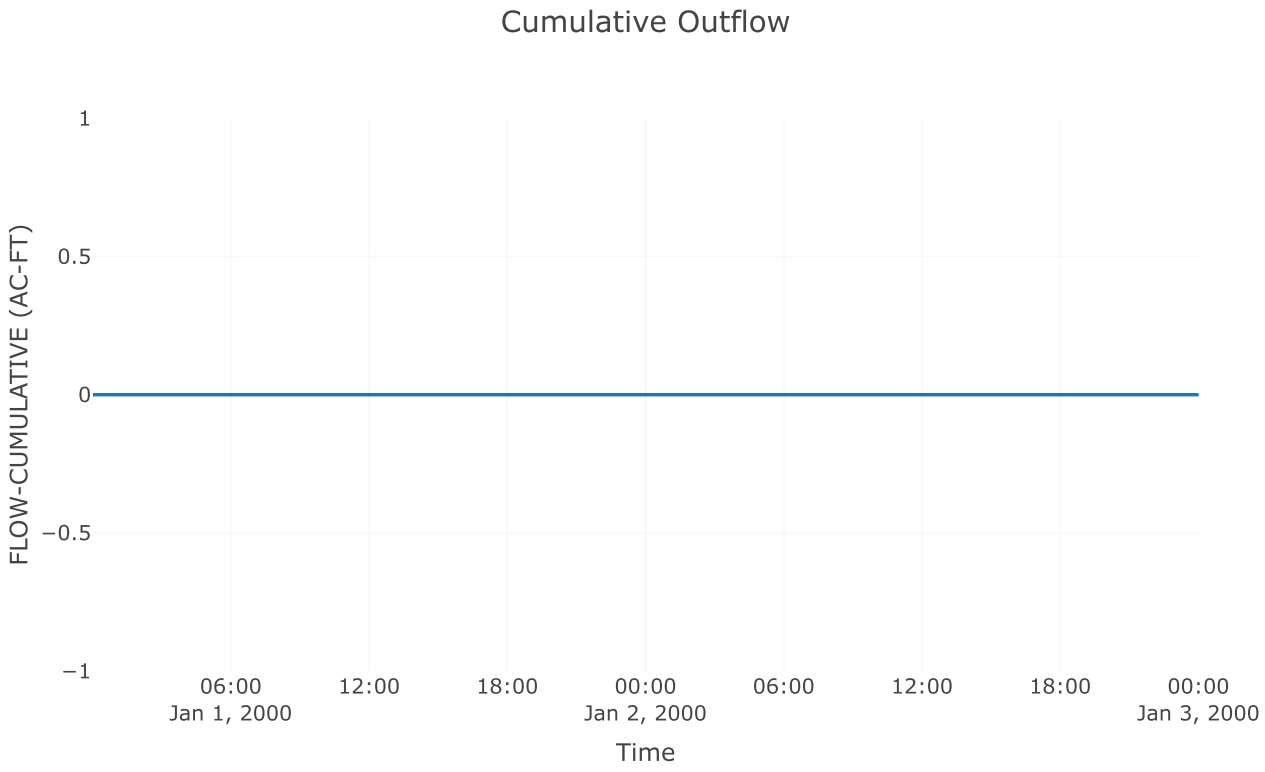
Downstream : Outlet Storm Box

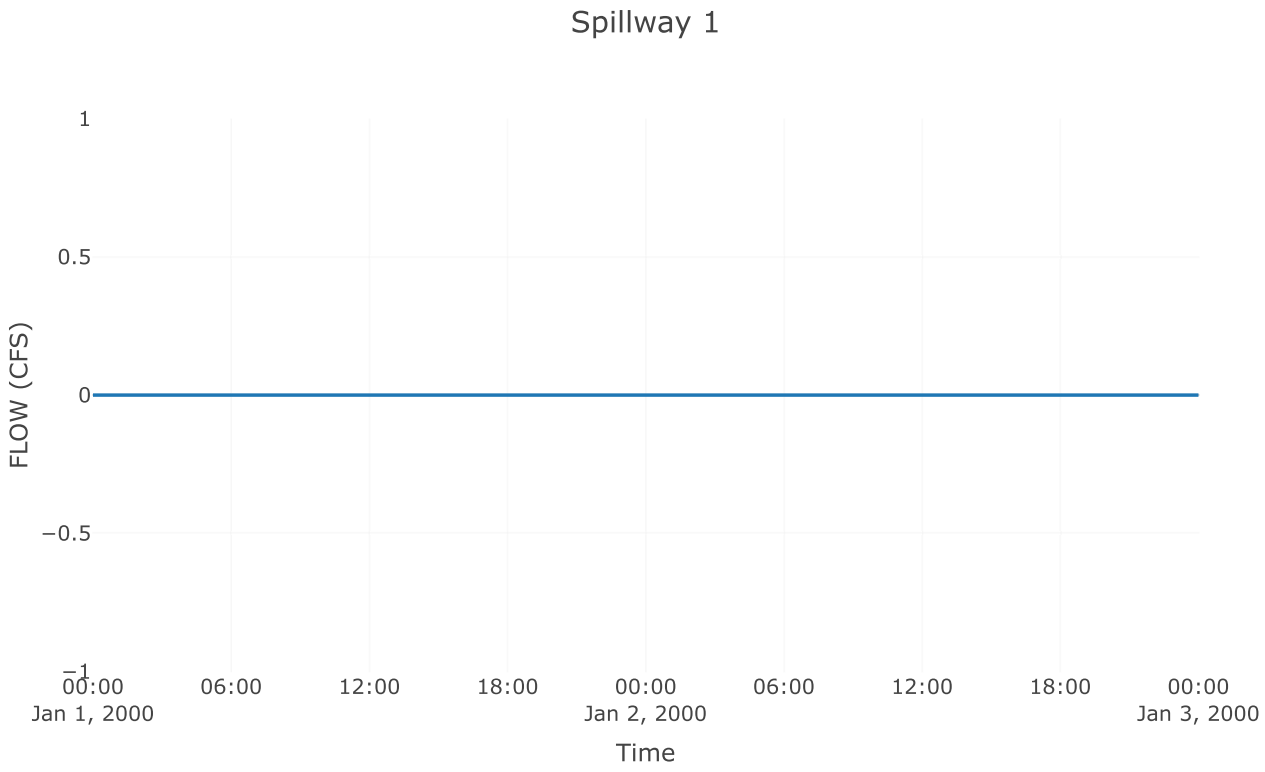
Results: Existing Basin A & B	
Peak Discharge (CFS)	0
Time of Peak Discharge	31Dec1999, 24:00
Volume (IN)	0
Peak Inflow (CFS)	16.79
Time of Peak Inflow	01Jan2000, 01:07
Inflow Volume (AC - FT)	0.8
Maximum Storage (AC - FT)	0.74
Peak Elevation (FT)	650.23
Discharge Volume (AC - FT)	0

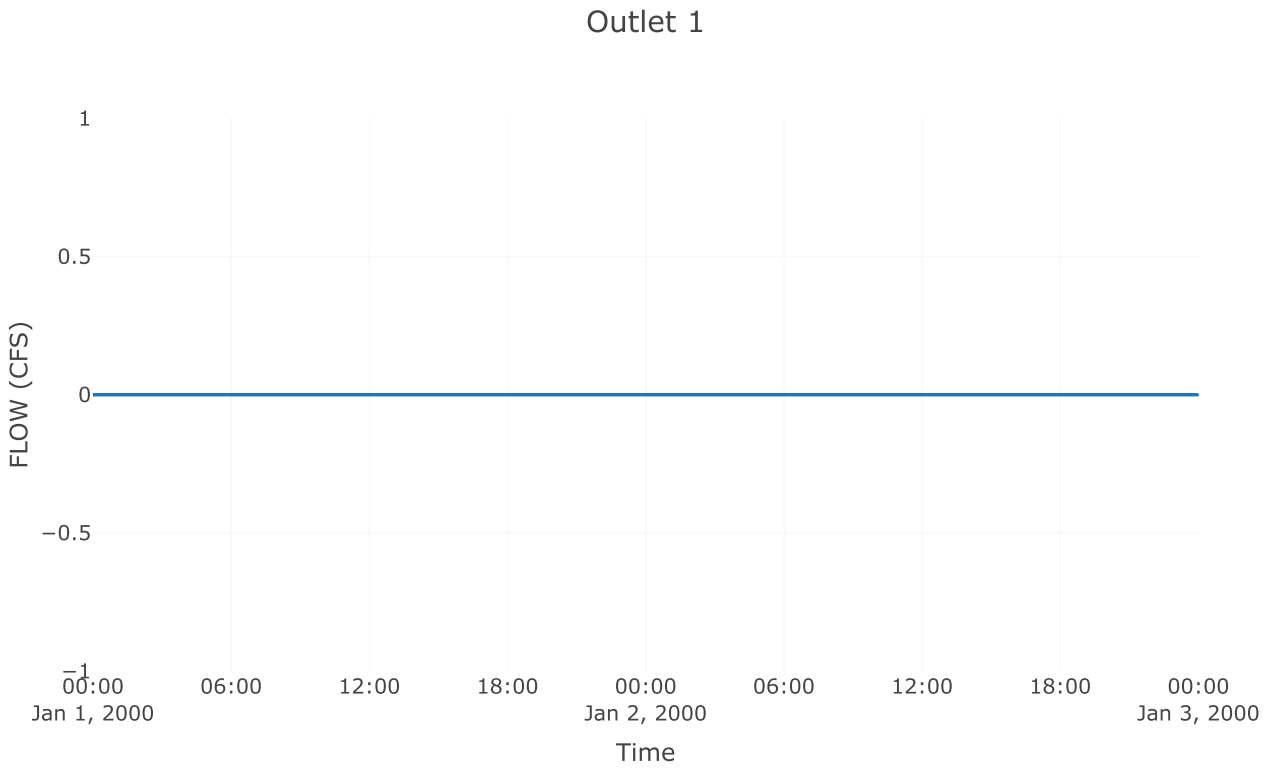

Auxiliary Outflow
FLOW-AUX (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

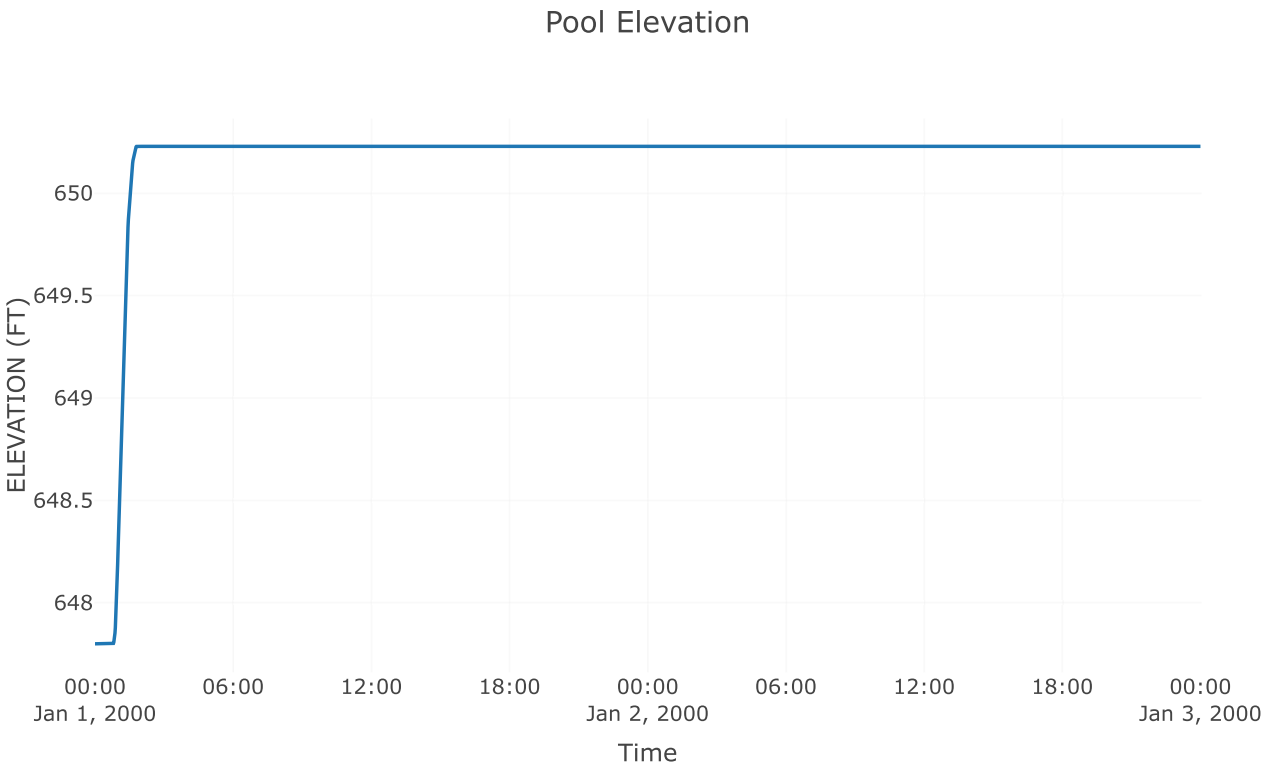

Storage
STORAGE (AC-FT)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

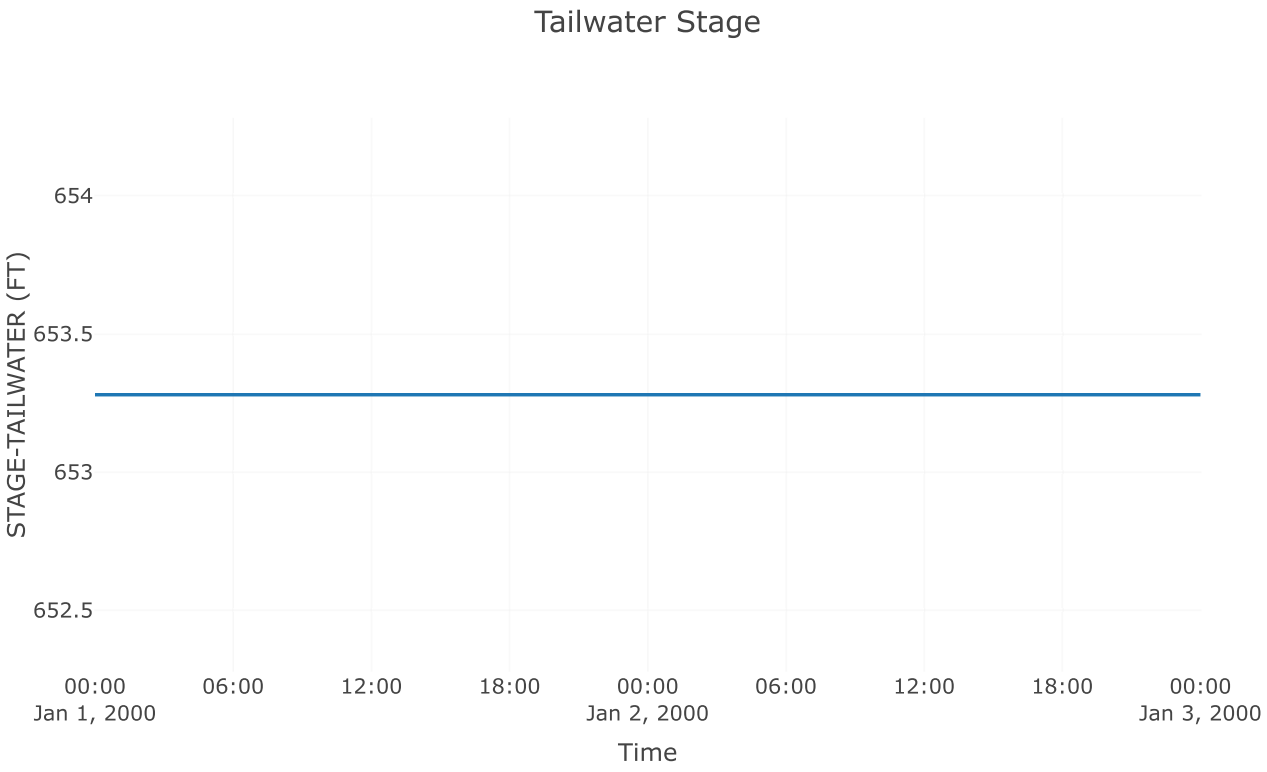

Combined Inflow
FLOW-COMBINE (CFS)
15
10
5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

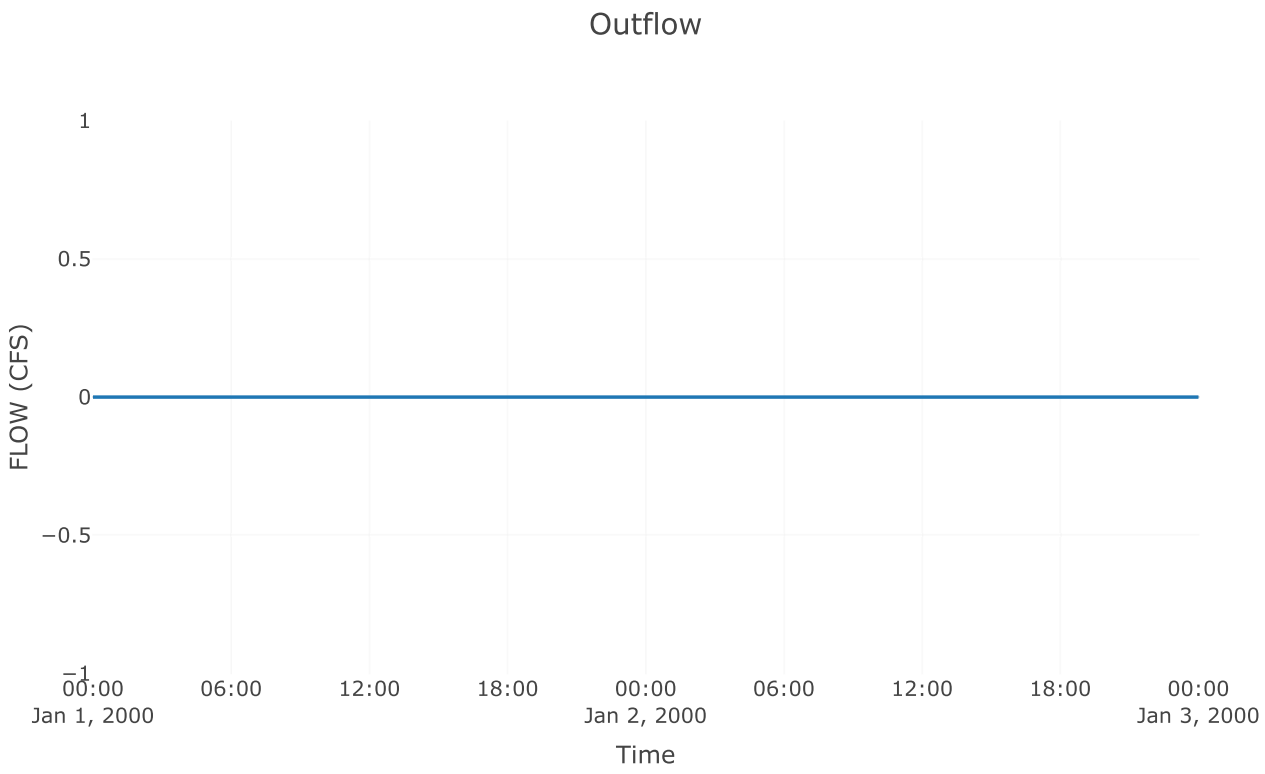

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
1
0.5
0
−0.5
−1
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Spillway 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Pool Elevation
650
649.5
649
648.5
648
ELEVATION (FT)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

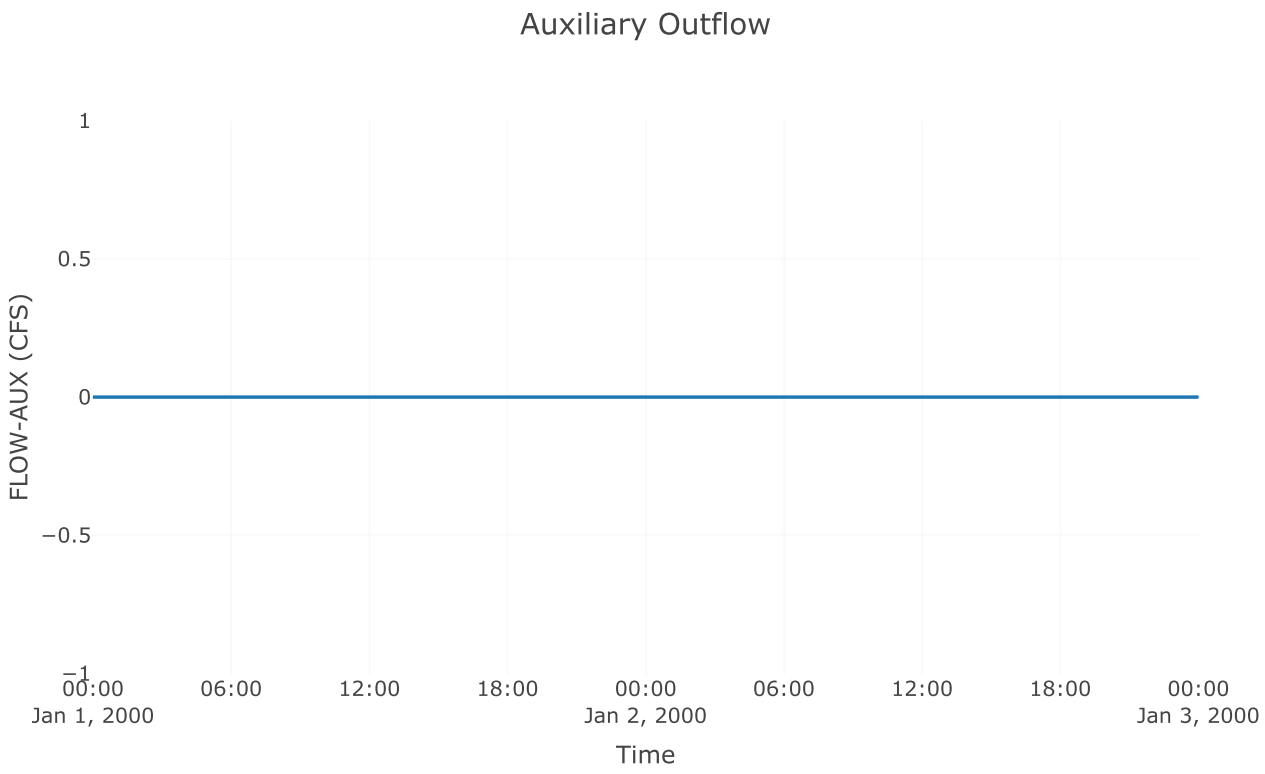

Tailwater Stage
654
653.5
653
652.5
STAGE-TAILWATER (FT)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

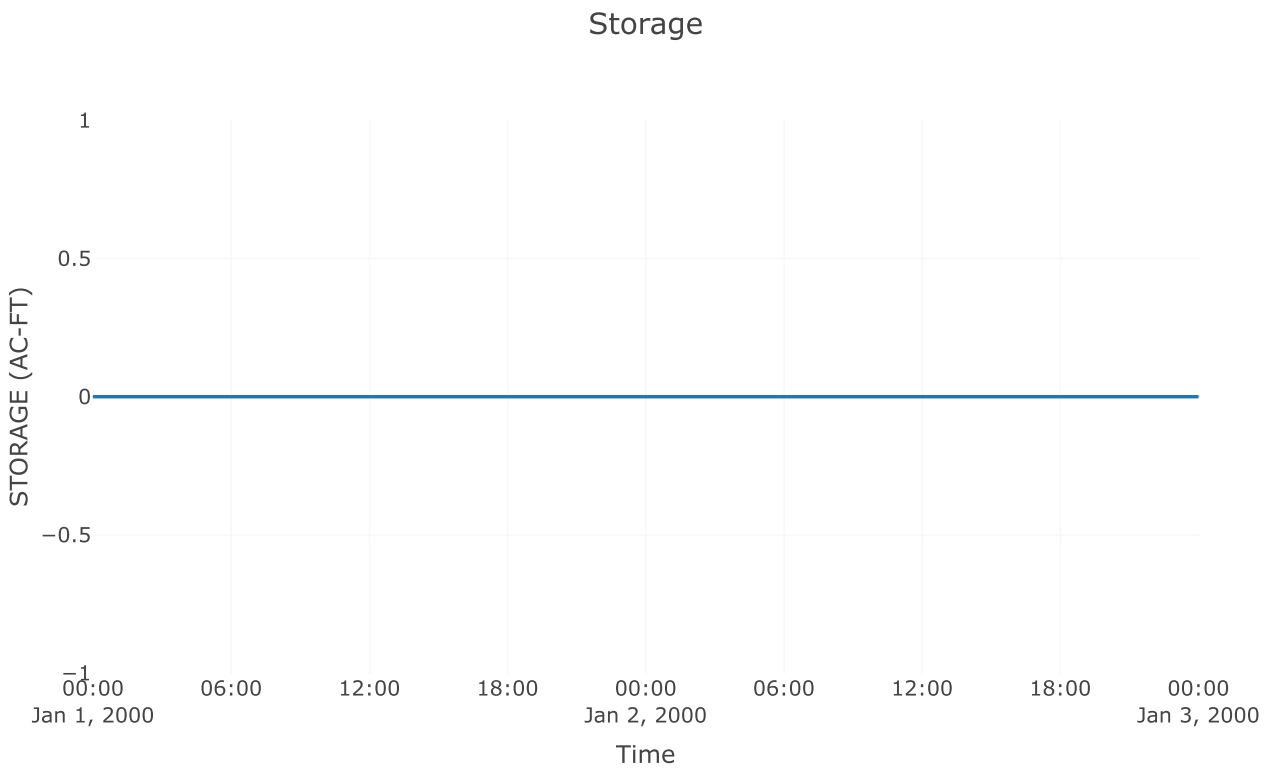

Outflow
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

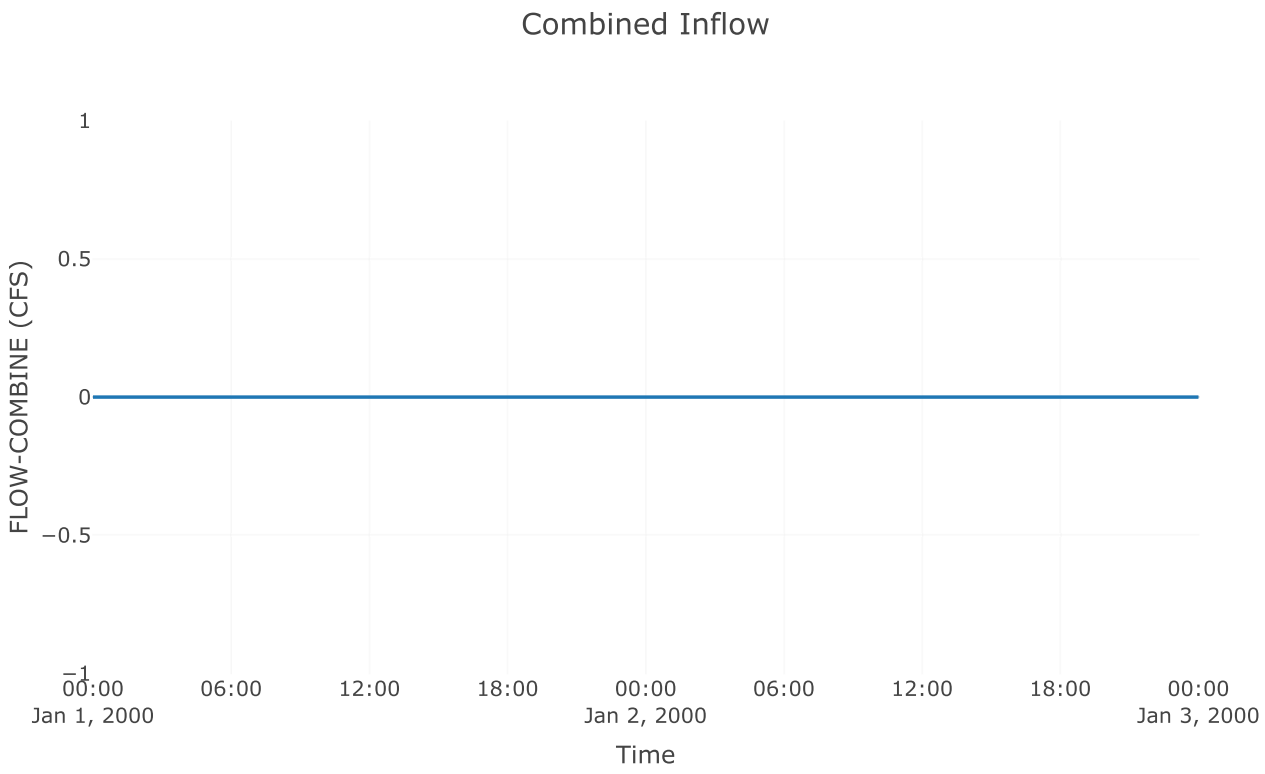
Reservoir: Outlet Storm Box

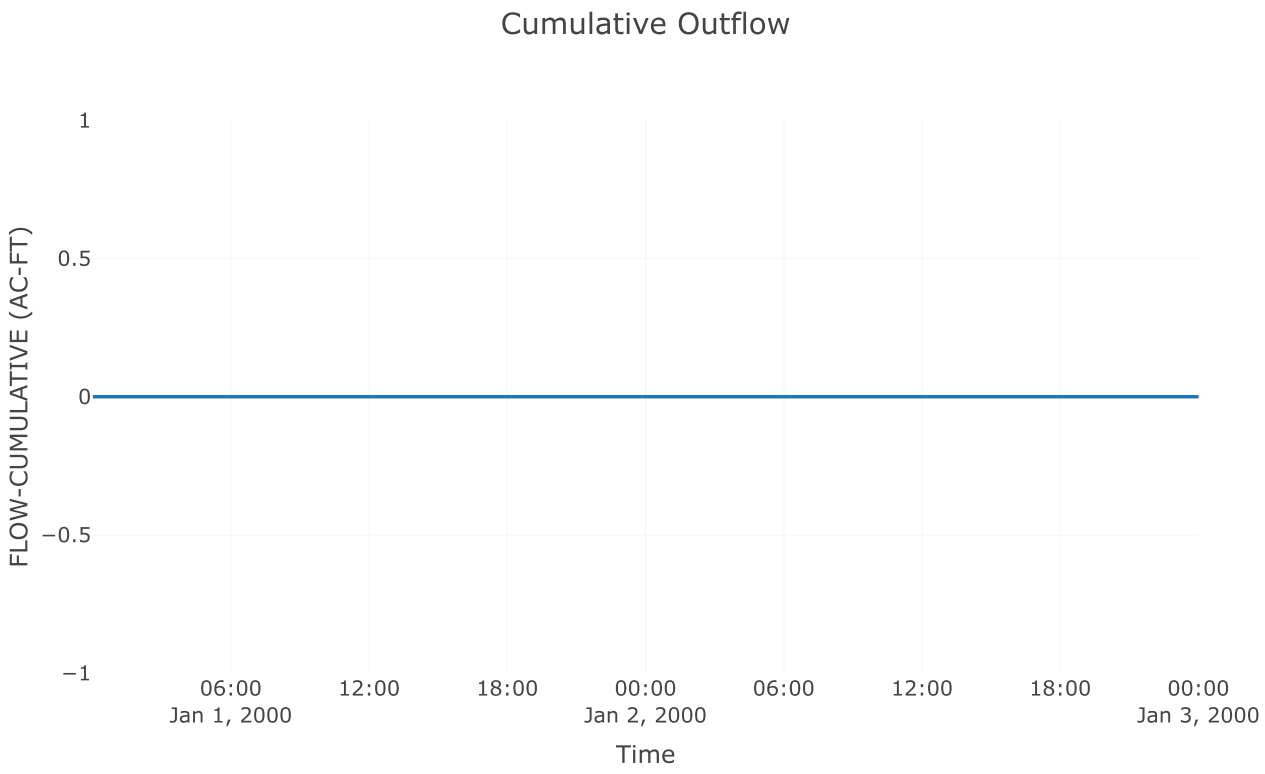
Downstream : 55th Street Outlet

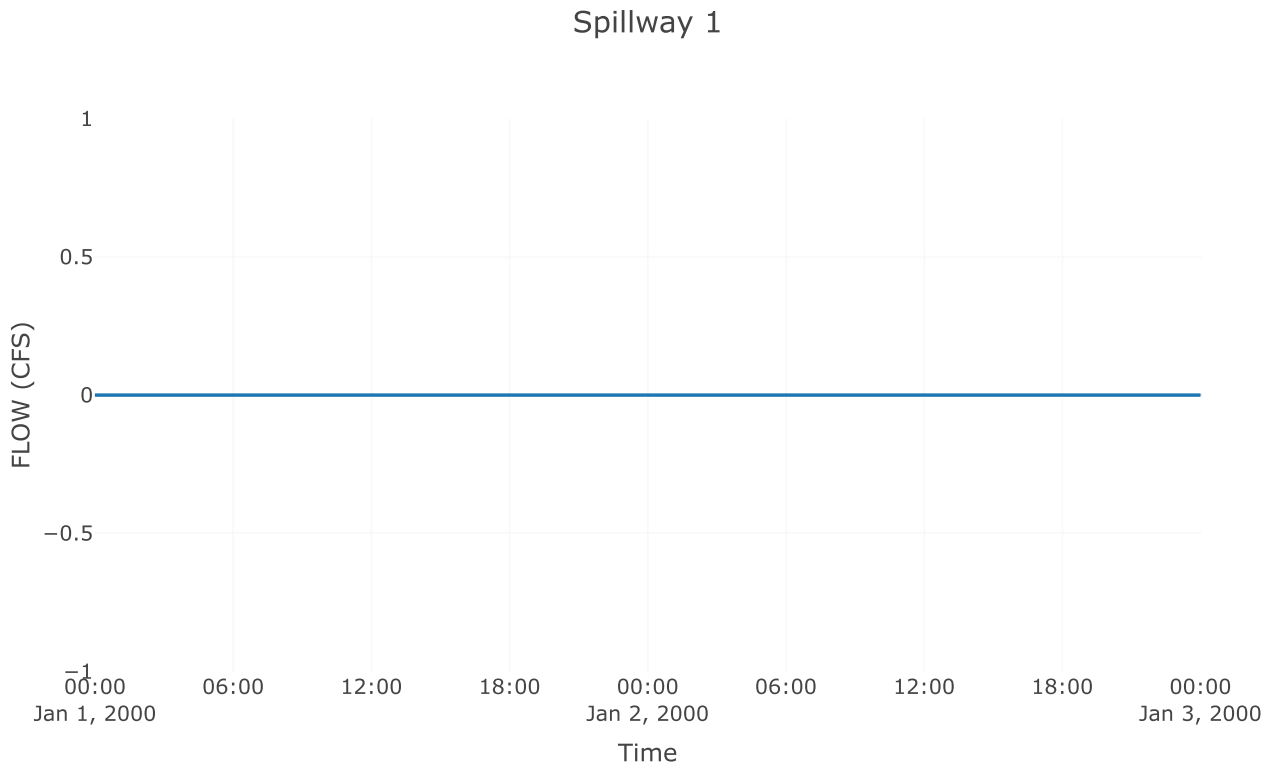
Results: Outlet Storm Box	
Peak Discharge (CFS)	0
Time of Peak Discharge	31Dec1999, 24:00
Volume (IN)	0
Peak Inflow (CFS)	0
Time of Peak Inflow	31Dec1999, 24:00
Inflow Volume (AC - FT)	0
Maximum Storage (AC - FT)	0
Peak Elevation (FT)	648.2
Discharge Volume (AC - FT)	0

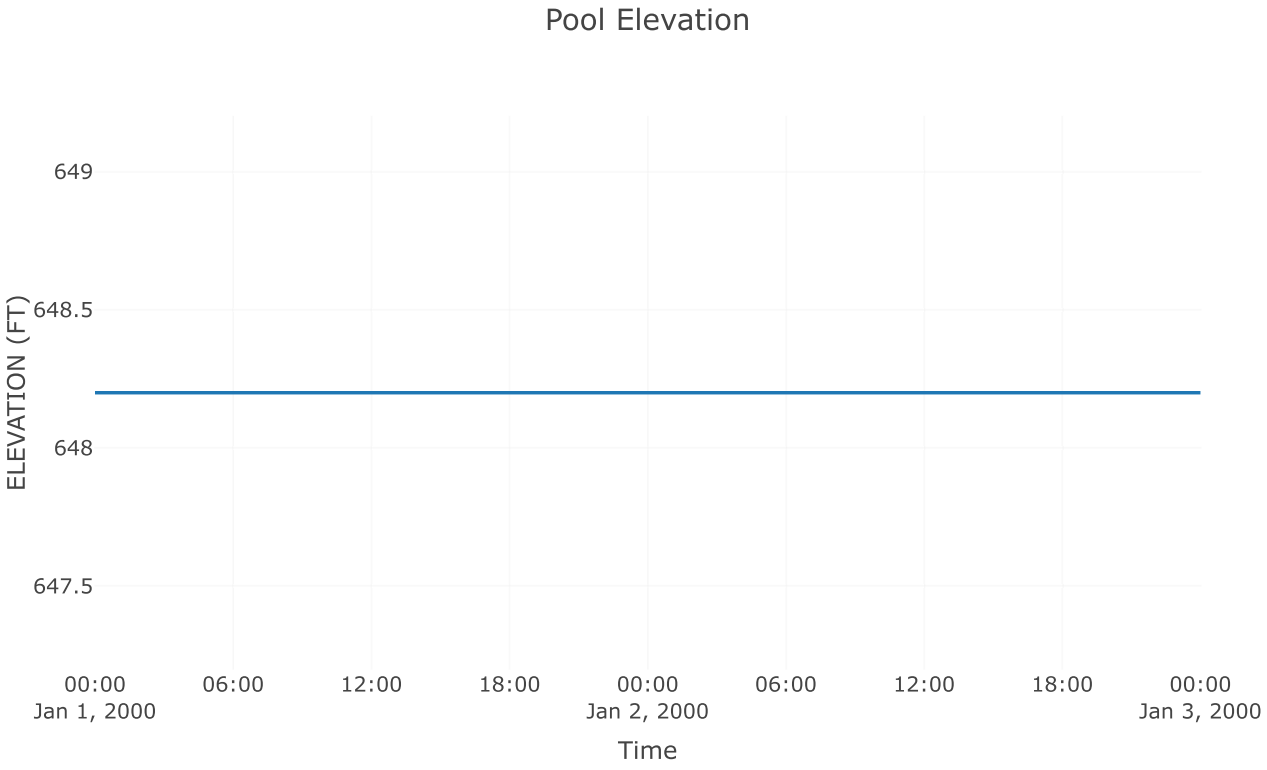

Auxiliary Outflow
FLOW-AUX (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

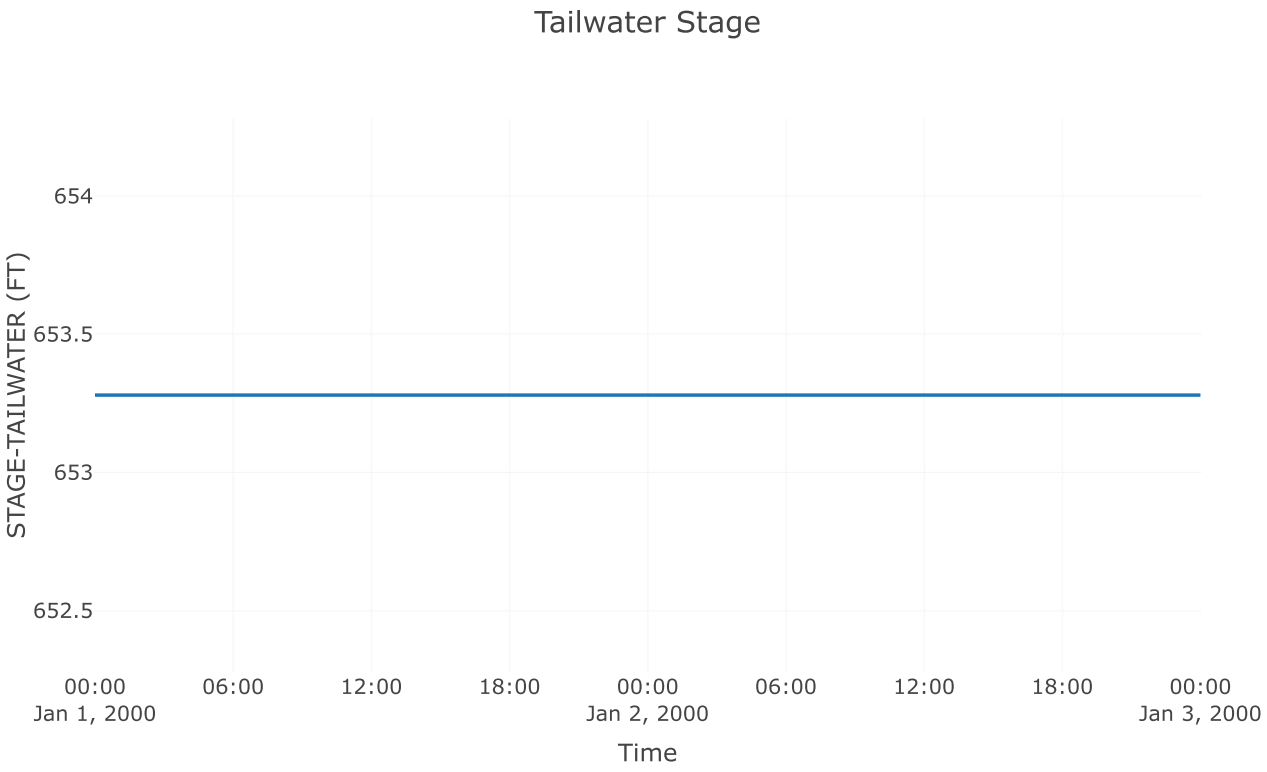

Storage
STORAGE (AC-FT)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

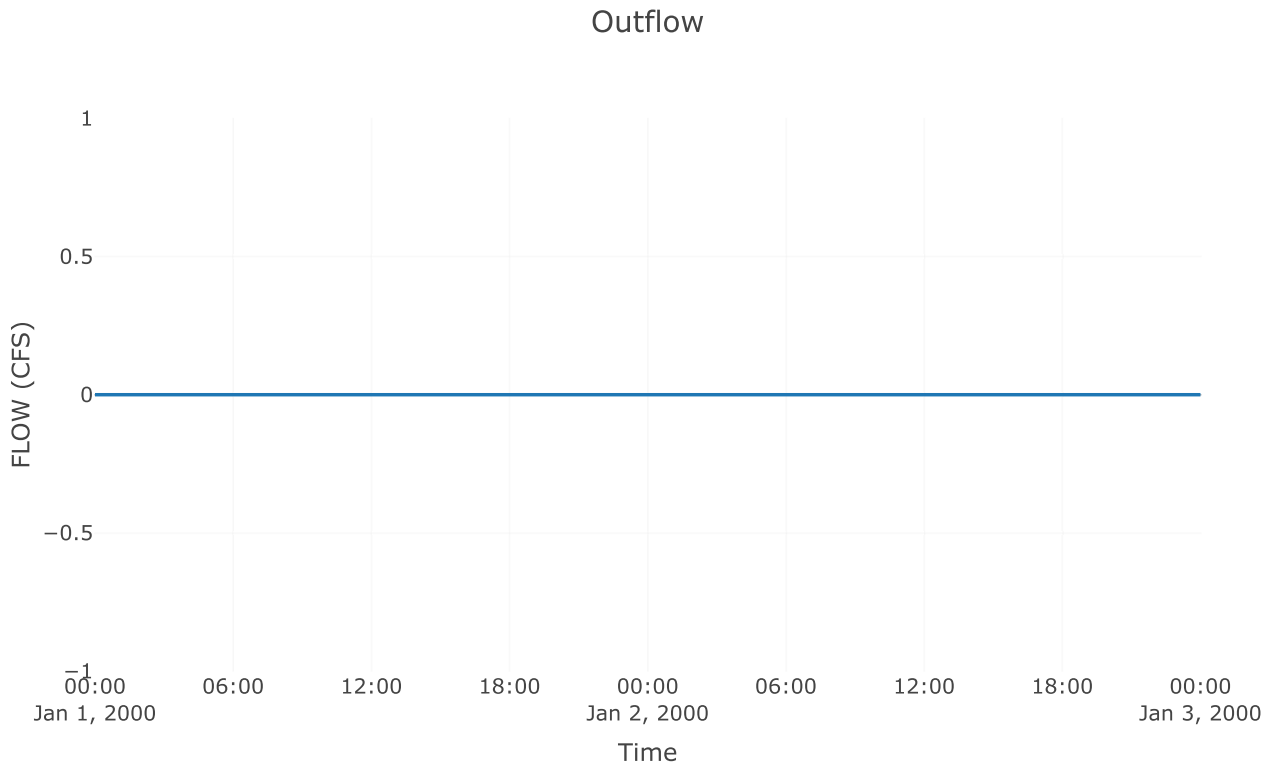

Combined Inflow
FLOW-COMBINE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
1
0.5
0
−0.5
−1
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

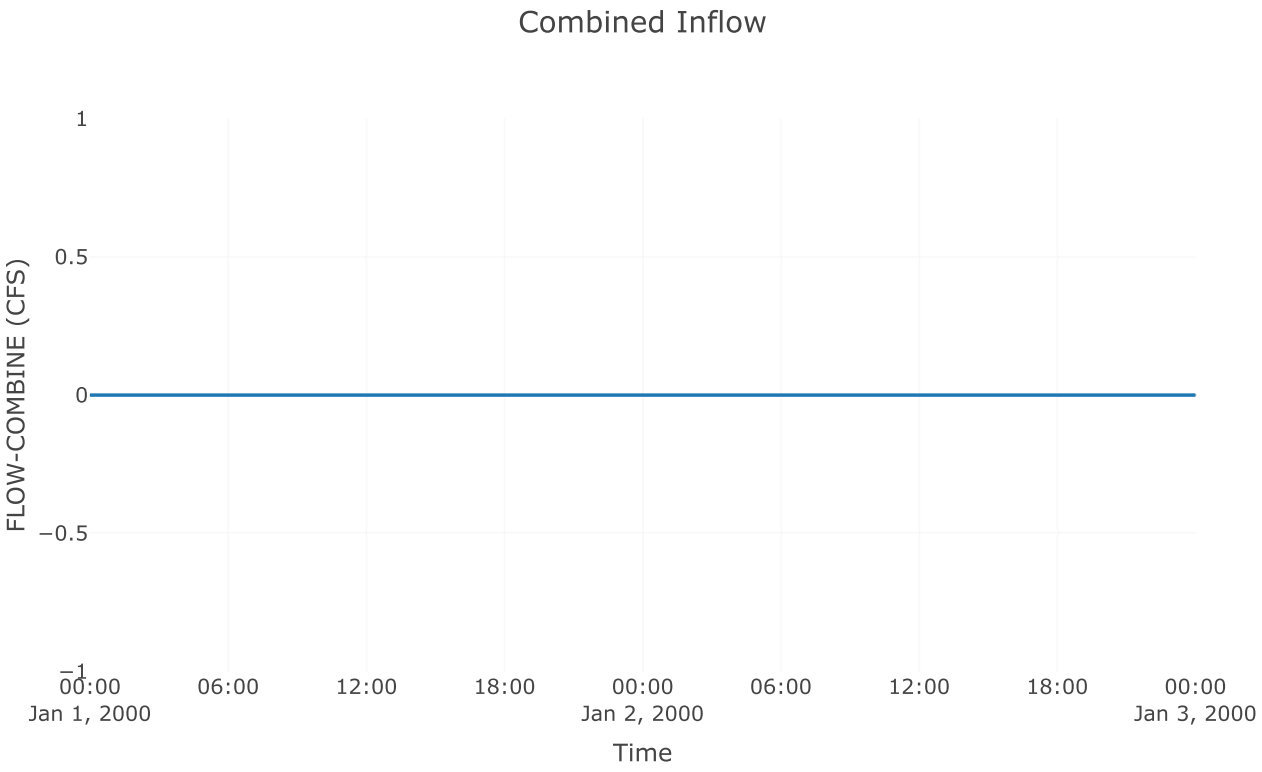

Pool Elevation
ELEVATION (FT)
649
648.5
648
647.5
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

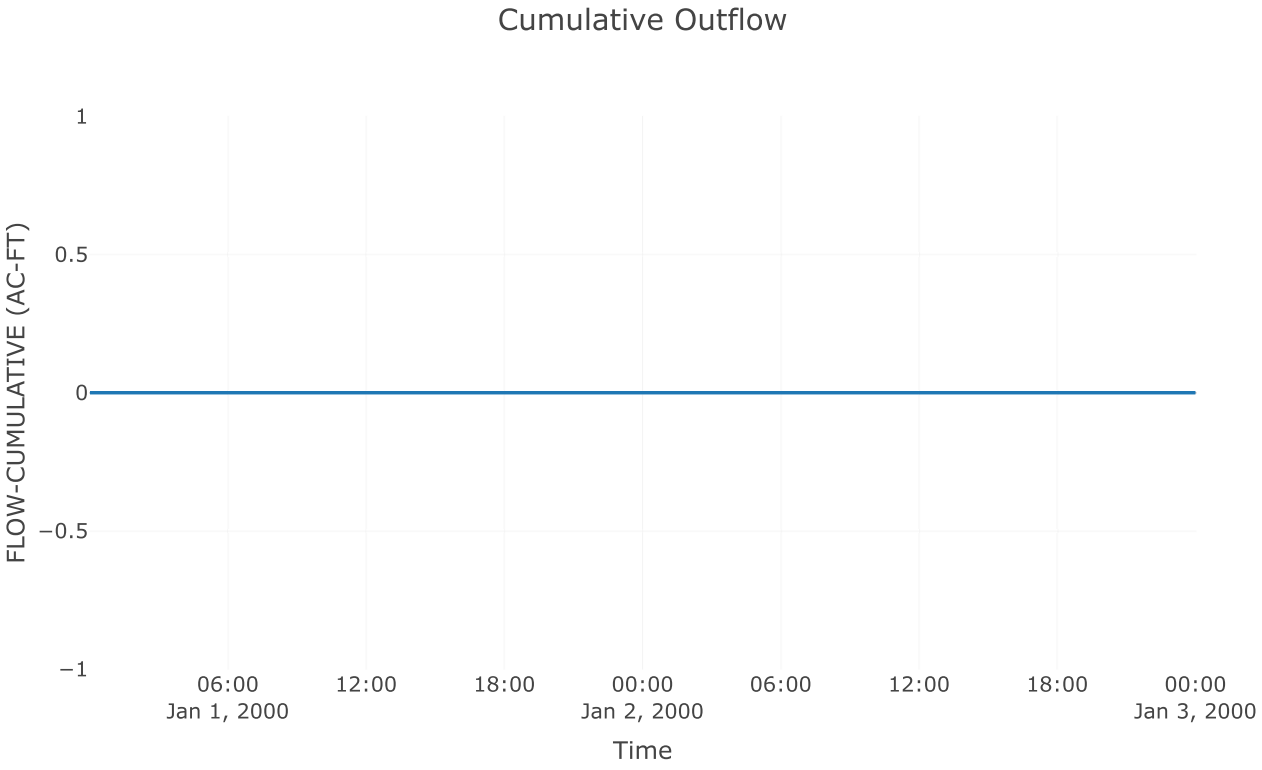

Tailwater Stage
654
653.5
653
652.5
STAGE-TAILWATER (FT)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

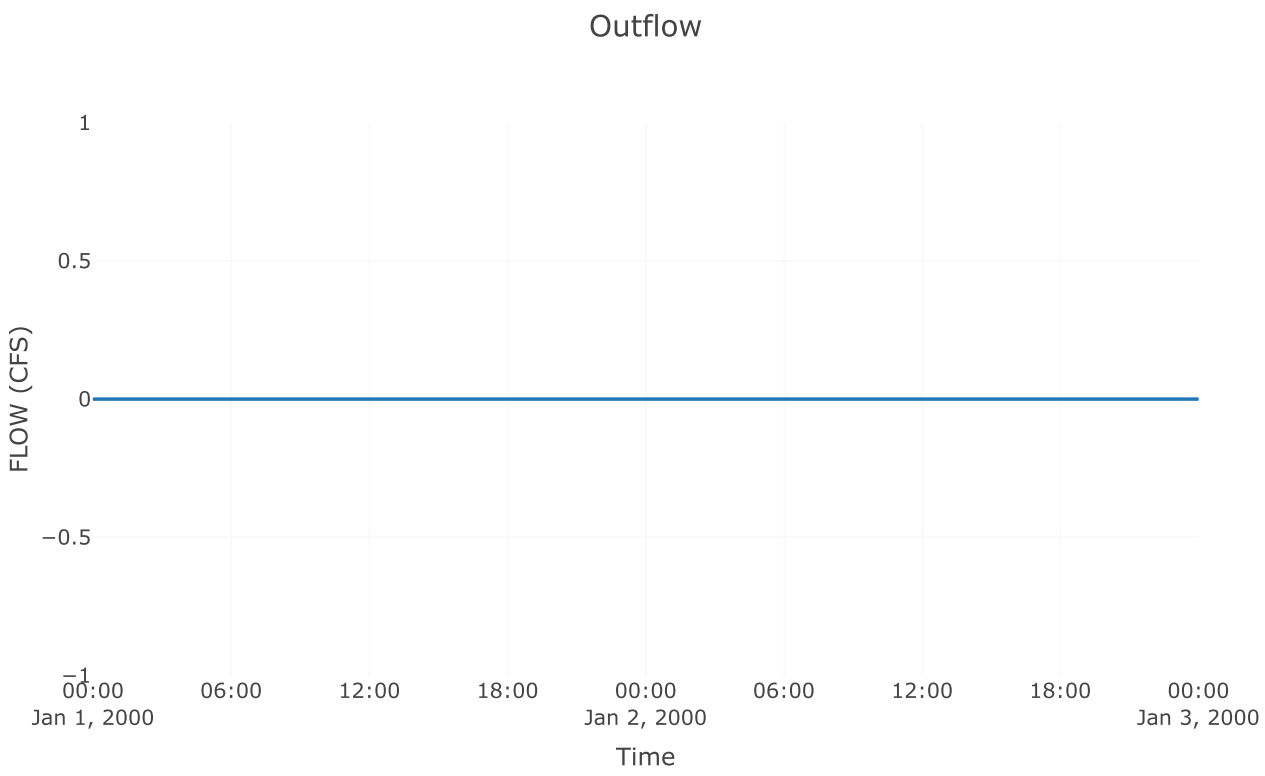

Outflow
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Sink: 55th Street Outlet

Results: 55th Street Outlet	
Peak Discharge (CFS)	0
Time of Peak Discharge	31Dec1999, 24:00
Volume (IN)	0


Combined Inflow
FLOW-COMBINE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
1
0.5
0
−0.5
−1
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outflow
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Project: Existing condition
Simulation Run: 10YR_2HR
Simulation Start: 31 December 1999, 24:00
Simulation End: 2 January 2000, 24:00

HMS Version: 4.12
Executed: 07 March 2025, 20:43

Global Parameter Summary - Subbasin

Area (MI2)

Element Name	Area (MI2)
On - Site Trib 1	0.03
Off - Site Trib 1 South	0
Off - Site Trib 1 West	0
On - Site Trib 2	0.02
Off - Site Trib2	0.01
On - Site Trib - Area 3	0.01
LaGrange Highlands Off - Site	0.2
Existing On - Site	0

Downstream

Element Name	Downstream
On - Site Trib 1	Basin 1
Off - Site Trib 1 South	Basin 1
Off - Site Trib 1 West	Basin 1
On - Site Trib 2	Basin 2
Off - Site Trib2	Basin 2
On - Site Trib - Area 3	Basin 3
LaGrange Highlands Off - Site	Off - Site Tributary Area
Existing On - Site	Existing Basin C

Loss Rate: Scs

Element Name	Percent Impervious Area	Curve Number
On - Site Trib 1	0	86
Off - Site Trib 1 South	0	80
Off - Site Trib 1 West	0	83
On - Site Trib 2	0	83
Off - Site Trib2	0	83
On - Site Trib - Area 3	0	83
LaGrange Highlands Off - Site	0	86
Existing On - Site	0	91.09

Transform: Scs

Element Name	Lag	Unitgraph Type
On - Site Trib 1	21	Standard
Off - Site Trib 1 South	6	Standard
Off - Site Trib 1 West	12	Standard
On - Site Trib 2	20.4	Standard
Off - Site Trib2	12	Standard
On - Site Trib - Area 3	21	Standard
LaGrange Highlands Off - Site	29.2	Standard
Existing On - Site	6	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
On - Site Trib 1	0.03	25.3	01Jan2000, 00:51	1.65
Off - Site Trib 1 South	0	2.07	01Jan2000, 00:34	1.24
Off - Site Trib 1 West	0	1.88	01Jan2000, 00:42	1.44
Basin 1	0.03	4.9	01Jan2000, 02:19	1.6
On - Site Trib 2	0.02	13.59	01Jan2000, 00:52	1.44
Off - Site Trib2	0.01	4.91	01Jan2000, 00:42	1.44
Basin 2	0.05	3.98	01Jan2000, 05:00	1.53
On - Site Trib - Area 3	0.01	9.89	01Jan2000, 00:52	1.44
LaGrange Highlands Off - Site	0.2	161.81	01Jan2000, 01:01	1.65
Basin 3	0.07	2.06	01Jan2000, 16:07	1.49
Off - Site Tributary Area	0.27	162.6	01Jan2000, 01:01	1.61
Storage East of Wolf Road	0.27	160.88	01Jan2000, 01:05	1.61
Storage West of Wolf Road	0.27	160.88	01Jan2000, 01:05	1.61
Existing On - Site	0	5.91	01Jan2000, 00:32	2.07
Existing Basin C	0.27	84.93	01Jan2000, 01:09	0.44
Existing Basin A & B	0.27	84.16	01Jan2000, 01:12	0.29
Outlet Storm Box	0.27	0	31Dec1999, 24:00	0

55th Street Outlet	0.27	0	31Dec1999, 24:00	0

Subbasin: On-Site Trib 1

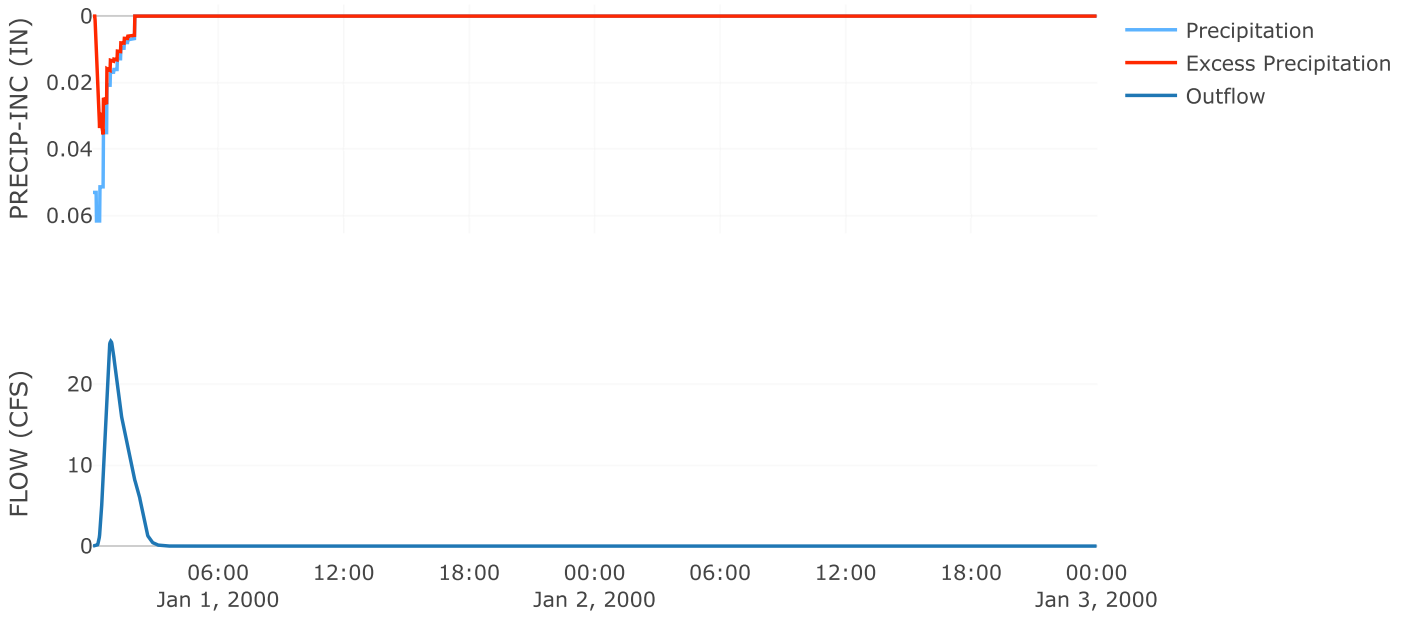
Area (MI2) : 0.03
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	86

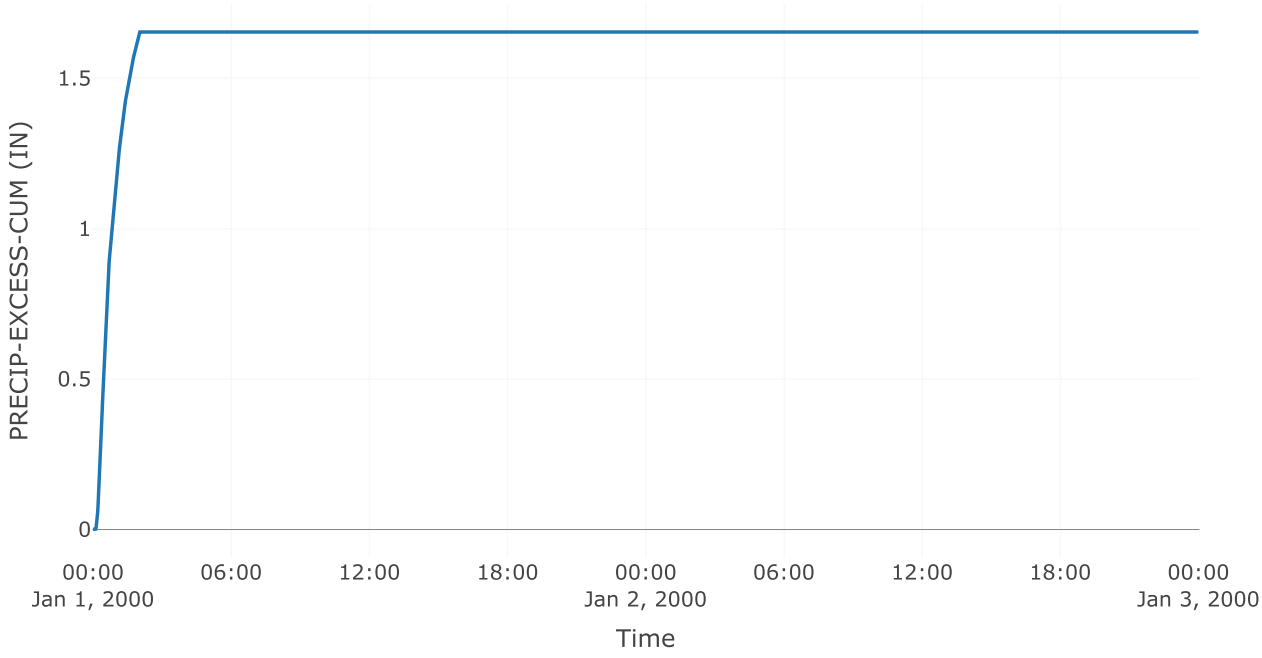
Transform: Scs	
Lag	21
Unitgraph Type	Standard

Results: On-Site Trib 1	
Peak Discharge (CFS)	25.3
Time of Peak Discharge	01Jan2000, 00:51
Volume (IN)	1.65
Precipitation Volume (AC - FT)	4.39
Loss Volume (AC - FT)	1.96
Excess Volume (AC - FT)	2.43
Direct Runoff Volume (AC - FT)	2.43
Baseflow Volume (AC - FT)	0

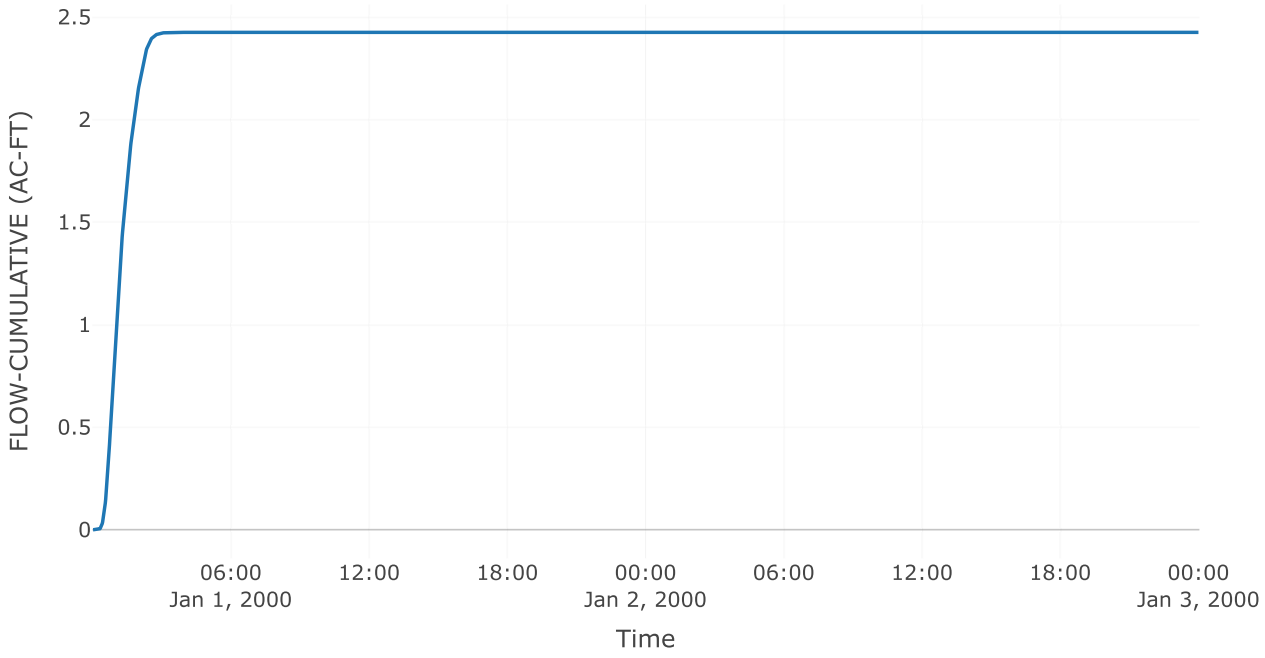
Precipitation and Outflow



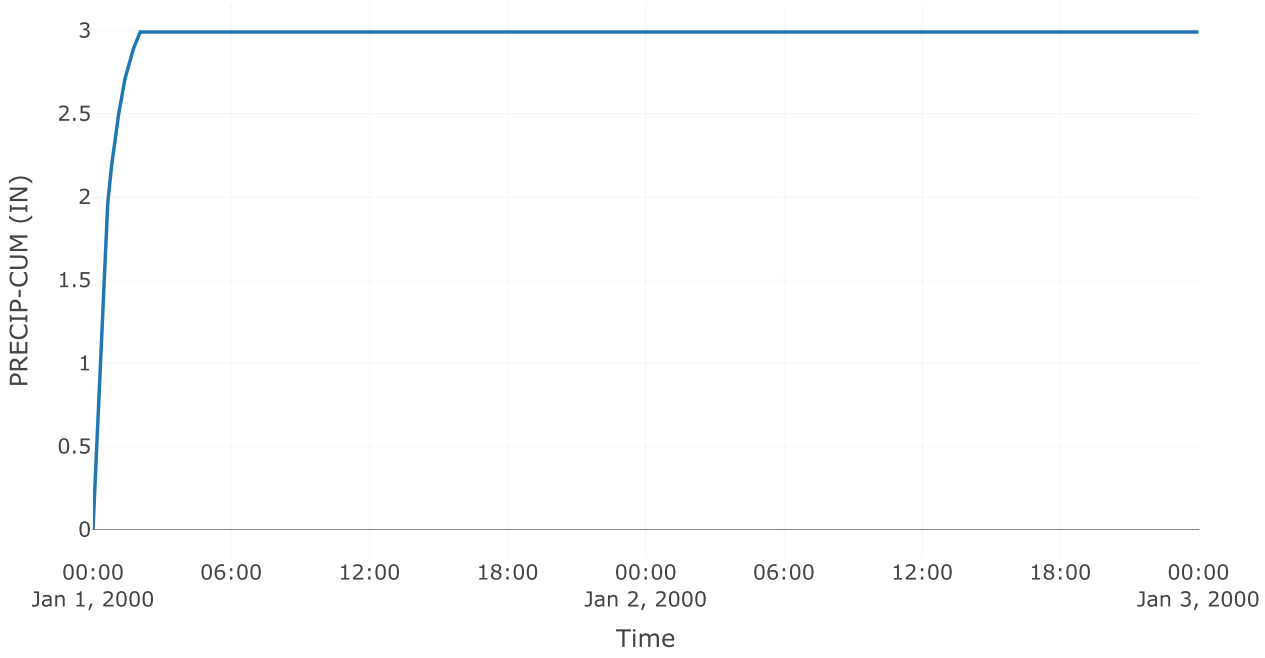
Cumulative Excess Precipitation

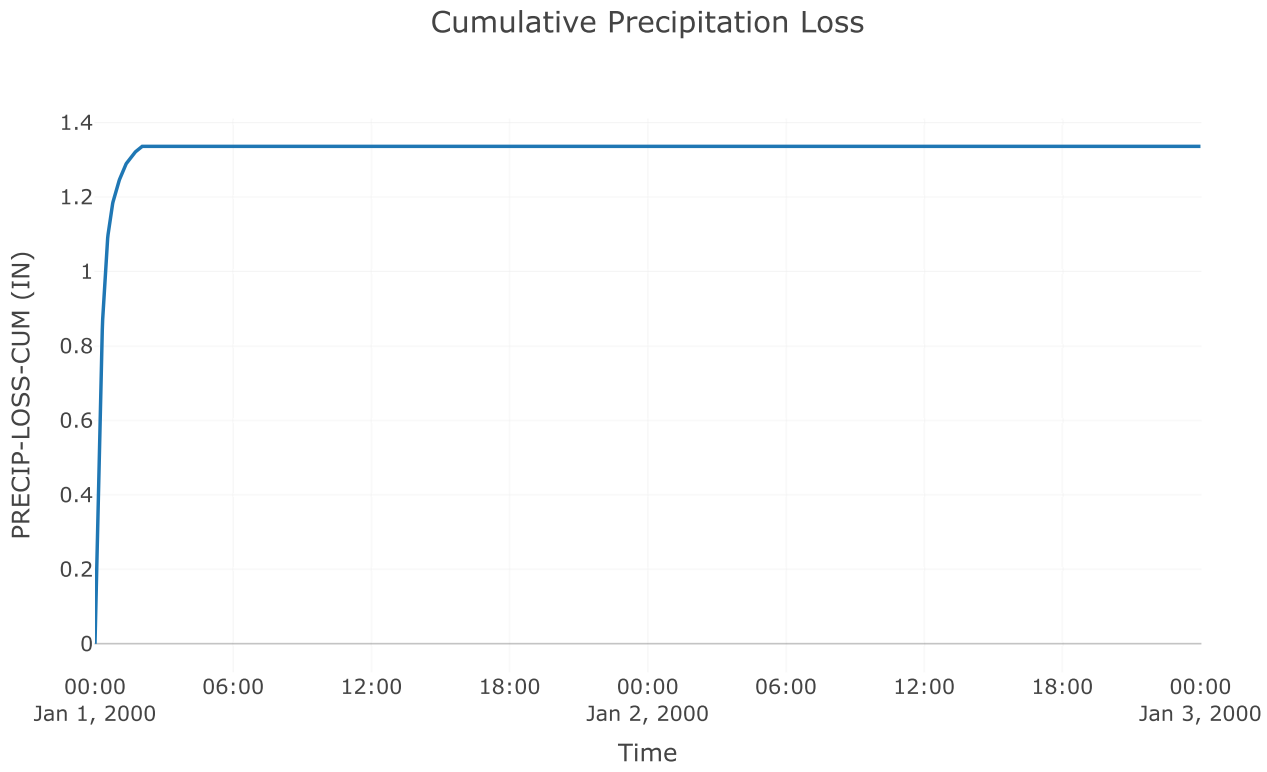


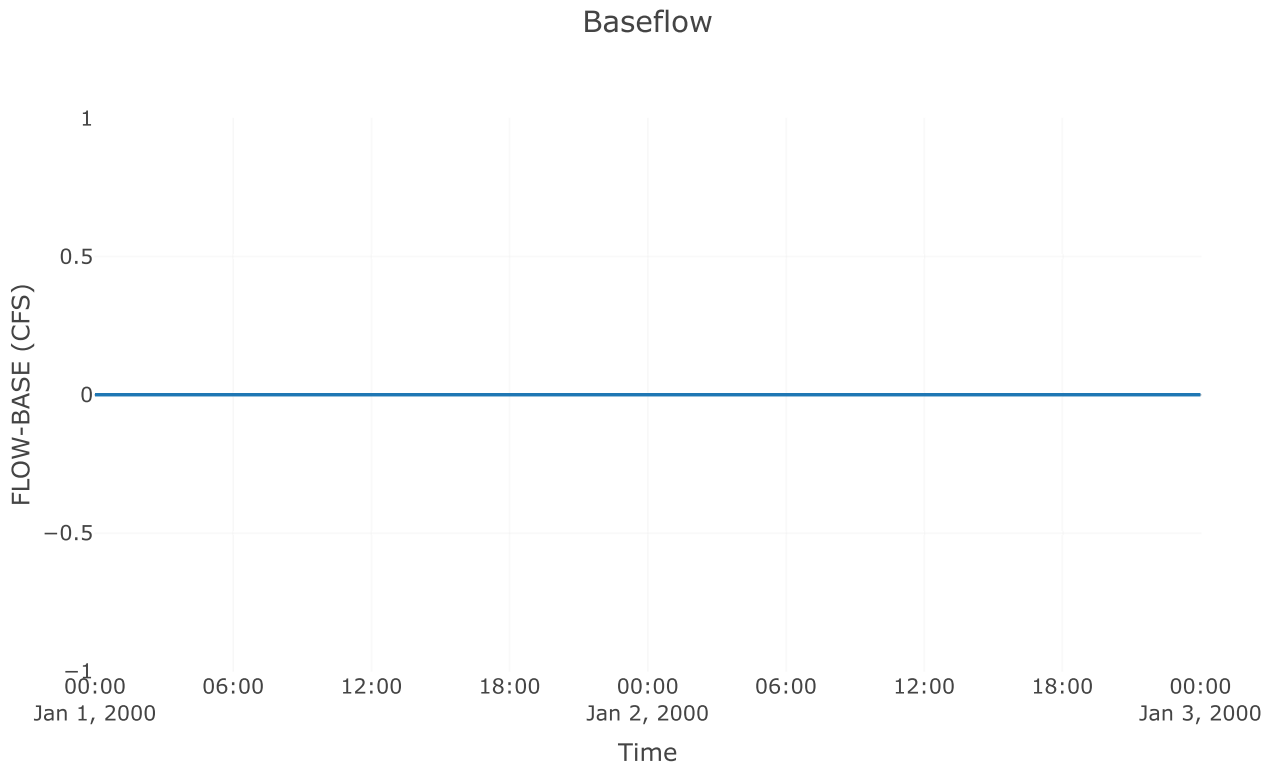
Cumulative Outflow

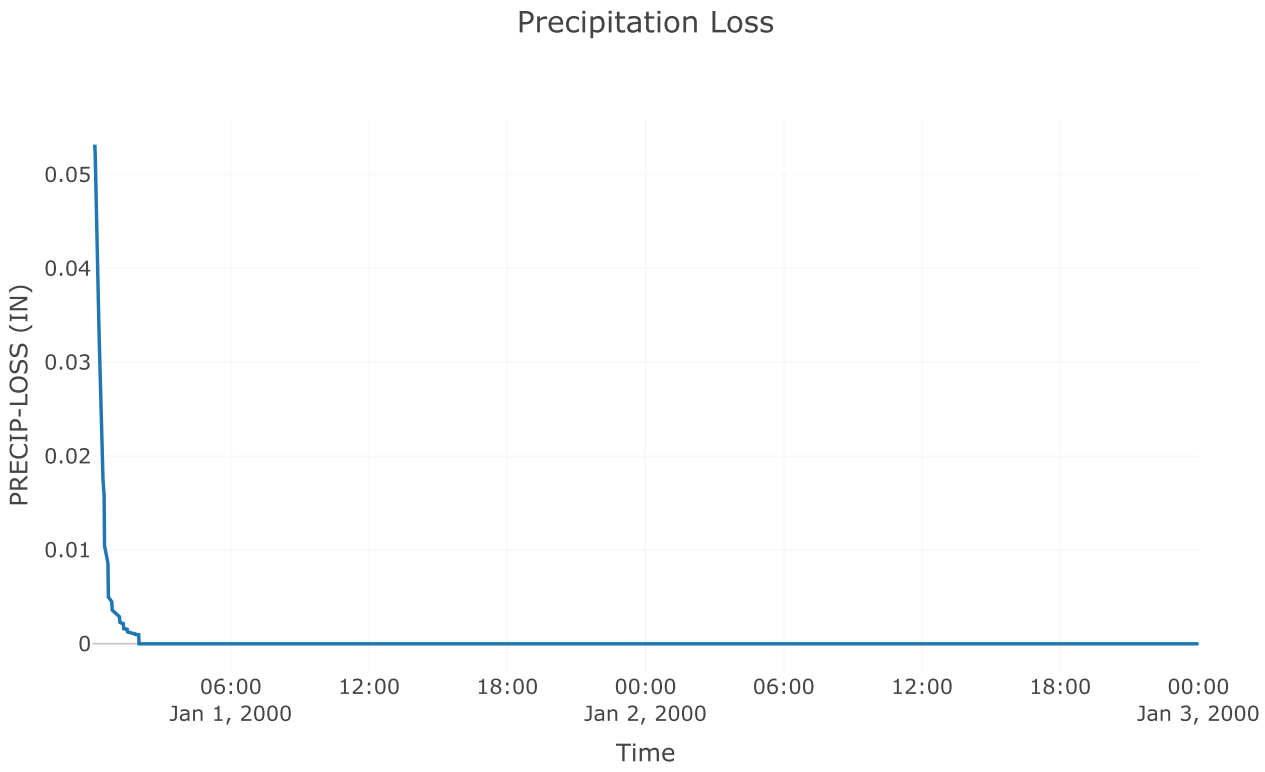


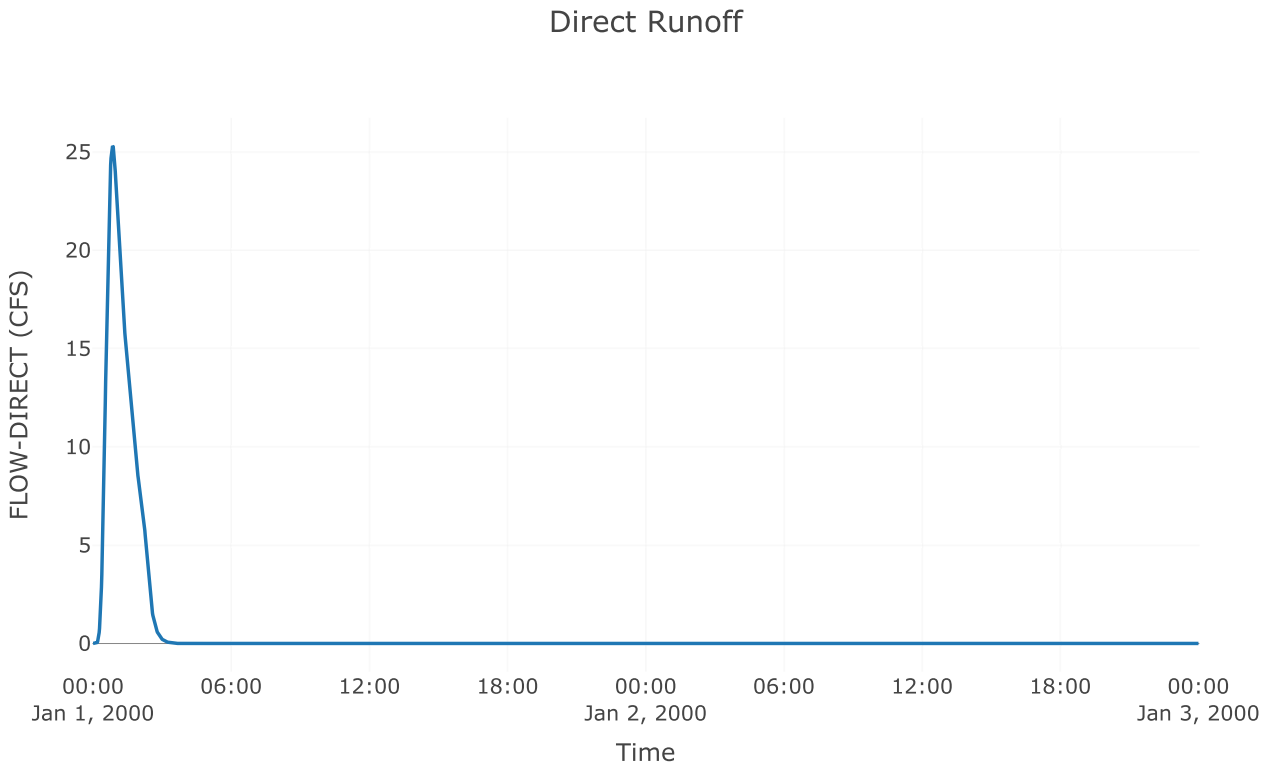
Cumulative Precipitation

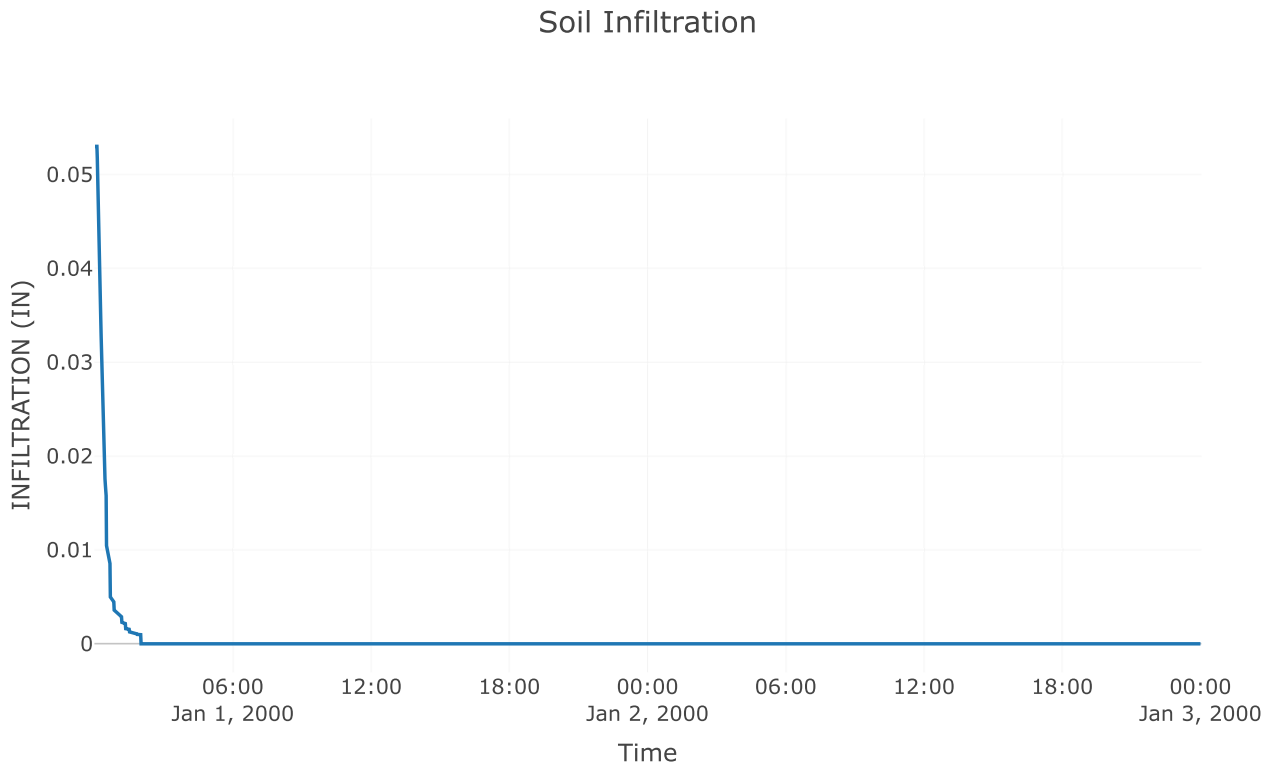



Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
25
20
15
10
5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib 1 South

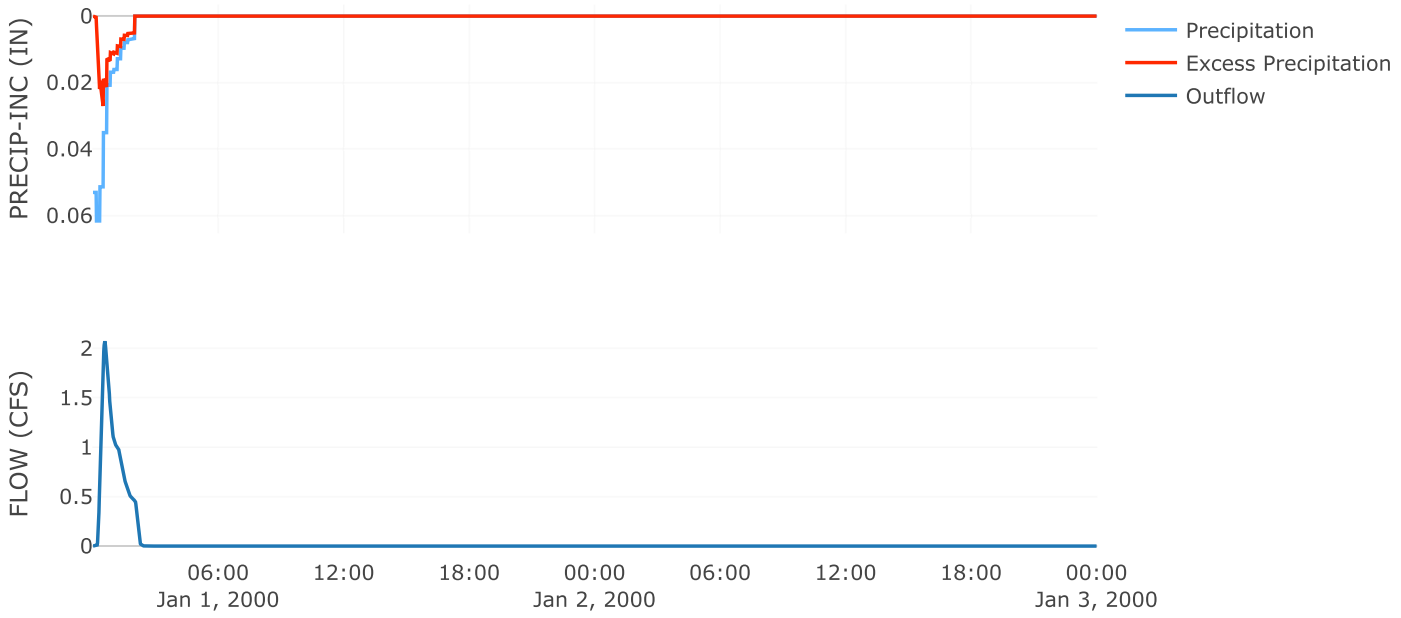
Area (MI2) : 0
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	80

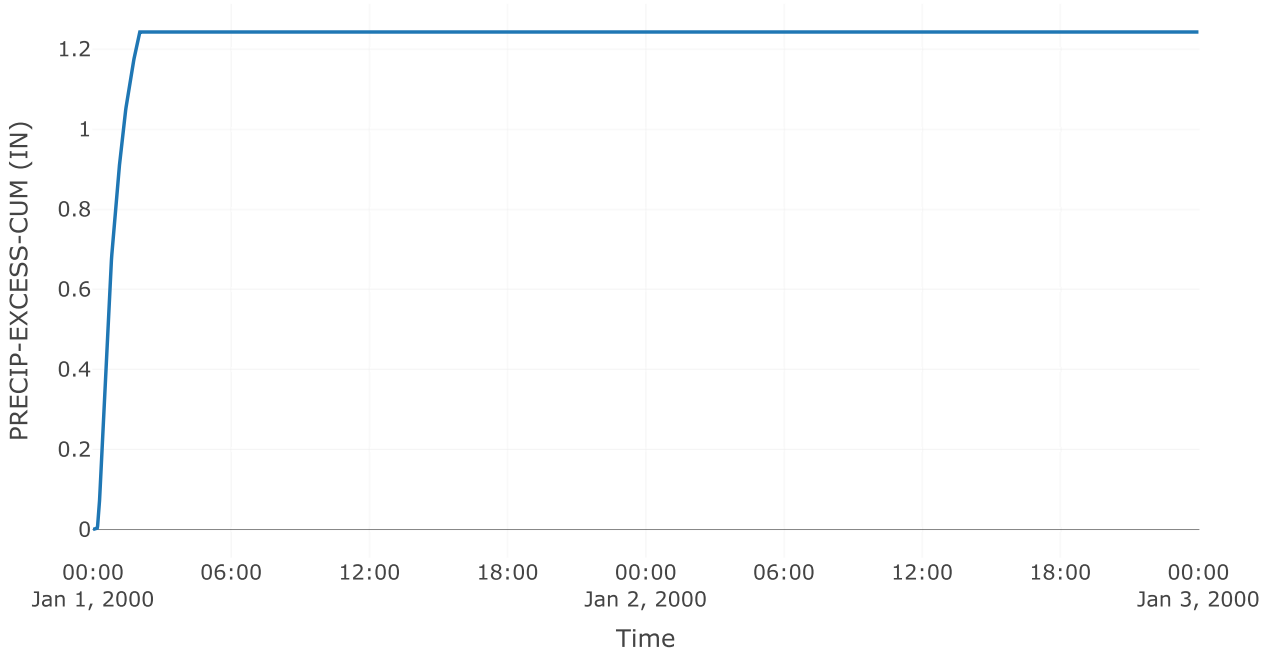
Transform: Scs	
Lag	6
Unitgraph Type	Standard

Results: Off-Site Trib 1 South	
Peak Discharge (CFS)	2.07
Time of Peak Discharge	01Jan2000, 00:34
Volume (IN)	1.24
Precipitation Volume (AC - FT)	0.37
Loss Volume (AC - FT)	0.22
Excess Volume (AC - FT)	0.16
Direct Runoff Volume (AC - FT)	0.16
Baseflow Volume (AC - FT)	0

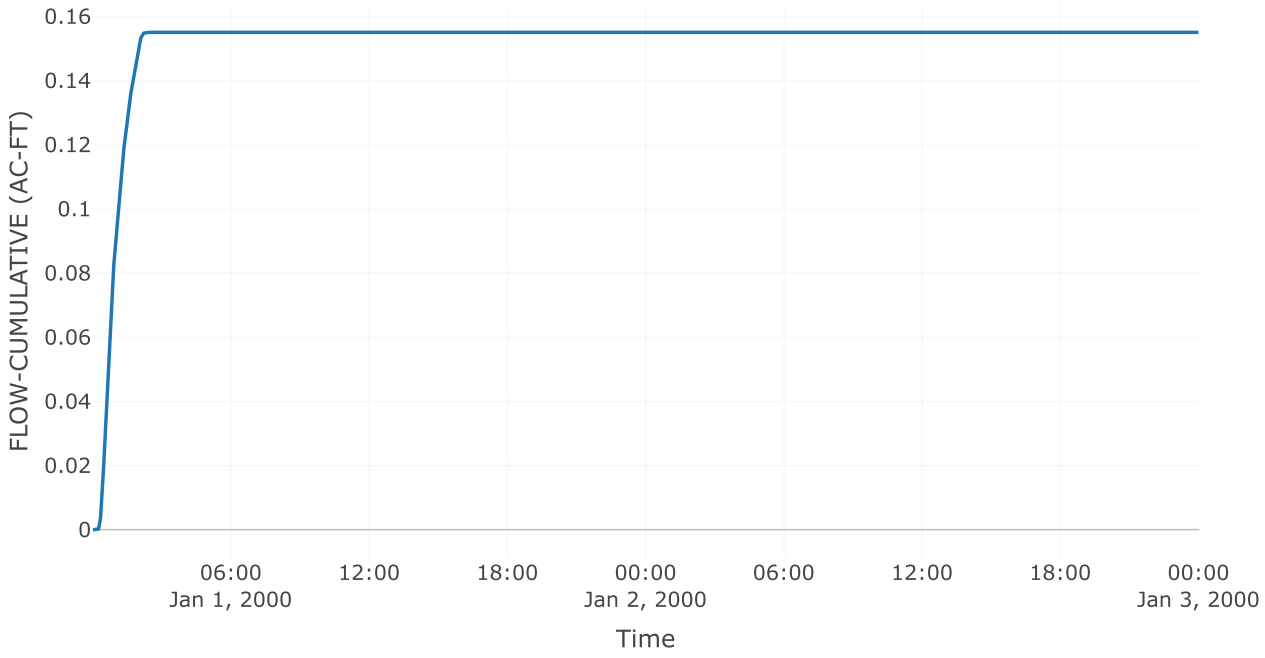
Precipitation and Outflow



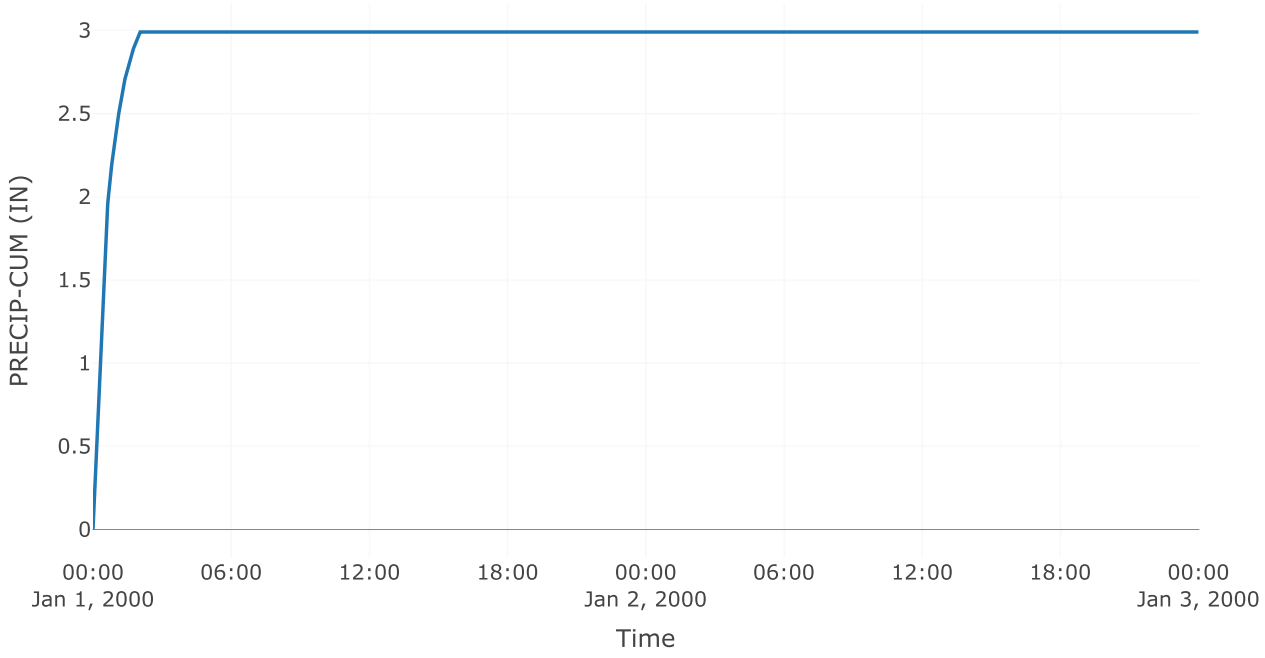
Cumulative Excess Precipitation

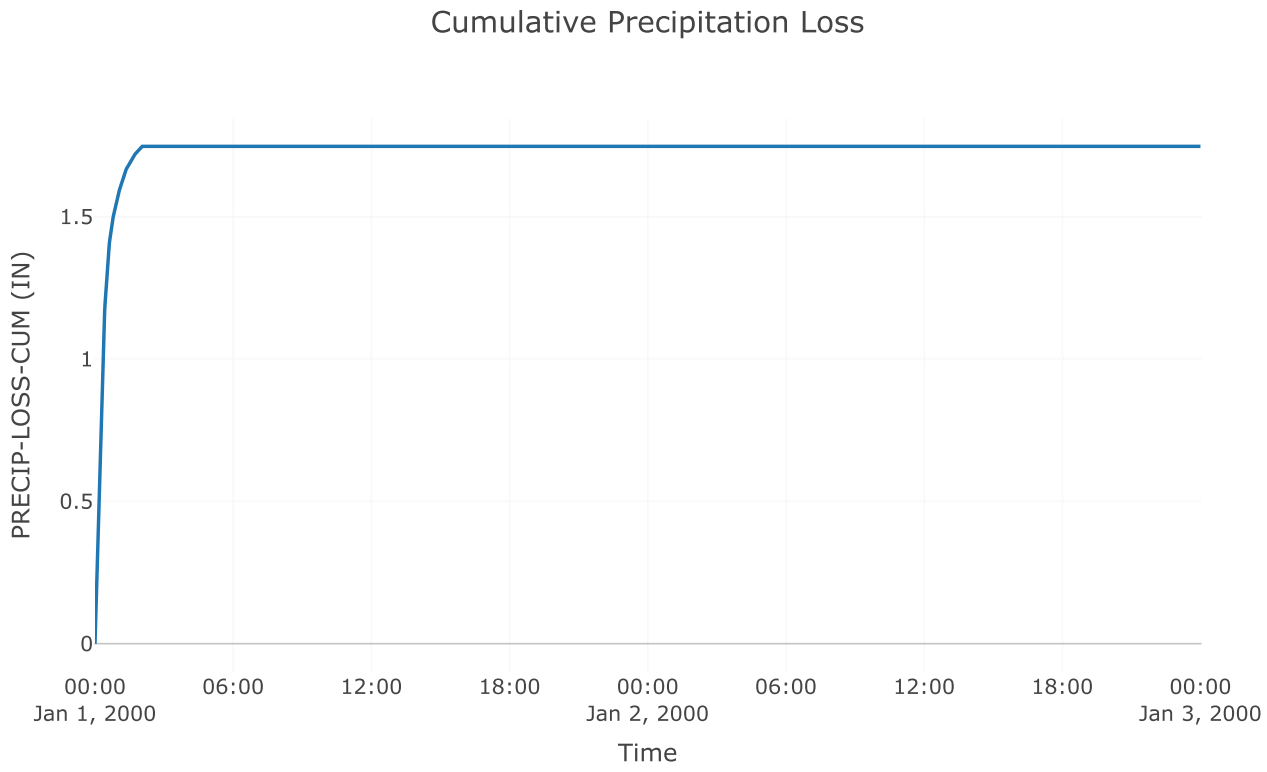


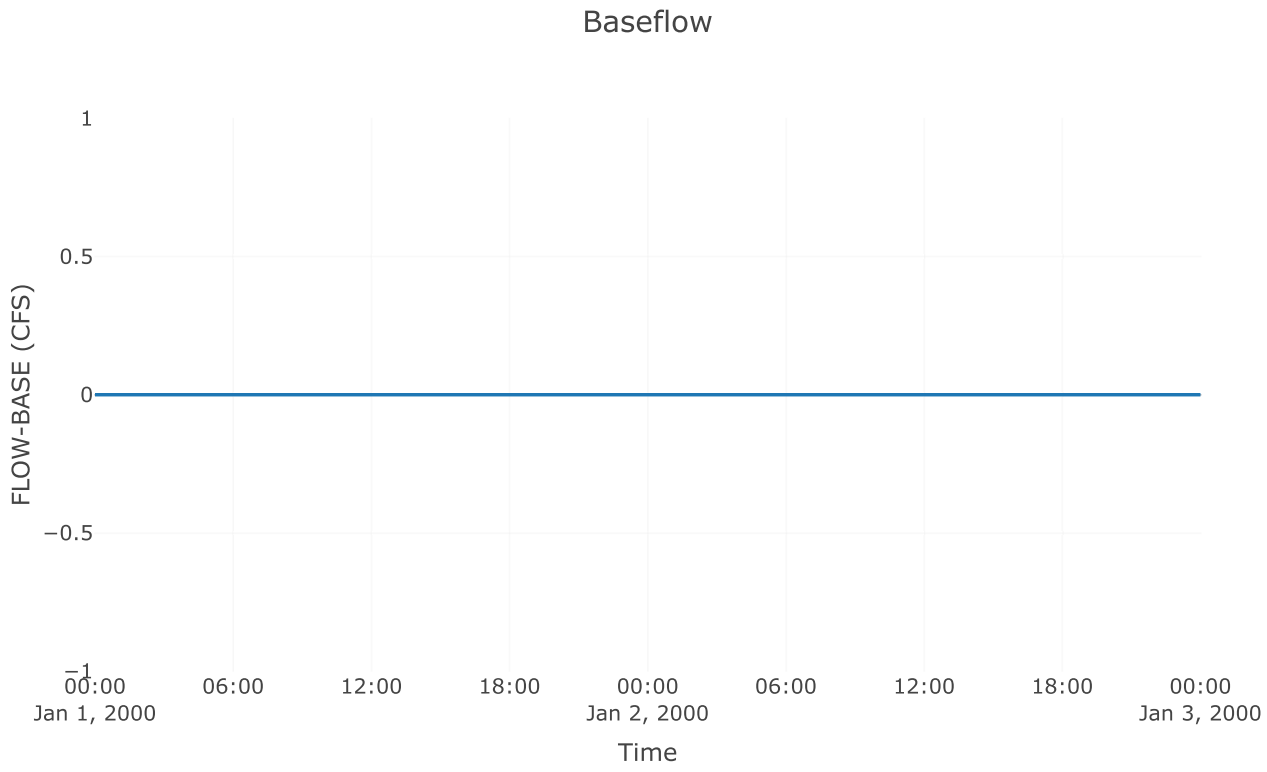
Cumulative Outflow



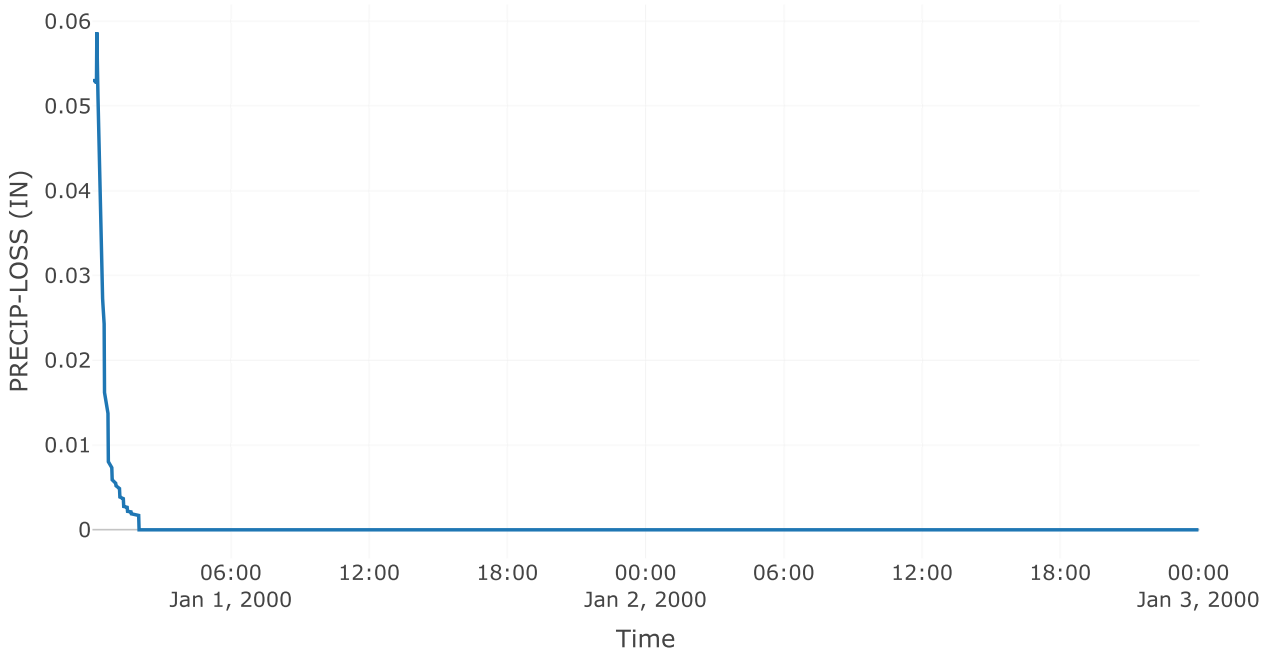
Cumulative Precipitation



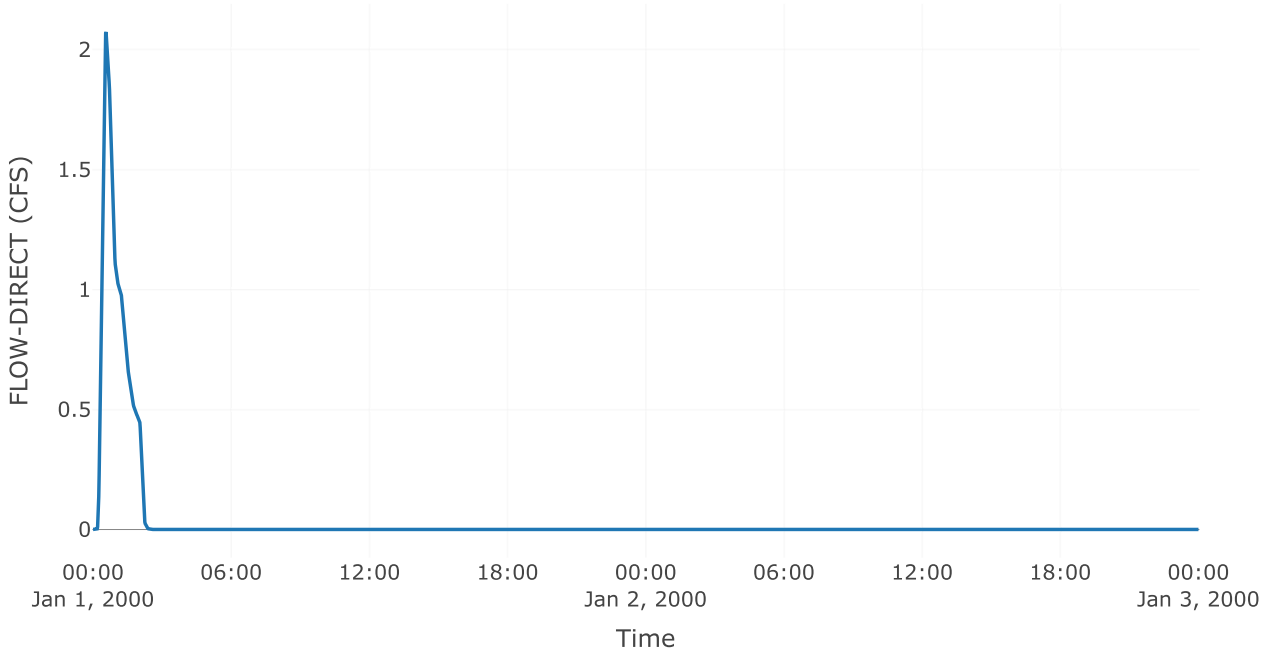

Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

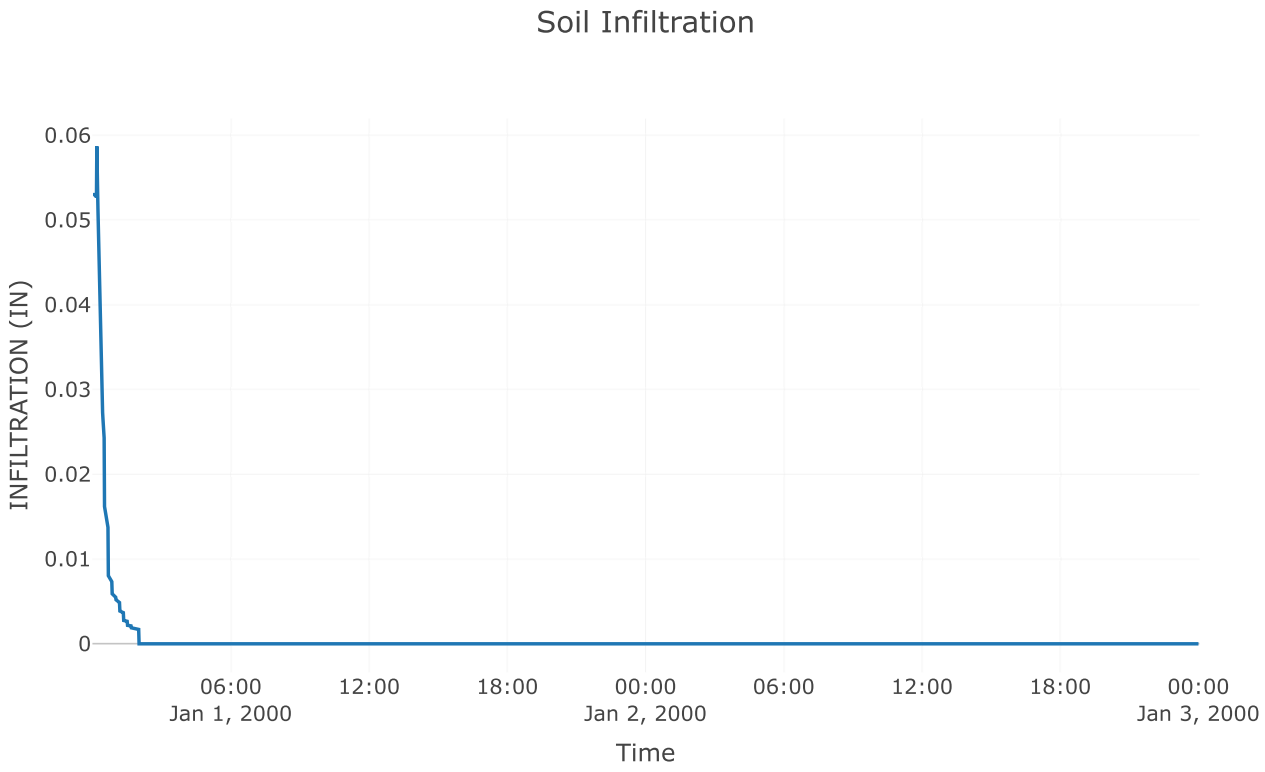

Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.06
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib 1 West

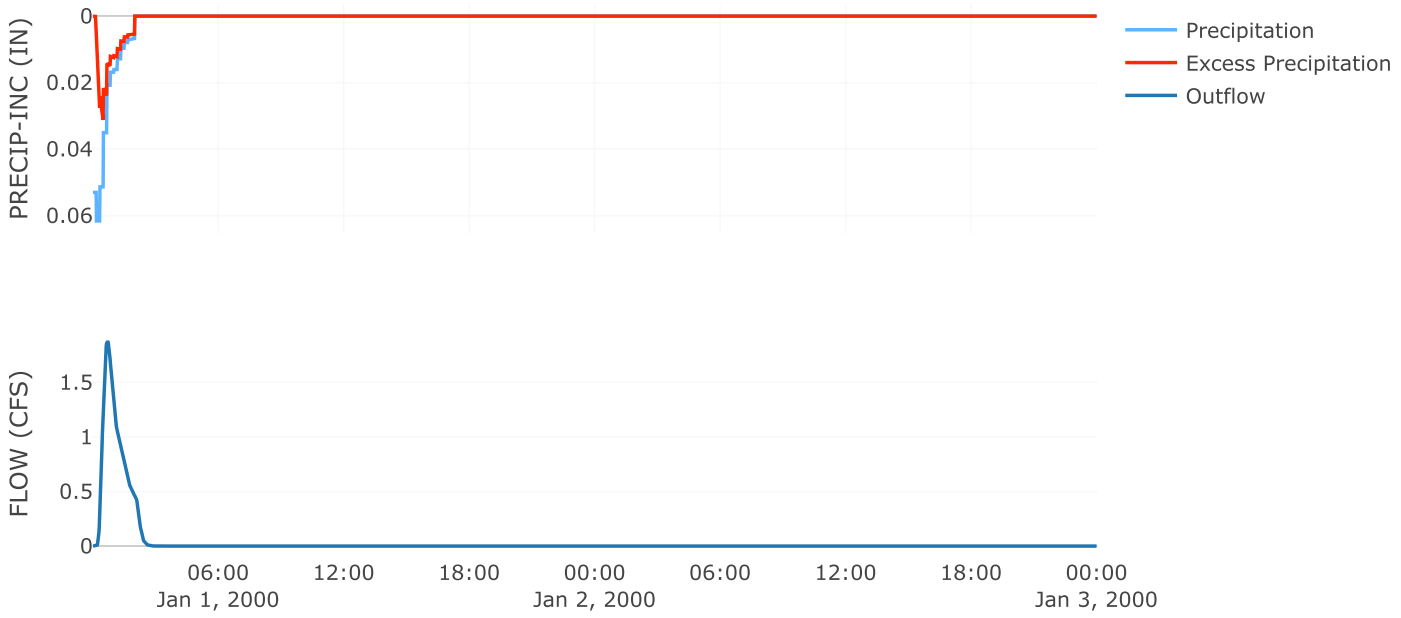
Area (MI2) : 0
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

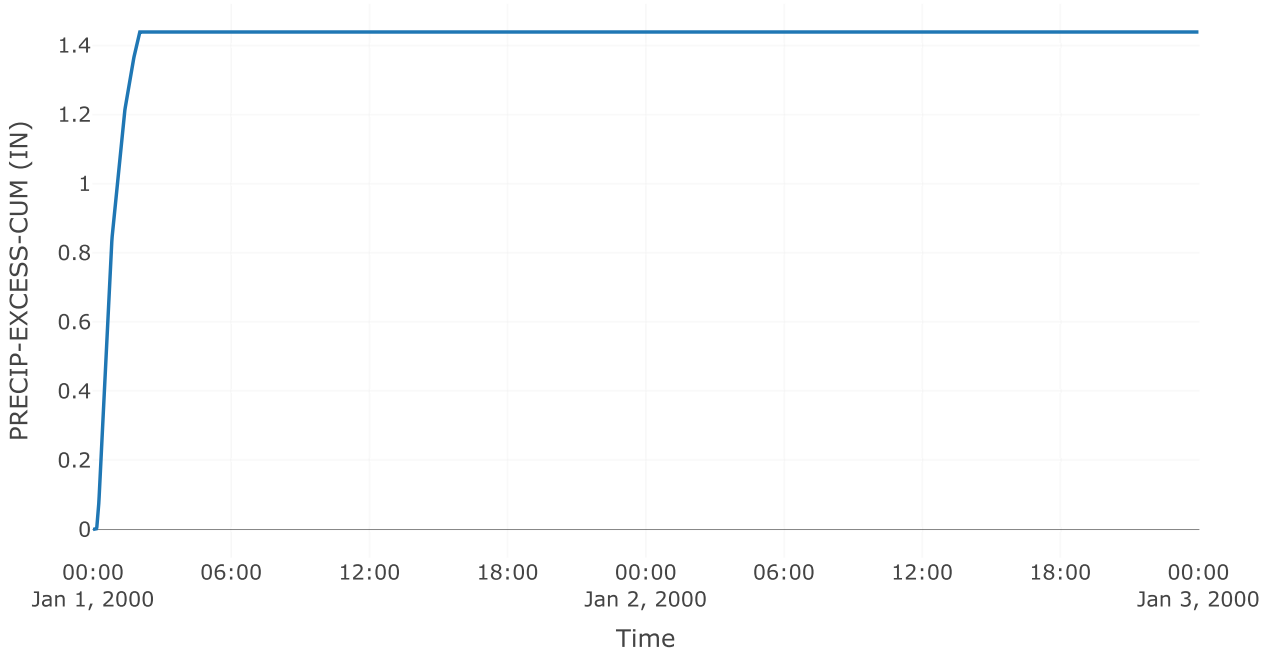
Transform: Scs	
Lag	12
Unitgraph Type	Standard

Results: Off-Site Trib 1 West	
Peak Discharge (CFS)	1.88
Time of Peak Discharge	01Jan2000, 00:42
Volume (IN)	1.44
Precipitation Volume (AC - FT)	0.32
Loss Volume (AC - FT)	0.17
Excess Volume (AC - FT)	0.16
Direct Runoff Volume (AC - FT)	0.16
Baseflow Volume (AC - FT)	0

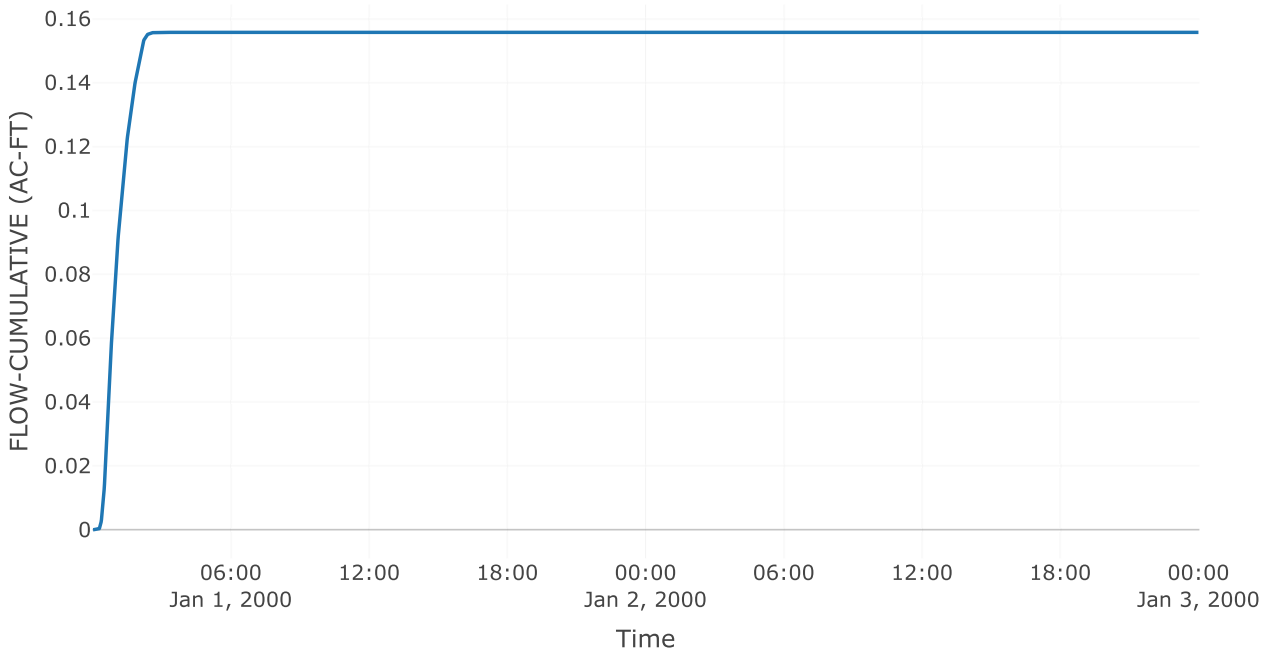
Precipitation and Outflow



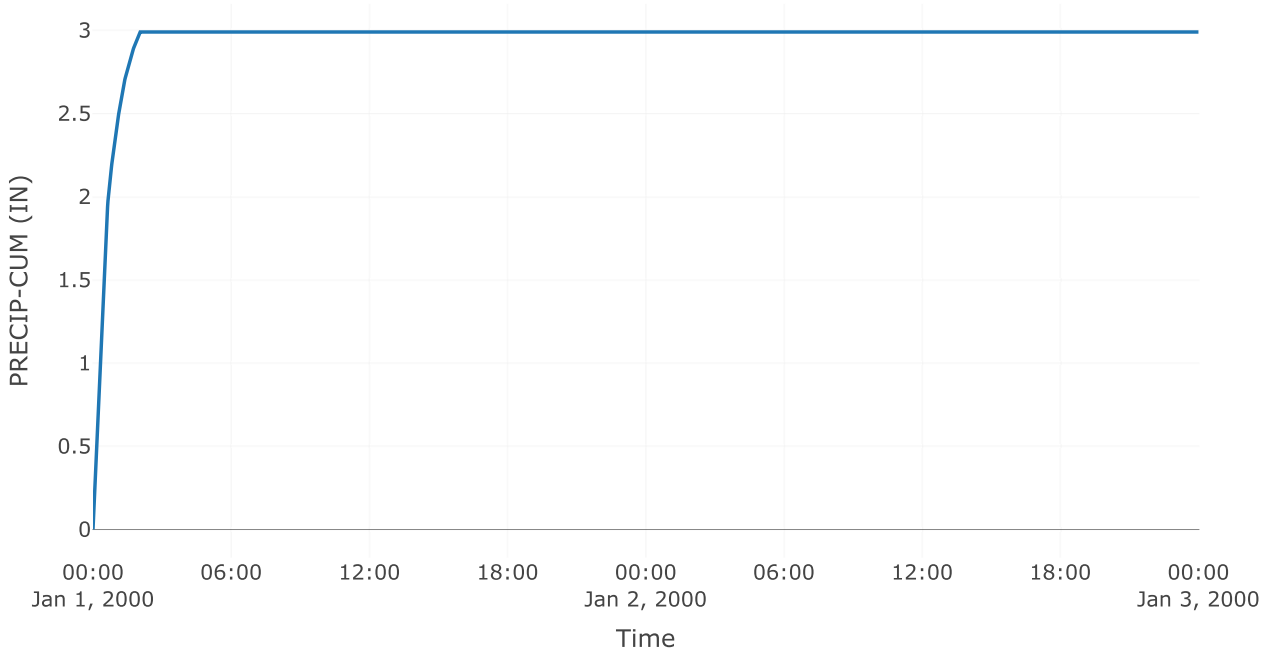
Cumulative Excess Precipitation

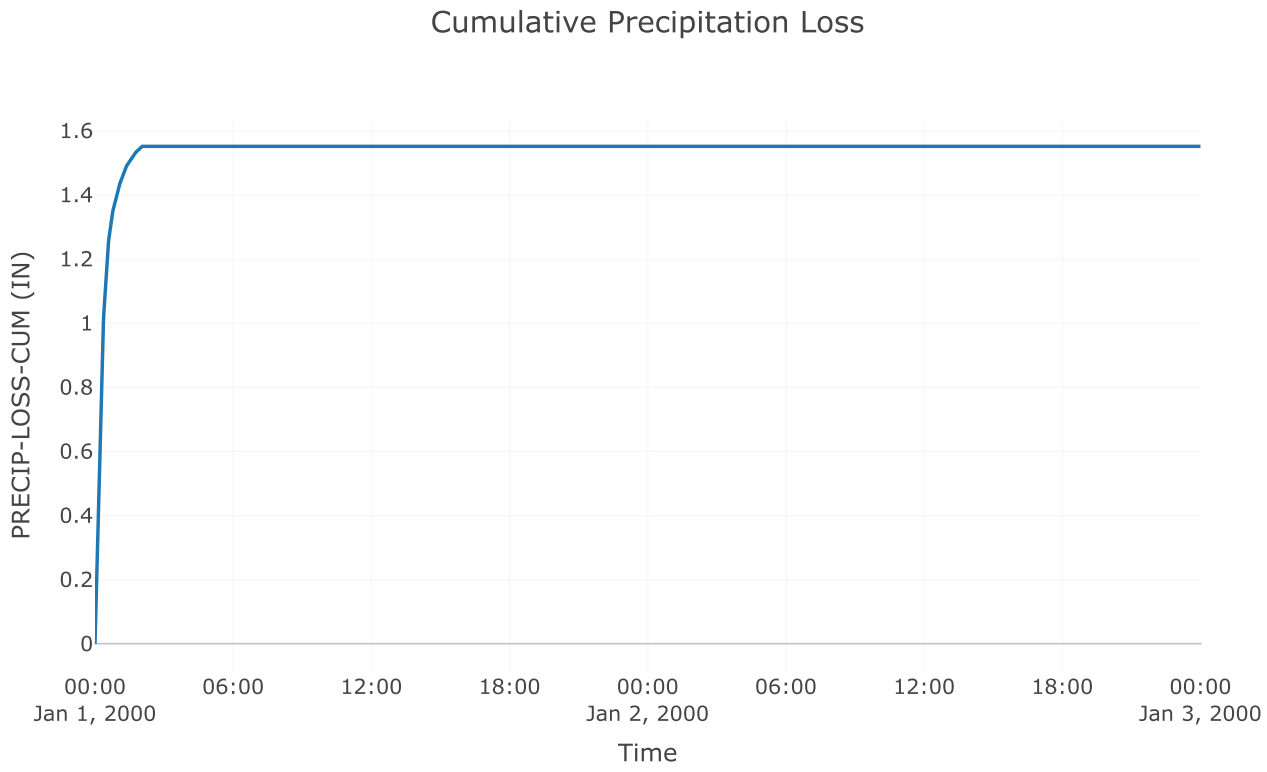


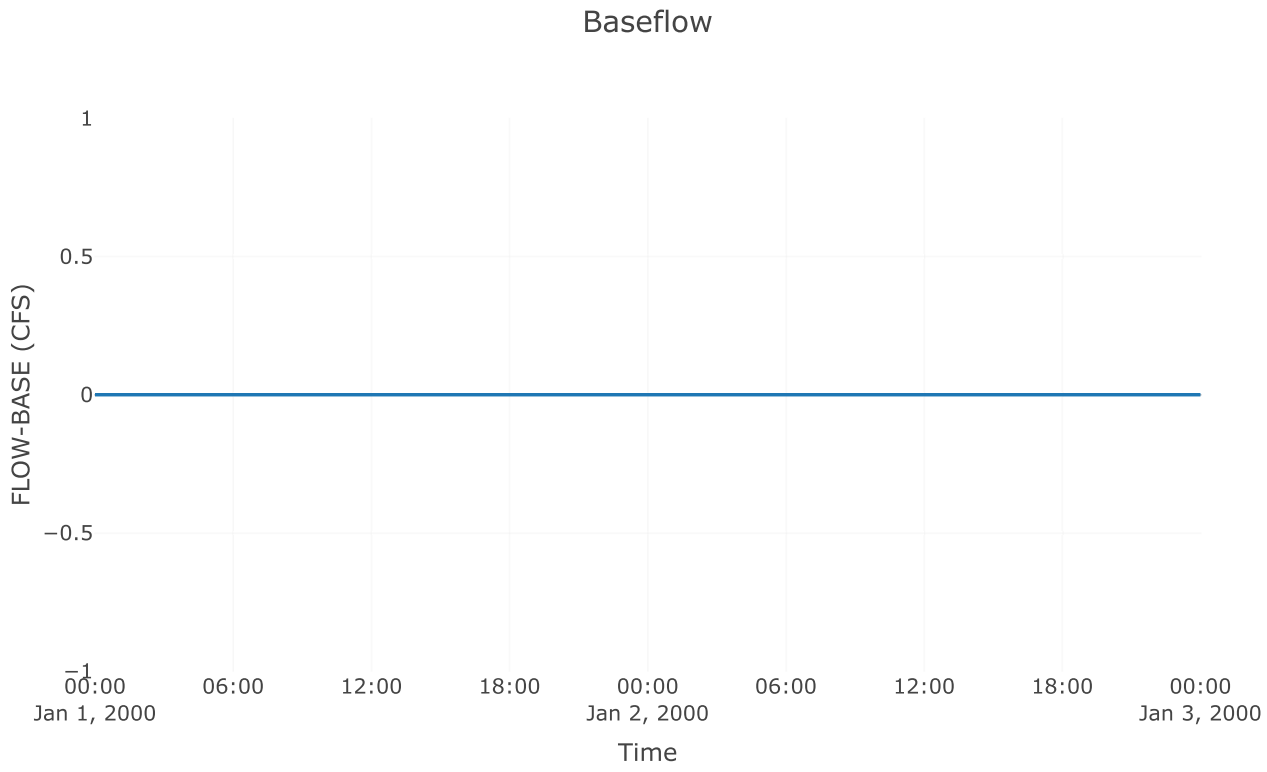
Cumulative Outflow

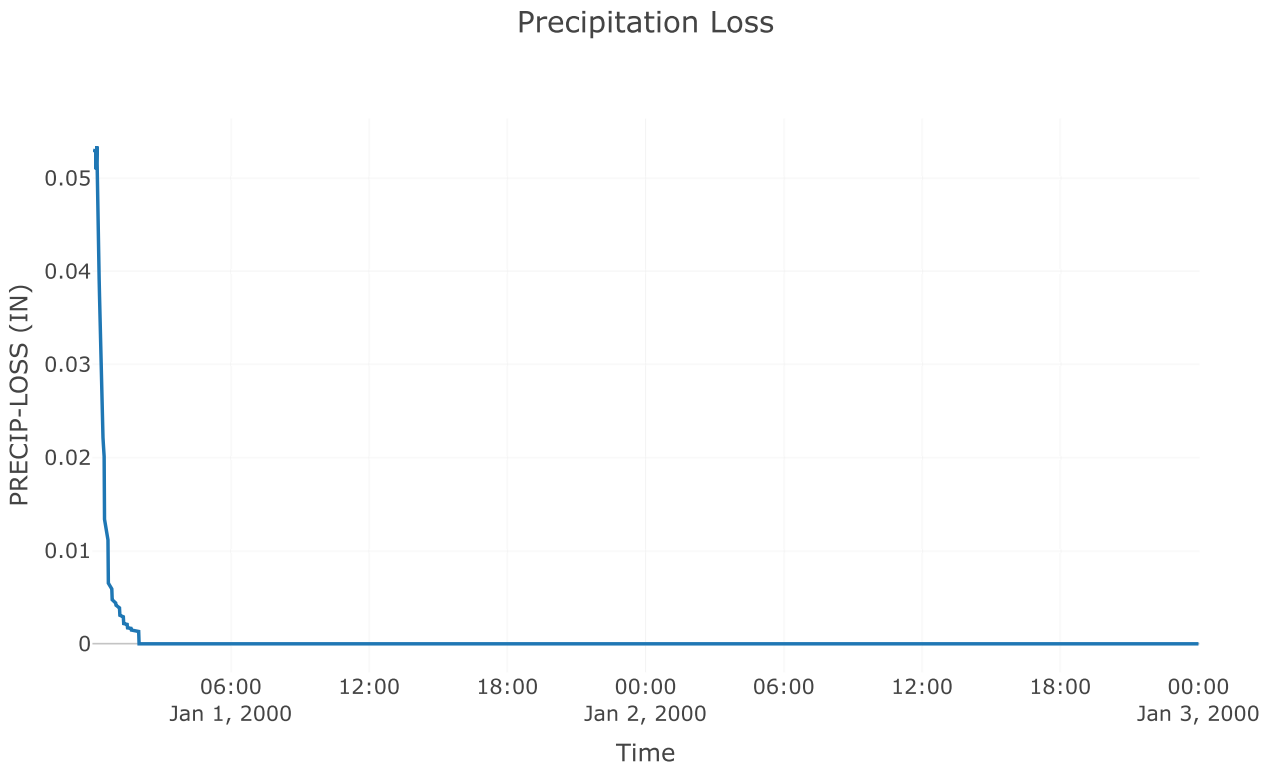


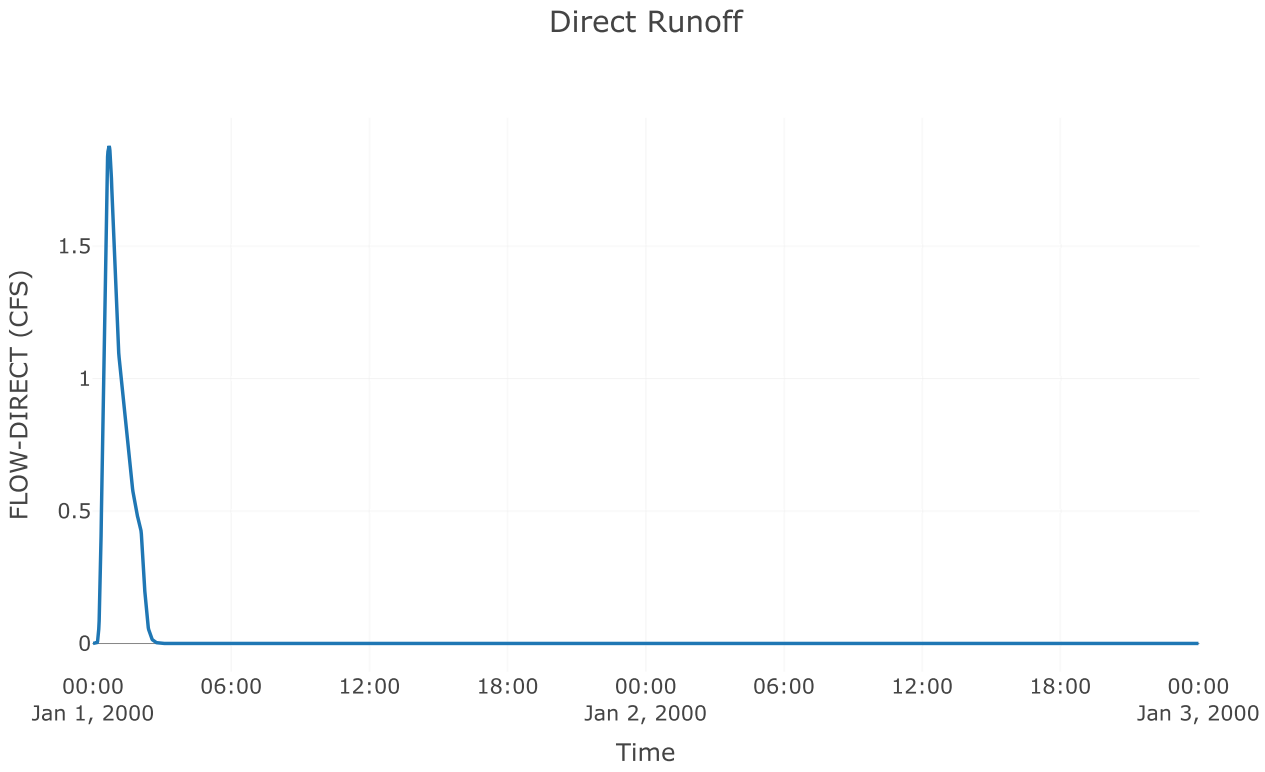
Cumulative Precipitation

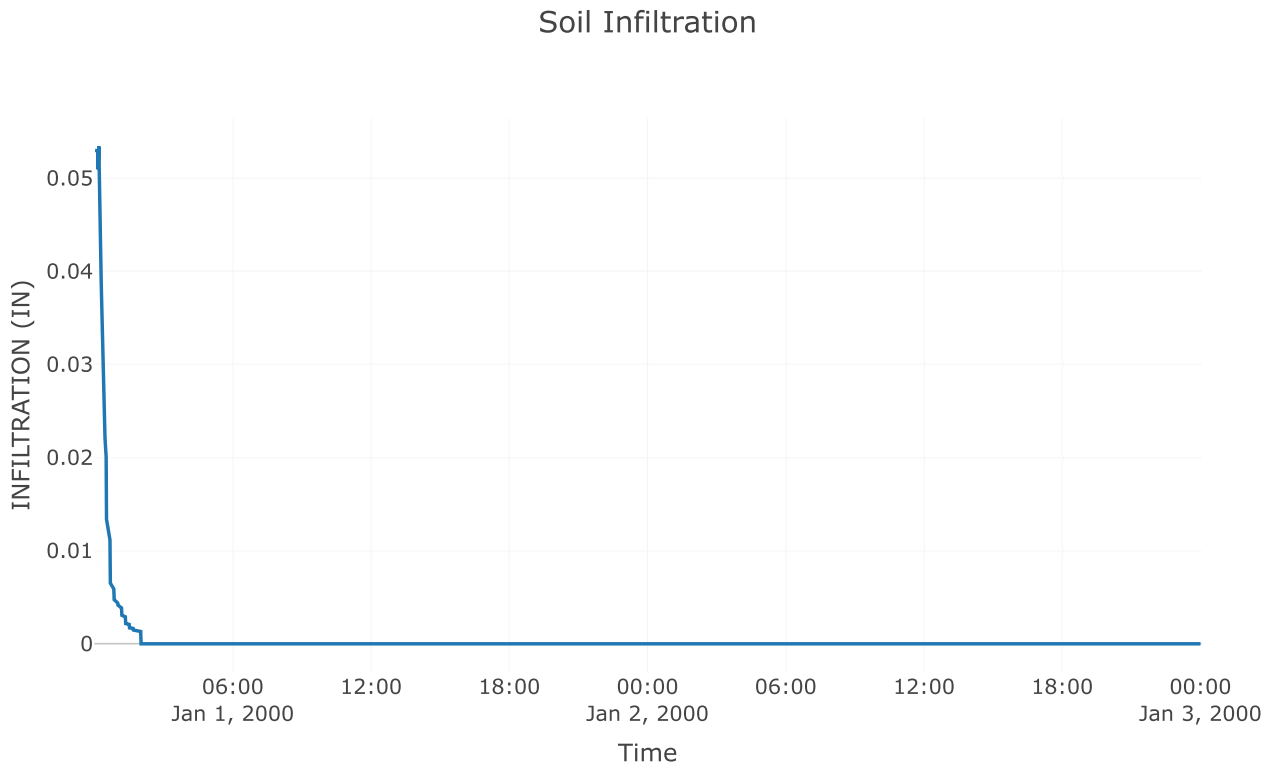



Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

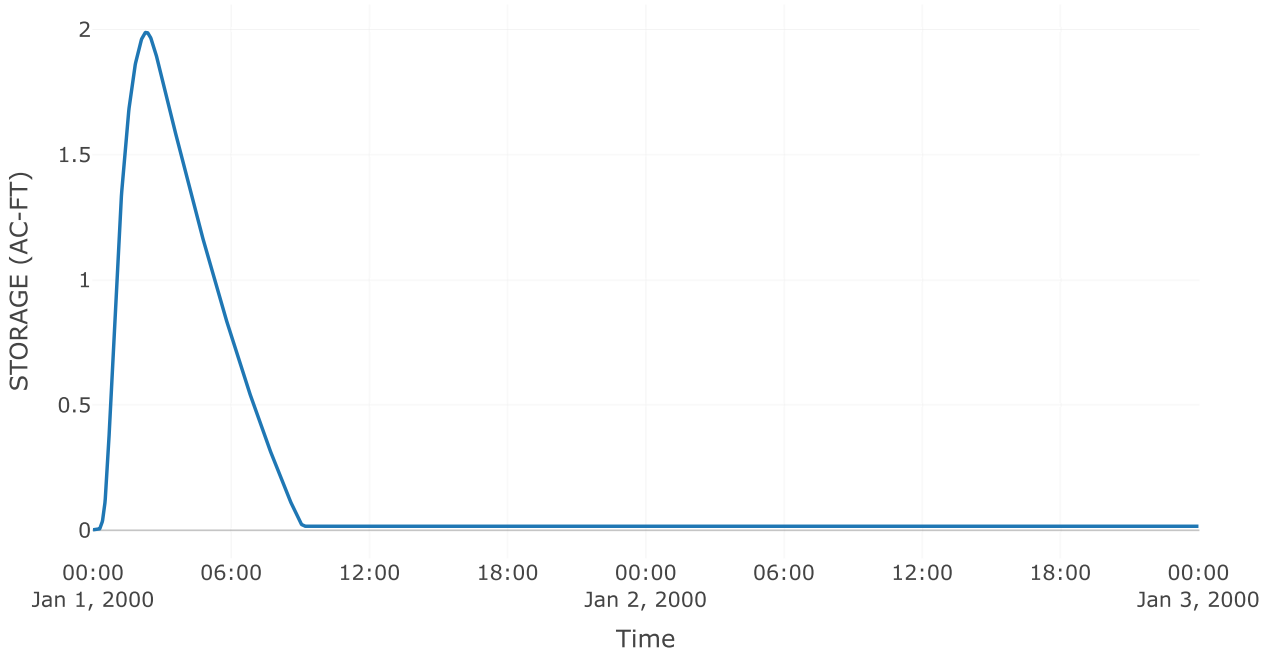

Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 1

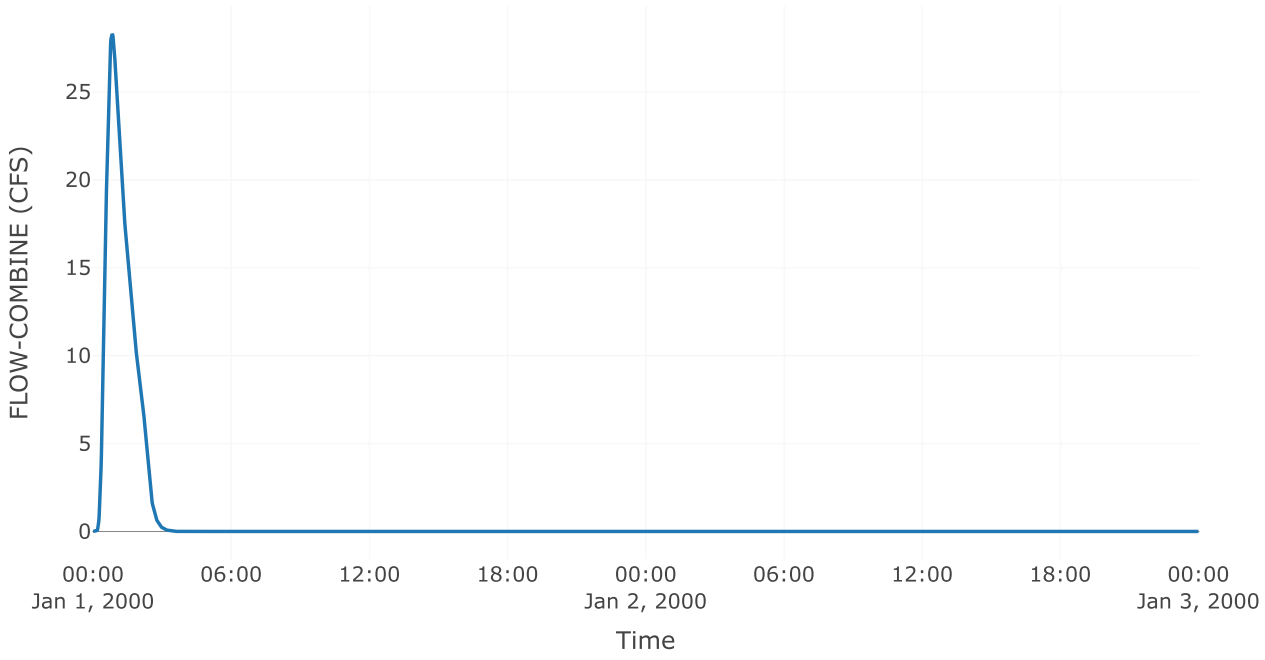
Downstream : Basin 2

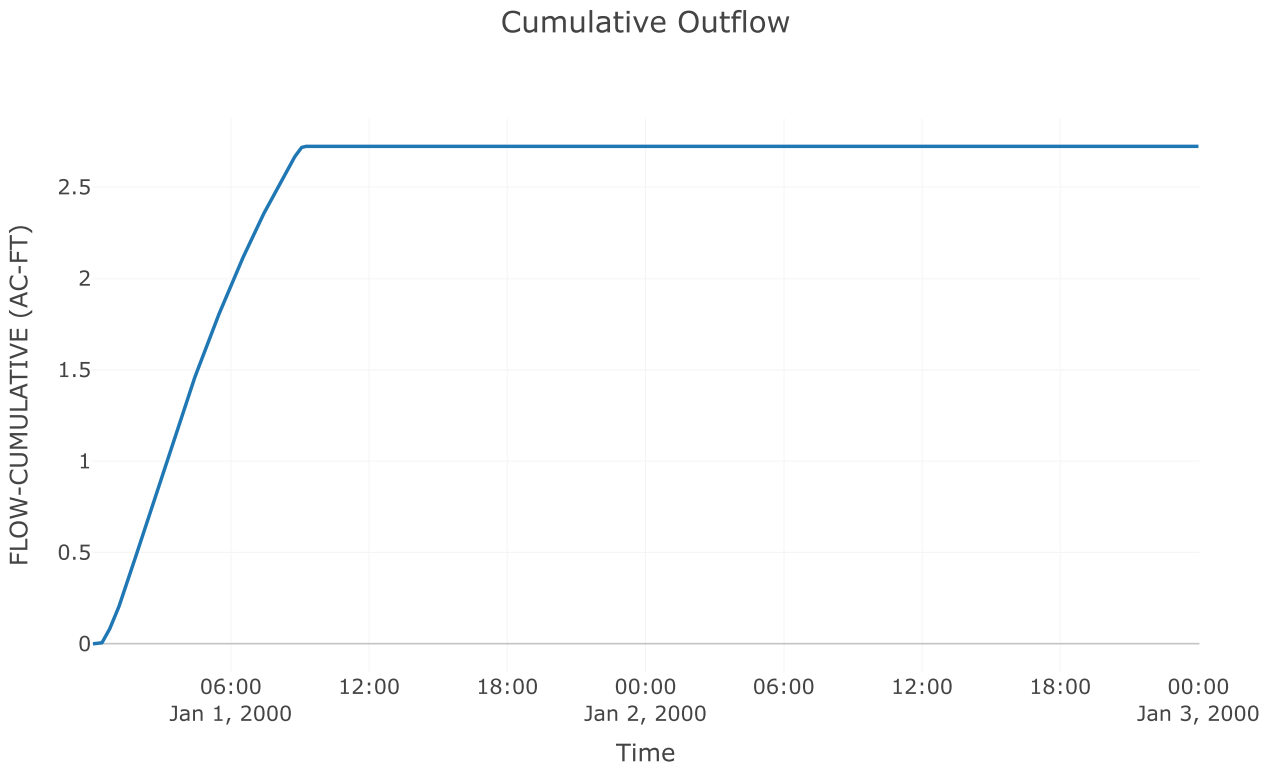
Results: Basin 1	
Peak Discharge (CFS)	4.9
Time of Peak Discharge	01Jan2000, 02:19
Volume (IN)	1.6
Peak Inflow (CFS)	28.28
Time of Peak Inflow	01Jan2000, 00:50
Inflow Volume (AC - FT)	2.74
Maximum Storage (AC - FT)	1.99
Peak Elevation (FT)	697
Discharge Volume (AC - FT)	2.72

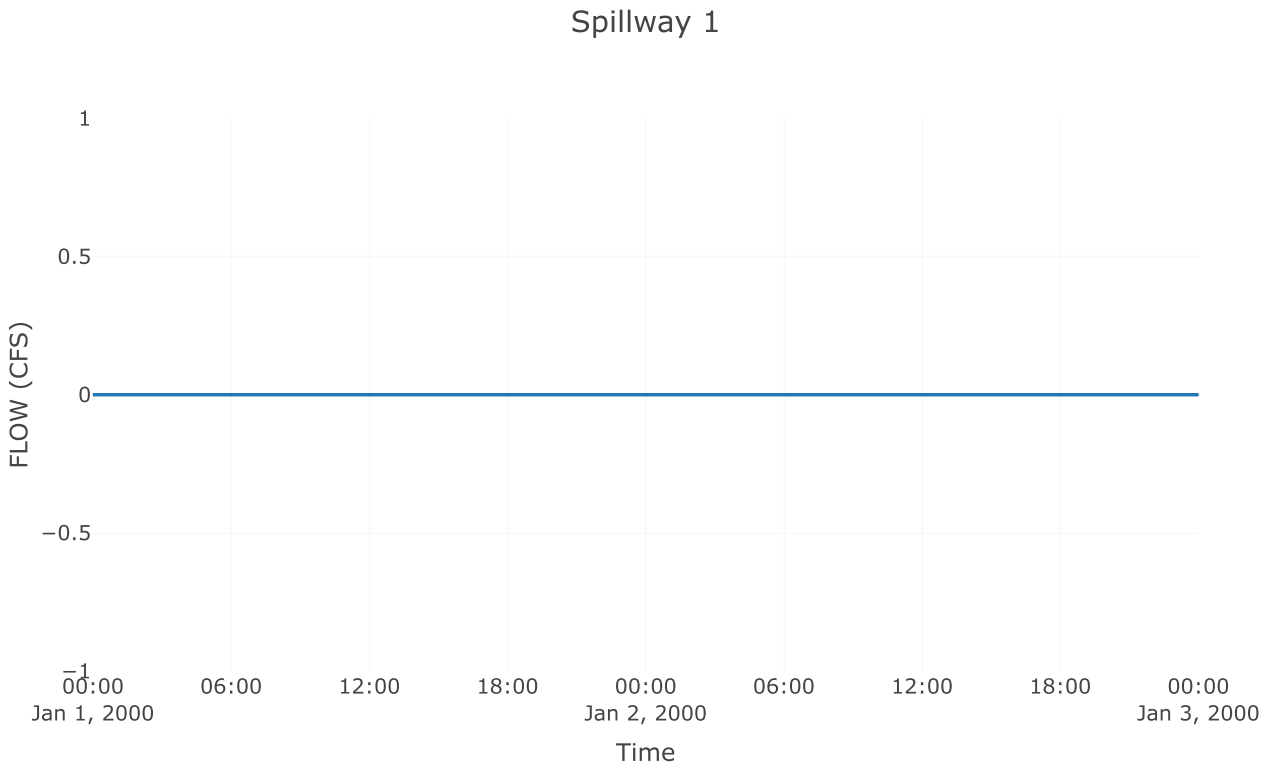
Storage



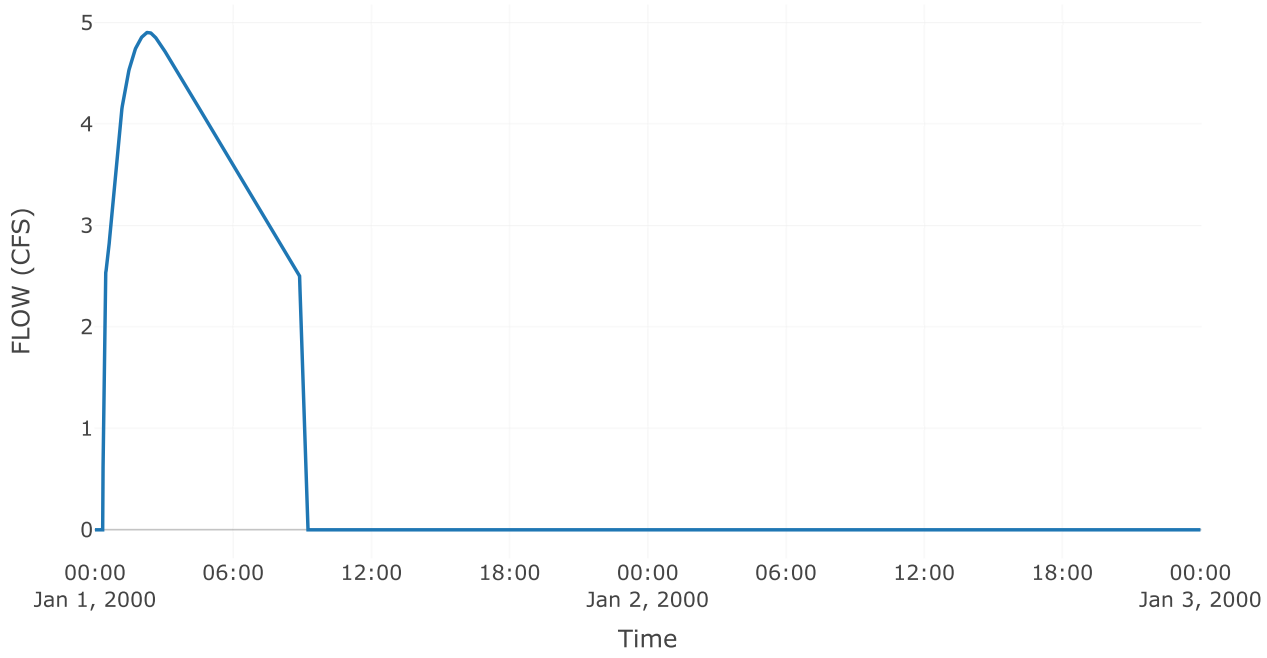
Combined Inflow



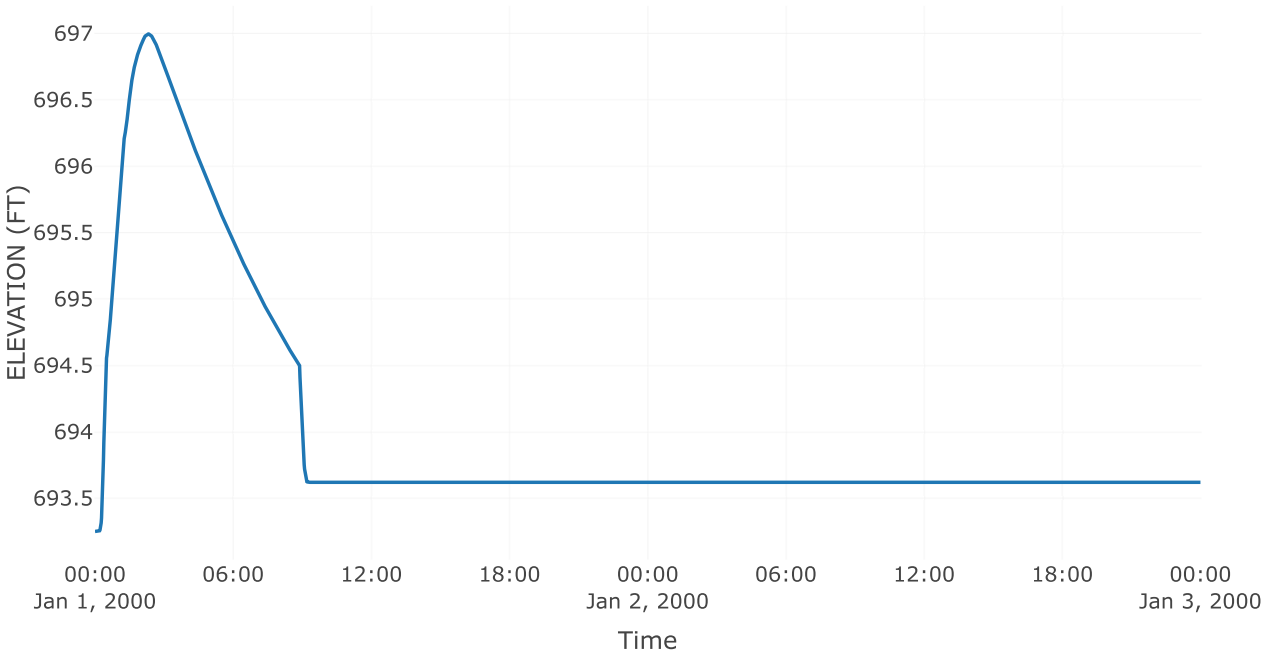

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
2.5
2
1.5
1
0.5
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

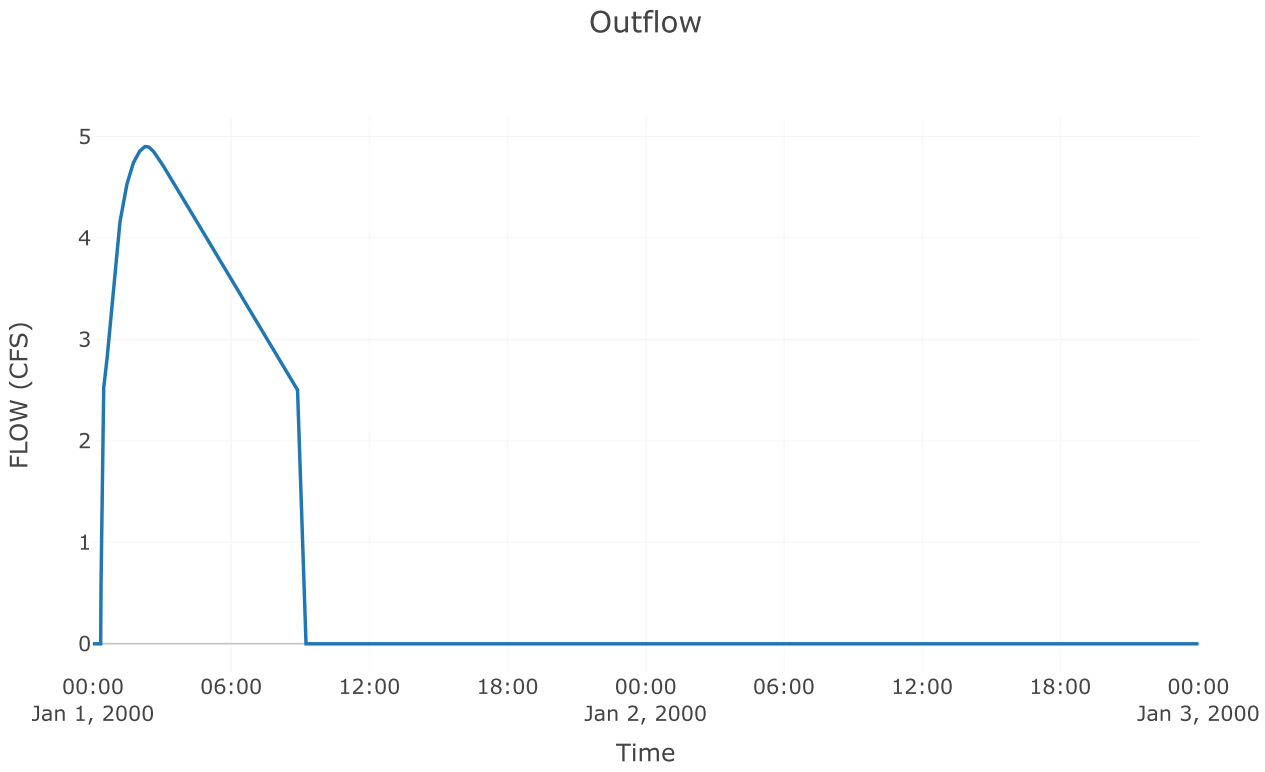

Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
5
4
3
2
1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: On-Site Trib 2

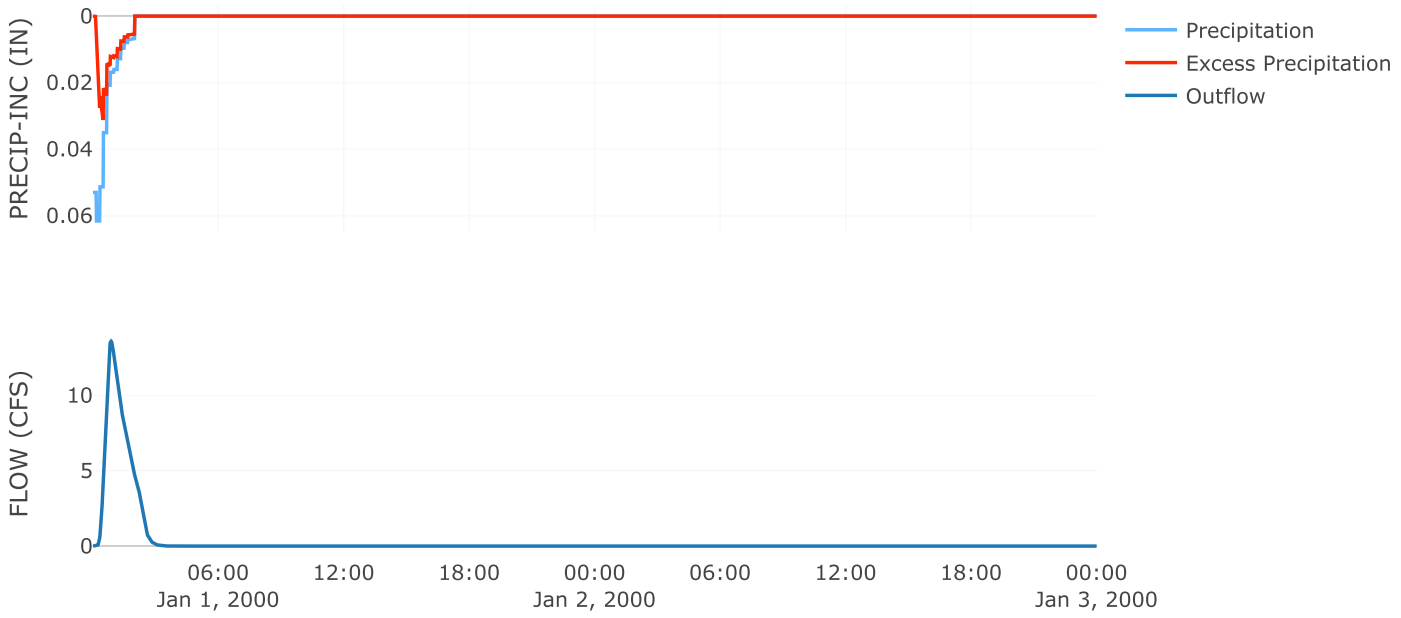
Area (MI2) : 0.02
Downstream : Basin 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

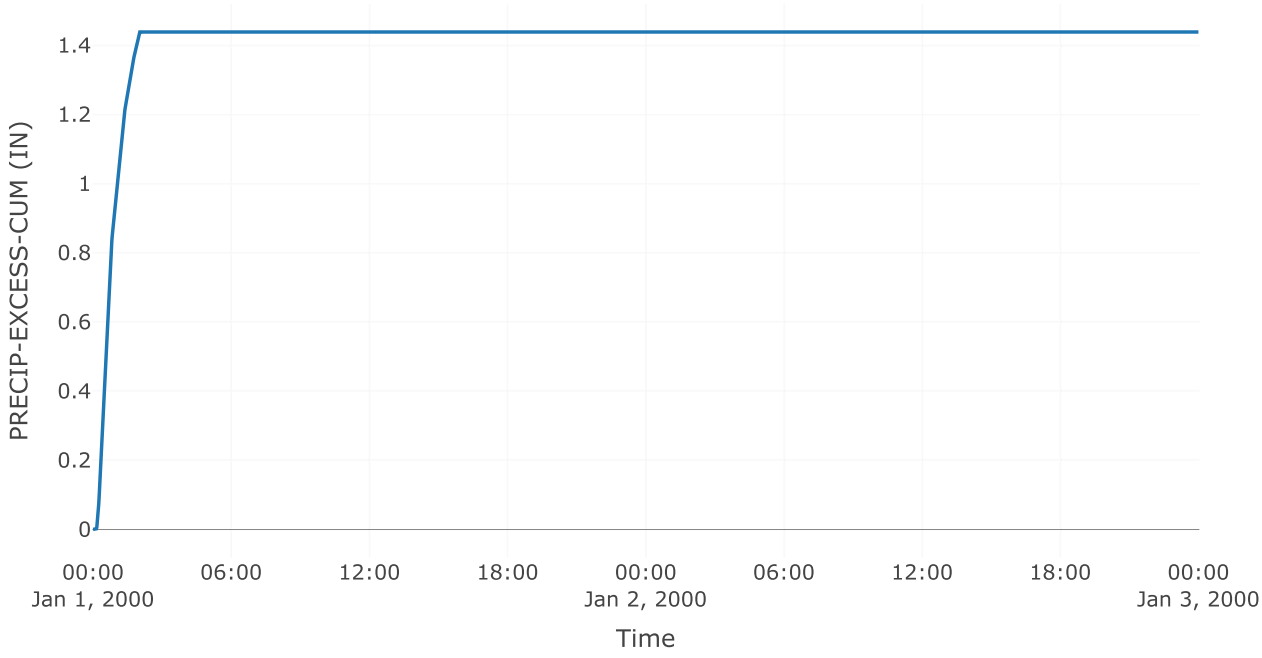
Transform: Scs	
Lag	20.4
Unitgraph Type	Standard

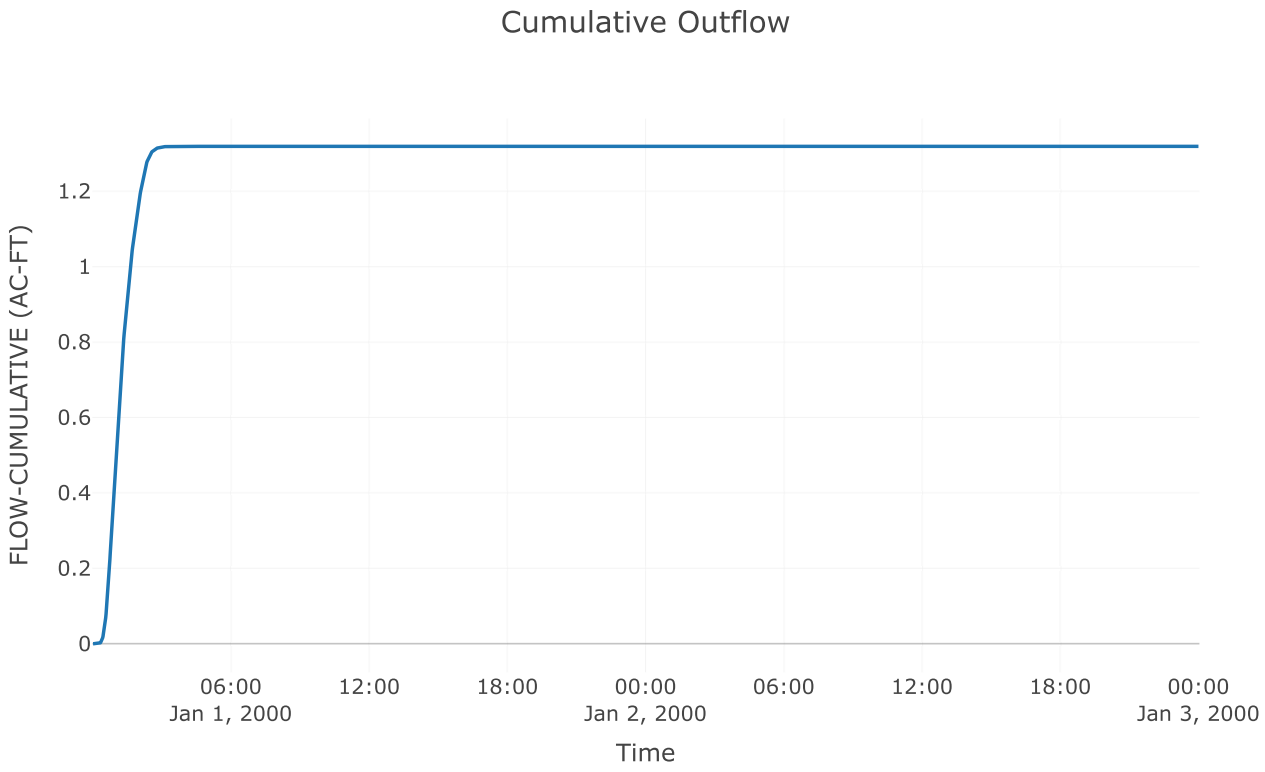
Results: On-Site Trib 2	
Peak Discharge (CFS)	13.59
Time of Peak Discharge	01Jan2000, 00:52
Volume (IN)	1.44
Precipitation Volume (AC - FT)	2.74
Loss Volume (AC - FT)	1.42
Excess Volume (AC - FT)	1.32
Direct Runoff Volume (AC - FT)	1.32
Baseflow Volume (AC - FT)	0

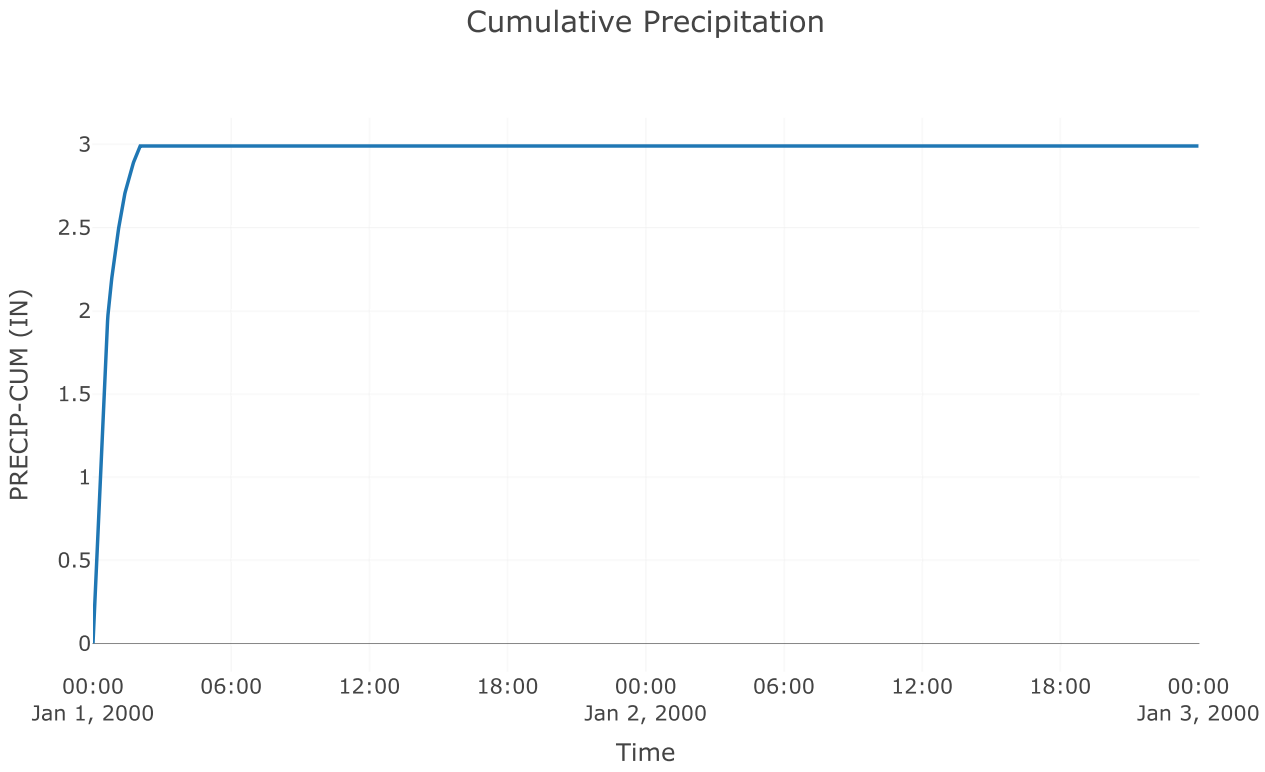
Precipitation and Outflow

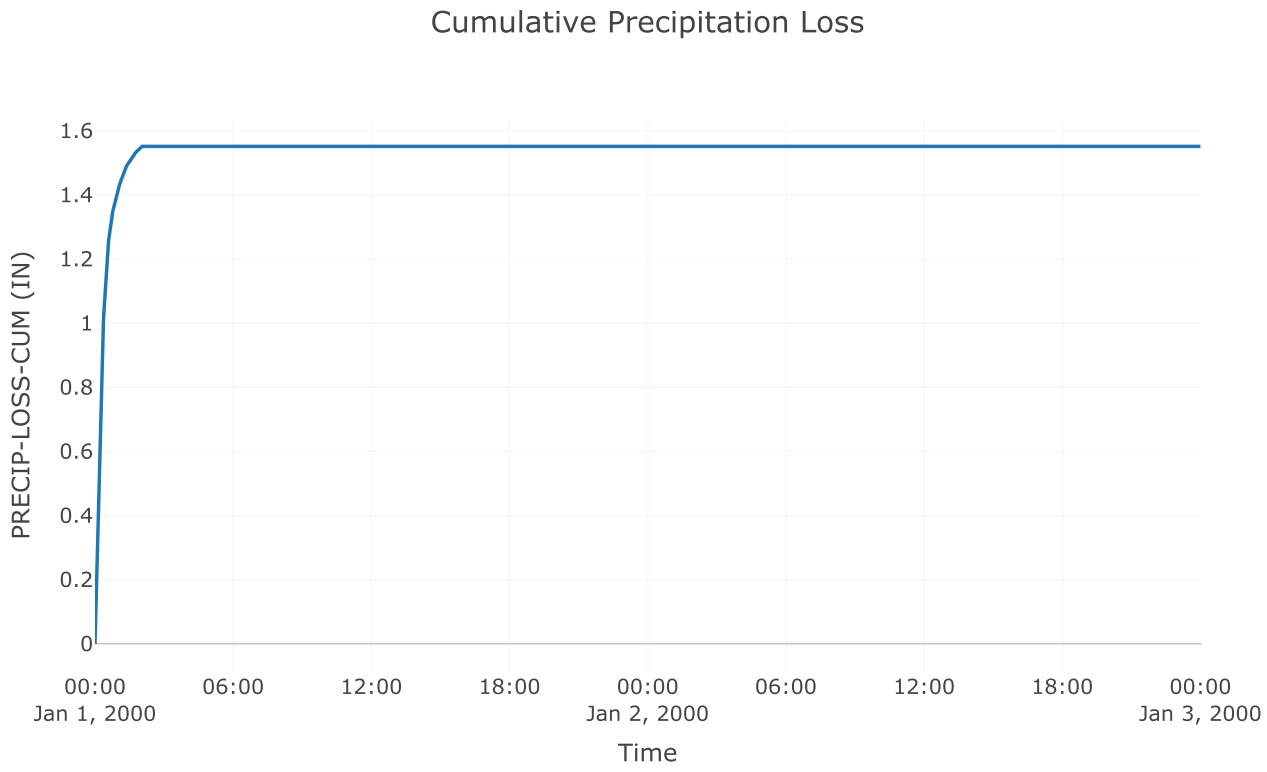


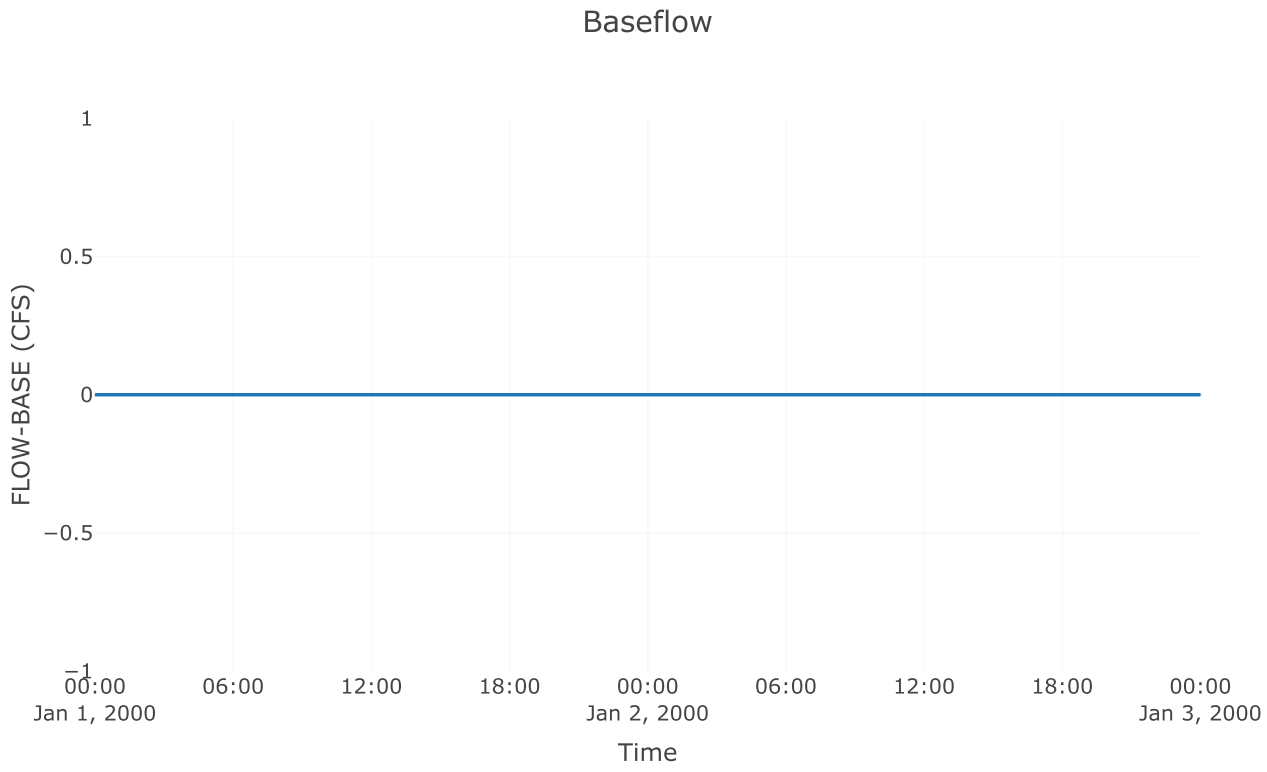
Cumulative Excess Precipitation

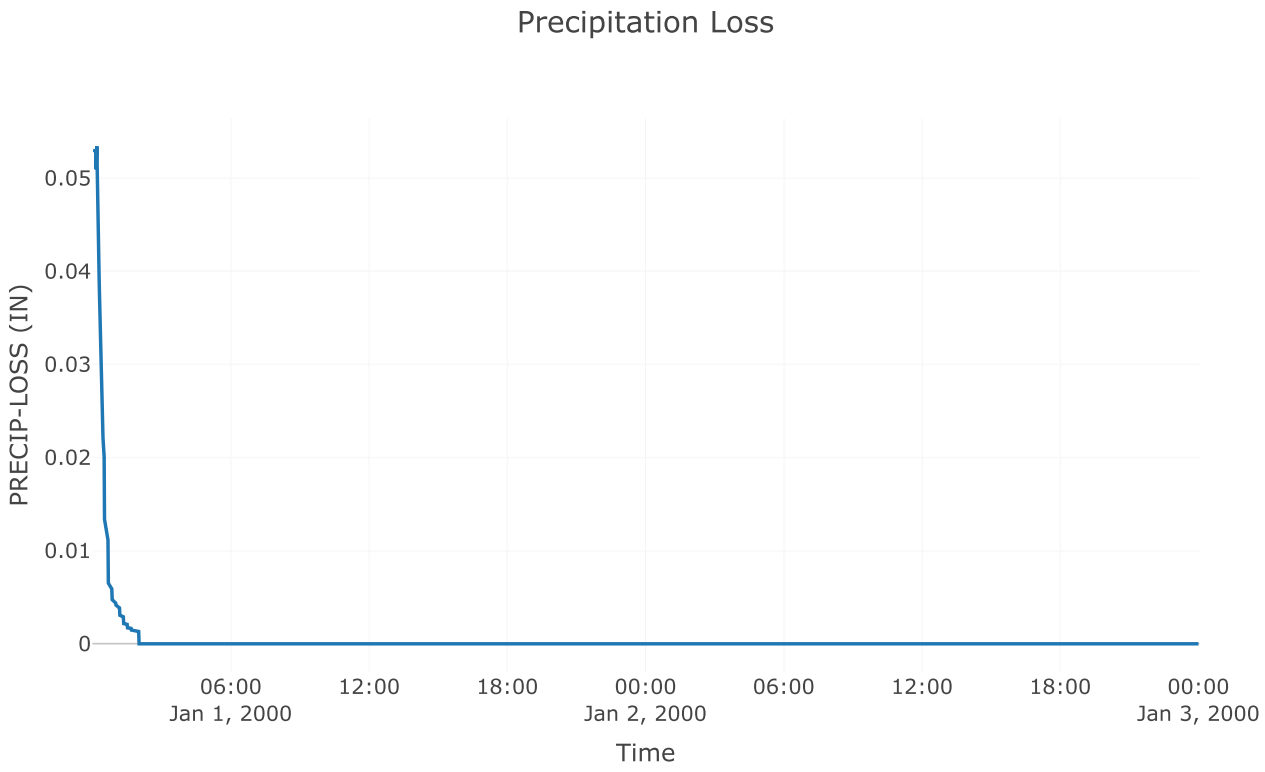


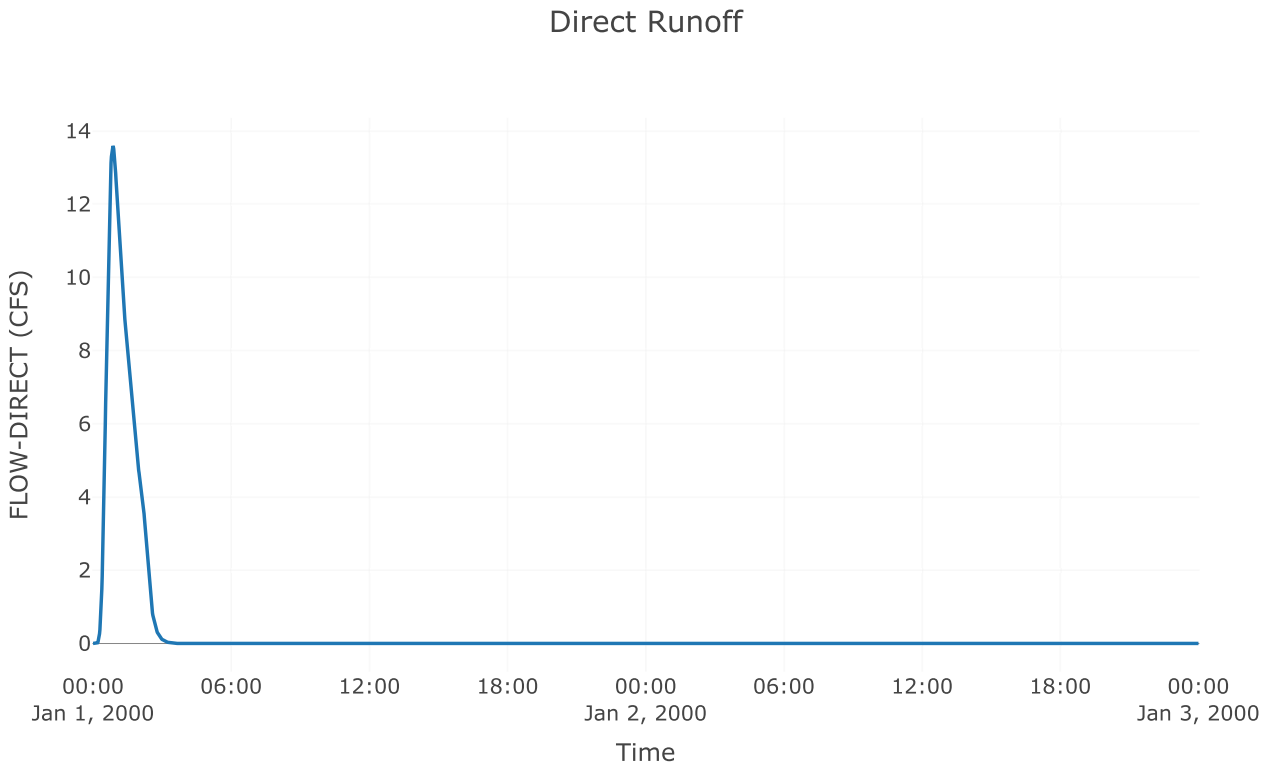

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
1.2
1
0.8
0.6
0.4
0.2
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

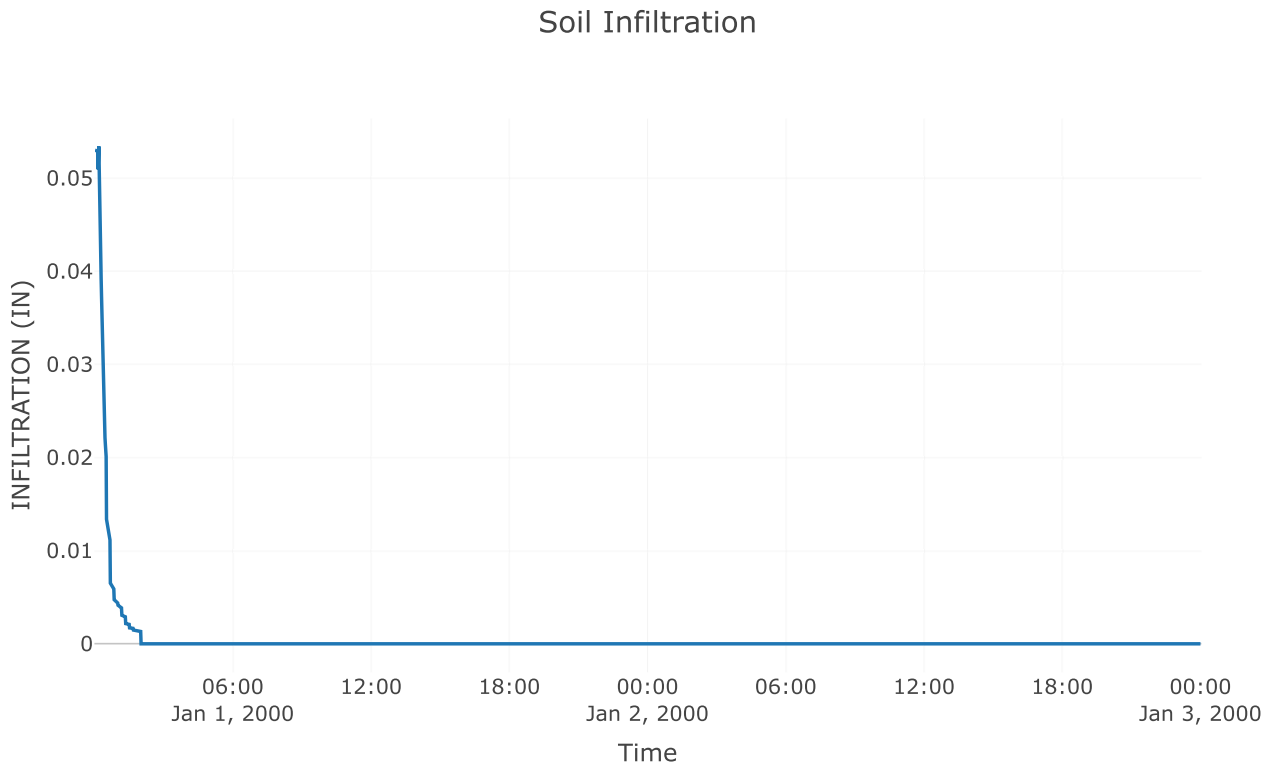

Cumulative Precipitation
PRECIP-CUM (IN)
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
14
12
10
8
6
4
2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib2

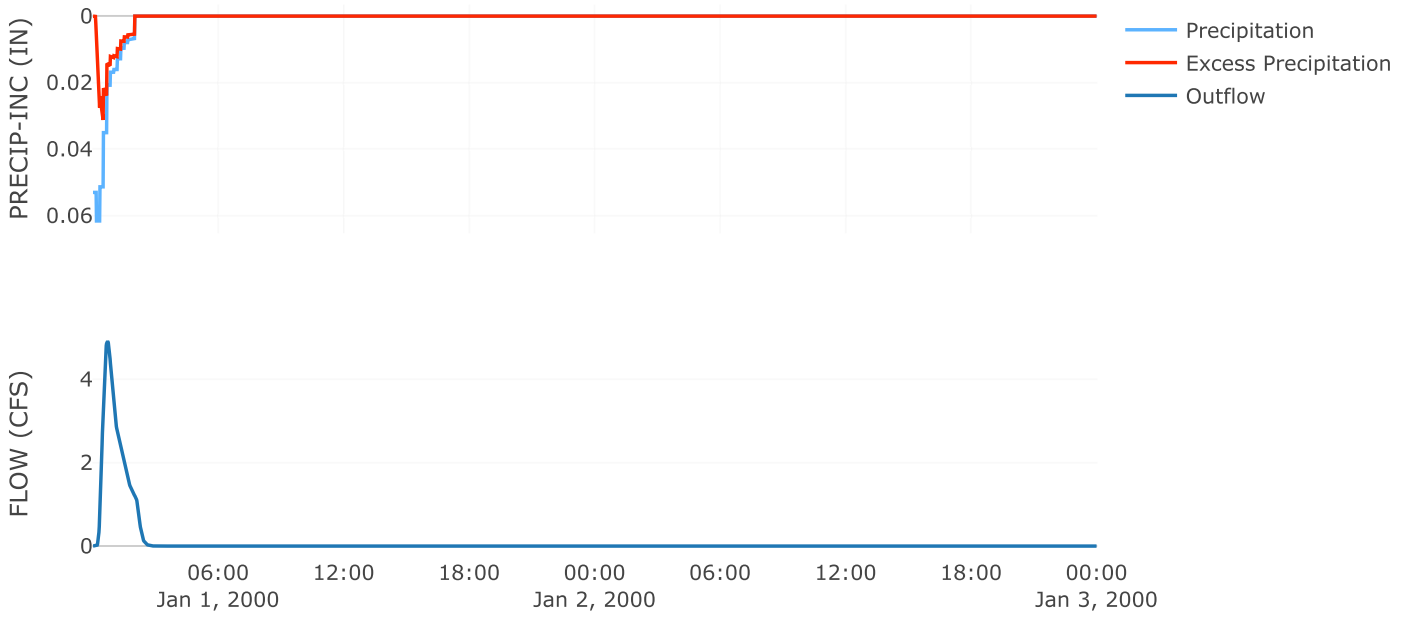
Area (MI2) : 0.01
Downstream : Basin 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

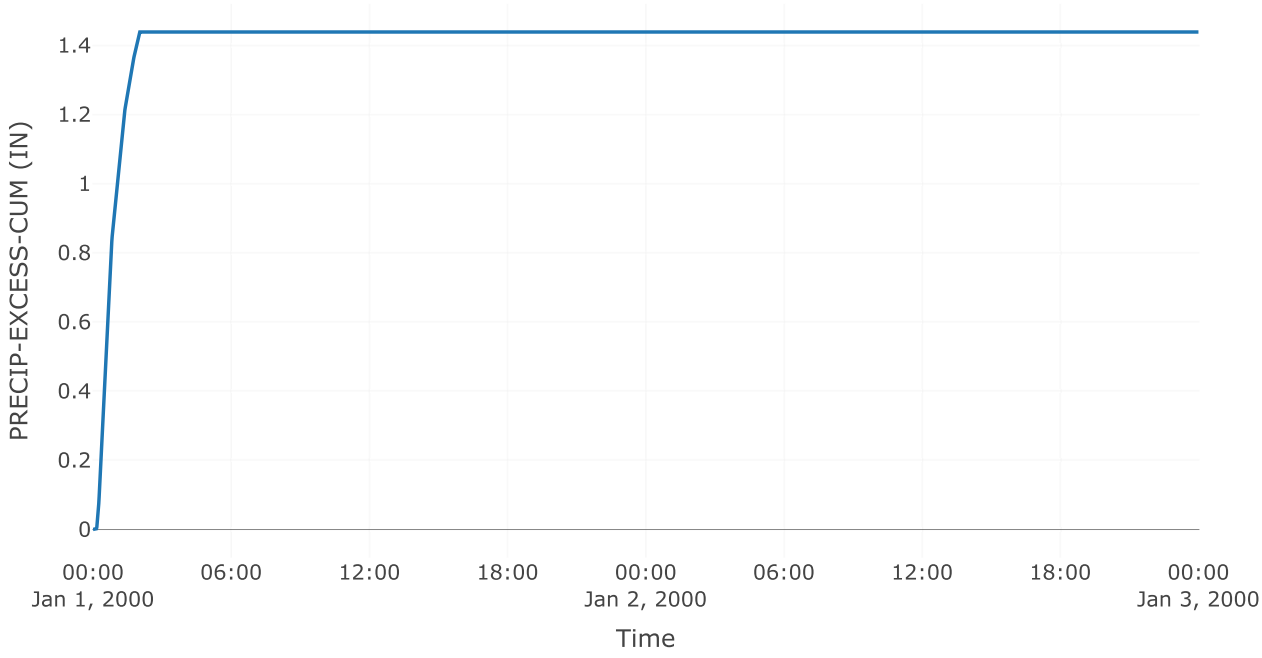
Transform: Scs	
Lag	12
Unitgraph Type	Standard

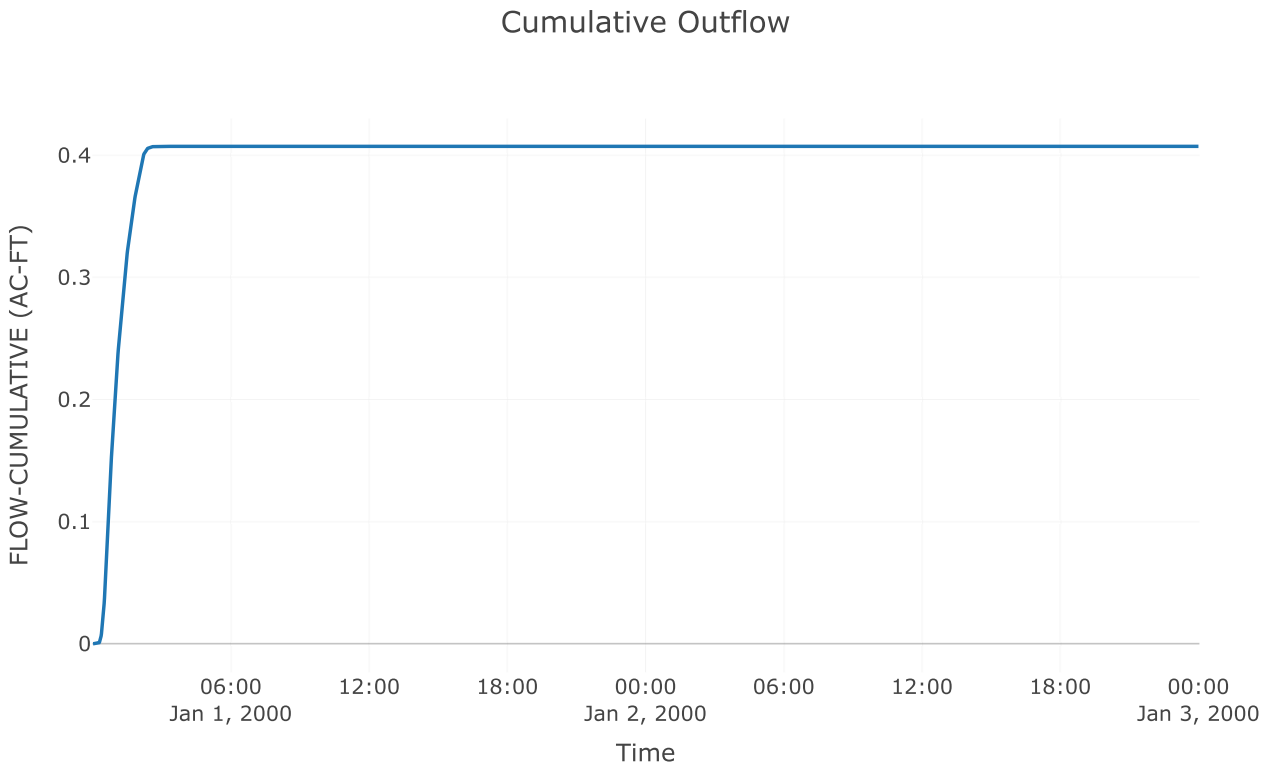
Results: Off-Site Trib2	
Peak Discharge (CFS)	4.91
Time of Peak Discharge	01Jan2000, 00:42
Volume (IN)	1.44
Precipitation Volume (AC - FT)	0.85
Loss Volume (AC - FT)	0.44
Excess Volume (AC - FT)	0.41
Direct Runoff Volume (AC - FT)	0.41
Baseflow Volume (AC - FT)	0

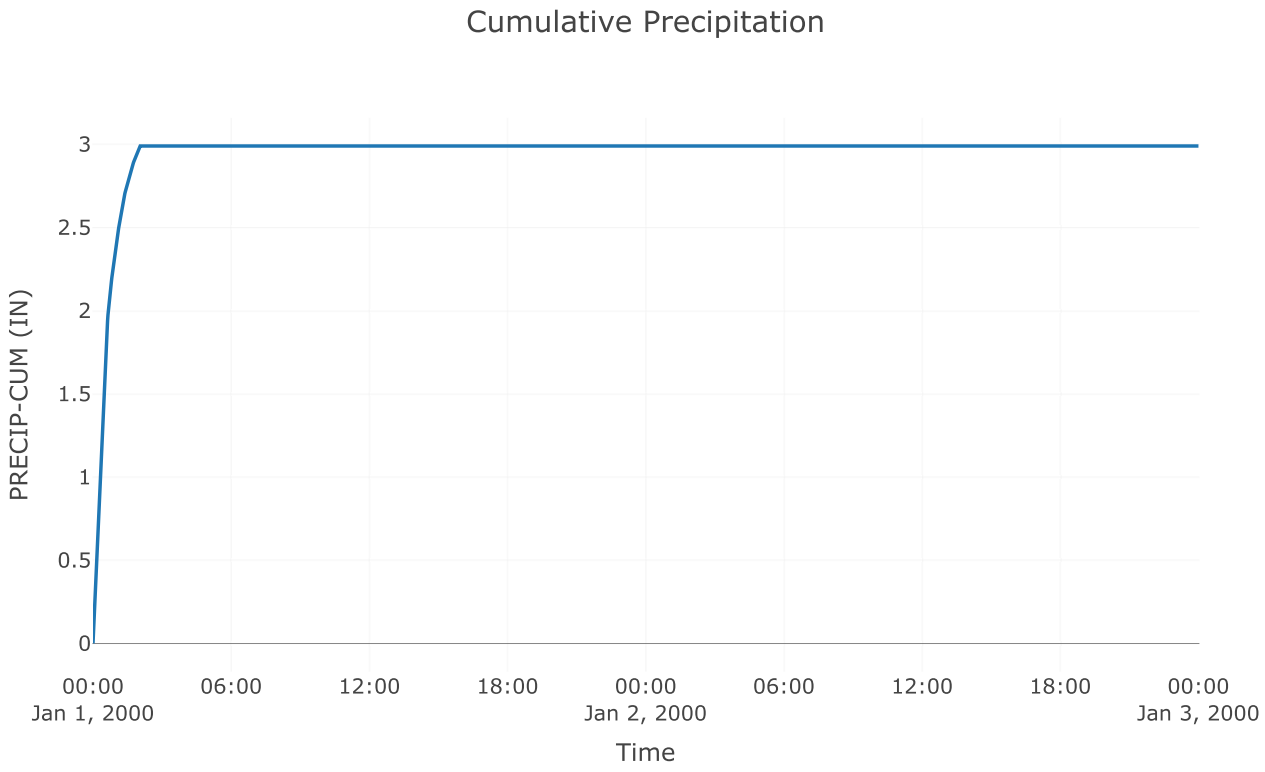
Precipitation and Outflow

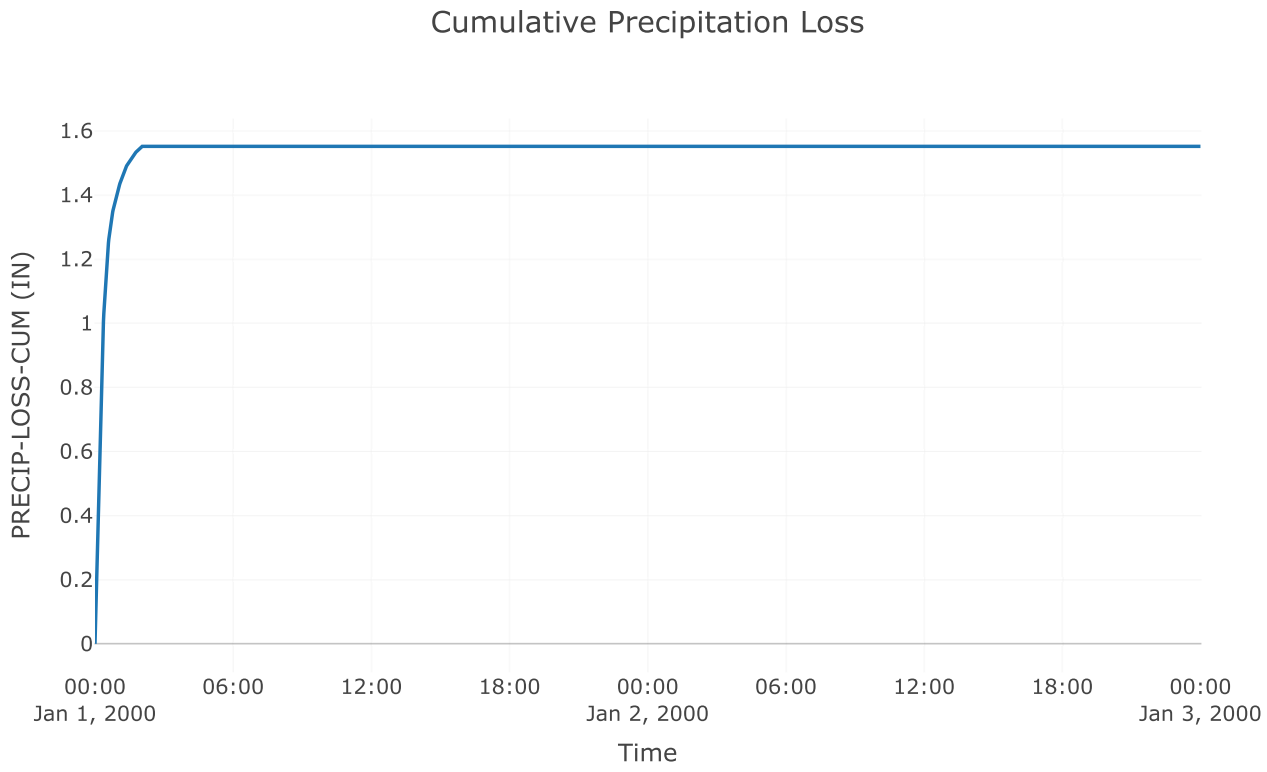


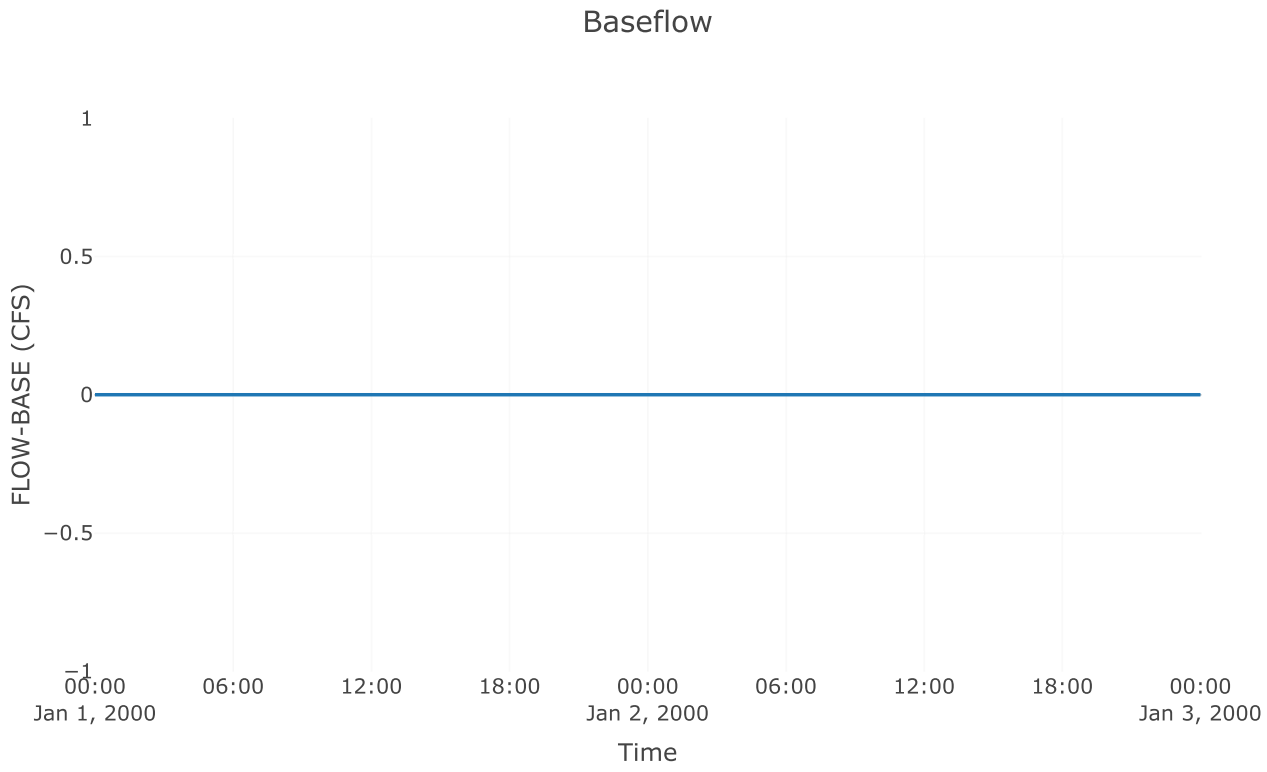
Cumulative Excess Precipitation



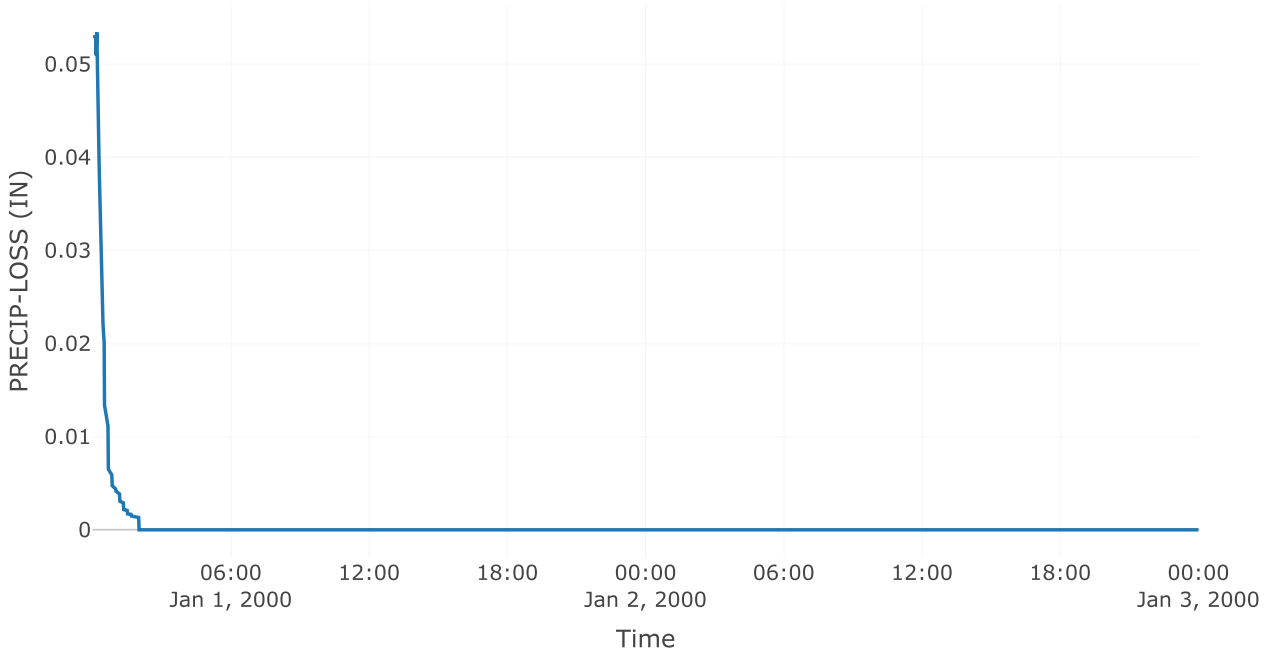

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0.4
0.3
0.2
0.1
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Precipitation
PRECIP-CUM (IN)
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

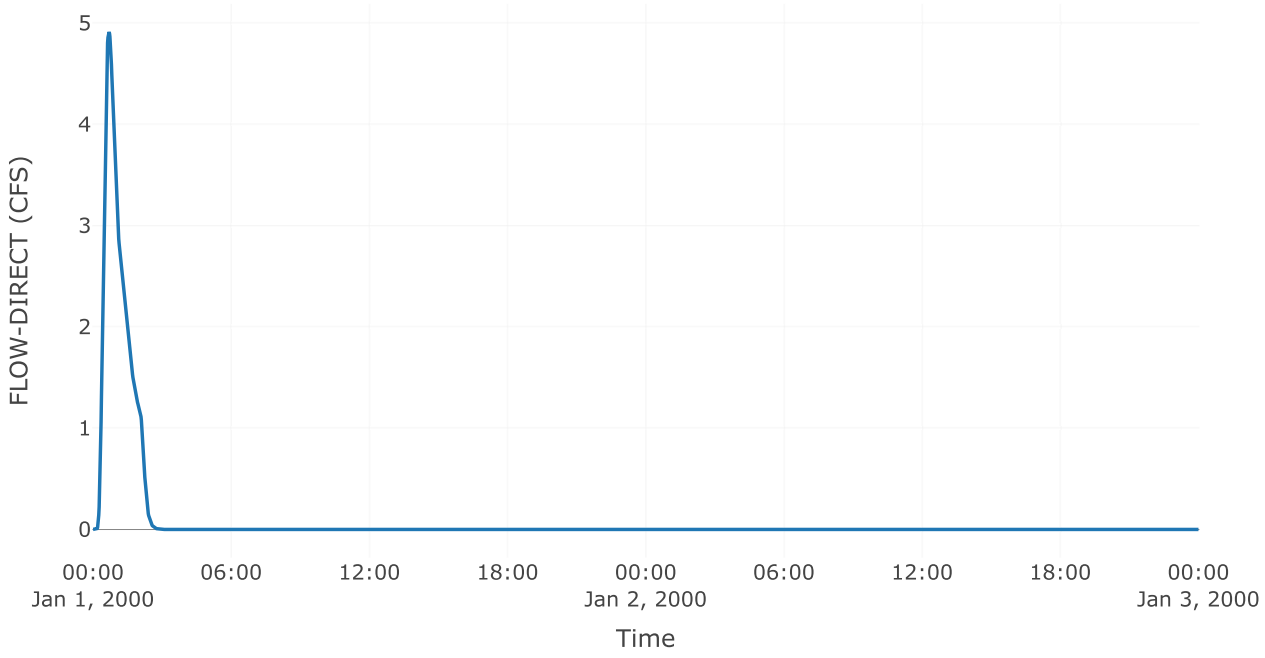

Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

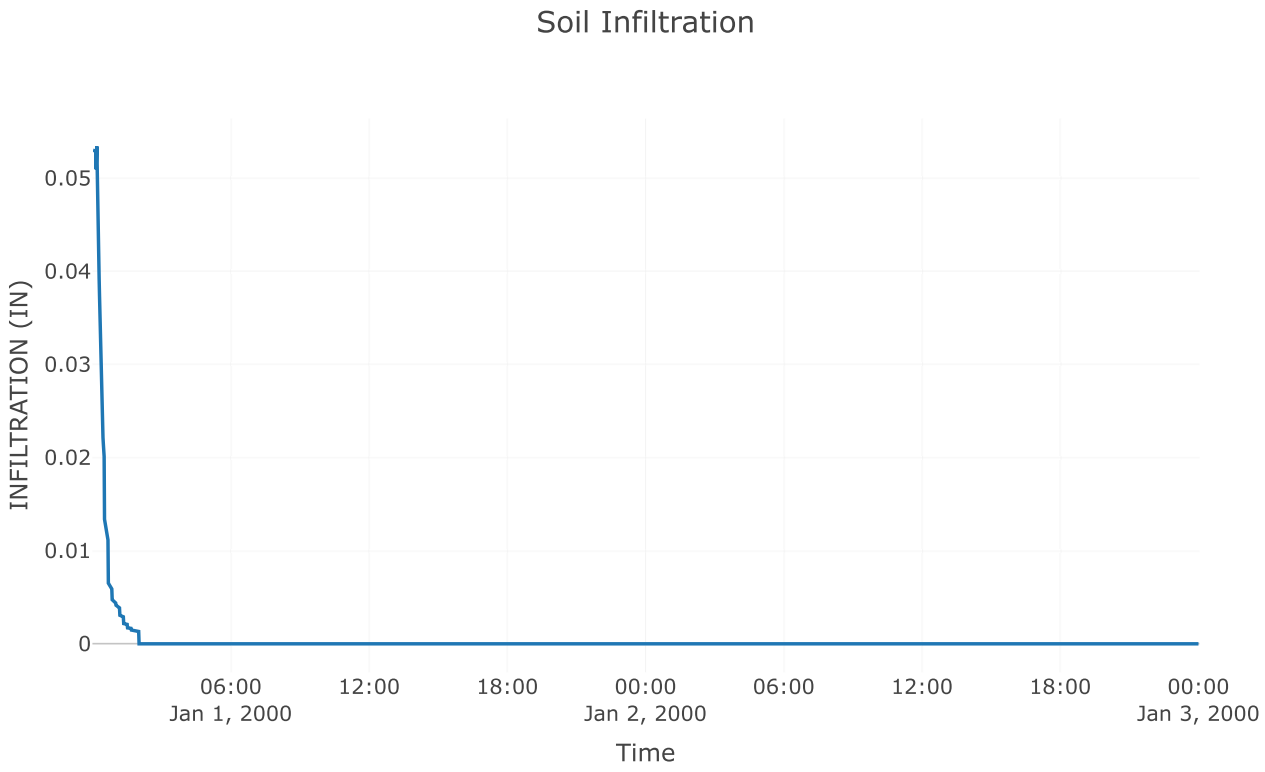

Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Precipitation Loss



Direct Runoff



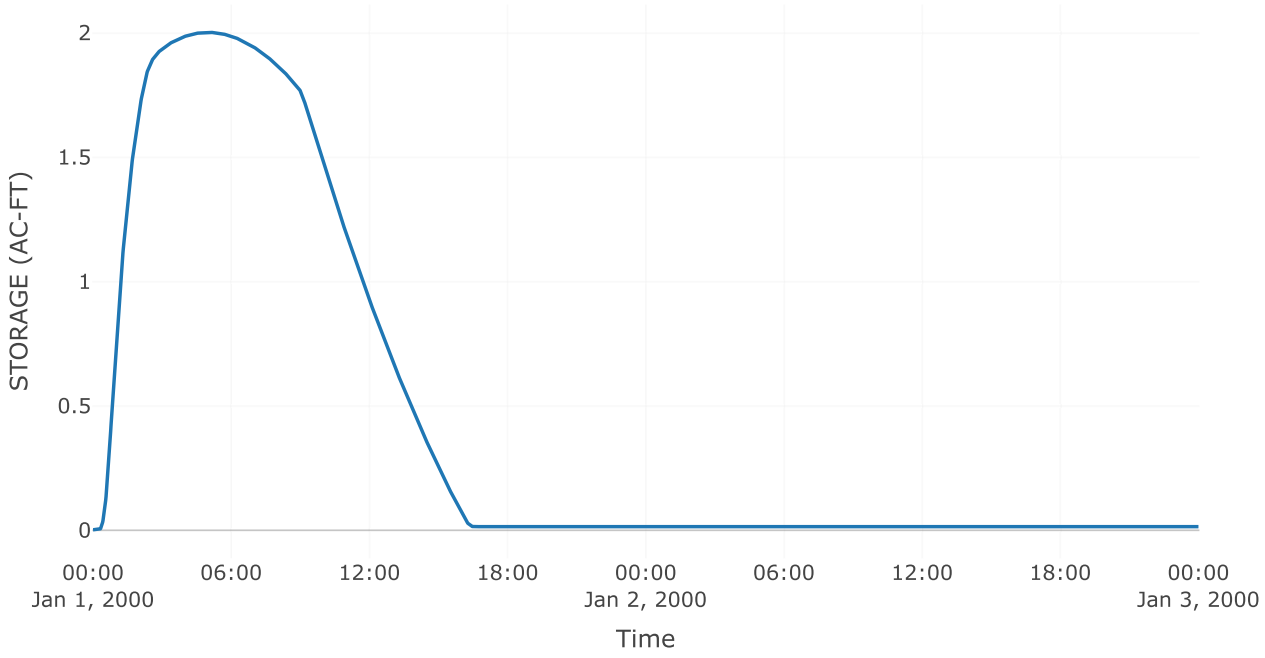

Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 2

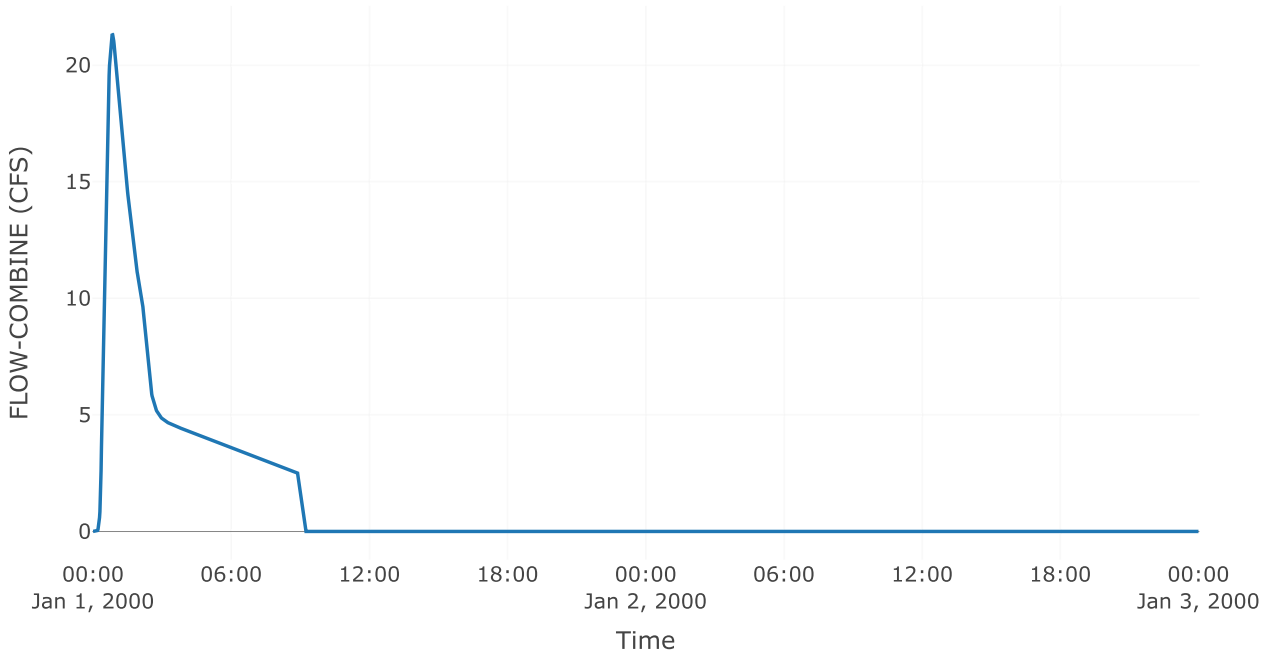
Downstream : Basin 3

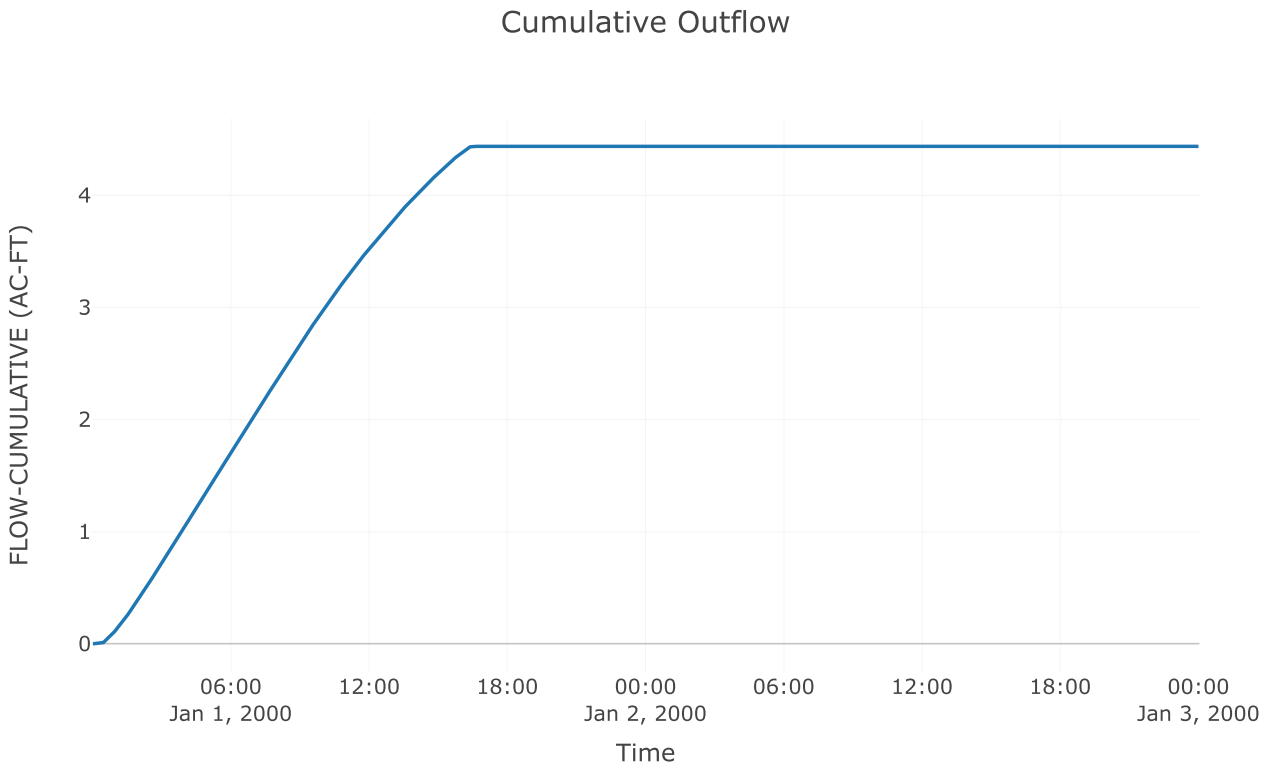
Results: Basin 2	
Peak Discharge (CFS)	3.98
Time of Peak Discharge	01Jan2000, 05:00
Volume (IN)	1.53
Peak Inflow (CFS)	21.34
Time of Peak Inflow	01Jan2000, 00:50
Inflow Volume (AC - FT)	4.45
Maximum Storage (AC - FT)	2
Peak Elevation (FT)	693.96
Discharge Volume (AC - FT)	4.44

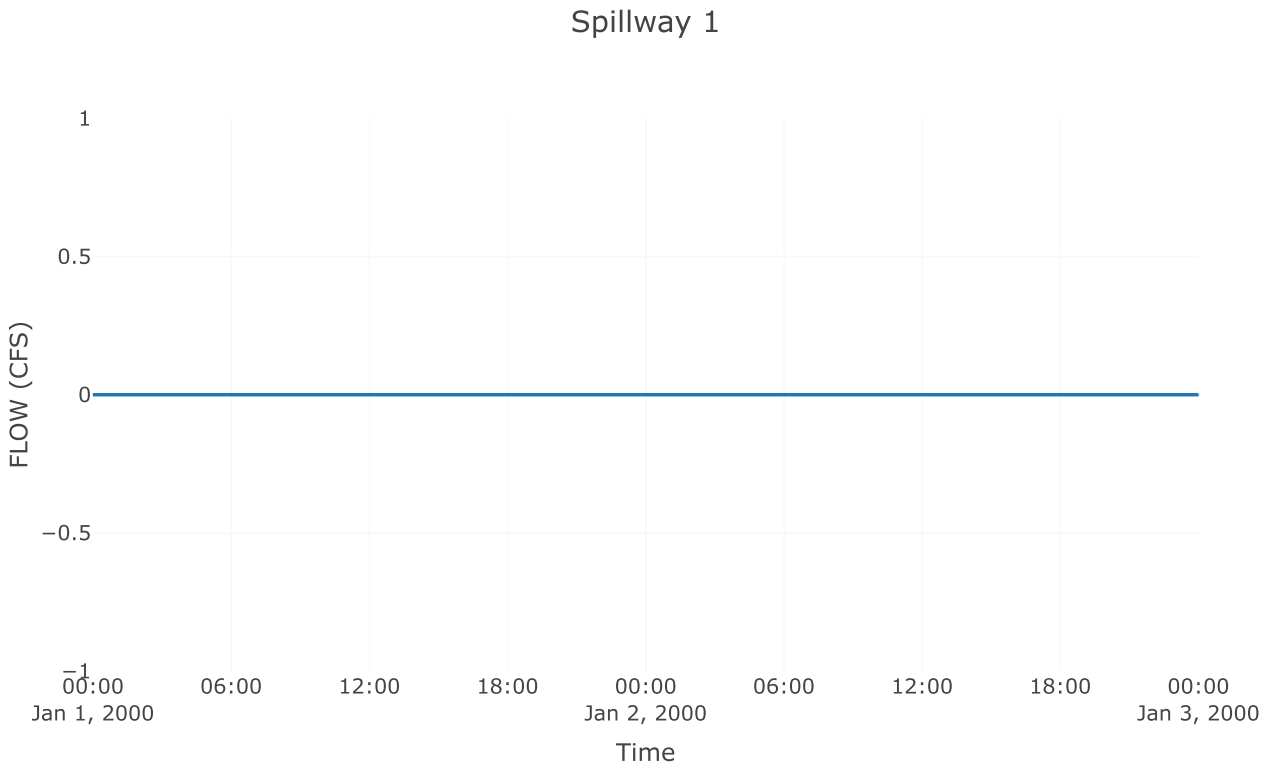
Storage



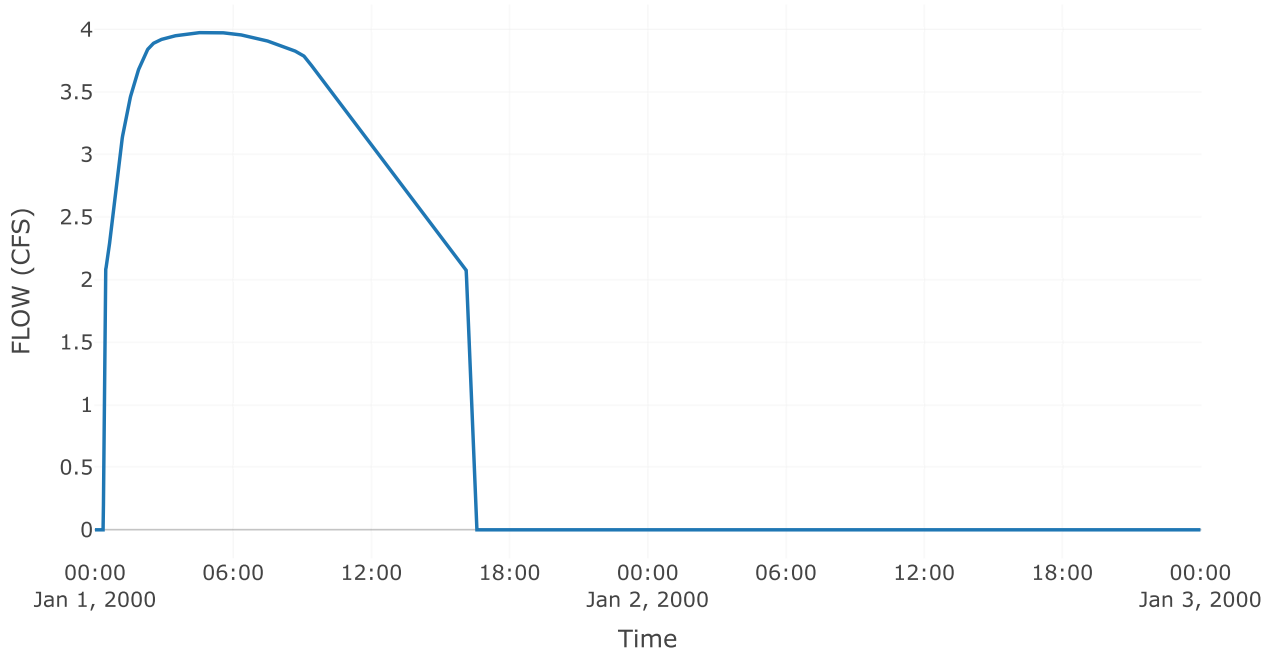
Combined Inflow



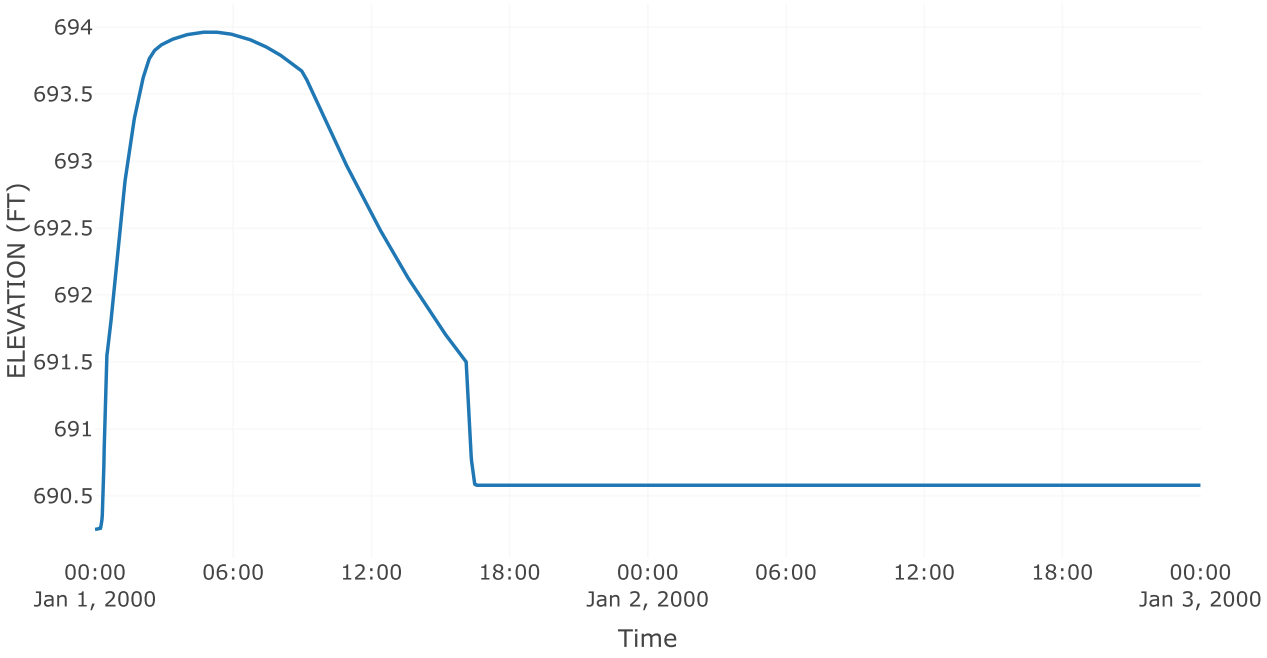

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0
1
2
3
4
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

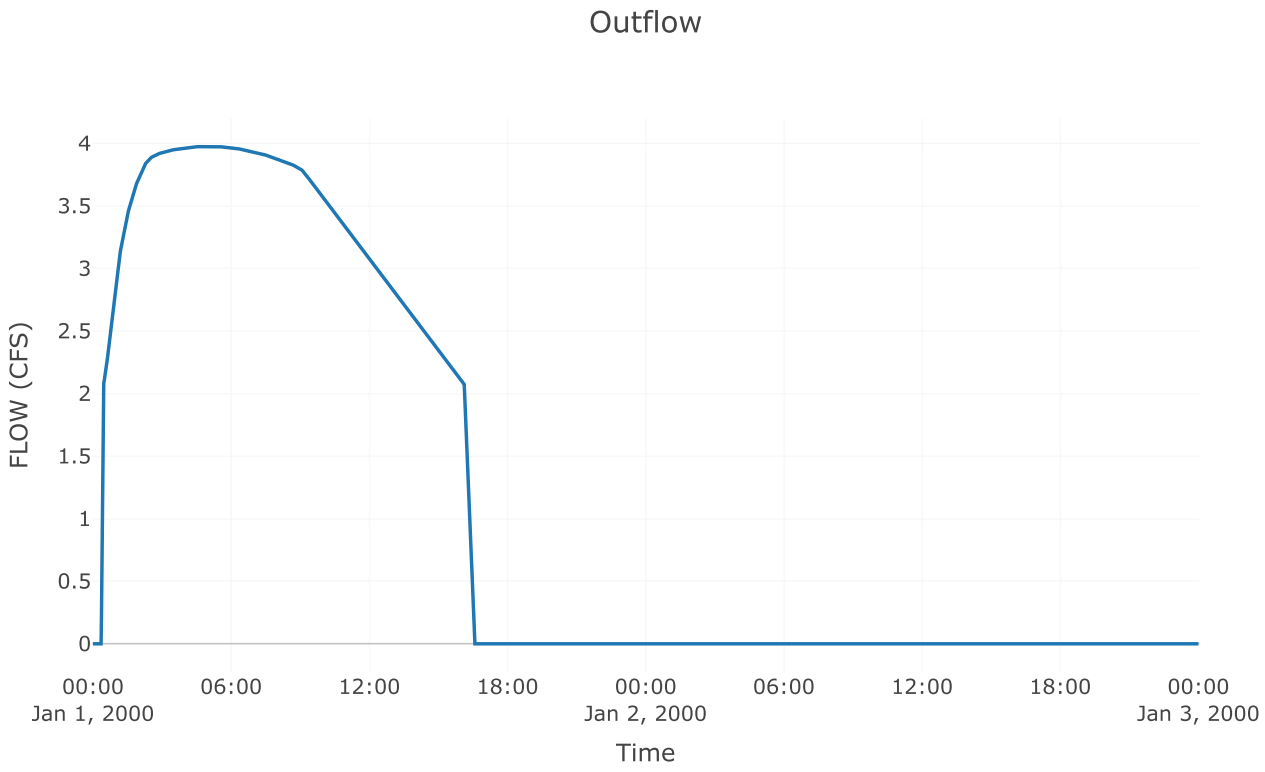

Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
4
3.5
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: On-Site Trib-Area 3

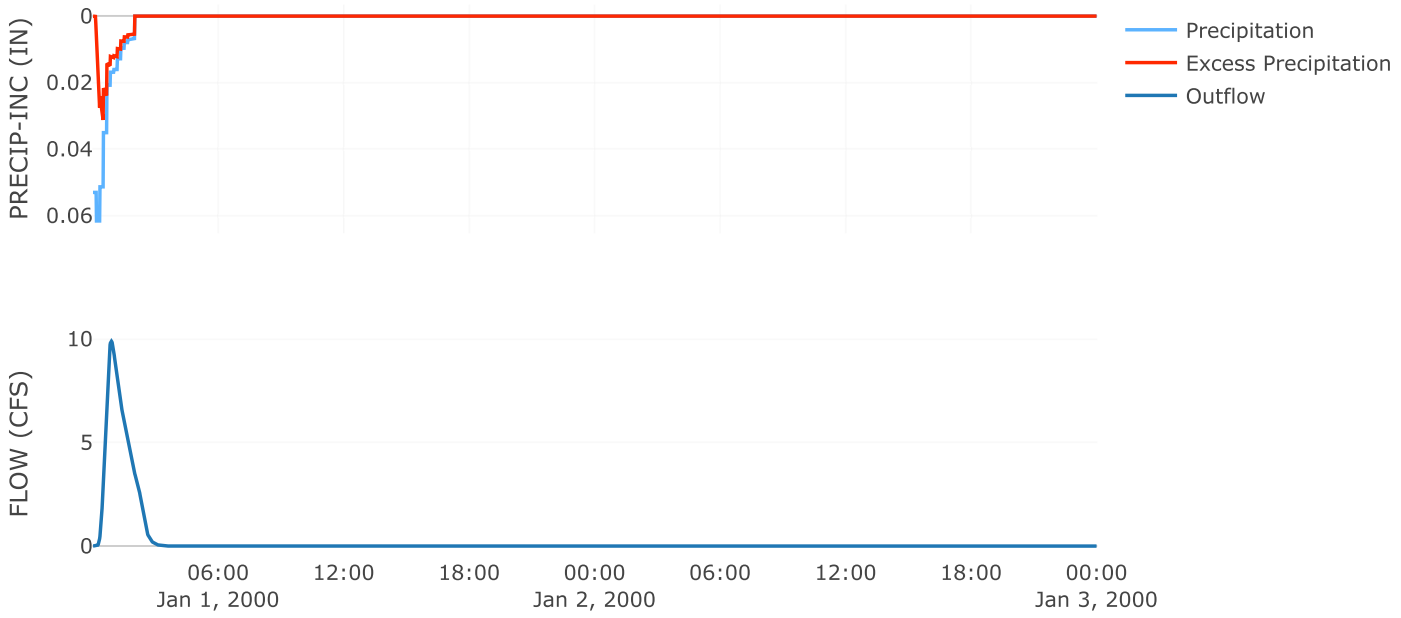
Area (MI2) : 0.01
Downstream : Basin 3

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

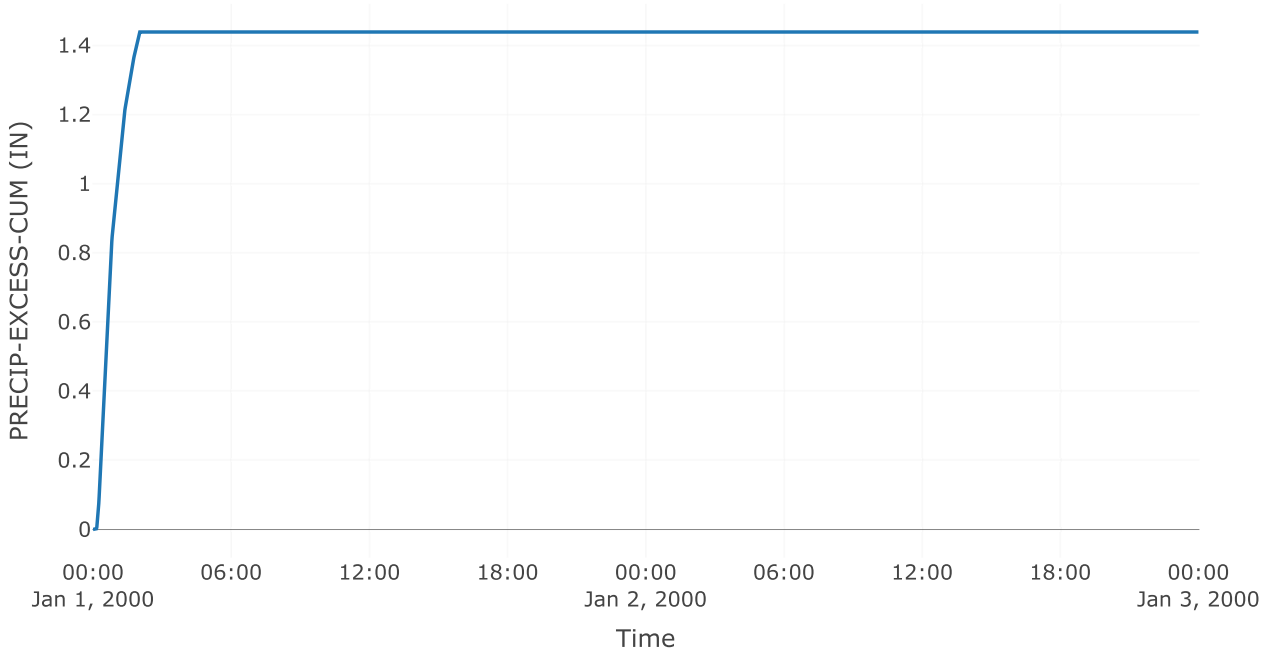
Transform: Scs	
Lag	21
Unitgraph Type	Standard

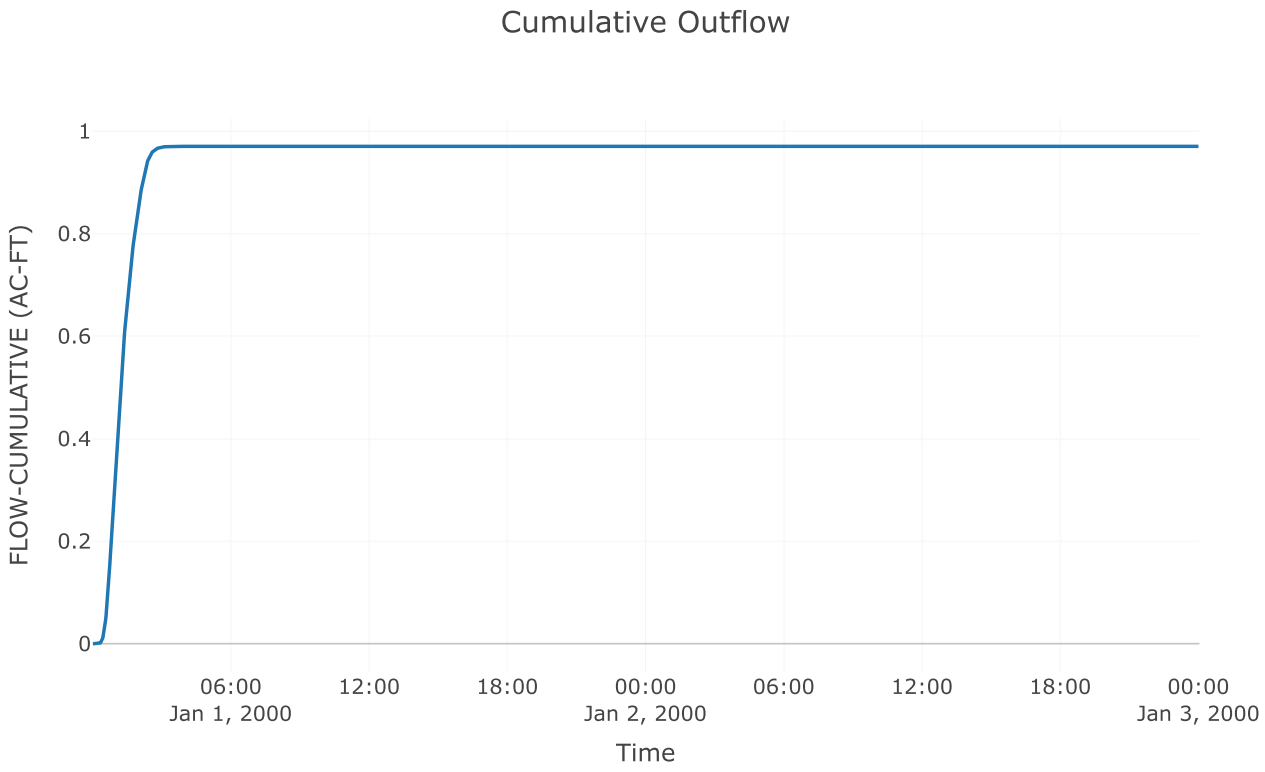
Results: On-Site Trib-Area 3	
Peak Discharge (CFS)	9.89
Time of Peak Discharge	01Jan2000, 00:52
Volume (IN)	1.44
Precipitation Volume (AC - FT)	2.02
Loss Volume (AC - FT)	1.05
Excess Volume (AC - FT)	0.97
Direct Runoff Volume (AC - FT)	0.97
Baseflow Volume (AC - FT)	0

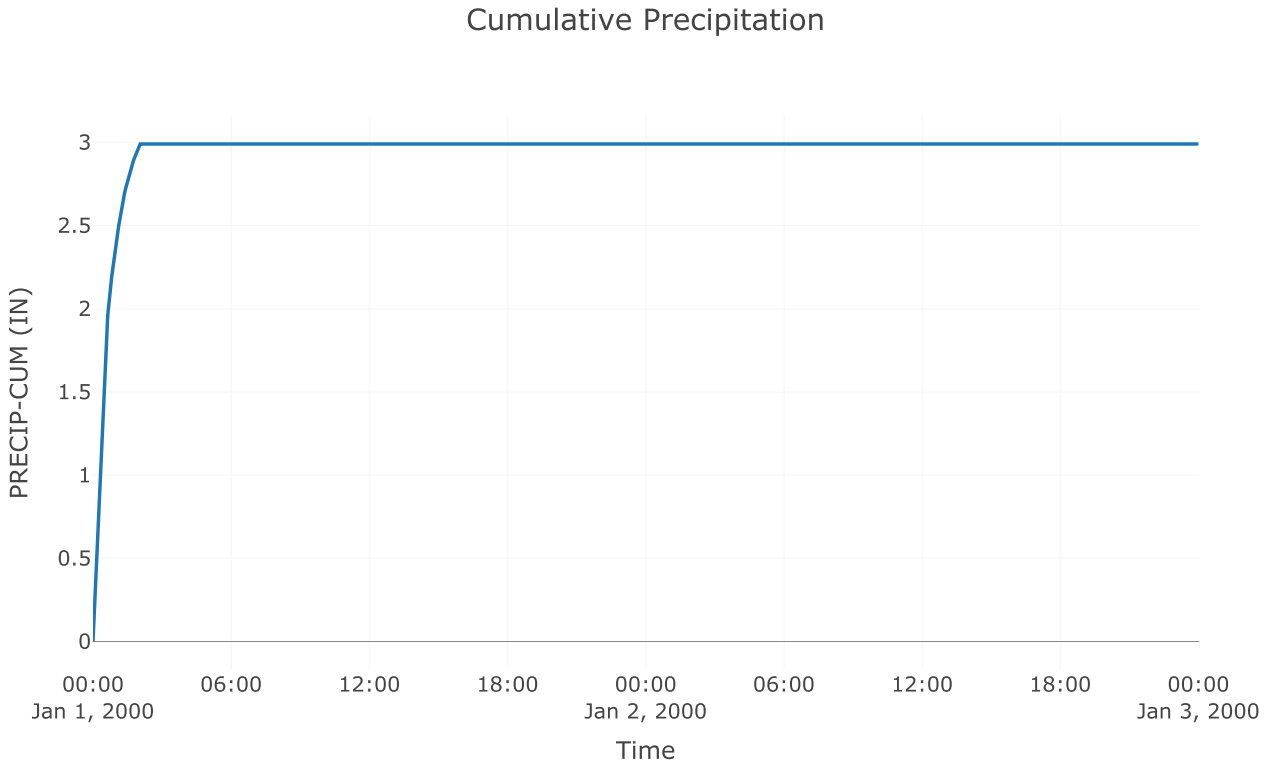
Precipitation and Outflow

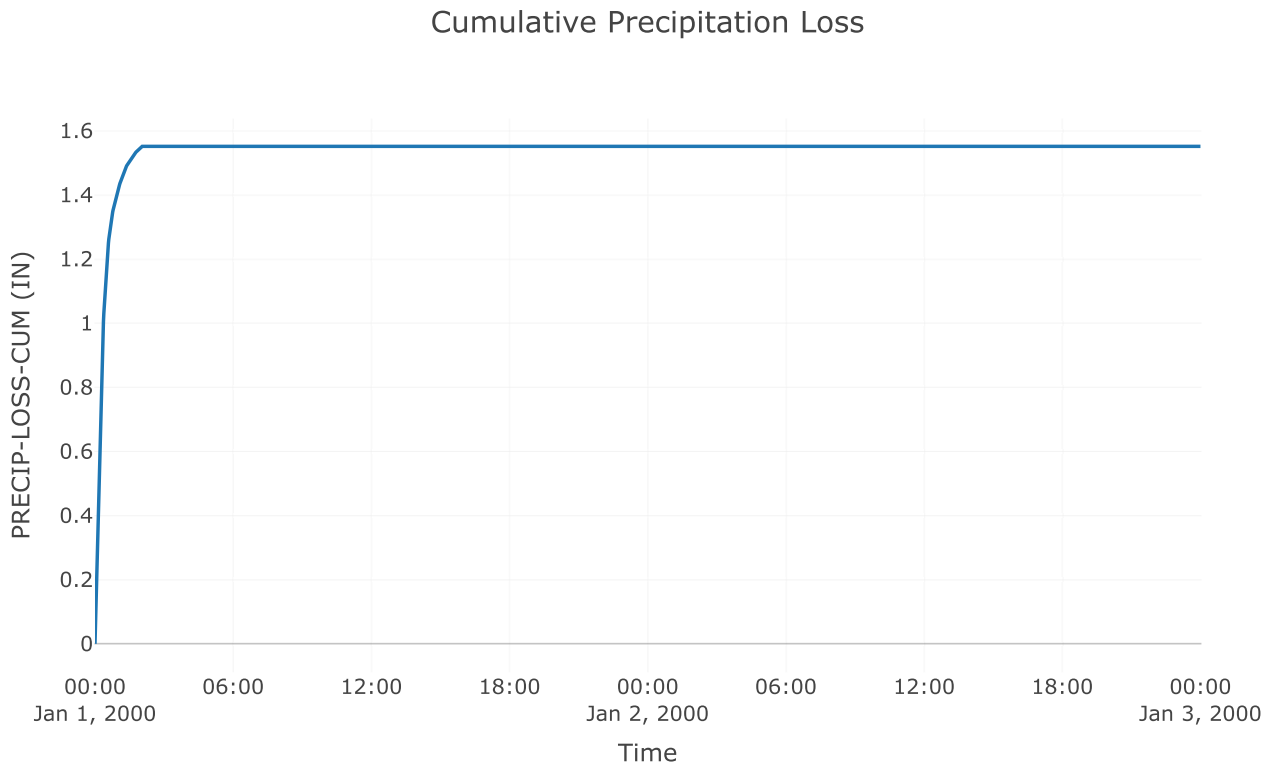


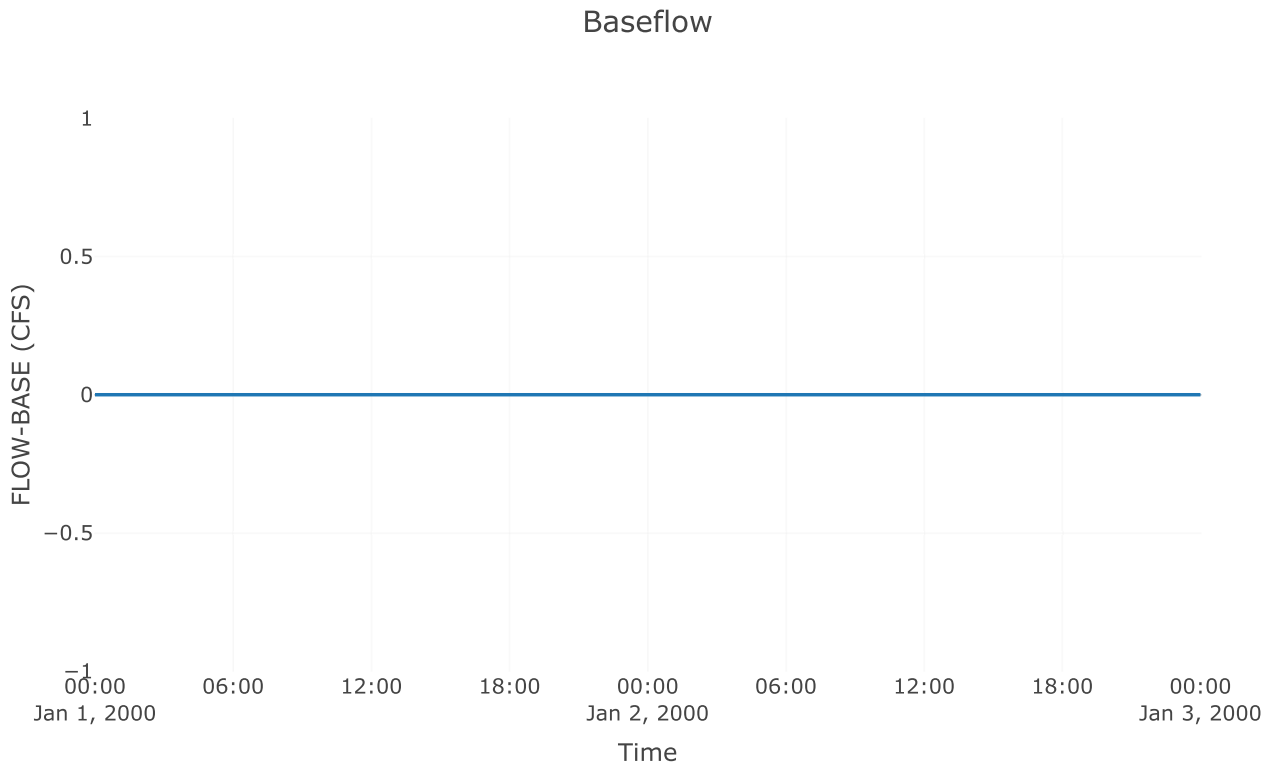
Cumulative Excess Precipitation



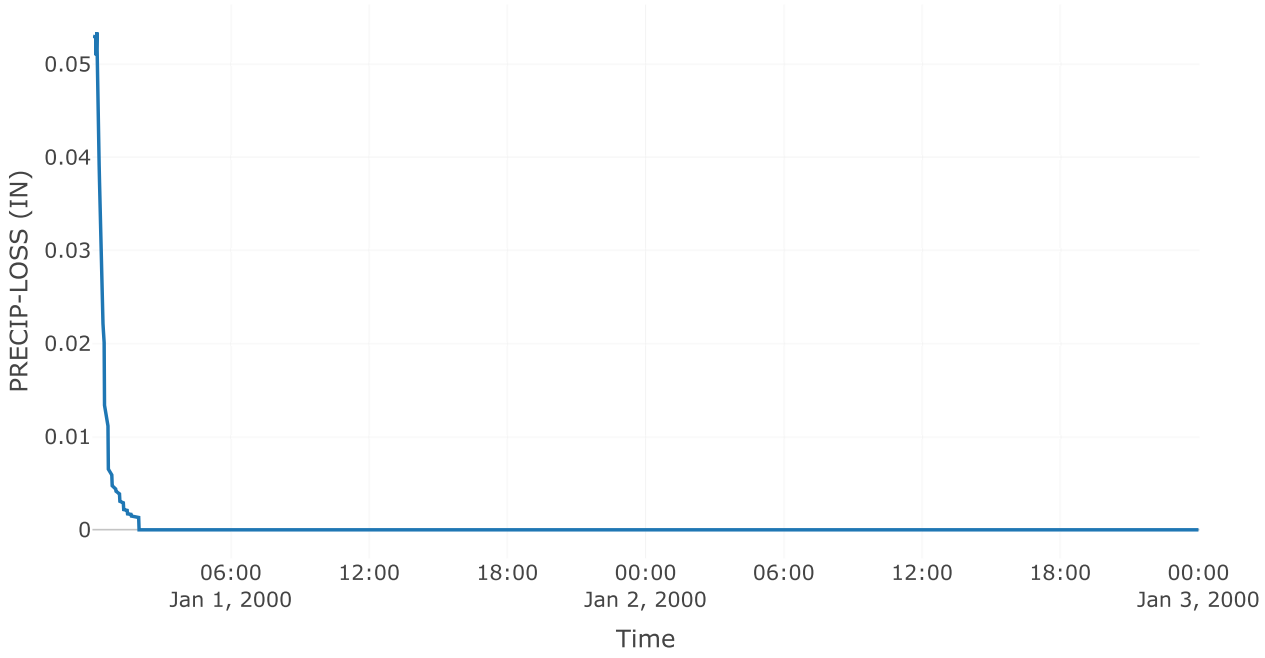

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
1
0.8
0.6
0.4
0.2
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Precipitation
PRECIP-CUM (IN)
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

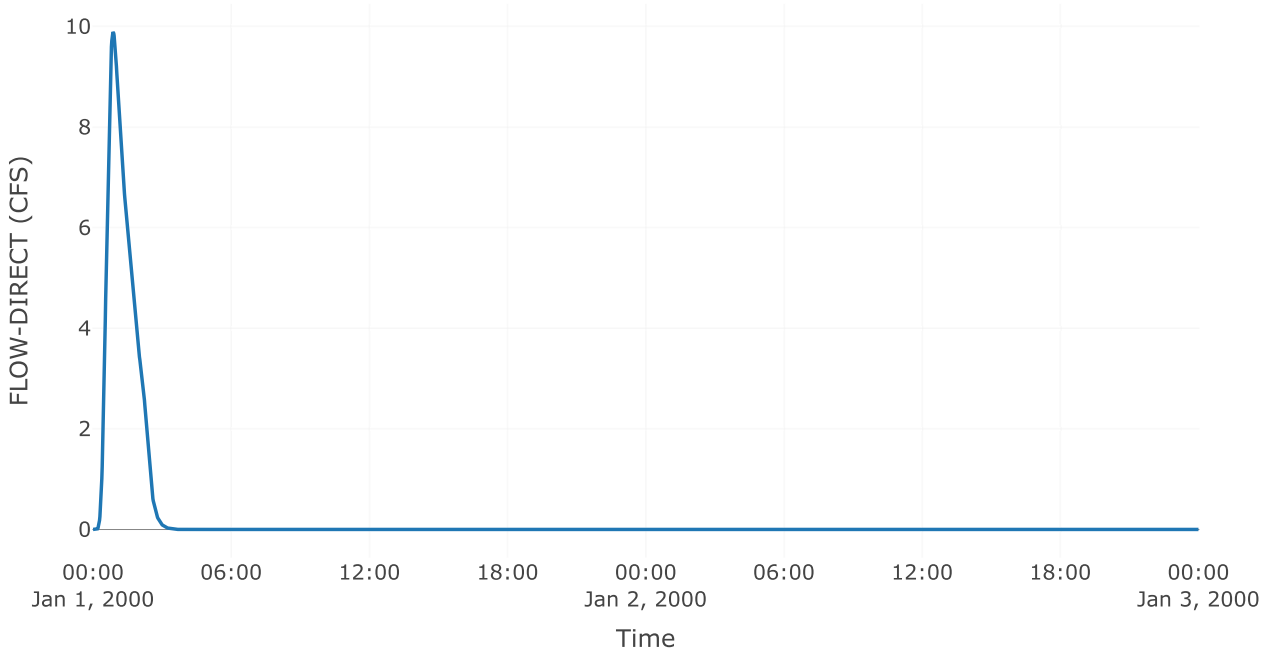

Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

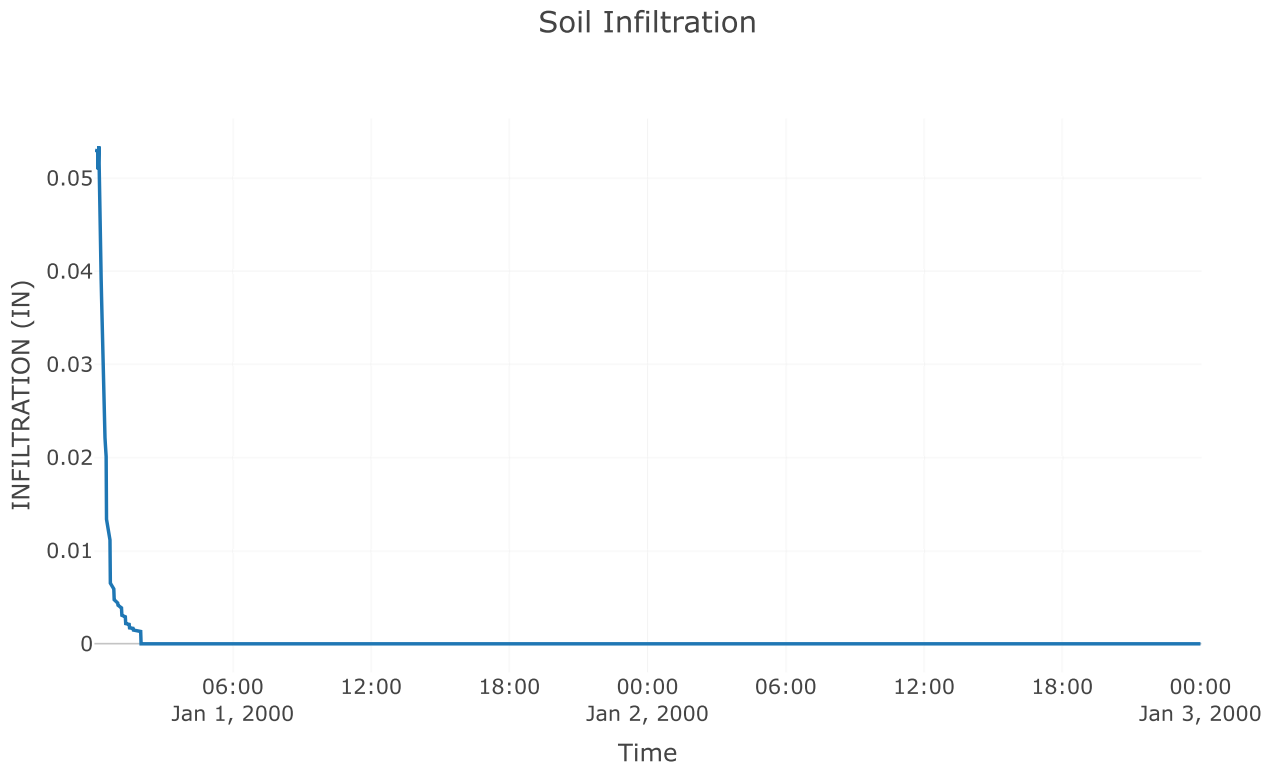

Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: LaGrange Highlands Off-Site

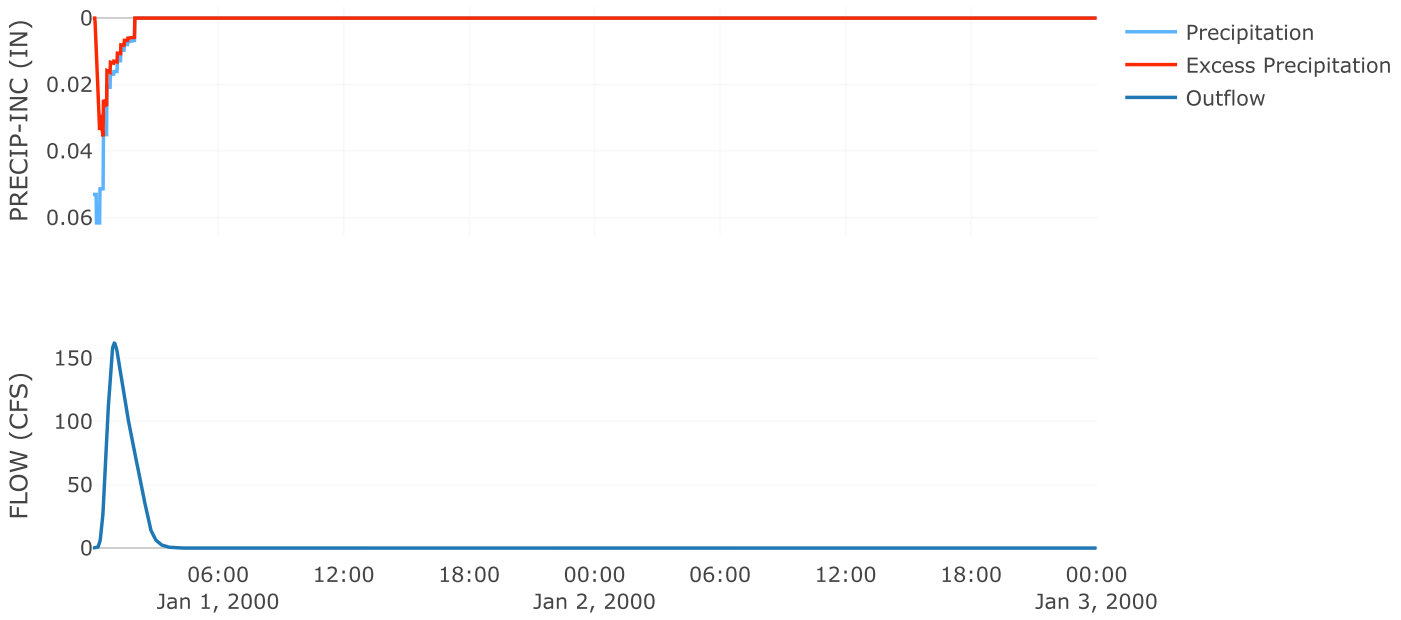
Area (MI2) : 0.2
Downstream : Off - Site Tributary Area

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	86

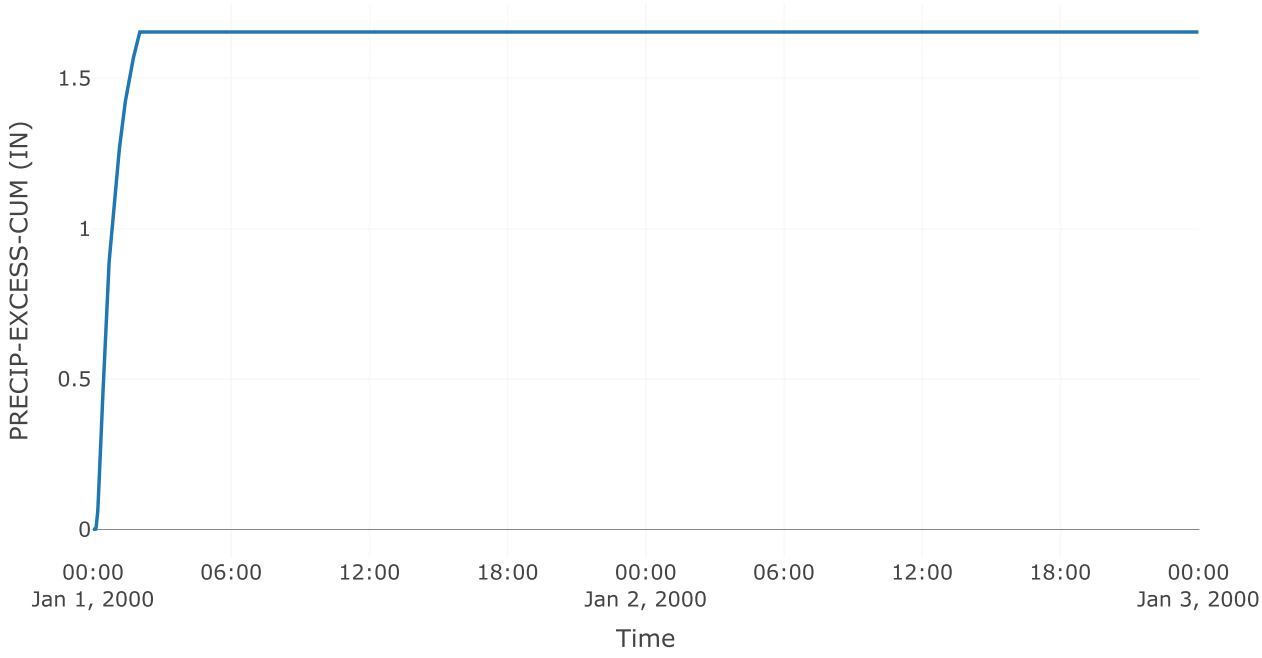
Transform: Scs	
Lag	29.2
Unitgraph Type	Standard

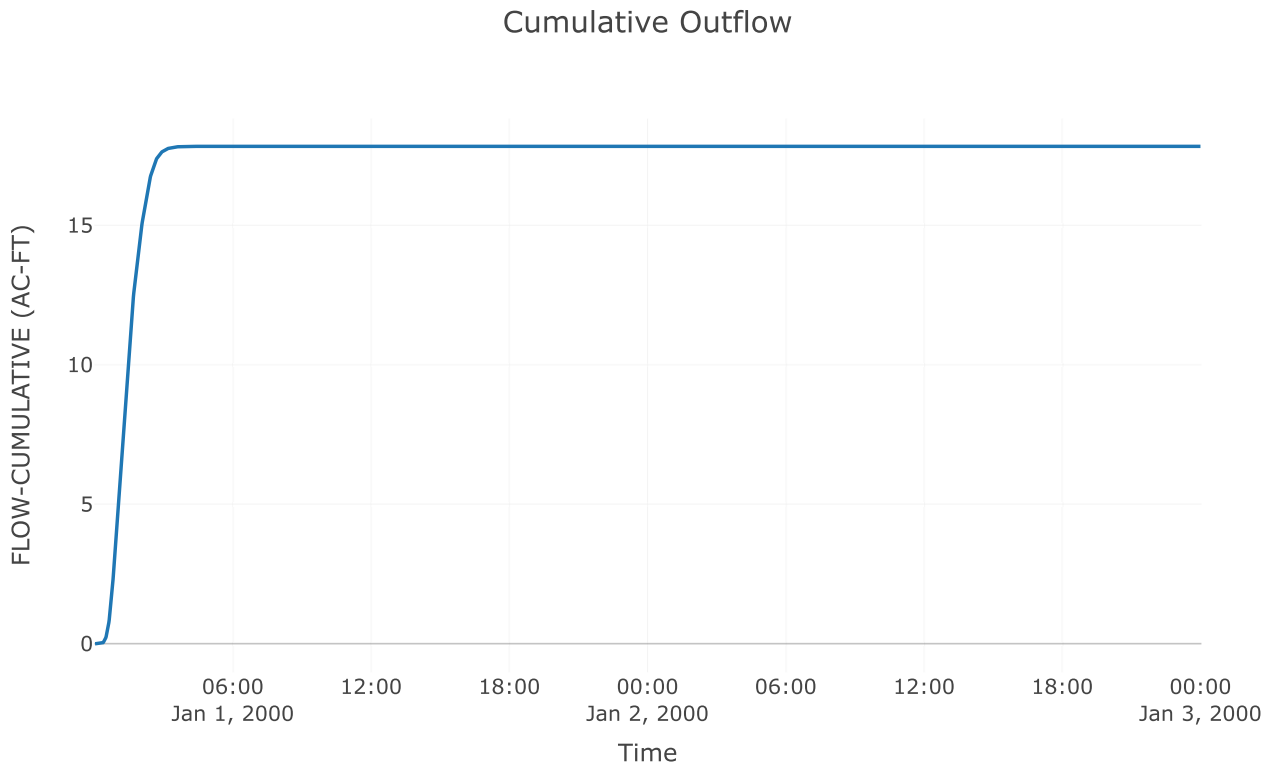
Results: LaGrange Highlands Off-Site	
Peak Discharge (CFS)	161.81
Time of Peak Discharge	01Jan2000, 01:01
Volume (IN)	1.65
Precipitation Volume (AC - FT)	32.24
Loss Volume (AC - FT)	14.4
Excess Volume (AC - FT)	17.83
Direct Runoff Volume (AC - FT)	17.83
Baseflow Volume (AC - FT)	0

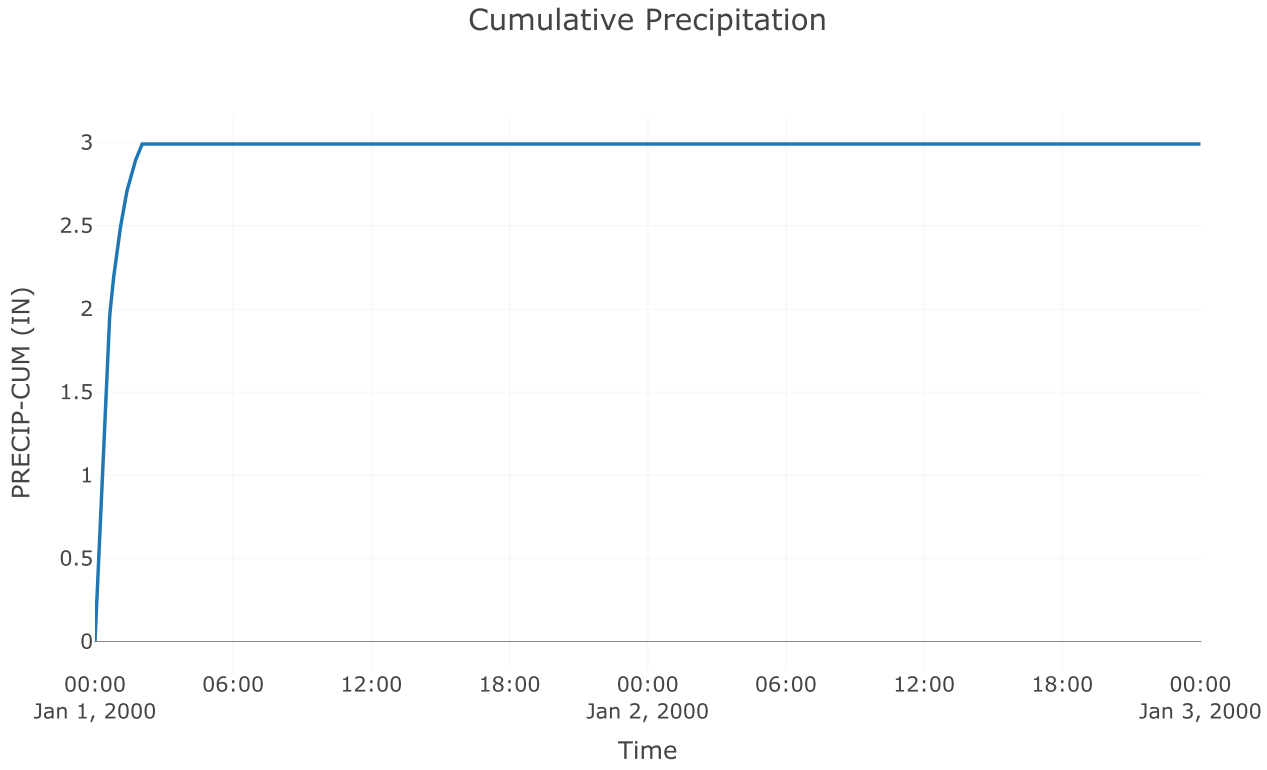
Precipitation and Outflow

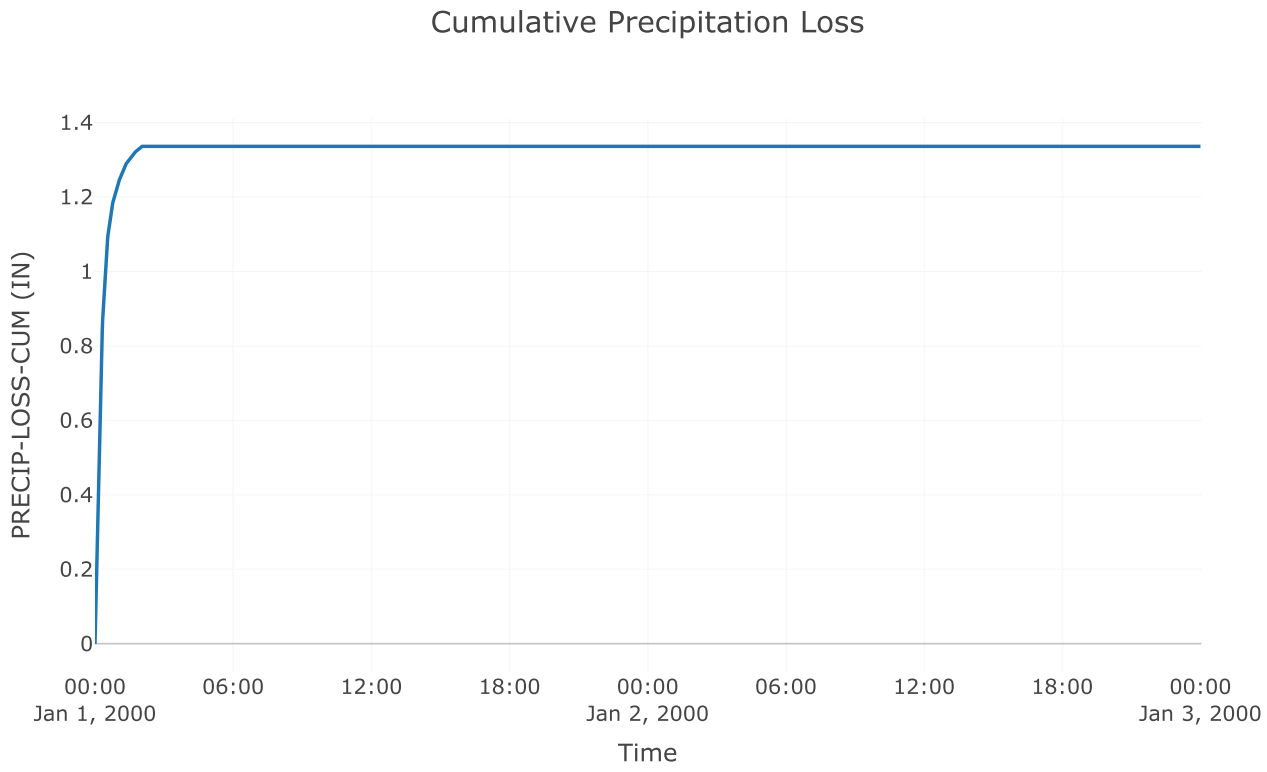


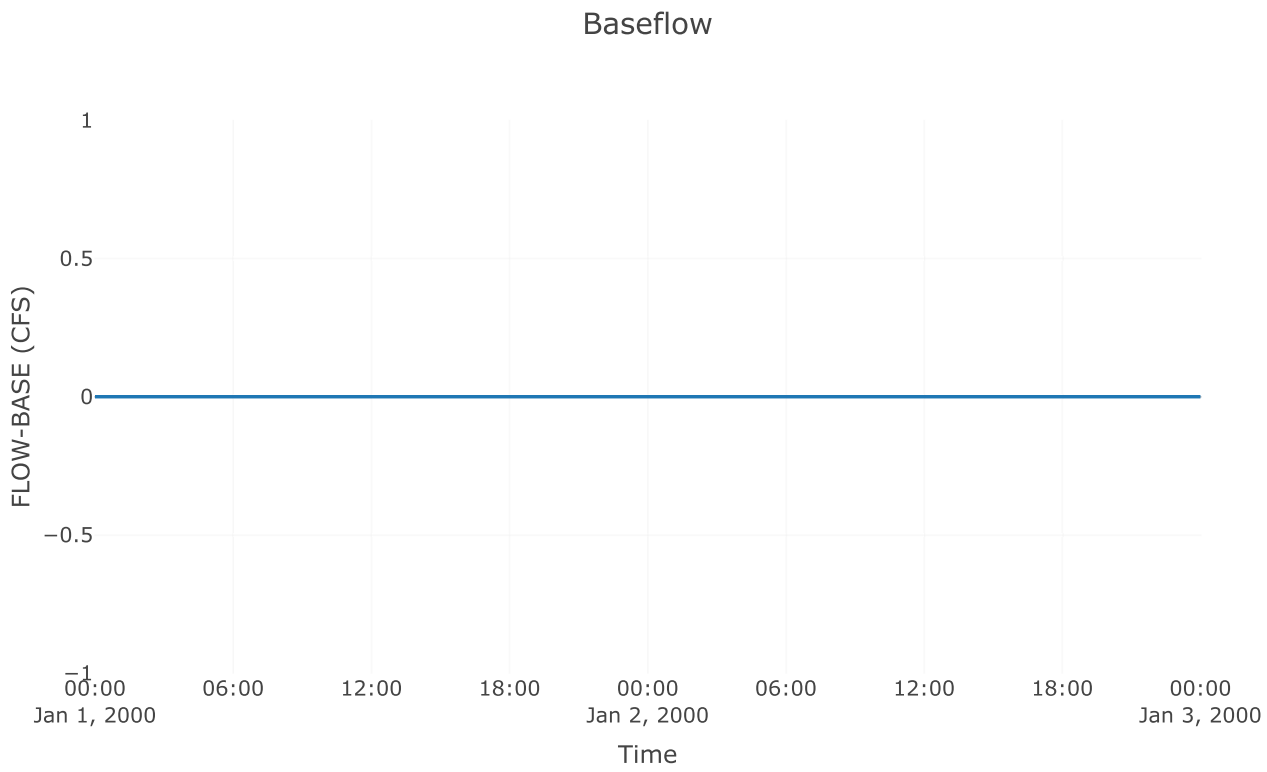
Cumulative Excess Precipitation

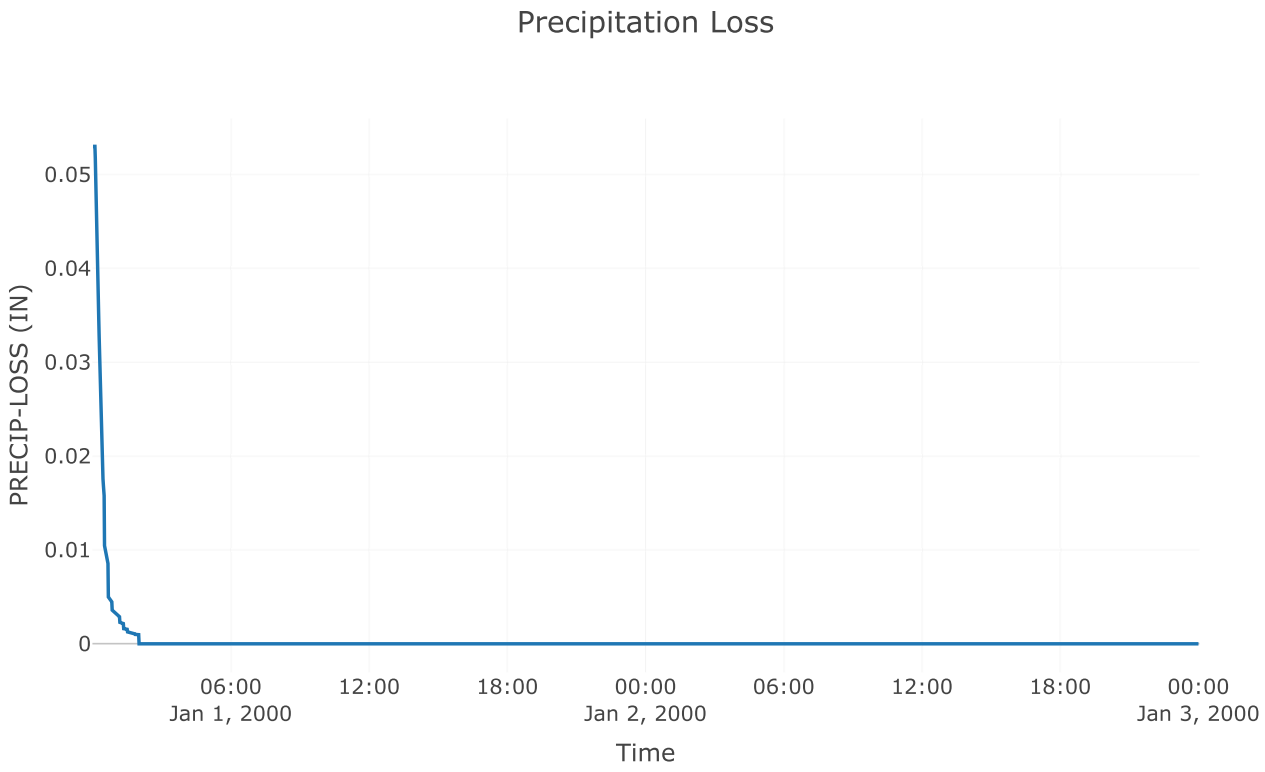


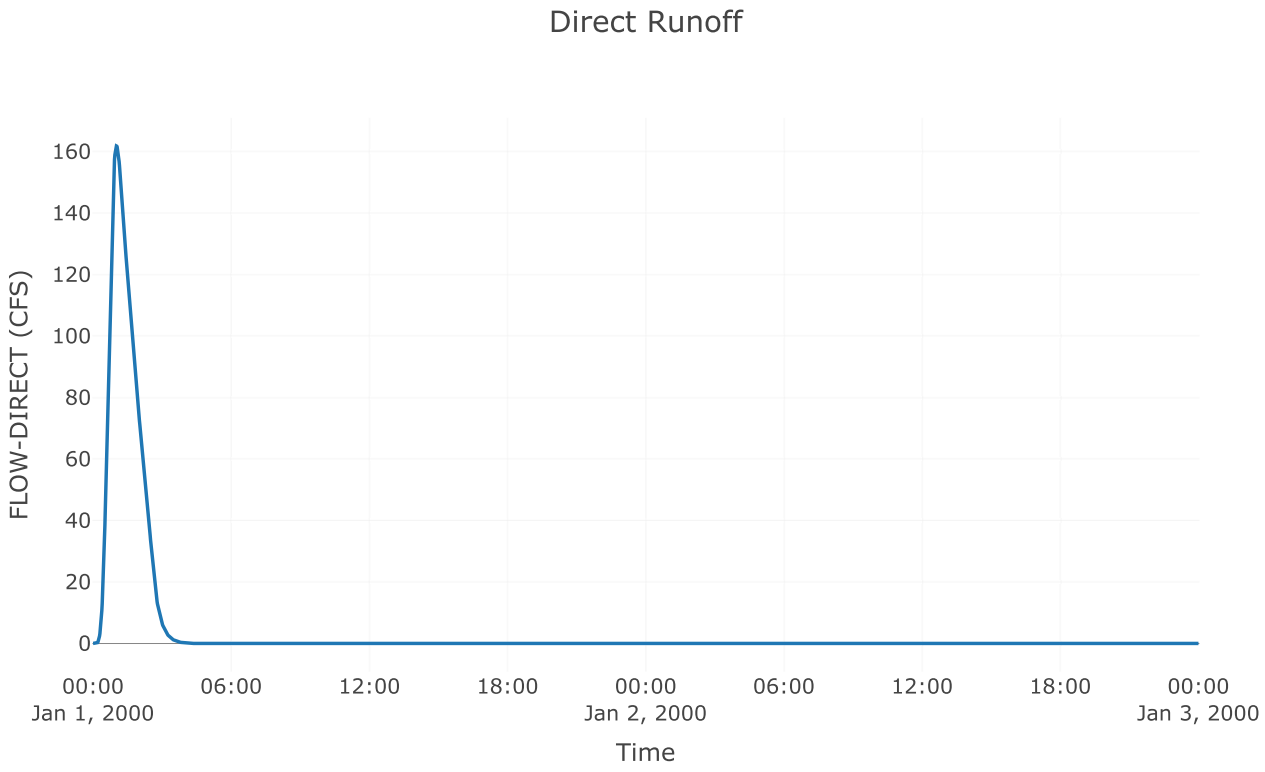

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
15
10
5
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

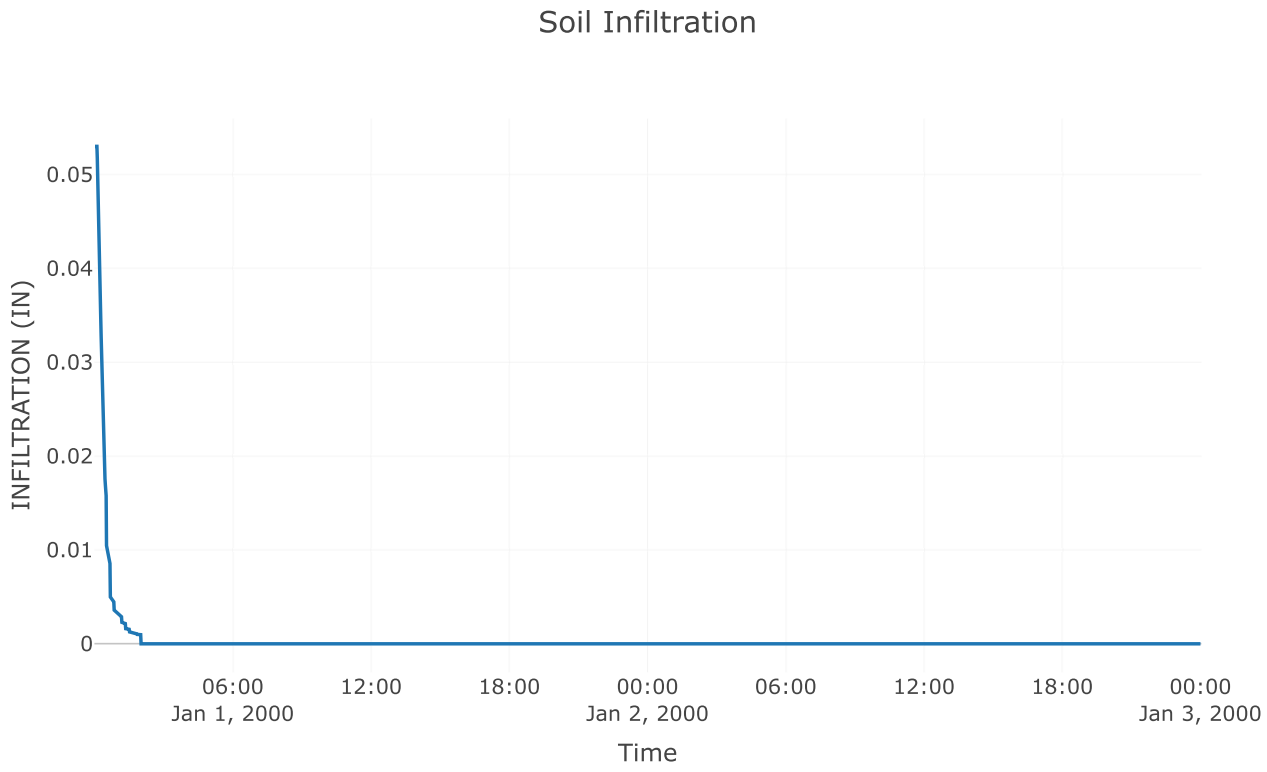

Cumulative Precipitation
PRECIP-CUM (IN)
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
160
140
120
100
80
60
40
20
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

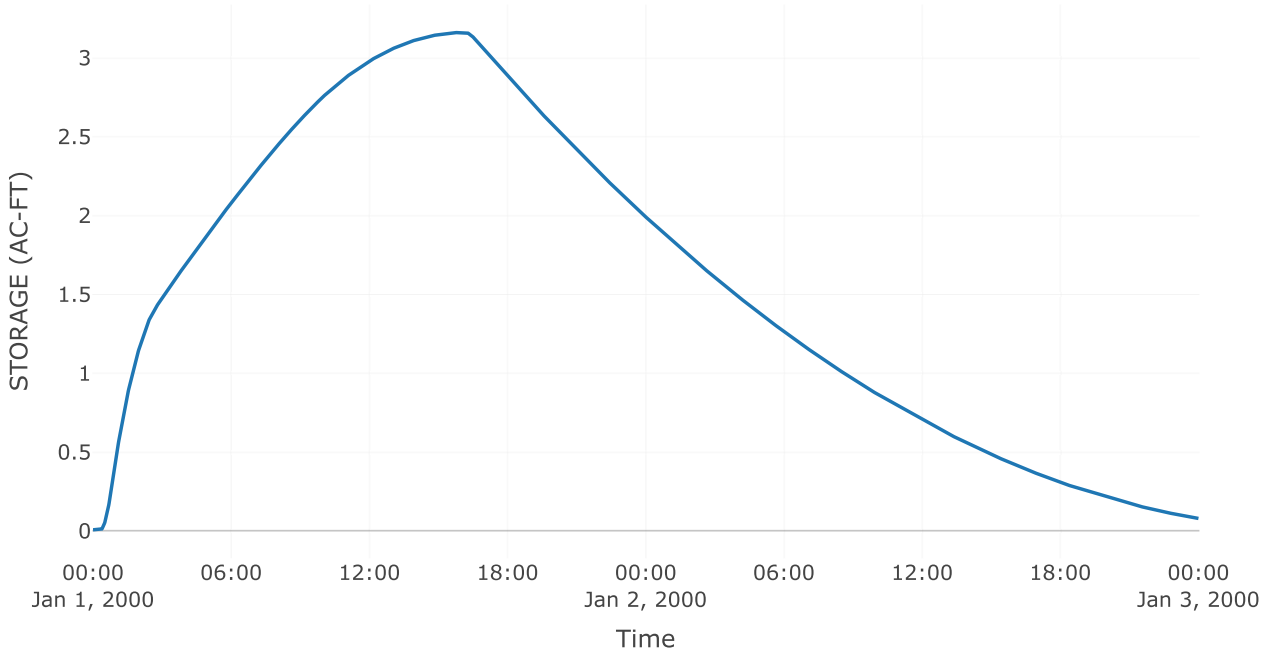

Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 3

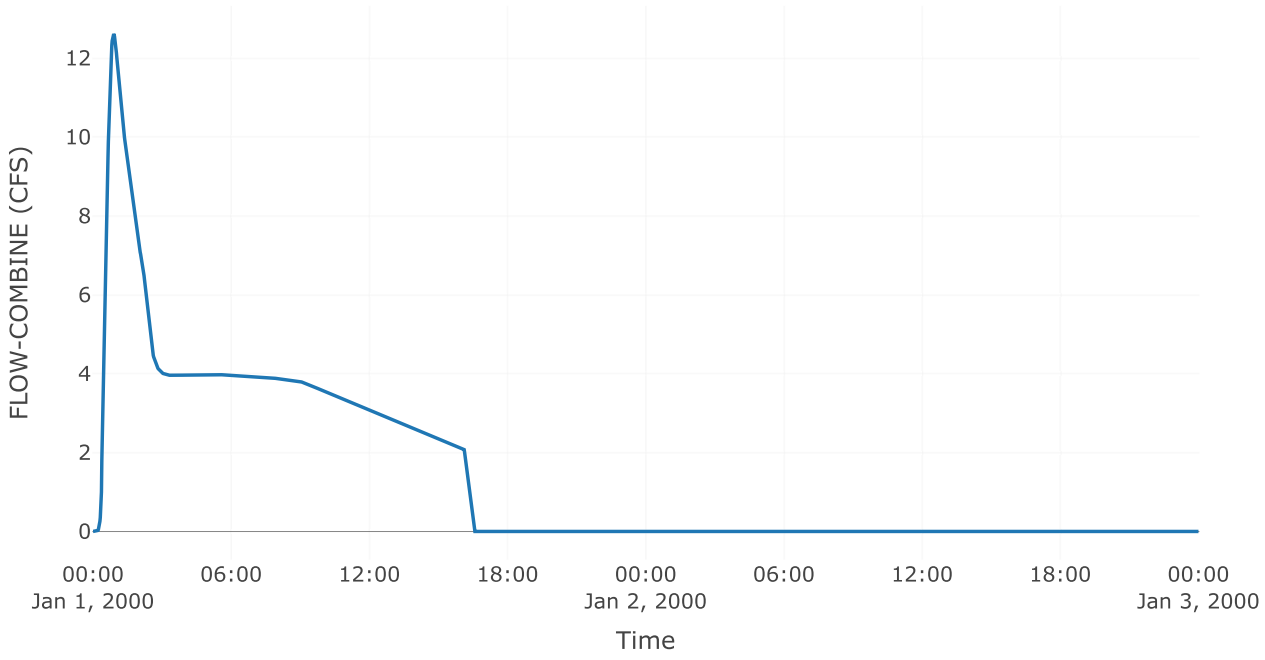
Downstream : Off - Site Tributary Area

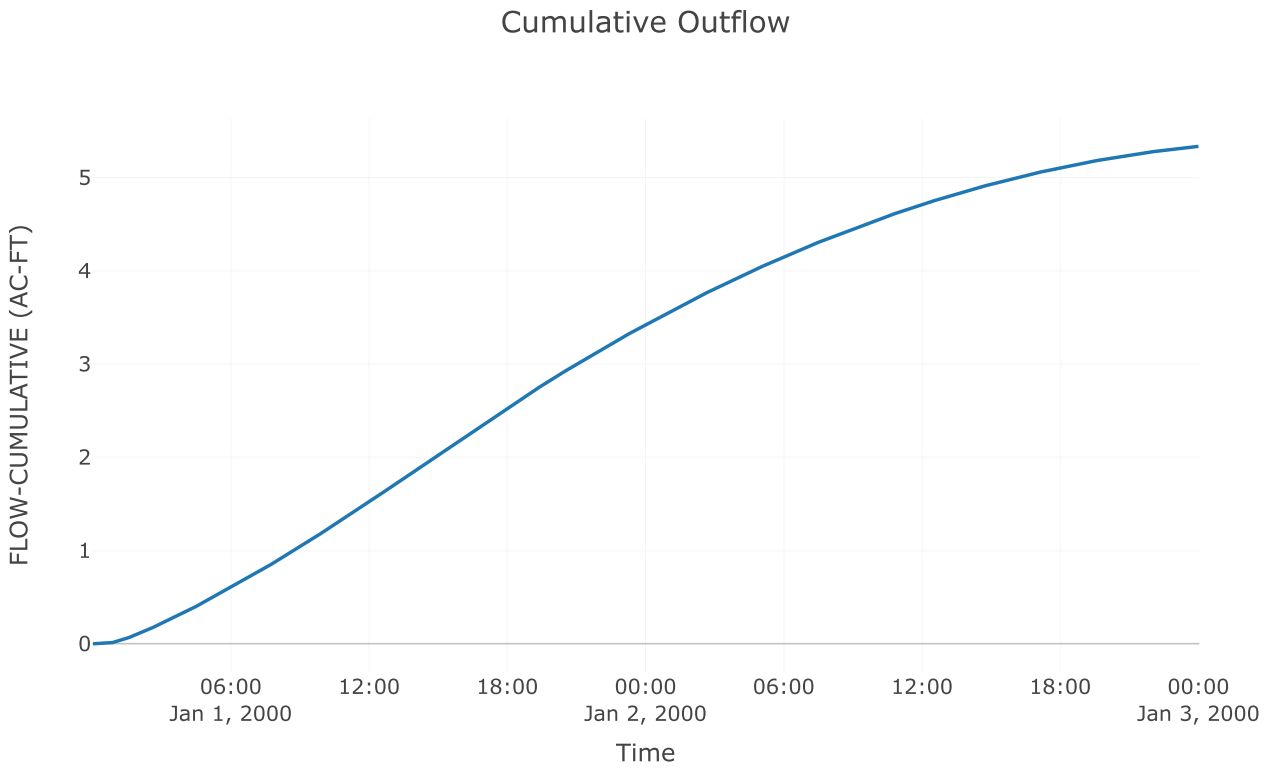
Results: Basin 3	
Peak Discharge (CFS)	2.06
Time of Peak Discharge	01Jan2000, 16:07
Volume (IN)	1.49
Peak Inflow (CFS)	12.61
Time of Peak Inflow	01Jan2000, 00:54
Inflow Volume (AC - FT)	5.41
Maximum Storage (AC - FT)	3.16
Peak Elevation (FT)	693.05
Discharge Volume (AC - FT)	5.33

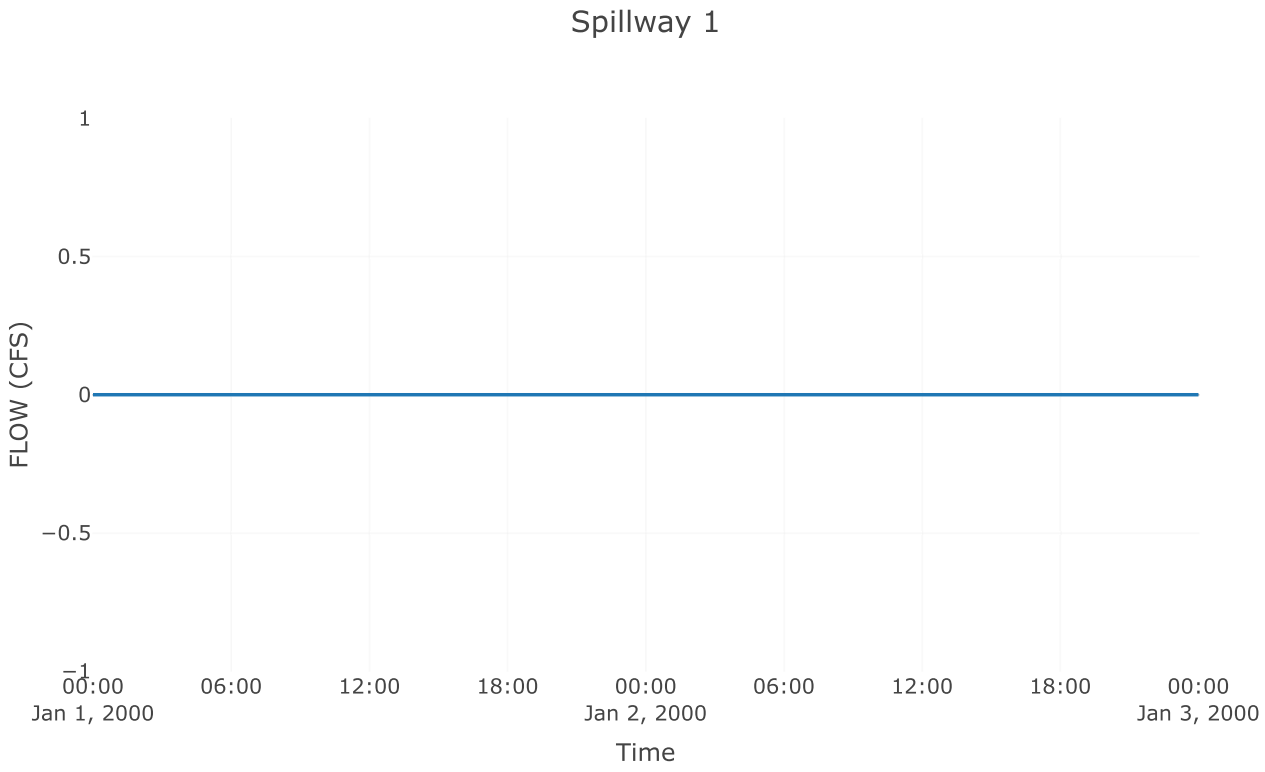
Storage

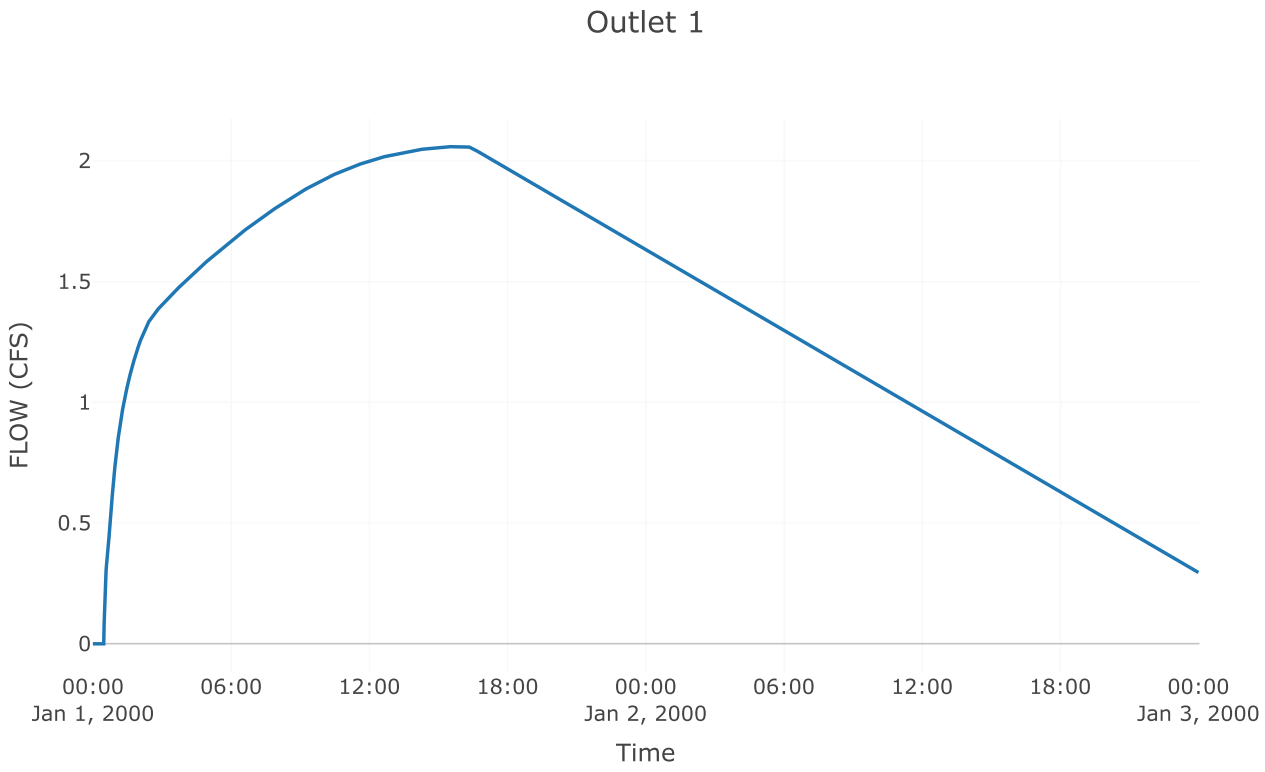


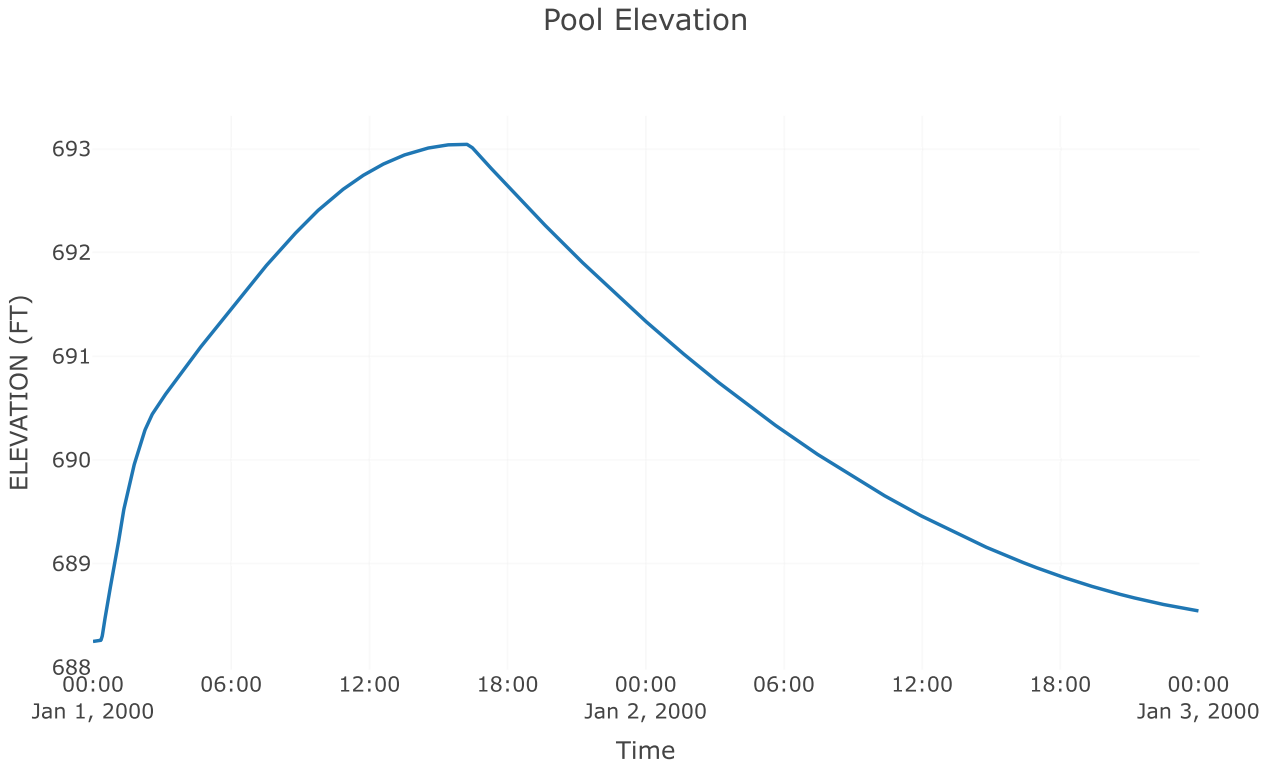
Combined Inflow

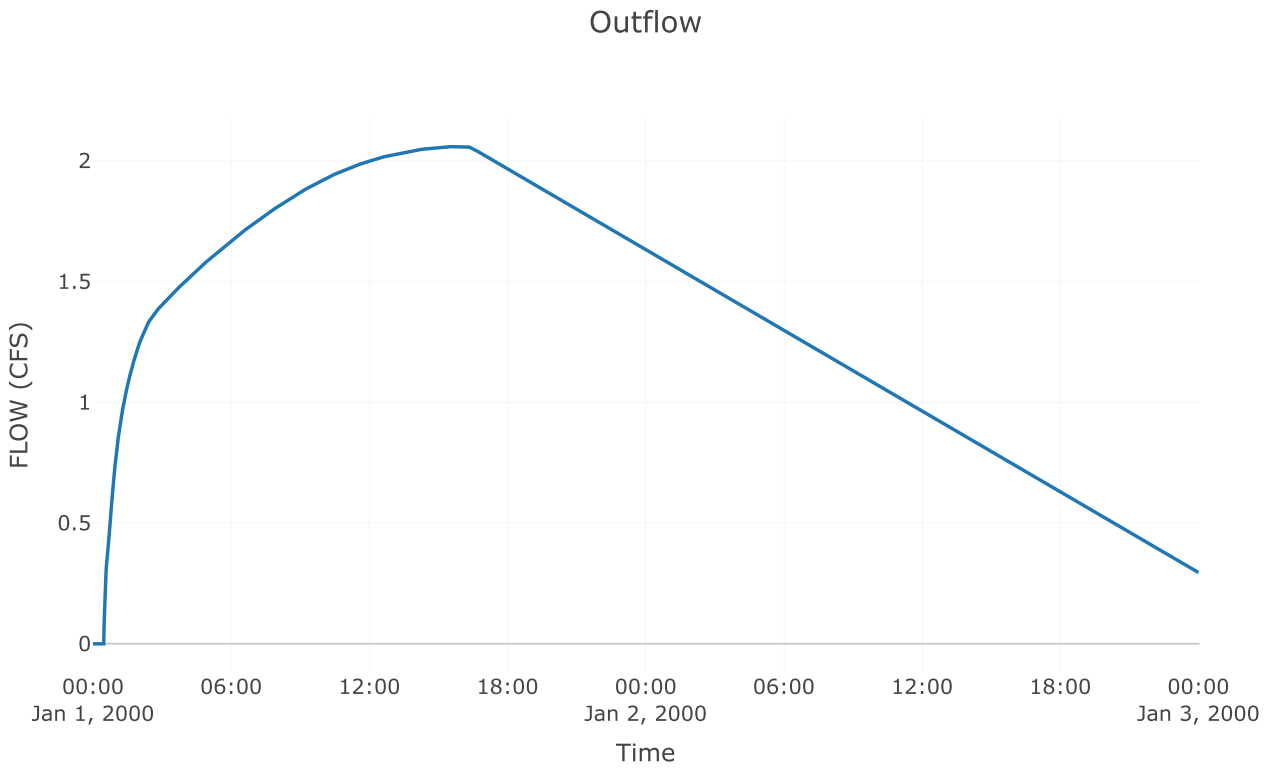



Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
5
4
3
2
1
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 1
FLOW (CFS)
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Pool Elevation
ELEVATION (FT)
693
692
691
690
689
688
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outflow
FLOW (CFS)
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

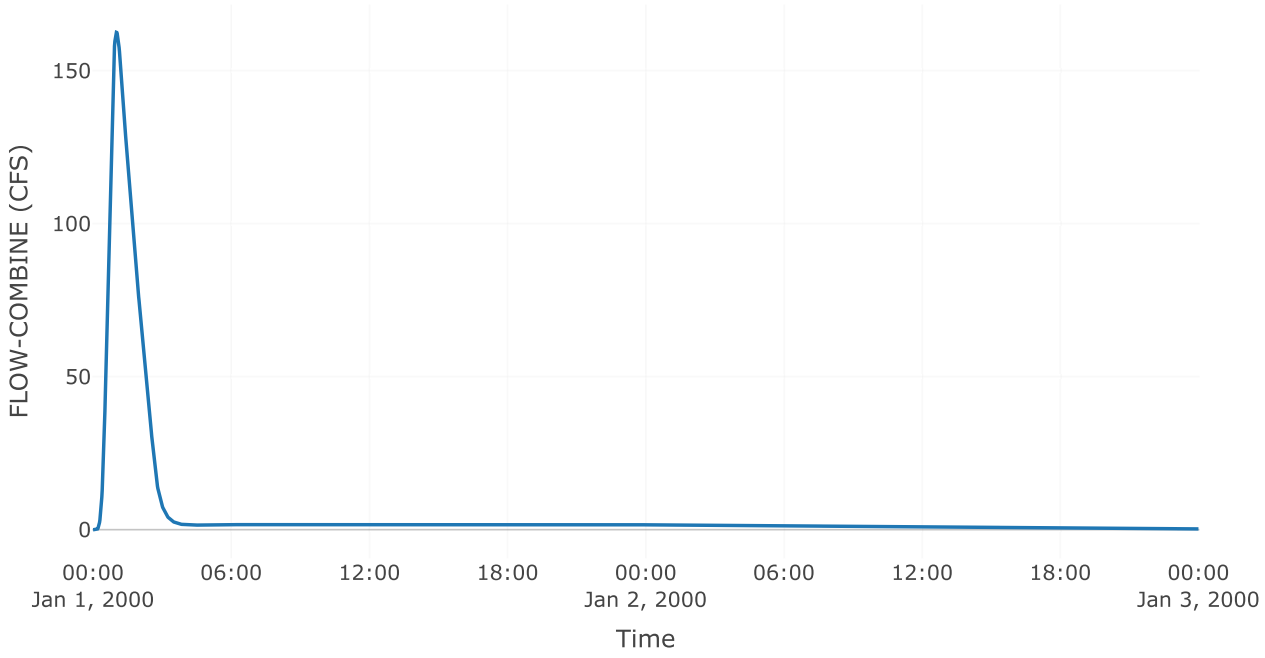
Junction: Off-Site Tributary Area

Downstream : Storage East of Wolf Road

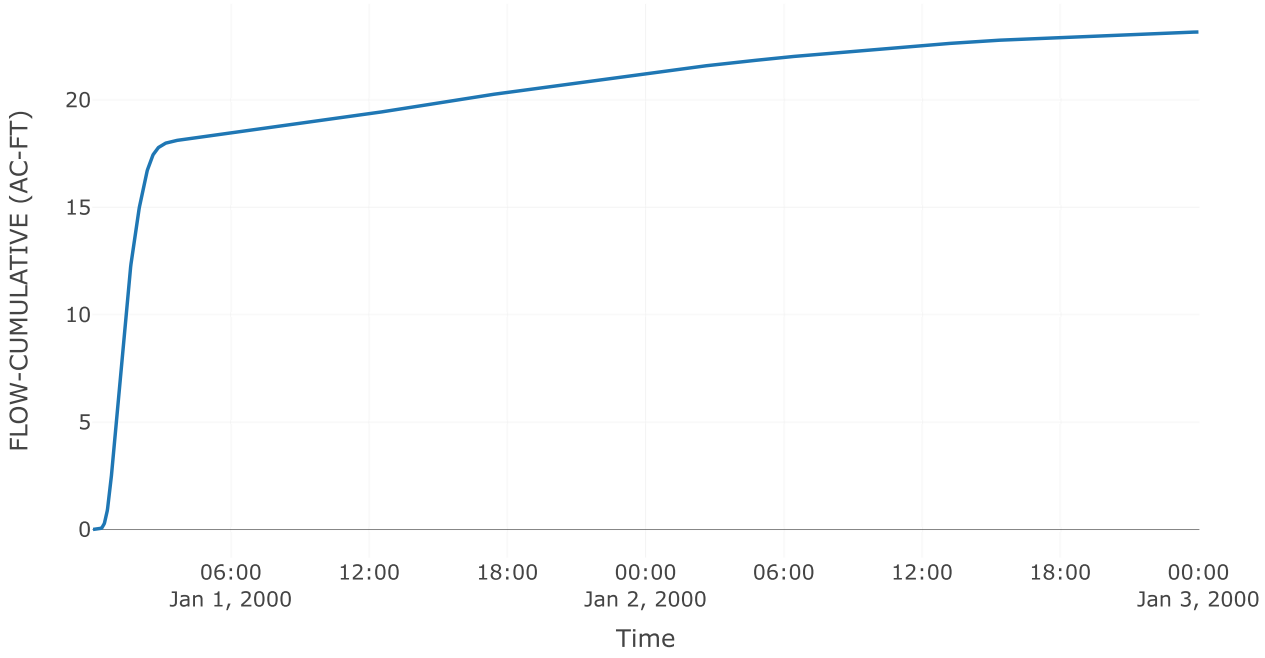
Results: Off-Site Tributary Area

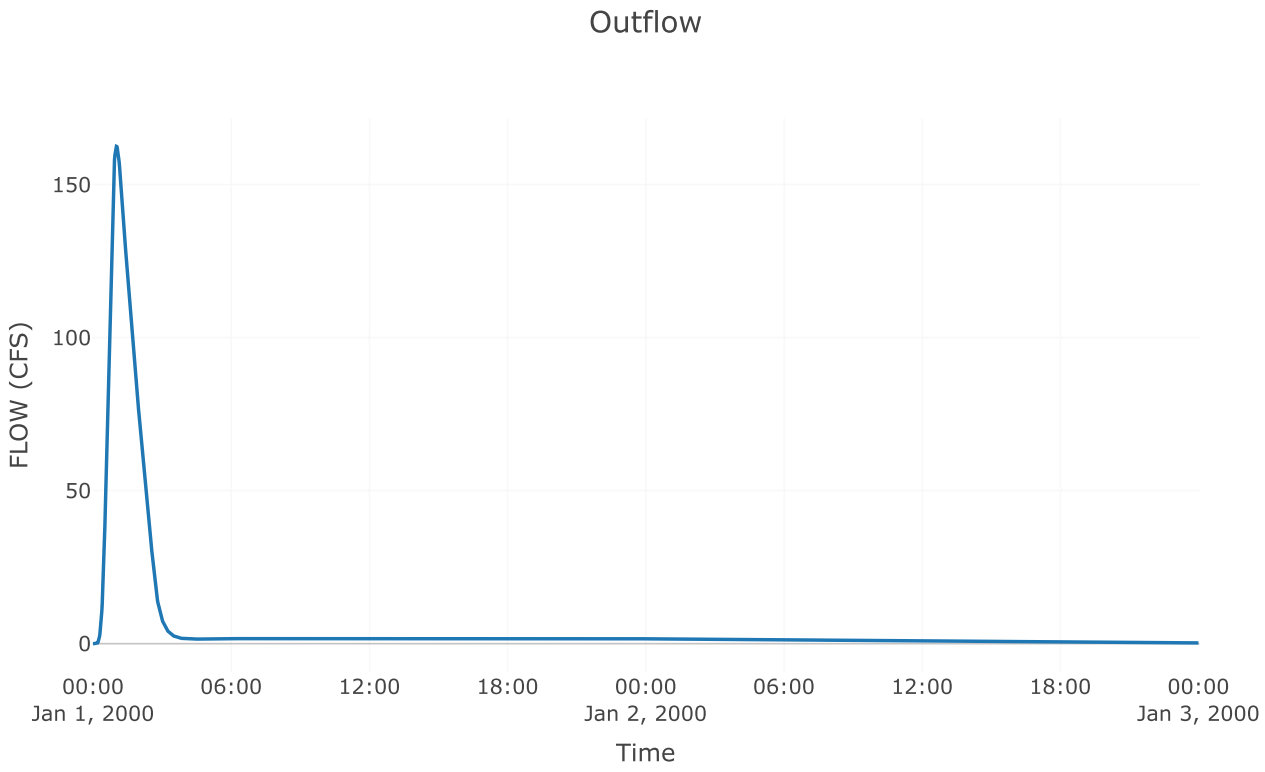
Peak Discharge (CFS)	162.6
Time of Peak Discharge	01Jan2000, 01:01
Volume (IN)	1.61

Combined Inflow



Cumulative Outflow



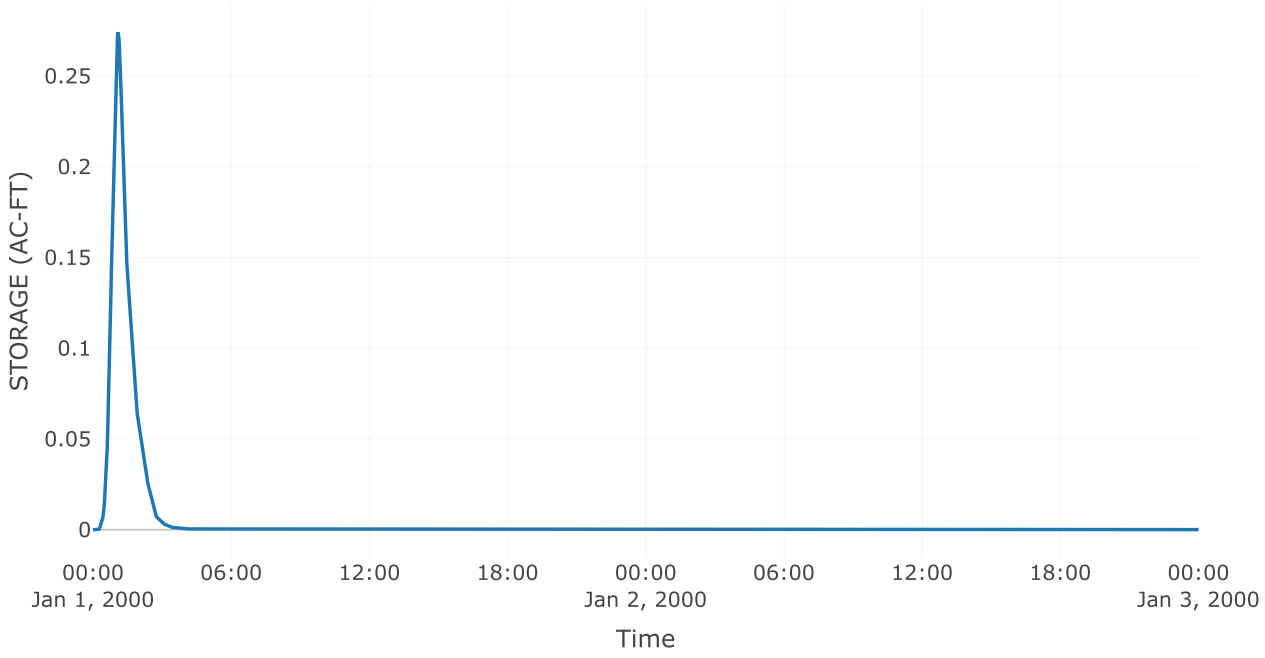

Outflow
150
100
50
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Storage East of Wolf Road

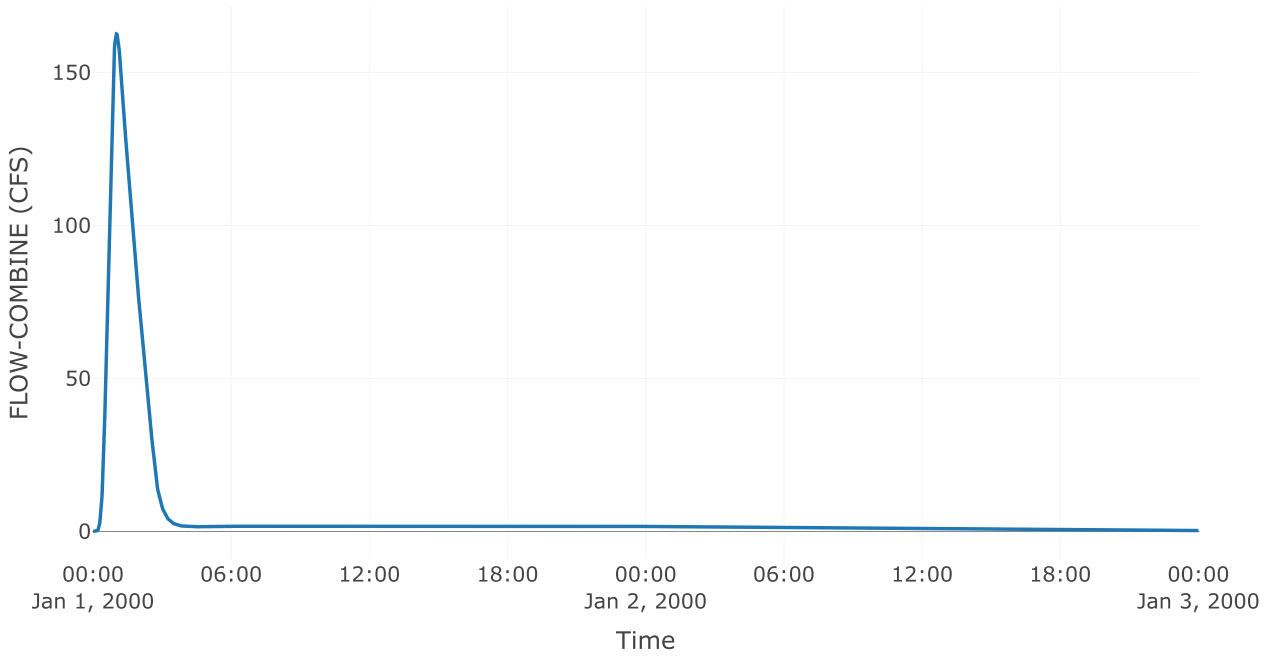
Downstream : Storage West of Wolf Road

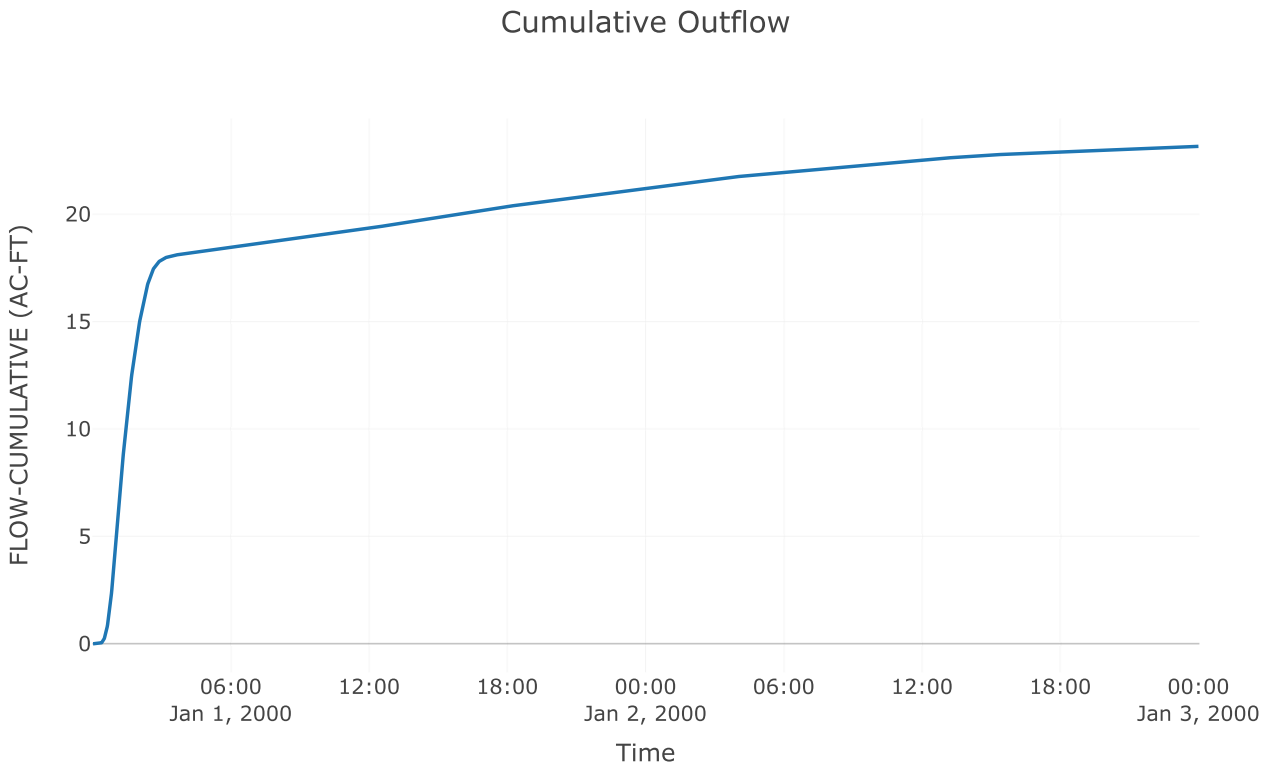
Results: Storage East of Wolf Road	
Peak Discharge (CFS)	160.88
Time of Peak Discharge	01Jan2000, 01:05
Volume (IN)	1.61
Peak Inflow (CFS)	162.6
Time of Peak Inflow	01Jan2000, 01:01
Inflow Volume (AC - FT)	23.17
Maximum Storage (AC - FT)	0.27
Peak Elevation (FT)	662.37
Discharge Volume (AC - FT)	23.16

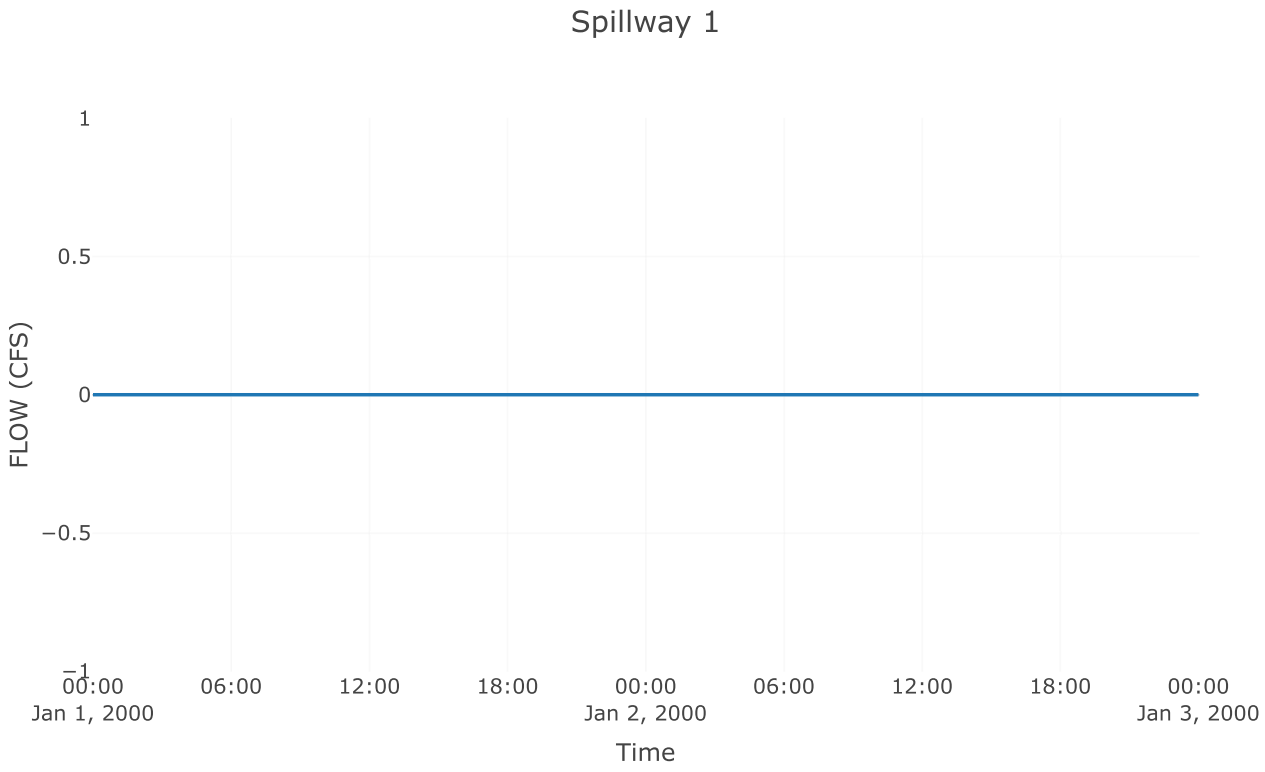
Storage



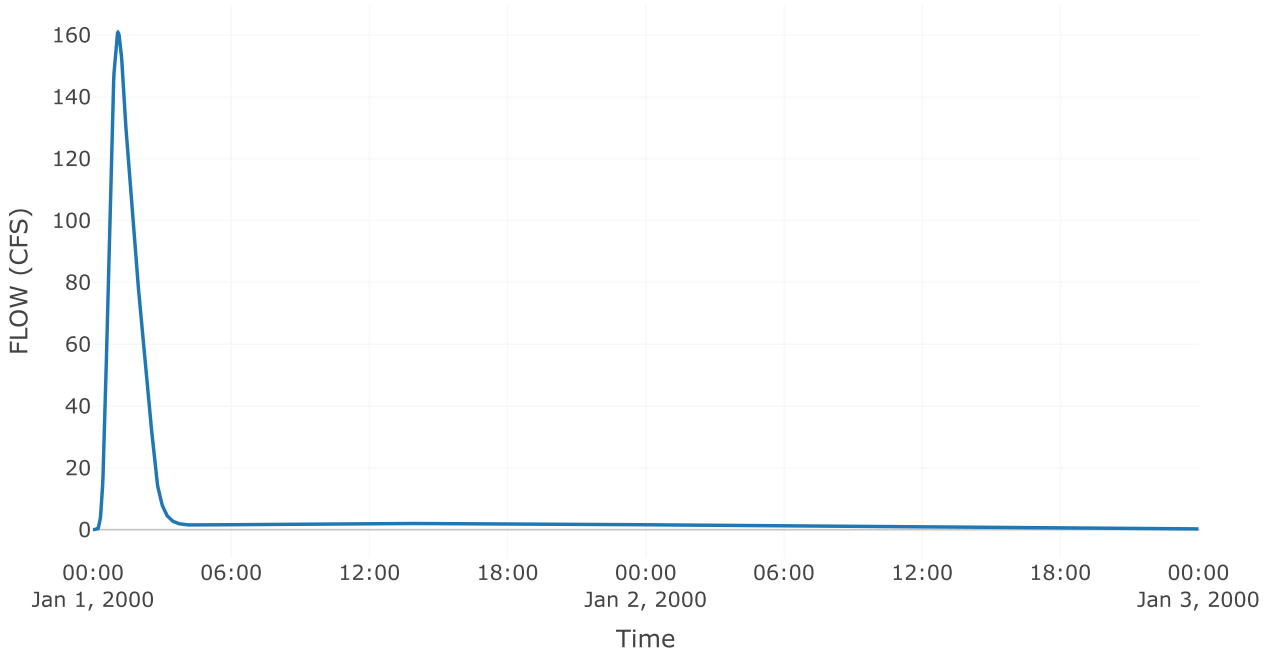
Combined Inflow



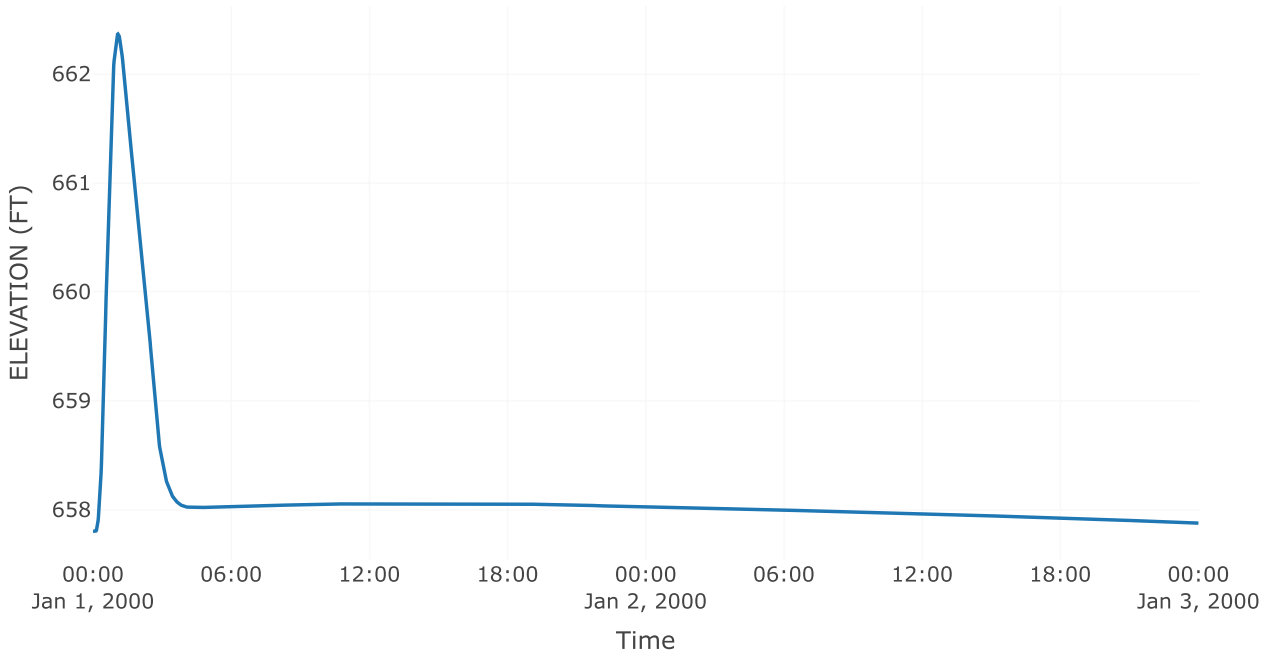

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
20
15
10
5
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

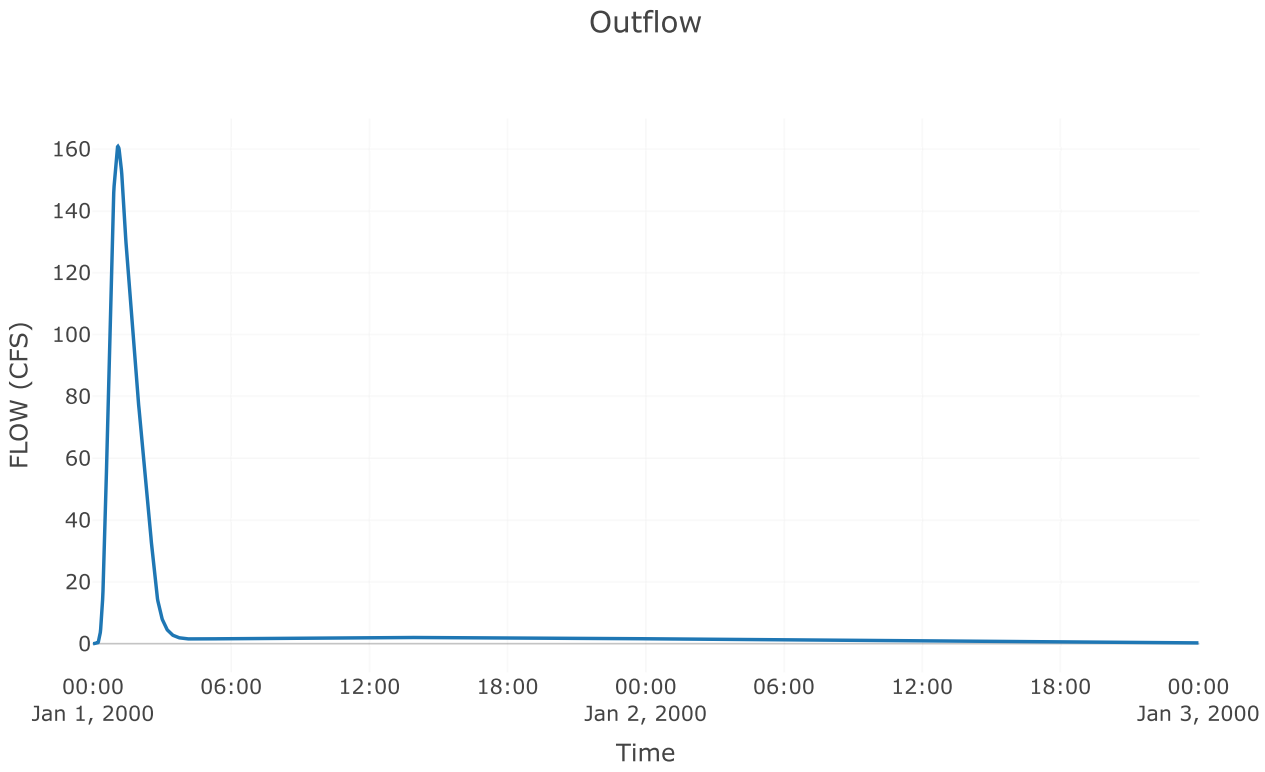

Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation



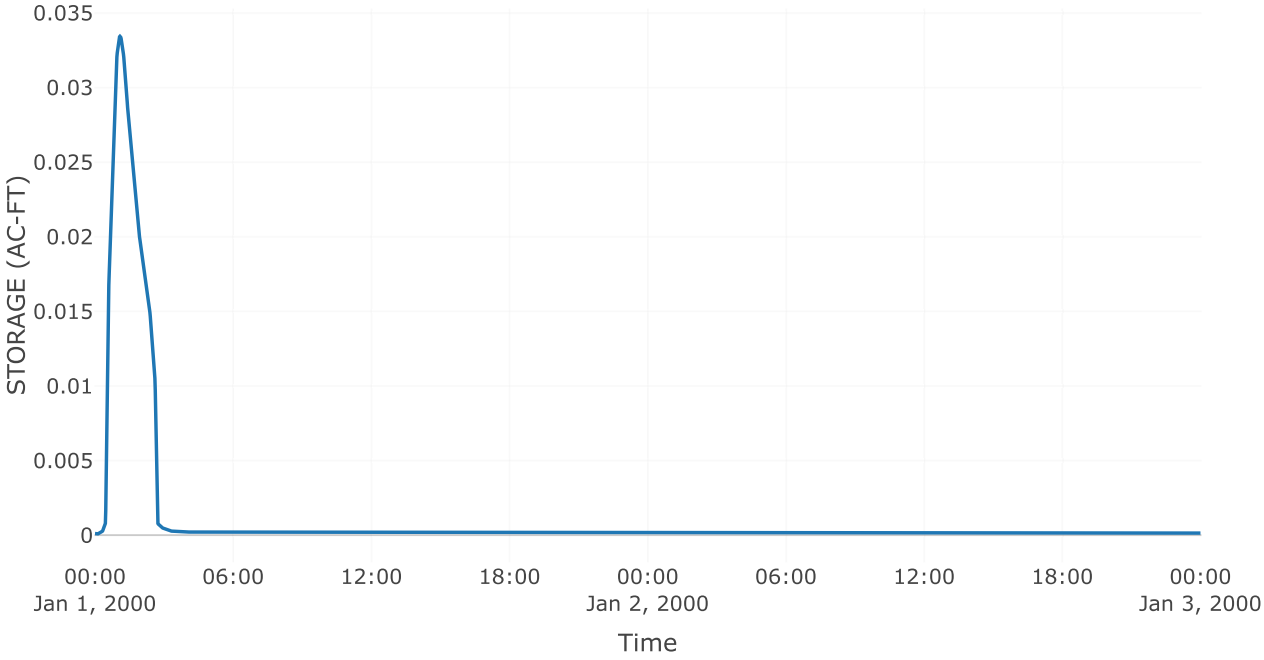

Outflow
160
140
120
100
80
60
40
20
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Storage West of Wolf Road

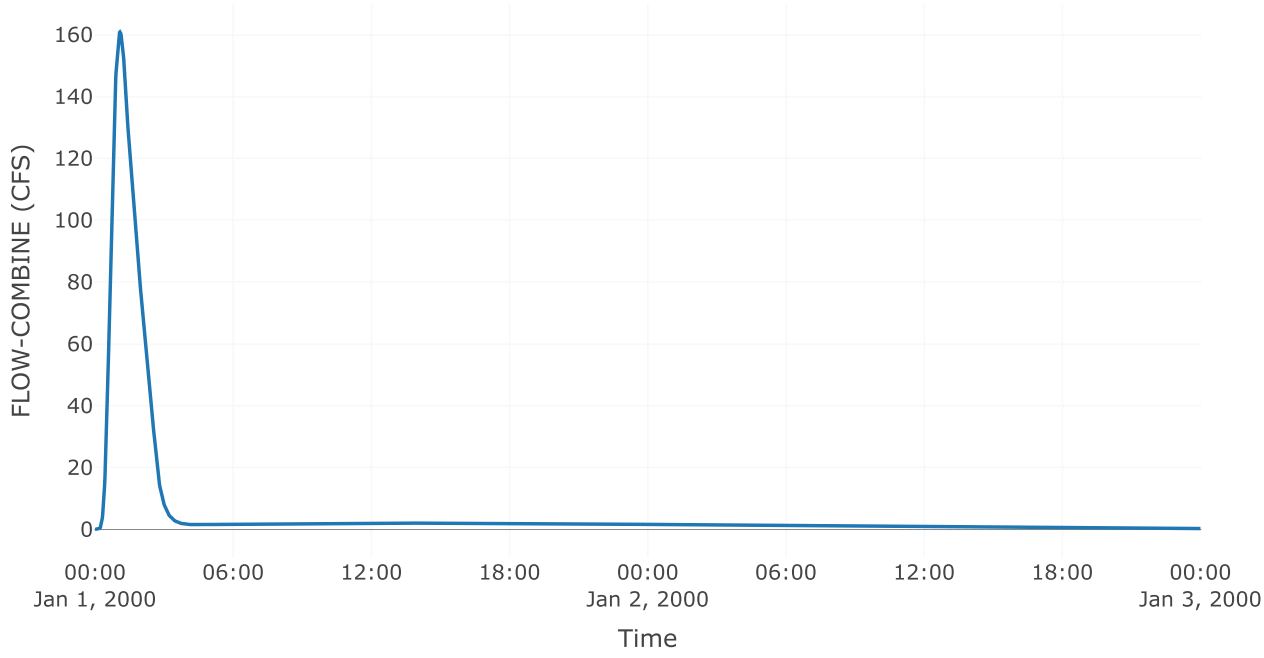
Downstream : Existing Basin C

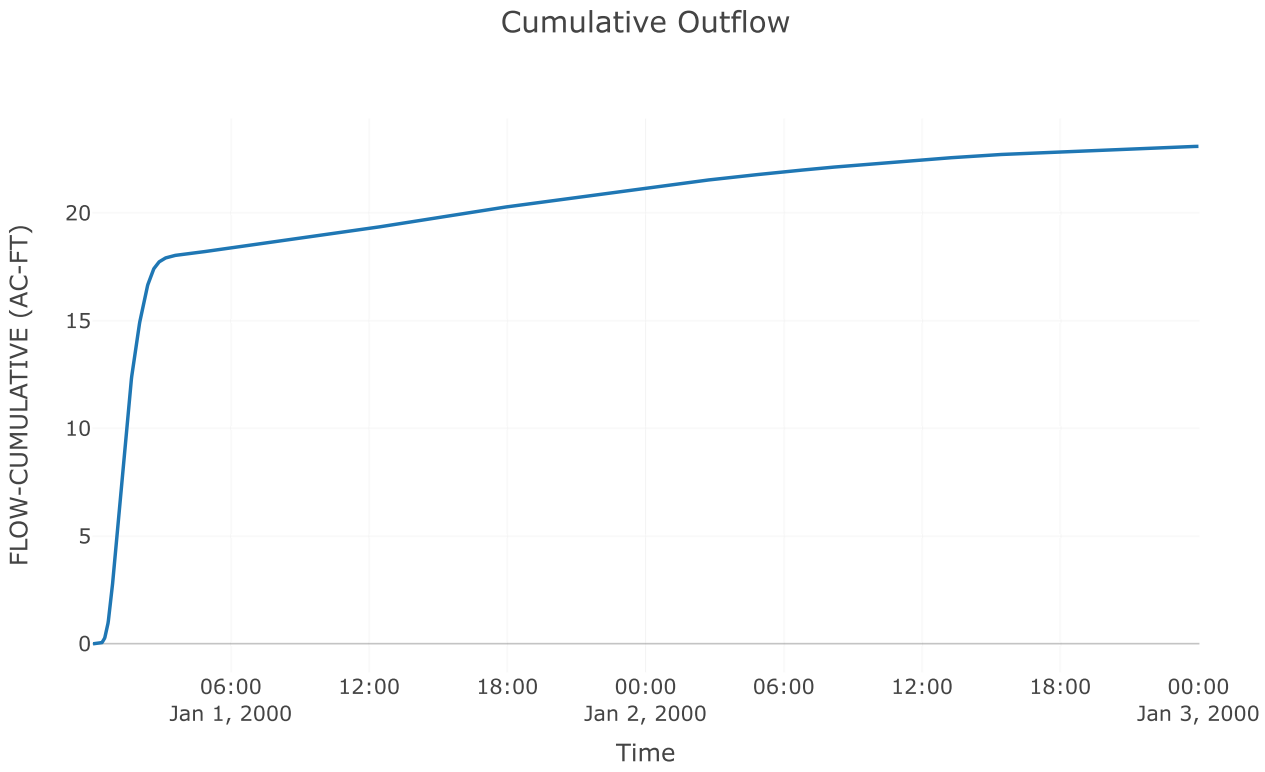
Results: Storage West of Wolf Road	
Peak Discharge (CFS)	160.88
Time of Peak Discharge	01Jan2000, 01:05
Volume (IN)	1.61
Peak Inflow (CFS)	160.88
Time of Peak Inflow	01Jan2000, 01:05
Inflow Volume (AC - FT)	23.16
Maximum Storage (AC - FT)	0.03
Peak Elevation (FT)	659.46
Discharge Volume (AC - FT)	23.1

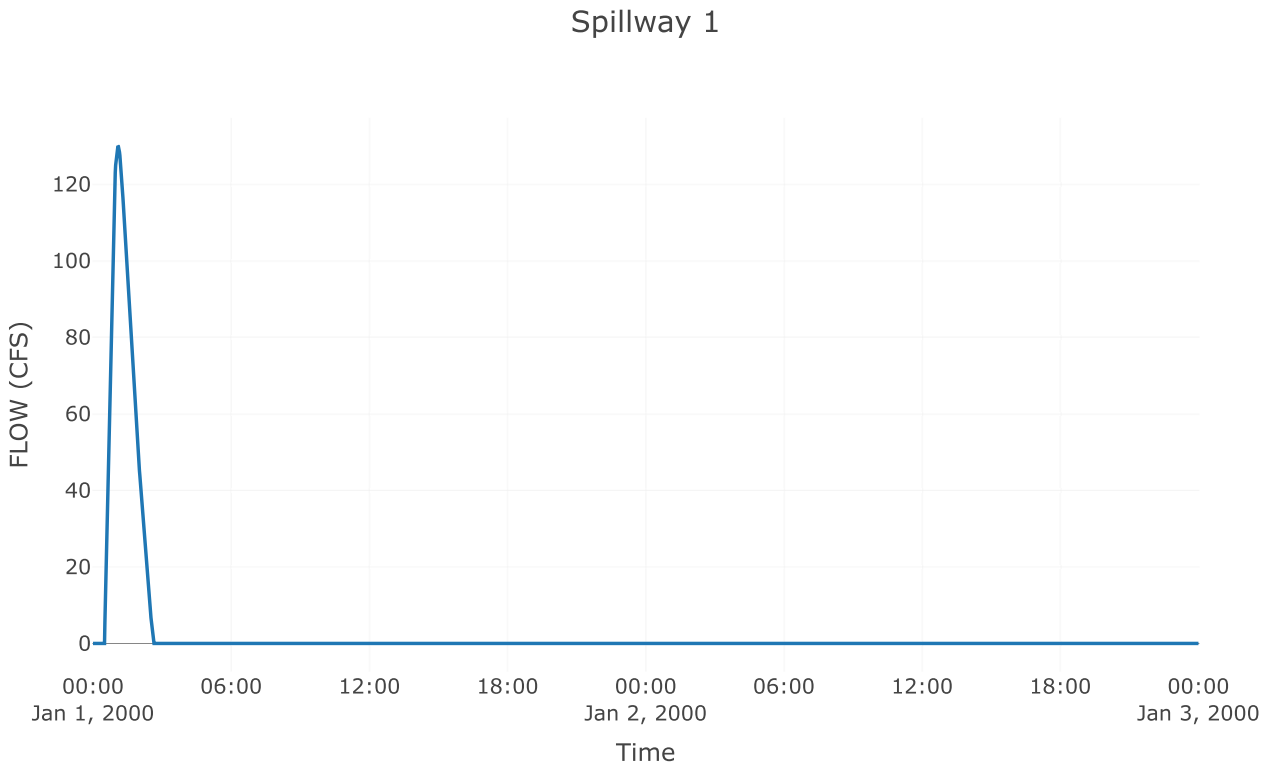
Storage



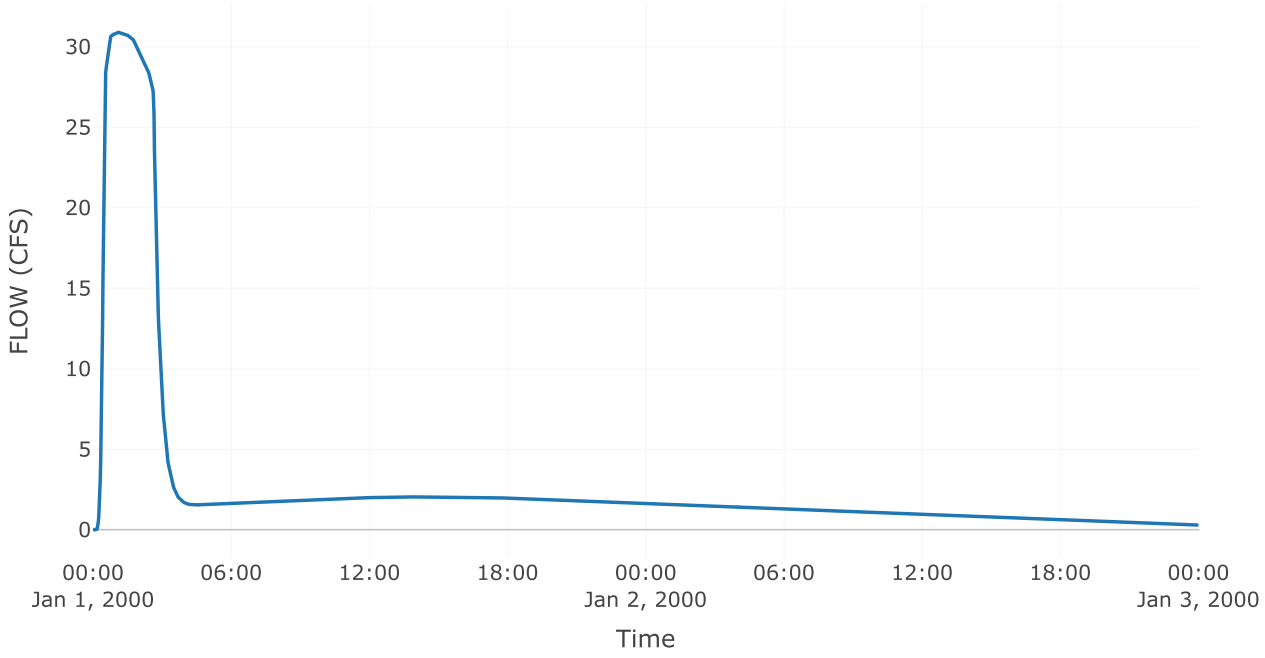
Combined Inflow



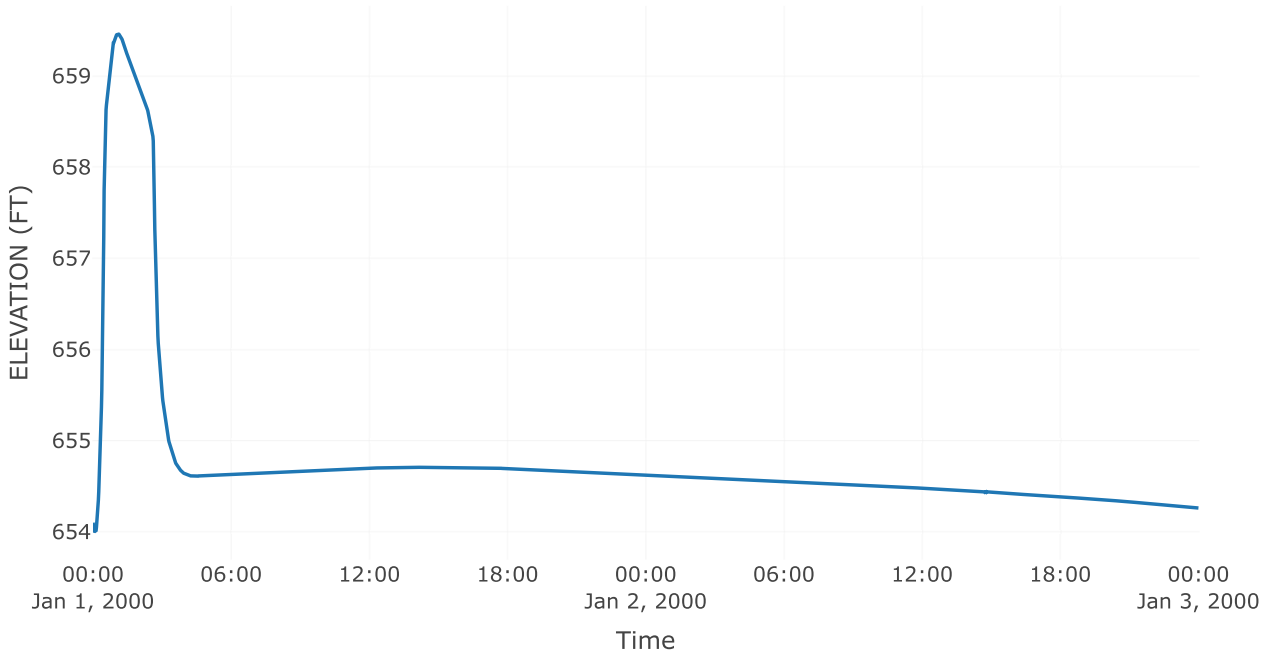

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0
5
10
15
20
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

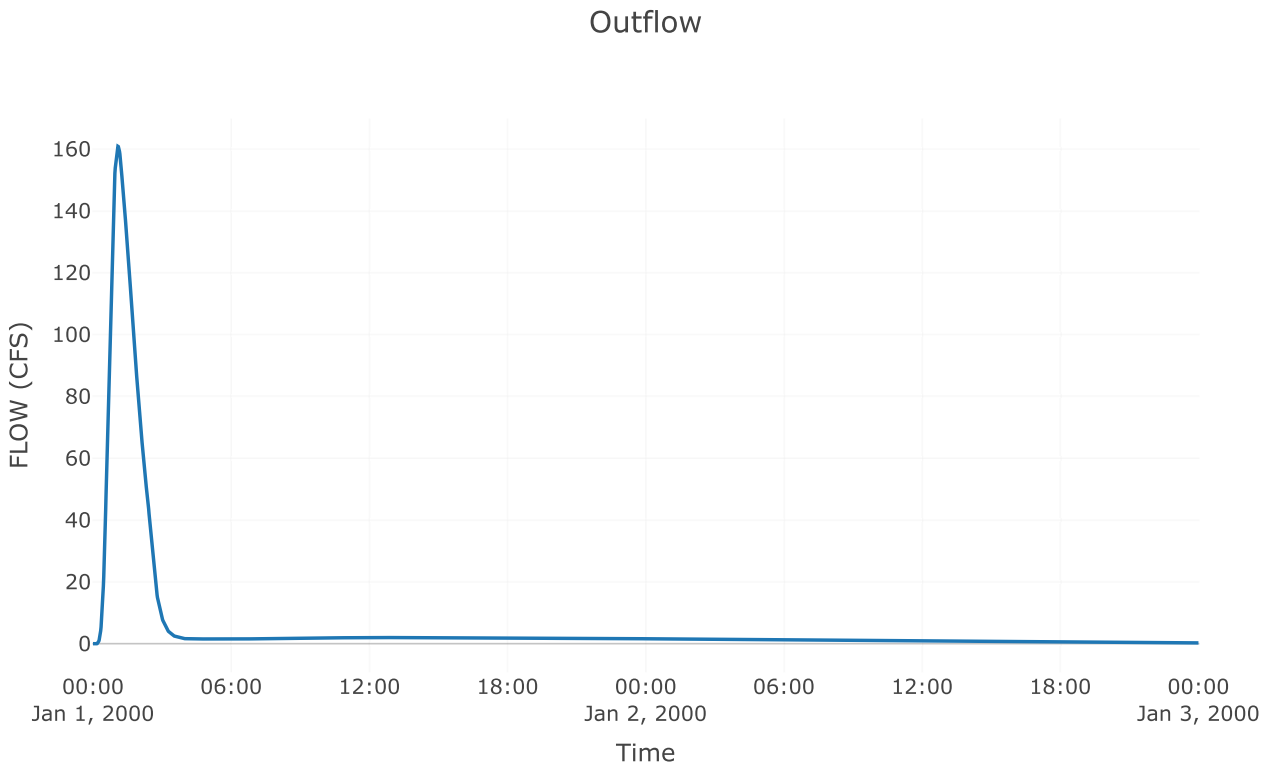

Spillway 1
FLOW (CFS)
0
20
40
60
80
100
120
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation




Outflow
160
140
120
100
80
60
40
20
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Existing On-Site

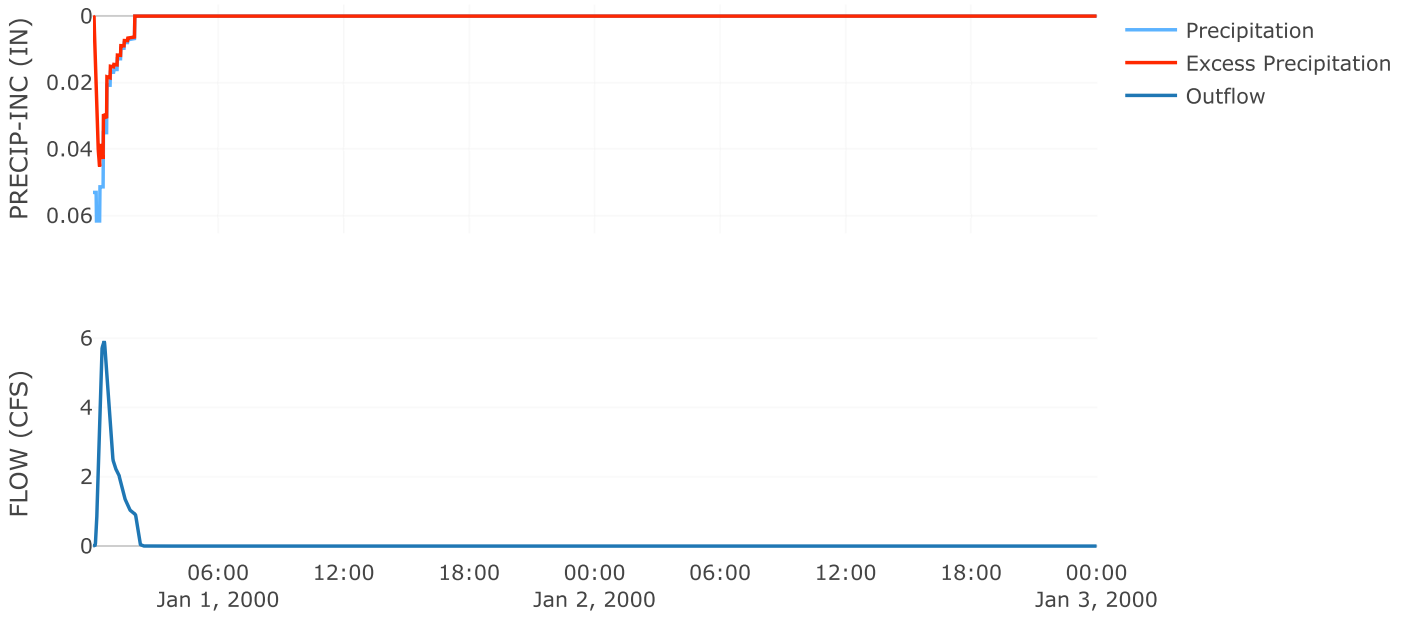
Area (MI2) : 0
Downstream : Existing Basin C

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	91.09

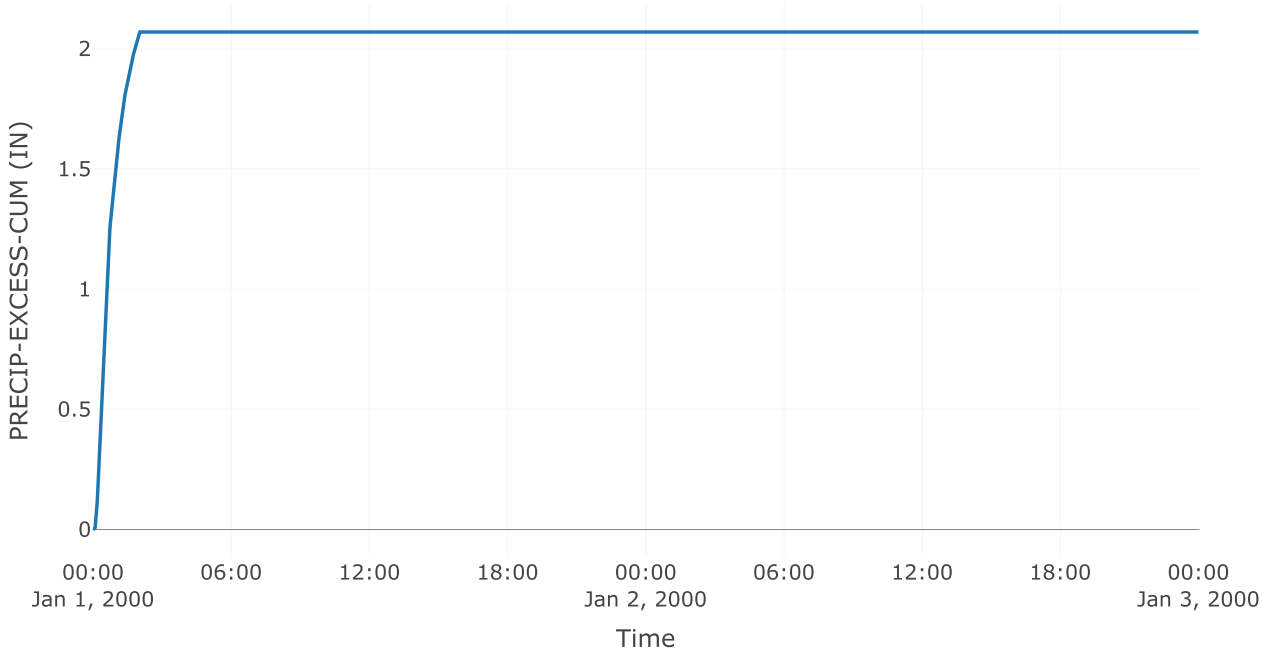
Transform: Scs	
Lag	6
Unitgraph Type	Standard

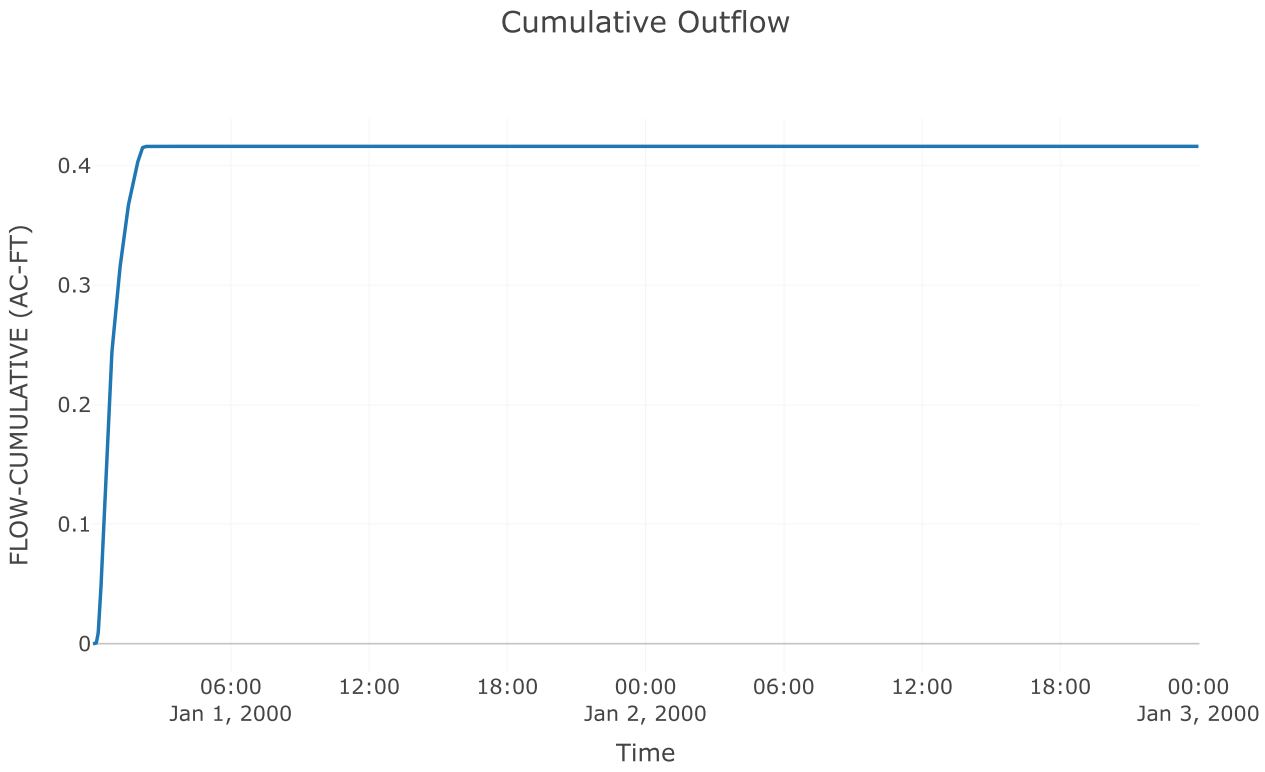
Results: Existing On-Site	
Peak Discharge (CFS)	5.91
Time of Peak Discharge	01Jan2000, 00:32
Volume (IN)	2.07
Precipitation Volume (AC - FT)	0.6
Loss Volume (AC - FT)	0.19
Excess Volume (AC - FT)	0.42
Direct Runoff Volume (AC - FT)	0.42
Baseflow Volume (AC - FT)	0

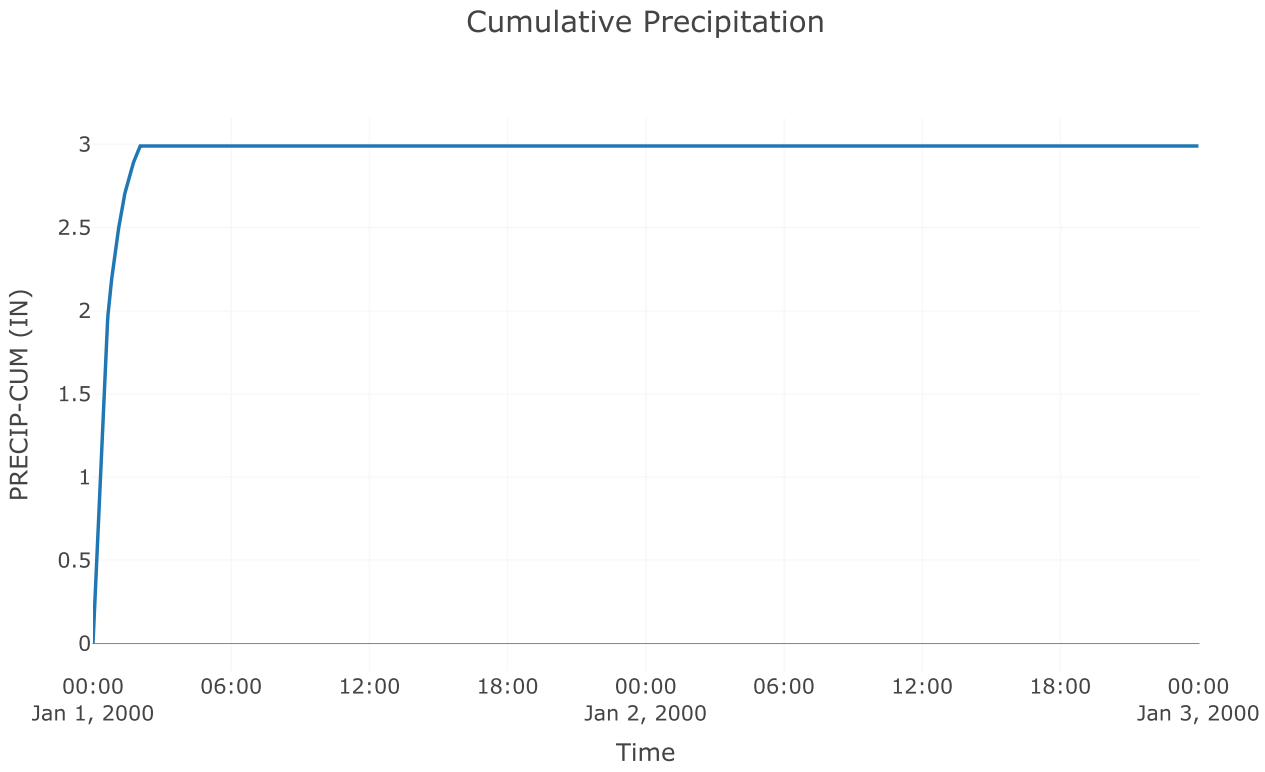
Precipitation and Outflow

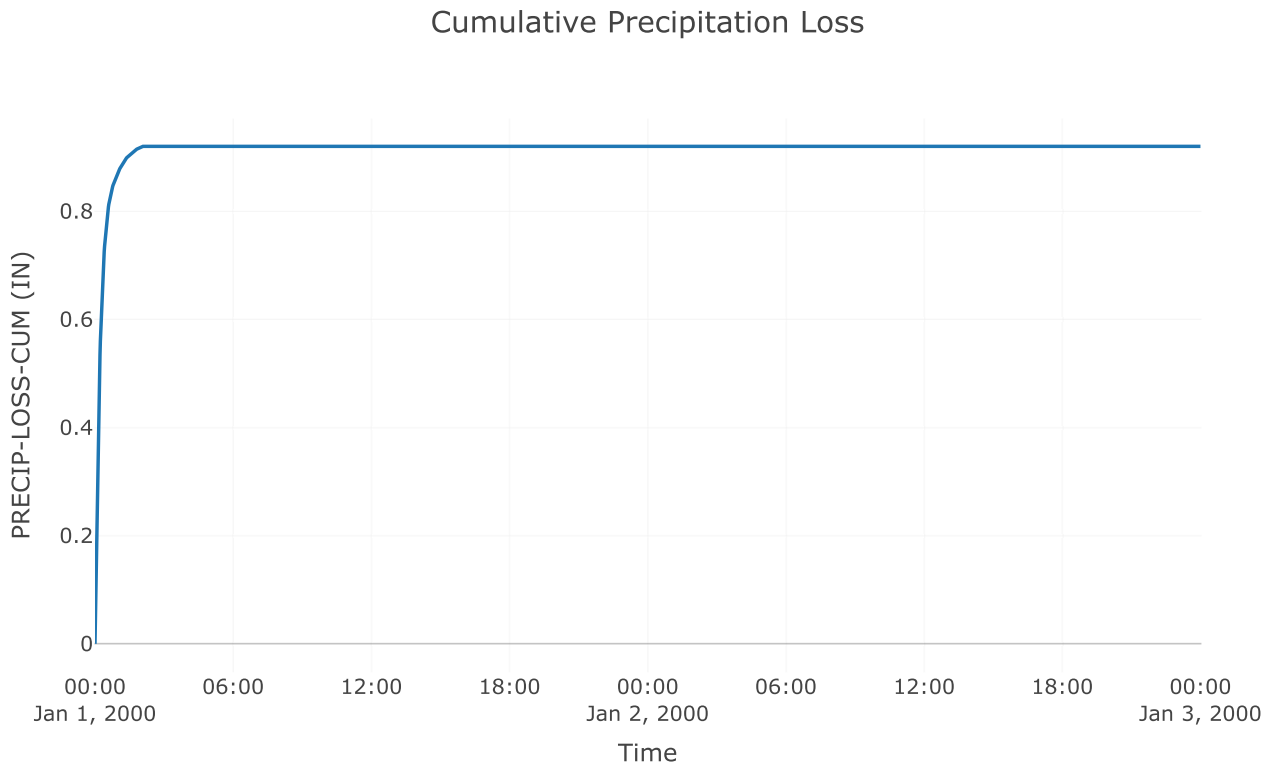


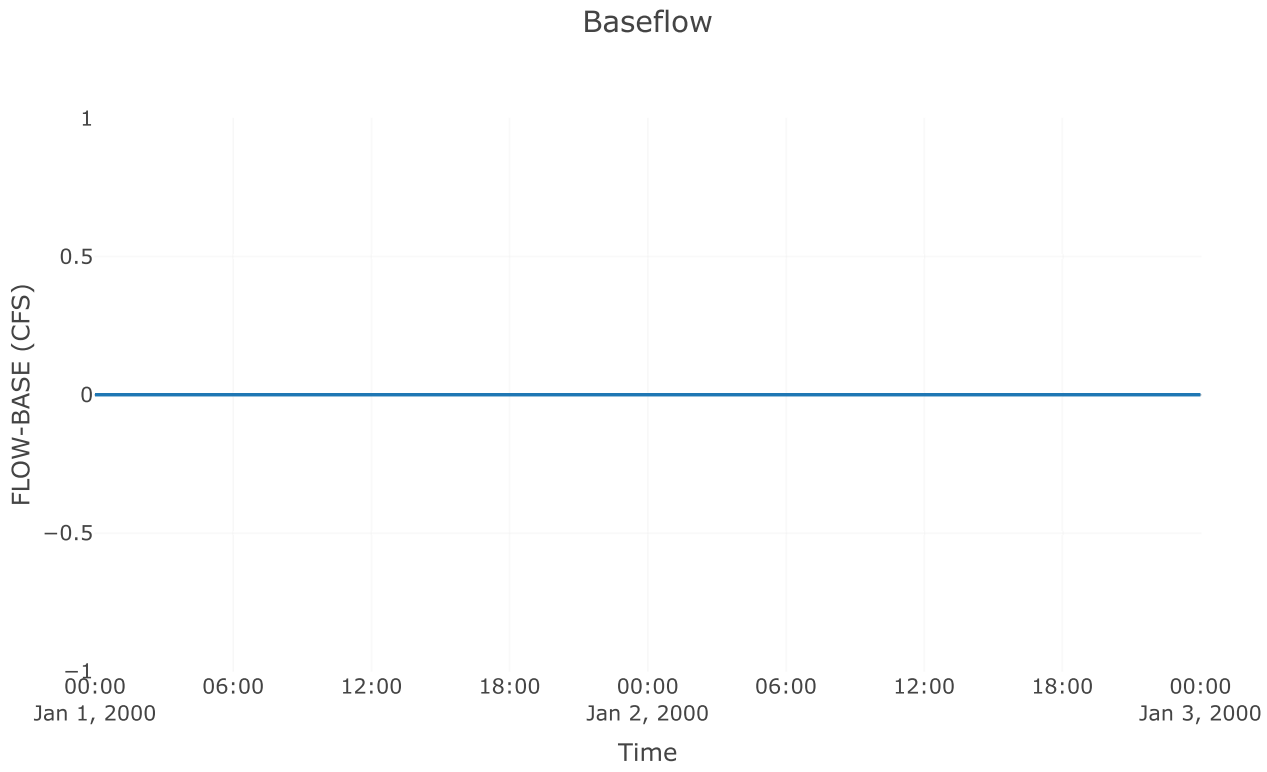
Cumulative Excess Precipitation

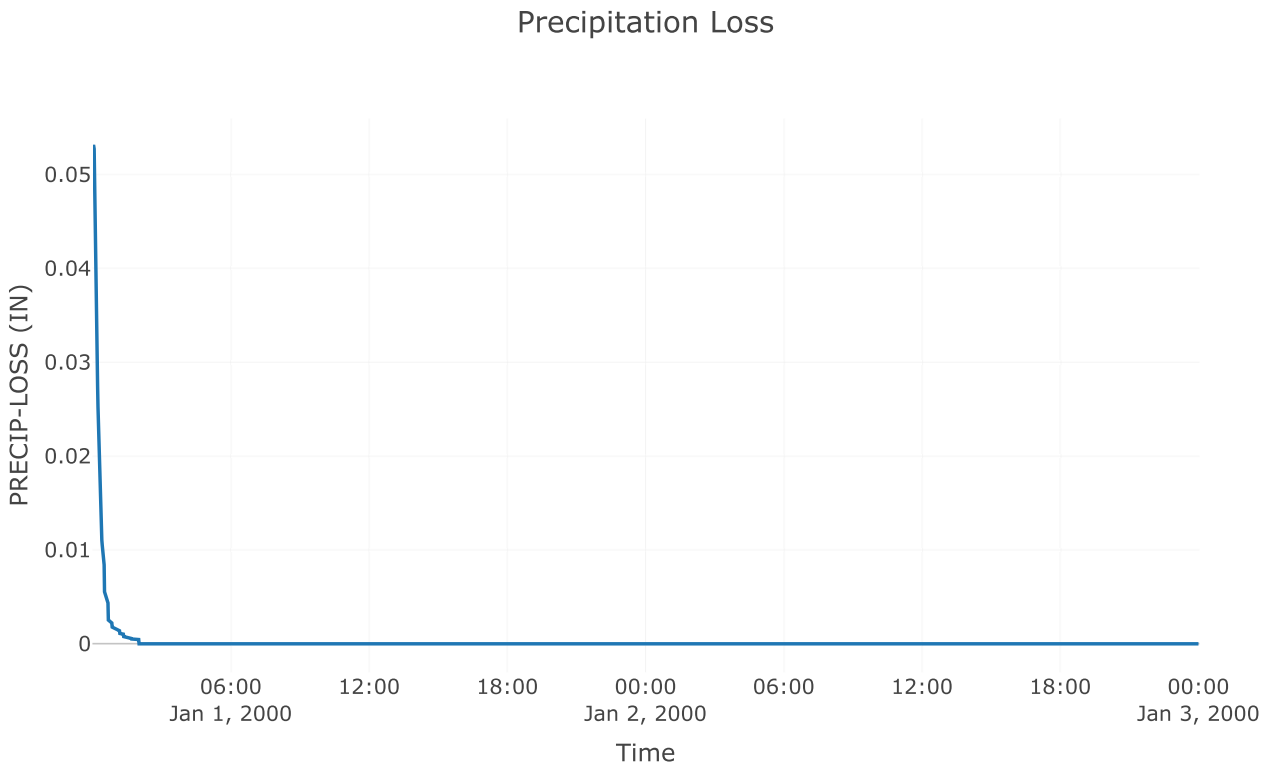


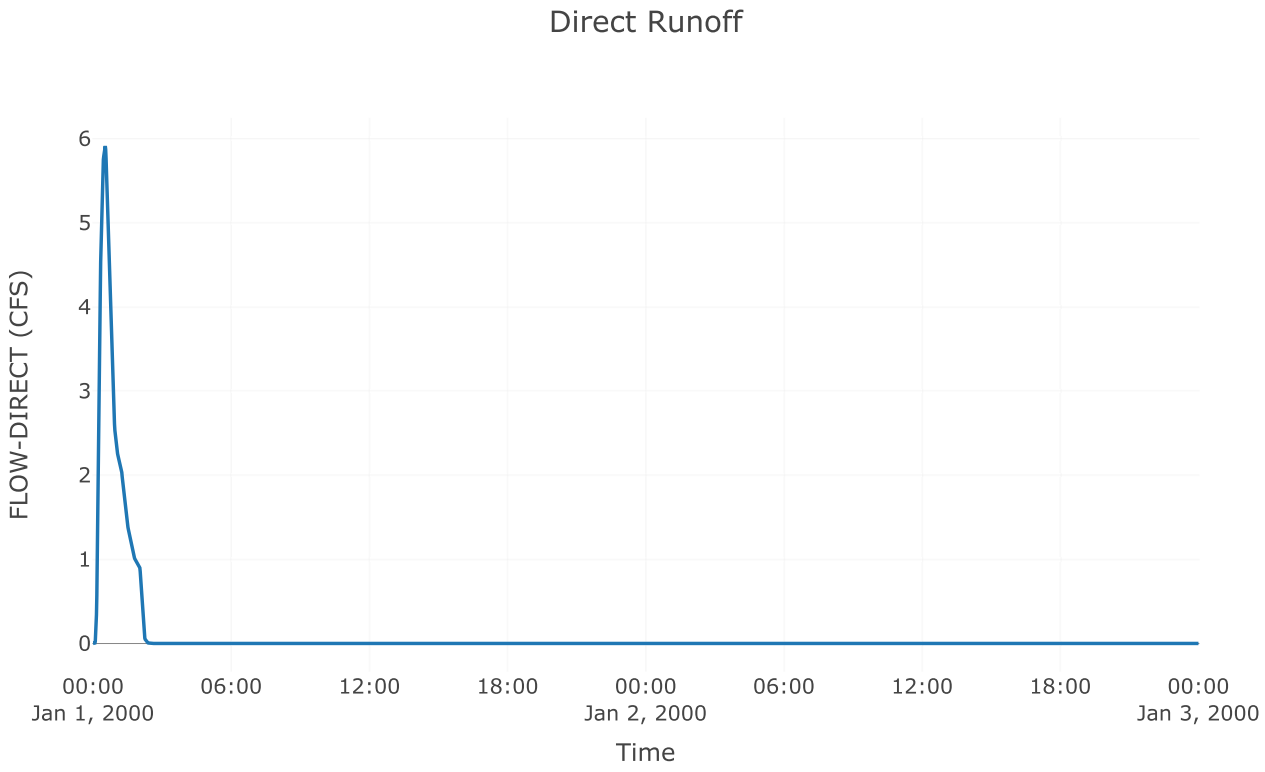

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0.4
0.3
0.2
0.1
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

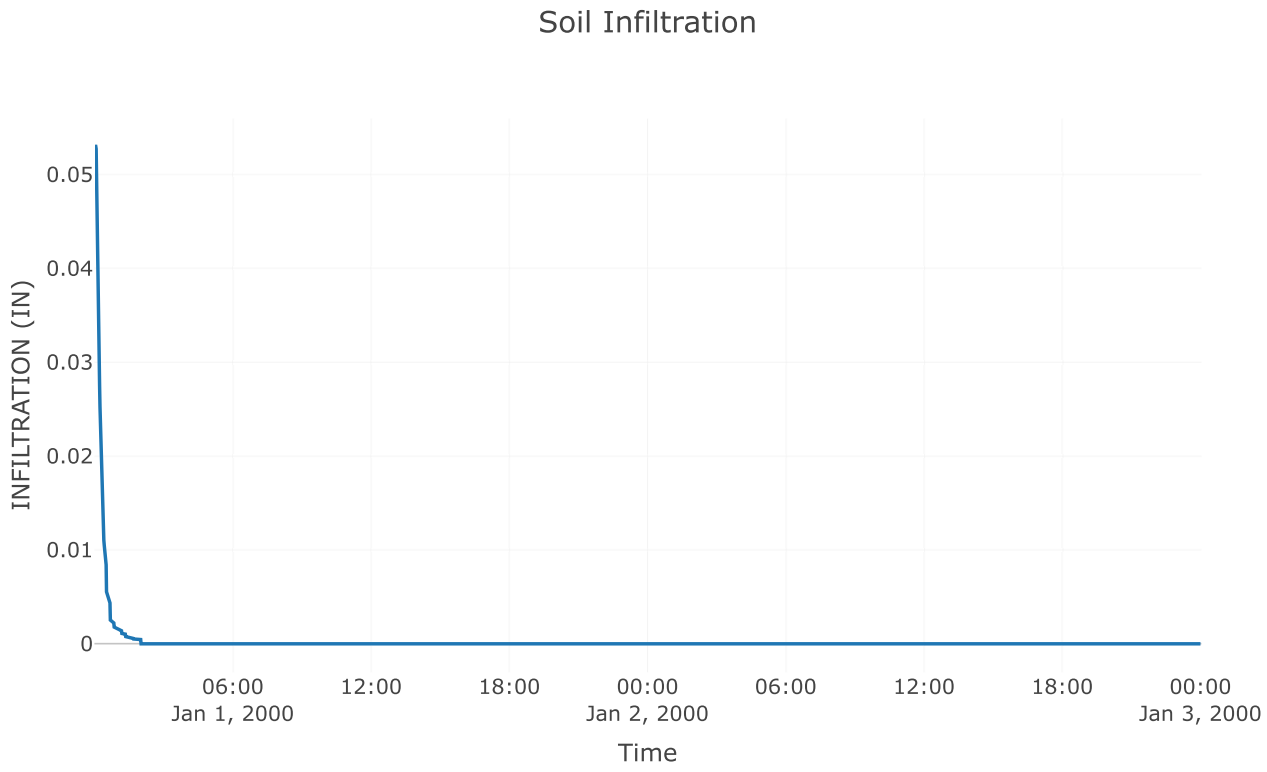

Cumulative Precipitation
PRECIP-CUM (IN)
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

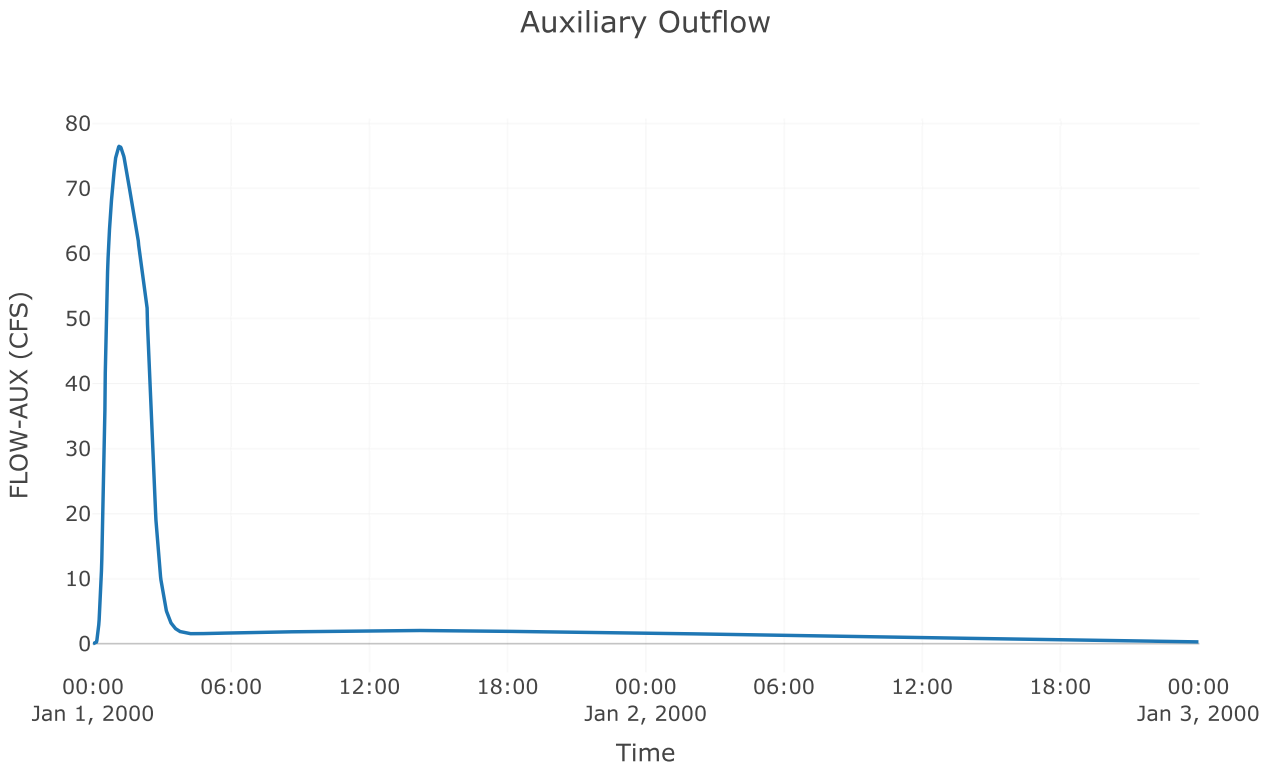

Direct Runoff
FLOW-DIRECT (CFS)
6
5
4
3
2
1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

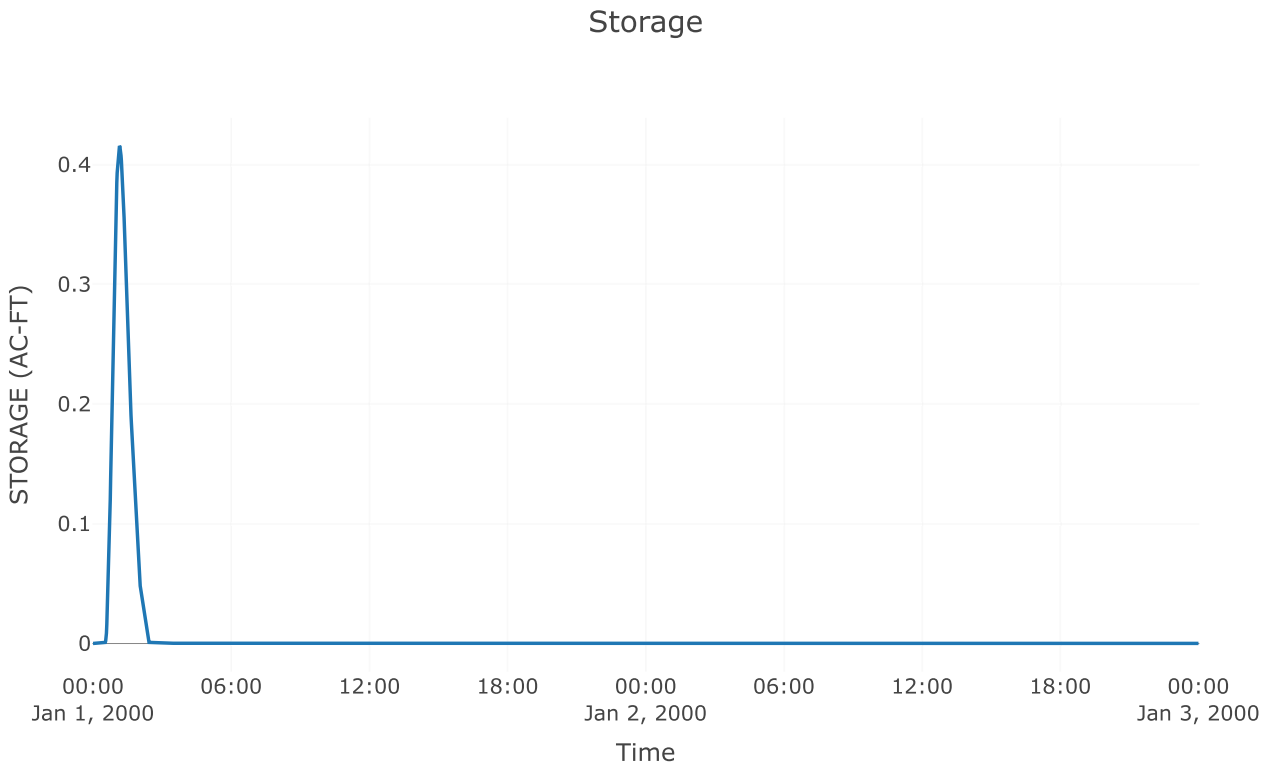

Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Existing Basin C

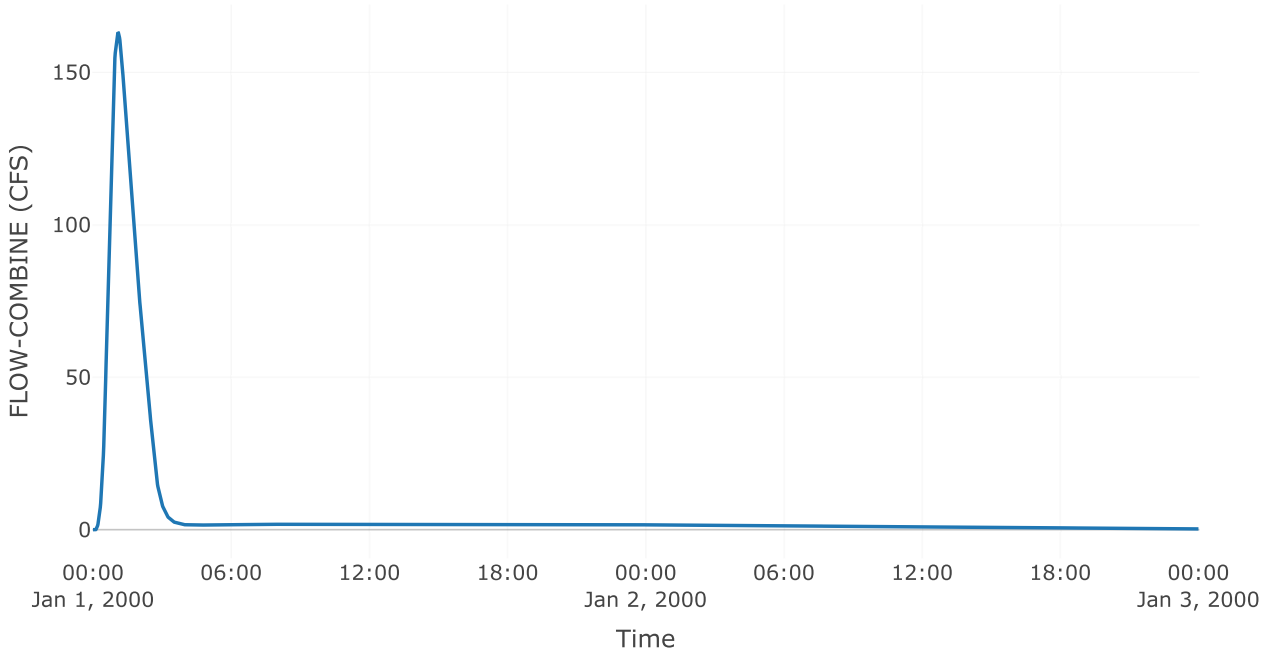
Downstream : Existing Basin A & B

Results: Existing Basin C	
Peak Discharge (CFS)	84.93
Time of Peak Discharge	01Jan2000, 01:09
Volume (IN)	0.44
Peak Inflow (CFS)	163.12
Time of Peak Inflow	01Jan2000, 01:05
Inflow Volume (AC - FT)	23.52
Maximum Storage (AC - FT)	0.42
Peak Elevation (FT)	652.56
Discharge Volume (AC - FT)	6.47

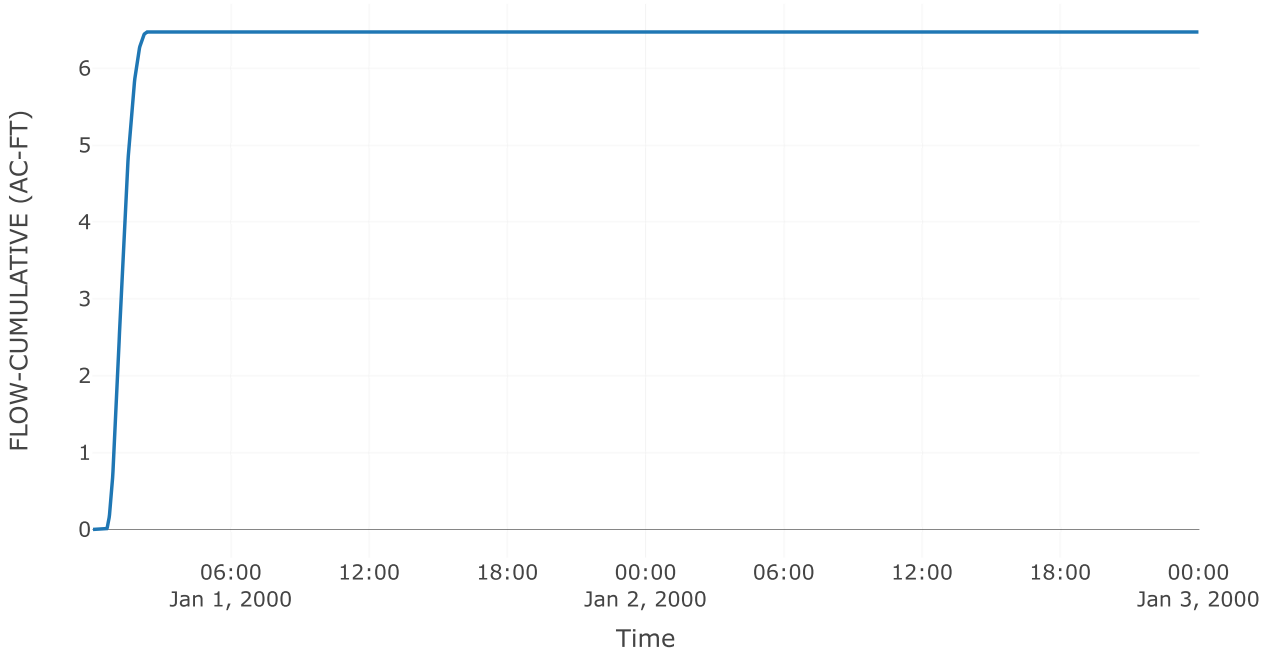

Auxiliary Outflow
FLOW-AUX (CFS)
80
70
60
50
40
30
20
10
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

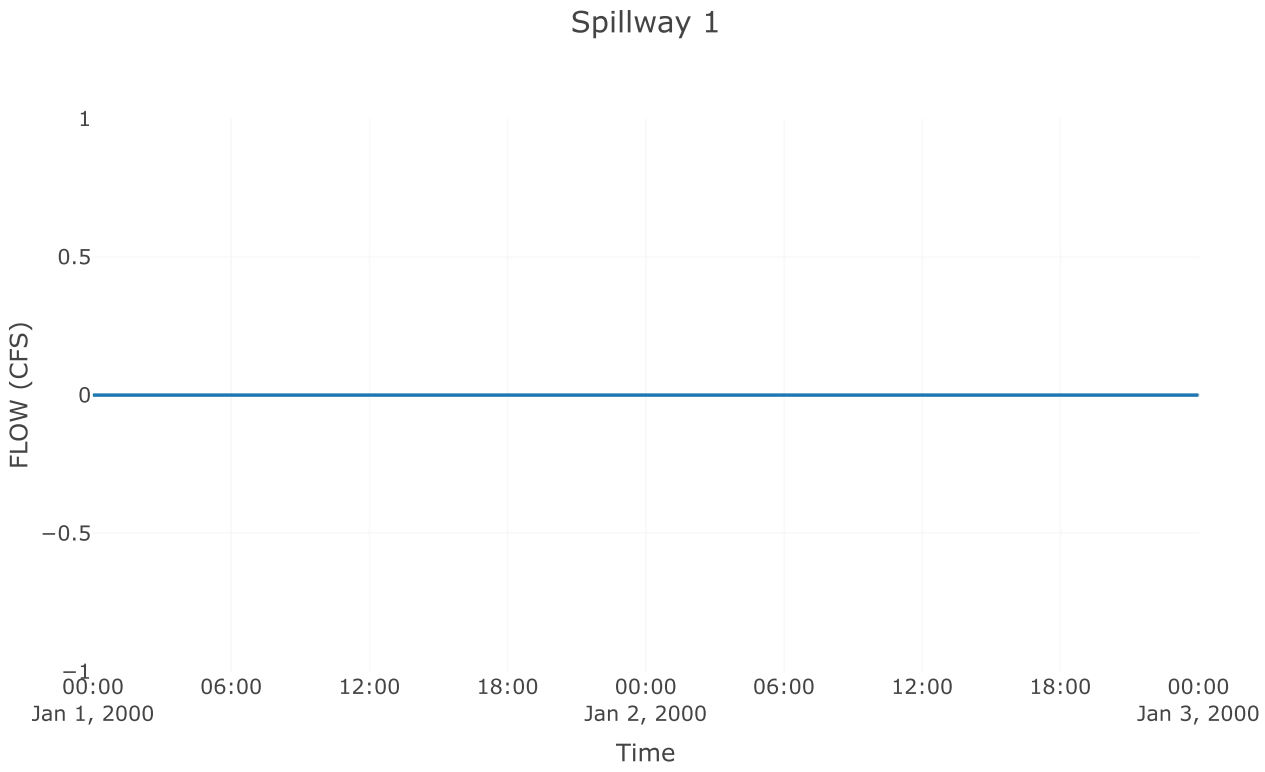

Storage
STORAGE (AC-FT)
0.4
0.3
0.2
0.1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

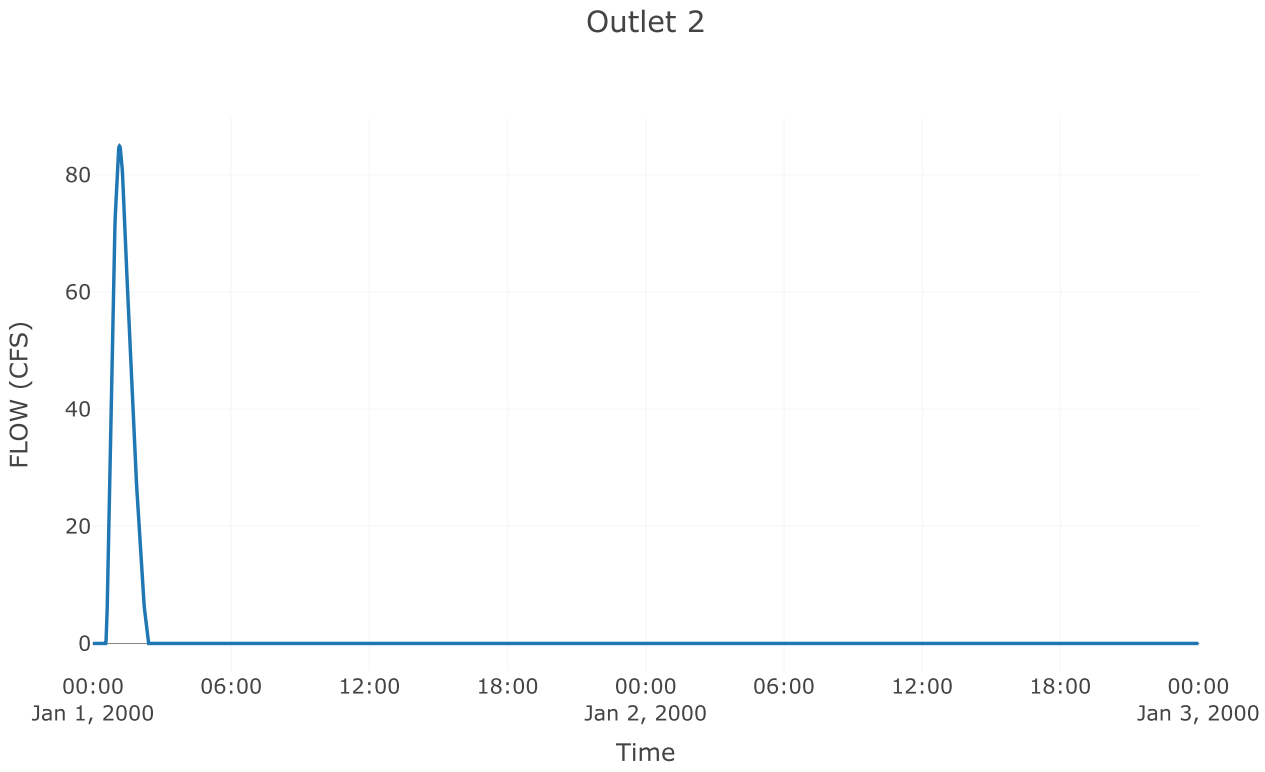
Combined Inflow



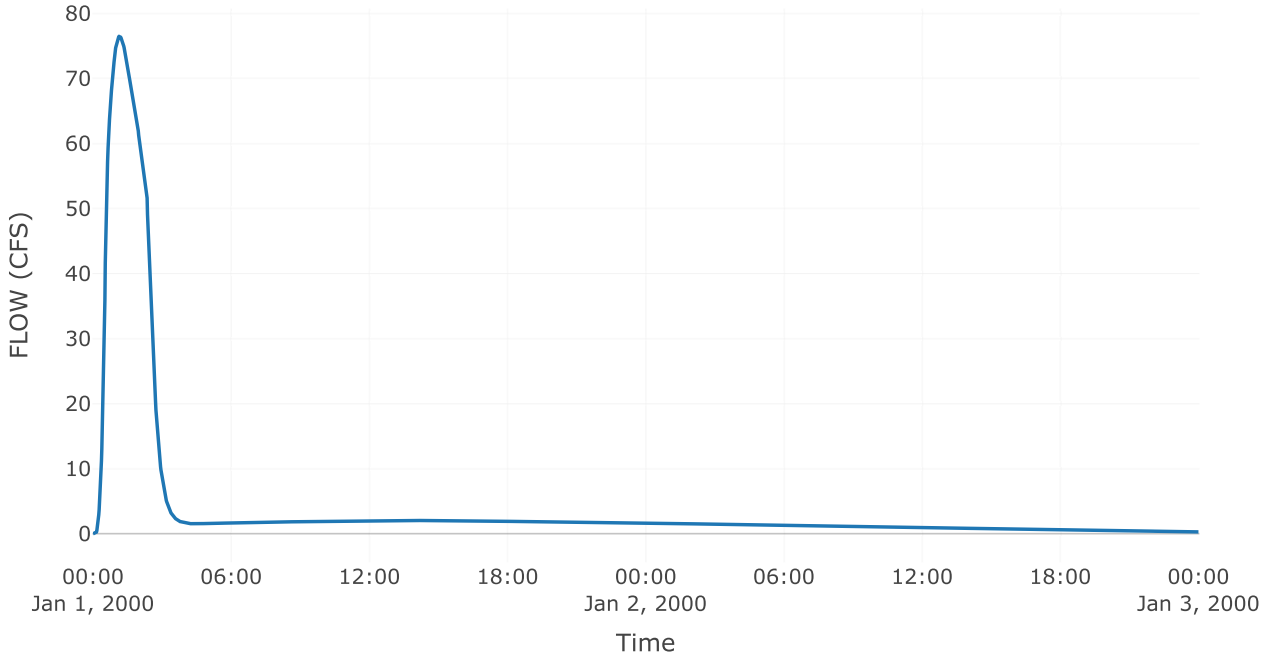
Cumulative Outflow



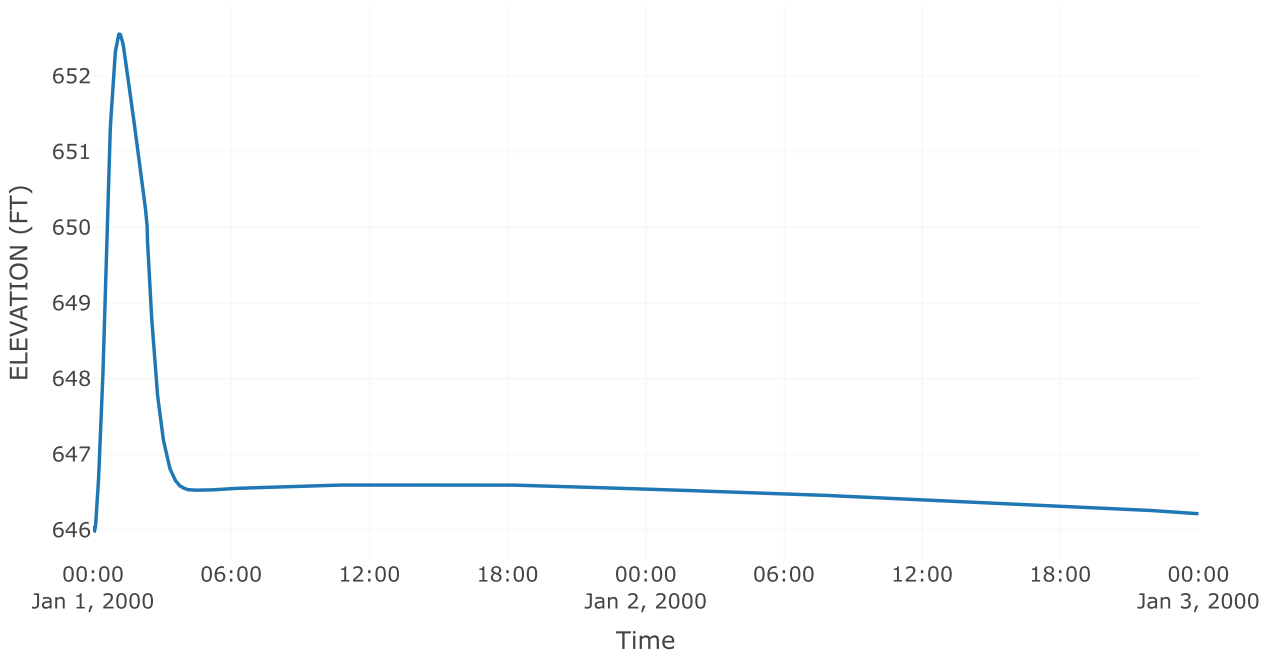

Spillway 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

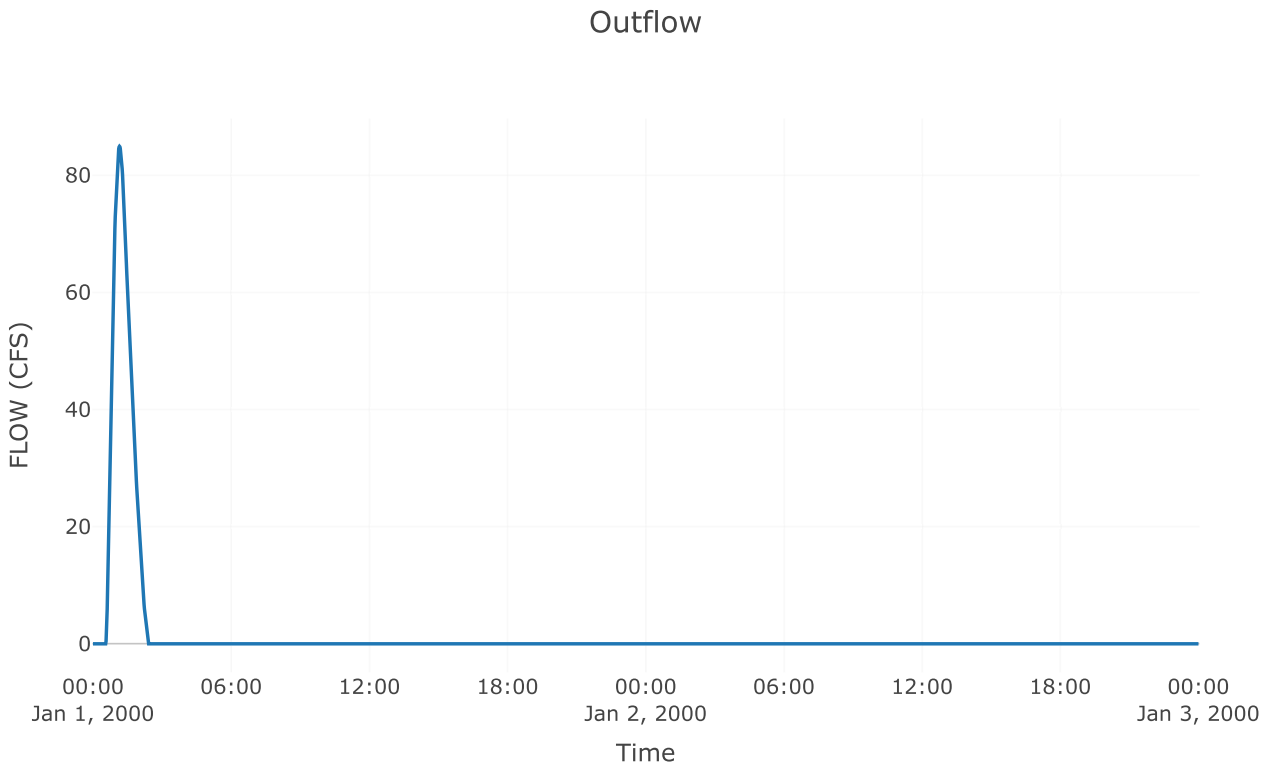

Outlet 2
80
60
40
20
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation

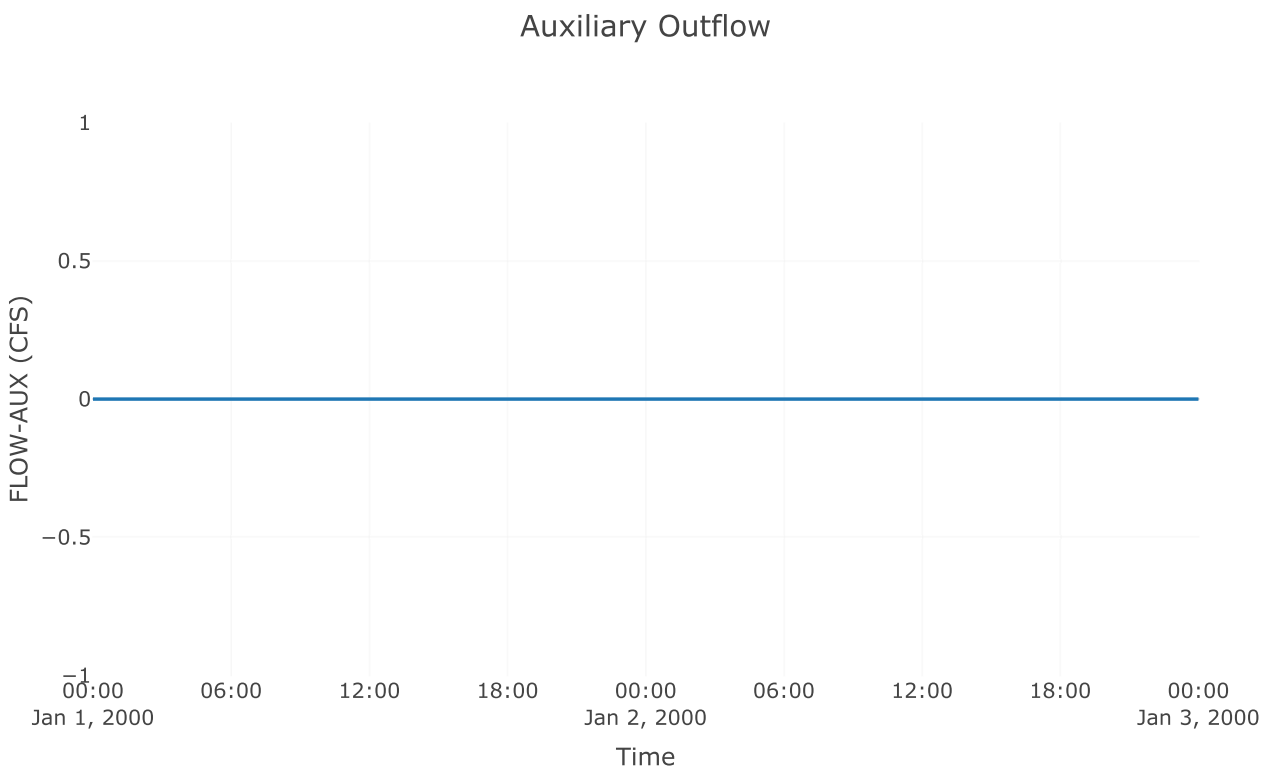


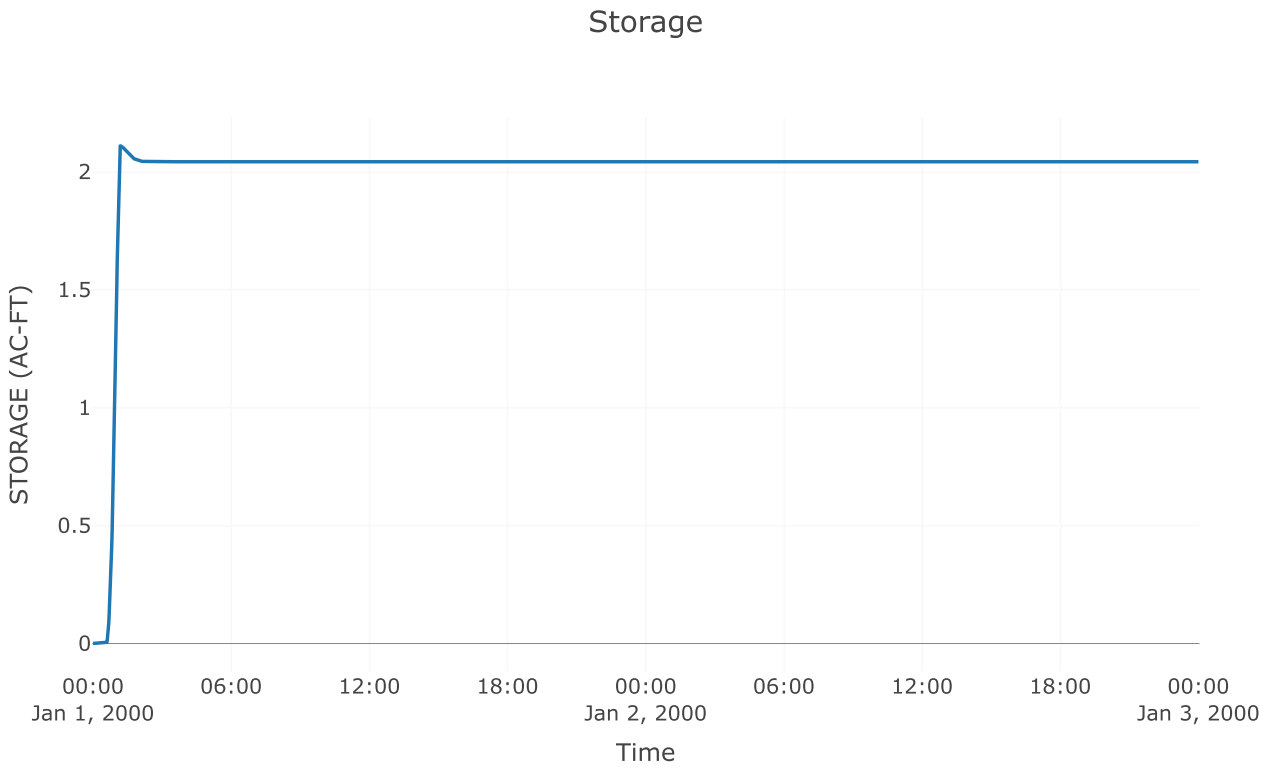

Outflow
FLOW (CFS)
80
60
40
20
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

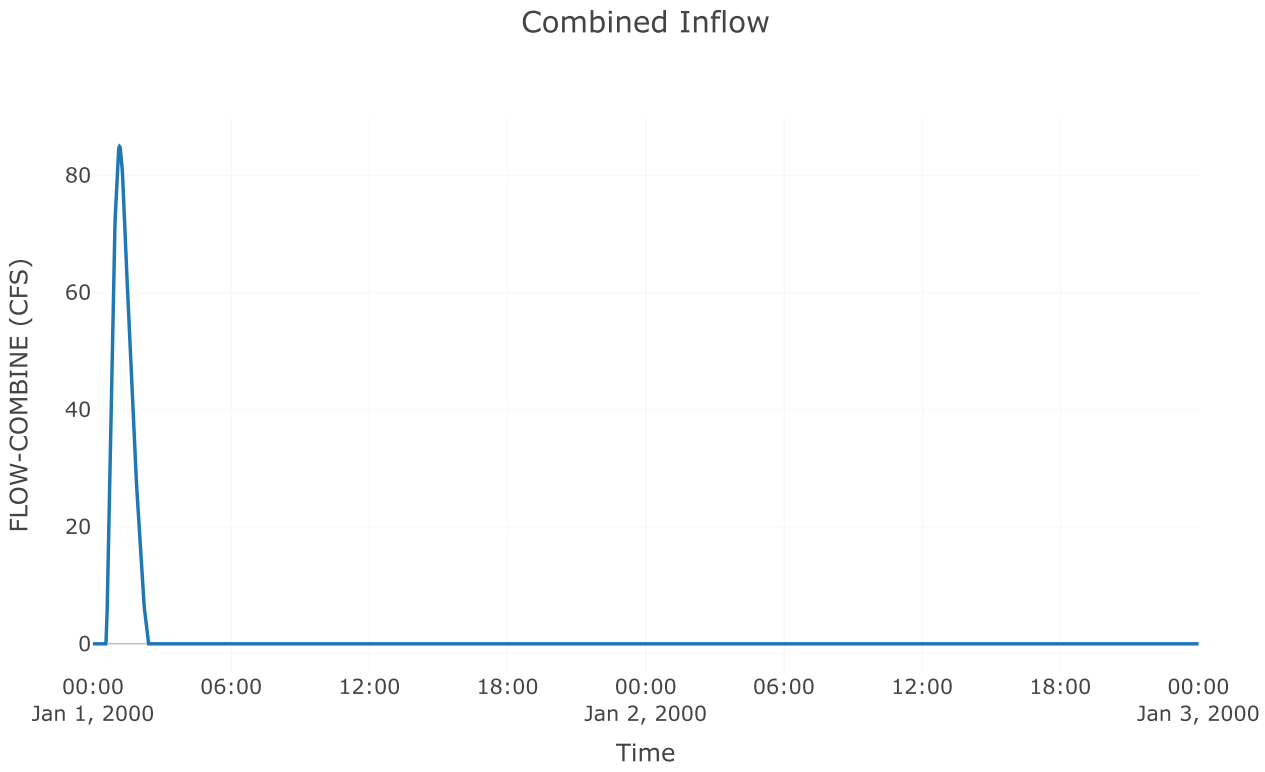
Reservoir: Existing Basin A & B

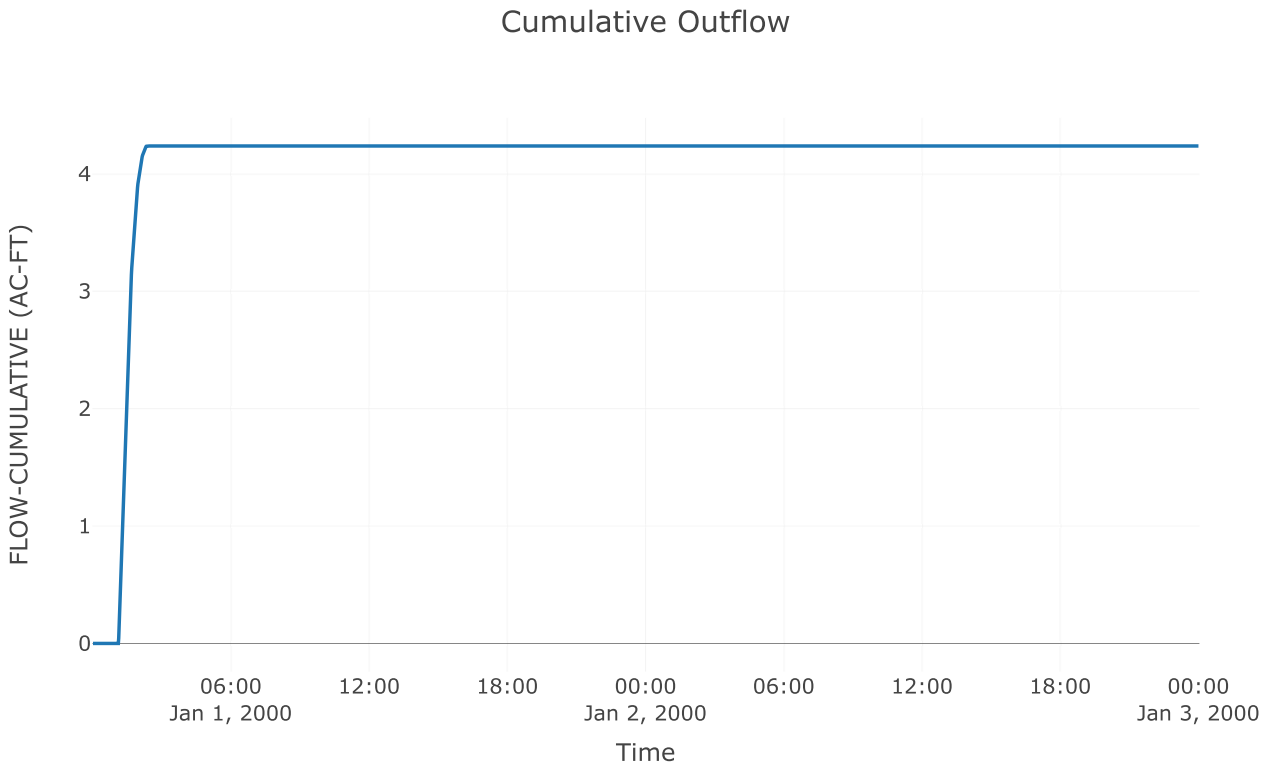
Downstream : Outlet Storm Box

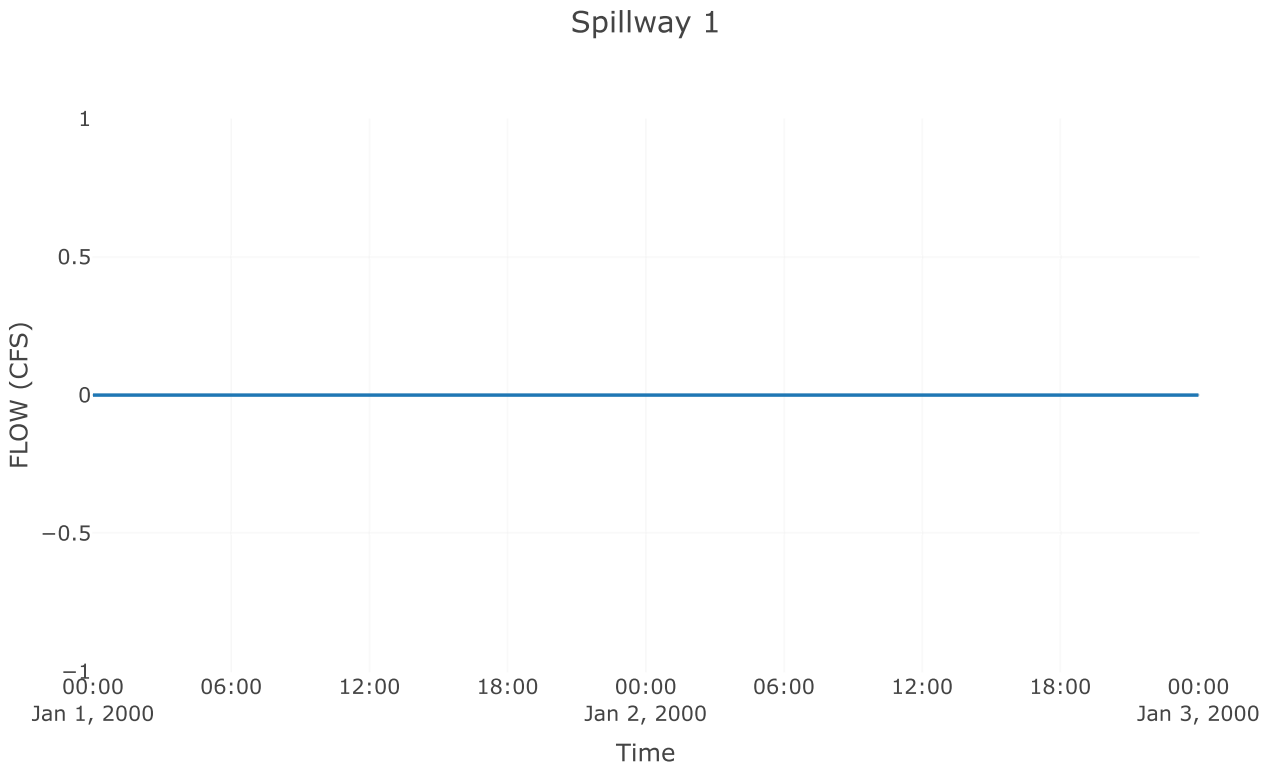
Results: Existing Basin A & B	
Peak Discharge (CFS)	84.16
Time of Peak Discharge	01Jan2000, 01:12
Volume (IN)	0.29
Peak Inflow (CFS)	84.93
Time of Peak Inflow	01Jan2000, 01:09
Inflow Volume (AC - FT)	6.47
Maximum Storage (AC - FT)	2.11
Peak Elevation (FT)	653.42
Discharge Volume (AC - FT)	4.24

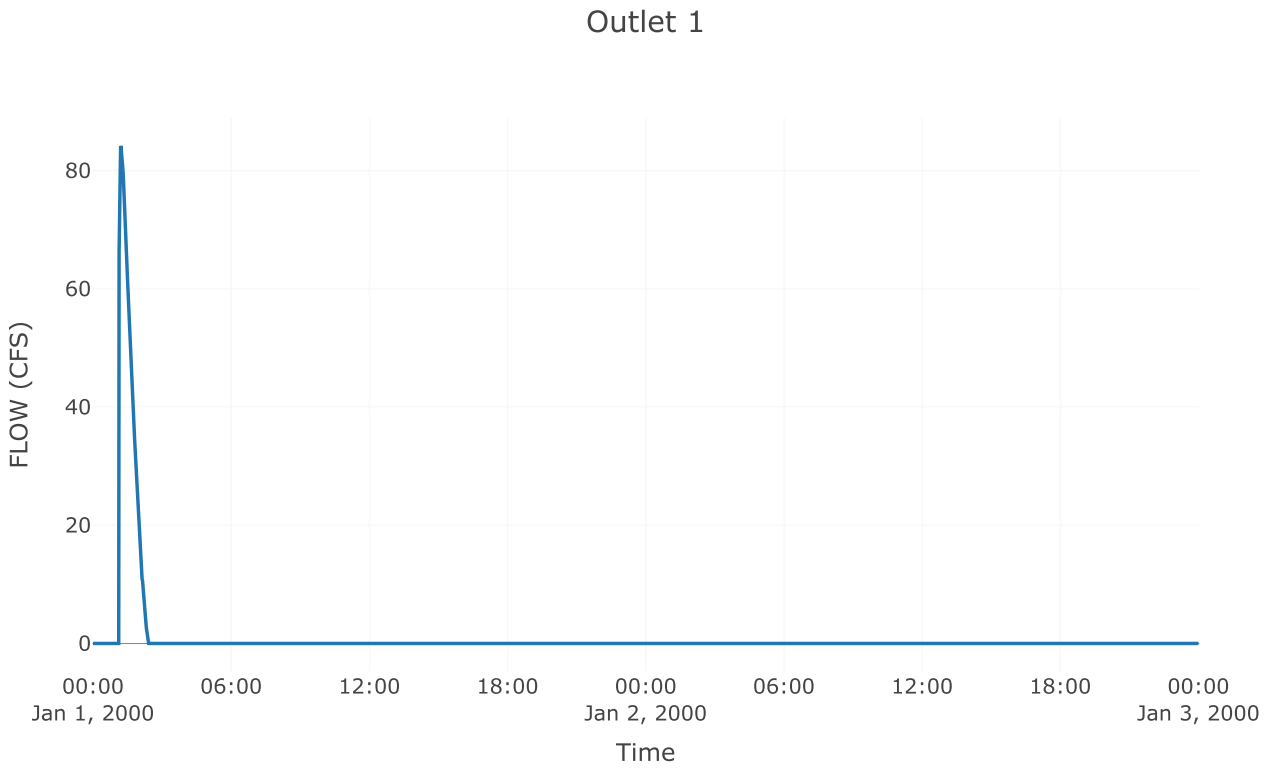

Auxiliary Outflow
FLOW-AUX (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Storage
STORAGE (AC-FT)
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

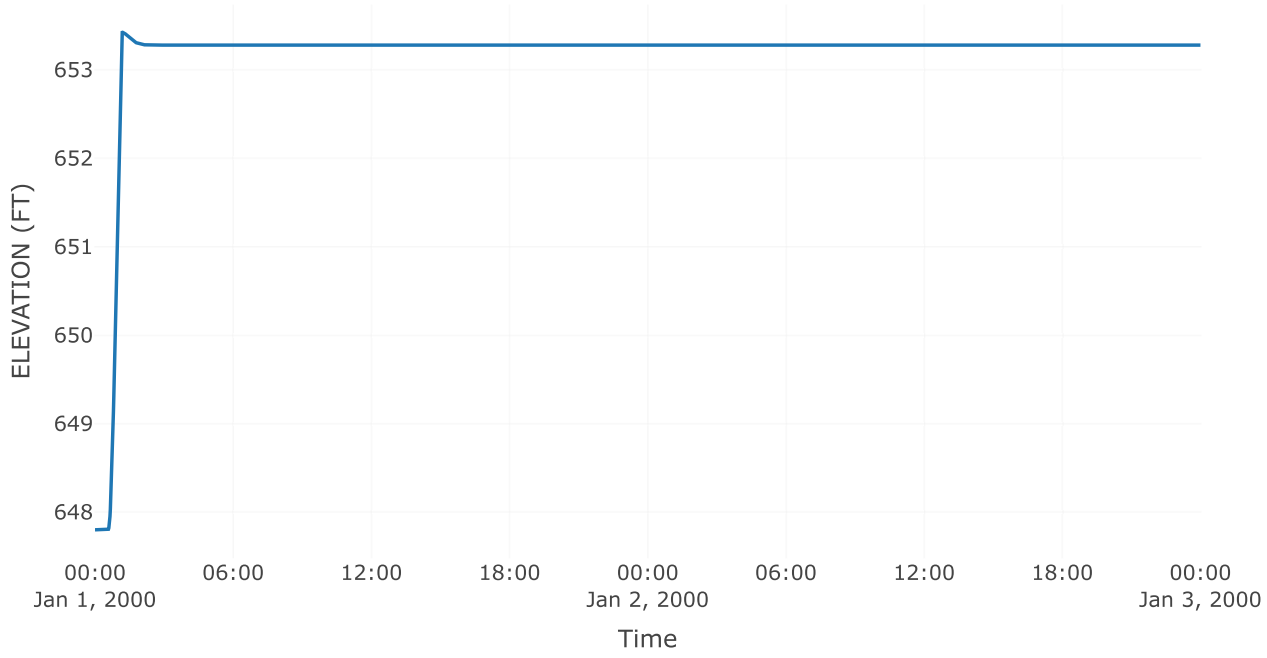

Combined Inflow
FLOW-COMBINE (CFS)
80
60
40
20
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
4
3
2
1
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

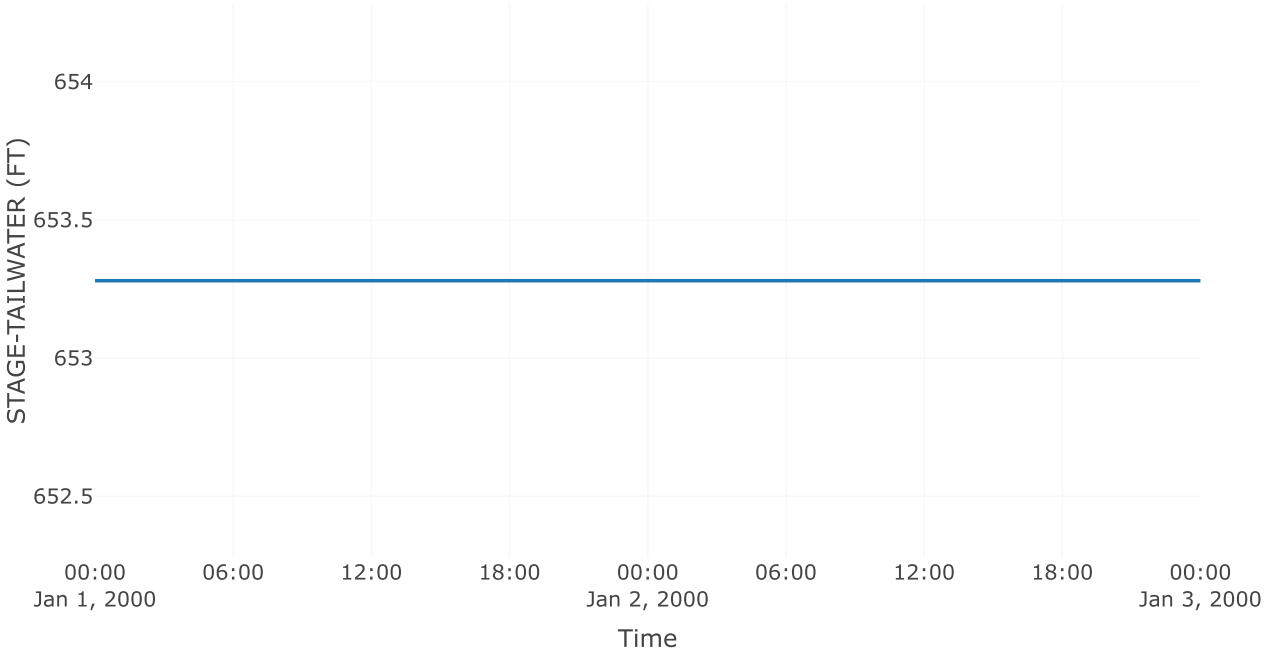

Spillway 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

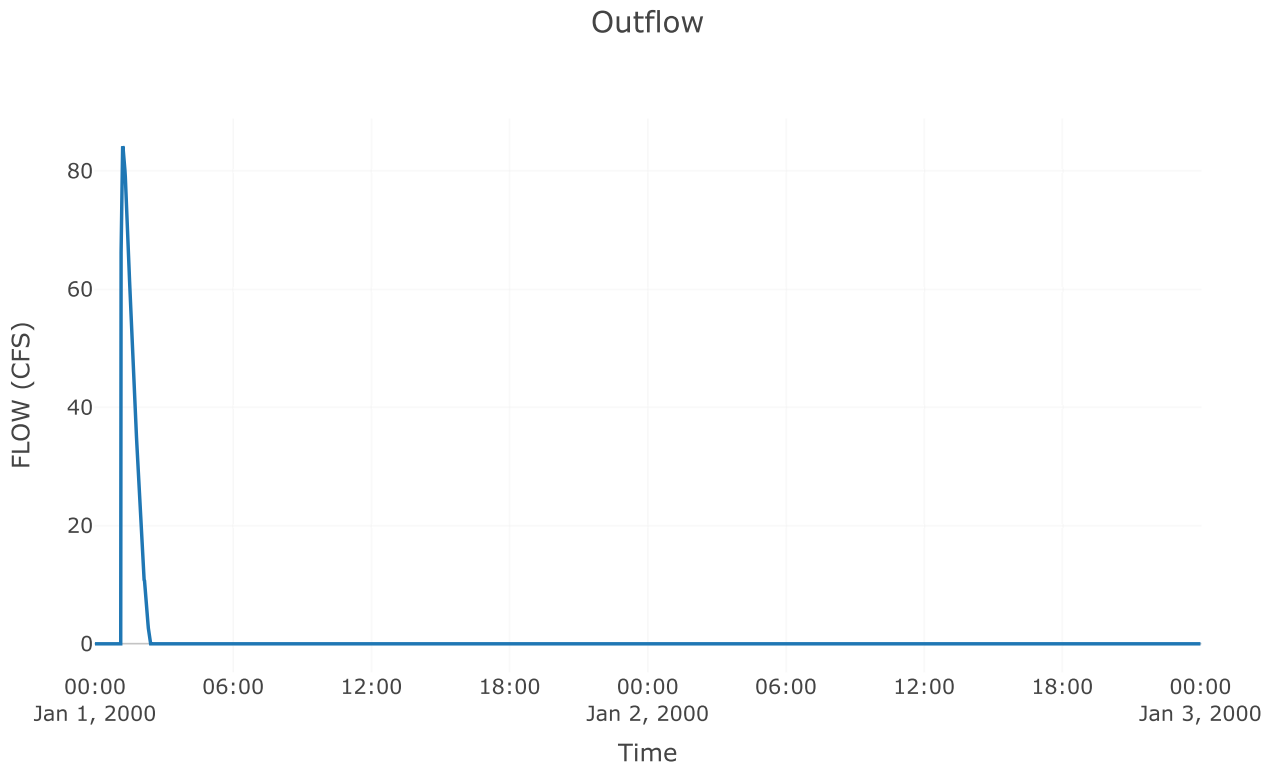

Outlet 1
80
60
40
20
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Pool Elevation



Tailwater Stage

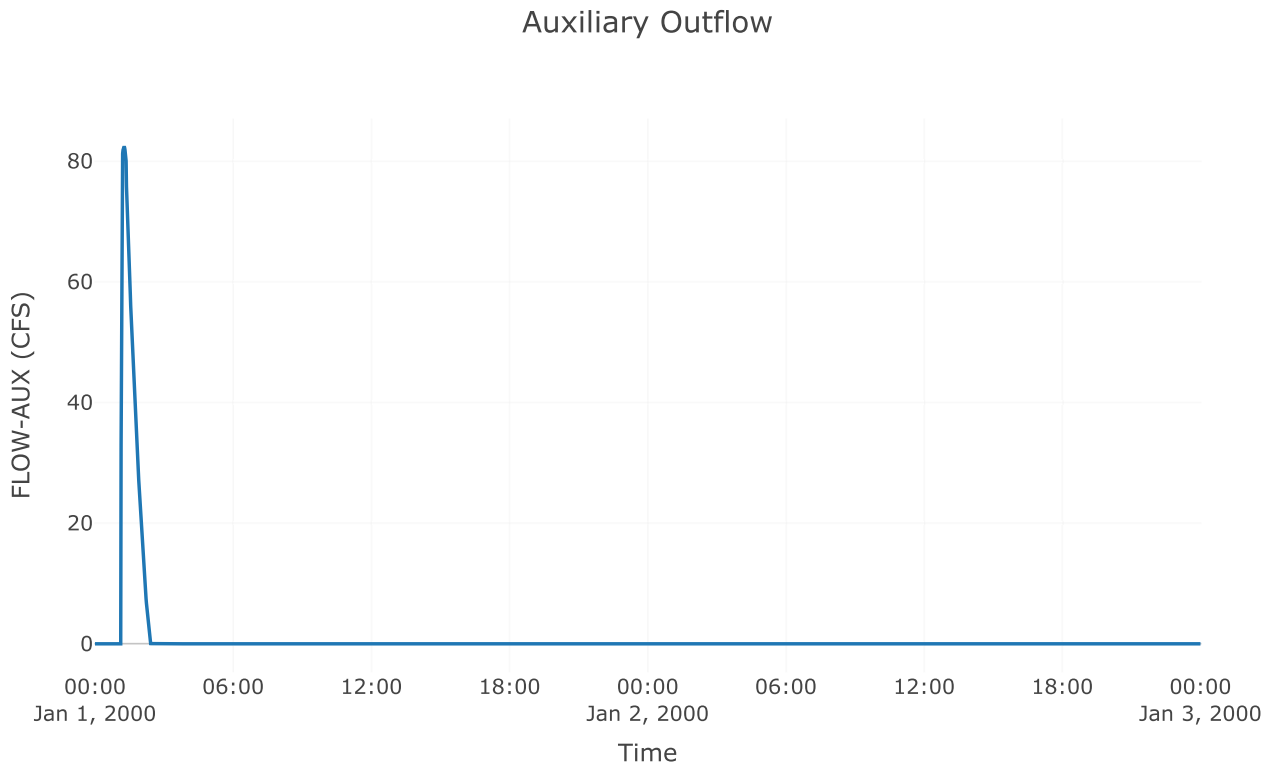


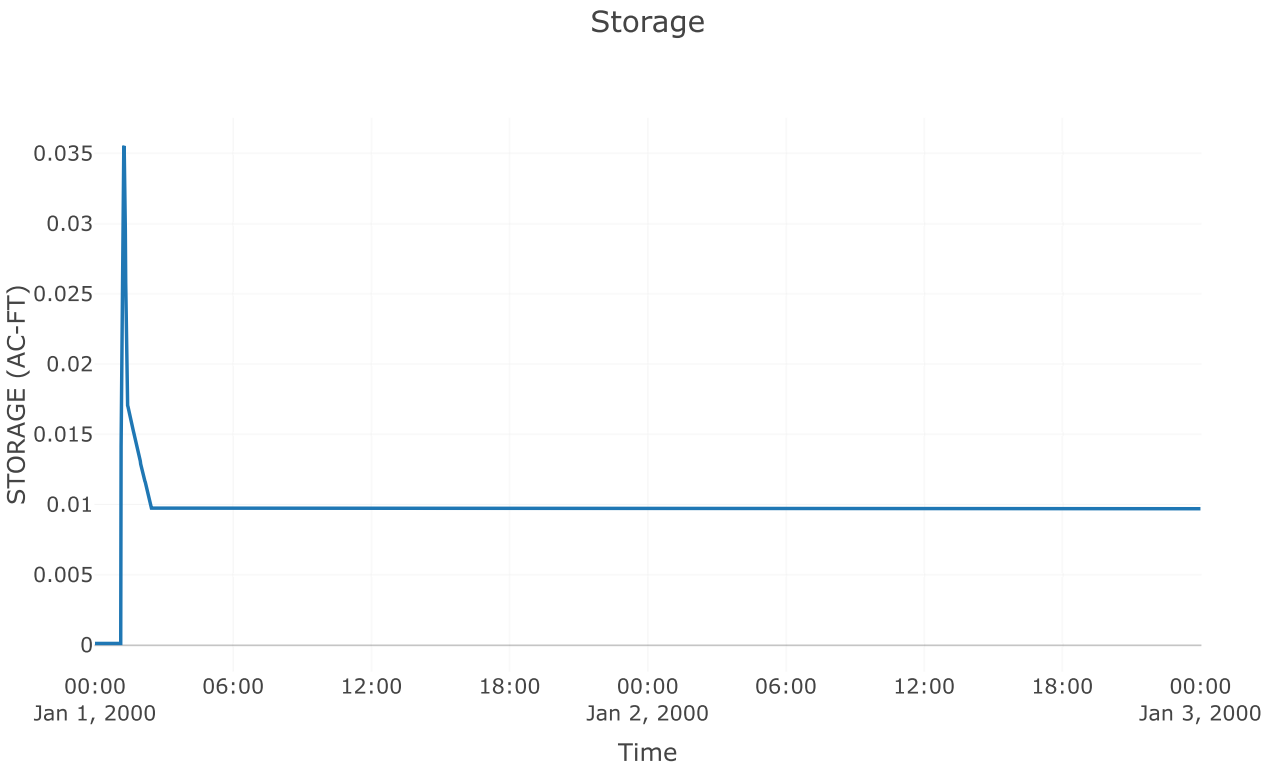

Outflow
FLOW (CFS)
80
60
40
20
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Outlet Storm Box

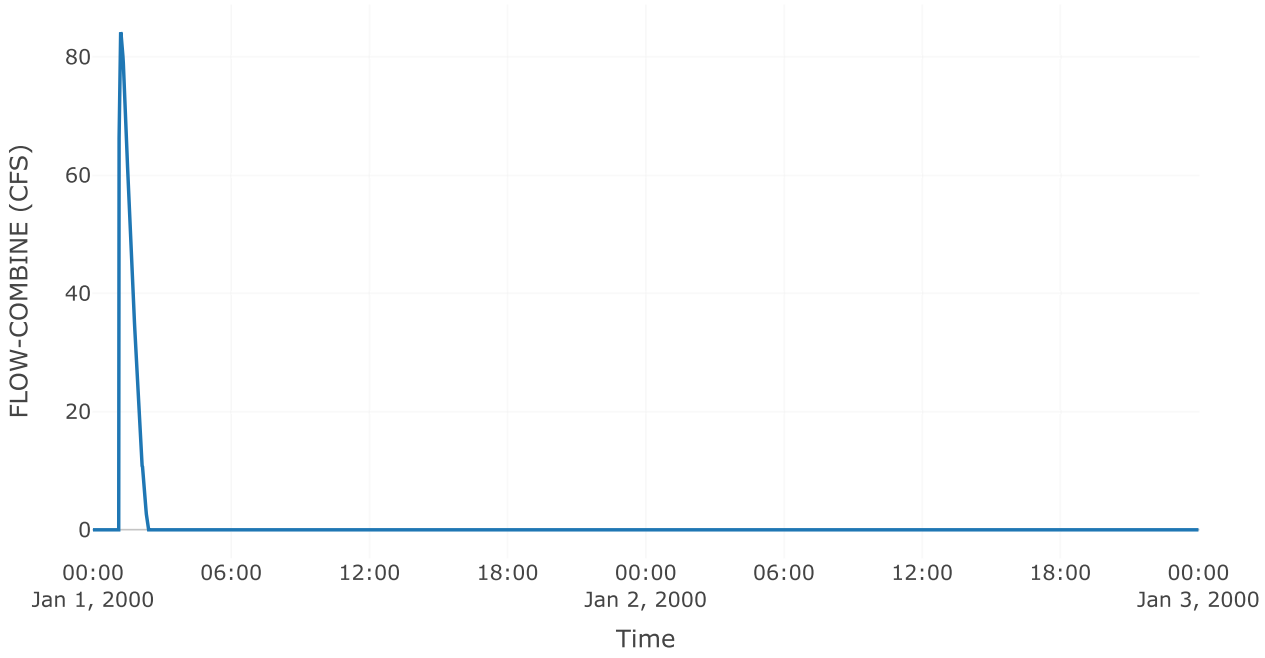
Downstream : 55th Street Outlet

Results: Outlet Storm Box	
Peak Discharge (CFS)	0
Time of Peak Discharge	31Dec1999, 24:00
Volume (IN)	0
Peak Inflow (CFS)	84.16
Time of Peak Inflow	01Jan2000, 01:12
Inflow Volume (AC - FT)	4.24
Maximum Storage (AC - FT)	0.04
Peak Elevation (FT)	654.02
Discharge Volume (AC - FT)	0

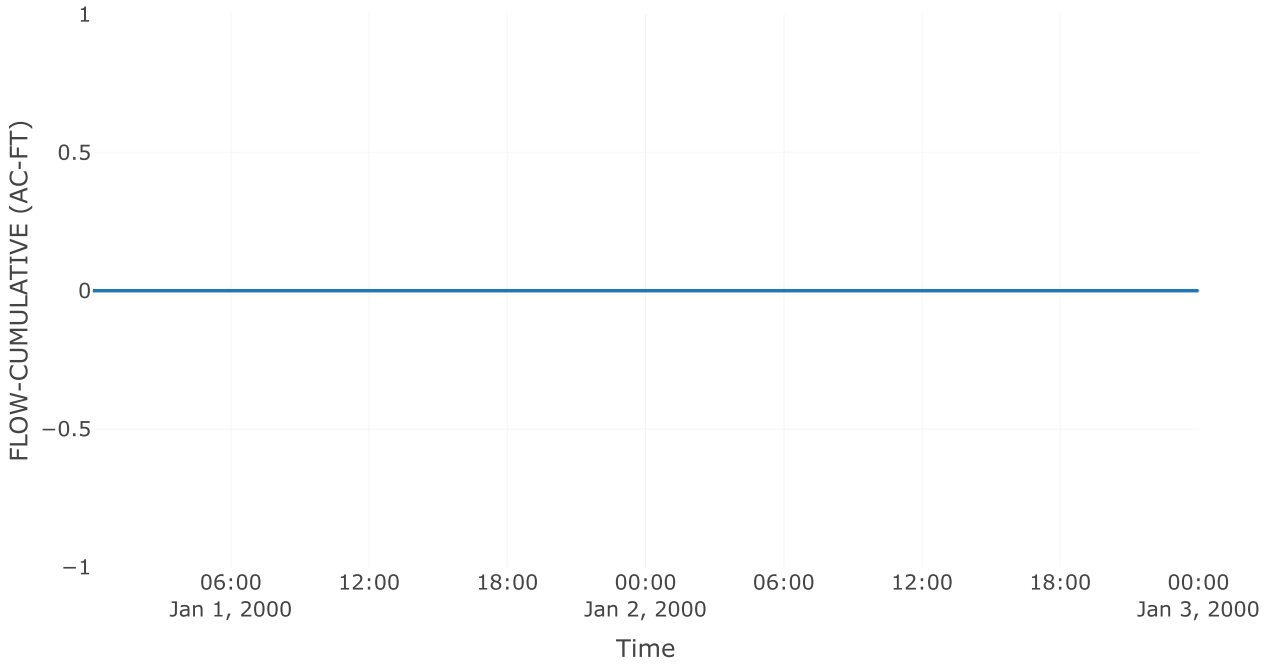

Auxiliary Outflow
FLOW-AUX (CFS)
80
60
40
20
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

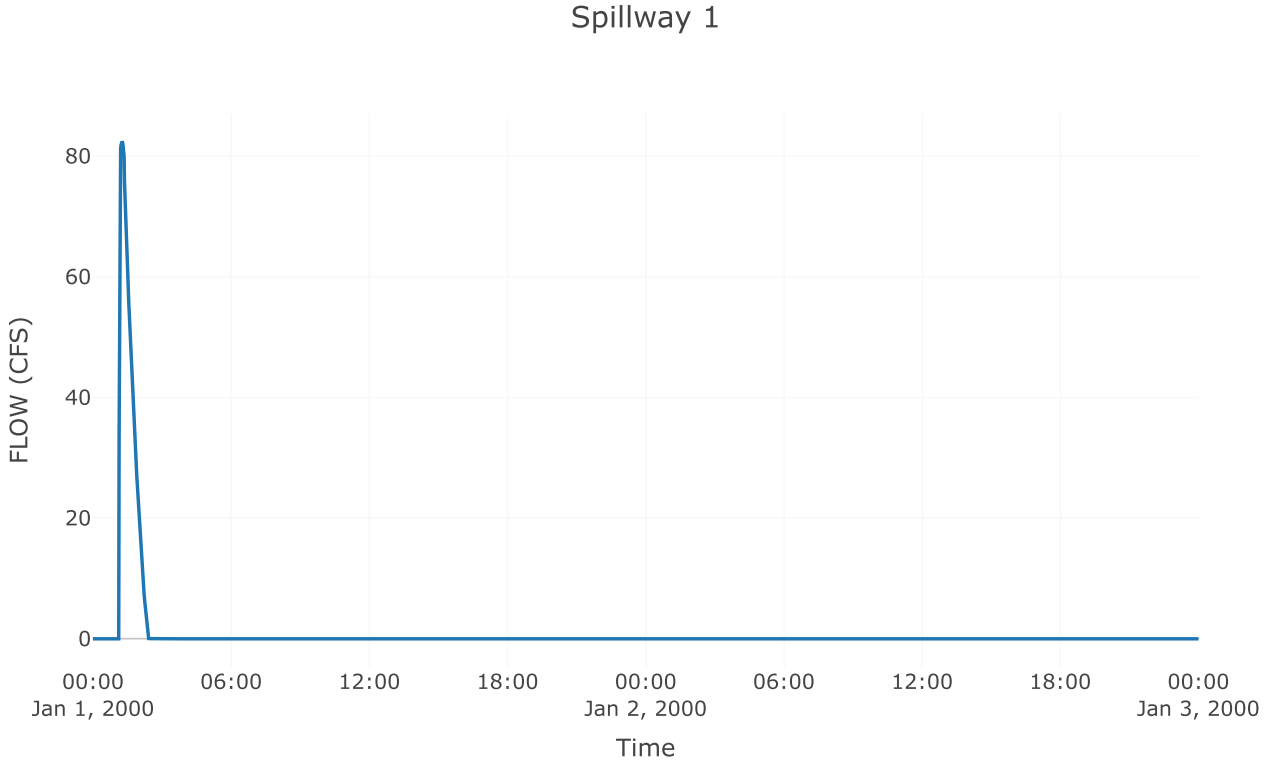

Storage
STORAGE (AC-FT)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

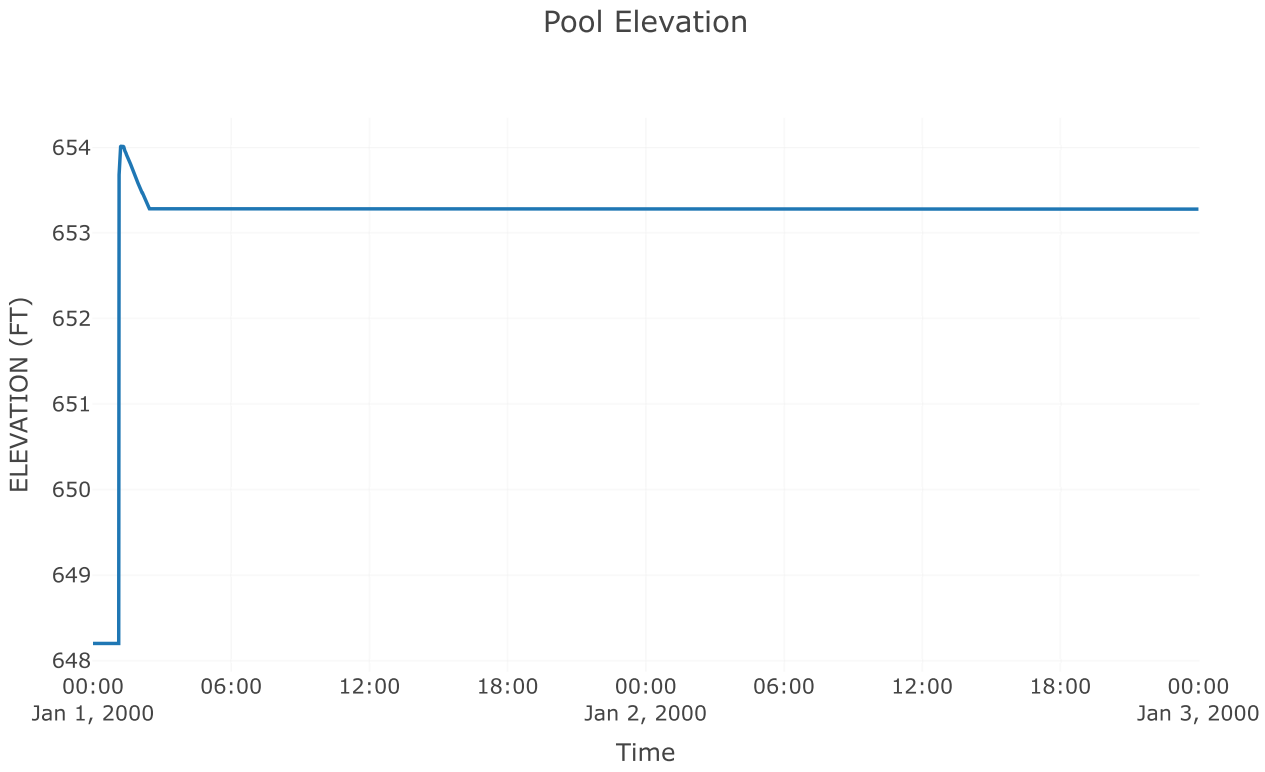
Combined Inflow

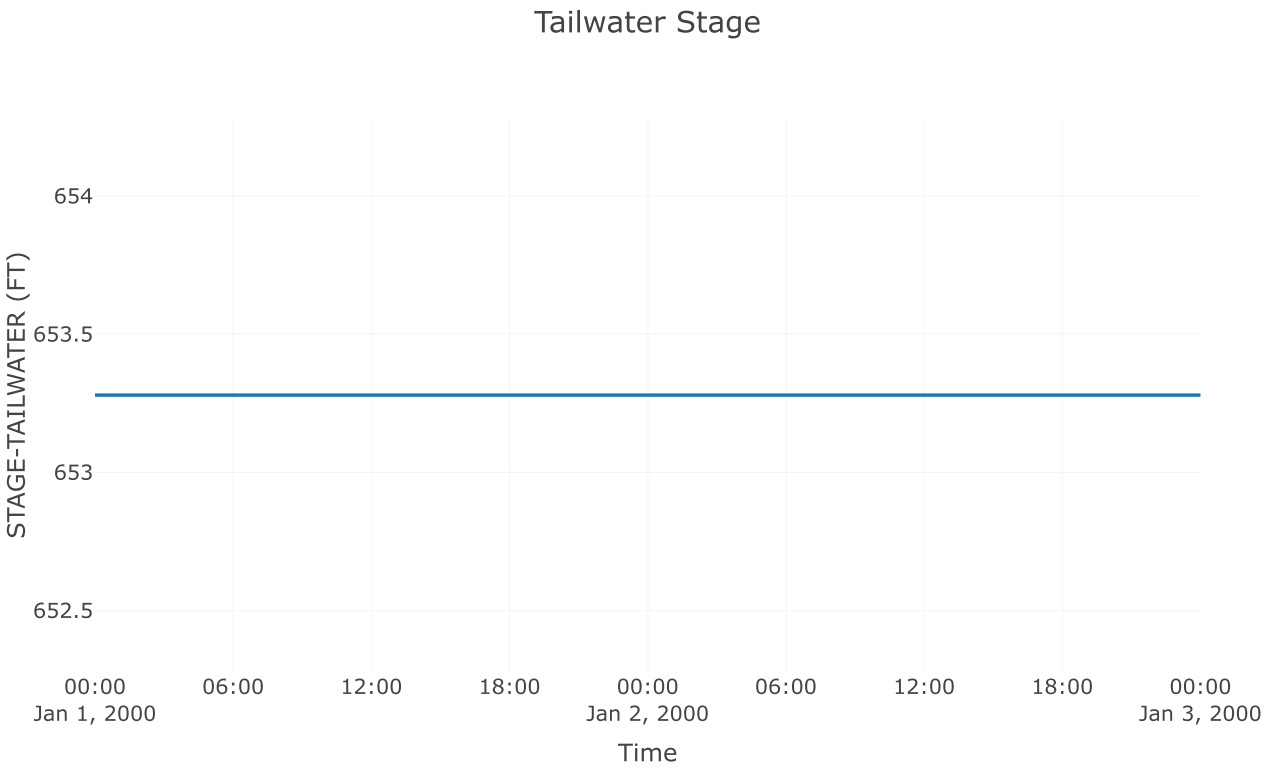


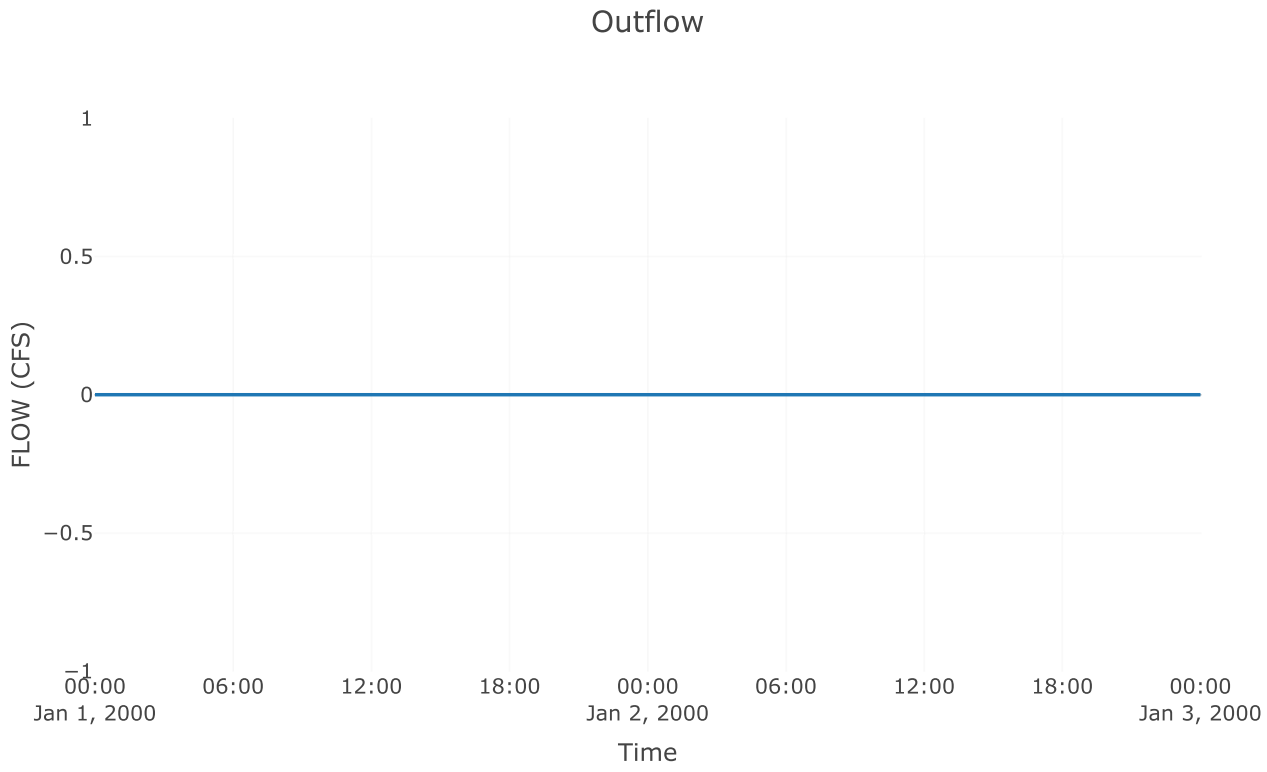
Cumulative Outflow




Spillway 1
FLOW (CFS)
80
60
40
20
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

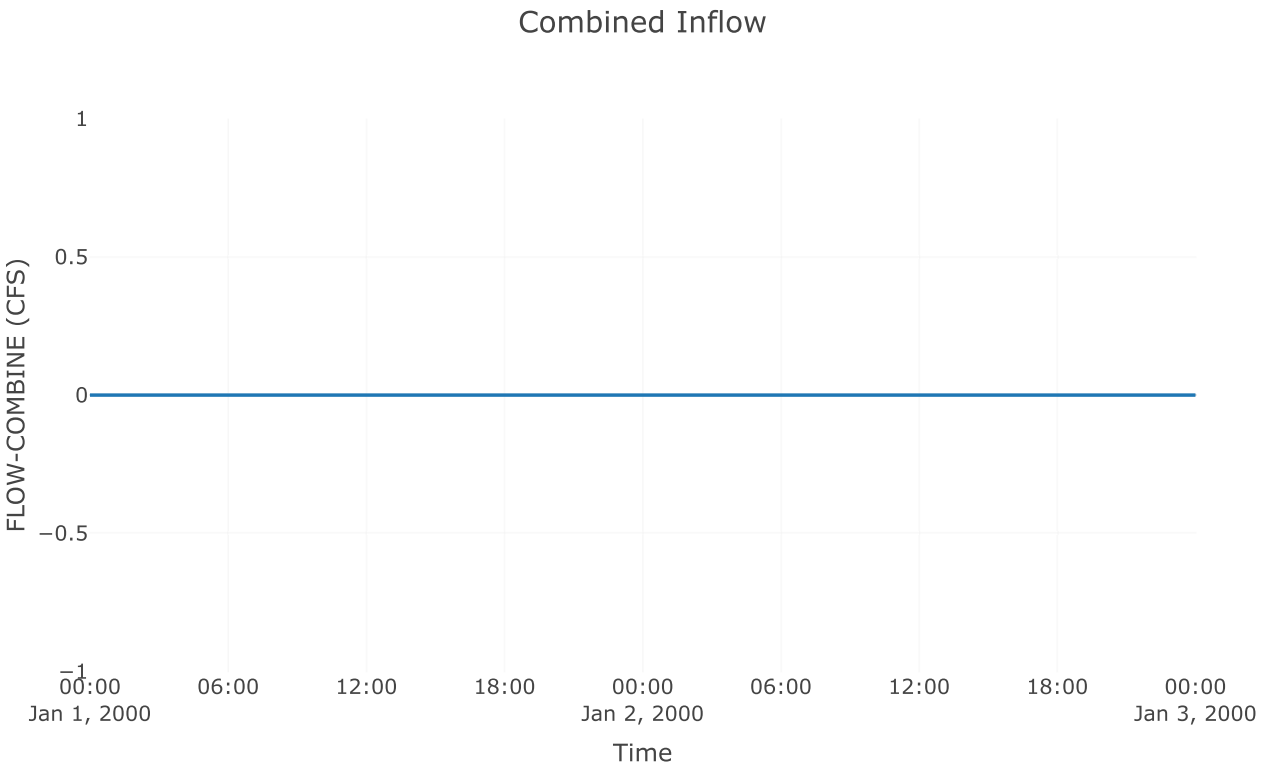

Pool Elevation
ELEVATION (FT)
654
653
652
651
650
649
648
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

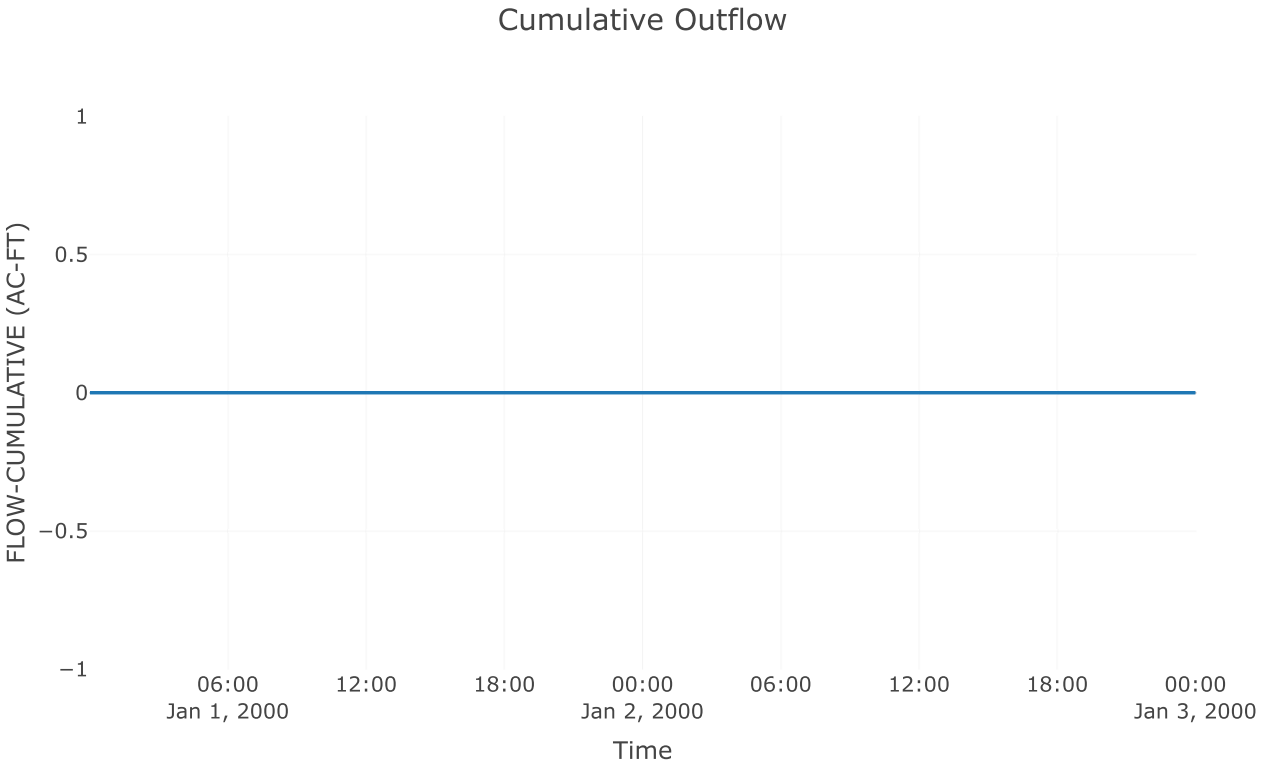

Tailwater Stage
654
653.5
653
652.5
STAGE-TAILWATER (FT)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

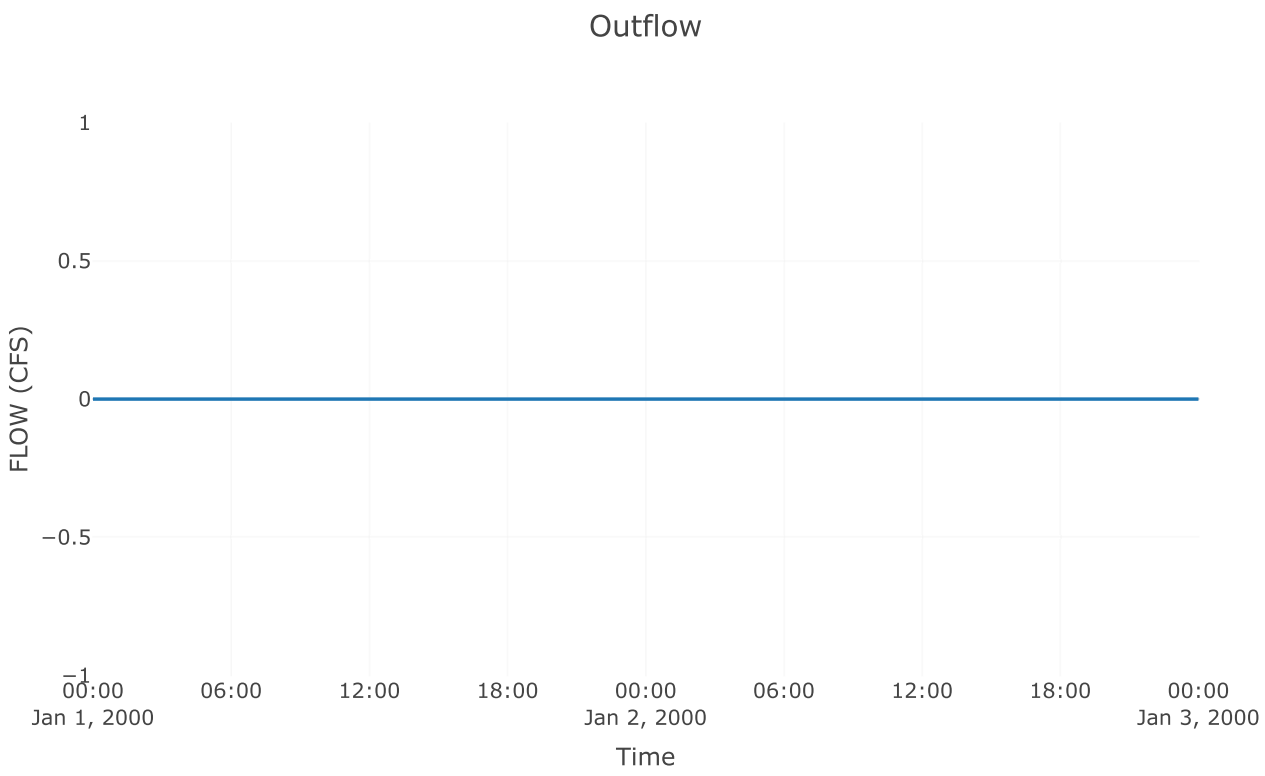

Outflow
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Sink: 55th Street Outlet

Results: 55th Street Outlet	
Peak Discharge (CFS)	0
Time of Peak Discharge	31Dec1999, 24:00
Volume (IN)	0


Combined Inflow
FLOW-COMBINE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
1
0.5
0
−0.5
−1
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outflow
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Project: Existing condition
Simulation Run: 100YR__1HR
Simulation Start: 31 December 1999, 24:00
Simulation End: 2 January 2000, 24:00

HMS Version: 4.12
Executed: 07 March 2025, 20:48

Global Parameter Summary - Subbasin

Area (MI2)

Element Name	Area (MI2)
On - Site Trib 1	0.03
Off - Site Trib 1 South	0
Off - Site Trib 1 West	0
On - Site Trib 2	0.02
Off - Site Trib2	0.01
On - Site Trib - Area 3	0.01
LaGrange Highlands Off - Site	0.2
Existing On - Site	0

Downstream

Element Name	Downstream
On - Site Trib 1	Basin 1
Off - Site Trib 1 South	Basin 1
Off - Site Trib 1 West	Basin 1
On - Site Trib 2	Basin 2
Off - Site Trib2	Basin 2
On - Site Trib - Area 3	Basin 3
LaGrange Highlands Off - Site	Off - Site Tributary Area
Existing On - Site	Existing Basin C

Loss Rate: Scs

Element Name	Percent Impervious Area	Curve Number
On - Site Trib 1	0	86
Off - Site Trib 1 South	0	80
Off - Site Trib 1 West	0	83
On - Site Trib 2	0	83
Off - Site Trib2	0	83
On - Site Trib - Area 3	0	83
LaGrange Highlands Off - Site	0	86
Existing On - Site	0	91.09

Transform: Scs

Element Name	Lag	Unitgraph Type
On - Site Trib 1	21	Standard
Off - Site Trib 1 South	6	Standard
Off - Site Trib 1 West	12	Standard
On - Site Trib 2	20.4	Standard
Off - Site Trib2	12	Standard
On - Site Trib - Area 3	21	Standard
LaGrange Highlands Off - Site	29.2	Standard
Existing On - Site	6	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
On - Site Trib 1	0.03	58.05	01Jan2000, 00:38	2.57
Off - Site Trib 1 South	0	6.25	01Jan2000, 00:21	2.07
Off - Site Trib 1 West	0	4.91	01Jan2000, 00:27	2.31
Basin 1	0.03	6.25	01Jan2000, 01:34	2.51
On - Site Trib 2	0.02	32.72	01Jan2000, 00:39	2.31
Off - Site Trib2	0.01	12.85	01Jan2000, 00:27	2.31
Basin 2	0.05	4.79	01Jan2000, 05:38	2.42
On - Site Trib - Area 3	0.01	23.74	01Jan2000, 00:39	2.31
LaGrange Highlands Off - Site	0.2	358.51	01Jan2000, 00:49	2.57
Basin 3	0.07	3.52	01Jan2000, 15:36	2.2
Off - Site Tributary Area	0.27	359.61	01Jan2000, 00:49	2.48
Storage East of Wolf Road	0.27	338.18	01Jan2000, 00:57	2.48
Storage West of Wolf Road	0.27	338.2	01Jan2000, 00:56	2.48
Existing On - Site	0	15.64	01Jan2000, 00:18	3.06
Existing Basin C	0.27	216.02	01Jan2000, 01:05	1.14
Existing Basin A & B	0.27	214.92	01Jan2000, 01:09	0.99
Outlet Storm Box	0.27	0	31Dec1999, 24:00	0

55th Street Outlet	0.27	0	31Dec1999, 24:00	0

Subbasin: On-Site Trib 1

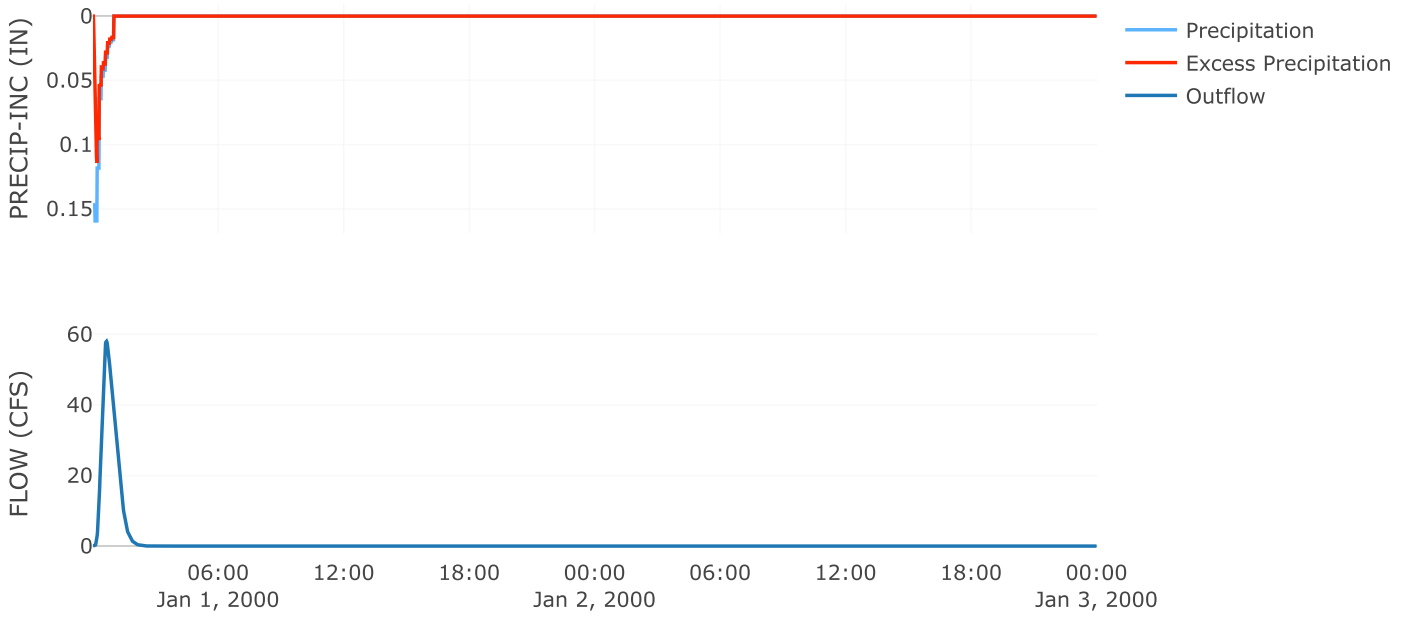
Area (MI2) : 0.03
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	86

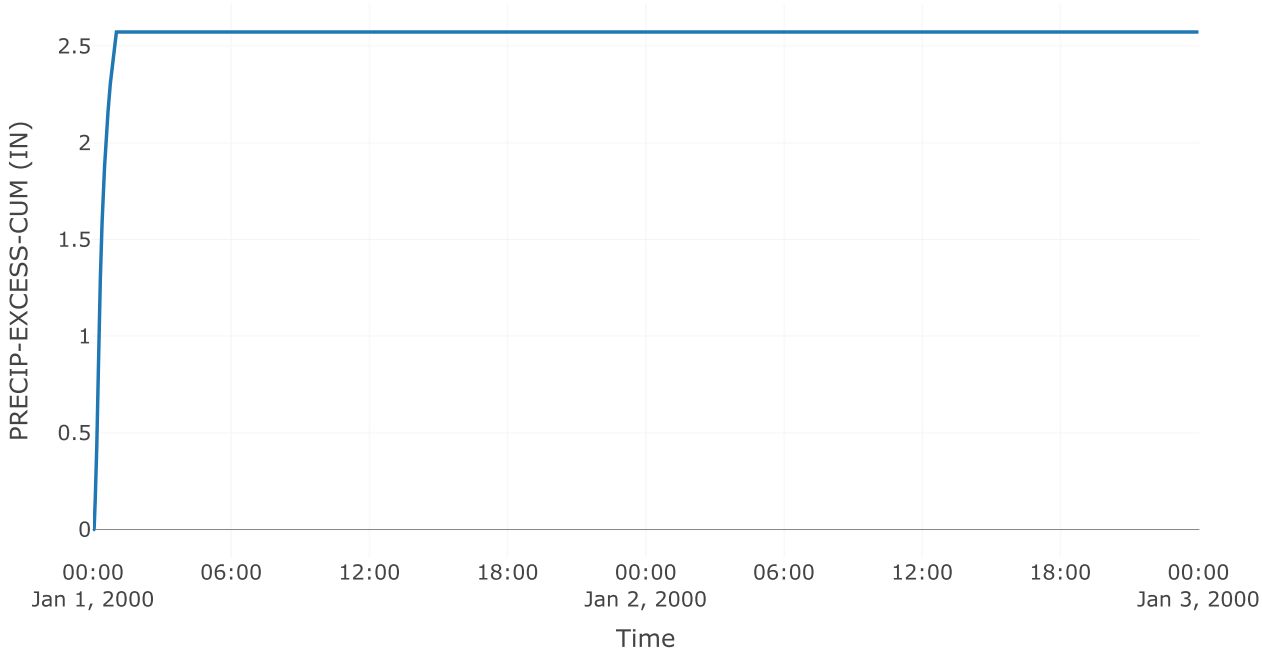
Transform: Scs	
Lag	21
Unitgraph Type	Standard

Results: On-Site Trib 1	
Peak Discharge (CFS)	58.05
Time of Peak Discharge	01Jan2000, 00:38
Volume (IN)	2.57
Precipitation Volume (AC - FT)	5.91
Loss Volume (AC - FT)	2.14
Excess Volume (AC - FT)	3.77
Direct Runoff Volume (AC - FT)	3.77
Baseflow Volume (AC - FT)	0

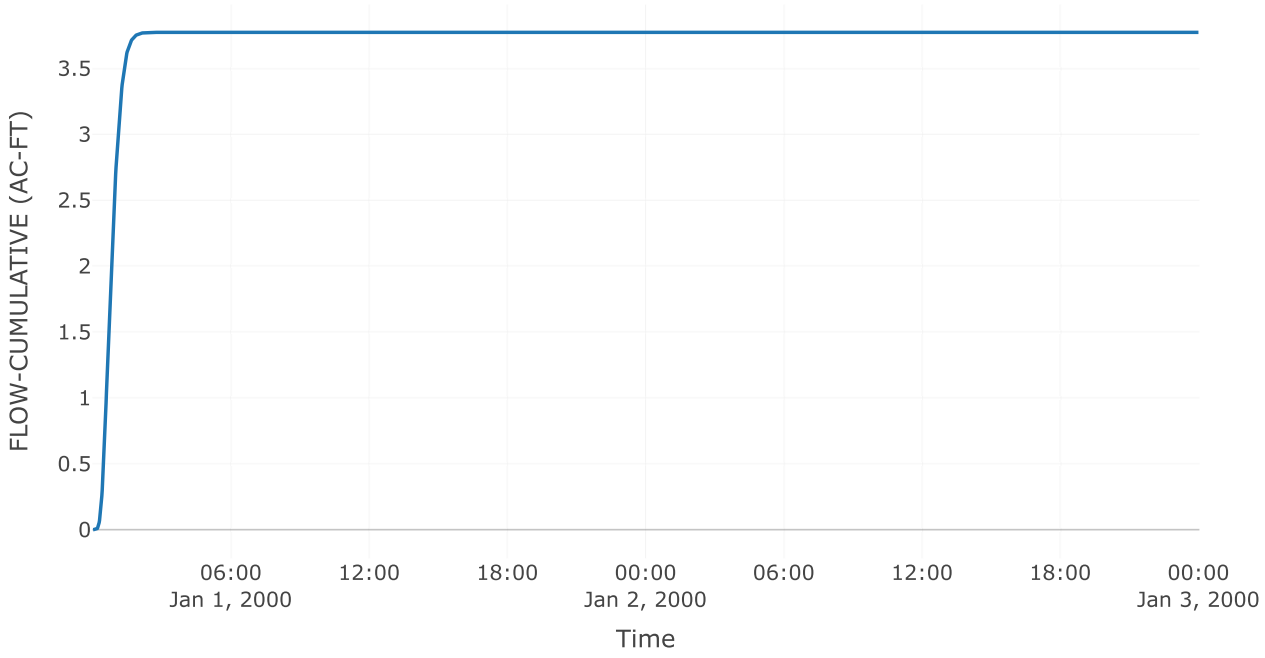
Precipitation and Outflow



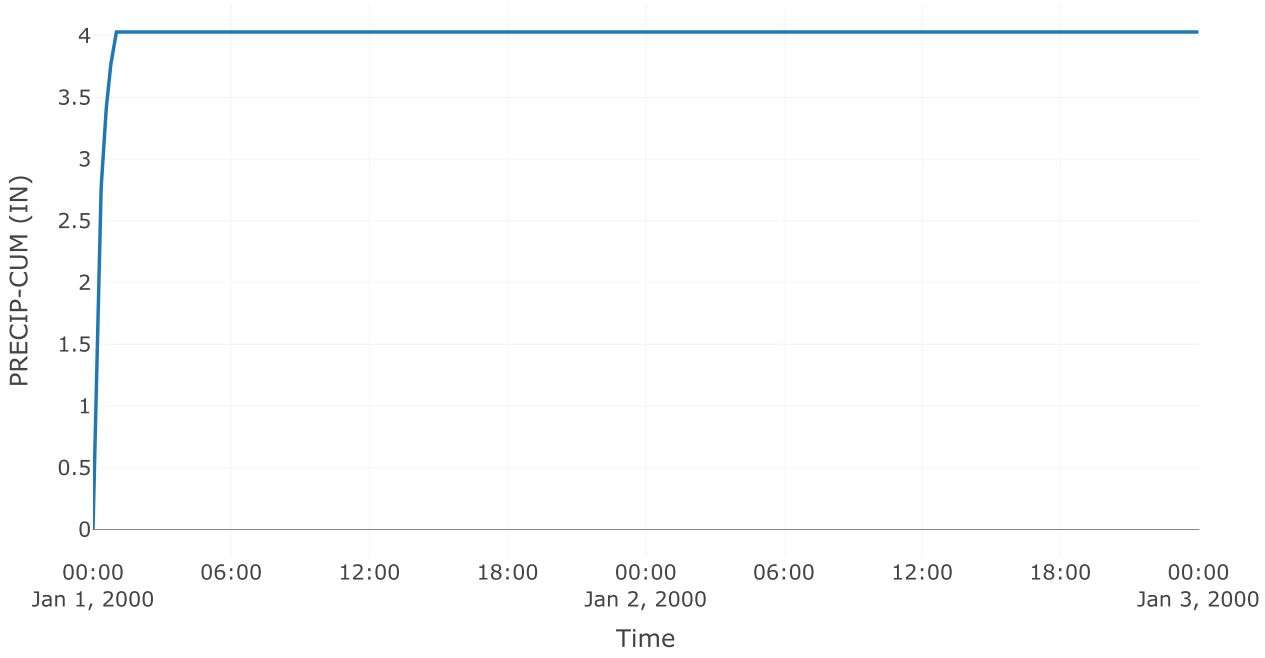
Cumulative Excess Precipitation

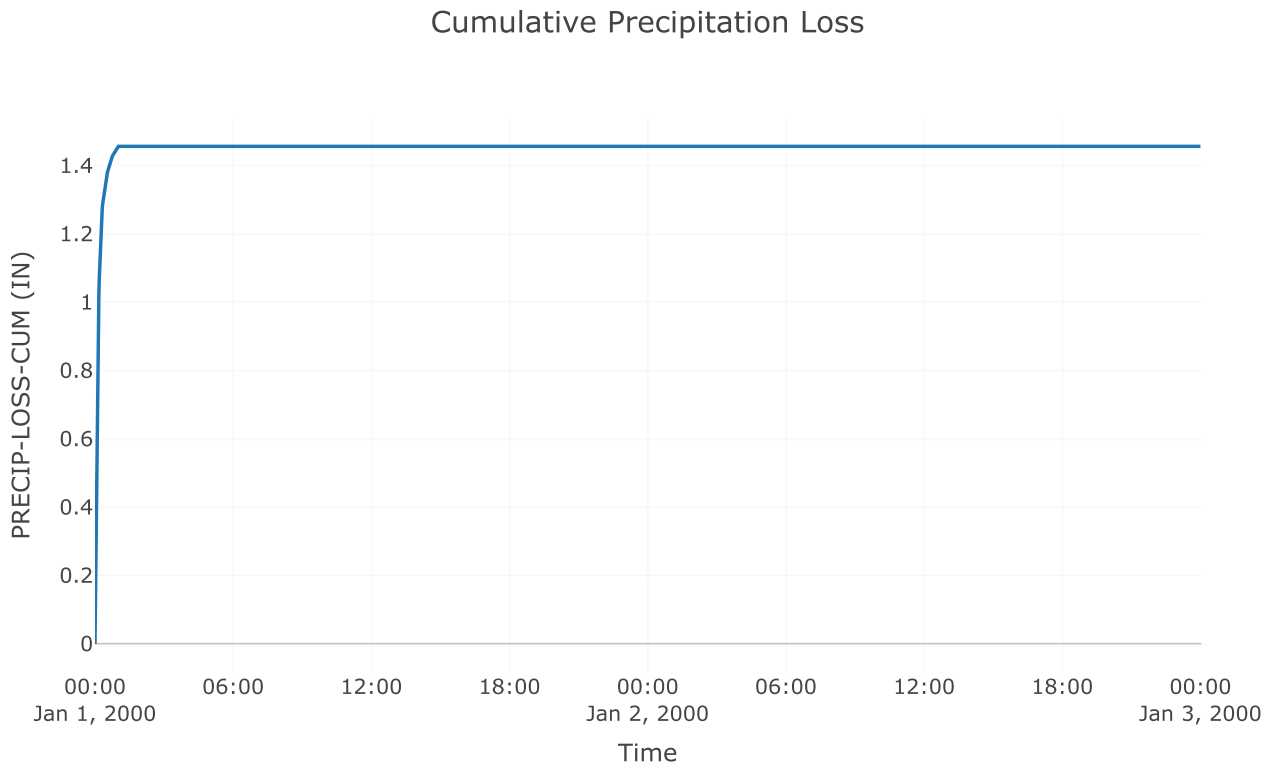


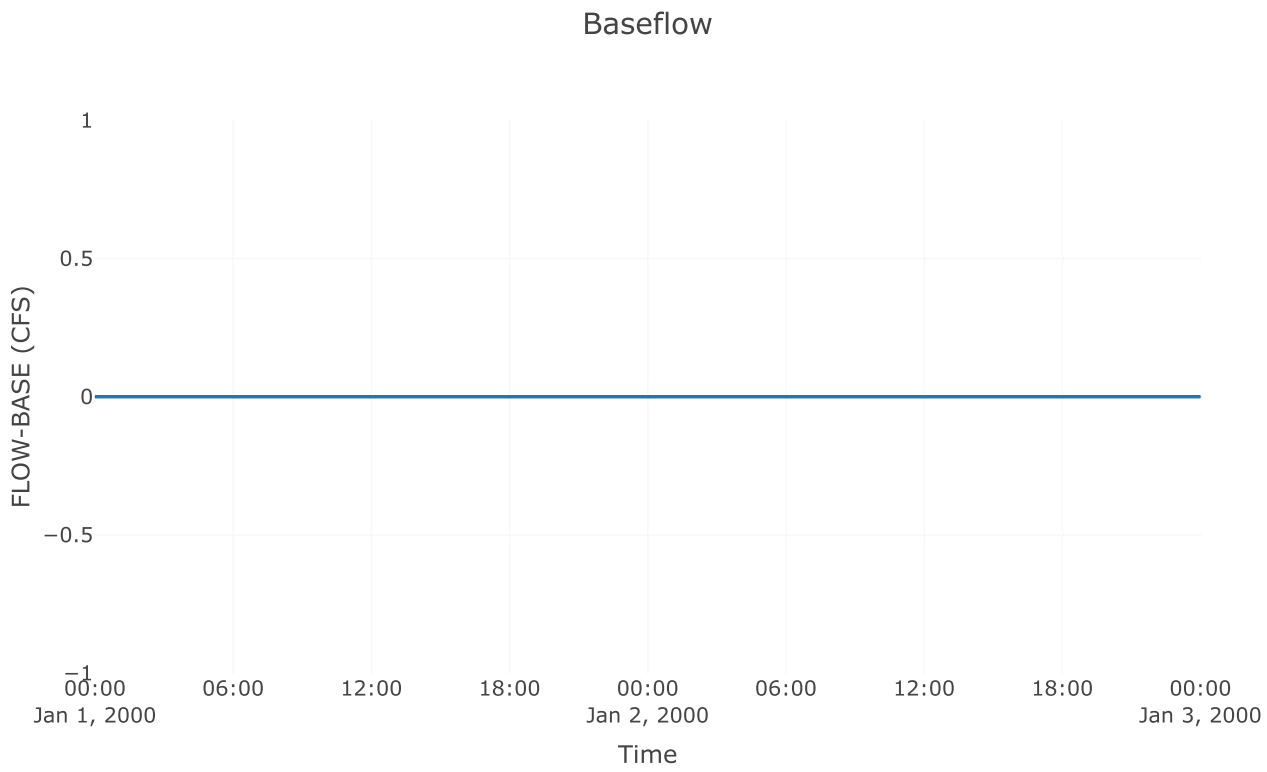
Cumulative Outflow

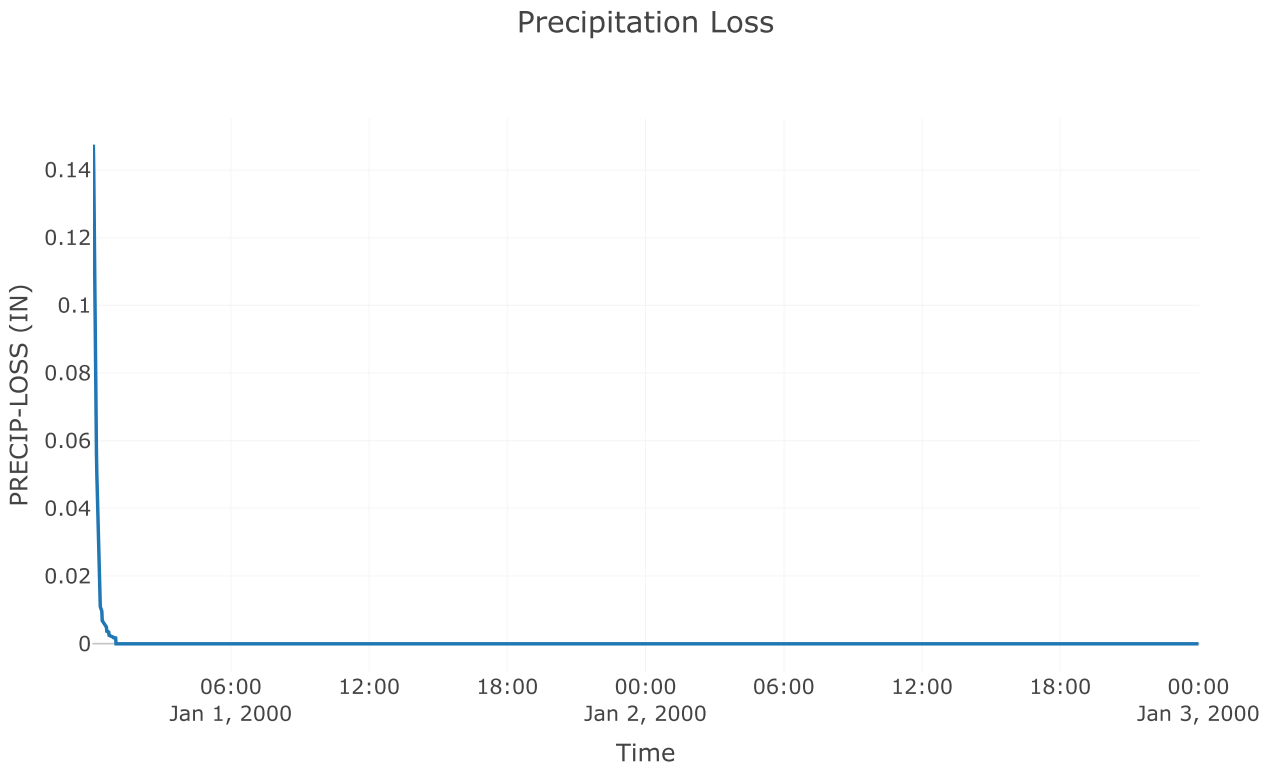


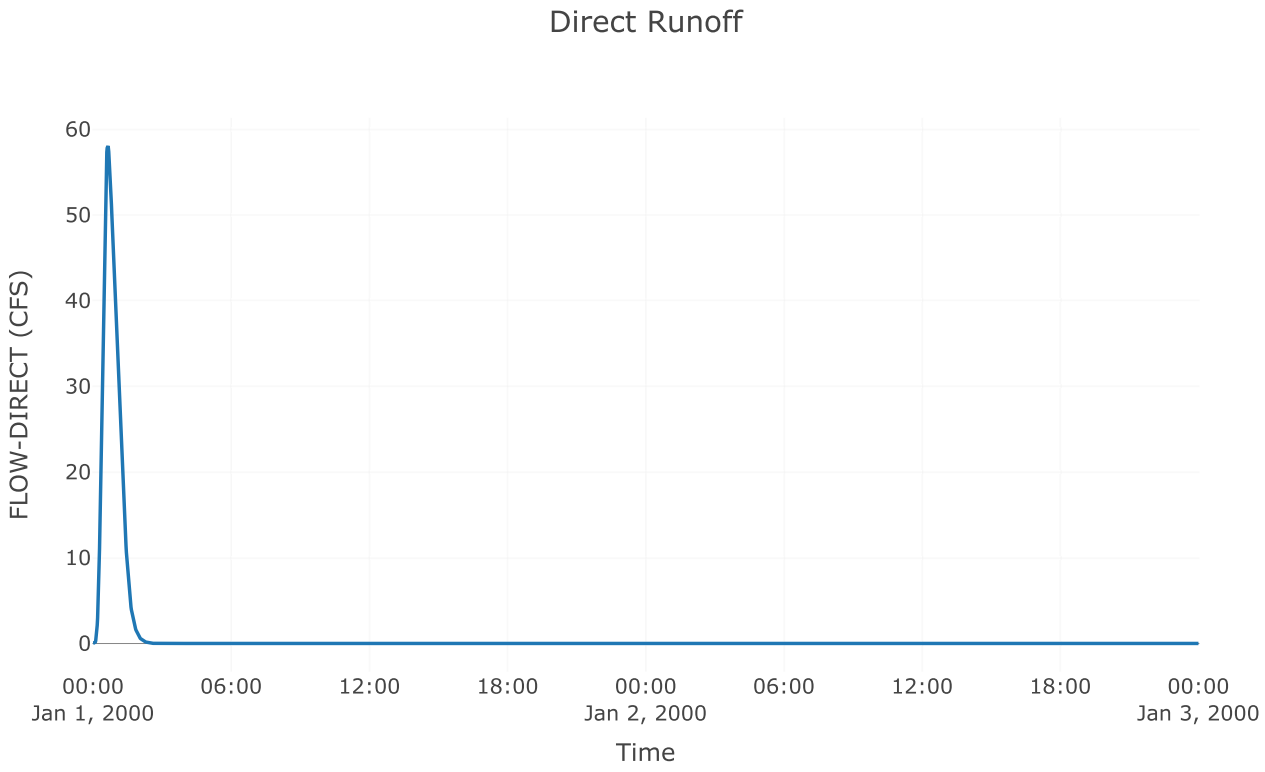
Cumulative Precipitation

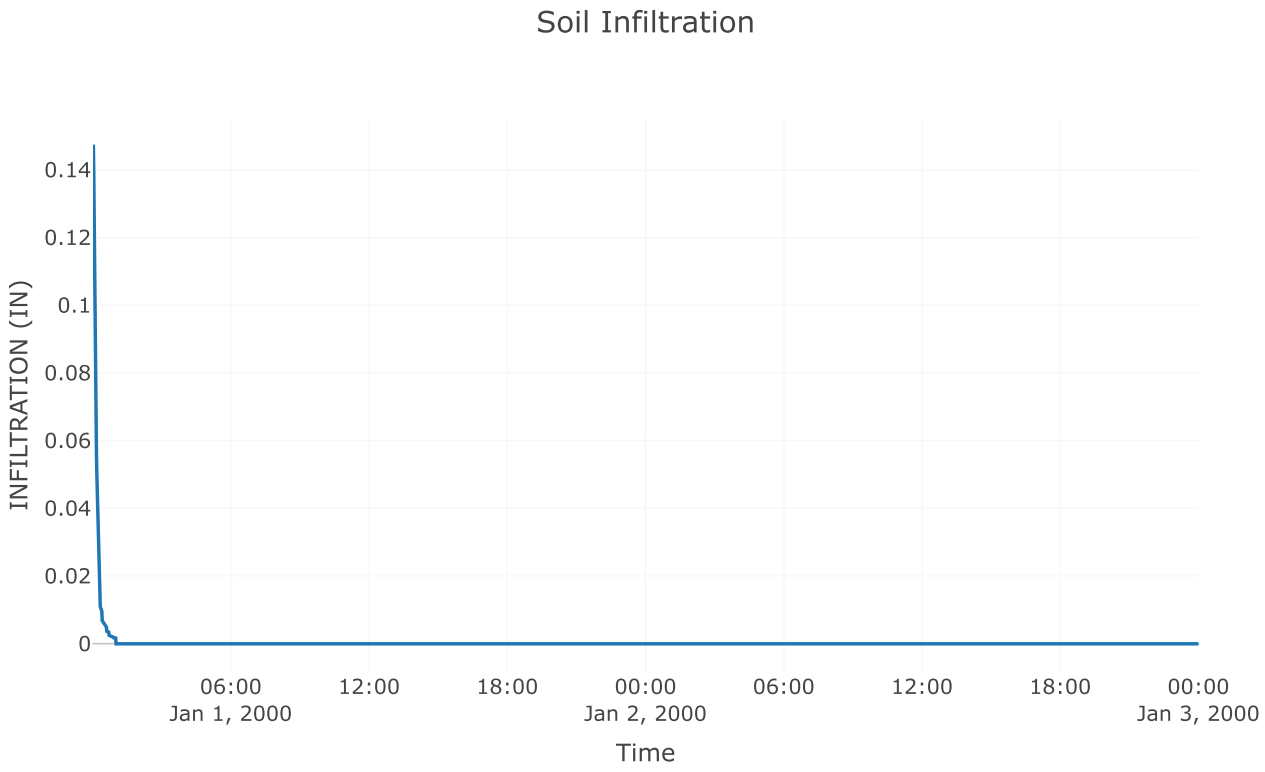



Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
60
50
40
30
20
10
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib 1 South

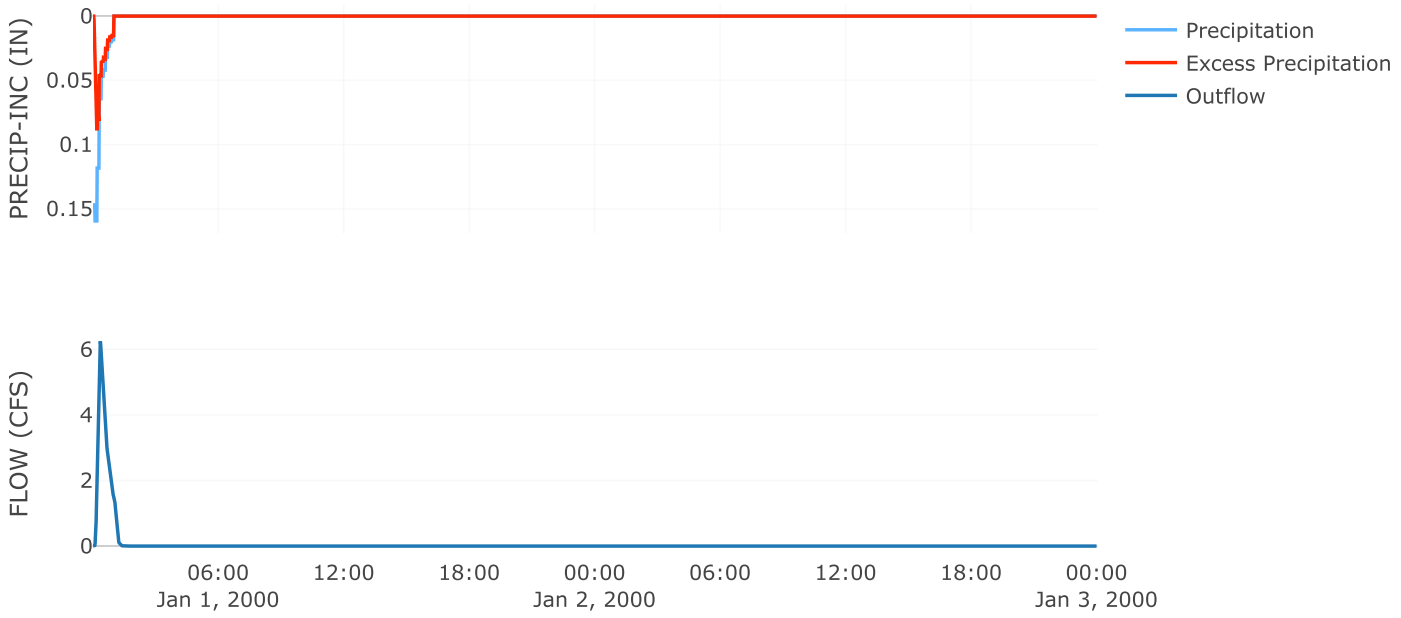
Area (MI2) : 0
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	80

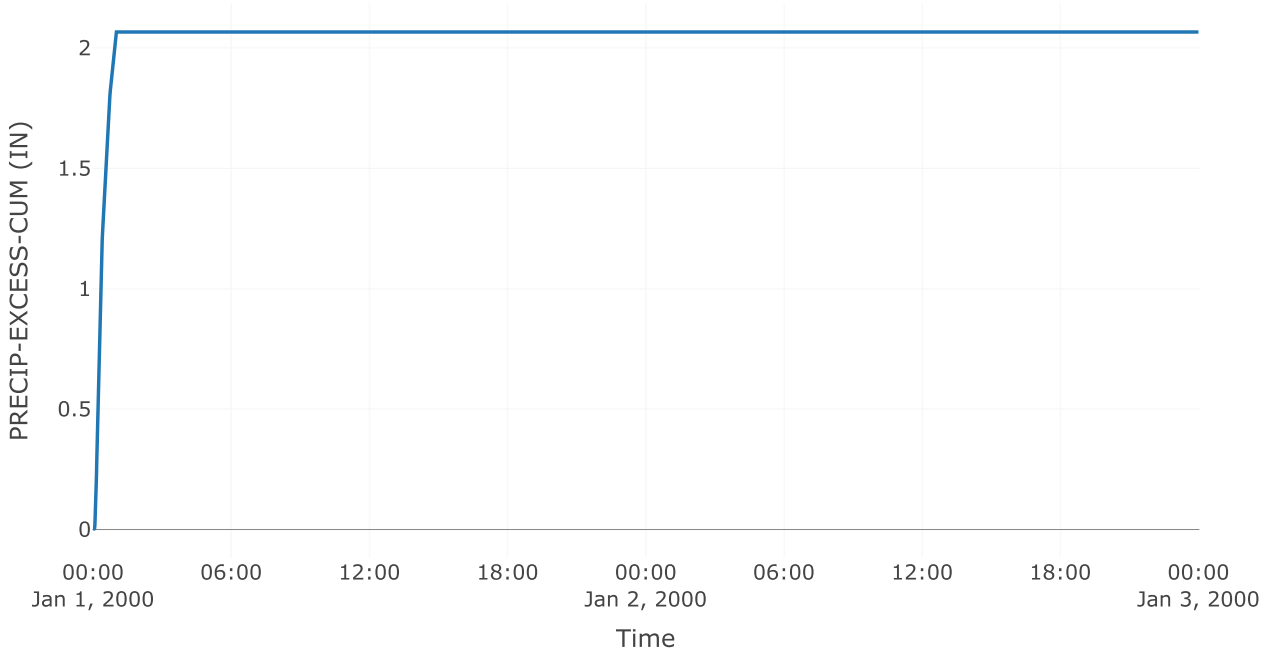
Transform: Scs	
Lag	6
Unitgraph Type	Standard

Results: Off-Site Trib 1 South	
Peak Discharge (CFS)	6.25
Time of Peak Discharge	01Jan2000, 00:21
Volume (IN)	2.07
Precipitation Volume (AC - FT)	0.5
Loss Volume (AC - FT)	0.25
Excess Volume (AC - FT)	0.26
Direct Runoff Volume (AC - FT)	0.26
Baseflow Volume (AC - FT)	0

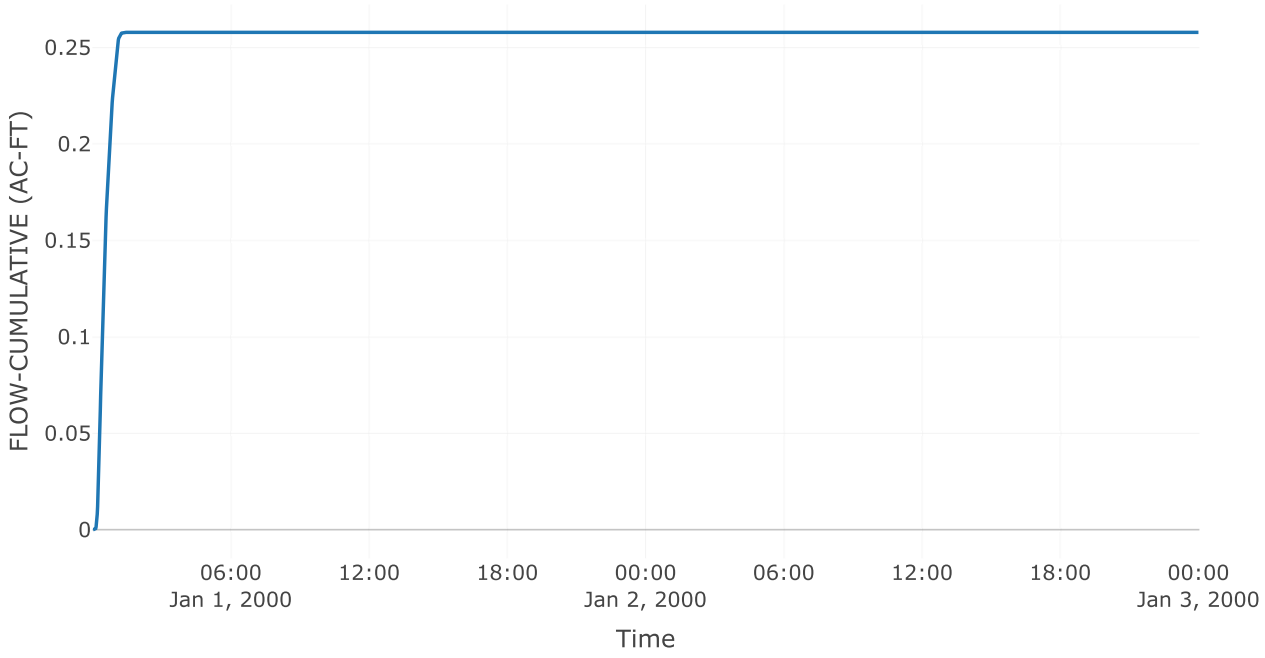
Precipitation and Outflow



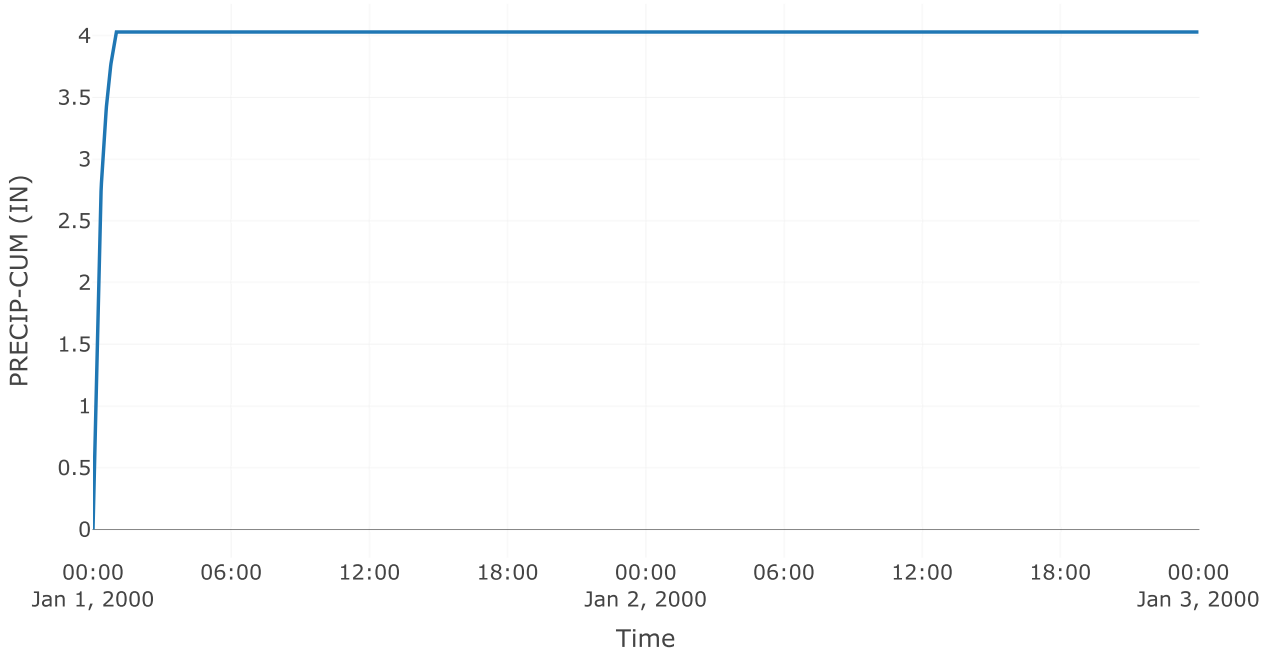
Cumulative Excess Precipitation

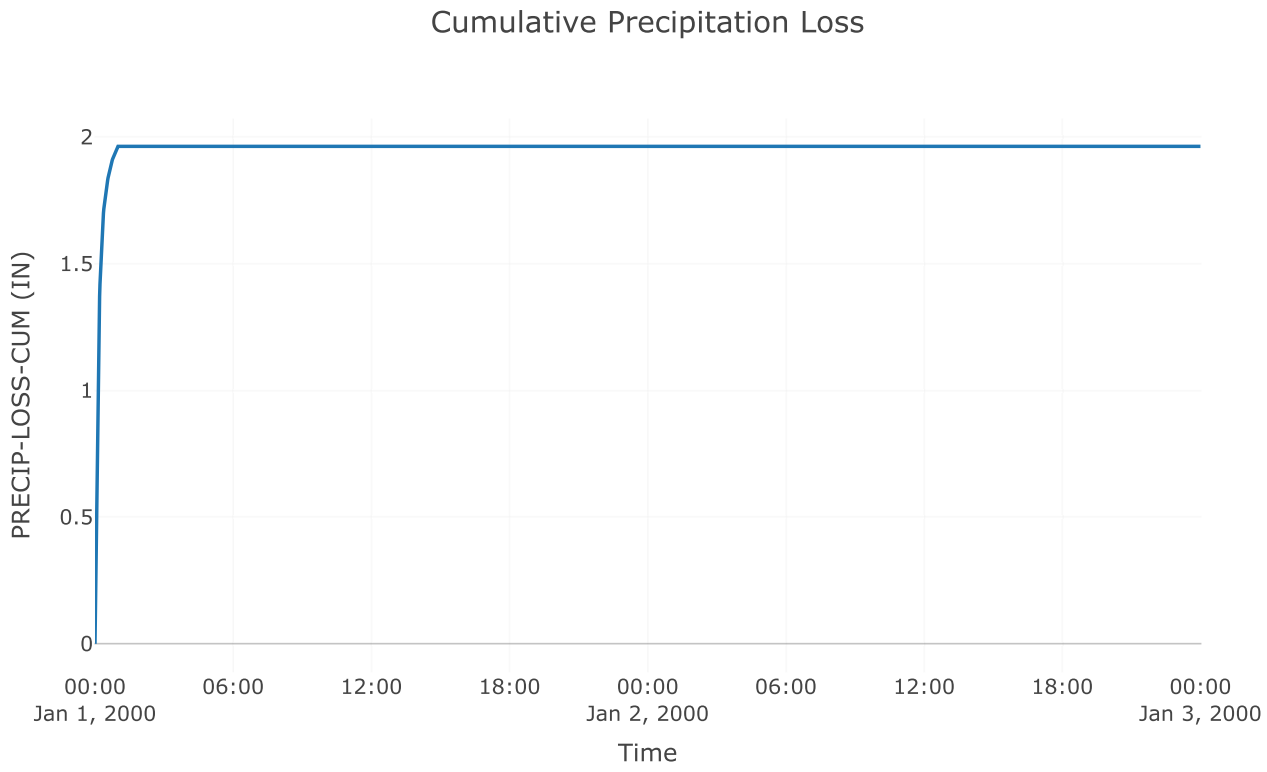


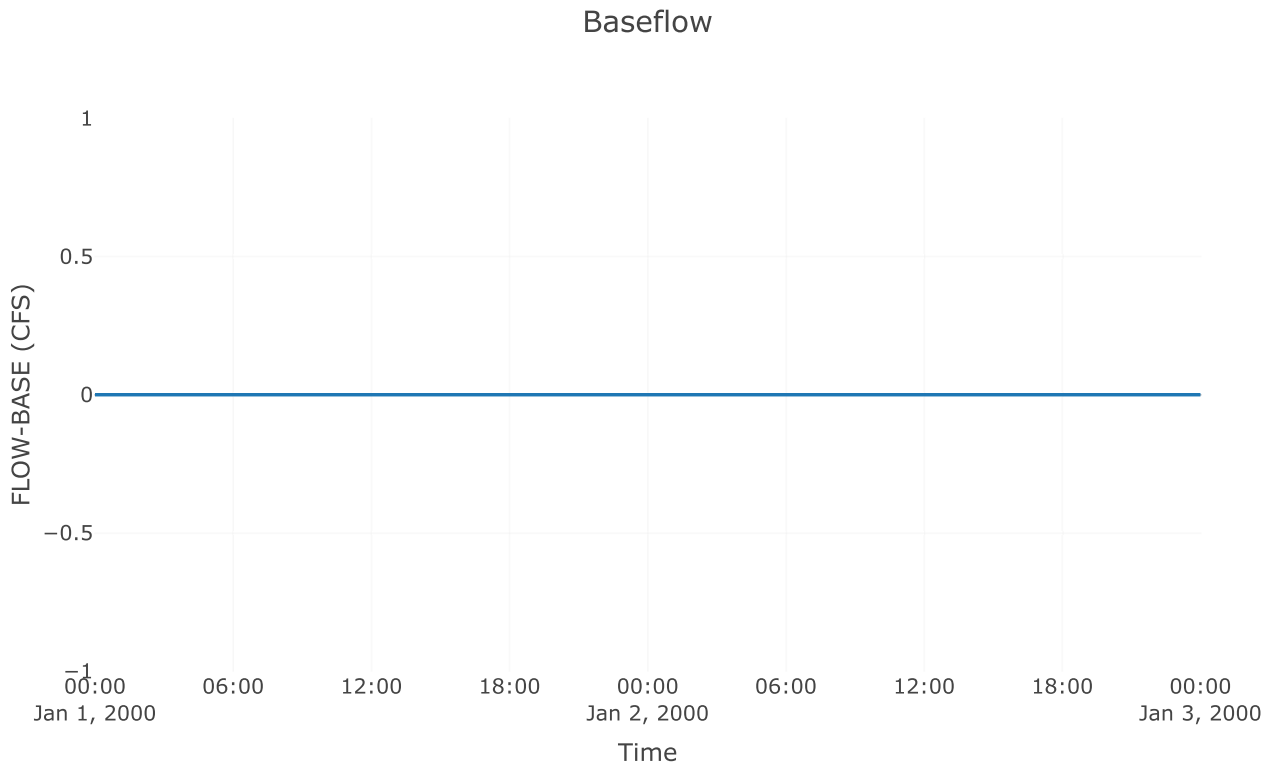
Cumulative Outflow

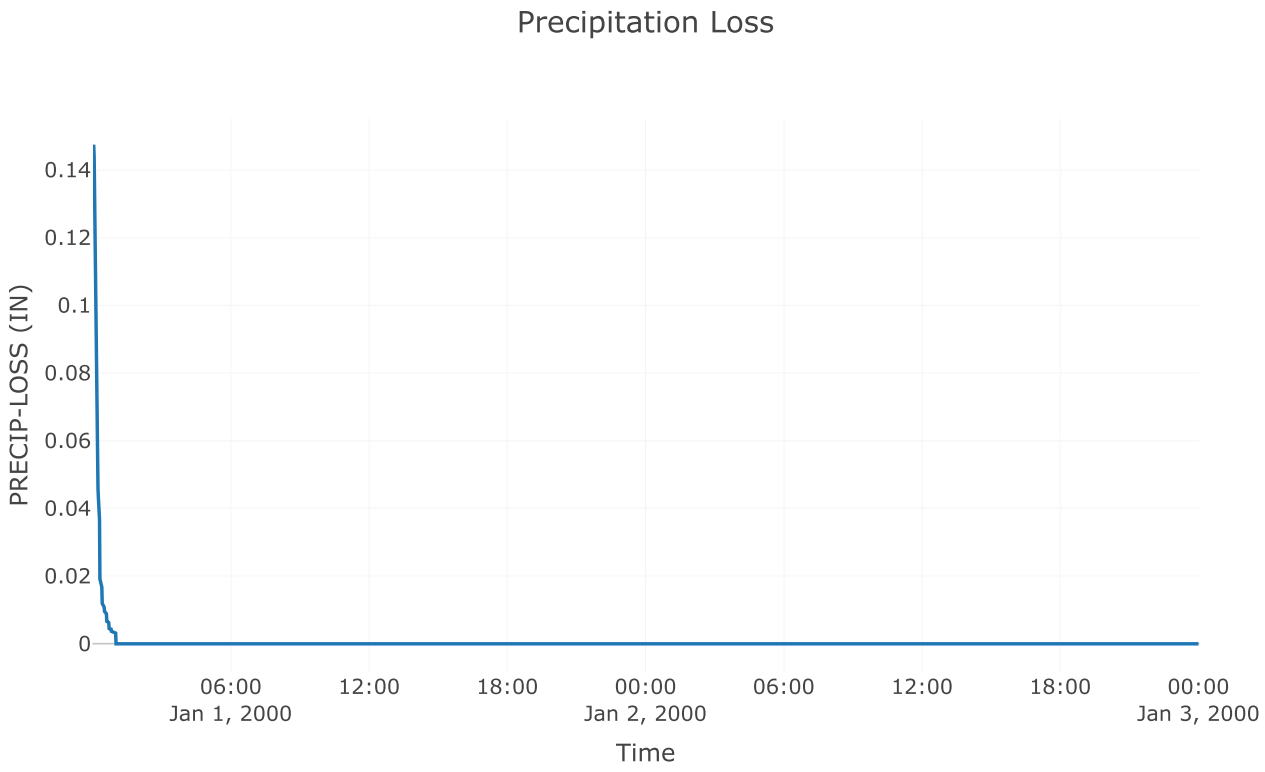


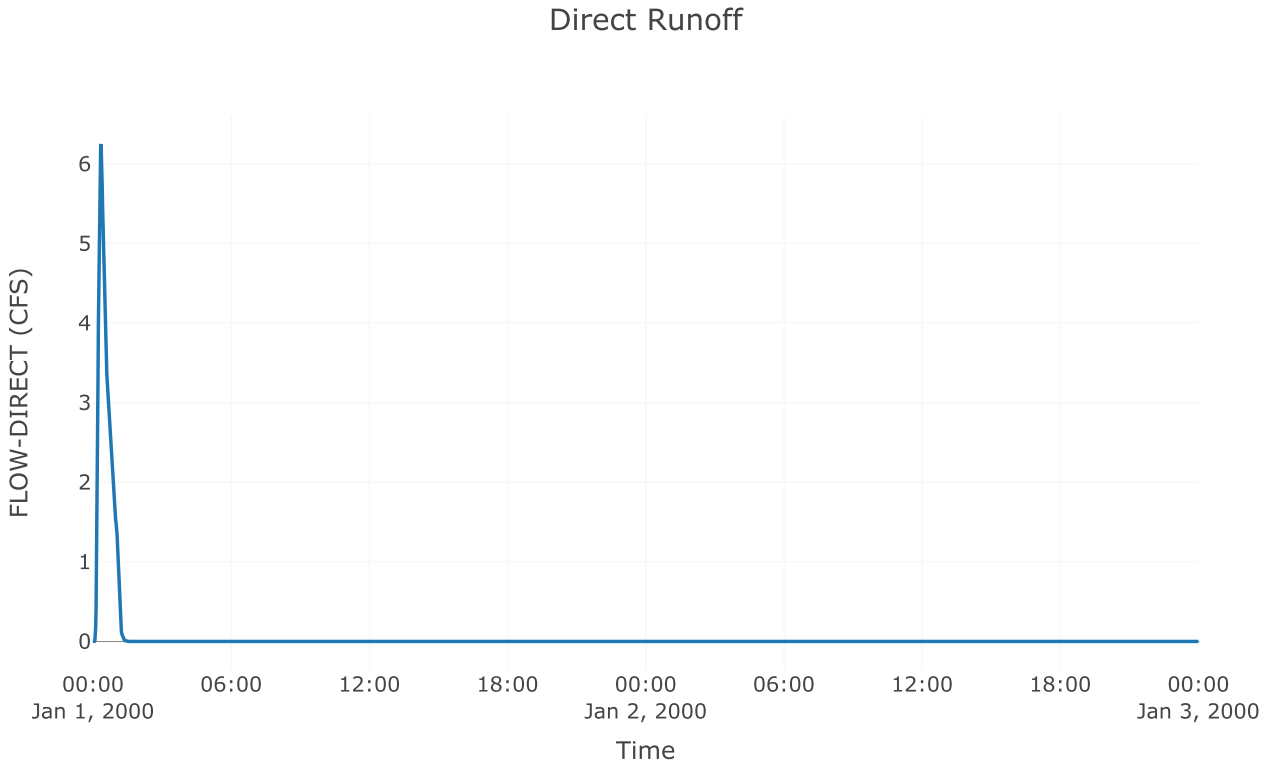
Cumulative Precipitation

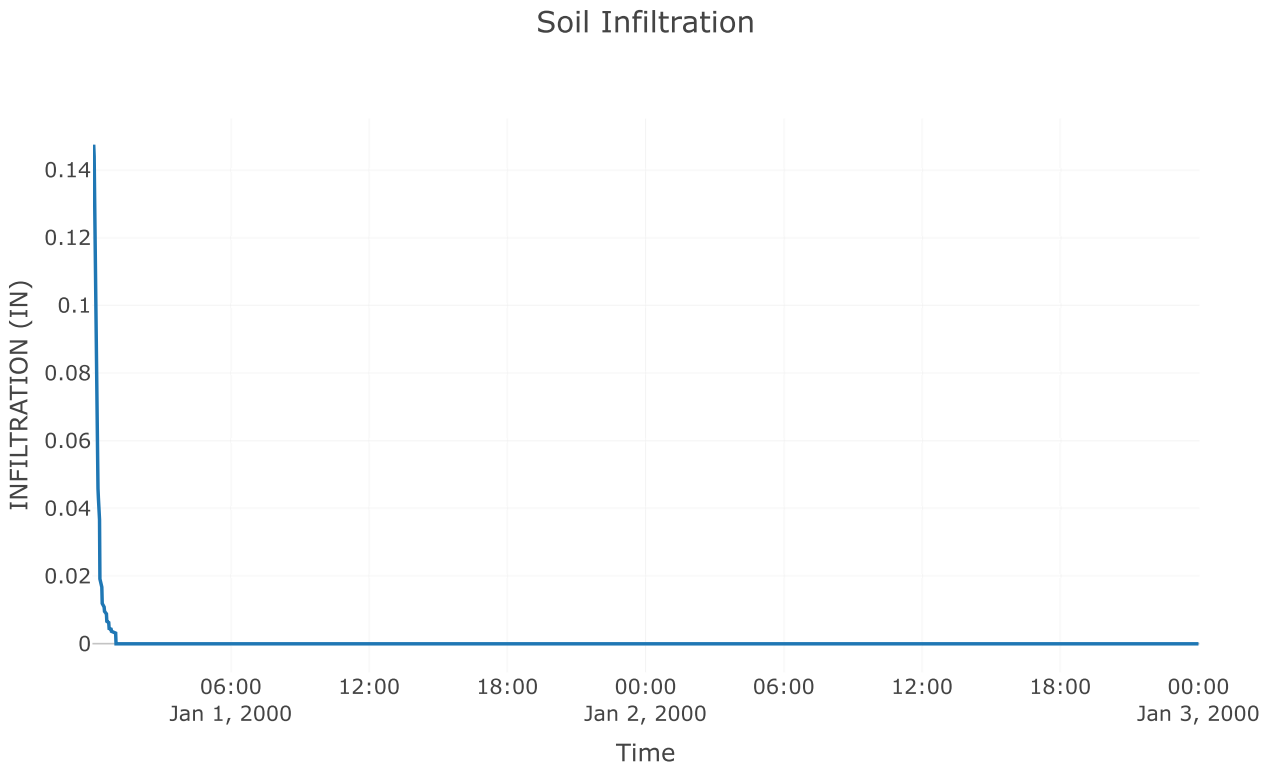



Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
6
5
4
3
2
1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib 1 West

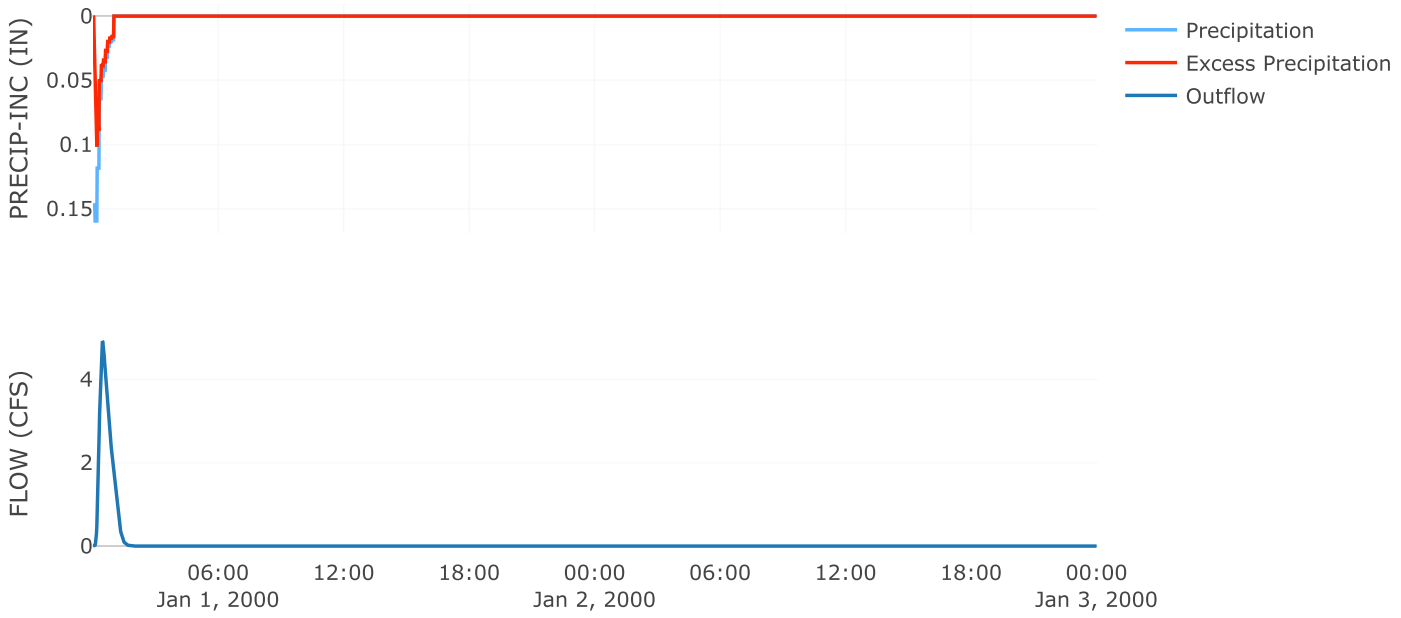
Area (MI2) : 0
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

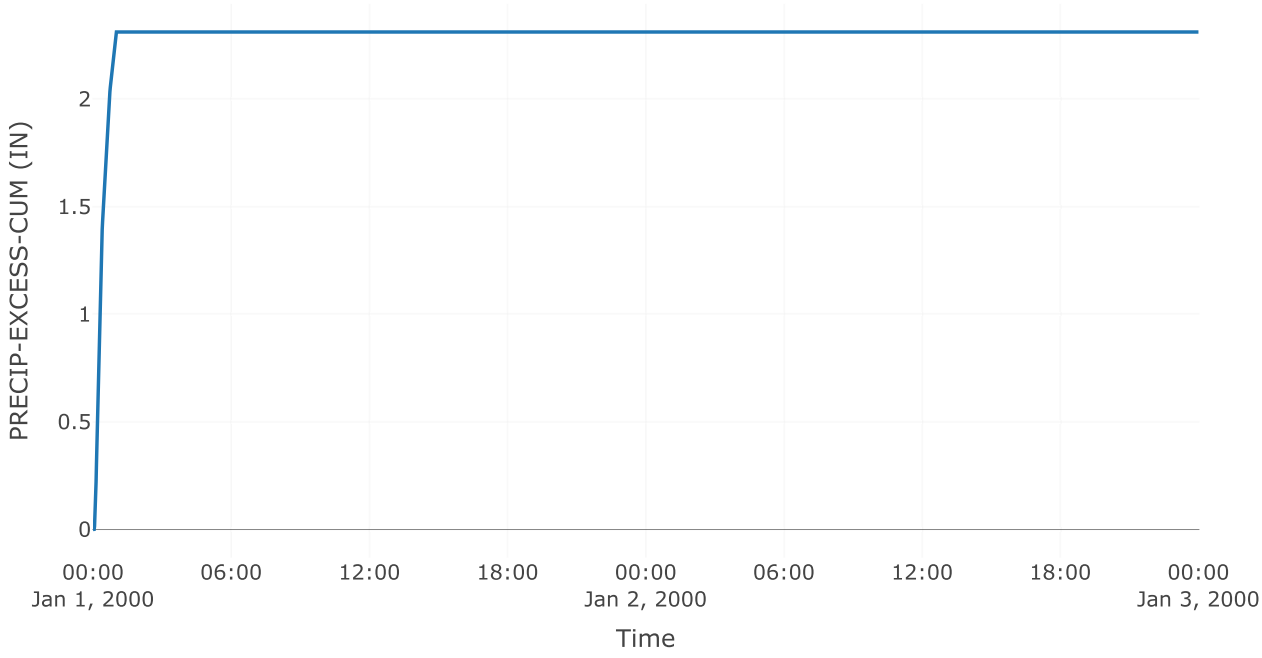
Transform: Scs	
Lag	12
Unitgraph Type	Standard

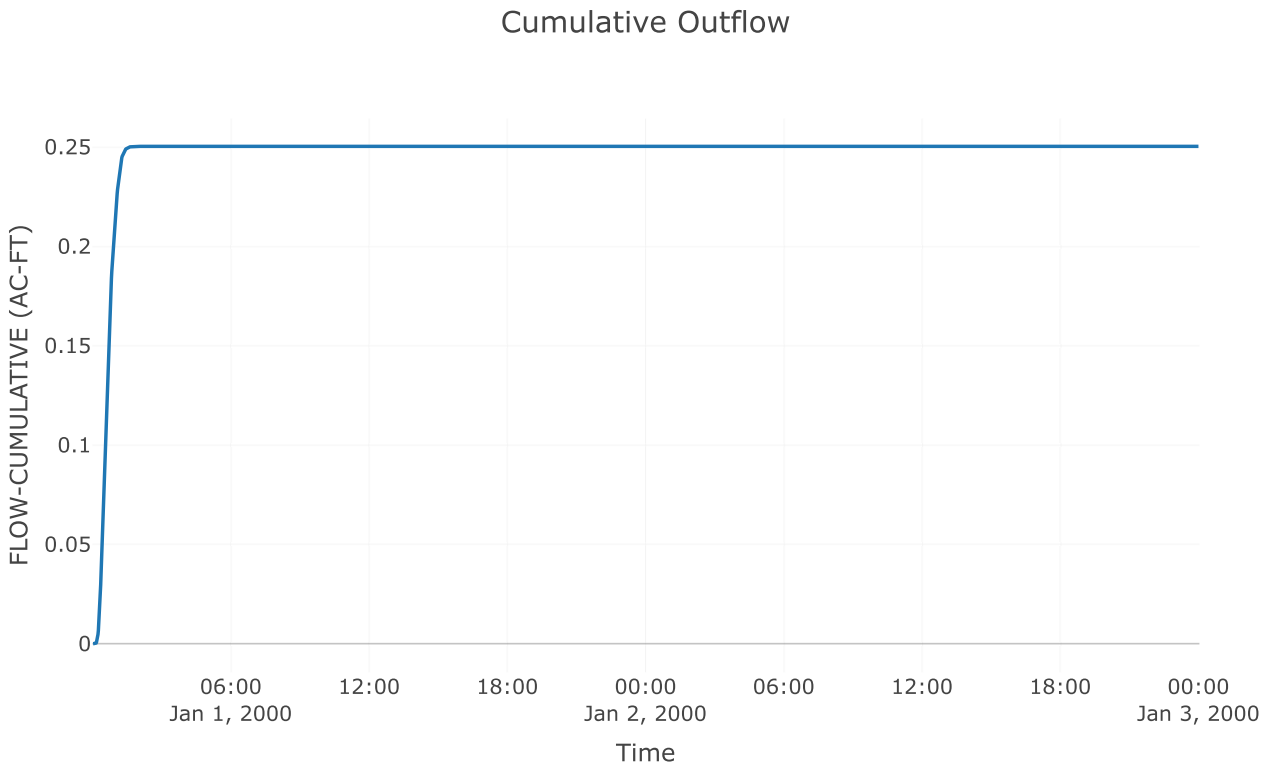
Results: Off-Site Trib 1 West	
Peak Discharge (CFS)	4.91
Time of Peak Discharge	01Jan2000, 00:27
Volume (IN)	2.31
Precipitation Volume (AC - FT)	0.44
Loss Volume (AC - FT)	0.19
Excess Volume (AC - FT)	0.25
Direct Runoff Volume (AC - FT)	0.25
Baseflow Volume (AC - FT)	0

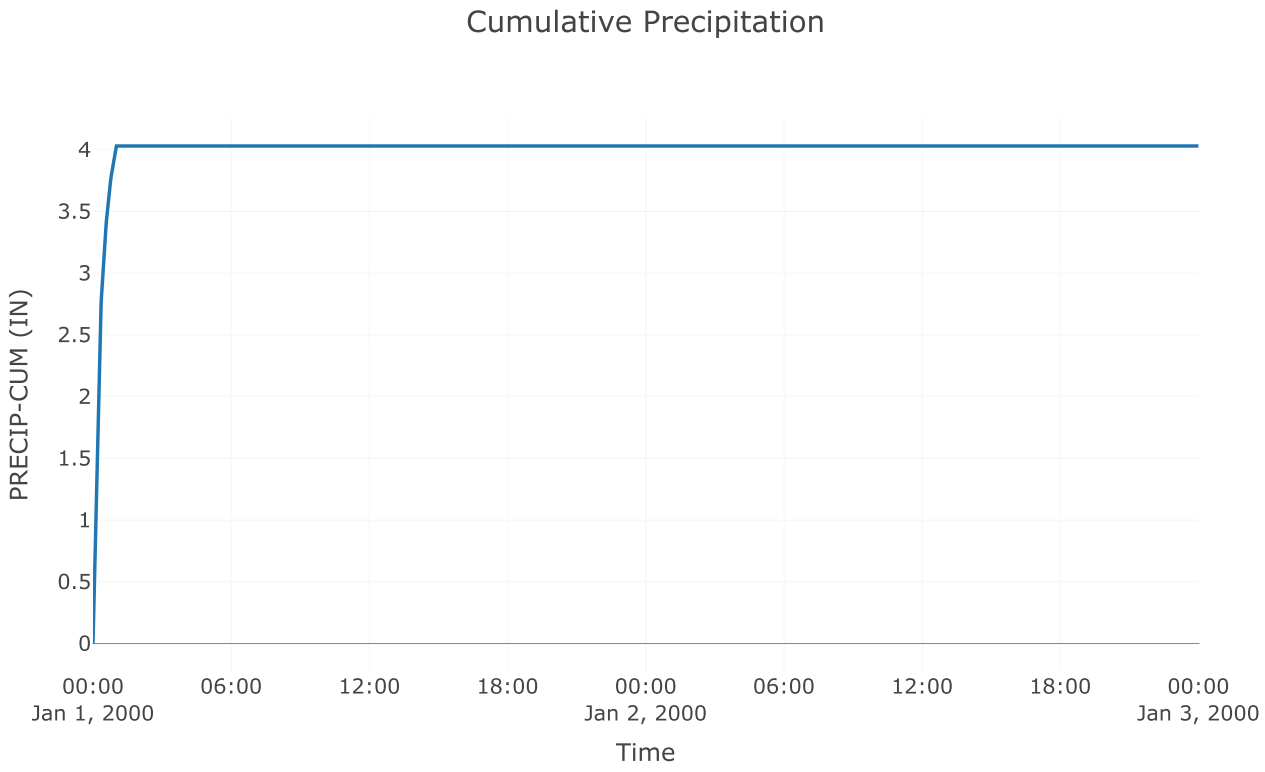
Precipitation and Outflow

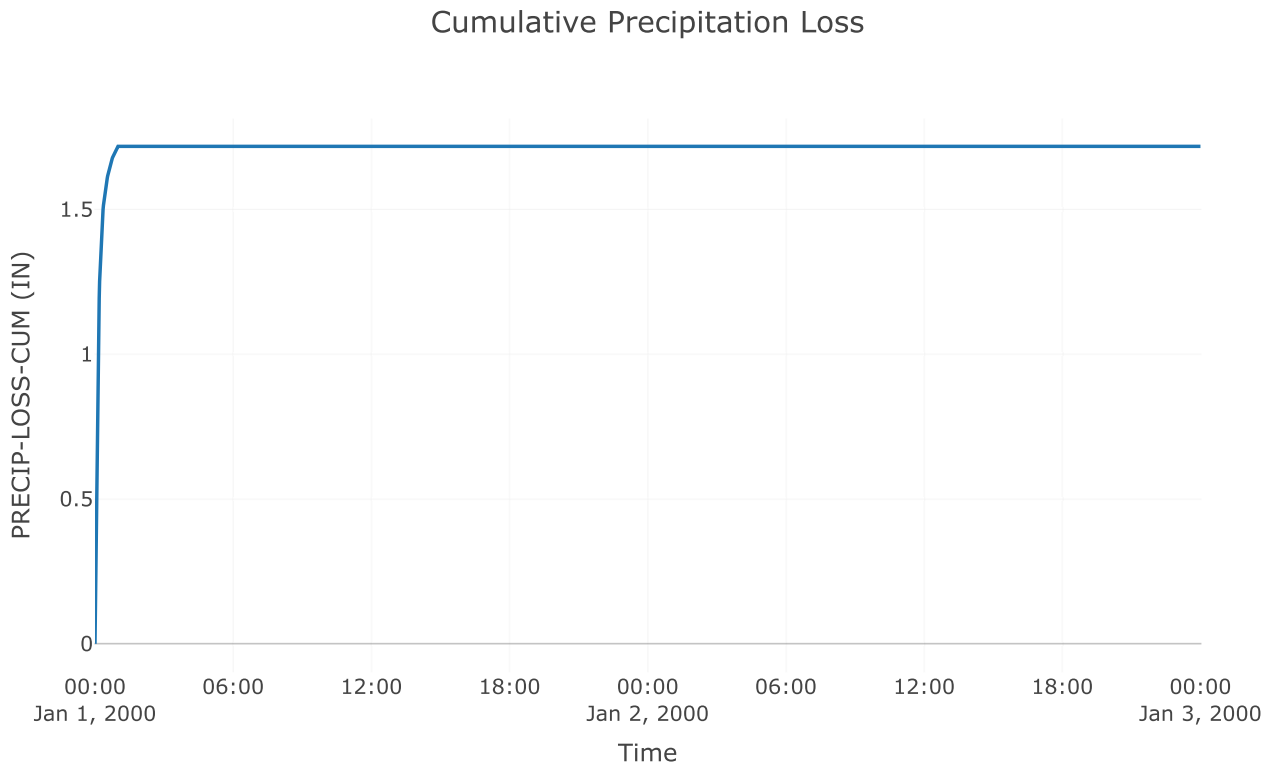


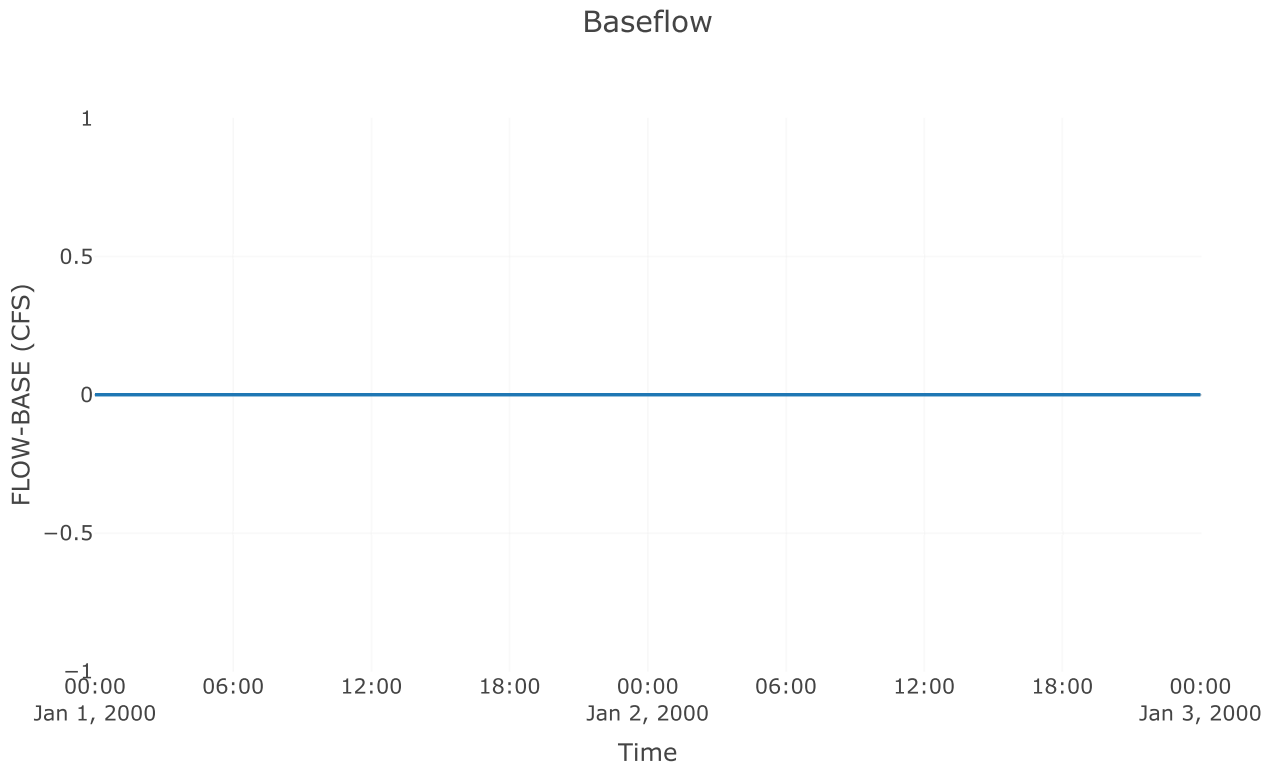
Cumulative Excess Precipitation

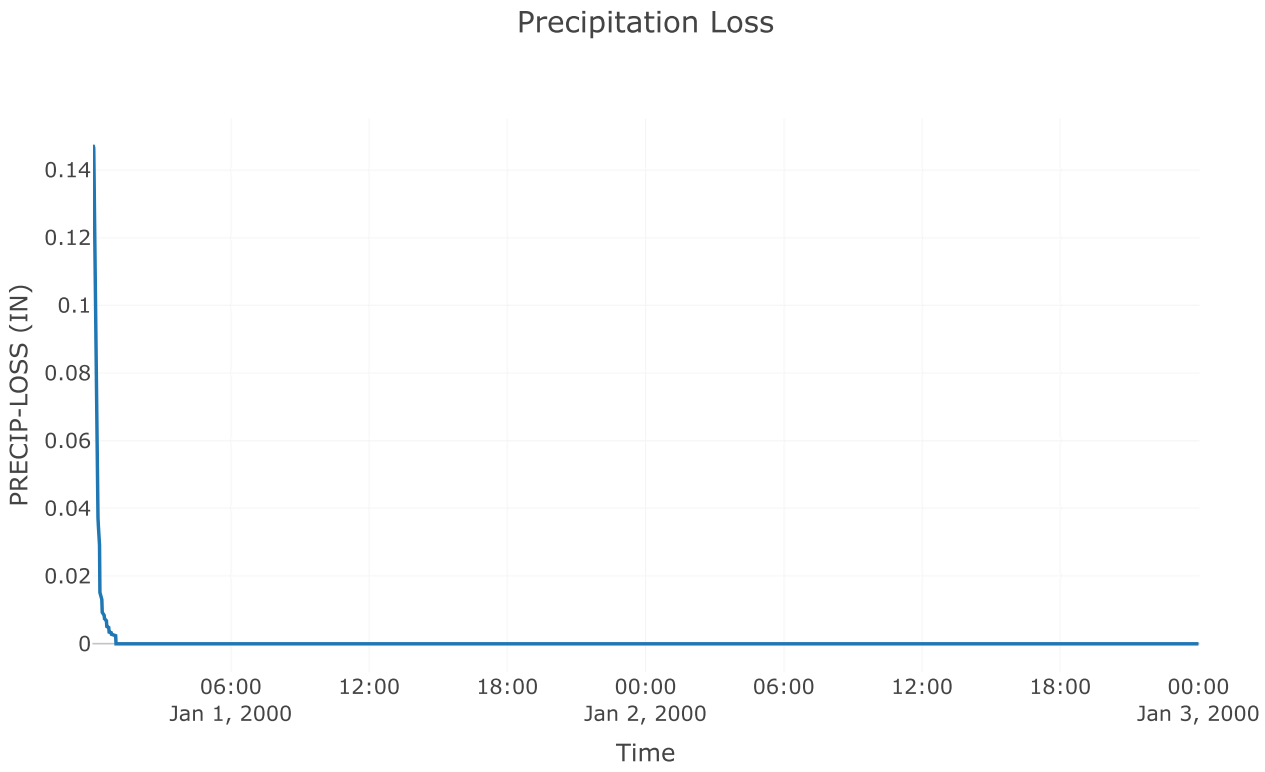


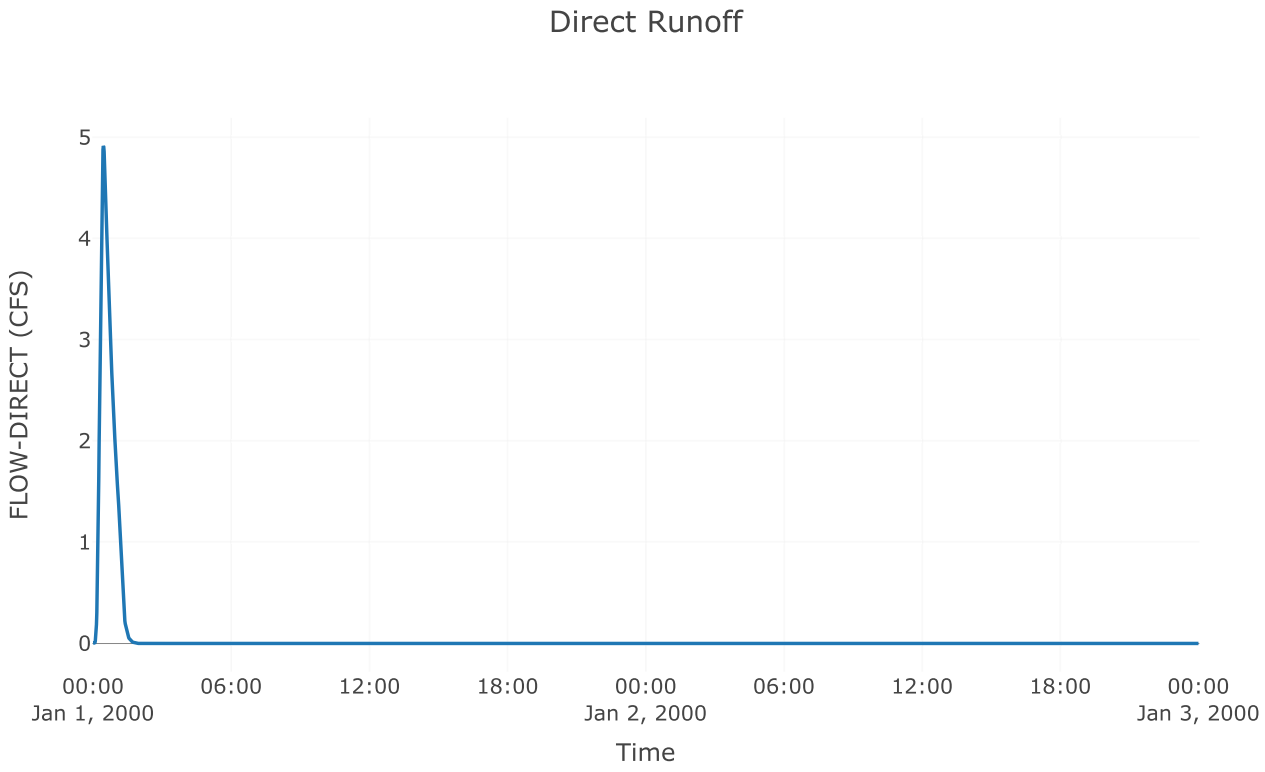

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0.25
0.2
0.15
0.1
0.05
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

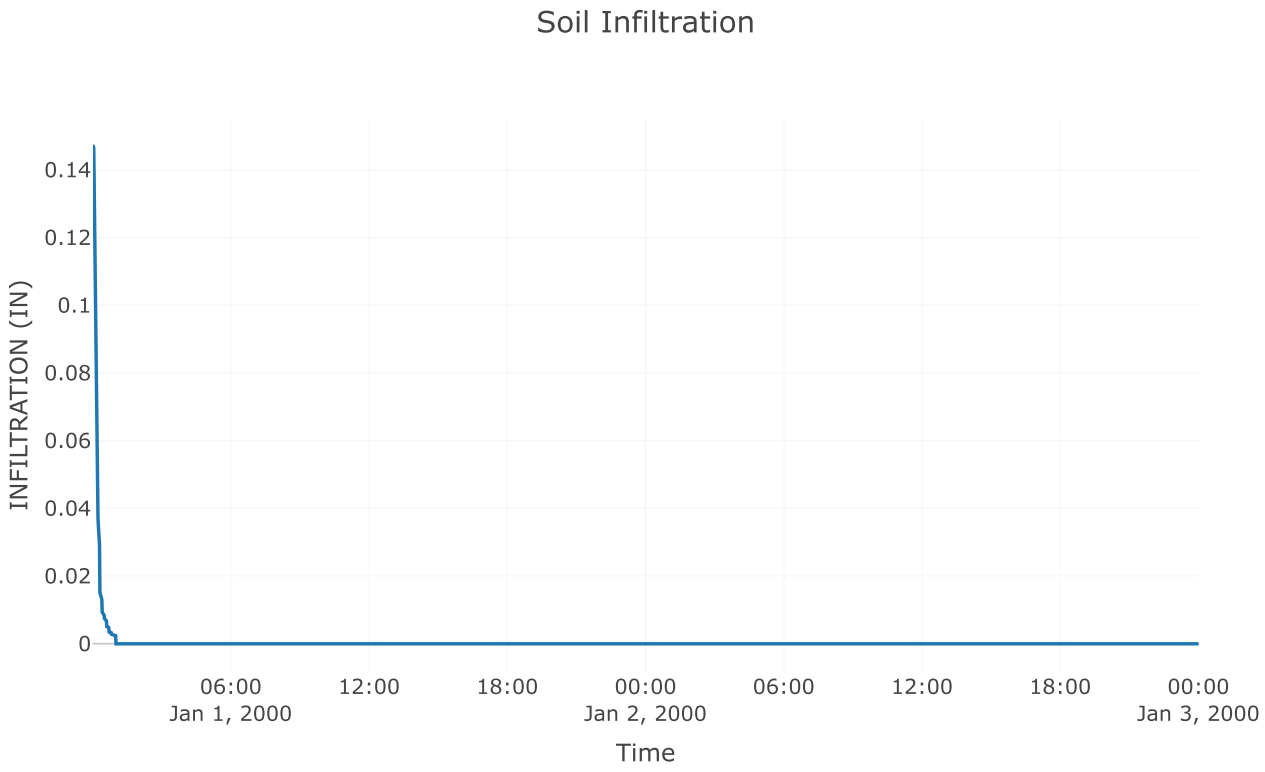

Cumulative Precipitation
PRECIP-CUM (IN)
4
3.5
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
5
4
3
2
1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

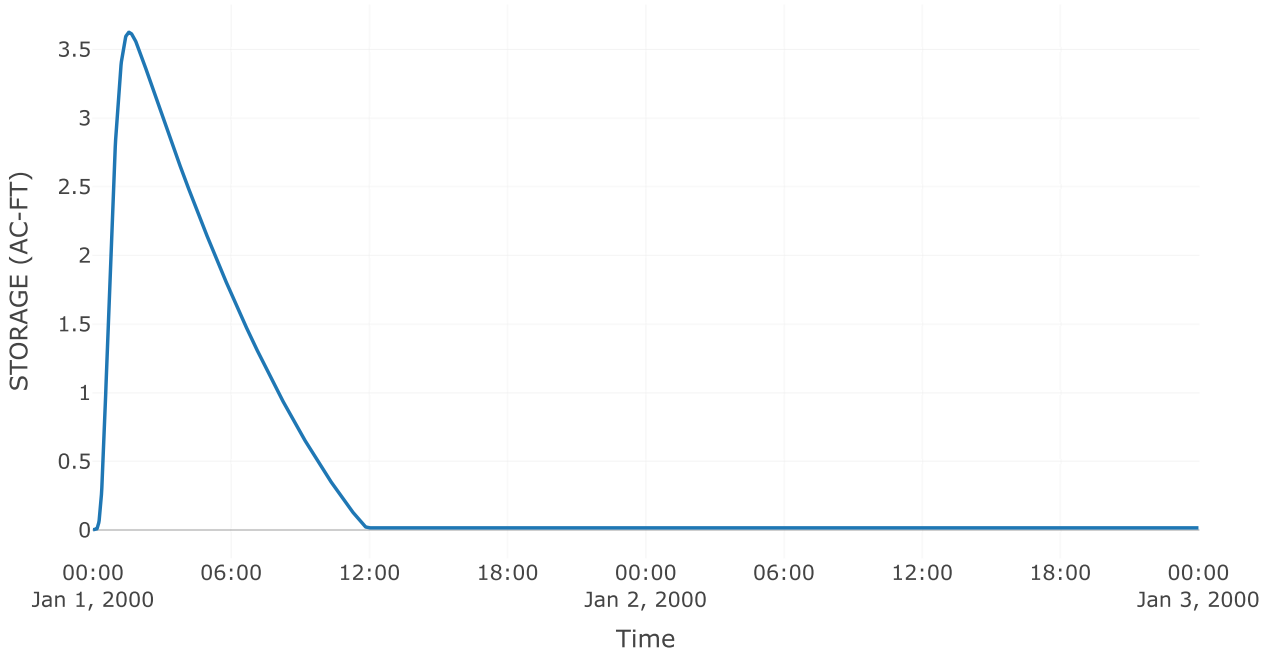

Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 1

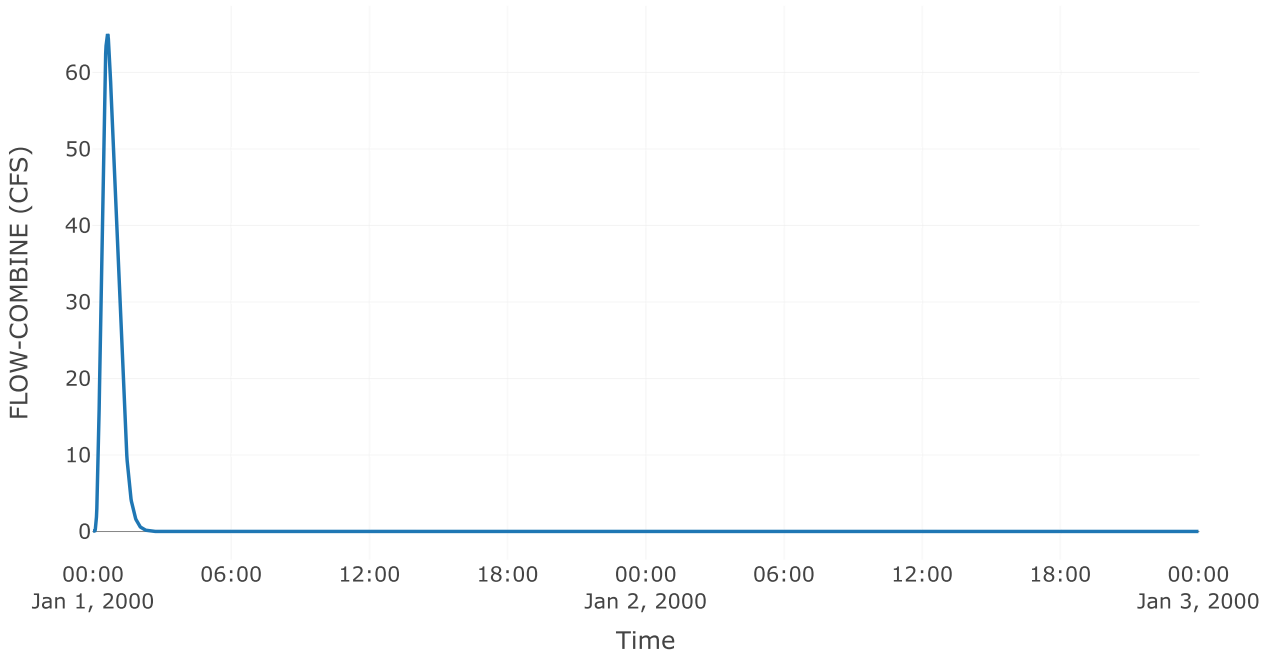
Downstream : Basin 2

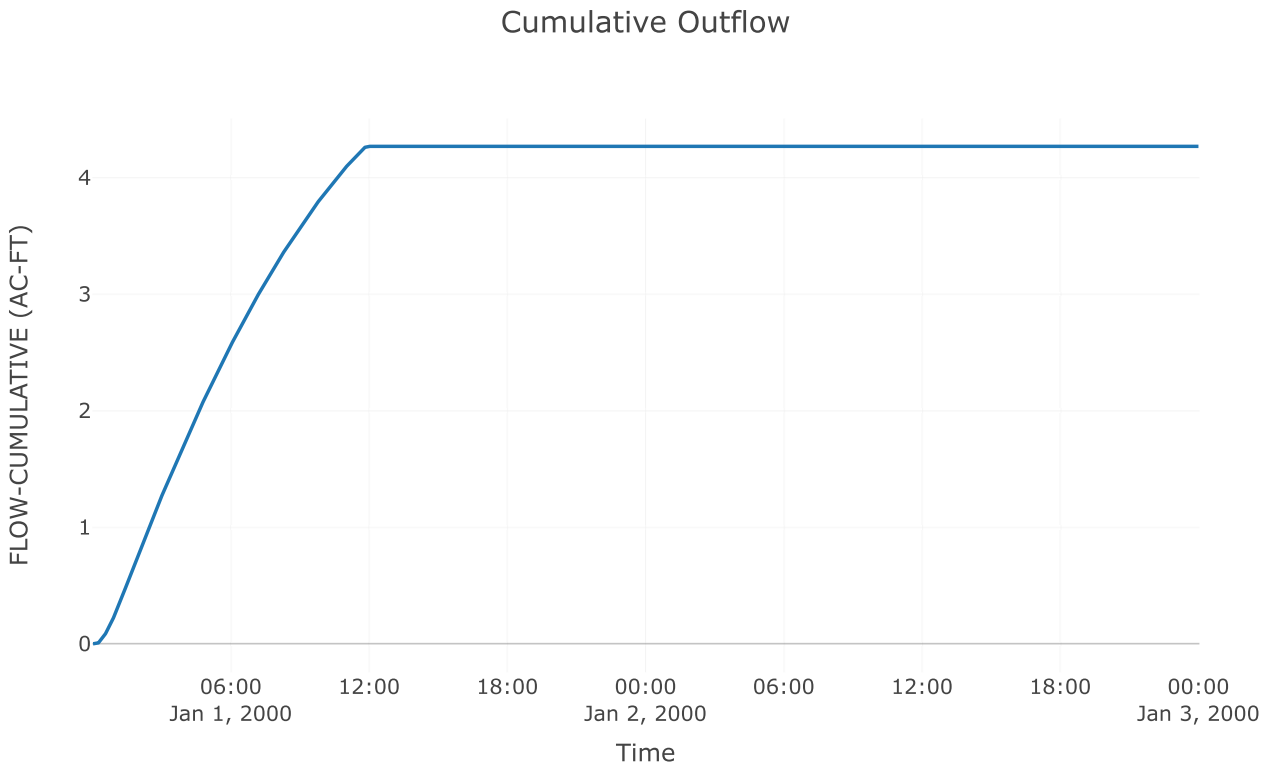
Results: Basin 1	
Peak Discharge (CFS)	6.25
Time of Peak Discharge	01Jan2000, 01:34
Volume (IN)	2.51
Peak Inflow (CFS)	65.04
Time of Peak Inflow	01Jan2000, 00:38
Inflow Volume (AC - FT)	4.28
Maximum Storage (AC - FT)	3.62
Peak Elevation (FT)	699.1
Discharge Volume (AC - FT)	4.27

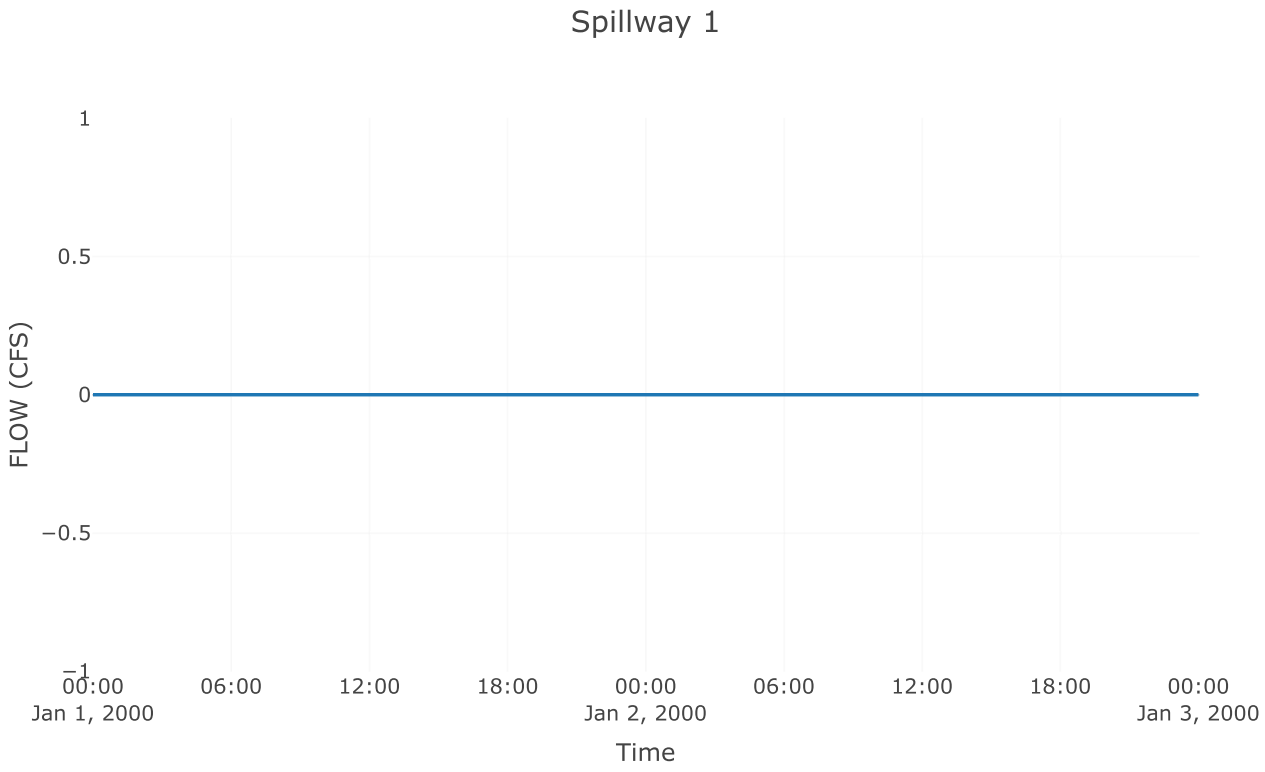
Storage



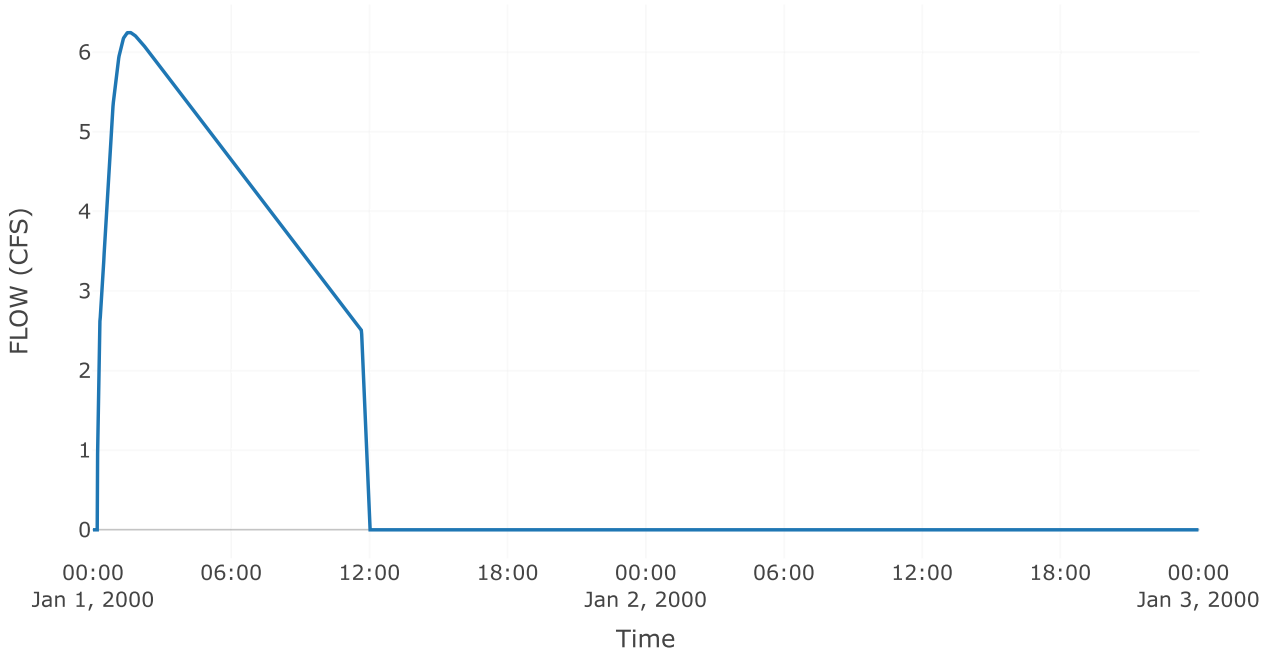
Combined Inflow



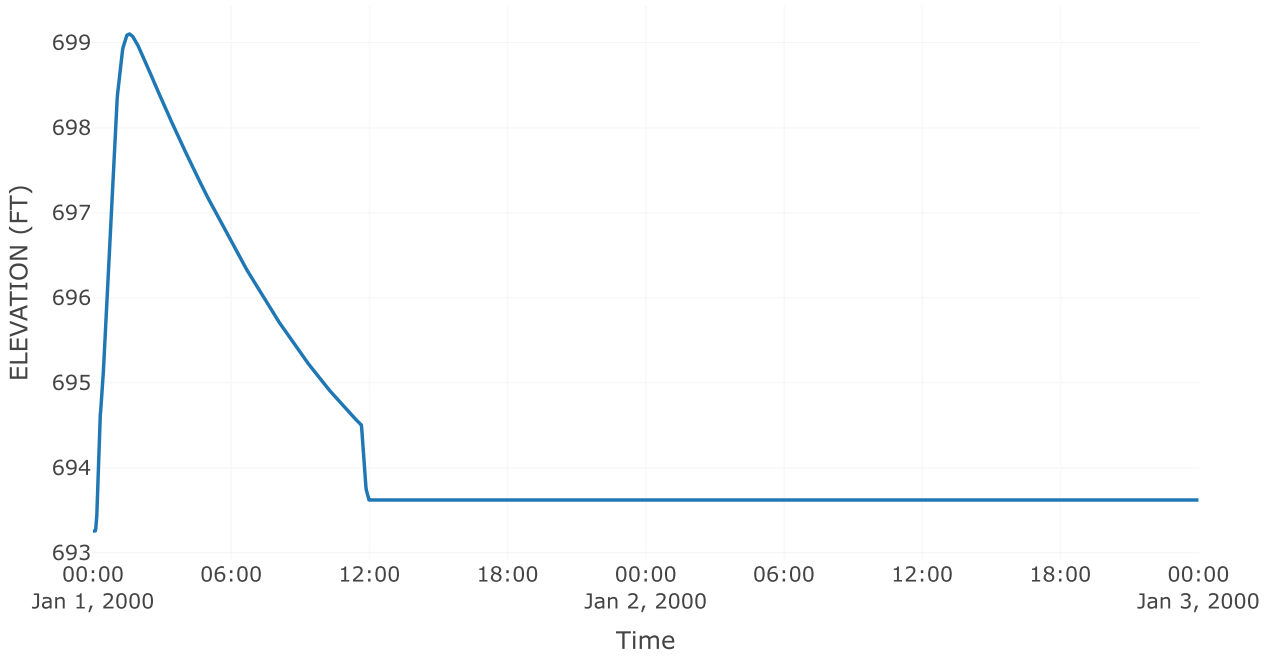

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0
1
2
3
4
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

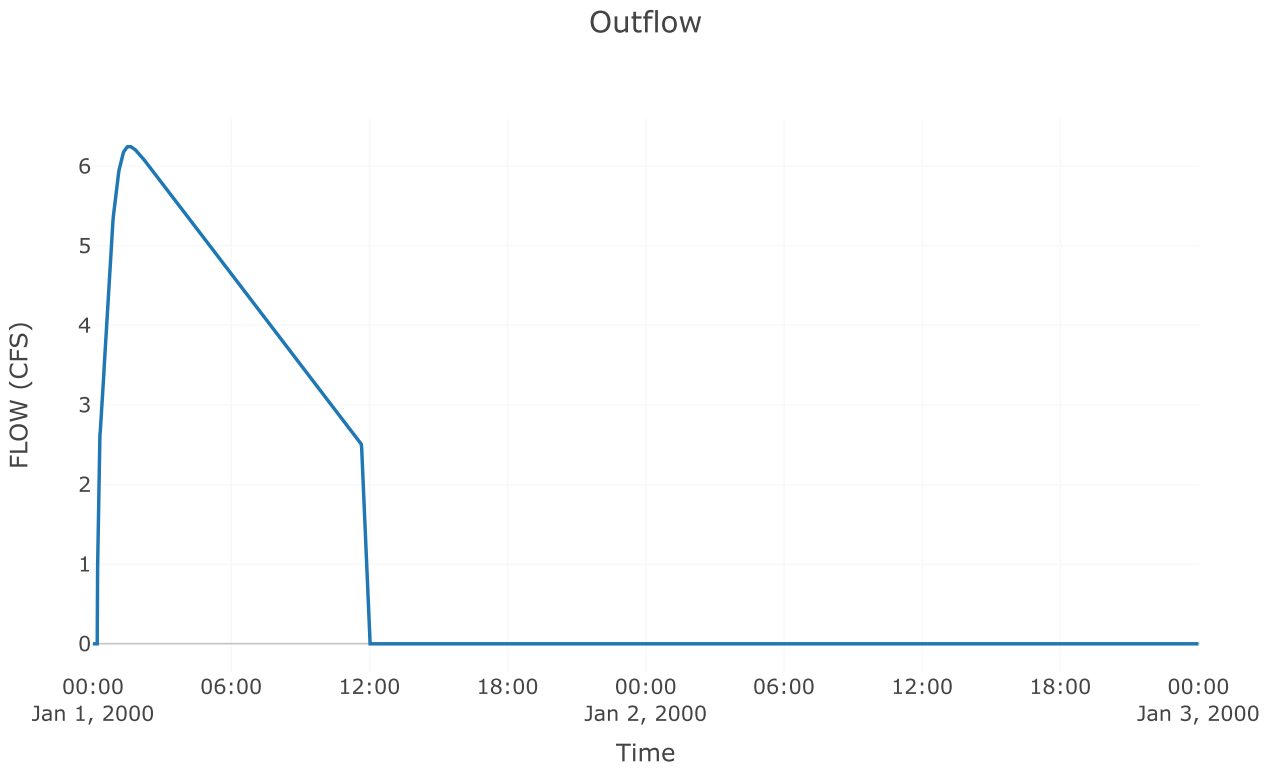

Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
0
1
2
3
4
5
6
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: On-Site Trib 2

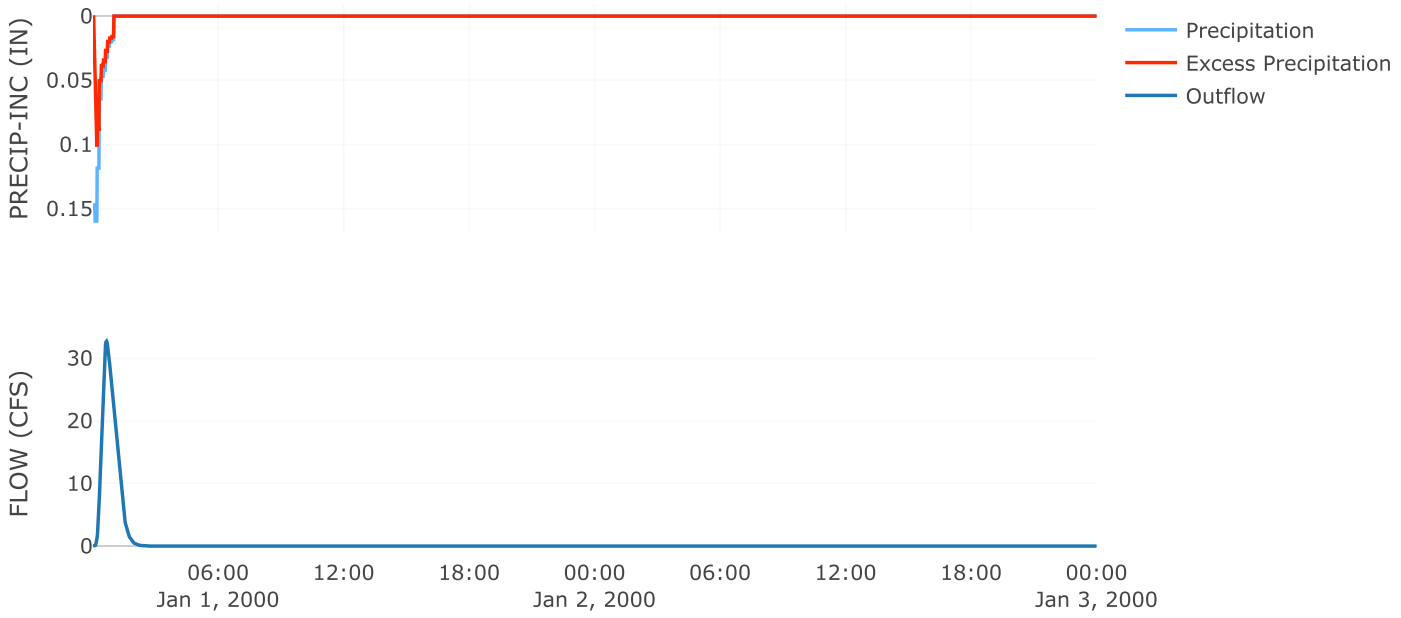
Area (MI2) : 0.02
Downstream : Basin 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

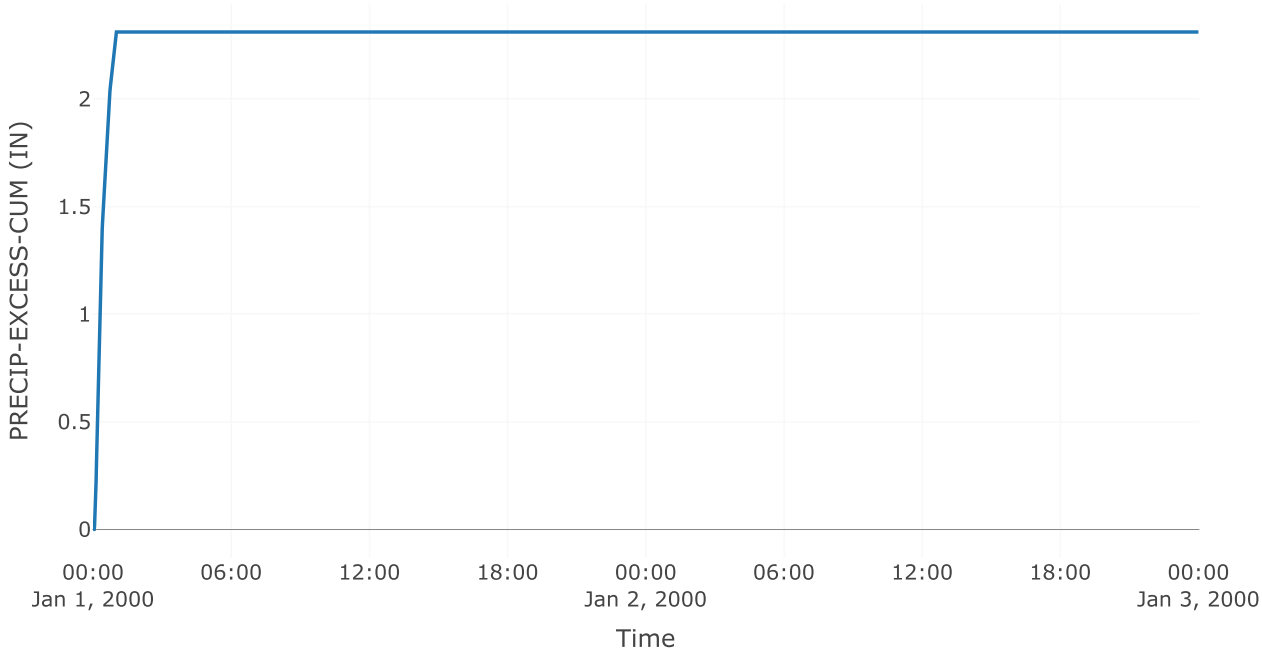
Transform: Scs	
Lag	20.4
Unitgraph Type	Standard

Results: On-Site Trib 2	
Peak Discharge (CFS)	32.72
Time of Peak Discharge	01Jan2000, 00:39
Volume (IN)	2.31
Precipitation Volume (AC - FT)	3.69
Loss Volume (AC - FT)	1.57
Excess Volume (AC - FT)	2.12
Direct Runoff Volume (AC - FT)	2.12
Baseflow Volume (AC - FT)	0

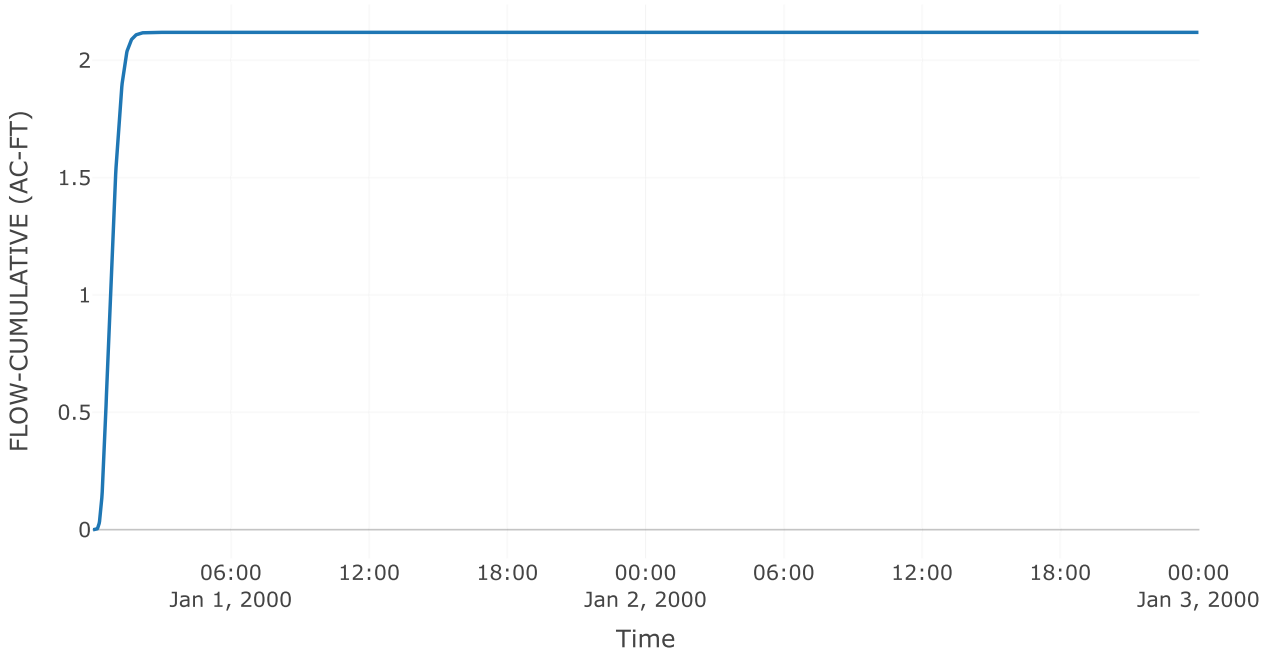
Precipitation and Outflow



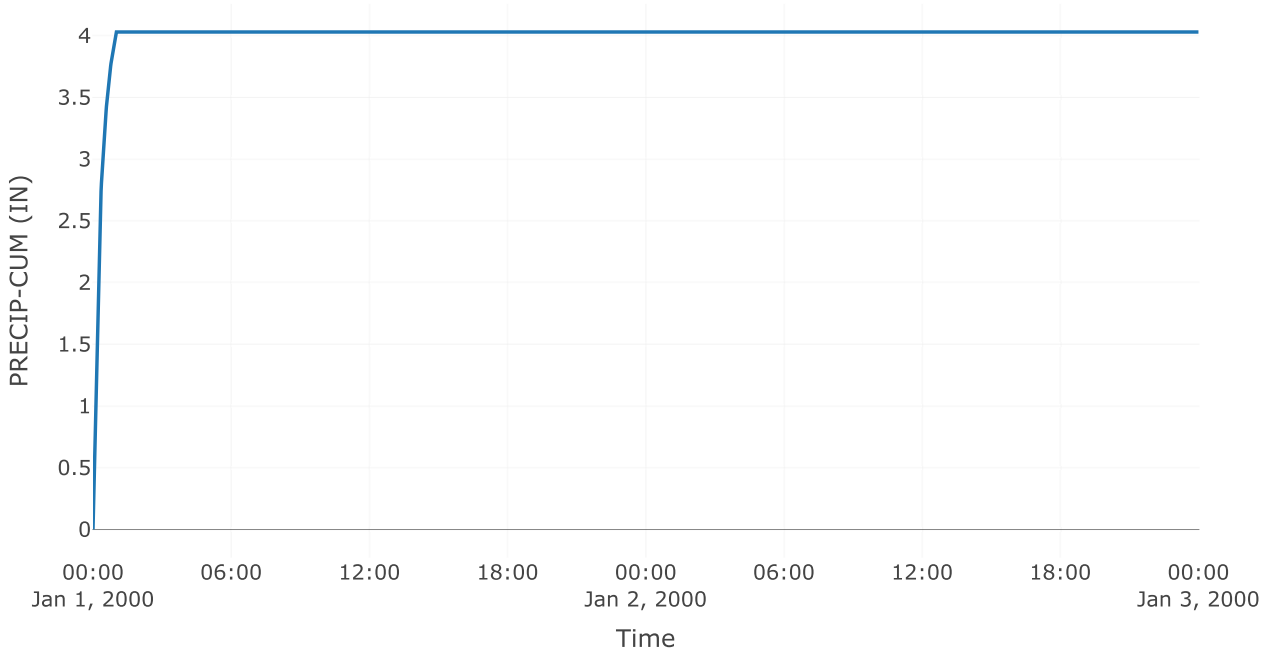
Cumulative Excess Precipitation

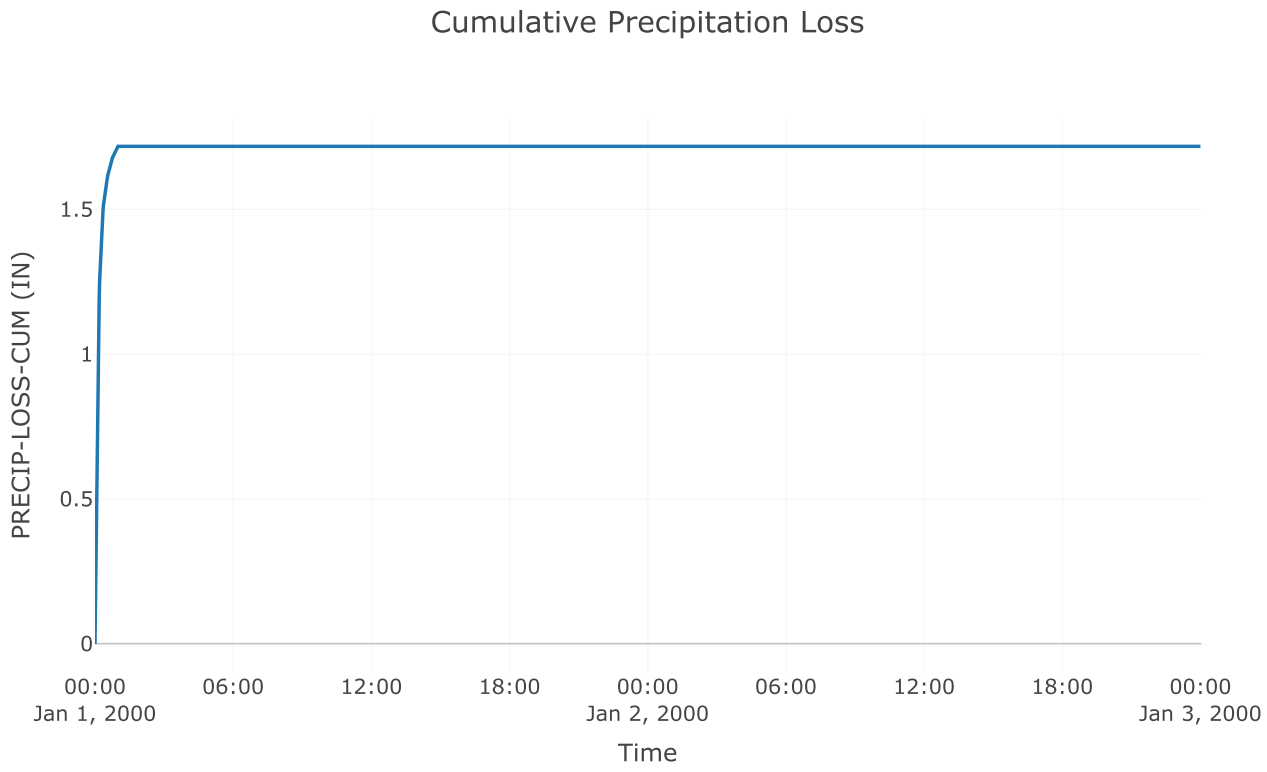


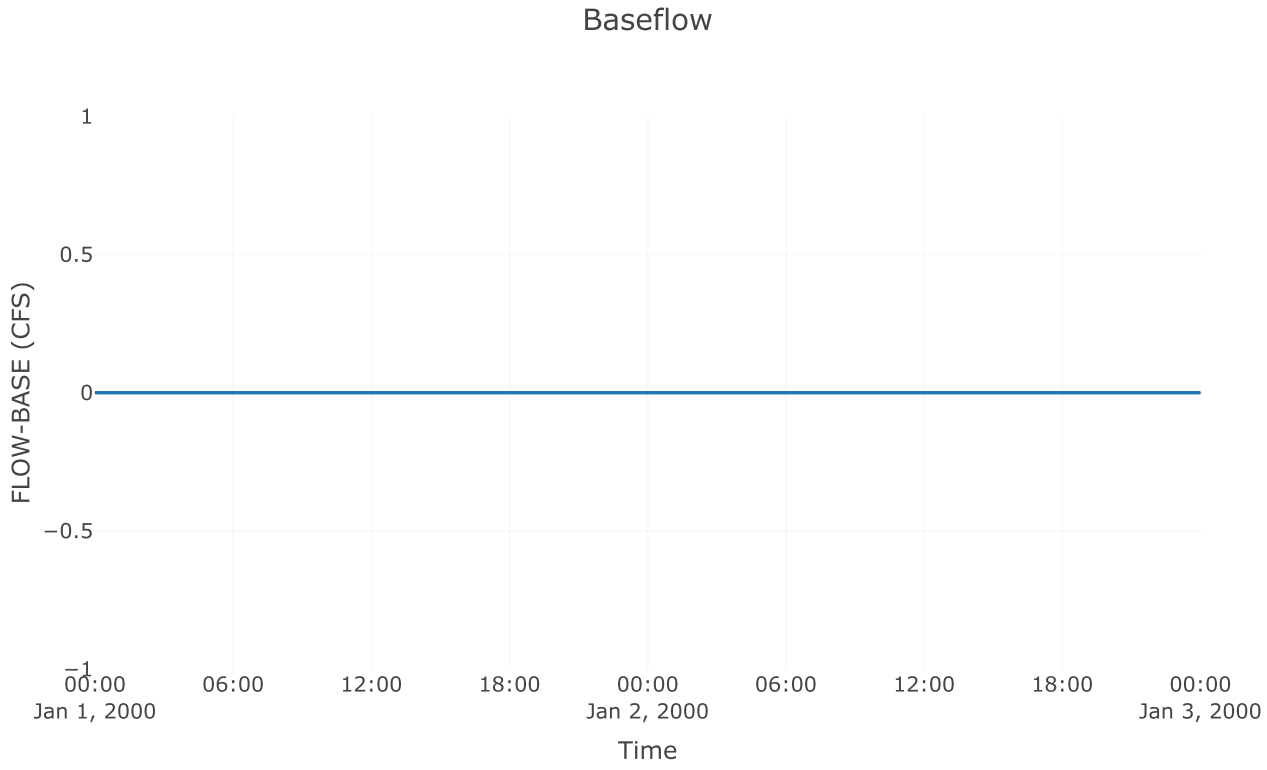
Cumulative Outflow

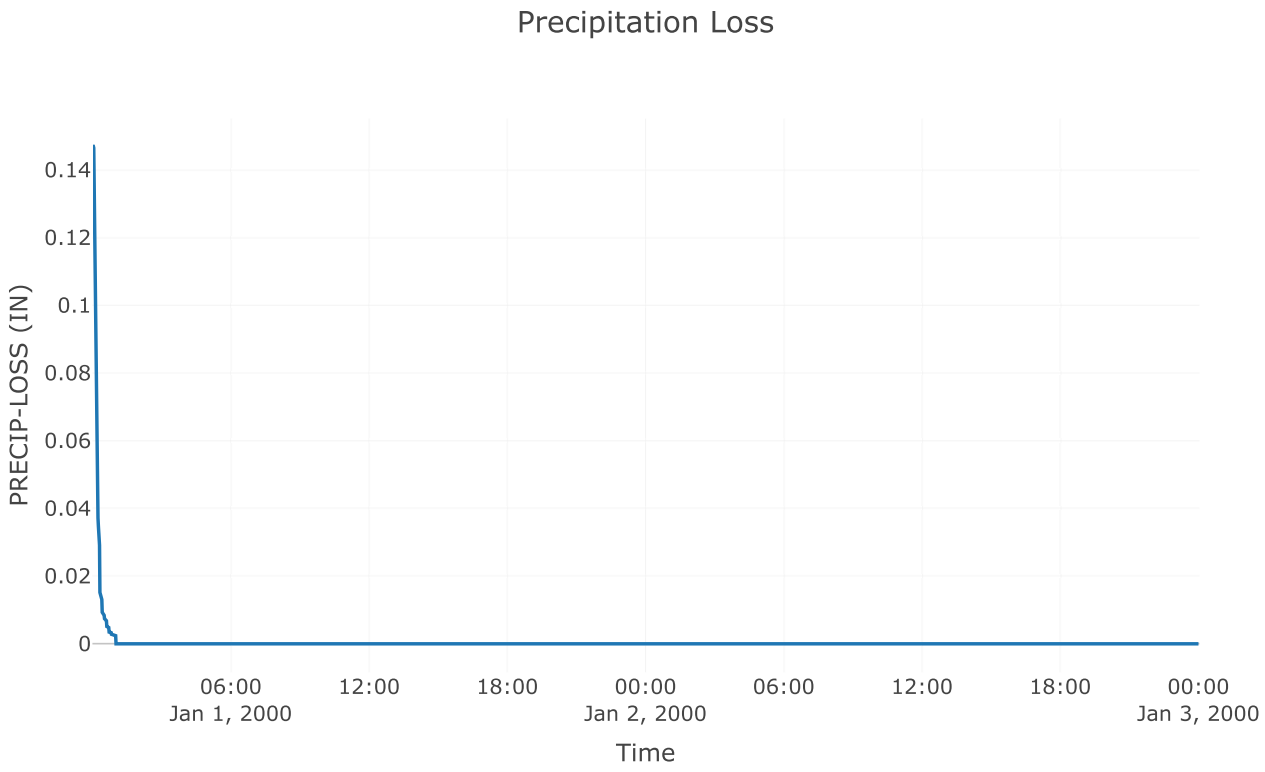


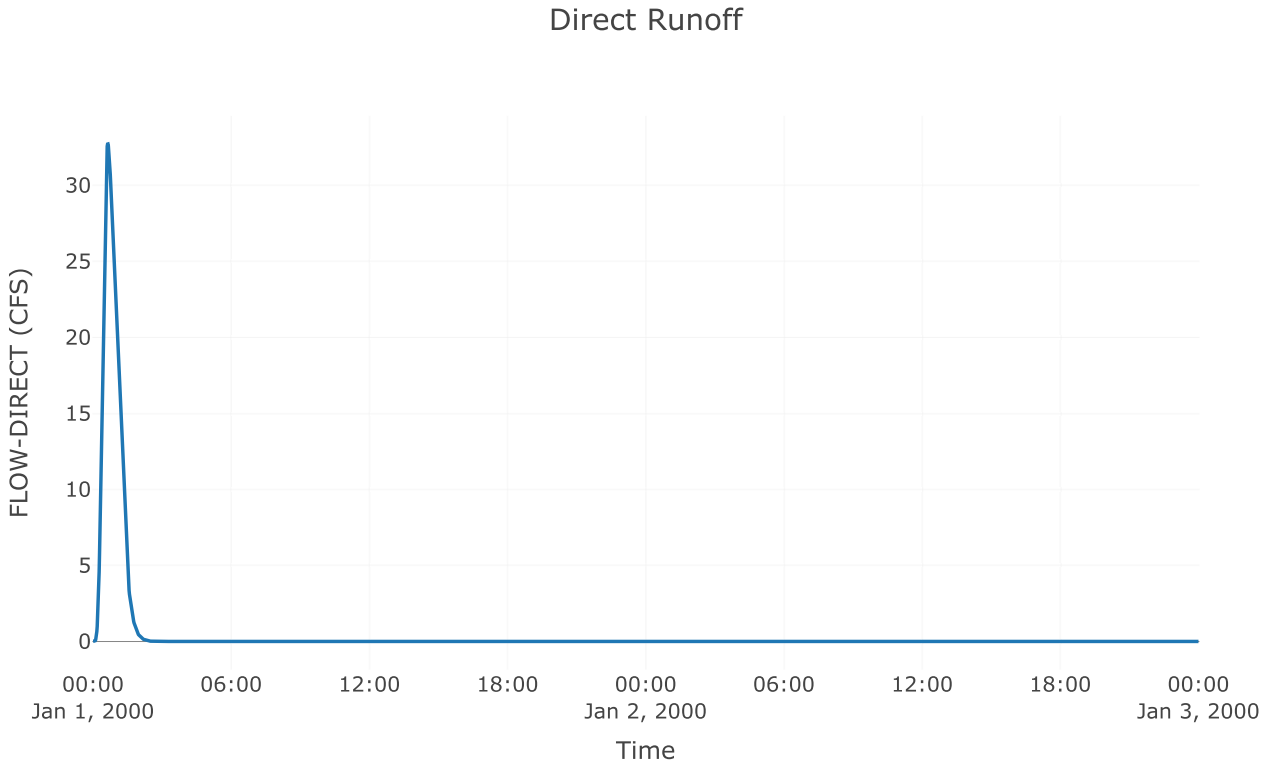
Cumulative Precipitation

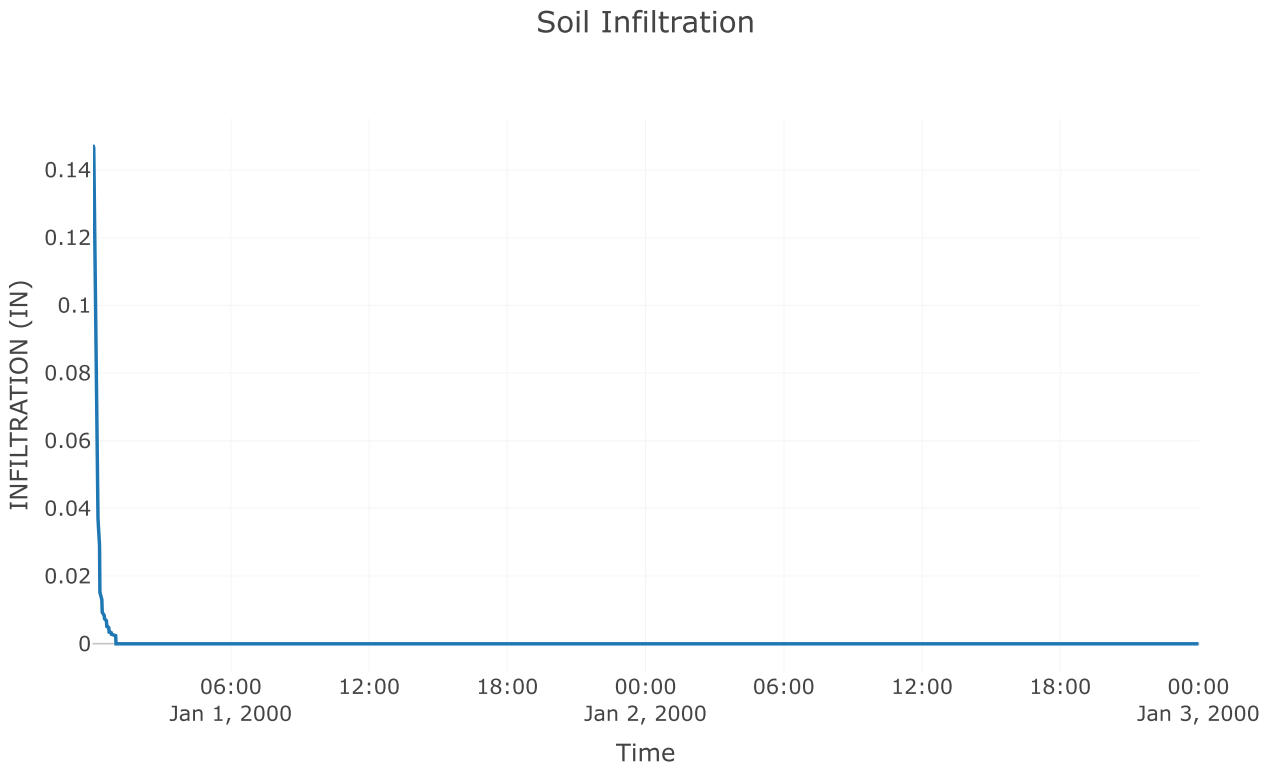



Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
30
25
20
15
10
5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib2

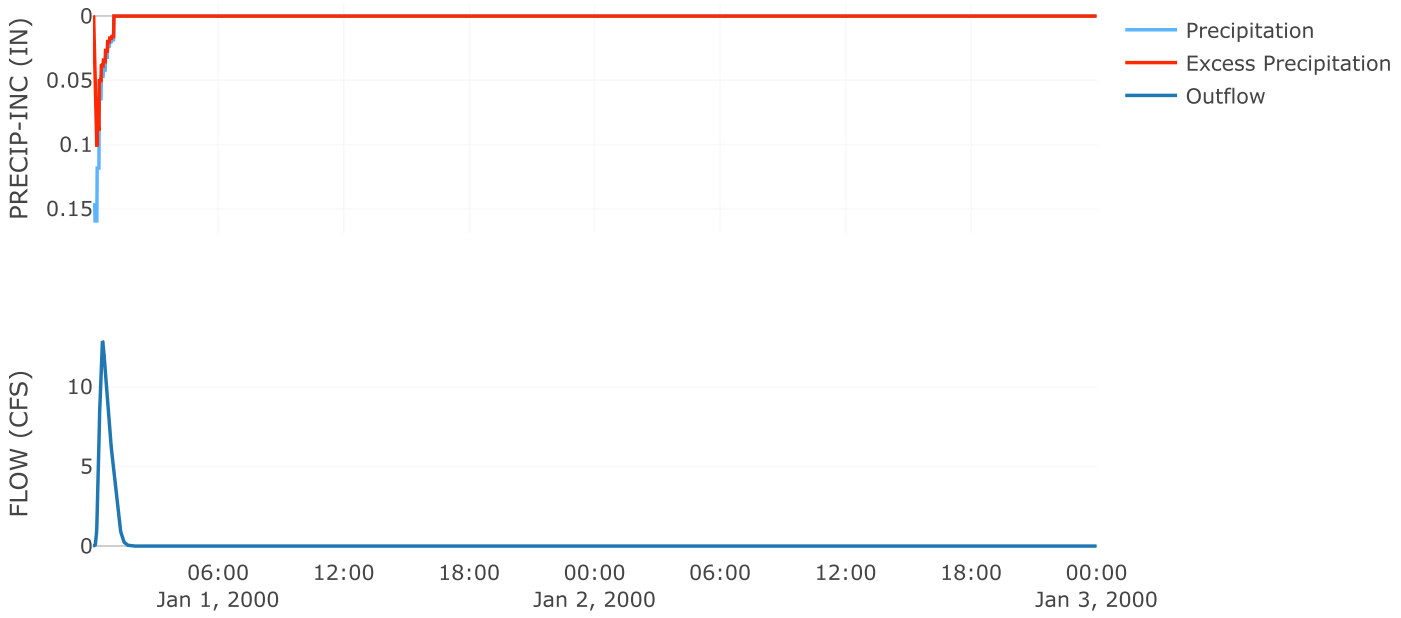
Area (MI2) : 0.01
Downstream : Basin 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

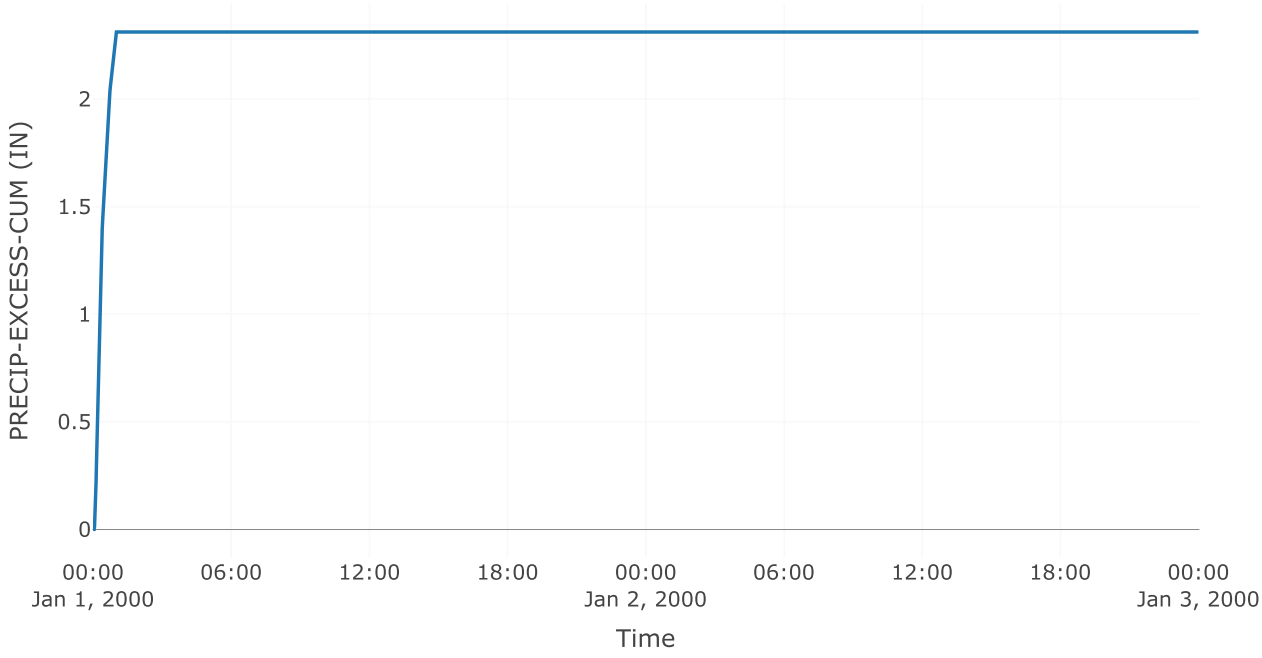
Transform: Scs	
Lag	12
Unitgraph Type	Standard

Results: Off-Site Trib2	
Peak Discharge (CFS)	12.85
Time of Peak Discharge	01Jan2000, 00:27
Volume (IN)	2.31
Precipitation Volume (AC - FT)	1.14
Loss Volume (AC - FT)	0.49
Excess Volume (AC - FT)	0.65
Direct Runoff Volume (AC - FT)	0.65
Baseflow Volume (AC - FT)	0

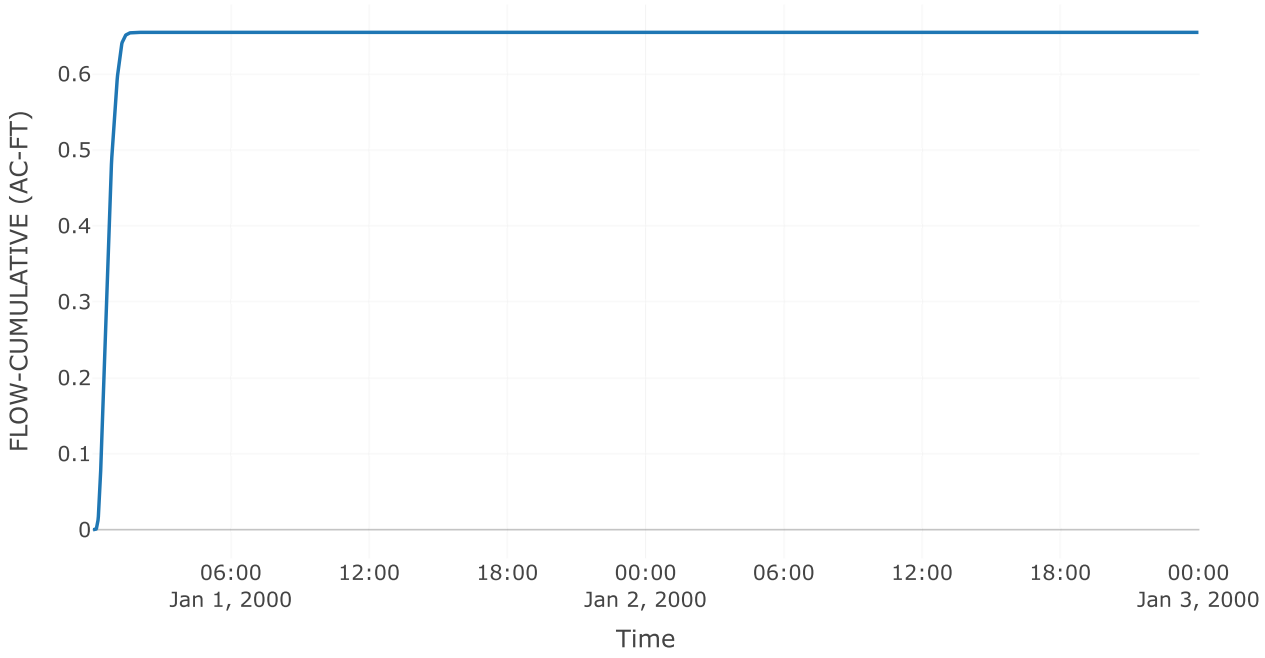
Precipitation and Outflow



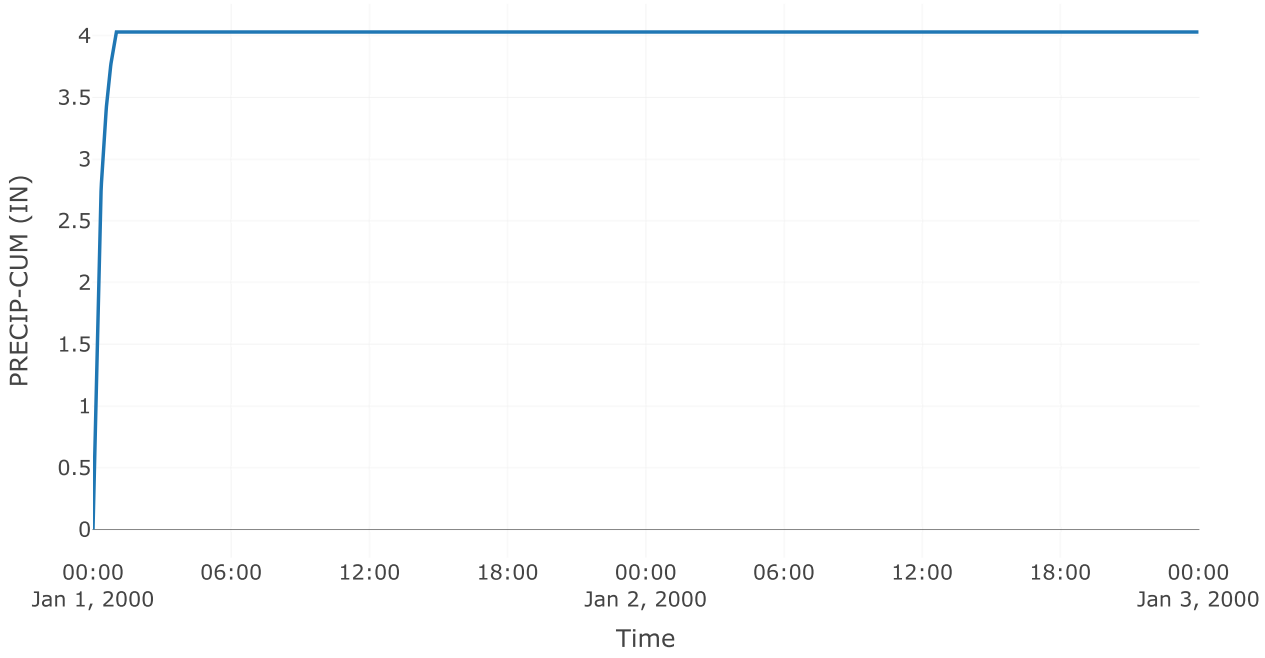
Cumulative Excess Precipitation

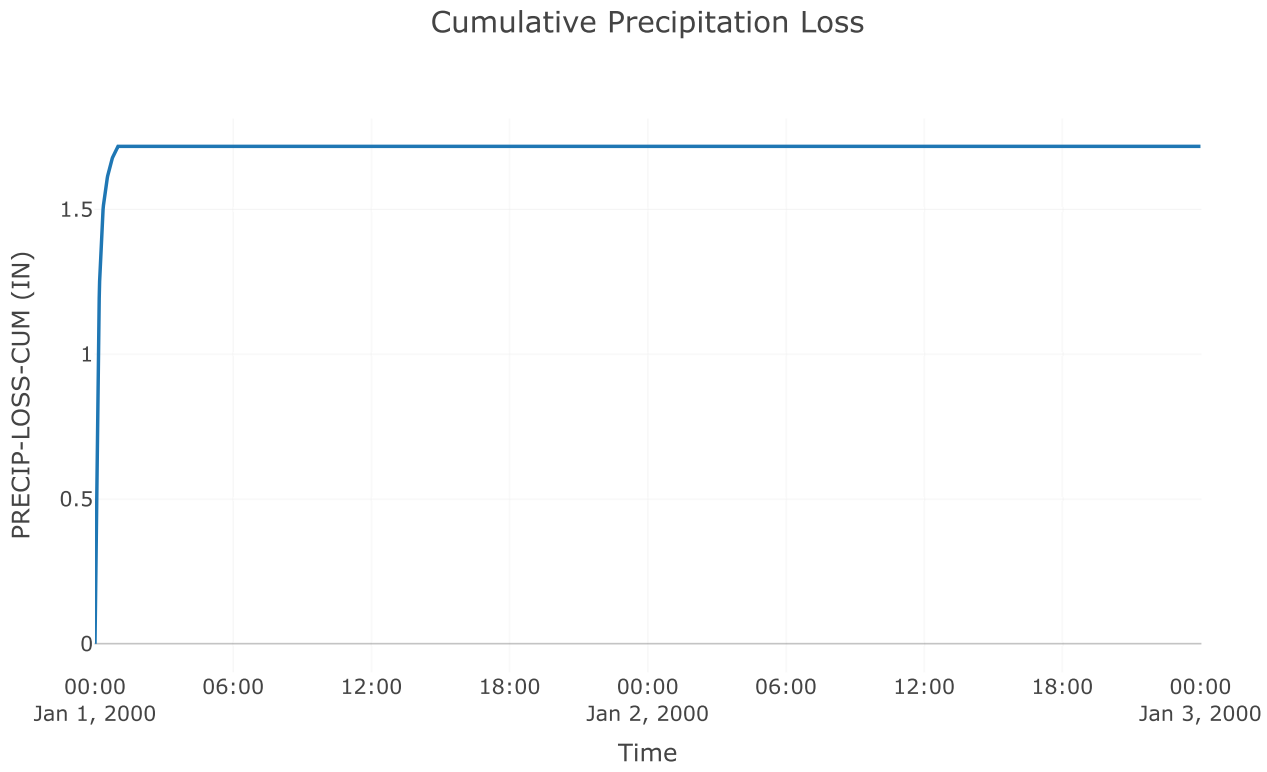


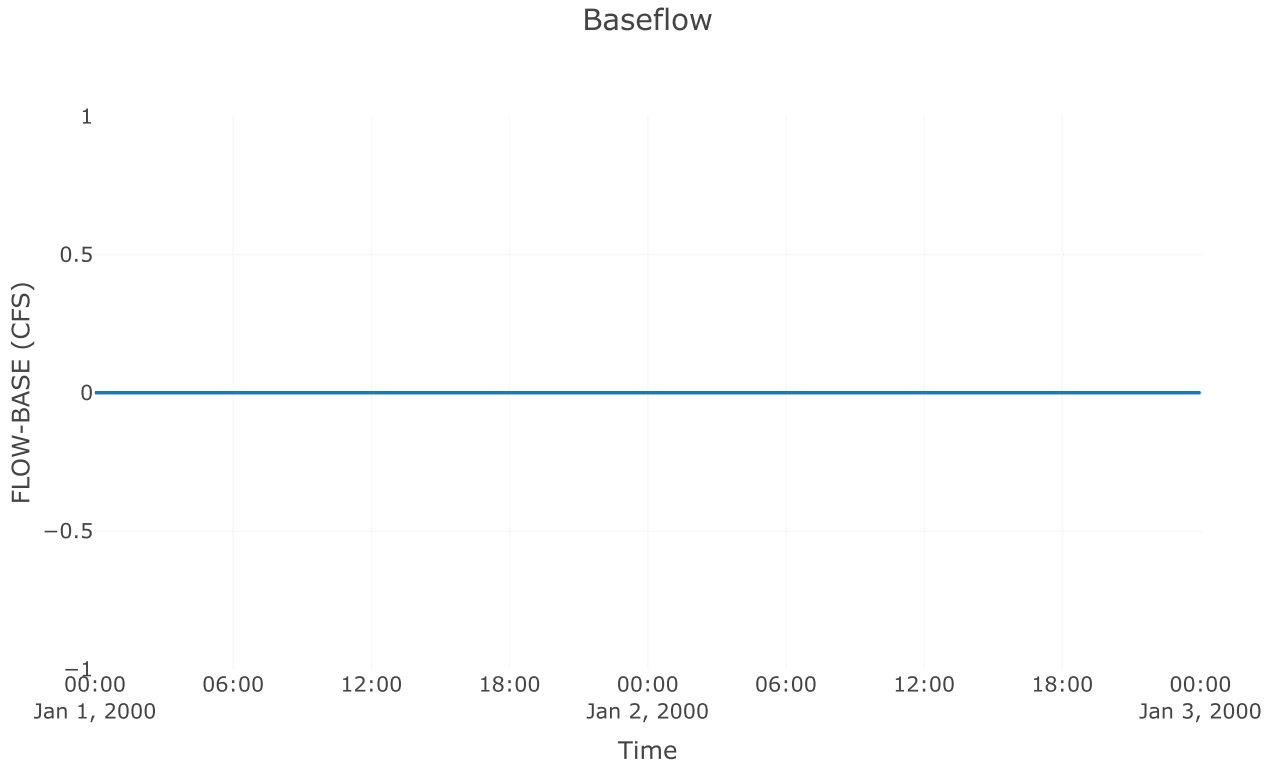
Cumulative Outflow

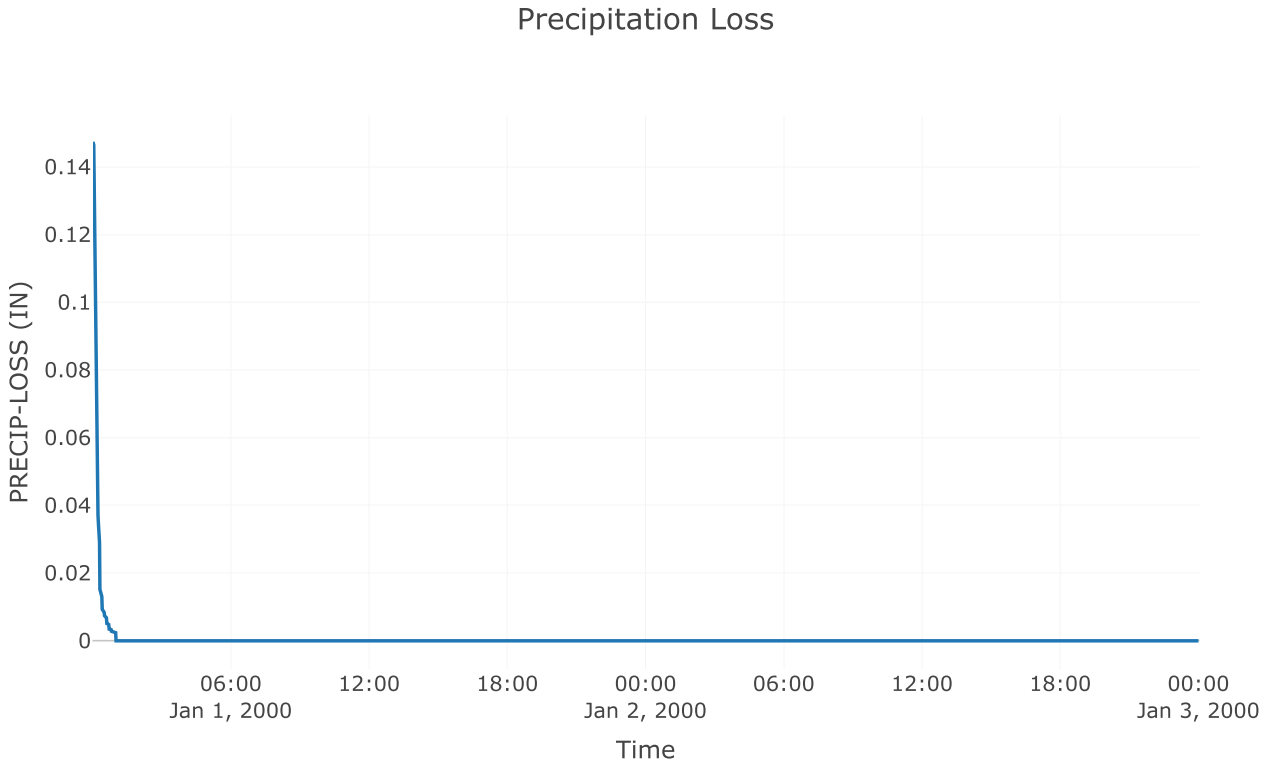


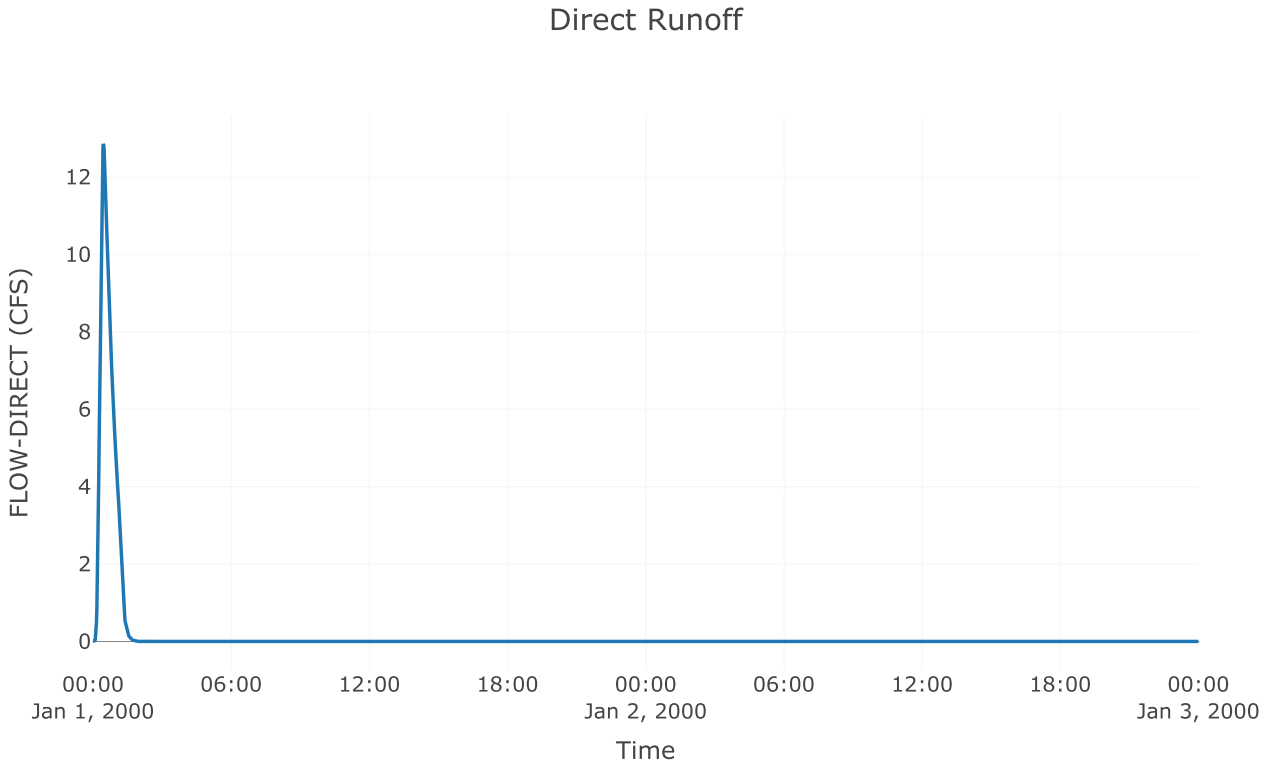
Cumulative Precipitation

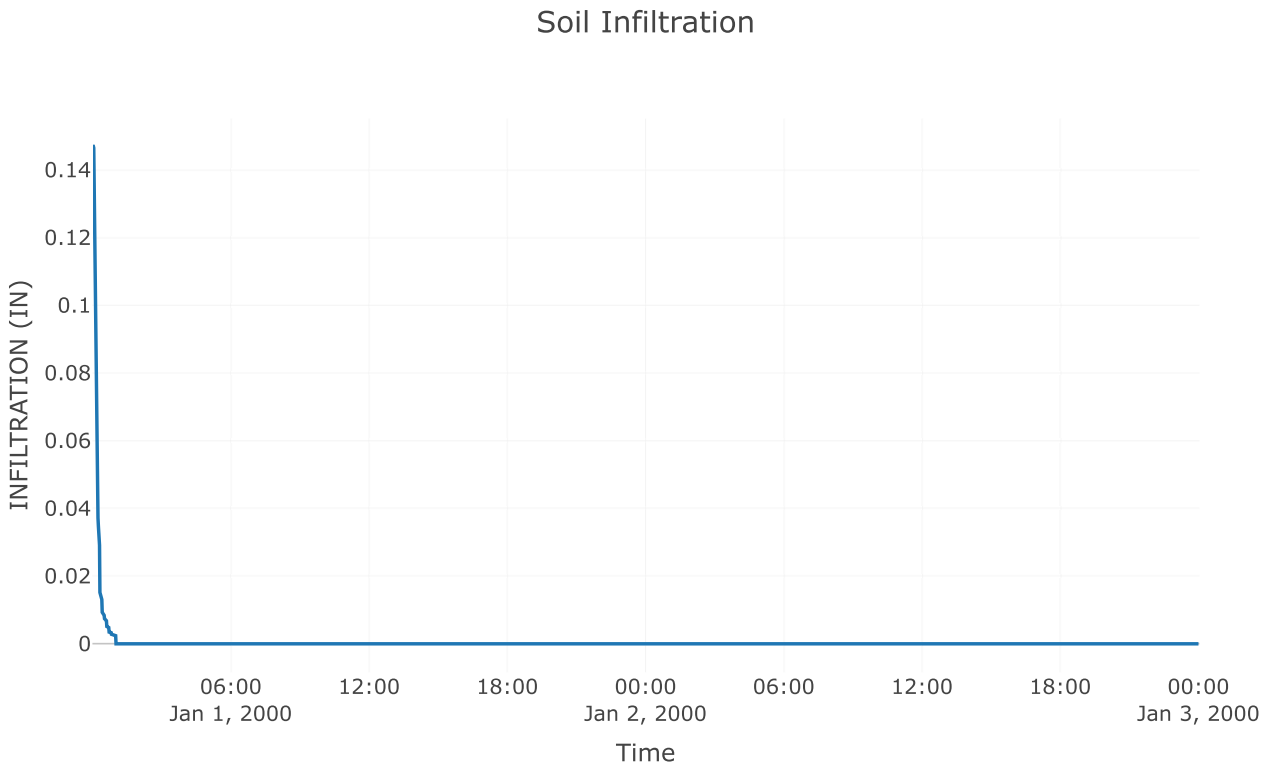



Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
12
10
8
6
4
2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

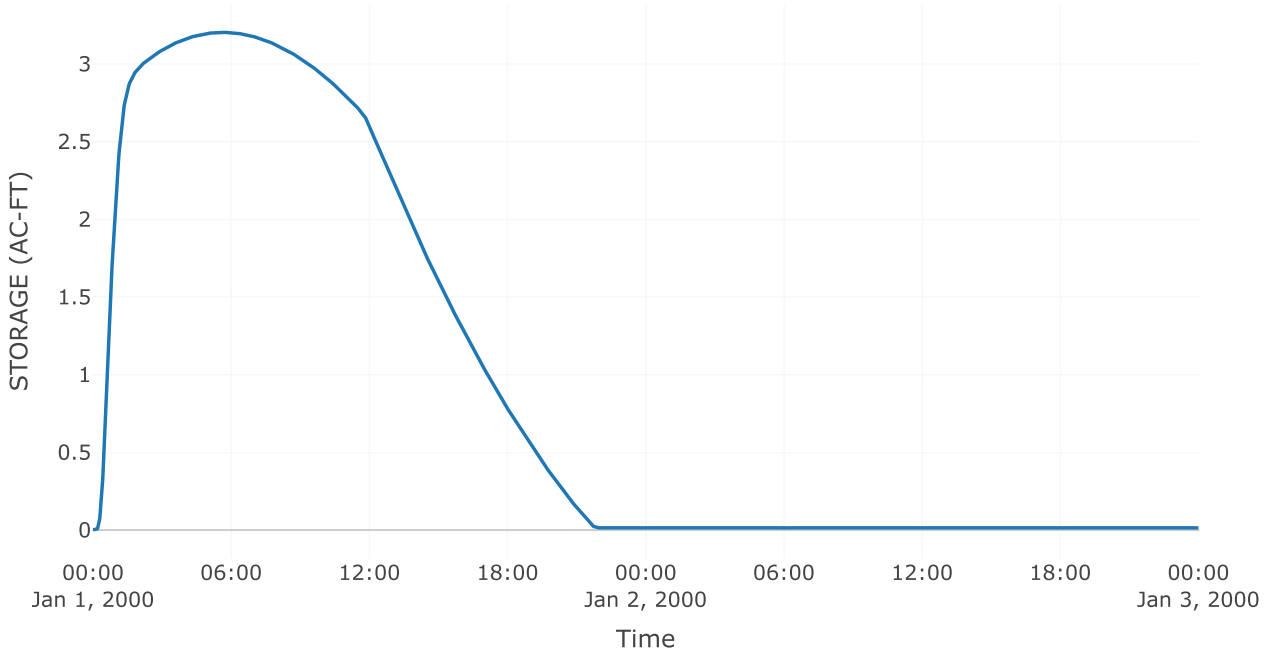

Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 2

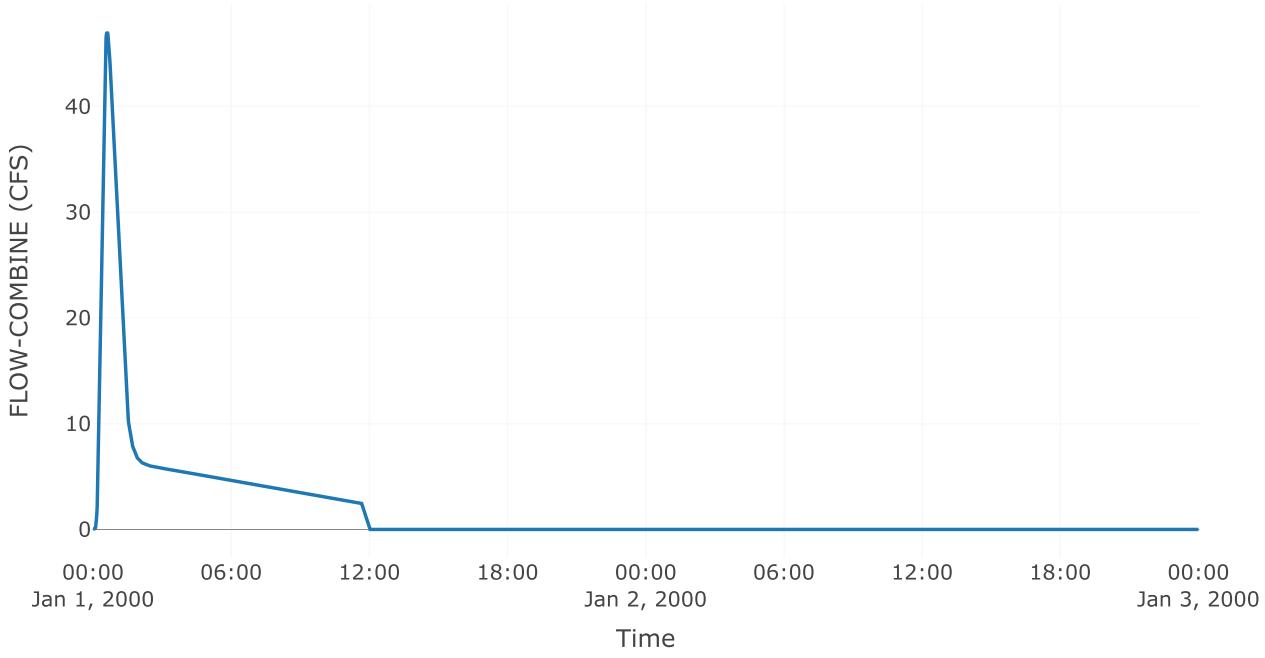
Downstream : Basin 3

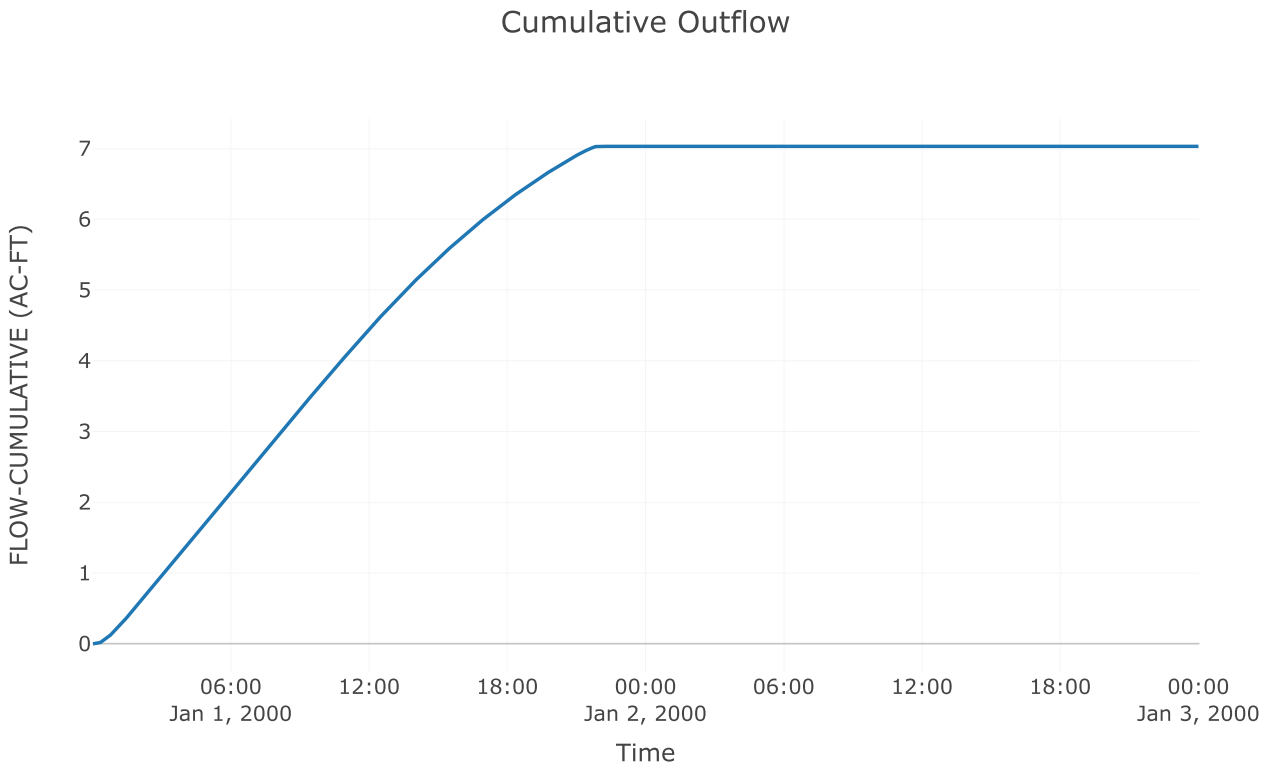
Results: Basin 2	
Peak Discharge (CFS)	4.79
Time of Peak Discharge	01Jan2000, 05:38
Volume (IN)	2.42
Peak Inflow (CFS)	47.05
Time of Peak Inflow	01Jan2000, 00:37
Inflow Volume (AC - FT)	7.04
Maximum Storage (AC - FT)	3.2
Peak Elevation (FT)	695.48
Discharge Volume (AC - FT)	7.03

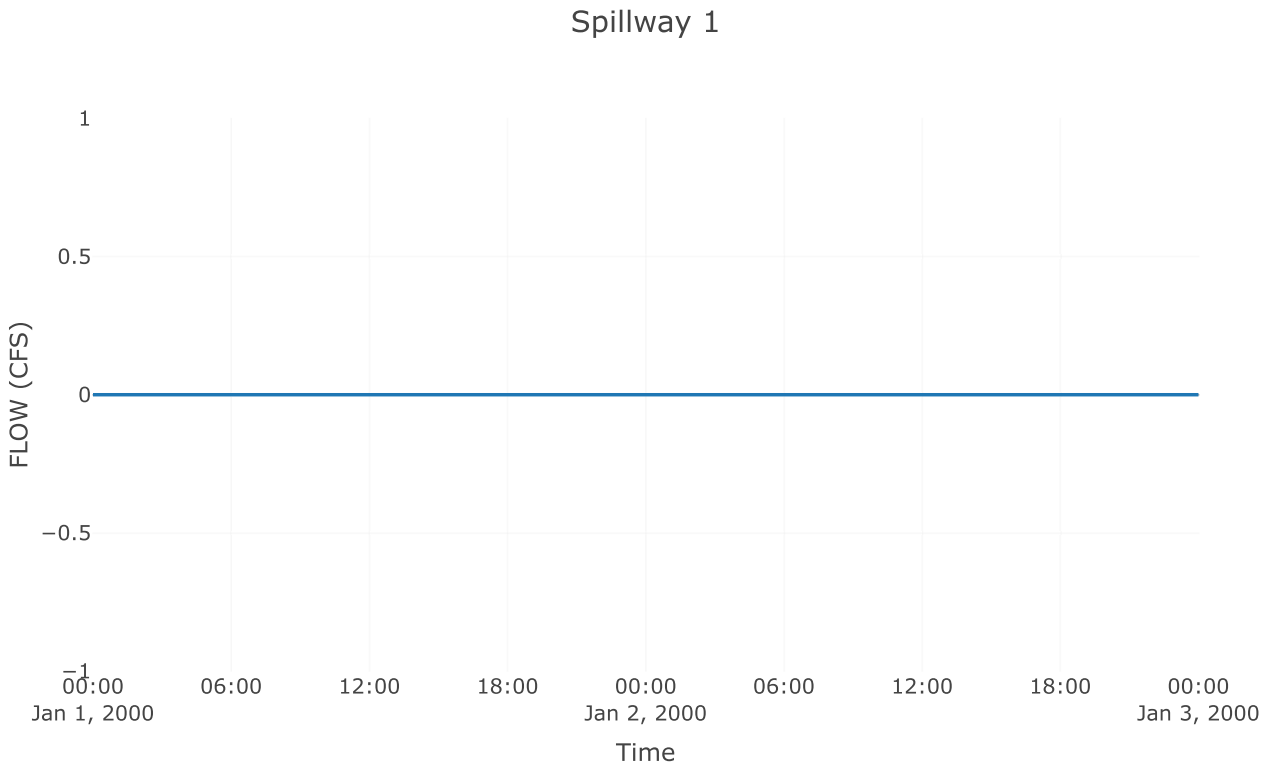
Storage

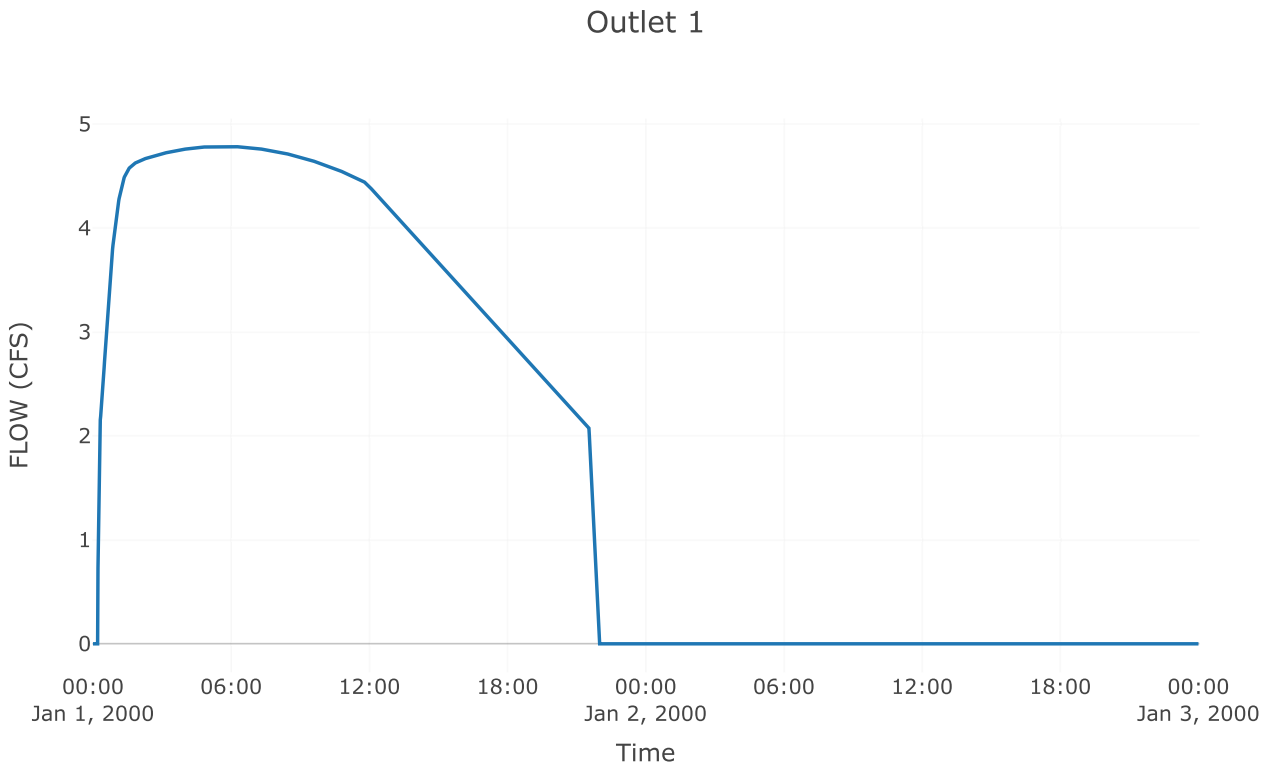


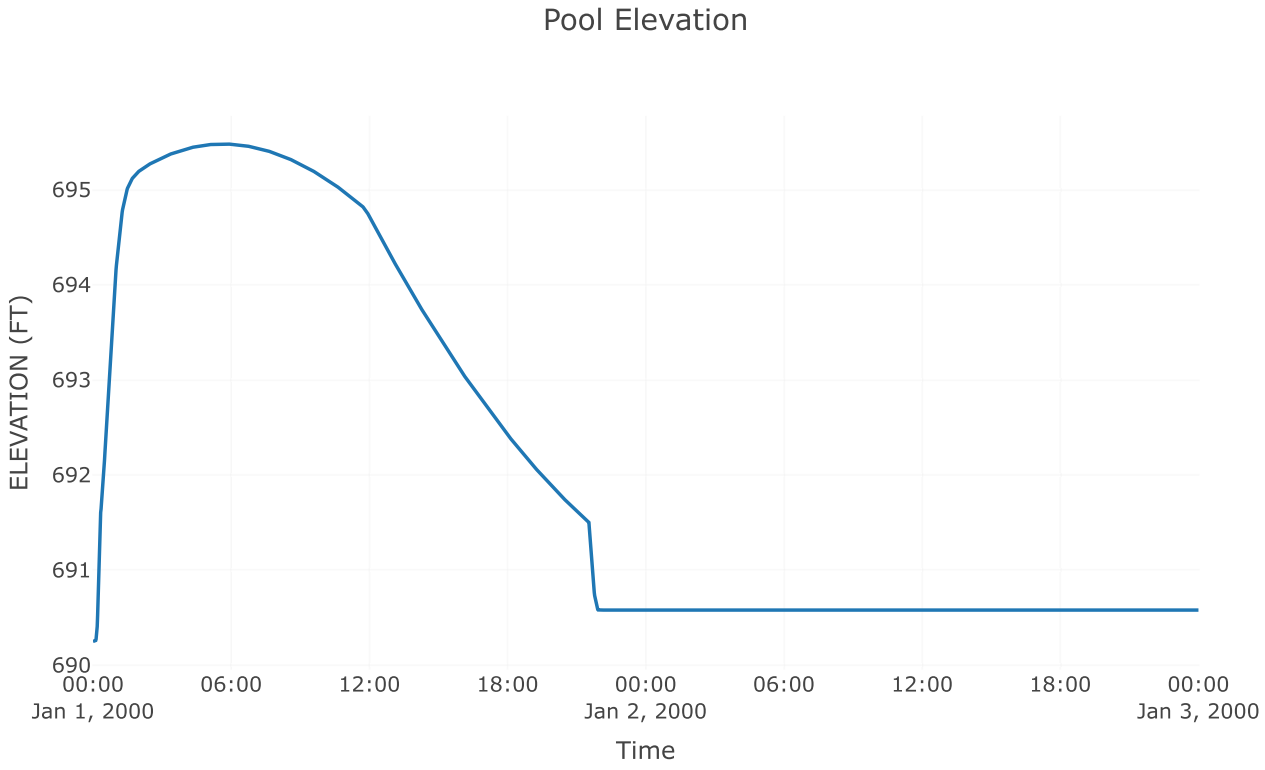
Combined Inflow

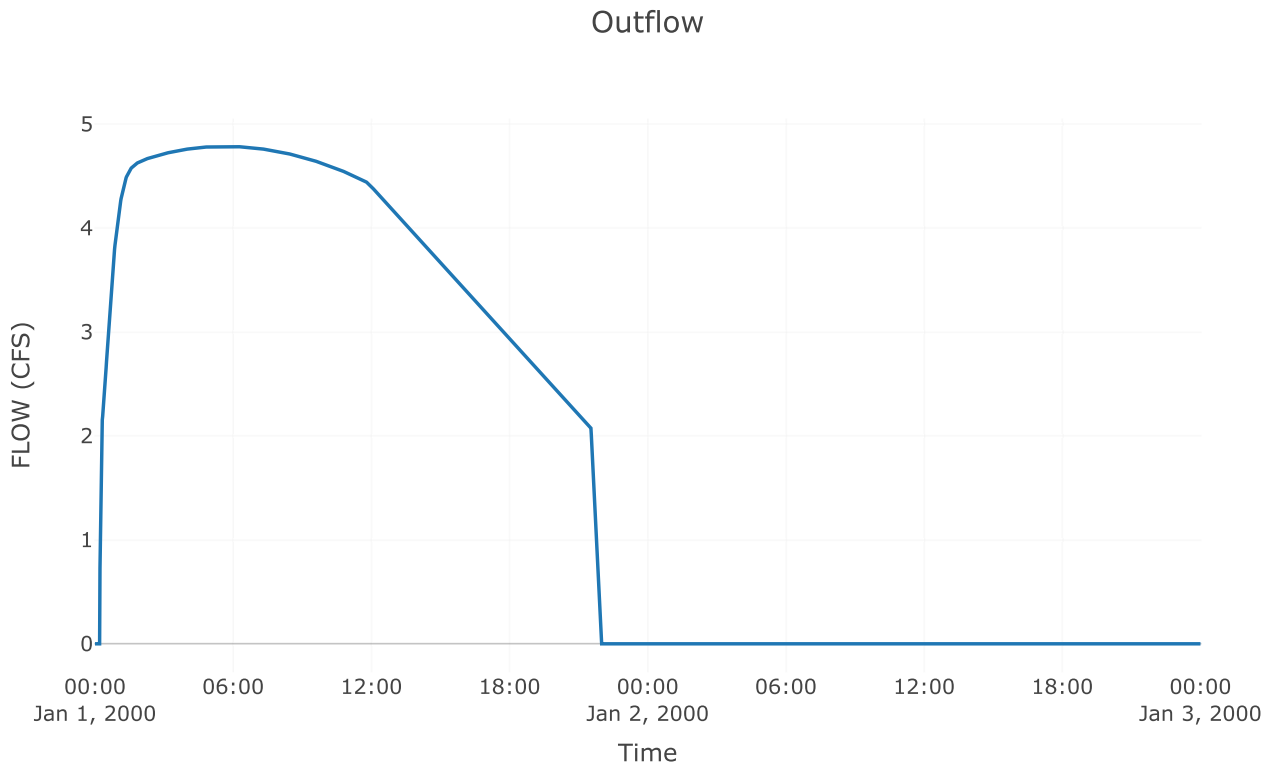



Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
7
6
5
4
3
2
1
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 1
FLOW (CFS)
5
4
3
2
1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Pool Elevation
ELEVATION (FT)
695
694
693
692
691
690
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outflow
FLOW (CFS)
5
4
3
2
1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: On-Site Trib-Area 3

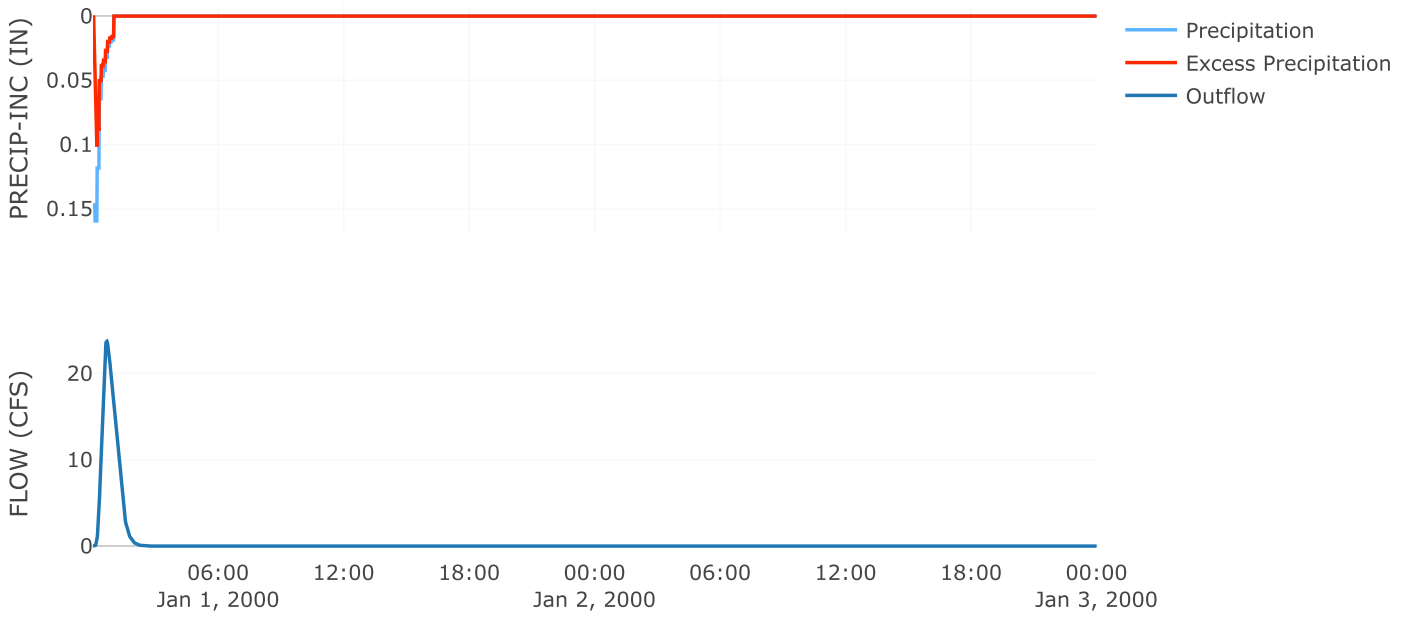
Area (MI2) : 0.01
Downstream : Basin 3

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

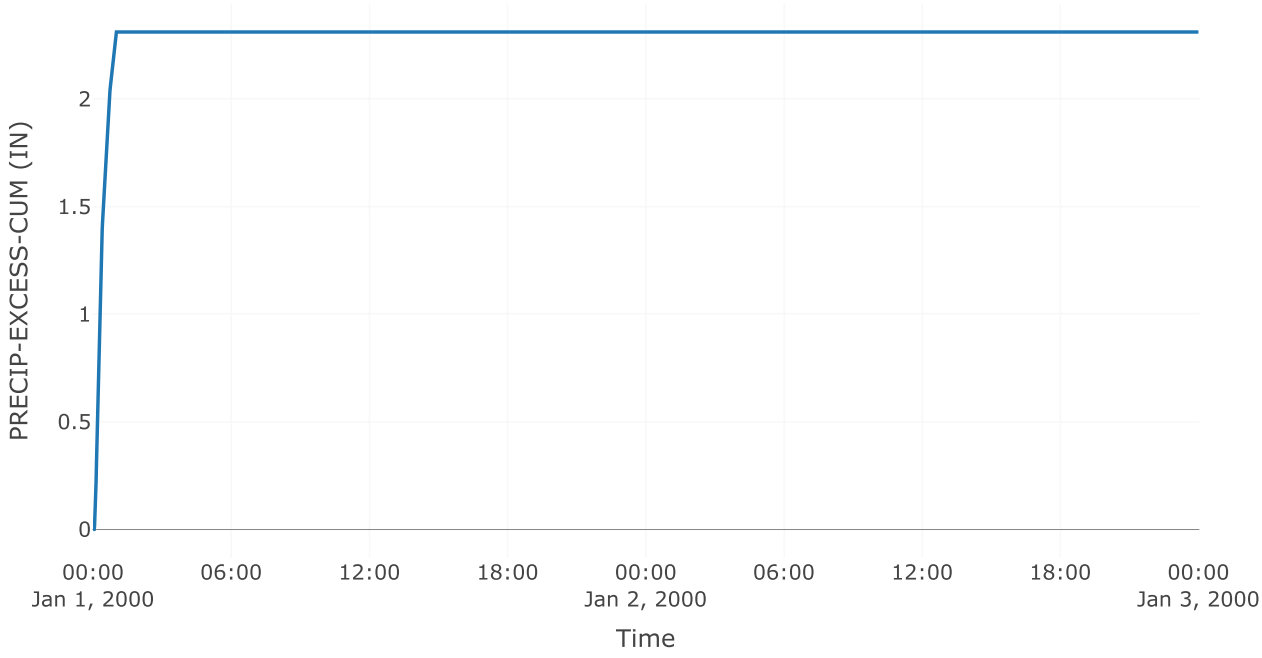
Transform: Scs	
Lag	21
Unitgraph Type	Standard

Results: On-Site Trib-Area 3	
Peak Discharge (CFS)	23.74
Time of Peak Discharge	01Jan2000, 00:39
Volume (IN)	2.31
Precipitation Volume (AC - FT)	2.72
Loss Volume (AC - FT)	1.16
Excess Volume (AC - FT)	1.56
Direct Runoff Volume (AC - FT)	1.56
Baseflow Volume (AC - FT)	0

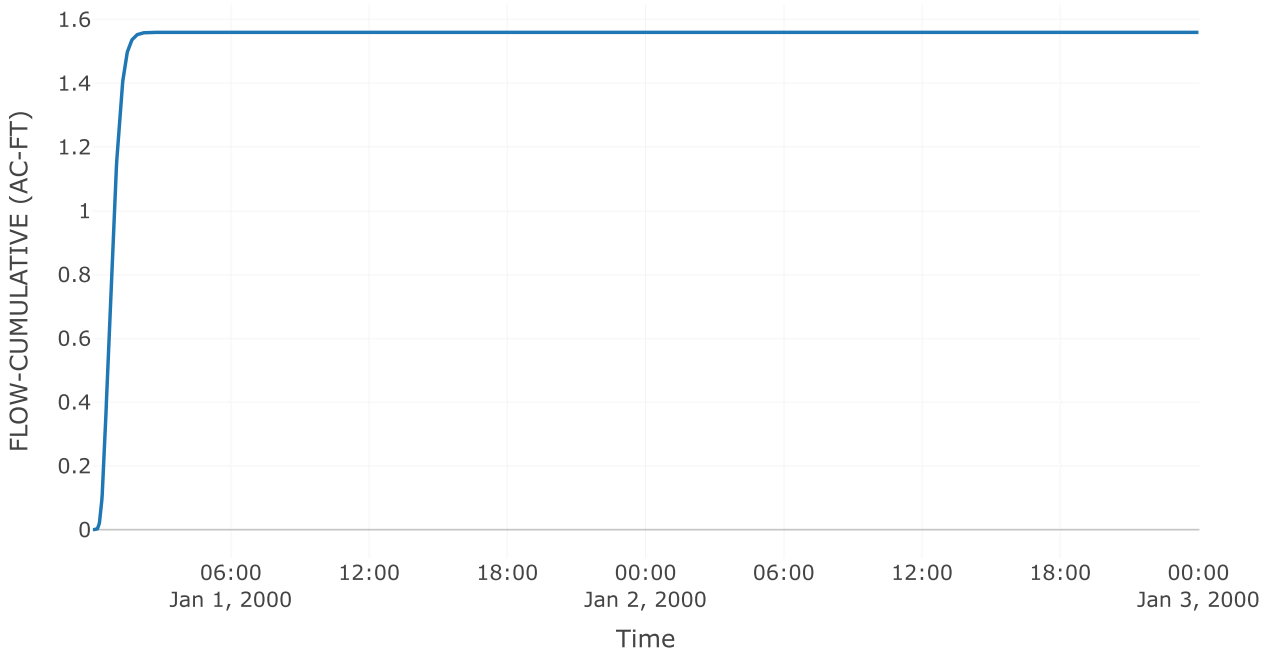
Precipitation and Outflow



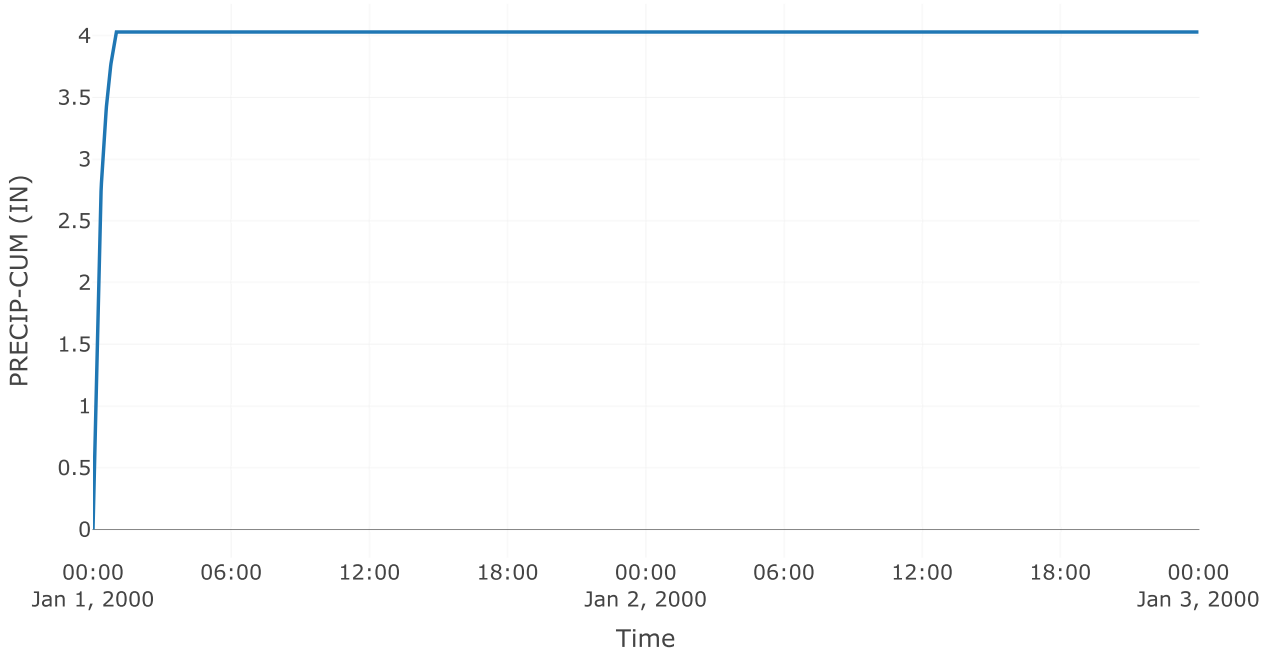
Cumulative Excess Precipitation

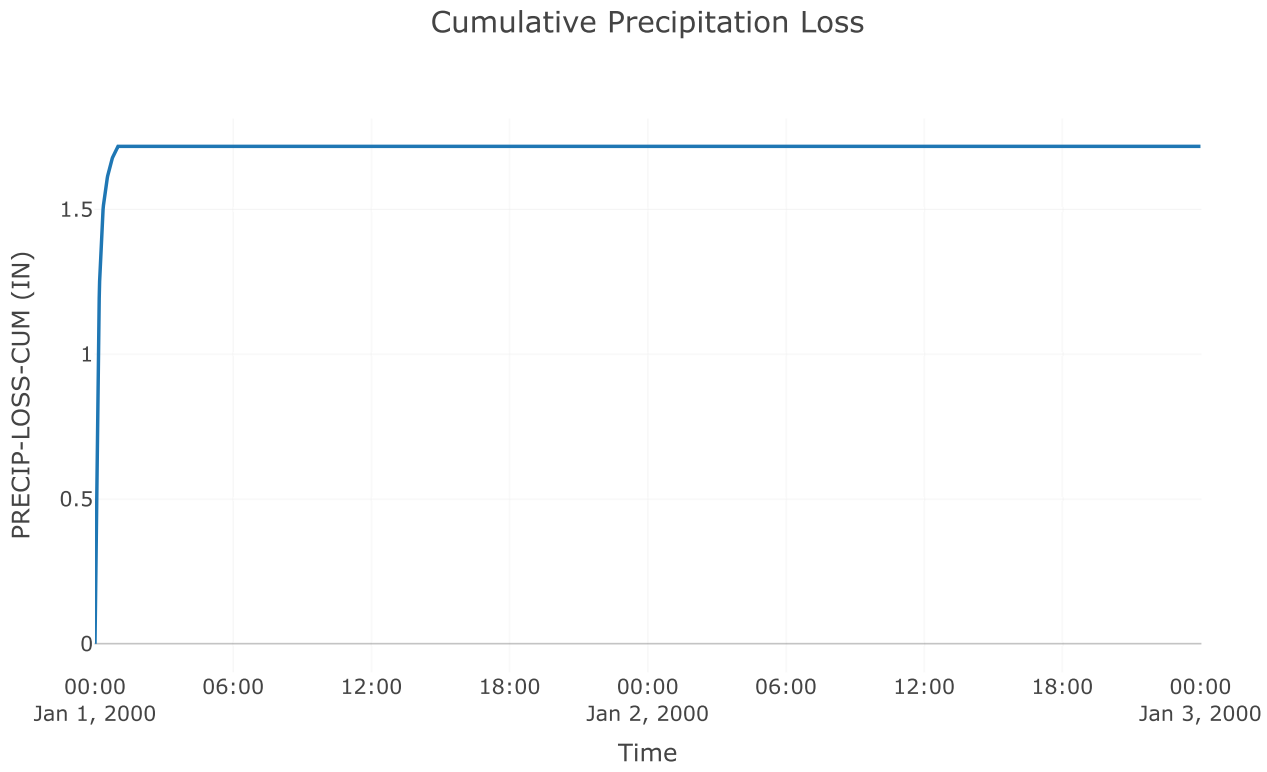


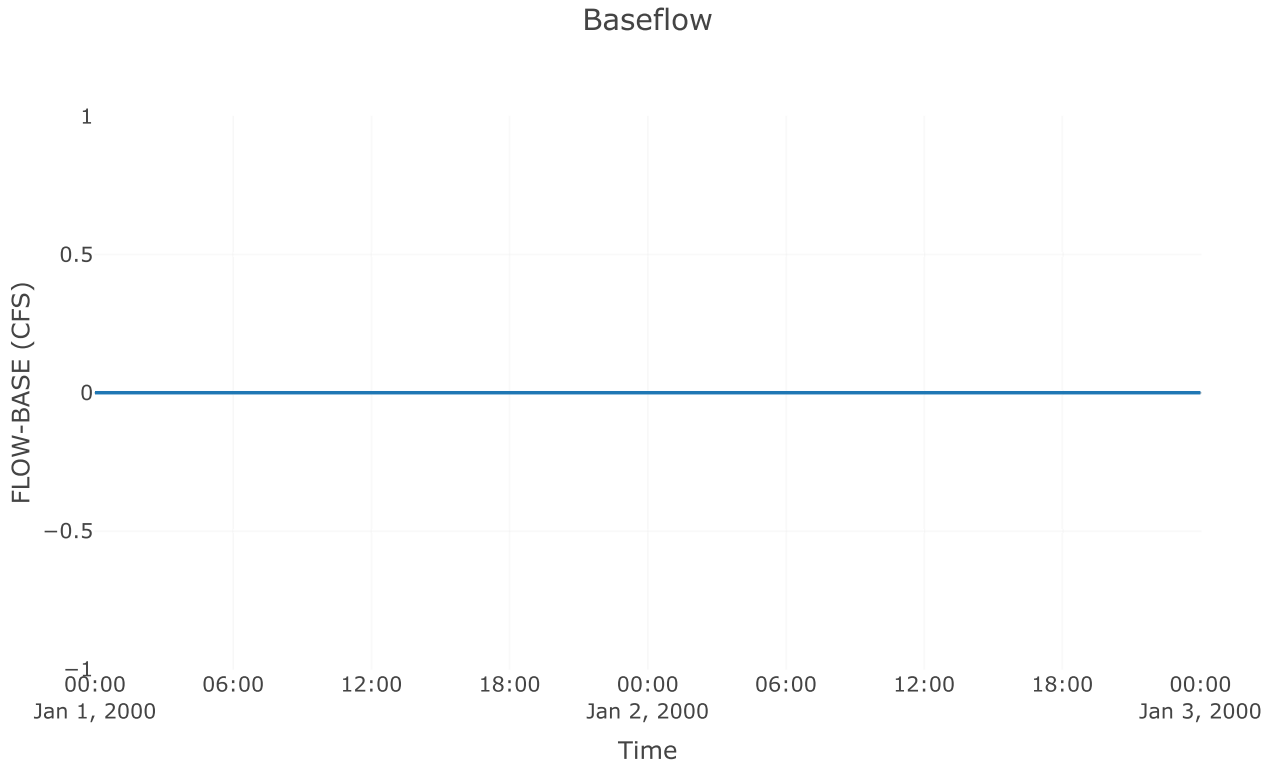
Cumulative Outflow

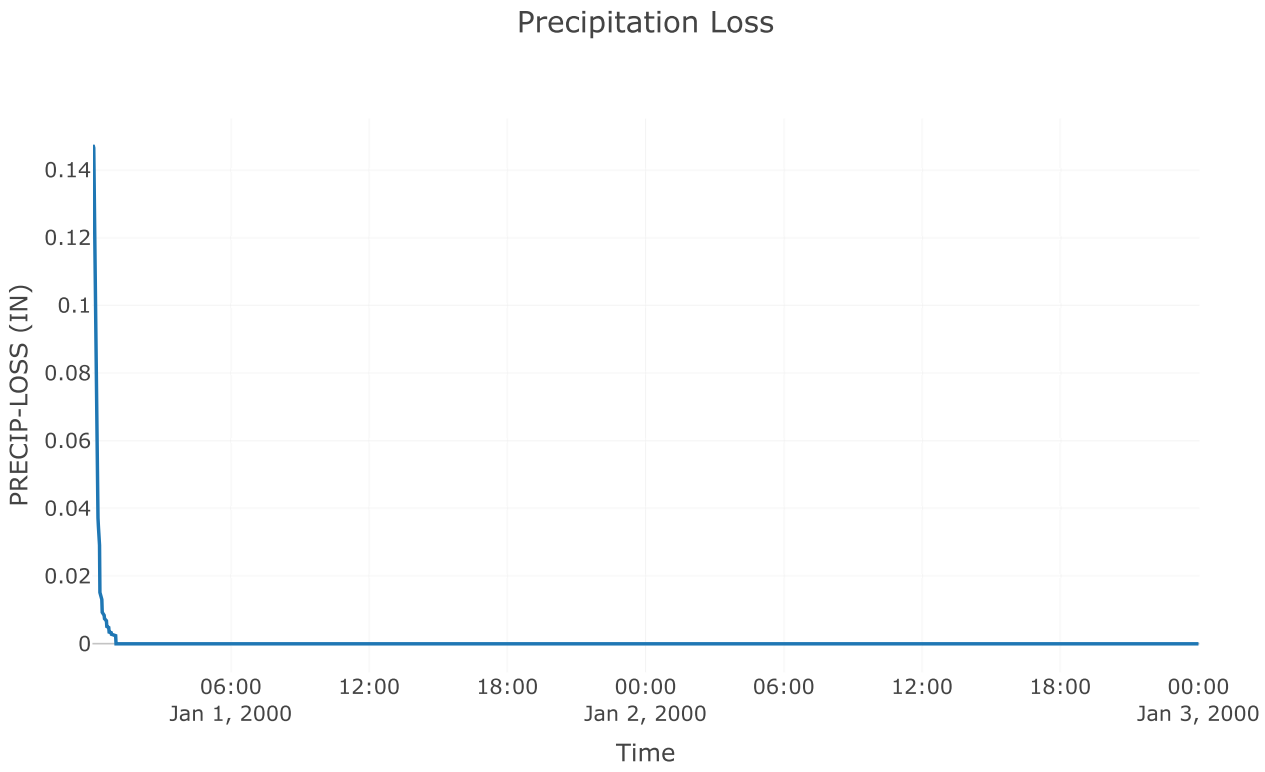


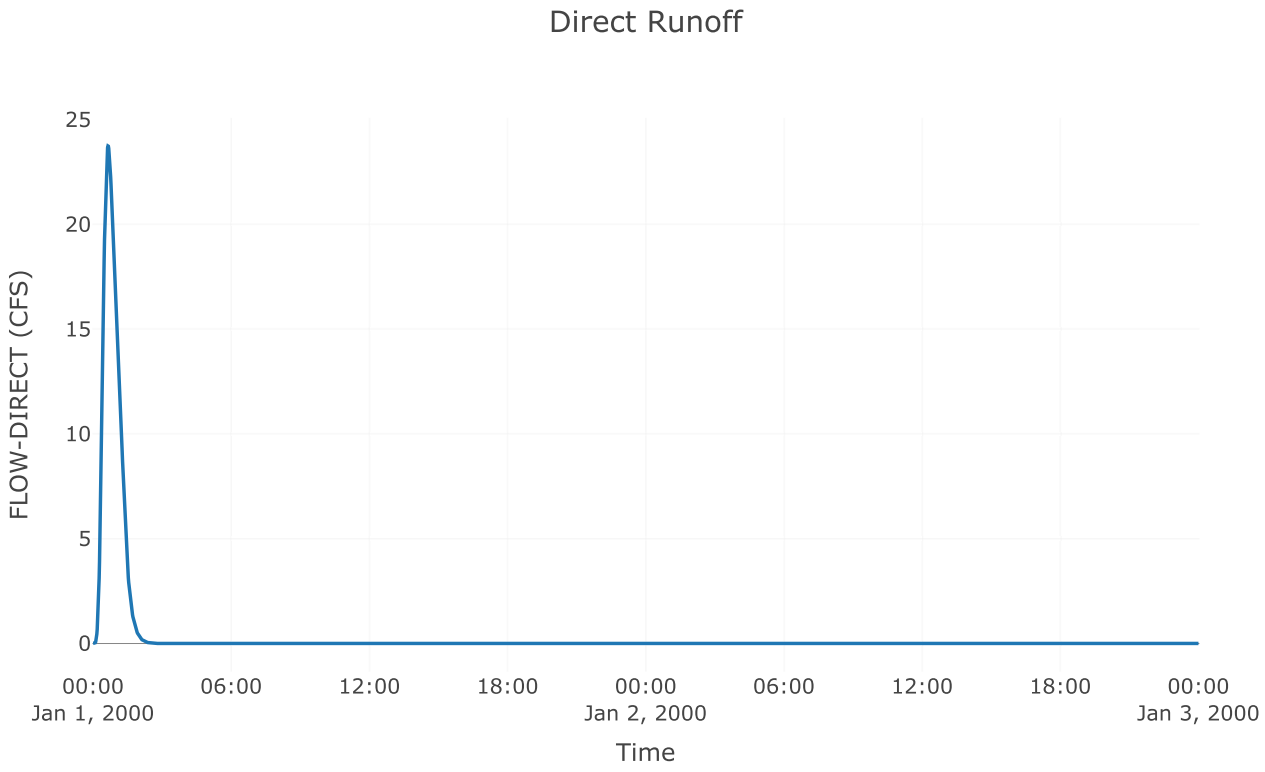
Cumulative Precipitation

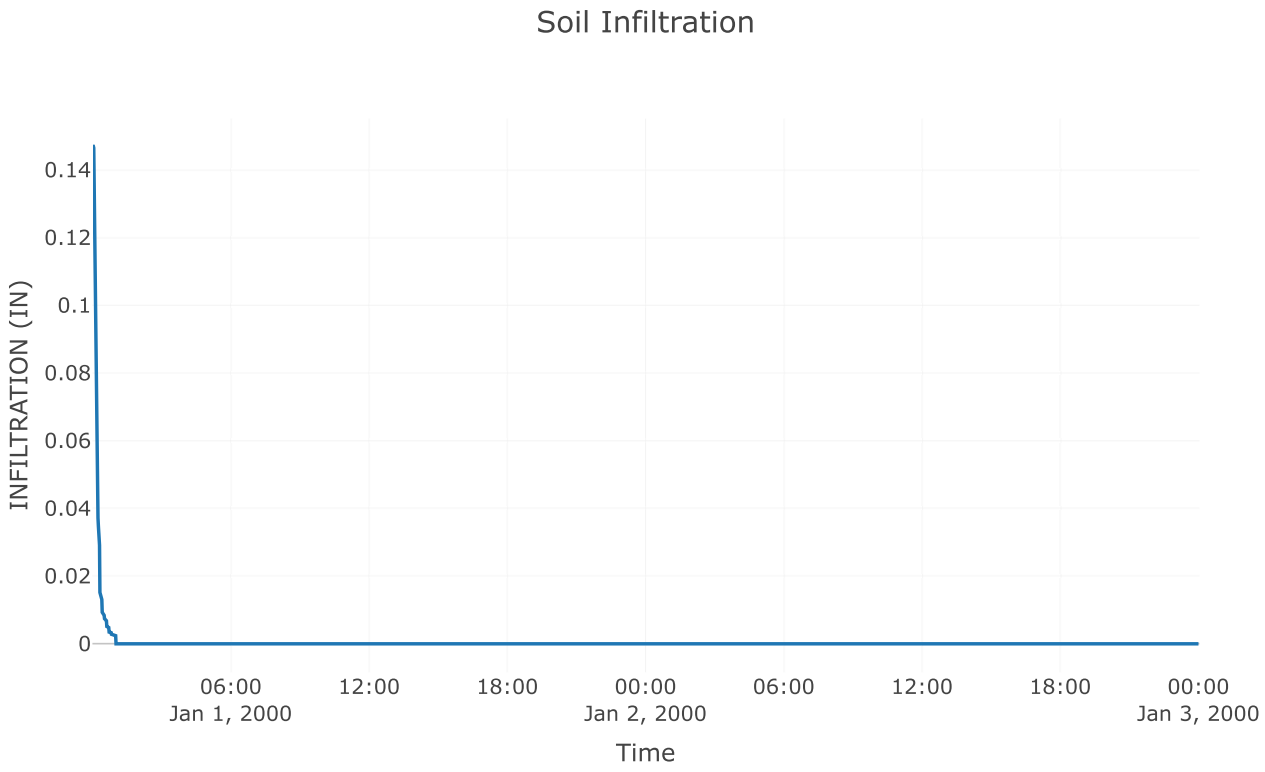



Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Direct Runoff
FLOW-DIRECT (CFS)
25
20
15
10
5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: LaGrange Highlands Off-Site

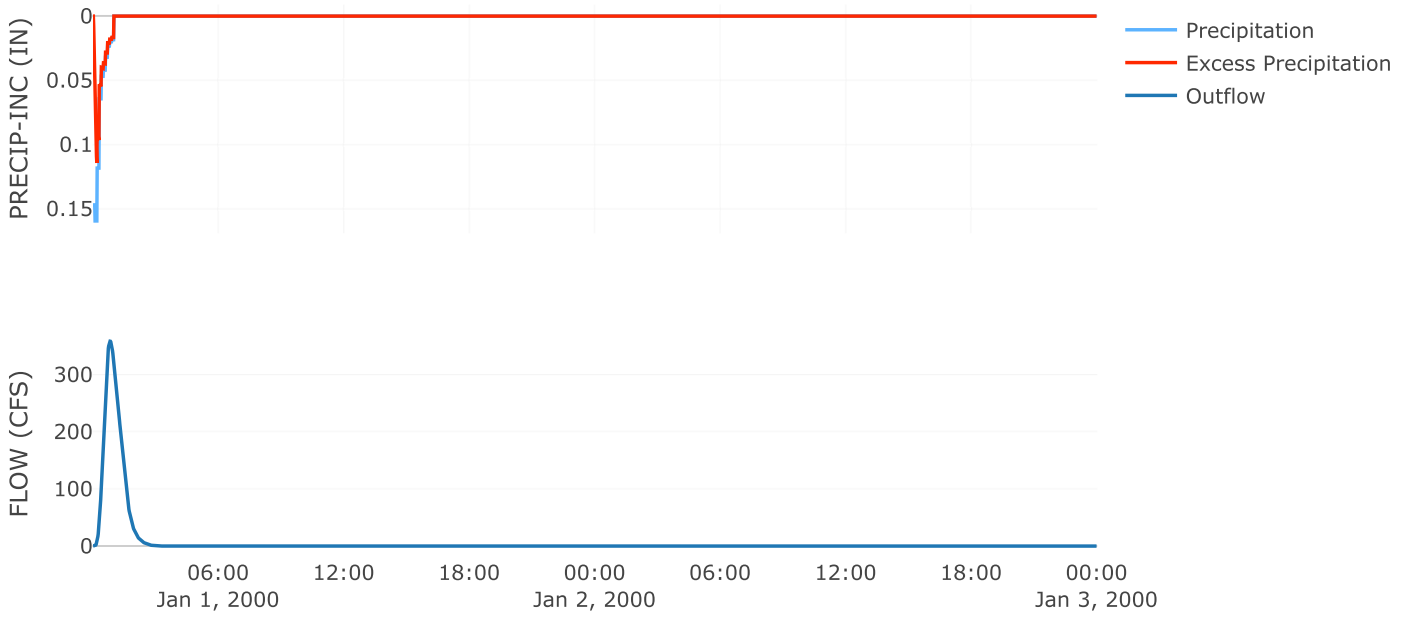
Area (MI2) : 0.2
Downstream : Off - Site Tributary Area

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	86

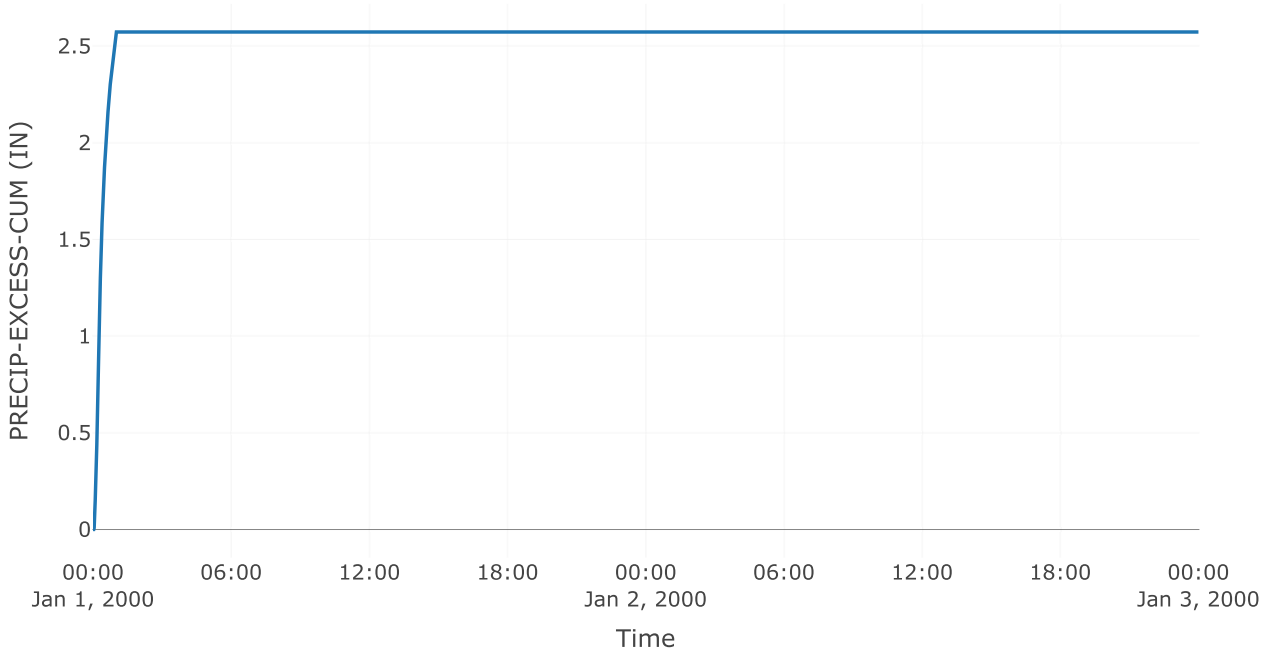
Transform: Scs	
Lag	29.2
Unitgraph Type	Standard

Results: LaGrange Highlands Off-Site	
Peak Discharge (CFS)	358.51
Time of Peak Discharge	01Jan2000, 00:49
Volume (IN)	2.57
Precipitation Volume (AC - FT)	43.45
Loss Volume (AC - FT)	15.7
Excess Volume (AC - FT)	27.75
Direct Runoff Volume (AC - FT)	27.75
Baseflow Volume (AC - FT)	0

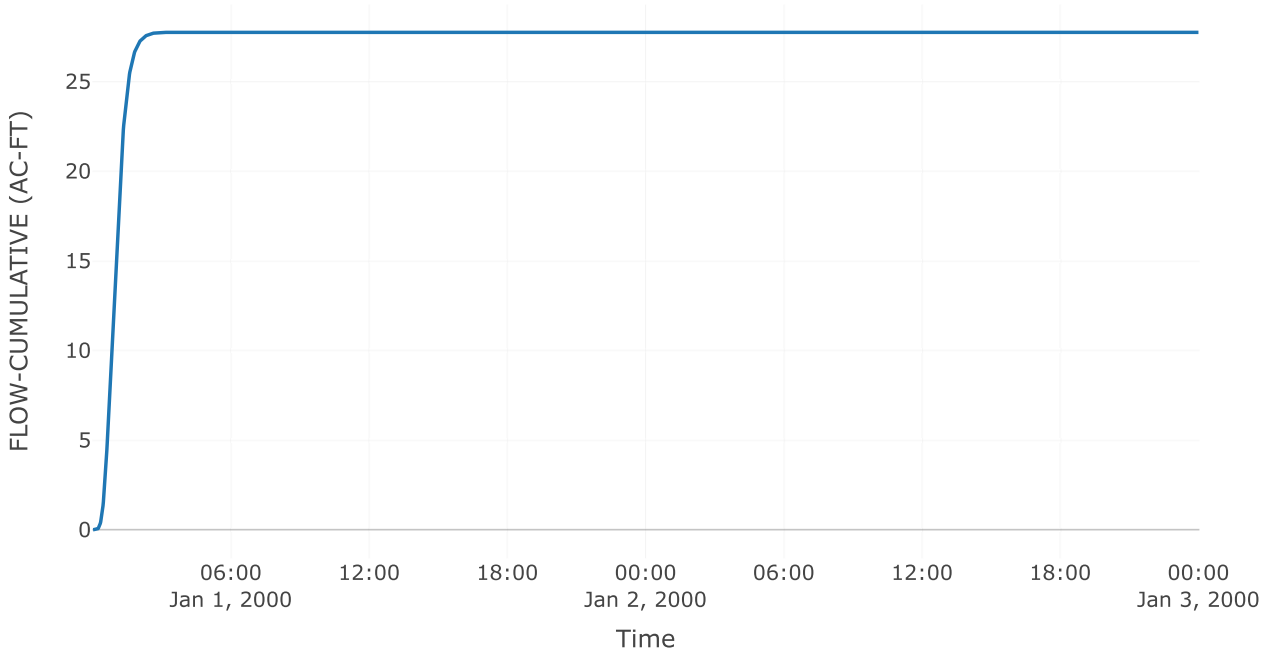
Precipitation and Outflow



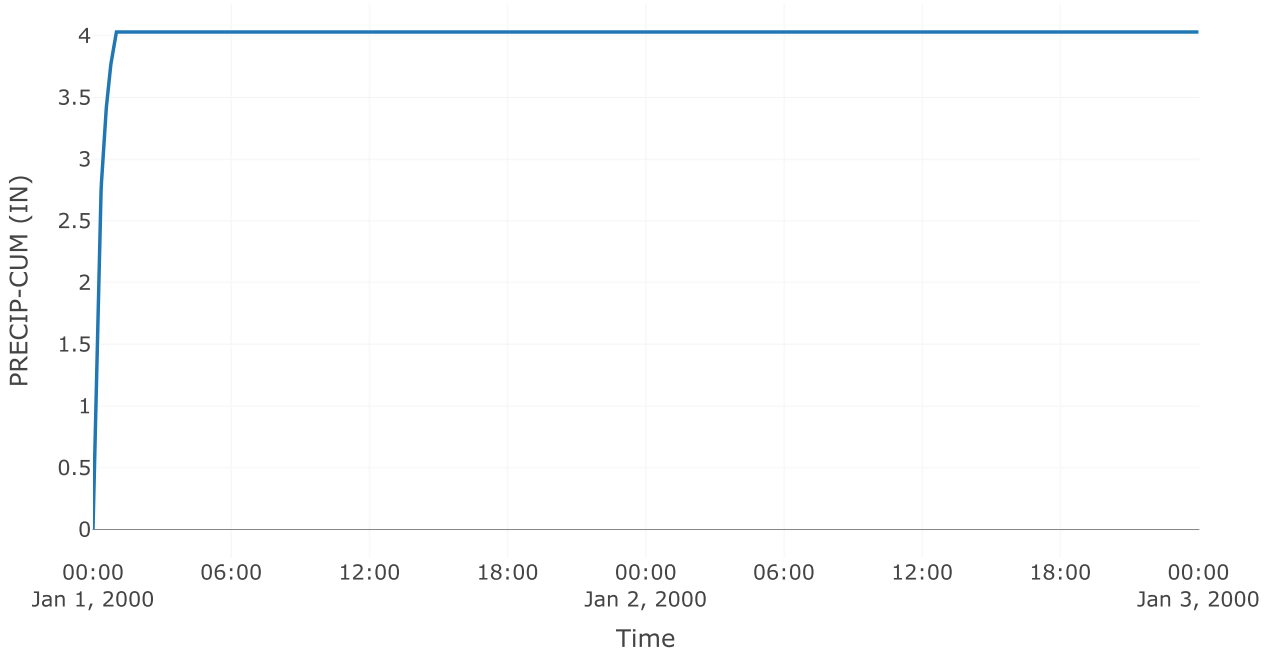
Cumulative Excess Precipitation

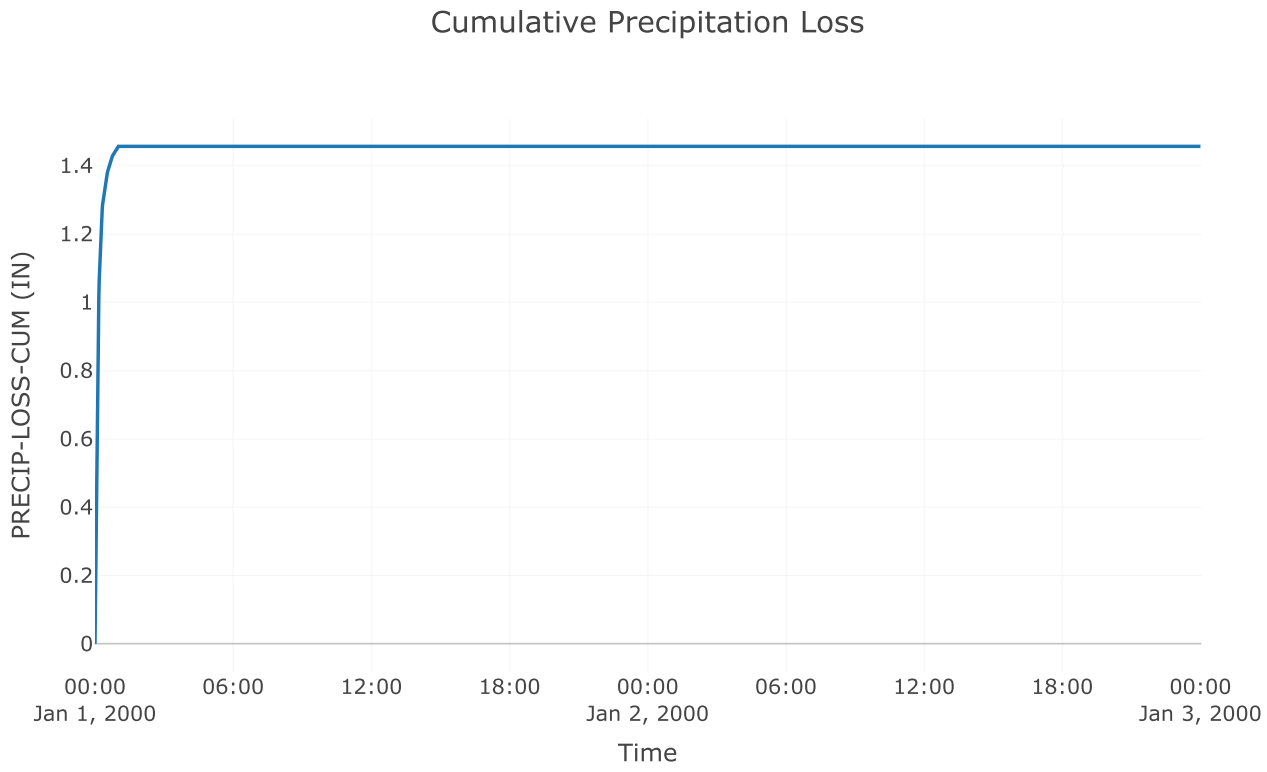


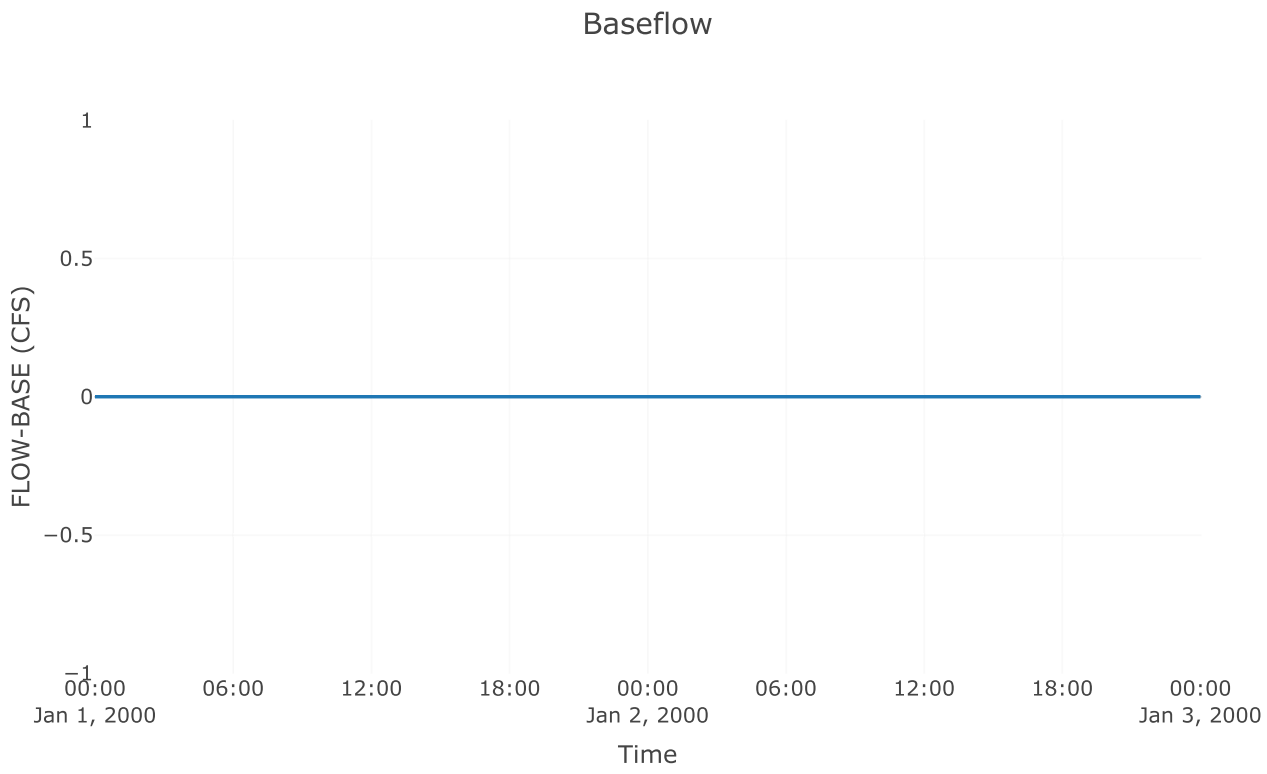
Cumulative Outflow



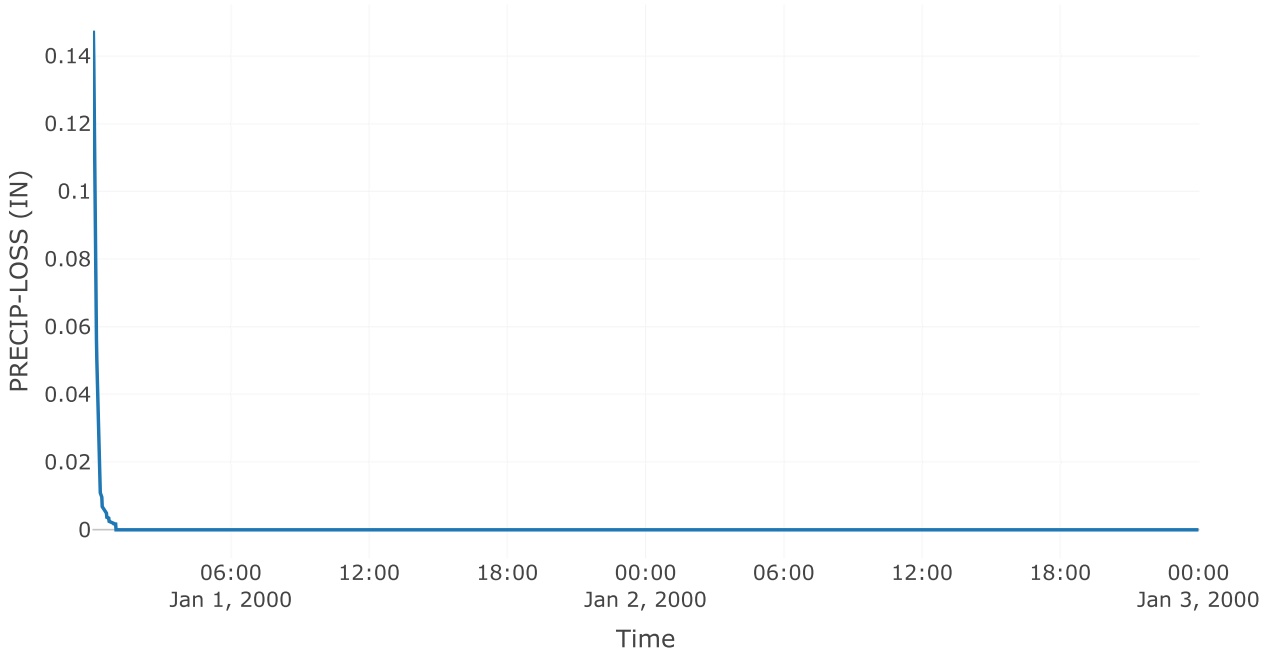
Cumulative Precipitation



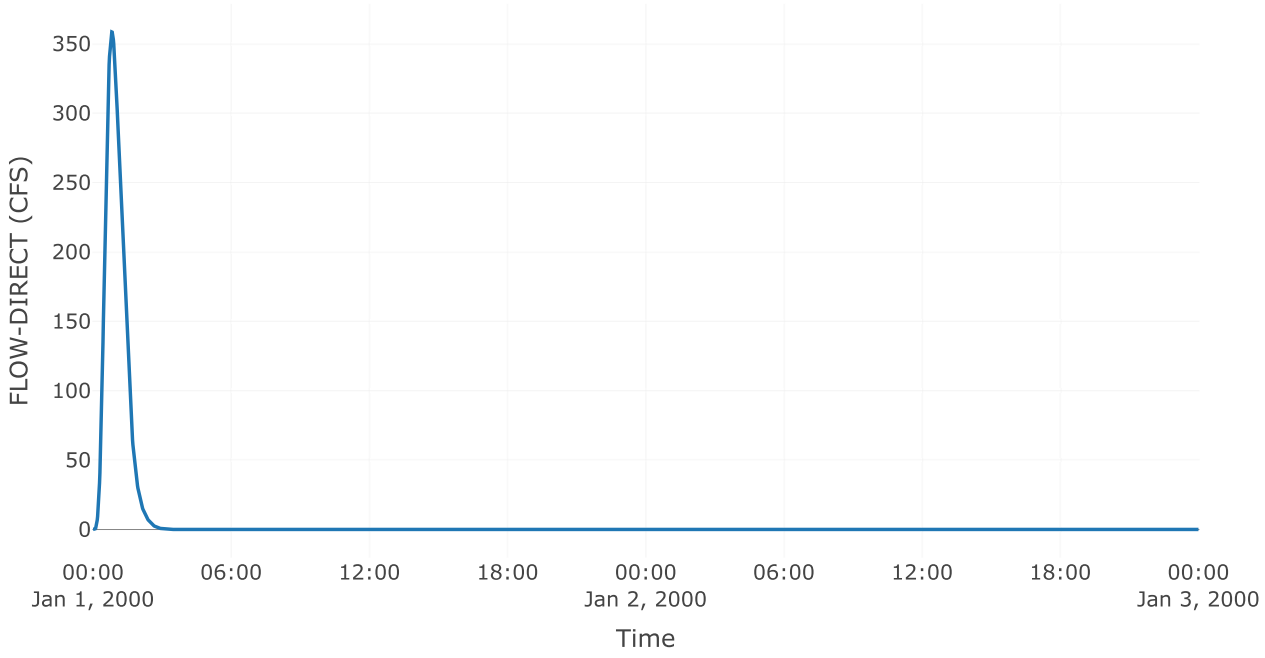

Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

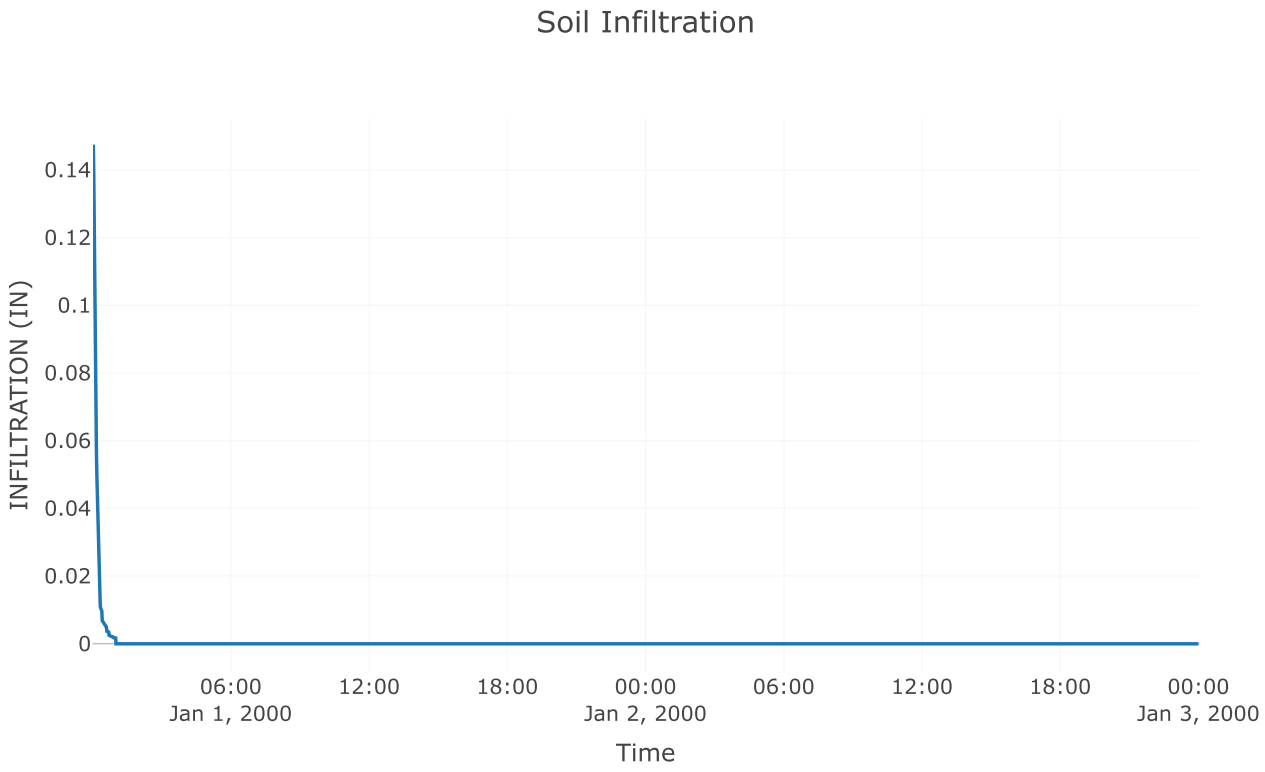

Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Precipitation Loss



Direct Runoff



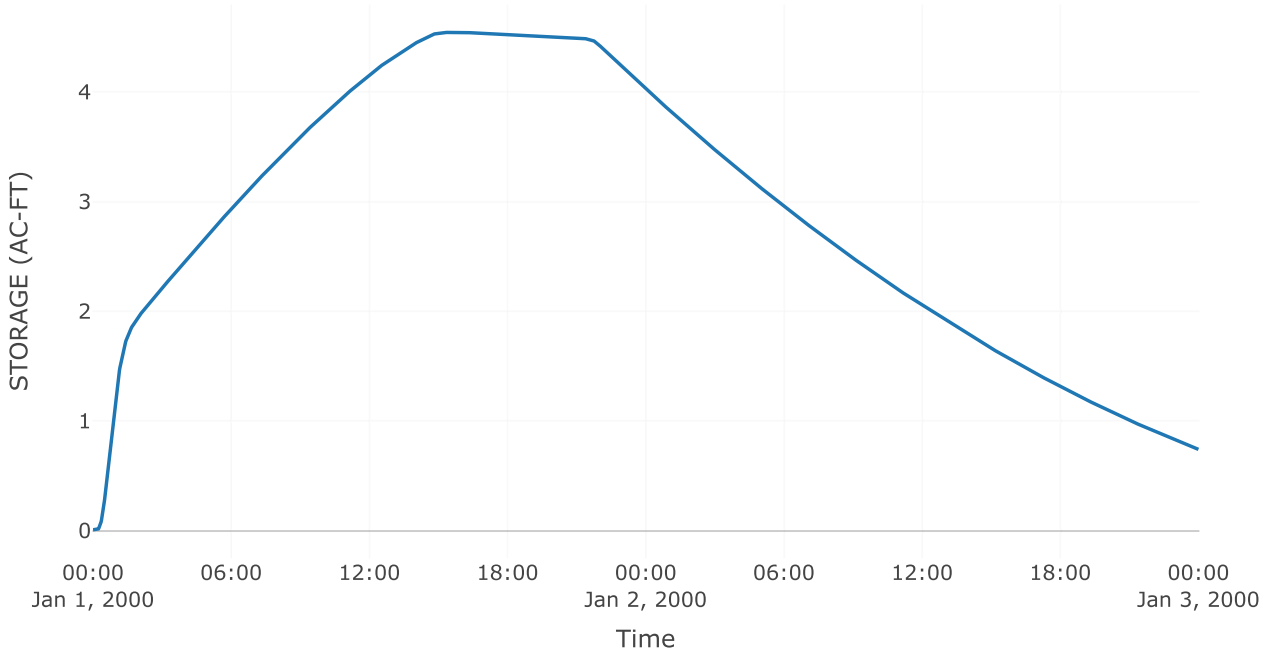

Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 3

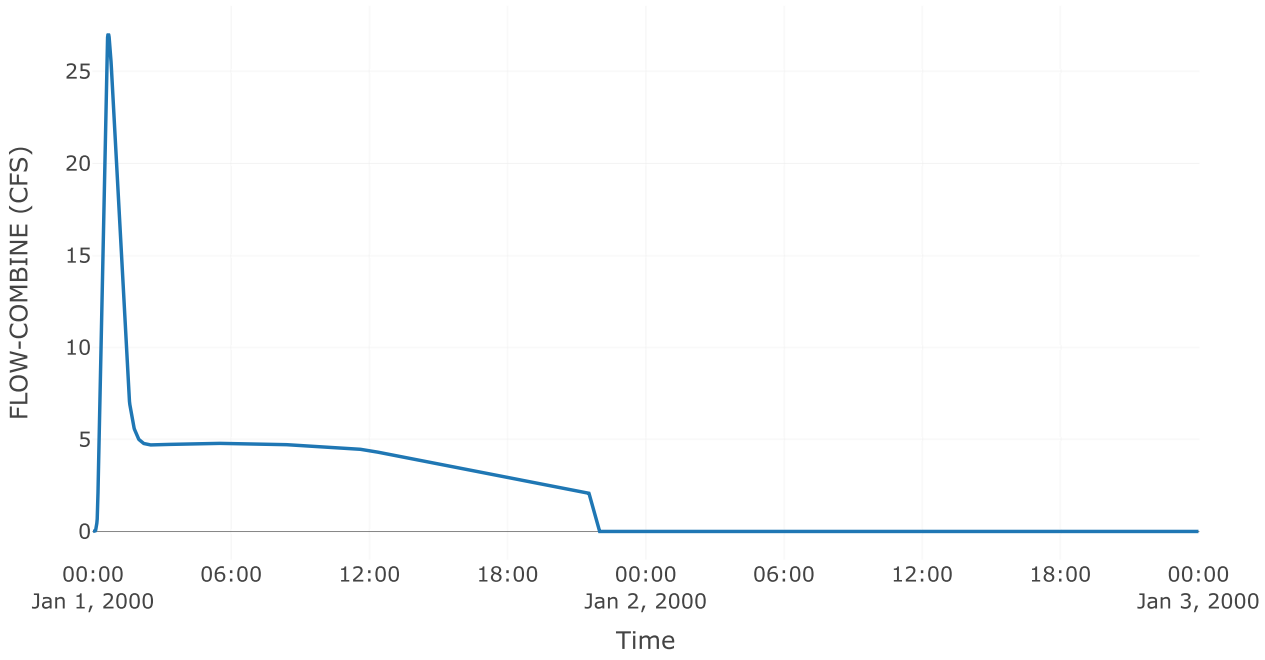
Downstream : Off - Site Tributary Area

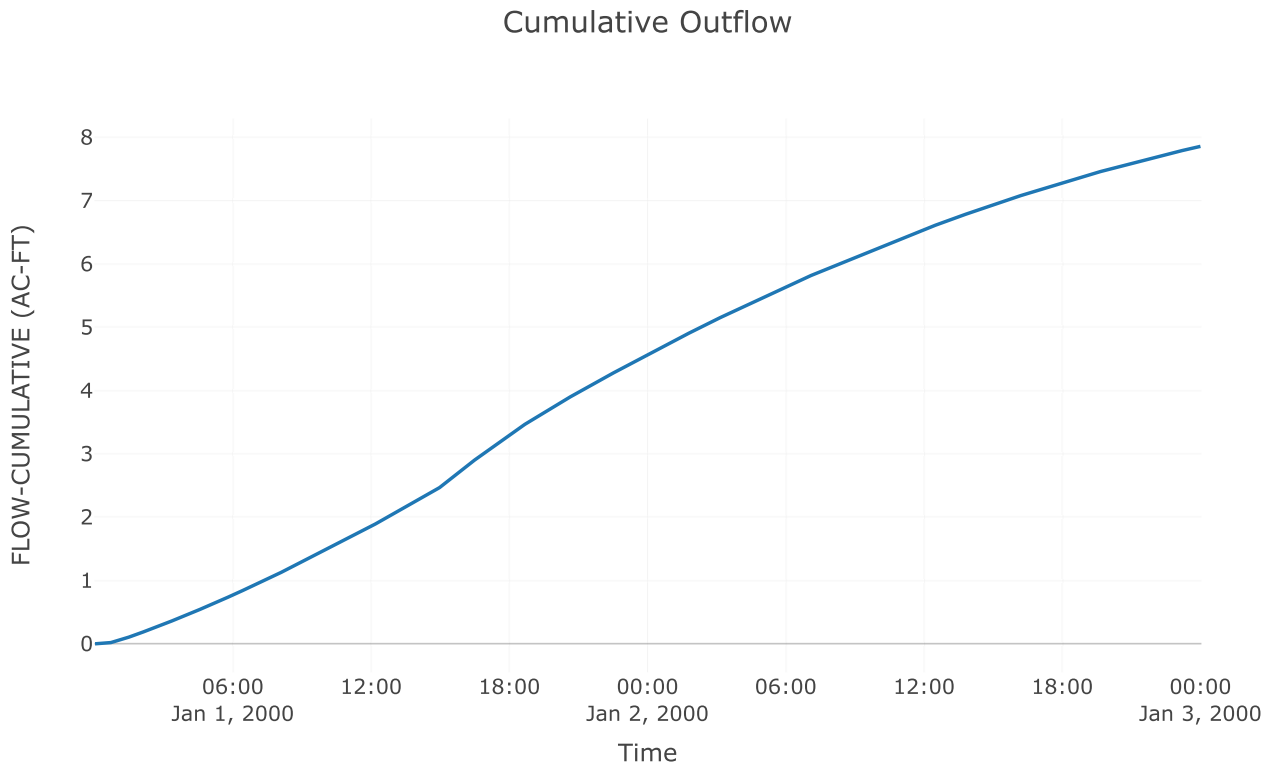
Results: Basin 3	
Peak Discharge (CFS)	3.52
Time of Peak Discharge	01Jan2000, 15:36
Volume (IN)	2.2
Peak Inflow (CFS)	27.03
Time of Peak Inflow	01Jan2000, 00:40
Inflow Volume (AC - FT)	8.59
Maximum Storage (AC - FT)	4.54
Peak Elevation (FT)	695.06
Discharge Volume (AC - FT)	7.86

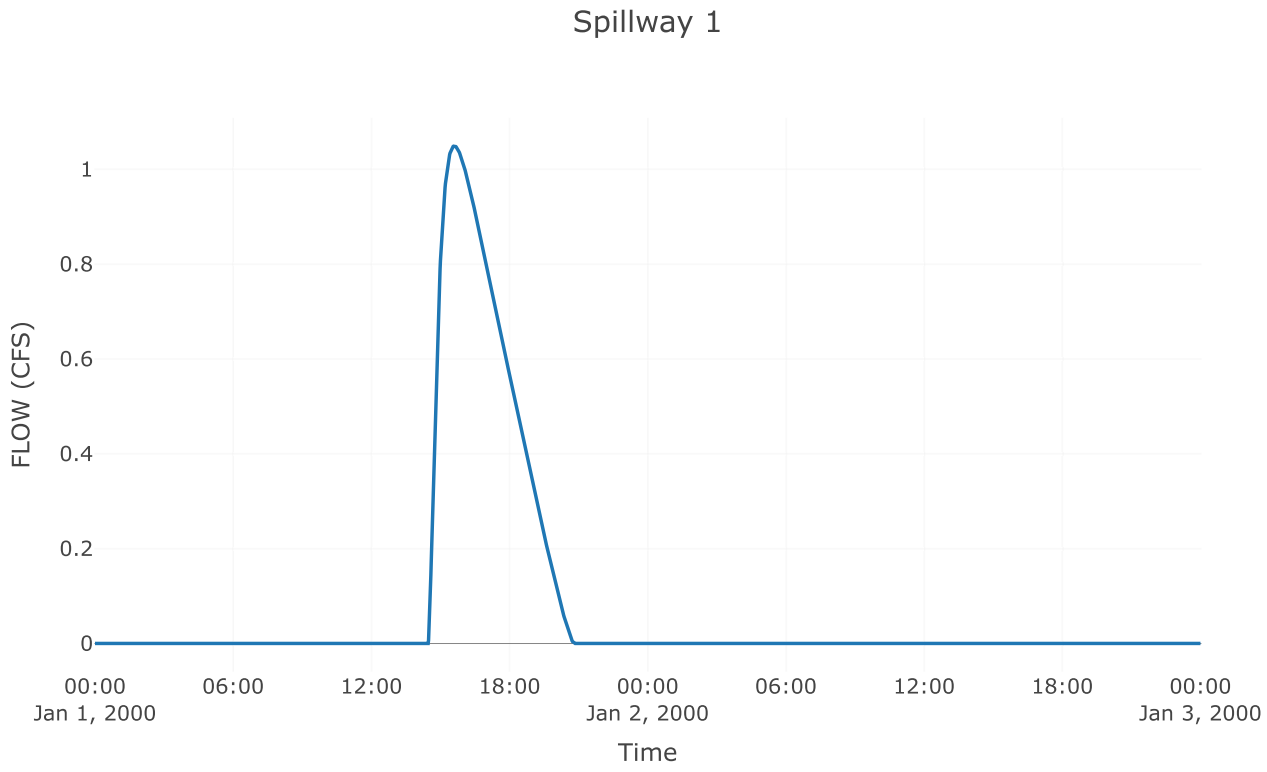
Storage

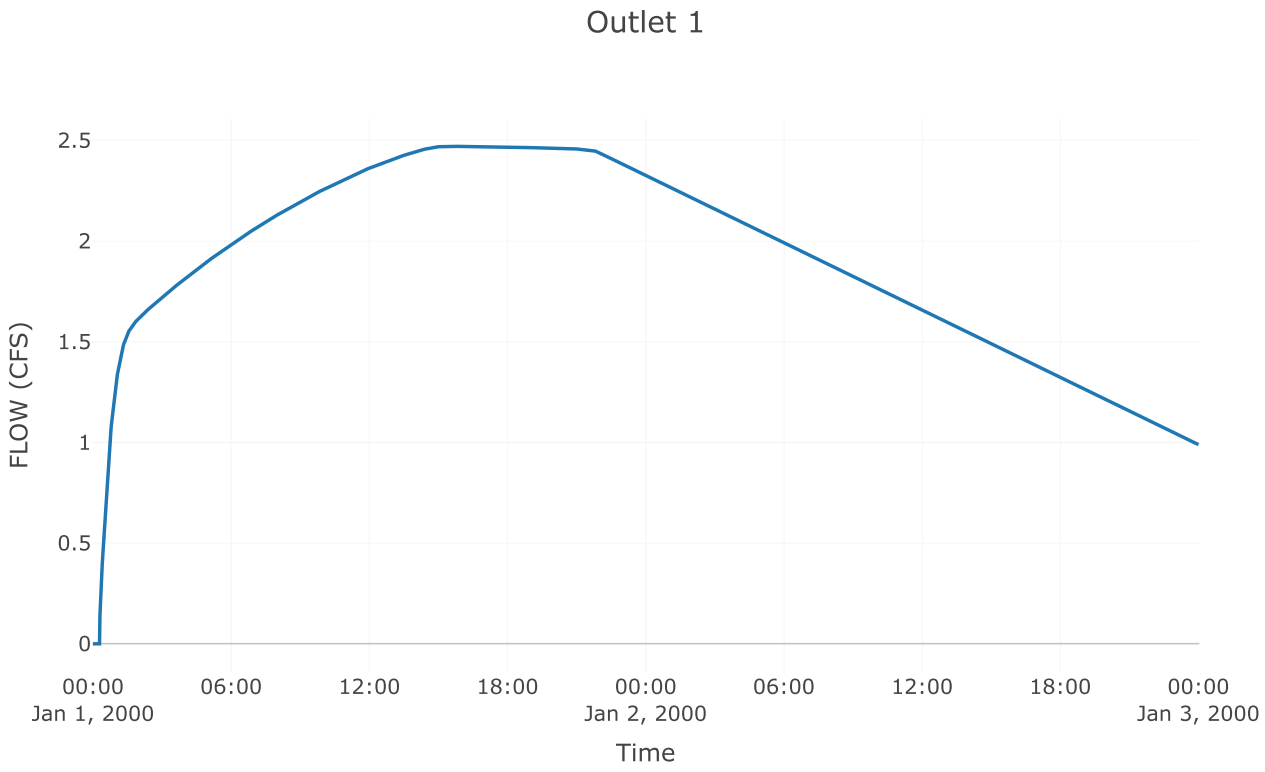


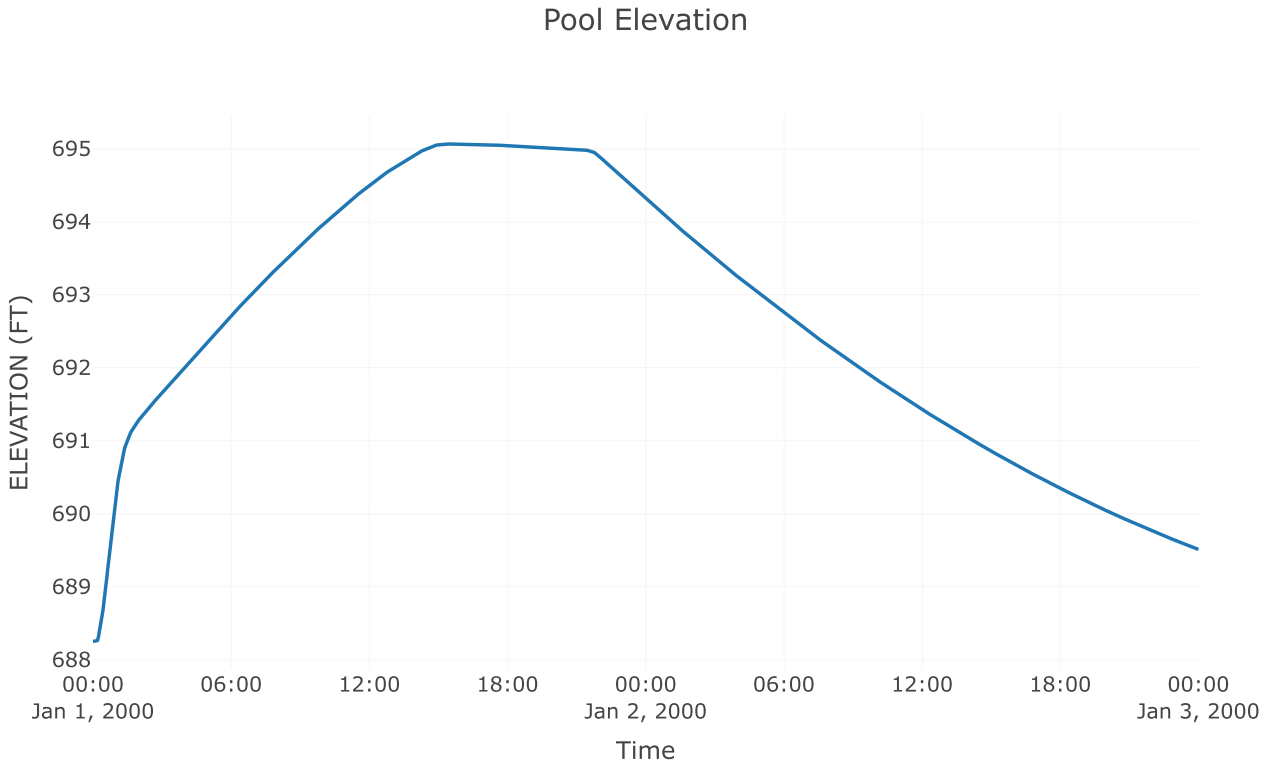
Combined Inflow

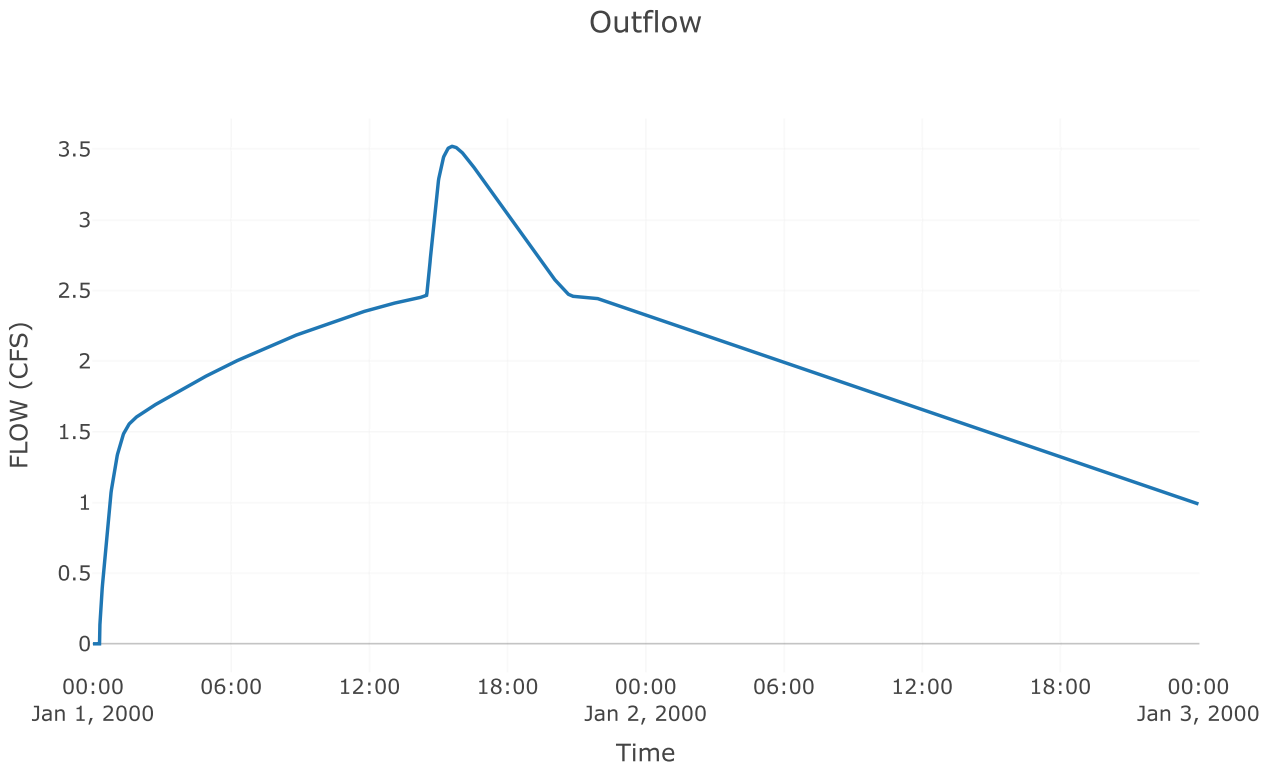



Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
8
7
6
5
4
3
2
1
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Spillway 1
FLOW (CFS)
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 1
FLOW (CFS)
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Pool Elevation
ELEVATION (FT)
695
694
693
692
691
690
689
688
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outflow
FLOW (CFS)
3.5
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

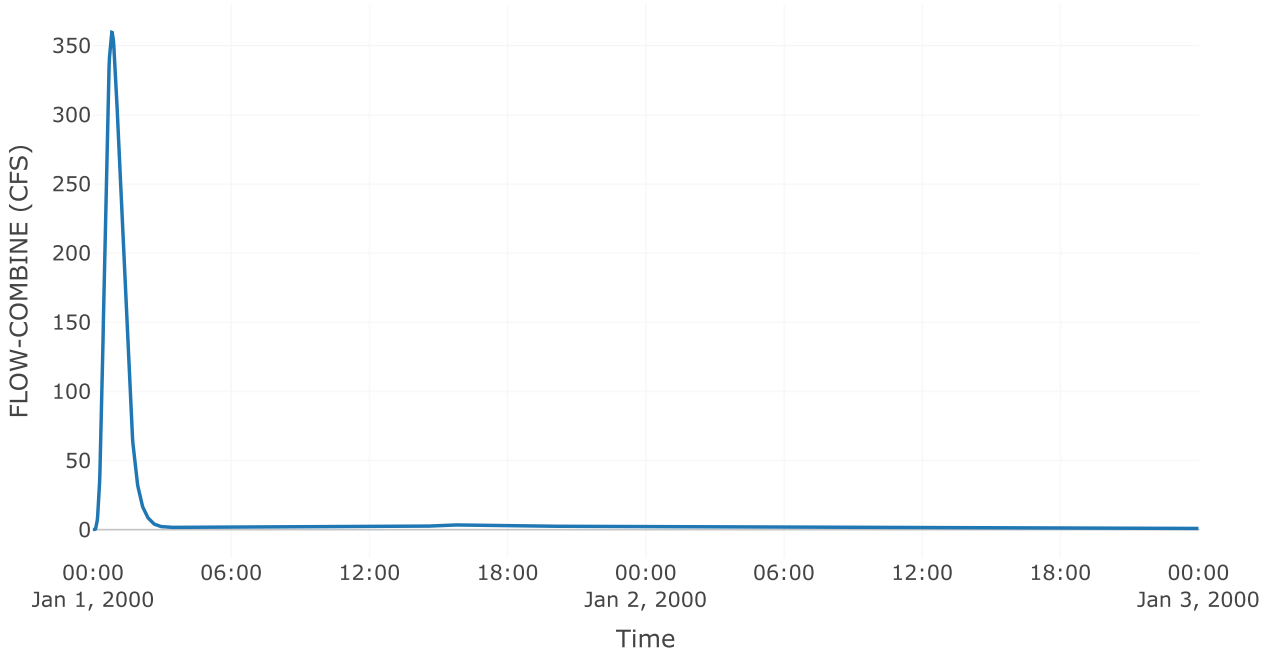
Junction: Off-Site Tributary Area

Downstream : Storage East of Wolf Road

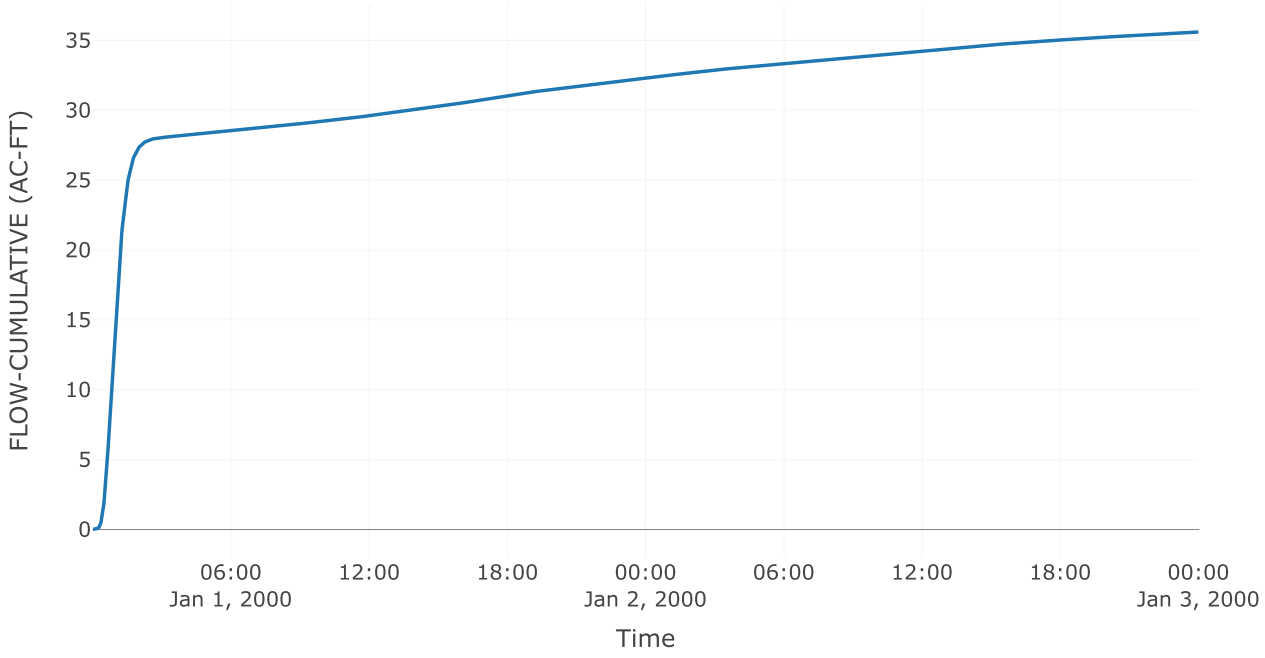
Results: Off-Site Tributary Area

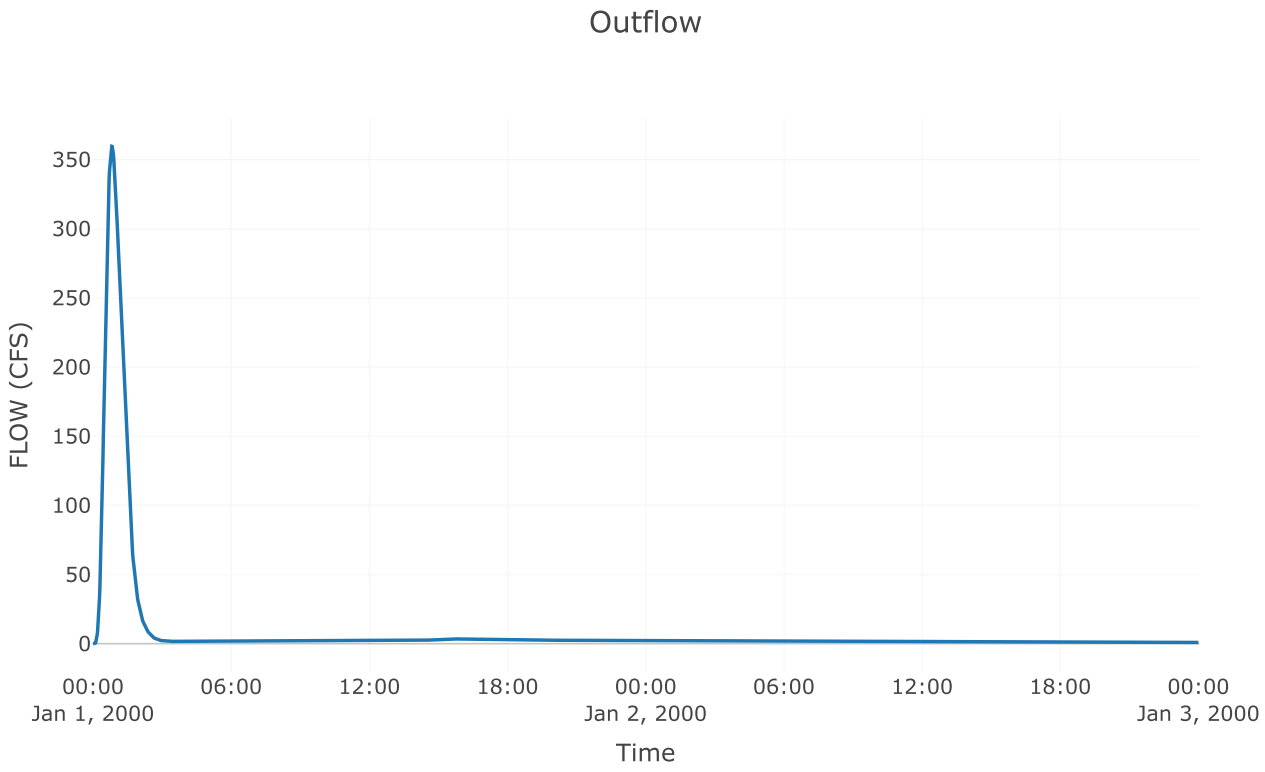
Peak Discharge (CFS)	359.61
Time of Peak Discharge	01Jan2000, 00:49
Volume (IN)	2.48

Combined Inflow



Cumulative Outflow



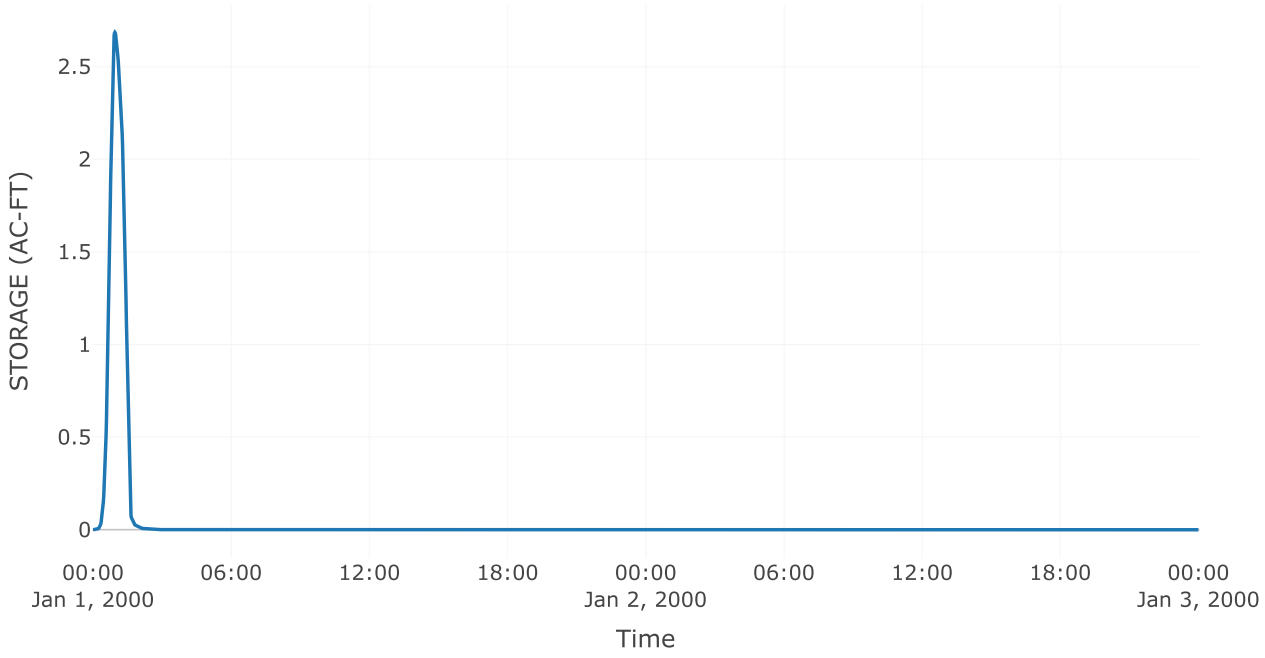

Outflow
FLOW (CFS)
350
300
250
200
150
100
50
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Storage East of Wolf Road

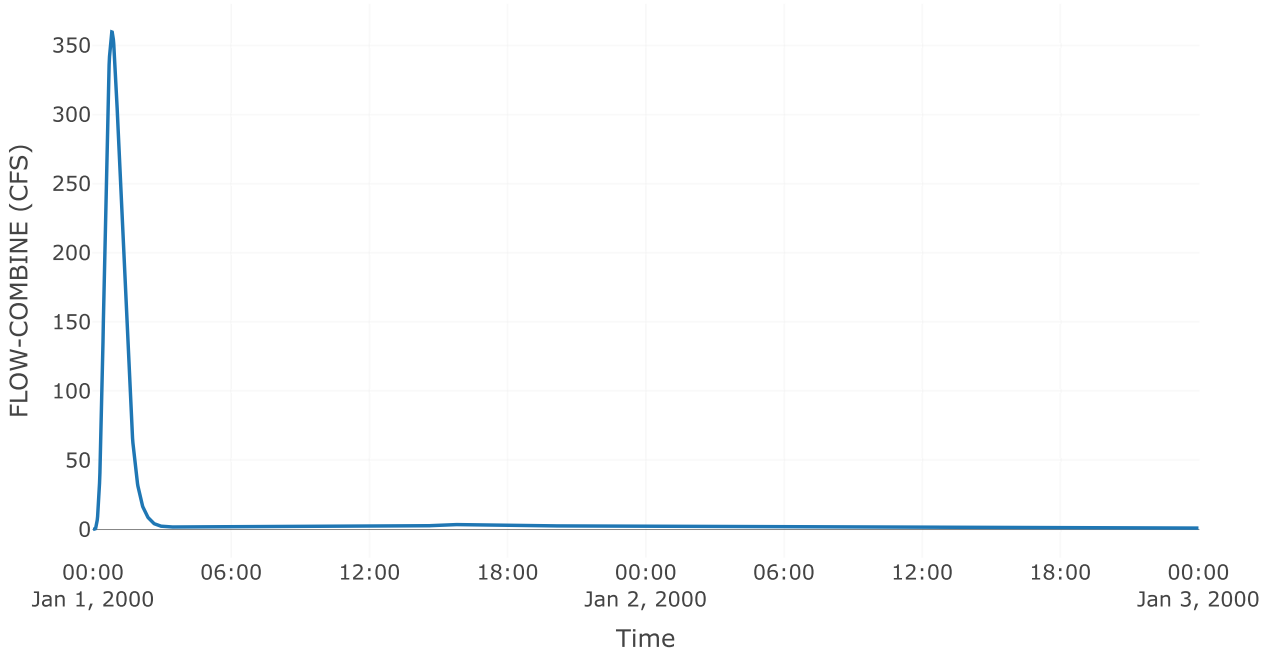
Downstream : Storage West of Wolf Road

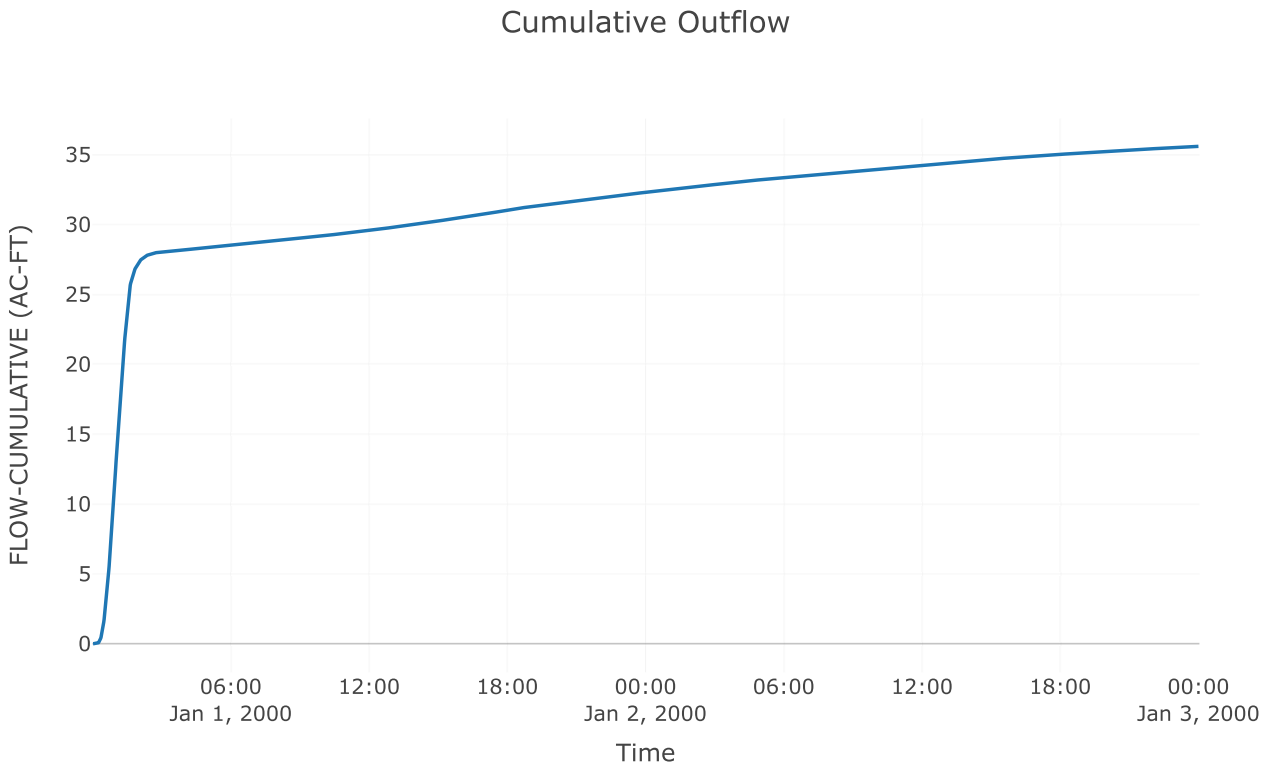
Results: Storage East of Wolf Road	
Peak Discharge (CFS)	338.18
Time of Peak Discharge	01Jan2000, 00:57
Volume (IN)	2.48
Peak Inflow (CFS)	359.61
Time of Peak Inflow	01Jan2000, 00:49
Inflow Volume (AC - FT)	35.6
Maximum Storage (AC - FT)	2.68
Peak Elevation (FT)	664.98
Discharge Volume (AC - FT)	35.6

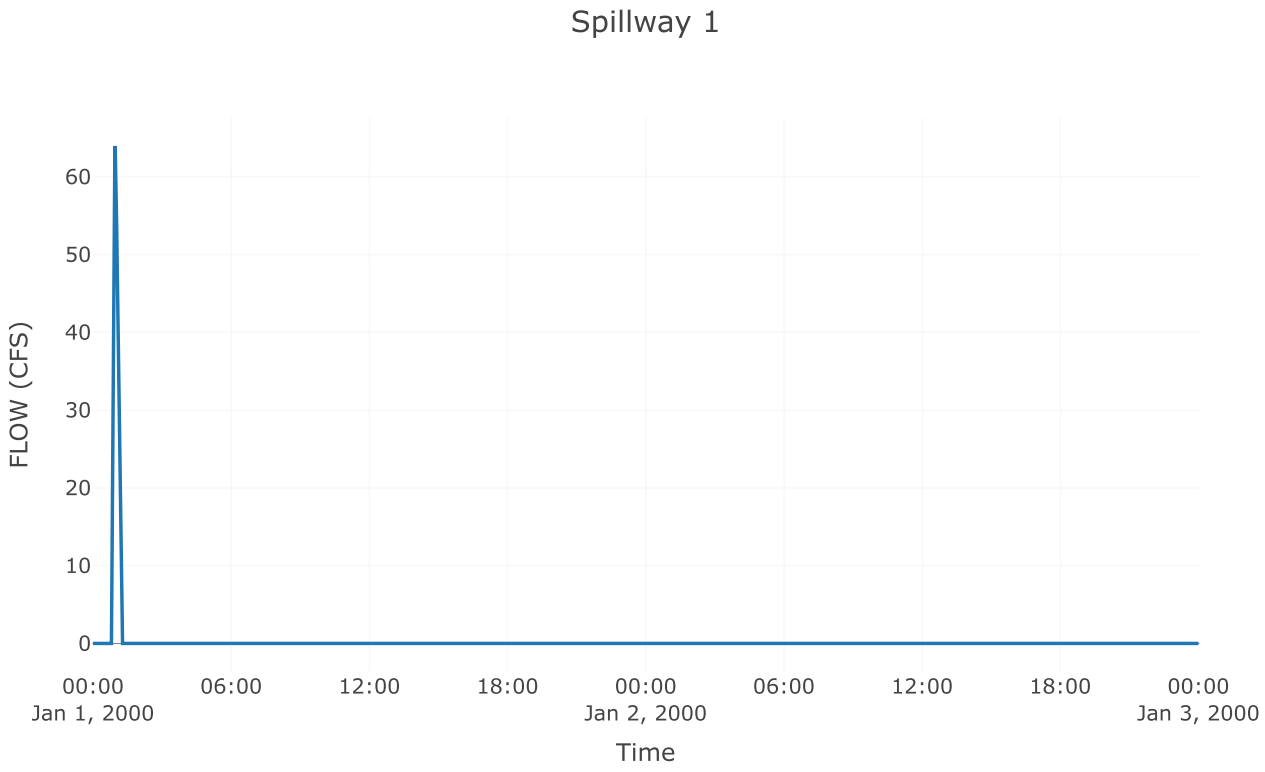
Storage

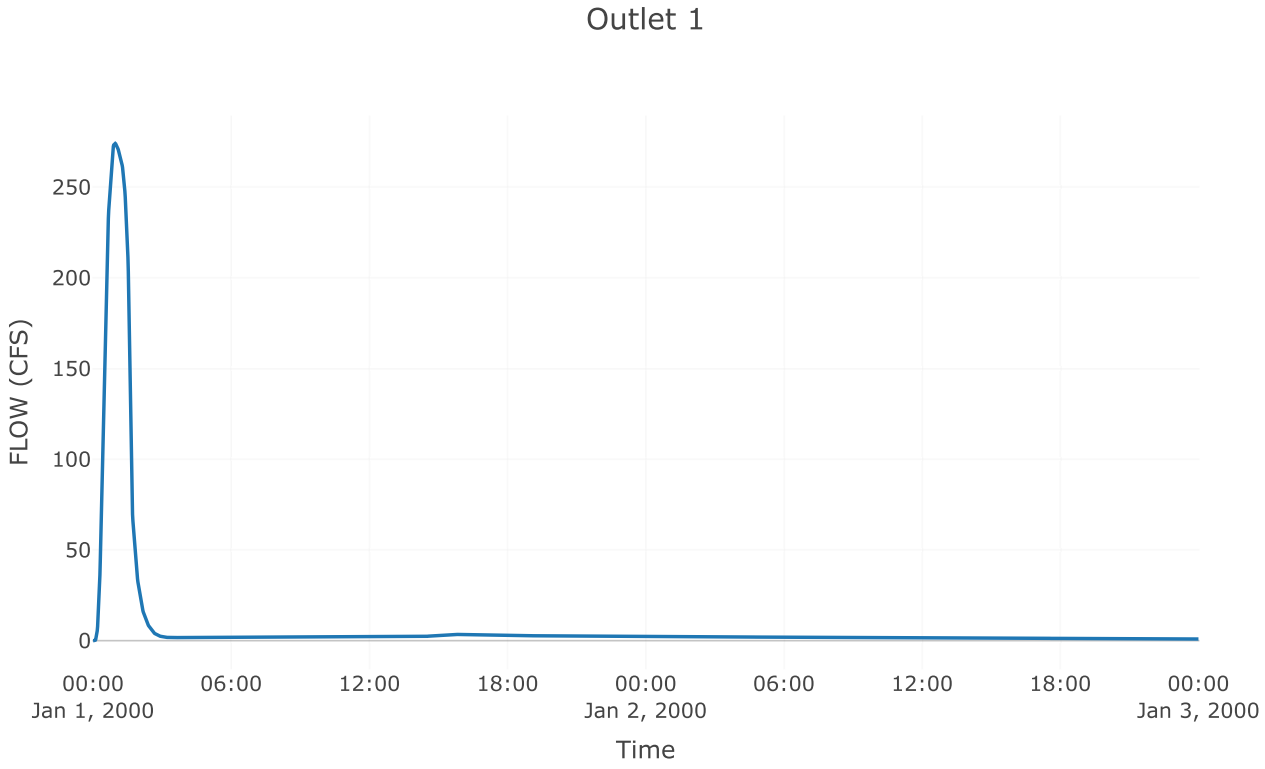


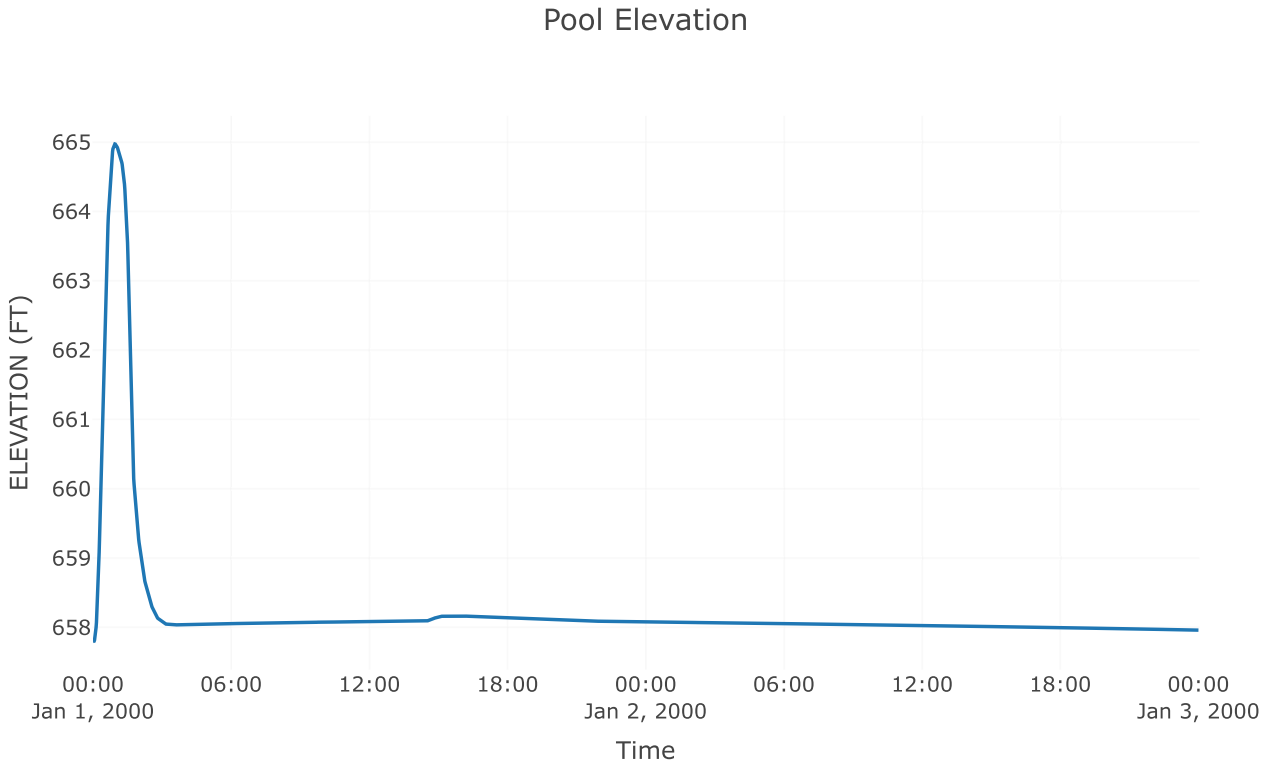
Combined Inflow

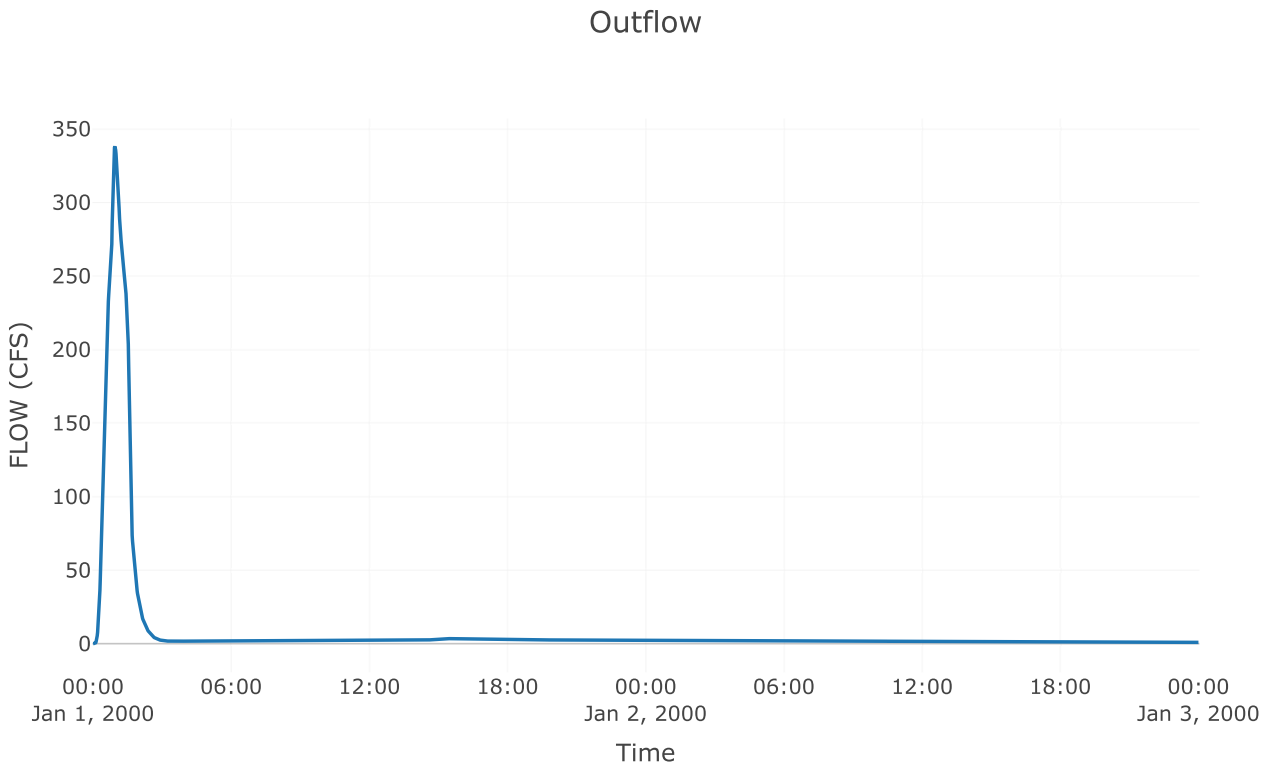



Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
35
30
25
20
15
10
5
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Spillway 1
FLOW (CFS)
60
50
40
30
20
10
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 1
FLOW (CFS)
250
200
150
100
50
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Pool Elevation
ELEVATION (FT)
665
664
663
662
661
660
659
658
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

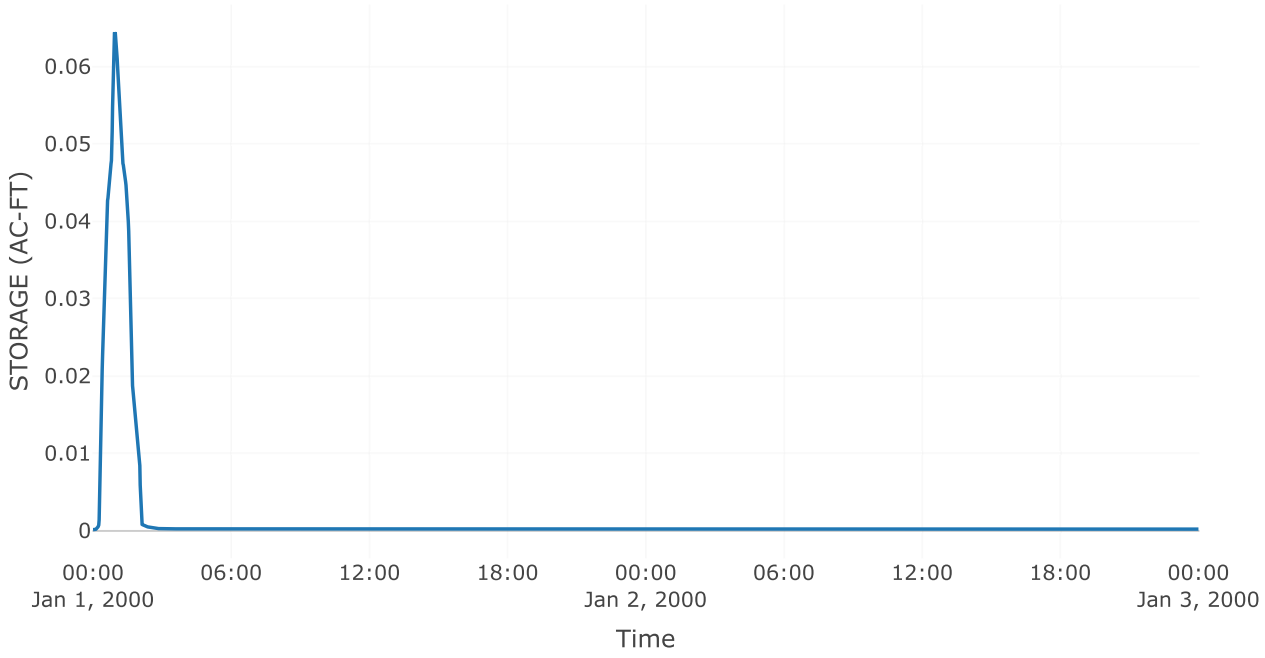

Outflow
350
300
250
200
150
100
50
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Storage West of Wolf Road

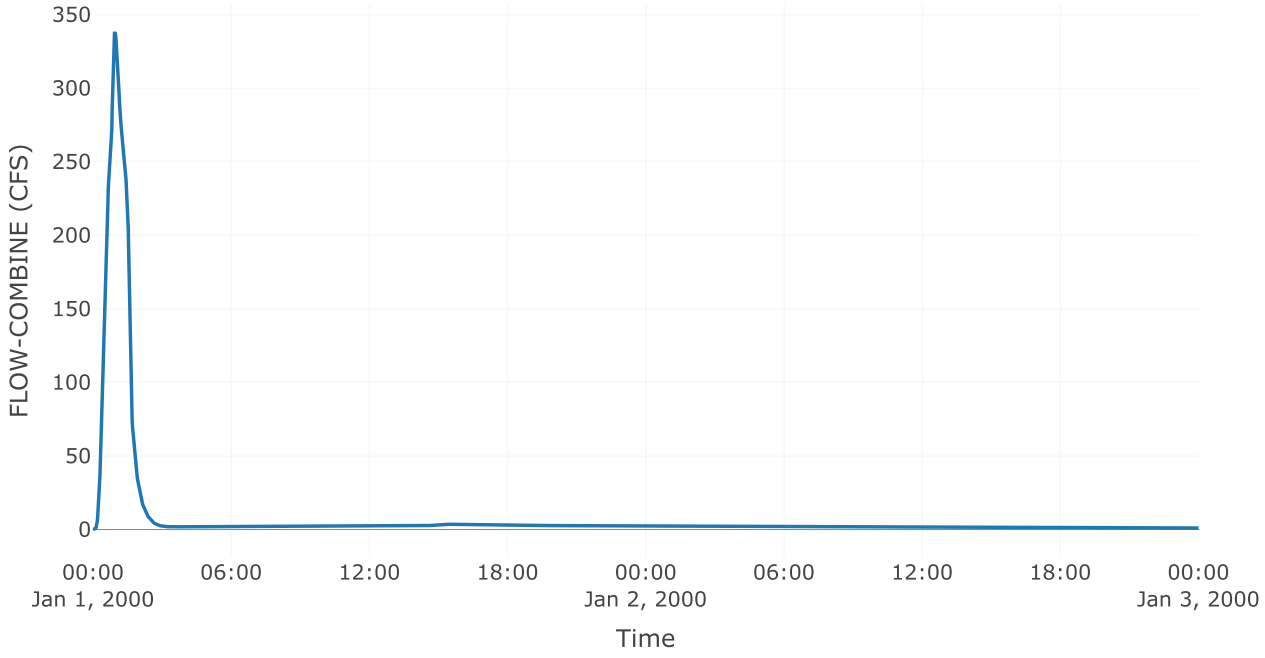
Downstream : Existing Basin C

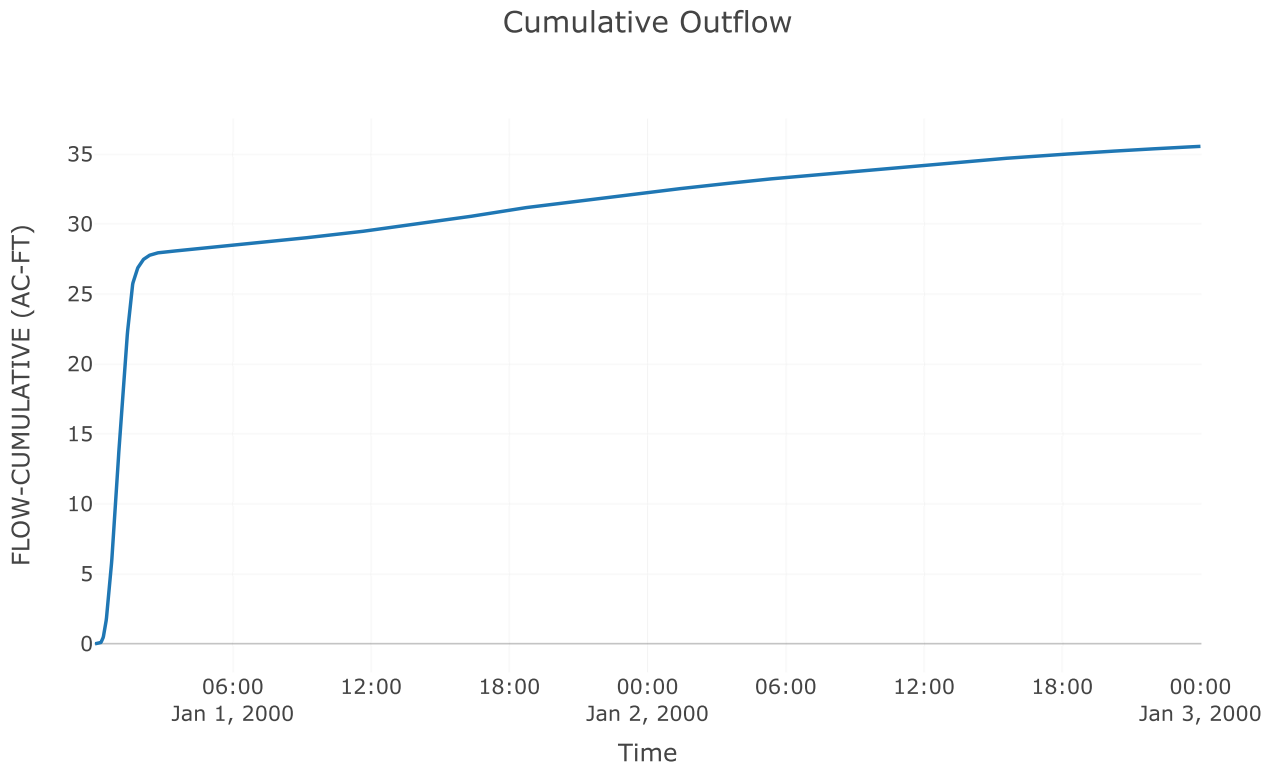
Results: Storage West of Wolf Road	
Peak Discharge (CFS)	338.2
Time of Peak Discharge	01Jan2000, 00:56
Volume (IN)	2.48
Peak Inflow (CFS)	338.18
Time of Peak Inflow	01Jan2000, 00:57
Inflow Volume (AC - FT)	35.6
Maximum Storage (AC - FT)	0.06
Peak Elevation (FT)	660.35
Discharge Volume (AC - FT)	35.56

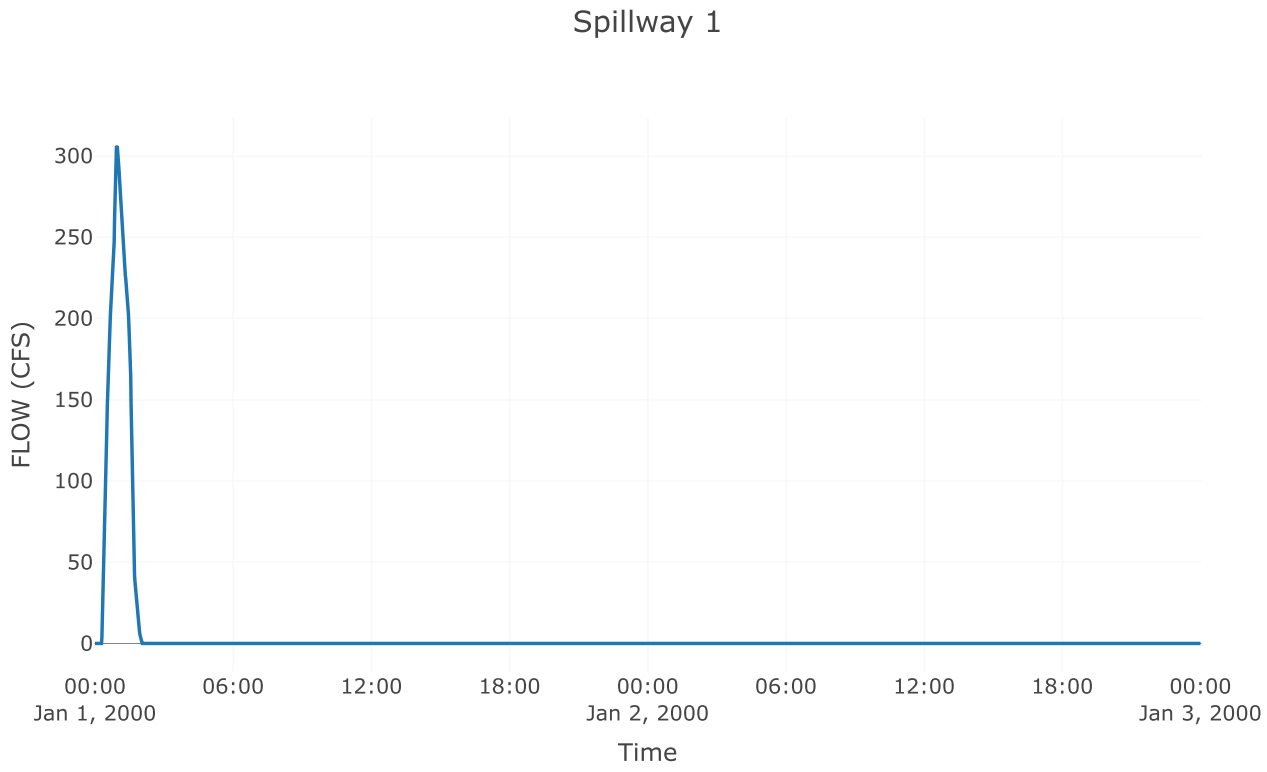
Storage



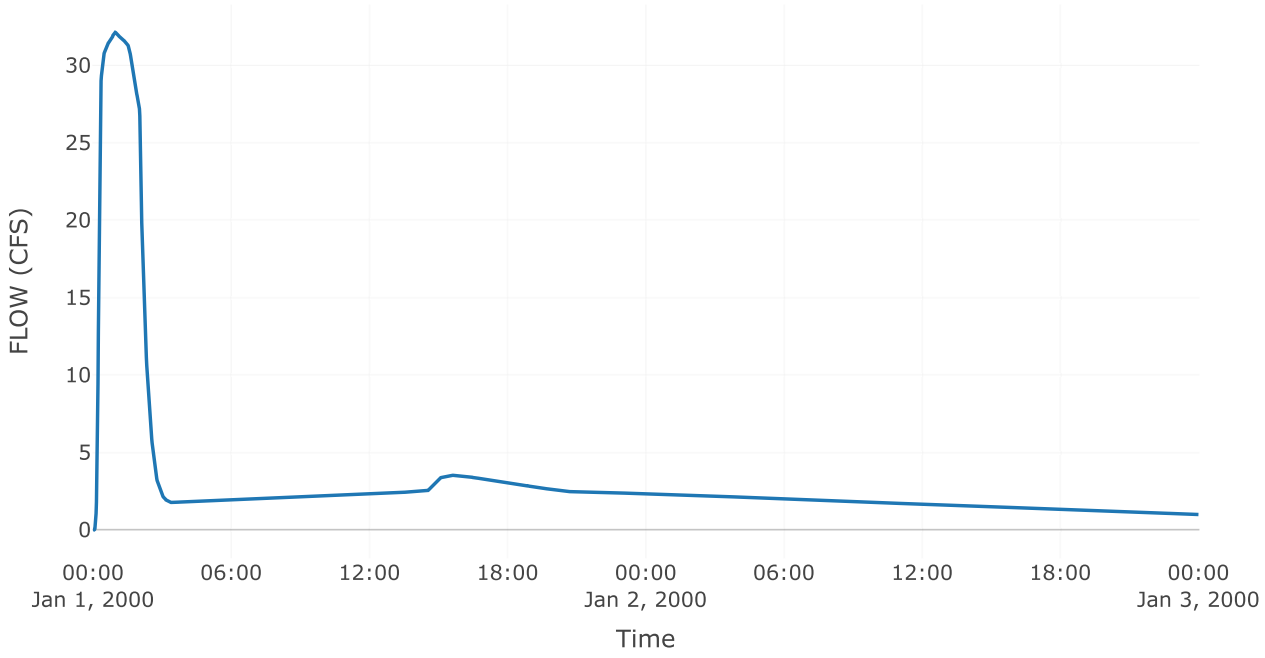
Combined Inflow



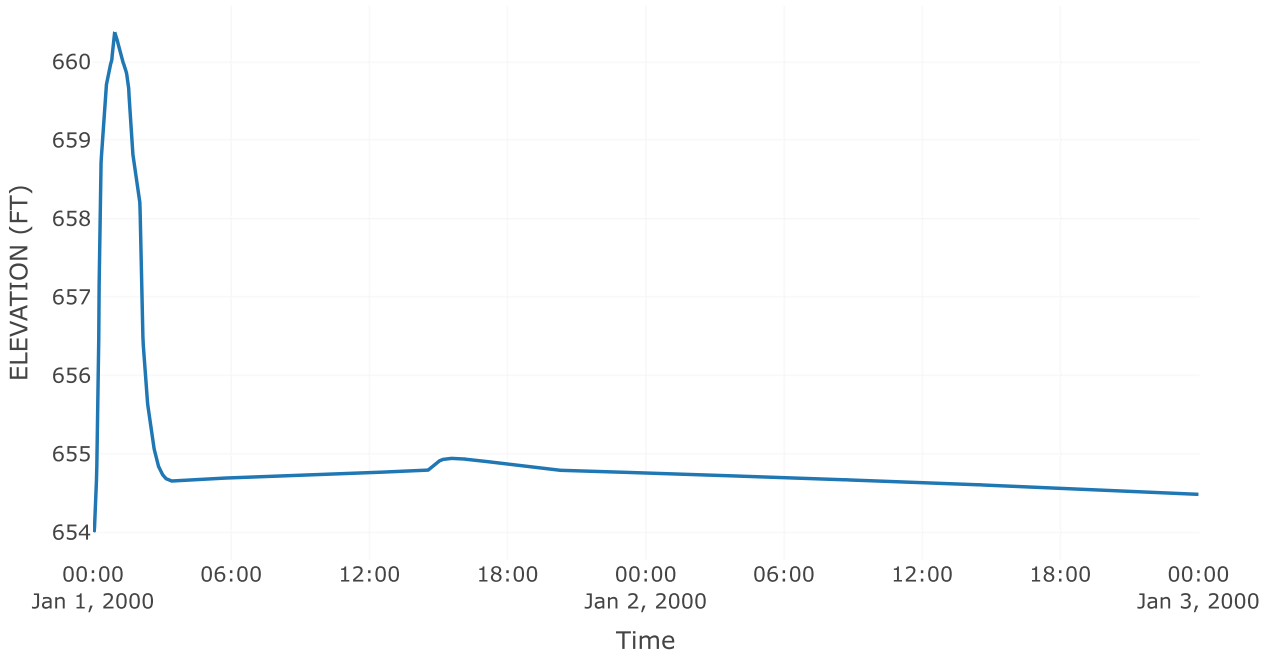

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
35
30
25
20
15
10
5
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

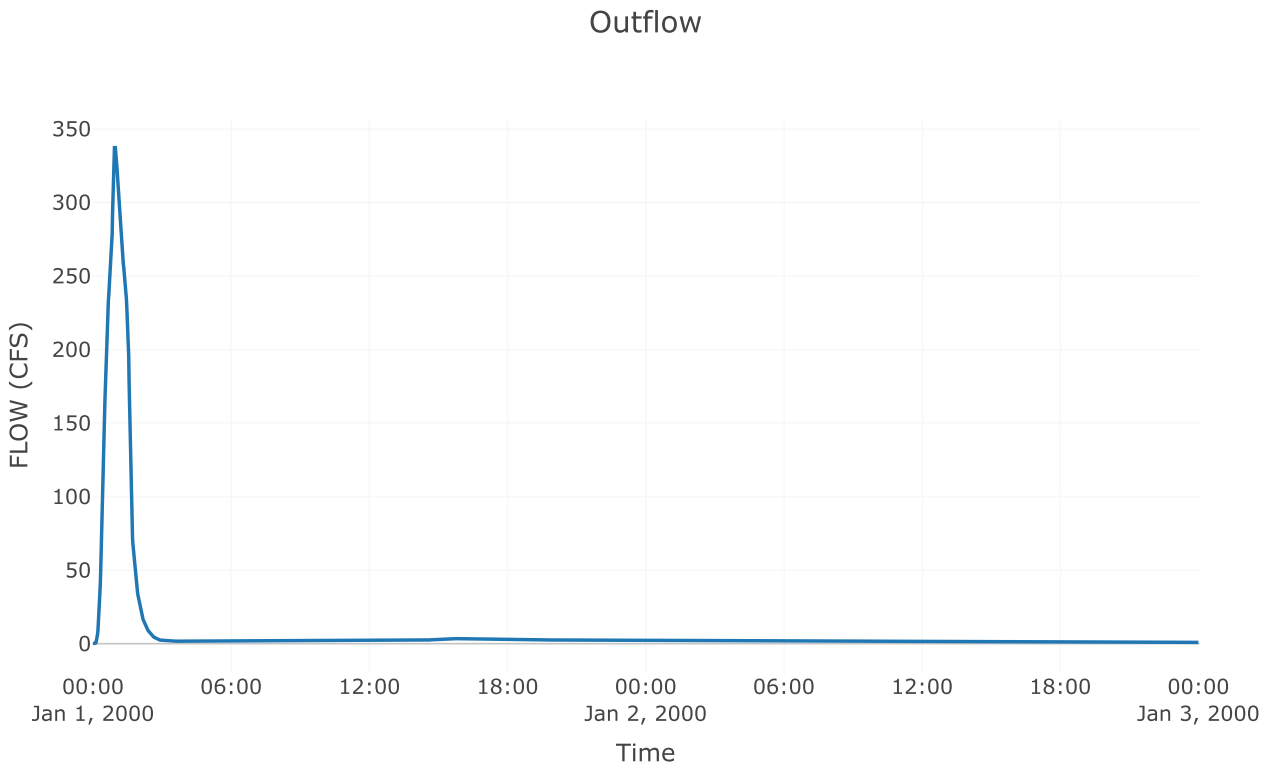

Spillway 1
FLOW (CFS)
300
250
200
150
100
50
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation




Outflow
350
300
250
200
150
100
50
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Existing On-Site

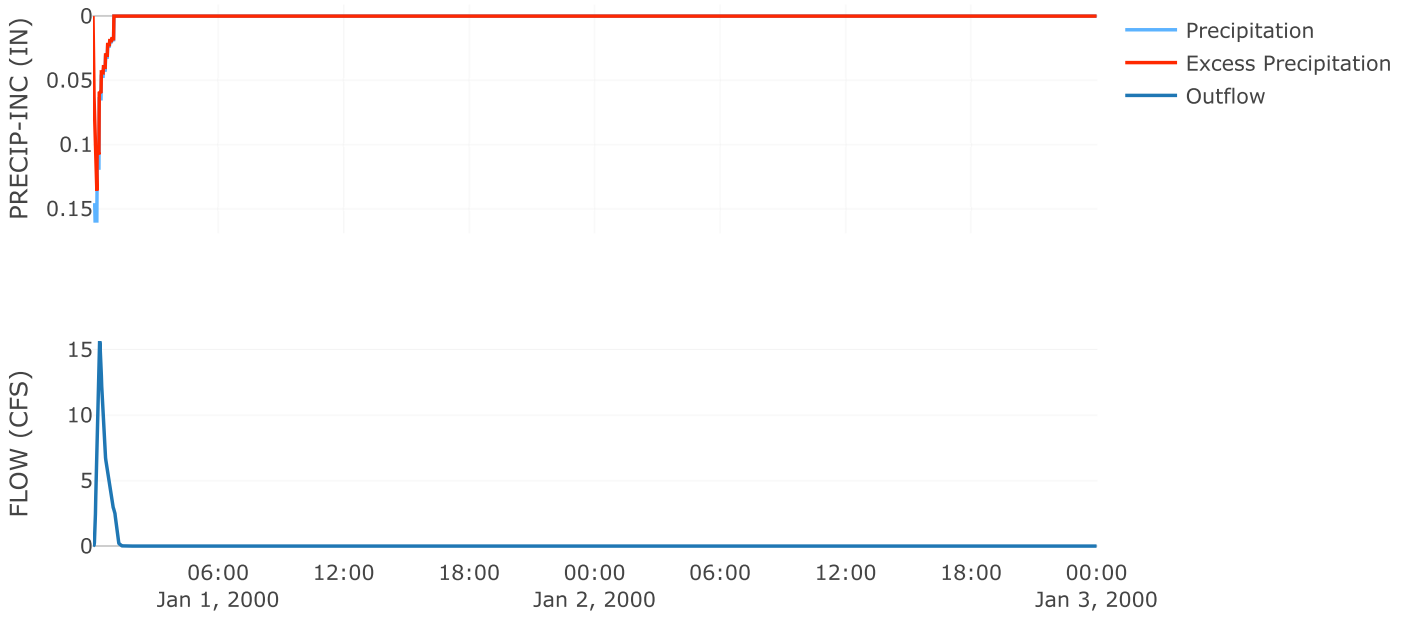
Area (MI2) : 0
Downstream : Existing Basin C

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	91.09

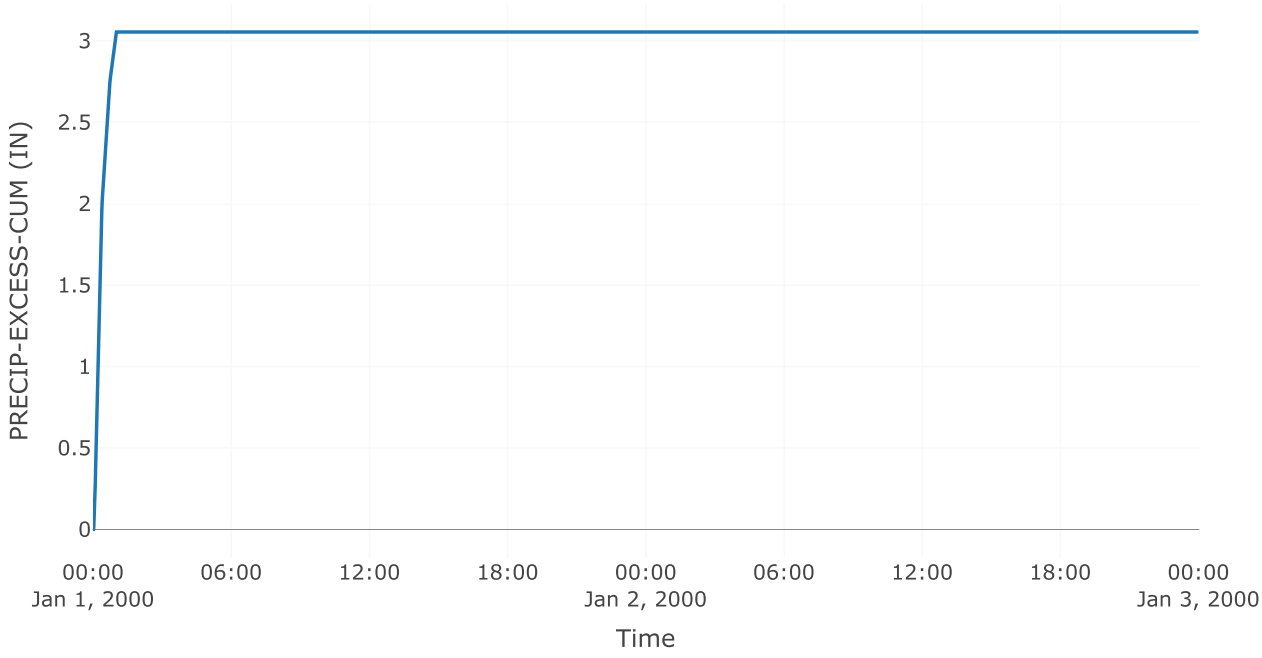
Transform: Scs	
Lag	6
Unitgraph Type	Standard

Results: Existing On-Site	
Peak Discharge (CFS)	15.64
Time of Peak Discharge	01Jan2000, 00:18
Volume (IN)	3.06
Precipitation Volume (AC - FT)	0.81
Loss Volume (AC - FT)	0.2
Excess Volume (AC - FT)	0.61
Direct Runoff Volume (AC - FT)	0.61
Baseflow Volume (AC - FT)	0

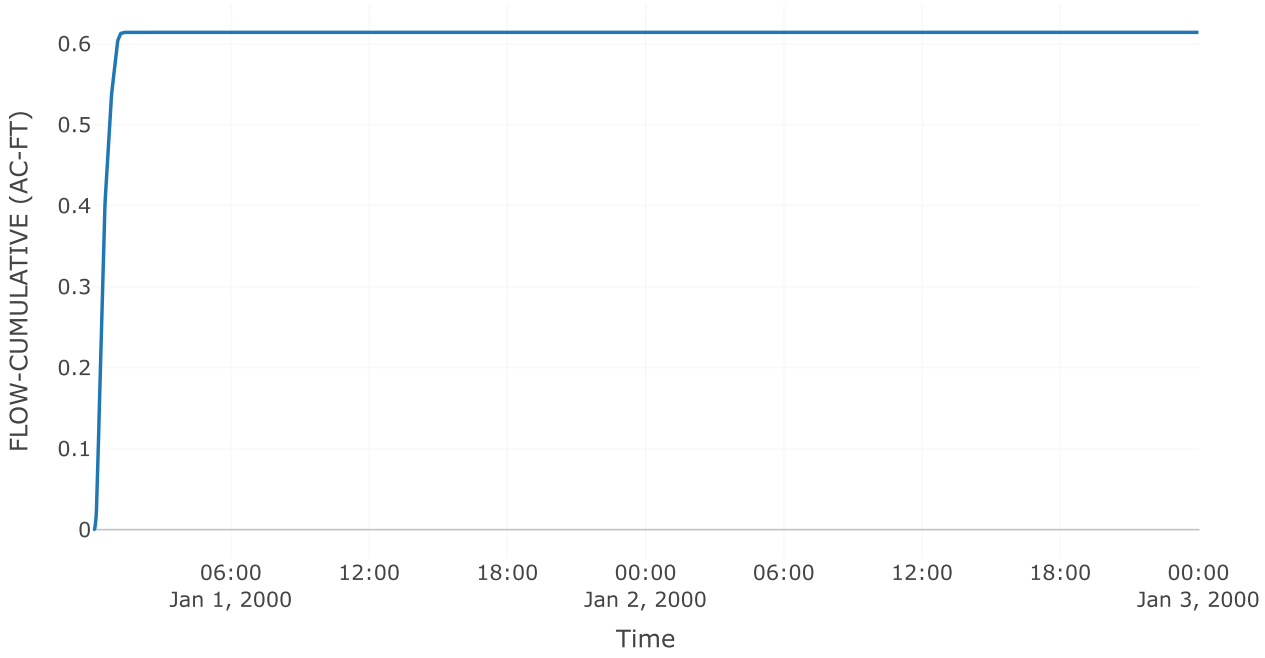
Precipitation and Outflow



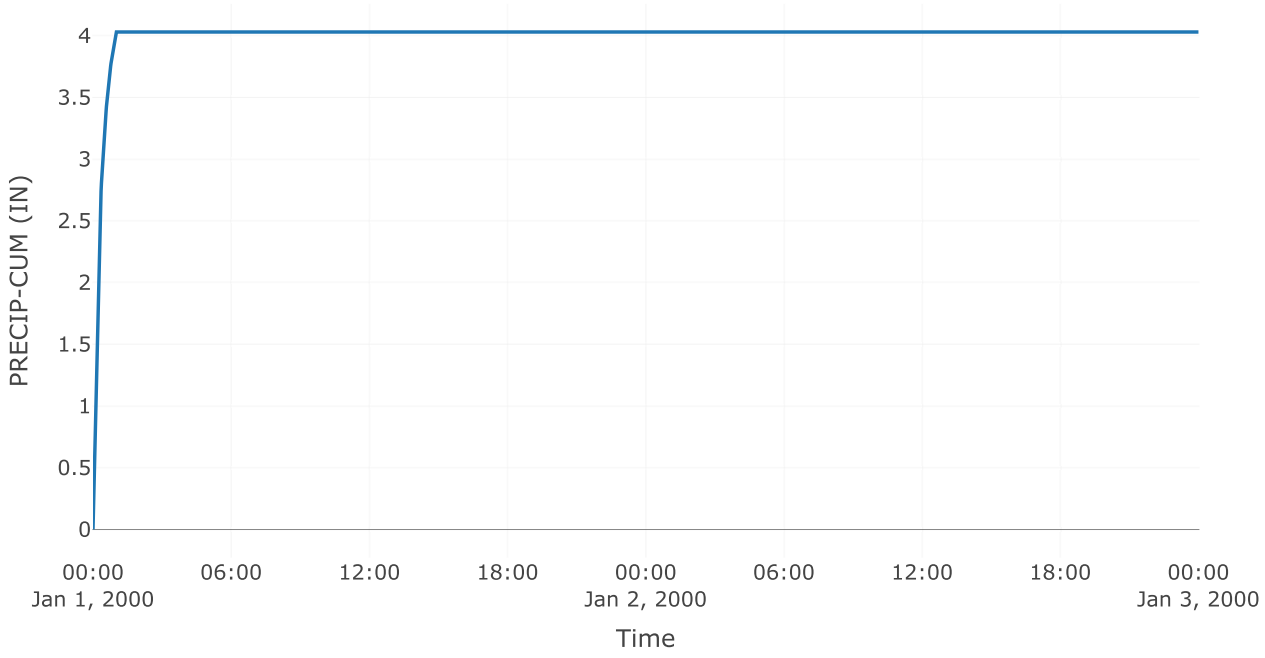
Cumulative Excess Precipitation

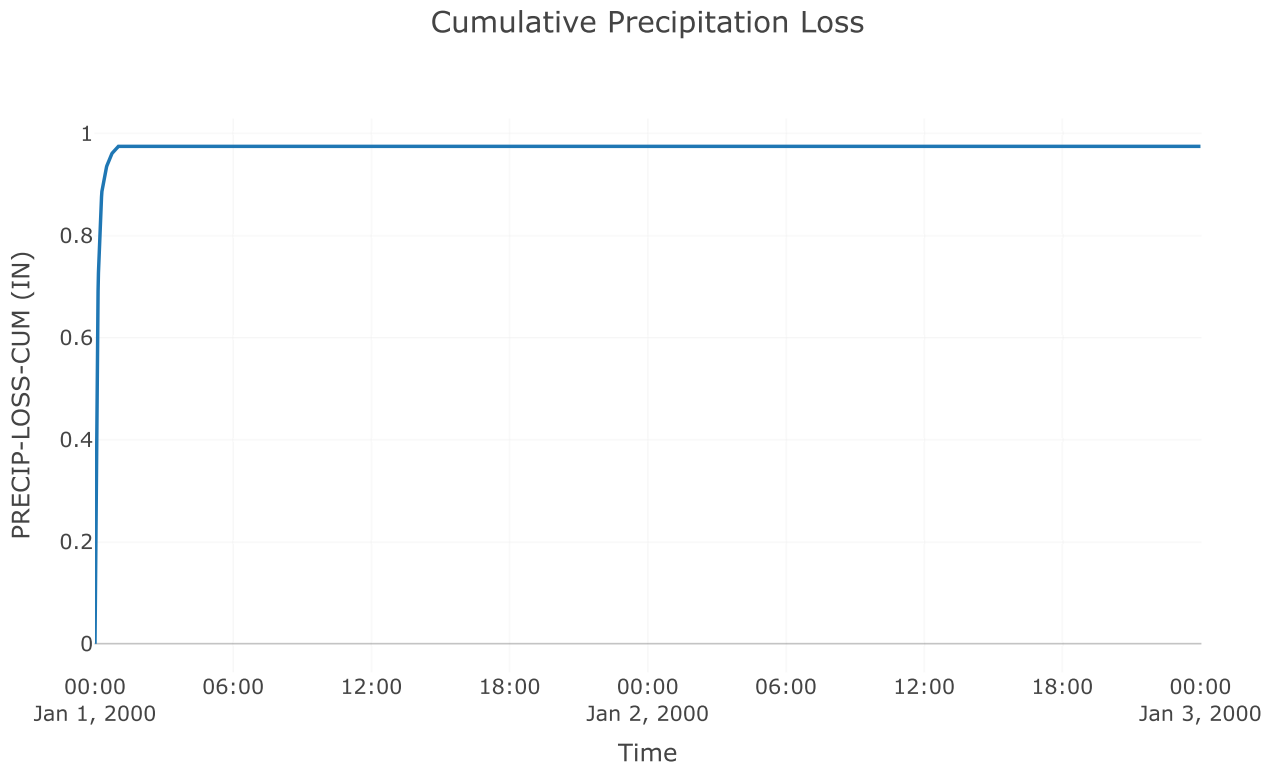


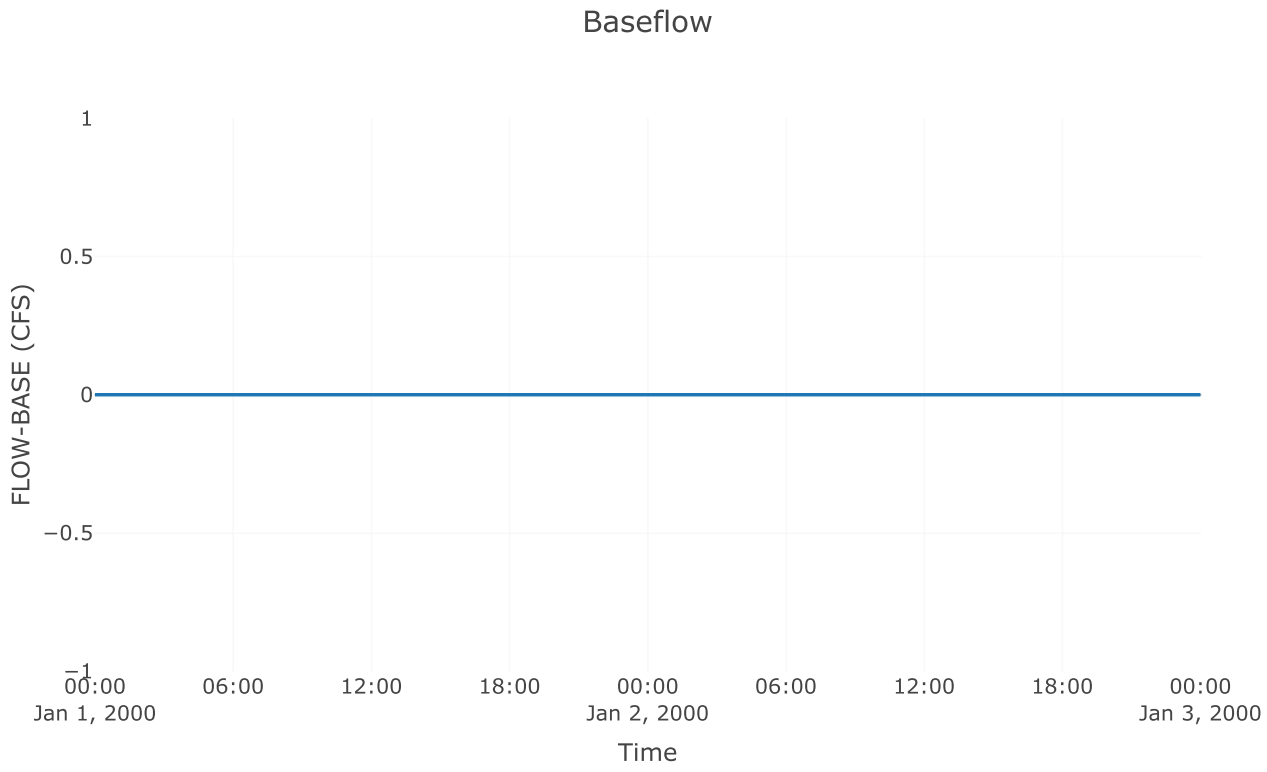
Cumulative Outflow

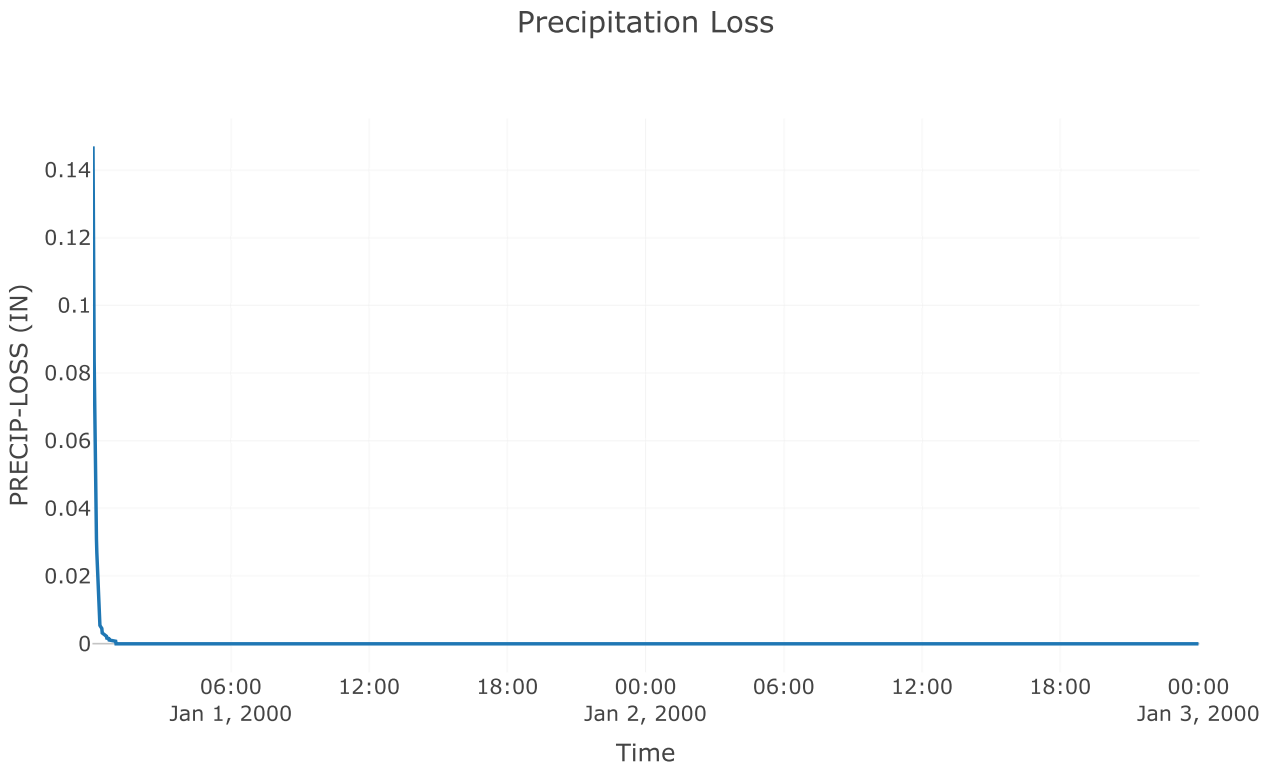


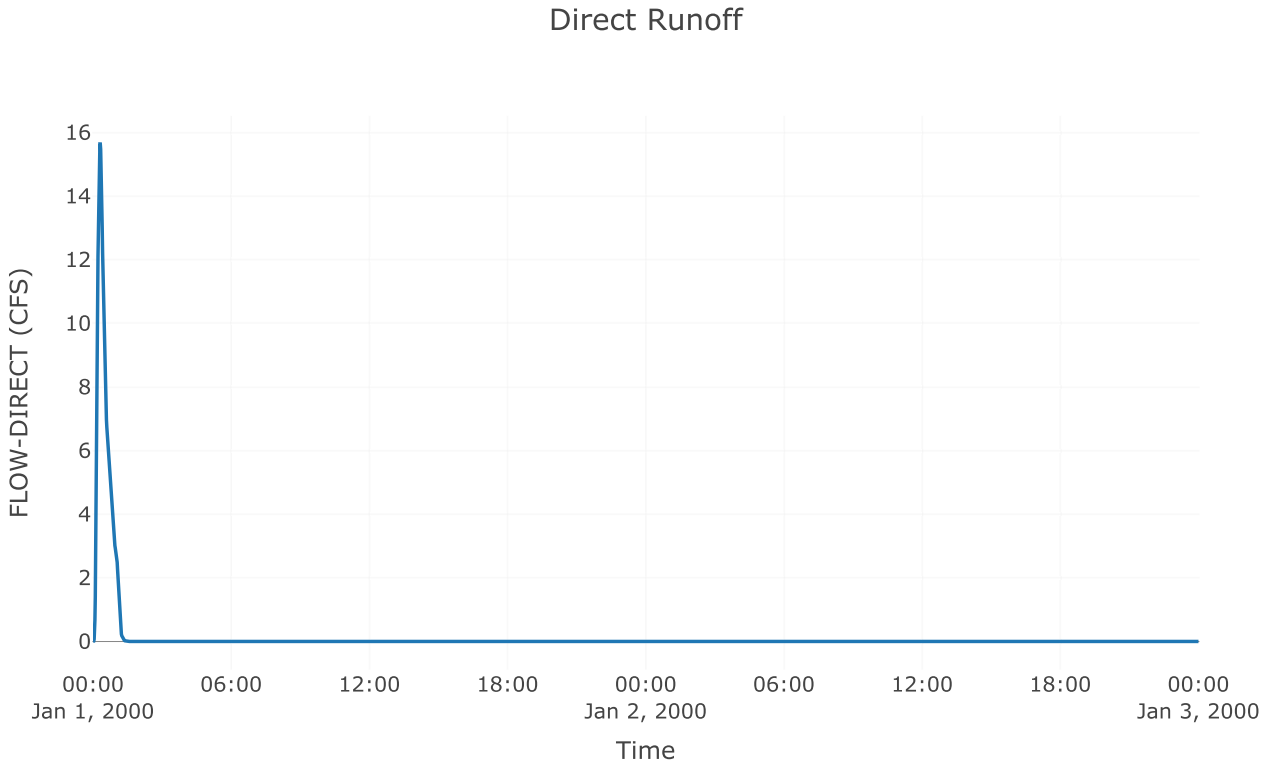
Cumulative Precipitation

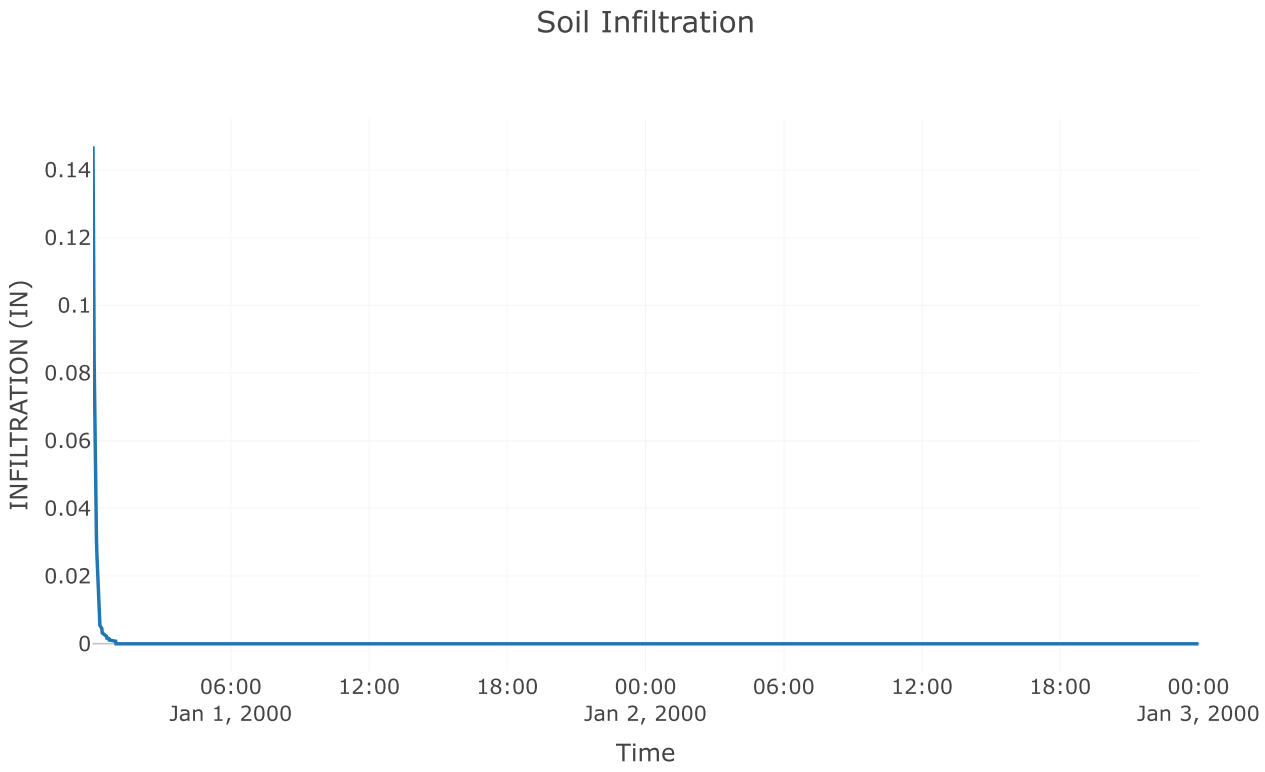



Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Precipitation Loss
PRECIP-LOSS (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

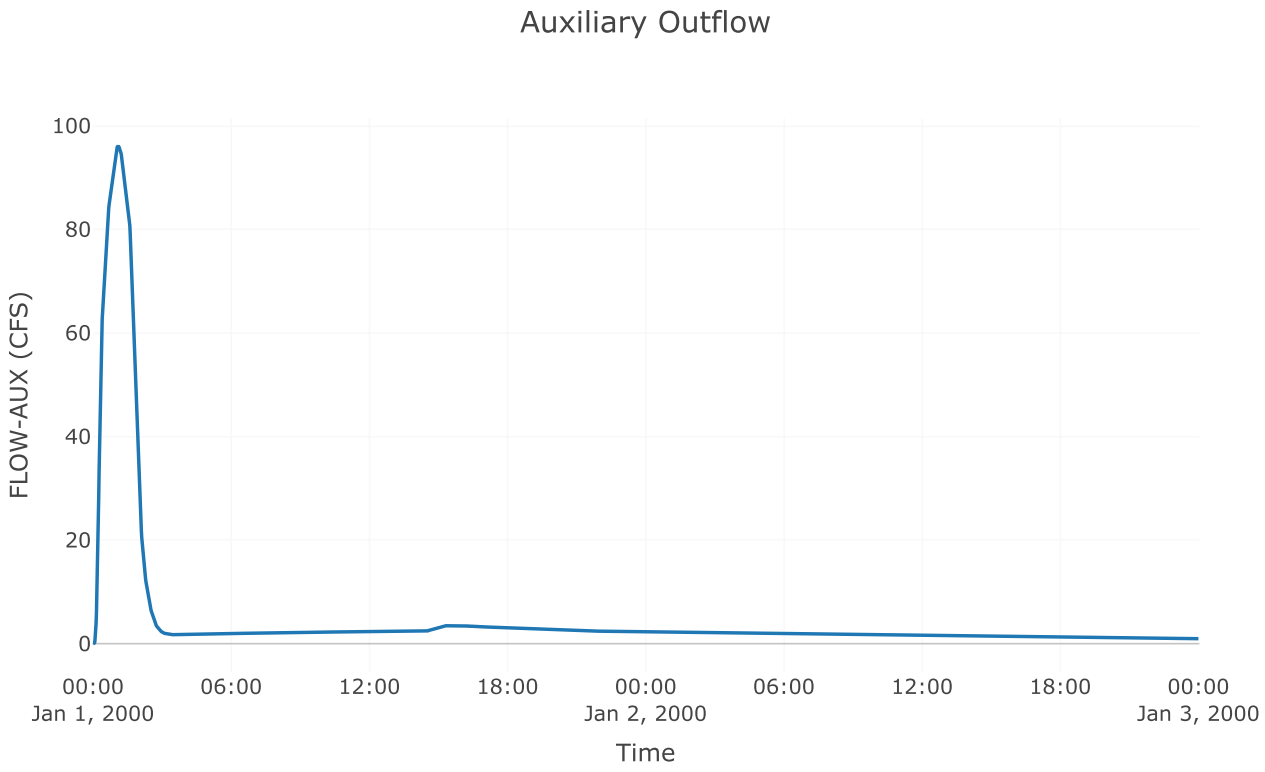

Direct Runoff
FLOW-DIRECT (CFS)
16
14
12
10
8
6
4
2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

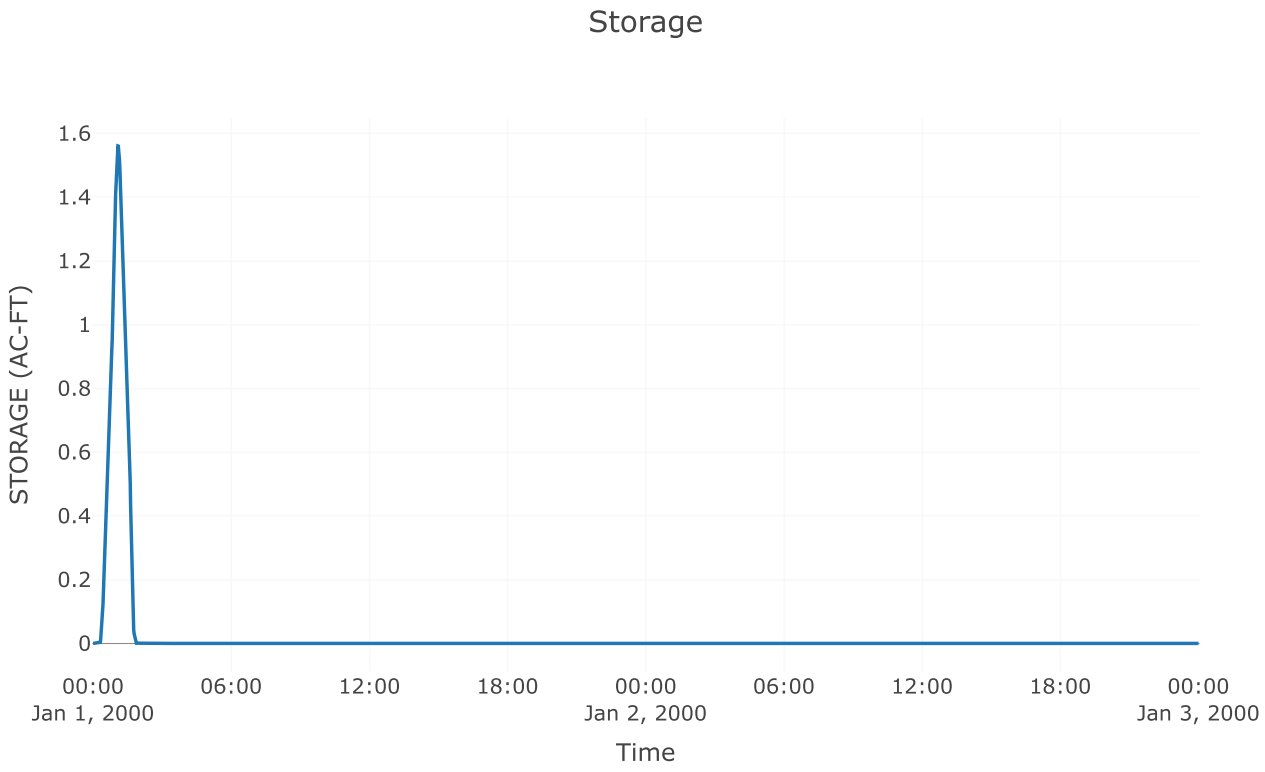

Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Existing Basin C

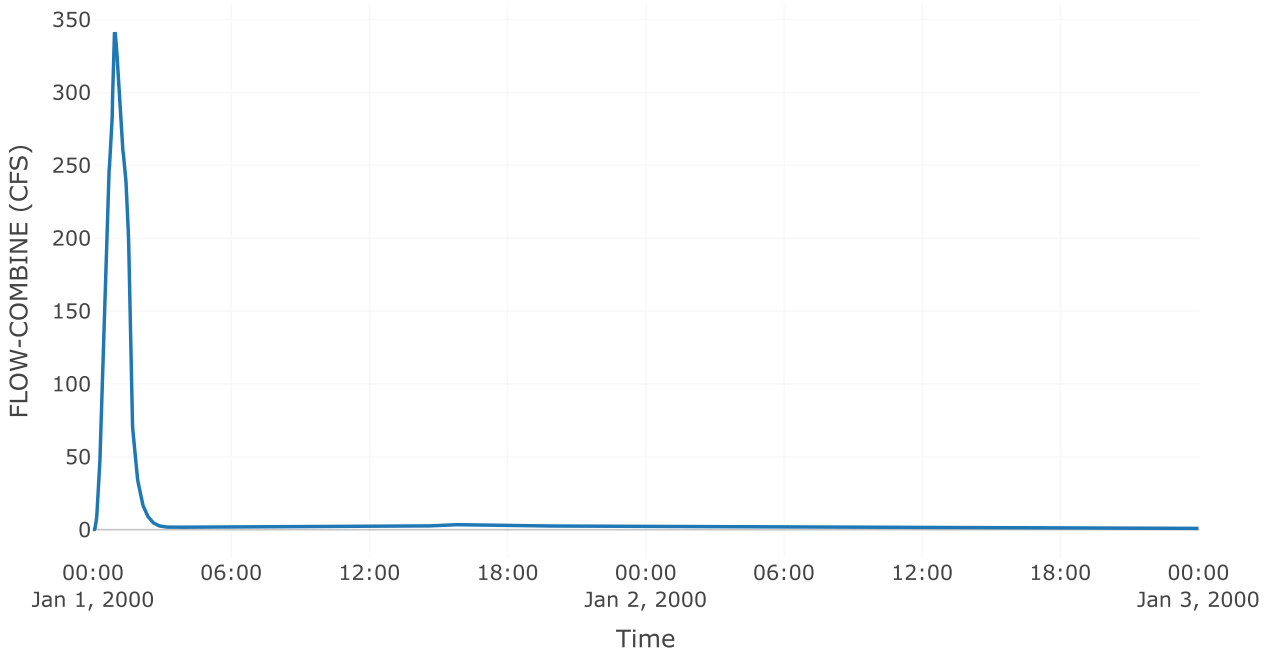
Downstream : Existing Basin A & B

Results: Existing Basin C	
Peak Discharge (CFS)	216.02
Time of Peak Discharge	01Jan2000, 01:05
Volume (IN)	1.14
Peak Inflow (CFS)	341.3
Time of Peak Inflow	01Jan2000, 00:56
Inflow Volume (AC - FT)	36.17
Maximum Storage (AC - FT)	1.56
Peak Elevation (FT)	655.24
Discharge Volume (AC - FT)	16.63

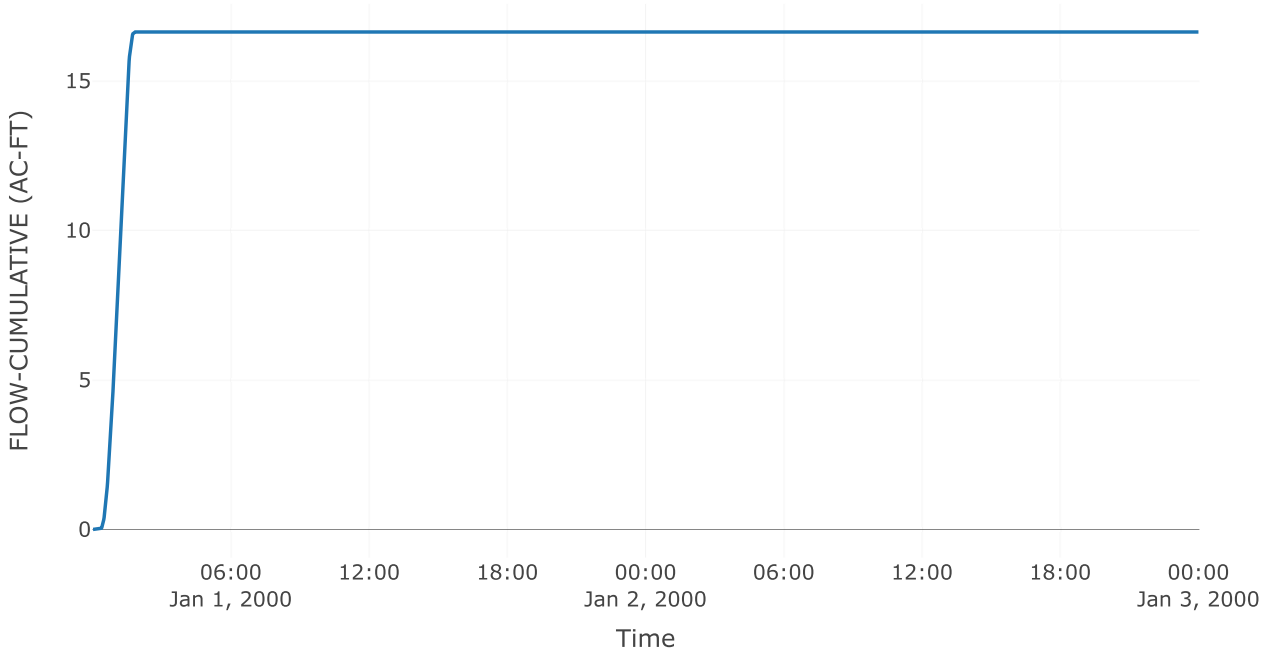

Auxiliary Outflow
FLOW-AUX (CFS)
100
80
60
40
20
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

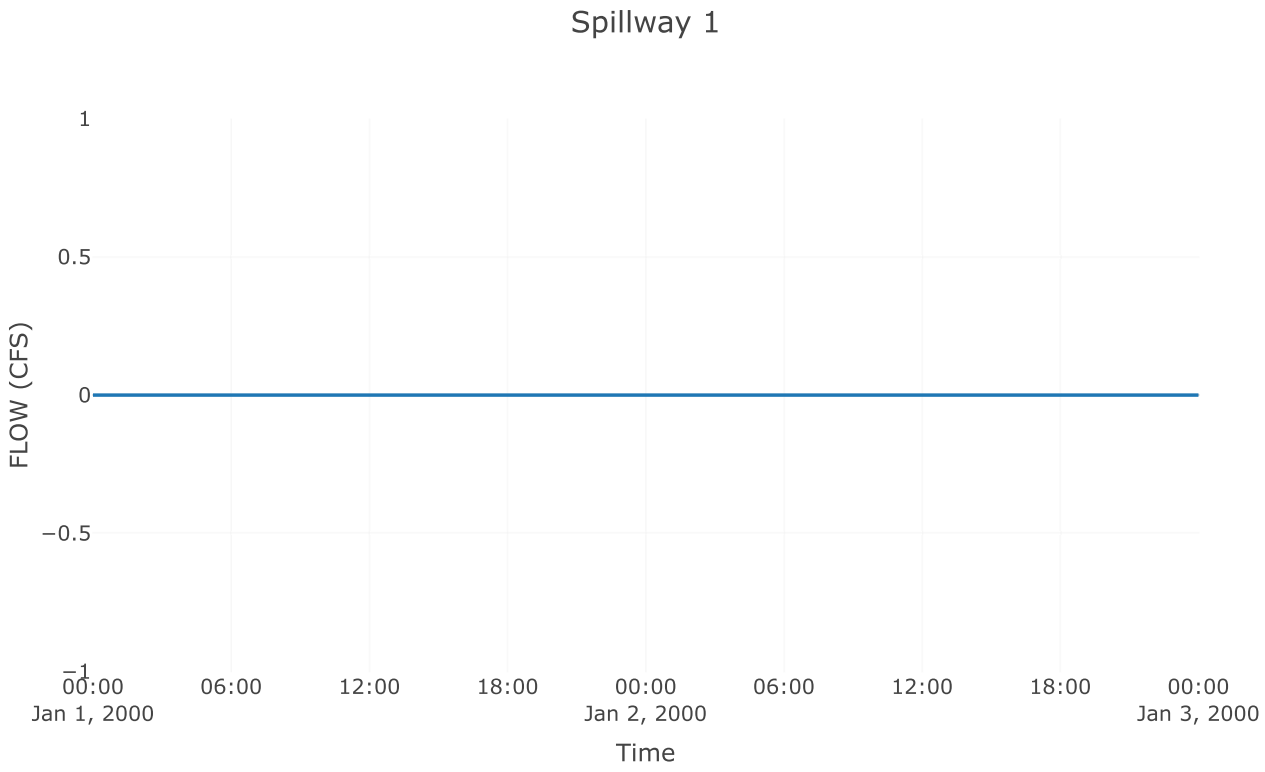

Storage
STORAGE (AC-FT)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

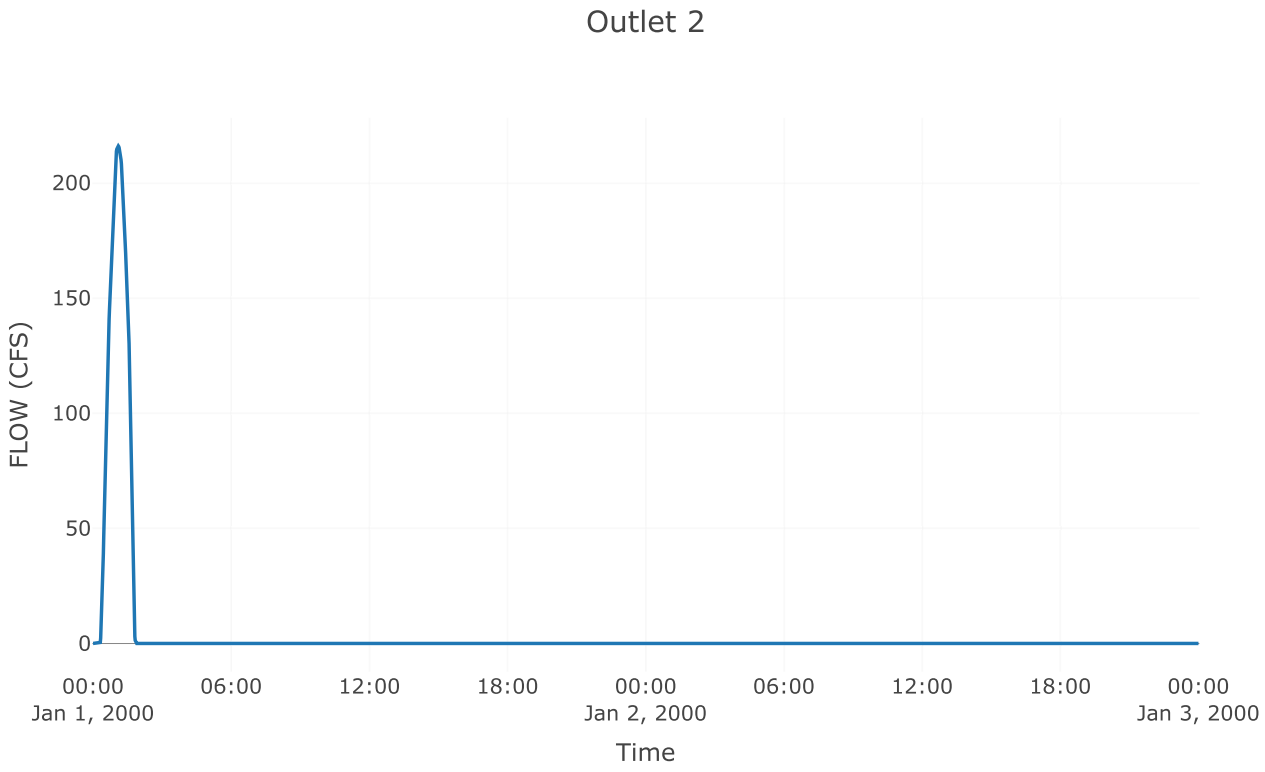
Combined Inflow

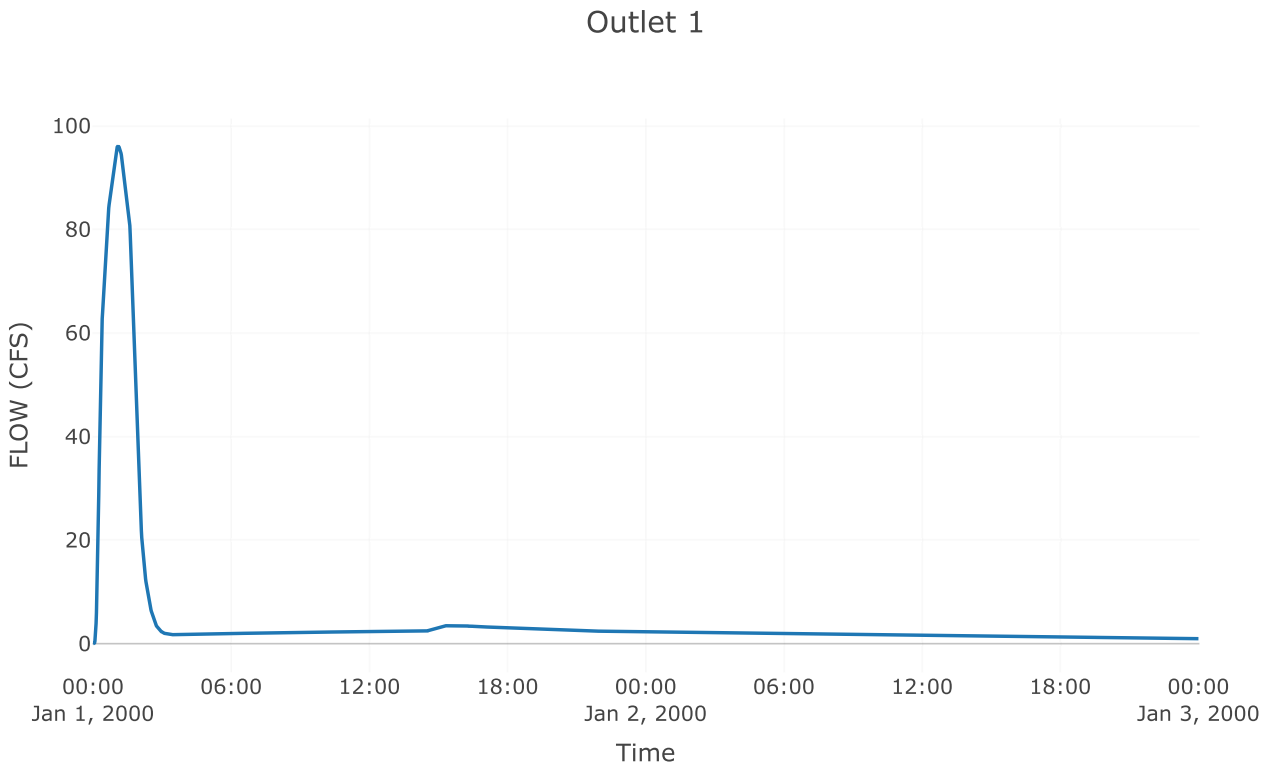


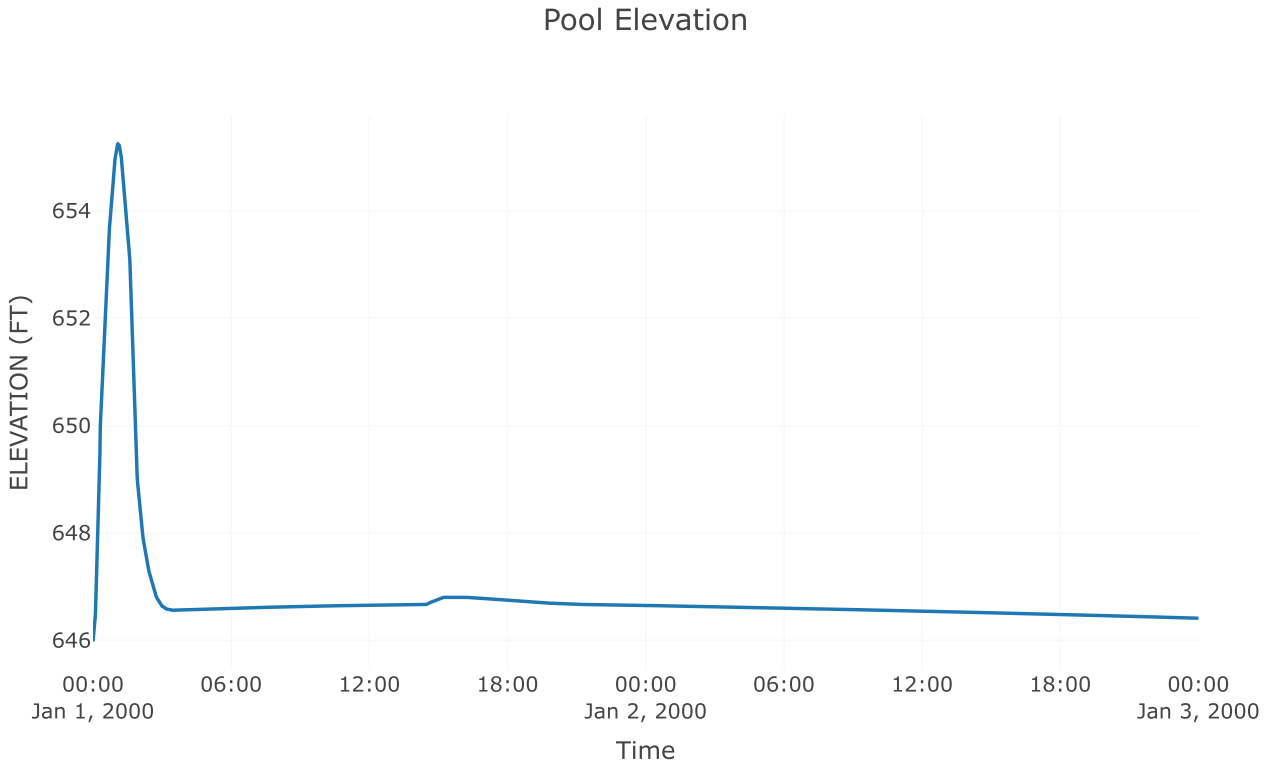
Cumulative Outflow

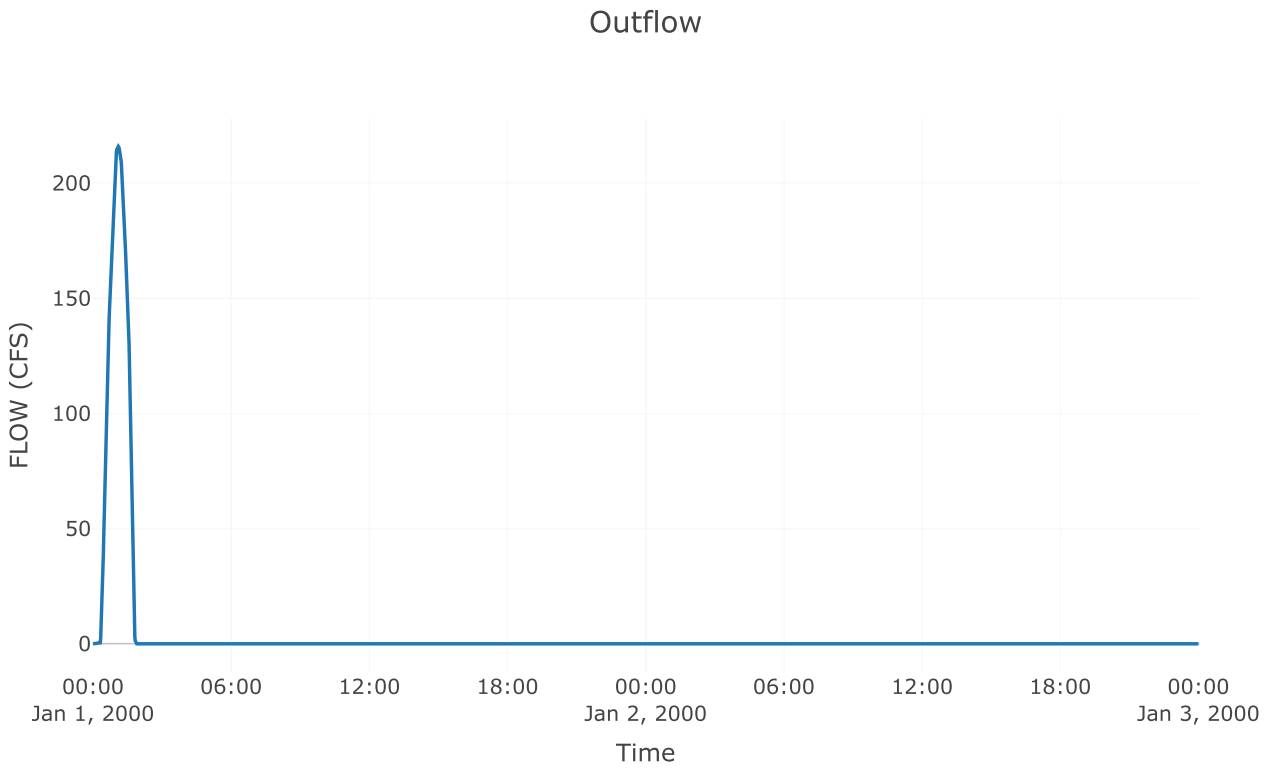



Spillway 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 2
200
150
100
50
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outlet 1
100
80
60
40
20
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

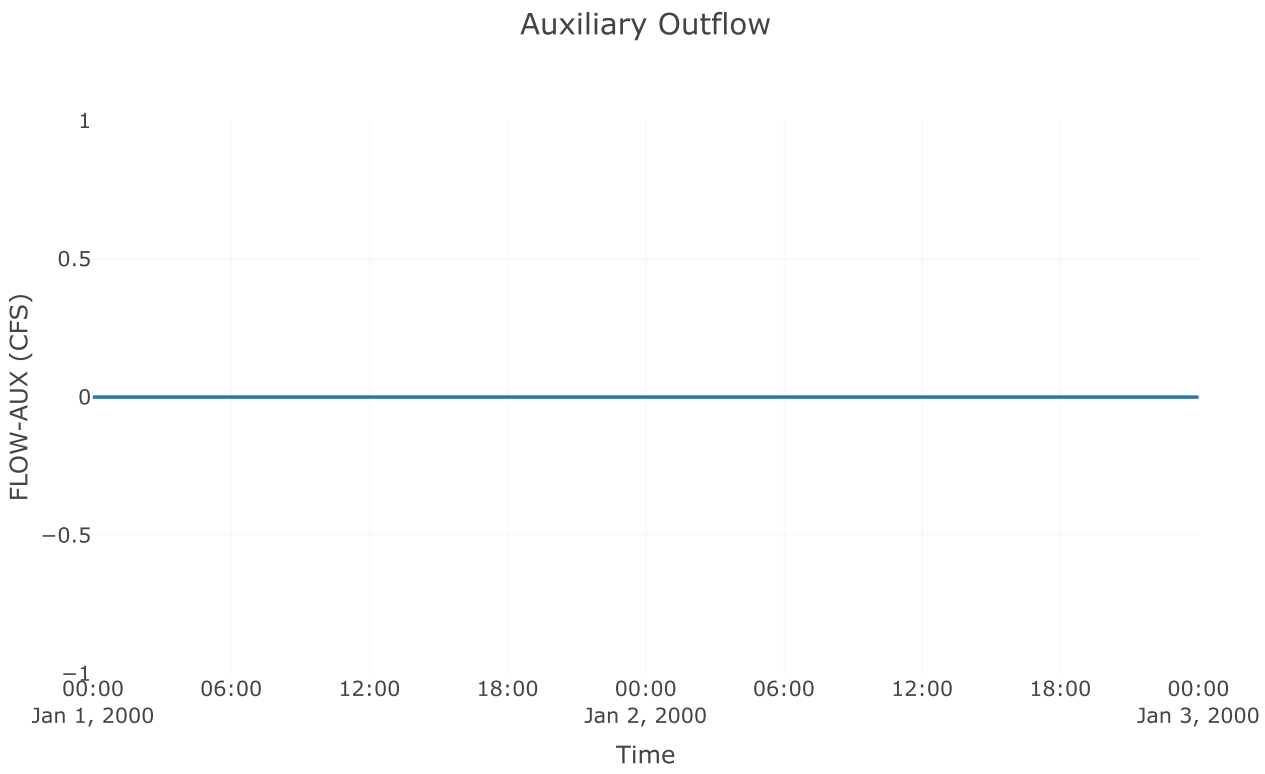

Pool Elevation
654
652
650
648
646
ELEVATION (FT)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

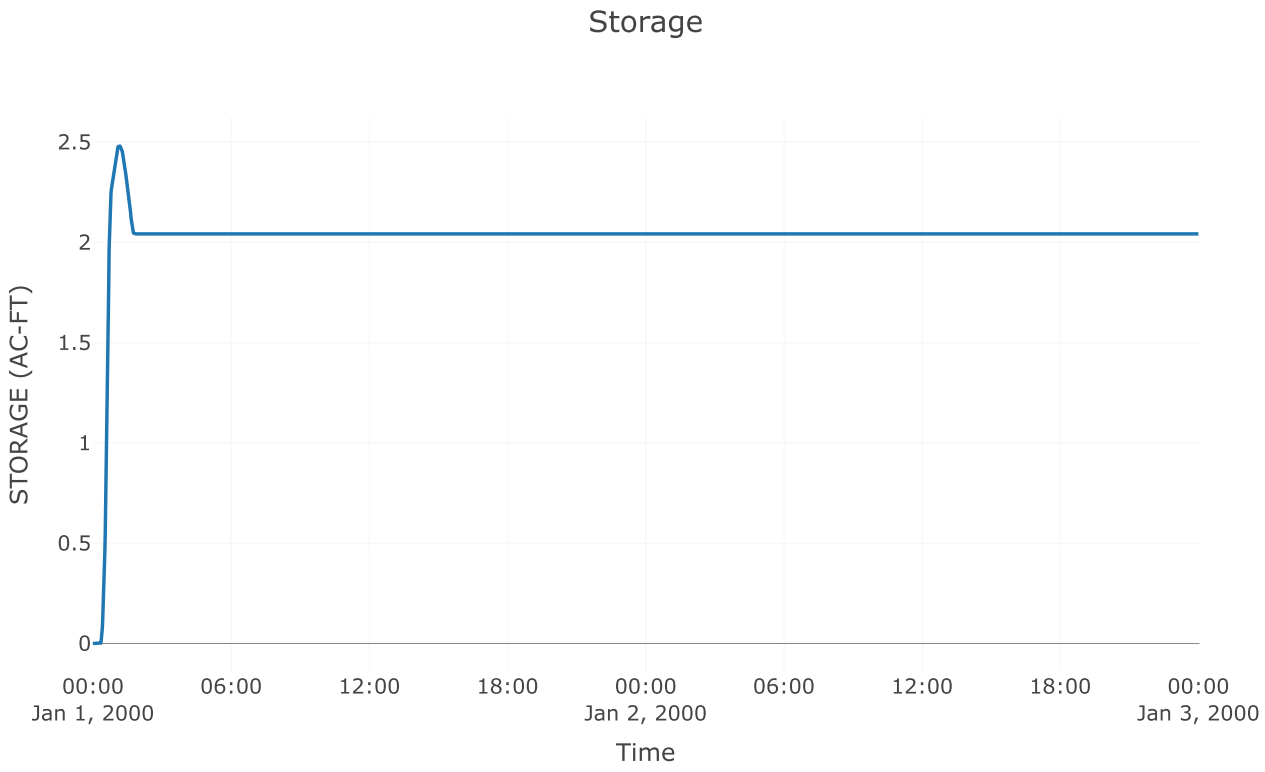

Outflow
200
150
100
50
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Existing Basin A & B

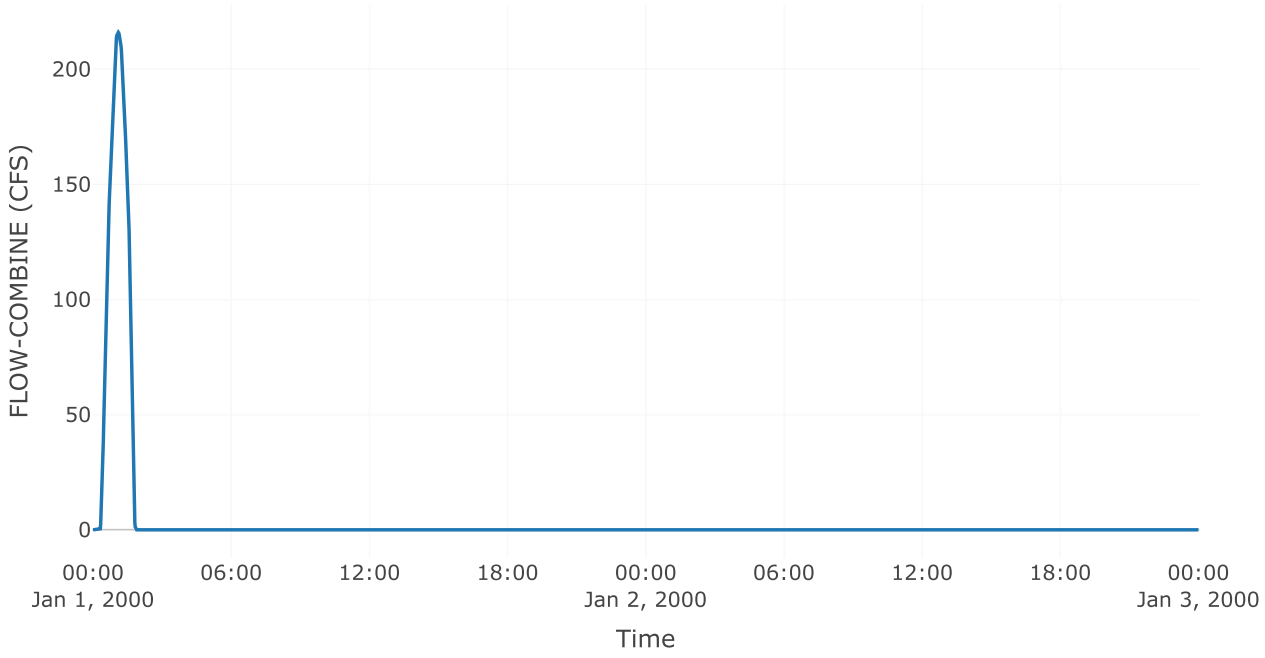
Downstream : Outlet Storm Box

Results: Existing Basin A & B	
Peak Discharge (CFS)	214.92
Time of Peak Discharge	01Jan2000, 01:09
Volume (IN)	0.99
Peak Inflow (CFS)	216.02
Time of Peak Inflow	01Jan2000, 01:05
Inflow Volume (AC - FT)	16.63
Maximum Storage (AC - FT)	2.48
Peak Elevation (FT)	654.22
Discharge Volume (AC - FT)	14.44

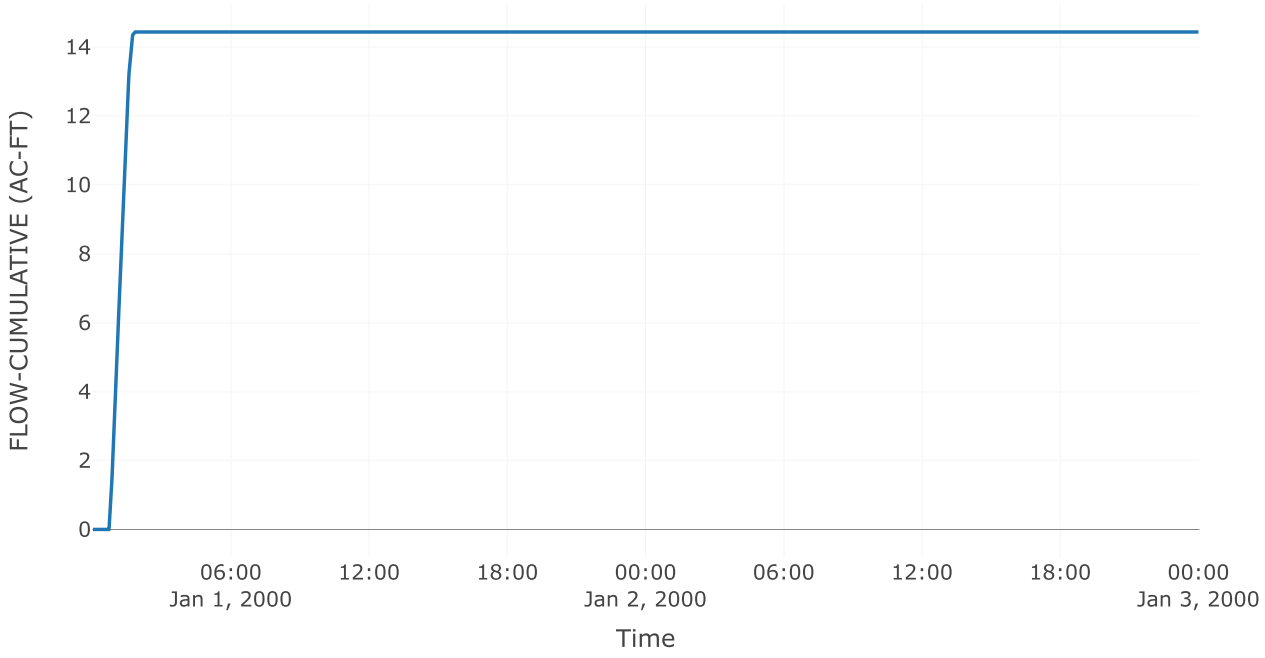

Auxiliary Outflow
FLOW-AUX (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

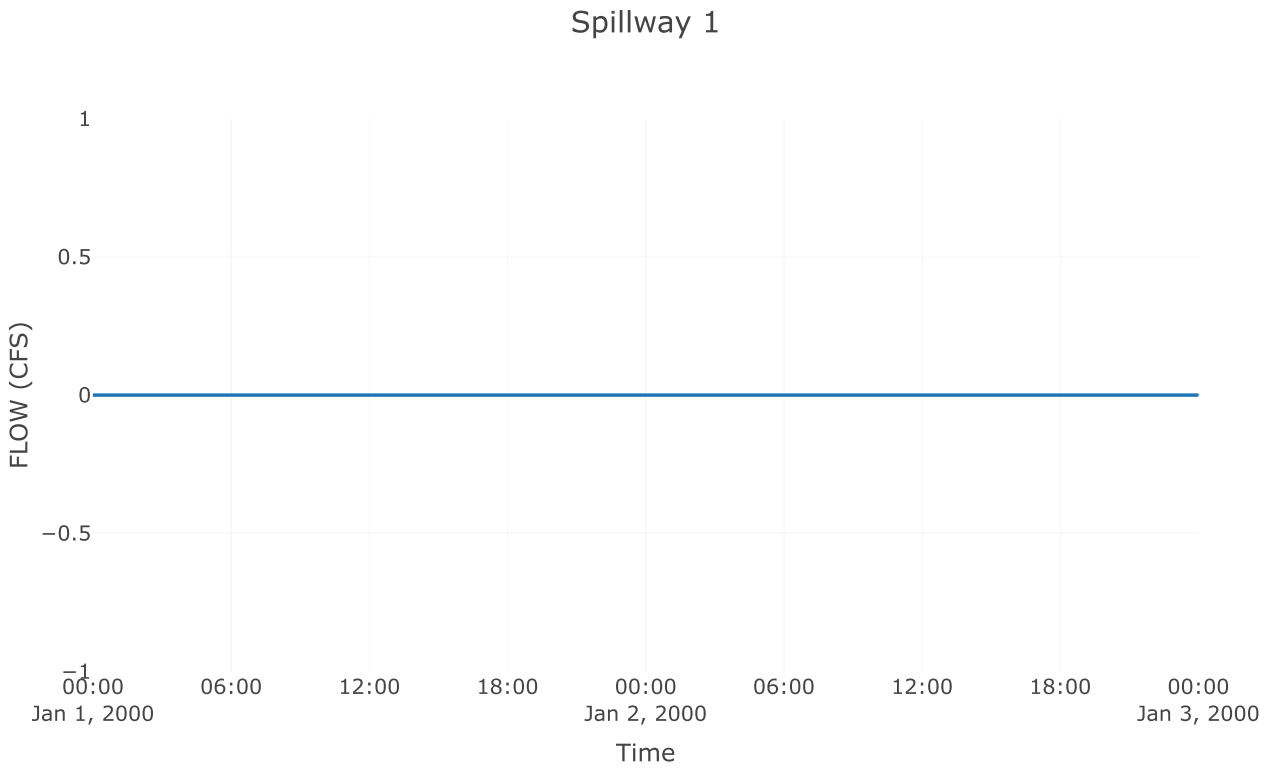

Storage
STORAGE (AC-FT)
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

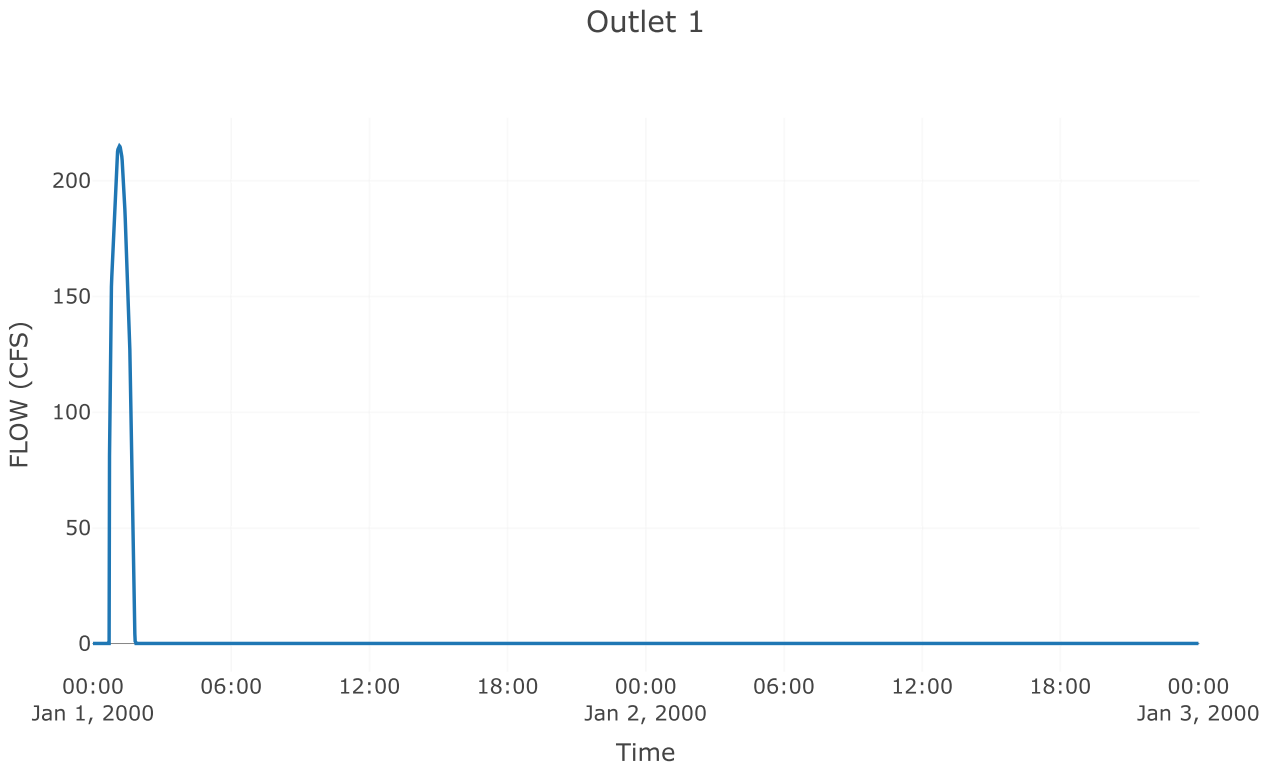
Combined Inflow



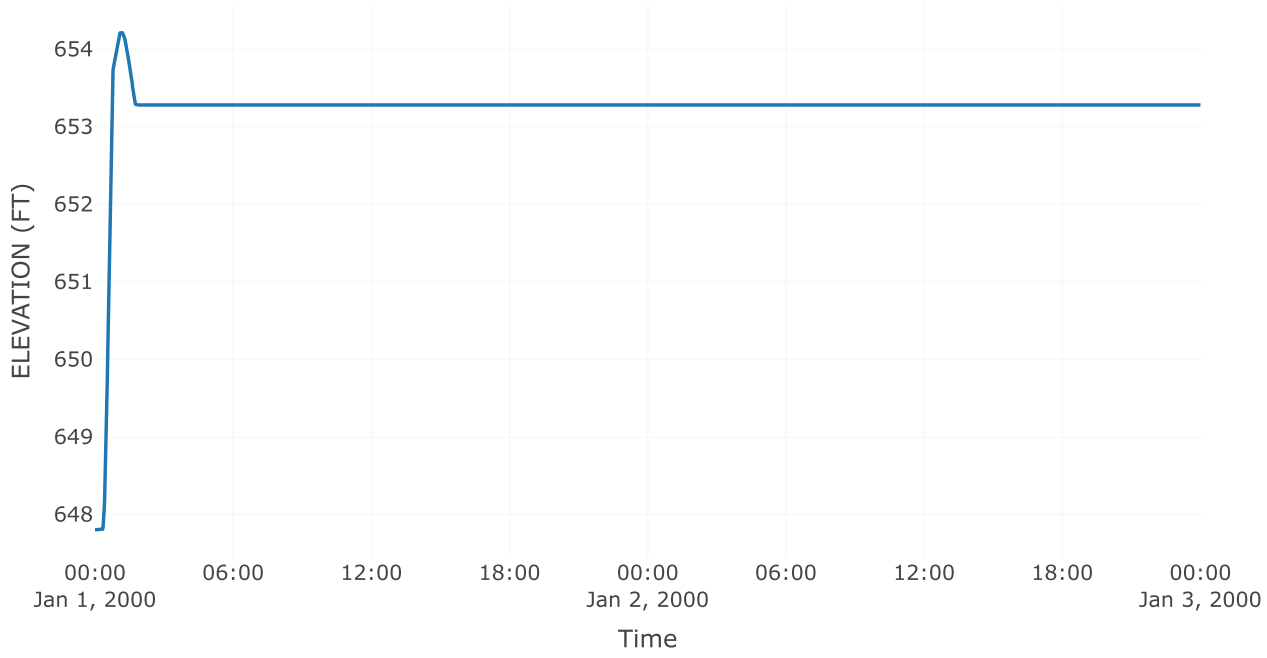
Cumulative Outflow



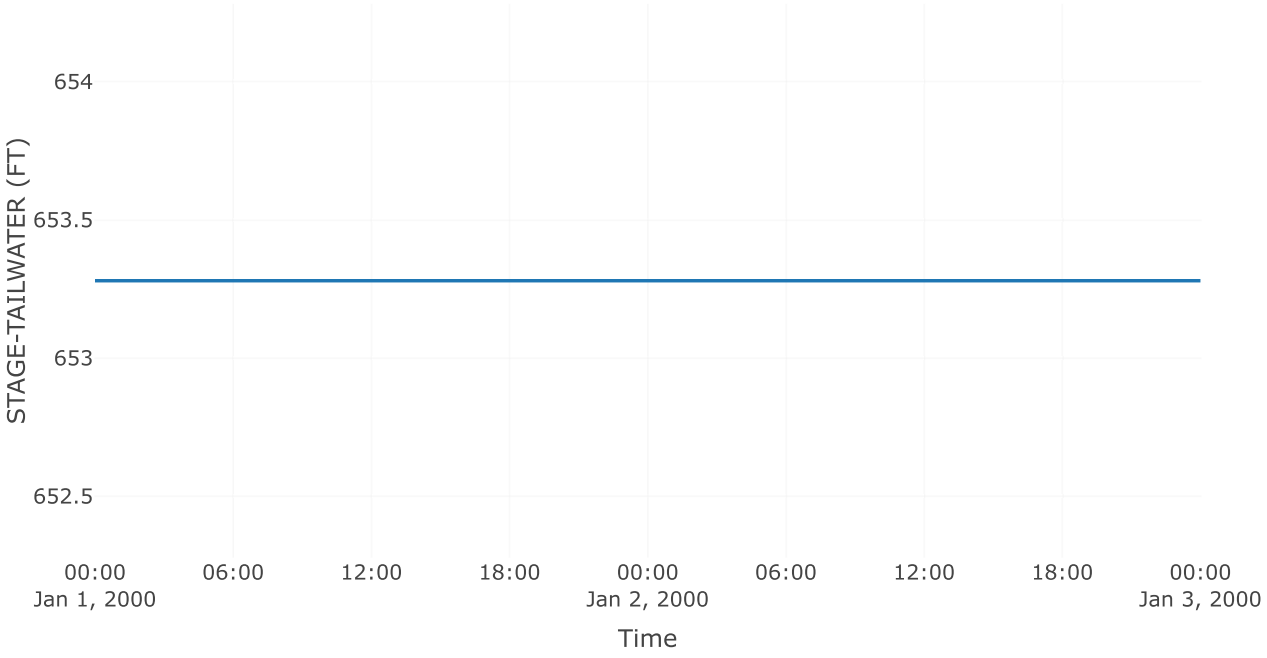

Spillway 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

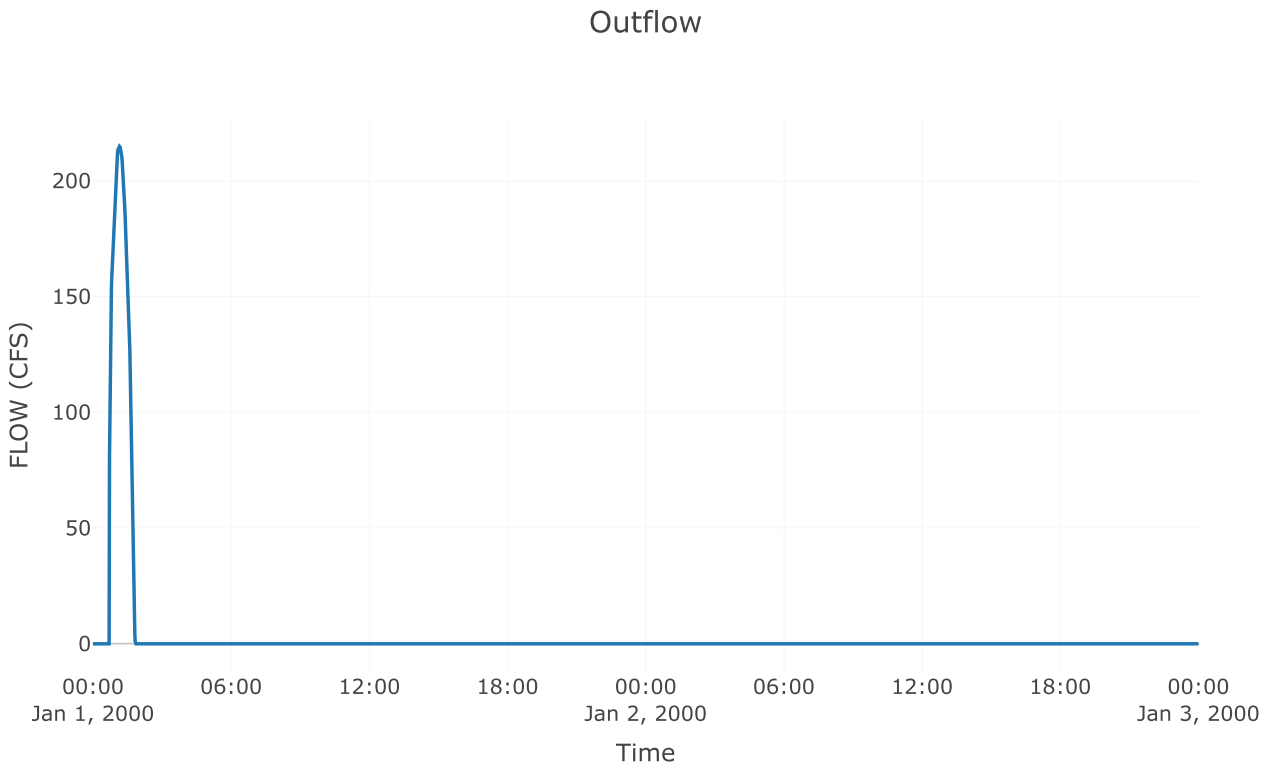

Outlet 1
200
150
100
50
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Pool Elevation



Tailwater Stage



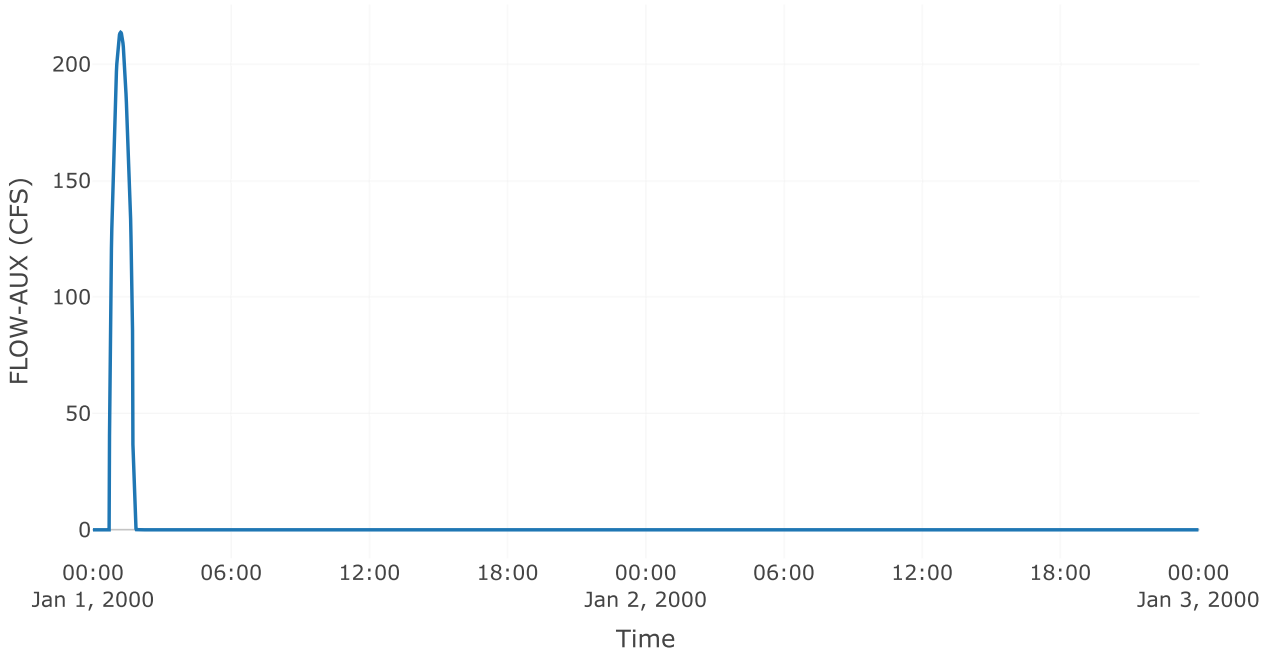

Outflow
200
150
100
50
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Outlet Storm Box

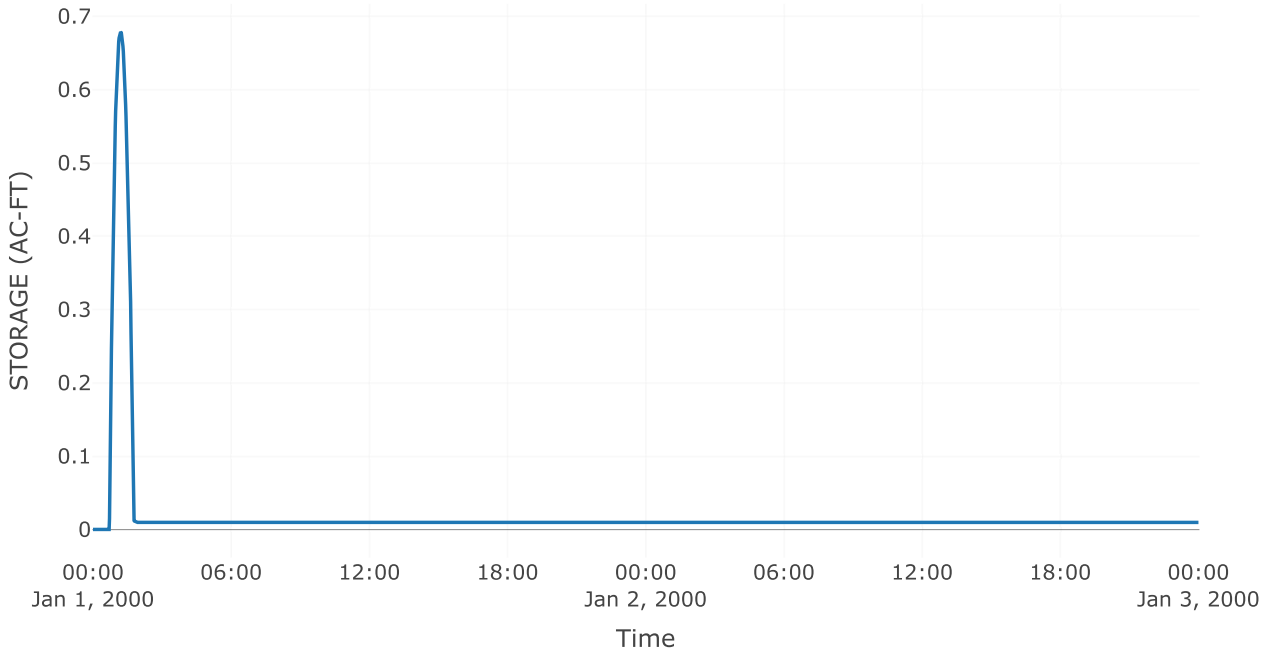
Downstream : 55th Street Outlet

Results: Outlet Storm Box	
Peak Discharge (CFS)	0
Time of Peak Discharge	31Dec1999, 24:00
Volume (IN)	0
Peak Inflow (CFS)	214.92
Time of Peak Inflow	01Jan2000, 01:09
Inflow Volume (AC - FT)	14.44
Maximum Storage (AC - FT)	0.68
Peak Elevation (FT)	654.67
Discharge Volume (AC - FT)	0

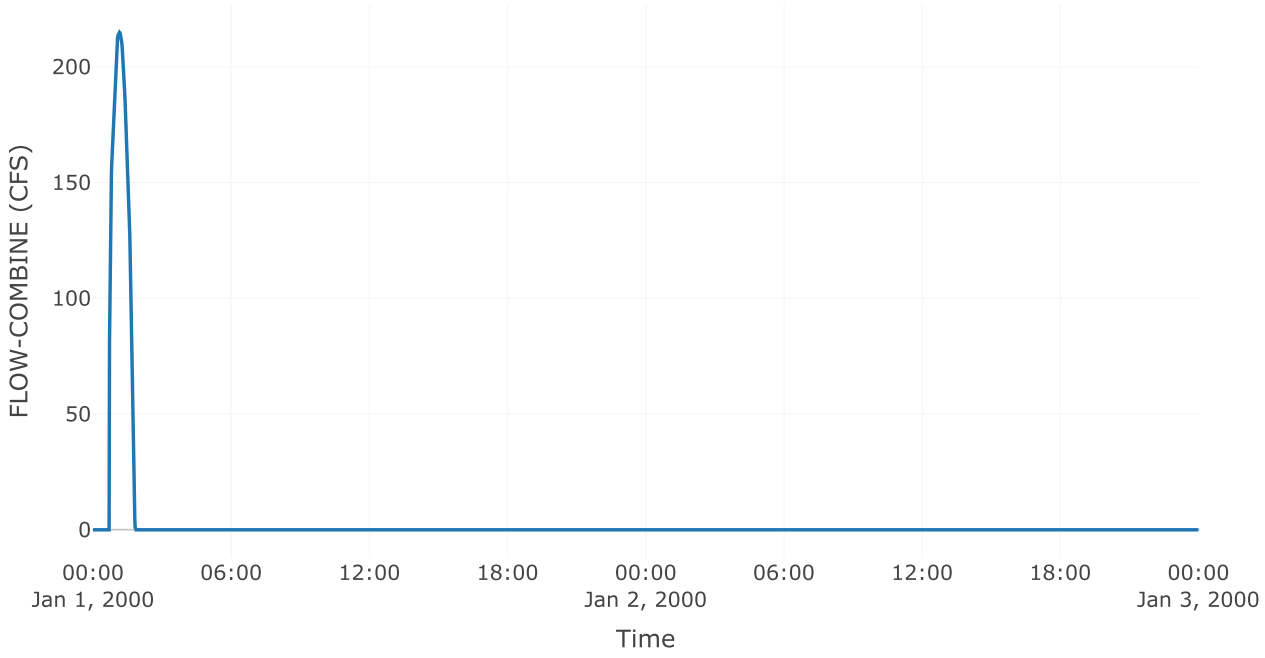
Auxiliary Outflow



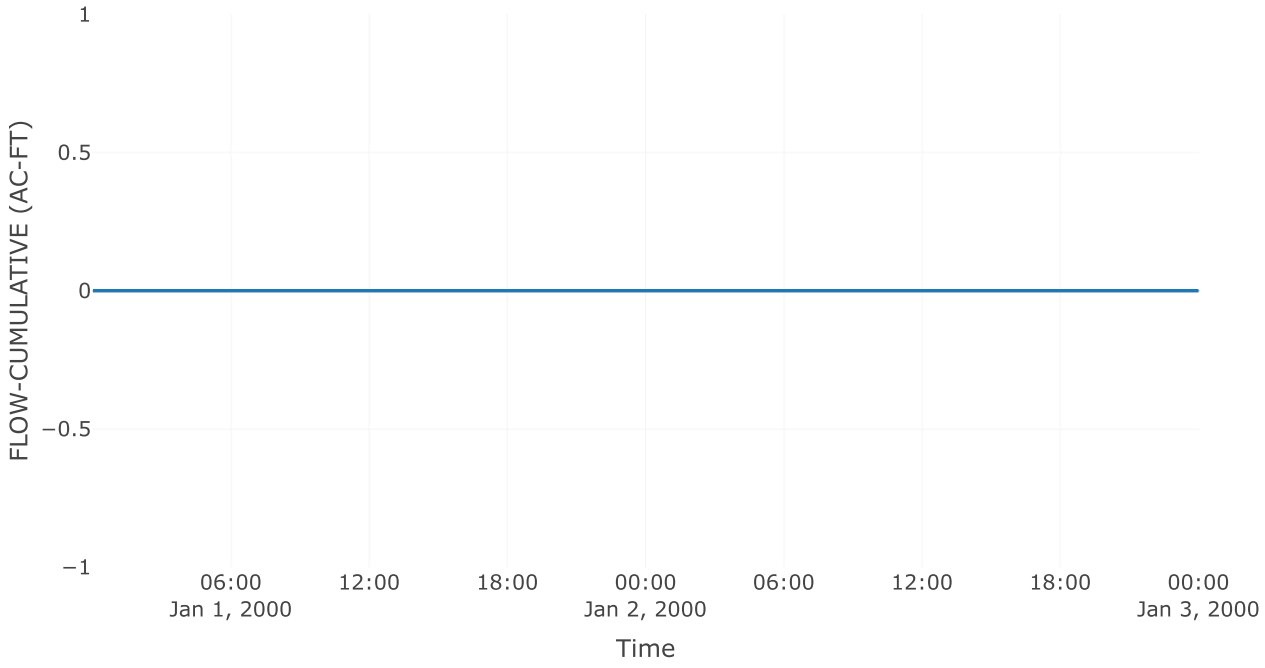
Storage



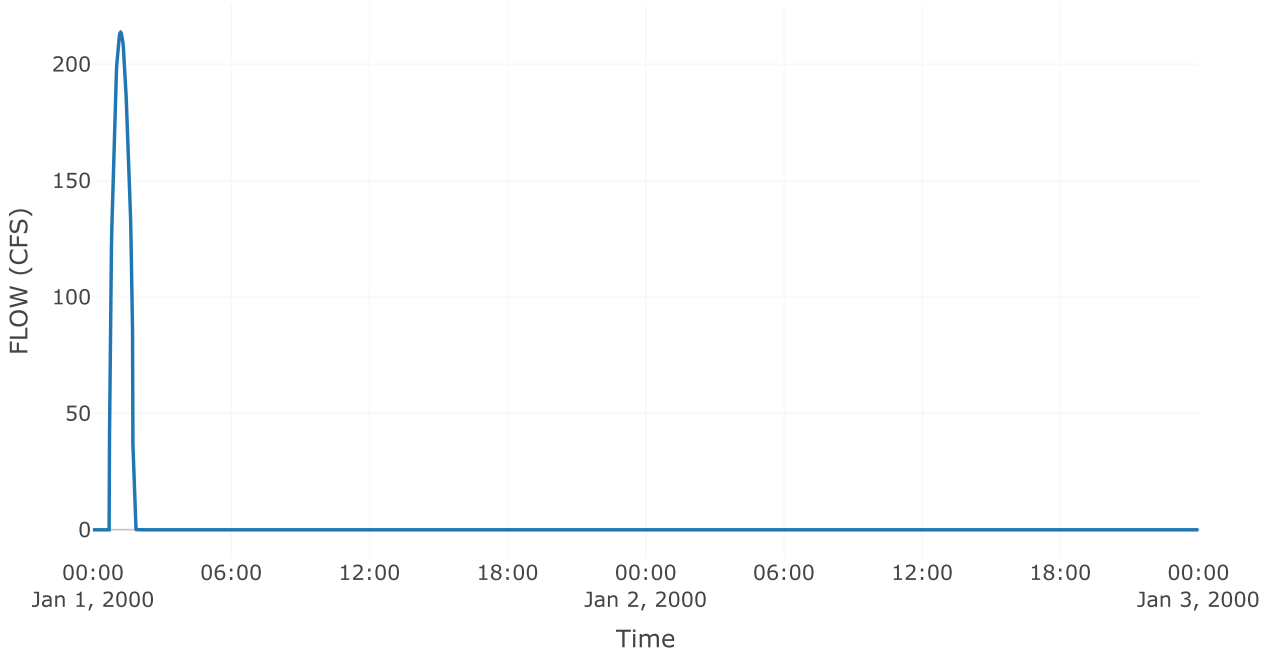
Combined Inflow



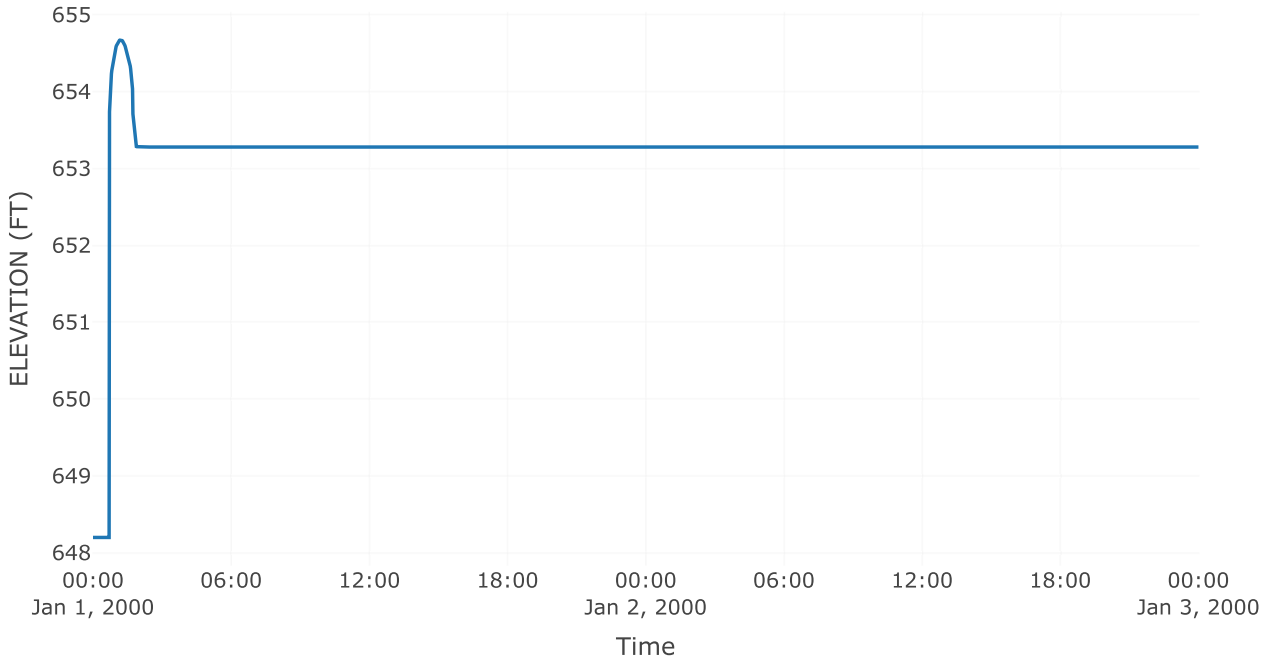
Cumulative Outflow

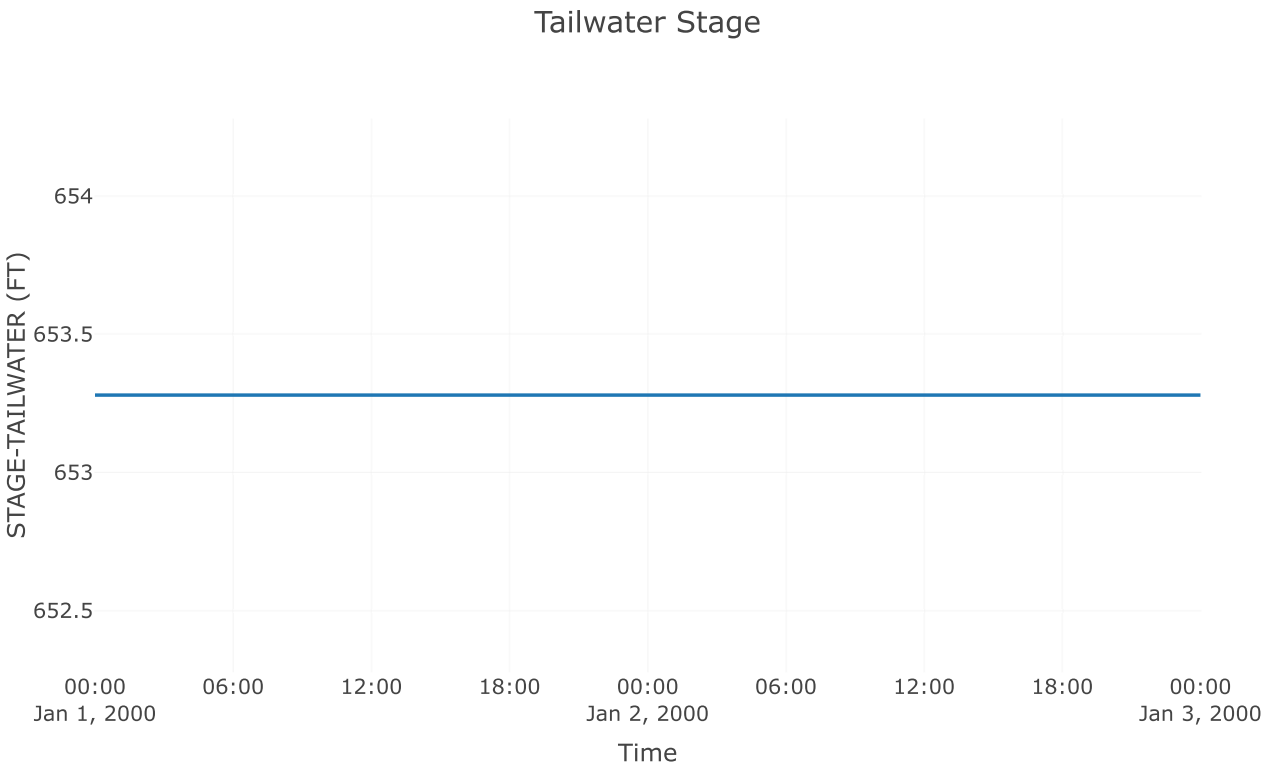


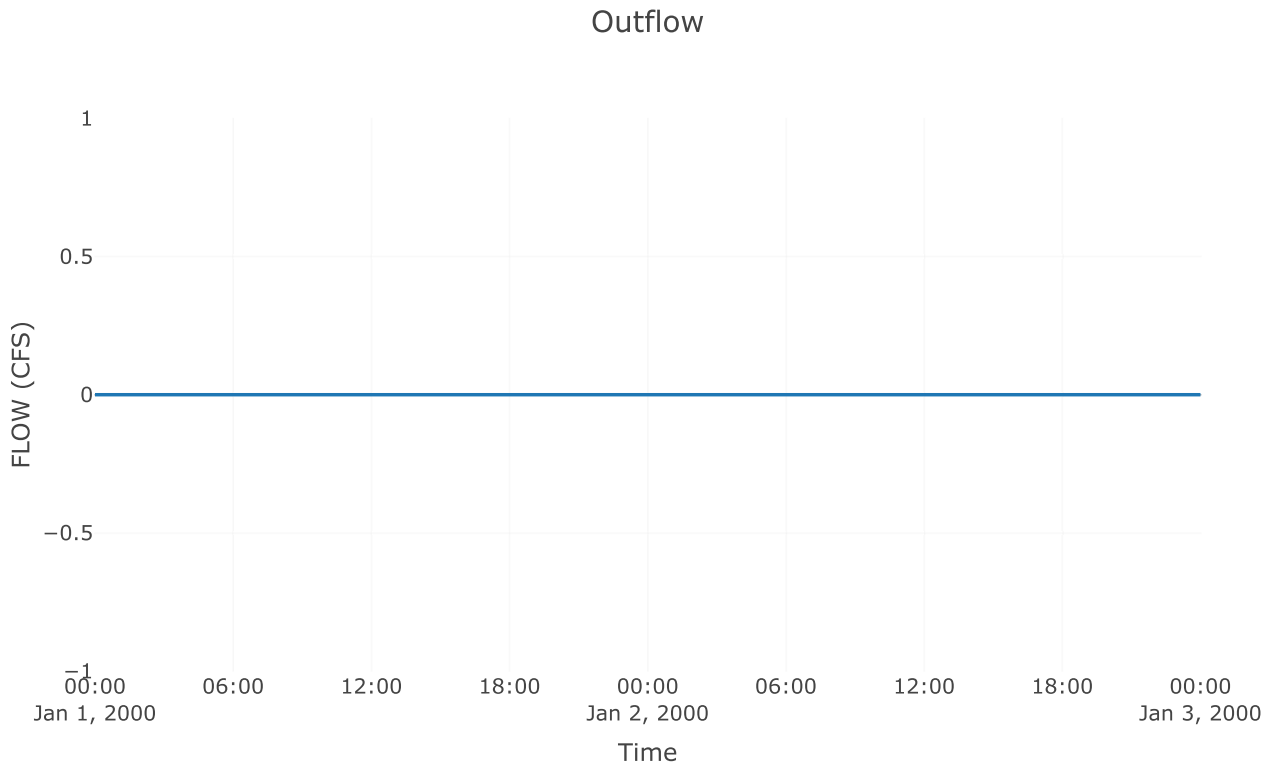
Spillway 1



Pool Elevation

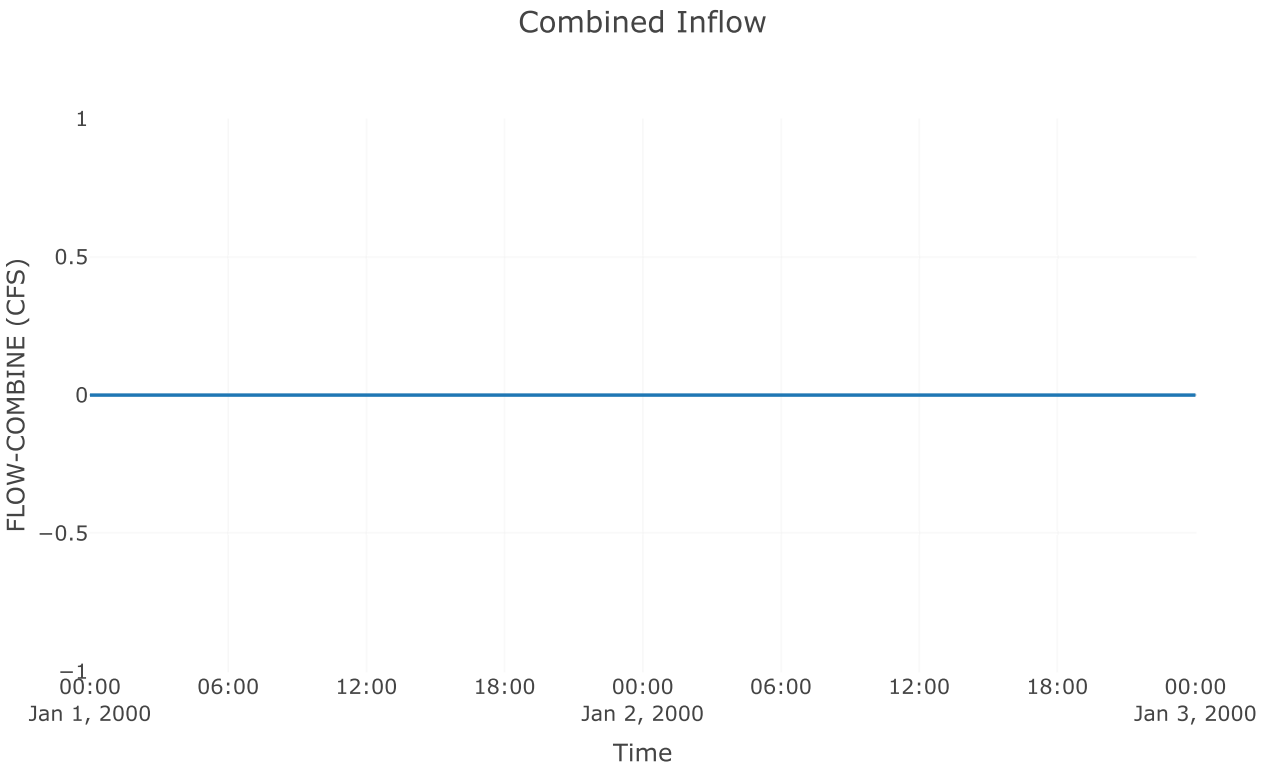


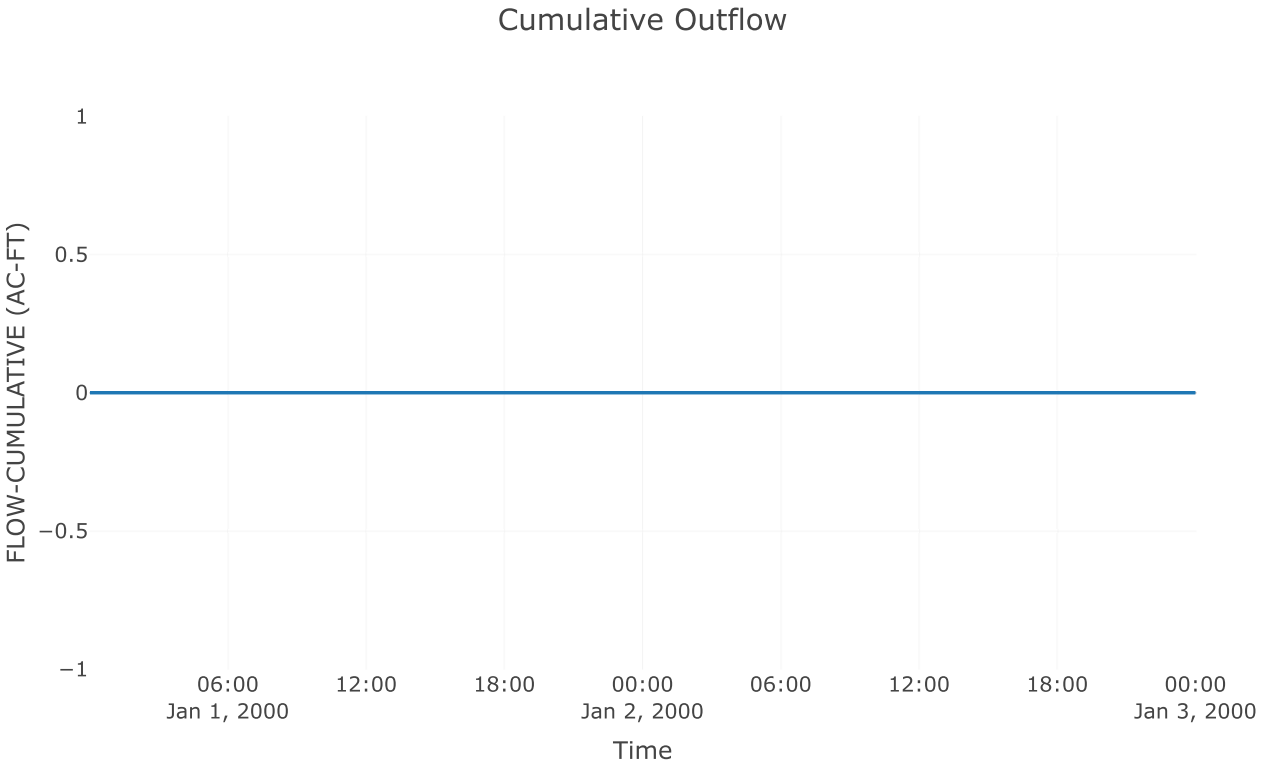

Tailwater Stage
654
653.5
653
652.5
STAGE-TAILWATER (FT)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

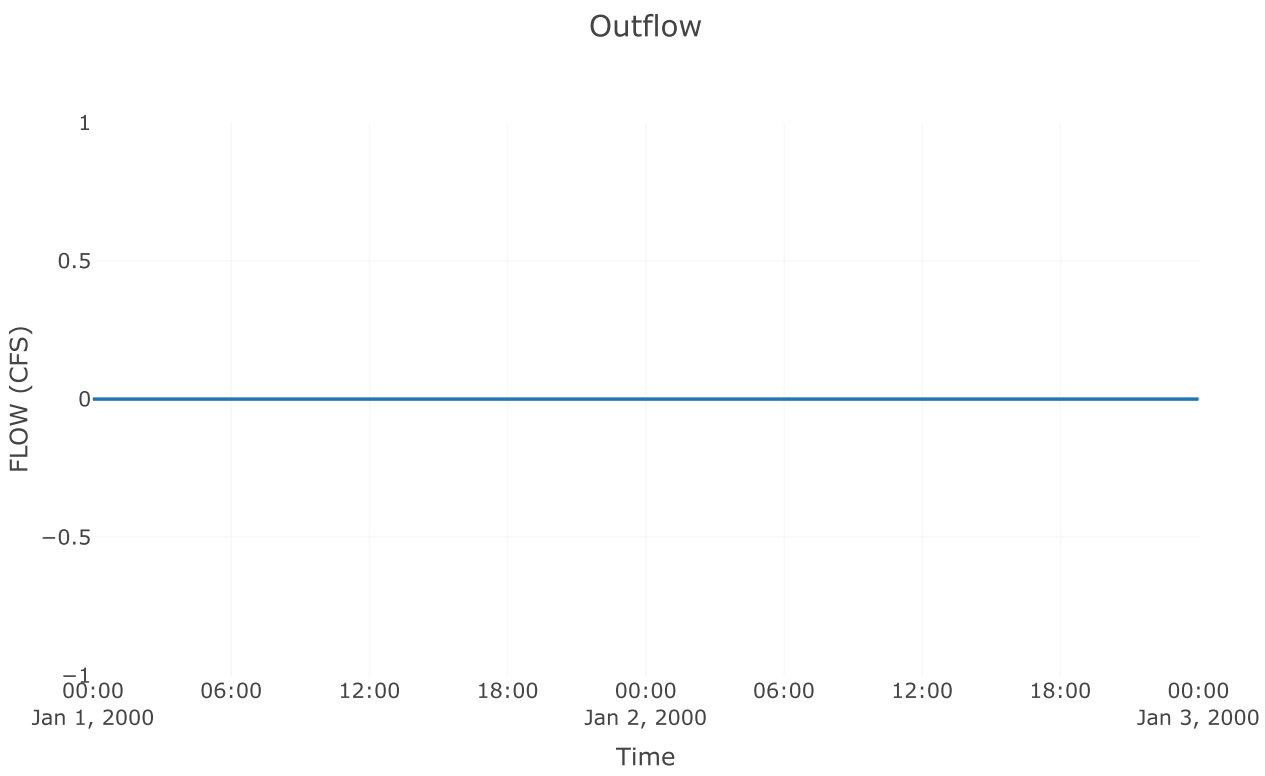

Outflow
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Sink: 55th Street Outlet

Results: 55th Street Outlet	
Peak Discharge (CFS)	0
Time of Peak Discharge	31Dec1999, 24:00
Volume (IN)	0


Combined Inflow
FLOW-COMBINE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
1
0.5
0
−0.5
−1
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outflow
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Stormwater Analysis
Proposed Conditions

Curve Number

Project: Heritage Crossing By: AJS Date: 8/26/2024

Location: NE Corner of Wolf Road and Park Place Chkd: SDS Date: 8/26/2024

Conditions (i.e. Present / Developed): Proposed

Curve Number

Soil Name and Hydrologic Group (Appendix A)	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN			Area ☑ acres ☐ mi² ☐ %	Product of CN x Area
C	Lawn, good condition (grass cover > 75%)	74			1.0008	74.06
C	Pavement, Parking, Curb and Gutter	98			0.3374	33.07
C	Carriage Walk	98			0.0644	6.31
C	Driveways	98			0.2829	27.72
C	Stoops & Patios	98			0.0681	6.67
C	Buildings	98			0.6564	64.33
				Totals =	2.4100	212.16

* Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{212.16}{2.4100} = 88.03$; use CN = **88.03**

Heritage Crossing - Western Springs, IL

3/9/2025

Existing Stormwater Storage East Side of Wolf Road
Stage-StorageTables

1) Pond Storage:

STORMWATER VOLUME

Notes	Pond Elevation [feet]	Area [sf]	Depth [feet]	Volume [cubic feet]	Volume [acre feet]	Cumulative Volume [acre feet]
Oulet	657.80	0				0.0000
			0.20	13	0.000	
	658.00	191				0.0003
			1.00	368	0.008	
	659.00	579				0.0087
			1.00	910	0.021	
	660.00	1,287				0.0296
			1.00	2,075	0.048	
	661.00	2,980				0.0773
			1.00	4,455	0.102	
	662.00	6,116				0.1795
			1.00	11,247	0.258	
	663.00	17,331				0.4377
			0.50	12,082	0.277	
	663.50	31,716				0.7151
			0.50	19,342	0.444	
	664.00	46,101				1.1591
			0.50	28,167	0.647	
	664.50	67,228				1.8058
			0.50	40,225	0.923	
	665.00	94,439				2.7292

Heritage Crossing - Western Springs, IL

03/09/225

Proposed Stormwater Storage West Side of Wolf Road
Stage-StorageTables

1) Pond Storage:

STORMWATER VOLUME

Notes	Pond Elevation [feet]	Area [sf]	Depth [feet]	Volume [cubic feet]	Volume [acre feet]	Cumulative Volume [acre feet]
Oulet						
	652.20	0				0.0000
			0.80	65	0.001	
	653.00	244				0.0015
			1.00	297	0.007	
	654.00	354				0.0083
			1.00	416	0.010	
	655.00	481				0.0179
			1.00	545	0.013	
	656.00	612				0.0304
			1.00	661	0.015	
Overland Weir Flow	657.00	712				0.0456
			1.00	746	0.017	
	658.00	781				0.0627
			1.00	815	0.019	
	659.00	849				0.0814
			1.00	883	0.020	
	660.0	917				0.1017

Heritage Crossing - Western Springs, IL

10/17/2024

Proposed Basin "C" & Adjacent Overland Flow Areas
Critical Duration Storm Event (100yr - 2hr)
Stage-StorageTables

1) Pond Storage:

STORMWATER VOLUME

Notes	Pond Elevation [feet]	Area [sf]	Depth [feet]	Volume [cubic feet]	Volume [acre feet]	Cumulative Volume [acre feet]
Bottom (36" pipe outlet)	645.98	0				0.0000
			0.49	2	0.000	
	646.47	13				0.0000
			0.53	1,265	0.029	
	647.00	6,848				0.0291
			1.00	7,638	0.175	
	648.00	8,456				0.2044
			1.00	9,320	0.214	
	649.00	10,211				0.4184
			1.00	11,249	0.258	
	650.00	12,320				0.6766
			1.00	12,472	0.286	
	651.00	12,625				0.9629
			1.00	14,786	0.339	
	652.00	17,057				1.3024
			1.00	17,236	0.396	
	653.00	17,416				1.6981
			1.00	17,945	0.412	
	654.00	18,480				2.1100
			0.50	9,549	0.219	
Design HWL	654.50	19,722				2.3292
			0.50	11,415	0.262	
	655.00	26,088				2.5913
			0.70	20,643	0.474	
Overflow at Heritage Ct.	655.70	33,028				3.0652
			0.30	10,424	0.239	
	656.00	36,495				3.3045
			0.10	3,819	0.088	
Top of Existing Wall	656.10	39,907				3.3922

Heritage Crossing - Western Springs, IL

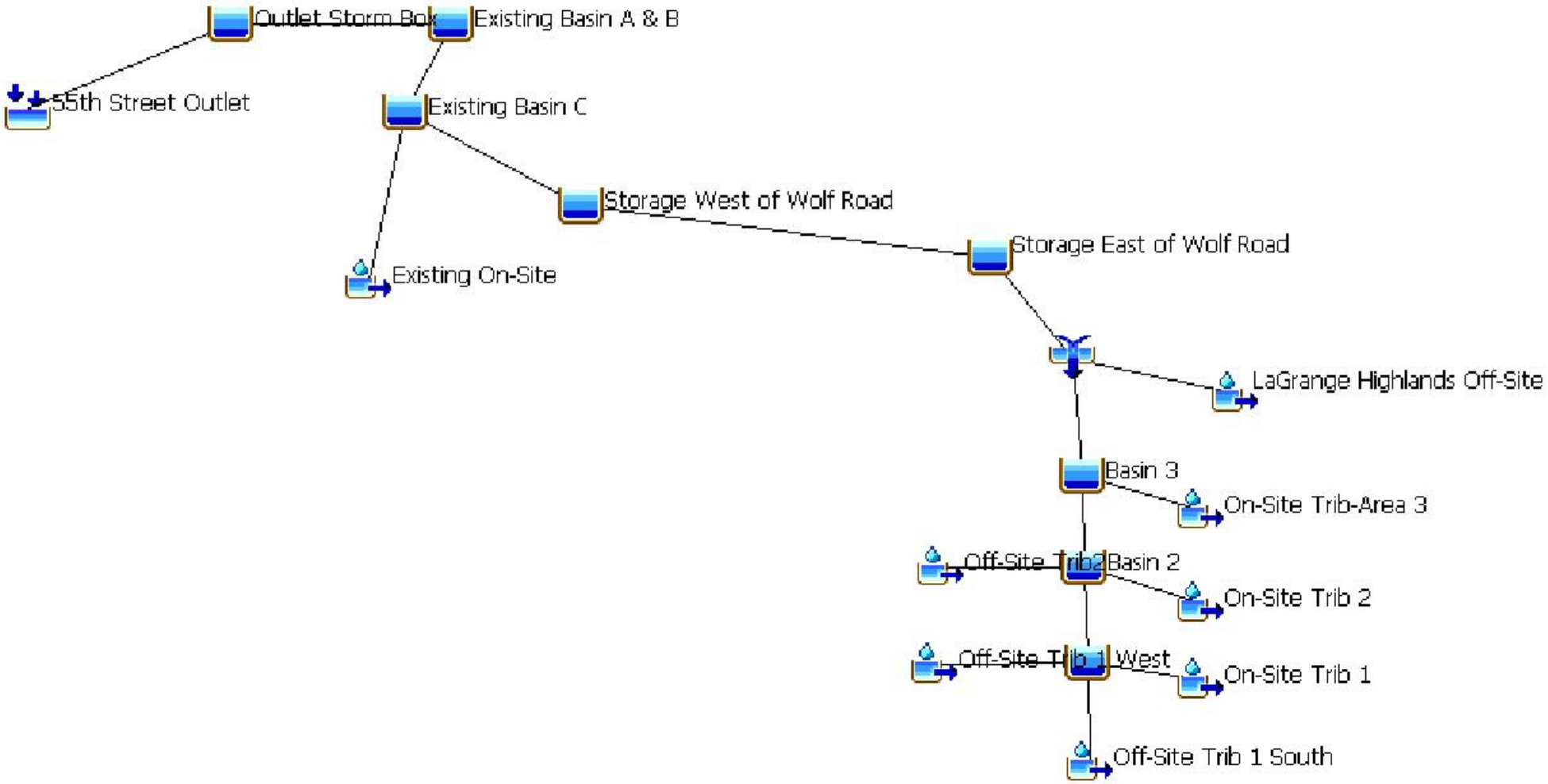
8/20/2024

Existing Basin "A" & "B" to Overland Flow Elevation
Stage-StorageTables

1) Pond Storage:

STORMWATER VOLUME

Notes	Pond Elevation [feet]	Area [sf]	Depth [feet]	Volume [cubic feet]	Volume [acre feet]	Cumulative Volume [acre feet]
NWL (Recent Topo Survey)	647.80	10,543				0.0000
			0.20	2,139	0.049	
	648.00	10,848				0.0491
			1.00	11,883	0.273	
	649.00	12,948				0.3219
			1.00	14,343	0.329	
	650.00	15,785				0.6512
			1.00	16,898	0.388	
	651.00	18,035				1.0391
			1.00	18,593	0.427	
	652.00	19,156				1.4659
			1.00	19,481	0.447	
	653.00	19,808				1.9131
			1.00	20,197	0.464	
	654.00	20,588				2.3768
			0.50	10,516	0.241	
Design HWL	654.50	21,478				2.6182
			0.50	11,816	0.271	
	655.00	25,854				2.8895
			1.00	28,871	0.663	
	656.00	31,998				3.5522
			0.31	10,009	0.230	
Overland Flow Elevation	656.31	32,574				3.7820


Outlet Storm Box
Existing Basin A & B
55th Street Outlet
Existing Basin C
Storage West of Wolf Road
Storage East of Wolf Road
Existing On-Site
LaGrange Highlands Off-Site
Basin 3
On-Site Trib-Area 3
Off-Site Trib2
Basin 2
On-Site Trib 2
Off-Site Trib 1
West
On-Site Trib 1
Off-Site Trib 1 South

Project: Development_Template
Simulation Run: 2YR_2HR
Simulation Start: 31 December 1999, 24:00
Simulation End: 2 January 2000, 24:00

HMS Version: 4.12
Executed: 14 March 2025, 15:49

Global Parameter Summary - Subbasin

Area (MI2)

Element Name	Area (MI2)
On - Site Trib 1	0.03
Off - Site Trib 1 South	0
Off - Site Trib 1 West	0
On - Site Trib 2	0.02
Off - Site Trib2	0.01
On - Site Trib - Area 3	0.01
LaGrange Highlands Off - Site	0.2
Prop On - Site	0

Downstream

Element Name	Downstream
On - Site Trib 1	Basin 1
Off - Site Trib 1 South	Basin 1
Off - Site Trib 1 West	Basin 1
On - Site Trib 2	Basin 2
Off - Site Trib2	Basin 2
On - Site Trib - Area 3	Basin 3
LaGrange Highlands Off - Site	Off - Site Tributary Area
Prop On - Site	Proposed Basin C

Loss Rate: Scs

Element Name	Percent Impervious Area	Curve Number
On - Site Trib 1	0	86
Off - Site Trib 1 South	0	80
Off - Site Trib 1 West	0	83
On - Site Trib 2	0	83
Off - Site Trib2	0	83
On - Site Trib - Area 3	0	83
LaGrange Highlands Off - Site	0	86
Prop On - Site	0	88.03

Transform: Scs

Element Name	Lag	Unitgraph Type
On - Site Trib 1	21	Standard
Off - Site Trib 1 South	6	Standard
Off - Site Trib 1 West	12	Standard
On - Site Trib 2	20.4	Standard
Off - Site Trib2	12	Standard
On - Site Trib - Area 3	21	Standard
LaGrange Highlands Off - Site	29.2	Standard
Prop On - Site	6	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
On - Site Trib 1	0.03	11.72	01Jan2000, 00:54	0.8
Off - Site Trib 1 South	0	0.8	01Jan2000, 00:42	0.53
Off - Site Trib 1 West	0	0.81	01Jan2000, 00:45	0.65
Basin 1	0.03	3.6	01Jan2000, 02:13	0.77
On - Site Trib 2	0.02	5.83	01Jan2000, 00:55	0.65
Off - Site Trib2	0.01	2.12	01Jan2000, 00:45	0.65
Basin 2	0.05	3.07	01Jan2000, 03:53	0.72
On - Site Trib - Area 3	0.01	4.24	01Jan2000, 00:56	0.65
LaGrange Highlands Off - Site	0.2	75.41	01Jan2000, 01:05	0.8
Basin 3	0.07	1.48	01Jan2000, 09:37	0.69
Off - Site Tributary Area	0.27	75.98	01Jan2000, 01:05	0.78
Storage East of Wolf Road	0.27	75.95	01Jan2000, 01:06	0.78
Prop Storage West of Wolf Rd	0.27	75.97	01Jan2000, 01:06	0.77
Prop On - Site	0	2.53	01Jan2000, 00:33	0.92
Proposed Basin C	0.27	14.53	01Jan2000, 01:15	0.04
Existing Basin A & B	0.27	0	31Dec1999, 24:00	0
Outlet Storm Box	0.27	0	31Dec1999, 24:00	0

55th Street Outlet	0.27	0	31Dec1999, 24:00	0

Subbasin: On-Site Trib 1

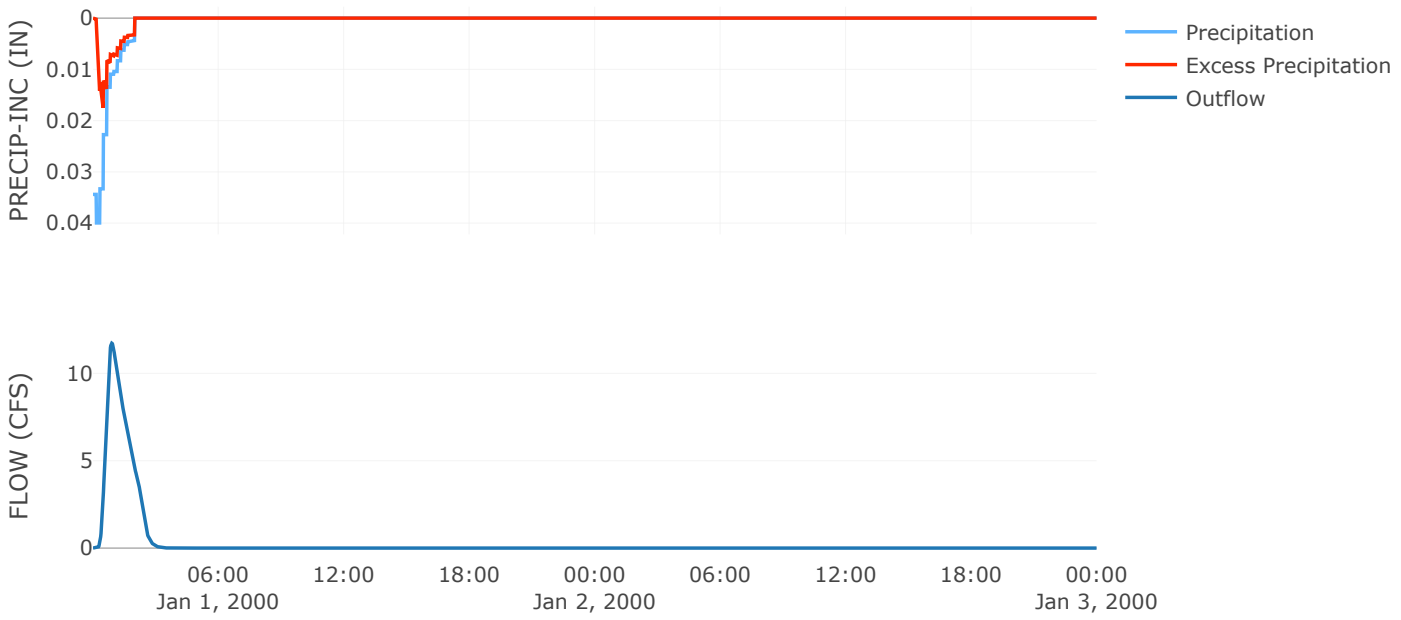
Area (MI2) : 0.03
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	86

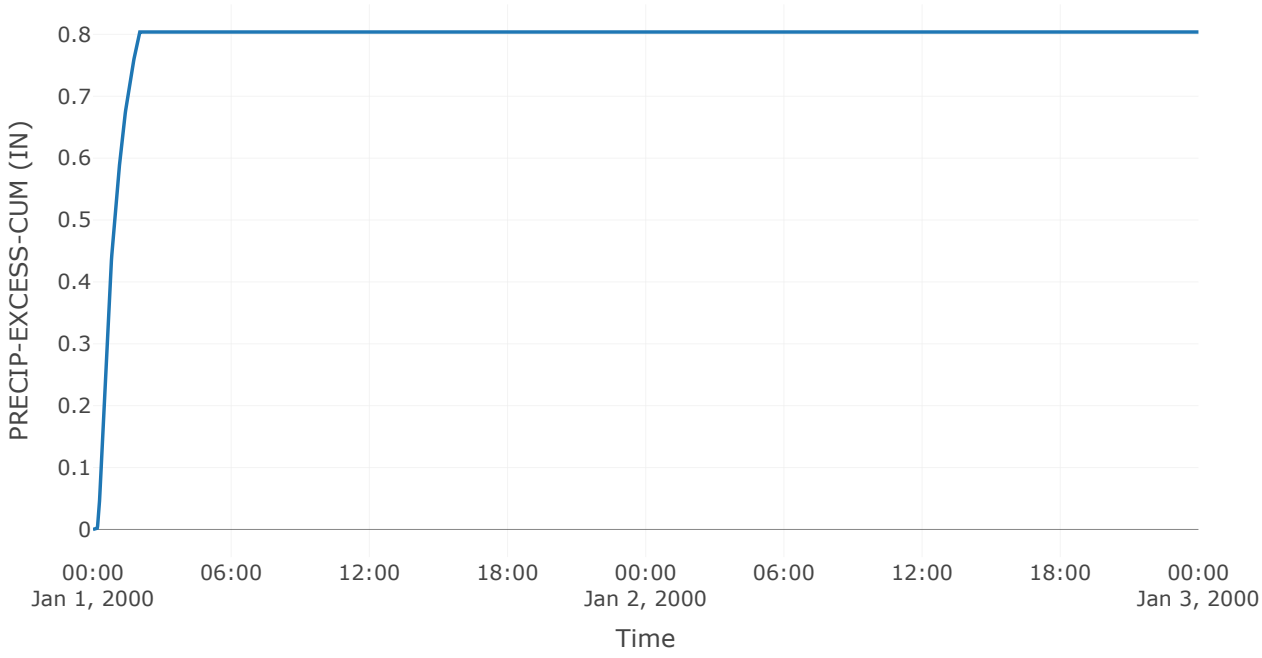
Transform: Scs	
Lag	21
Unitgraph Type	Standard

Results: On-Site Trib 1	
Peak Discharge (CFS)	11.72
Time of Peak Discharge	01Jan2000, 00:54
Volume (IN)	0.8
Precipitation Volume (AC - FT)	2.85
Loss Volume (AC - FT)	1.67
Excess Volume (AC - FT)	1.18
Direct Runoff Volume (AC - FT)	1.18
Baseflow Volume (AC - FT)	0

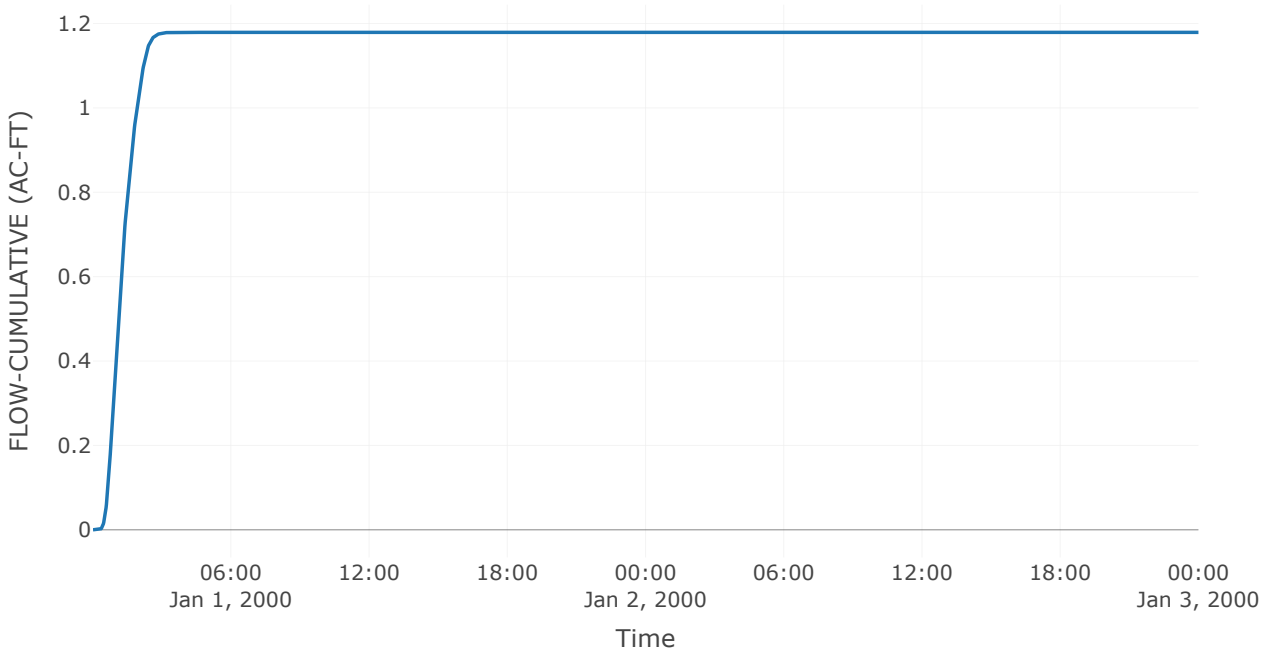
Precipitation and Outflow



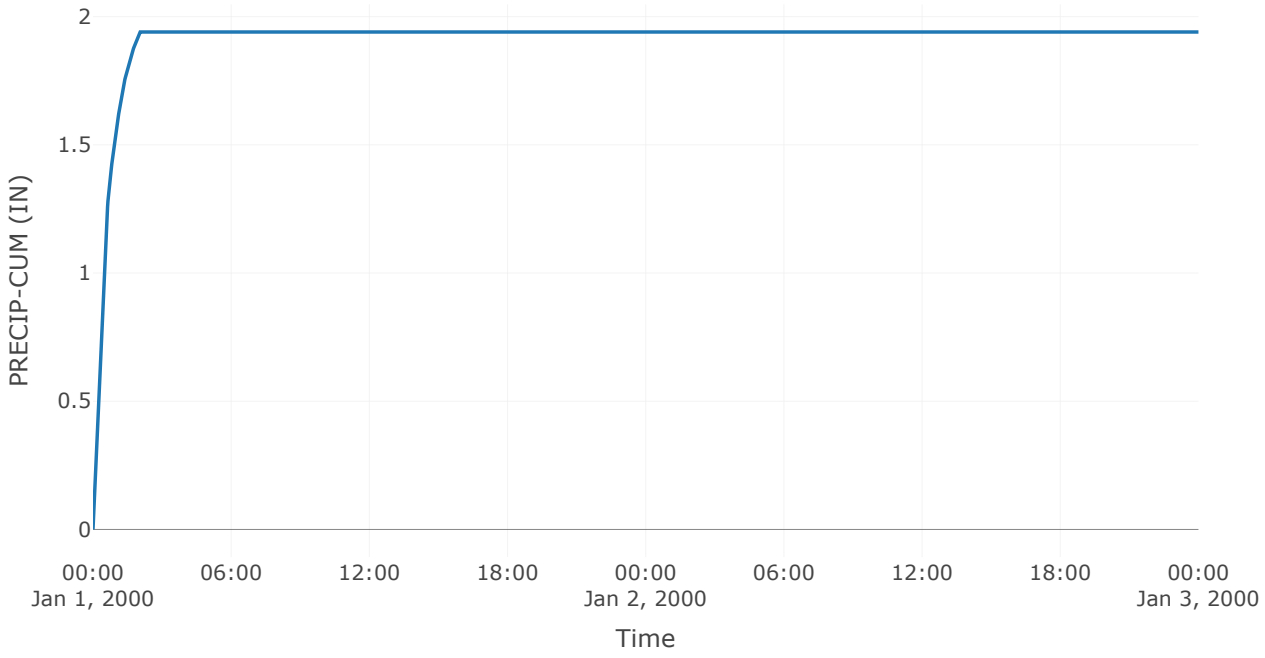
Cumulative Excess Precipitation



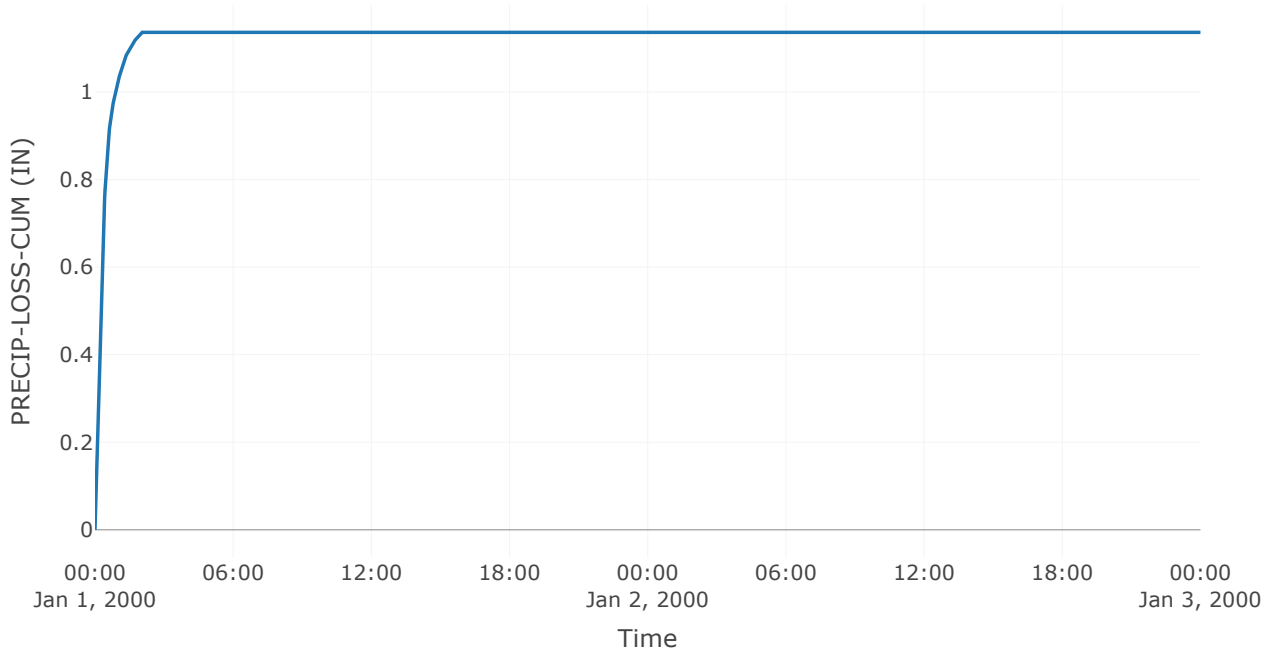
Cumulative Outflow



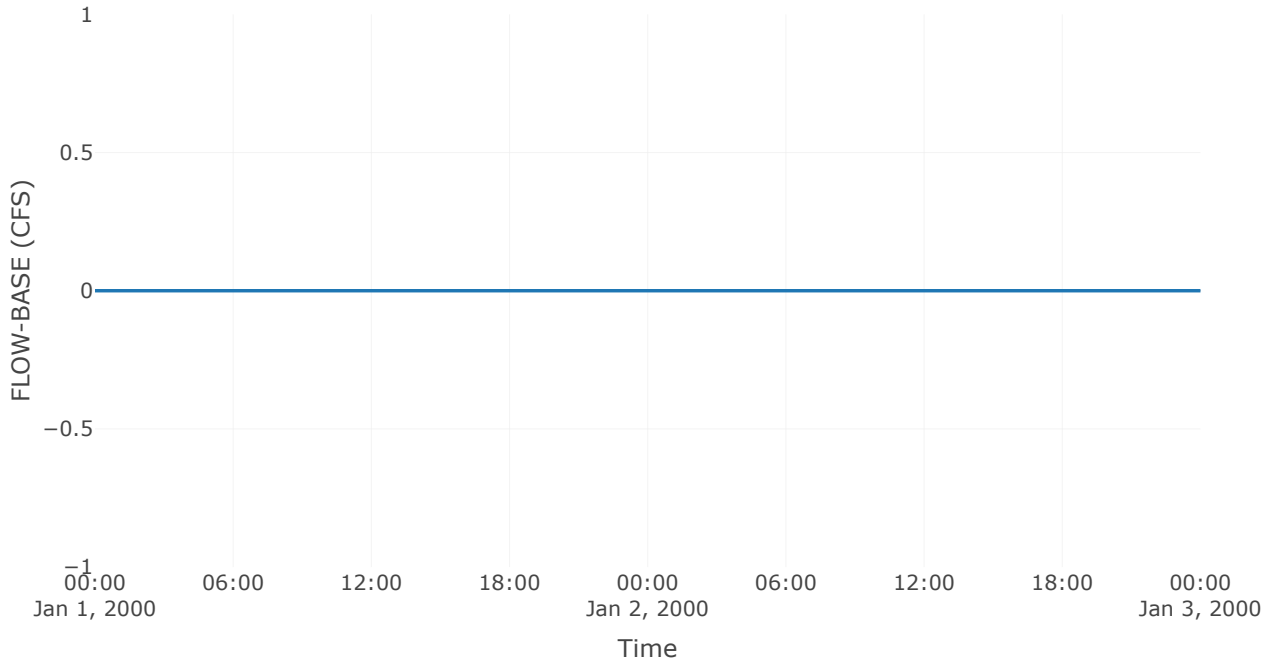
Cumulative Precipitation



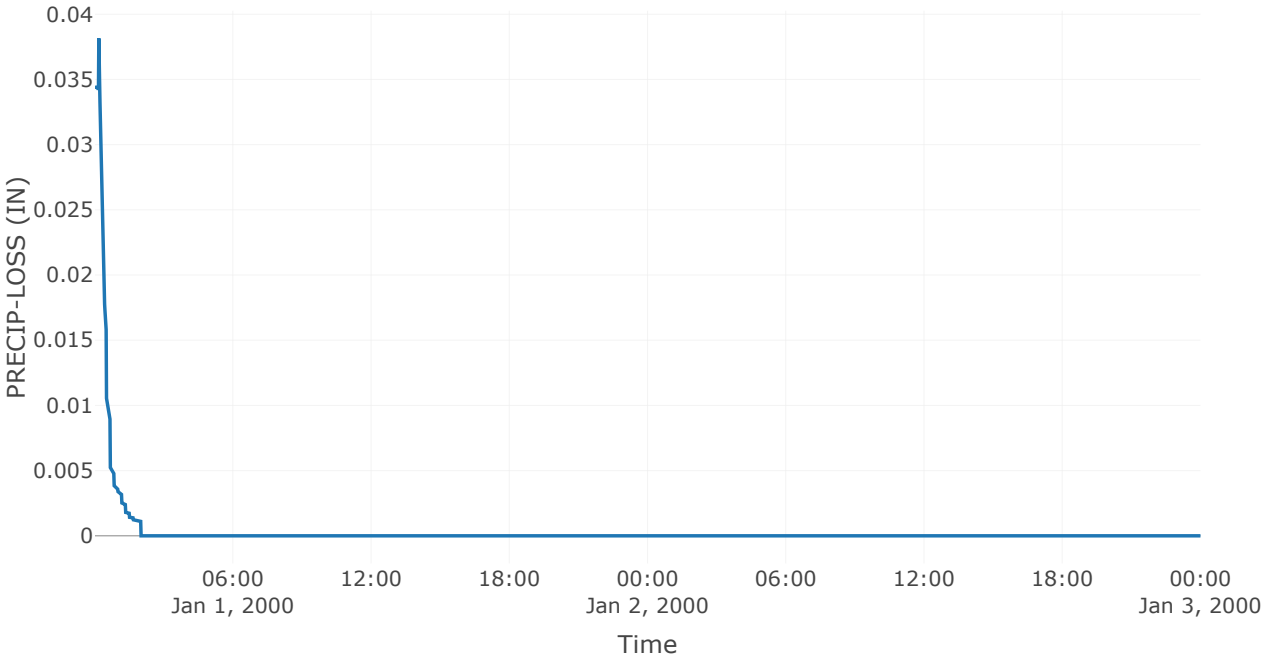
Cumulative Precipitation Loss



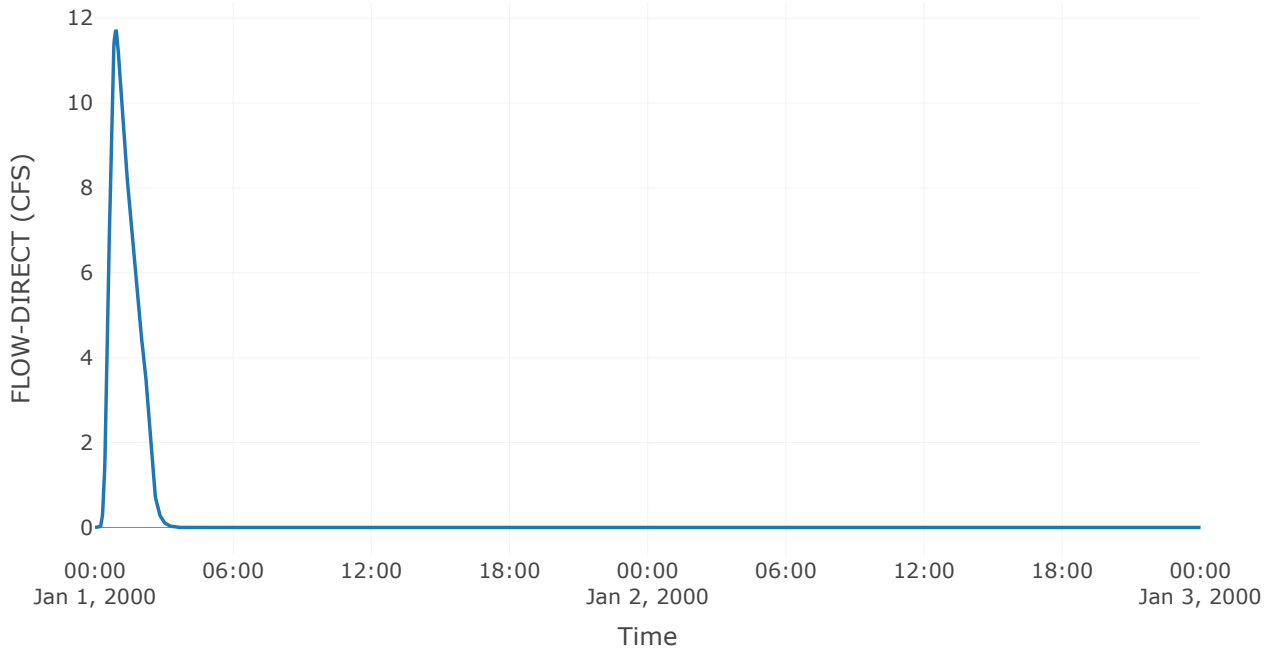
Baseflow

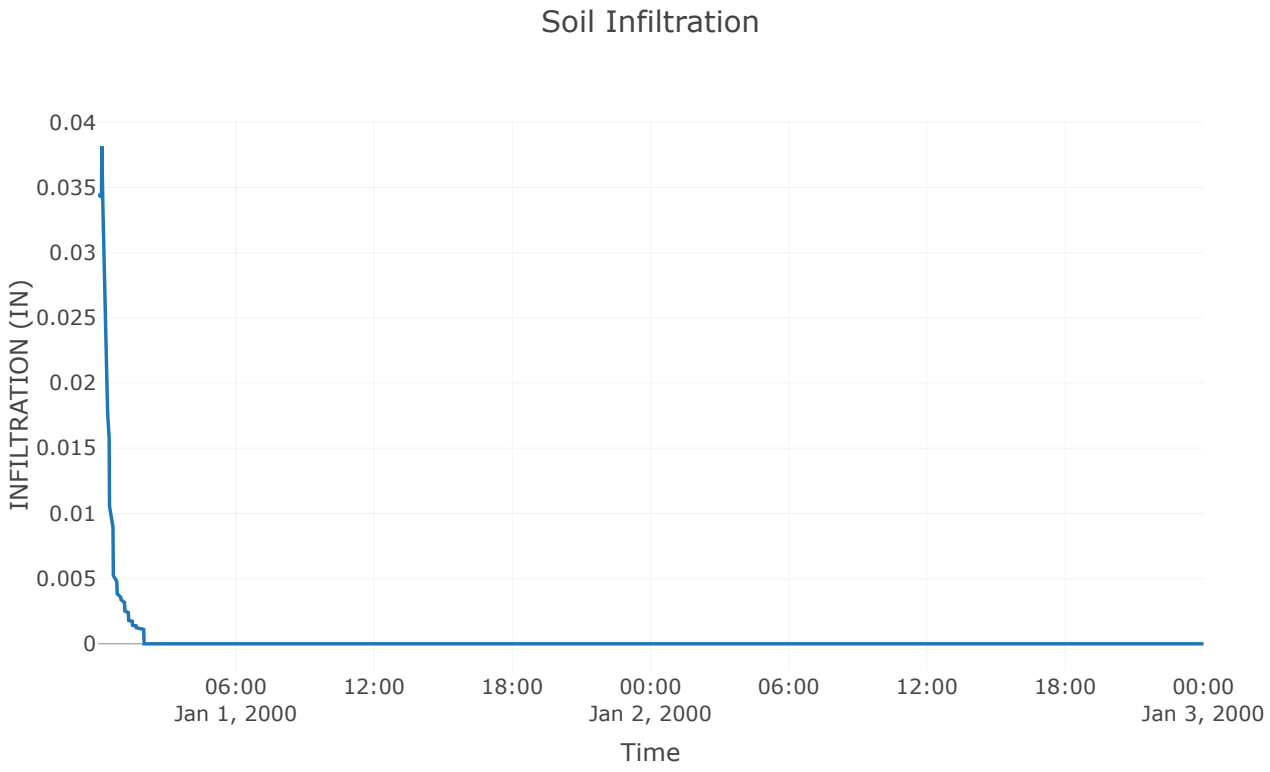


Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib 1 South

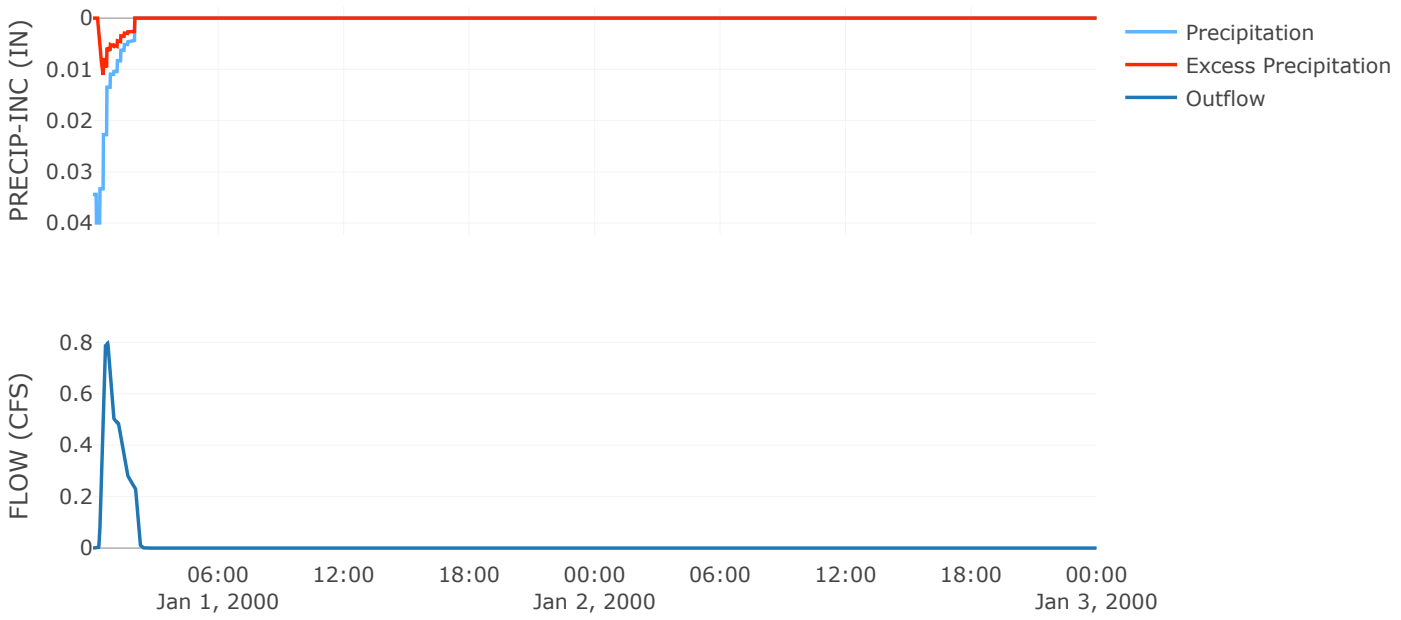
Area (MI2) : 0
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	80

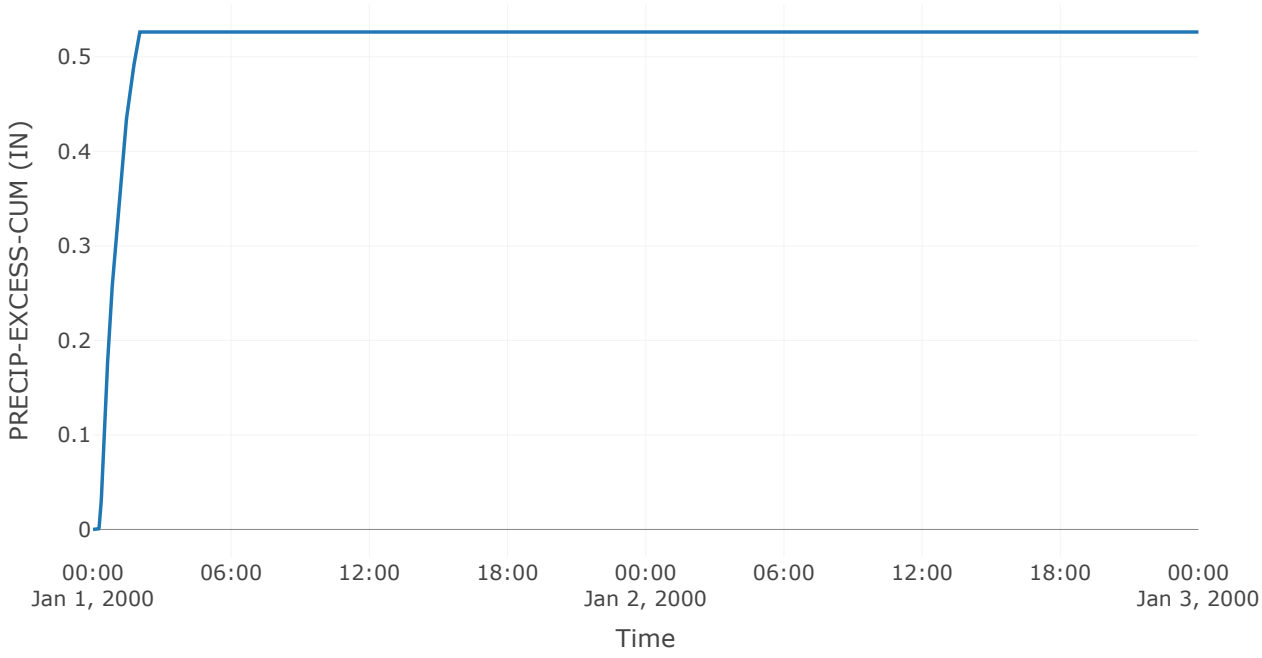
Transform: Scs	
Lag	6
Unitgraph Type	Standard

Results: Off-Site Trib 1 South	
Peak Discharge (CFS)	0.8
Time of Peak Discharge	01Jan2000, 00:42
Volume (IN)	0.53
Precipitation Volume (AC - FT)	0.24
Loss Volume (AC - FT)	0.18
Excess Volume (AC - FT)	0.07
Direct Runoff Volume (AC - FT)	0.07
Baseflow Volume (AC - FT)	0

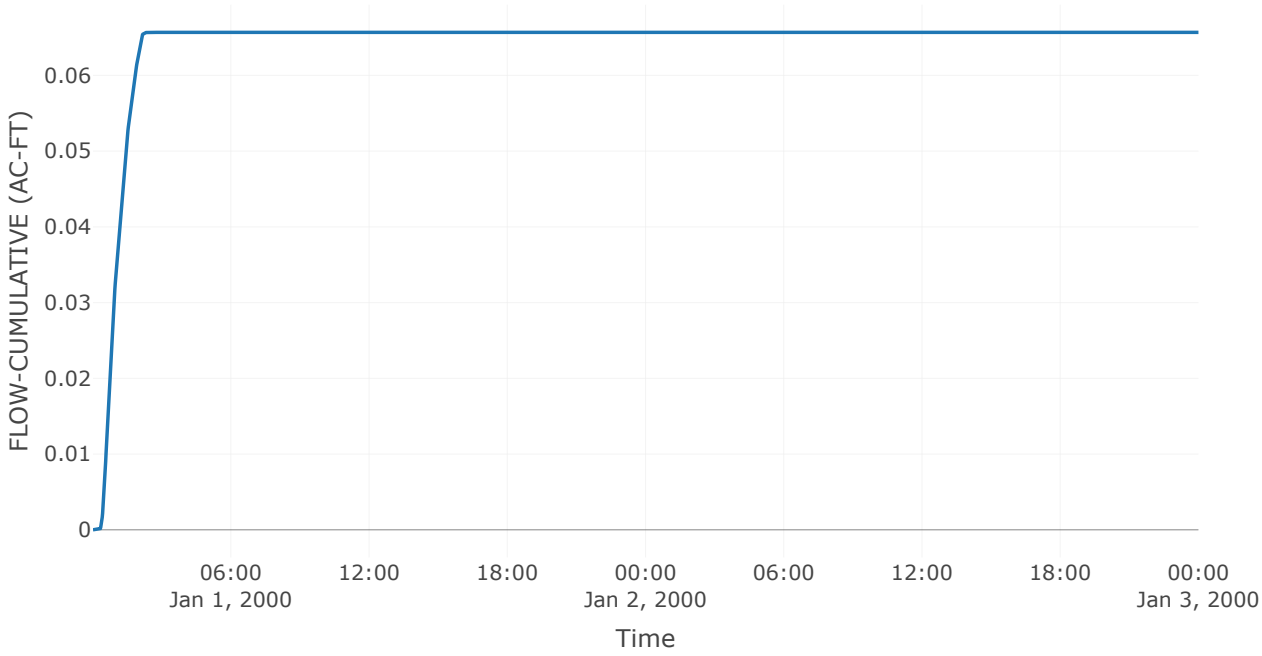
Precipitation and Outflow



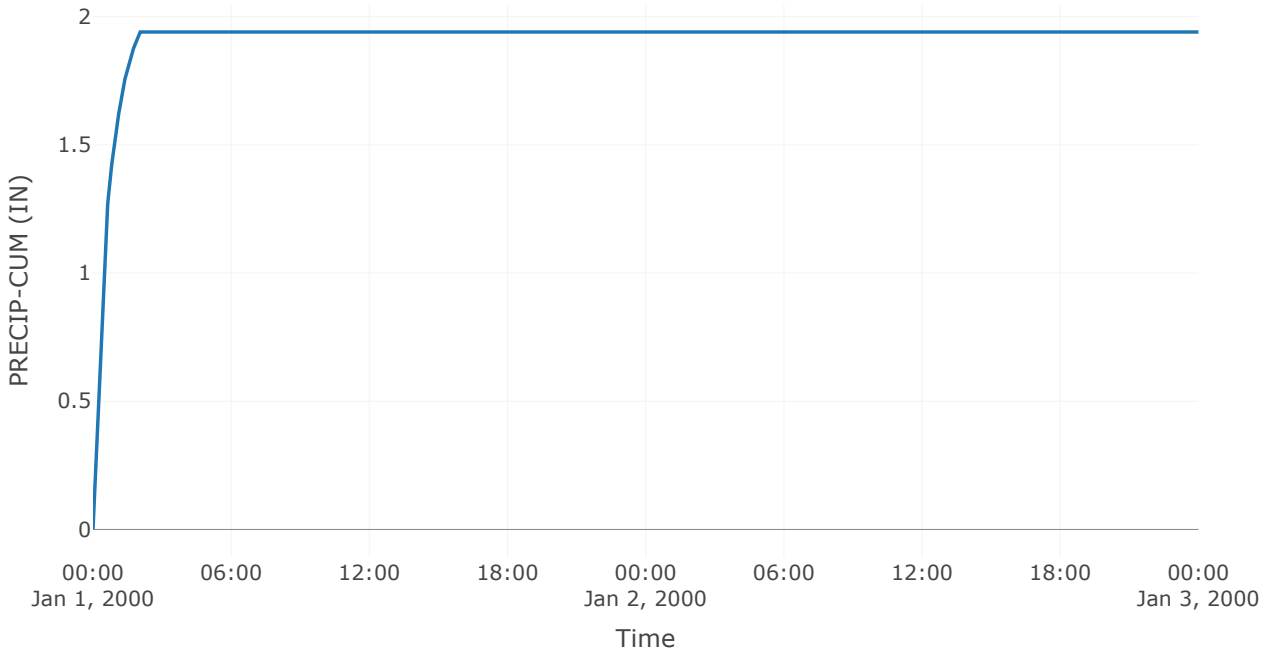
Cumulative Excess Precipitation



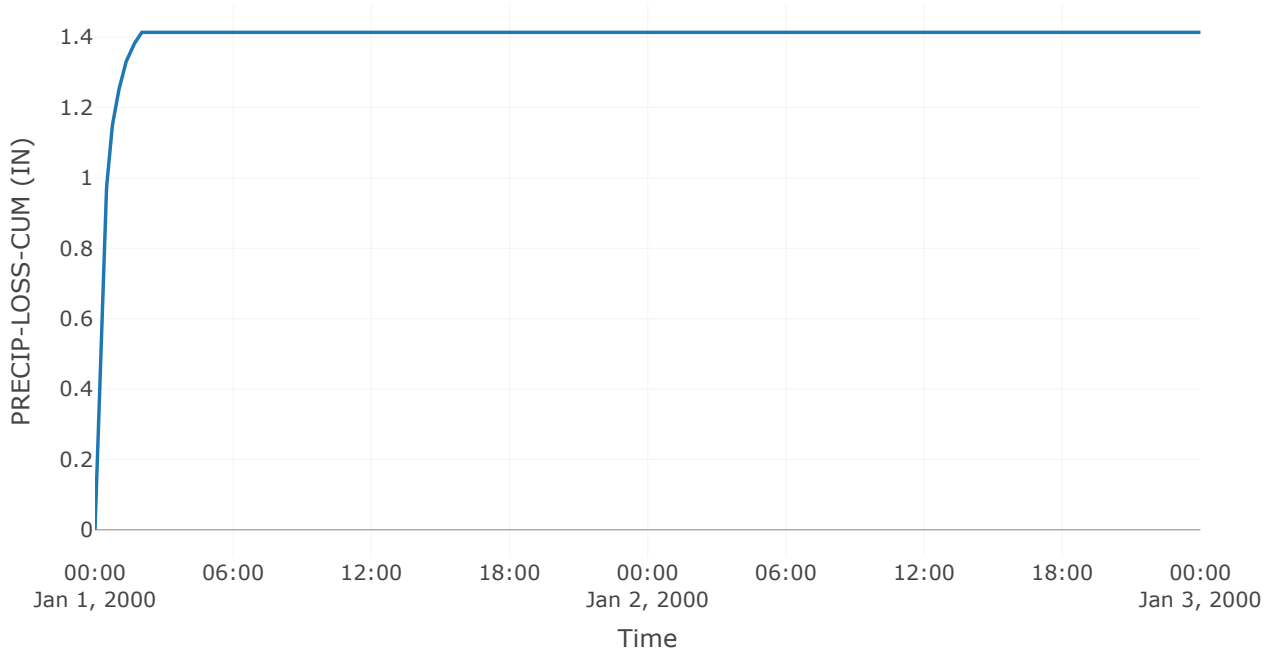
Cumulative Outflow



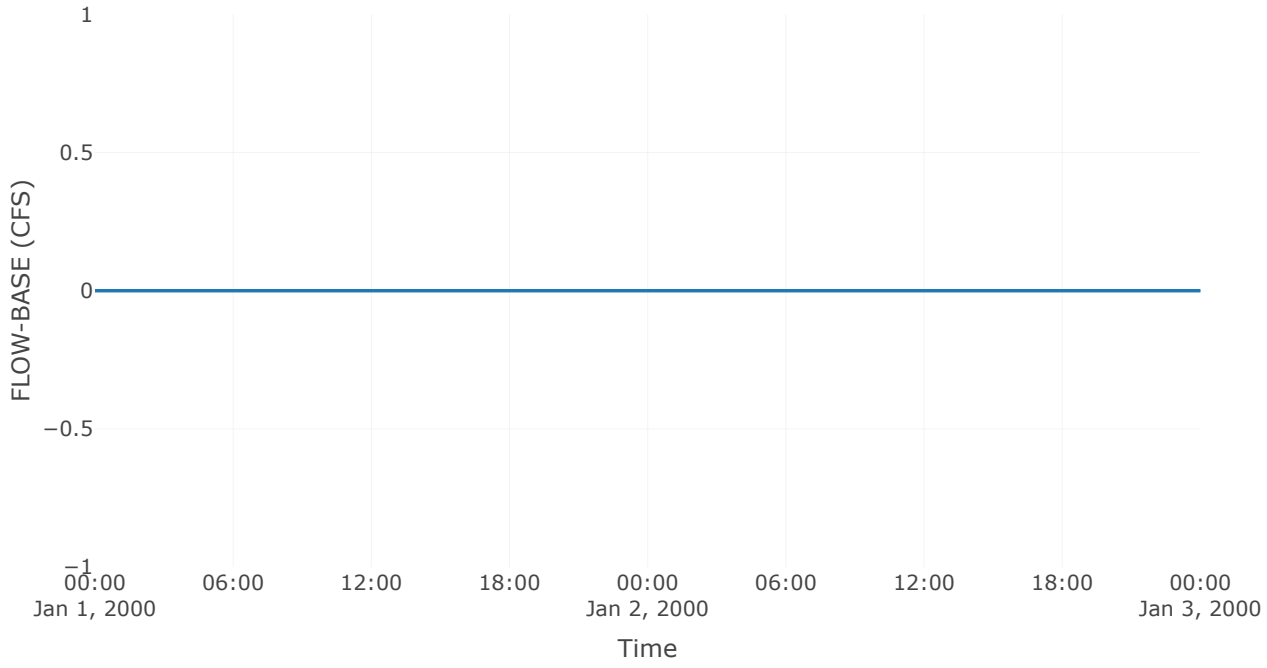
Cumulative Precipitation



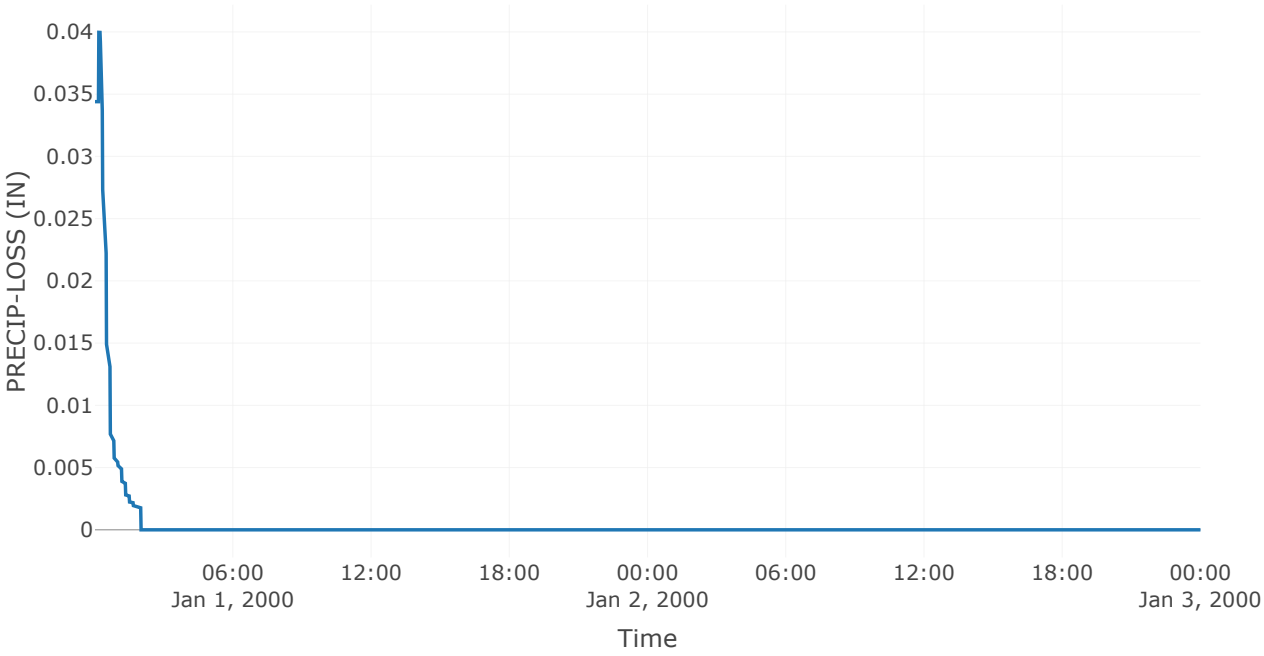
Cumulative Precipitation Loss



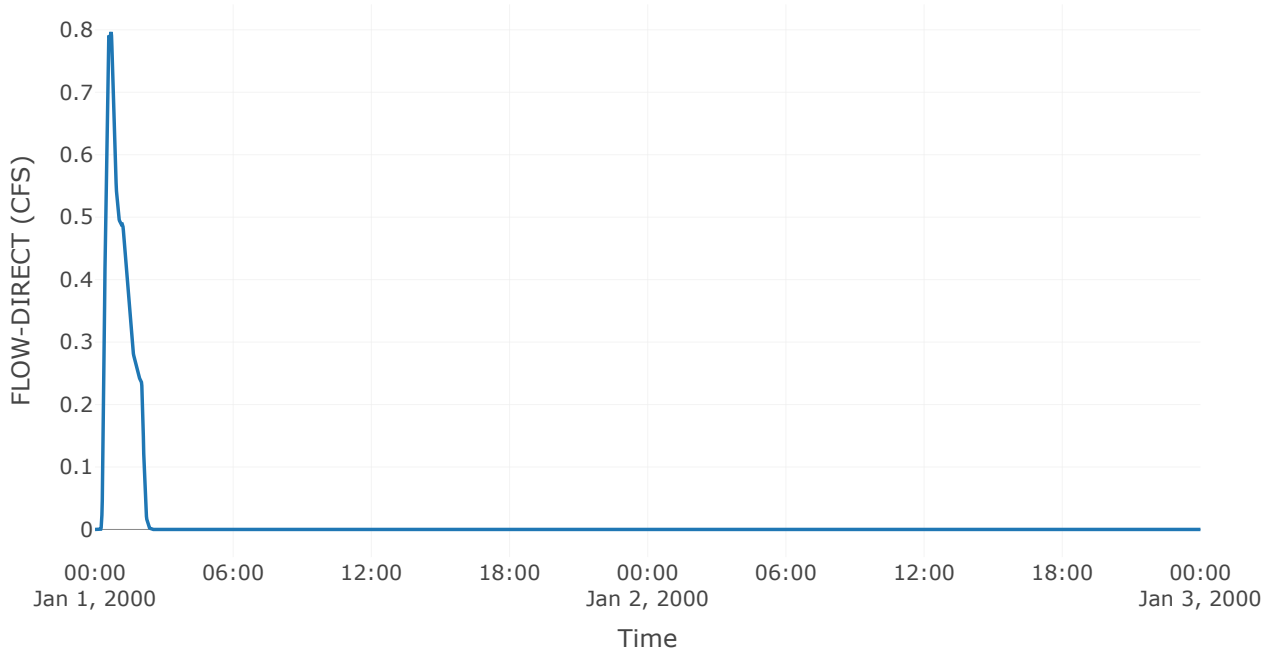
Baseflow

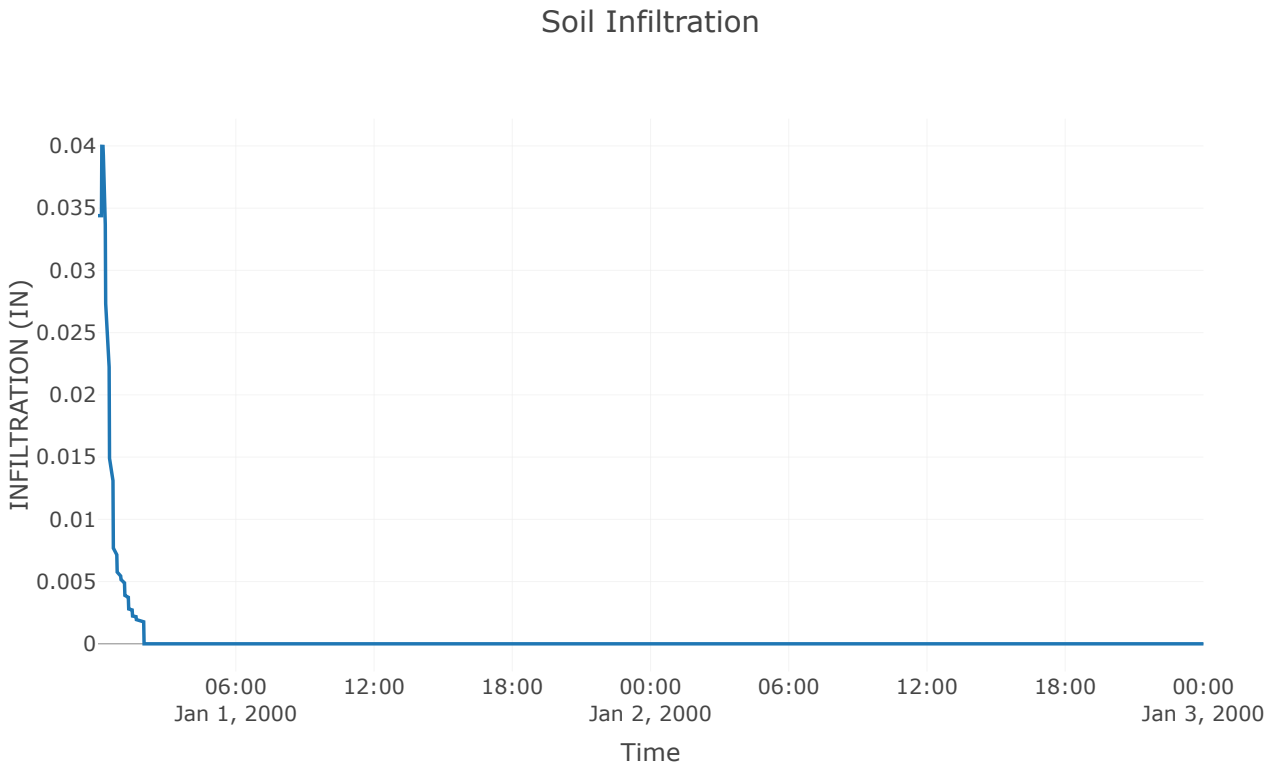


Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib 1 West

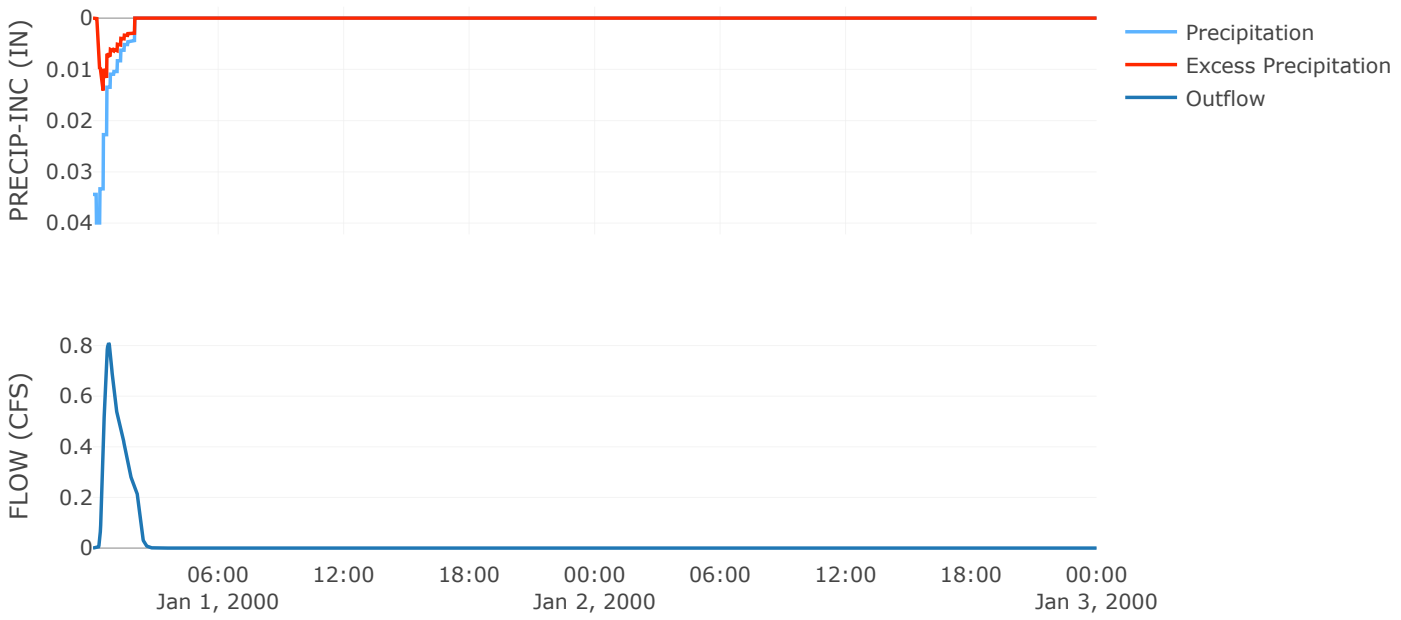
Area (MI2) : 0
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

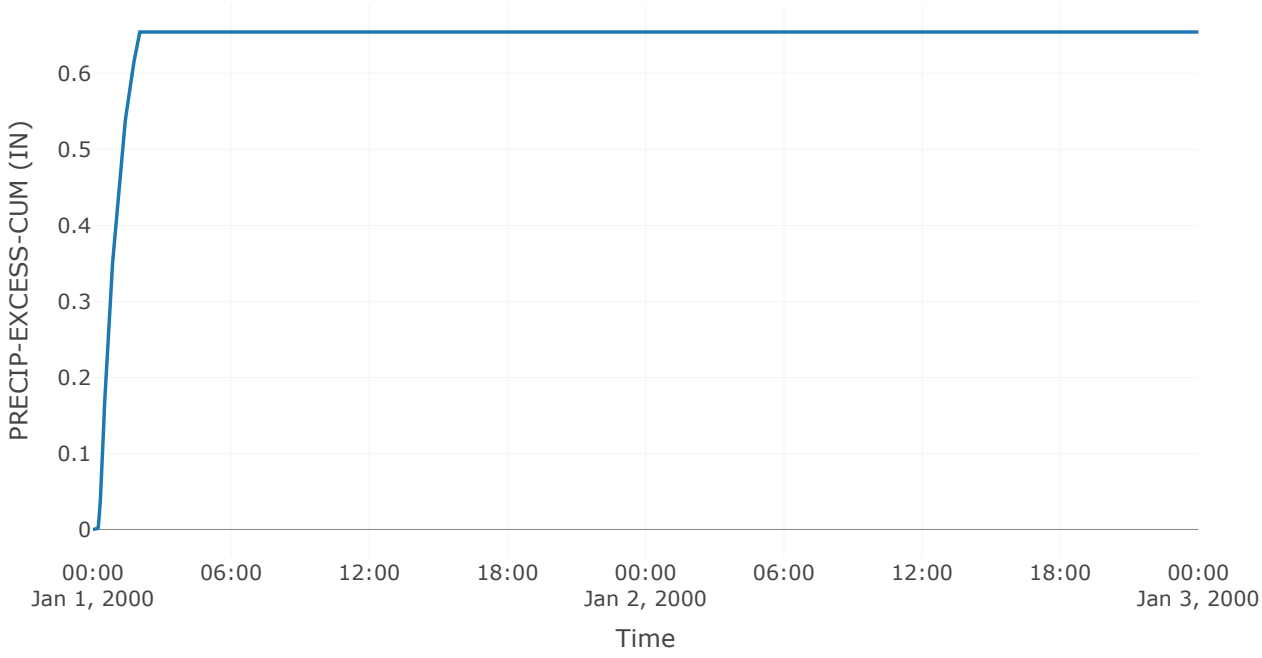
Transform: Scs	
Lag	12
Unitgraph Type	Standard

Results: Off-Site Trib 1 West	
Peak Discharge (CFS)	0.81
Time of Peak Discharge	01Jan2000, 00:45
Volume (IN)	0.65
Precipitation Volume (AC - FT)	0.21
Loss Volume (AC - FT)	0.14
Excess Volume (AC - FT)	0.07
Direct Runoff Volume (AC - FT)	0.07
Baseflow Volume (AC - FT)	0

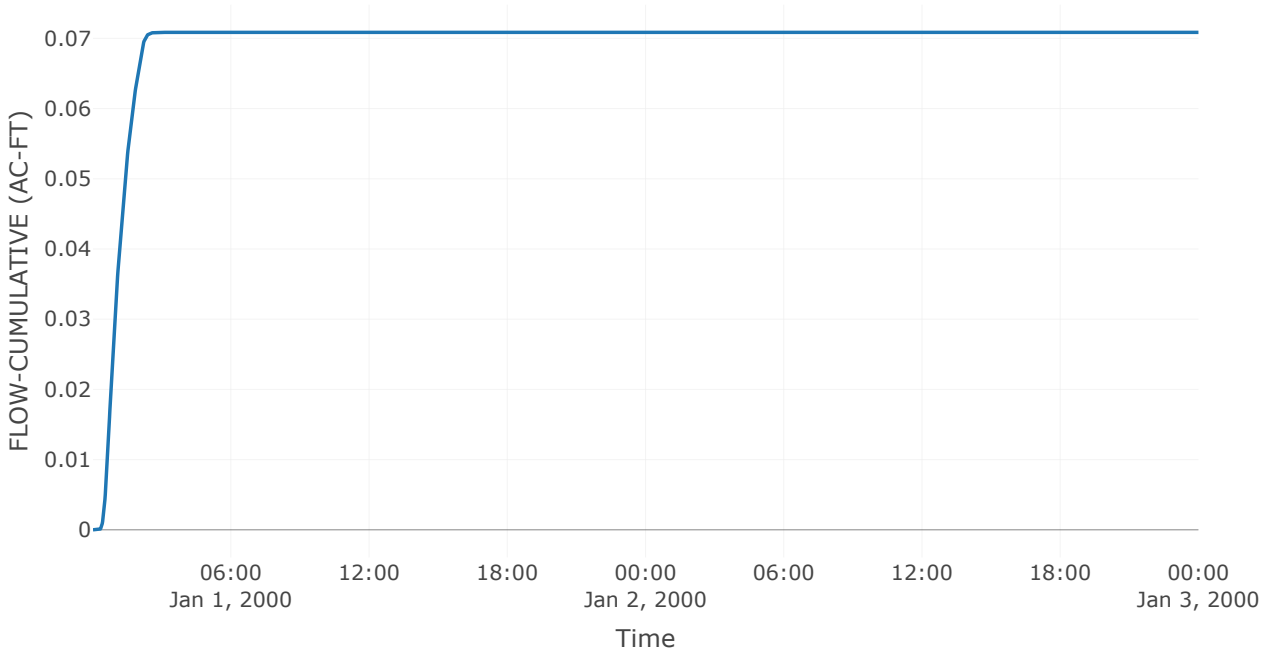
Precipitation and Outflow



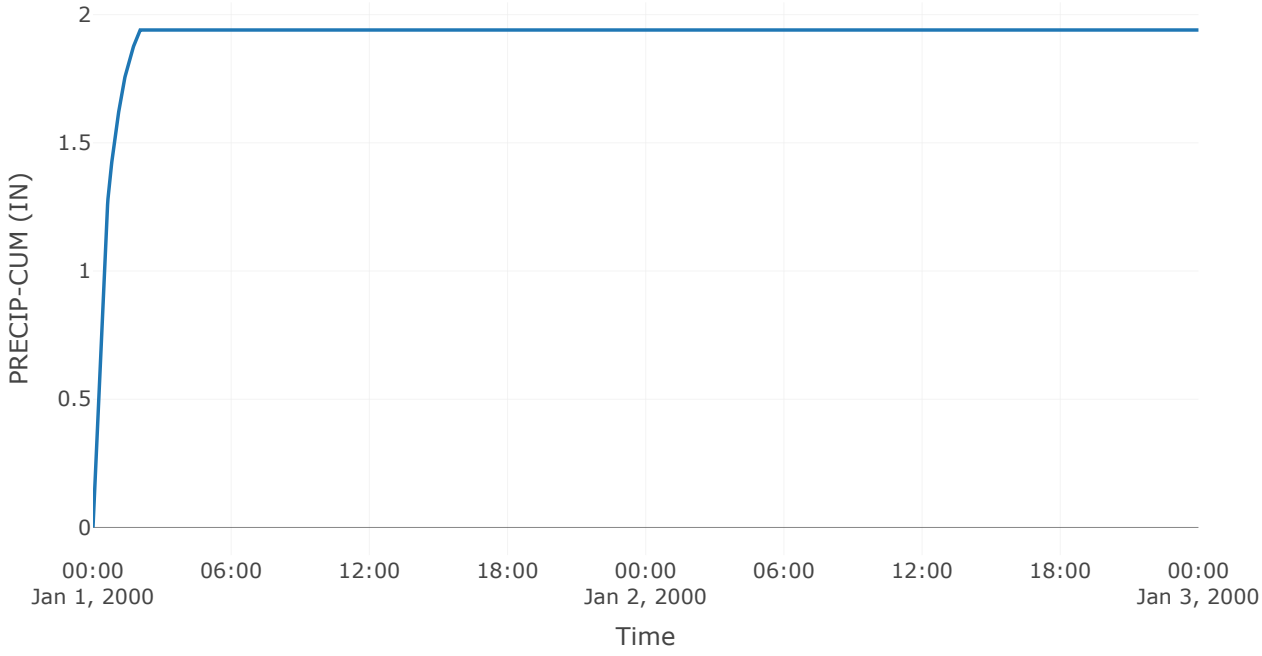
Cumulative Excess Precipitation

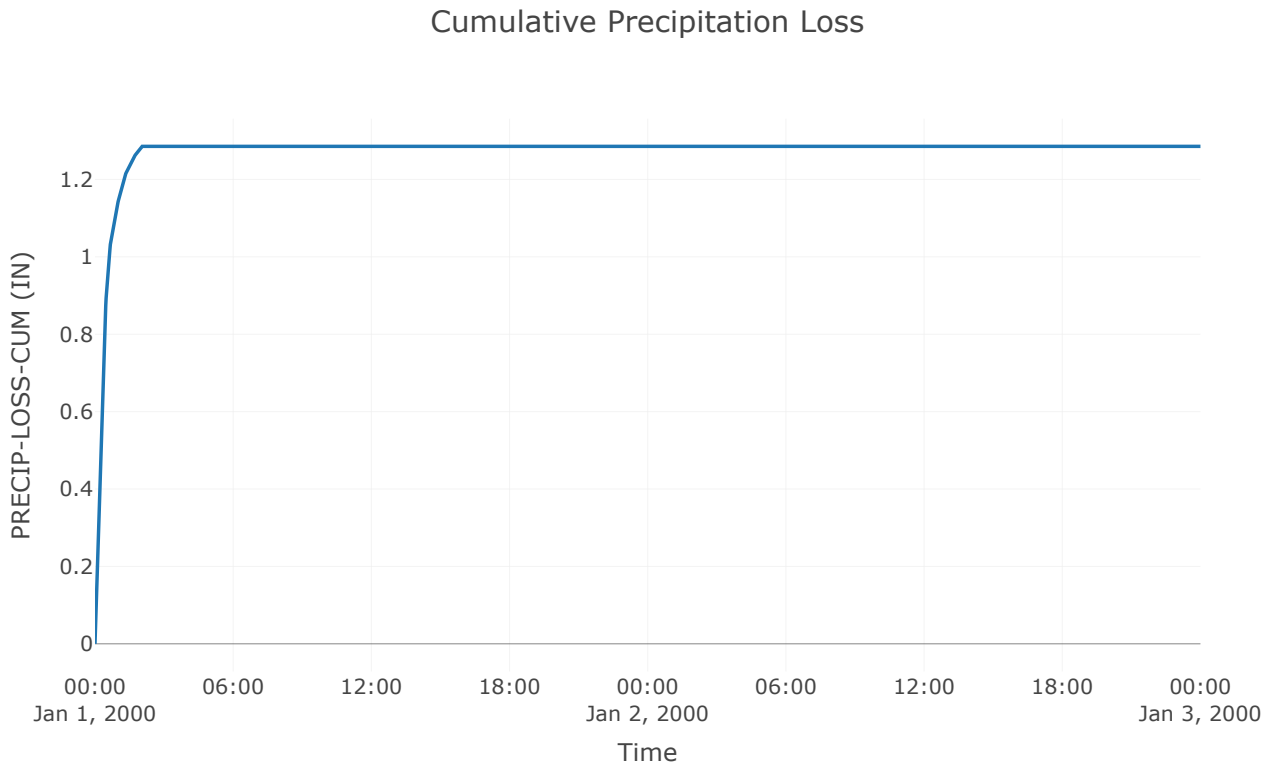


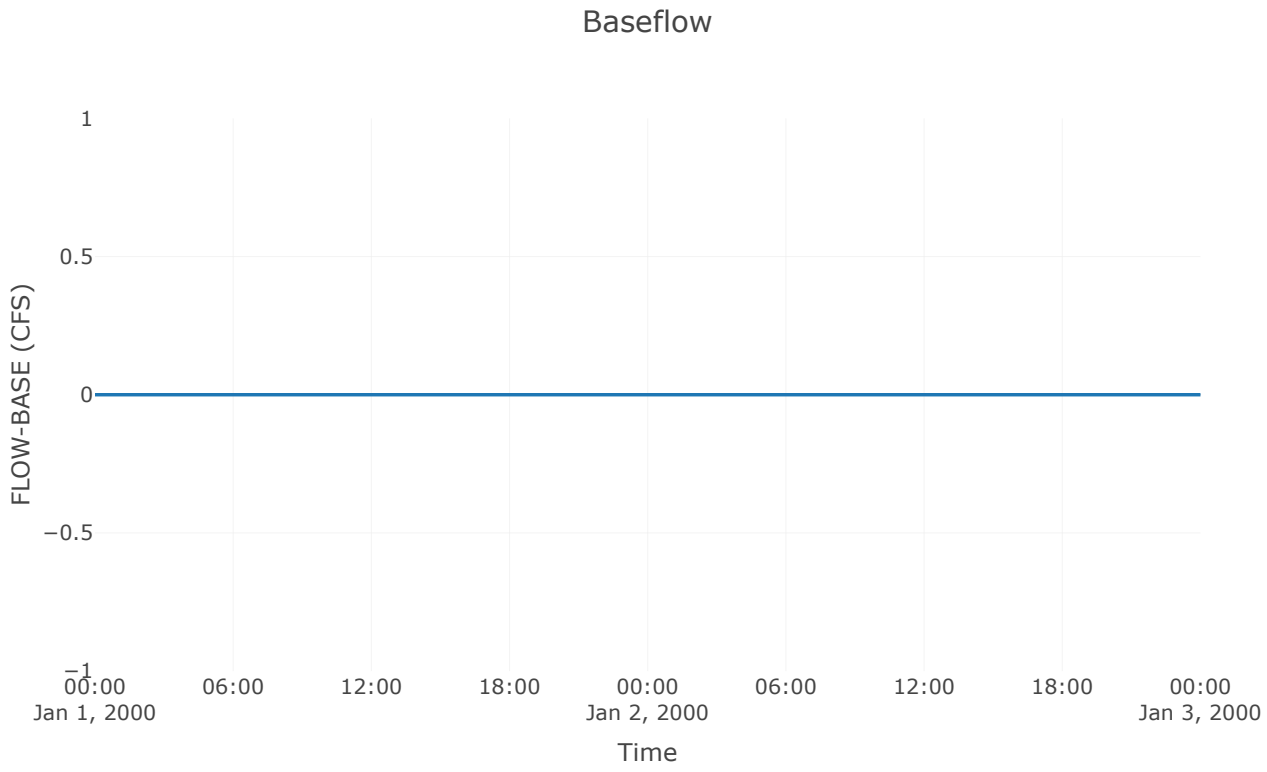
Cumulative Outflow



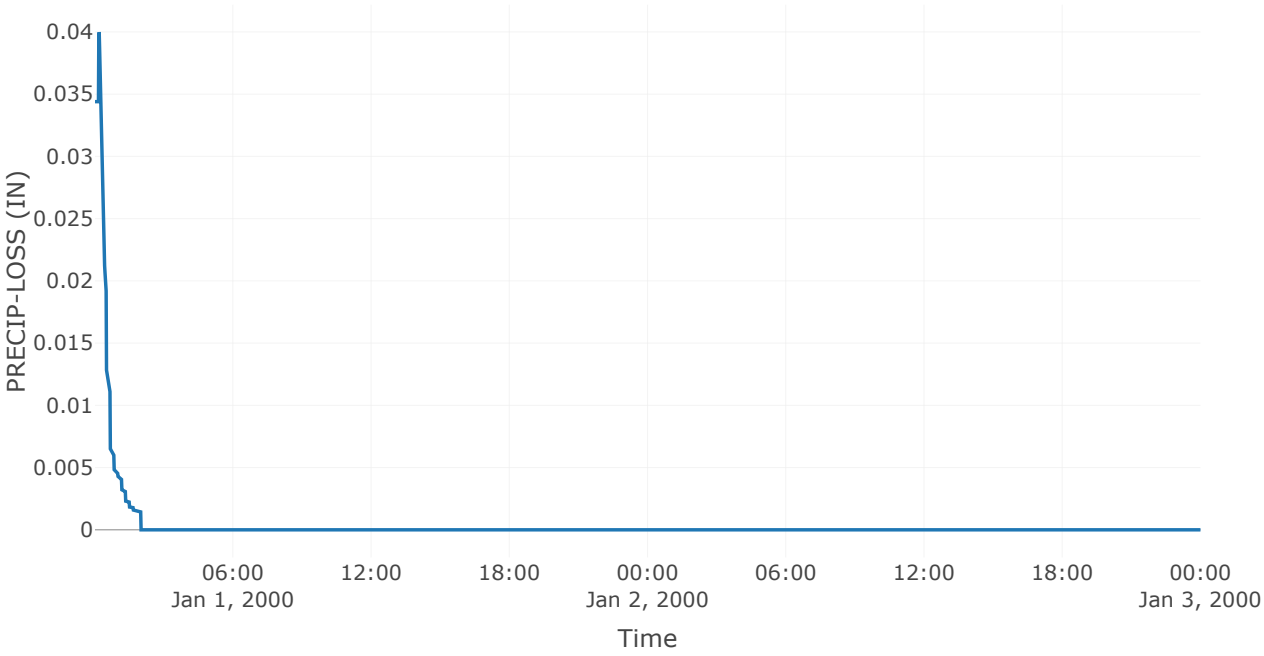
Cumulative Precipitation



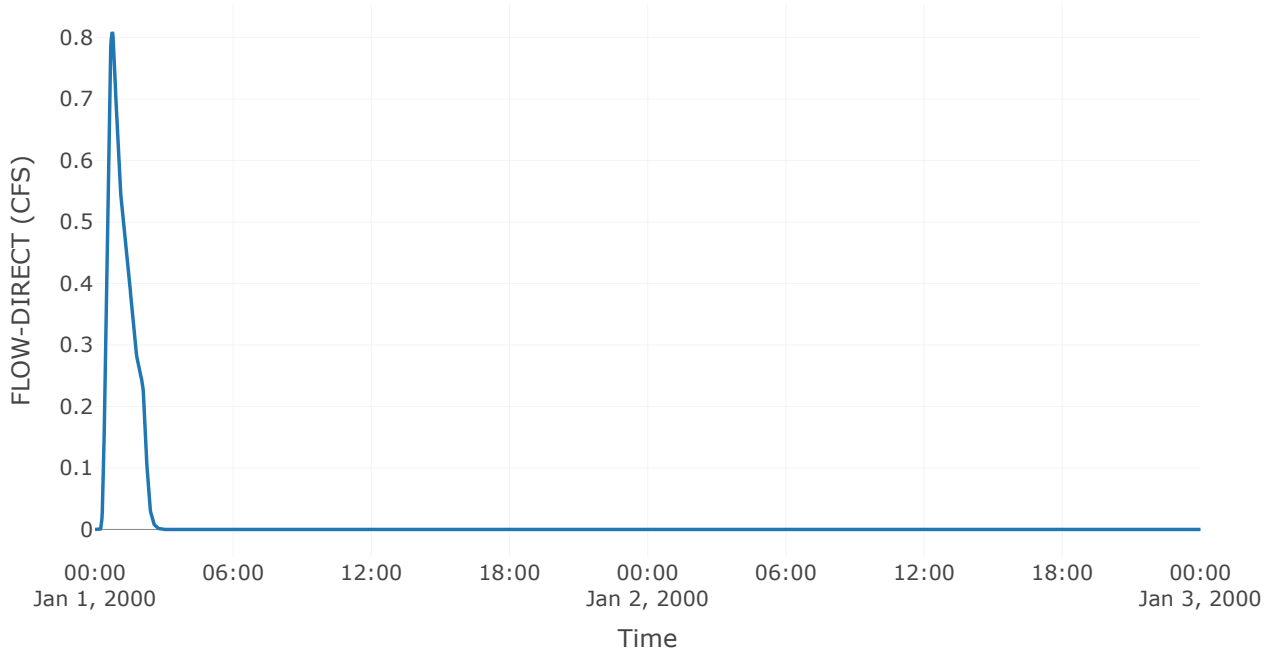

Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

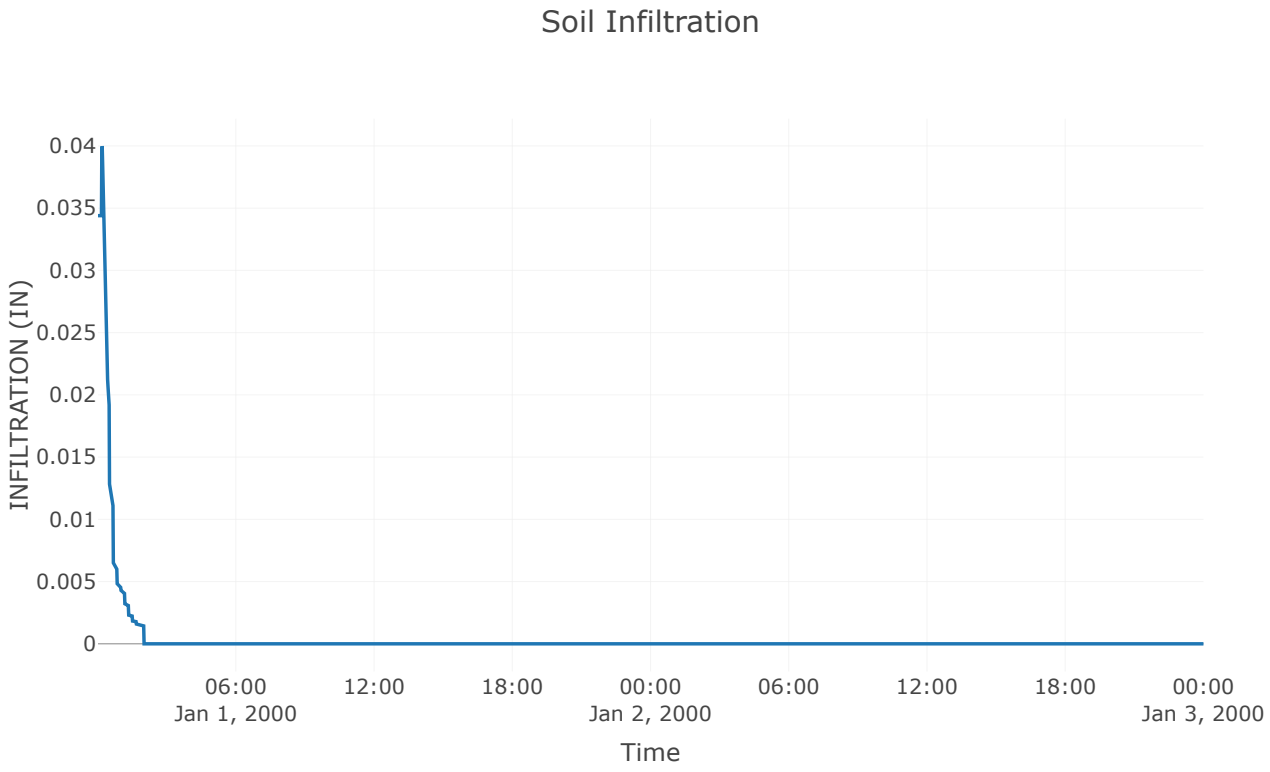

Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Precipitation Loss



Direct Runoff



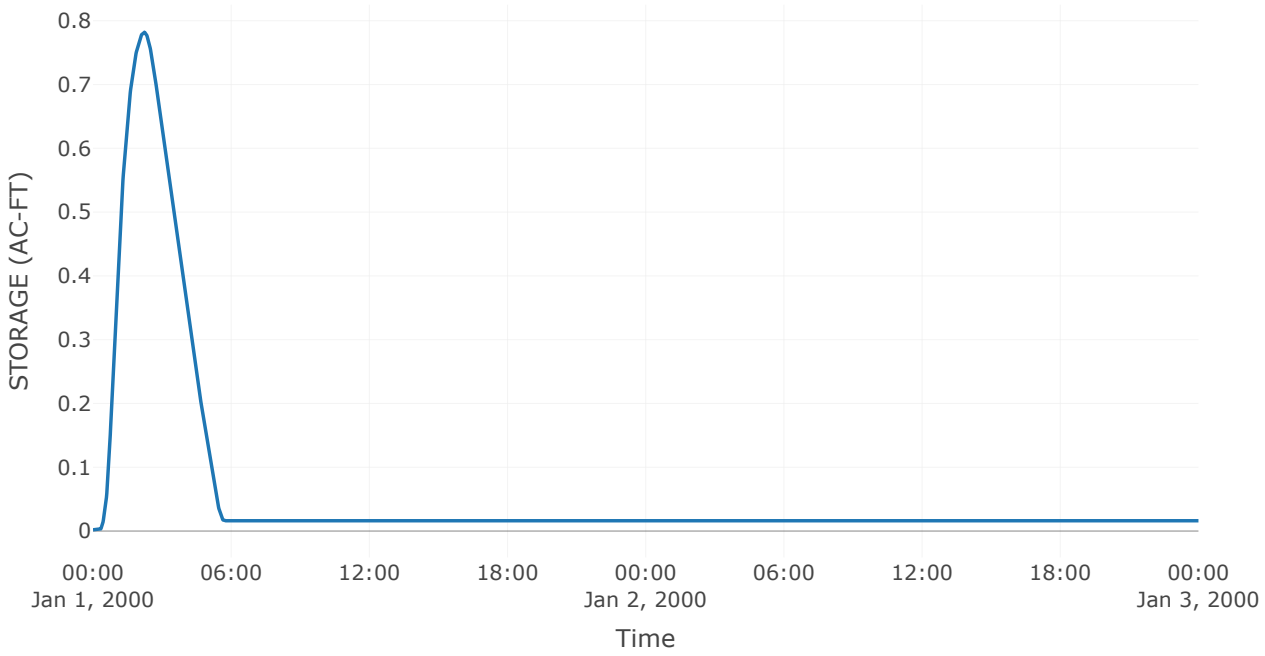

Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 1

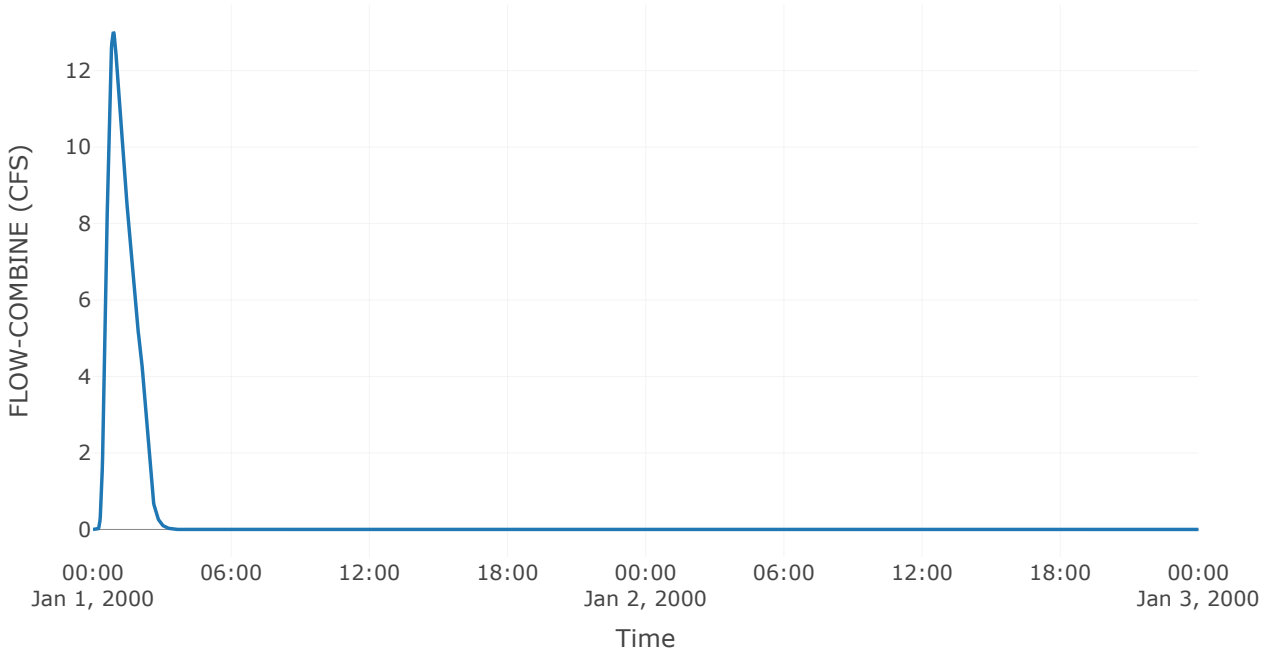
Downstream : Basin 2

Results: Basin 1	
Peak Discharge (CFS)	3.6
Time of Peak Discharge	01Jan2000, 02:13
Volume (IN)	0.77
Peak Inflow (CFS)	13.01
Time of Peak Inflow	01Jan2000, 00:53
Inflow Volume (AC - FT)	1.32
Maximum Storage (AC - FT)	0.78
Peak Elevation (FT)	695.44
Discharge Volume (AC - FT)	1.3

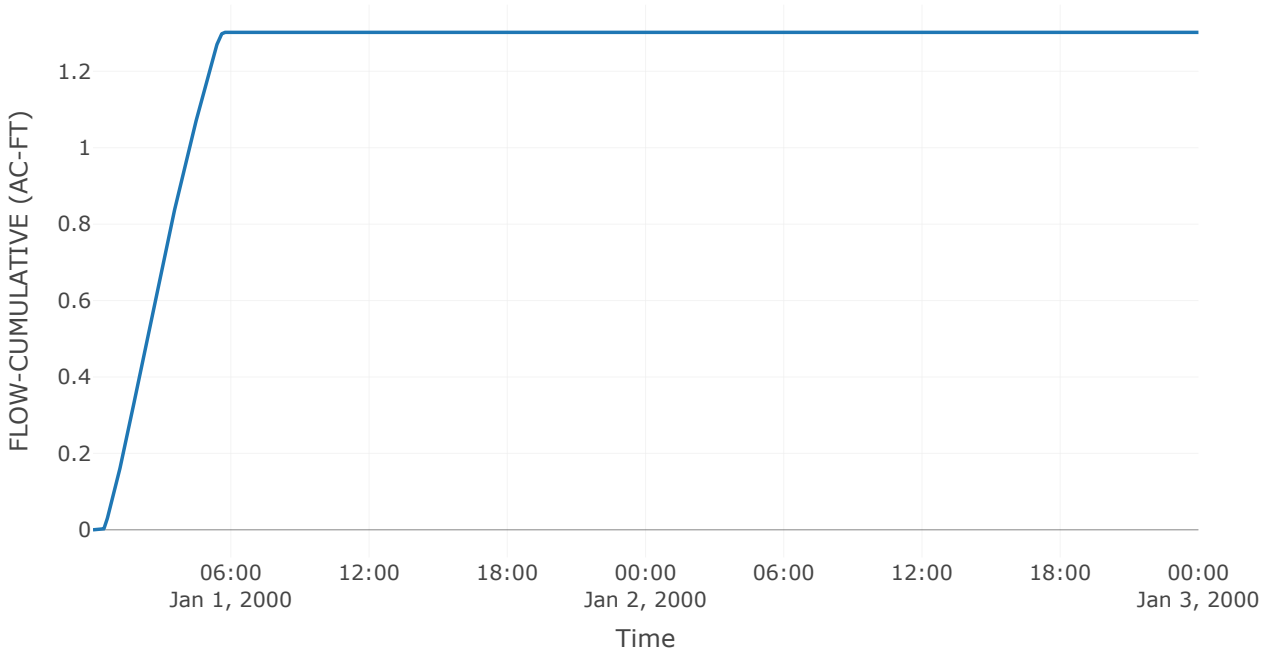
Storage



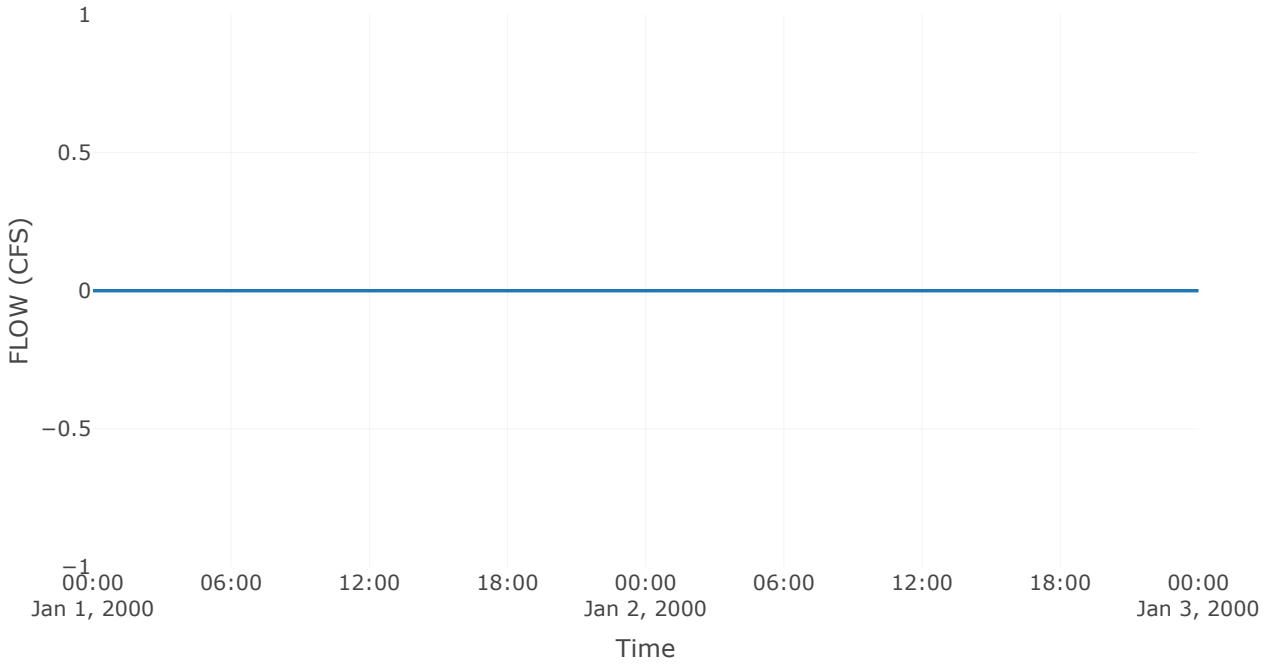
Combined Inflow



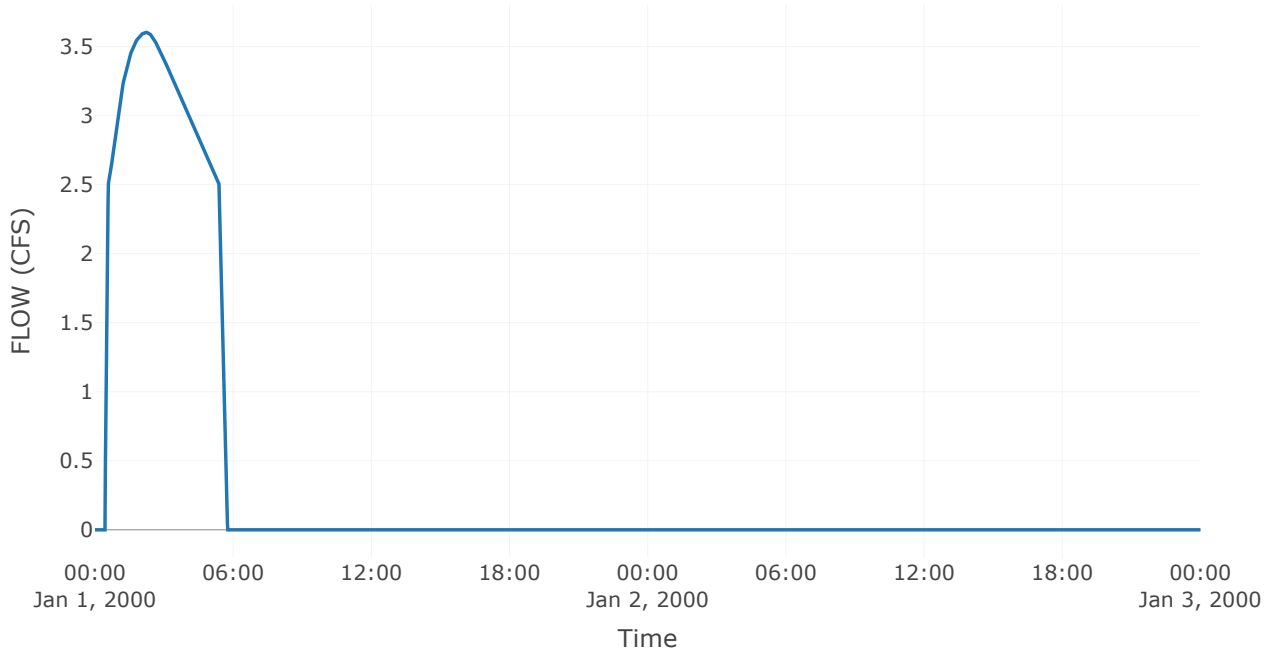
Cumulative Outflow



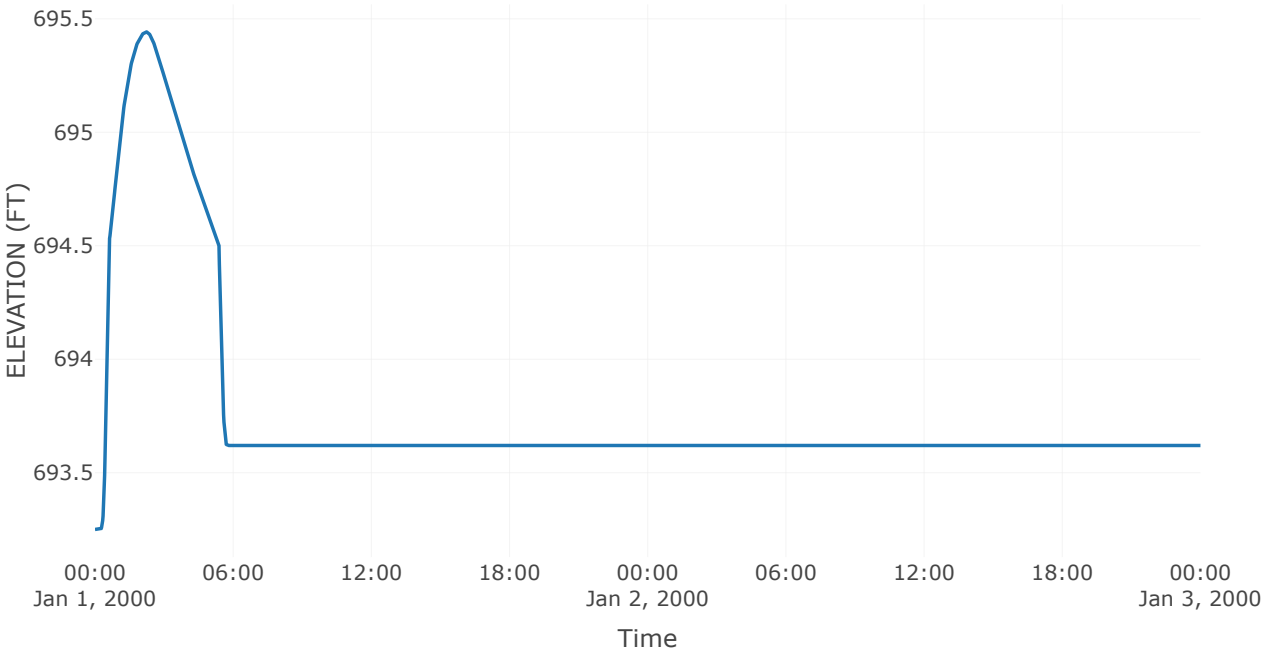
Spillway 1

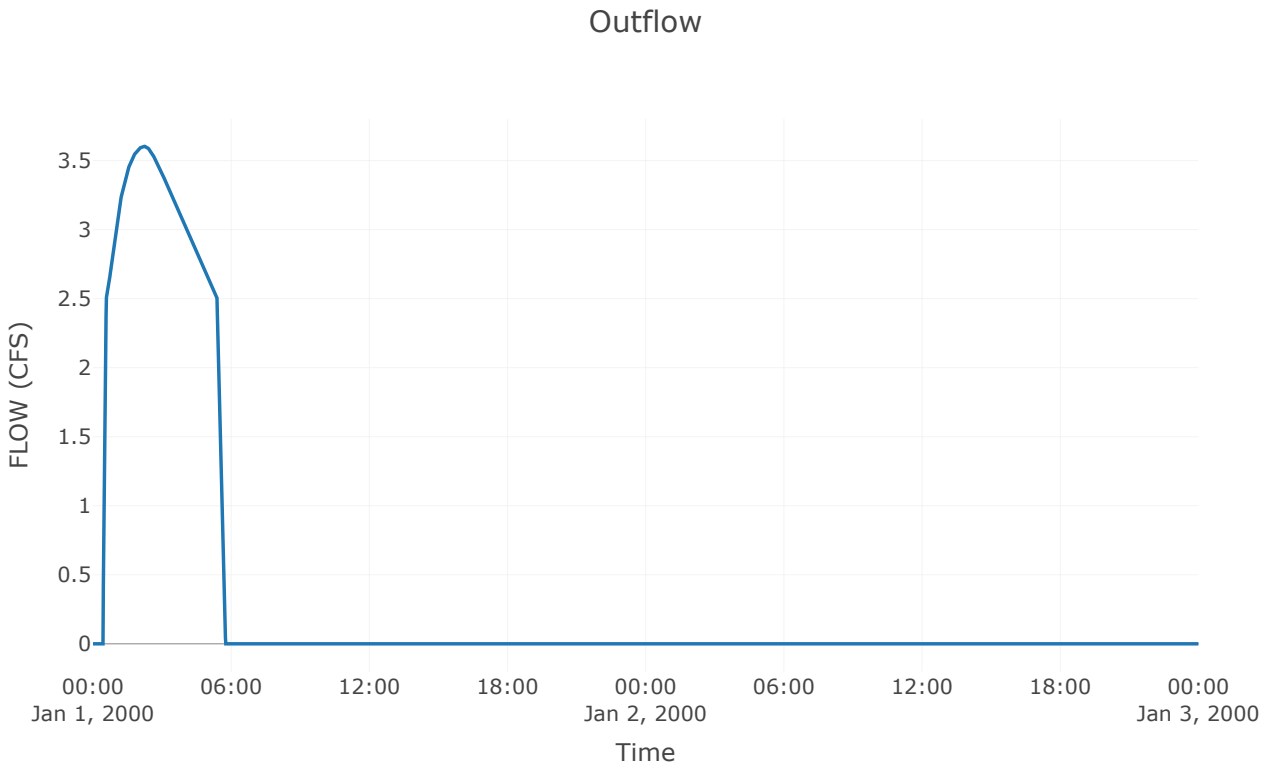


Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
3.5
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: On-Site Trib 2

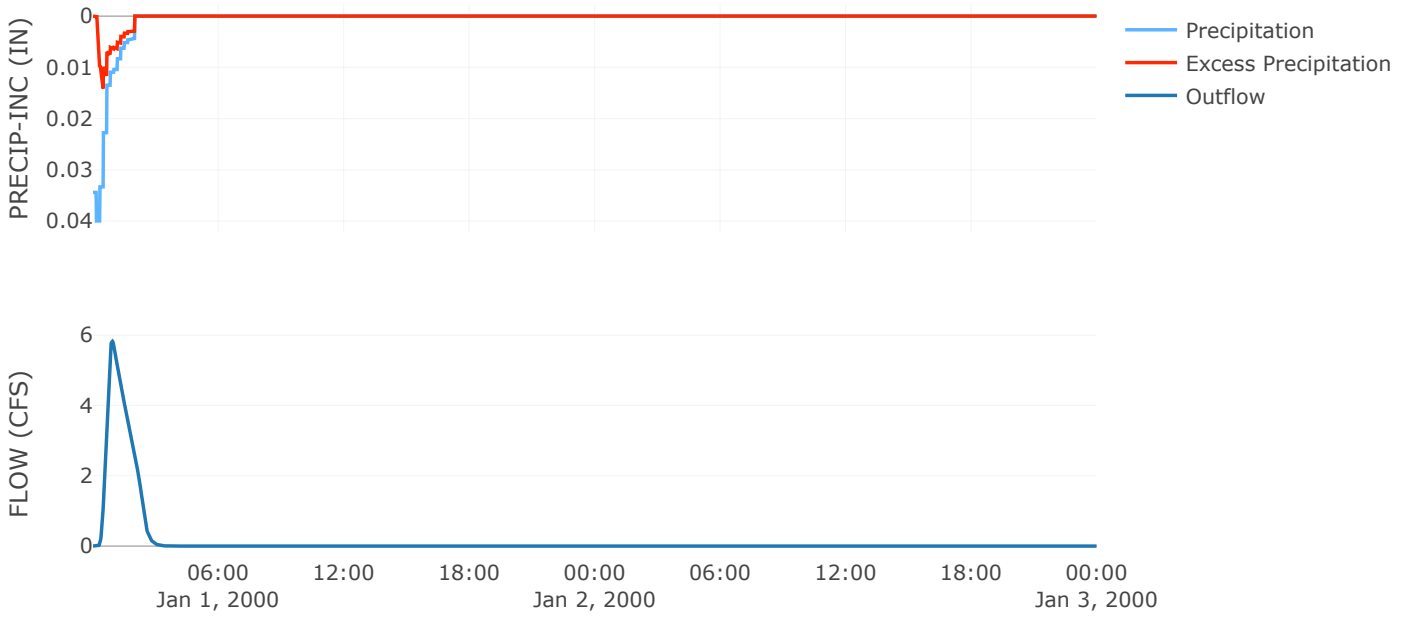
Area (MI2) : 0.02
Downstream : Basin 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

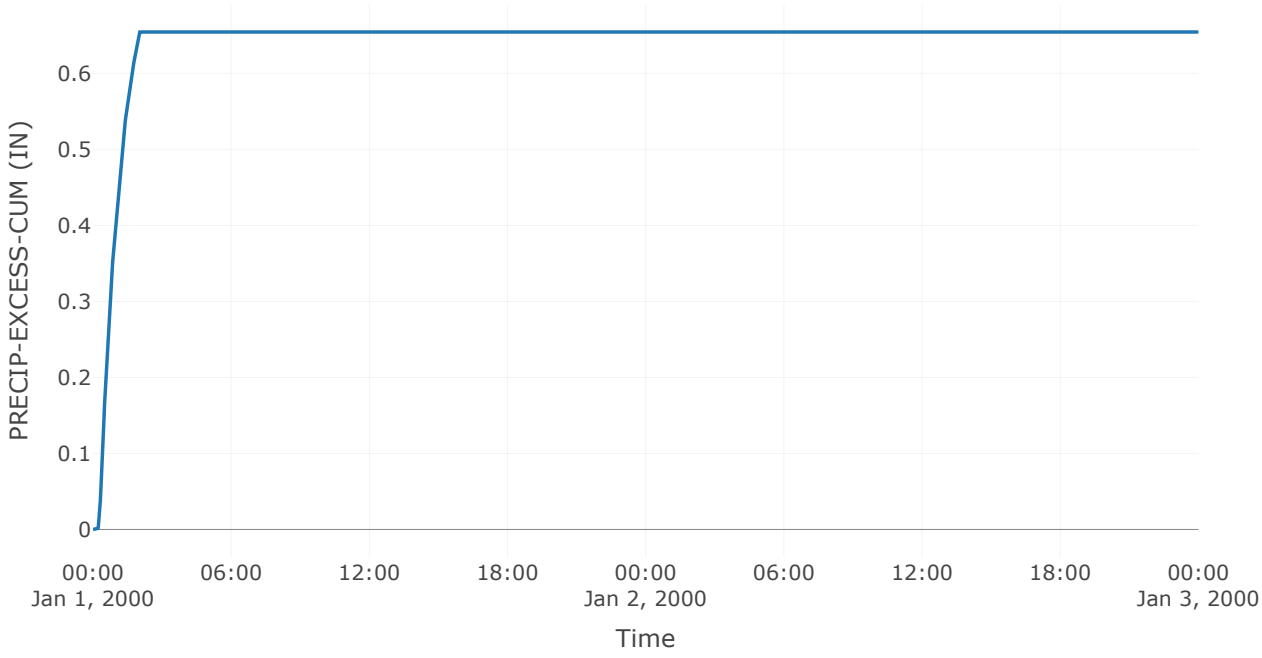
Transform: Scs	
Lag	20.4
Unitgraph Type	Standard

Results: On-Site Trib 2	
Peak Discharge (CFS)	5.83
Time of Peak Discharge	01Jan2000, 00:55
Volume (IN)	0.65
Precipitation Volume (AC - FT)	1.78
Loss Volume (AC - FT)	1.18
Excess Volume (AC - FT)	0.6
Direct Runoff Volume (AC - FT)	0.6
Baseflow Volume (AC - FT)	0

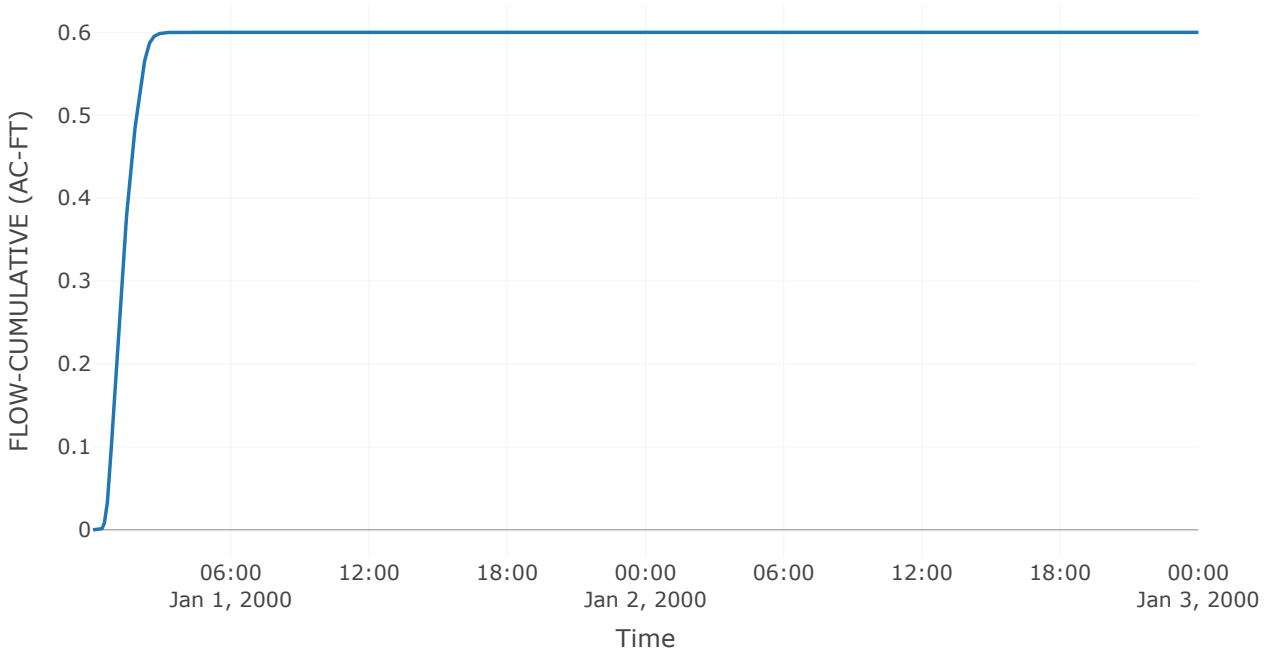
Precipitation and Outflow



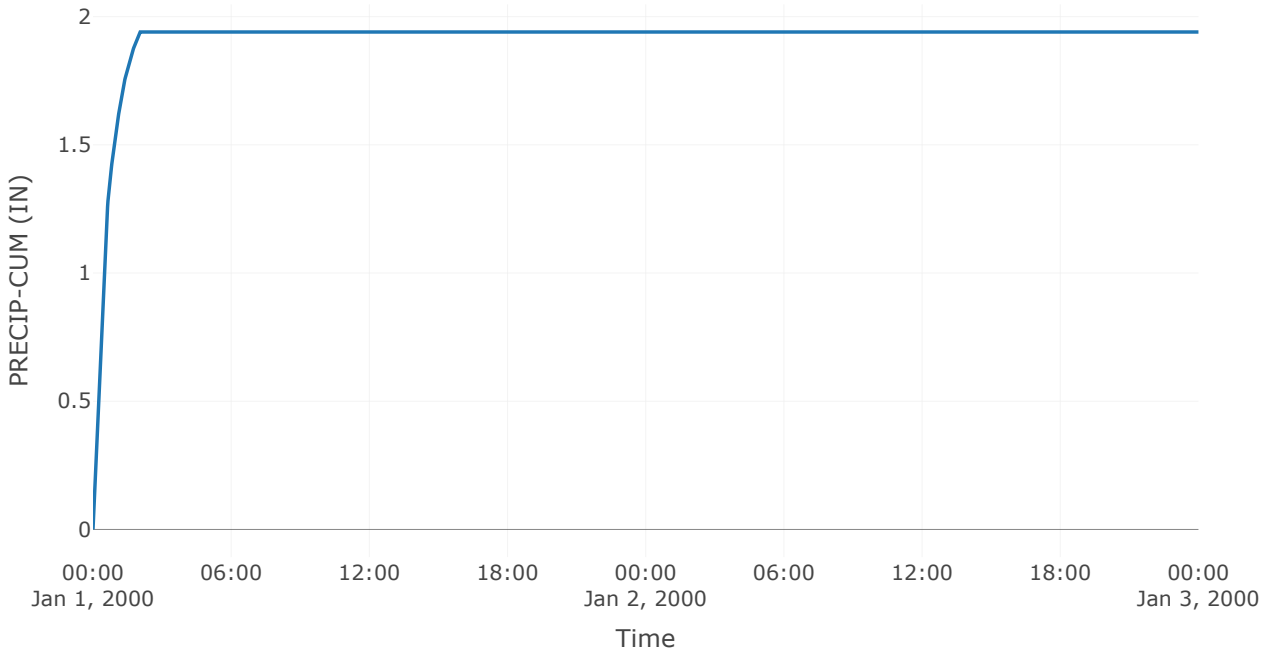
Cumulative Excess Precipitation



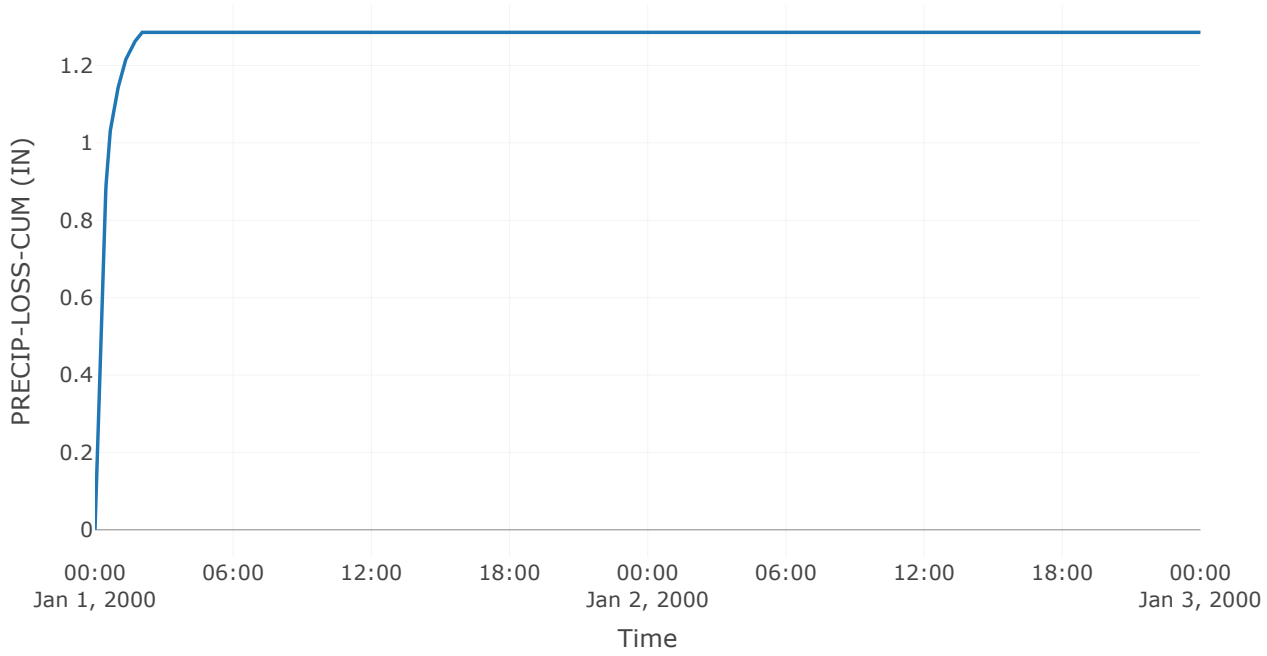
Cumulative Outflow



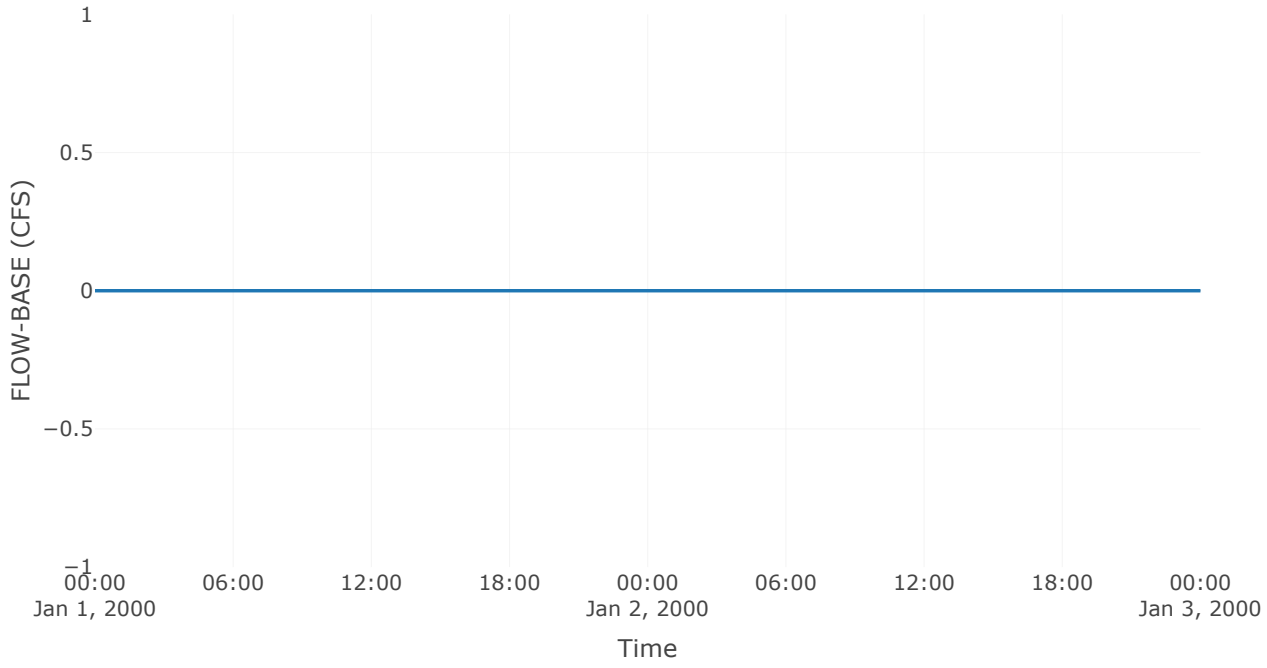
Cumulative Precipitation



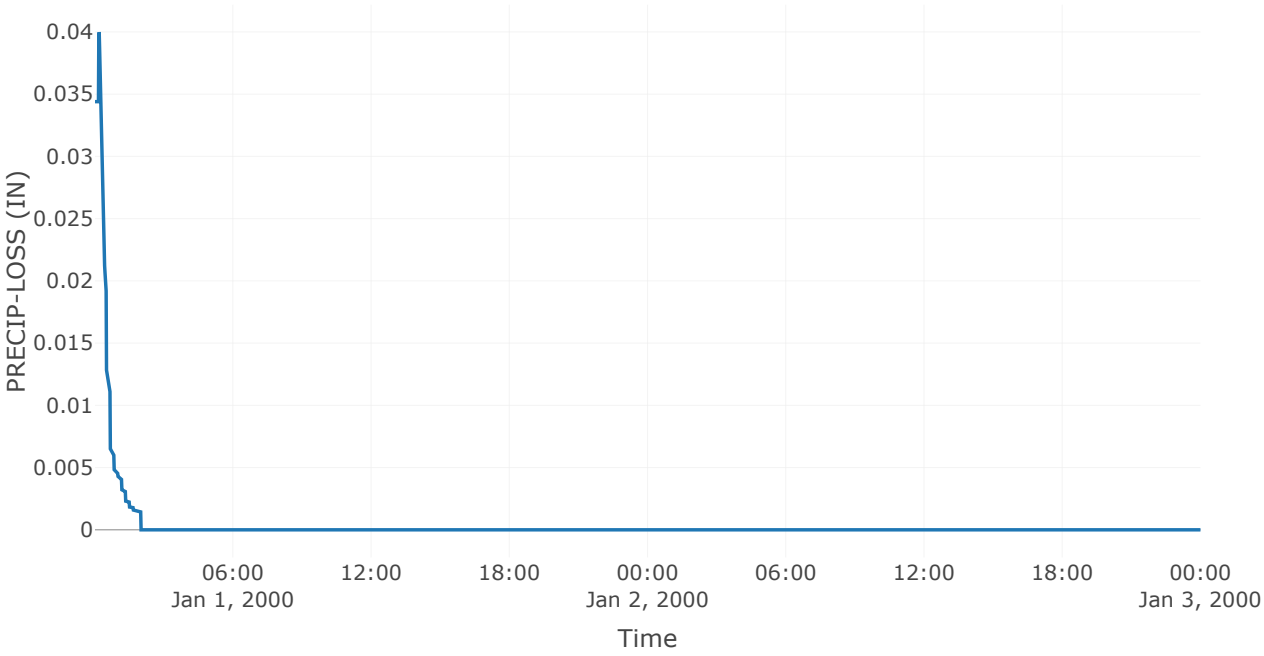
Cumulative Precipitation Loss



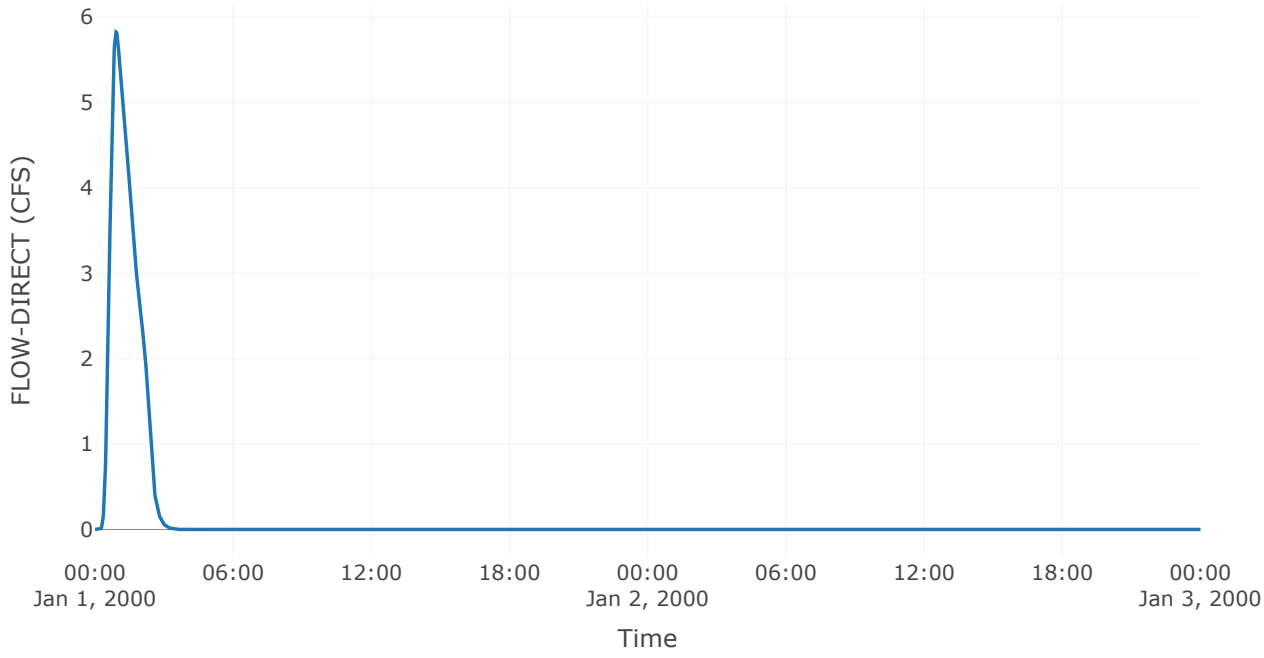
Baseflow

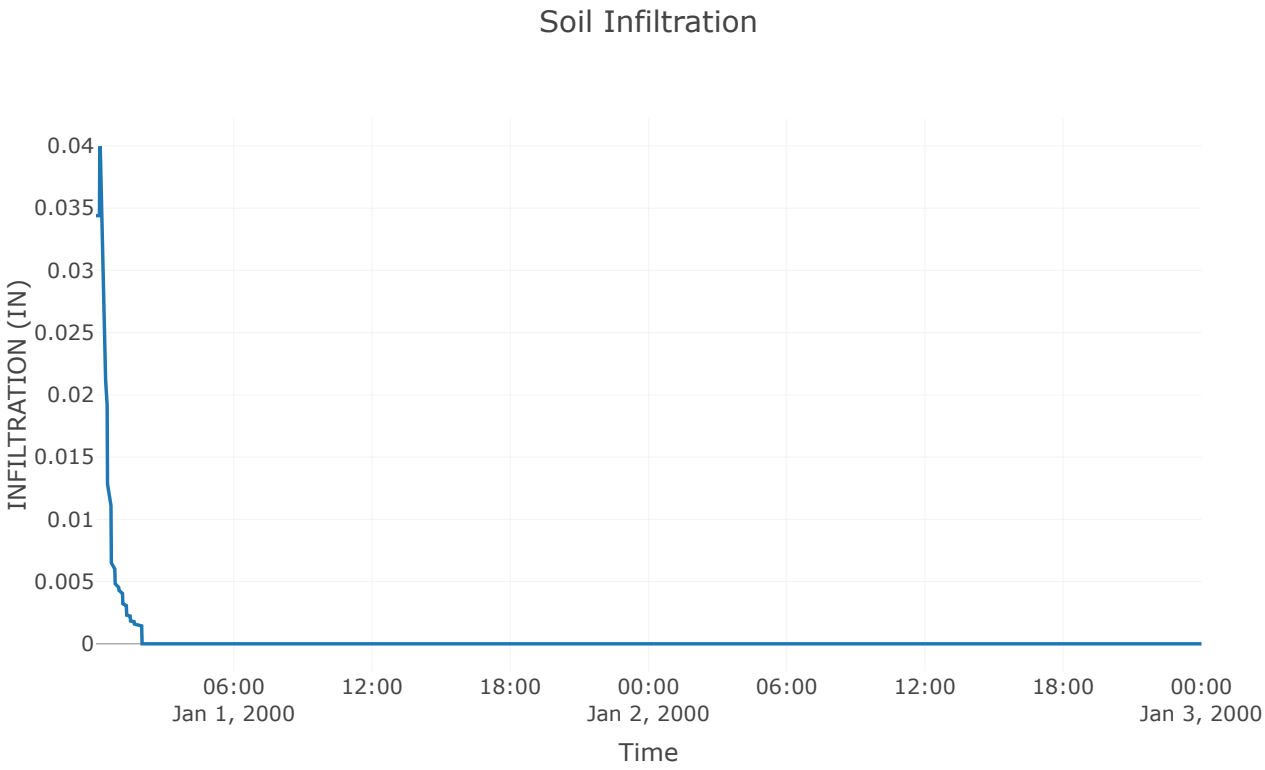


Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib2

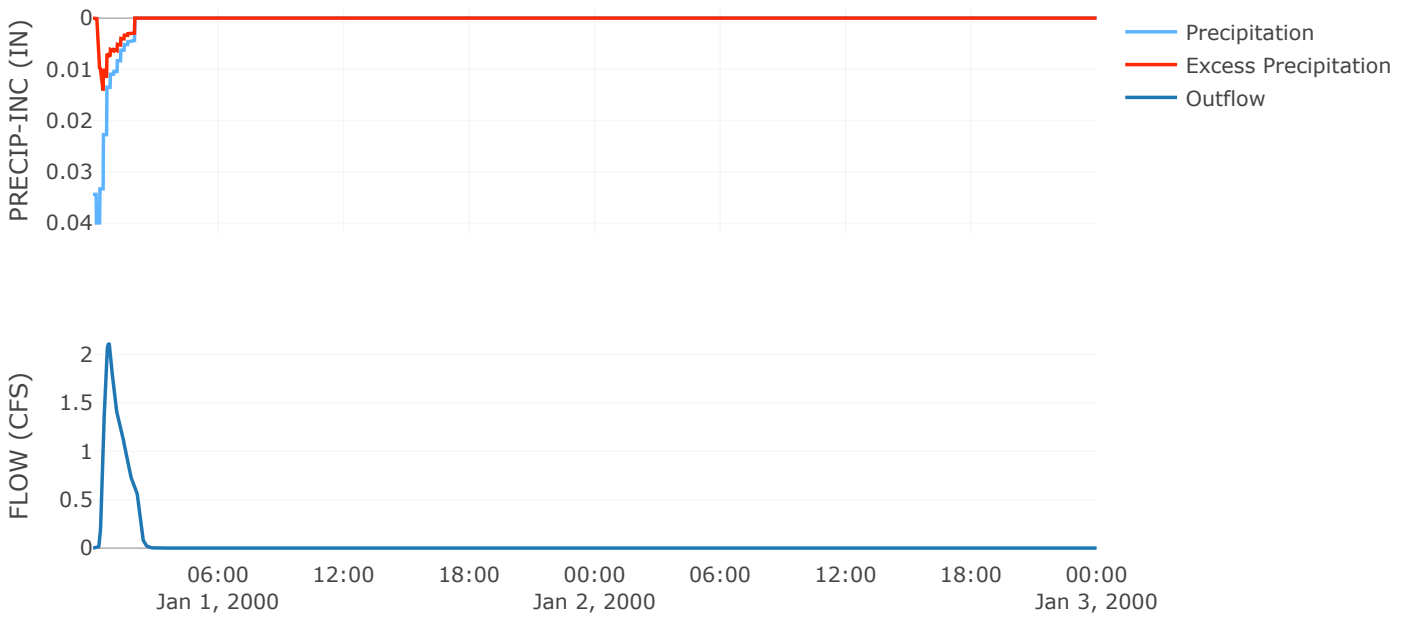
Area (MI2) : 0.01
Downstream : Basin 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

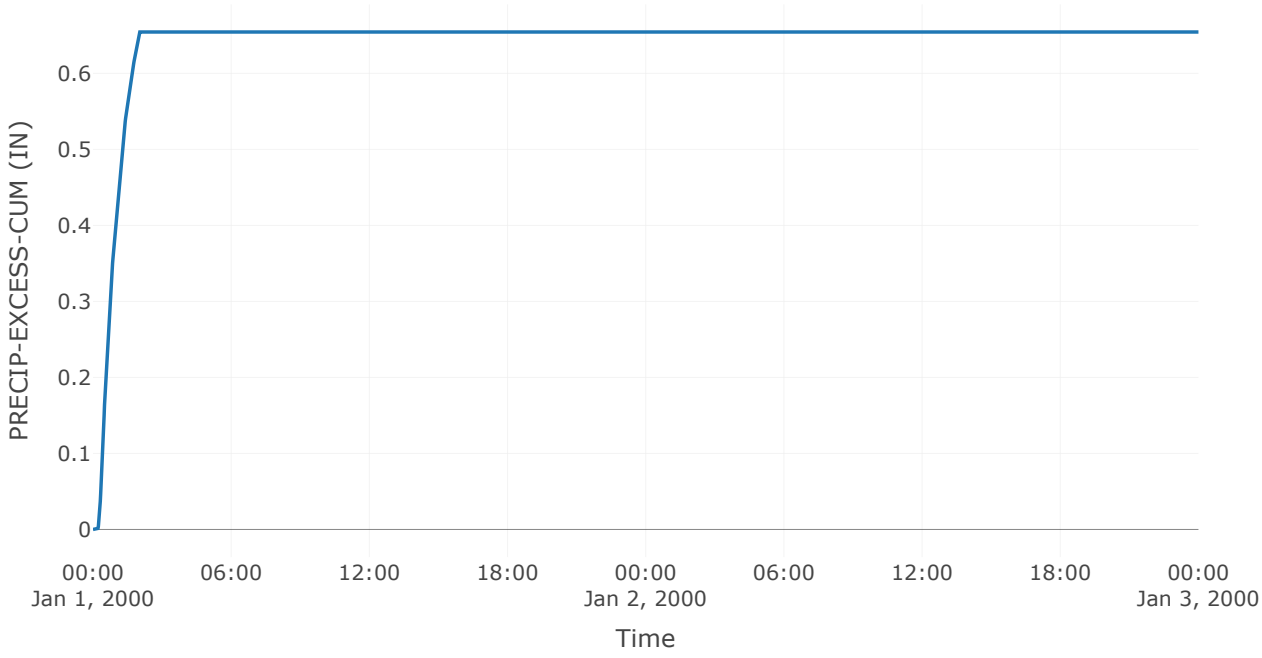
Transform: Scs	
Lag	12
Unitgraph Type	Standard

Results: Off-Site Trib2	
Peak Discharge (CFS)	2.12
Time of Peak Discharge	01Jan2000, 00:45
Volume (IN)	0.65
Precipitation Volume (AC - FT)	0.55
Loss Volume (AC - FT)	0.36
Excess Volume (AC - FT)	0.19
Direct Runoff Volume (AC - FT)	0.19
Baseflow Volume (AC - FT)	0

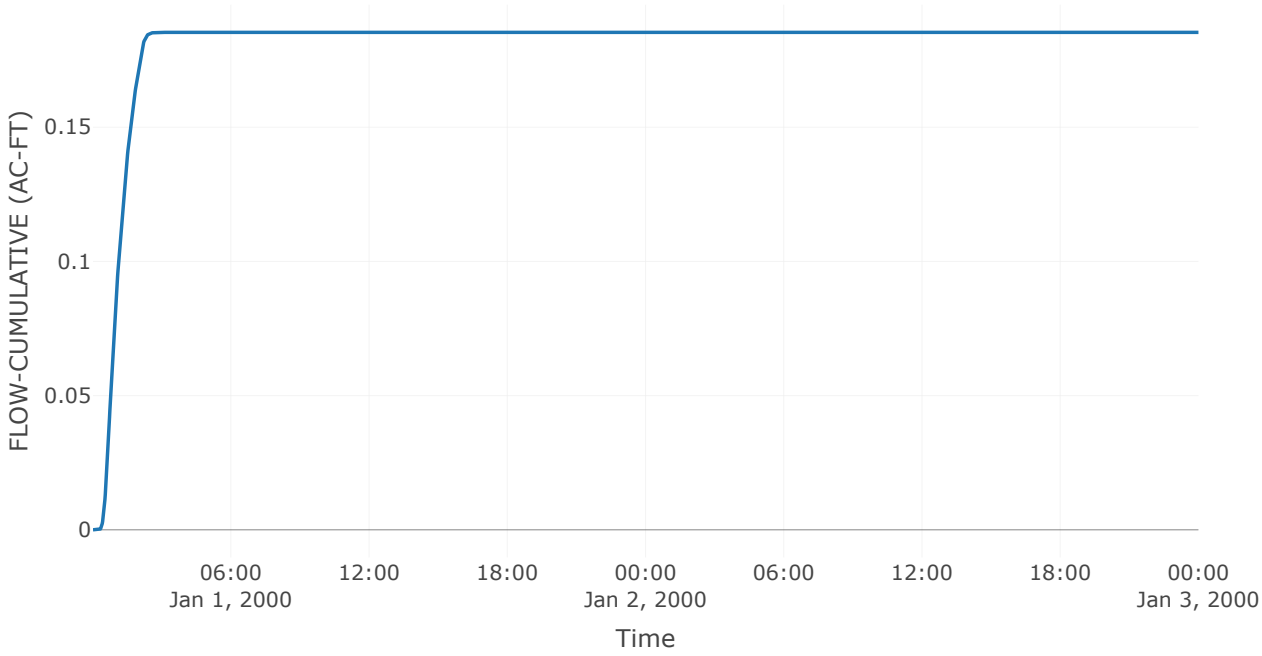
Precipitation and Outflow



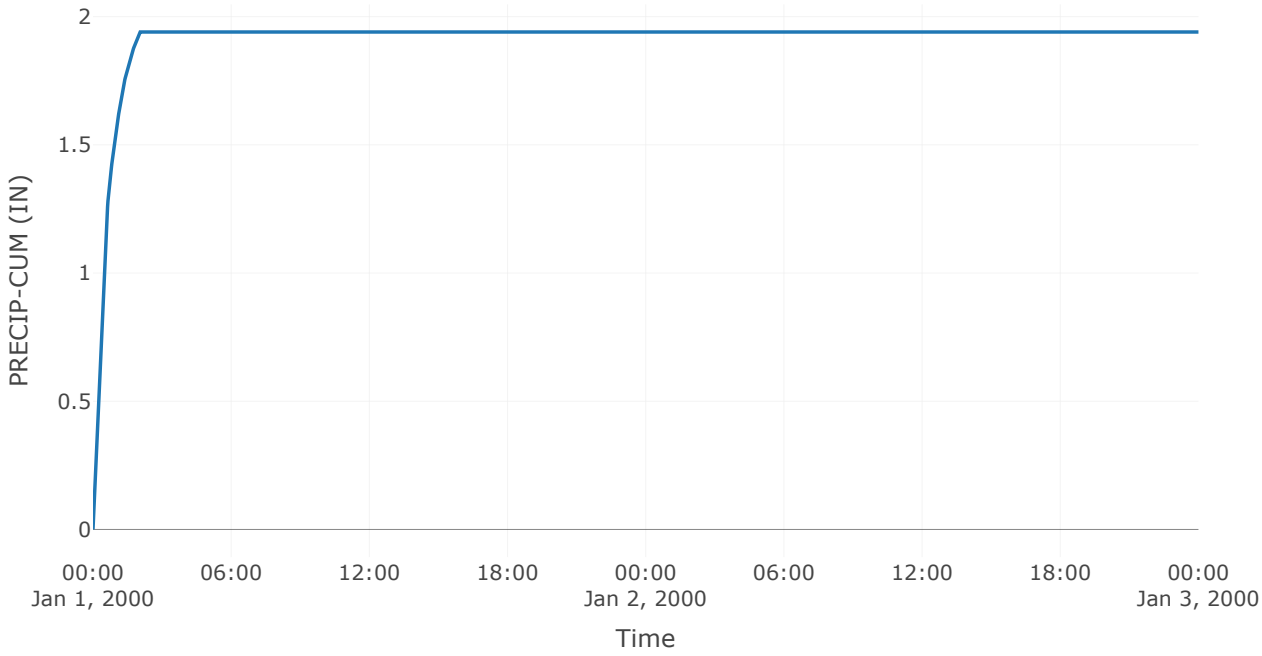
Cumulative Excess Precipitation

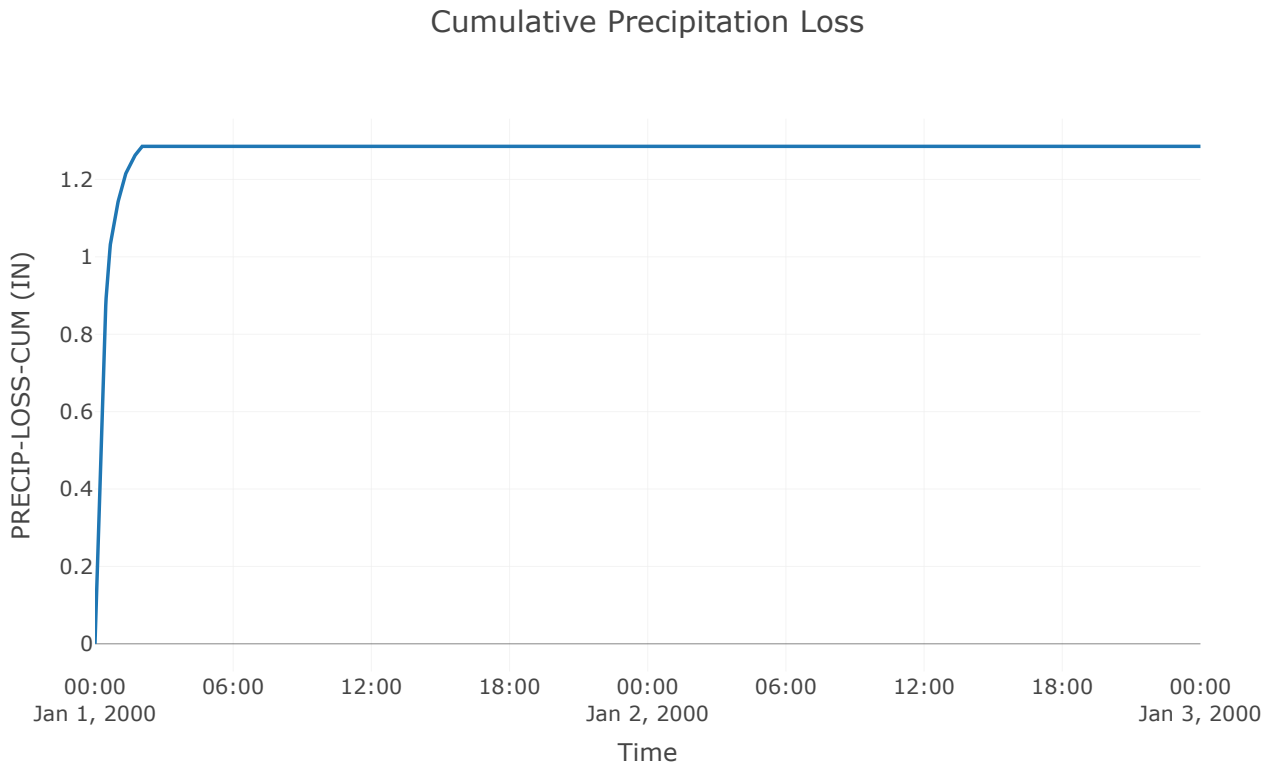


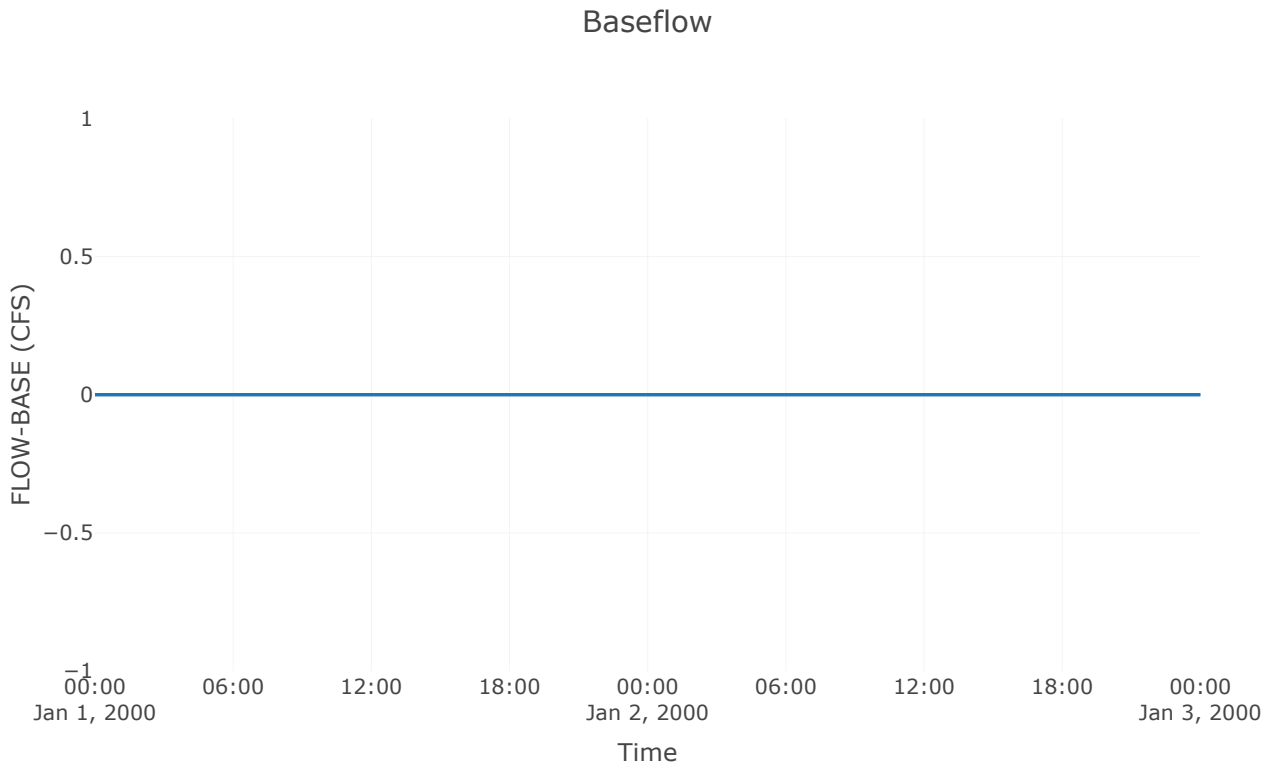
Cumulative Outflow



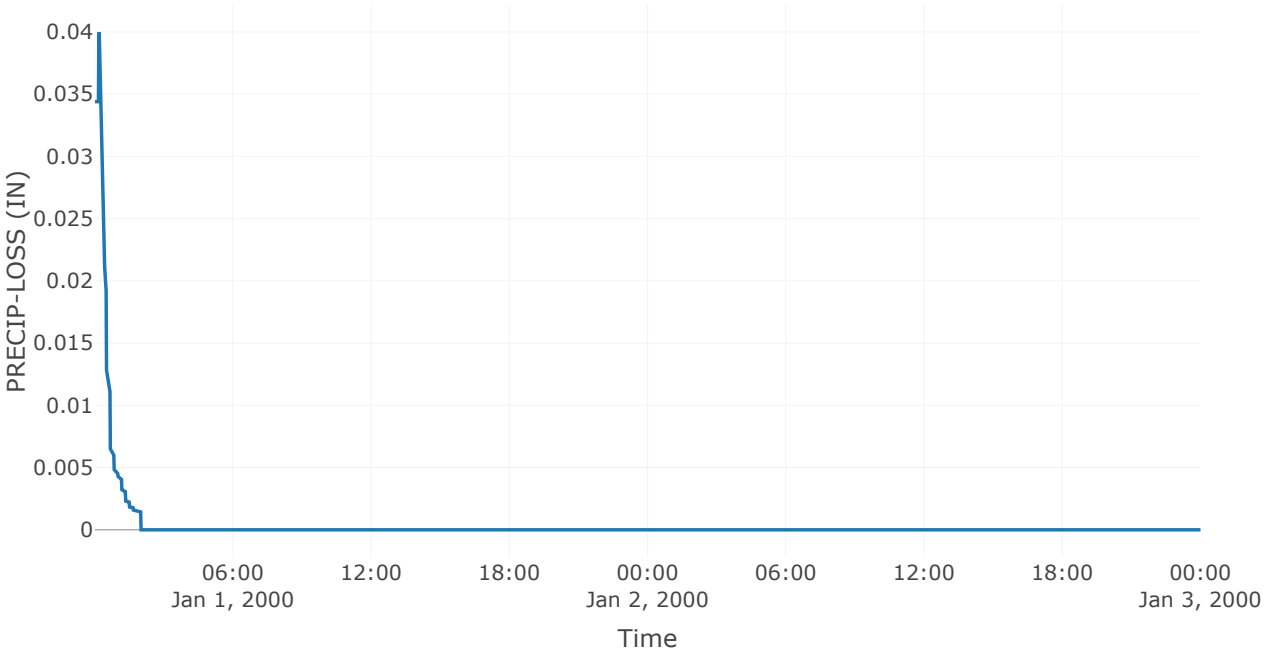
Cumulative Precipitation



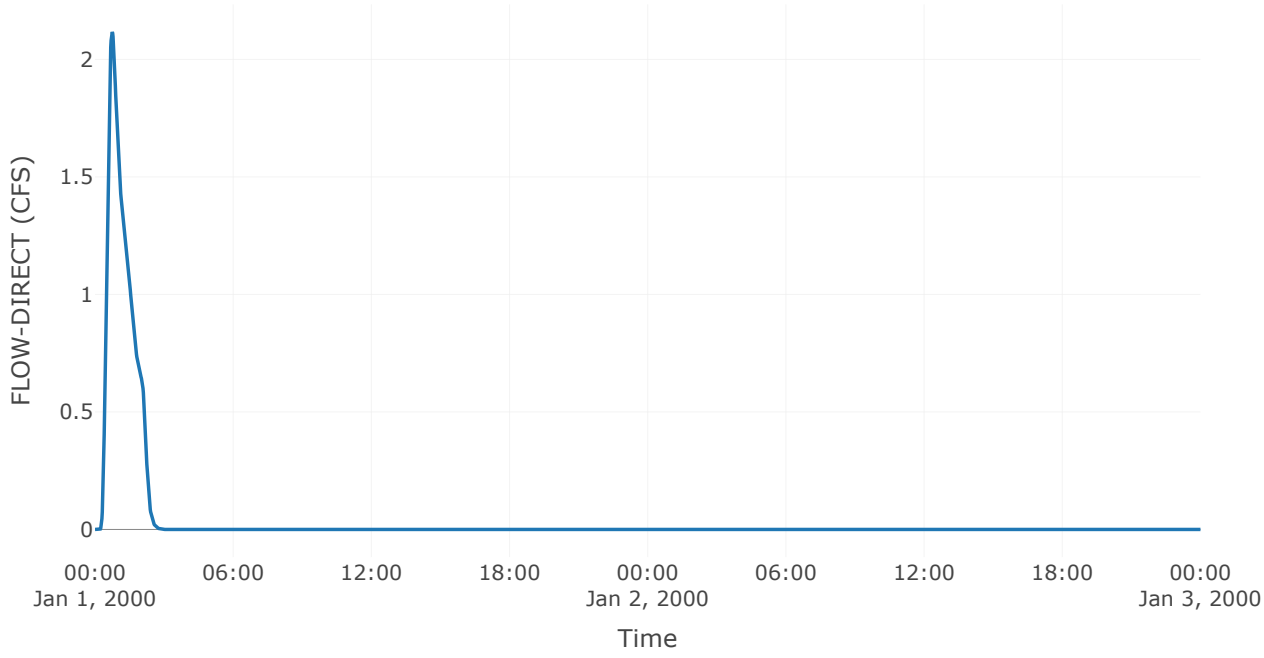

Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

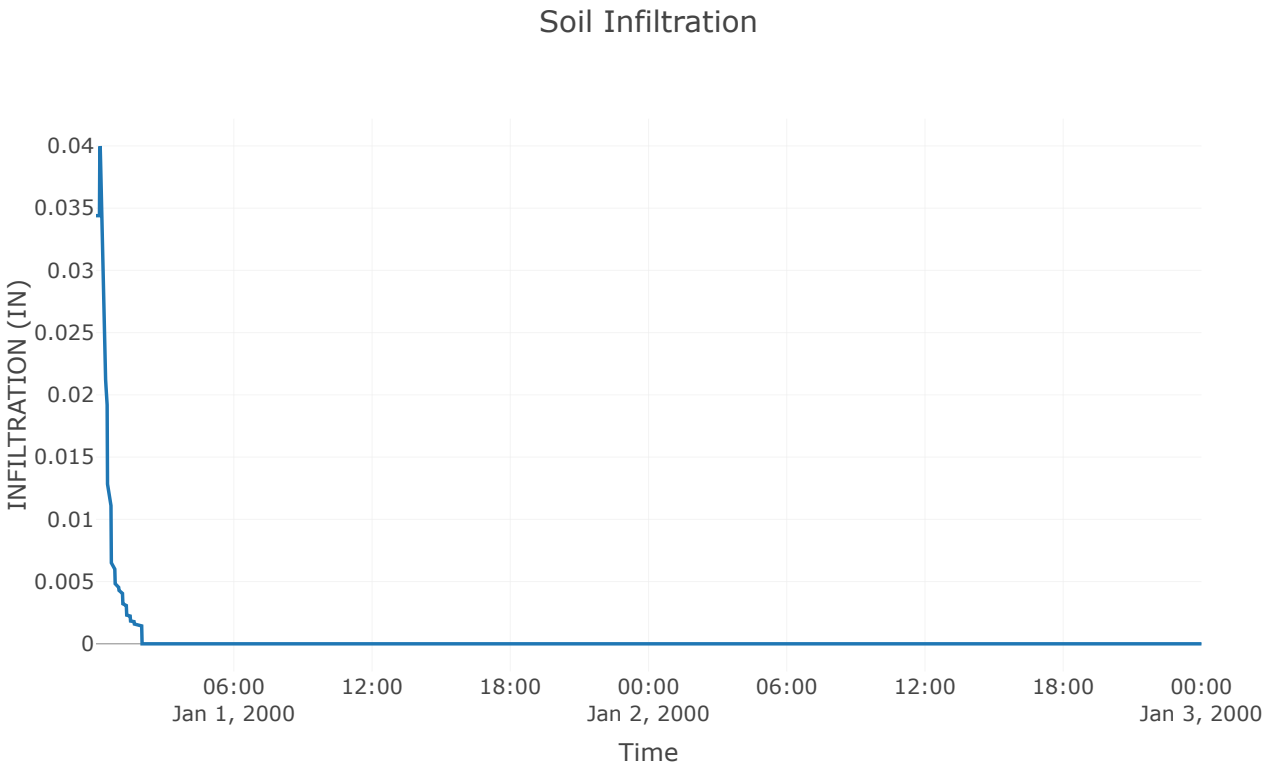

Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Precipitation Loss



Direct Runoff



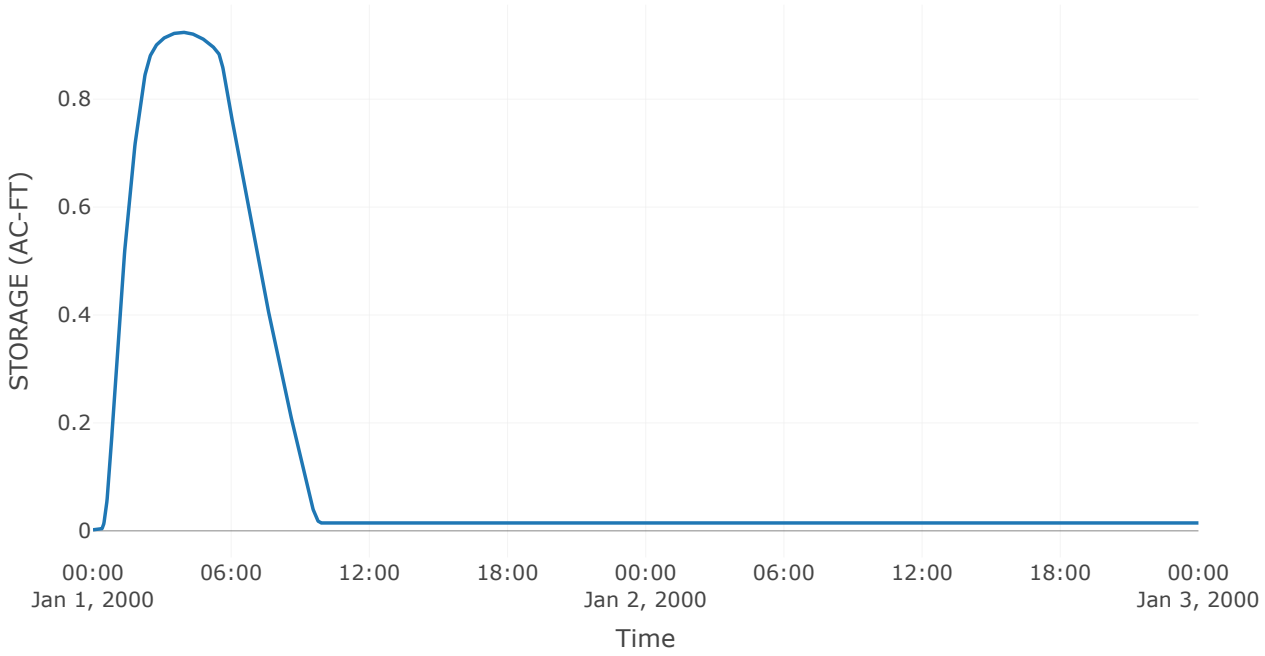

Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 2

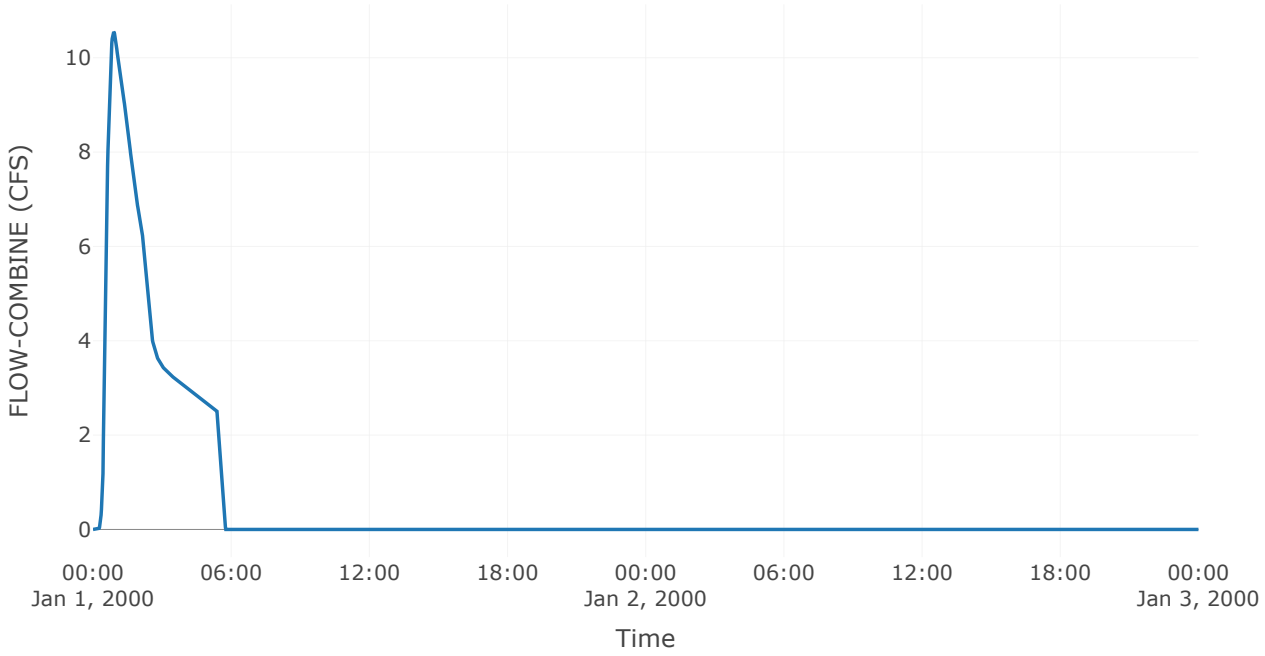
Downstream : Basin 3

Results: Basin 2	
Peak Discharge (CFS)	3.07
Time of Peak Discharge	01Jan2000, 03:53
Volume (IN)	0.72
Peak Inflow (CFS)	10.55
Time of Peak Inflow	01Jan2000, 00:54
Inflow Volume (AC - FT)	2.09
Maximum Storage (AC - FT)	0.92
Peak Elevation (FT)	692.6
Discharge Volume (AC - FT)	2.07

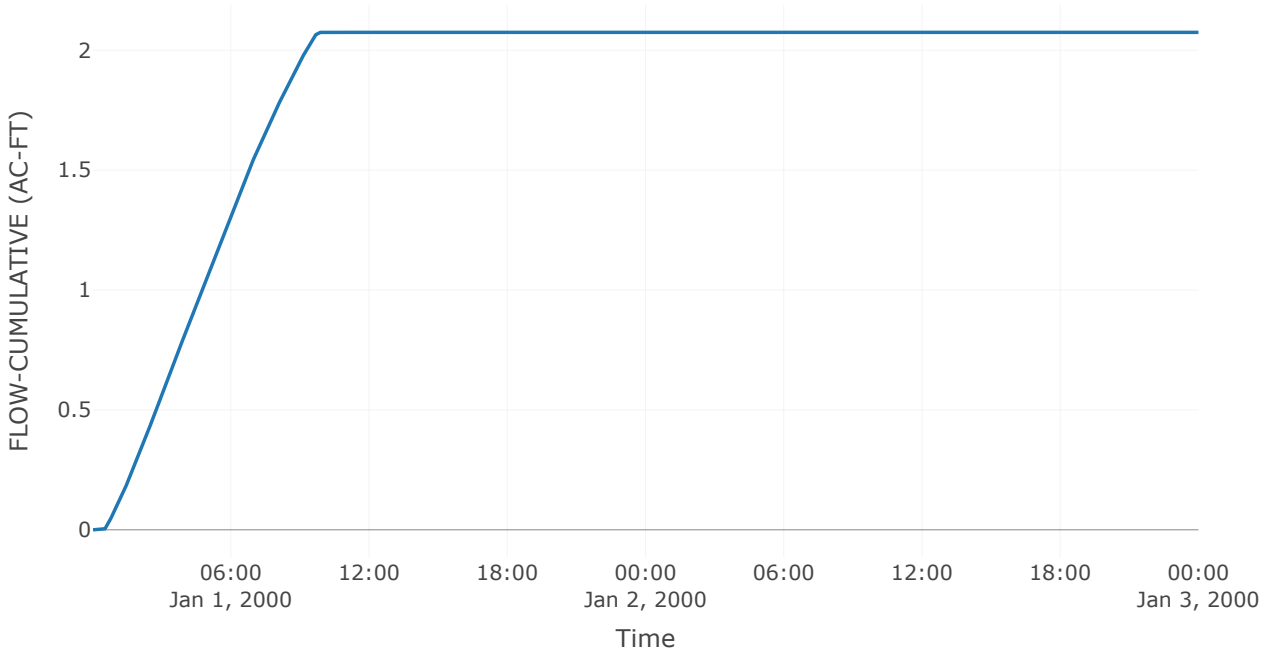
Storage



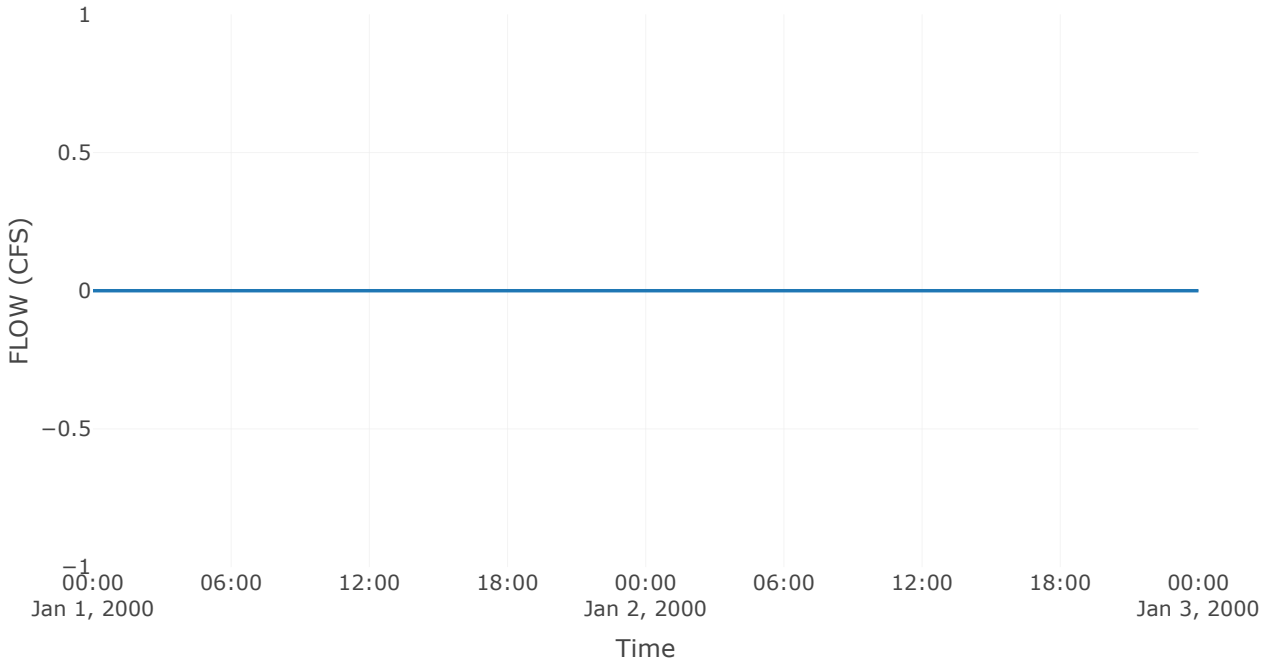
Combined Inflow



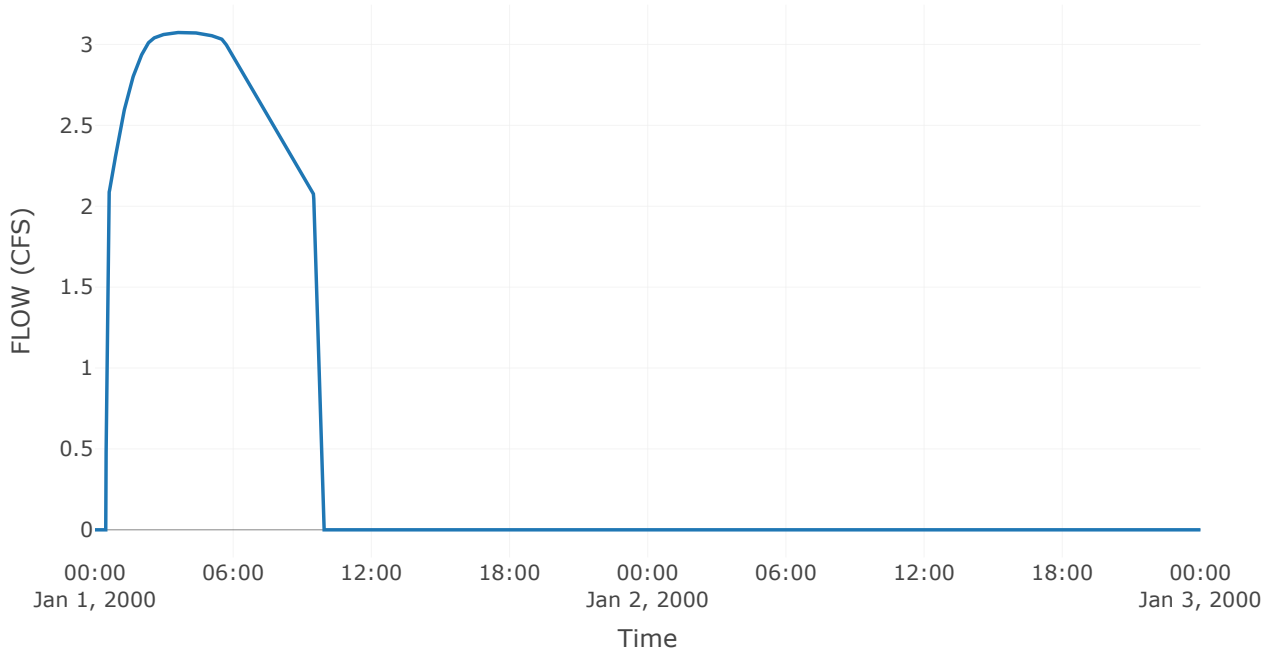
Cumulative Outflow



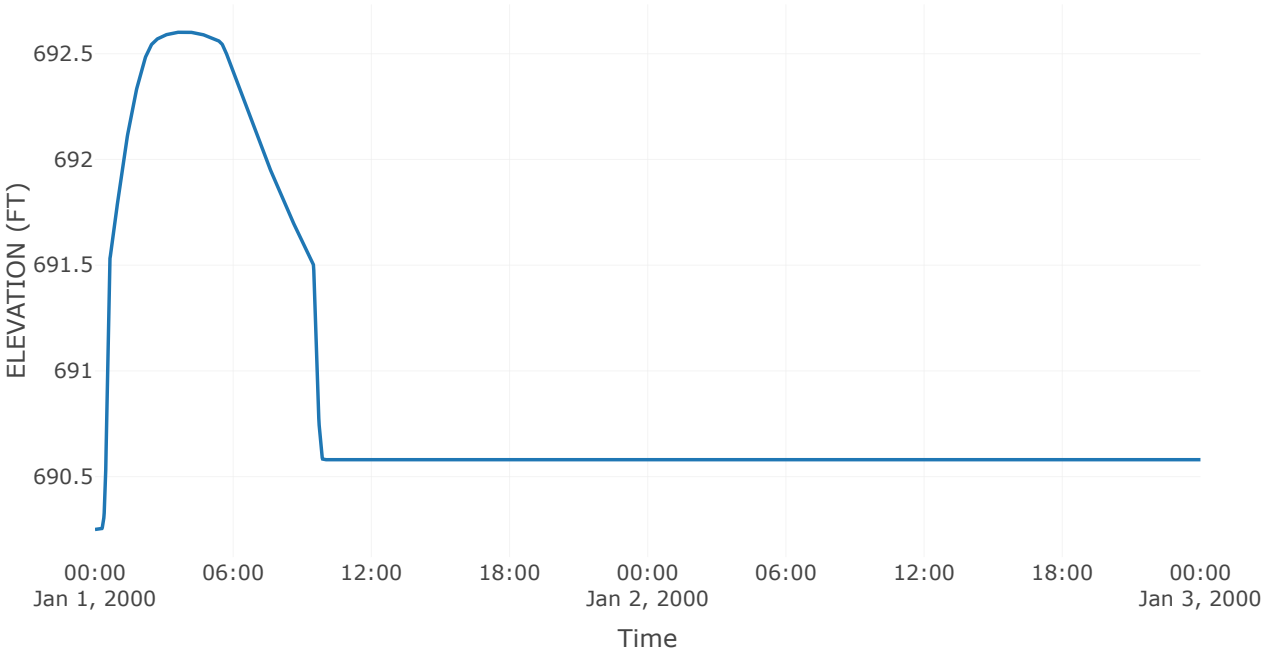
Spillway 1

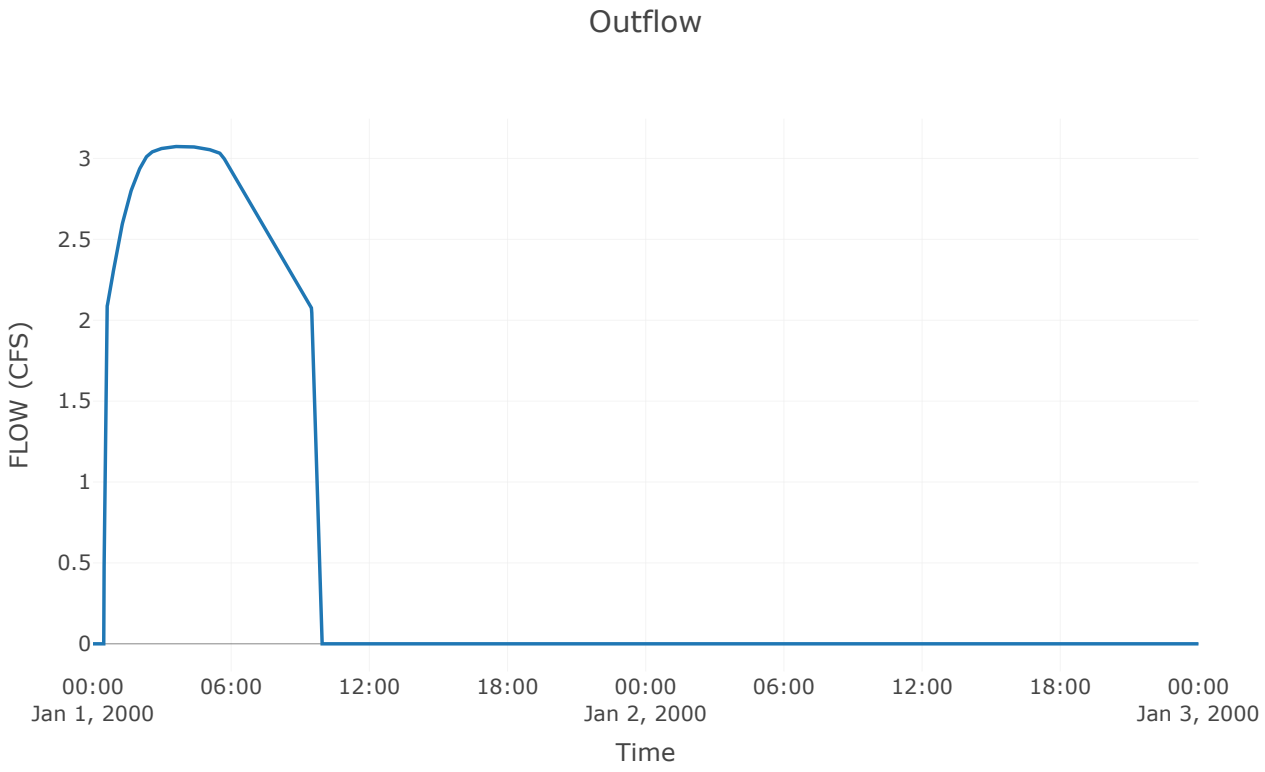


Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: On-Site Trib-Area 3

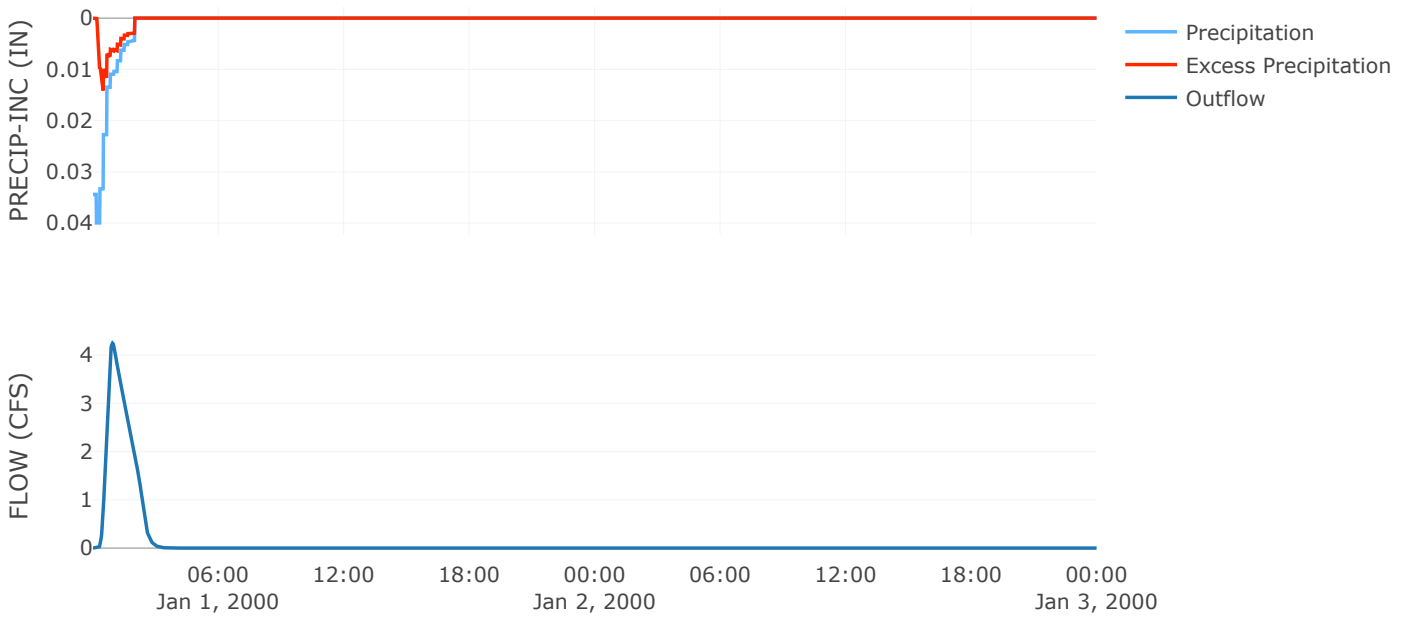
Area (MI2) : 0.01
Downstream : Basin 3

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

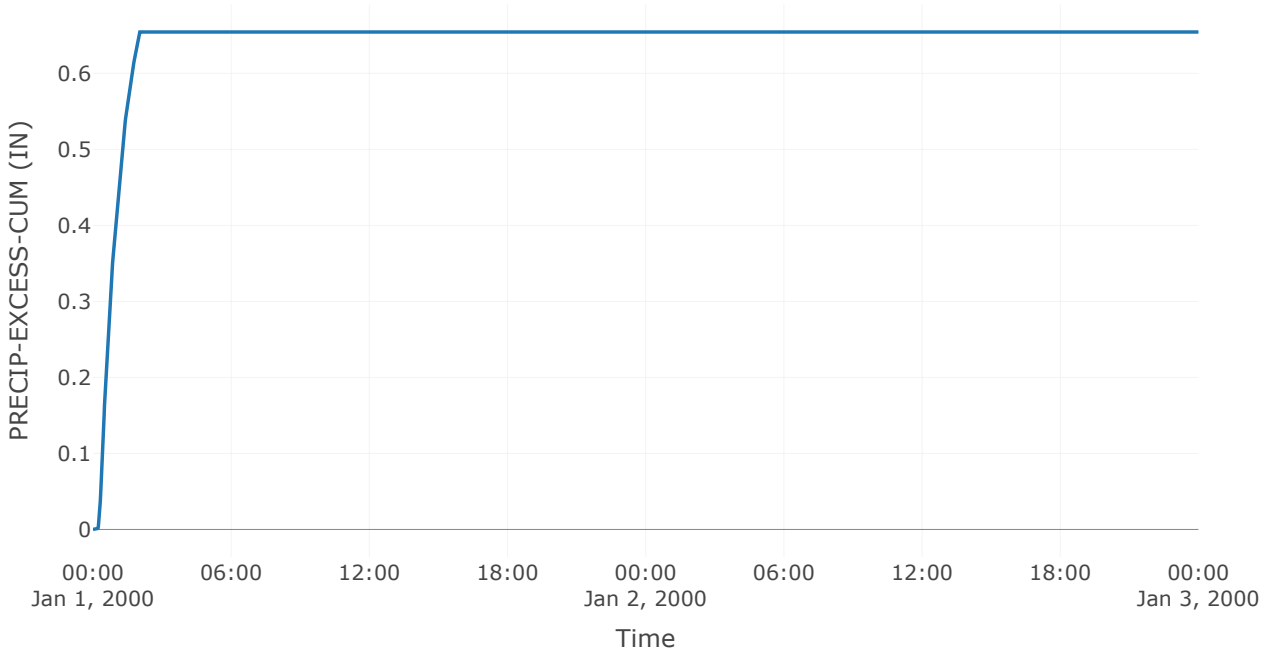
Transform: Scs	
Lag	21
Unitgraph Type	Standard

Results: On-Site Trib-Area 3	
Peak Discharge (CFS)	4.24
Time of Peak Discharge	01Jan2000, 00:56
Volume (IN)	0.65
Precipitation Volume (AC - FT)	1.31
Loss Volume (AC - FT)	0.87
Excess Volume (AC - FT)	0.44
Direct Runoff Volume (AC - FT)	0.44
Baseflow Volume (AC - FT)	0

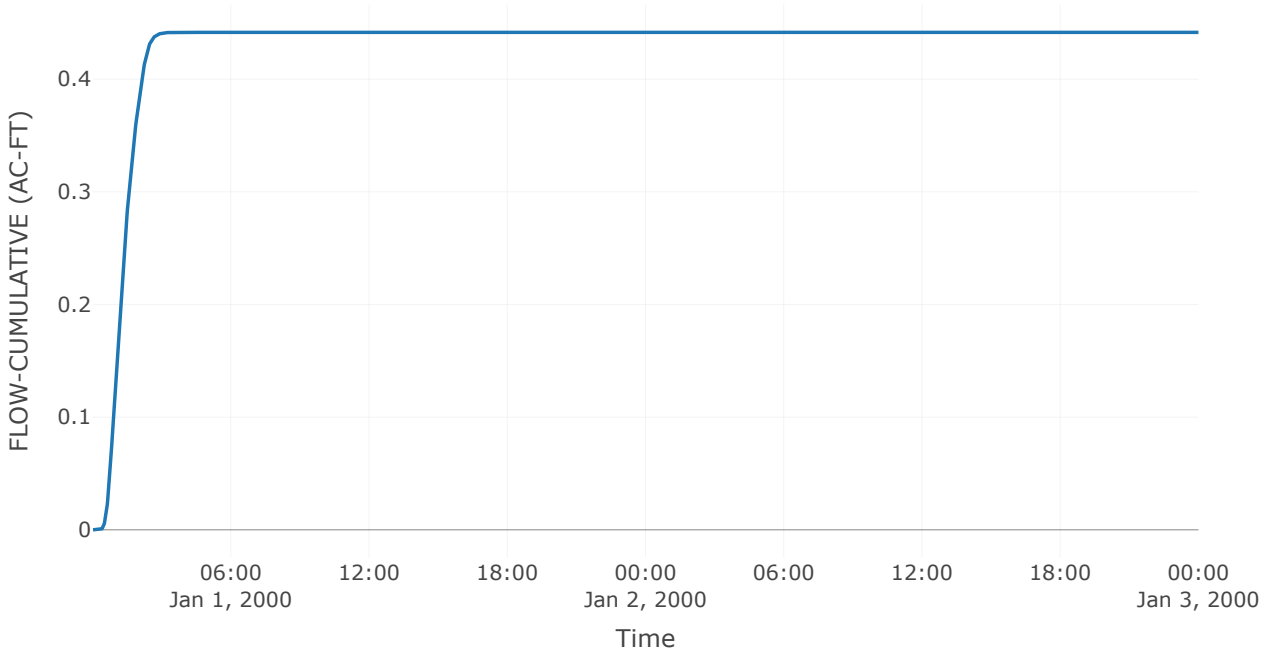
Precipitation and Outflow



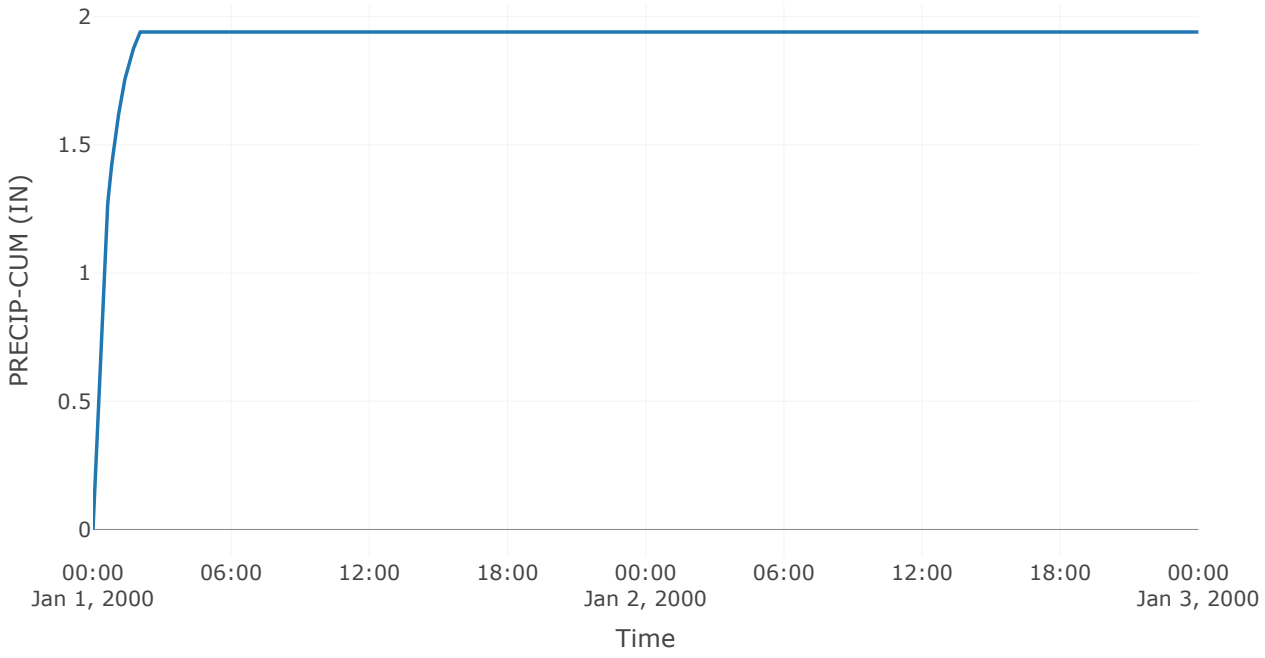
Cumulative Excess Precipitation



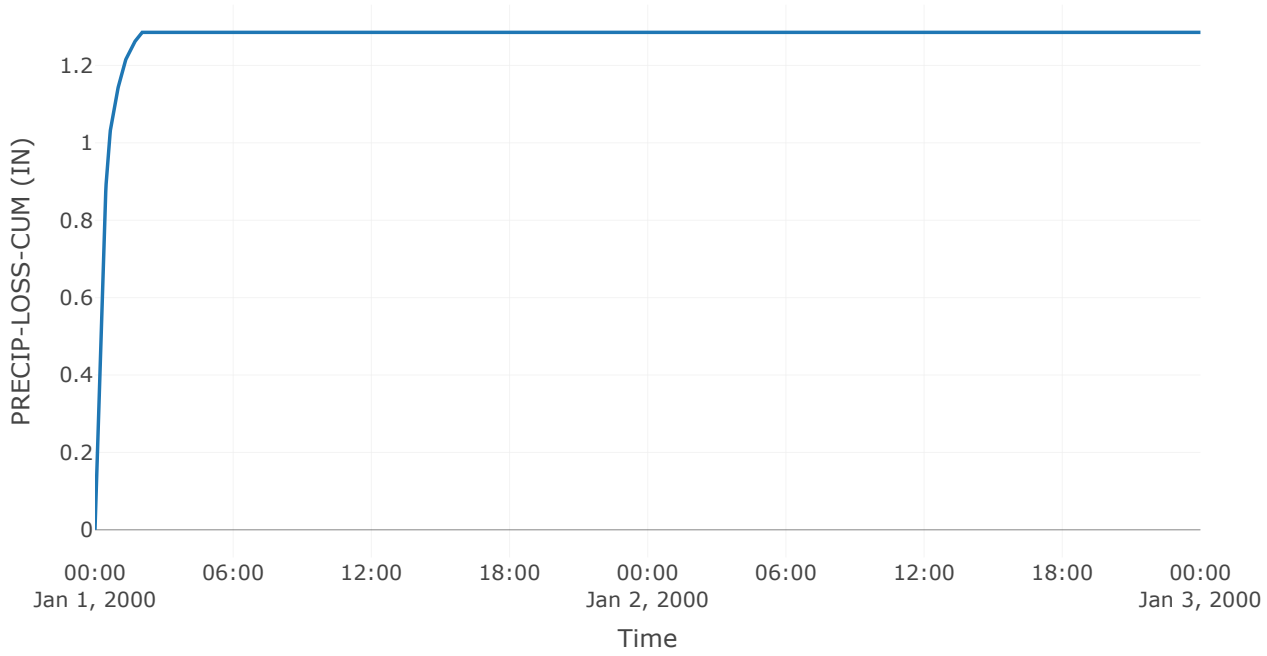
Cumulative Outflow



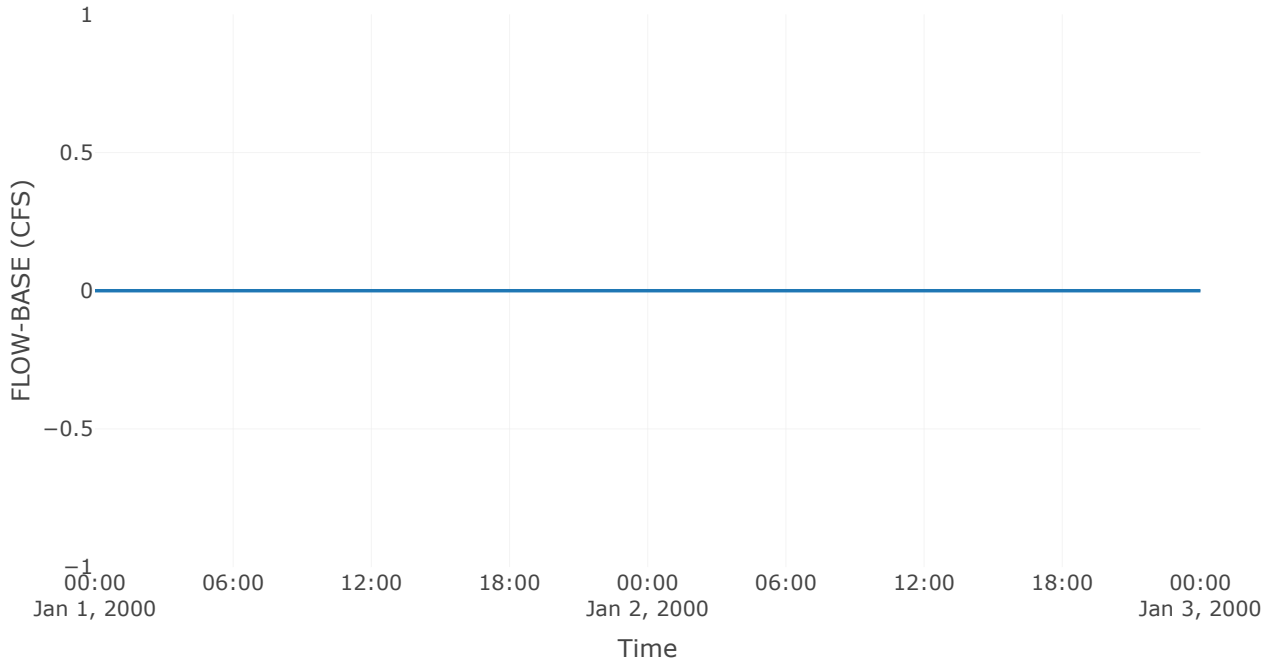
Cumulative Precipitation



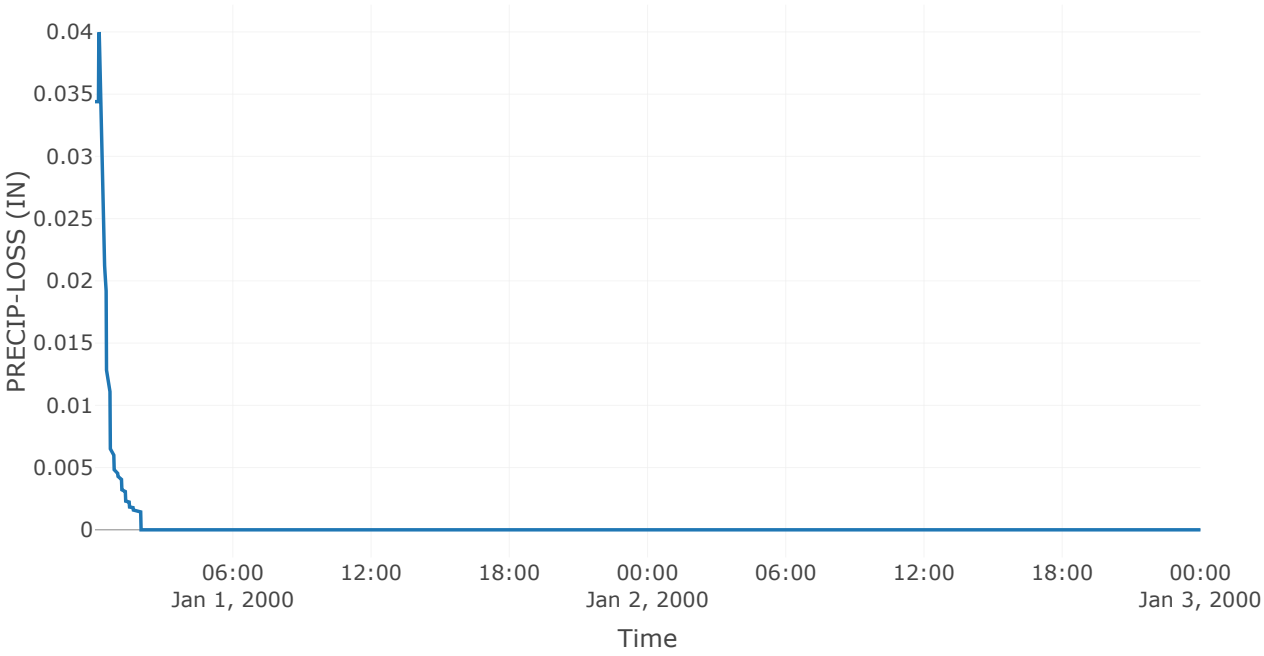
Cumulative Precipitation Loss



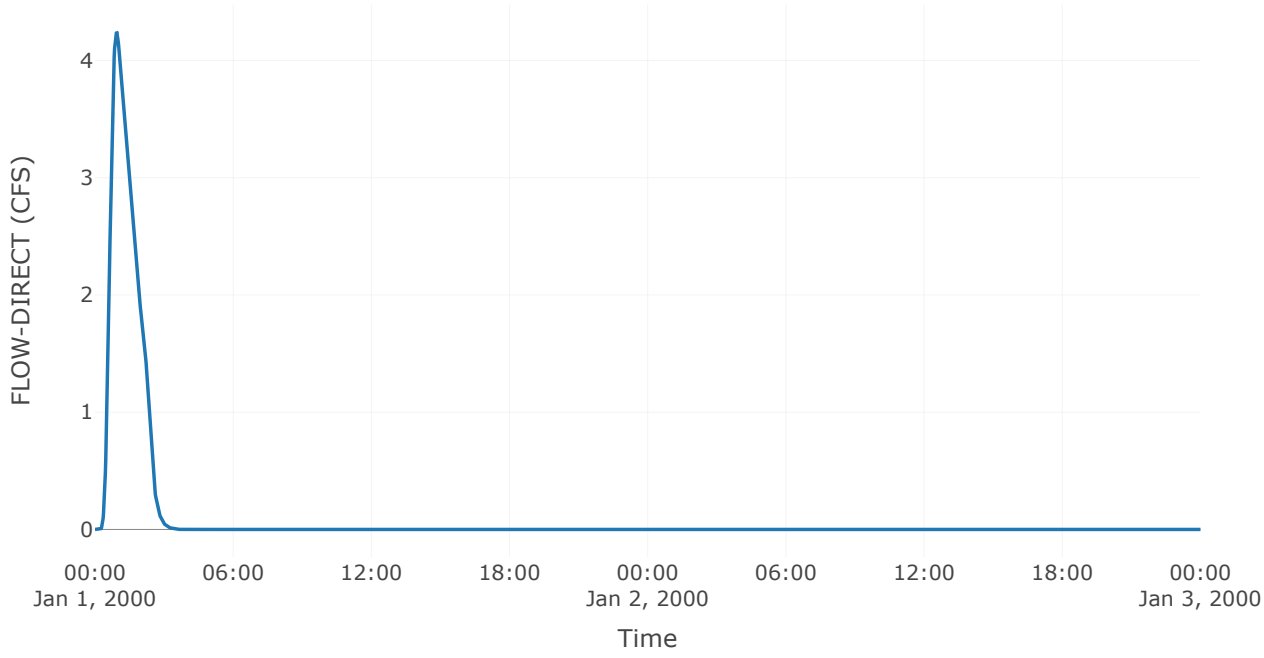
Baseflow

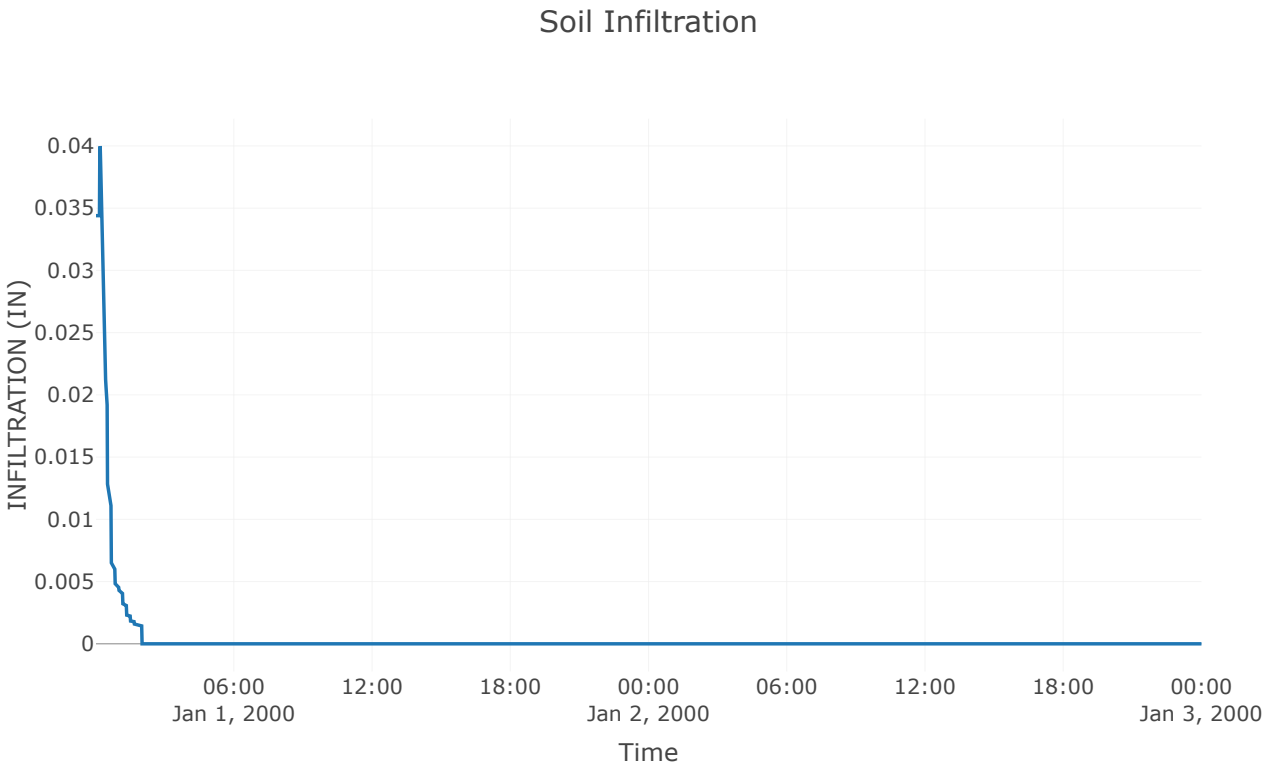


Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: LaGrange Highlands Off-Site

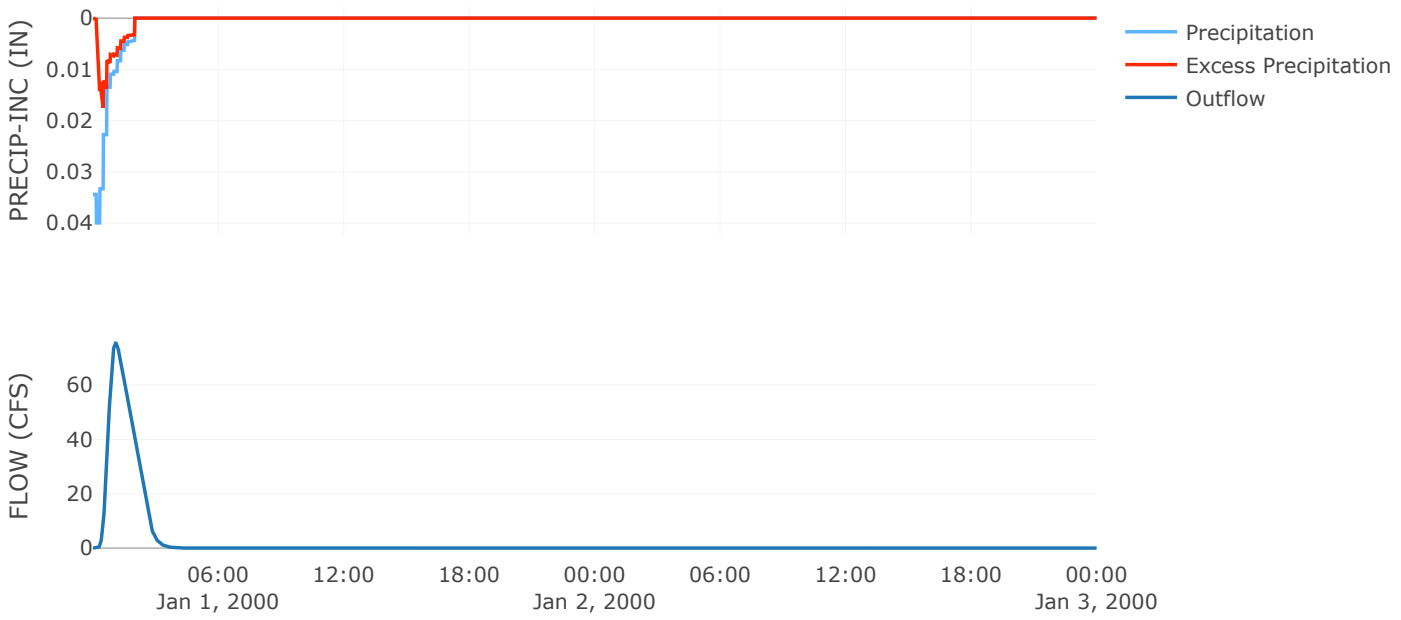
Area (MI2) : 0.2
Downstream : Off - Site Tributary Area

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	86

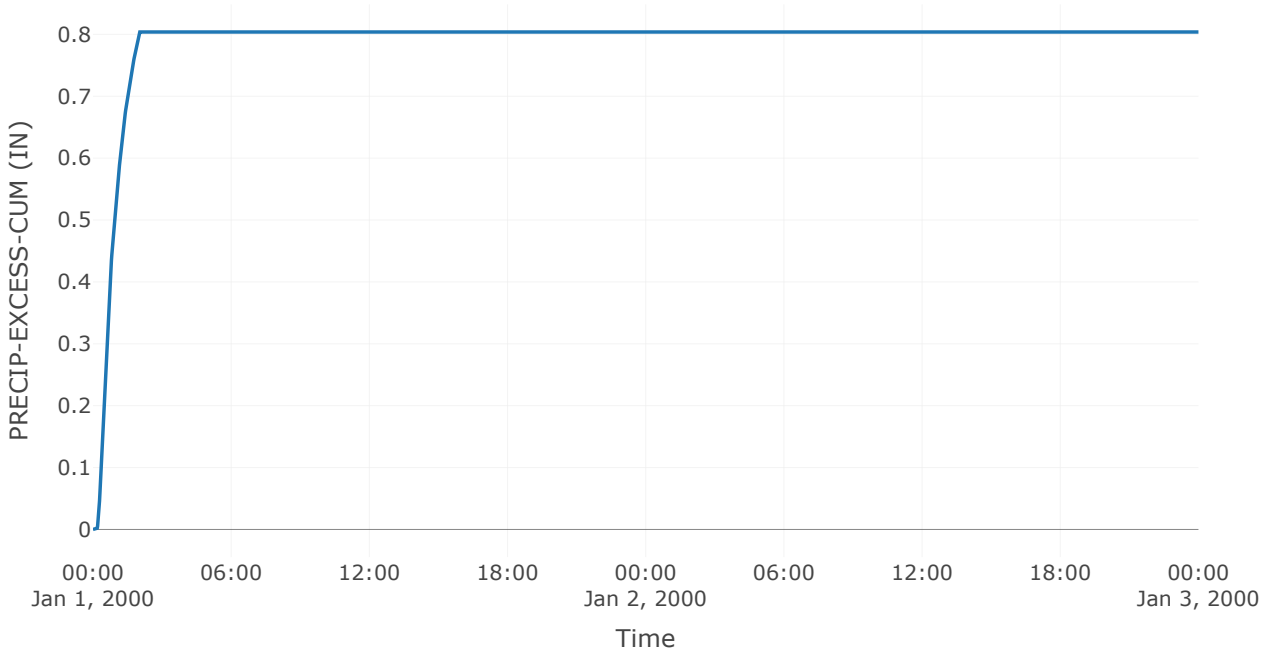
Transform: Scs	
Lag	29.2
Unitgraph Type	Standard

Results: LaGrange Highlands Off-Site	
Peak Discharge (CFS)	75.41
Time of Peak Discharge	01Jan2000, 01:05
Volume (IN)	0.8
Precipitation Volume (AC - FT)	20.92
Loss Volume (AC - FT)	12.25
Excess Volume (AC - FT)	8.67
Direct Runoff Volume (AC - FT)	8.67
Baseflow Volume (AC - FT)	0

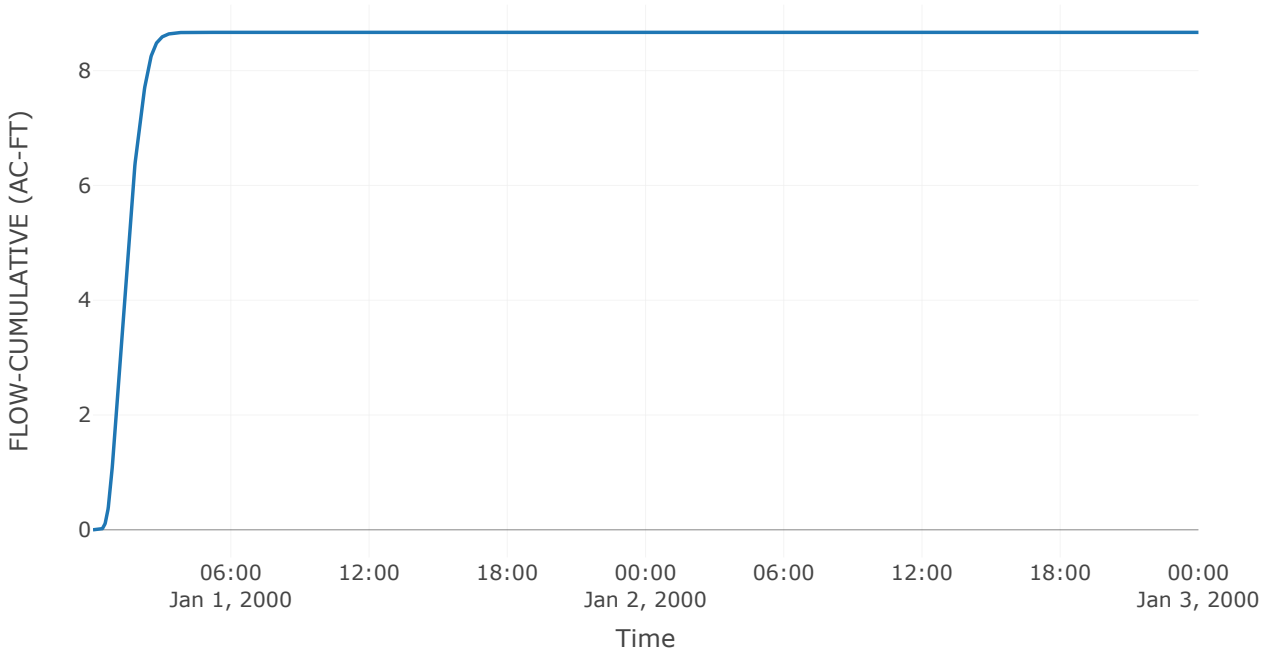
Precipitation and Outflow



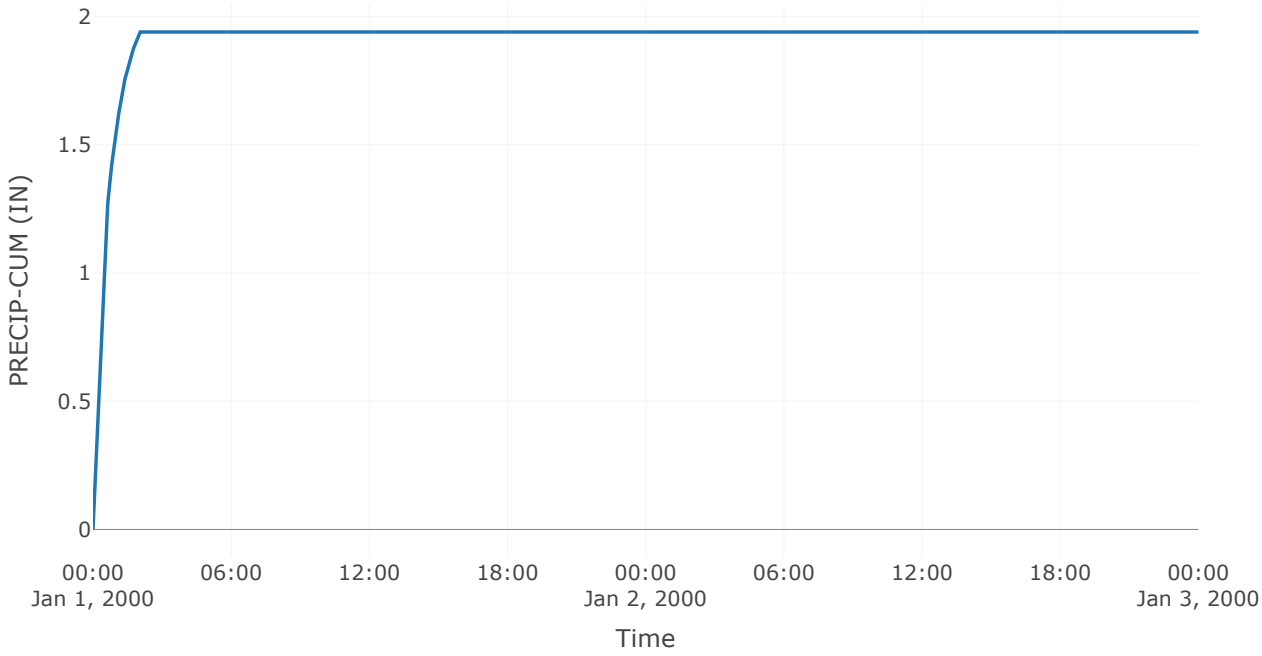
Cumulative Excess Precipitation



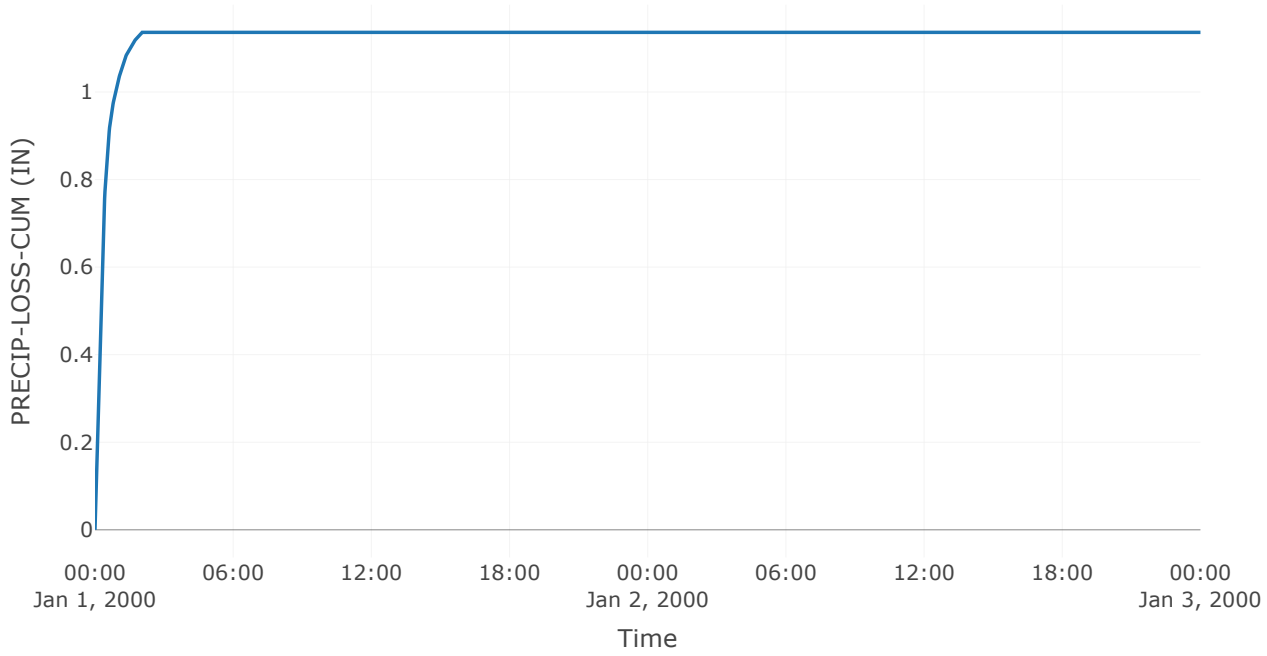
Cumulative Outflow



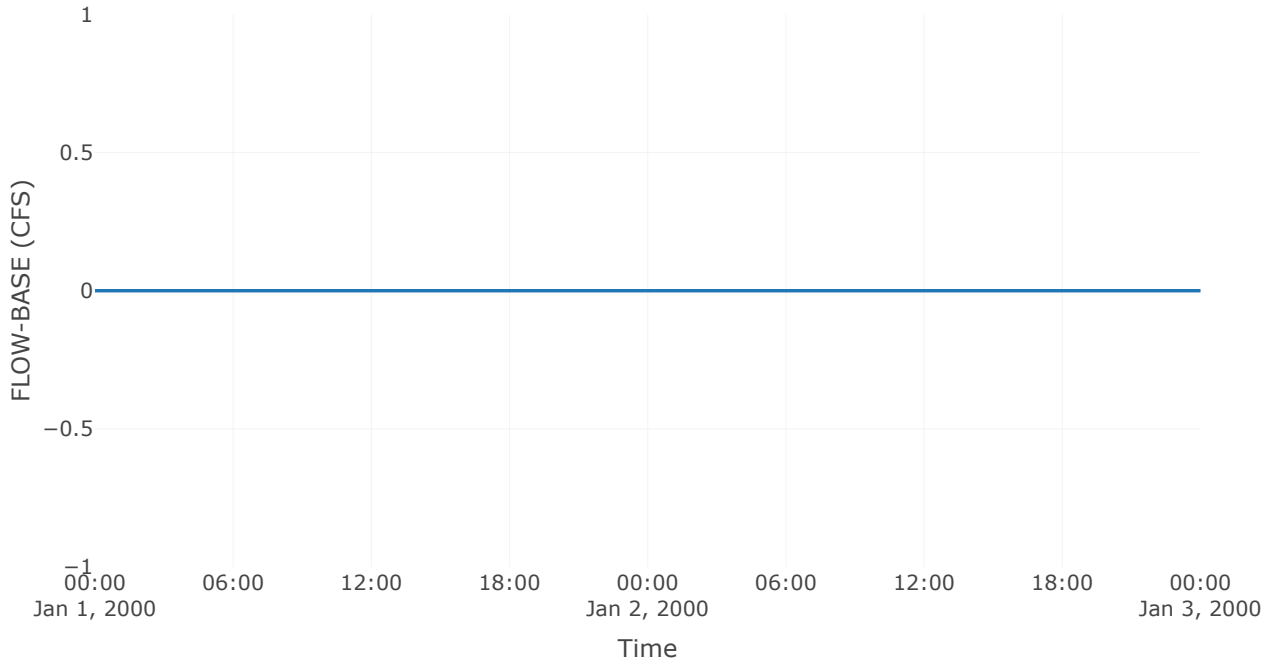
Cumulative Precipitation



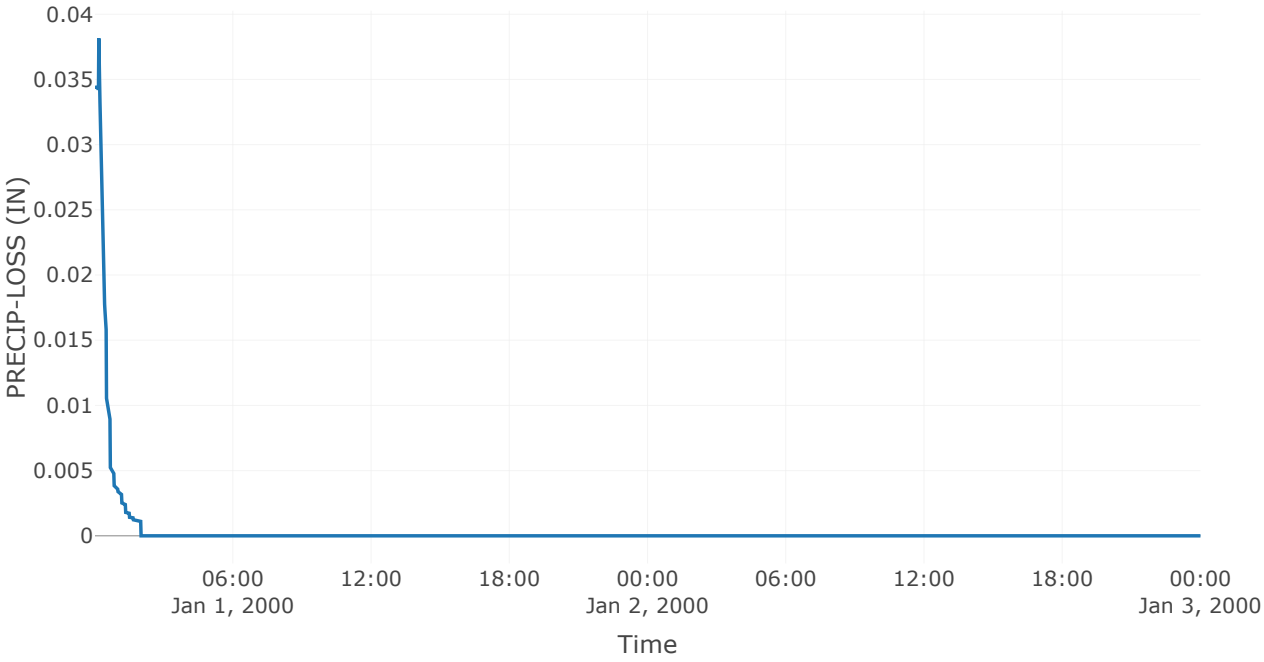
Cumulative Precipitation Loss



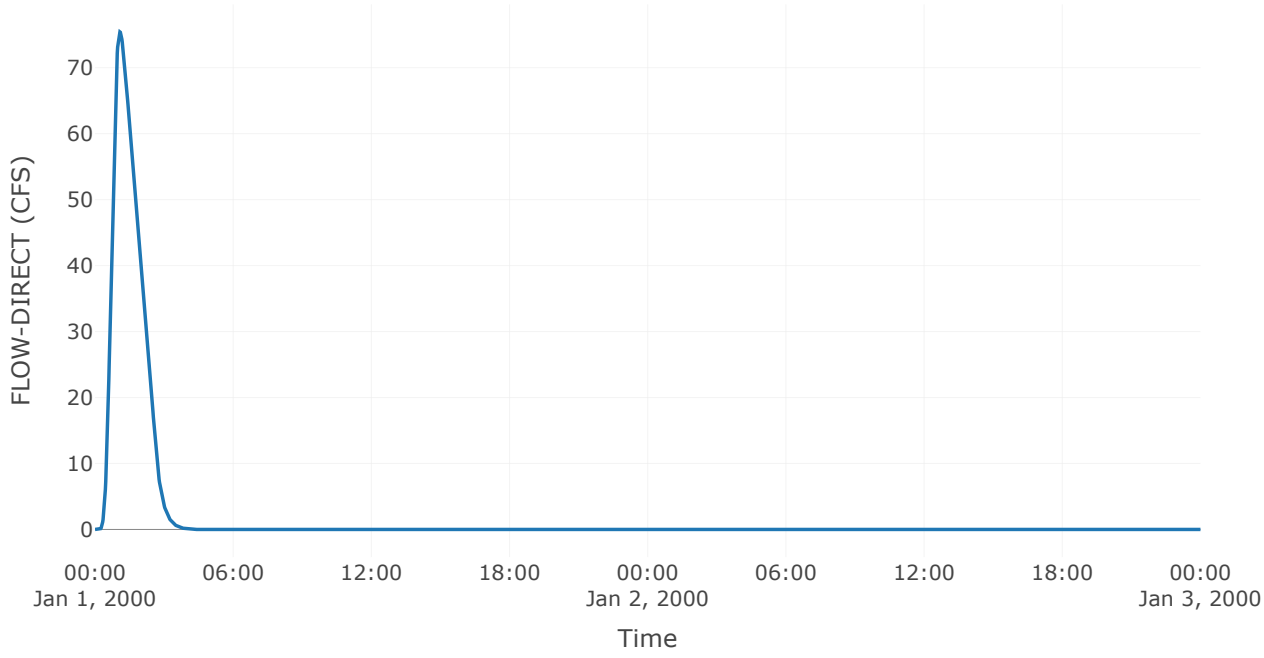
Baseflow

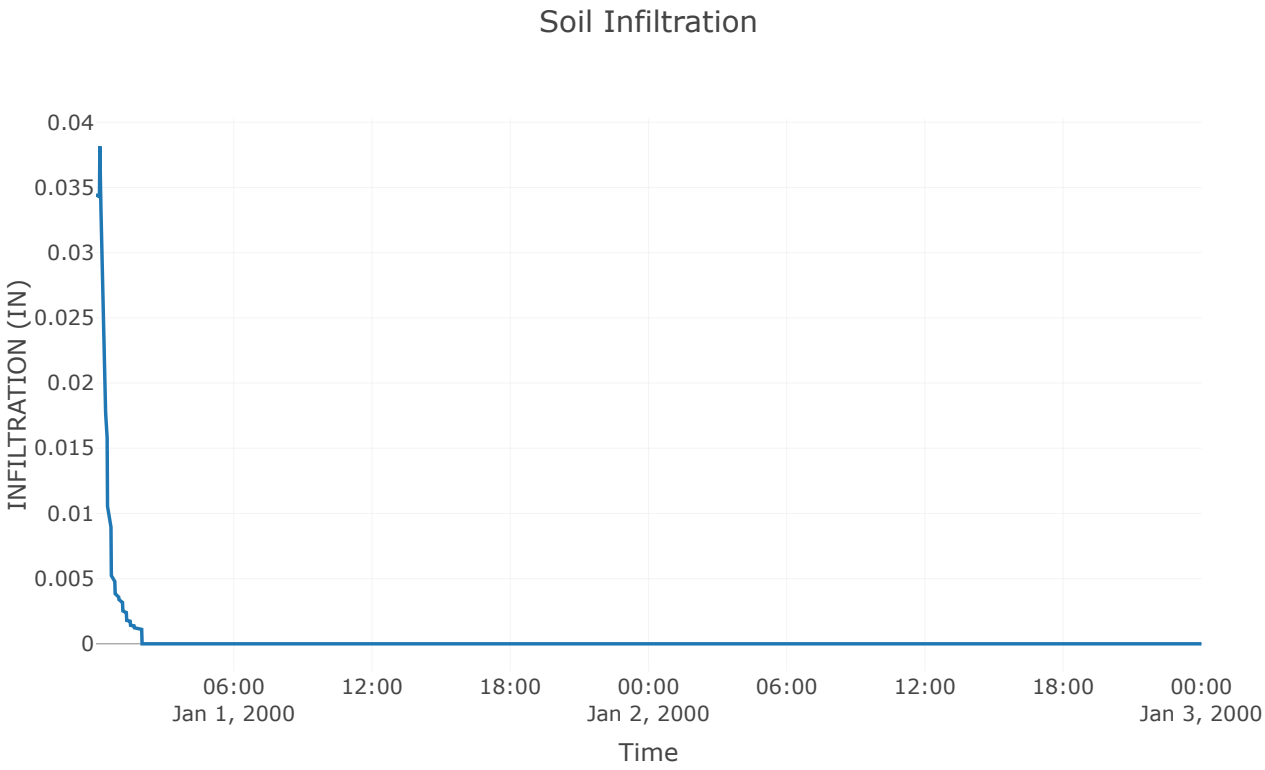


Precipitation Loss



Direct Runoff



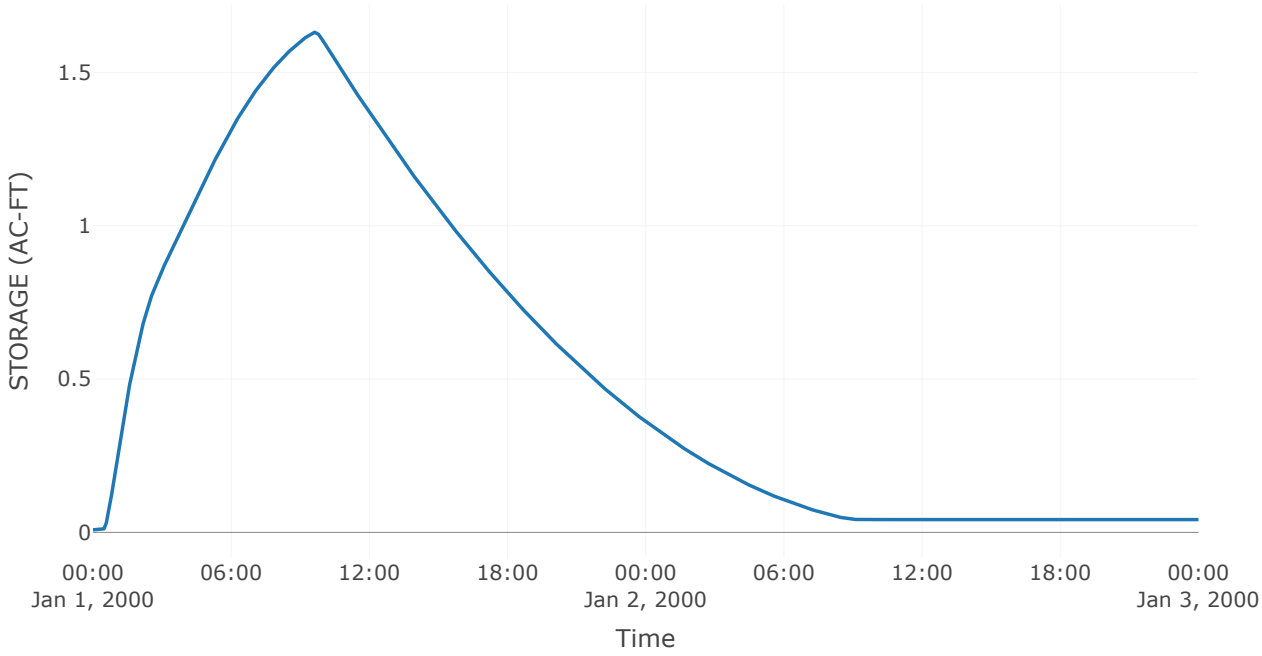

Soil Infiltration
INFILTRATION (IN)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 3

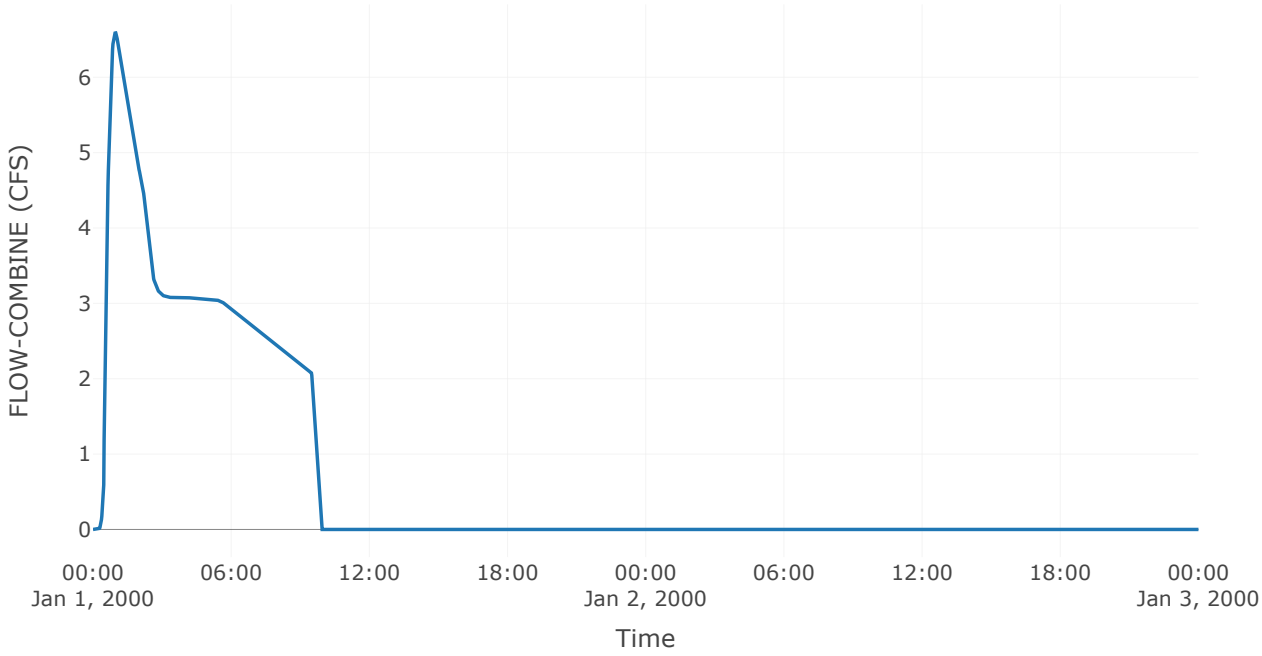
Downstream : Off - Site Tributary Area

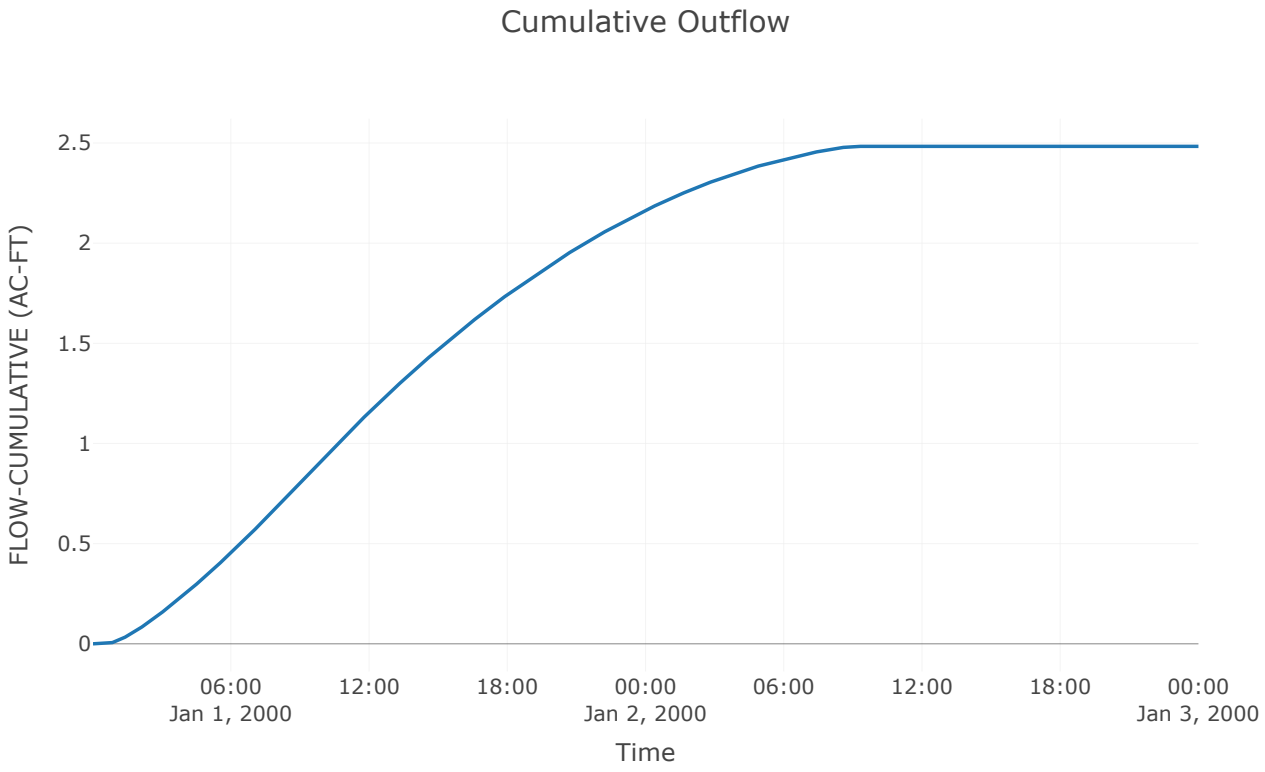
Results: Basin 3	
Peak Discharge (CFS)	1.48
Time of Peak Discharge	01Jan2000, 09:37
Volume (IN)	0.69
Peak Inflow (CFS)	6.6
Time of Peak Inflow	01Jan2000, 00:58
Inflow Volume (AC - FT)	2.52
Maximum Storage (AC - FT)	1.63
Peak Elevation (FT)	690.81
Discharge Volume (AC - FT)	2.48

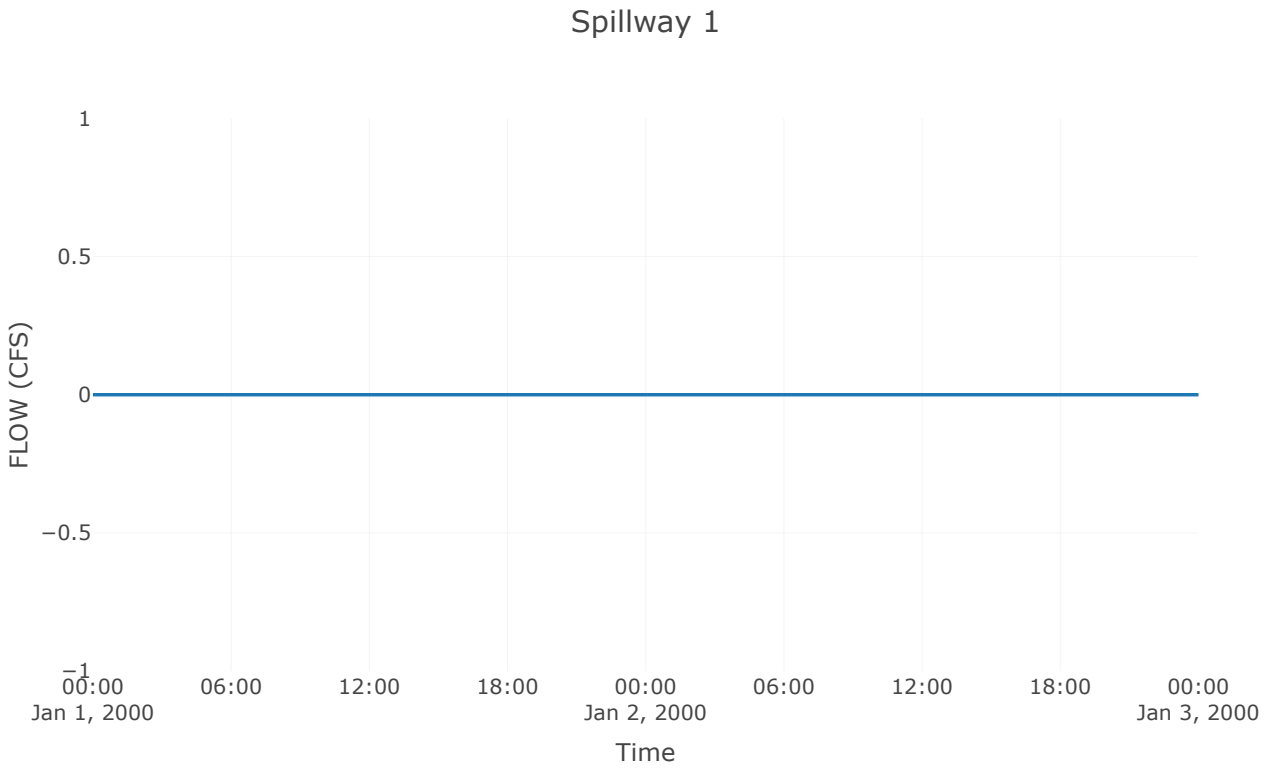
Storage



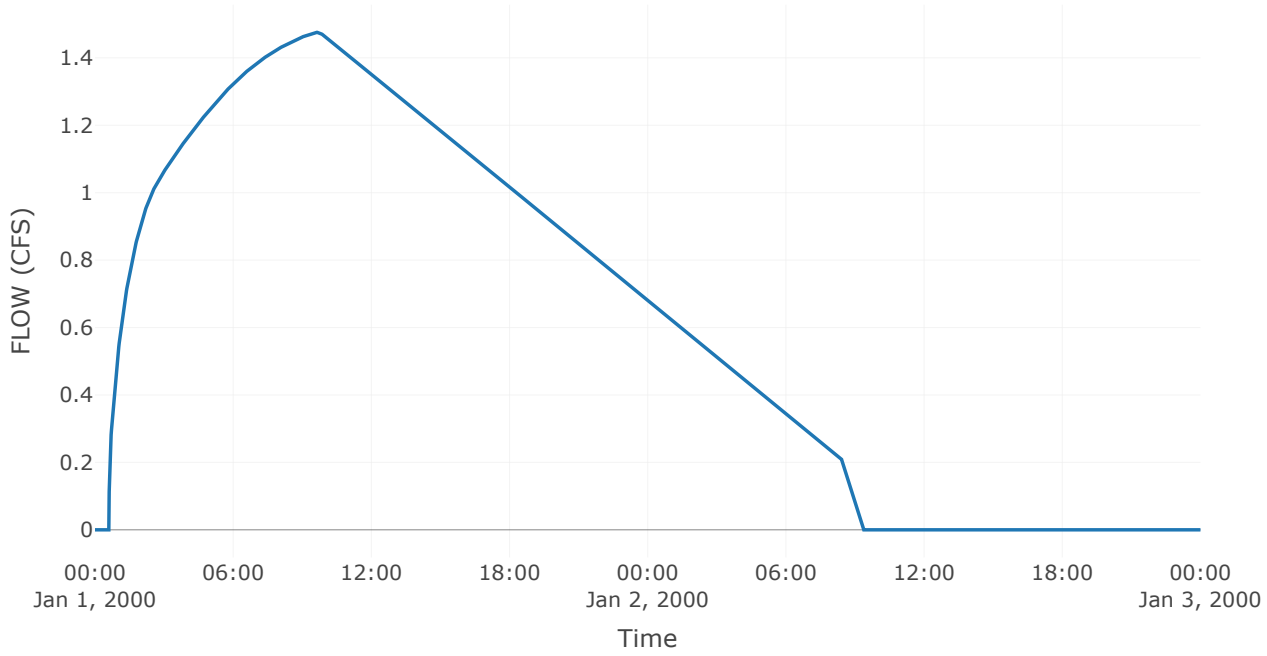
Combined Inflow



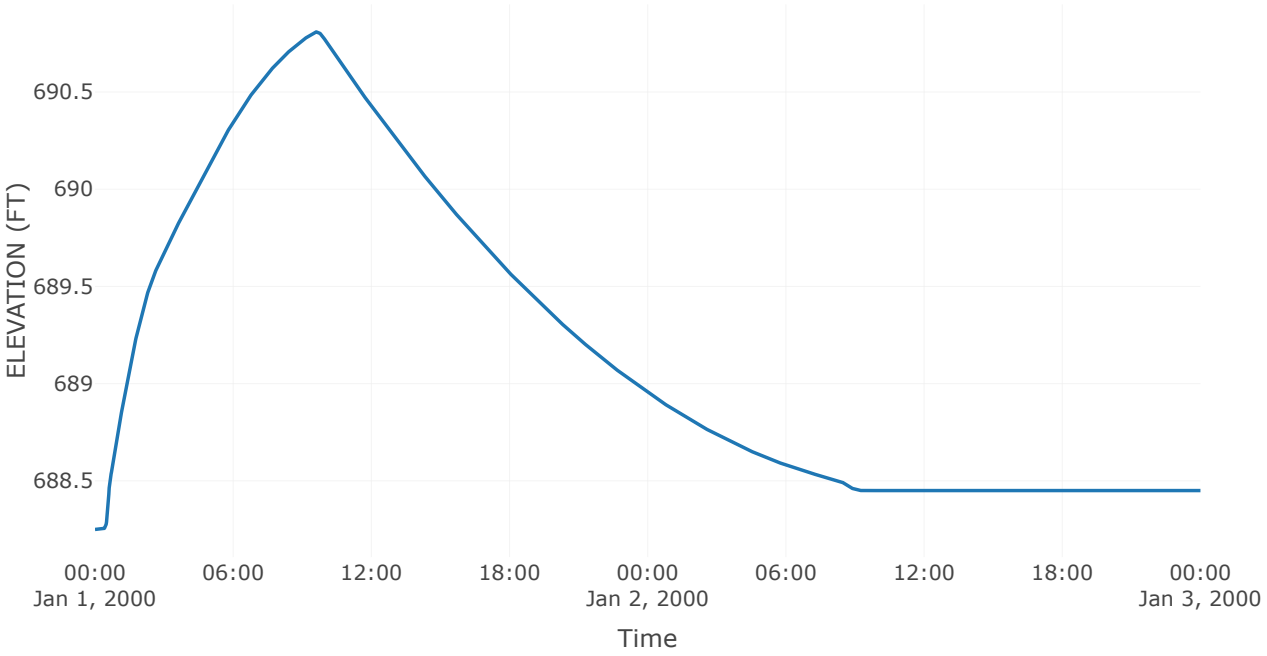

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
2.5
2
1.5
1
0.5
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

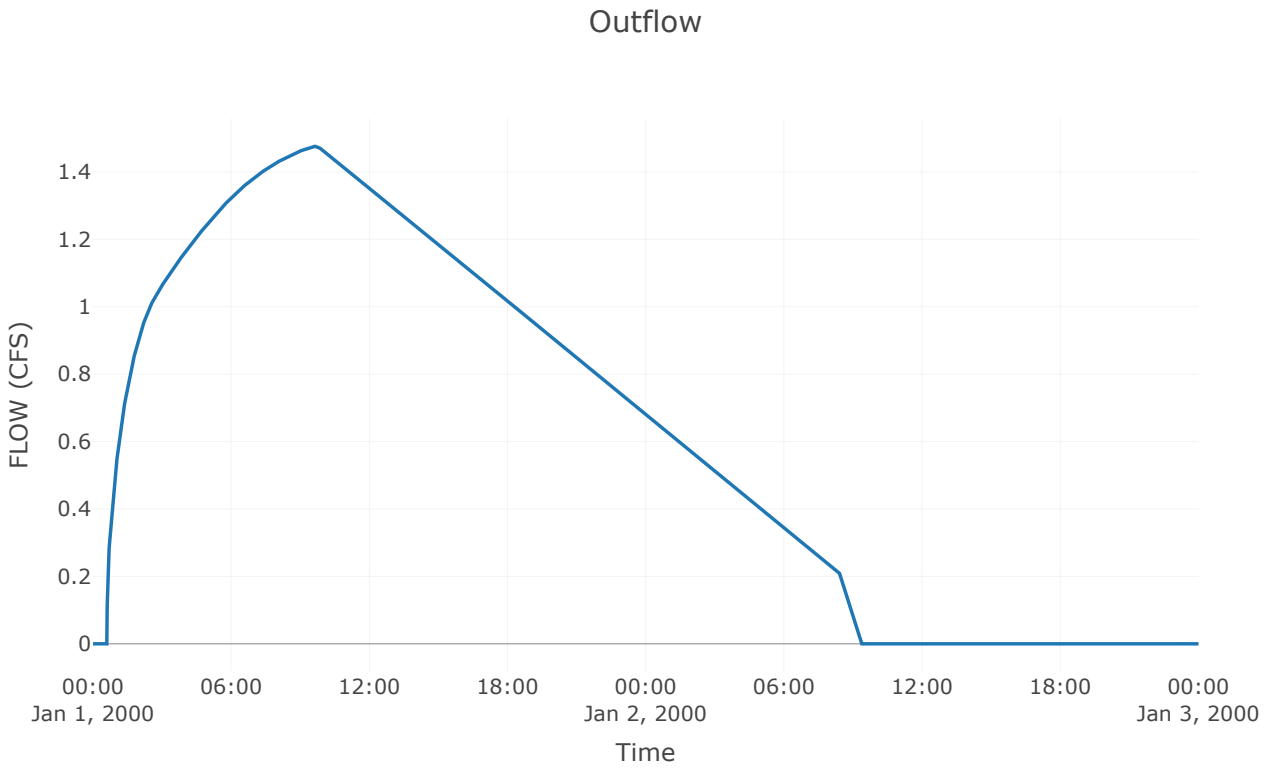

Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation



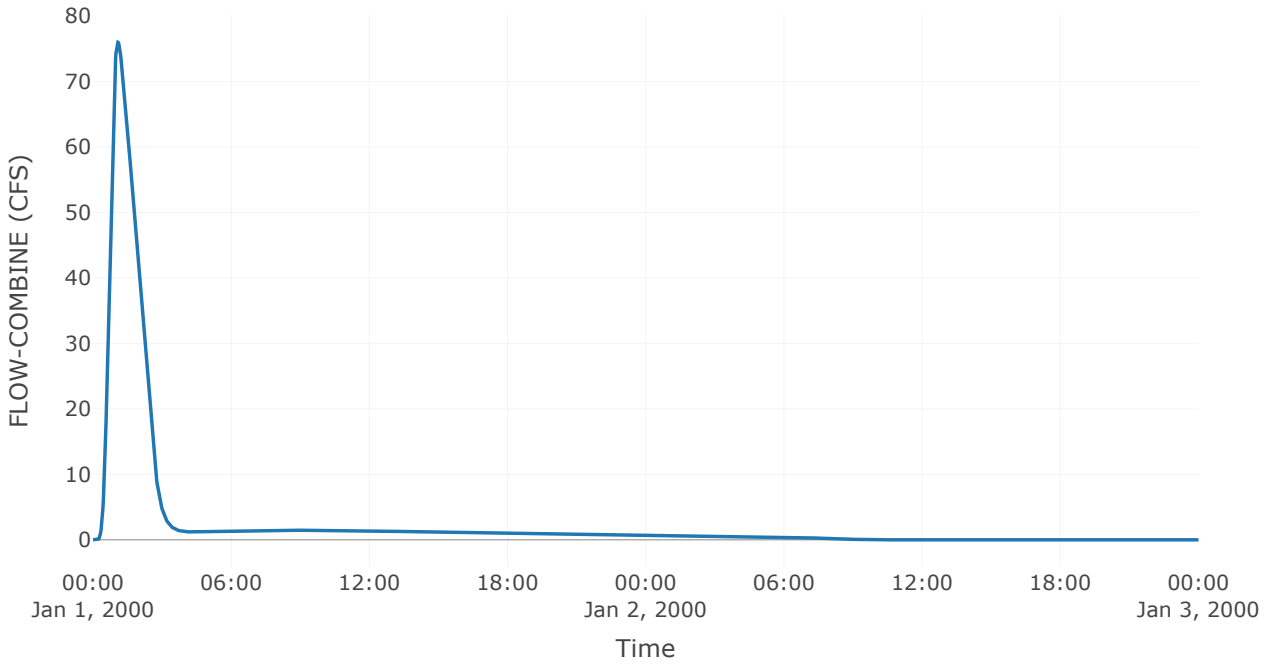

Outflow
FLOW (CFS)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Junction: Off-Site Tributary Area

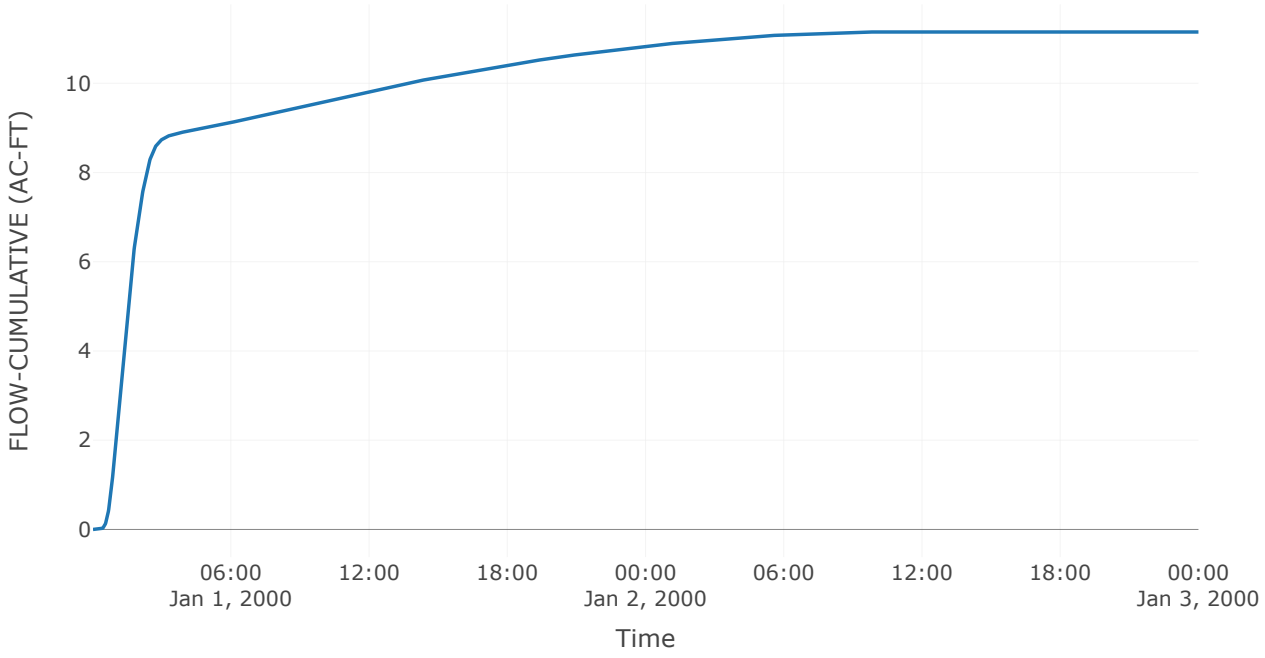
Downstream : Storage East of Wolf Road

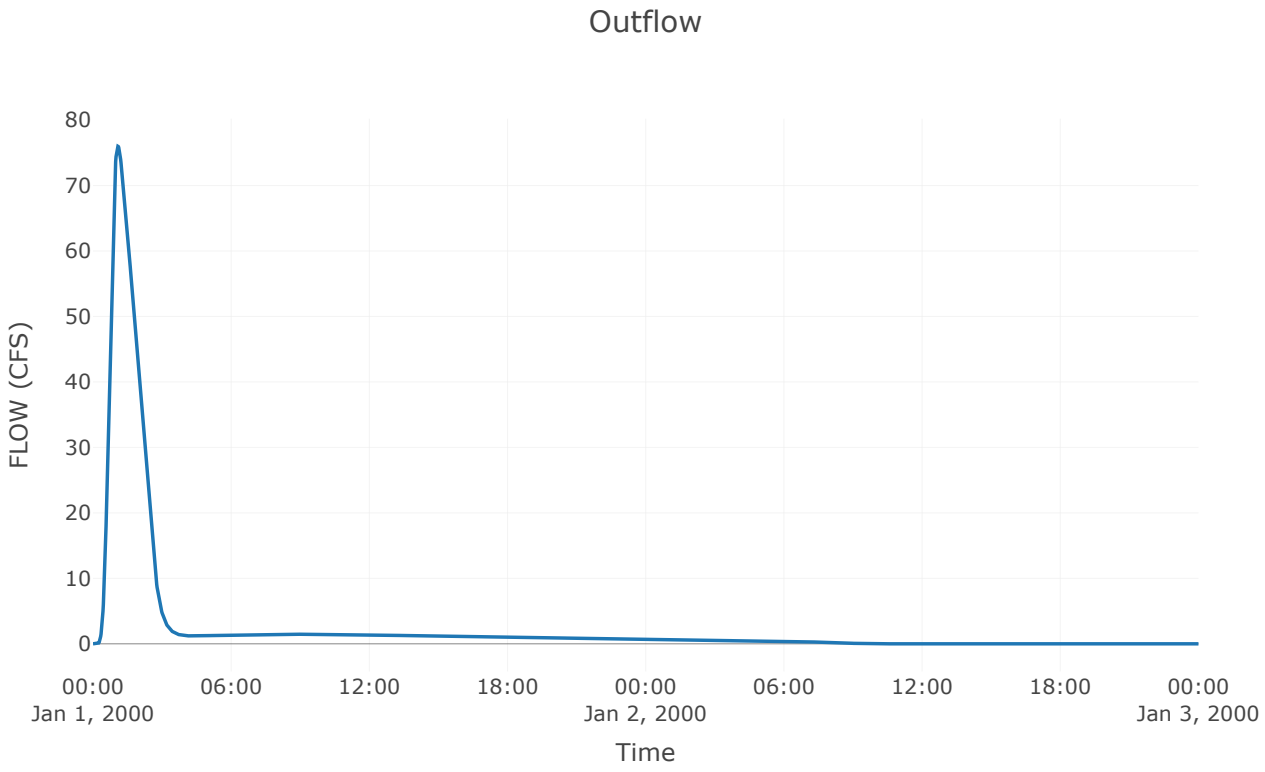
Results: Off-Site Tributary Area	
Peak Discharge (CFS)	75.98
Time of Peak Discharge	01Jan2000, 01:05
Volume (IN)	0.78

Combined Inflow



Cumulative Outflow



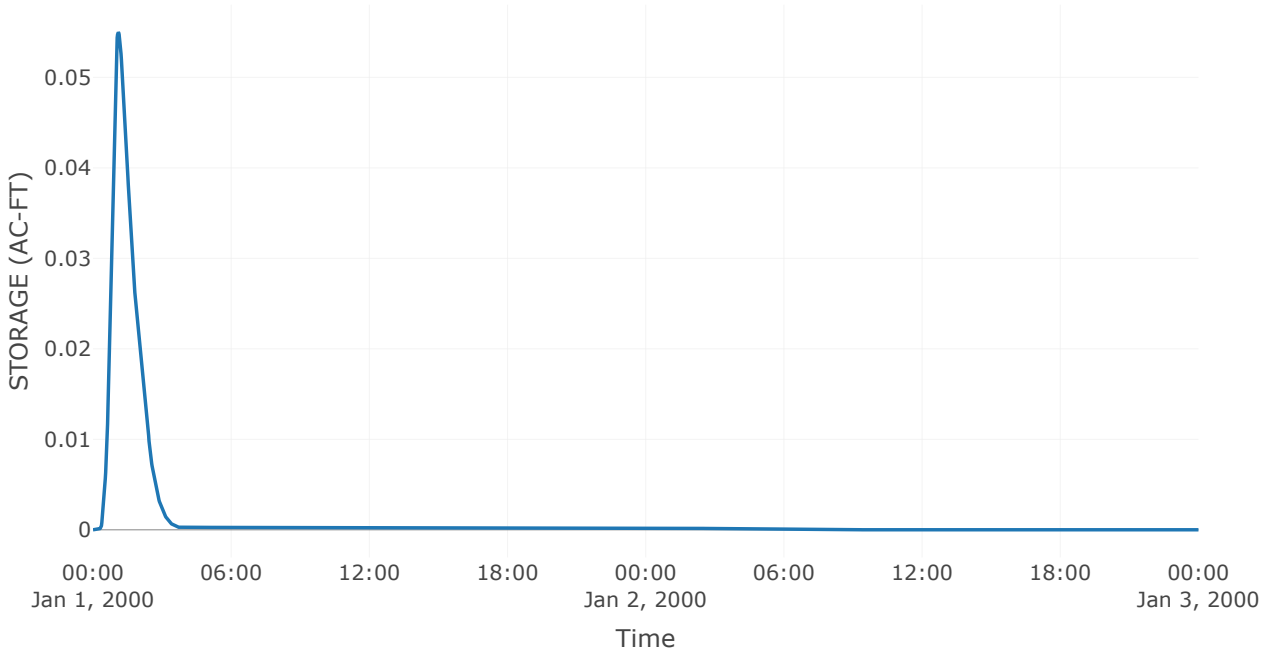

Outflow
80
70
60
50
40
30
20
10
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Storage East of Wolf Road

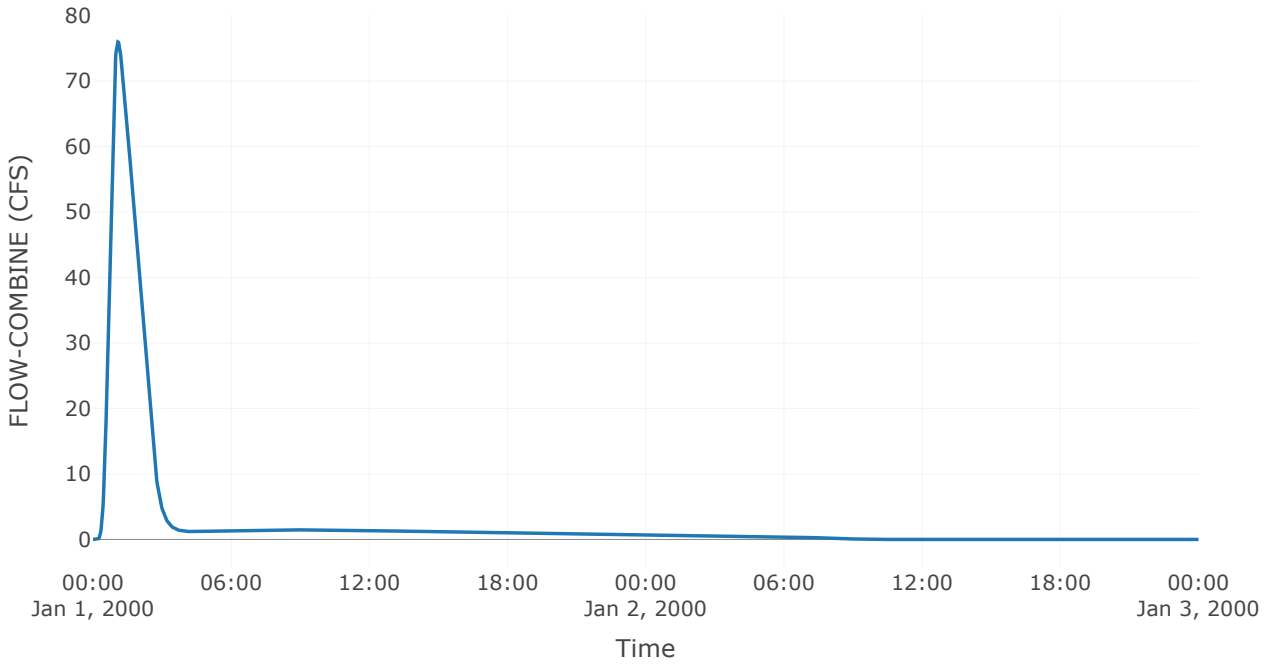
Downstream : Prop Storage West of Wolf Rd

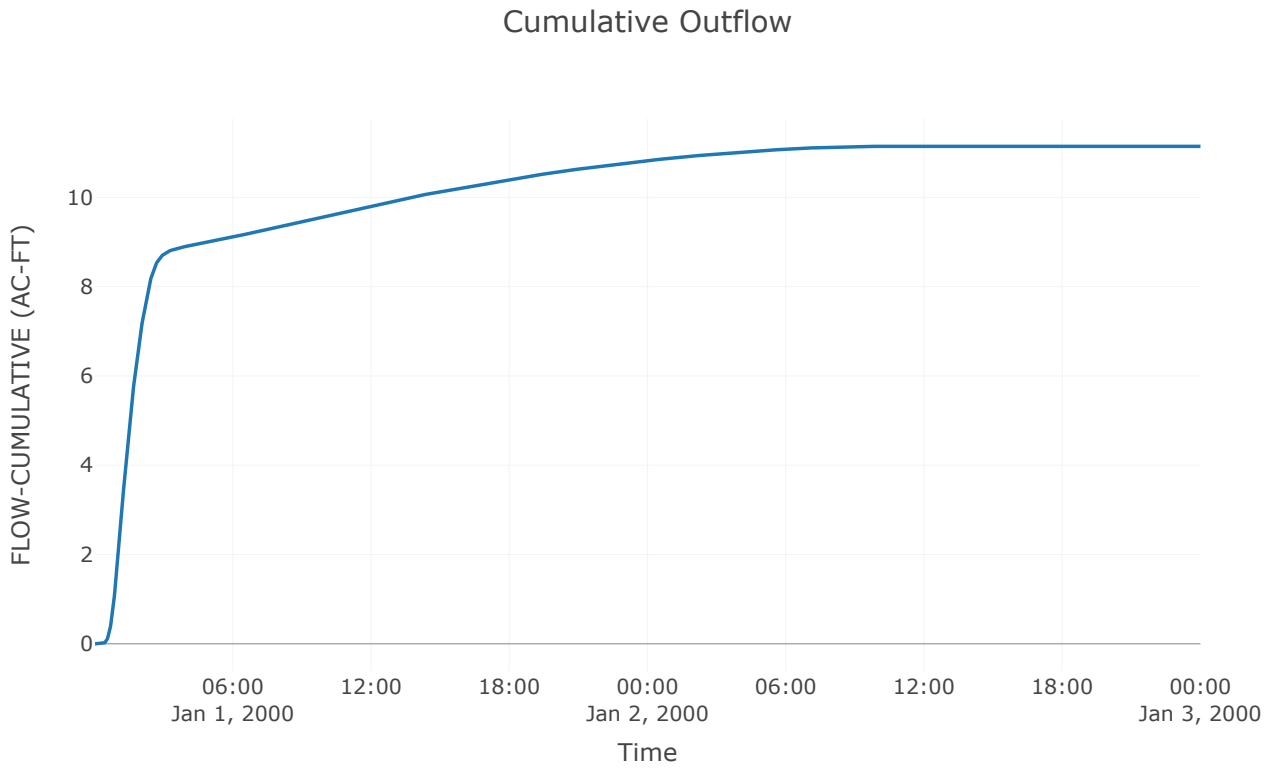
Results: Storage East of Wolf Road	
Peak Discharge (CFS)	75.95
Time of Peak Discharge	01Jan2000, 01:06
Volume (IN)	0.78
Peak Inflow (CFS)	75.98
Time of Peak Inflow	01Jan2000, 01:05
Inflow Volume (AC - FT)	11.15
Maximum Storage (AC - FT)	0.05
Peak Elevation (FT)	660.53
Discharge Volume (AC - FT)	11.14

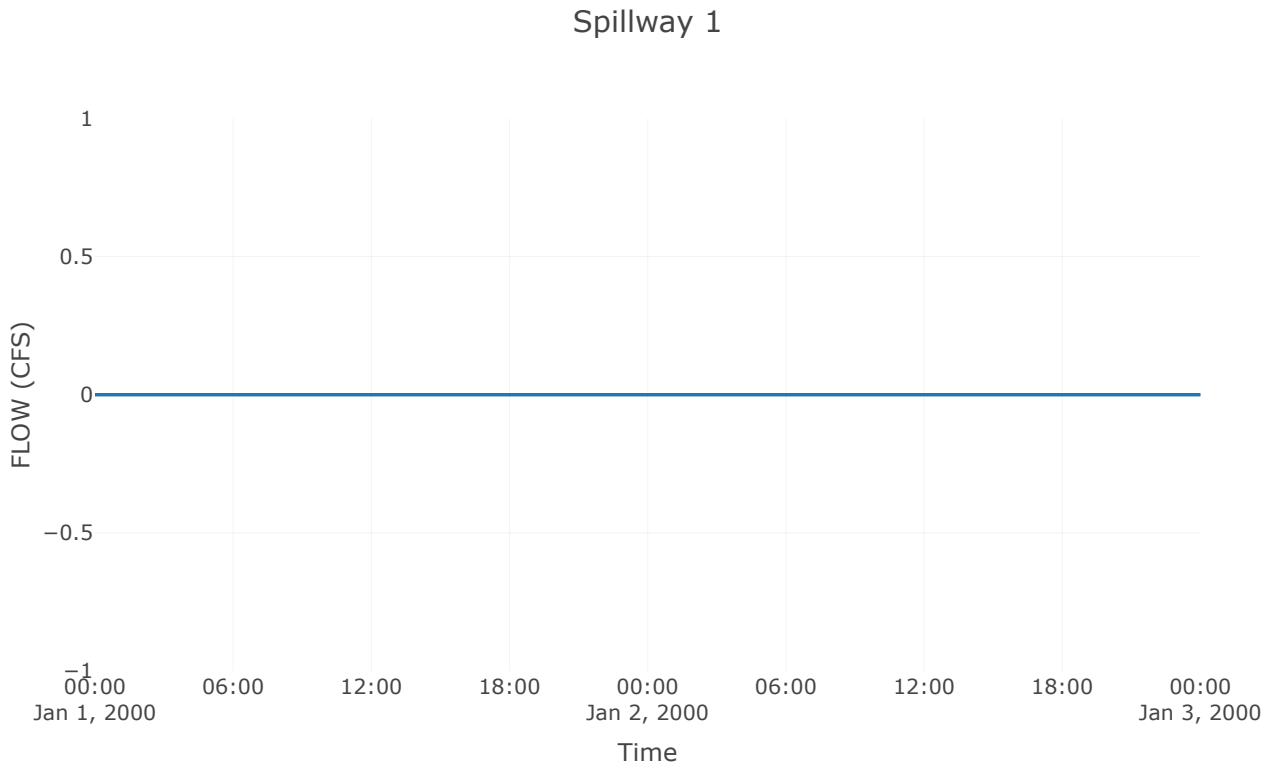
Storage



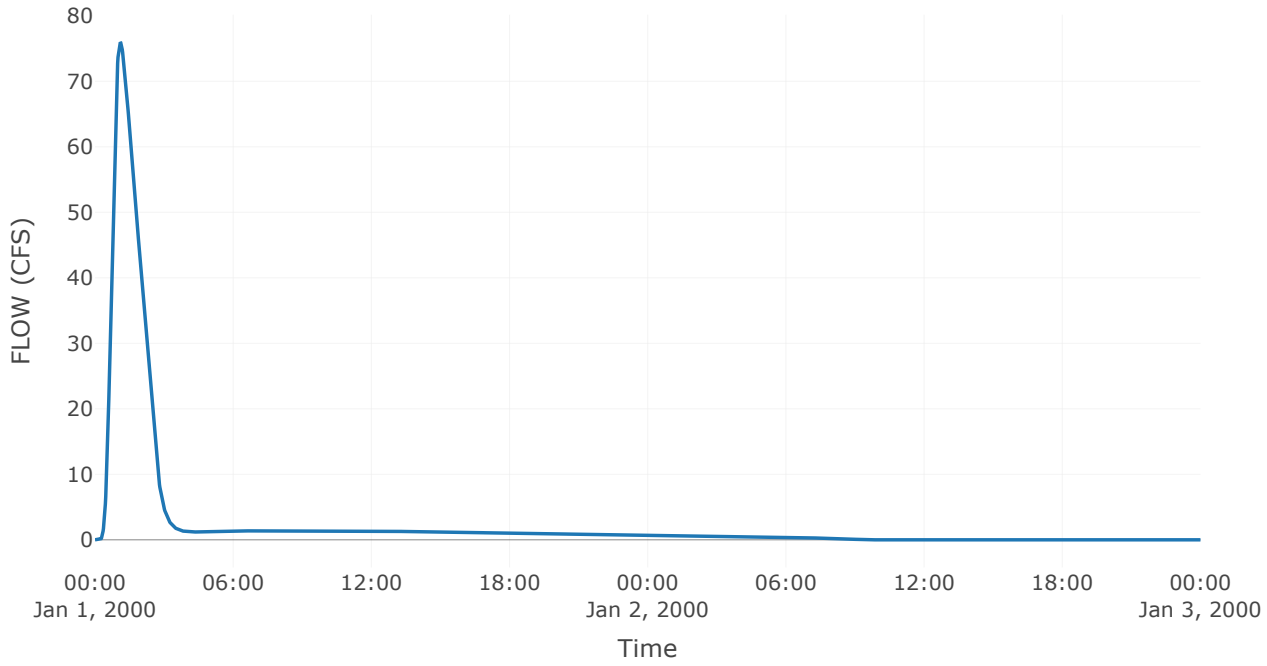
Combined Inflow



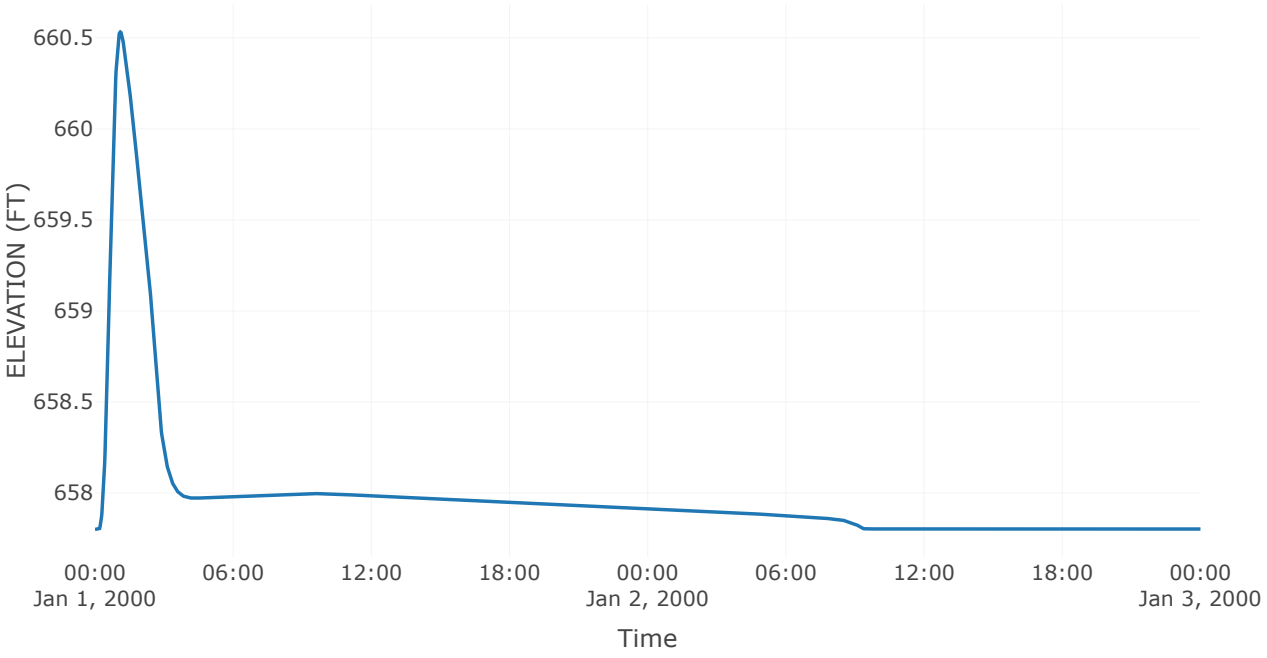

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
10
8
6
4
2
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

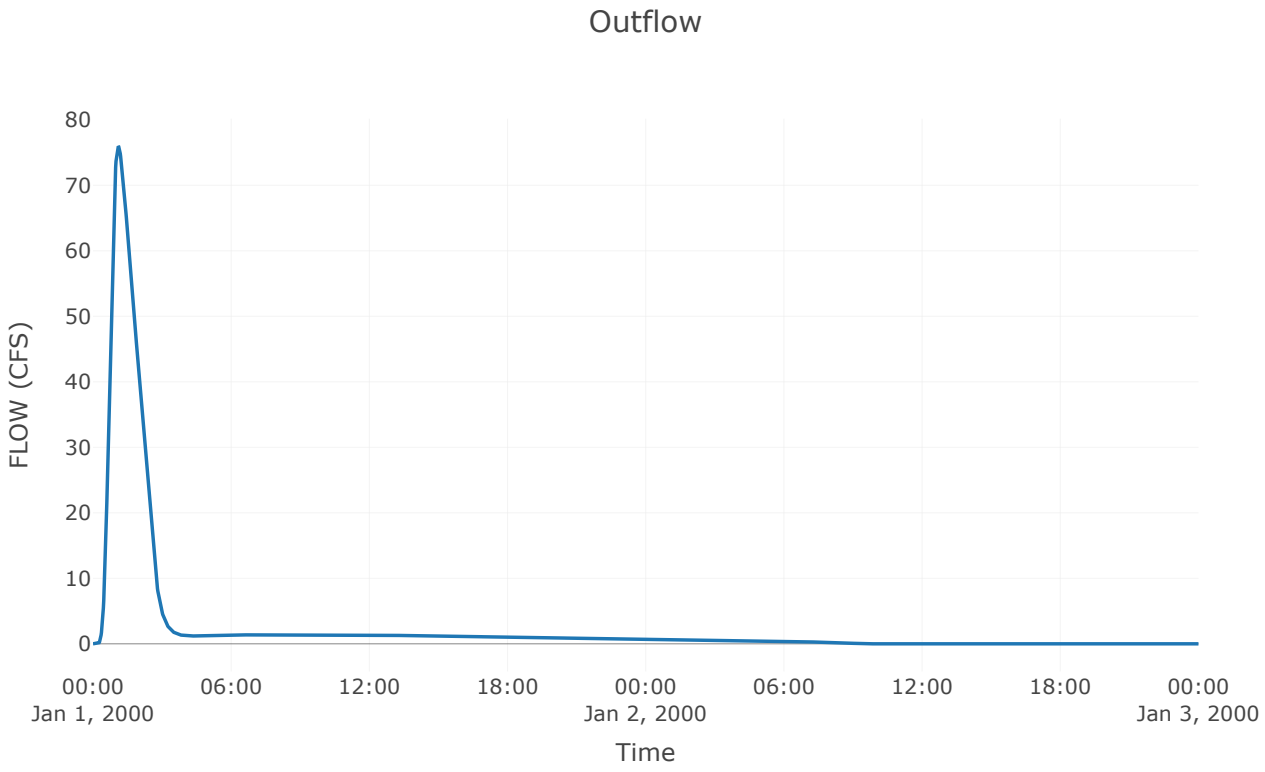

Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation



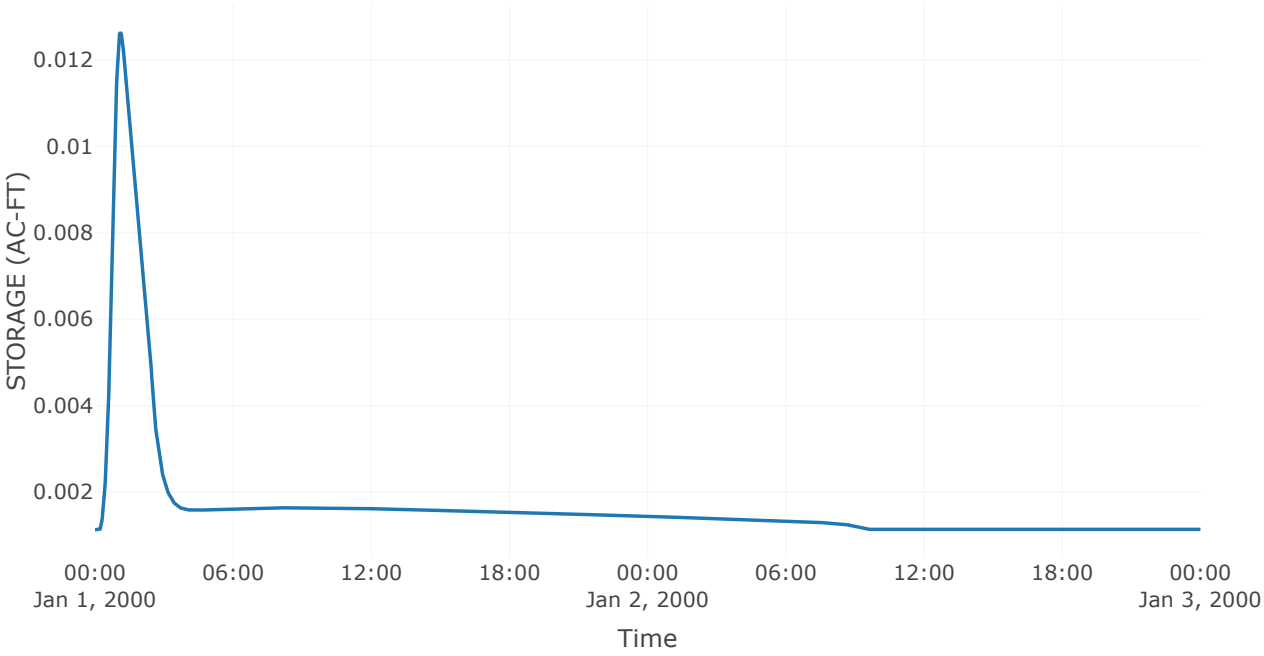

Outflow
80
70
60
50
40
30
20
10
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Prop Storage West of Wolf Rd

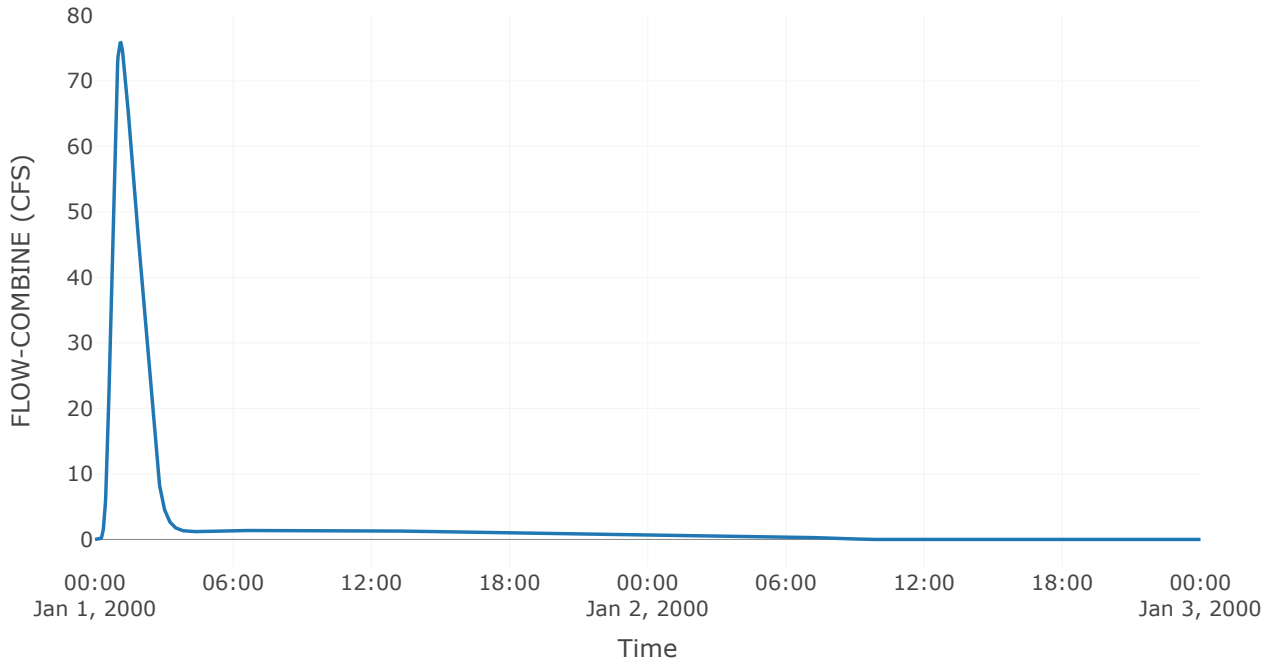
Downstream : Proposed Basin C

Results: Prop Storage West of Wolf Rd	
Peak Discharge (CFS)	75.97
Time of Peak Discharge	01Jan2000, 01:06
Volume (IN)	0.77
Peak Inflow (CFS)	75.95
Time of Peak Inflow	01Jan2000, 01:06
Inflow Volume (AC - FT)	11.14
Maximum Storage (AC - FT)	0.01
Peak Elevation (FT)	654.19
Discharge Volume (AC - FT)	11.11

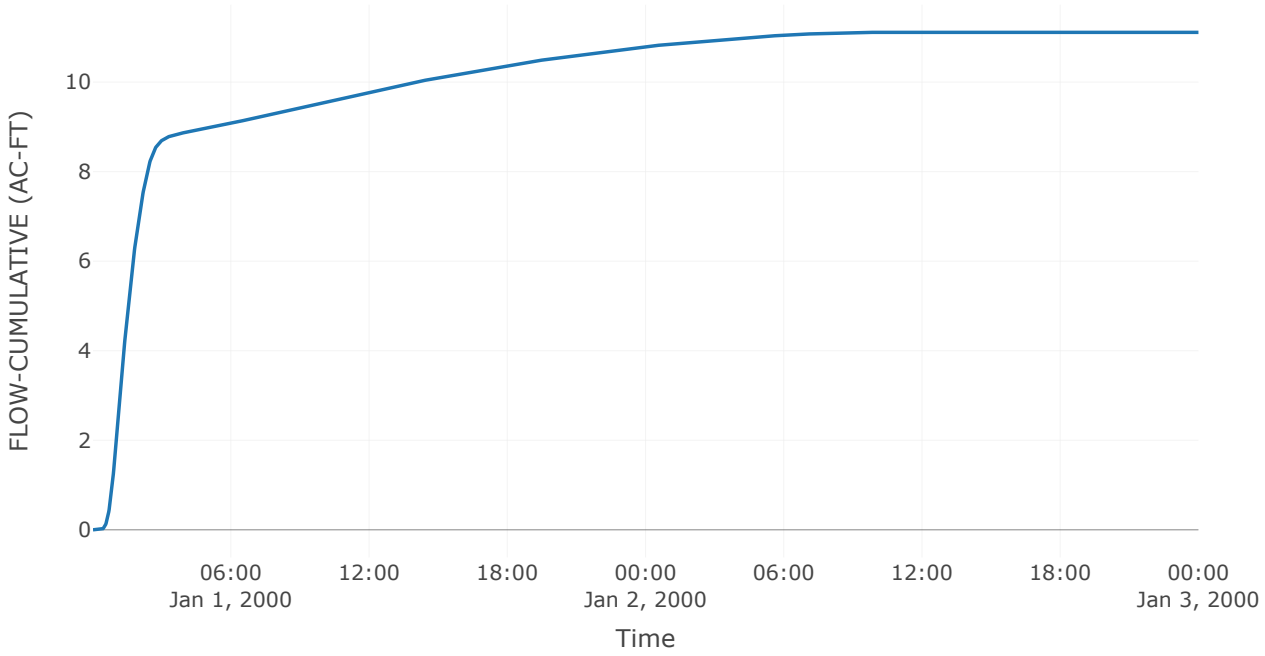
Storage



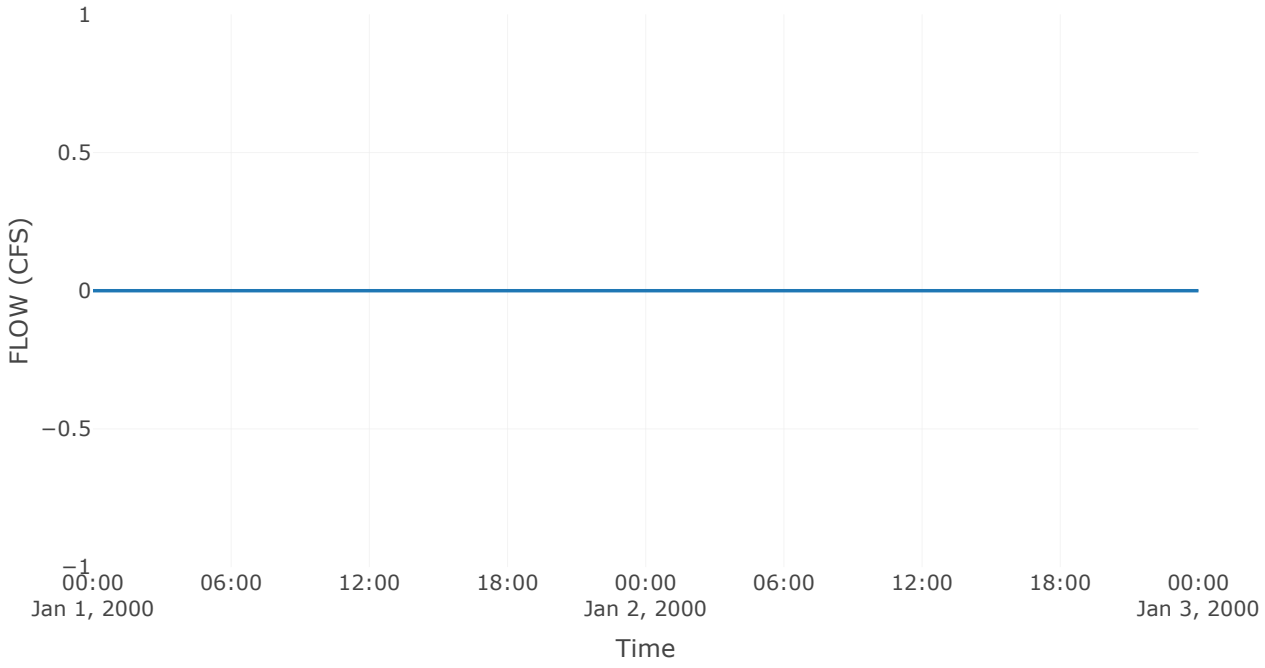
Combined Inflow



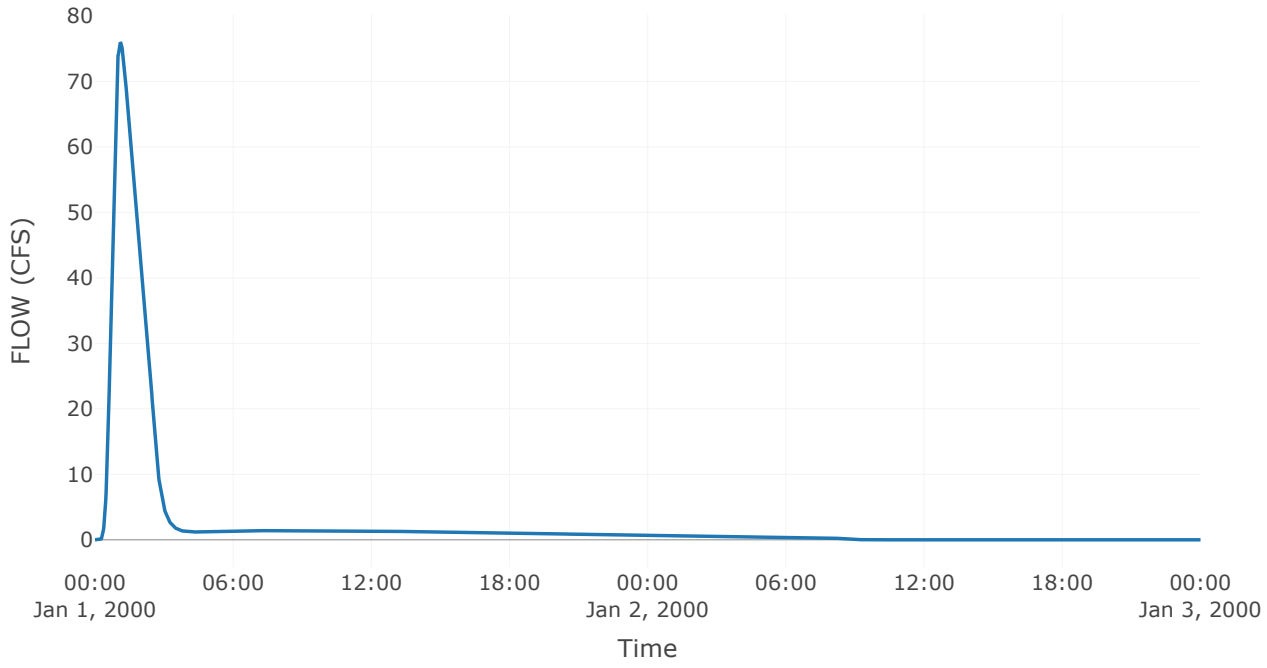
Cumulative Outflow



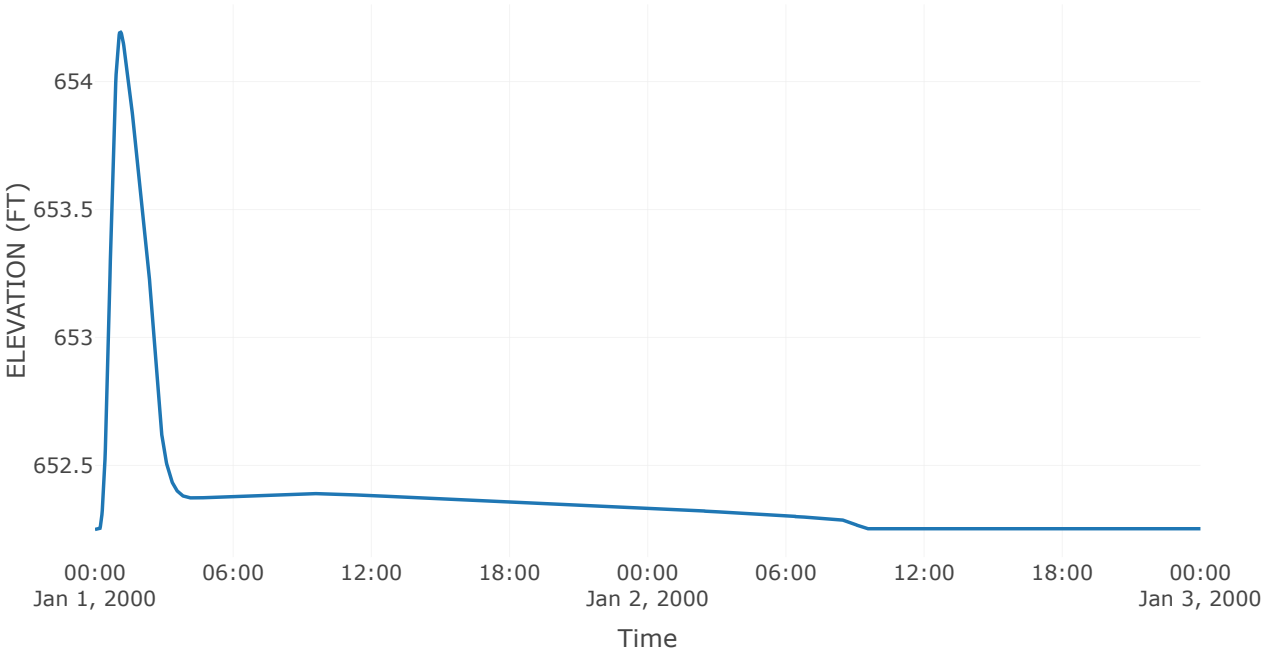
Spillway 1



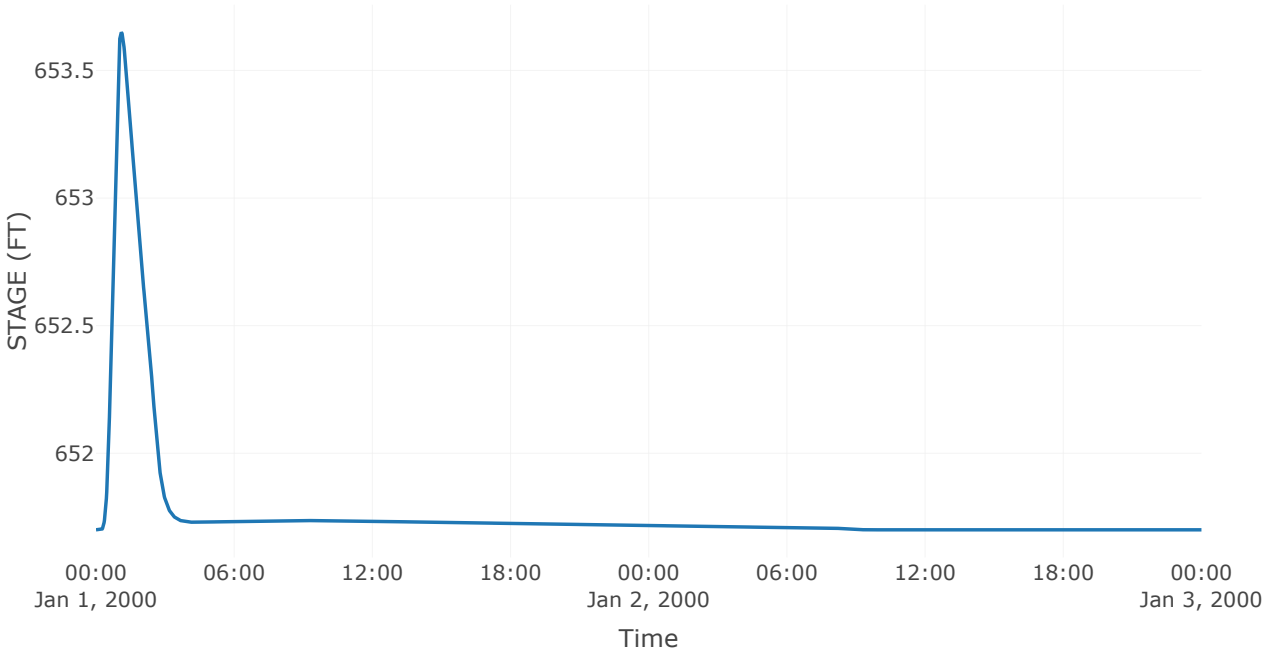
Outlet 1



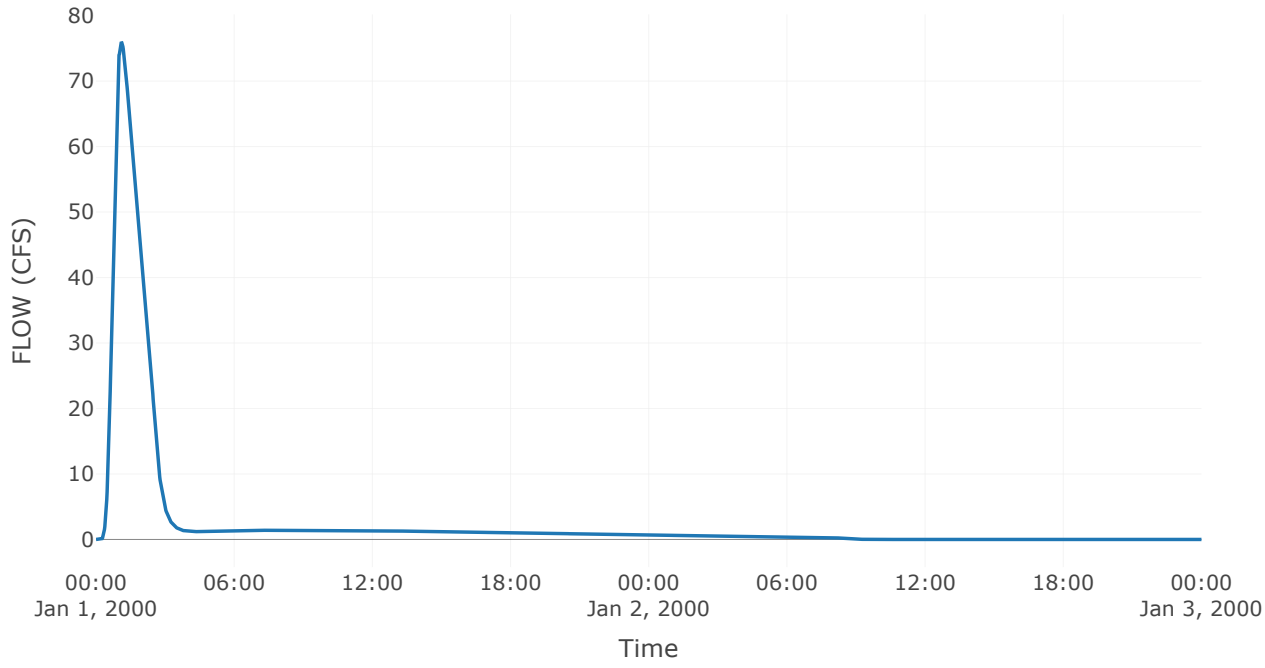
Pool Elevation



Stage



Outflow



Subbasin: Prop On-Site

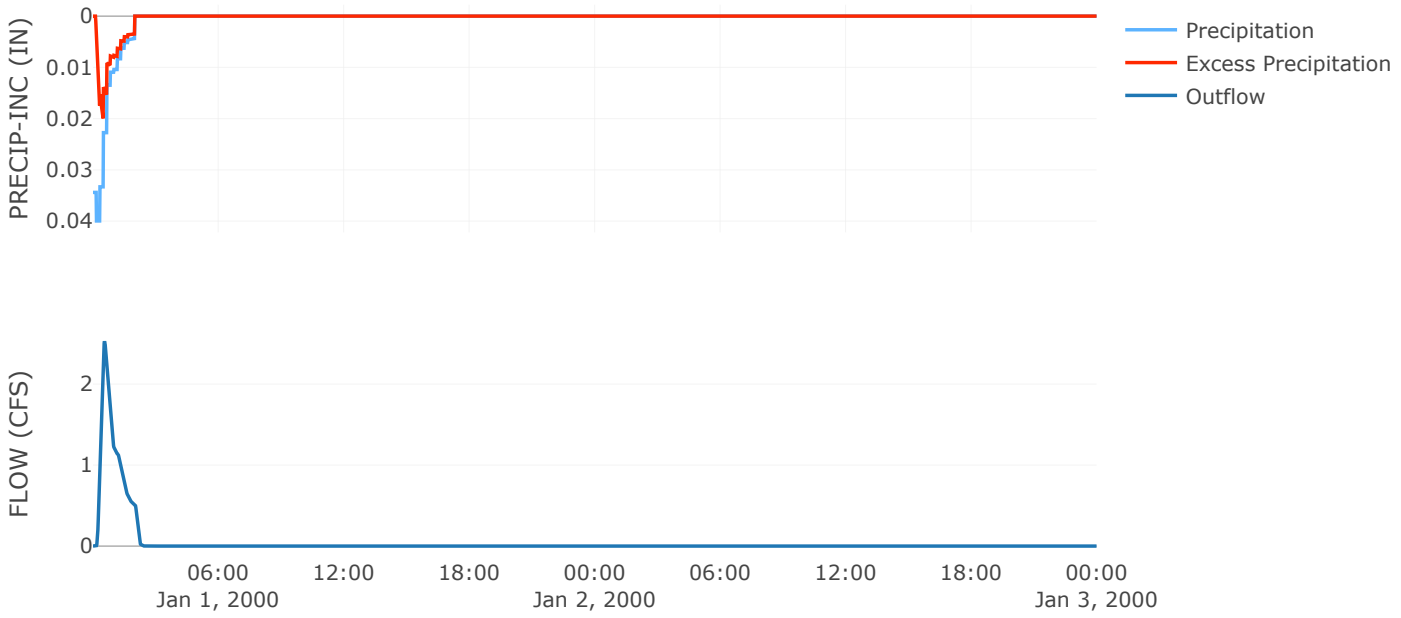
Area (MI2) : 0
Downstream : Proposed Basin C

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	88.03

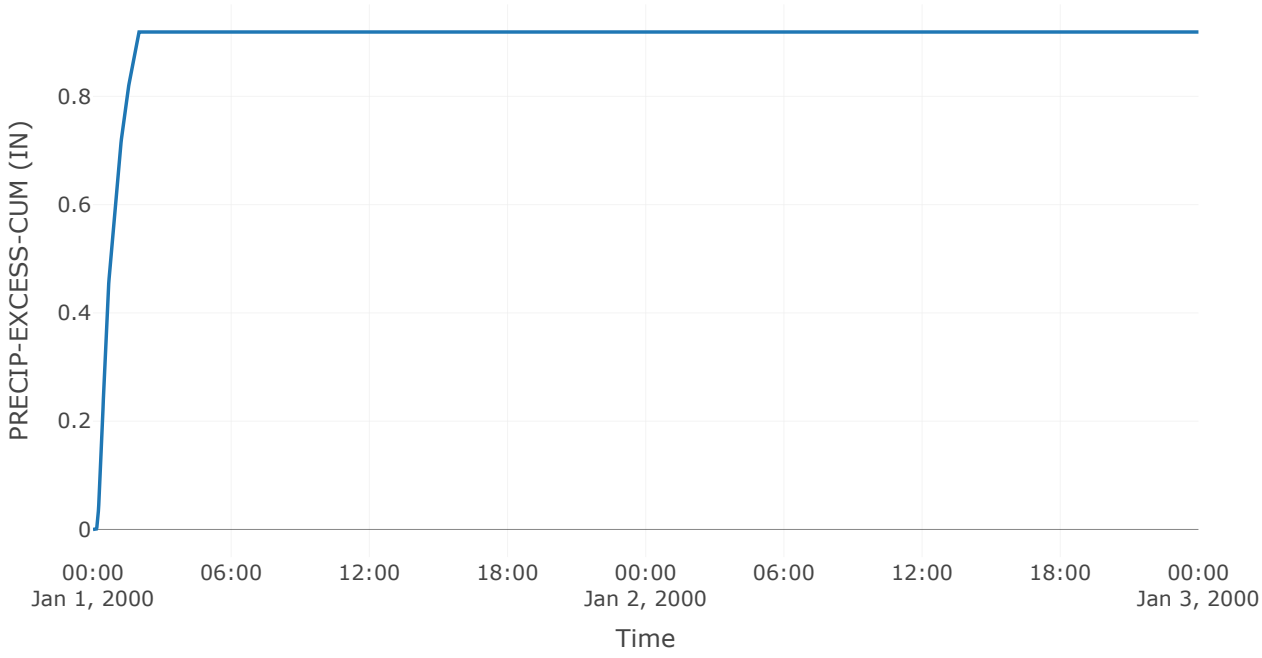
Transform: Scs	
Lag	6
Unitgraph Type	Standard

Results: Prop On-Site	
Peak Discharge (CFS)	2.53
Time of Peak Discharge	01Jan2000, 00:33
Volume (IN)	0.92
Precipitation Volume (AC - FT)	0.39
Loss Volume (AC - FT)	0.21
Excess Volume (AC - FT)	0.18
Direct Runoff Volume (AC - FT)	0.18
Baseflow Volume (AC - FT)	0

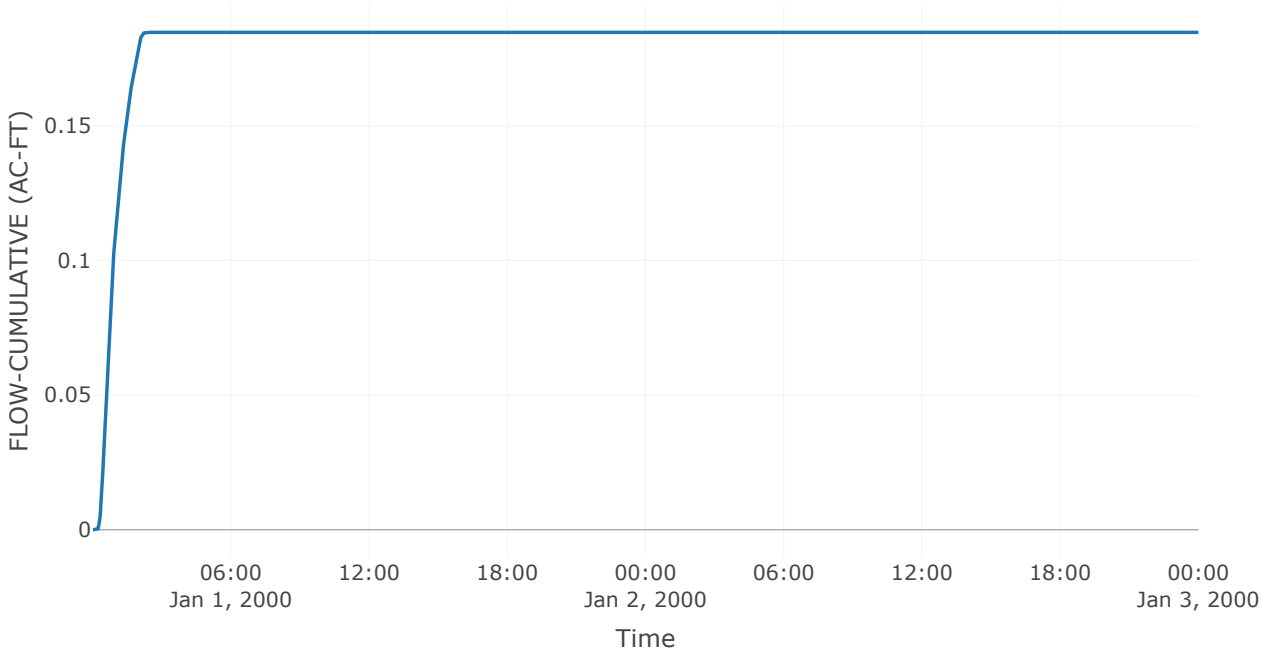
Precipitation and Outflow



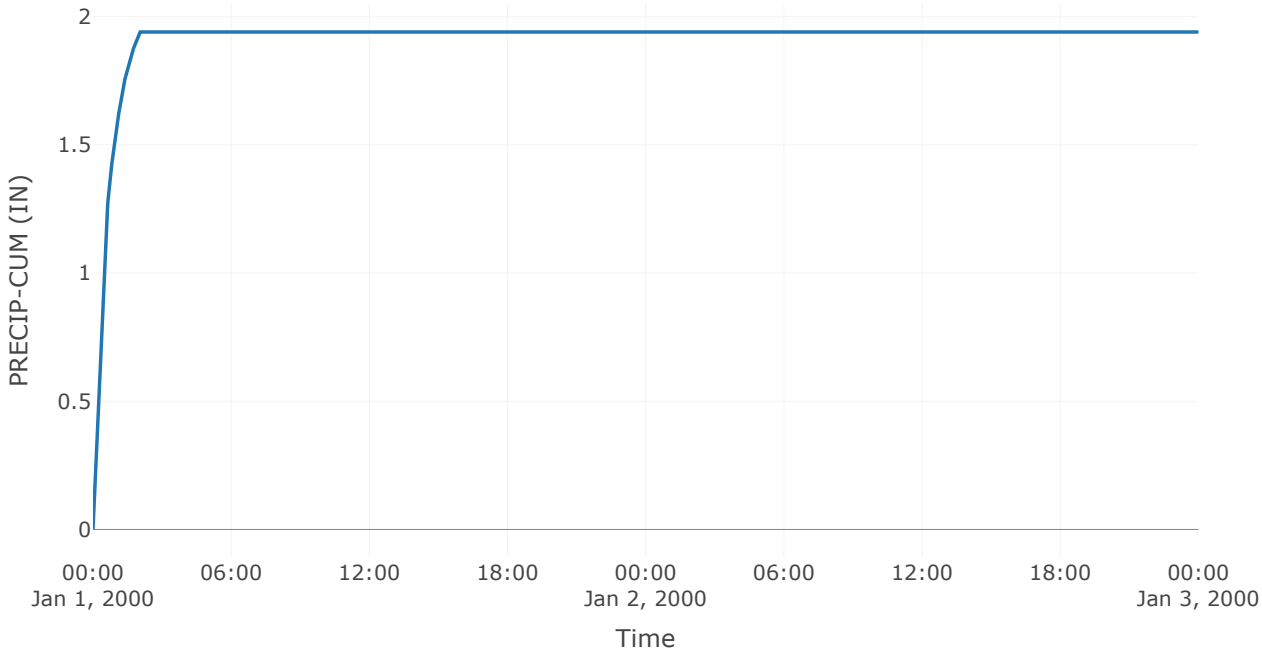
Cumulative Excess Precipitation



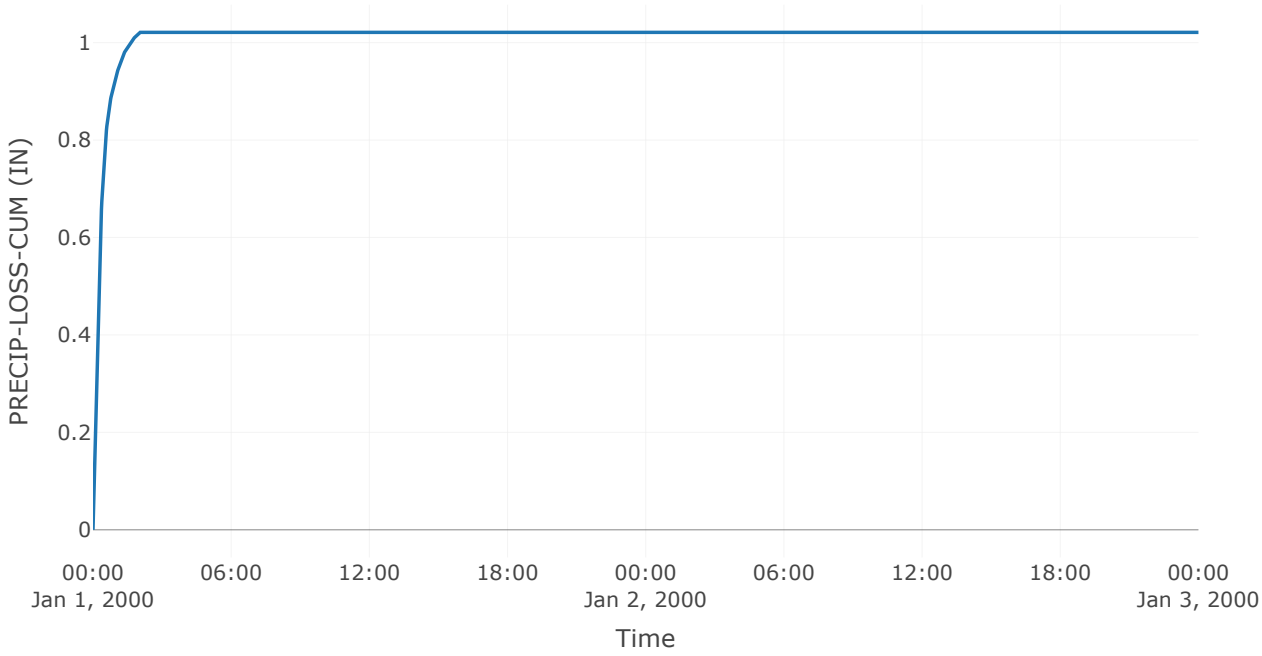
Cumulative Outflow



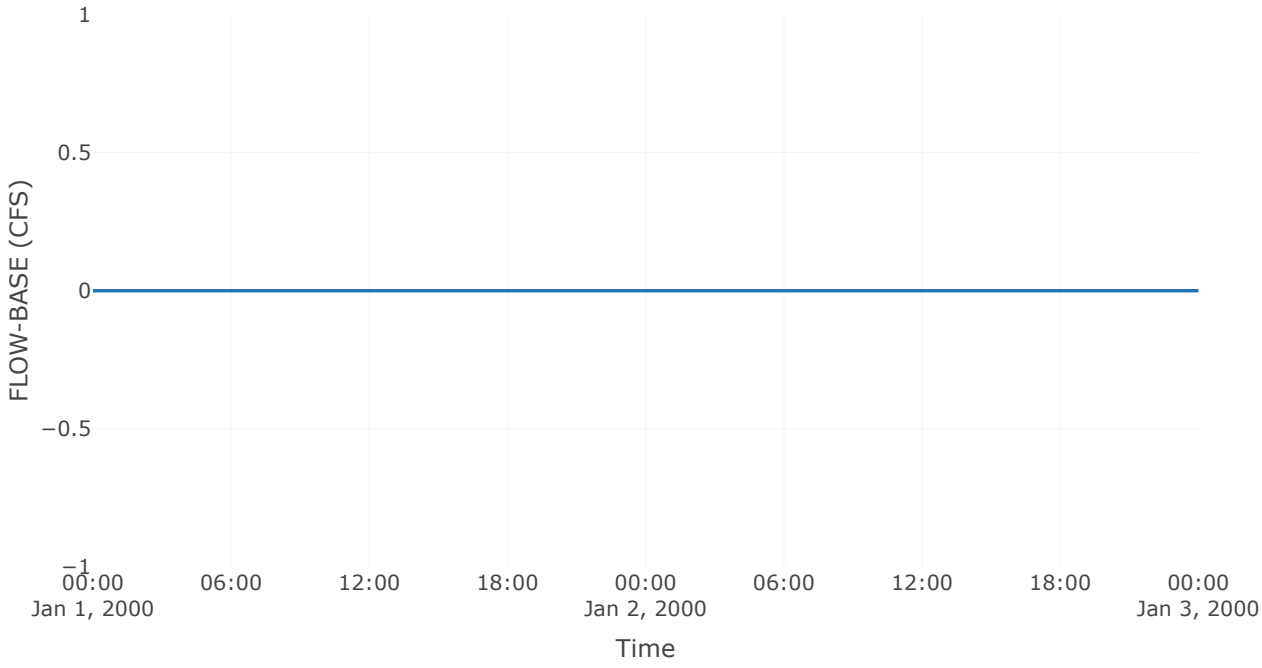
Cumulative Precipitation



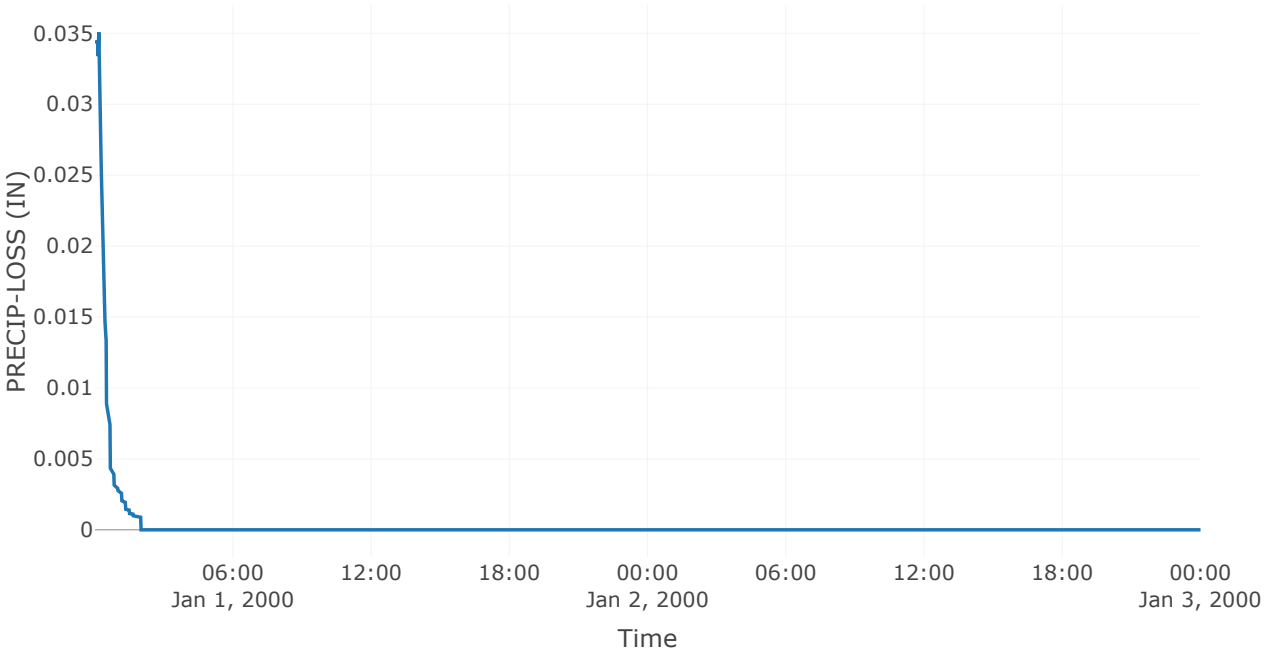
Cumulative Precipitation Loss



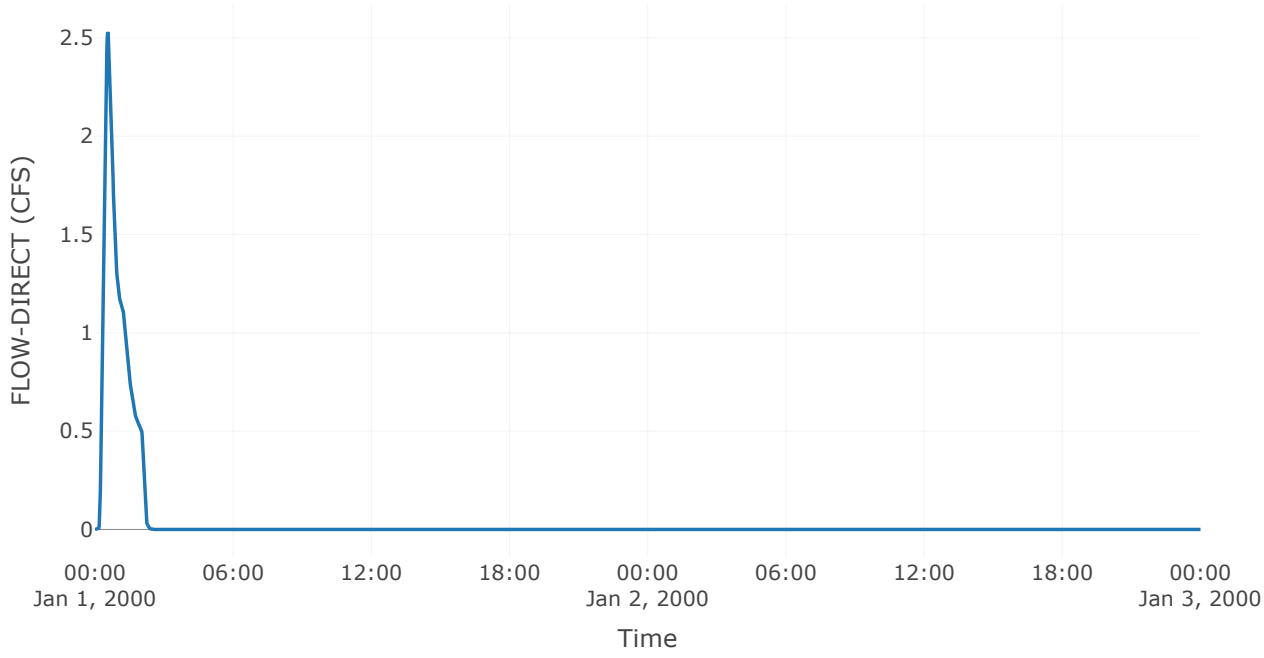
Baseflow

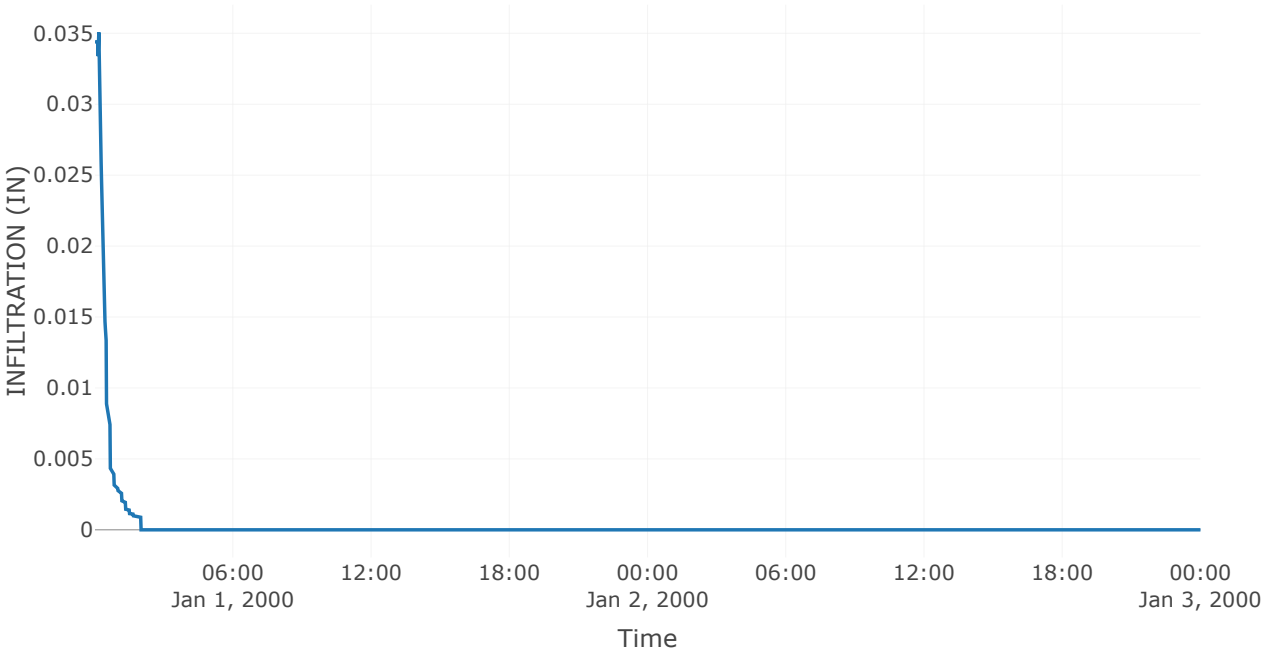


Precipitation Loss



Direct Runoff



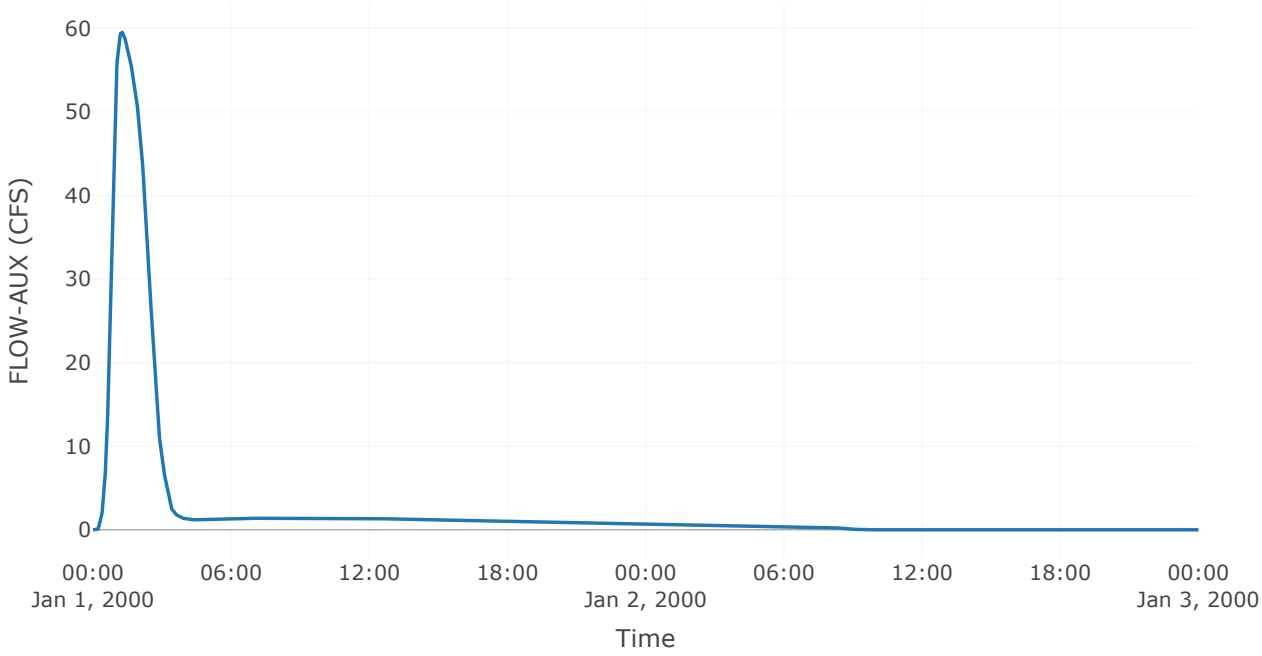

Soil Infiltration
INFILTRATION (IN)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Proposed Basin C

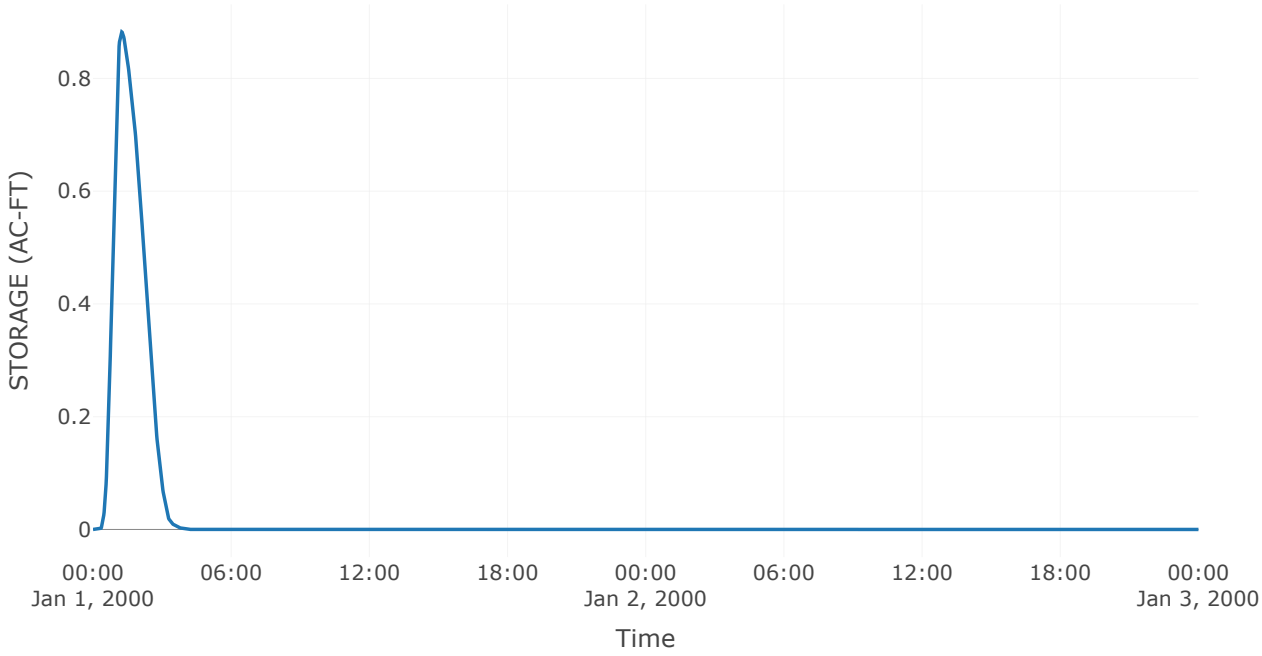
Downstream : Existing Basin A & B

Results: Proposed Basin C	
Peak Discharge (CFS)	14.53
Time of Peak Discharge	01Jan2000, 01:15
Volume (IN)	0.04
Peak Inflow (CFS)	77.13
Time of Peak Inflow	01Jan2000, 01:06
Inflow Volume (AC - FT)	11.3
Maximum Storage (AC - FT)	0.88
Peak Elevation (FT)	650.72
Discharge Volume (AC - FT)	0.65

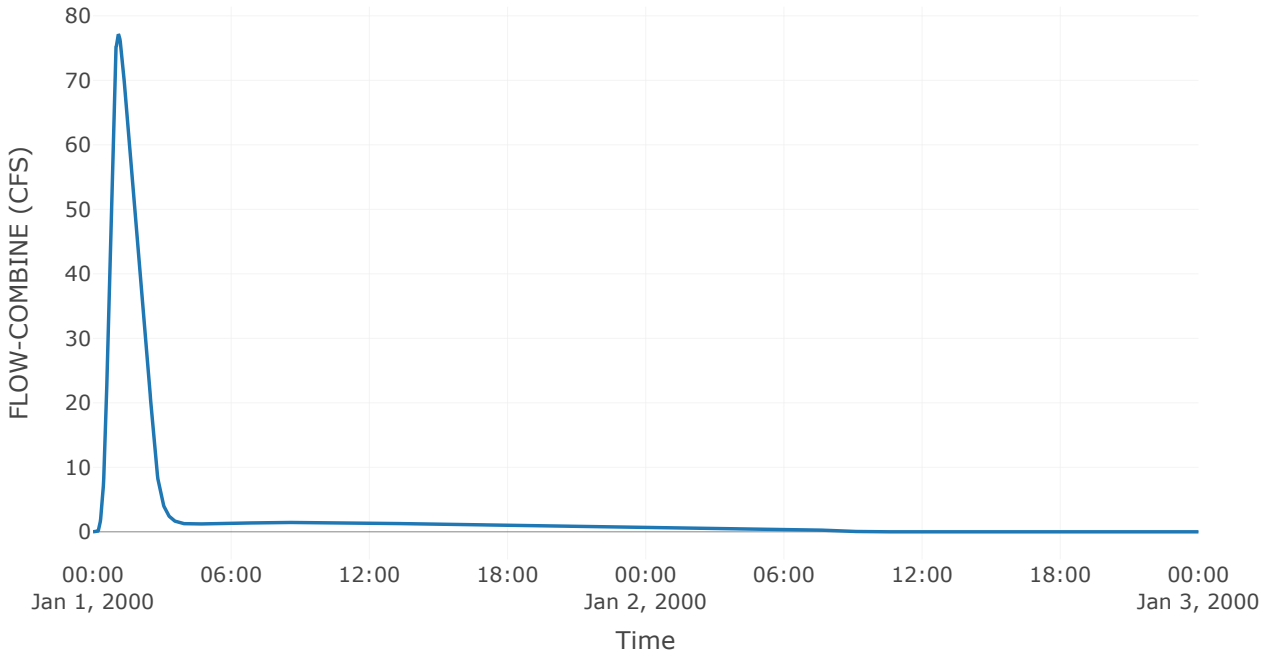
Auxiliary Outflow



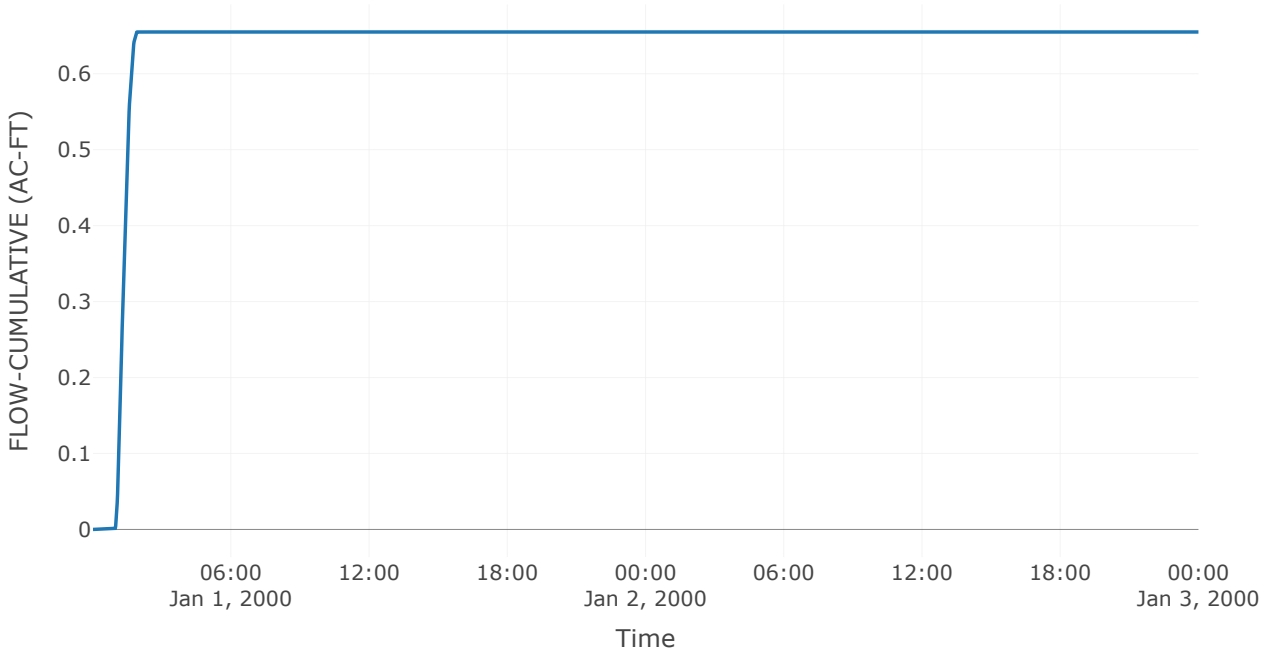
Storage

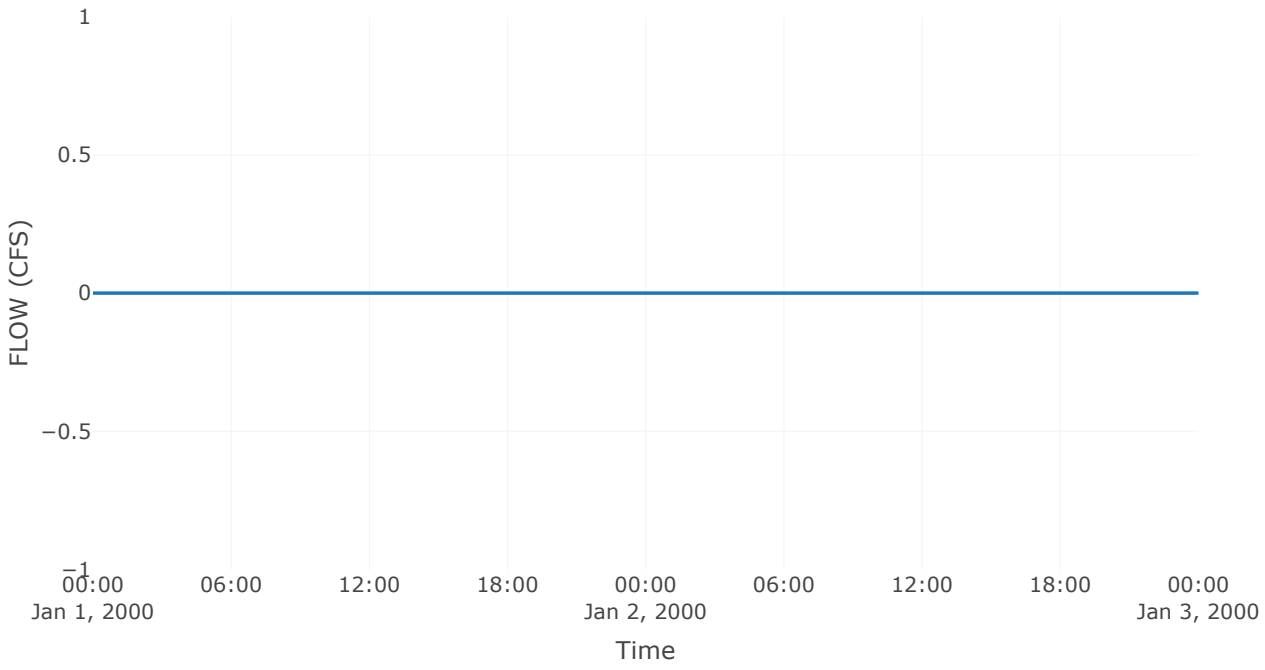


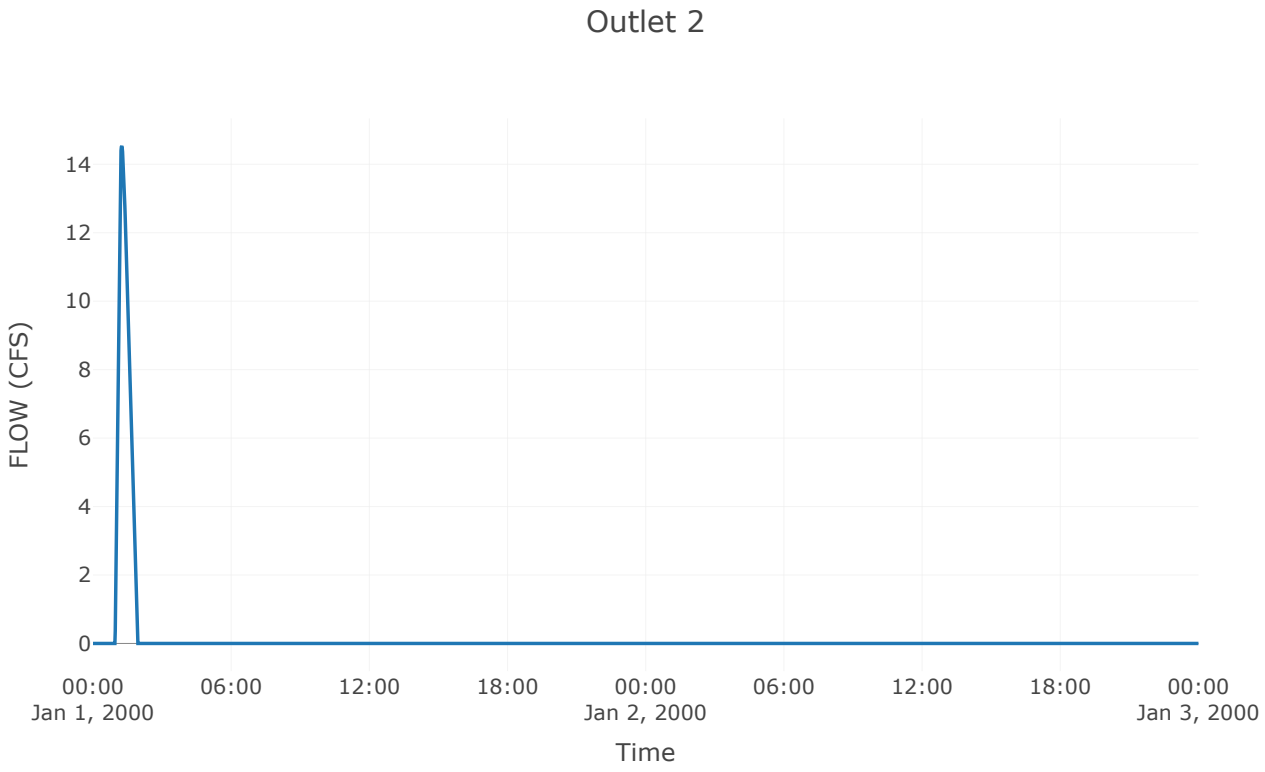
Combined Inflow



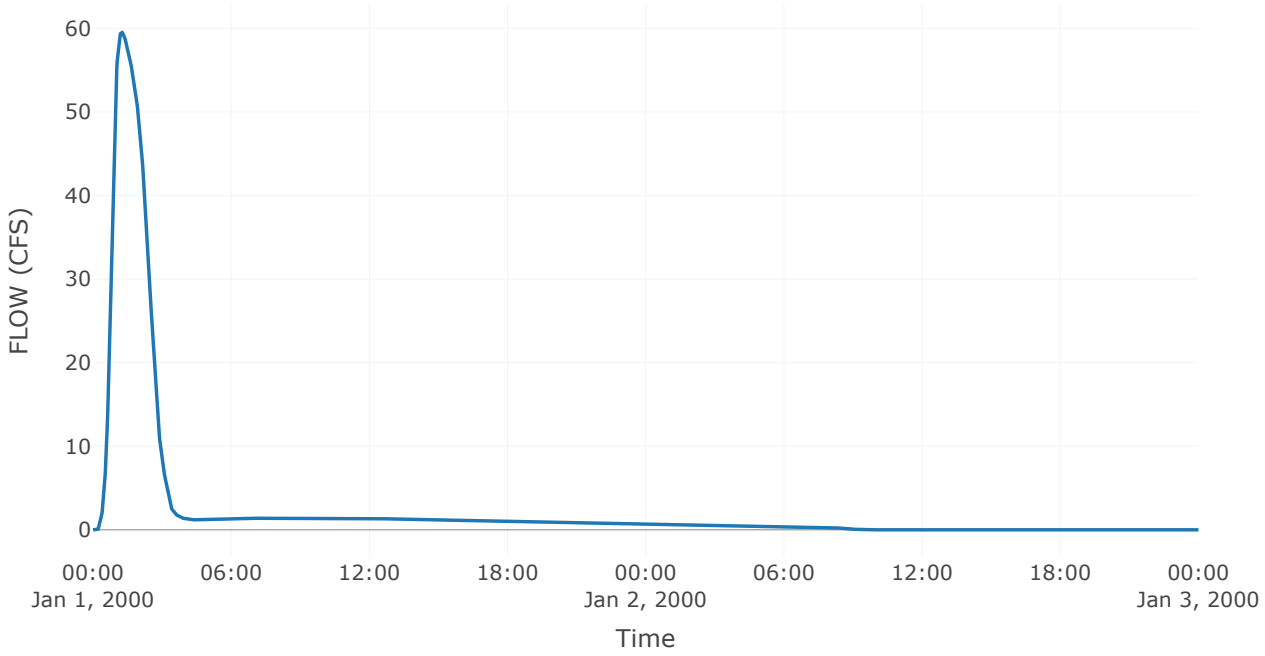
Cumulative Outflow



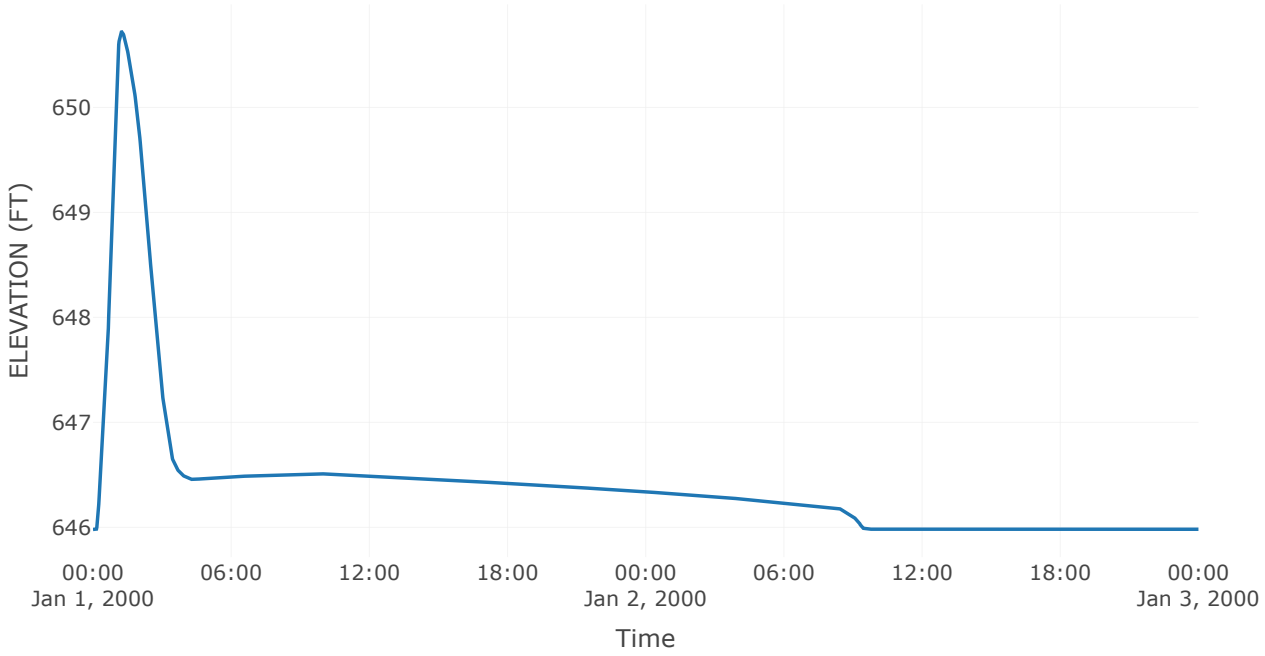

Spillway 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

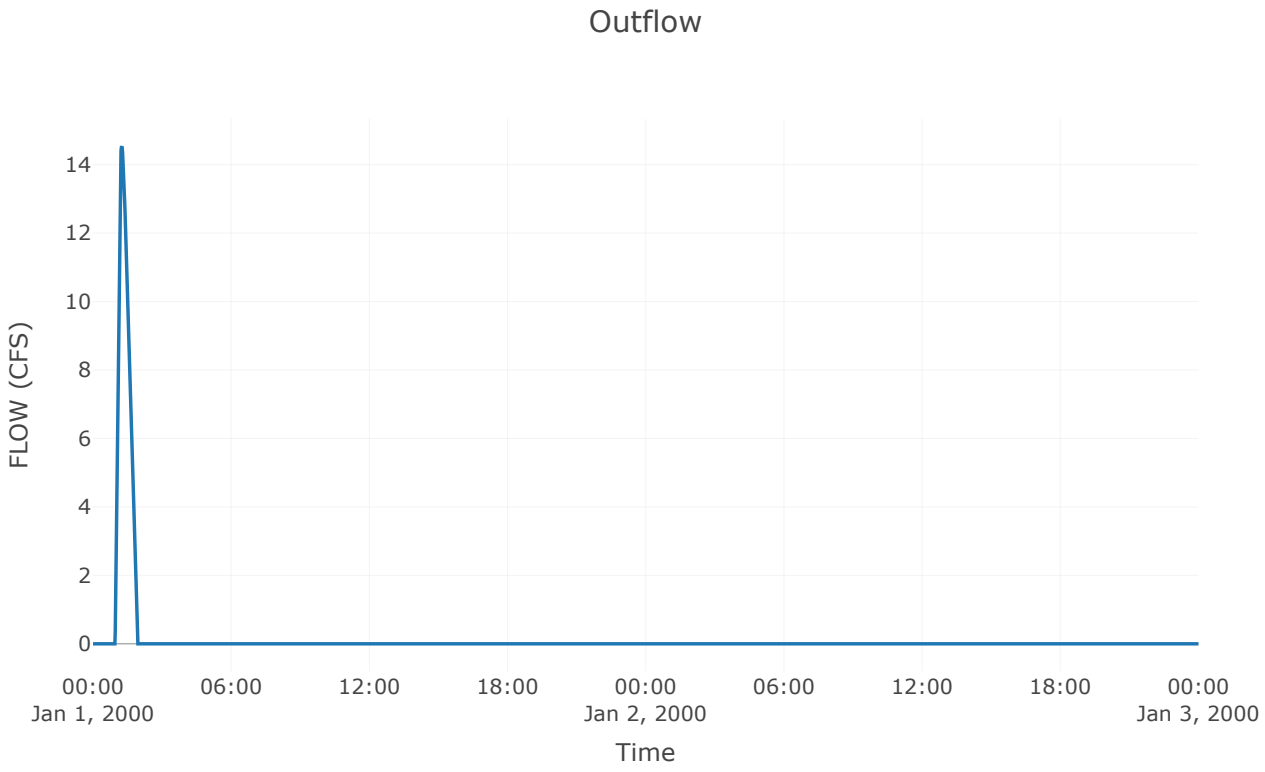

Outlet 2
14
12
10
8
6
4
2
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation

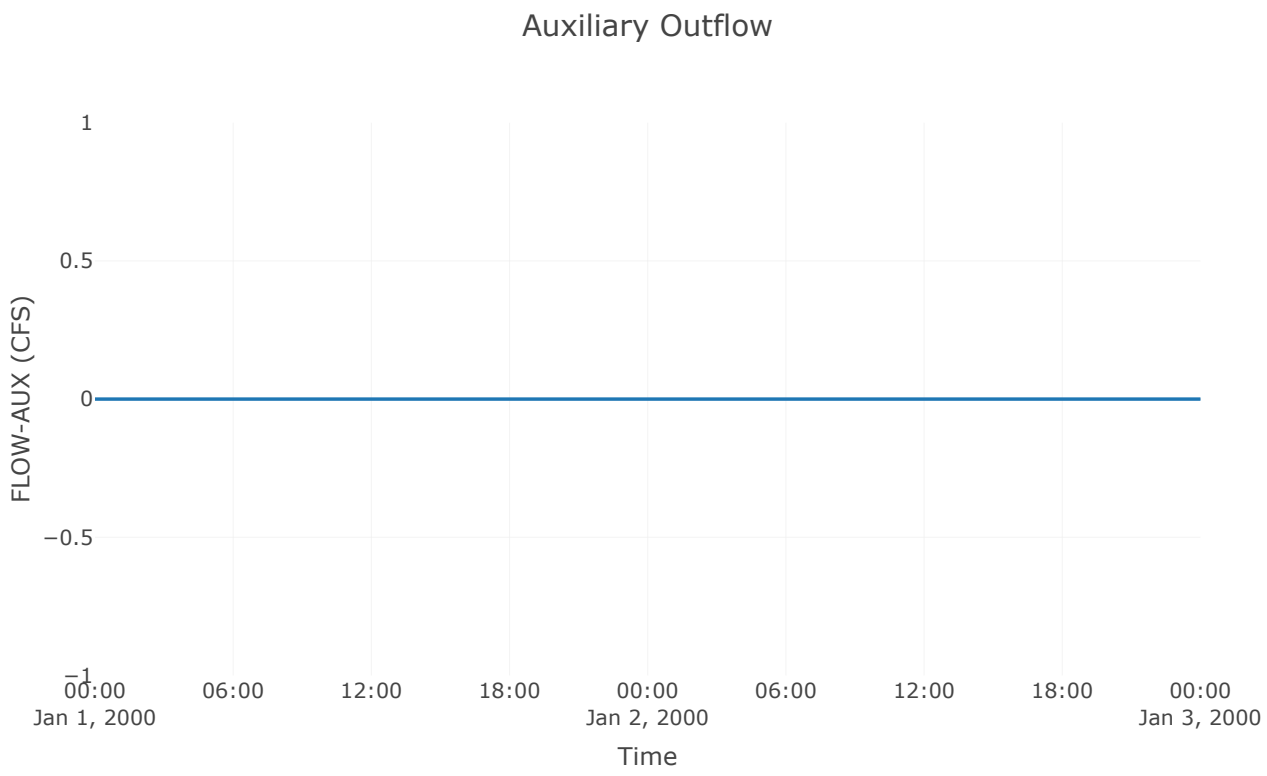


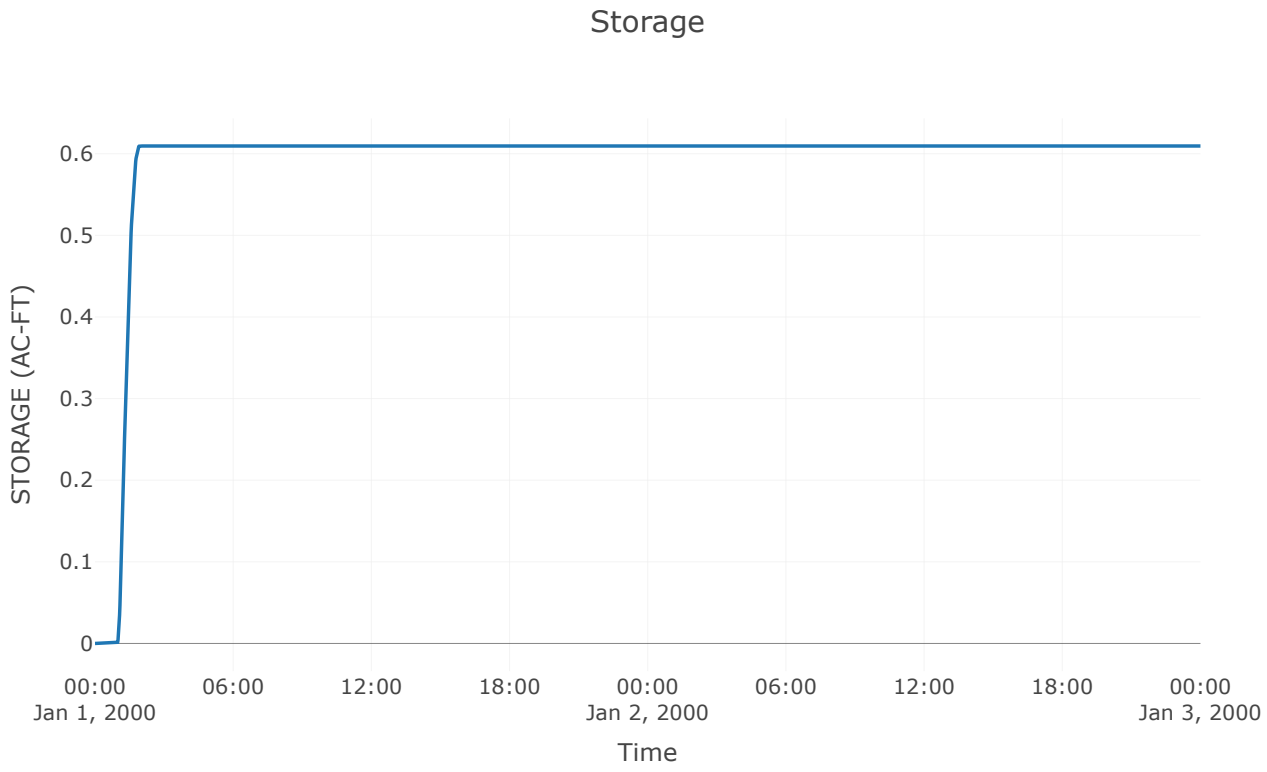

Outflow
FLOW (CFS)
14
12
10
8
6
4
2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Existing Basin A & B

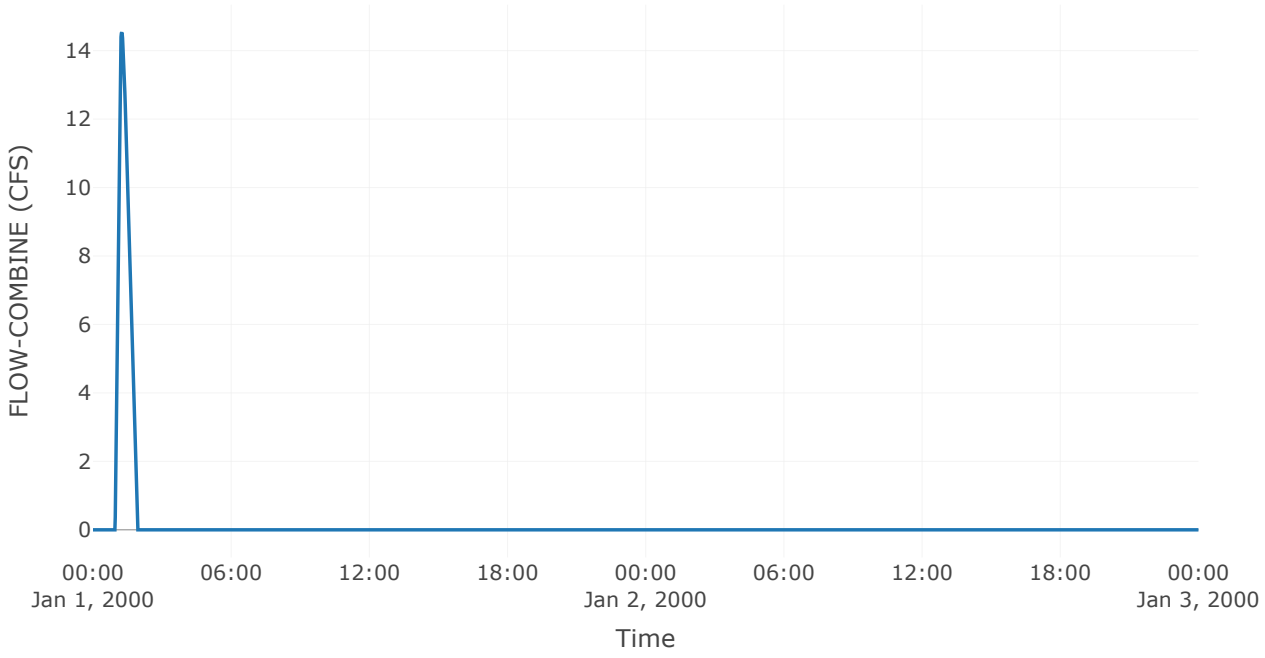
Downstream : Outlet Storm Box

Results: Existing Basin A & B	
Peak Discharge (CFS)	0
Time of Peak Discharge	31Dec1999, 24:00
Volume (IN)	0
Peak Inflow (CFS)	14.53
Time of Peak Inflow	01Jan2000, 01:15
Inflow Volume (AC - FT)	0.65
Maximum Storage (AC - FT)	0.61
Peak Elevation (FT)	649.87
Discharge Volume (AC - FT)	0

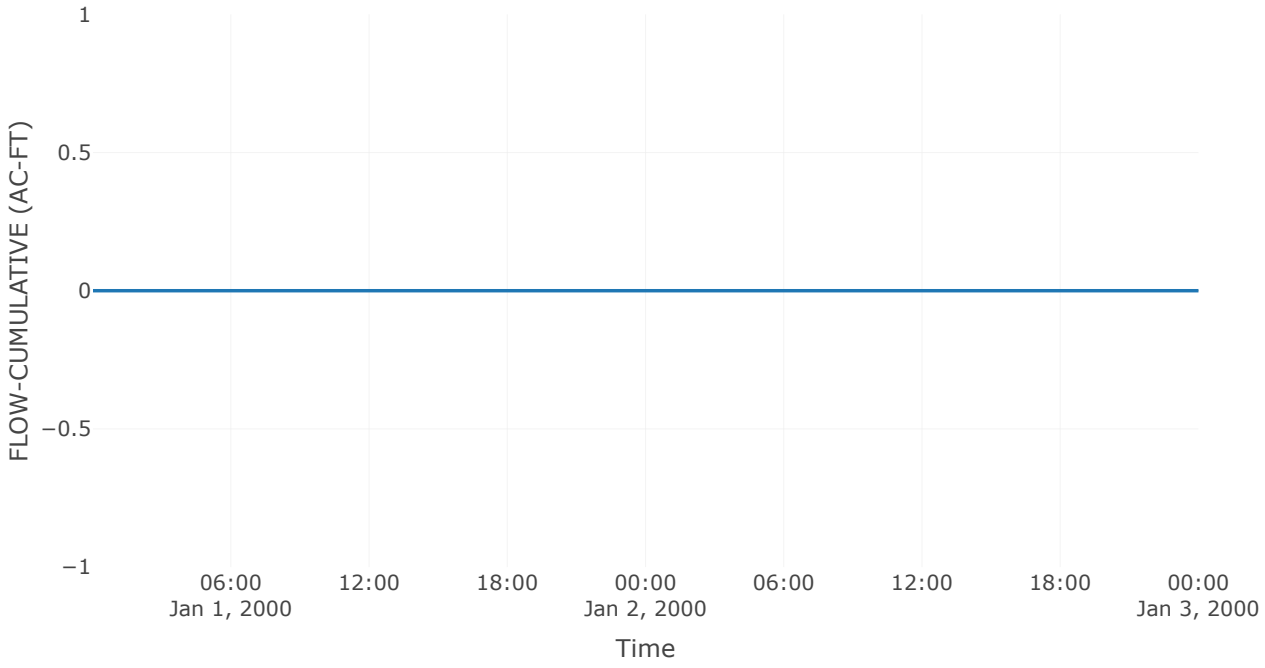

Auxiliary Outflow
FLOW-AUX (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

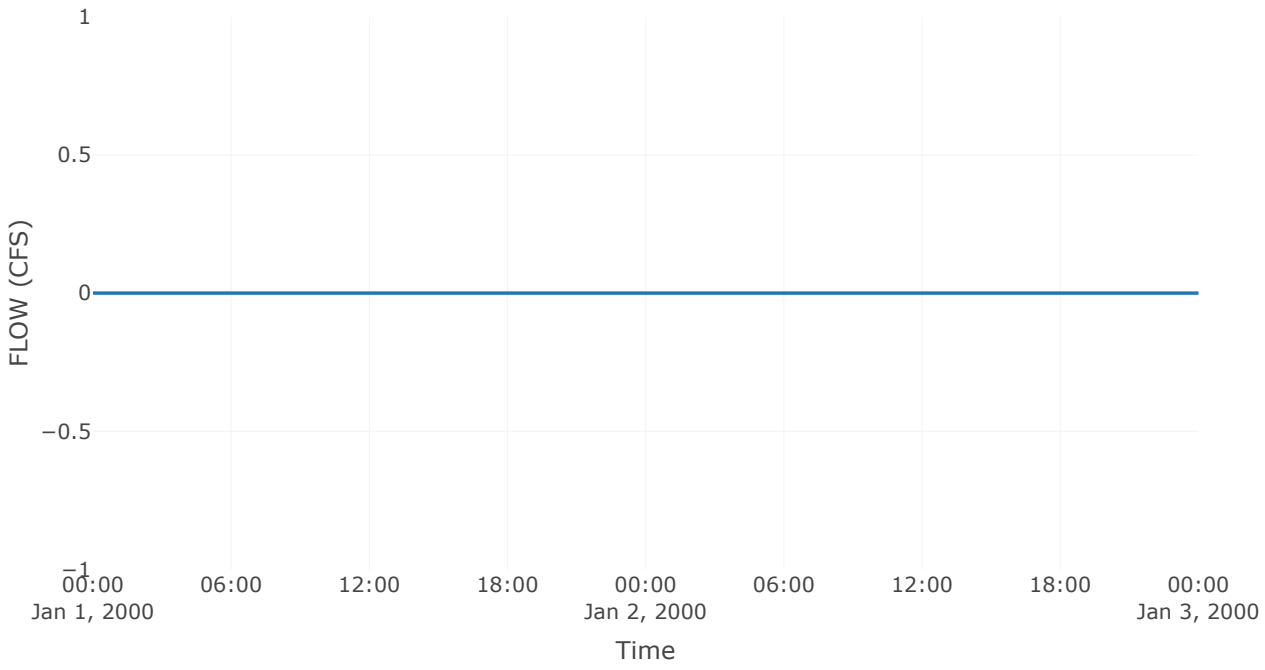

Storage
STORAGE (AC-FT)
0.6
0.5
0.4
0.3
0.2
0.1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

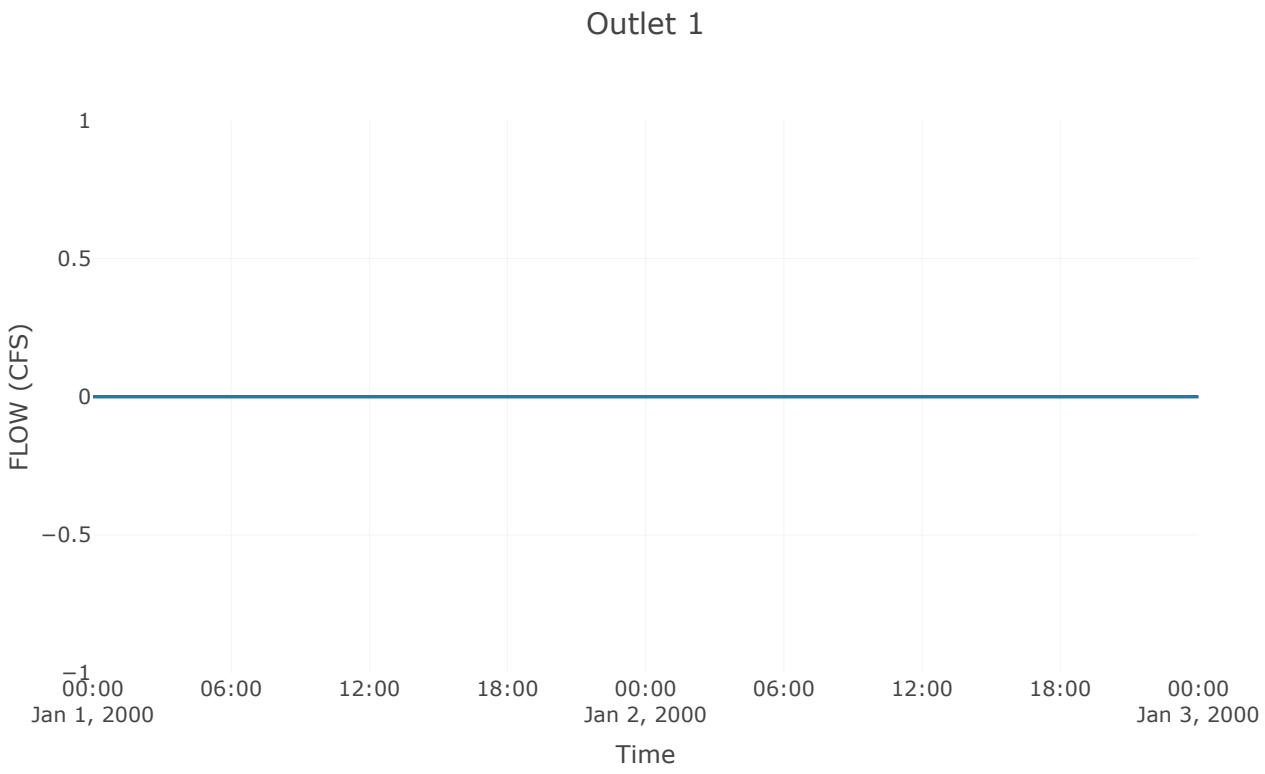
Combined Inflow



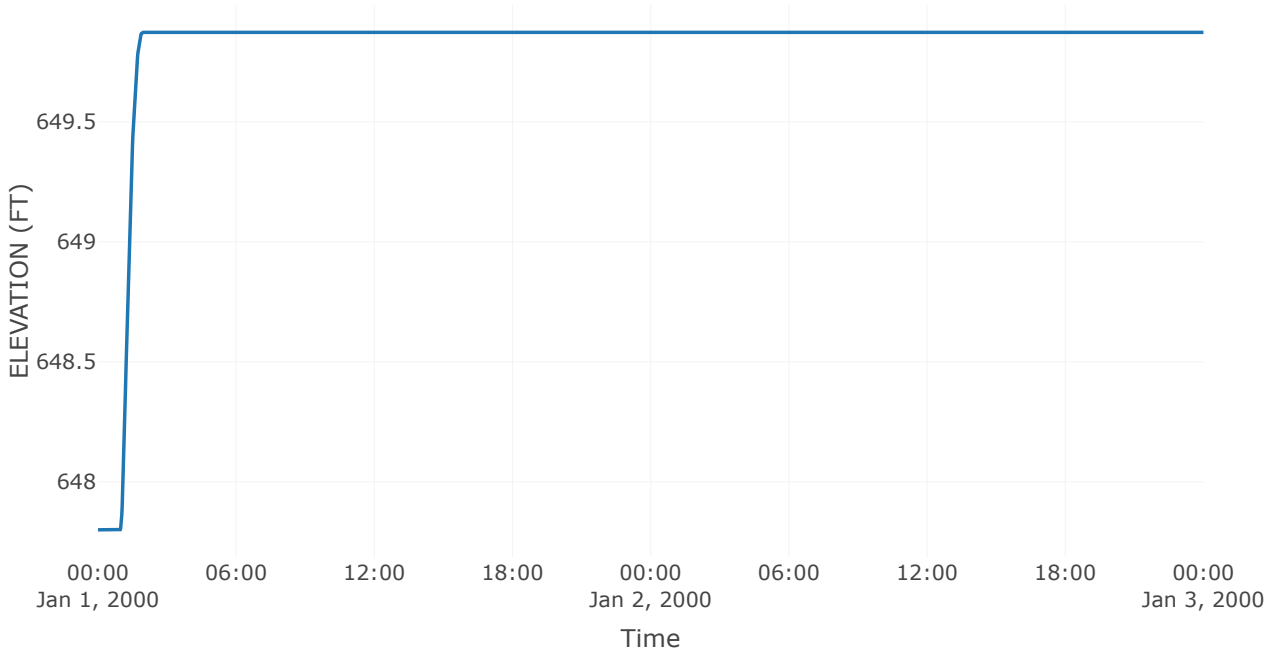
Cumulative Outflow



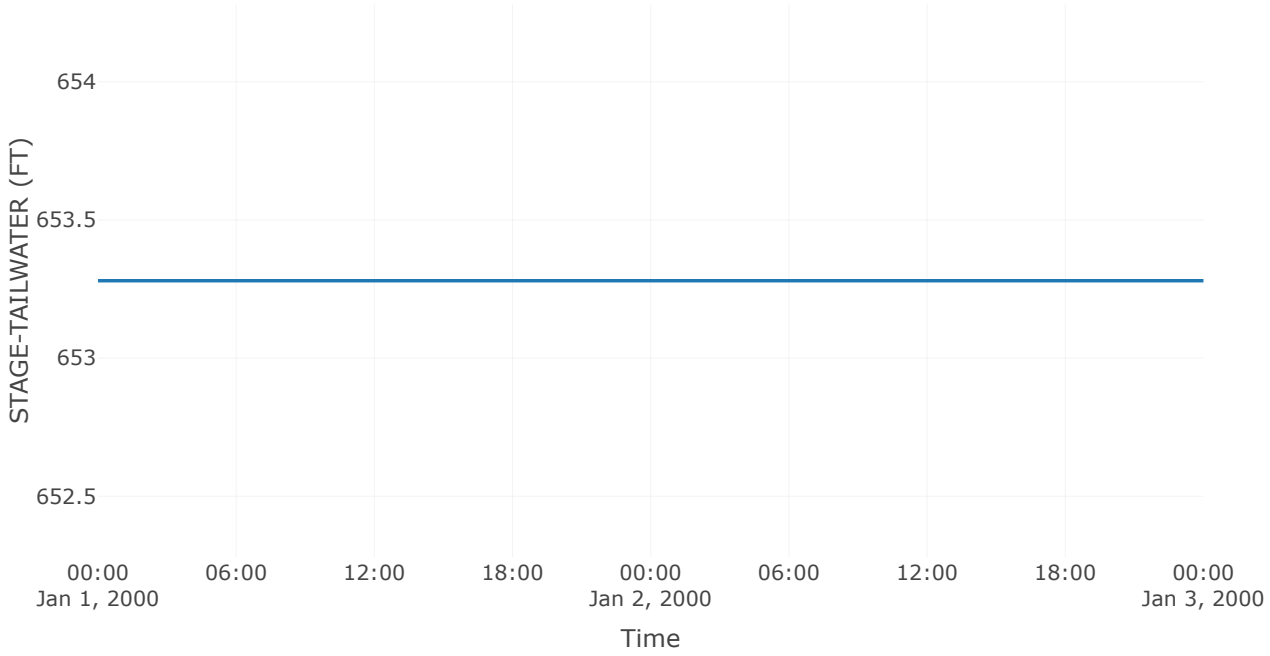

Spillway 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

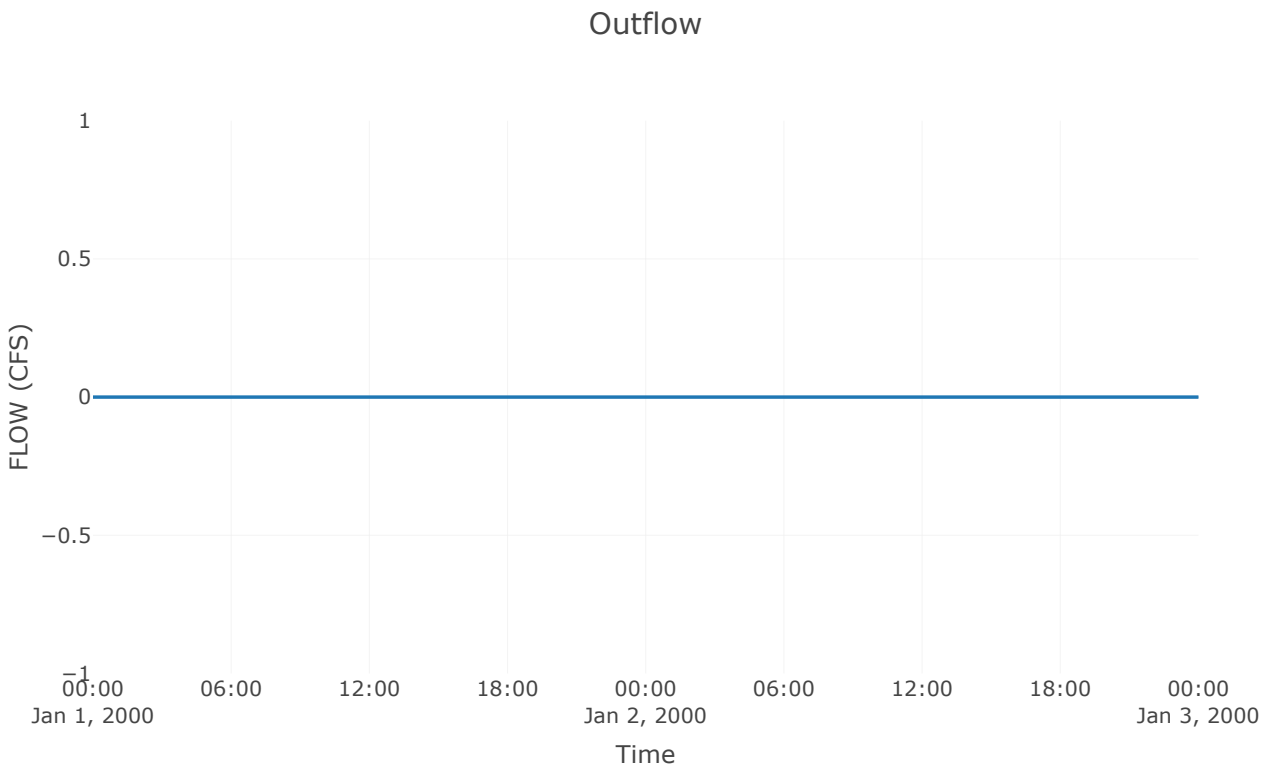

Outlet 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Pool Elevation



Tailwater Stage

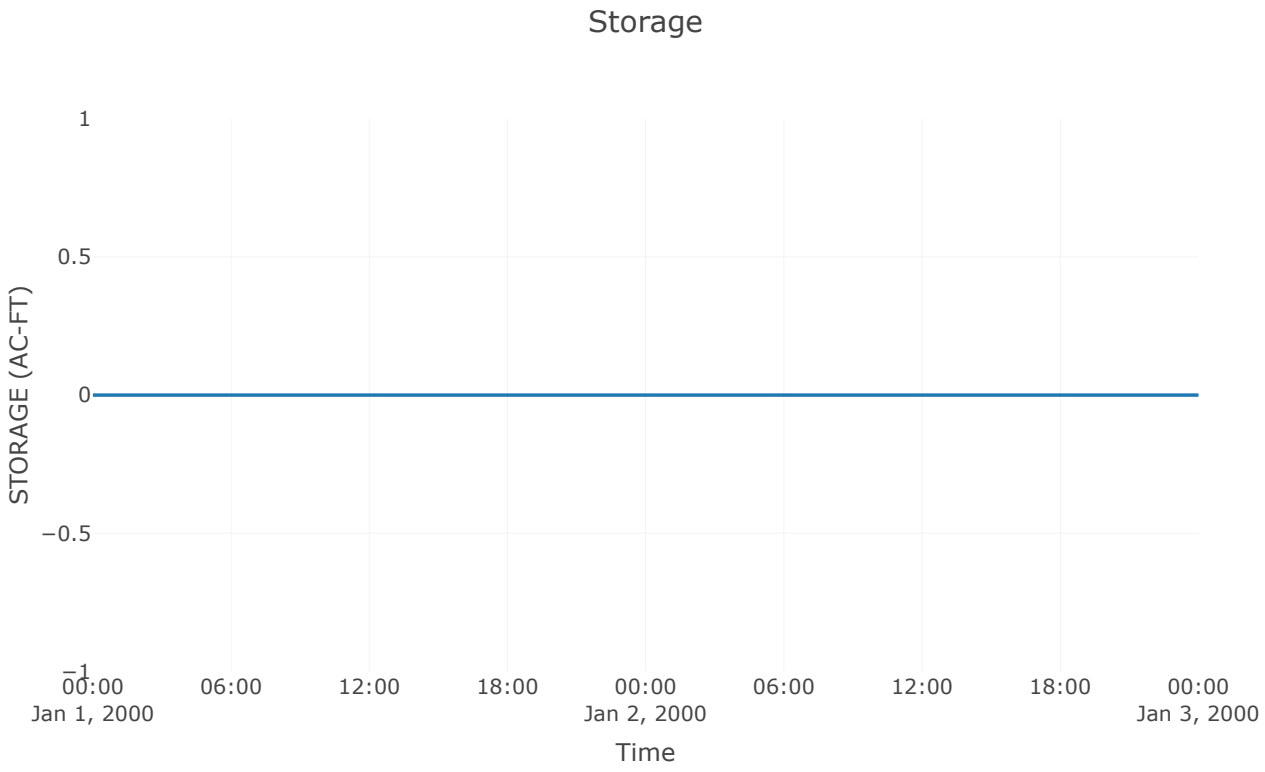


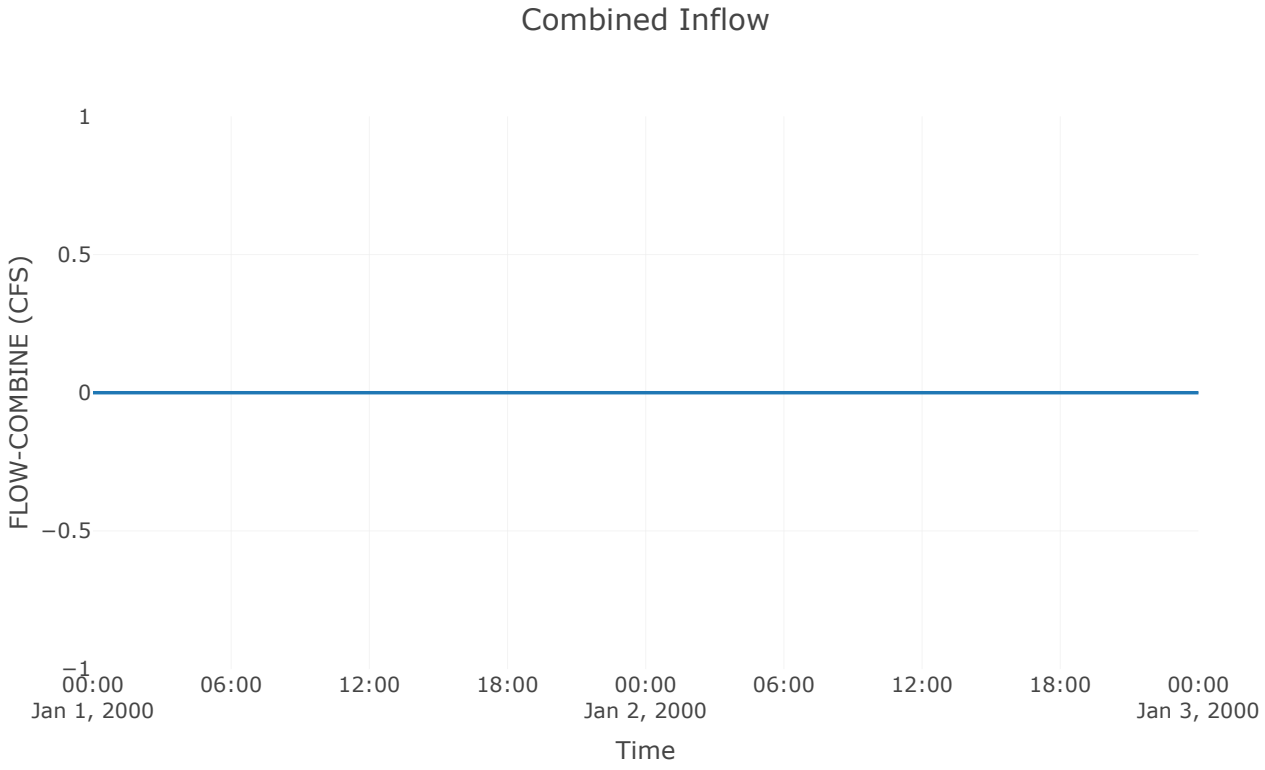

Outflow
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

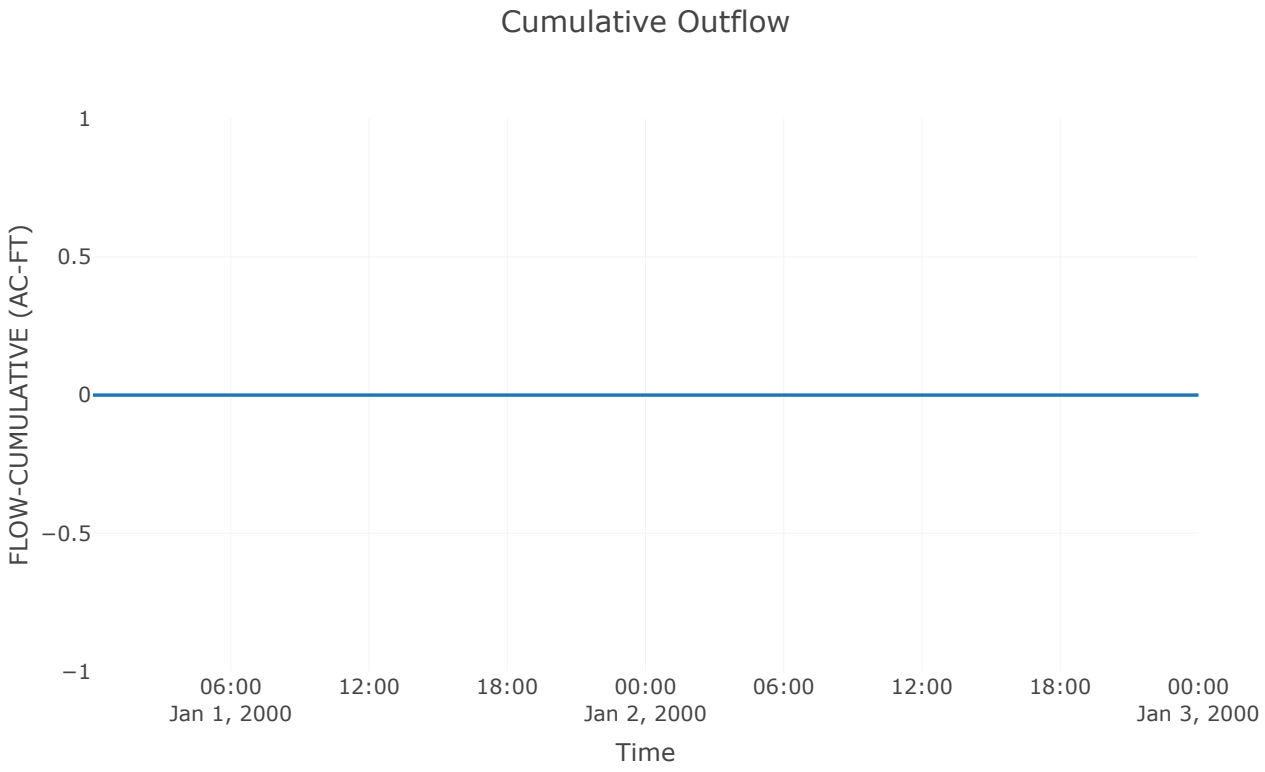
Reservoir: Outlet Storm Box

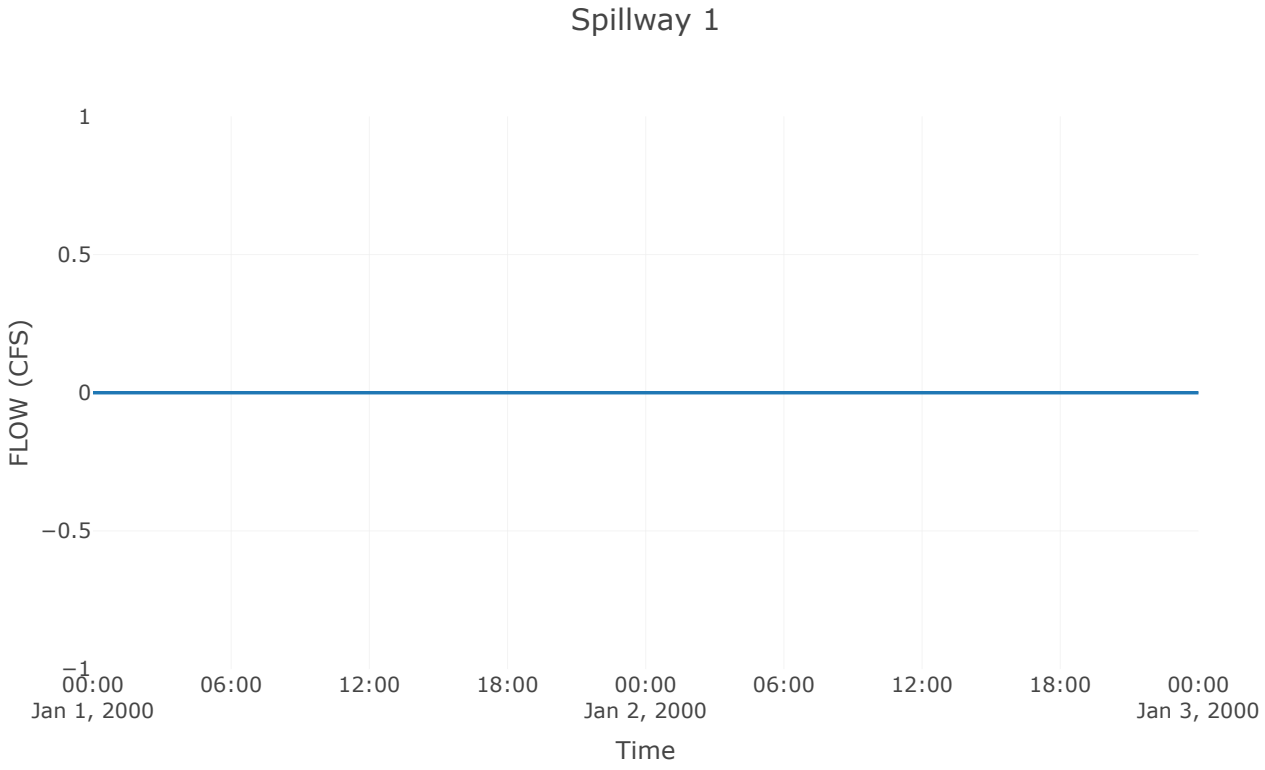
Downstream : 55th Street Outlet

Results: Outlet Storm Box	
Peak Discharge (CFS)	0
Time of Peak Discharge	31Dec1999, 24:00
Volume (IN)	0
Peak Inflow (CFS)	0
Time of Peak Inflow	31Dec1999, 24:00
Inflow Volume (AC - FT)	0
Maximum Storage (AC - FT)	0
Peak Elevation (FT)	648.2
Discharge Volume (AC - FT)	0

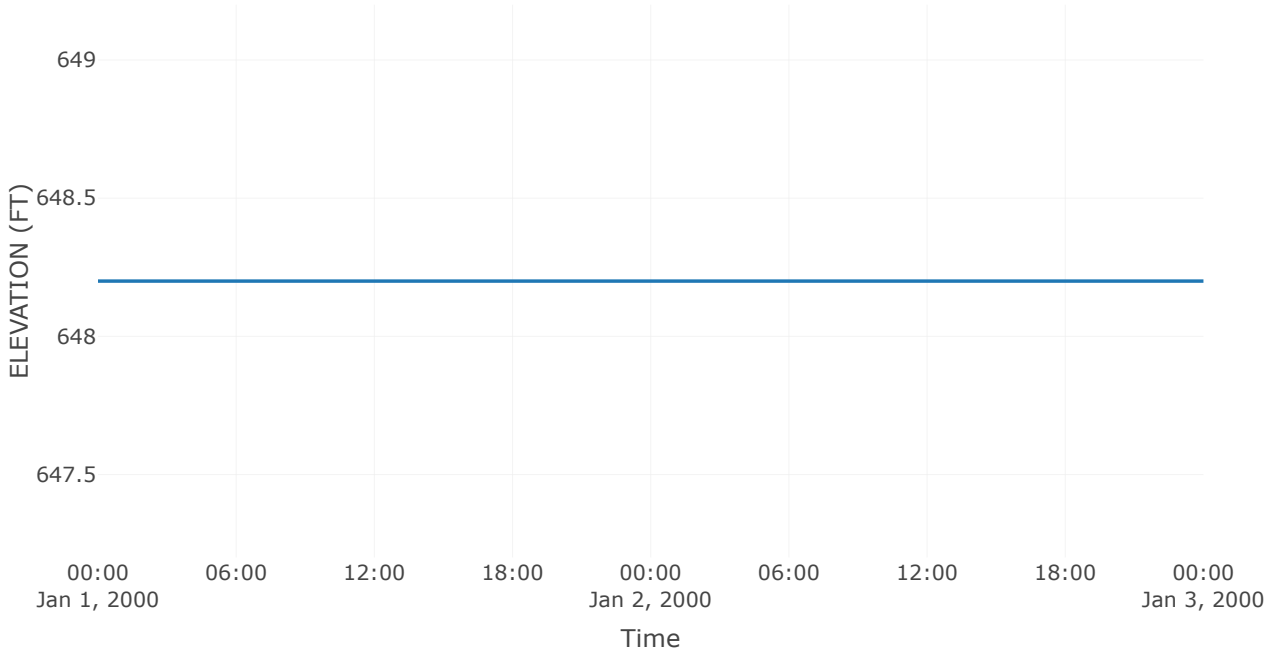

Storage
STORAGE (AC-FT)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Combined Inflow
FLOW-COMBINE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

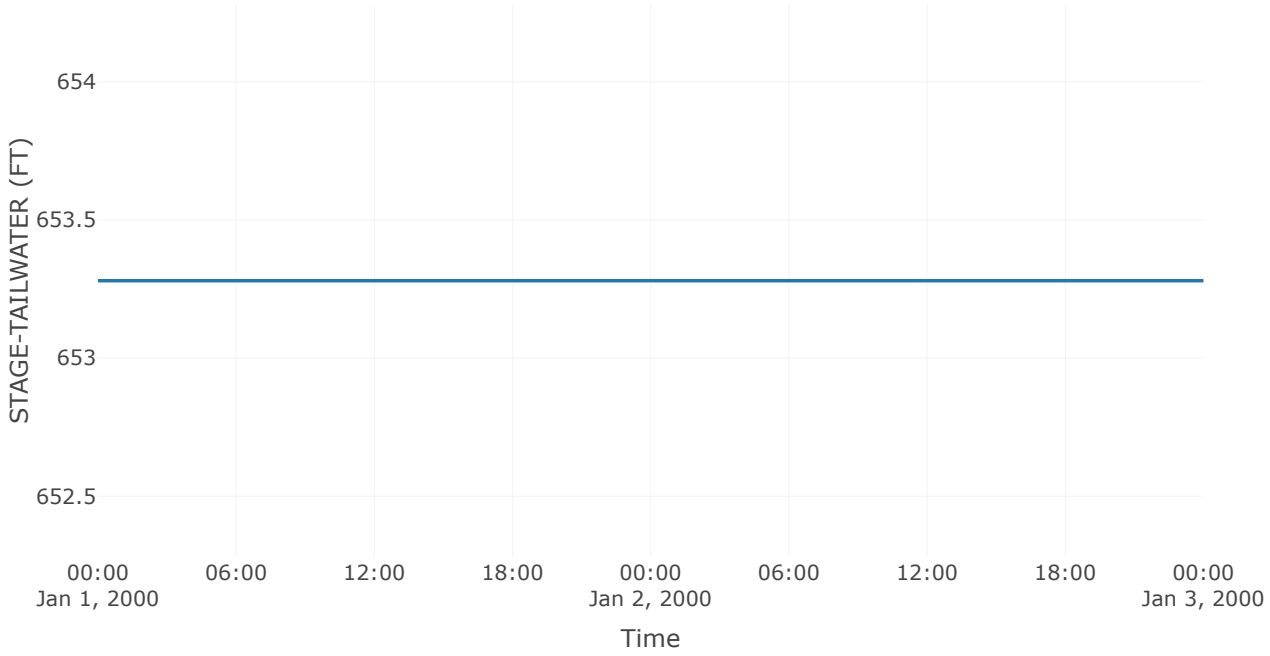

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
1
0.5
0
−0.5
−1
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

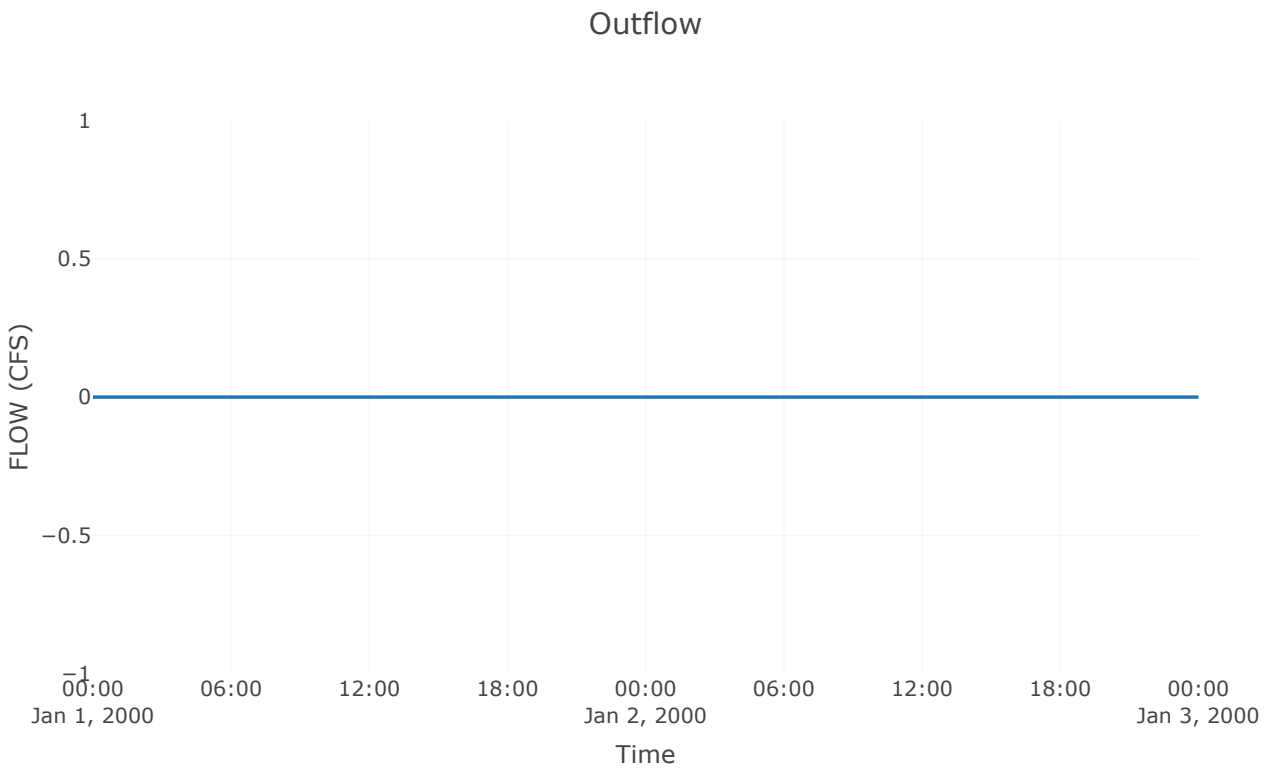

Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Pool Elevation



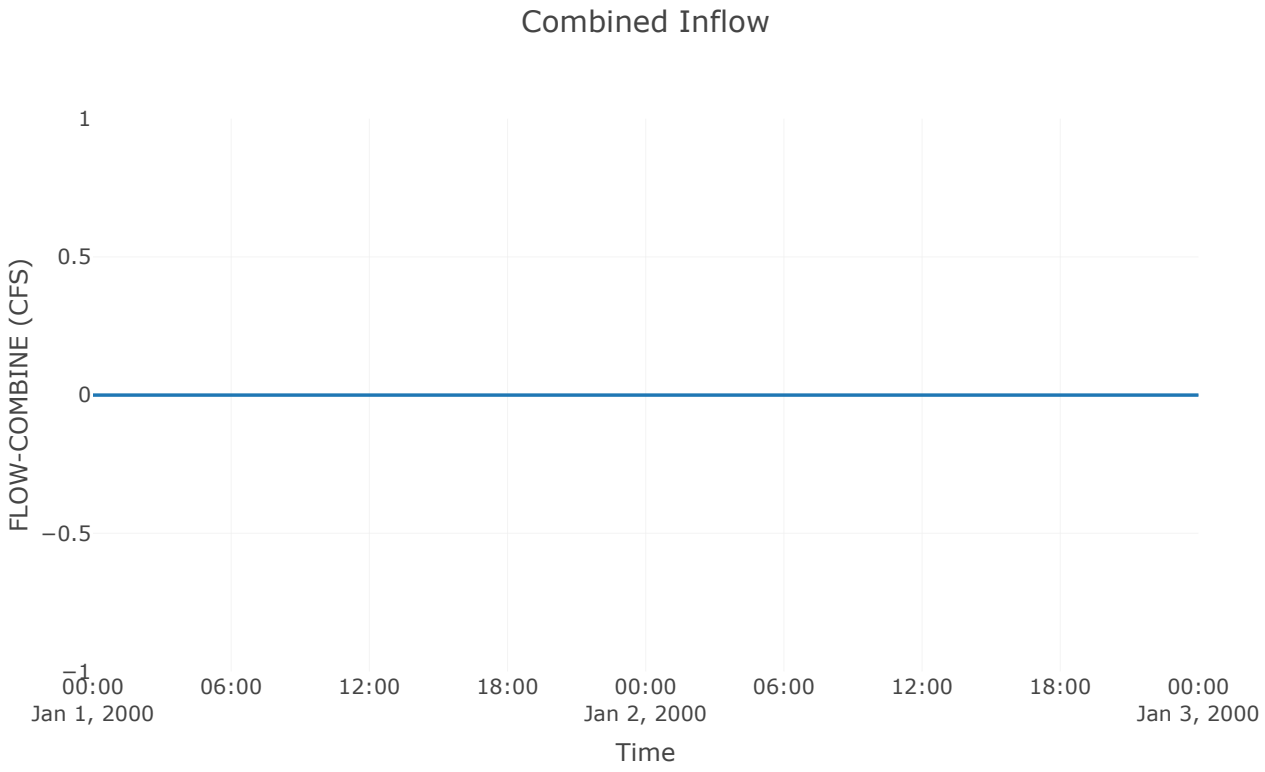
Tailwater Stage

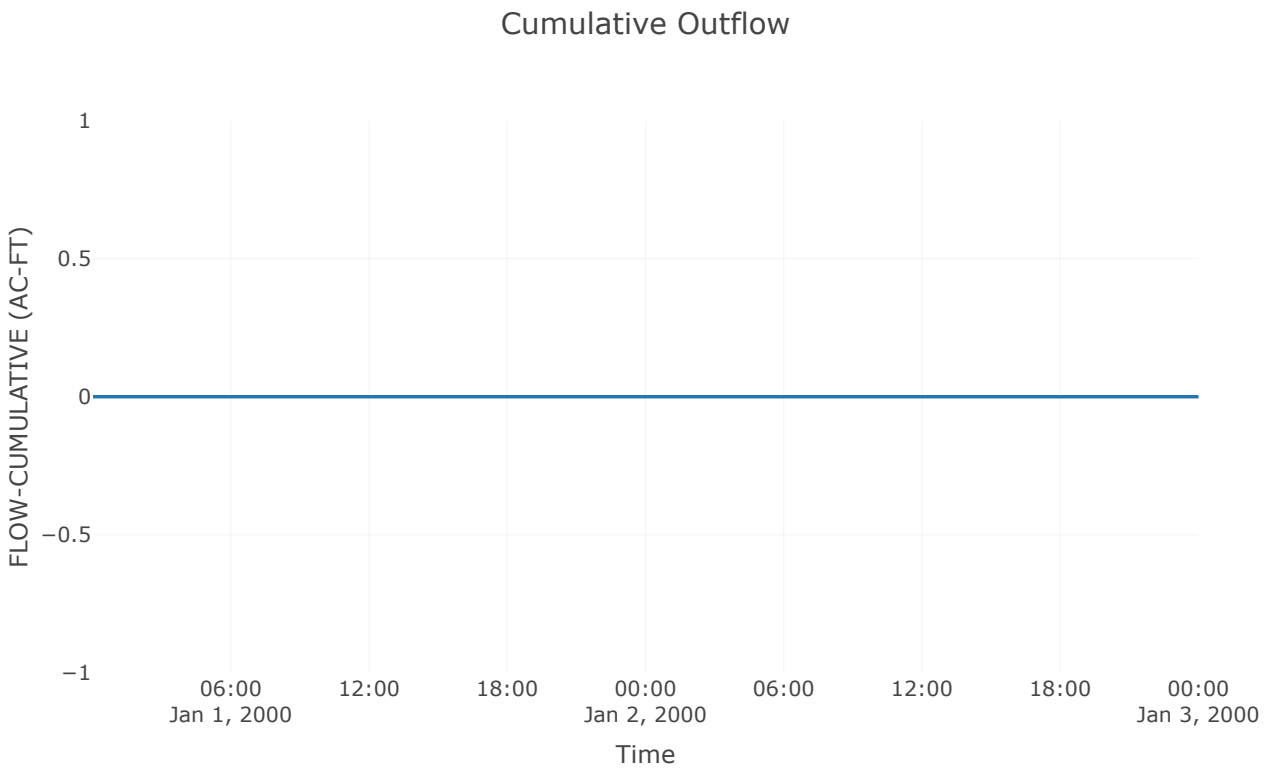


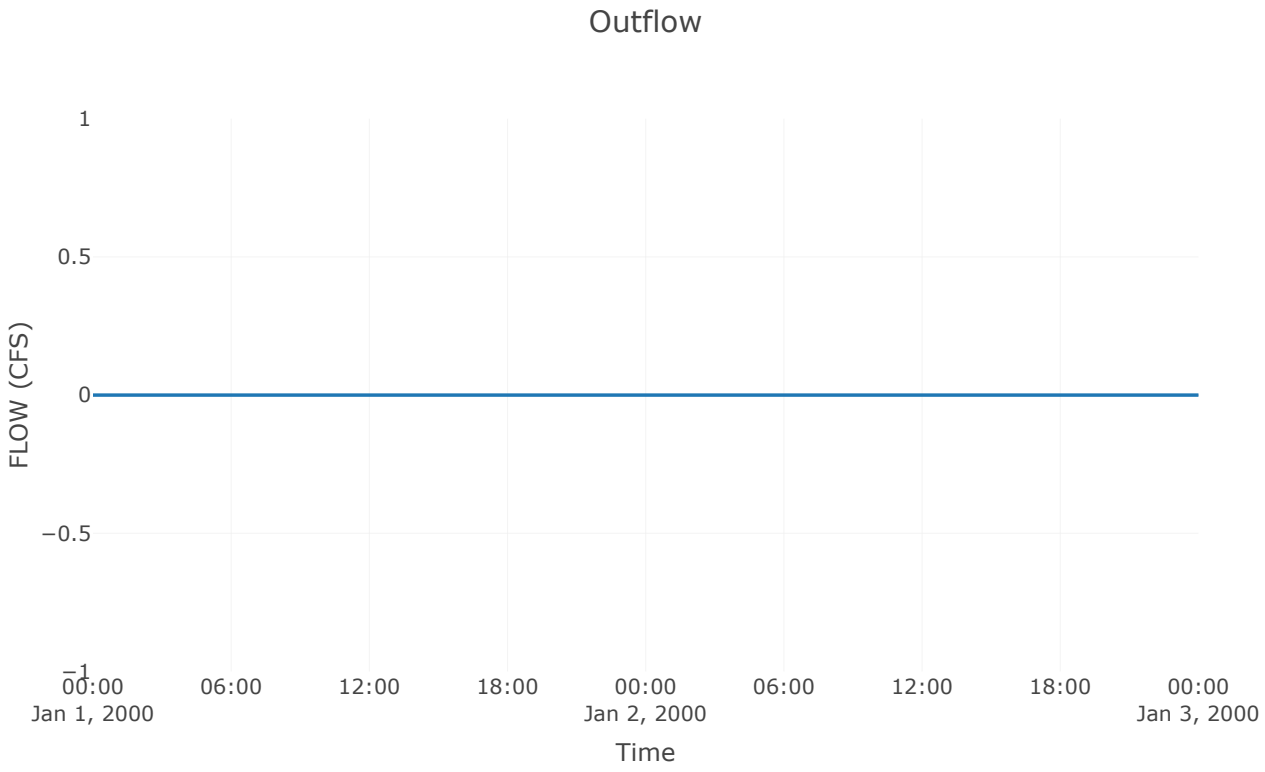

Outflow
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Sink: 55th Street Outlet

Results: 55th Street Outlet	
Peak Discharge (CFS)	0
Time of Peak Discharge	31Dec1999, 24:00
Volume (IN)	0


Combined Inflow
FLOW-COMBINE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
1
0.5
0
−0.5
−1
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time


Outflow
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Project: Development_Template
Simulation Run: 10YR_2HR
Simulation Start: 31 December 1999, 24:00
Simulation End: 2 January 2000, 24:00

HMS Version: 4.12
Executed: 14 March 2025, 15:40

Global Parameter Summary - Subbasin

Area (MI2)

Element Name	Area (MI2)
On - Site Trib 1	0.03
Off - Site Trib 1 South	0
Off - Site Trib 1 West	0
On - Site Trib 2	0.02
Off - Site Trib2	0.01
On - Site Trib - Area 3	0.01
LaGrange Highlands Off - Site	0.2
Prop On - Site	0

Downstream

Element Name	Downstream
On - Site Trib 1	Basin 1
Off - Site Trib 1 South	Basin 1
Off - Site Trib 1 West	Basin 1
On - Site Trib 2	Basin 2
Off - Site Trib2	Basin 2
On - Site Trib - Area 3	Basin 3
LaGrange Highlands Off - Site	Off - Site Tributary Area
Prop On - Site	Proposed Basin C

Loss Rate: Scs

Element Name	Percent Impervious Area	Curve Number
On - Site Trib 1	0	86
Off - Site Trib 1 South	0	80
Off - Site Trib 1 West	0	83
On - Site Trib 2	0	83
Off - Site Trib2	0	83
On - Site Trib - Area 3	0	83
LaGrange Highlands Off - Site	0	86
Prop On - Site	0	88.03

Transform: Scs

Element Name	Lag	Unitgraph Type
On - Site Trib 1	21	Standard
Off - Site Trib 1 South	6	Standard
Off - Site Trib 1 West	12	Standard
On - Site Trib 2	20.4	Standard
Off - Site Trib2	12	Standard
On - Site Trib - Area 3	21	Standard
LaGrange Highlands Off - Site	29.2	Standard
Prop On - Site	6	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
On - Site Trib 1	0.03	25.3	01Jan2000, 00:51	1.65
Off - Site Trib 1 South	0	2.07	01Jan2000, 00:34	1.24
Off - Site Trib 1 West	0	1.88	01Jan2000, 00:42	1.44
Basin 1	0.03	4.9	01Jan2000, 02:19	1.6
On - Site Trib 2	0.02	13.59	01Jan2000, 00:52	1.44
Off - Site Trib2	0.01	4.91	01Jan2000, 00:42	1.44
Basin 2	0.05	3.98	01Jan2000, 05:00	1.53
On - Site Trib - Area 3	0.01	9.89	01Jan2000, 00:52	1.44
LaGrange Highlands Off - Site	0.2	161.81	01Jan2000, 01:01	1.65
Basin 3	0.07	2.06	01Jan2000, 16:07	1.49
Off - Site Tributary Area	0.27	162.6	01Jan2000, 01:01	1.61
Storage East of Wolf Road	0.27	160.97	01Jan2000, 01:05	1.61
Prop Storage West of Wolf Rd	0.27	160.97	01Jan2000, 01:05	1.61
Prop On - Site	0	5.14	01Jan2000, 00:32	1.81
Proposed Basin C	0.27	83.45	01Jan2000, 01:11	0.43
Existing Basin A & B	0.27	81.55	01Jan2000, 01:16	0.28
Outlet Storm Box	0.27	80.46	01Jan2000, 01:18	0.27

55th Street Outlet	0.27	80.46	01Jan2000, 01:18	0.27

Subbasin: On-Site Trib 1

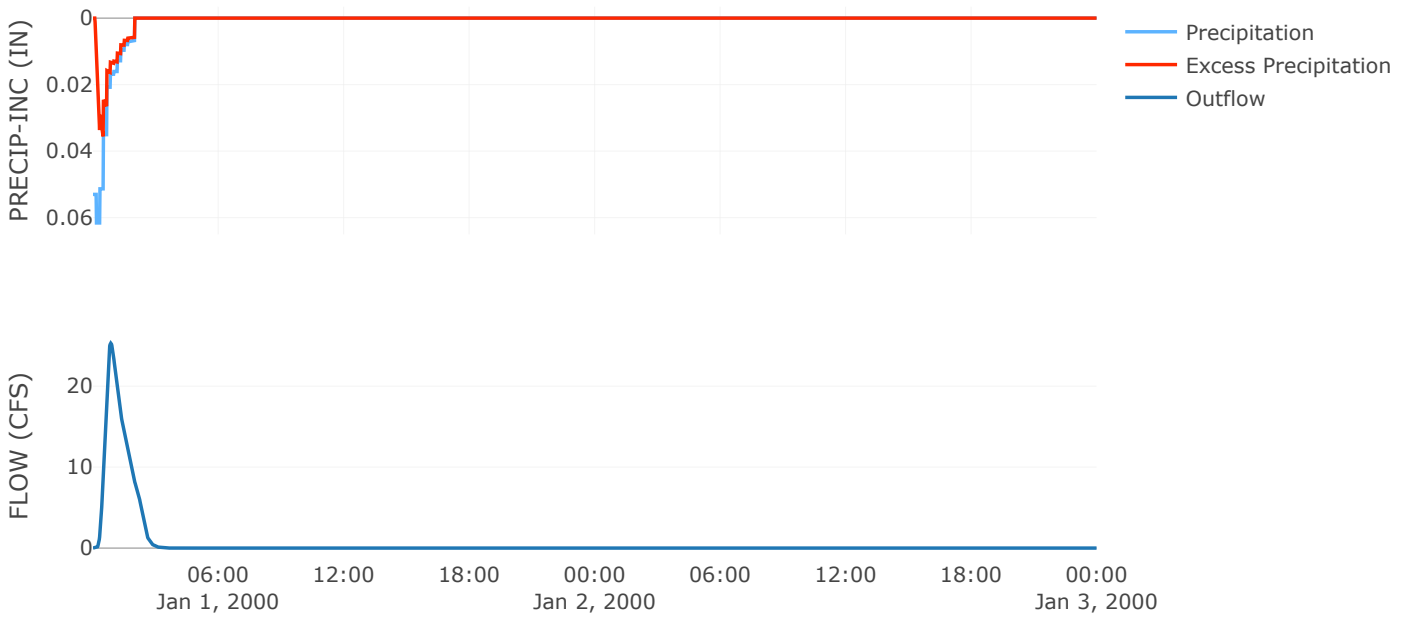
Area (MI2) : 0.03
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	86

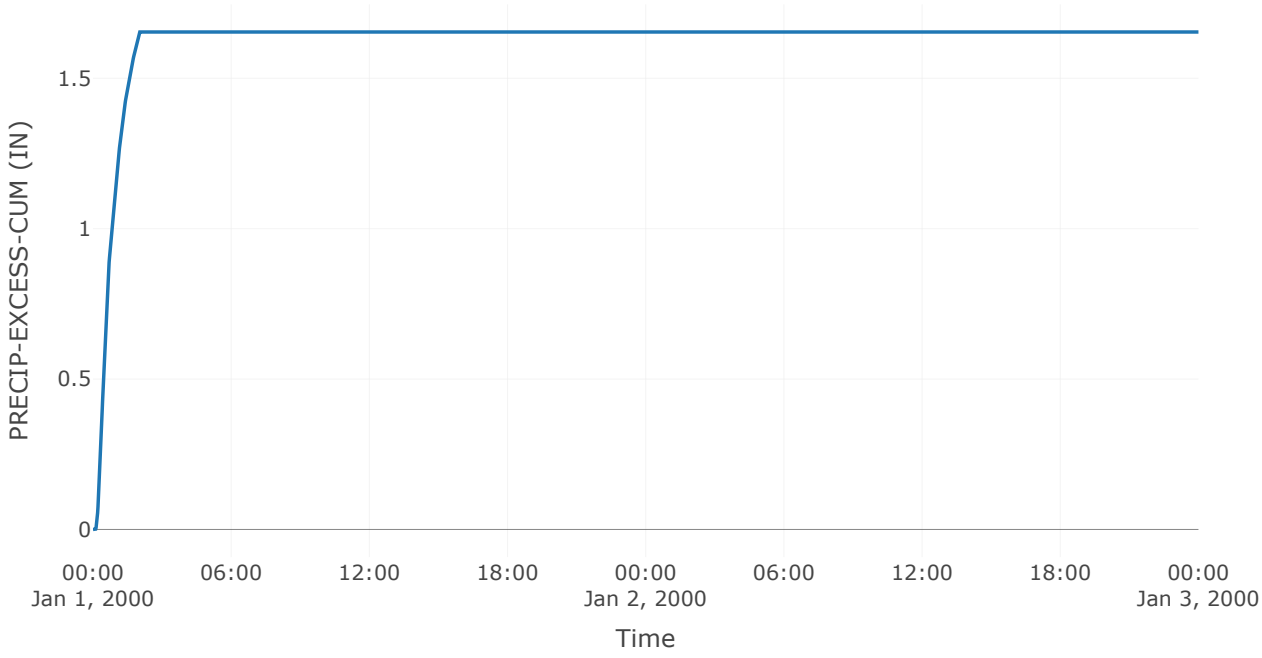
Transform: Scs	
Lag	21
Unitgraph Type	Standard

Results: On-Site Trib 1	
Peak Discharge (CFS)	25.3
Time of Peak Discharge	01Jan2000, 00:51
Volume (IN)	1.65
Precipitation Volume (AC - FT)	4.39
Loss Volume (AC - FT)	1.96
Excess Volume (AC - FT)	2.43
Direct Runoff Volume (AC - FT)	2.43
Baseflow Volume (AC - FT)	0

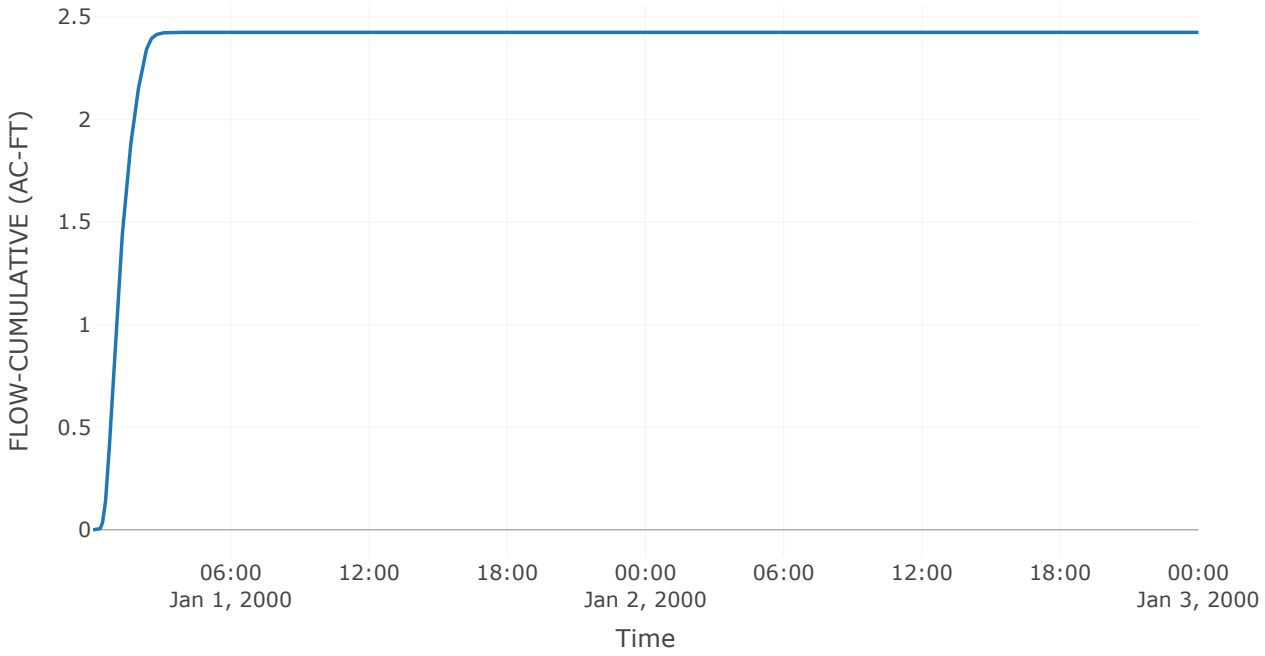
Precipitation and Outflow



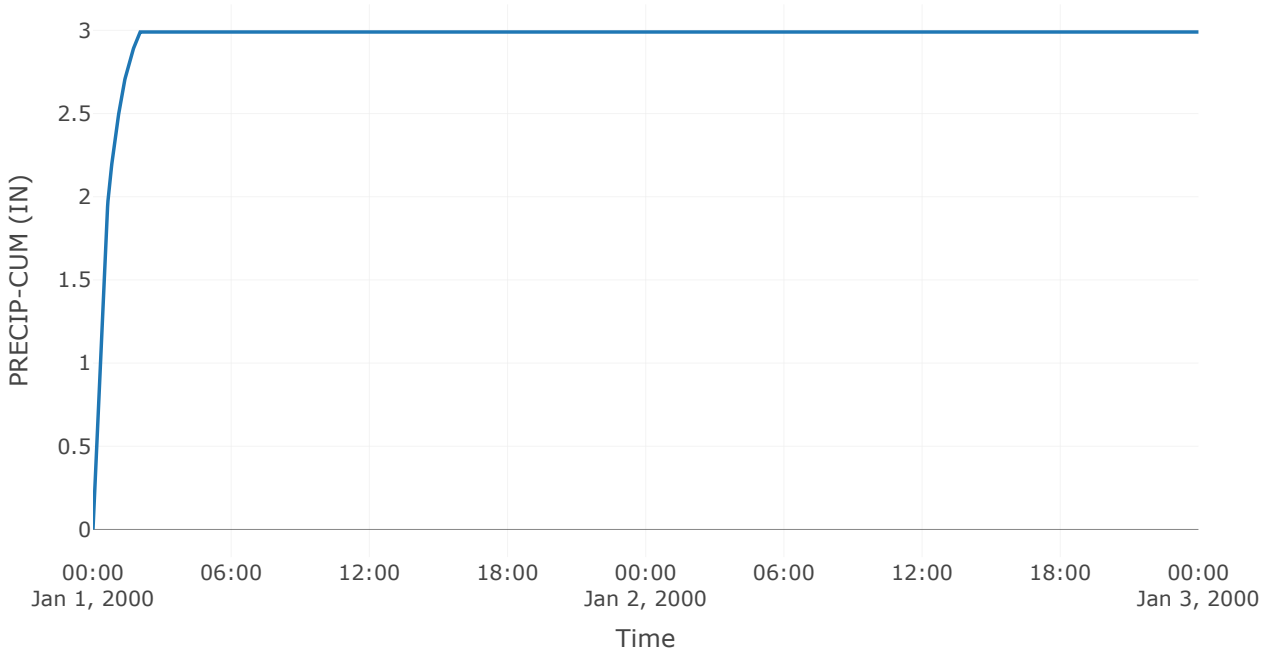
Cumulative Excess Precipitation

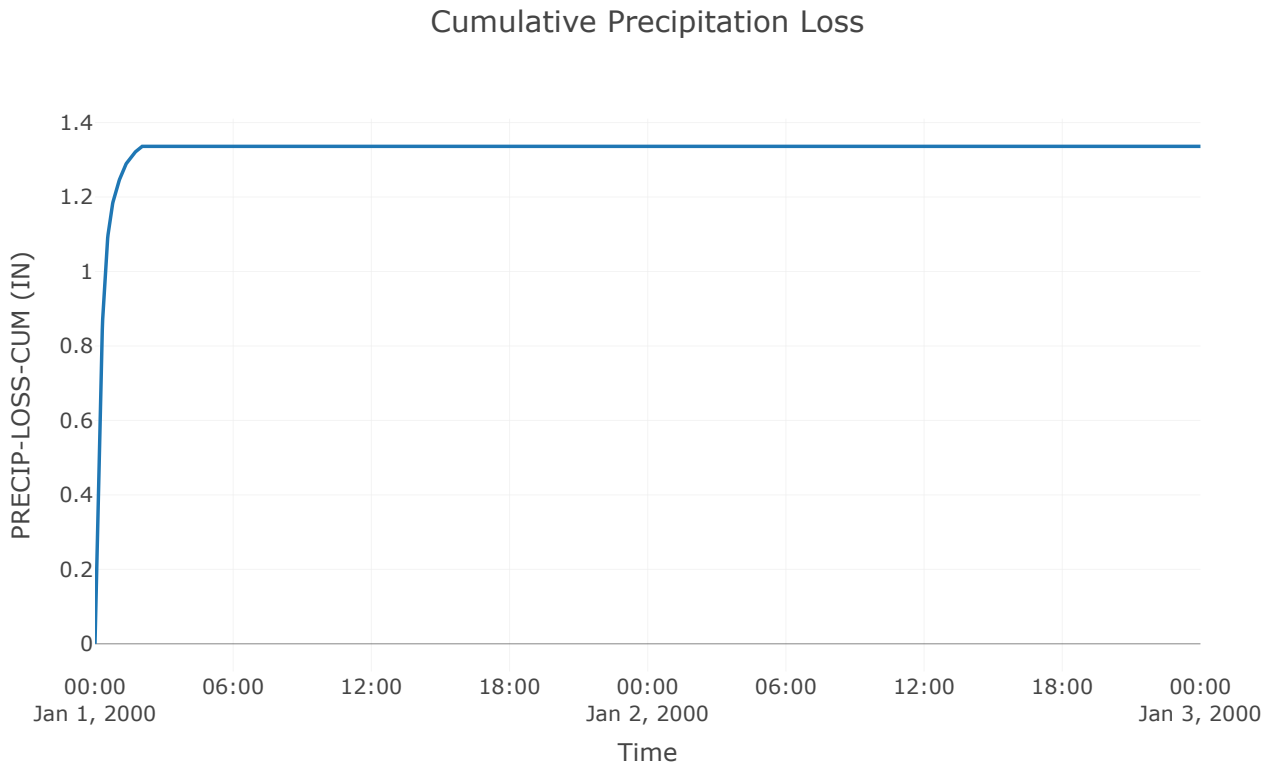


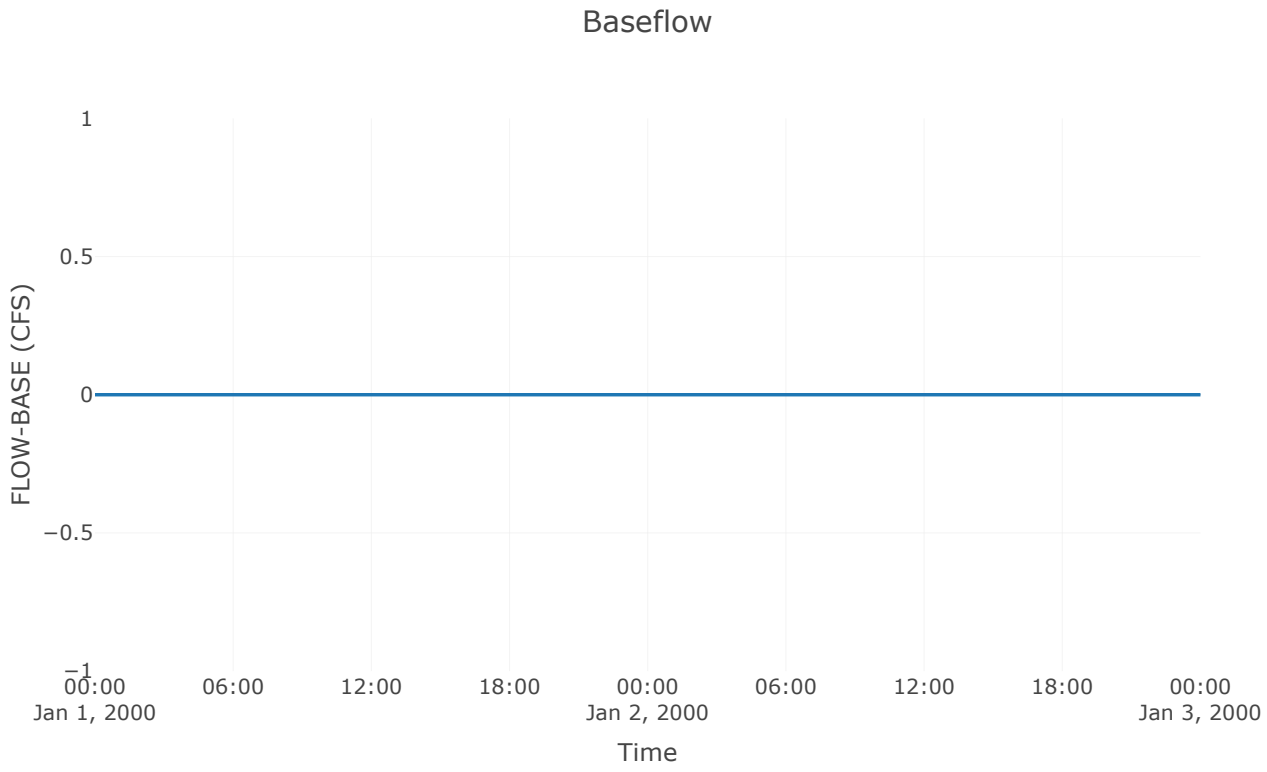
Cumulative Outflow



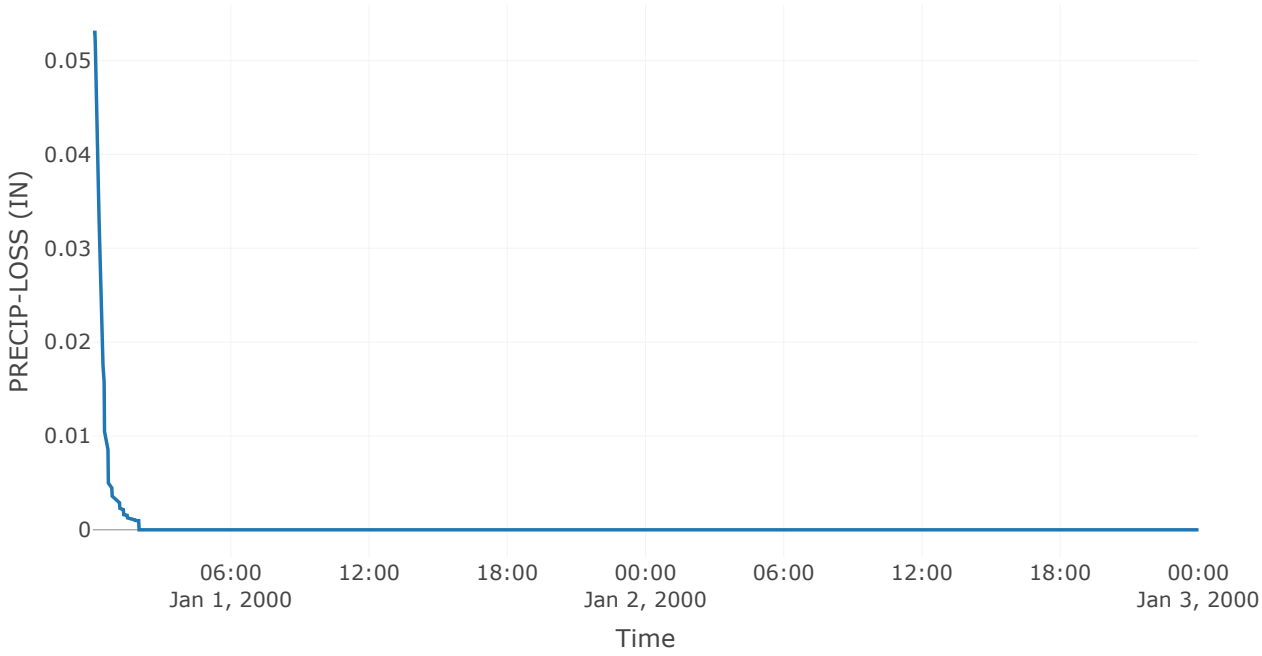
Cumulative Precipitation



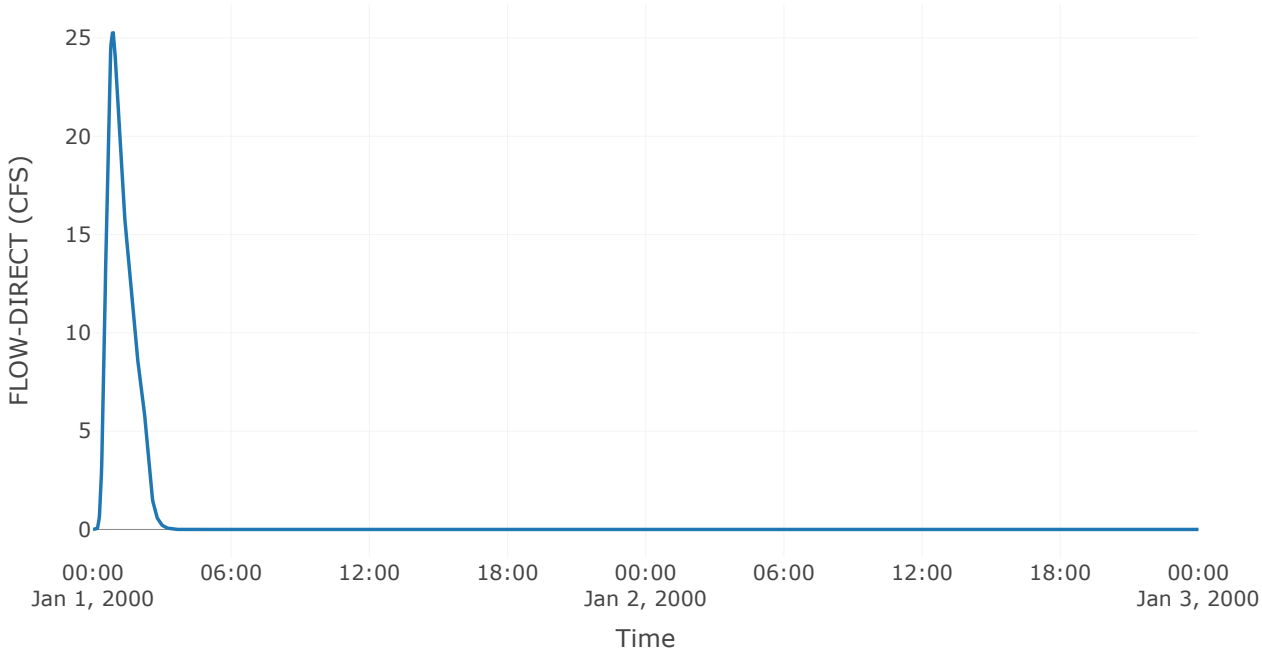

Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

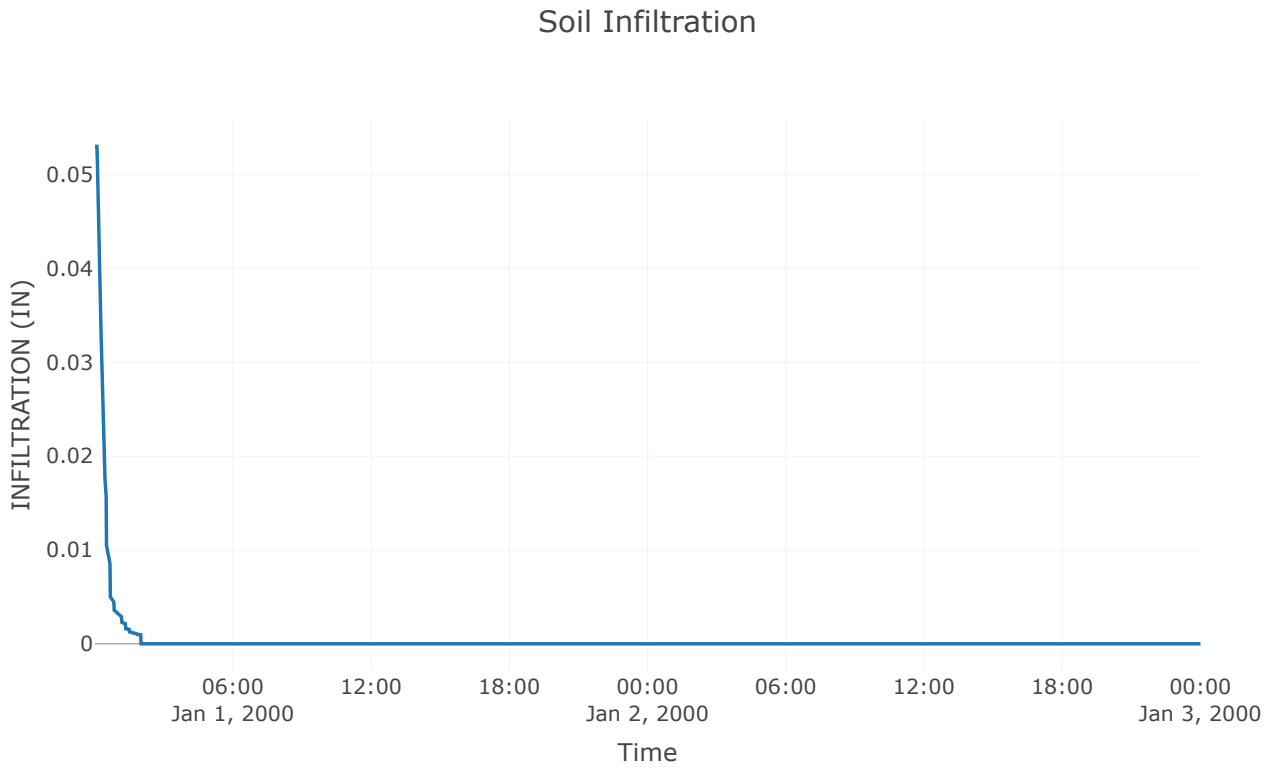

Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib 1 South

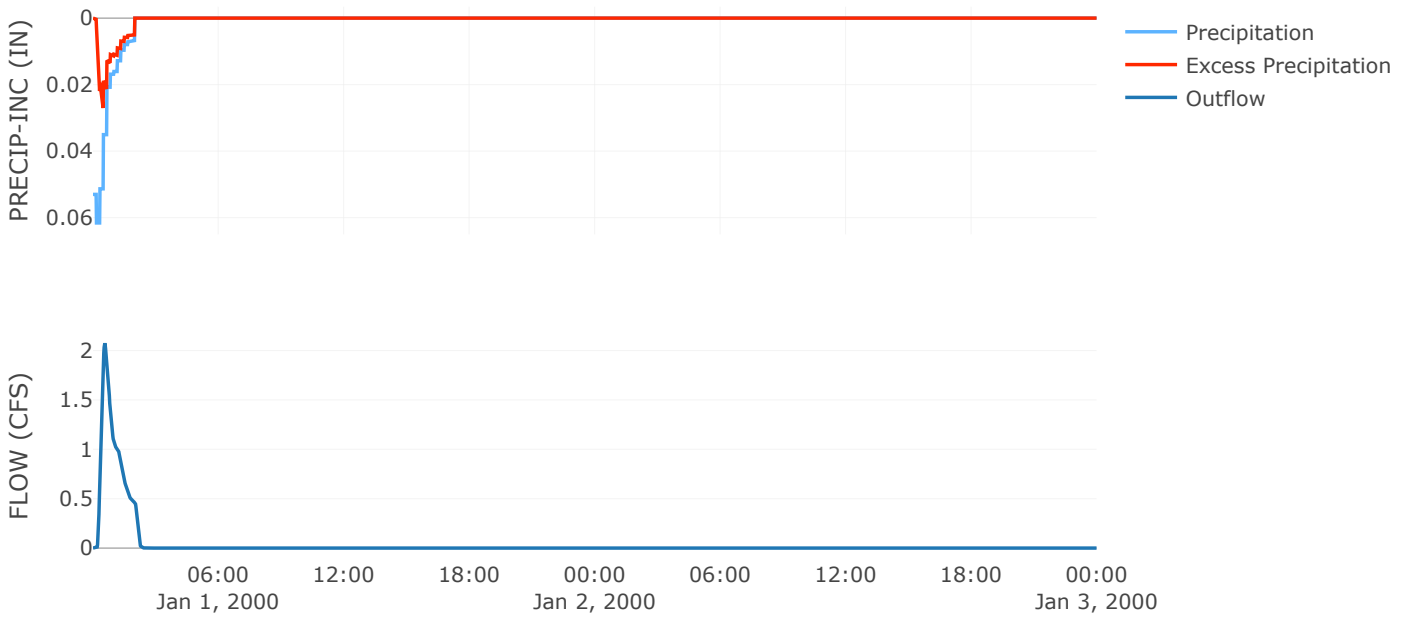
Area (MI2) : 0
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	80

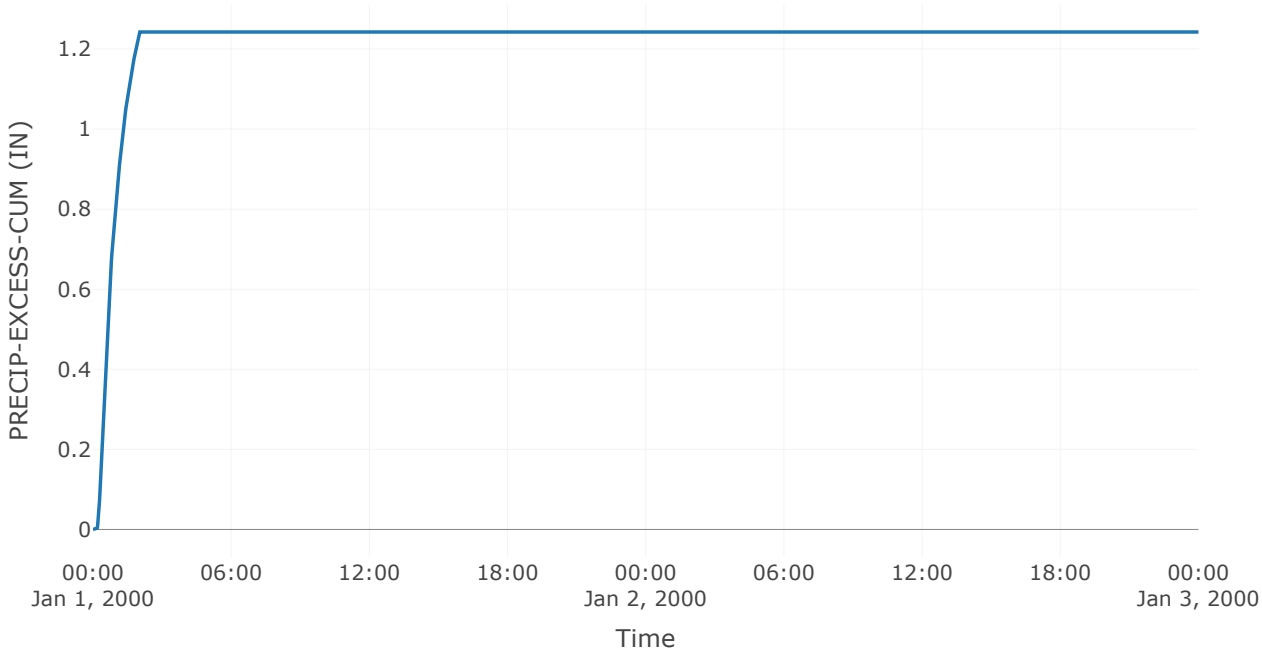
Transform: Scs	
Lag	6
Unitgraph Type	Standard

Results: Off-Site Trib 1 South	
Peak Discharge (CFS)	2.07
Time of Peak Discharge	01Jan2000, 00:34
Volume (IN)	1.24
Precipitation Volume (AC - FT)	0.37
Loss Volume (AC - FT)	0.22
Excess Volume (AC - FT)	0.16
Direct Runoff Volume (AC - FT)	0.16
Baseflow Volume (AC - FT)	0

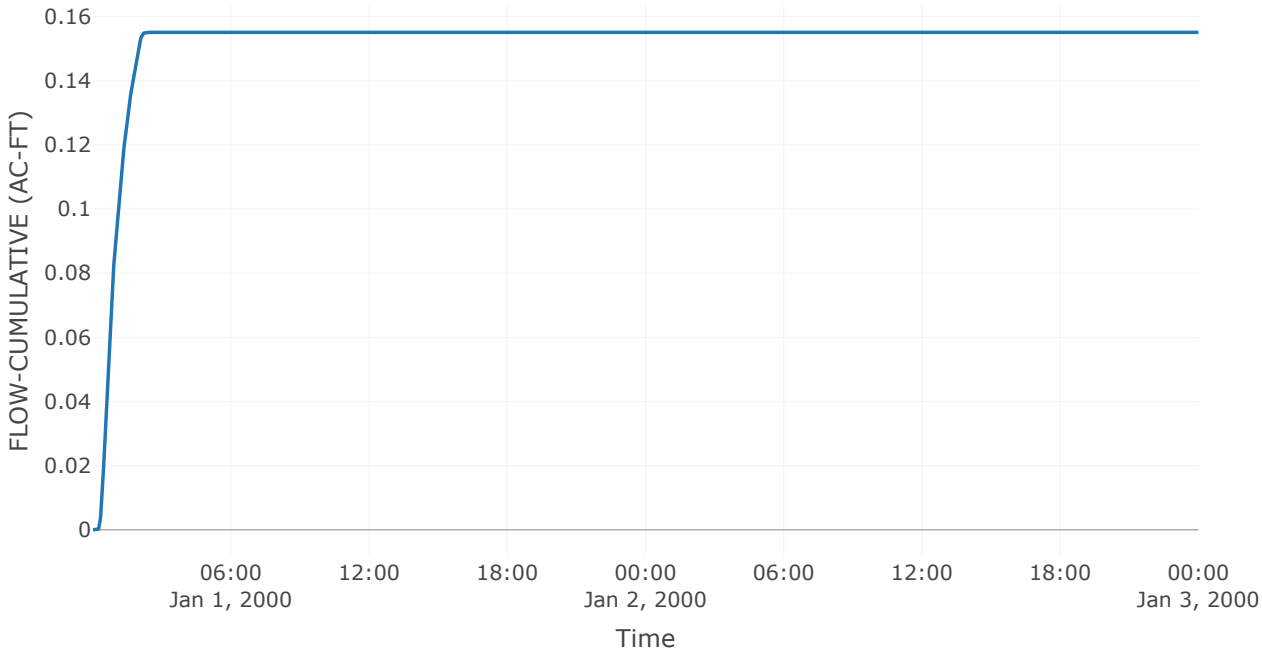
Precipitation and Outflow



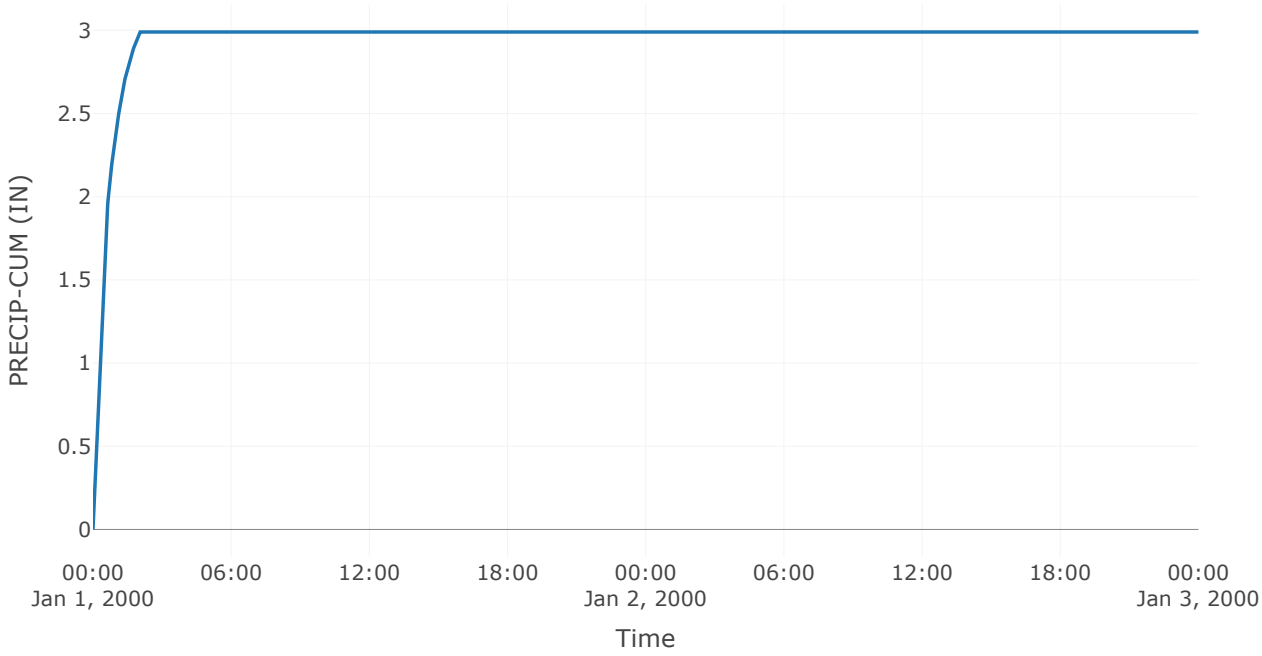
Cumulative Excess Precipitation



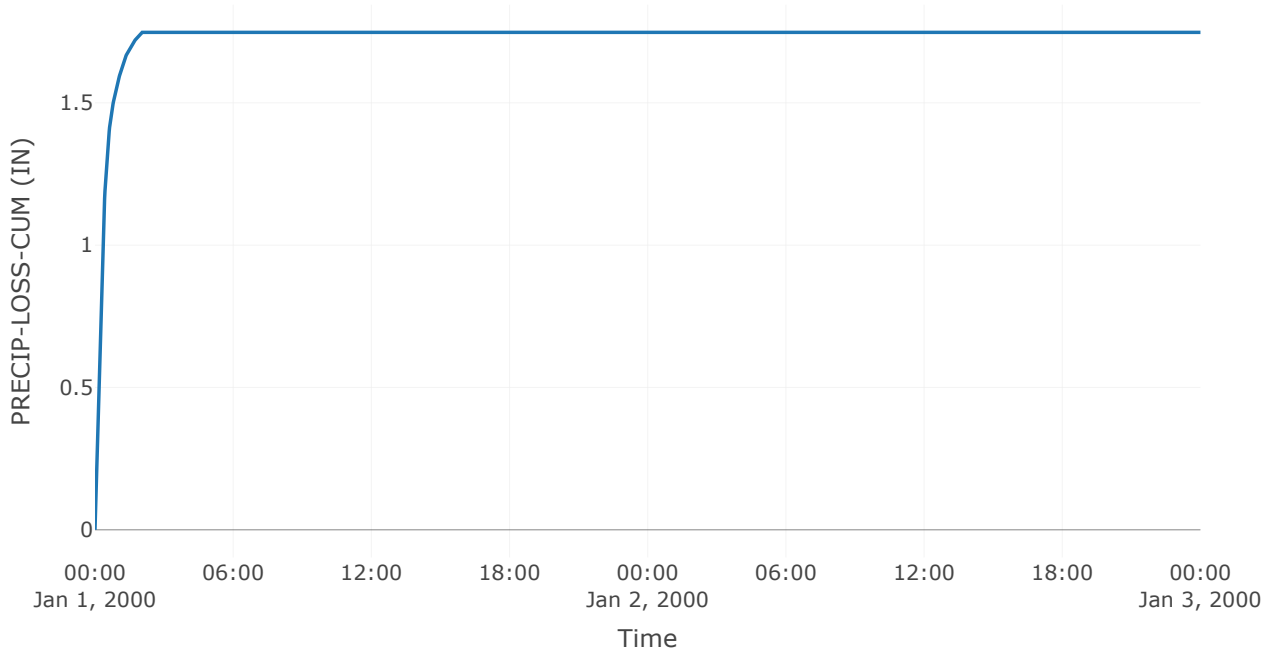
Cumulative Outflow



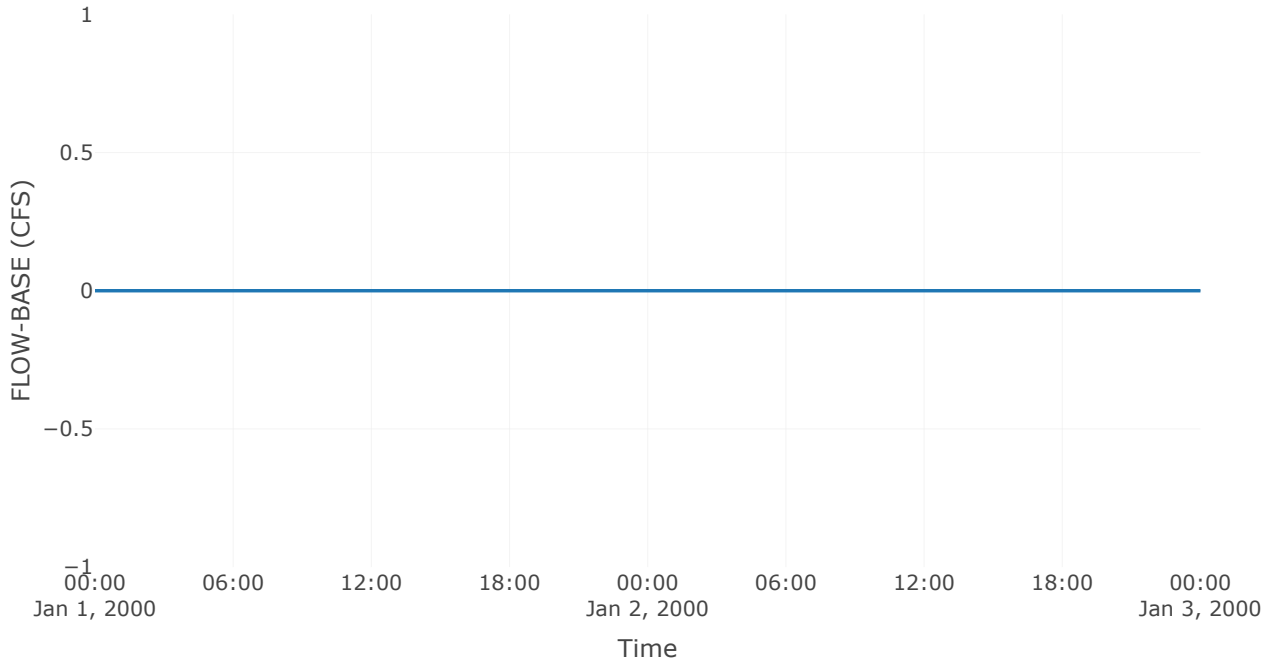
Cumulative Precipitation



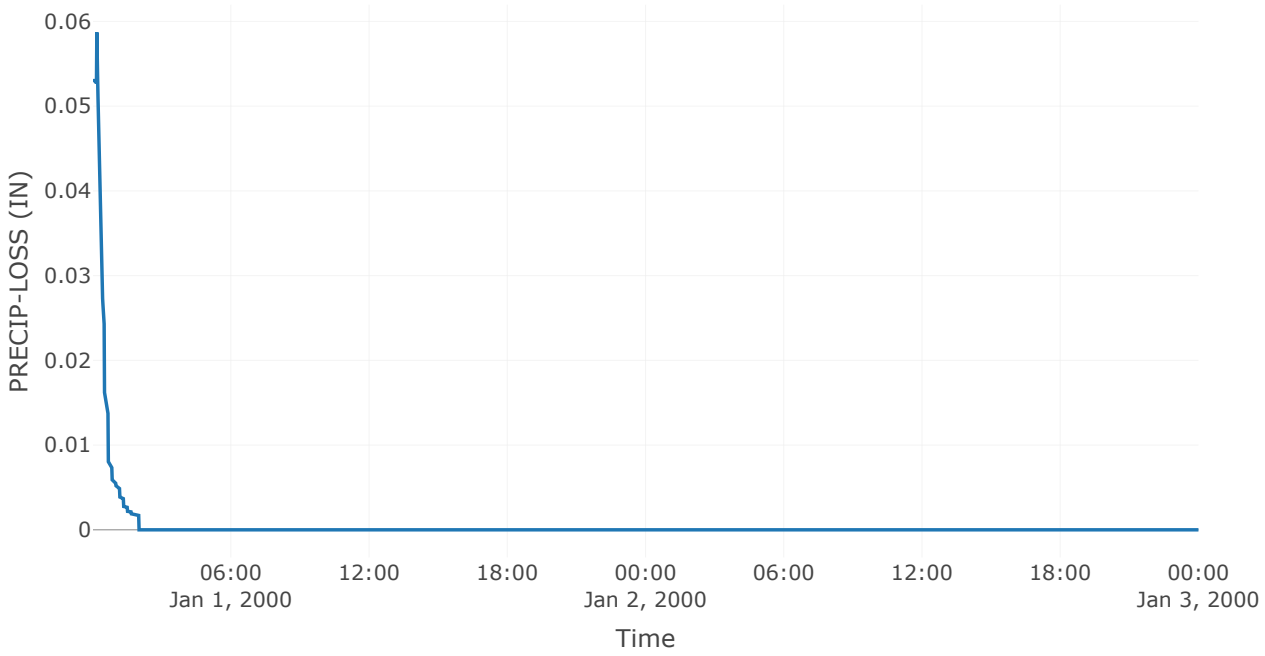
Cumulative Precipitation Loss



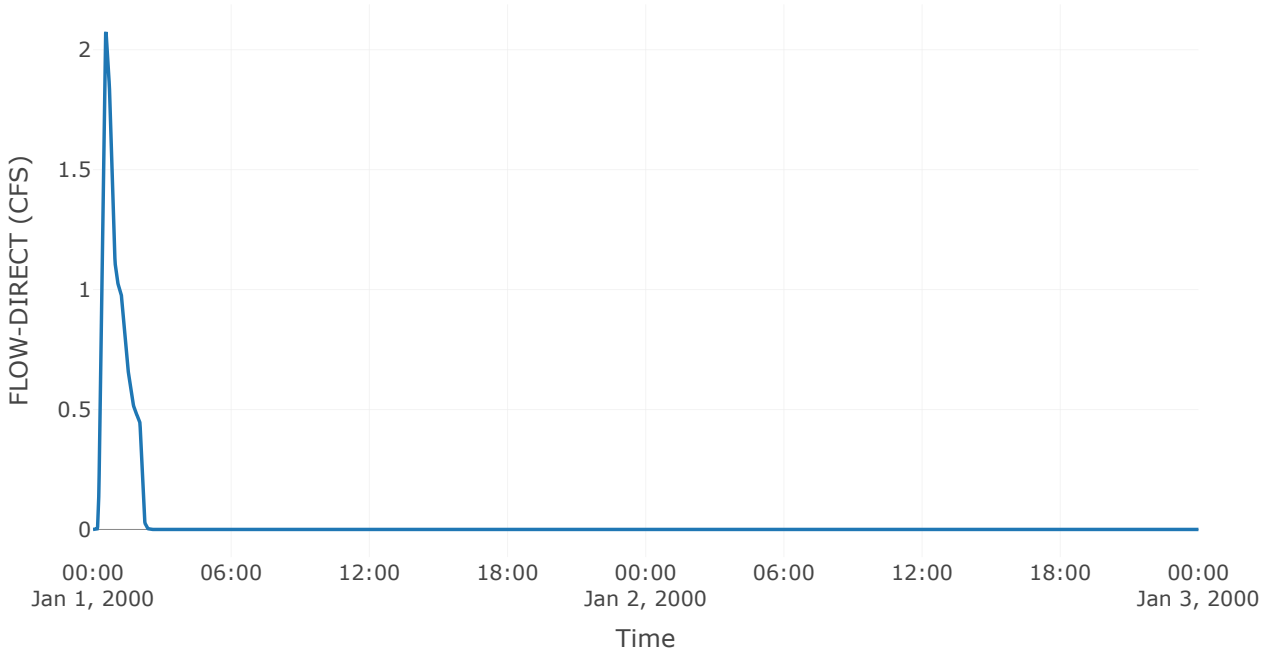
Baseflow

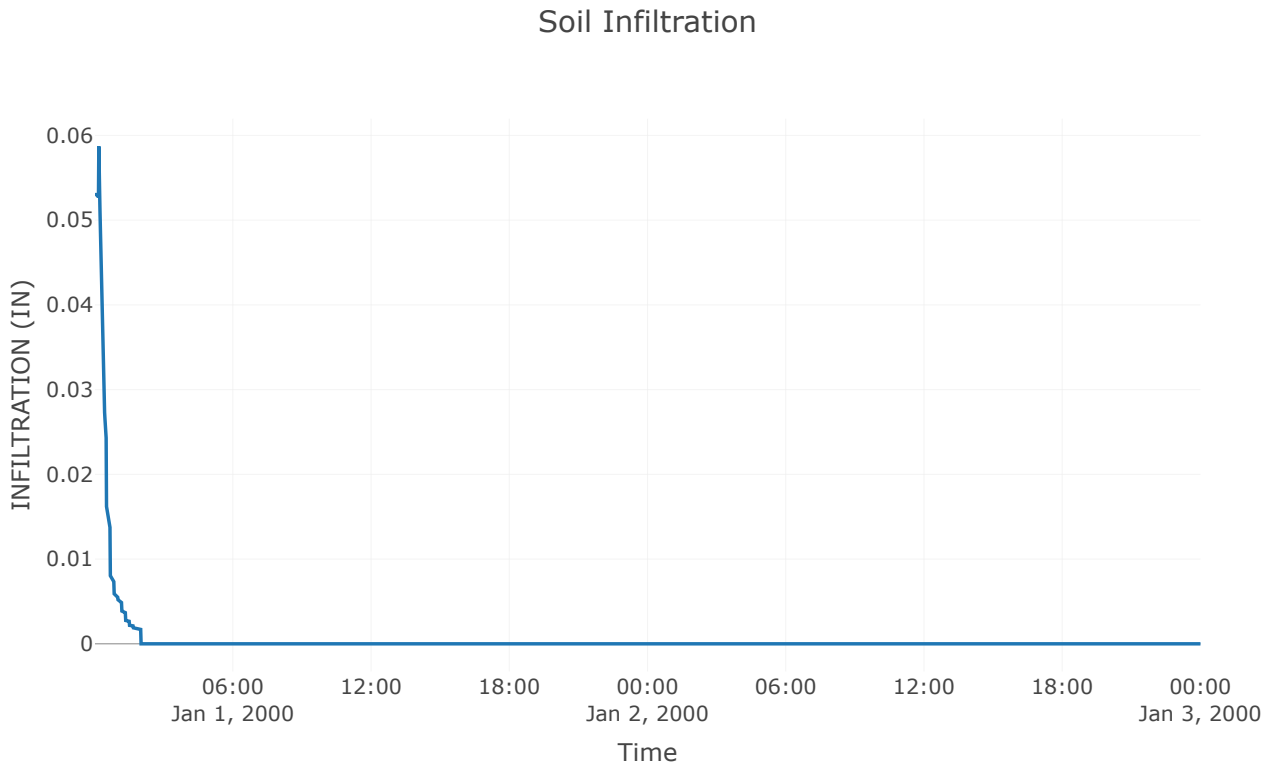


Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.06
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib 1 West

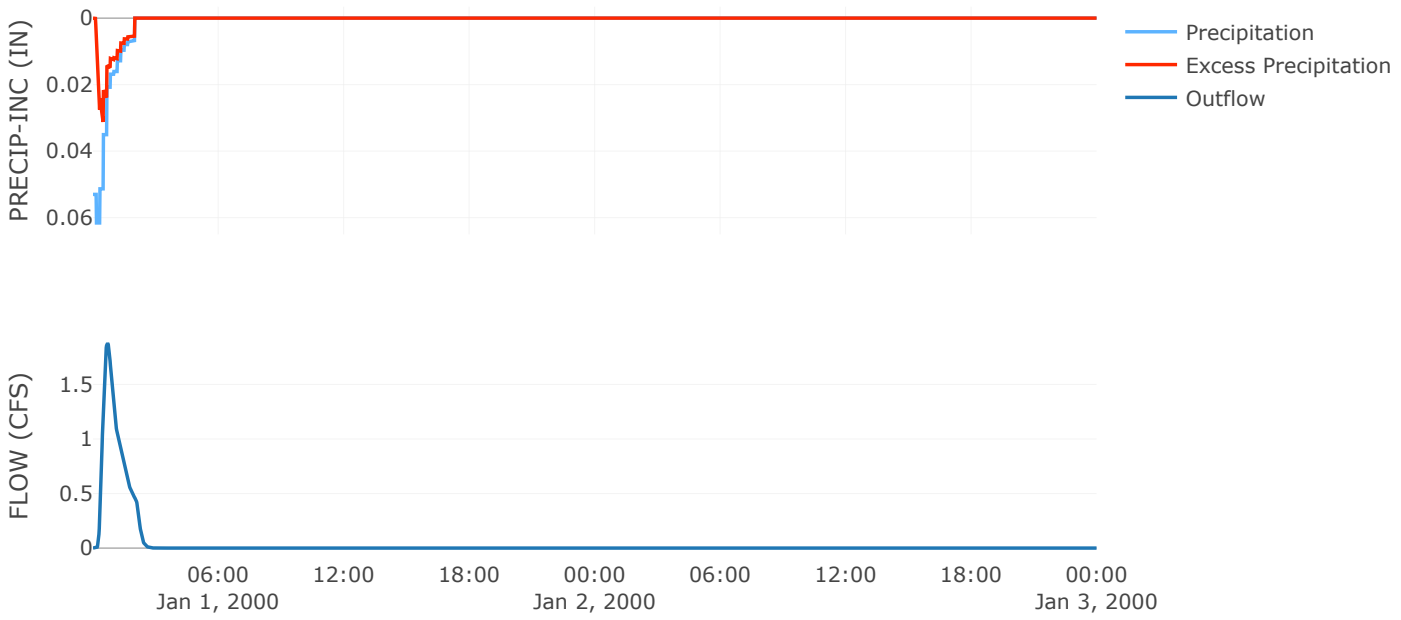
Area (MI2) : 0
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

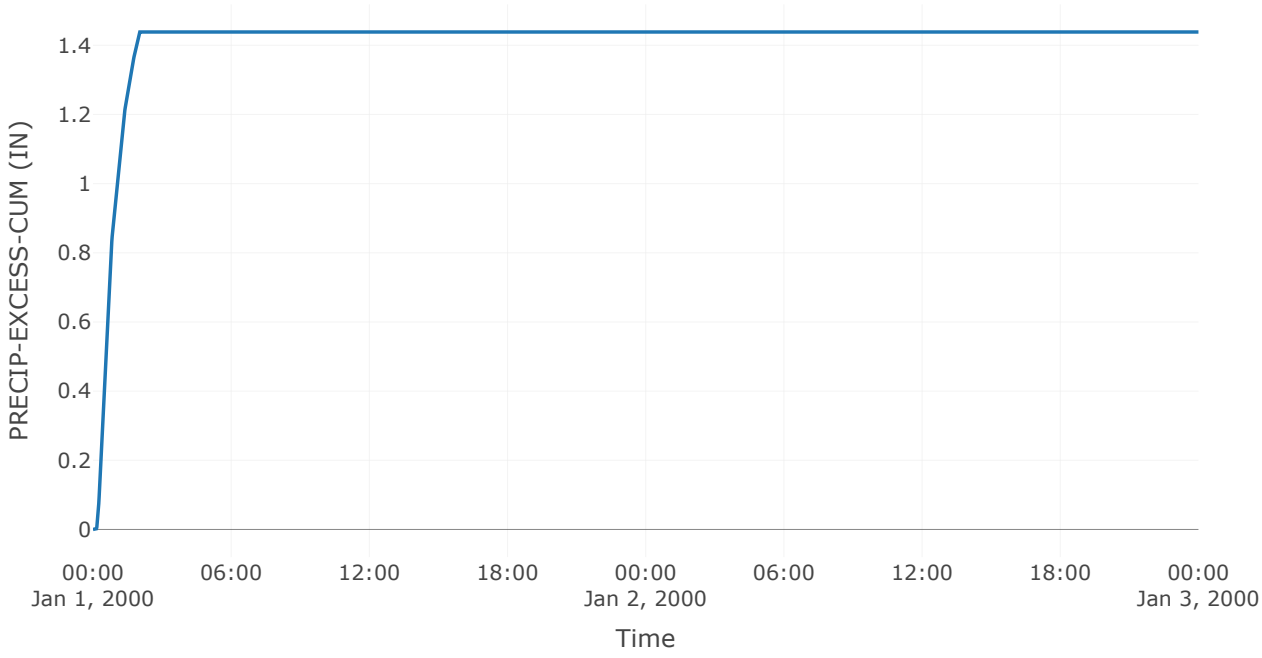
Transform: Scs	
Lag	12
Unitgraph Type	Standard

Results: Off-Site Trib 1 West	
Peak Discharge (CFS)	1.88
Time of Peak Discharge	01Jan2000, 00:42
Volume (IN)	1.44
Precipitation Volume (AC - FT)	0.32
Loss Volume (AC - FT)	0.17
Excess Volume (AC - FT)	0.16
Direct Runoff Volume (AC - FT)	0.16
Baseflow Volume (AC - FT)	0

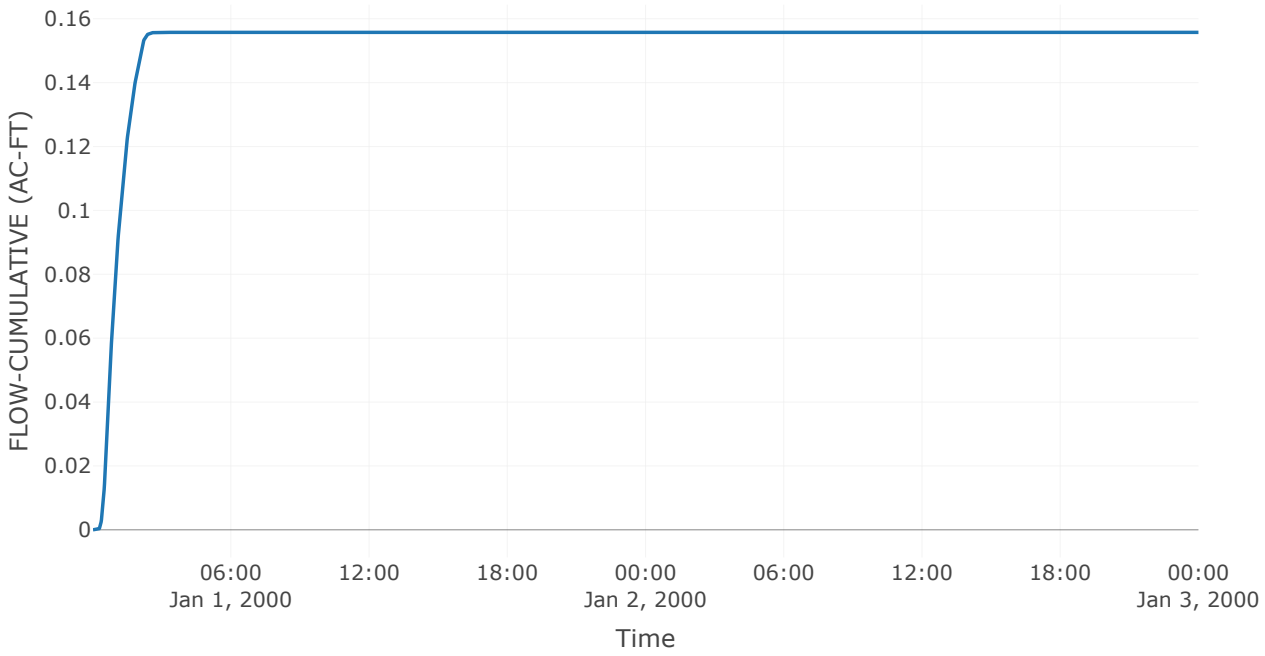
Precipitation and Outflow



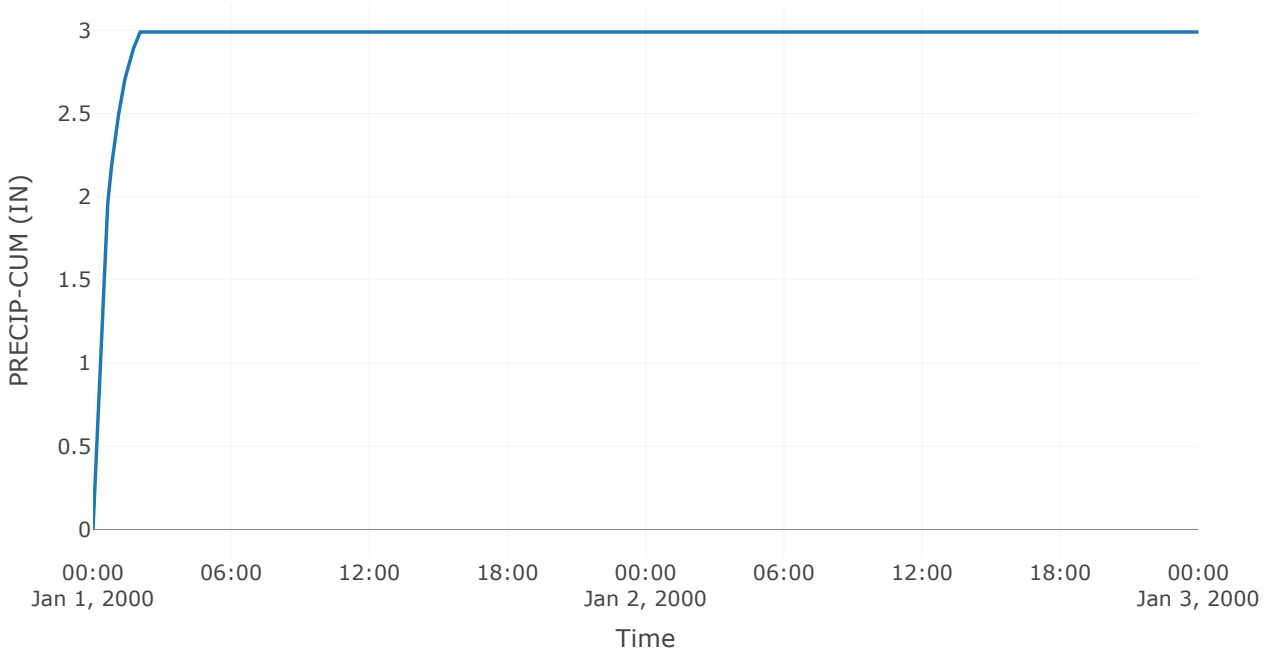
Cumulative Excess Precipitation



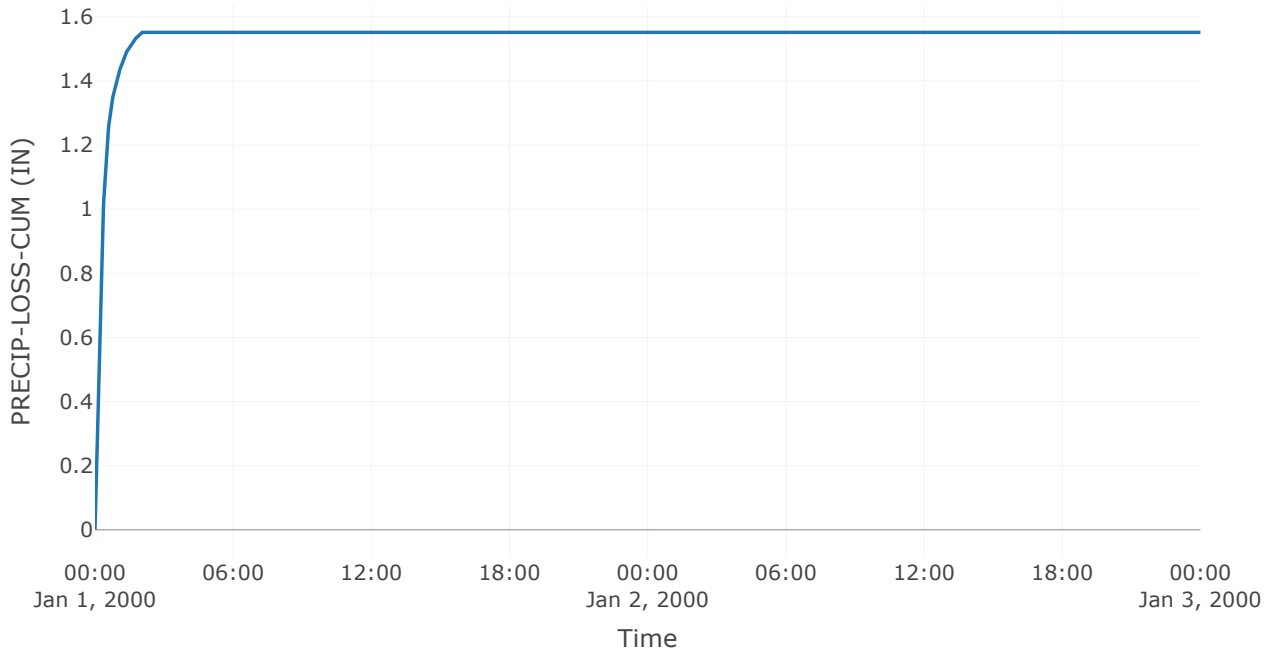
Cumulative Outflow



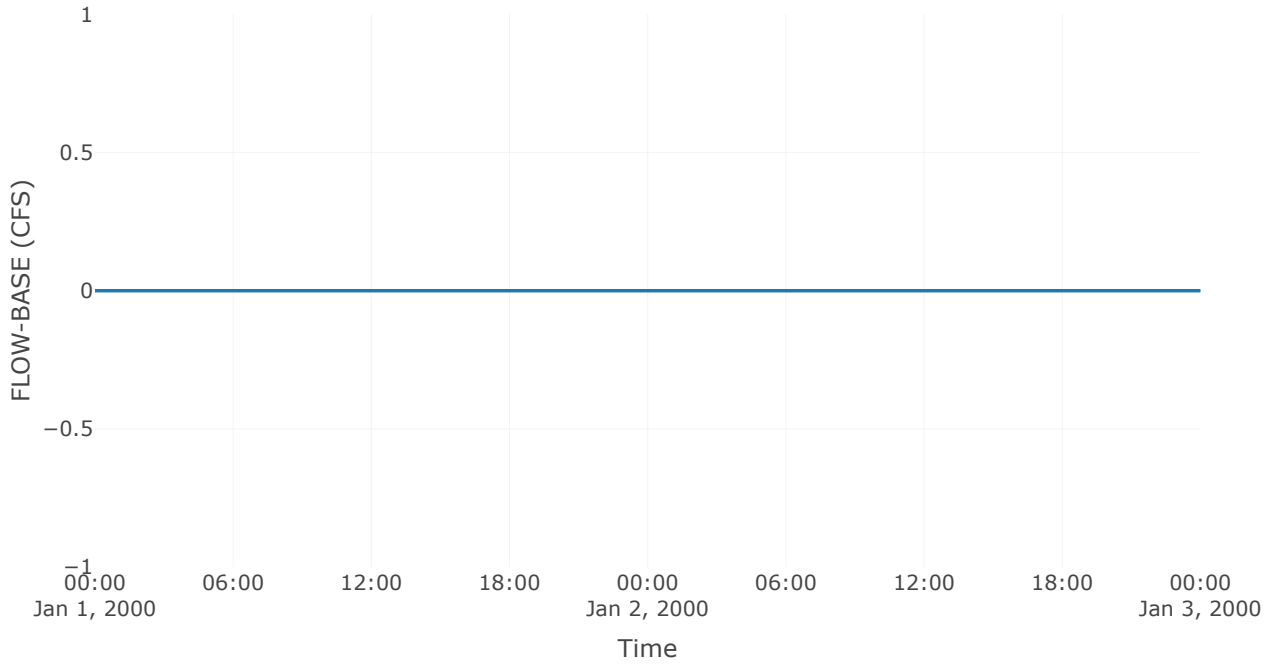
Cumulative Precipitation



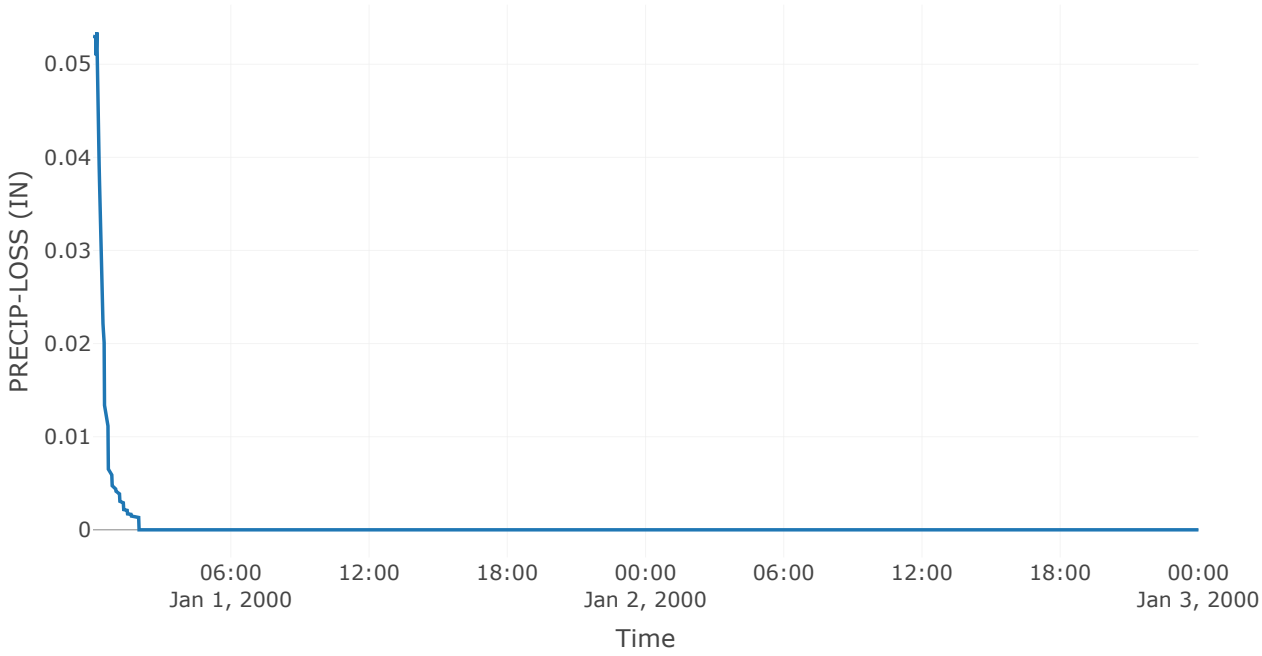
Cumulative Precipitation Loss



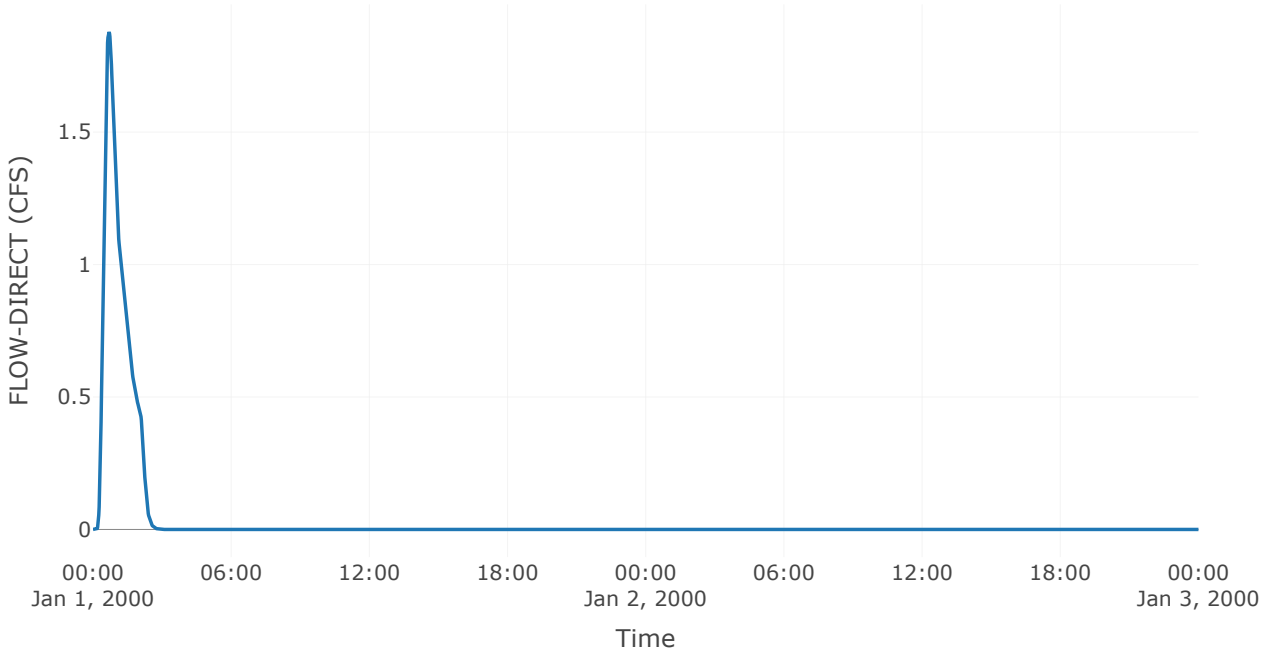
Baseflow

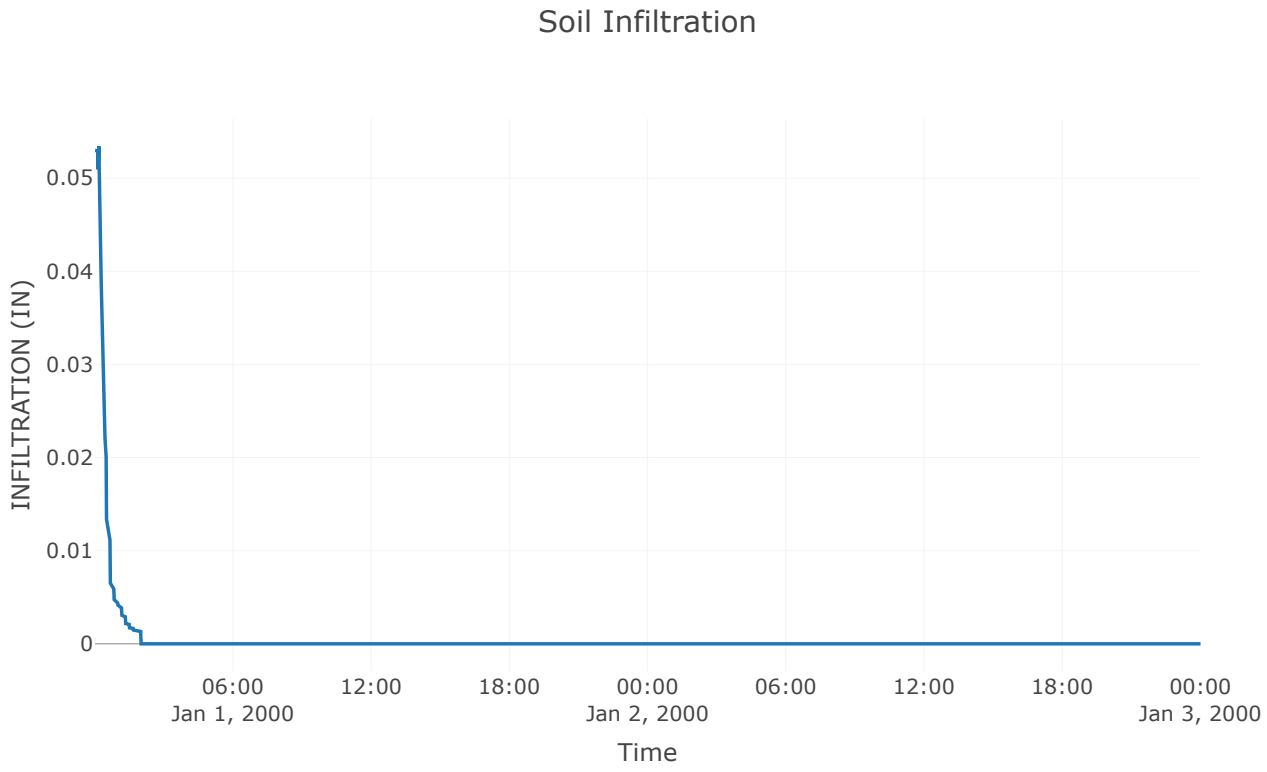


Precipitation Loss



Direct Runoff



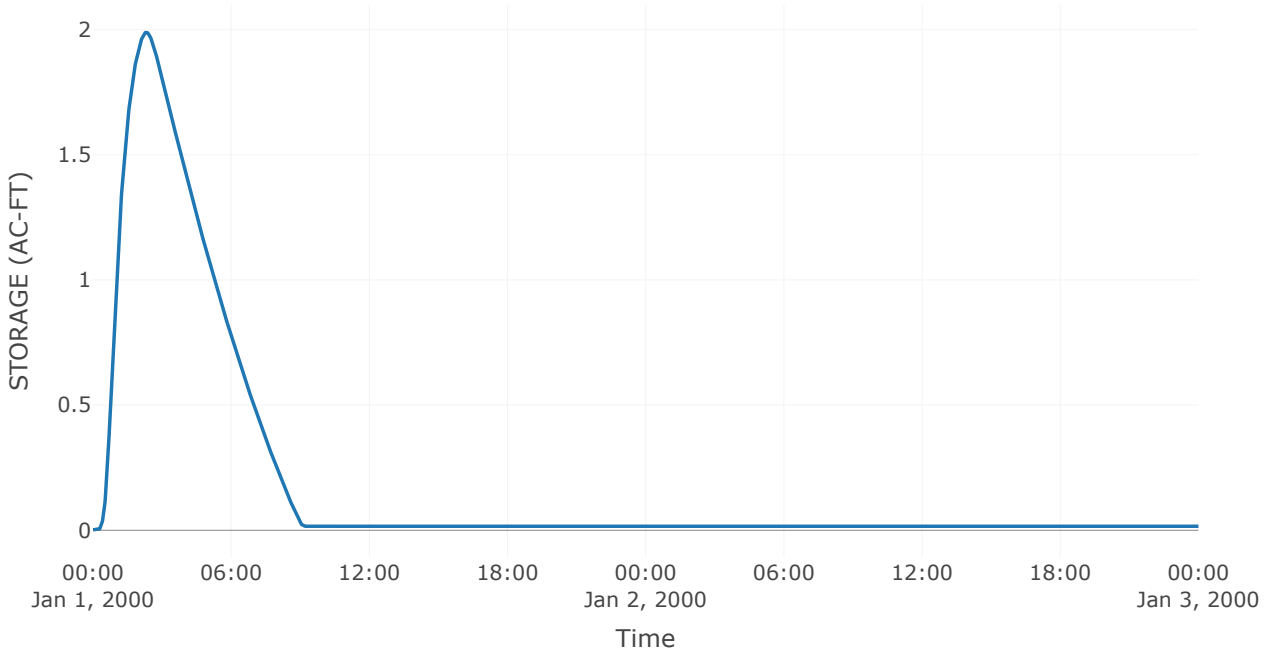

Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 1

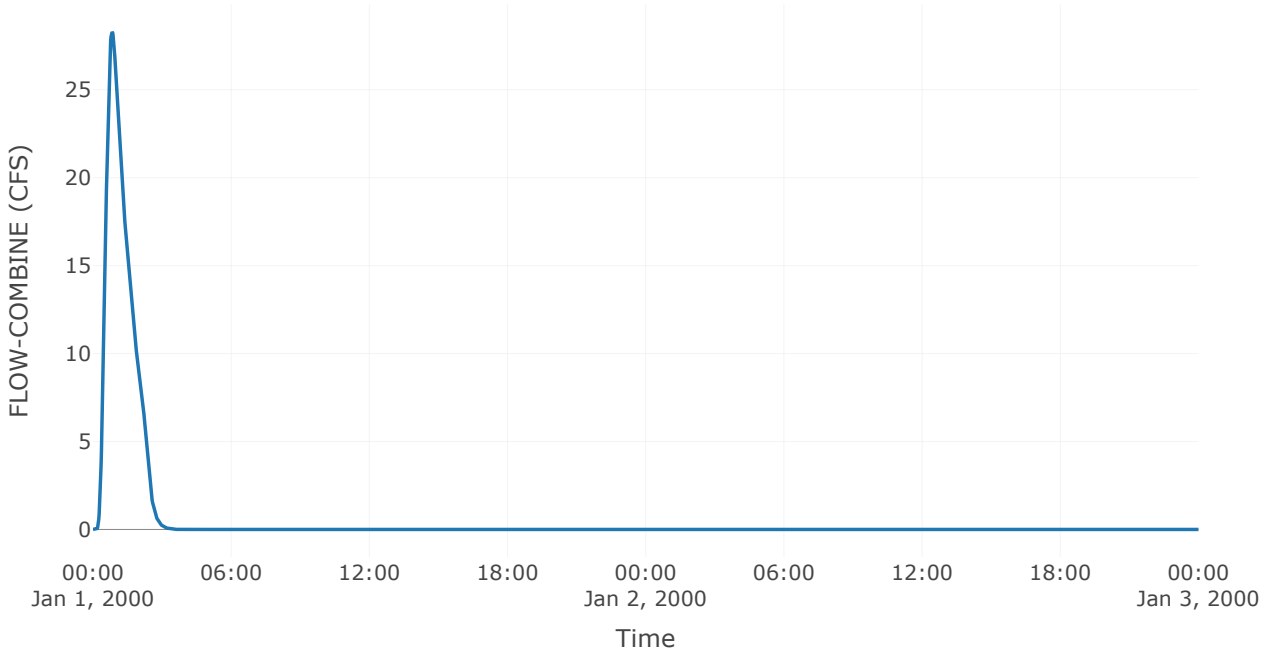
Downstream : Basin 2

Results: Basin 1	
Peak Discharge (CFS)	4.9
Time of Peak Discharge	01Jan2000, 02:19
Volume (IN)	1.6
Peak Inflow (CFS)	28.28
Time of Peak Inflow	01Jan2000, 00:50
Inflow Volume (AC - FT)	2.74
Maximum Storage (AC - FT)	1.99
Peak Elevation (FT)	697
Discharge Volume (AC - FT)	2.72

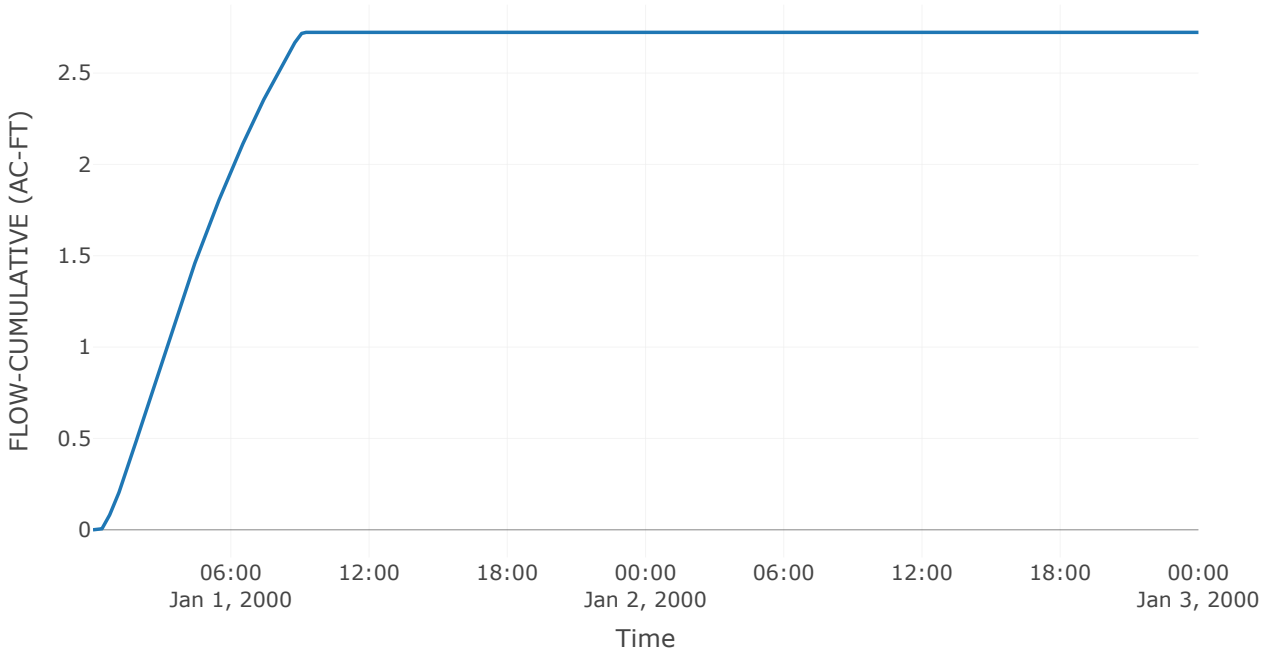
Storage



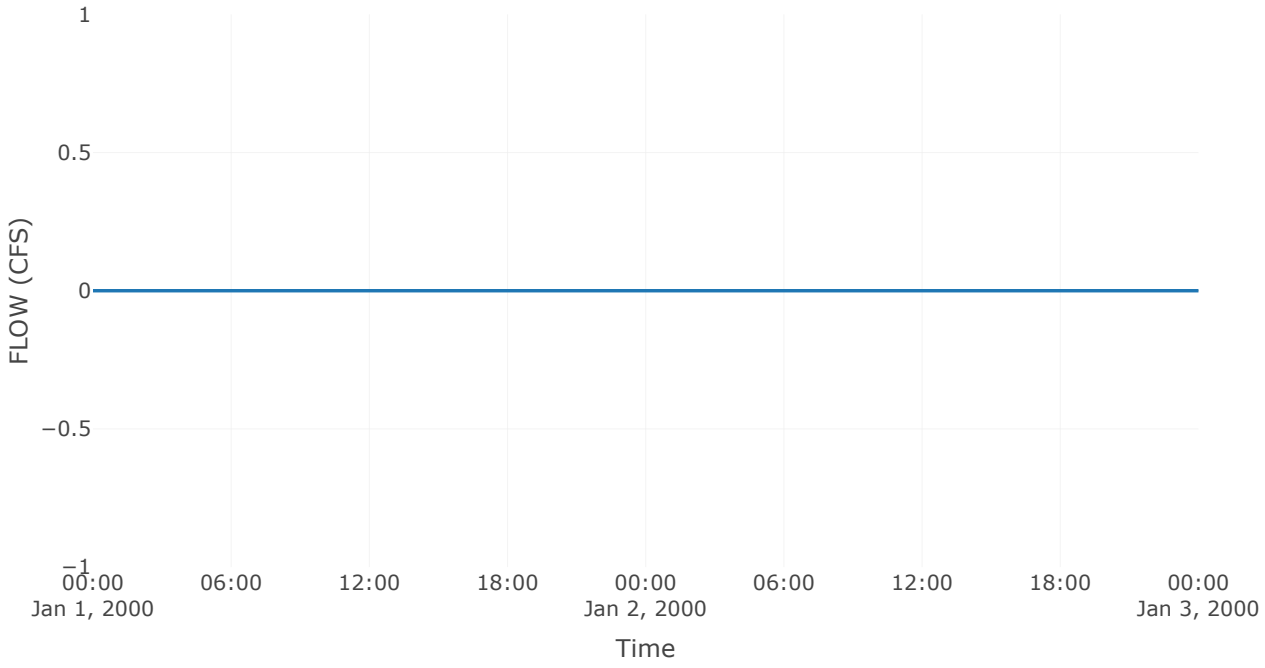
Combined Inflow



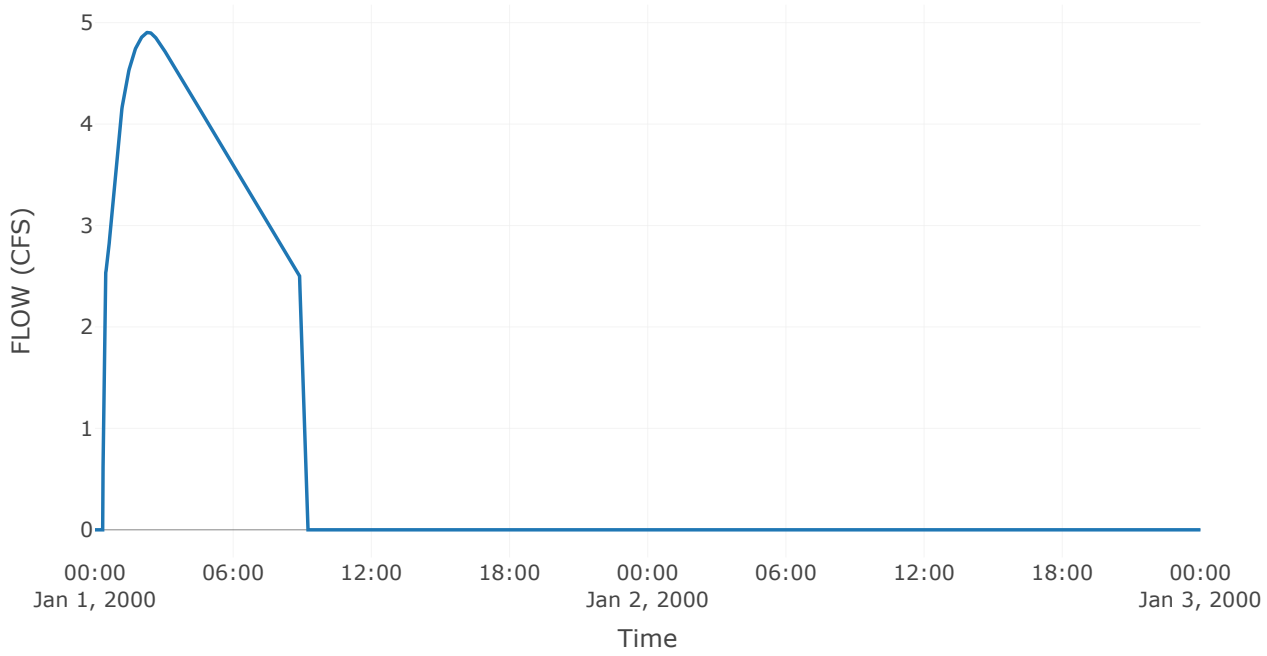
Cumulative Outflow



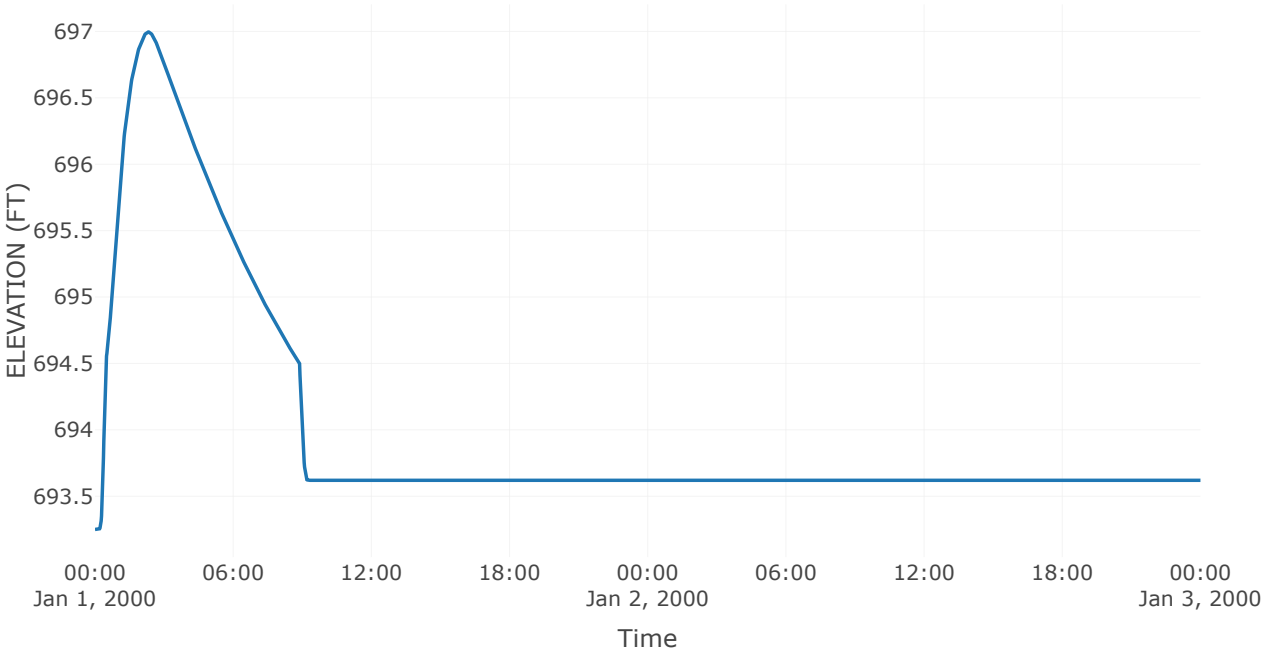
Spillway 1

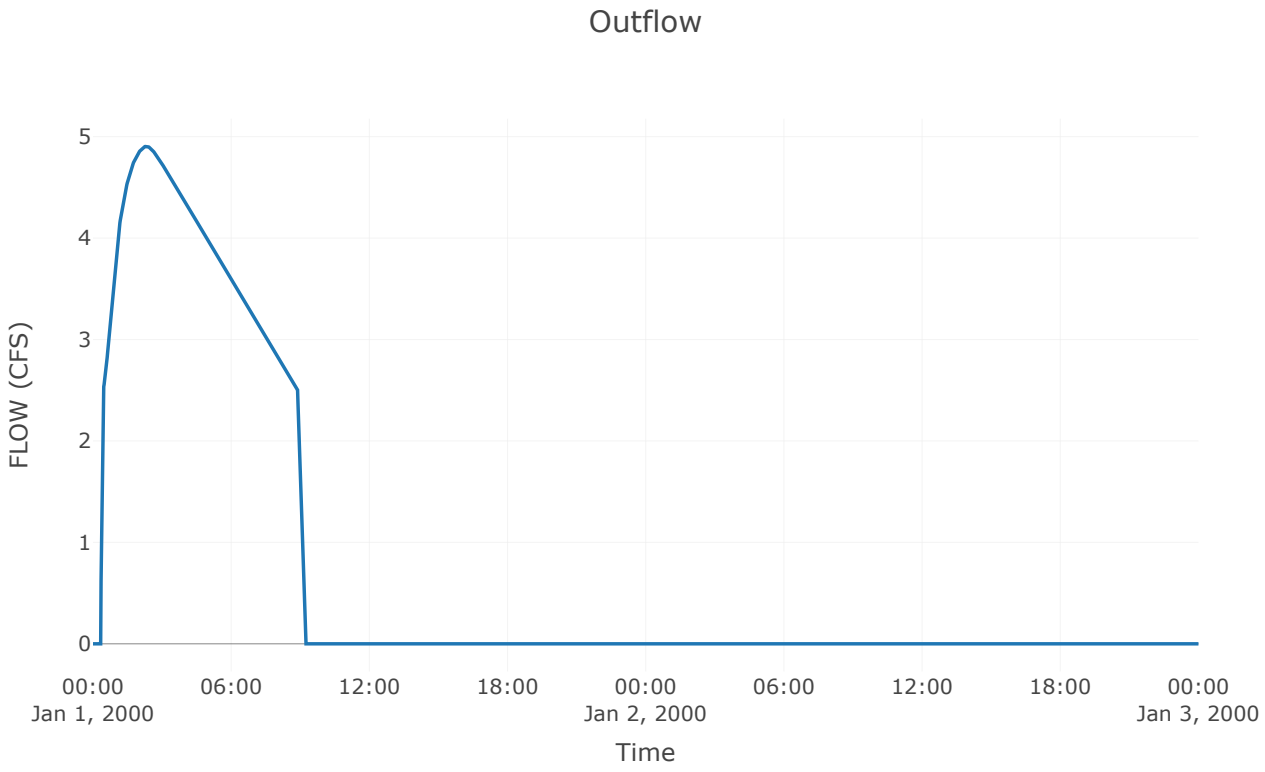


Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
5
4
3
2
1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: On-Site Trib 2

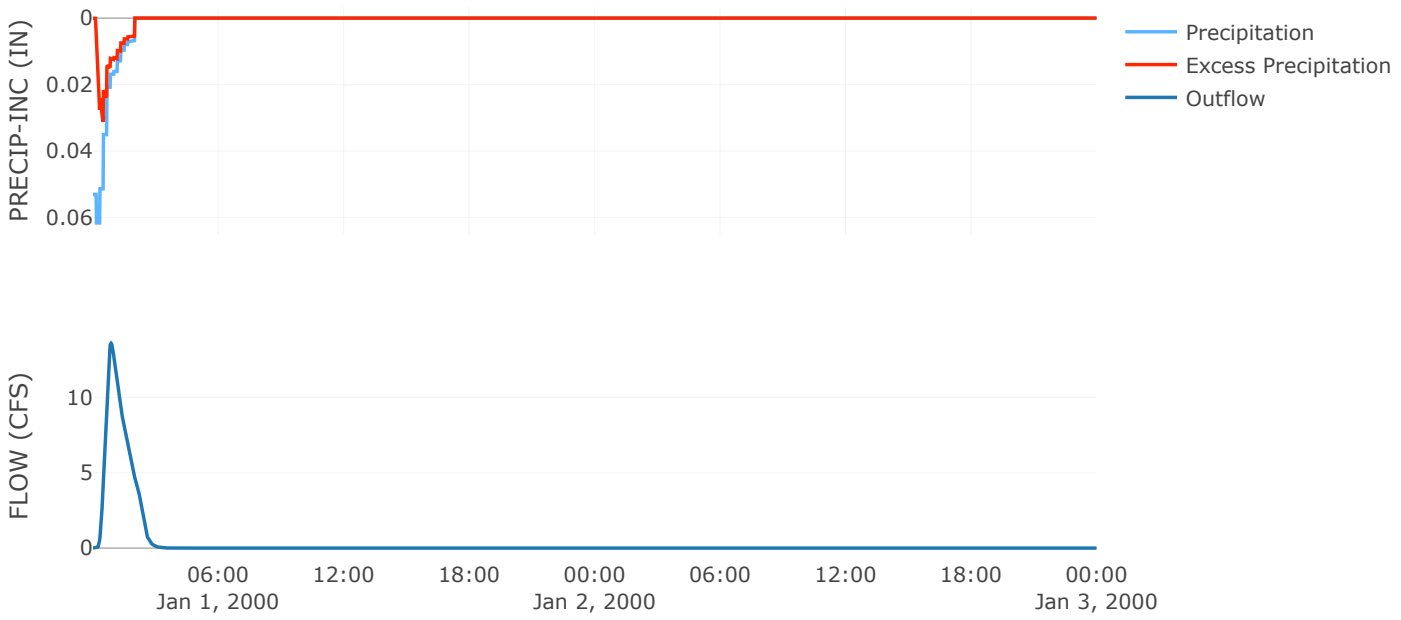
Area (MI2) : 0.02
Downstream : Basin 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

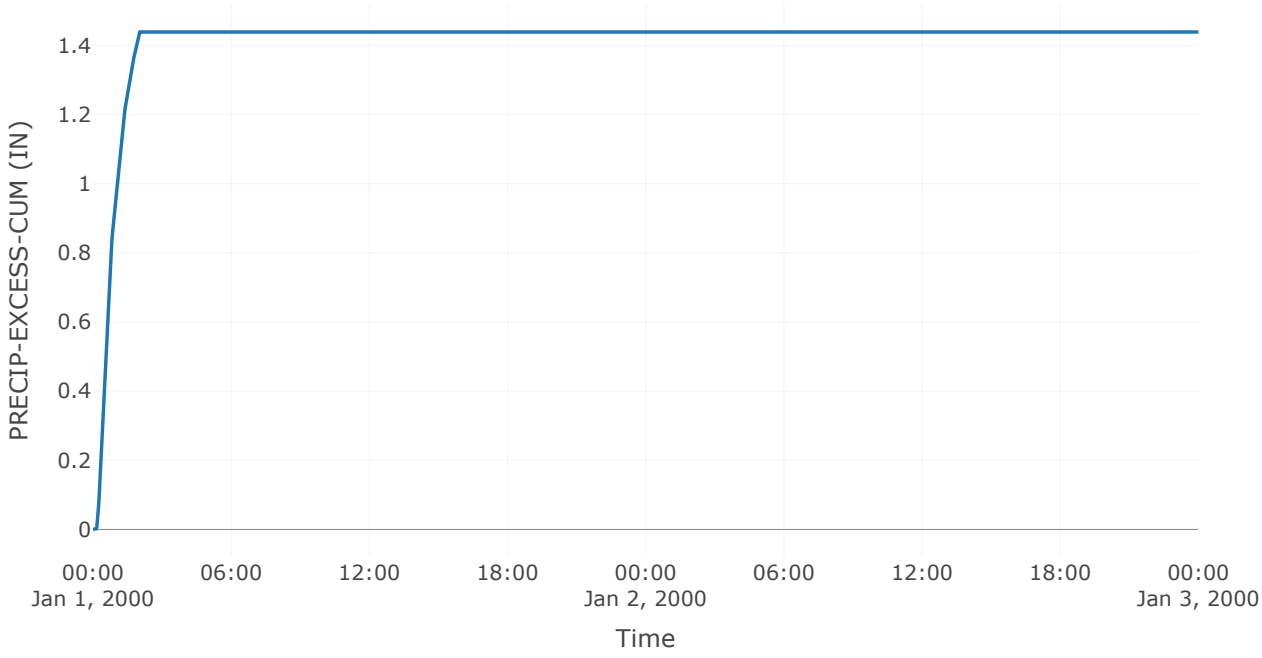
Transform: Scs	
Lag	20.4
Unitgraph Type	Standard

Results: On-Site Trib 2	
Peak Discharge (CFS)	13.59
Time of Peak Discharge	01Jan2000, 00:52
Volume (IN)	1.44
Precipitation Volume (AC - FT)	2.74
Loss Volume (AC - FT)	1.42
Excess Volume (AC - FT)	1.32
Direct Runoff Volume (AC - FT)	1.32
Baseflow Volume (AC - FT)	0

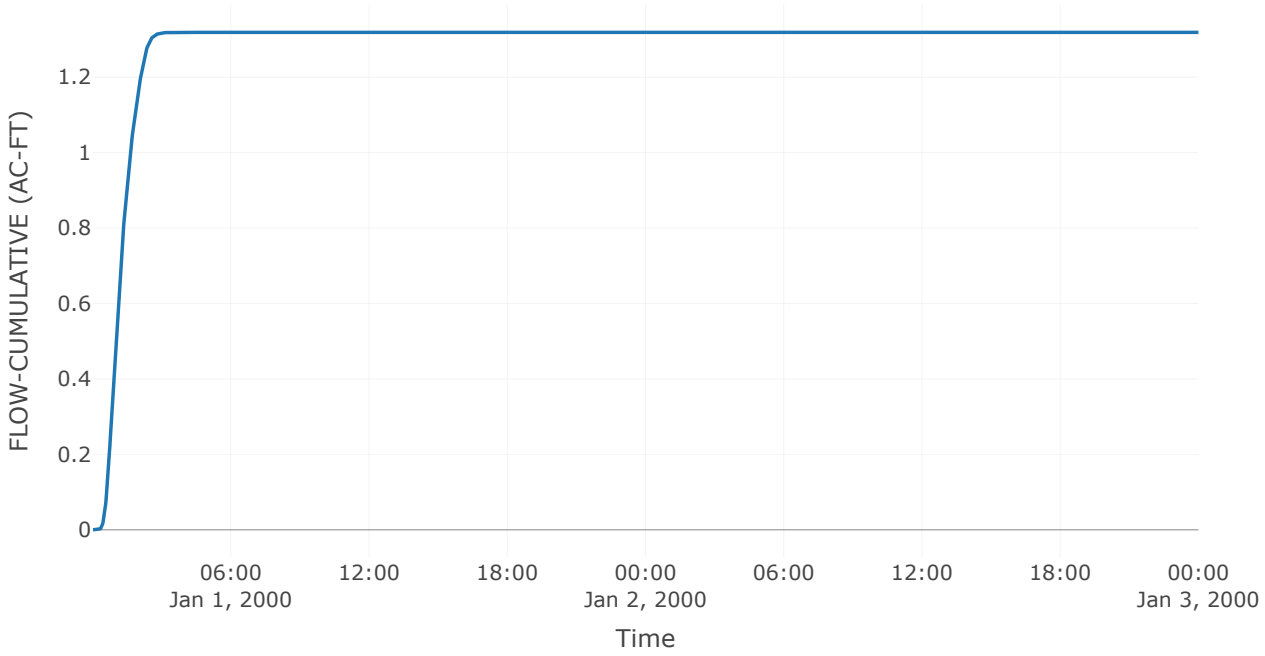
Precipitation and Outflow



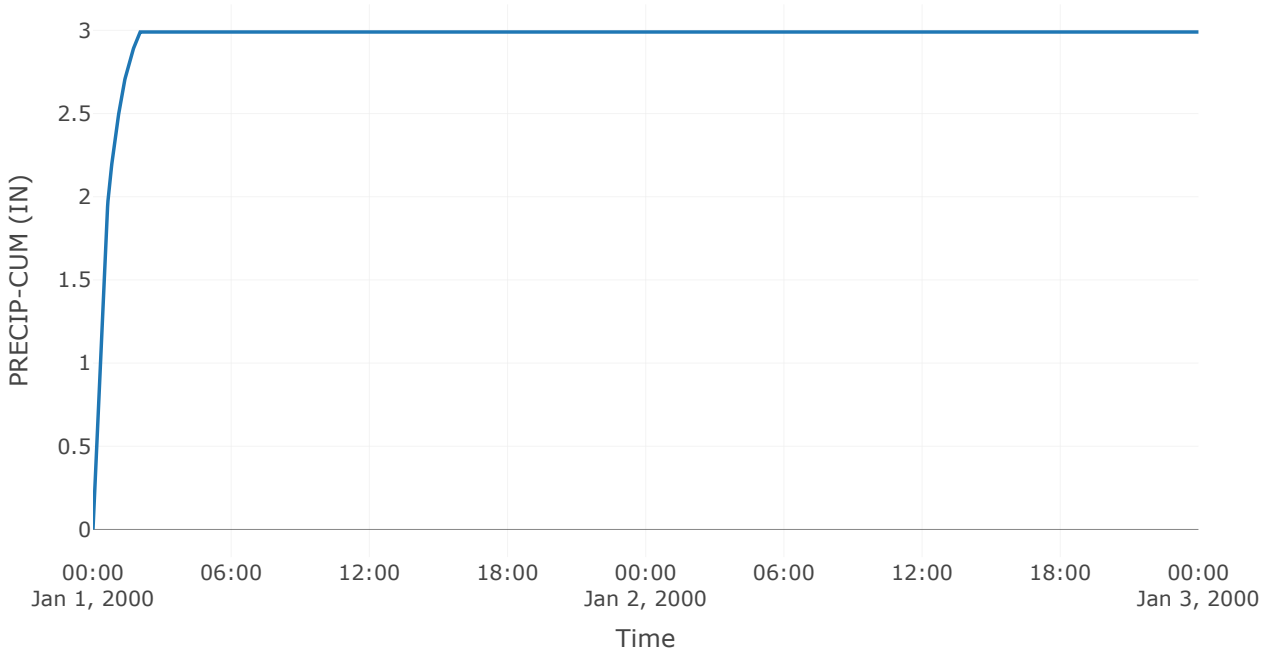
Cumulative Excess Precipitation

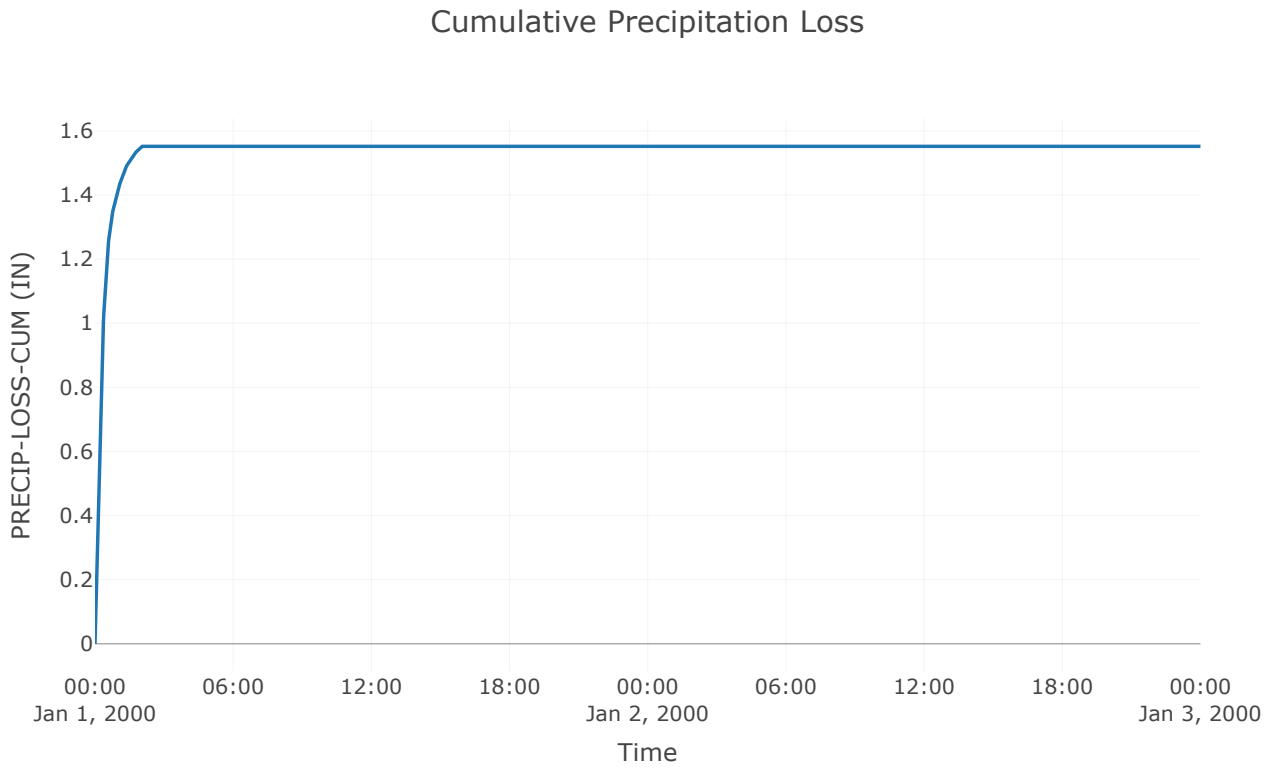


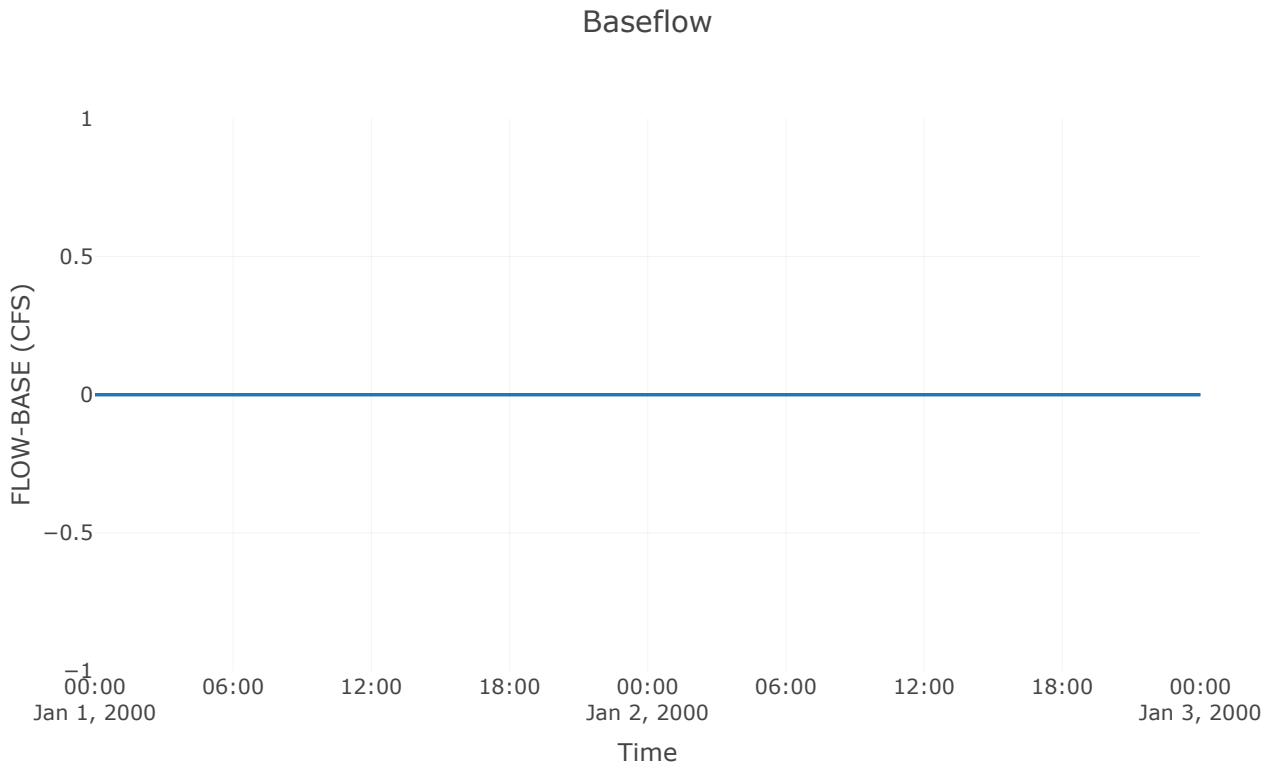
Cumulative Outflow



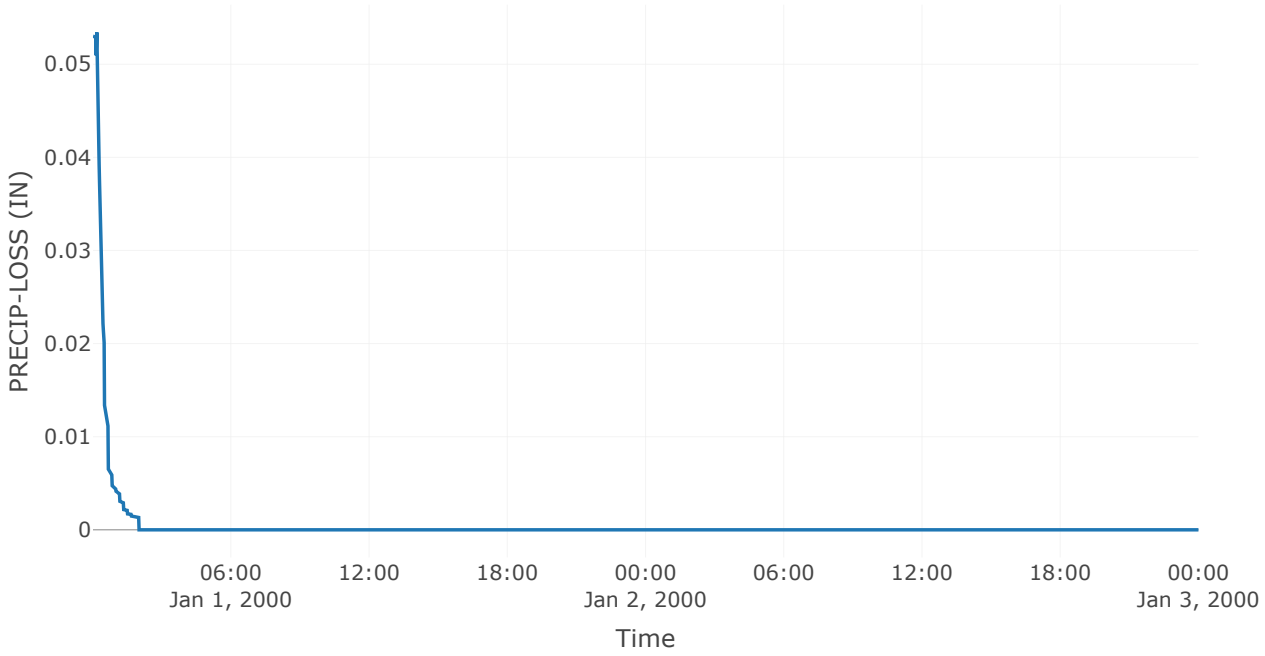
Cumulative Precipitation



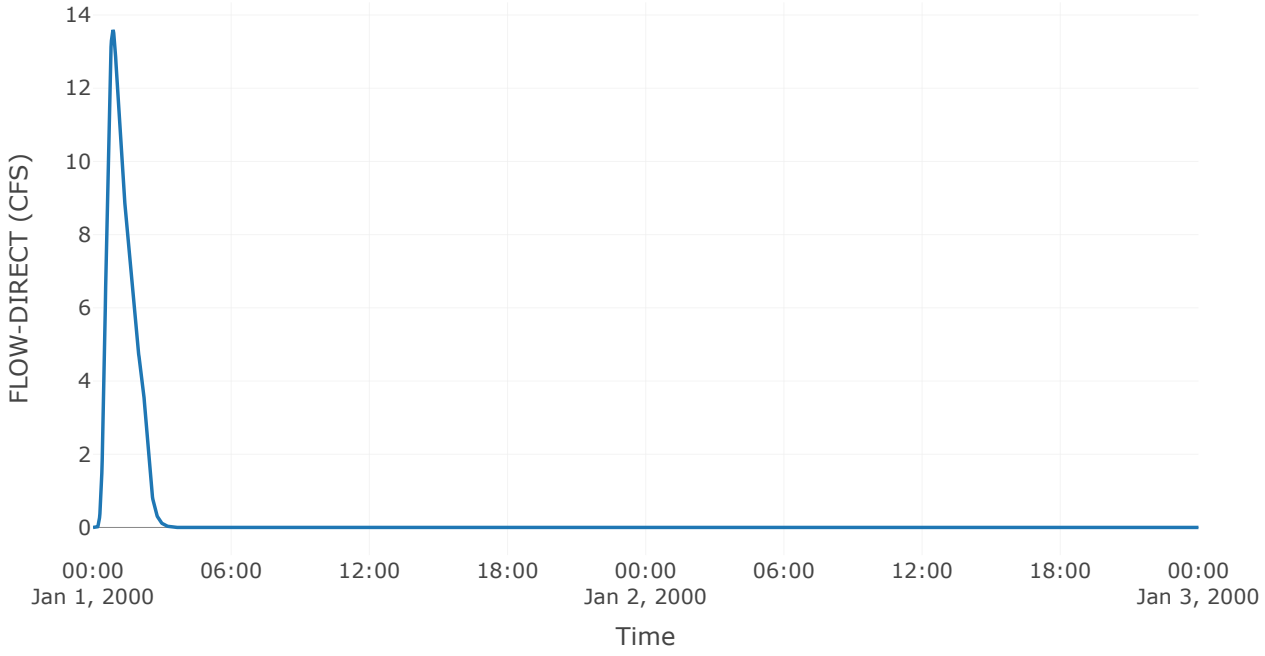

Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

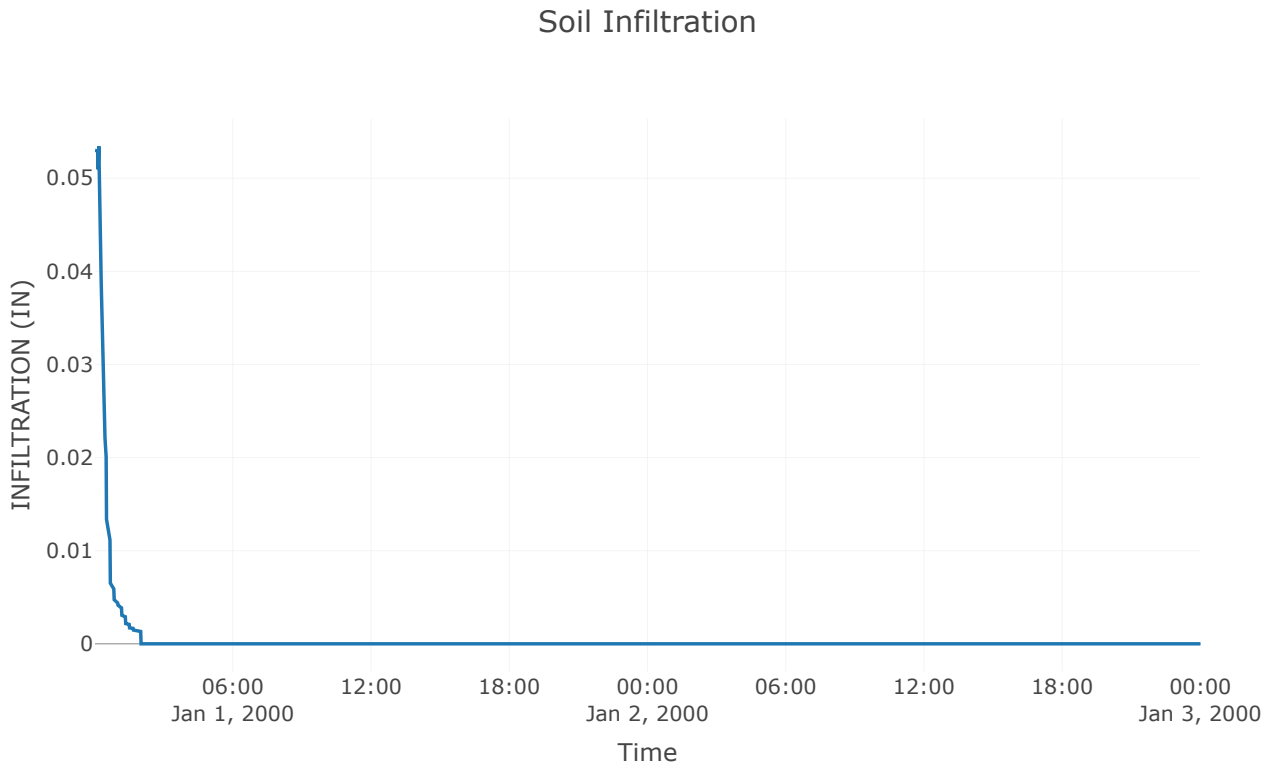

Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib2

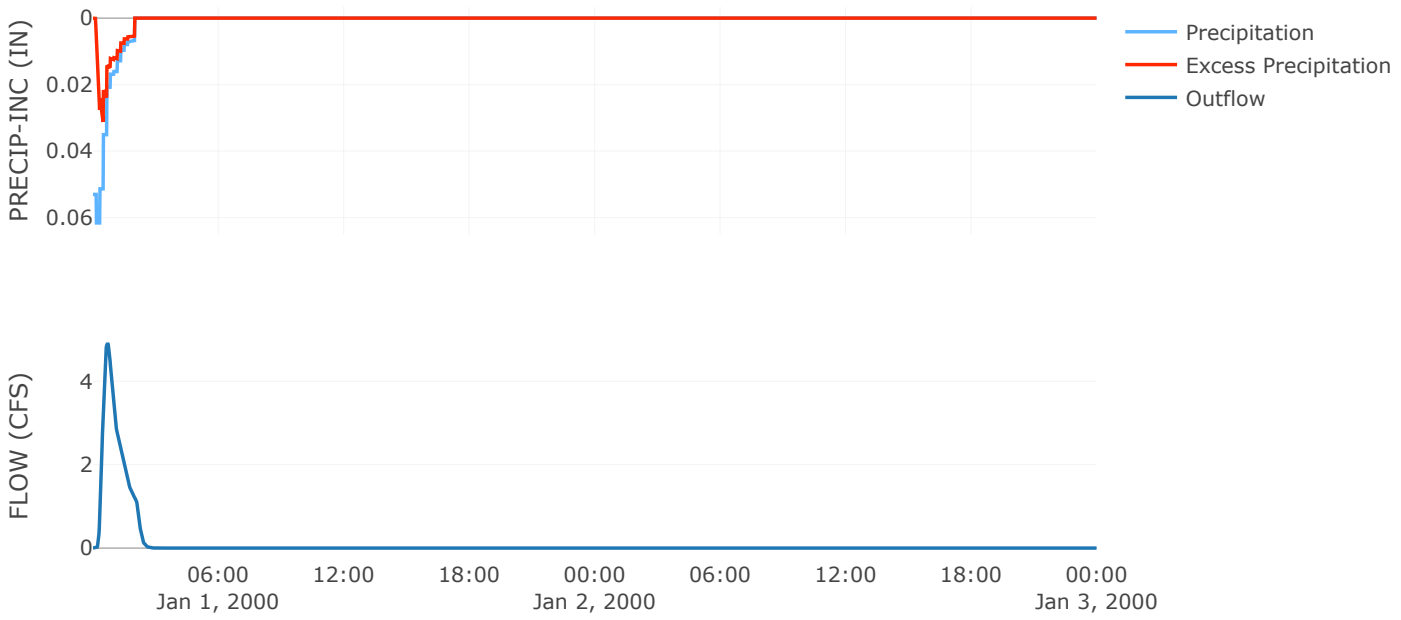
Area (MI2) : 0.01
Downstream : Basin 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

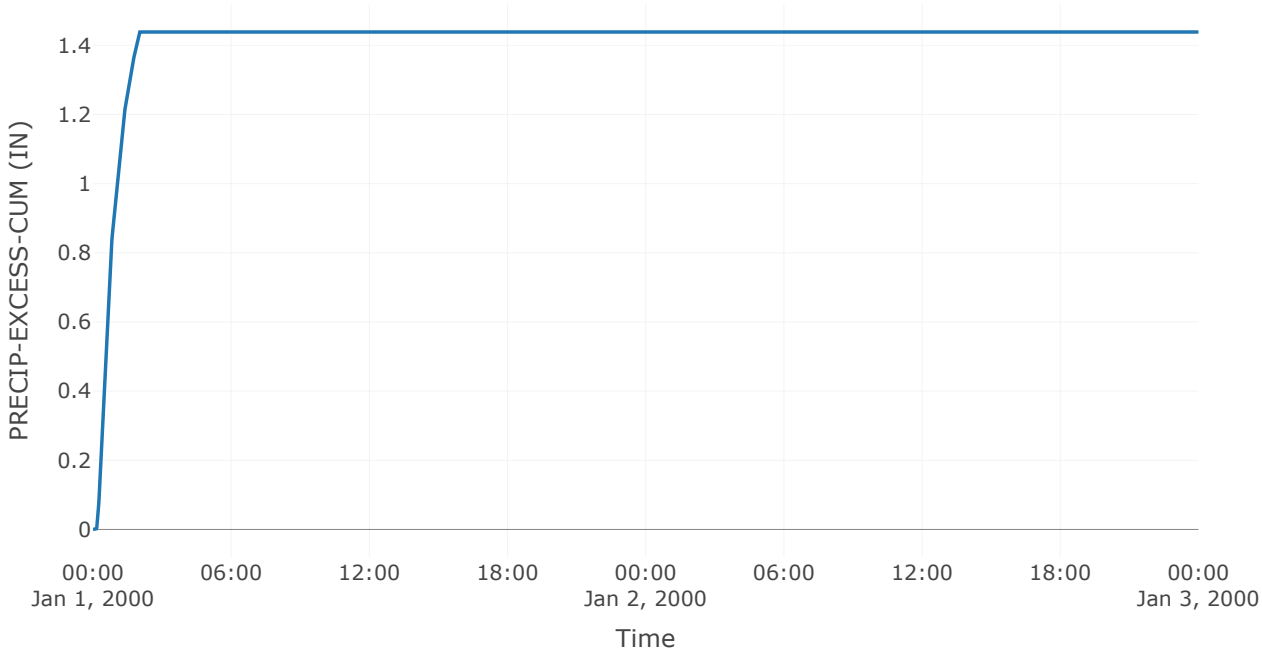
Transform: Scs	
Lag	12
Unitgraph Type	Standard

Results: Off-Site Trib2	
Peak Discharge (CFS)	4.91
Time of Peak Discharge	01Jan2000, 00:42
Volume (IN)	1.44
Precipitation Volume (AC - FT)	0.85
Loss Volume (AC - FT)	0.44
Excess Volume (AC - FT)	0.41
Direct Runoff Volume (AC - FT)	0.41
Baseflow Volume (AC - FT)	0

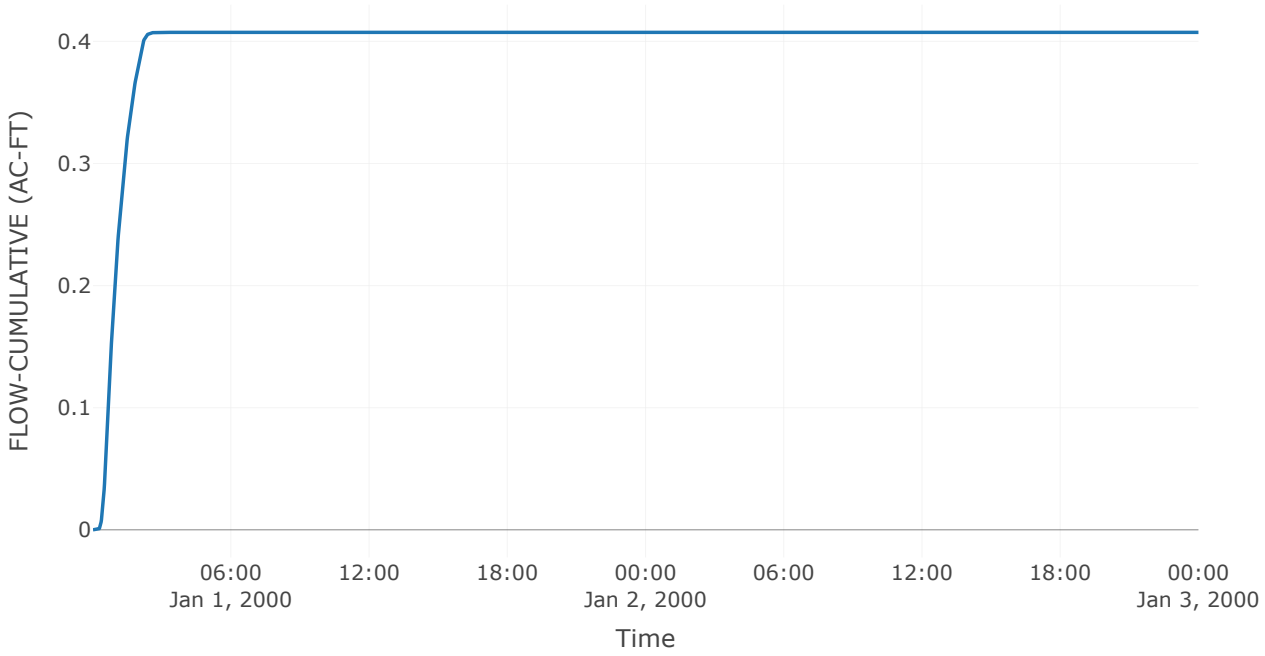
Precipitation and Outflow



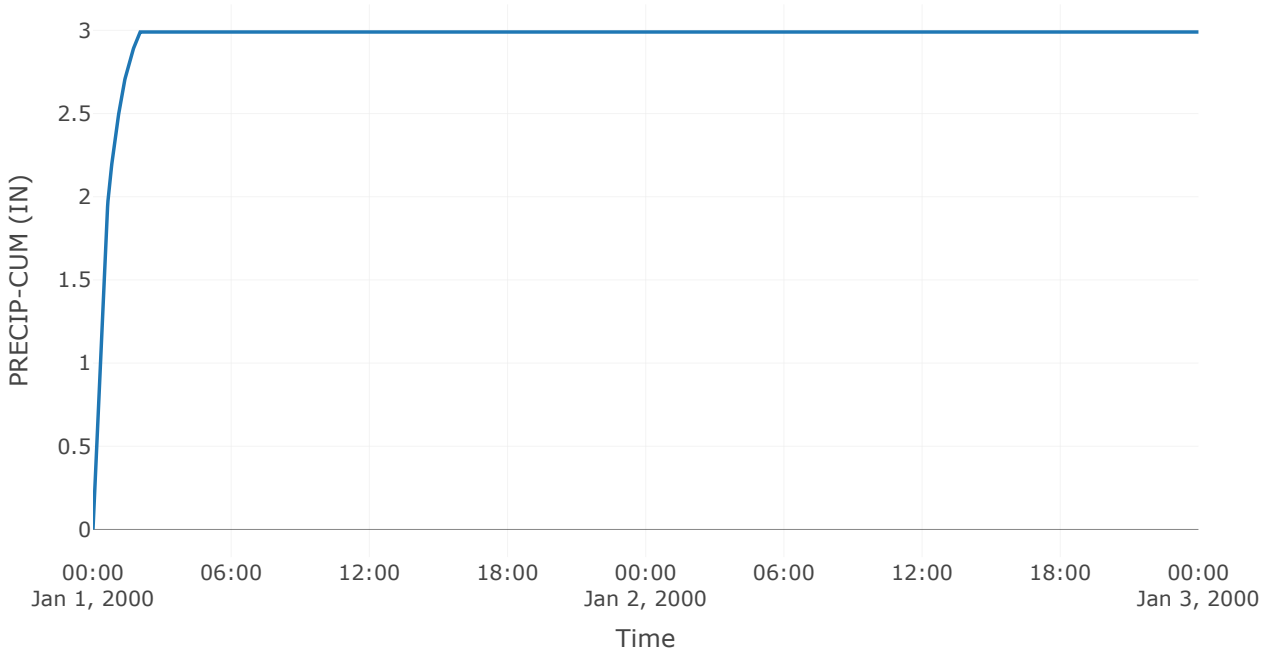
Cumulative Excess Precipitation



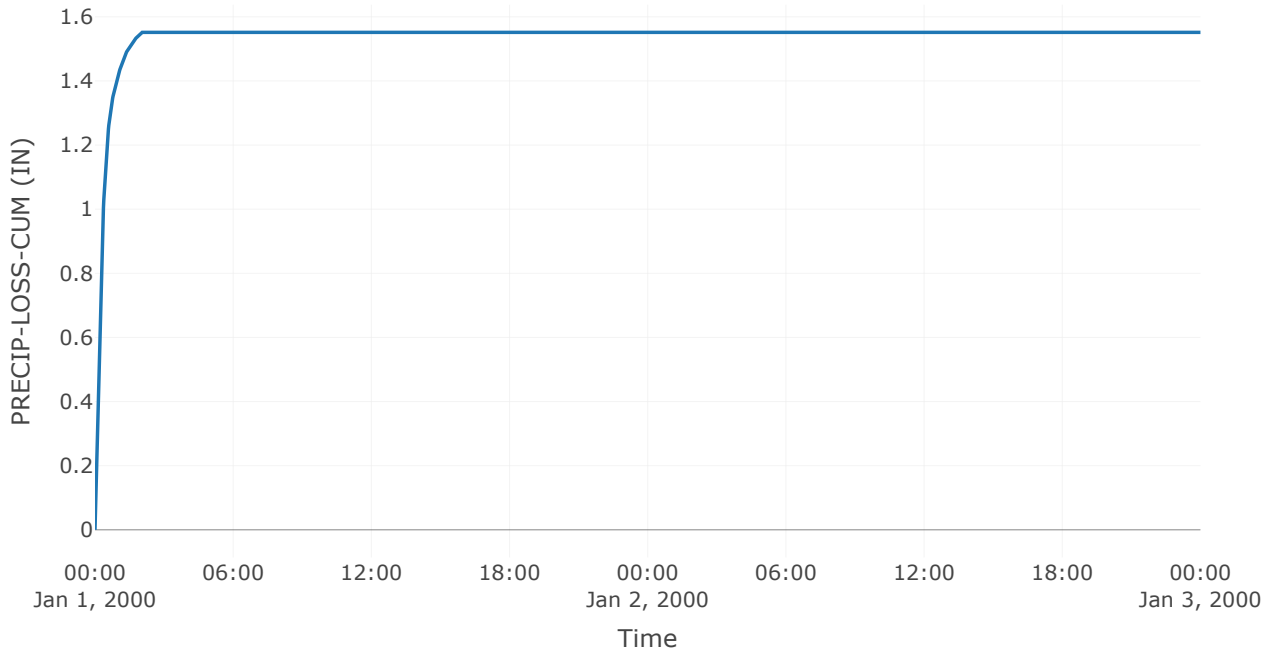
Cumulative Outflow



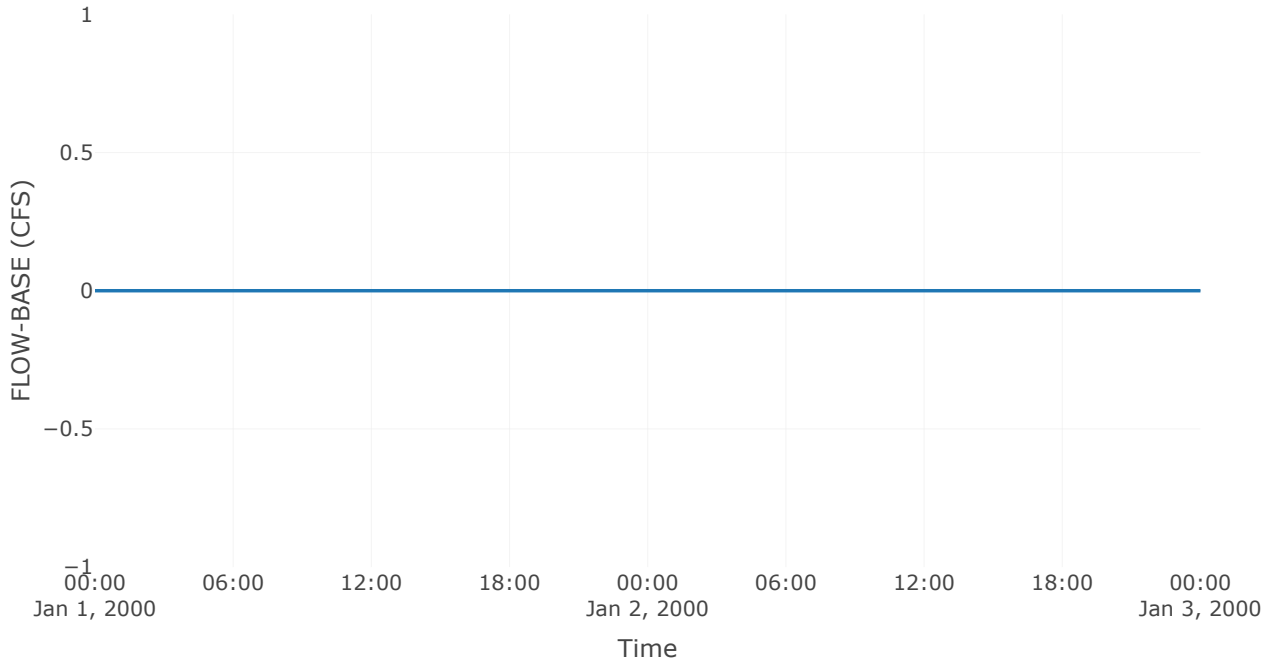
Cumulative Precipitation



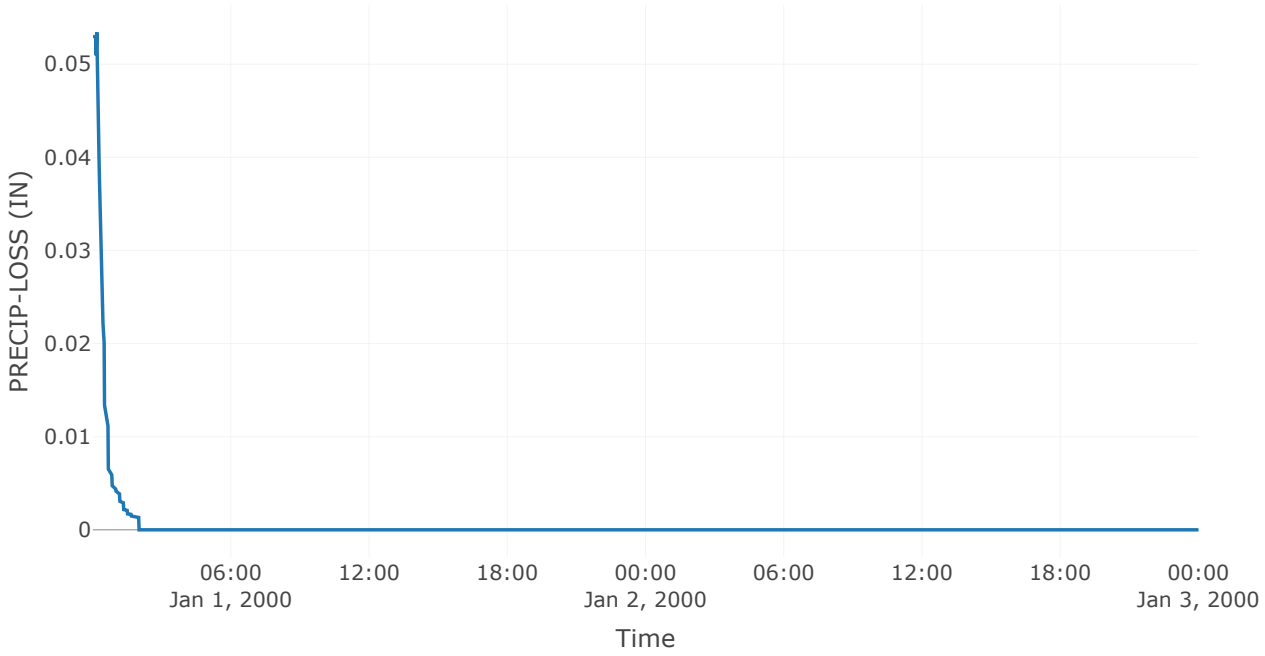
Cumulative Precipitation Loss



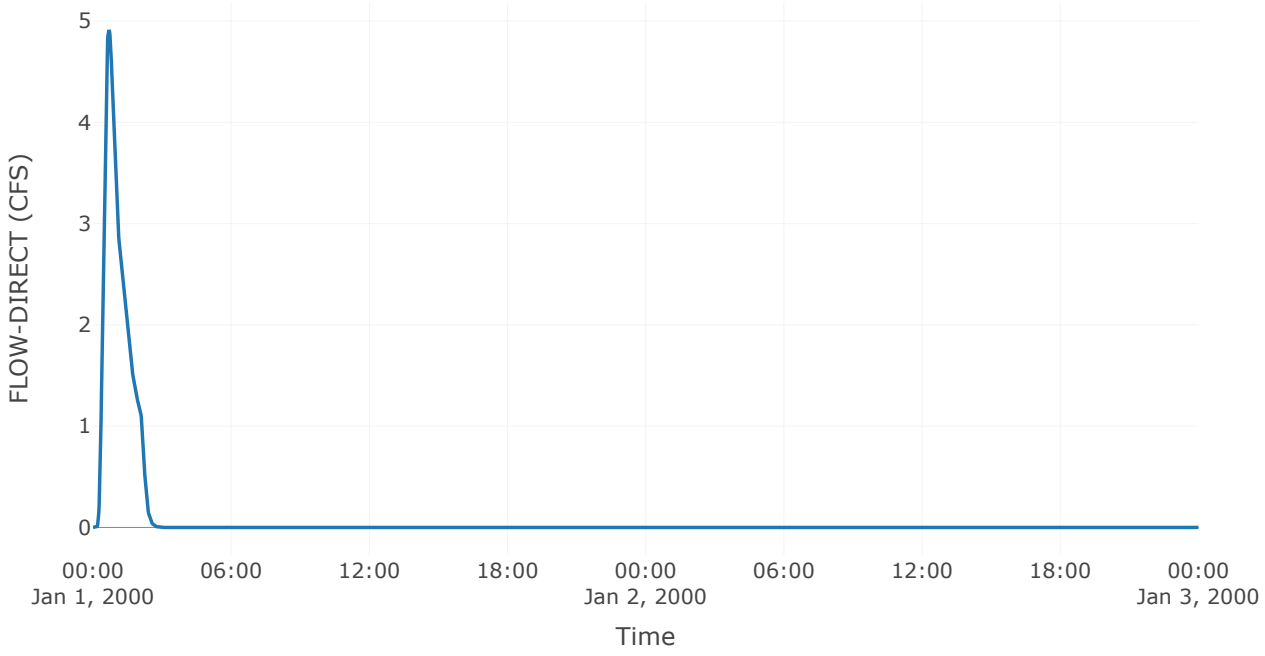
Baseflow

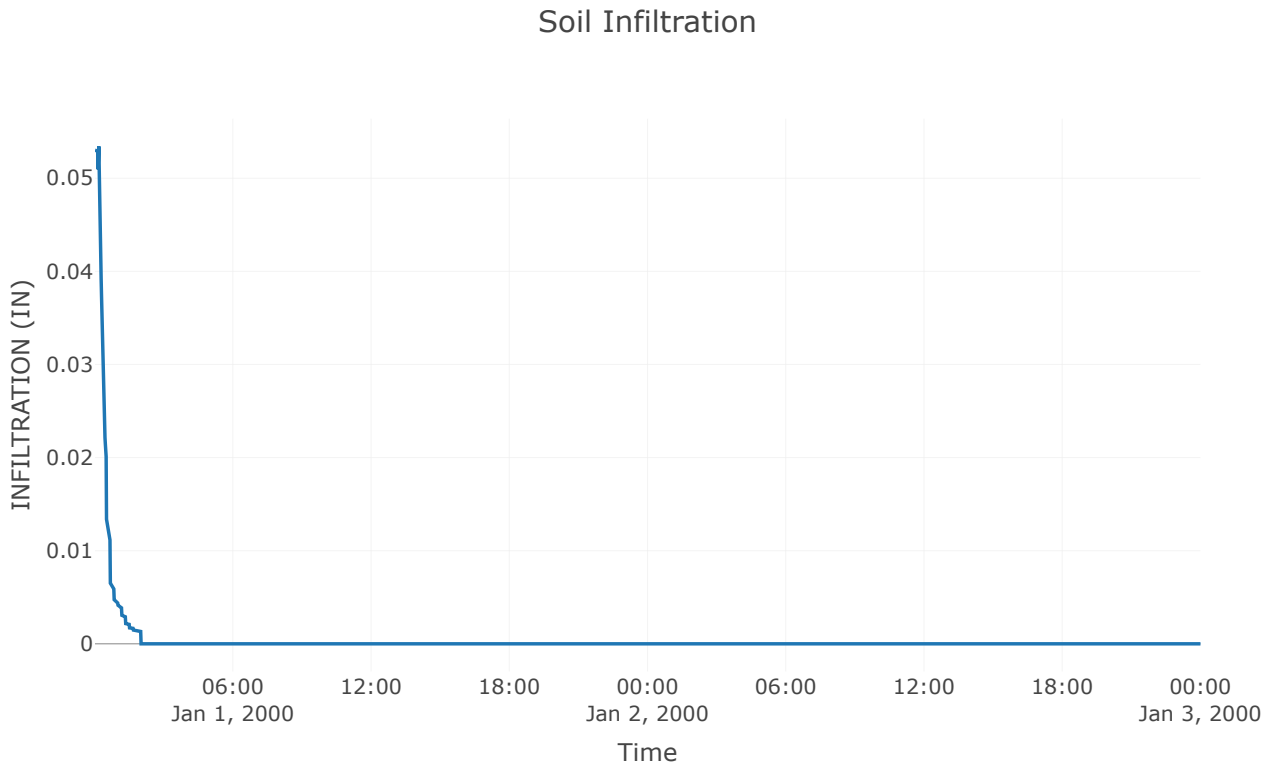


Precipitation Loss



Direct Runoff



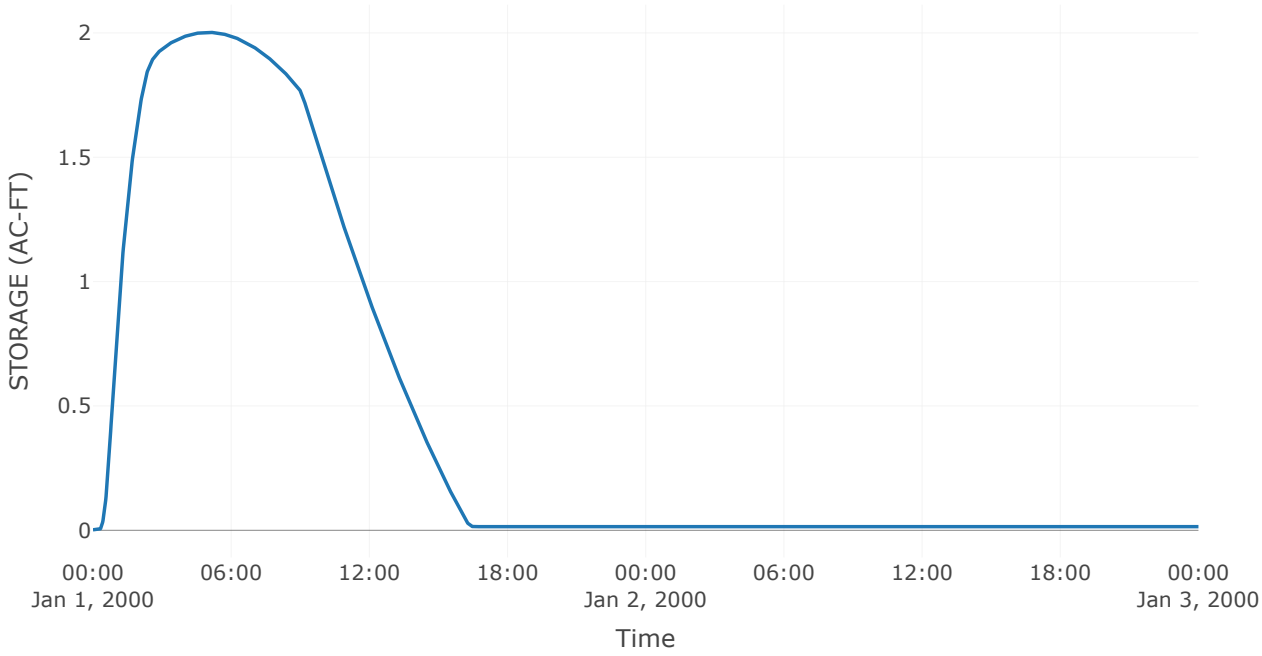

Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 2

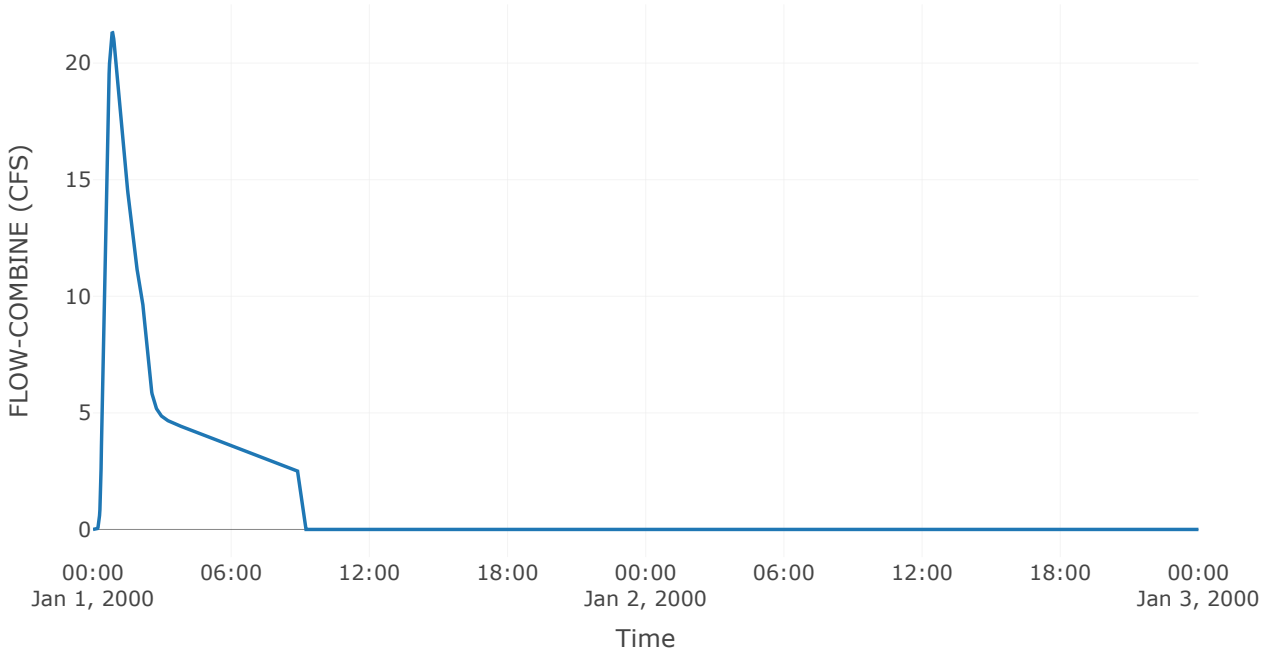
Downstream : Basin 3

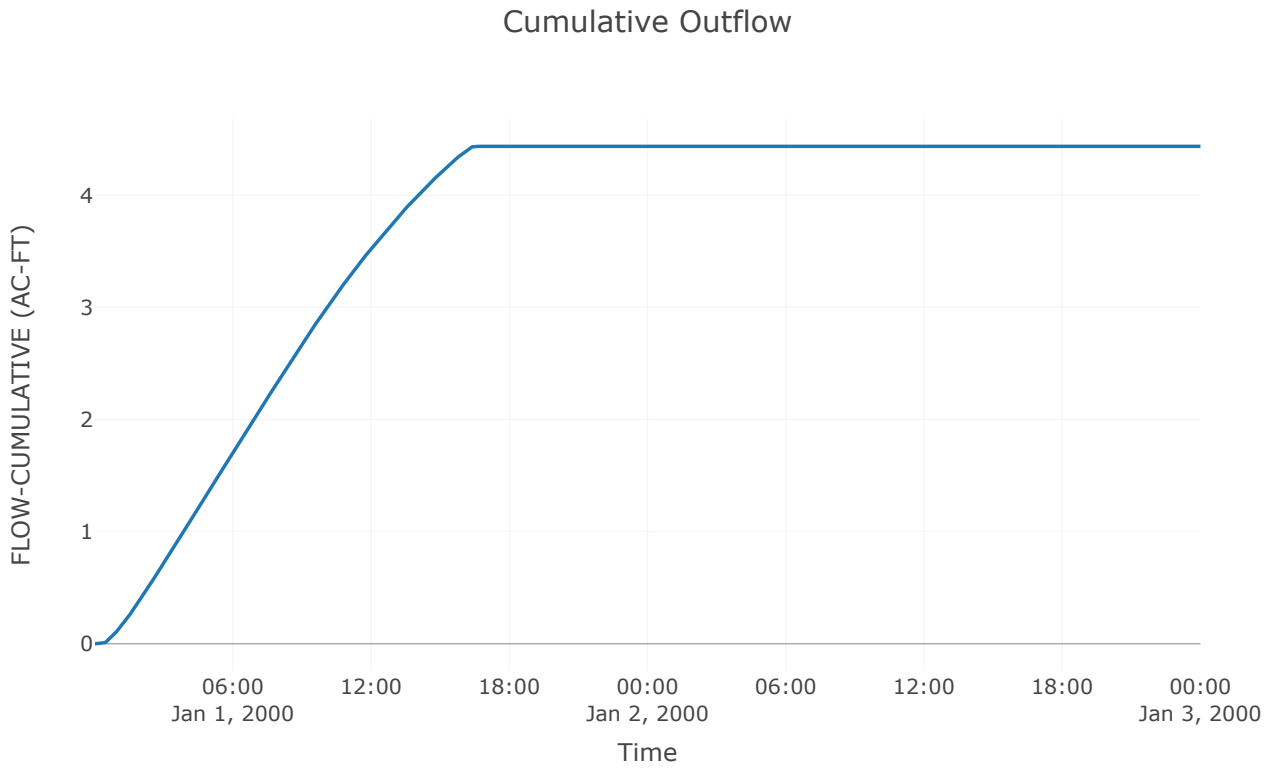
Results: Basin 2	
Peak Discharge (CFS)	3.98
Time of Peak Discharge	01Jan2000, 05:00
Volume (IN)	1.53
Peak Inflow (CFS)	21.34
Time of Peak Inflow	01Jan2000, 00:50
Inflow Volume (AC - FT)	4.45
Maximum Storage (AC - FT)	2
Peak Elevation (FT)	693.96
Discharge Volume (AC - FT)	4.44

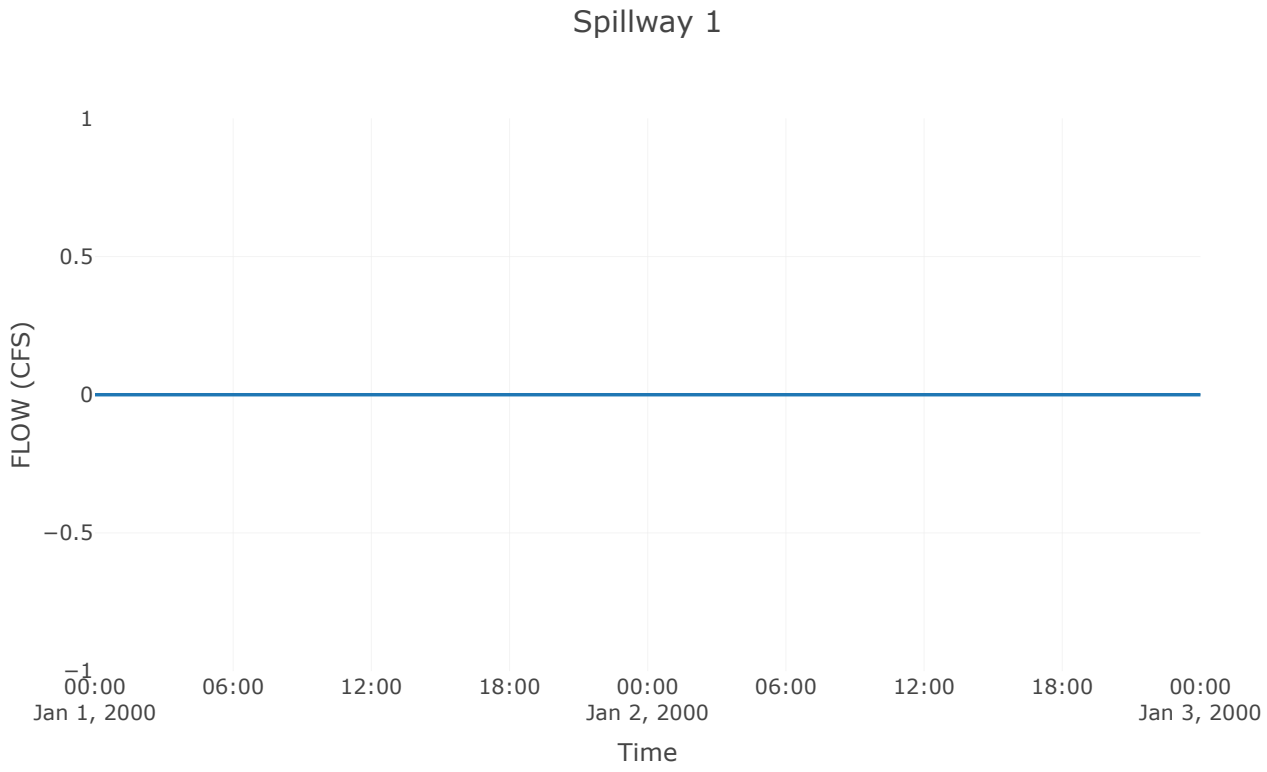
Storage



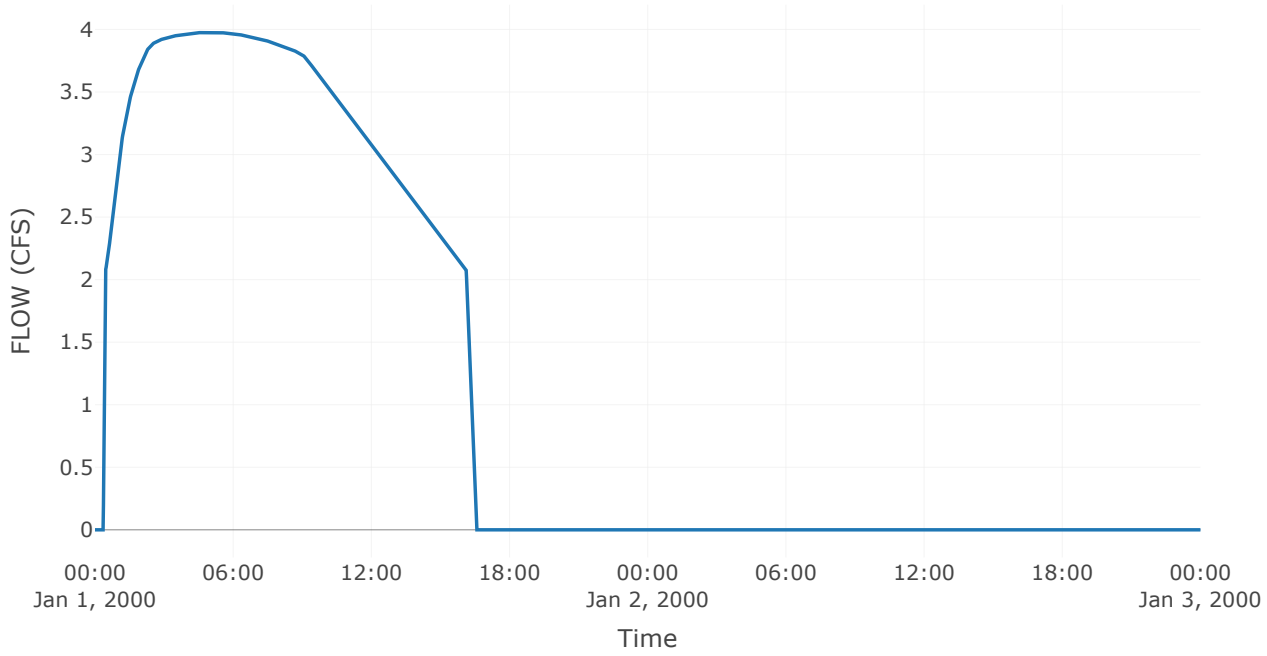
Combined Inflow



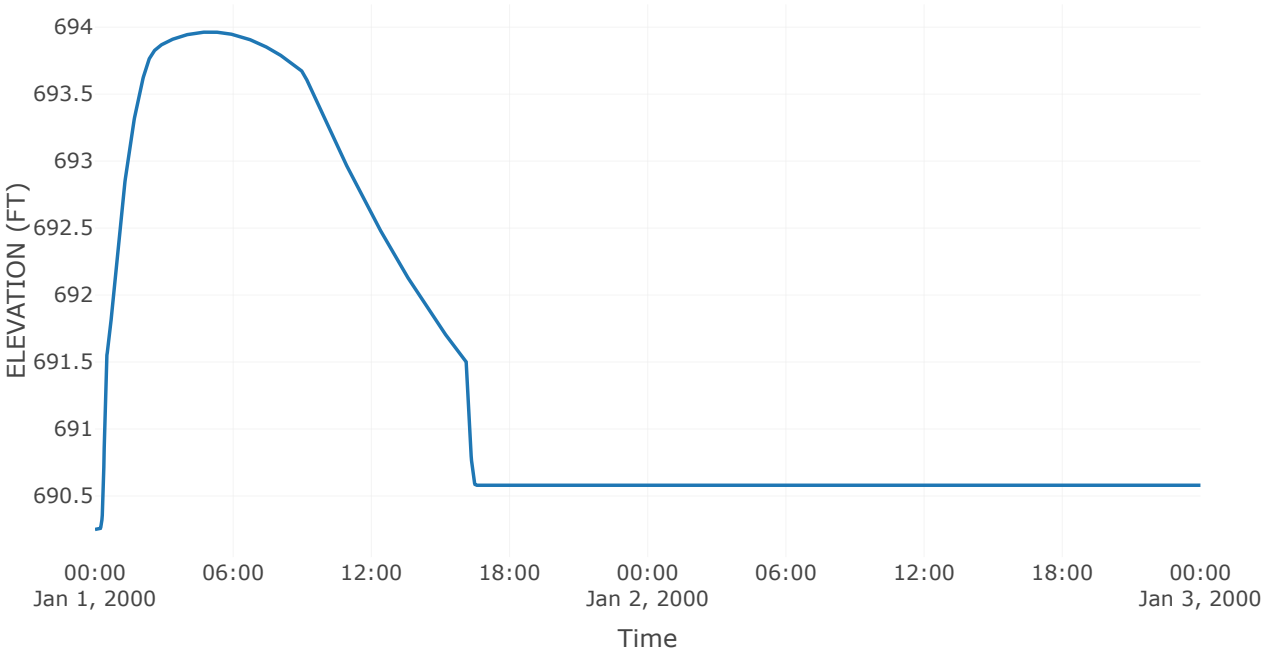

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
4
3
2
1
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

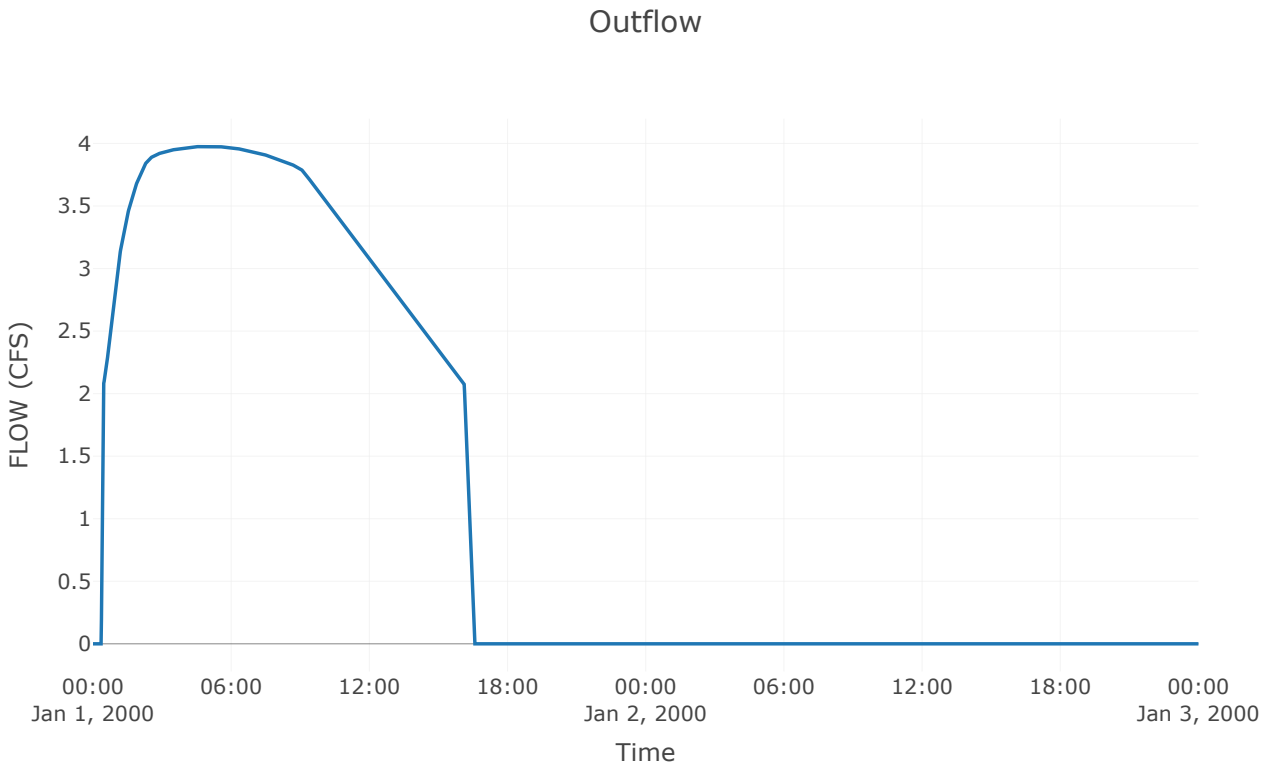

Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
4
3.5
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: On-Site Trib-Area 3

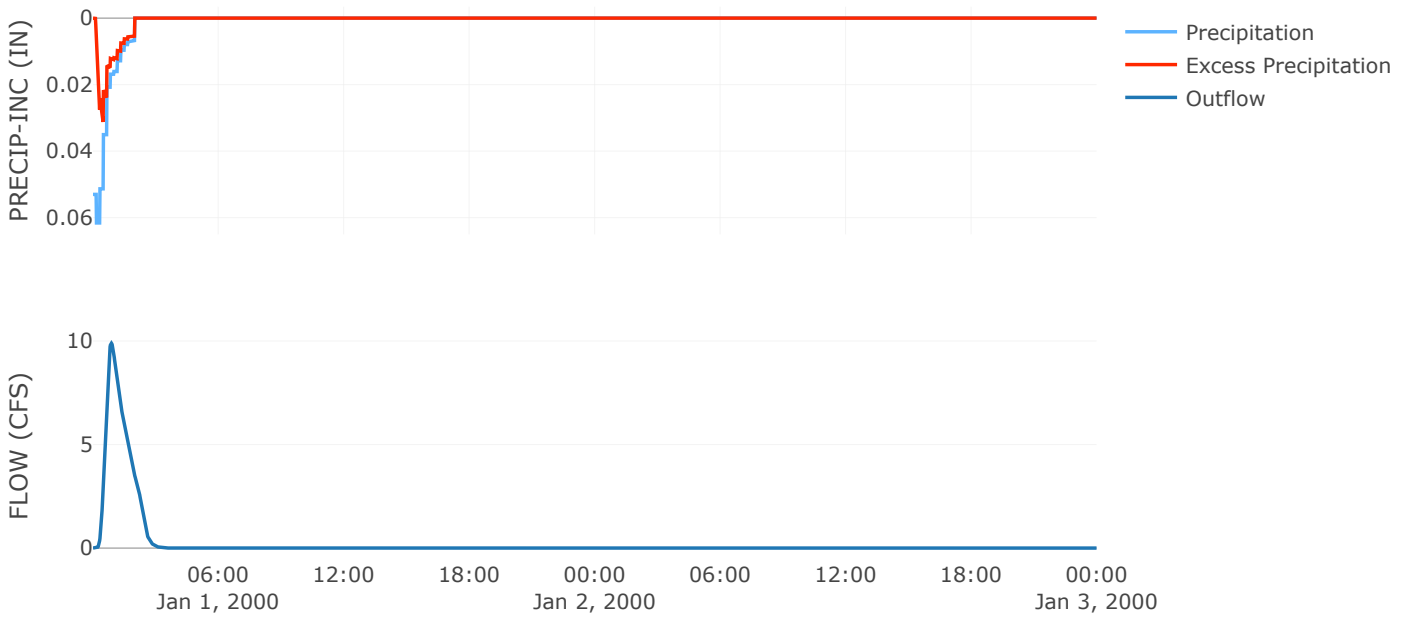
Area (MI2) : 0.01
Downstream : Basin 3

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

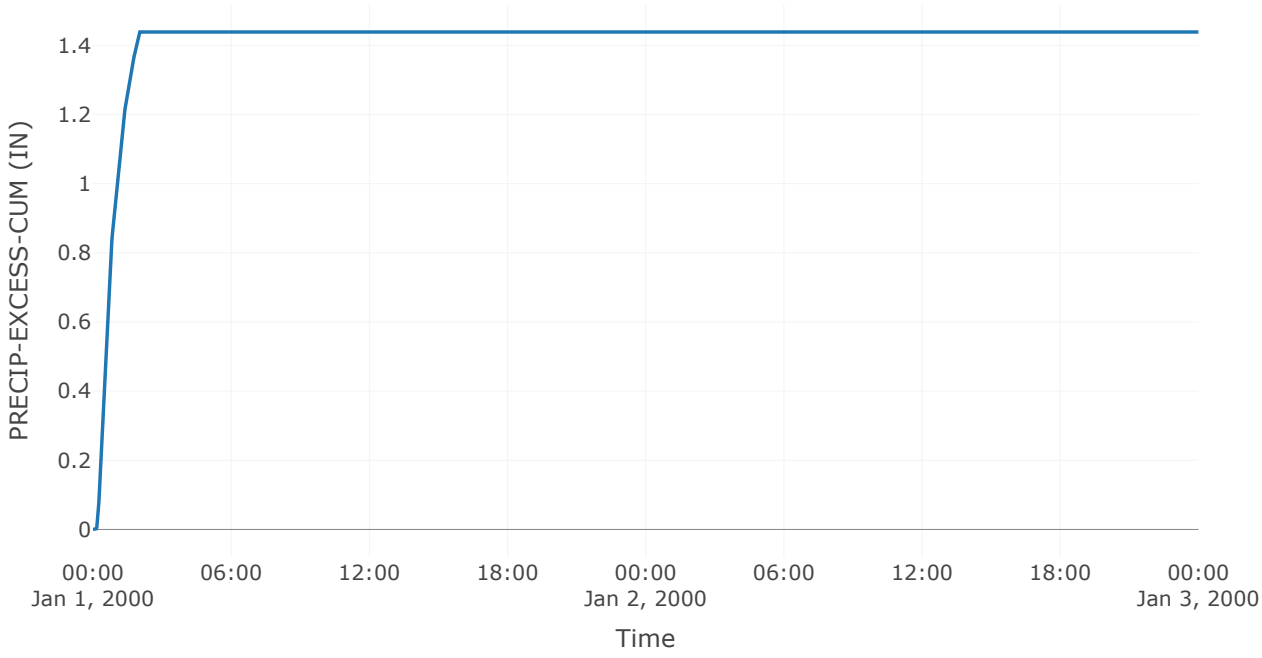
Transform: Scs	
Lag	21
Unitgraph Type	Standard

Results: On-Site Trib-Area 3	
Peak Discharge (CFS)	9.89
Time of Peak Discharge	01Jan2000, 00:52
Volume (IN)	1.44
Precipitation Volume (AC - FT)	2.02
Loss Volume (AC - FT)	1.05
Excess Volume (AC - FT)	0.97
Direct Runoff Volume (AC - FT)	0.97
Baseflow Volume (AC - FT)	0

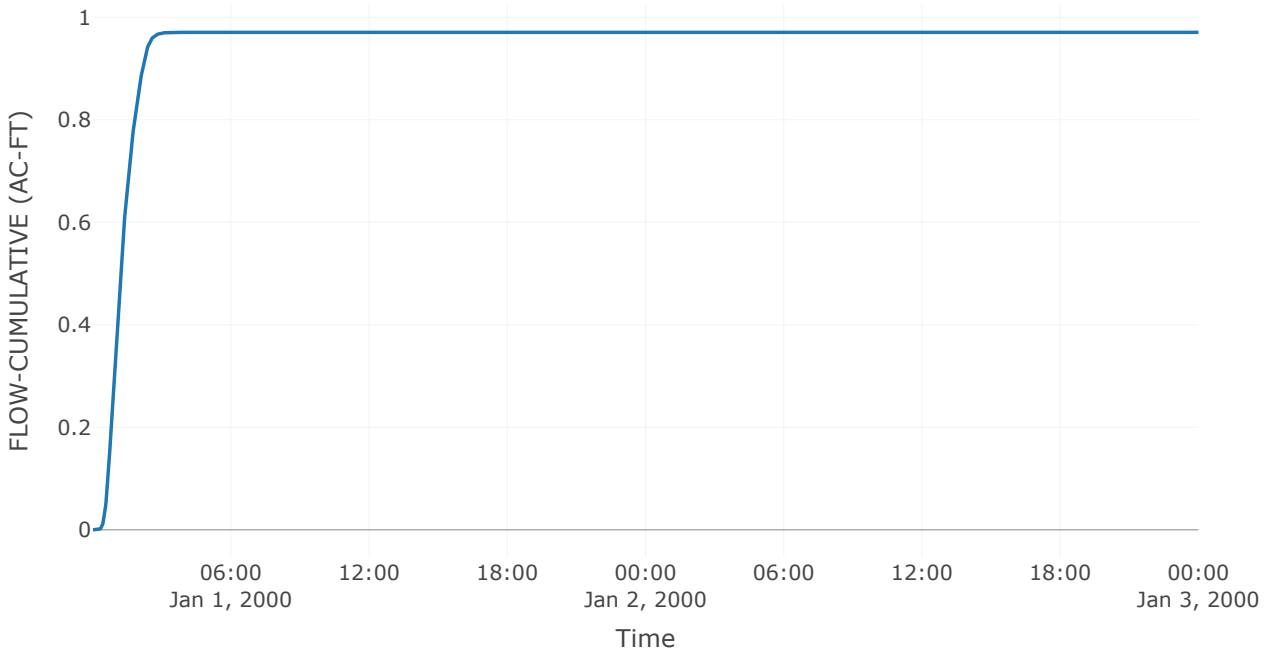
Precipitation and Outflow



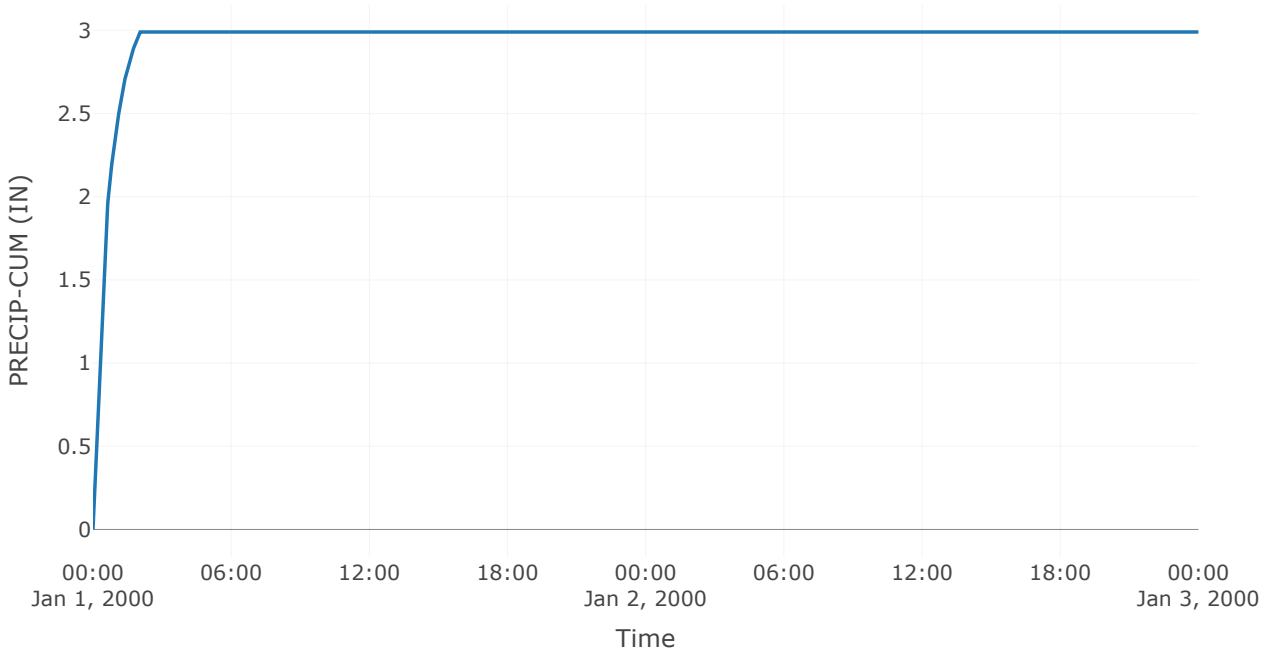
Cumulative Excess Precipitation

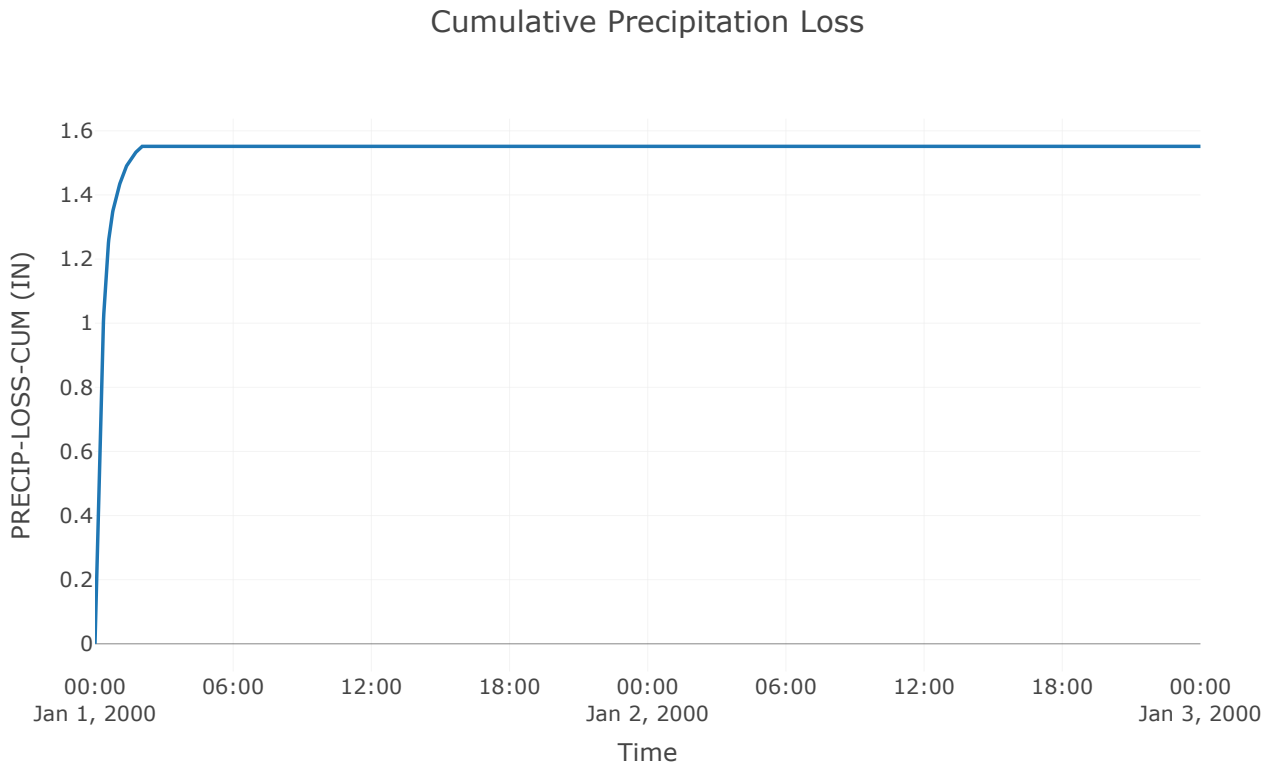


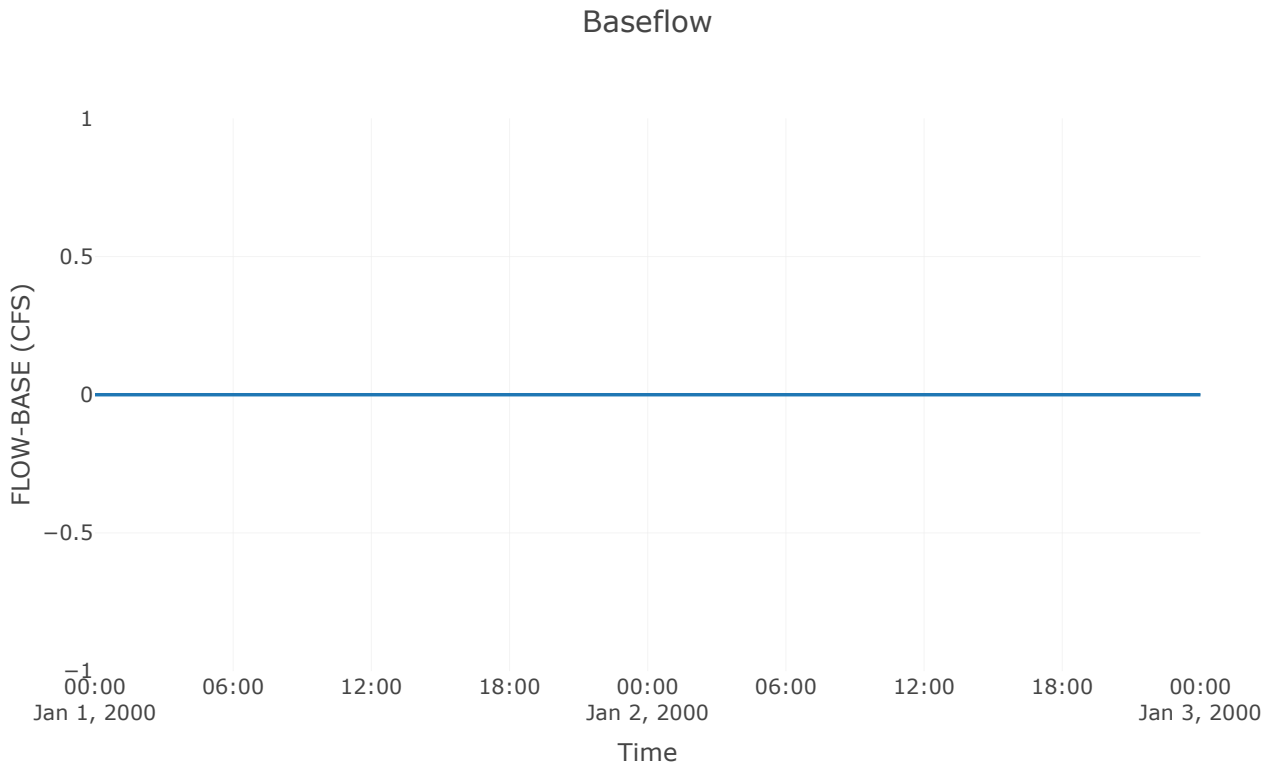
Cumulative Outflow



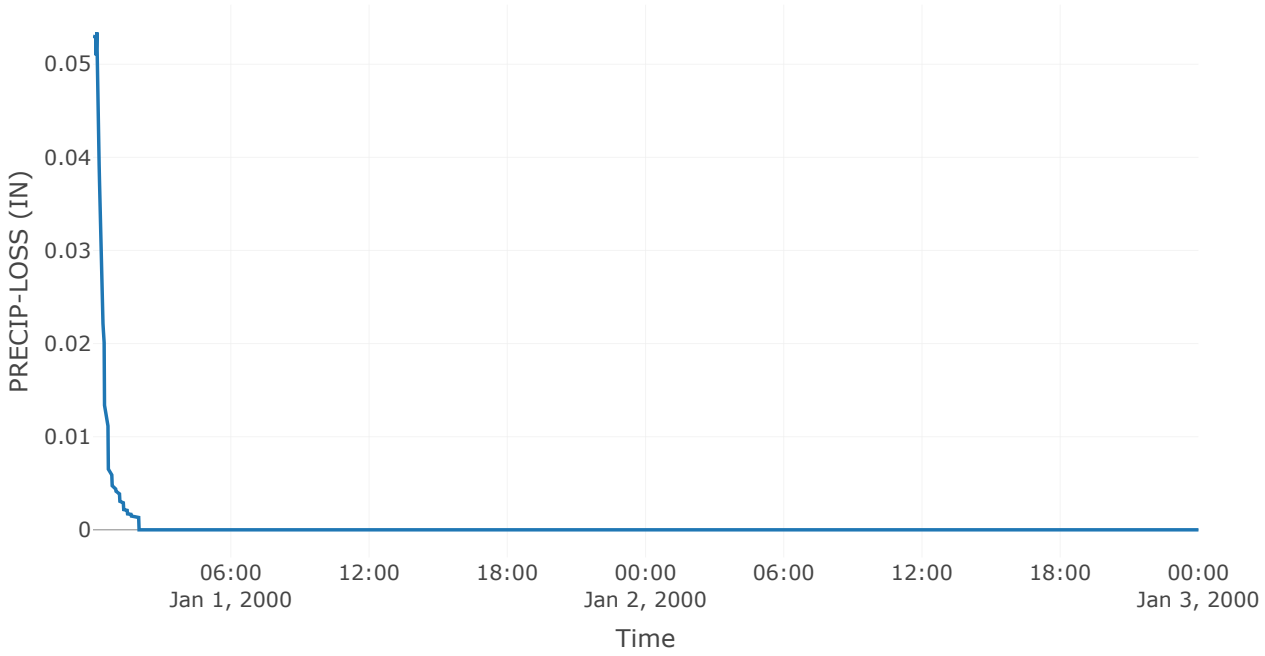
Cumulative Precipitation



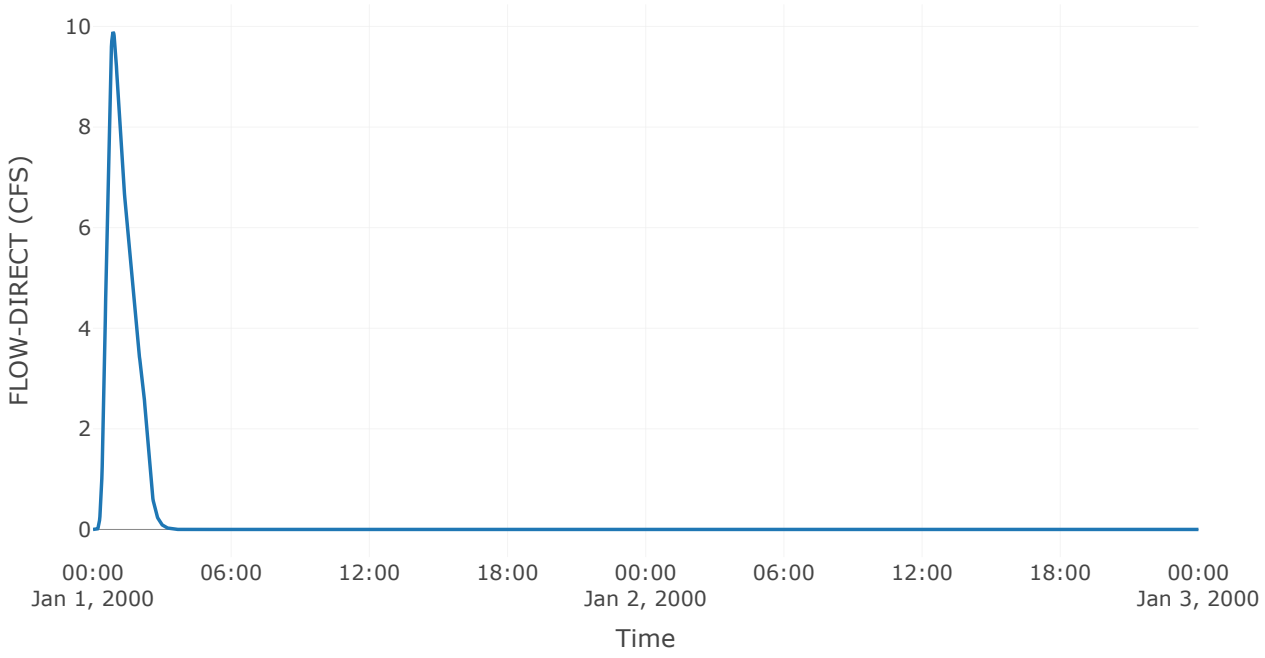

Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

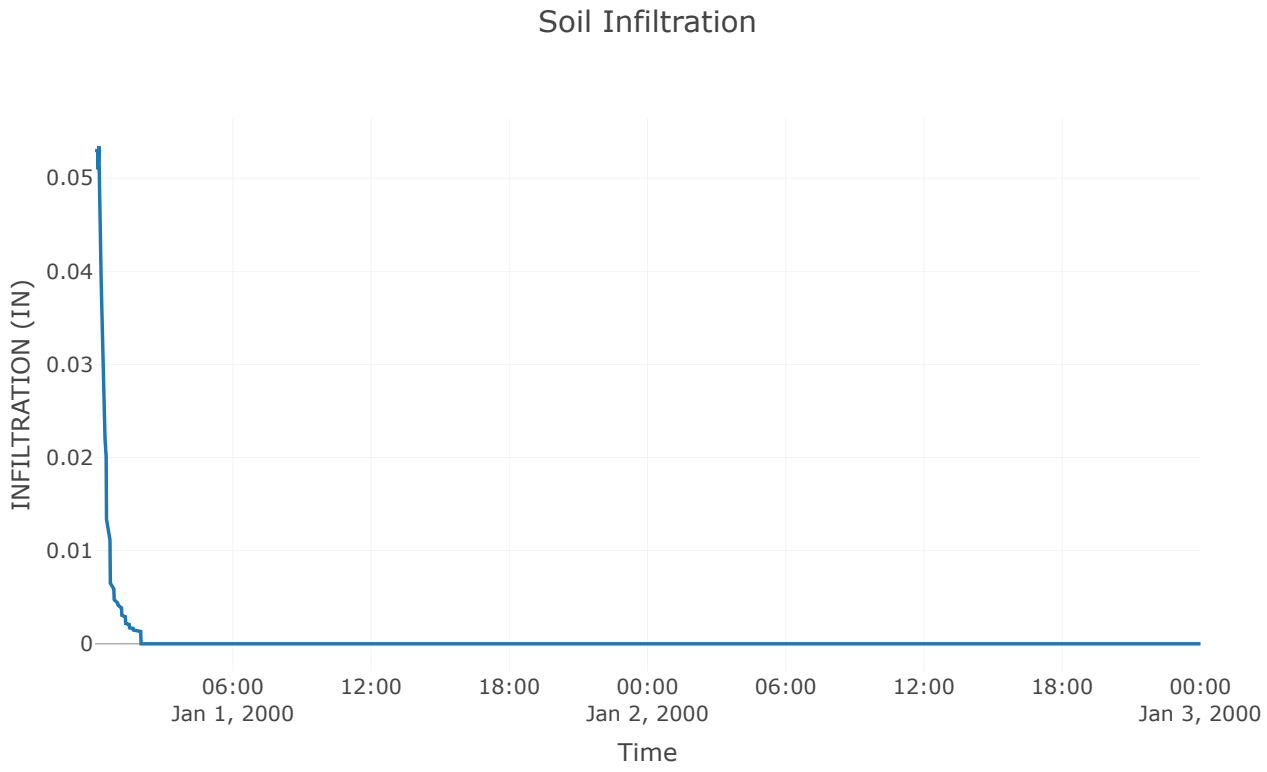

Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: LaGrange Highlands Off-Site

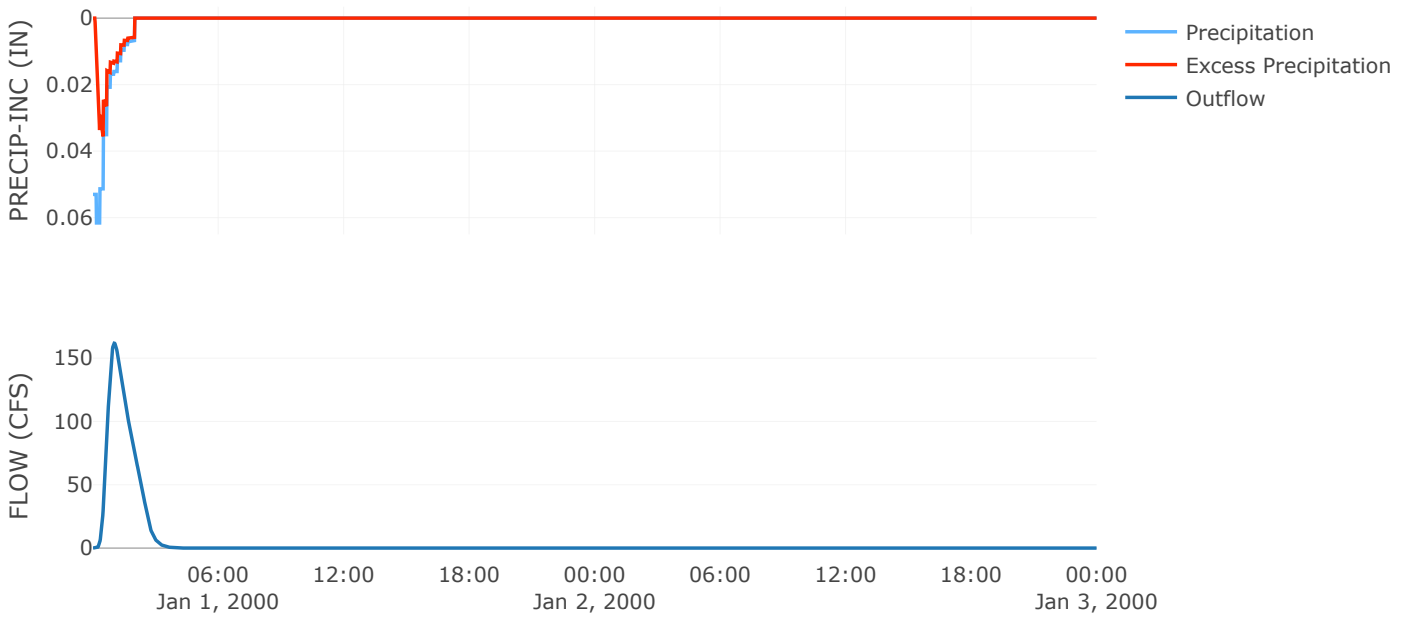
Area (MI2) : 0.2
Downstream : Off - Site Tributary Area

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	86

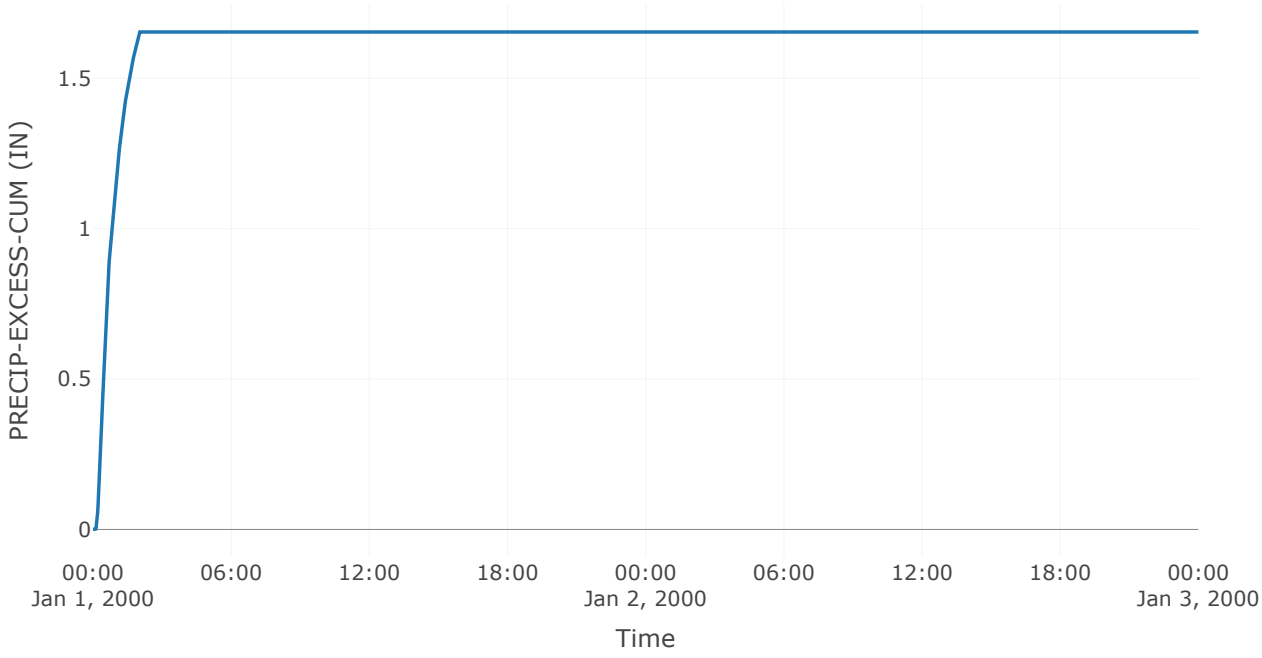
Transform: Scs	
Lag	29.2
Unitgraph Type	Standard

Results: LaGrange Highlands Off-Site	
Peak Discharge (CFS)	161.81
Time of Peak Discharge	01Jan2000, 01:01
Volume (IN)	1.65
Precipitation Volume (AC - FT)	32.24
Loss Volume (AC - FT)	14.4
Excess Volume (AC - FT)	17.83
Direct Runoff Volume (AC - FT)	17.83
Baseflow Volume (AC - FT)	0

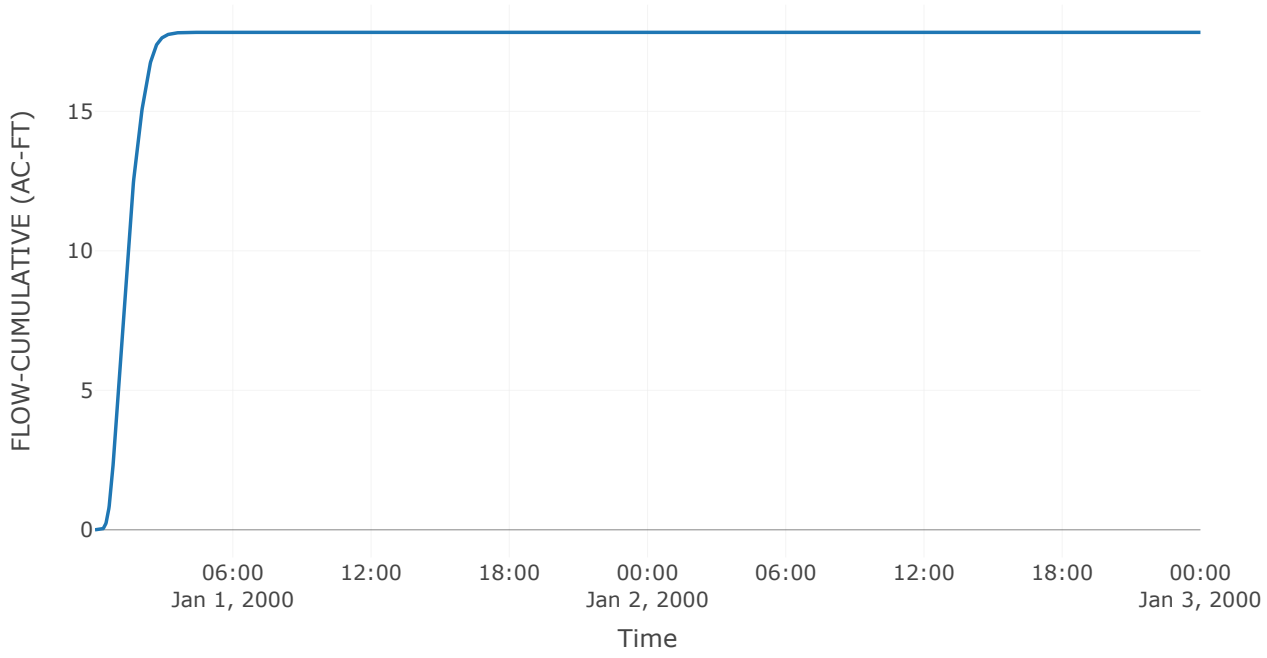
Precipitation and Outflow



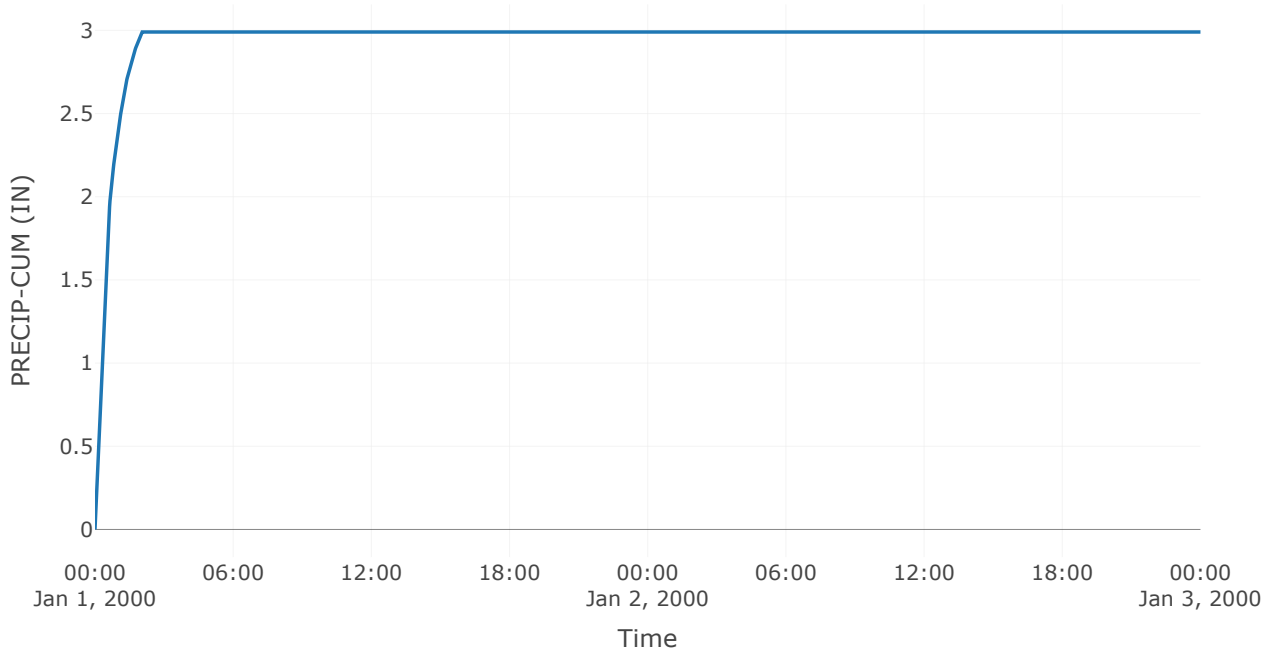
Cumulative Excess Precipitation



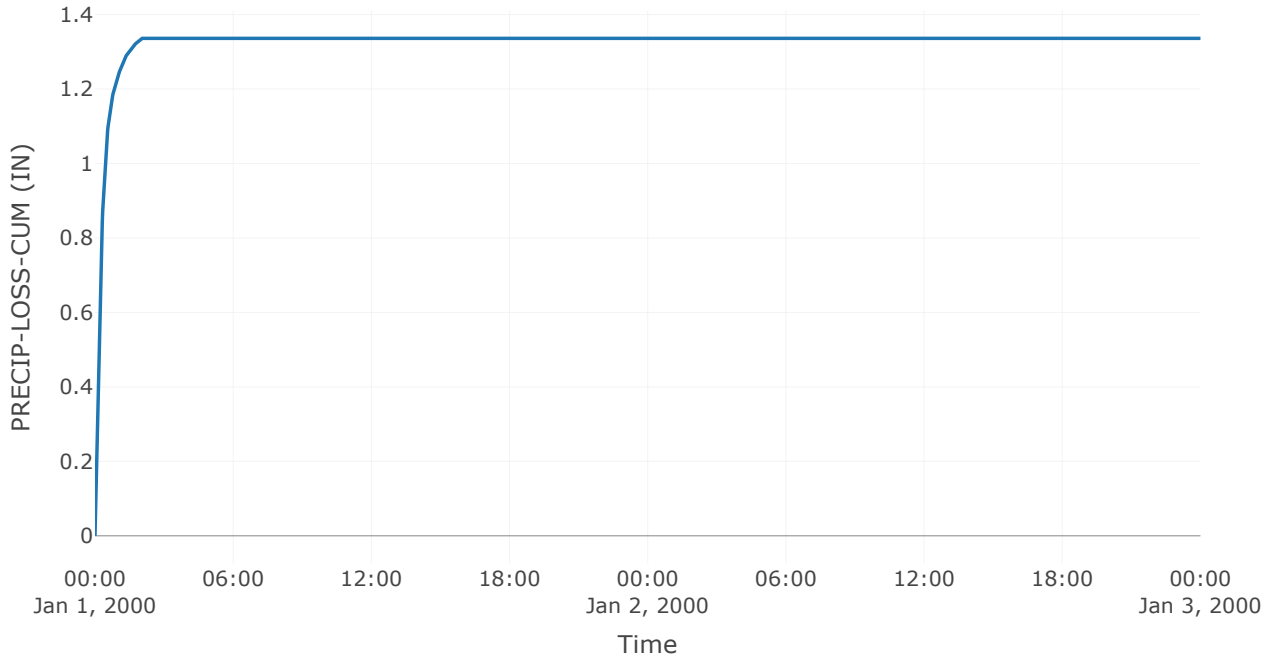
Cumulative Outflow



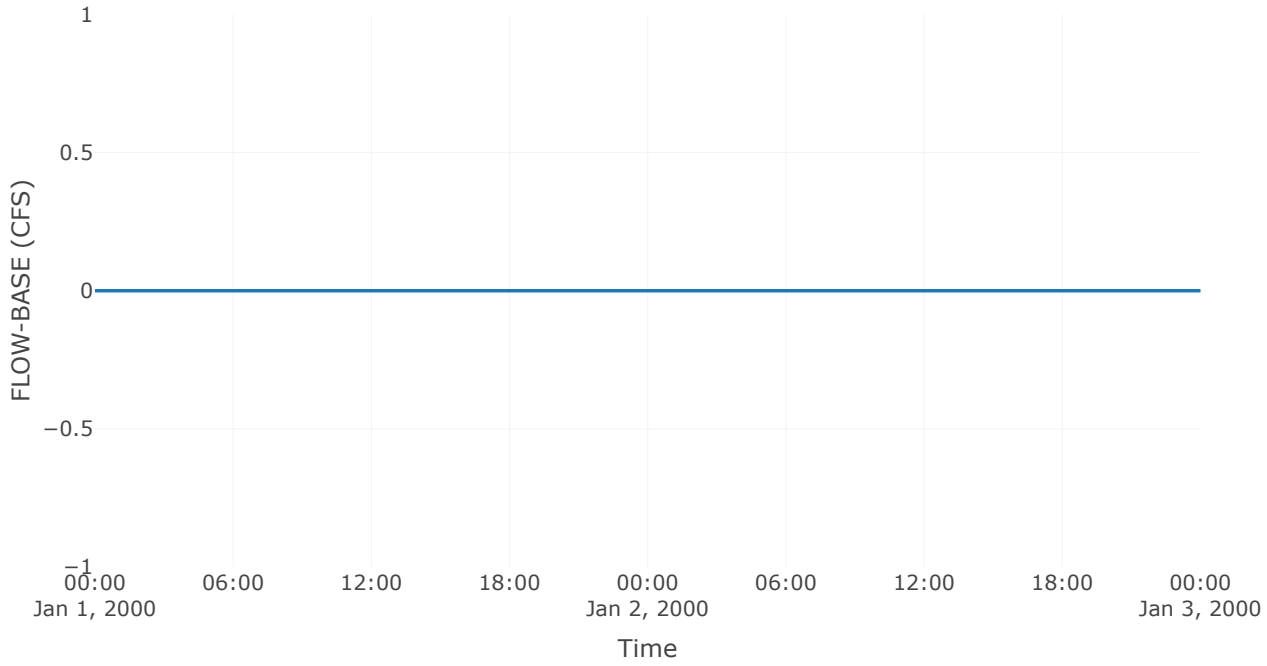
Cumulative Precipitation



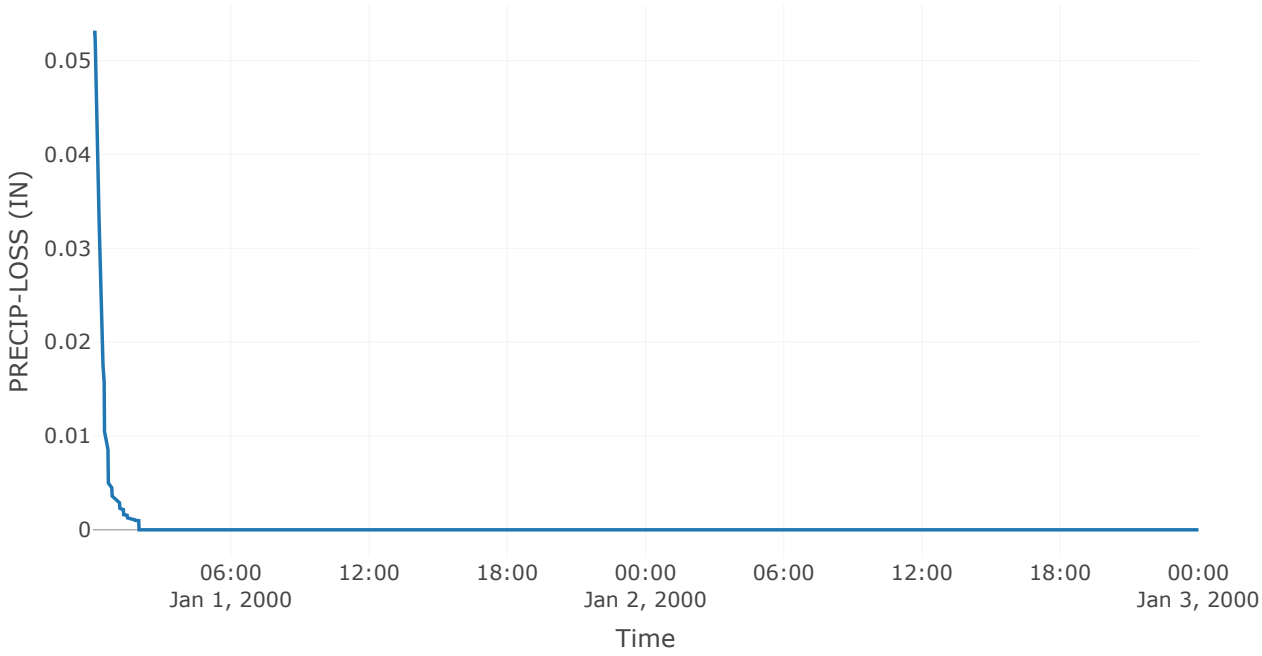
Cumulative Precipitation Loss



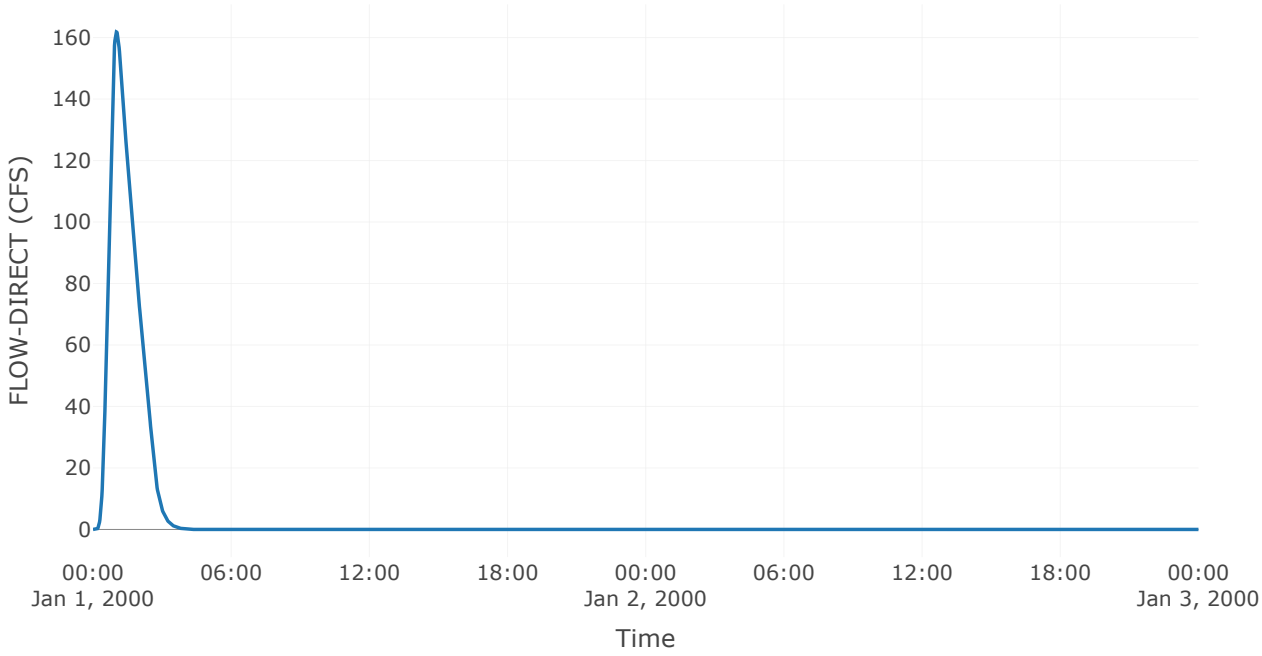
Baseflow

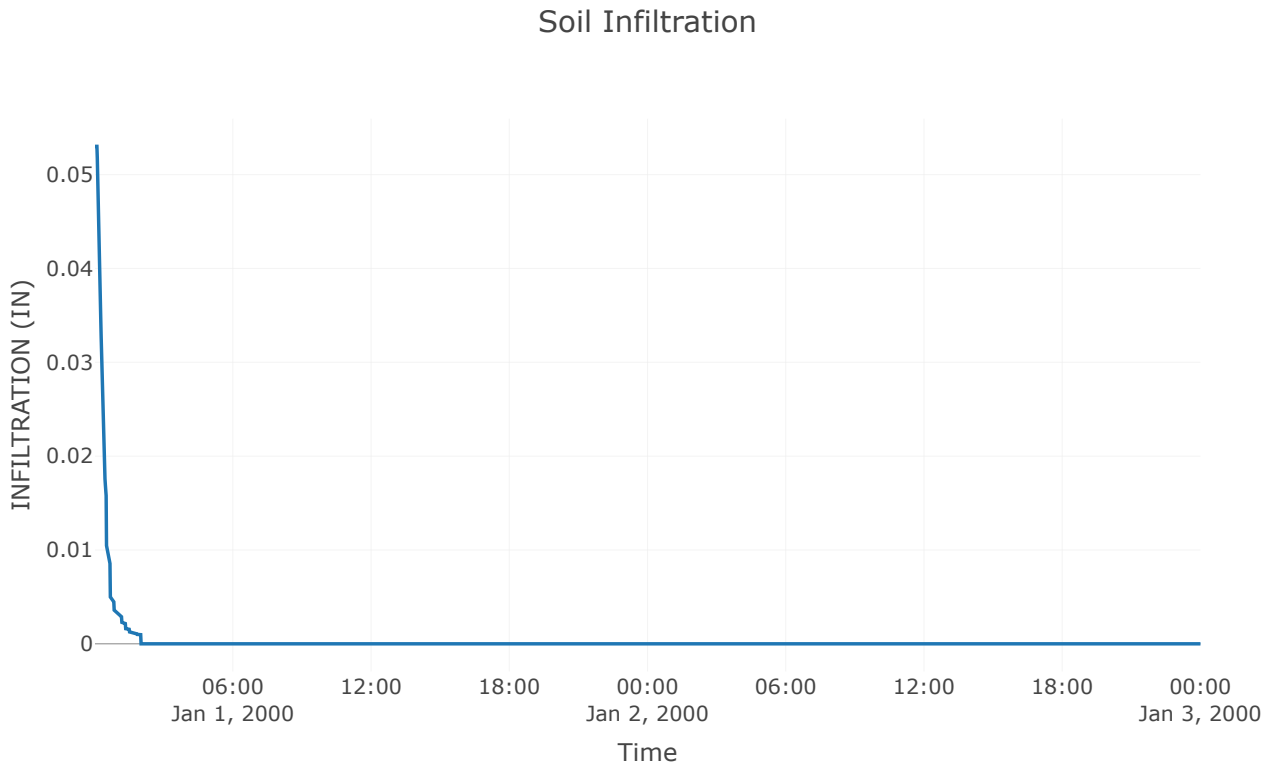


Precipitation Loss



Direct Runoff



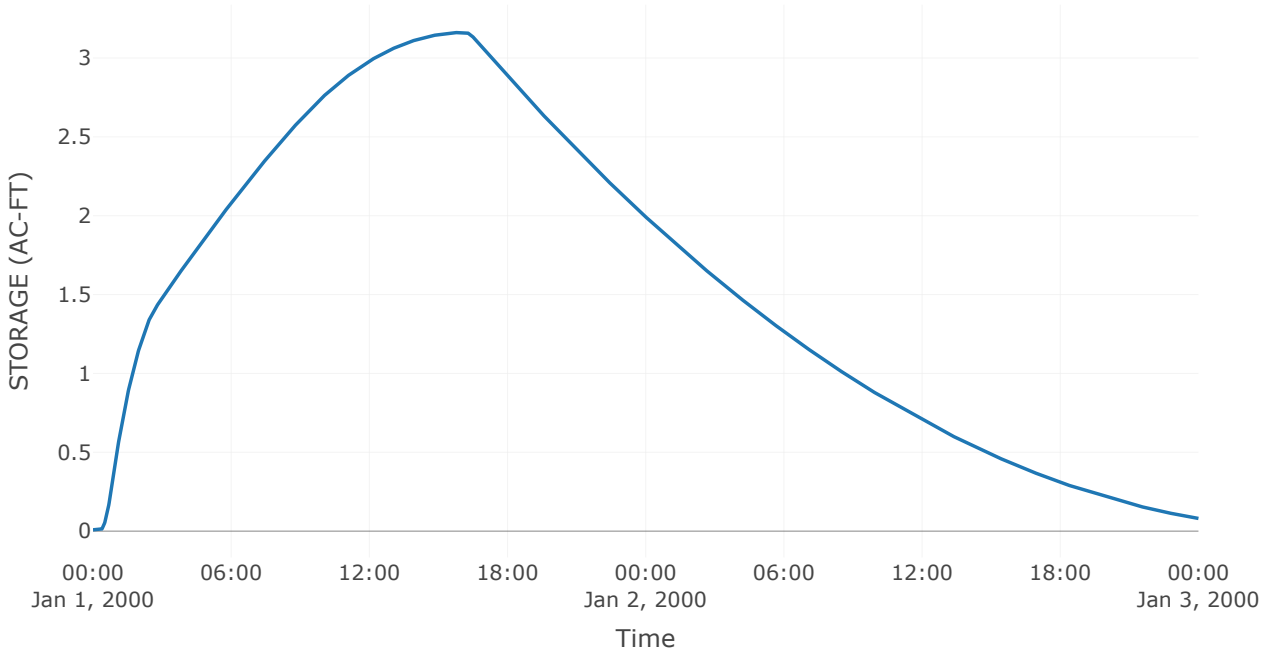

Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 3

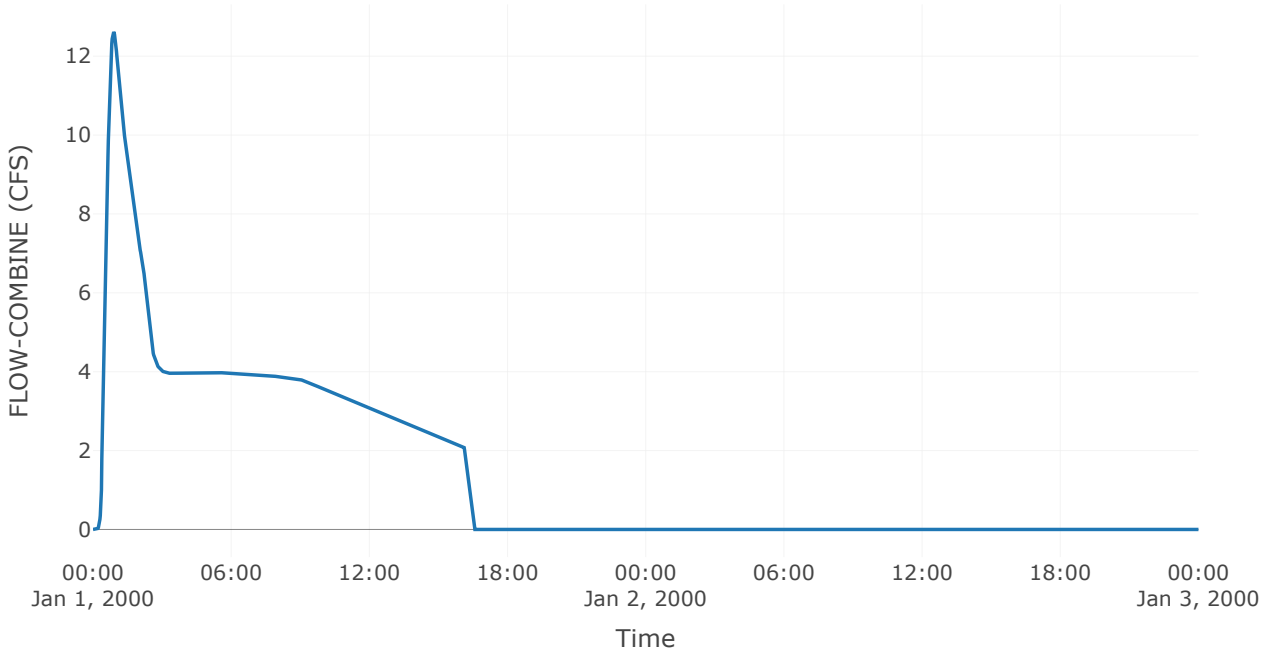
Downstream : Off - Site Tributary Area

Results: Basin 3	
Peak Discharge (CFS)	2.06
Time of Peak Discharge	01Jan2000, 16:07
Volume (IN)	1.49
Peak Inflow (CFS)	12.61
Time of Peak Inflow	01Jan2000, 00:54
Inflow Volume (AC - FT)	5.41
Maximum Storage (AC - FT)	3.16
Peak Elevation (FT)	693.05
Discharge Volume (AC - FT)	5.33

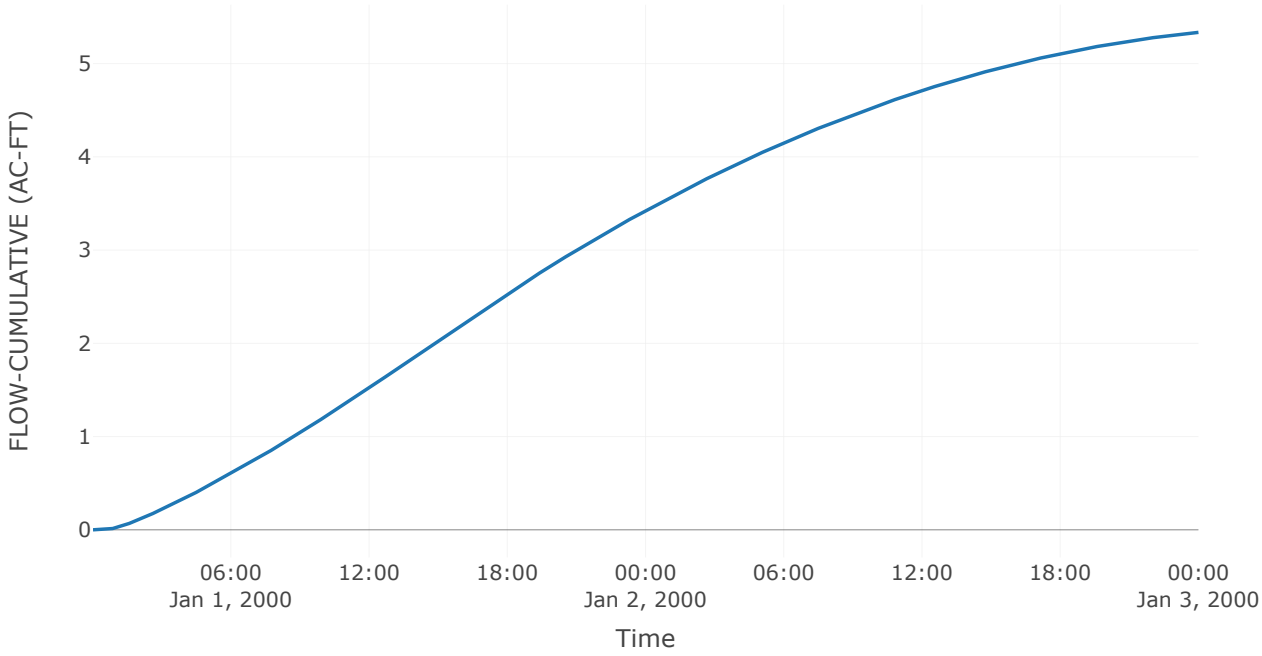
Storage



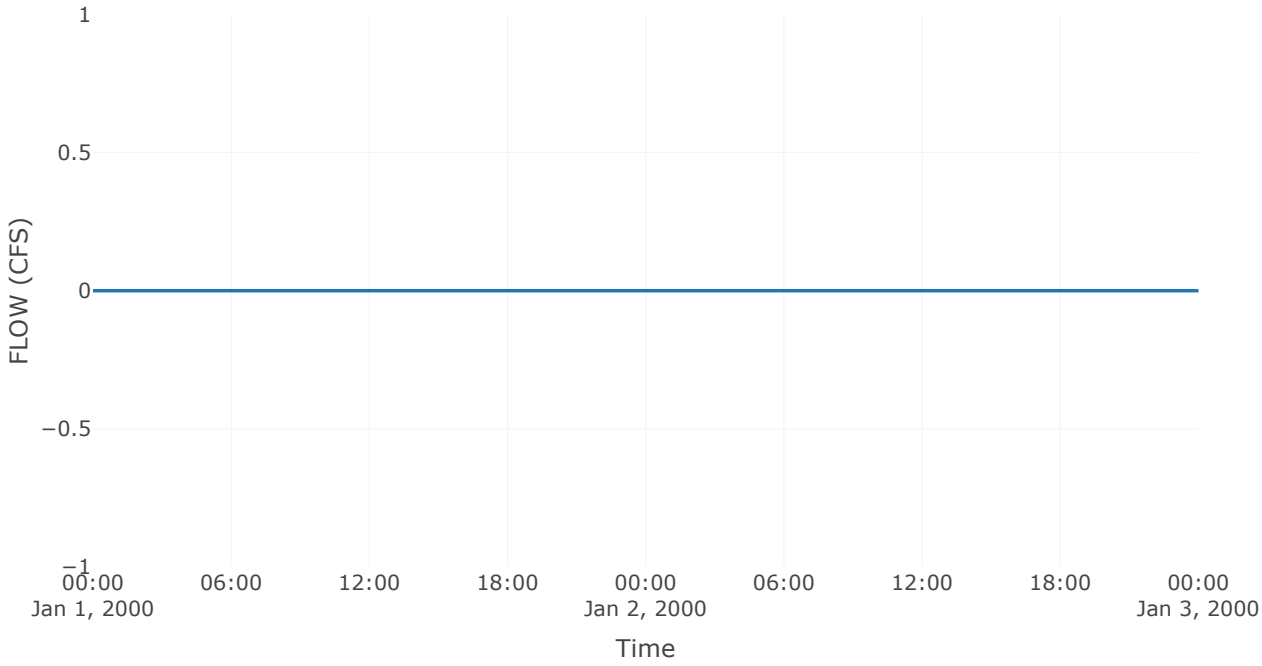
Combined Inflow



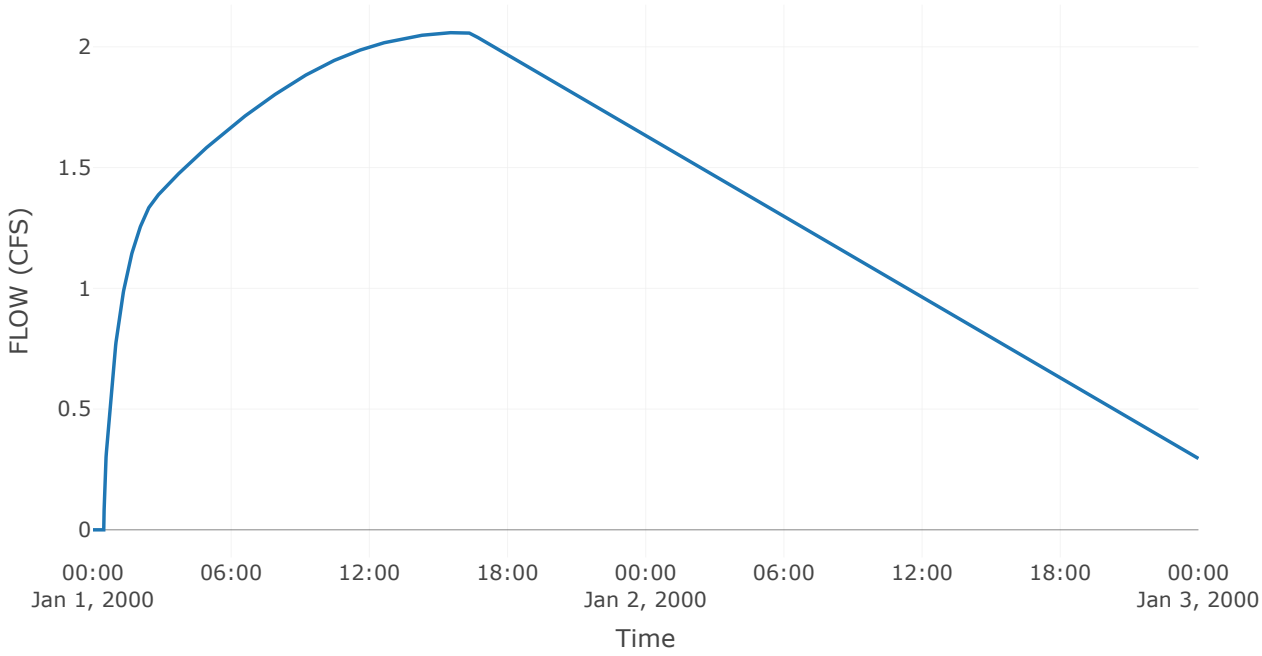
Cumulative Outflow



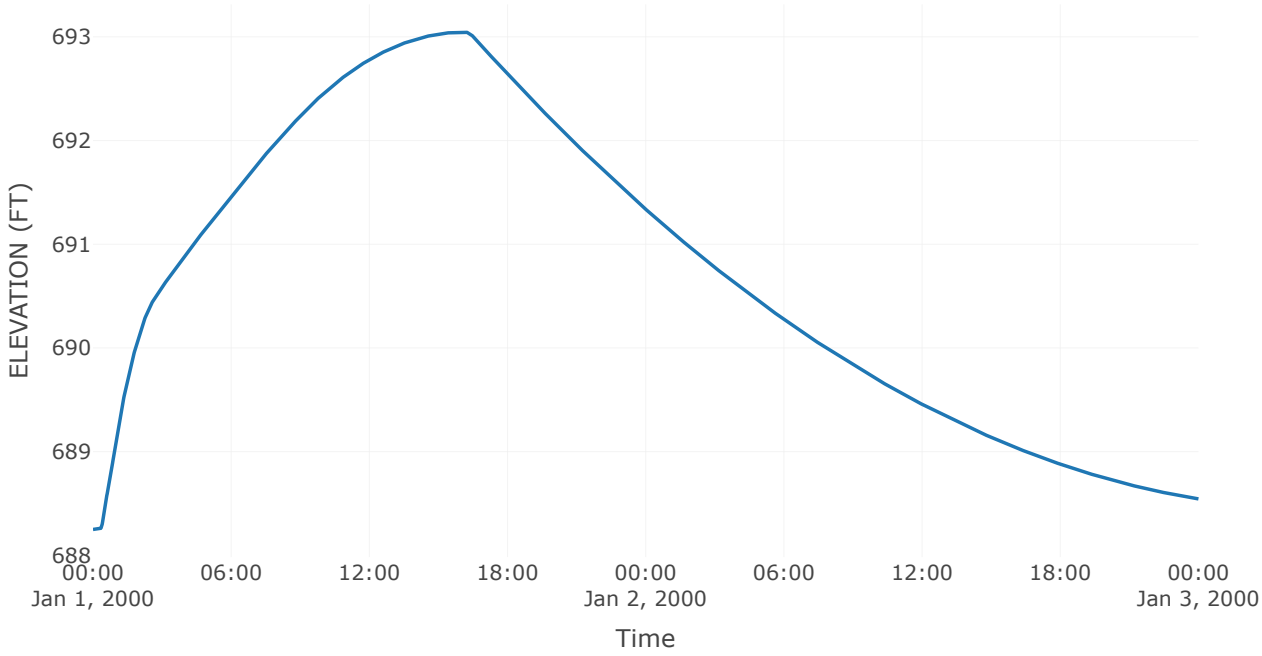
Spillway 1

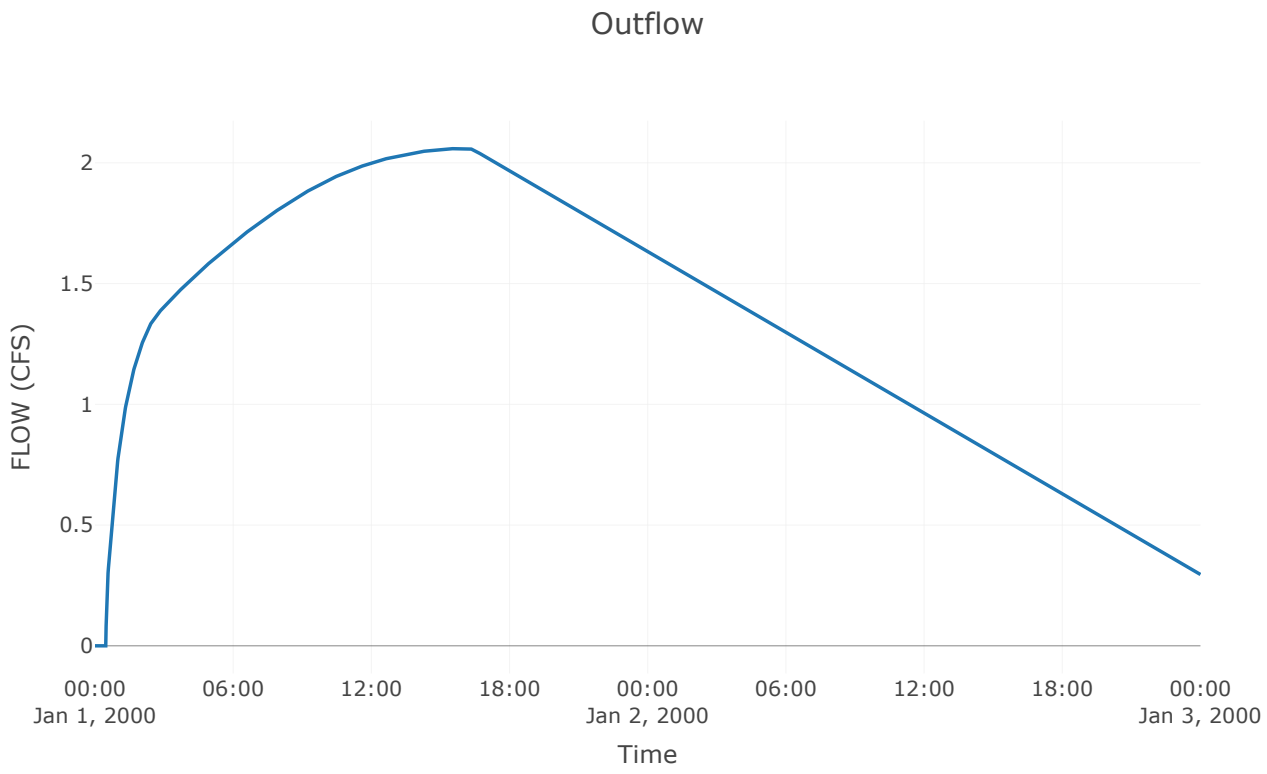


Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

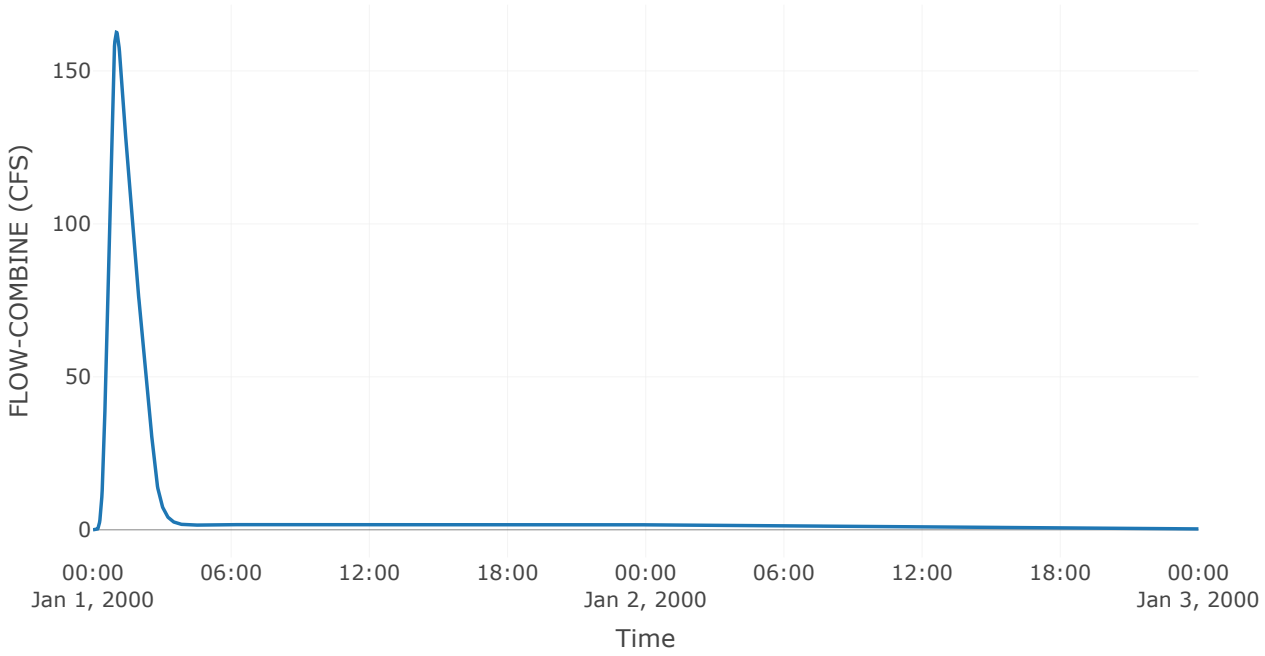
Junction: Off-Site Tributary Area

Downstream : Storage East of Wolf Road

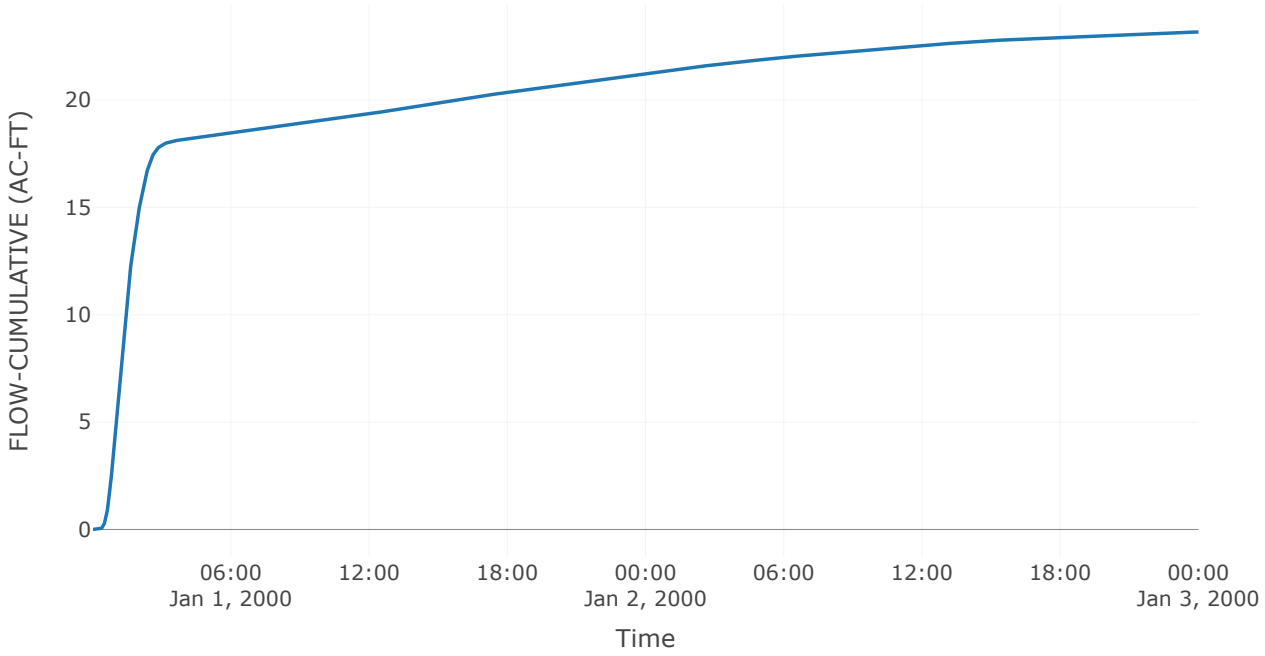
Results: Off-Site Tributary Area

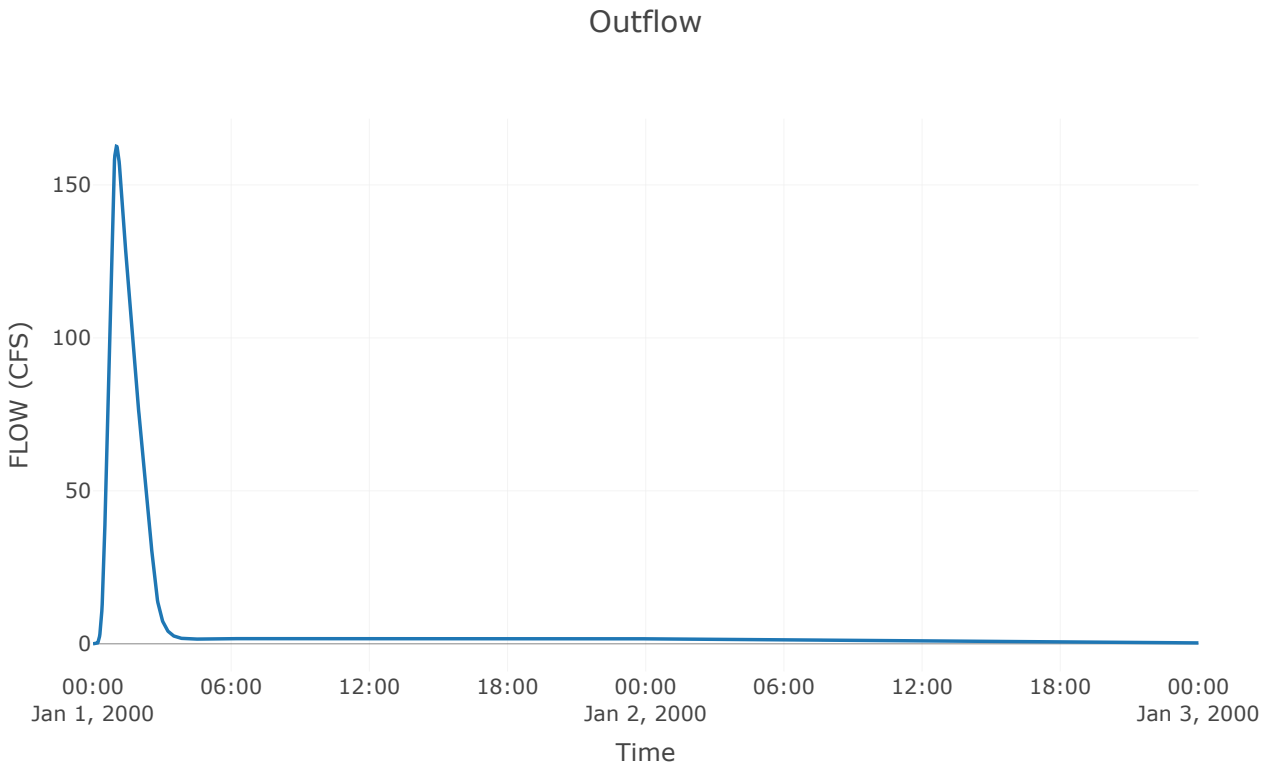
Peak Discharge (CFS)	162.6
Time of Peak Discharge	01Jan2000, 01:01
Volume (IN)	1.61

Combined Inflow



Cumulative Outflow



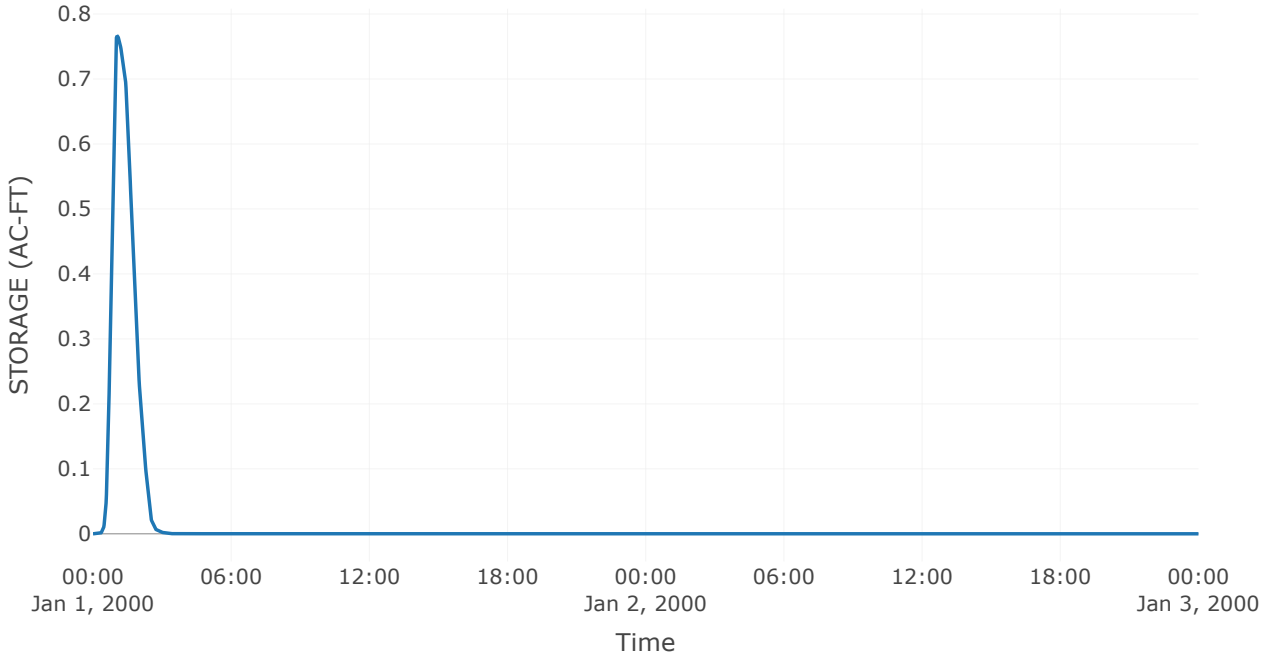

Outflow
150
100
50
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Storage East of Wolf Road

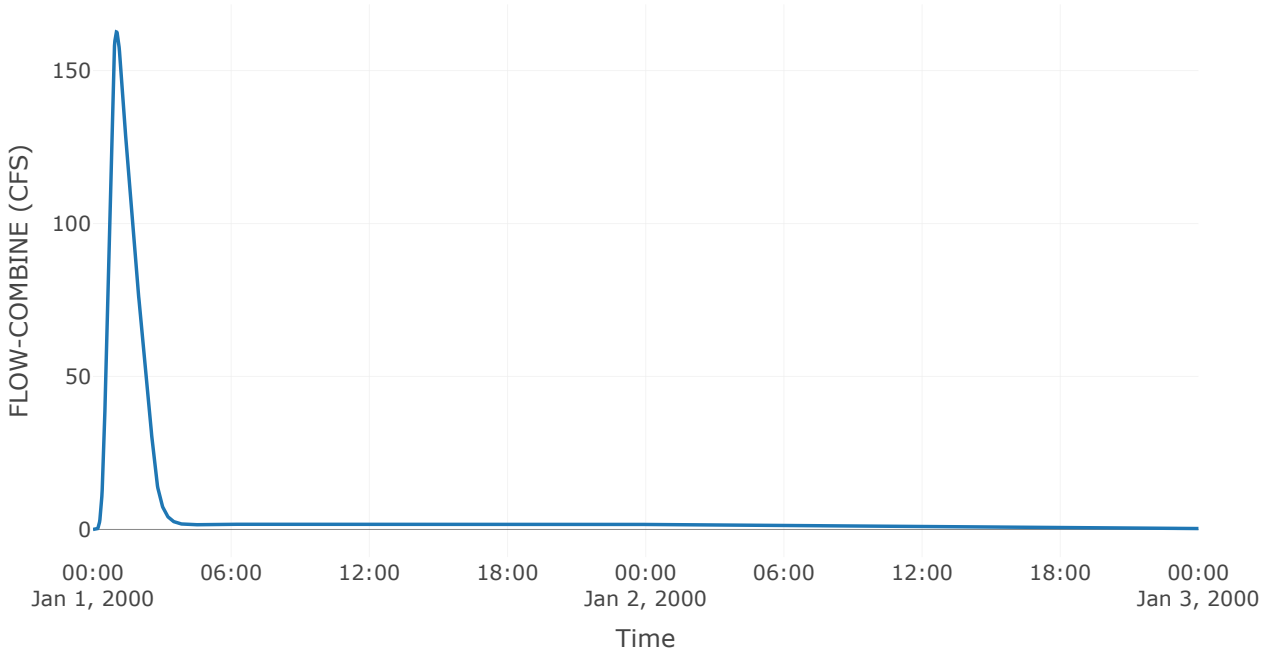
Downstream : Prop Storage West of Wolf Rd

Results: Storage East of Wolf Road	
Peak Discharge (CFS)	160.97
Time of Peak Discharge	01Jan2000, 01:05
Volume (IN)	1.61
Peak Inflow (CFS)	162.6
Time of Peak Inflow	01Jan2000, 01:01
Inflow Volume (AC - FT)	23.17
Maximum Storage (AC - FT)	0.26
Peak Elevation (FT)	662.31
Discharge Volume (AC - FT)	23.16

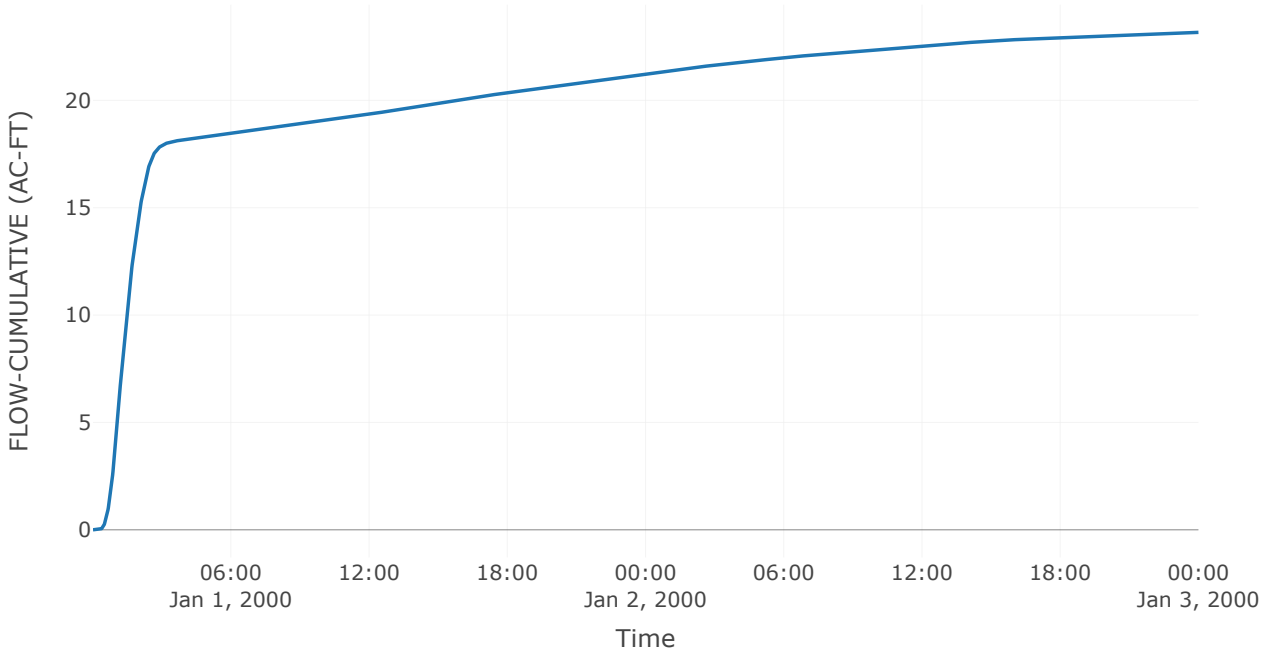
Storage



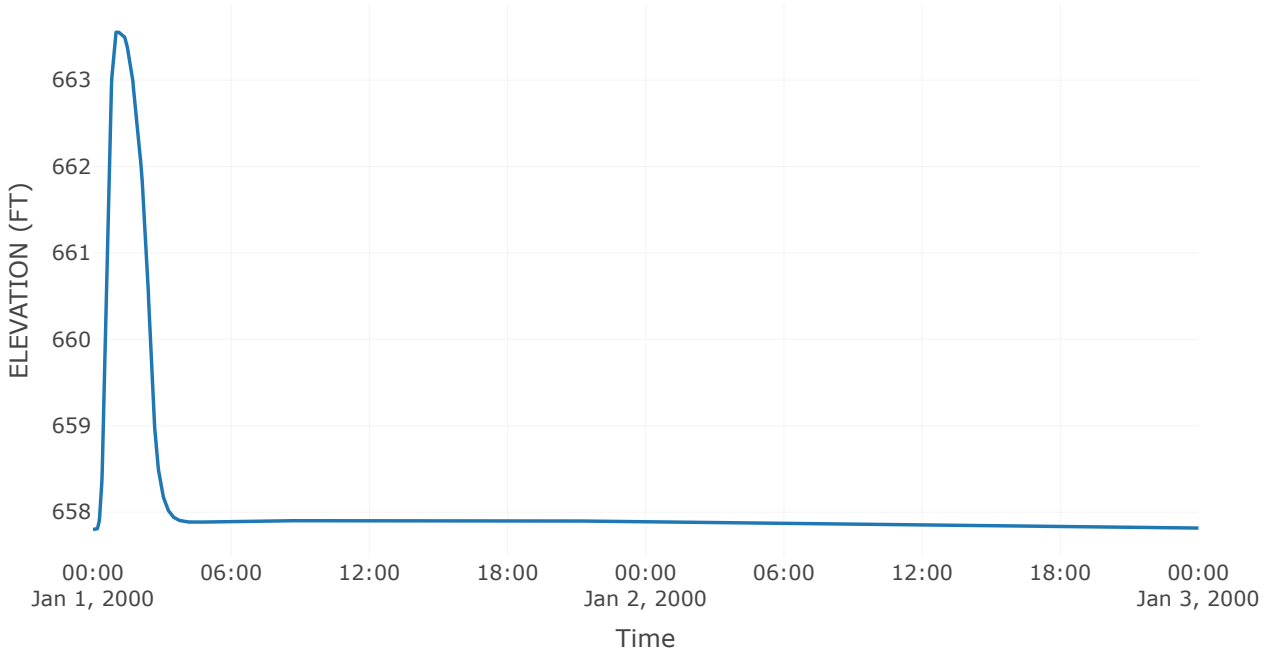
Combined Inflow

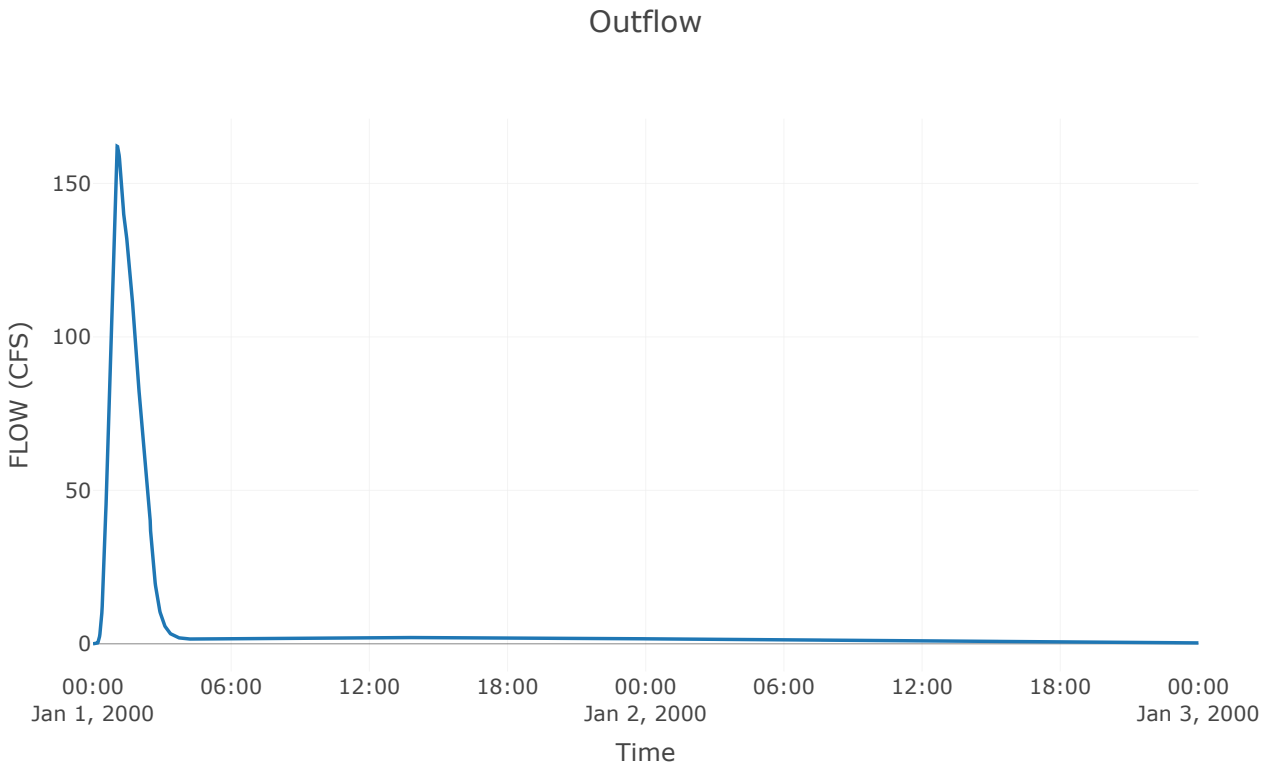


Cumulative Outflow



Pool Elevation



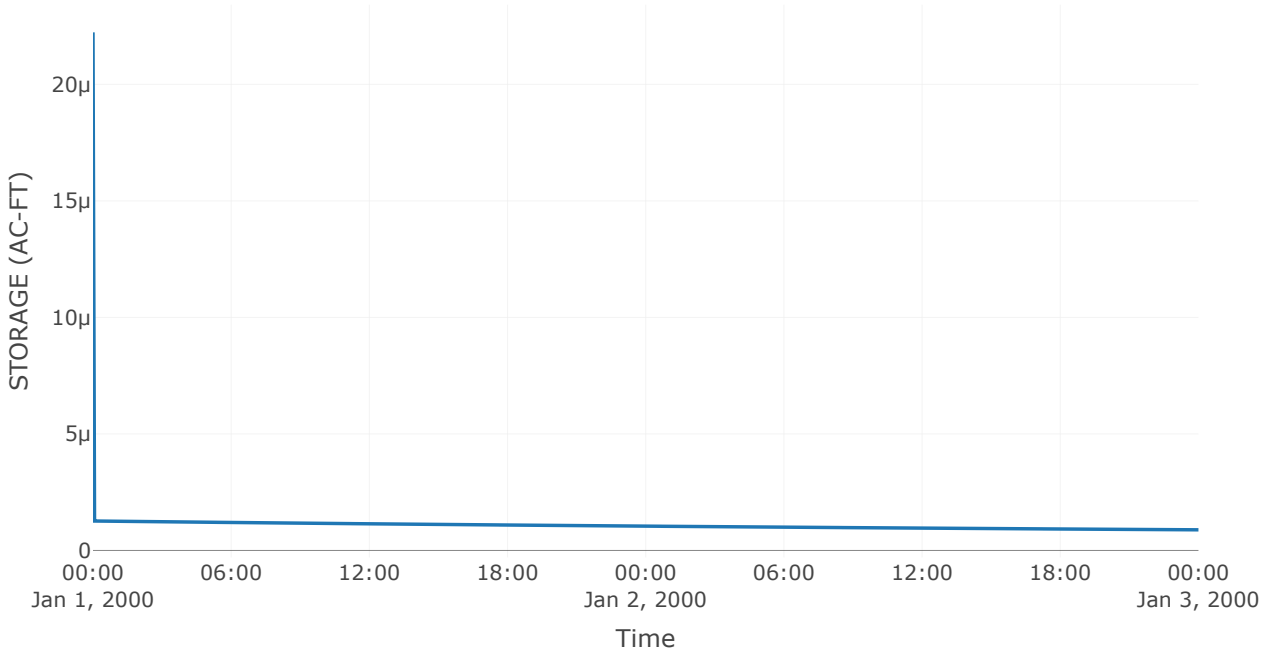

Outflow
150
100
50
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Prop Storage West of Wolf Rd

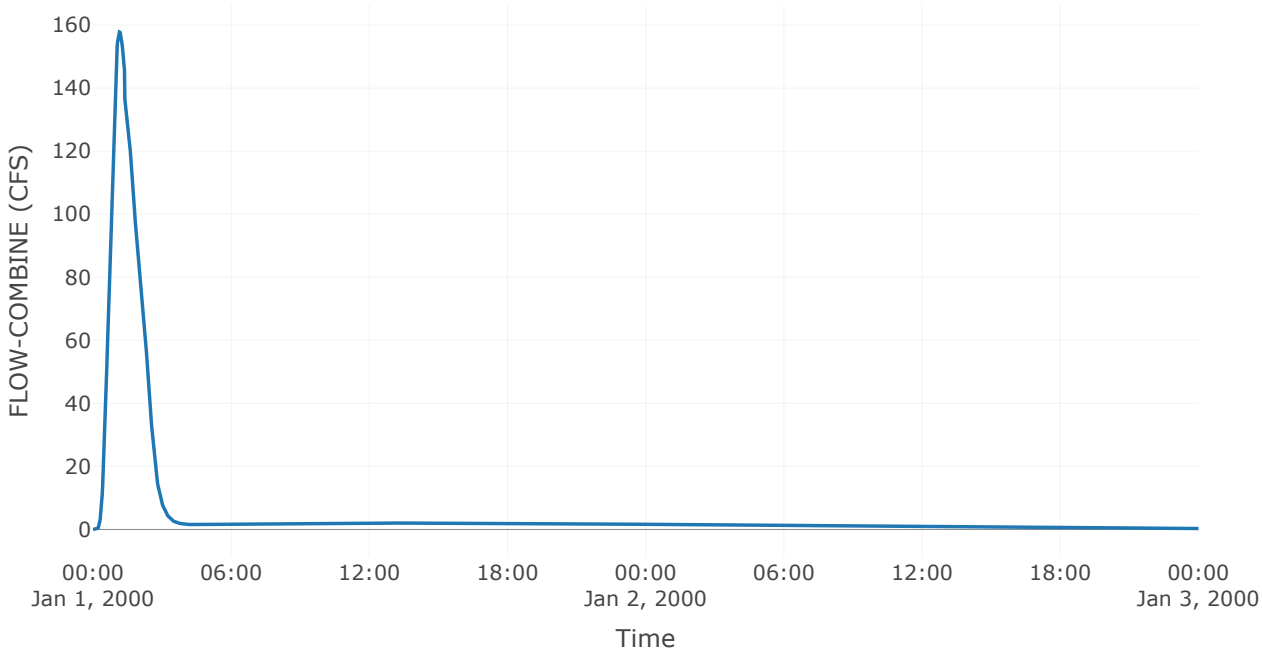
Downstream : Proposed Basin C

Results: Prop Storage West of Wolf Rd	
Peak Discharge (CFS)	160.97
Time of Peak Discharge	01Jan2000, 01:05
Volume (IN)	1.61
Peak Inflow (CFS)	160.97
Time of Peak Inflow	01Jan2000, 01:05
Inflow Volume (AC - FT)	23.16
Maximum Storage (AC - FT)	0.03
Peak Elevation (FT)	655.46
Discharge Volume (AC - FT)	23.1

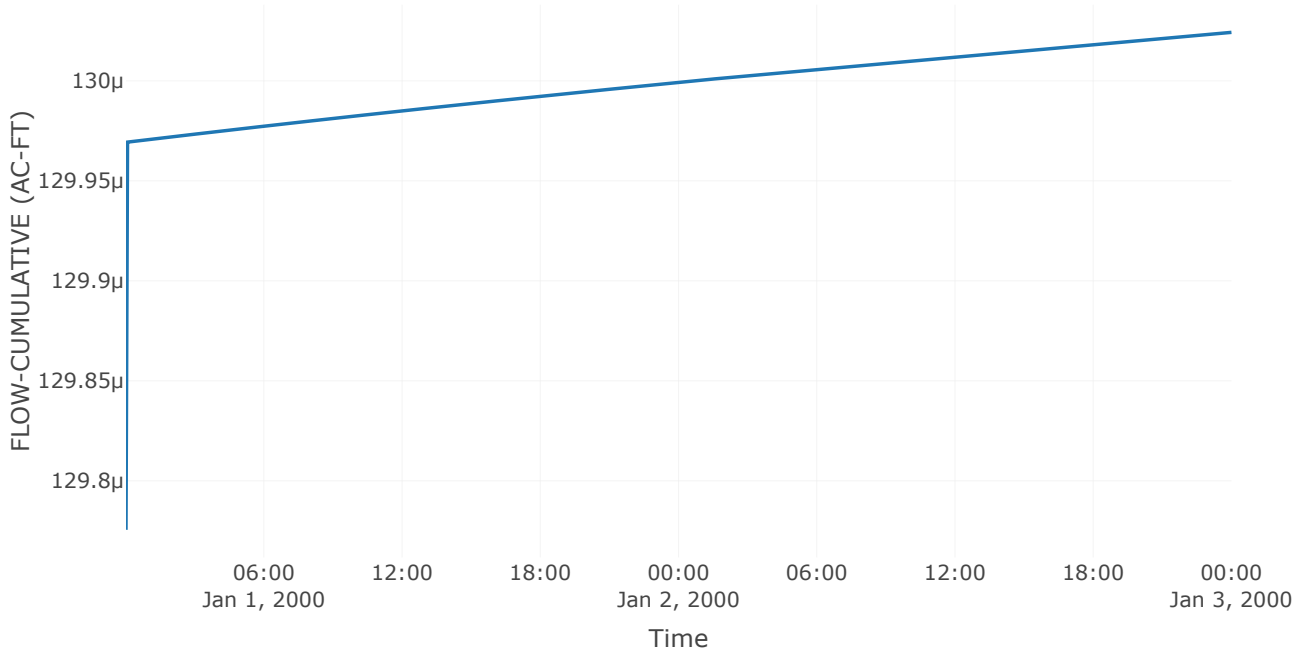
Storage



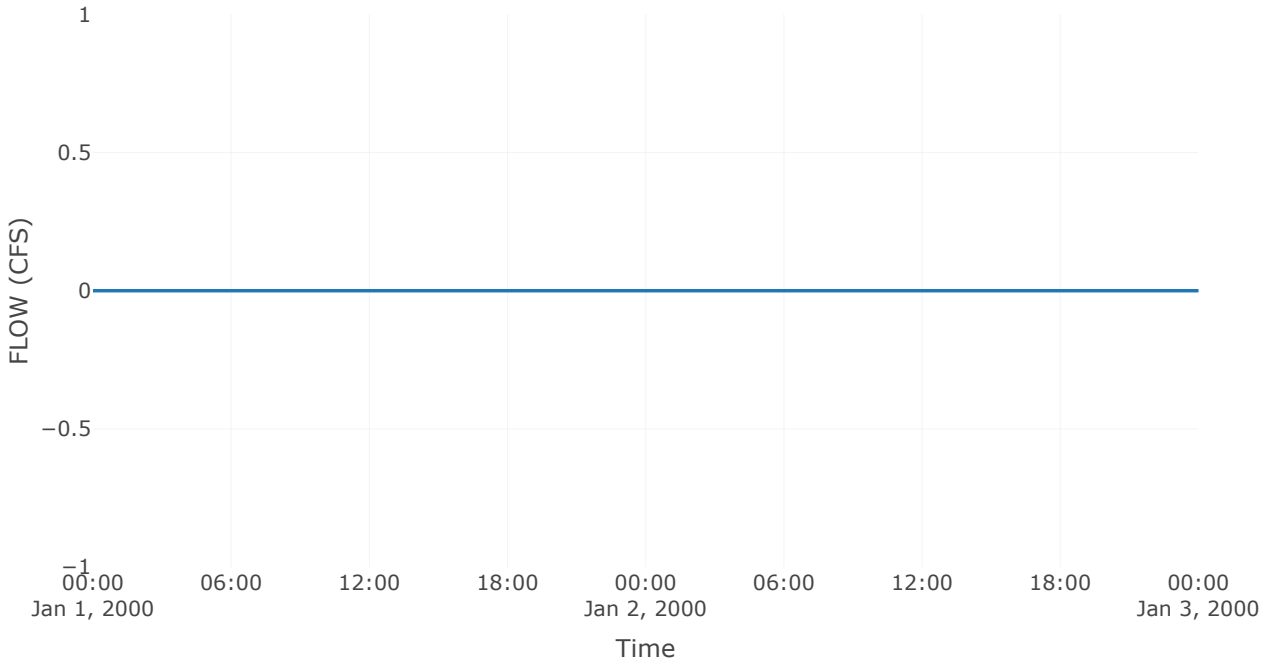
Combined Inflow



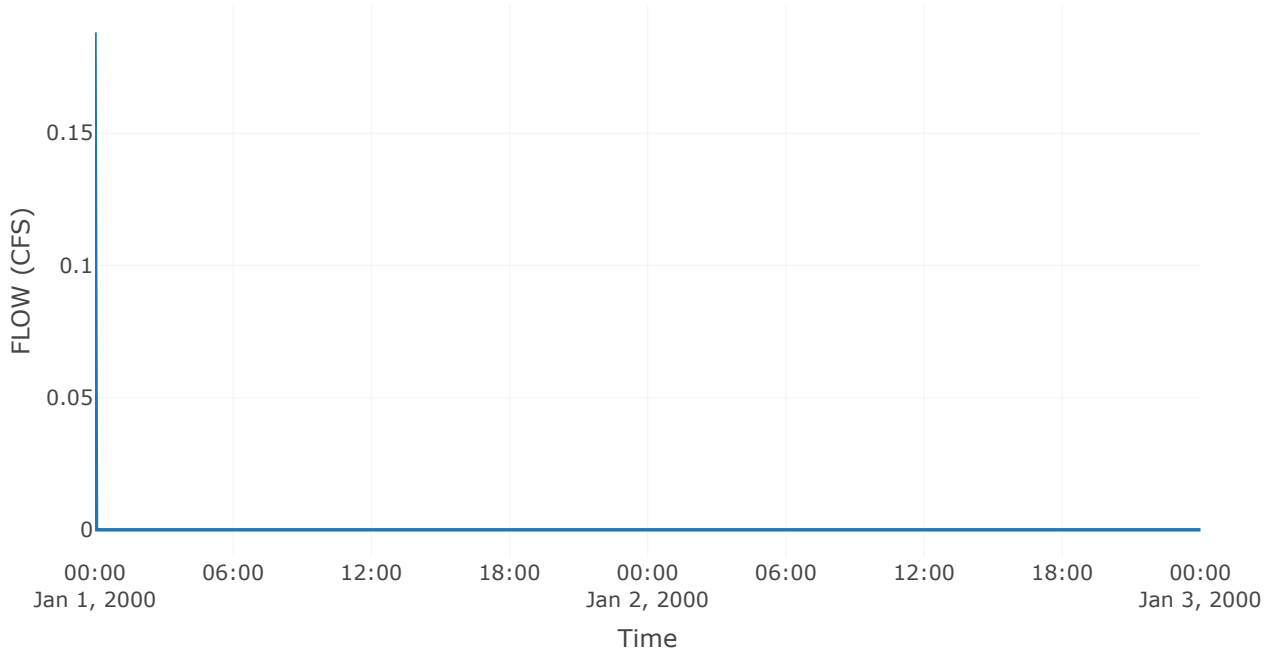
Cumulative Outflow



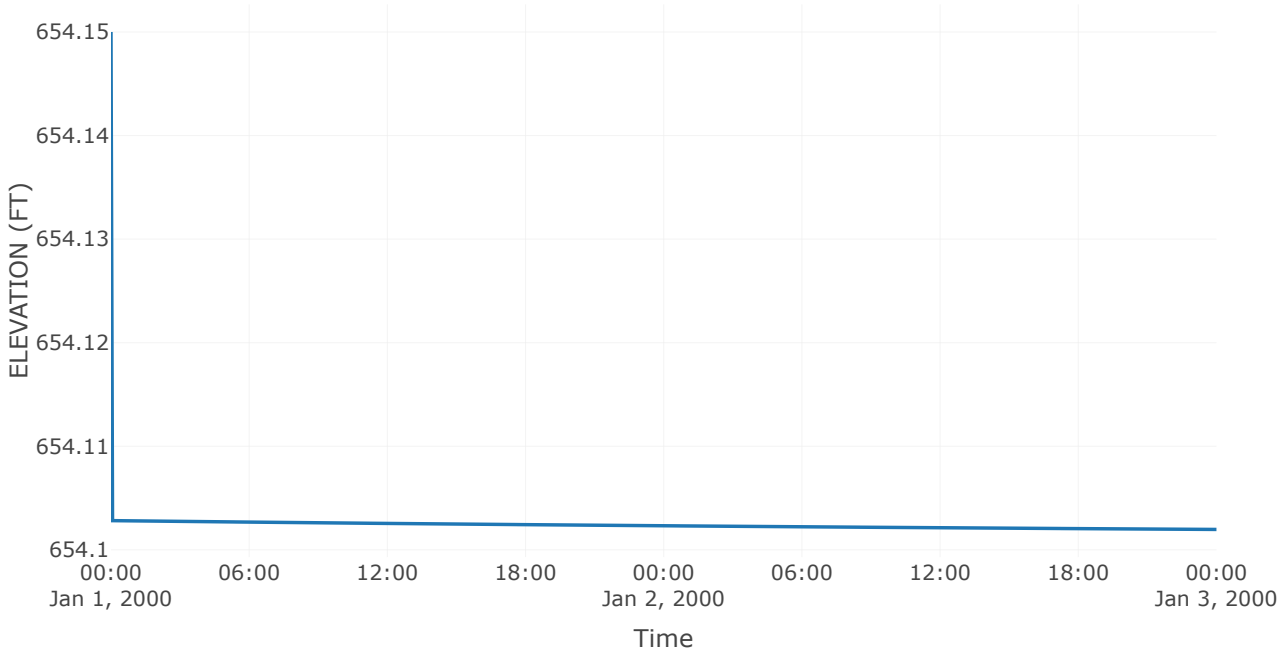
Spillway 1

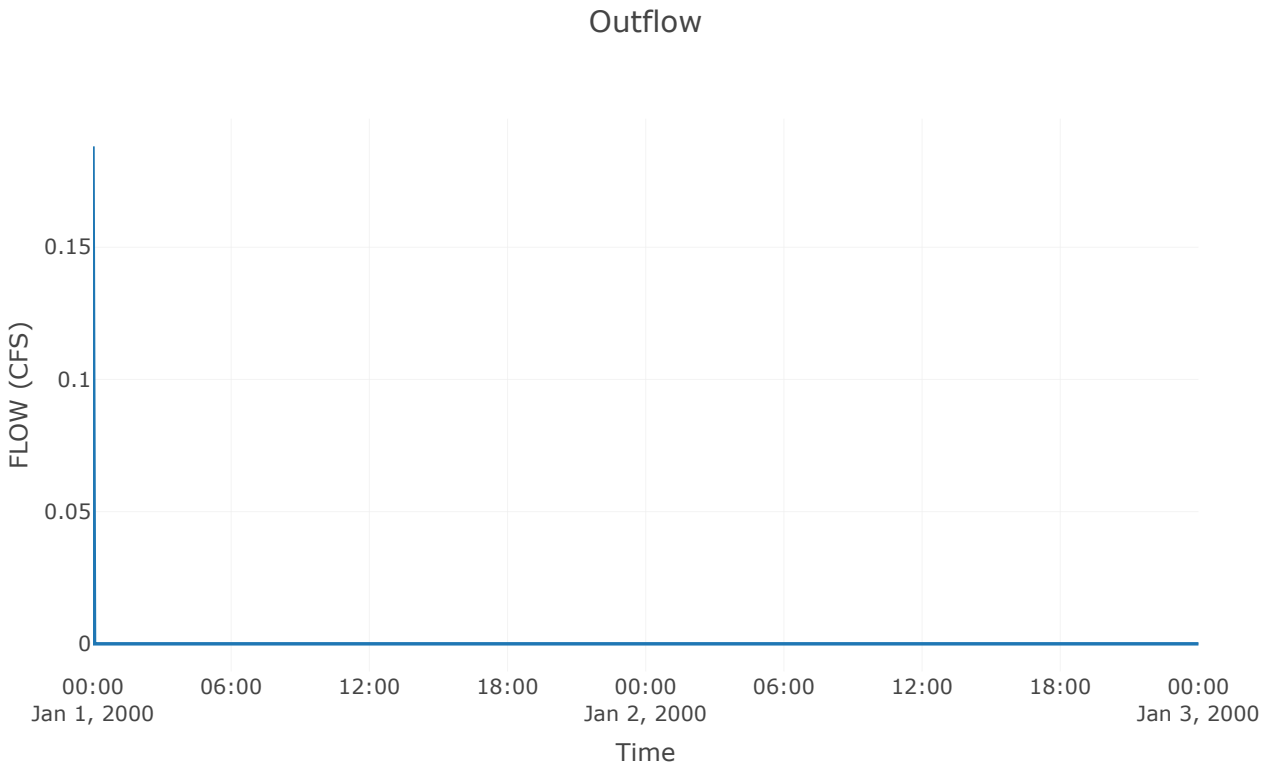


Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
0.15
0.1
0.05
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Prop On-Site

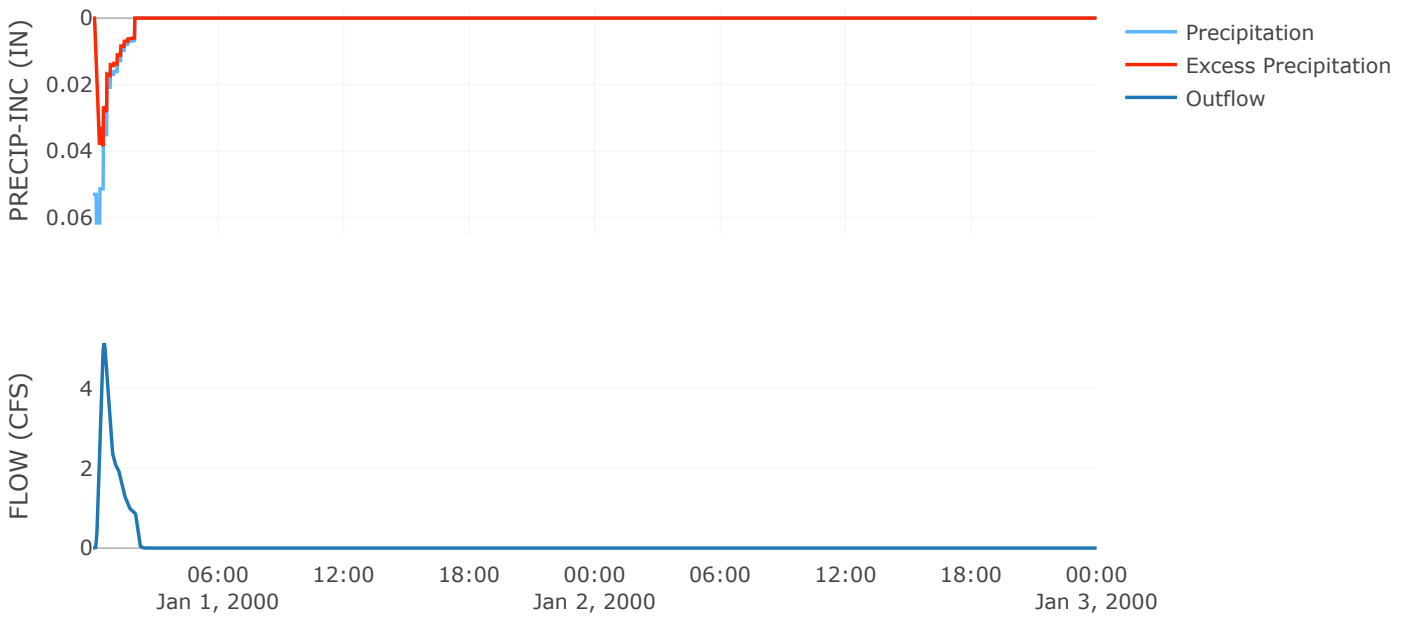
Area (MI2) : 0
Downstream : Proposed Basin C

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	88.03

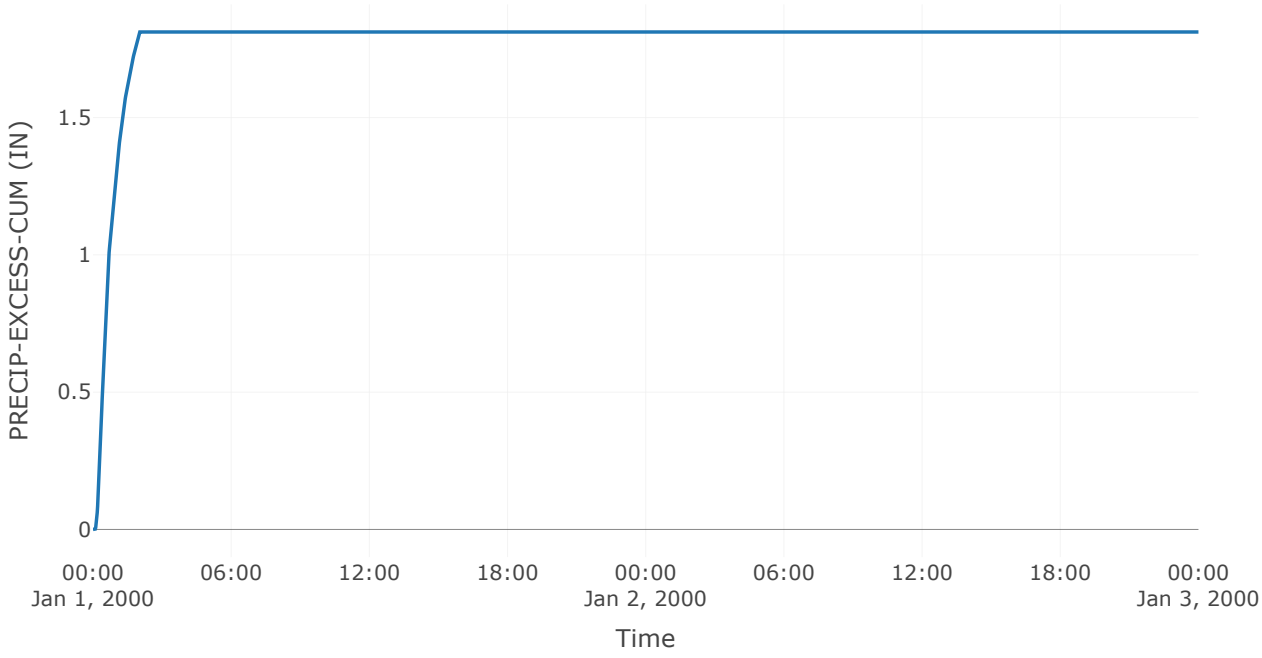
Transform: Scs	
Lag	6
Unitgraph Type	Standard

Results: Prop On-Site	
Peak Discharge (CFS)	5.14
Time of Peak Discharge	01Jan2000, 00:32
Volume (IN)	1.81
Precipitation Volume (AC - FT)	0.6
Loss Volume (AC - FT)	0.24
Excess Volume (AC - FT)	0.36
Direct Runoff Volume (AC - FT)	0.36
Baseflow Volume (AC - FT)	0

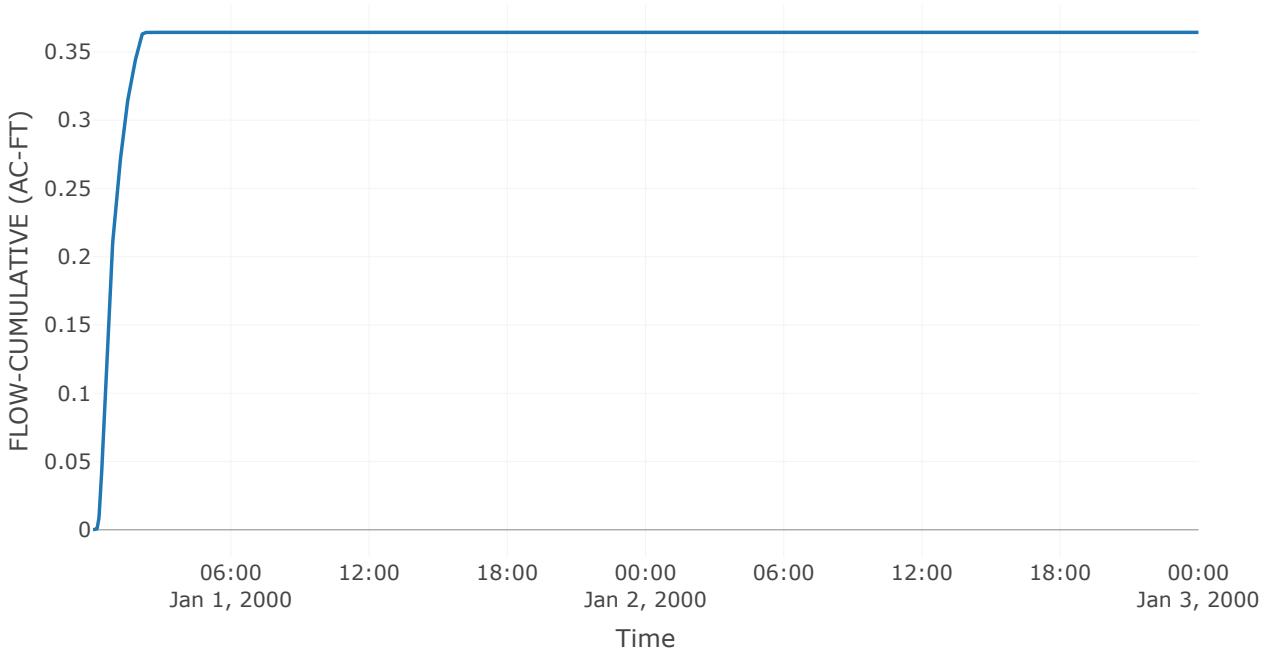
Precipitation and Outflow



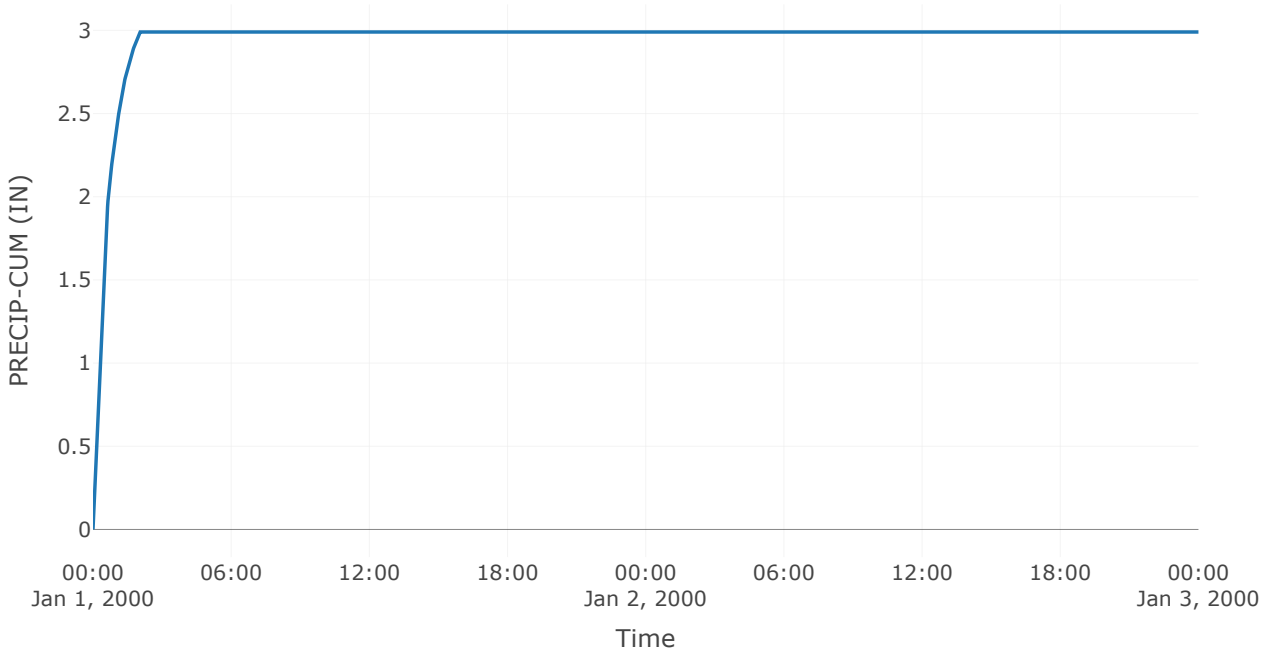
Cumulative Excess Precipitation



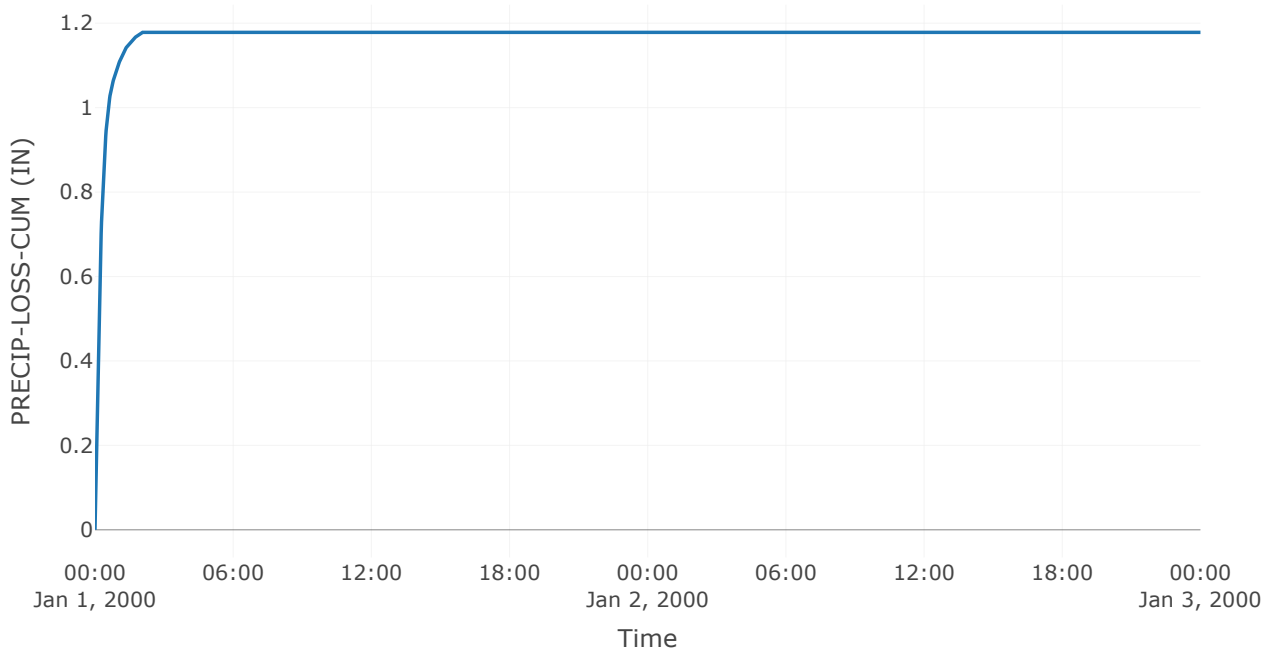
Cumulative Outflow



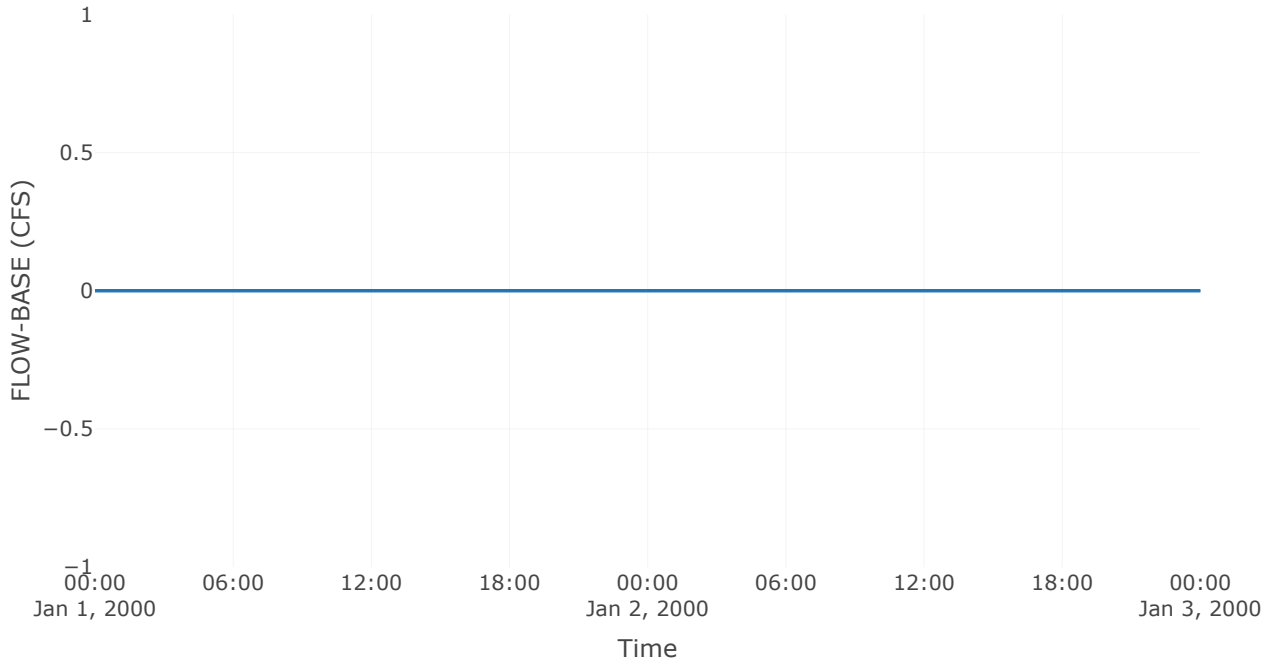
Cumulative Precipitation



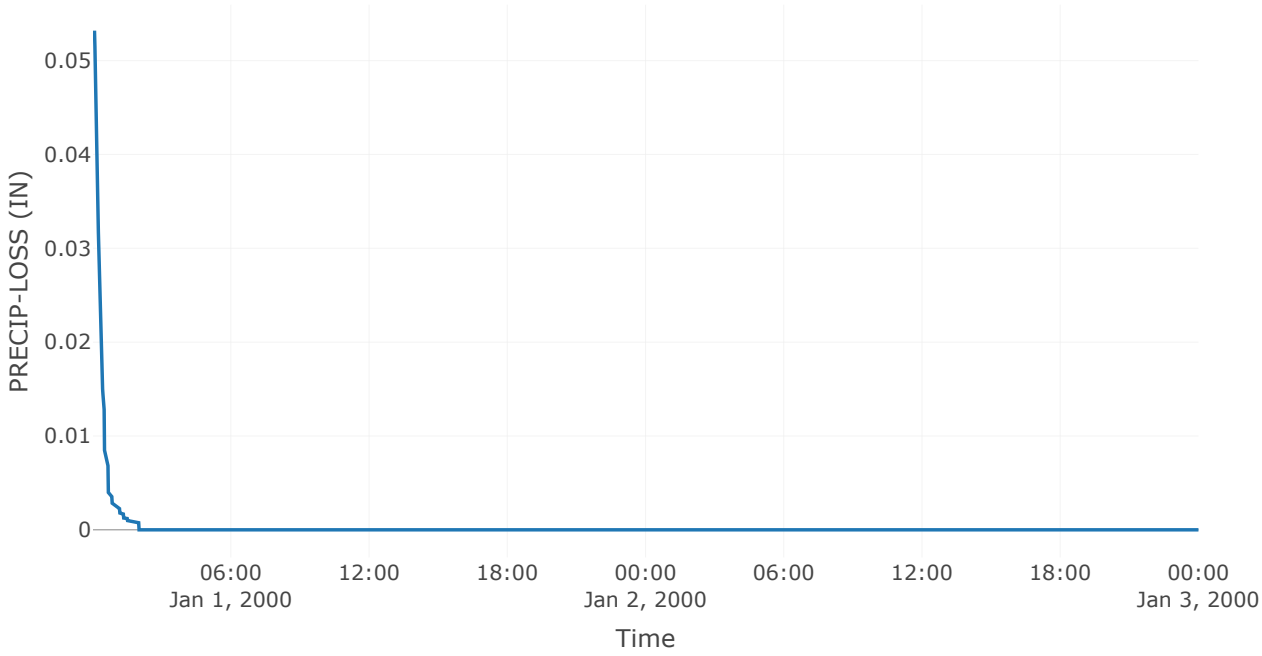
Cumulative Precipitation Loss



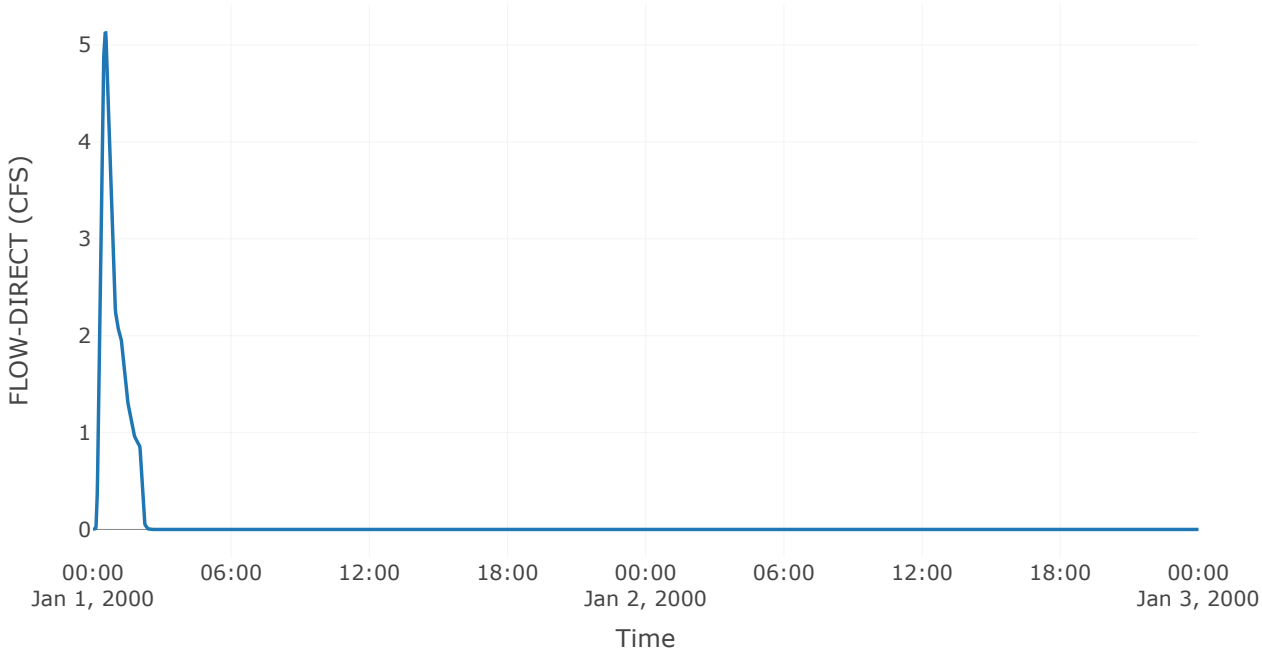
Baseflow

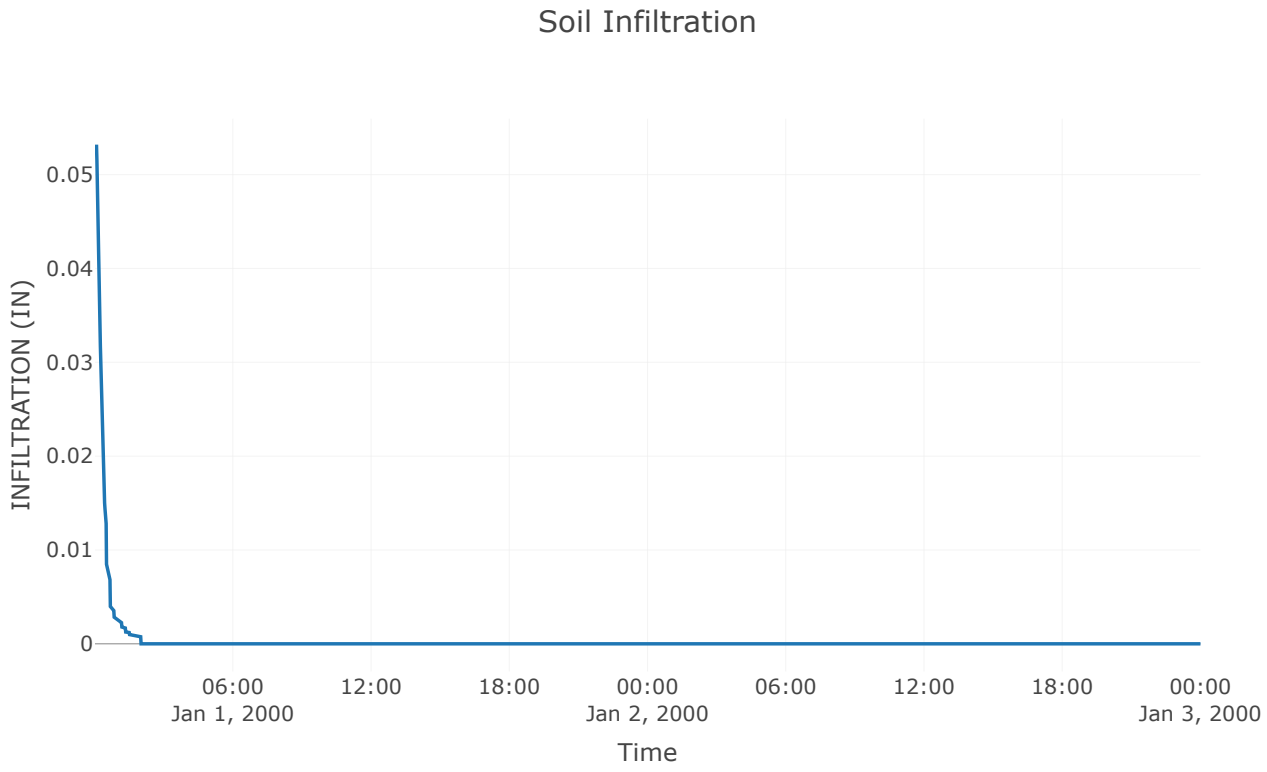


Precipitation Loss



Direct Runoff



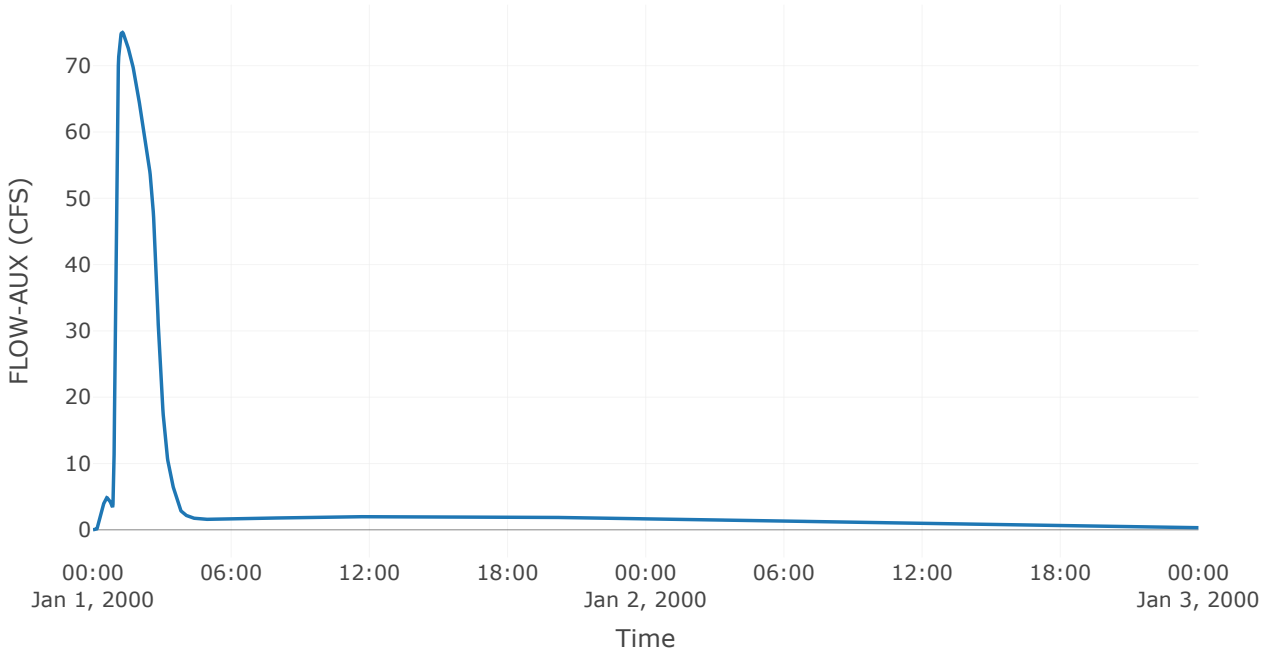

Soil Infiltration
INFILTRATION (IN)
0.05
0.04
0.03
0.02
0.01
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Proposed Basin C

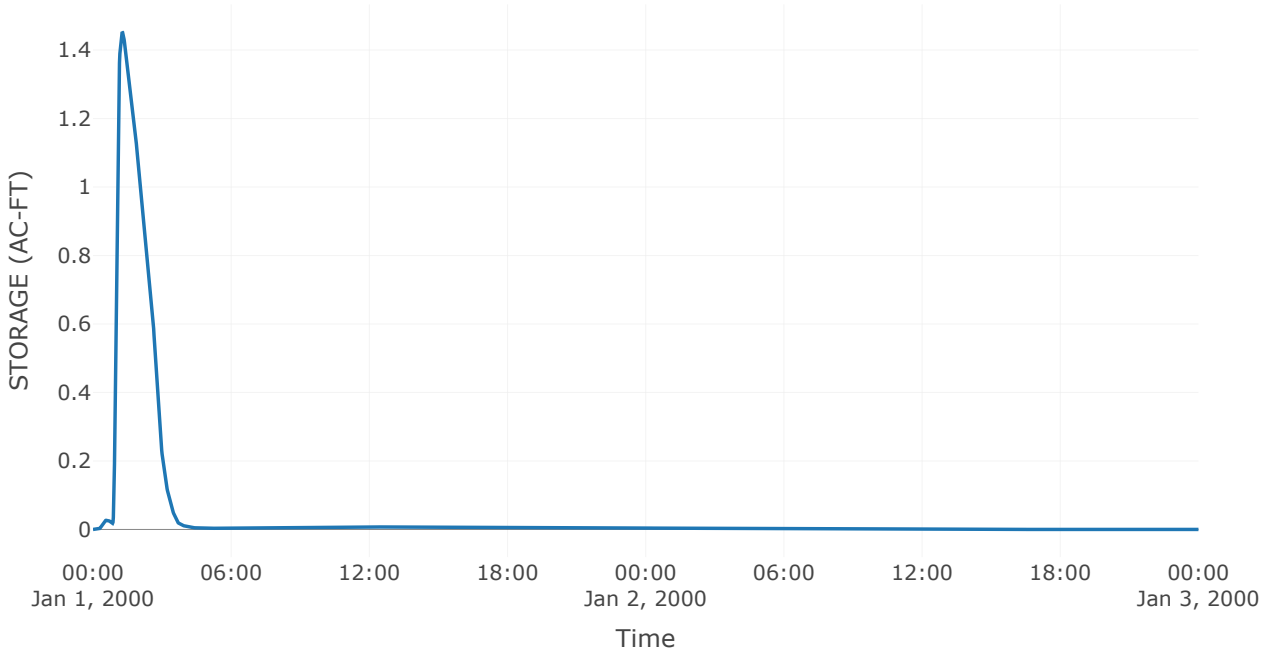
Downstream : Existing Basin A & B

Results: Proposed Basin C	
Peak Discharge (CFS)	83.45
Time of Peak Discharge	01Jan2000, 01:11
Volume (IN)	0.43
Peak Inflow (CFS)	163.05
Time of Peak Inflow	01Jan2000, 01:05
Inflow Volume (AC - FT)	23.46
Maximum Storage (AC - FT)	1.51
Peak Elevation (FT)	652.52
Discharge Volume (AC - FT)	6.23

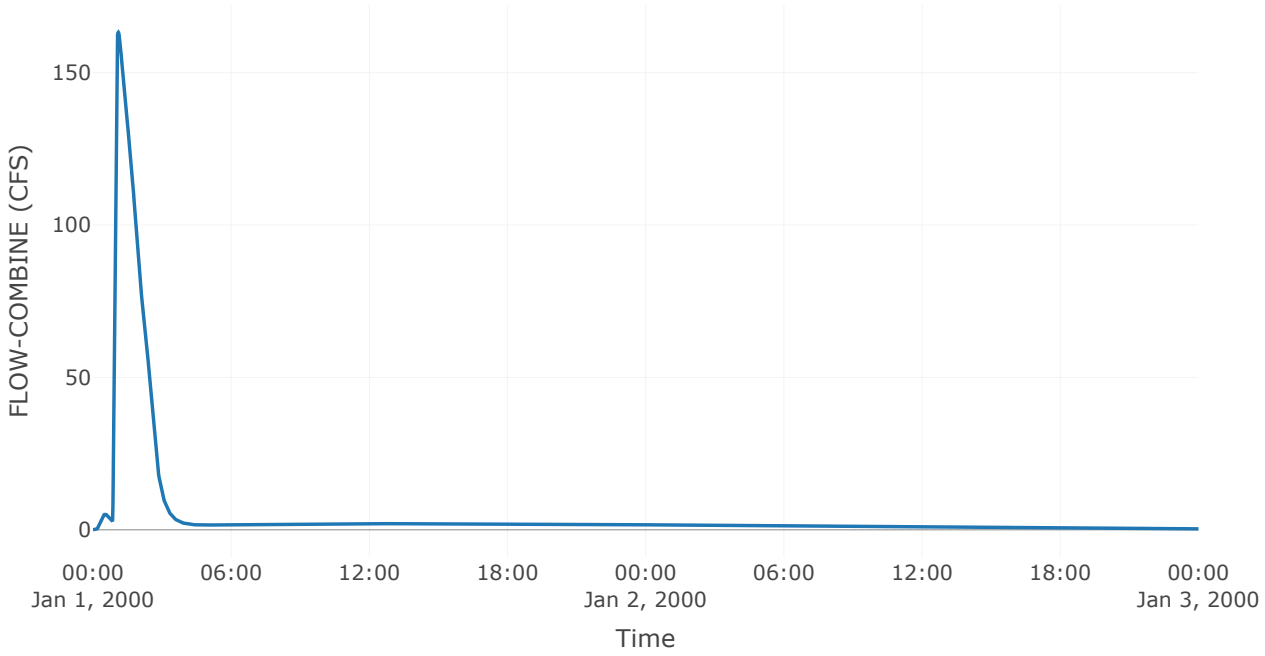
Auxiliary Outflow



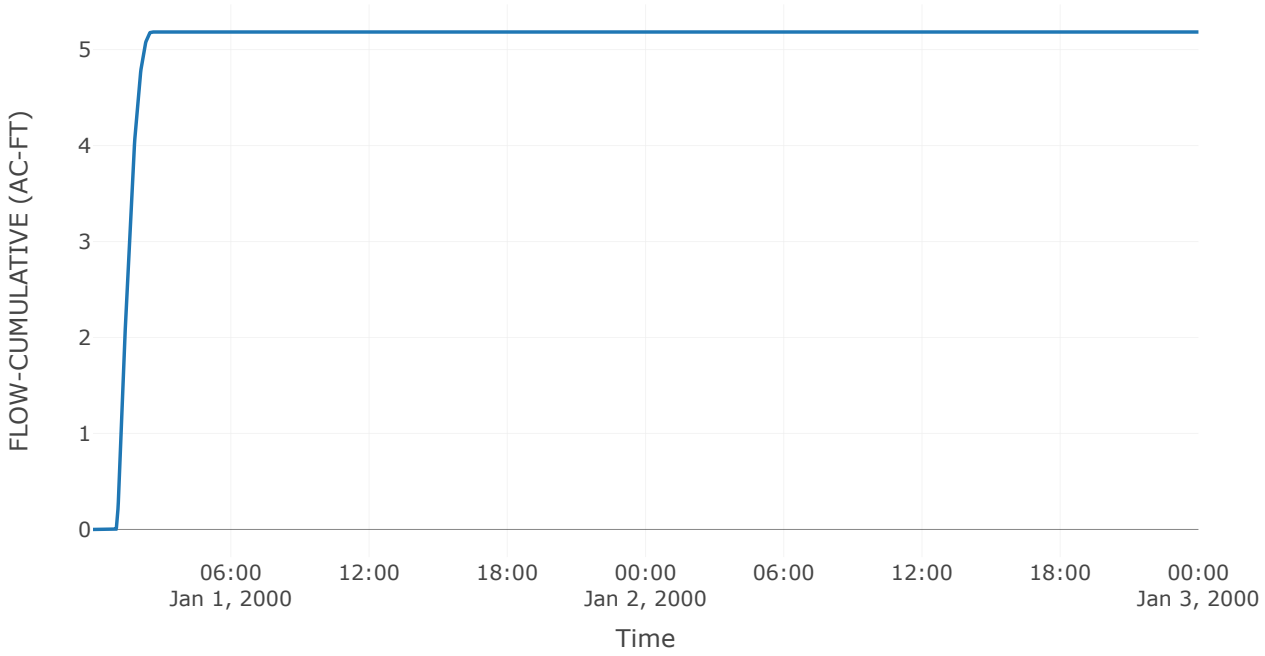
Storage

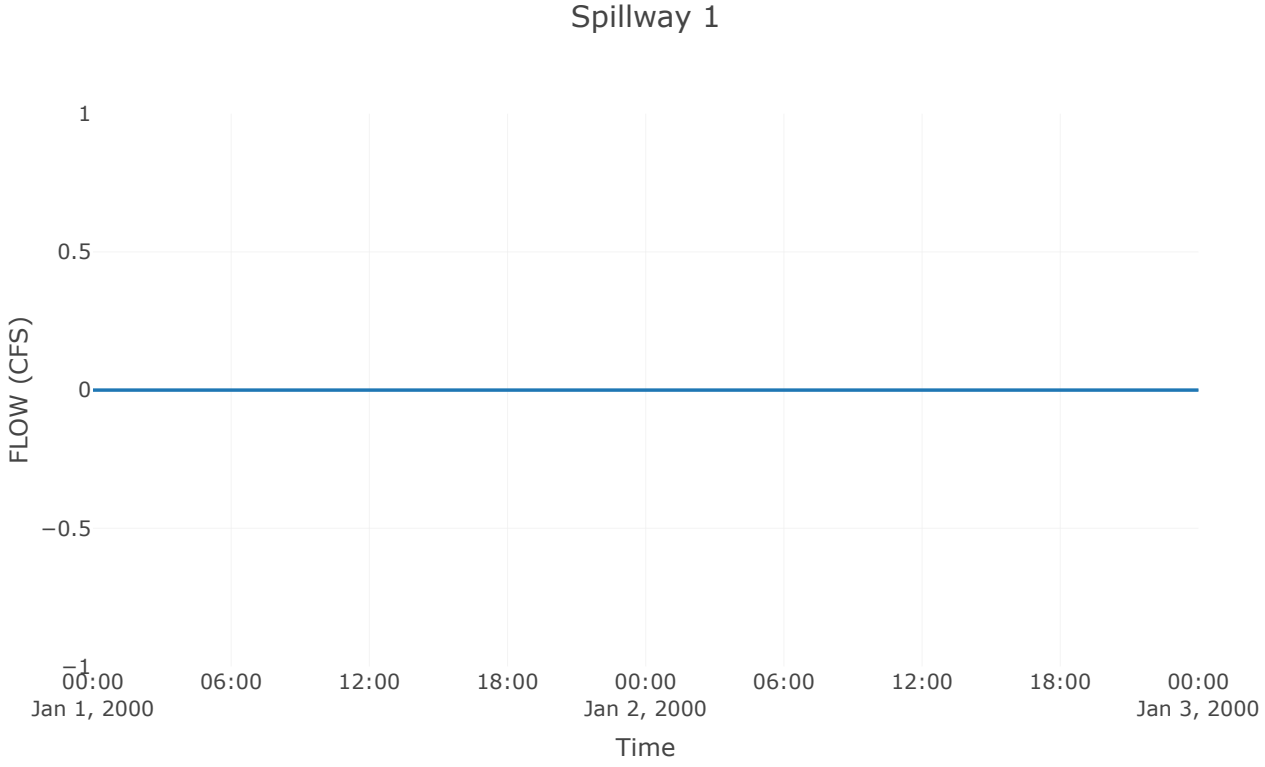


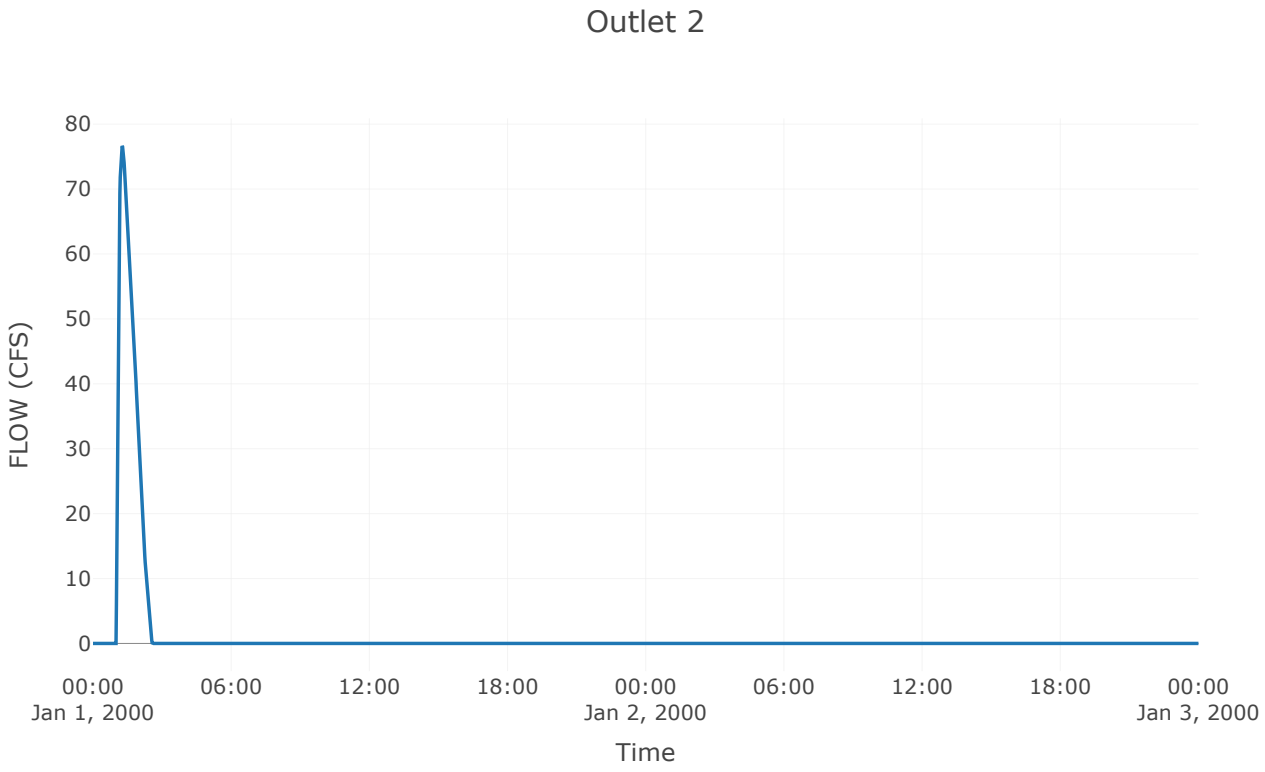
Combined Inflow



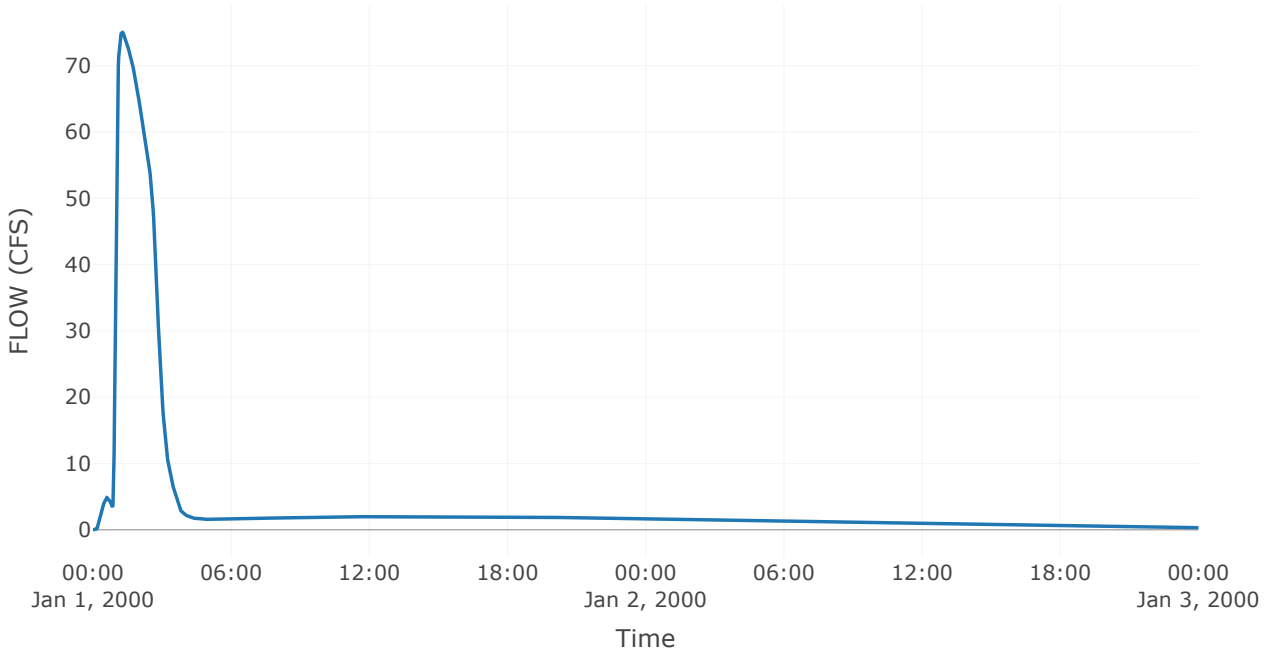
Cumulative Outflow



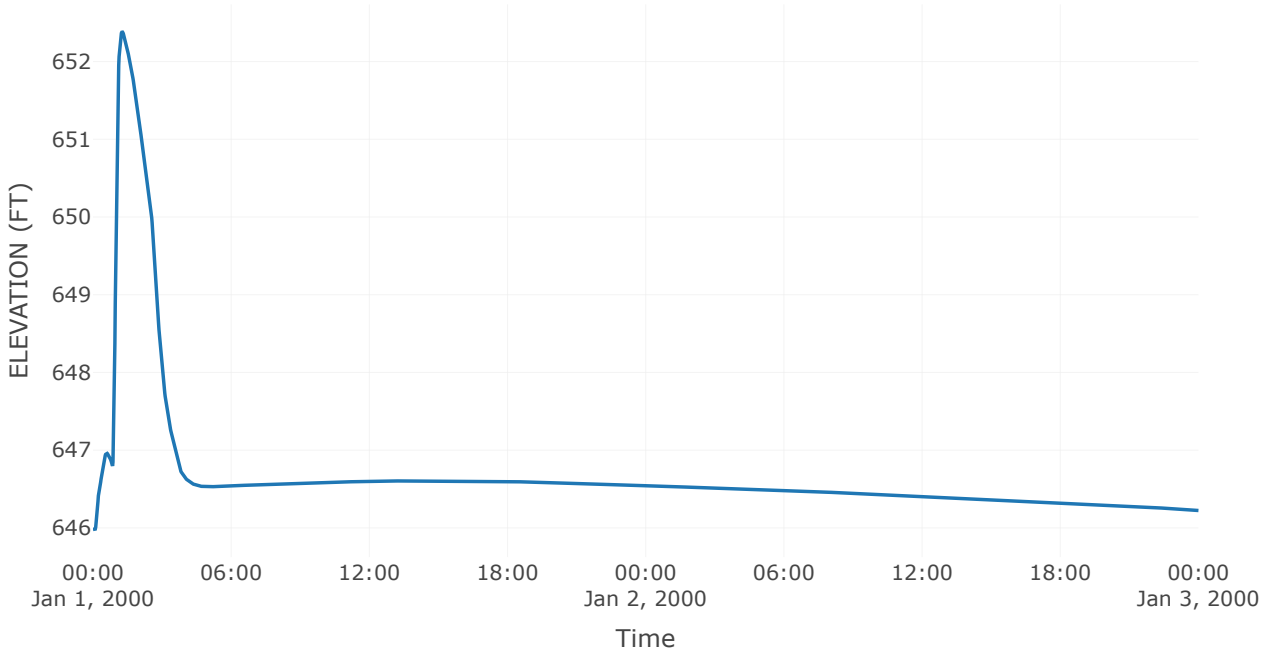

Spillway 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

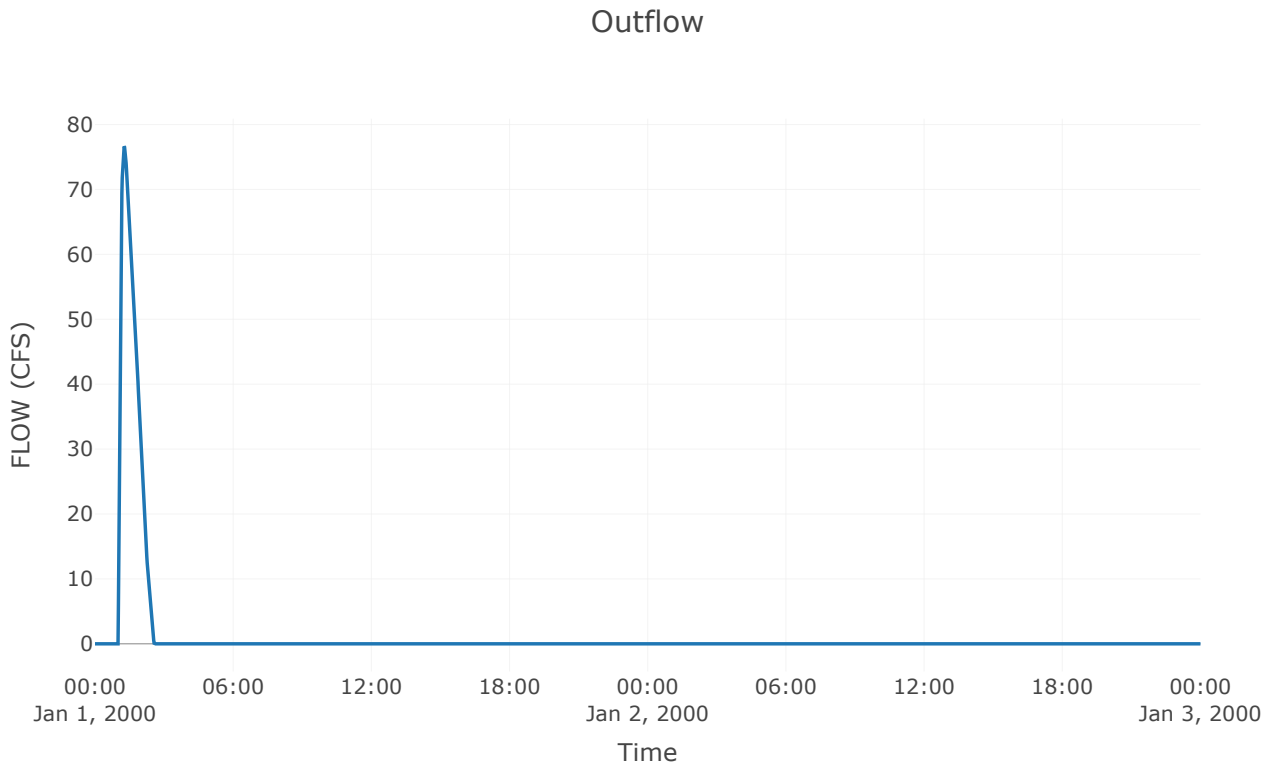

Outlet 2
80
70
60
50
40
30
20
10
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation



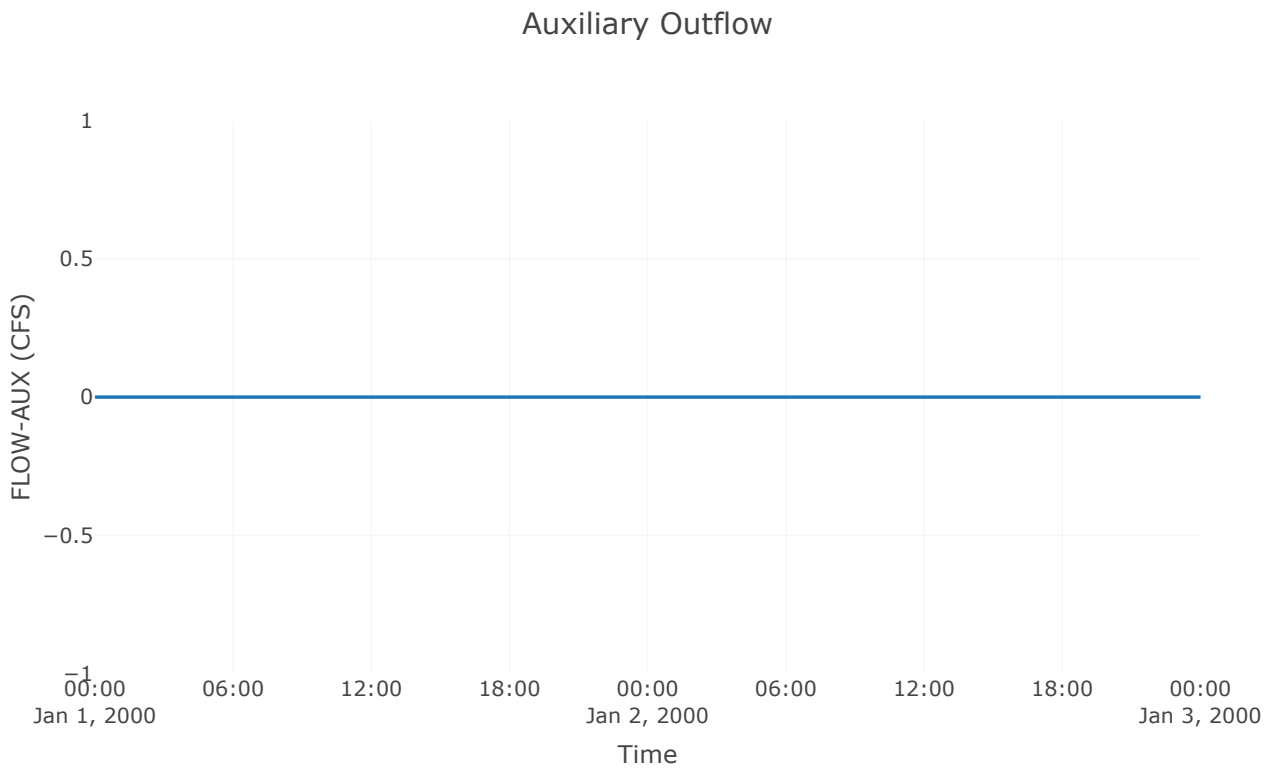

Outflow
80
70
60
50
40
30
20
10
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

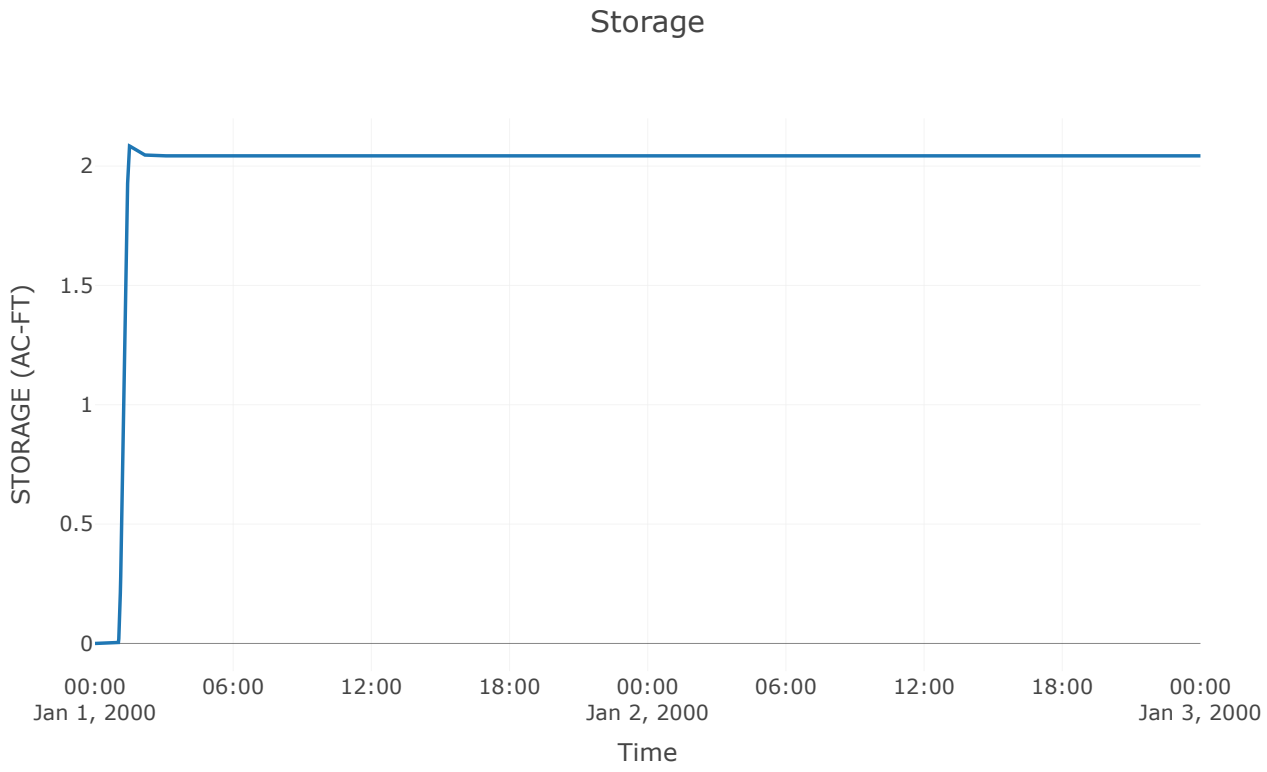
Reservoir: Existing Basin A & B

Downstream : Outlet Storm Box

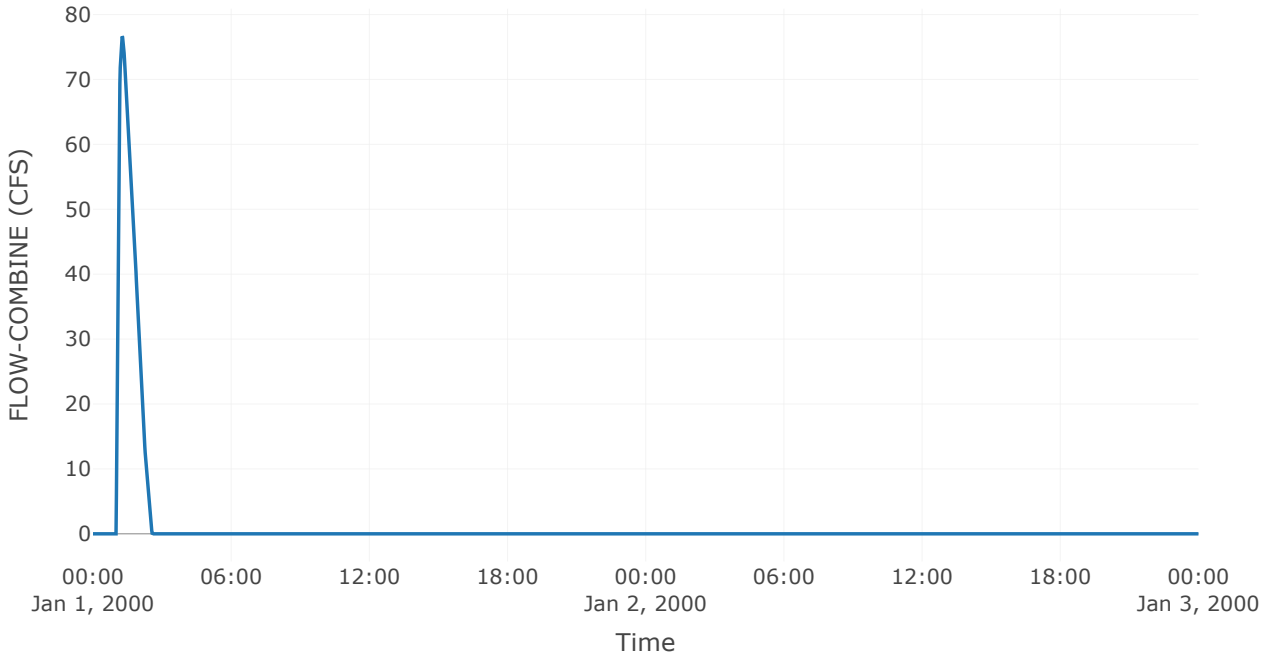
Results: Existing Basin A & B

Peak Discharge (CFS)	81.55
Time of Peak Discharge	01Jan2000, 01:16
Volume (IN)	0.28
Peak Inflow (CFS)	83.45
Time of Peak Inflow	01Jan2000, 01:11
Inflow Volume (AC - FT)	6.23
Maximum Storage (AC - FT)	2.11
Peak Elevation (FT)	653.41
Discharge Volume (AC - FT)	4.02

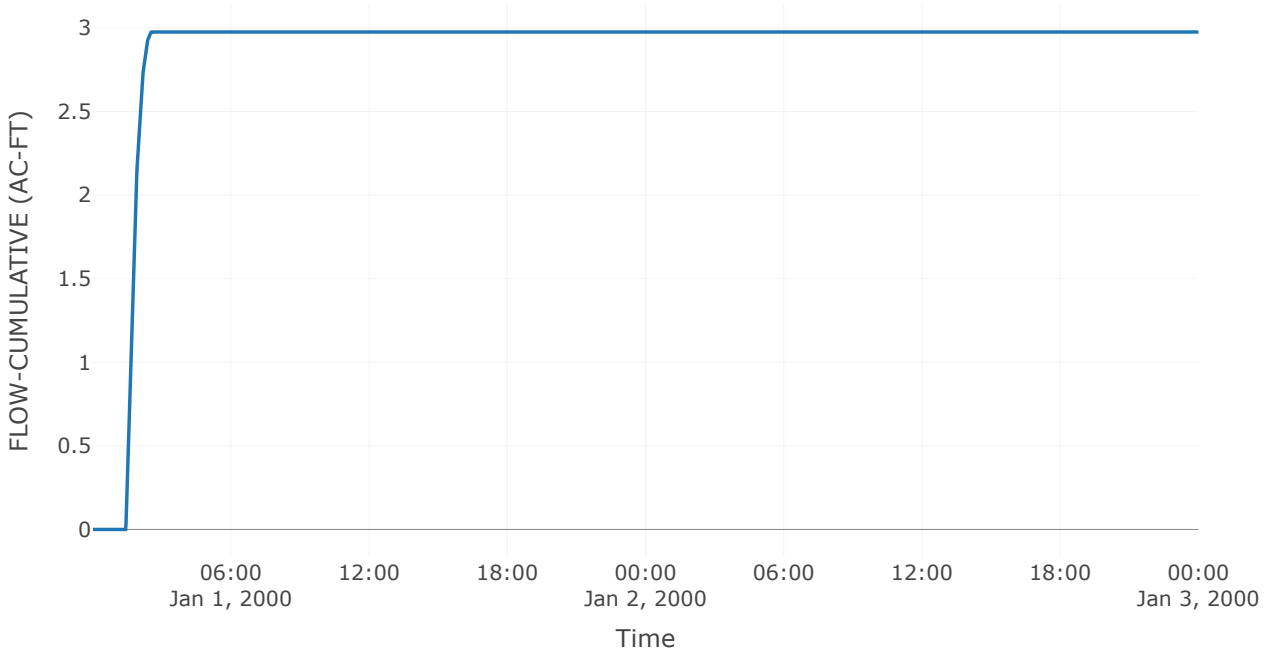

Auxiliary Outflow
FLOW-AUX (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

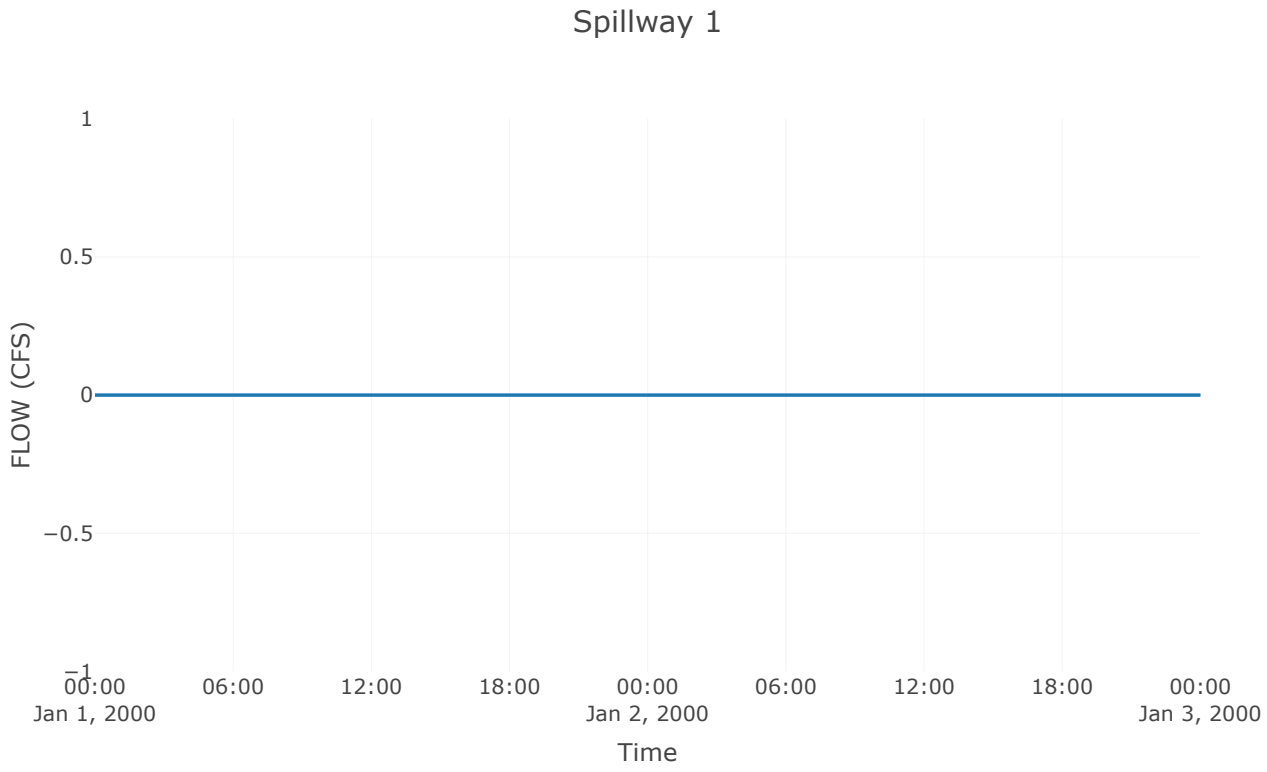

Storage
STORAGE (AC-FT)
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

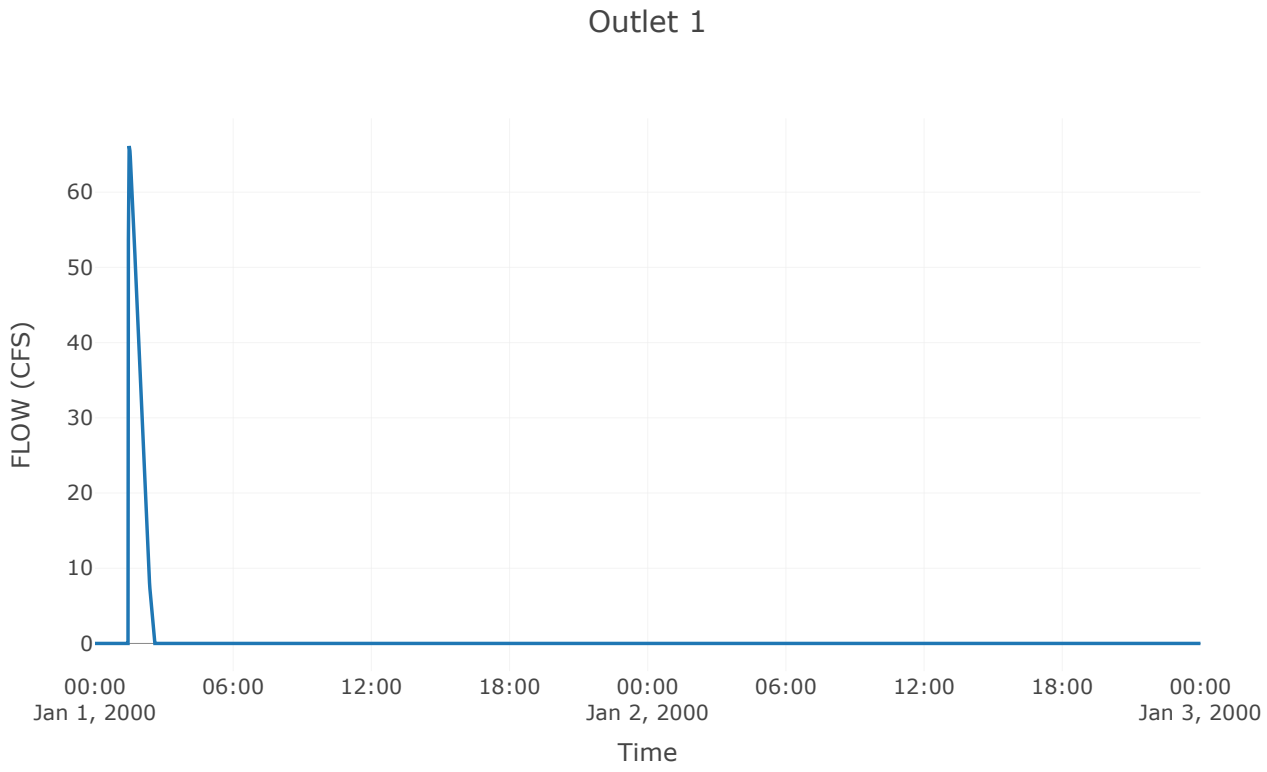
Combined Inflow



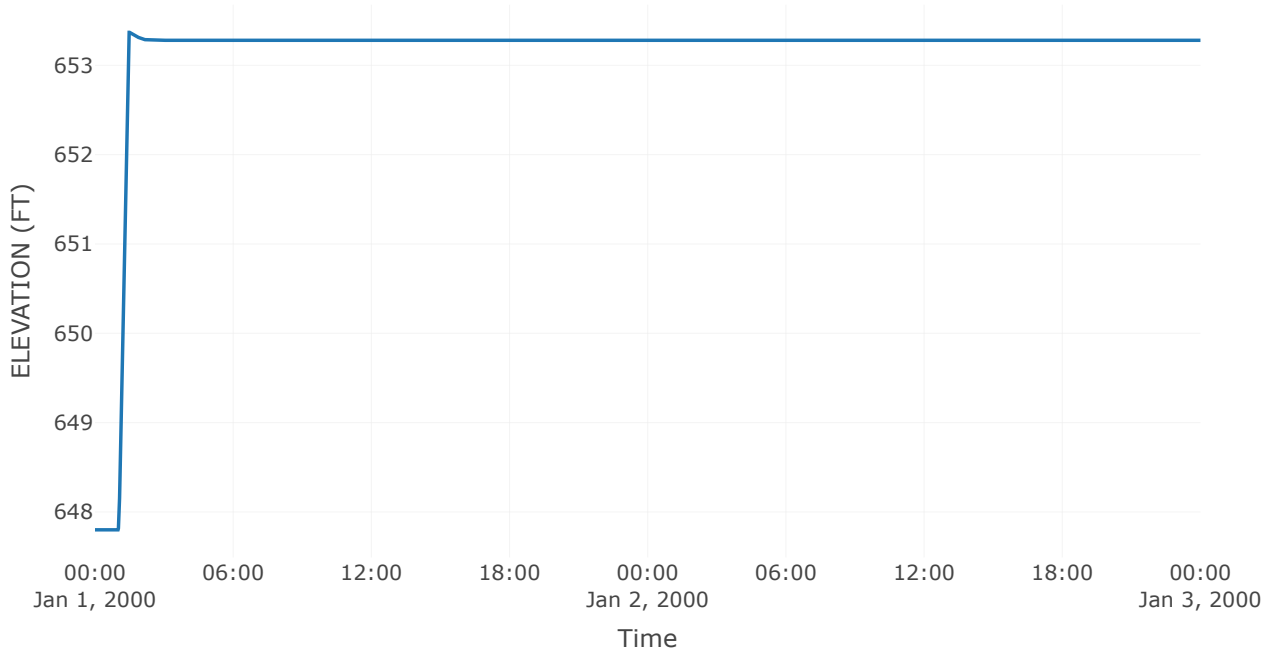
Cumulative Outflow



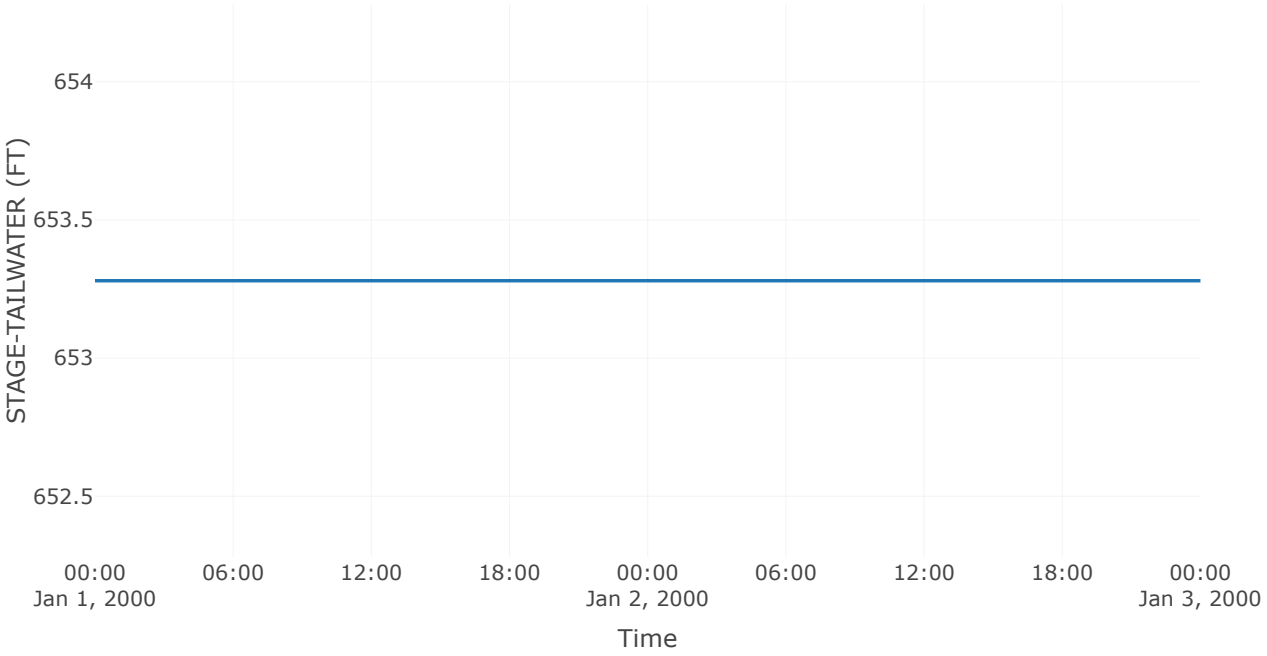

Spillway 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

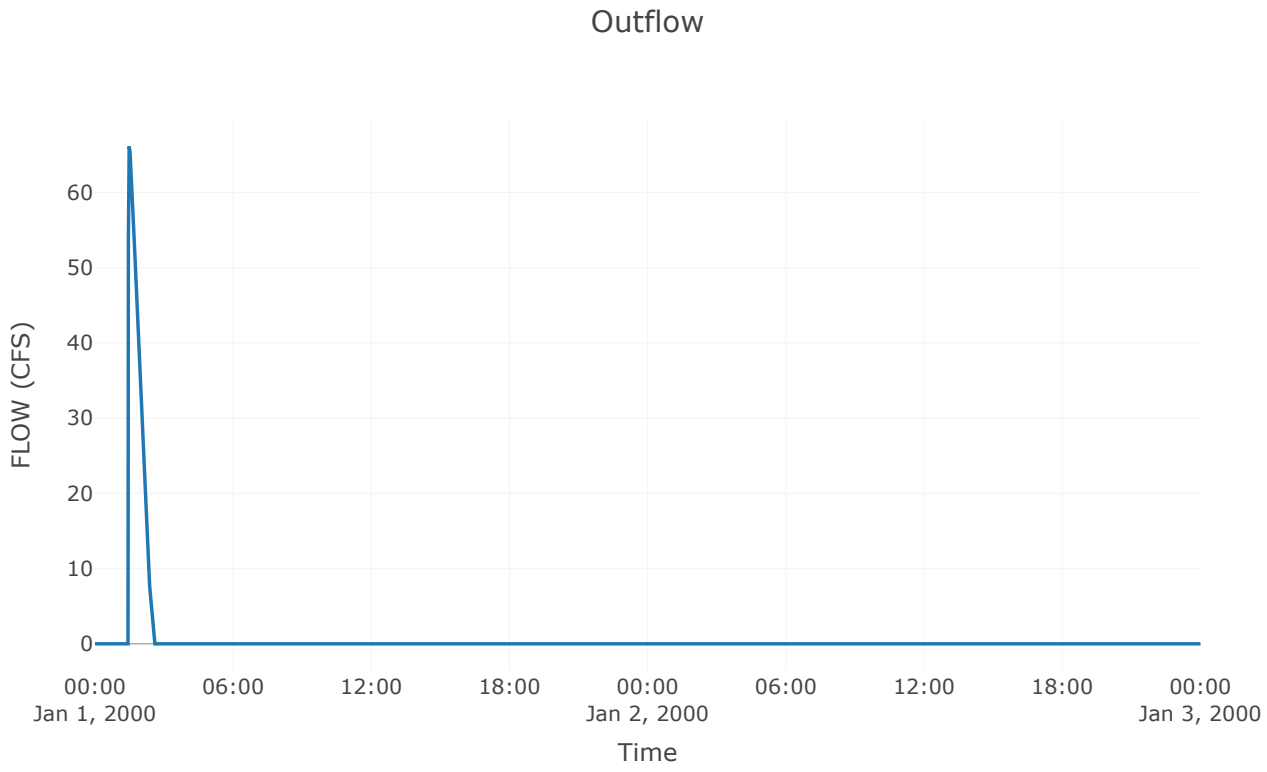

Outlet 1
60
50
40
30
20
10
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Pool Elevation



Tailwater Stage



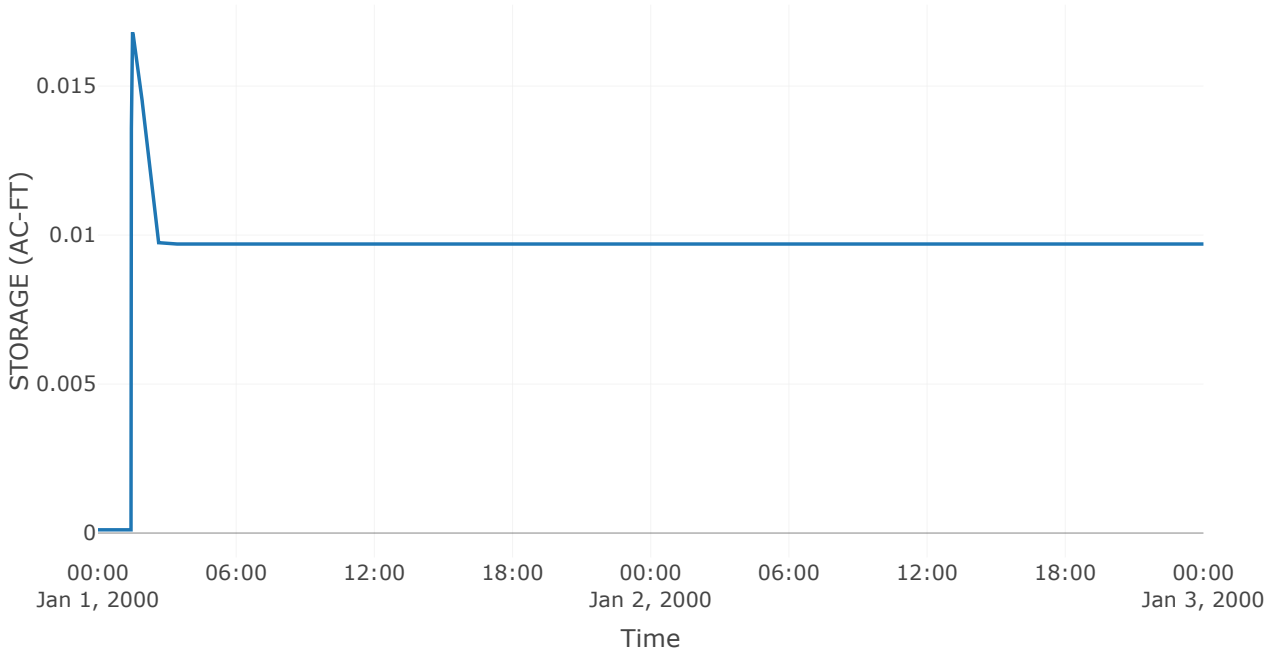

Outflow
FLOW (CFS)
60
50
40
30
20
10
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Outlet Storm Box

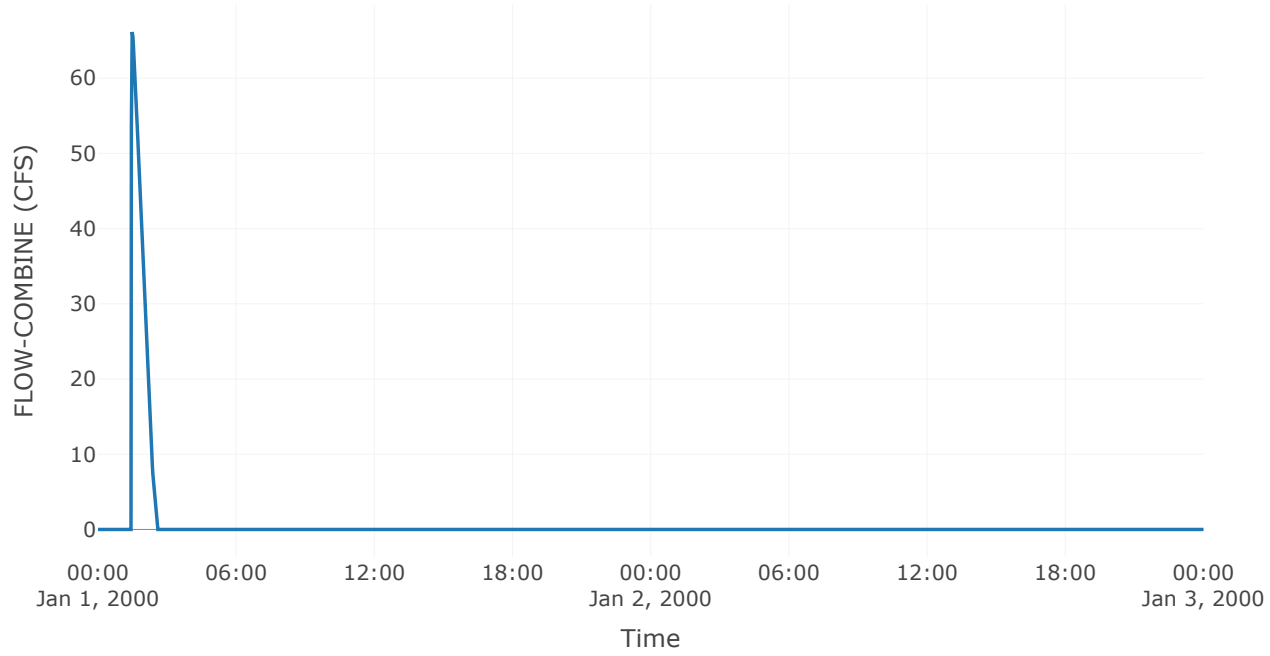
Downstream : 55th Street Outlet

Results: Outlet Storm Box	
Peak Discharge (CFS)	80.46
Time of Peak Discharge	01Jan2000, 01:18
Volume (IN)	0.27
Peak Inflow (CFS)	81.55
Time of Peak Inflow	01Jan2000, 01:16
Inflow Volume (AC - FT)	4.02
Maximum Storage (AC - FT)	0.02
Peak Elevation (FT)	654.01
Discharge Volume (AC - FT)	3.98

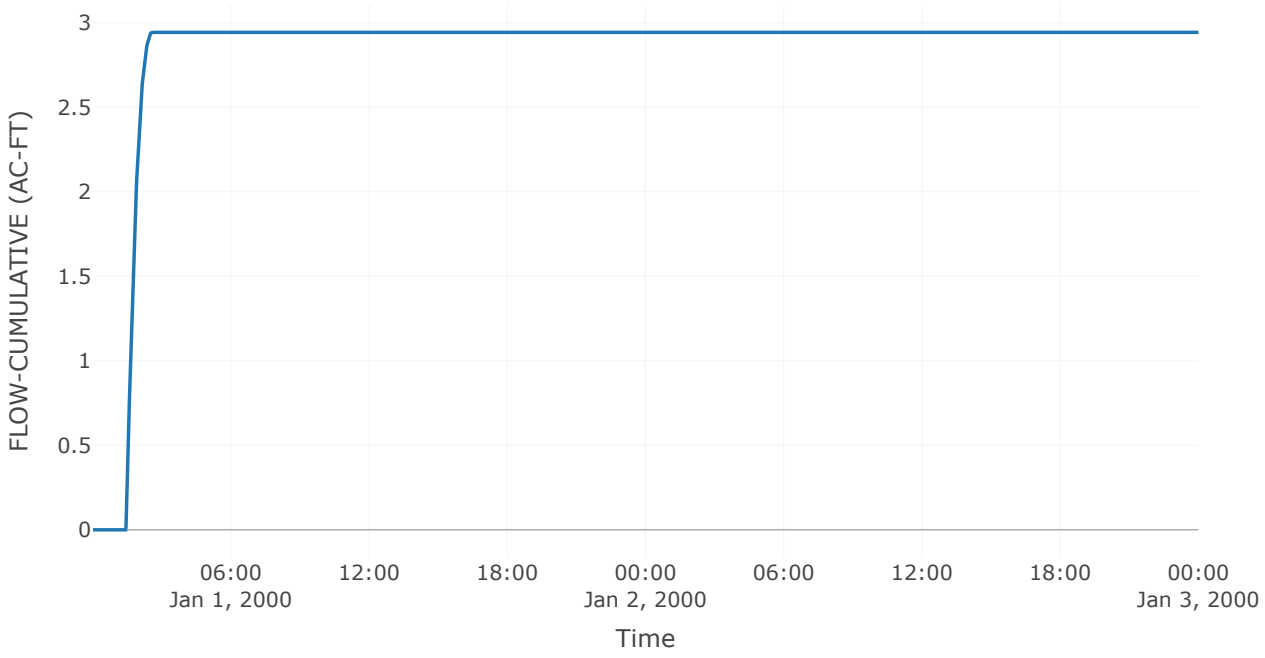
Storage



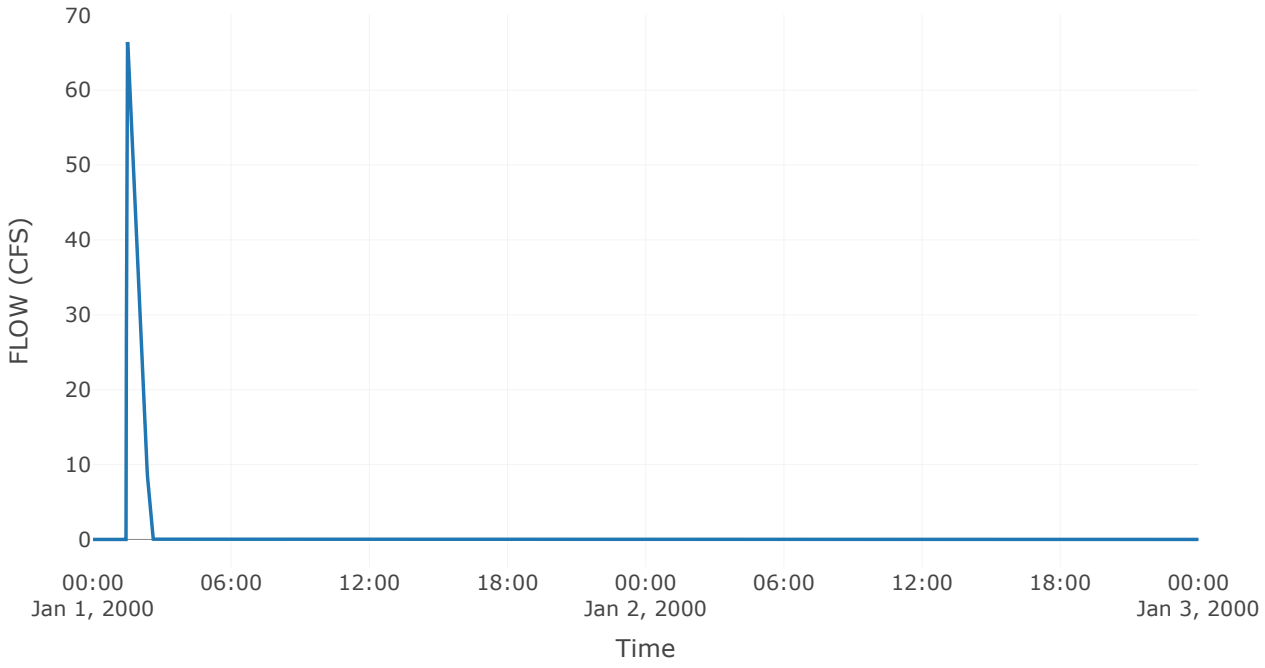
Combined Inflow



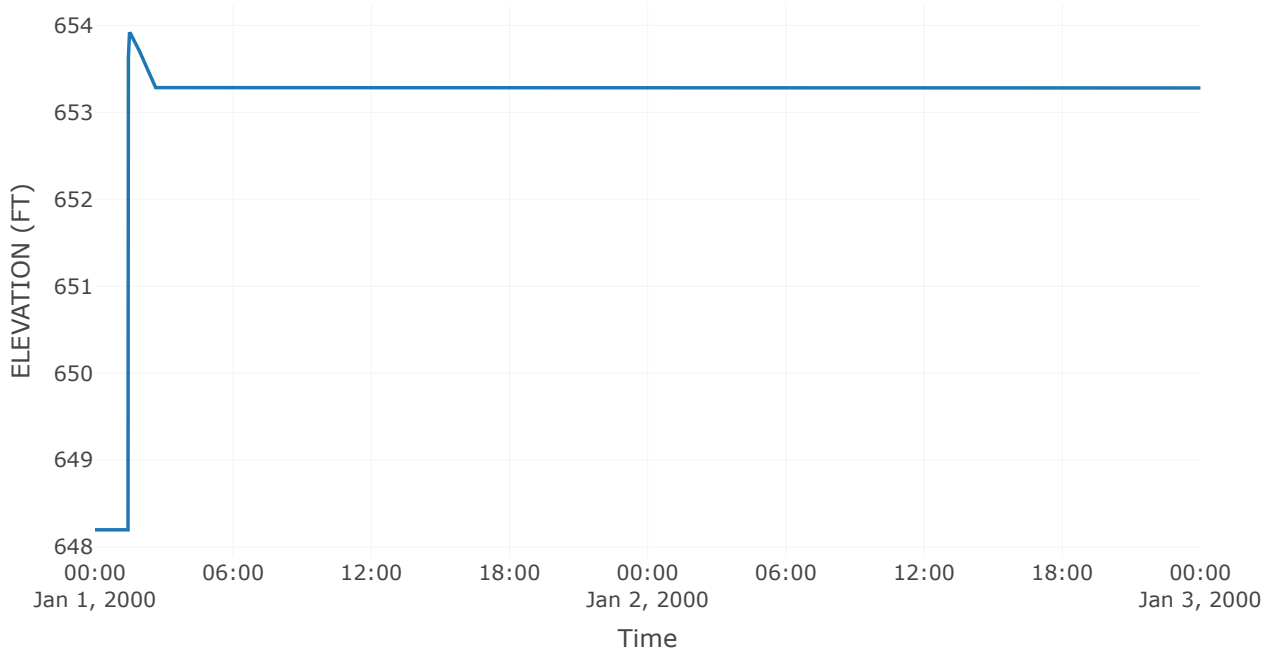
Cumulative Outflow



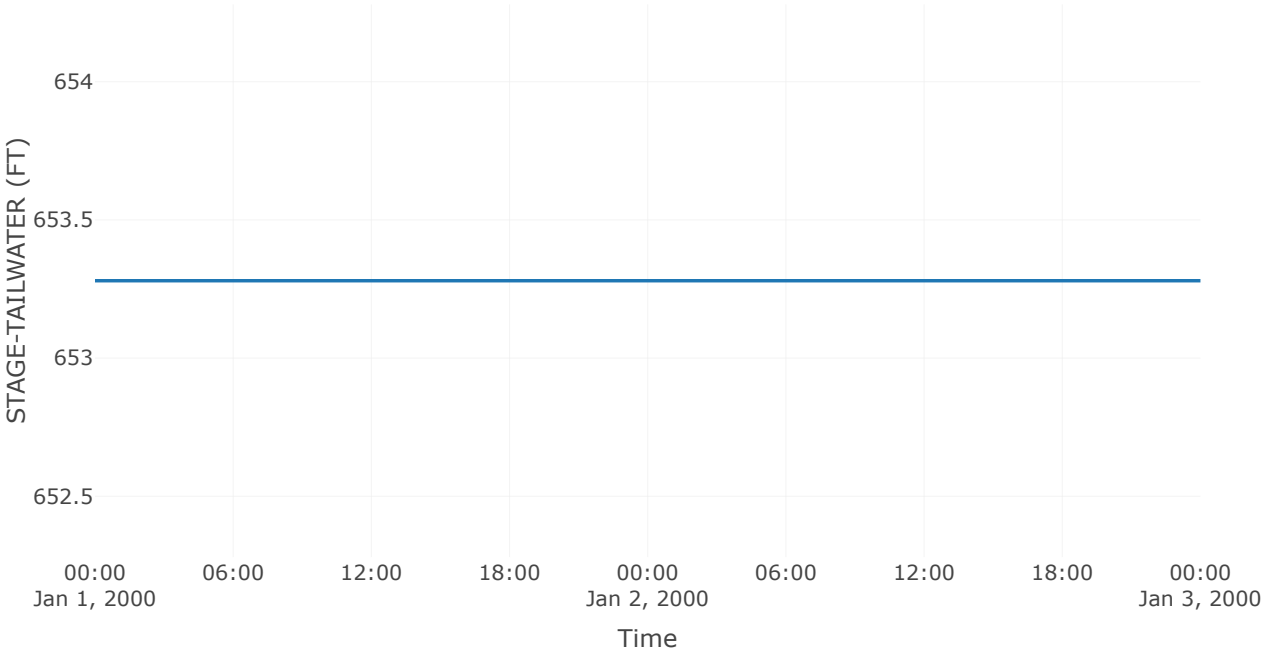
Spillway 1

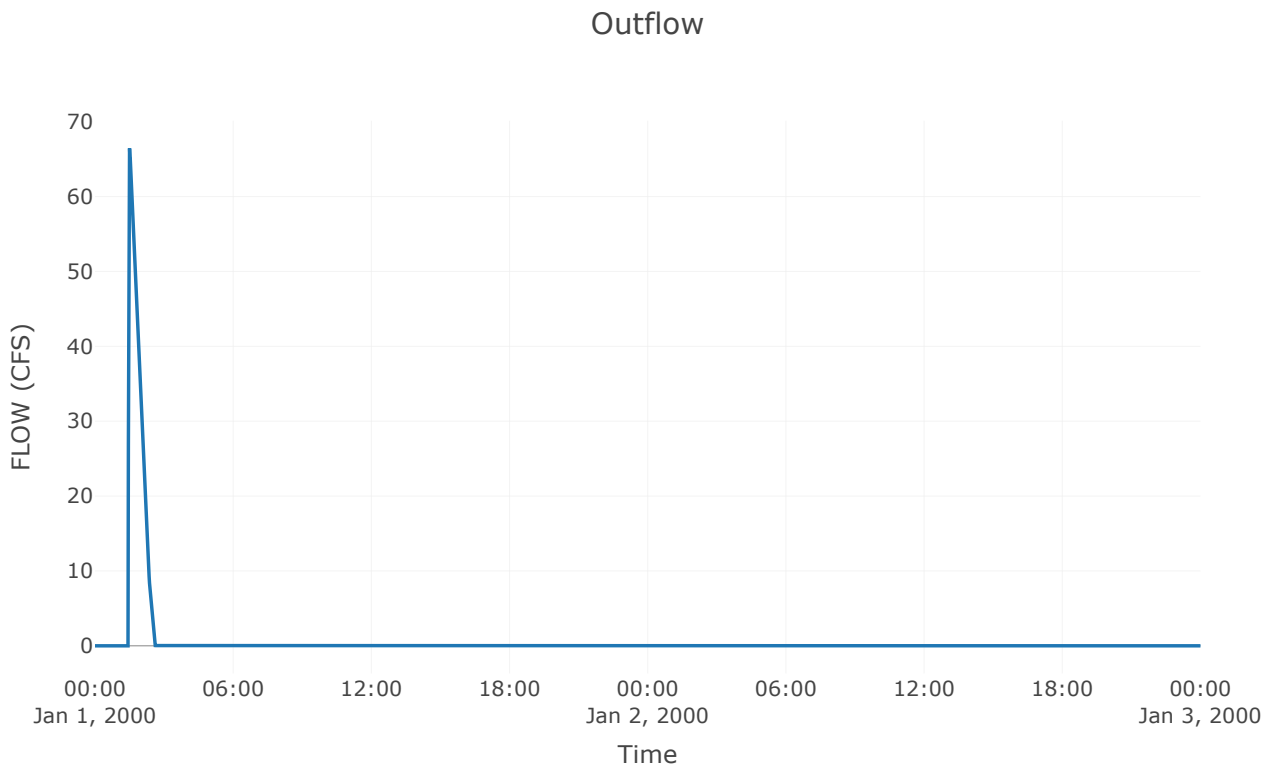


Pool Elevation



Tailwater Stage

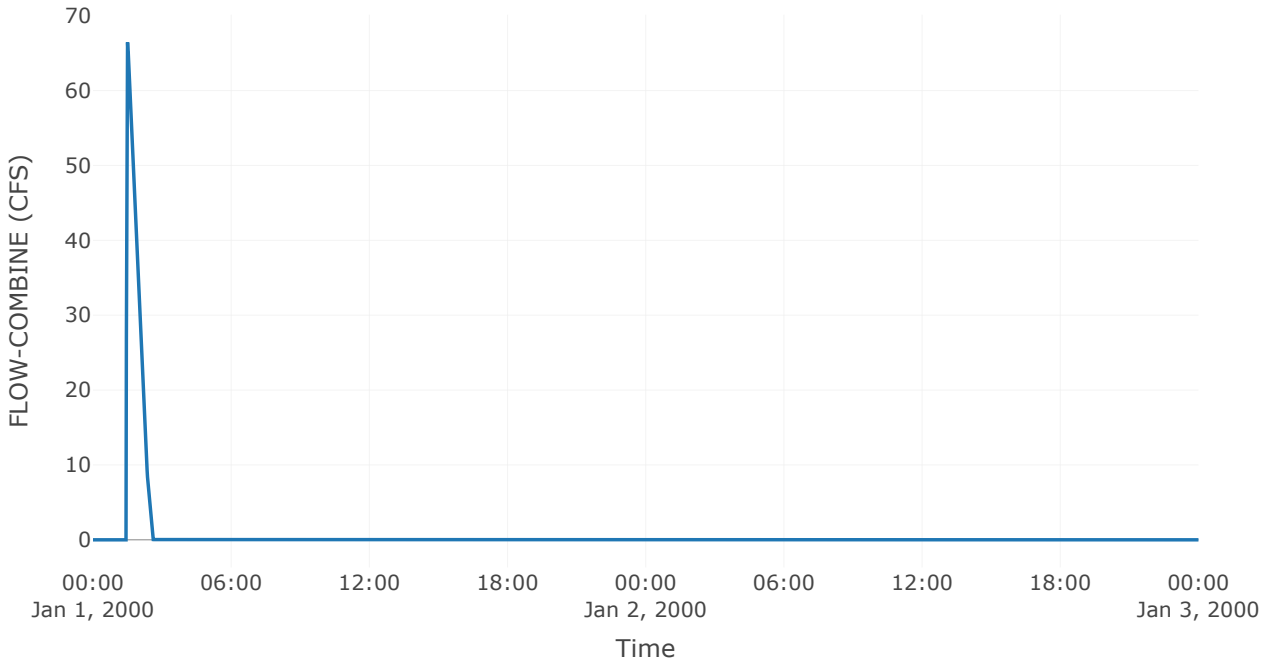



Outflow
70
60
50
40
30
20
10
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

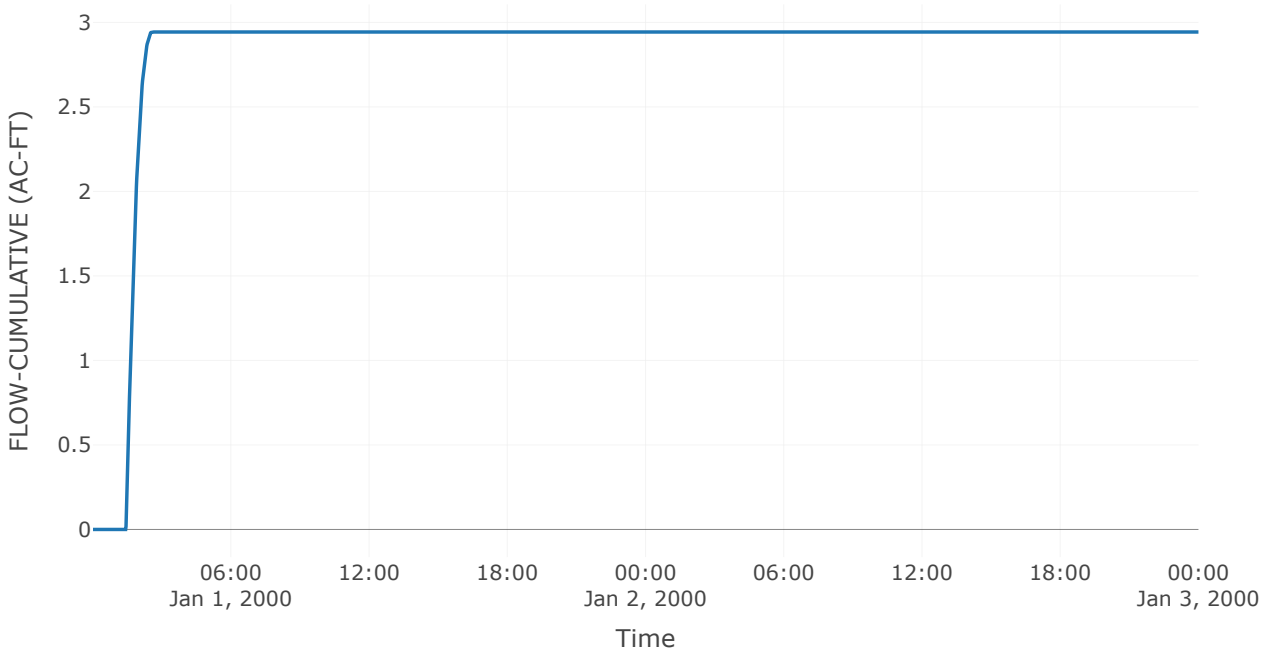
Sink: 55th Street Outlet

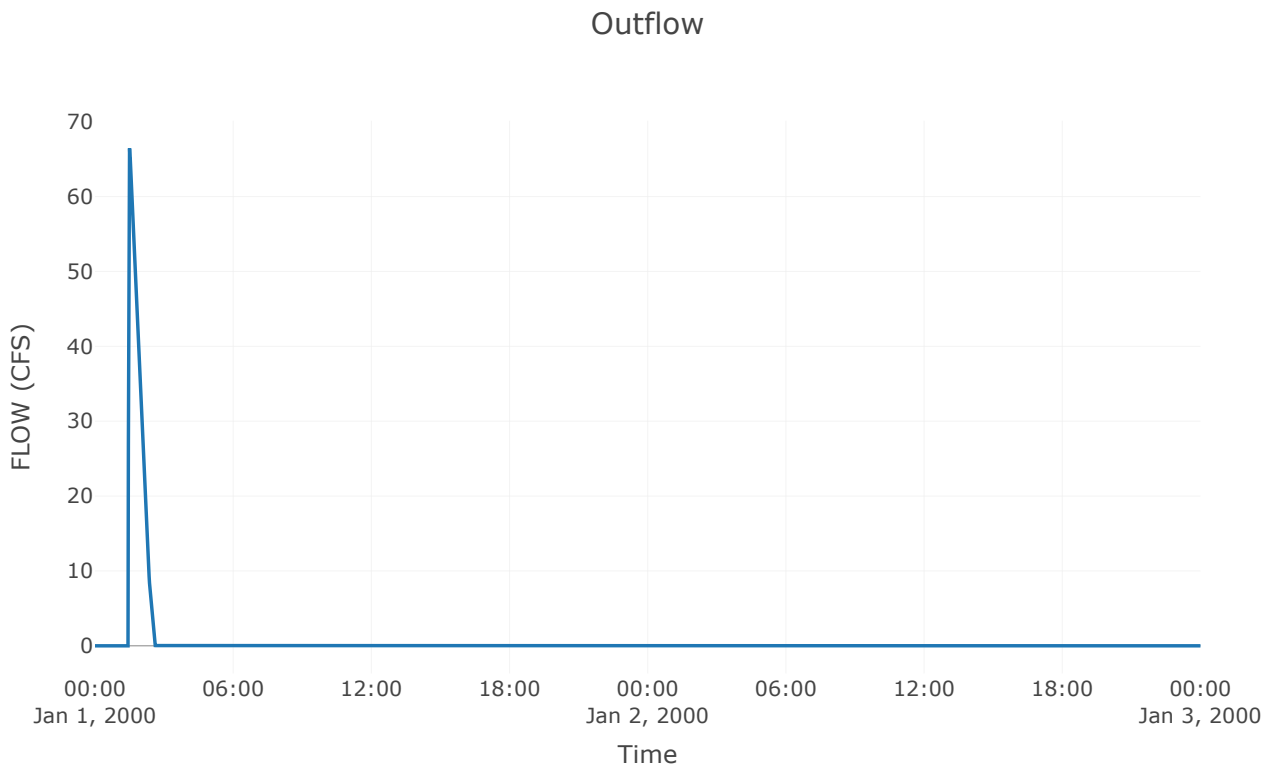
Results: 55th Street Outlet	
Peak Discharge (CFS)	80.46
Time of Peak Discharge	01Jan2000, 01:18
Volume (IN)	0.27

Combined Inflow



Cumulative Outflow




Outflow
70
60
50
40
30
20
10
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Project: Development_Template
Simulation Run: 100YR__1HR
Simulation Start: 31 December 1999, 24:00
Simulation End: 2 January 2000, 24:00

HMS Version: 4.12
Executed: 14 March 2025, 15:44

Global Parameter Summary - Subbasin

Area (MI2)

Element Name	Area (MI2)
On - Site Trib 1	0.03
Off - Site Trib 1 South	0
Off - Site Trib 1 West	0
On - Site Trib 2	0.02
Off - Site Trib2	0.01
On - Site Trib - Area 3	0.01
LaGrange Highlands Off - Site	0.2
Prop On - Site	0

Downstream

Element Name	Downstream
On - Site Trib 1	Basin 1
Off - Site Trib 1 South	Basin 1
Off - Site Trib 1 West	Basin 1
On - Site Trib 2	Basin 2
Off - Site Trib2	Basin 2
On - Site Trib - Area 3	Basin 3
LaGrange Highlands Off - Site	Off - Site Tributary Area
Prop On - Site	Proposed Basin C

Loss Rate: Scs

Element Name	Percent Impervious Area	Curve Number
On - Site Trib 1	0	86
Off - Site Trib 1 South	0	80
Off - Site Trib 1 West	0	83
On - Site Trib 2	0	83
Off - Site Trib2	0	83
On - Site Trib - Area 3	0	83
LaGrange Highlands Off - Site	0	86
Prop On - Site	0	88.03

Transform: Scs

Element Name	Lag	Unitgraph Type
On - Site Trib 1	21	Standard
Off - Site Trib 1 South	6	Standard
Off - Site Trib 1 West	12	Standard
On - Site Trib 2	20.4	Standard
Off - Site Trib2	12	Standard
On - Site Trib - Area 3	21	Standard
LaGrange Highlands Off - Site	29.2	Standard
Prop On - Site	6	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
On - Site Trib 1	0.03	58.05	01Jan2000, 00:38	2.57
Off - Site Trib 1 South	0	6.25	01Jan2000, 00:21	2.07
Off - Site Trib 1 West	0	4.91	01Jan2000, 00:27	2.31
Basin 1	0.03	6.25	01Jan2000, 01:34	2.51
On - Site Trib 2	0.02	32.72	01Jan2000, 00:39	2.31
Off - Site Trib2	0.01	12.85	01Jan2000, 00:27	2.31
Basin 2	0.05	4.79	01Jan2000, 05:38	2.42
On - Site Trib - Area 3	0.01	23.74	01Jan2000, 00:39	2.31
LaGrange Highlands Off - Site	0.2	358.51	01Jan2000, 00:49	2.57
Basin 3	0.07	3.52	01Jan2000, 15:36	2.2
Off - Site Tributary Area	0.27	359.61	01Jan2000, 00:49	2.48
Storage East of Wolf Road	0.27	328.72	01Jan2000, 00:59	2.48
Prop Storage West of Wolf Rd	0.27	329.2	01Jan2000, 00:59	2.48
Prop On - Site	0	13.96	01Jan2000, 00:19	2.76
Proposed Basin C	0.27	213.51	01Jan2000, 01:06	1.12
Existing Basin A & B	0.27	212.2	01Jan2000, 01:09	0.97
Outlet Storm Box	0.27	210.73	01Jan2000, 01:12	0.97

55th Street Outlet	0.27	210.73	01Jan2000, 01:12	0.97

Subbasin: On-Site Trib 1

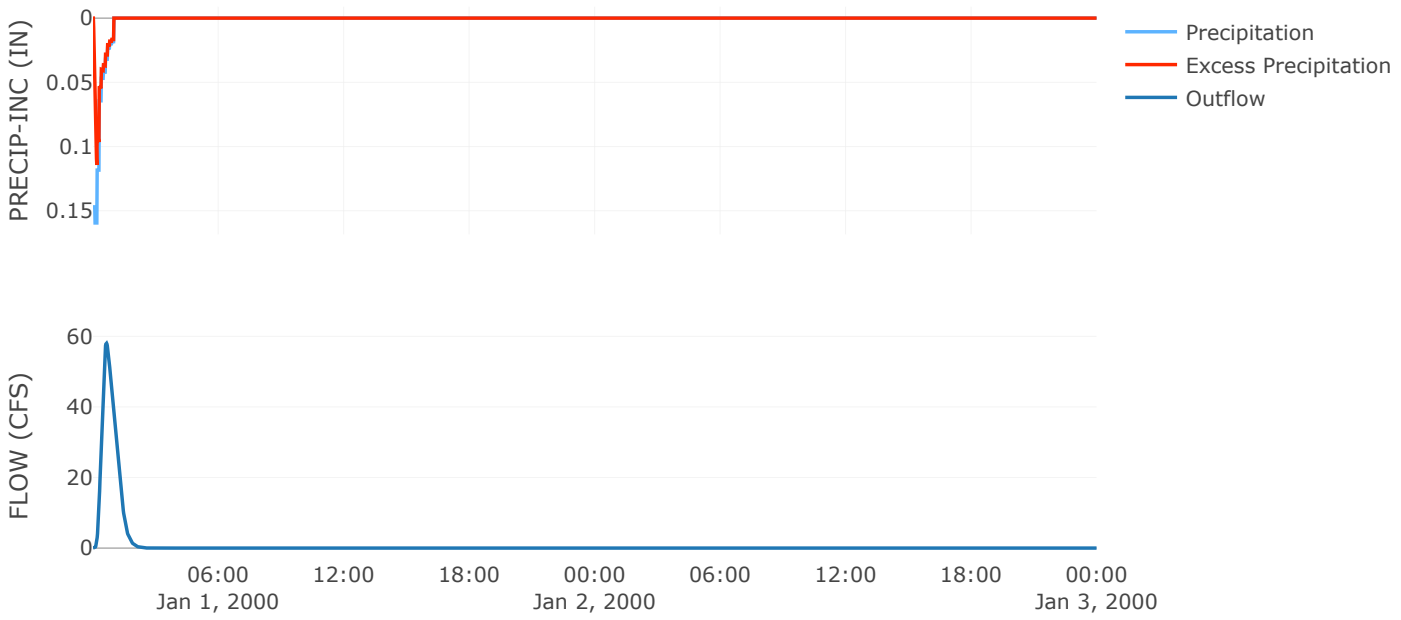
Area (MI2) : 0.03
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	86

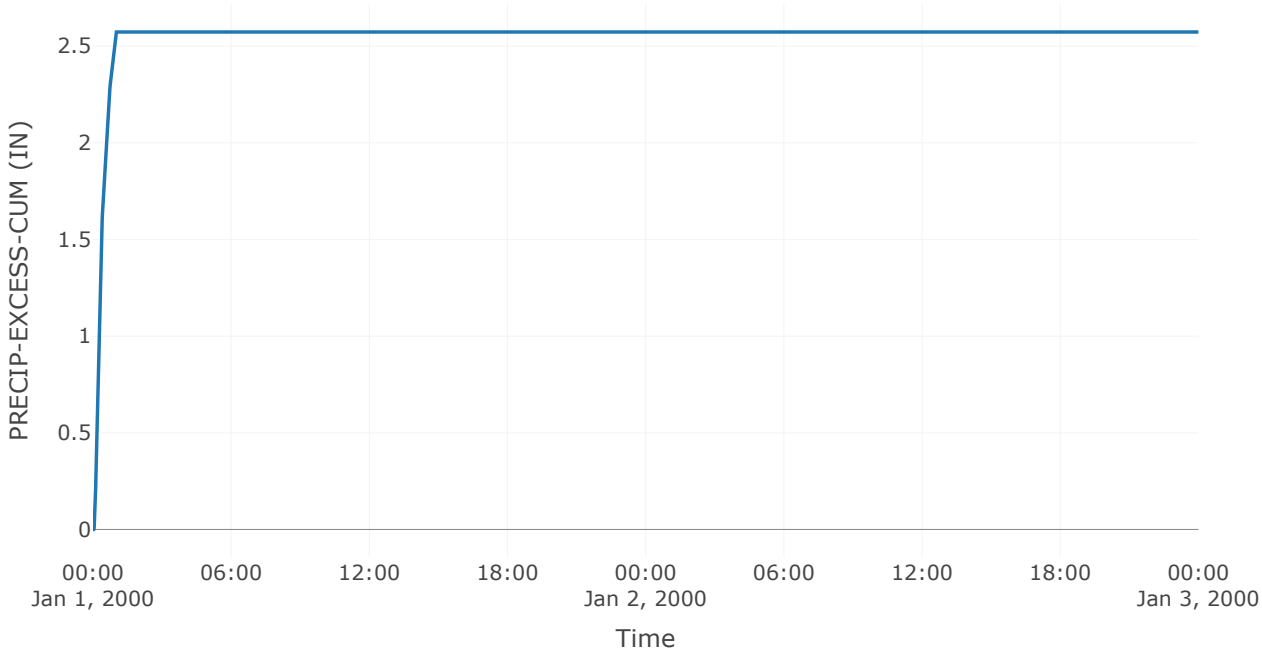
Transform: Scs	
Lag	21
Unitgraph Type	Standard

Results: On-Site Trib 1	
Peak Discharge (CFS)	58.05
Time of Peak Discharge	01Jan2000, 00:38
Volume (IN)	2.57
Precipitation Volume (AC - FT)	5.91
Loss Volume (AC - FT)	2.14
Excess Volume (AC - FT)	3.77
Direct Runoff Volume (AC - FT)	3.77
Baseflow Volume (AC - FT)	0

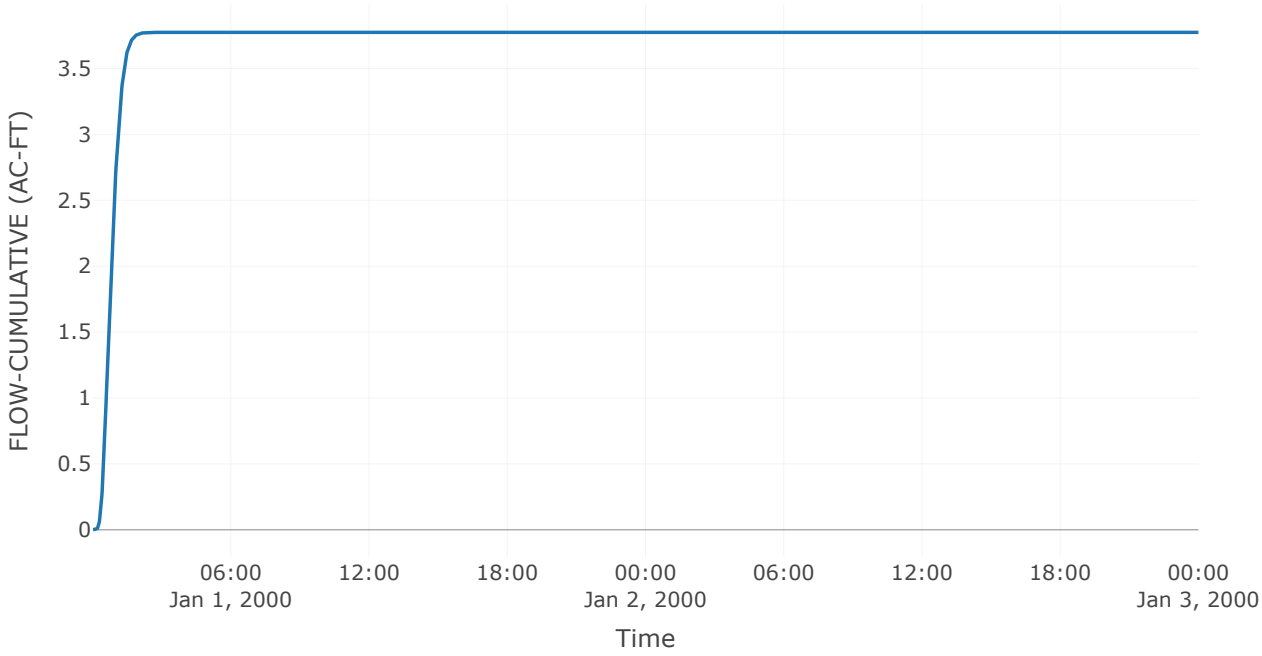
Precipitation and Outflow



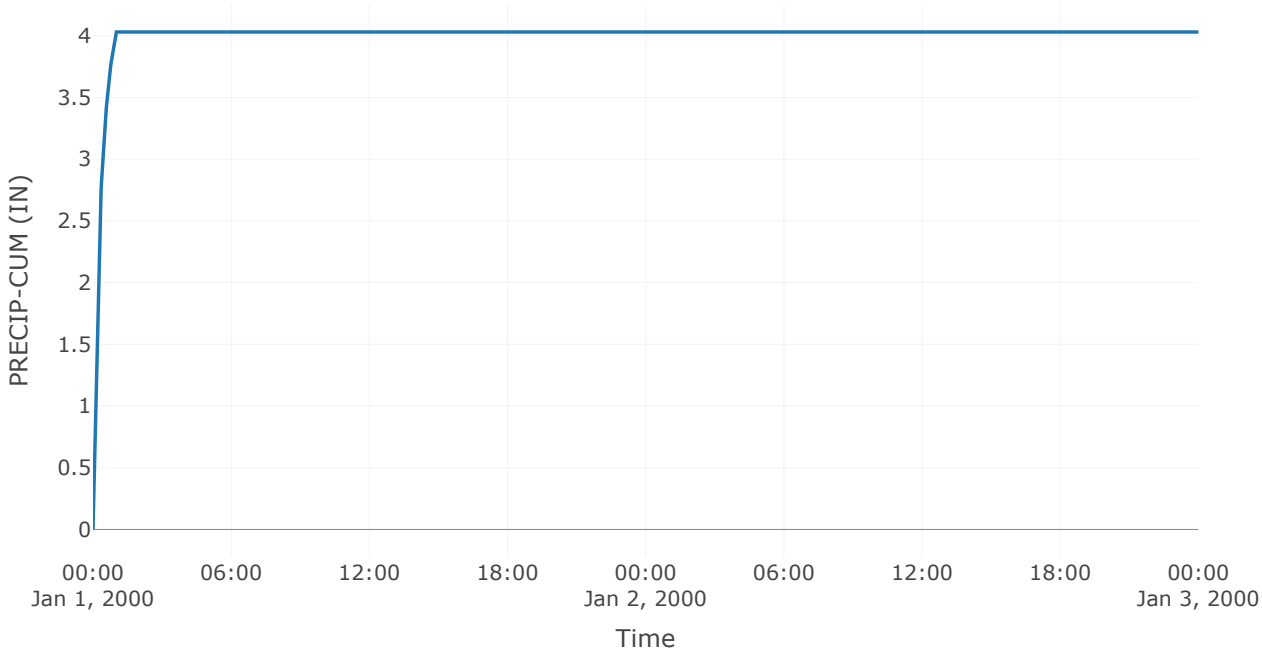
Cumulative Excess Precipitation



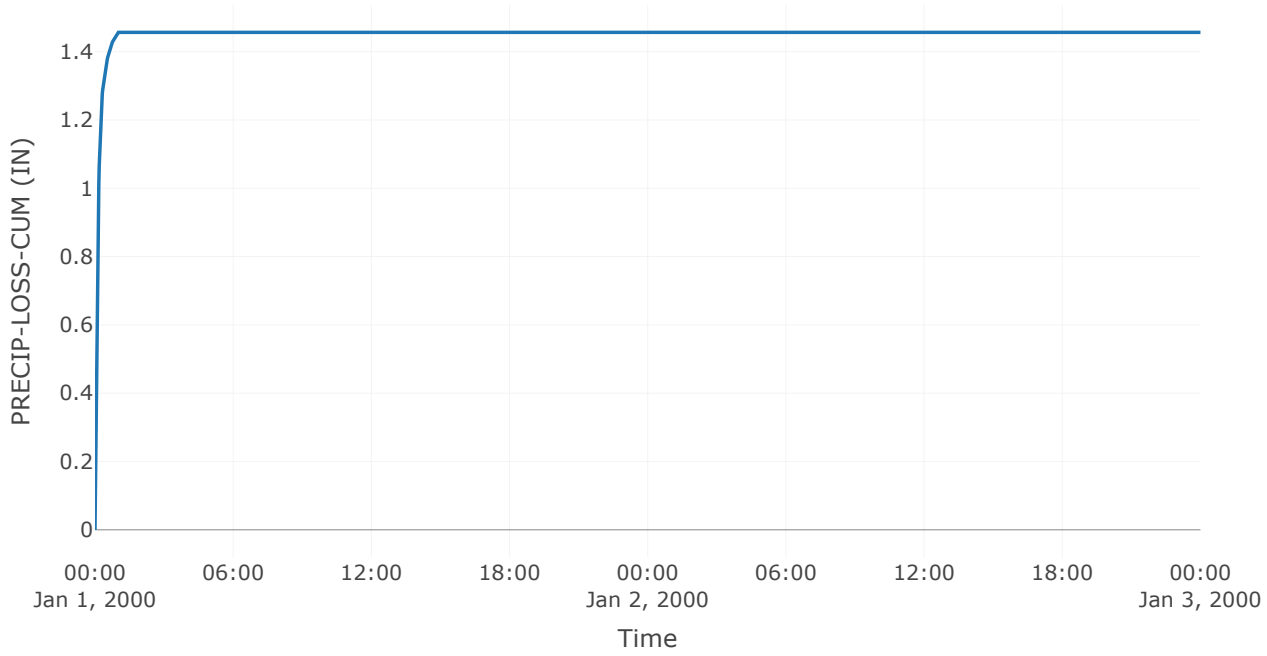
Cumulative Outflow



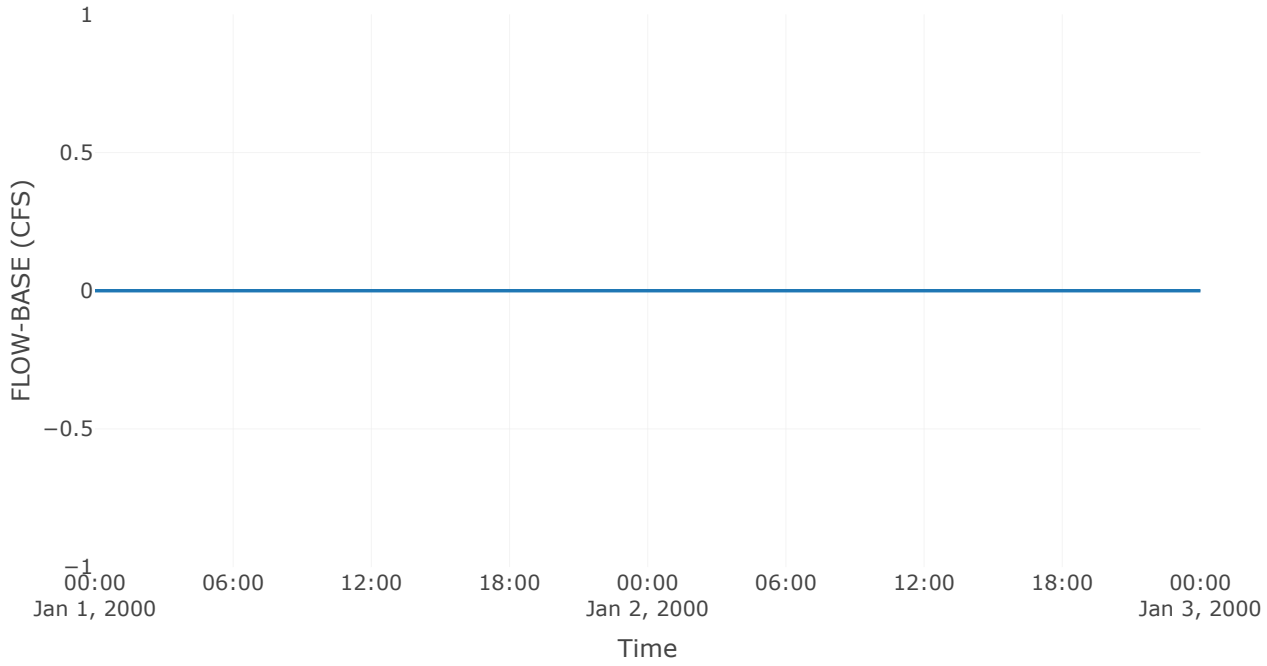
Cumulative Precipitation



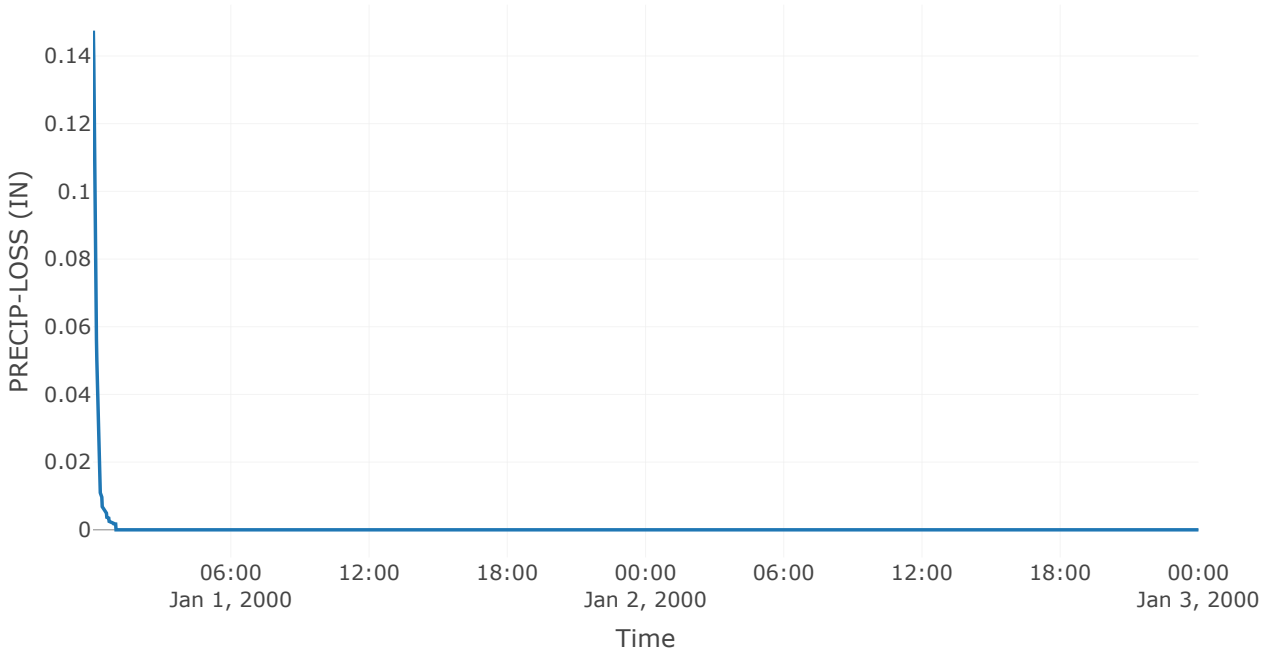
Cumulative Precipitation Loss



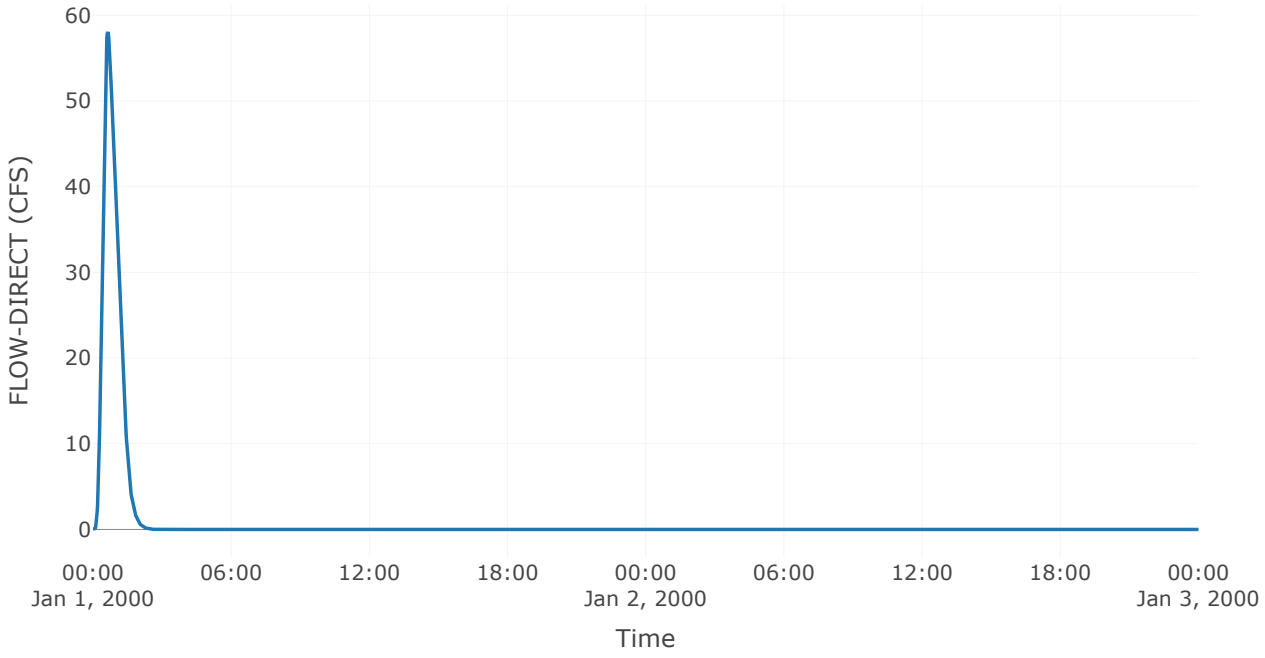
Baseflow

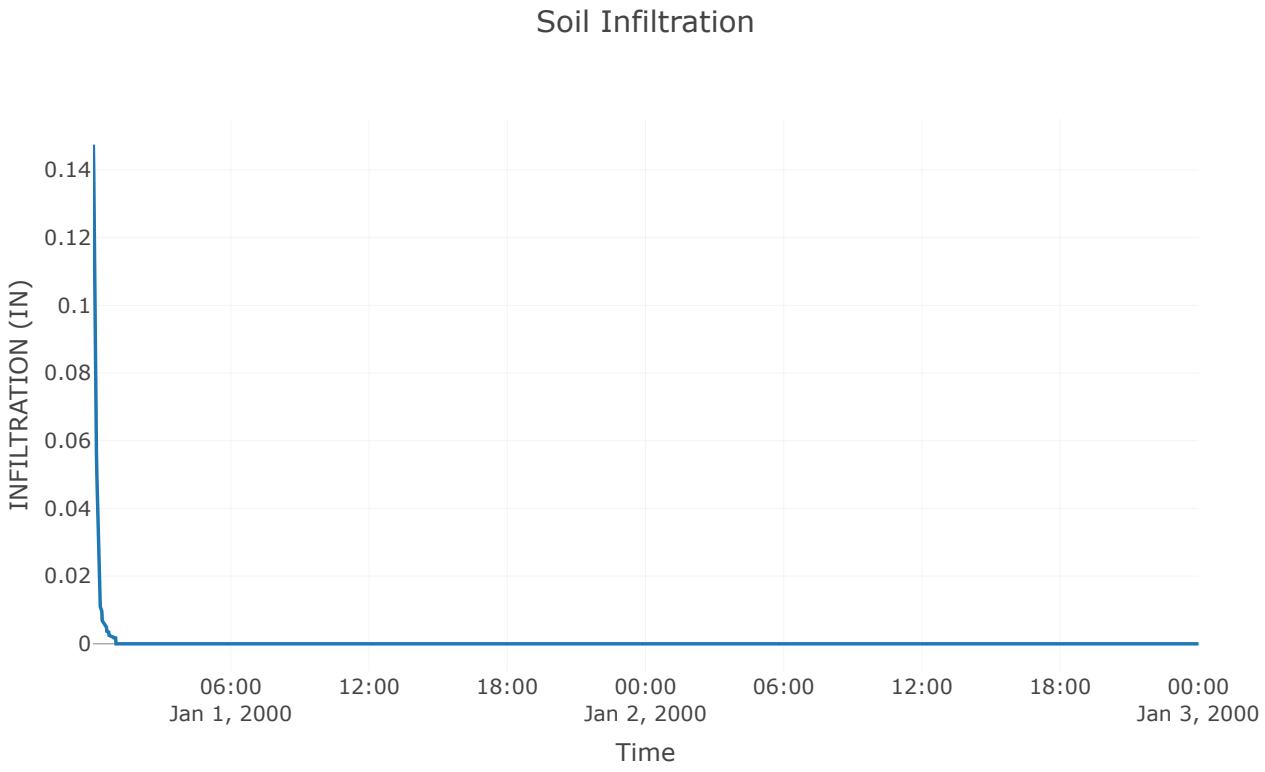


Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib 1 South

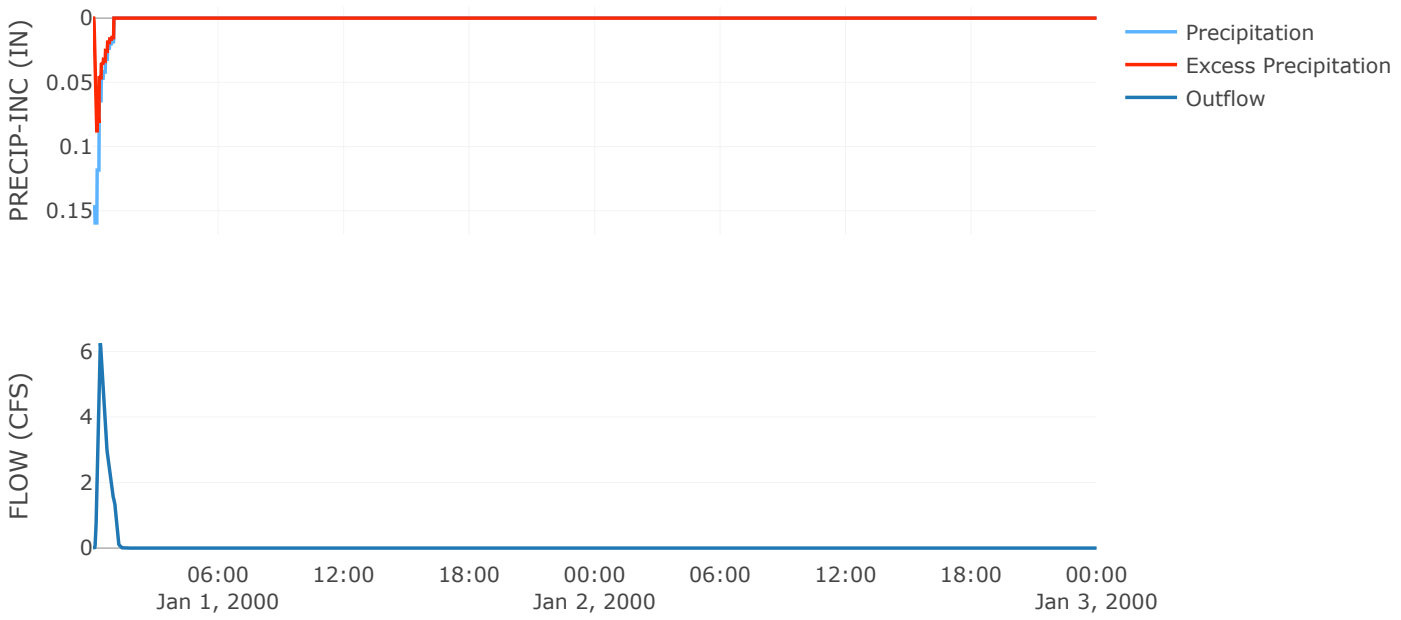
Area (MI2) : 0
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	80

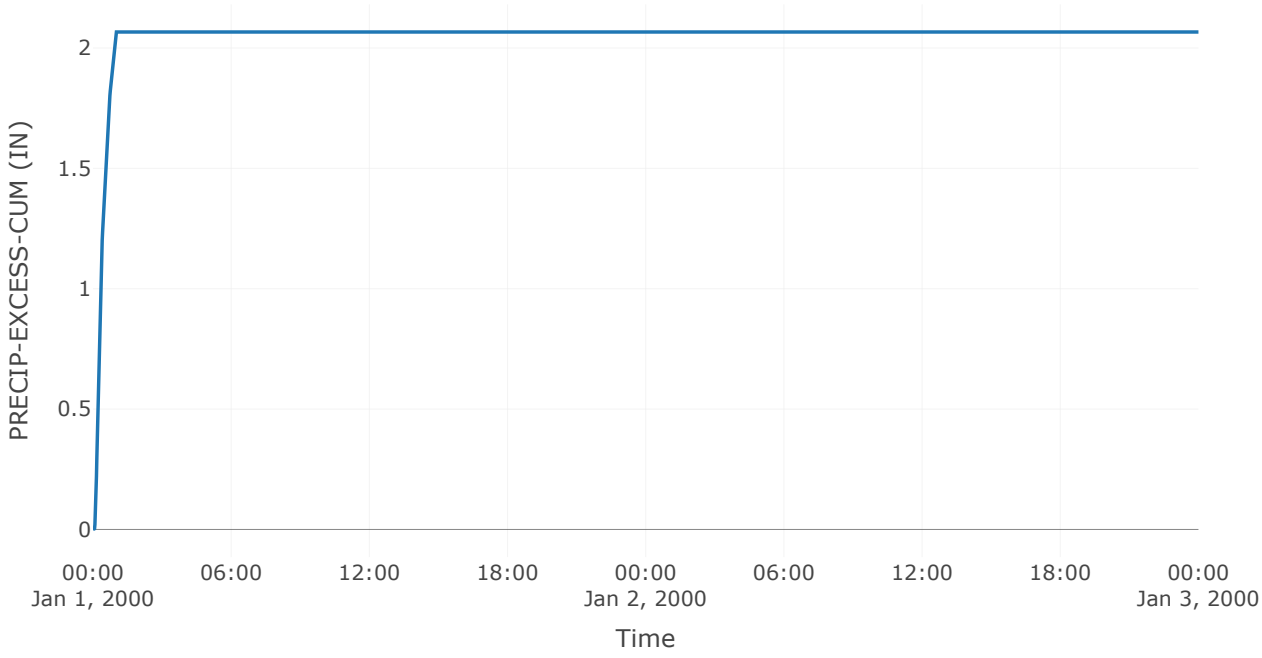
Transform: Scs	
Lag	6
Unitgraph Type	Standard

Results: Off-Site Trib 1 South	
Peak Discharge (CFS)	6.25
Time of Peak Discharge	01Jan2000, 00:21
Volume (IN)	2.07
Precipitation Volume (AC - FT)	0.5
Loss Volume (AC - FT)	0.25
Excess Volume (AC - FT)	0.26
Direct Runoff Volume (AC - FT)	0.26
Baseflow Volume (AC - FT)	0

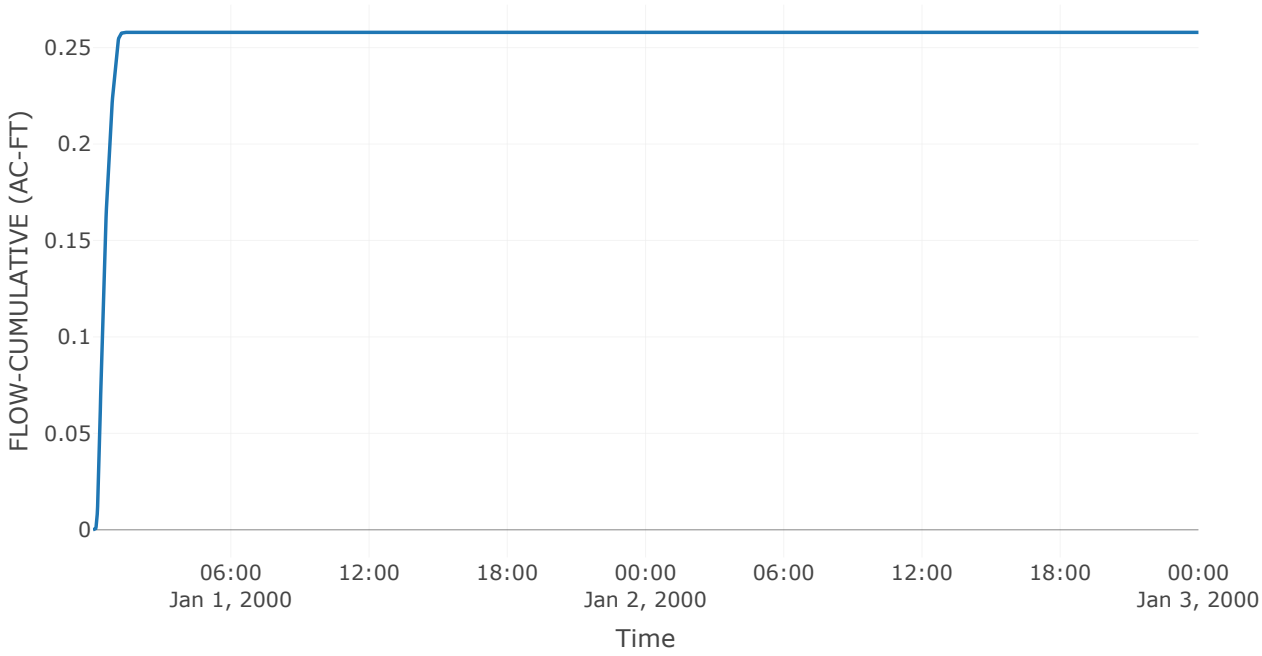
Precipitation and Outflow



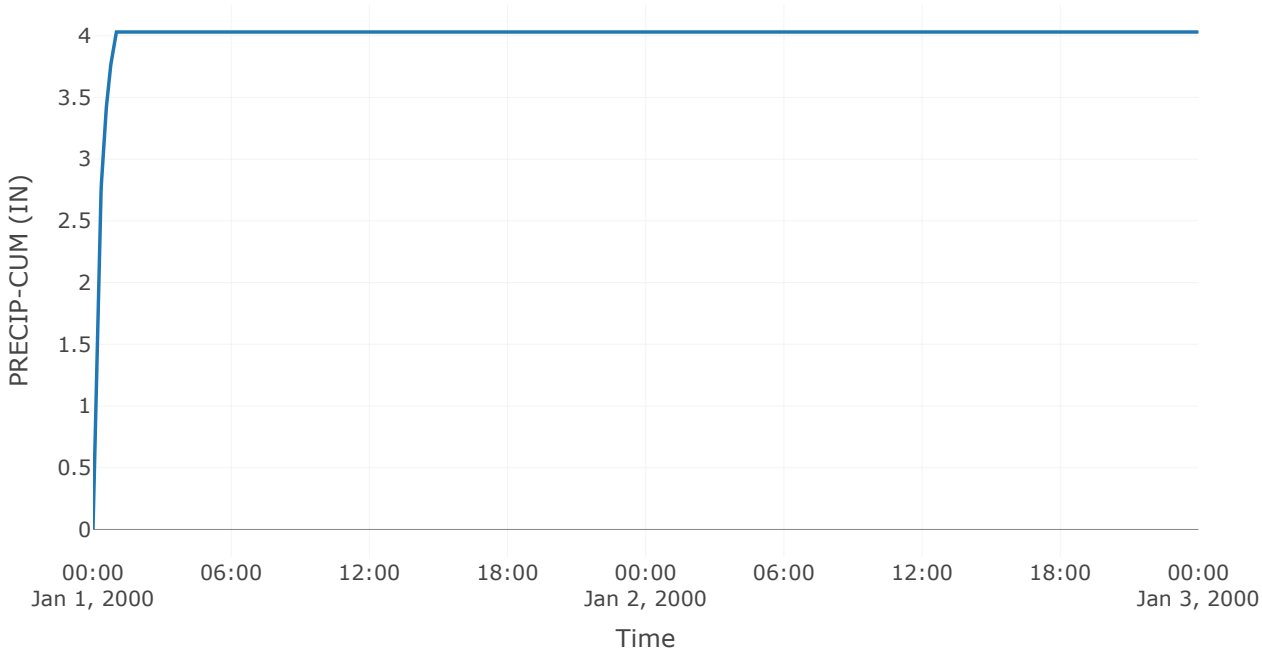
Cumulative Excess Precipitation

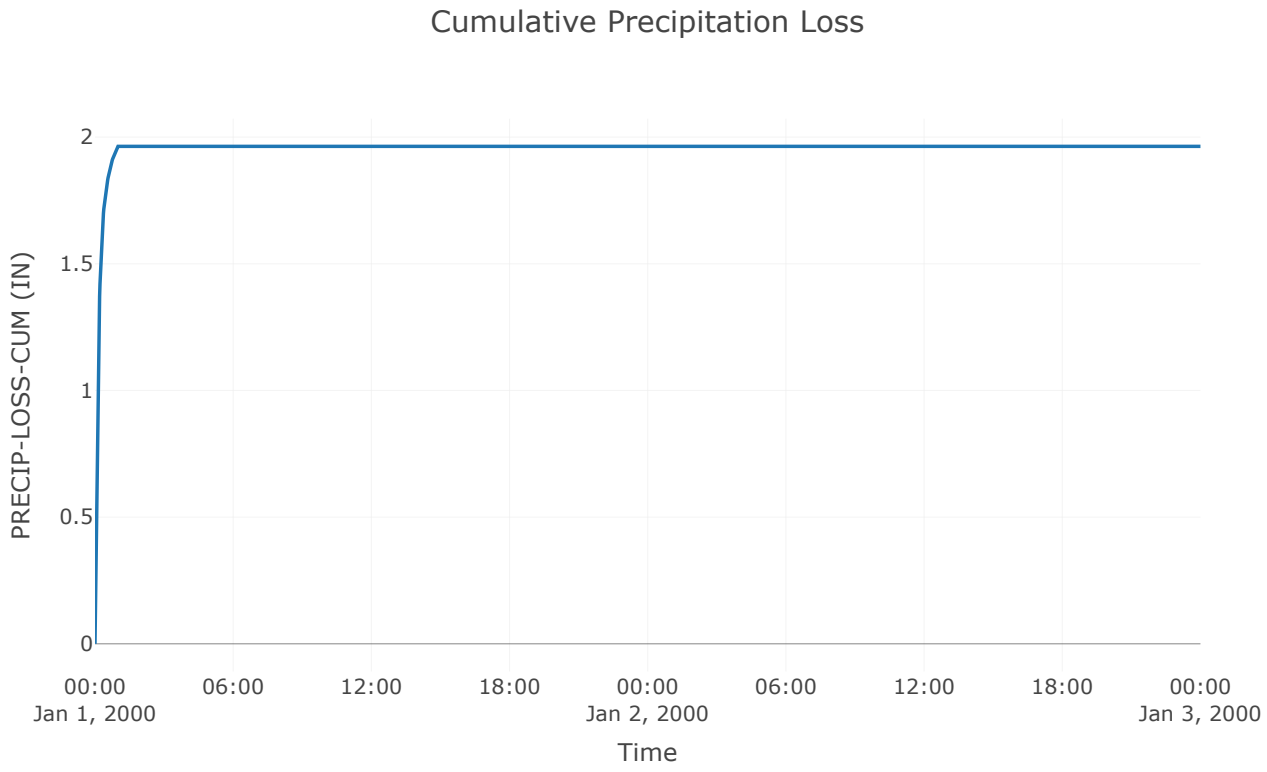


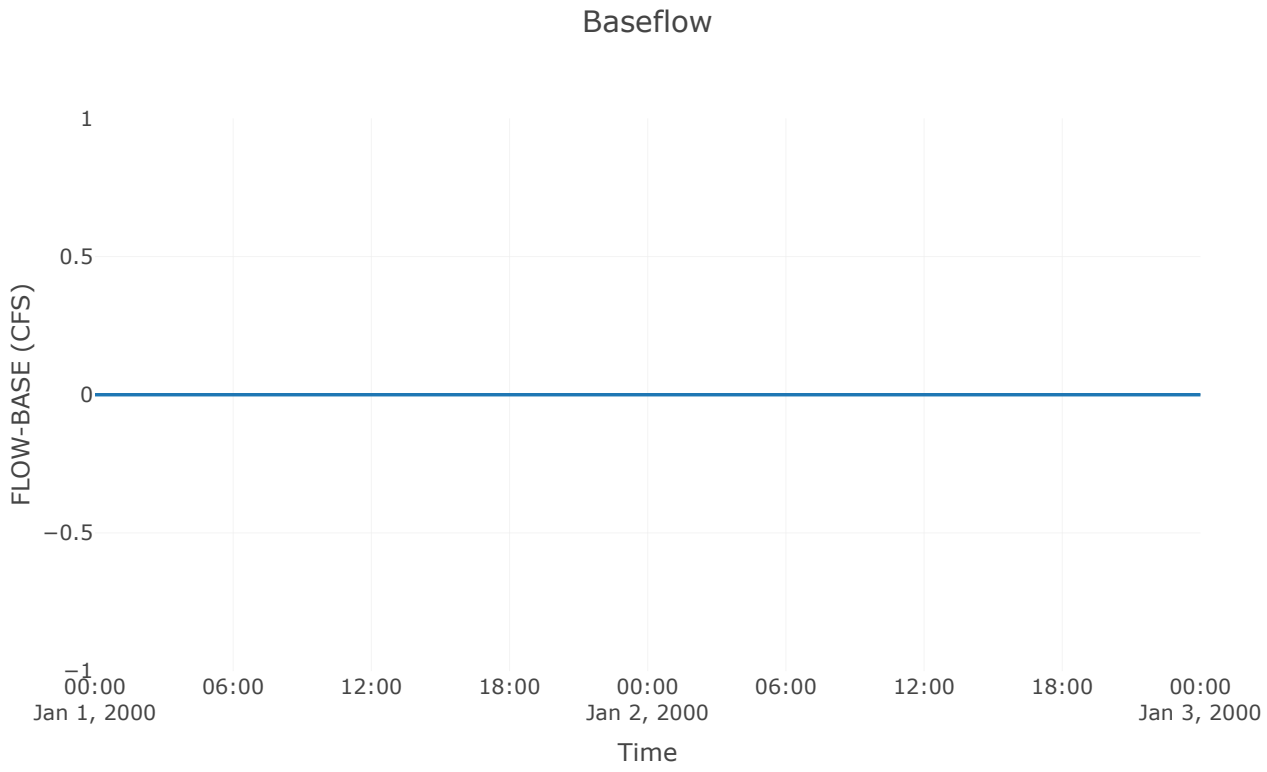
Cumulative Outflow



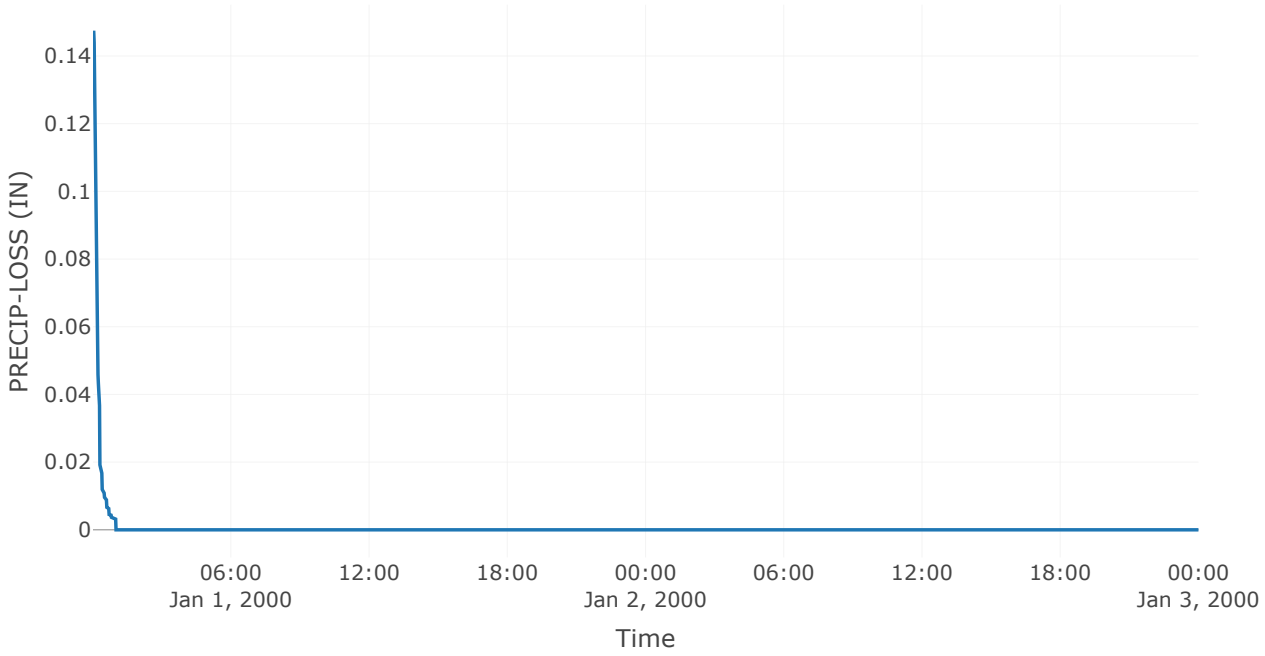
Cumulative Precipitation



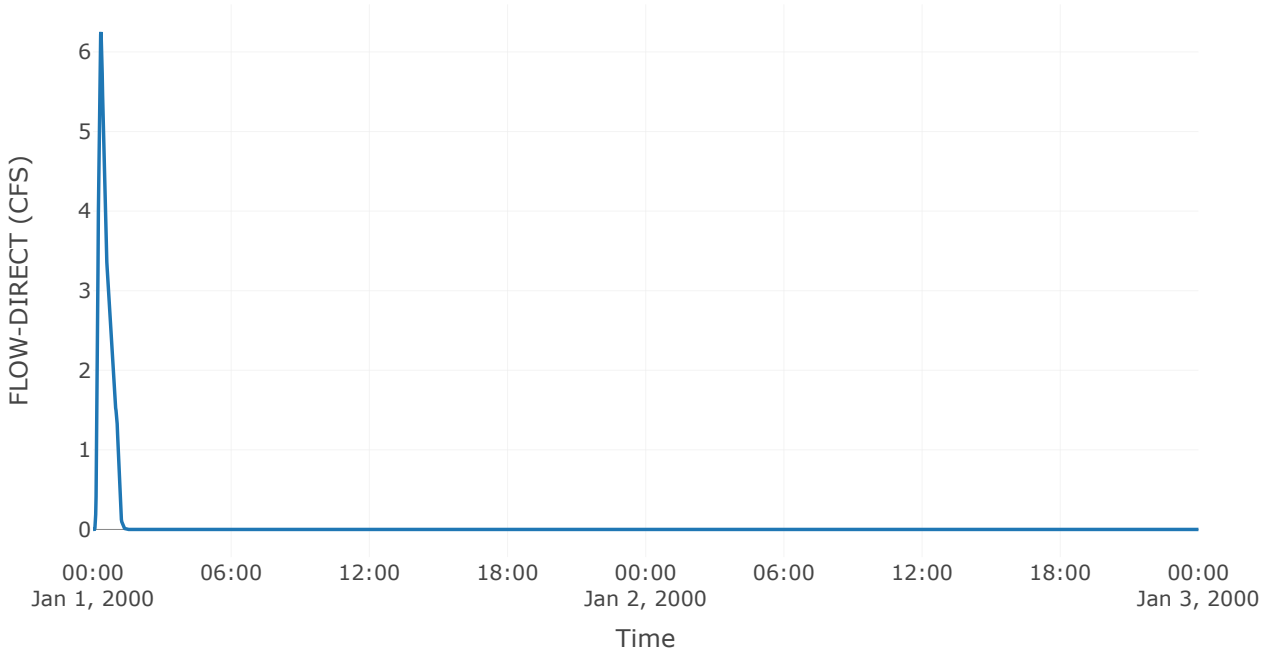

Cumulative Precipitation Loss
PRECIP-LOSS-CUM (IN)
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

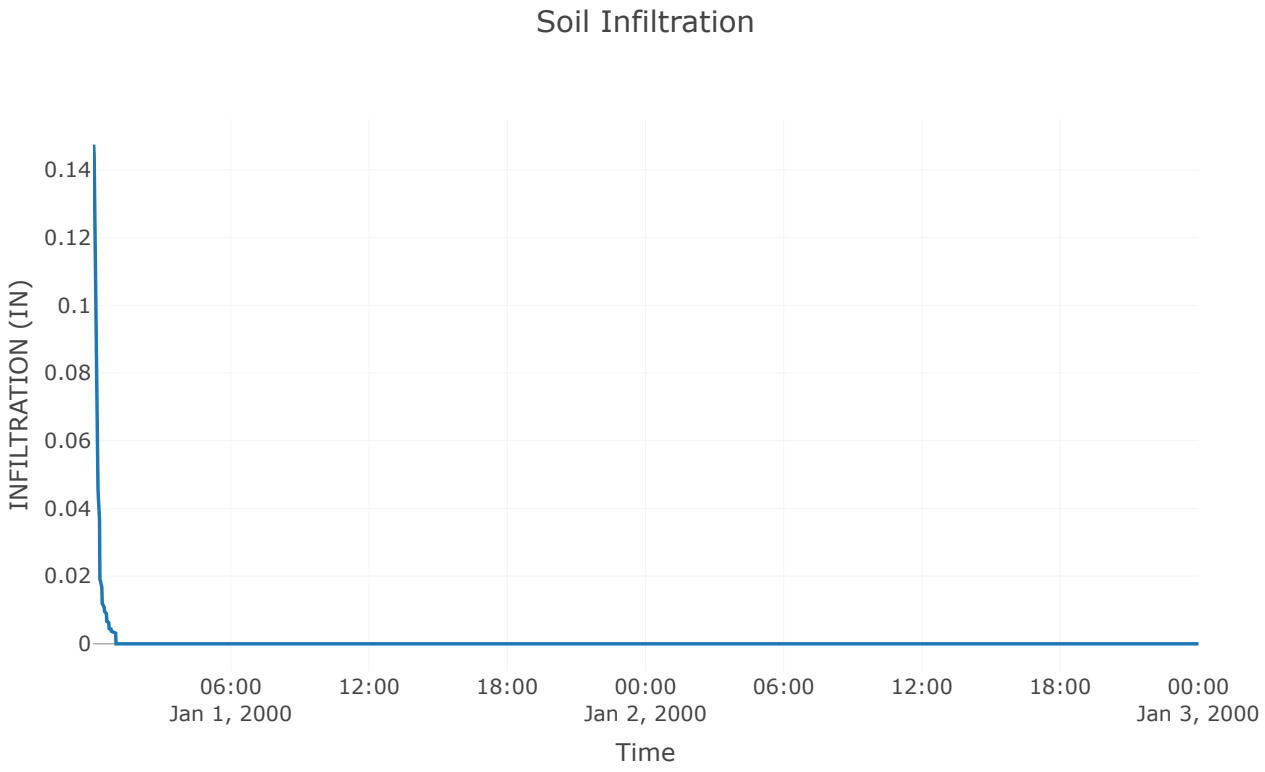

Baseflow
FLOW-BASE (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib 1 West

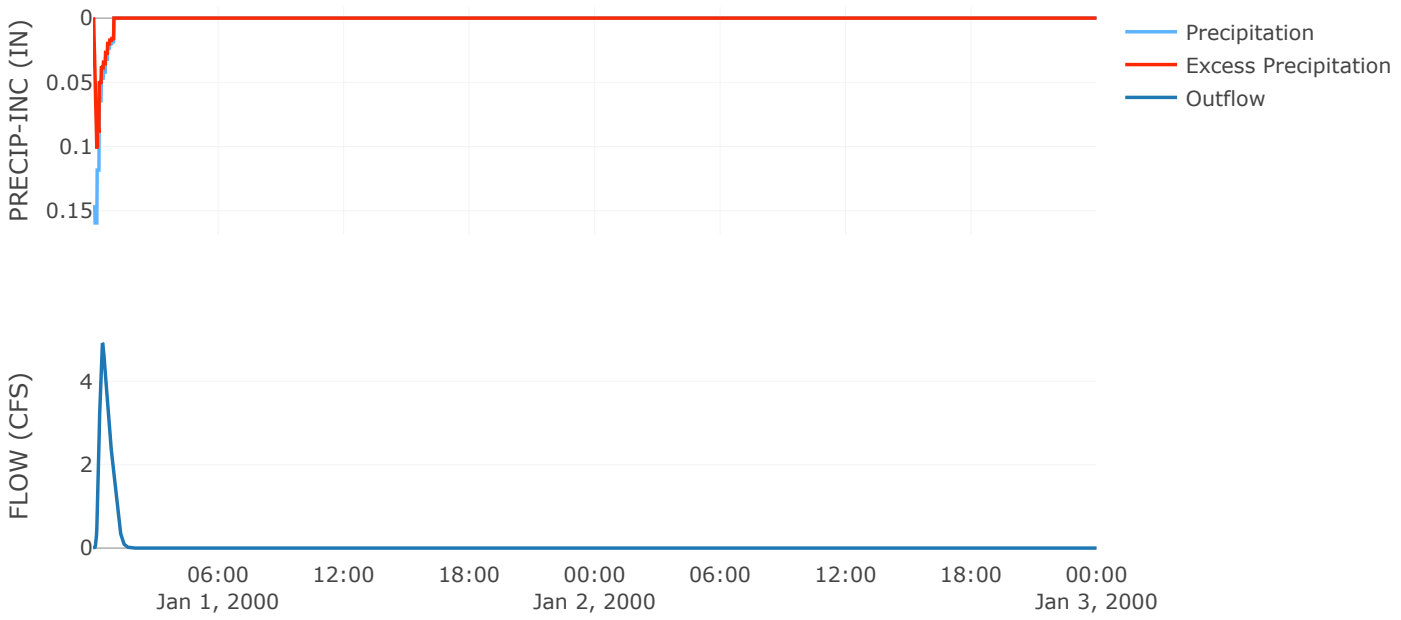
Area (MI2) : 0
Downstream : Basin 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

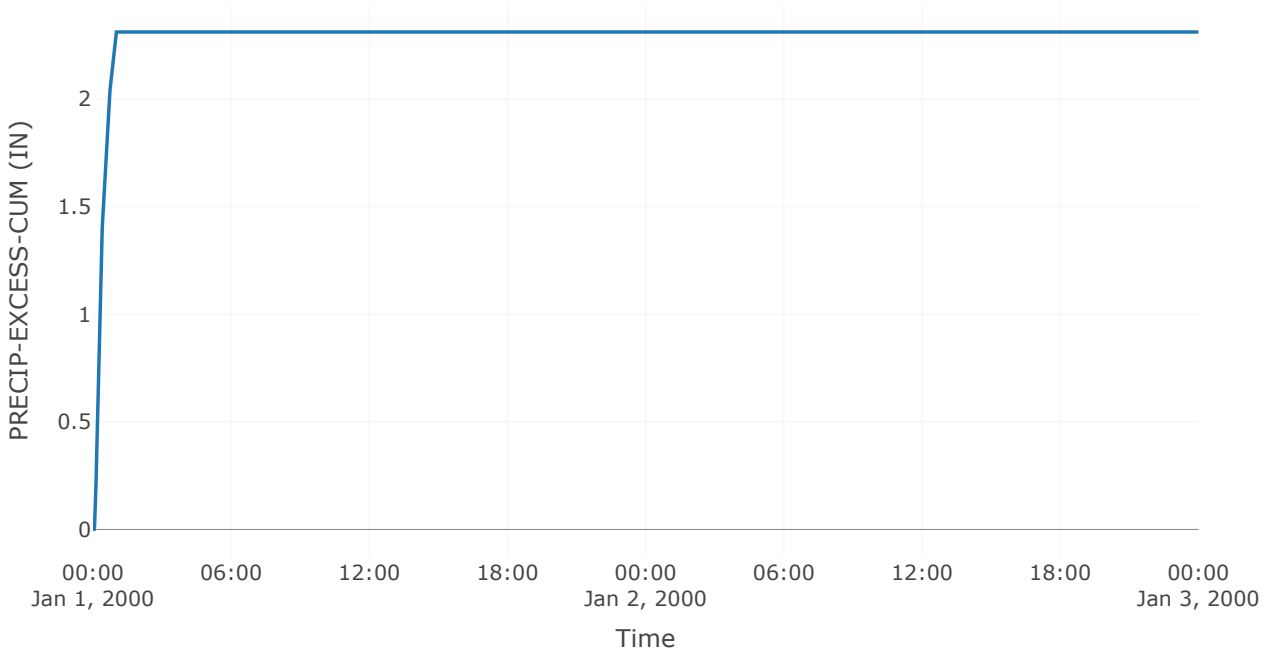
Transform: Scs	
Lag	12
Unitgraph Type	Standard

Results: Off-Site Trib 1 West	
Peak Discharge (CFS)	4.91
Time of Peak Discharge	01Jan2000, 00:27
Volume (IN)	2.31
Precipitation Volume (AC - FT)	0.44
Loss Volume (AC - FT)	0.19
Excess Volume (AC - FT)	0.25
Direct Runoff Volume (AC - FT)	0.25
Baseflow Volume (AC - FT)	0

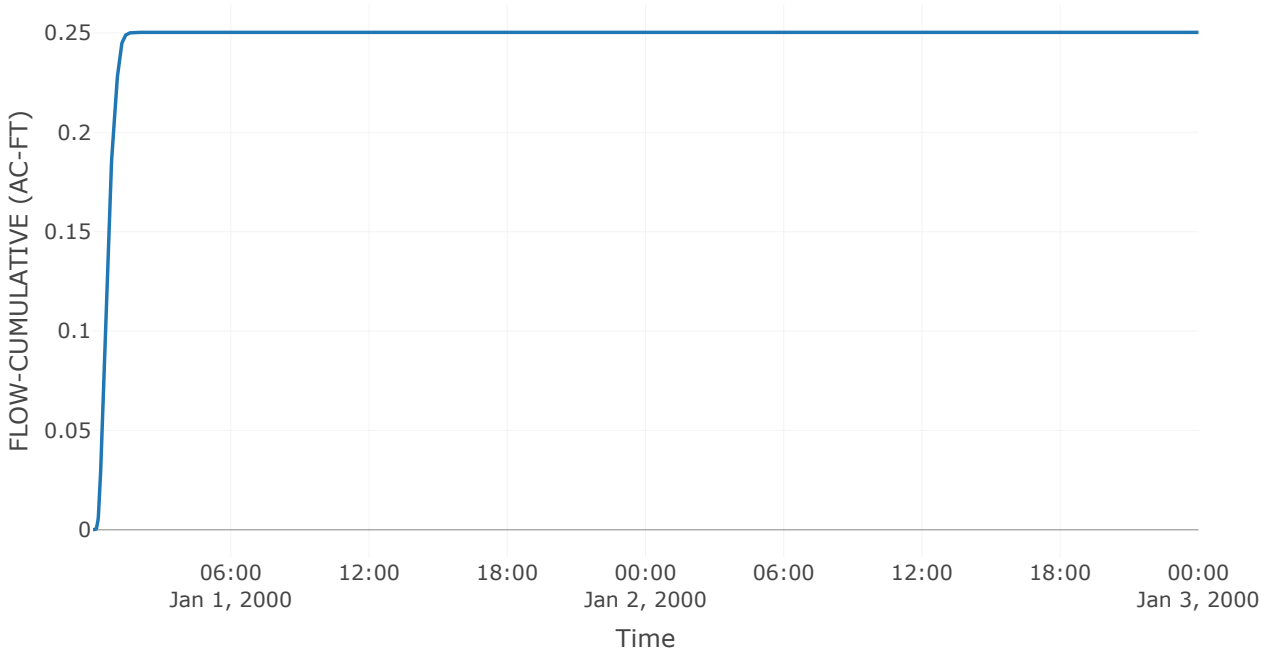
Precipitation and Outflow



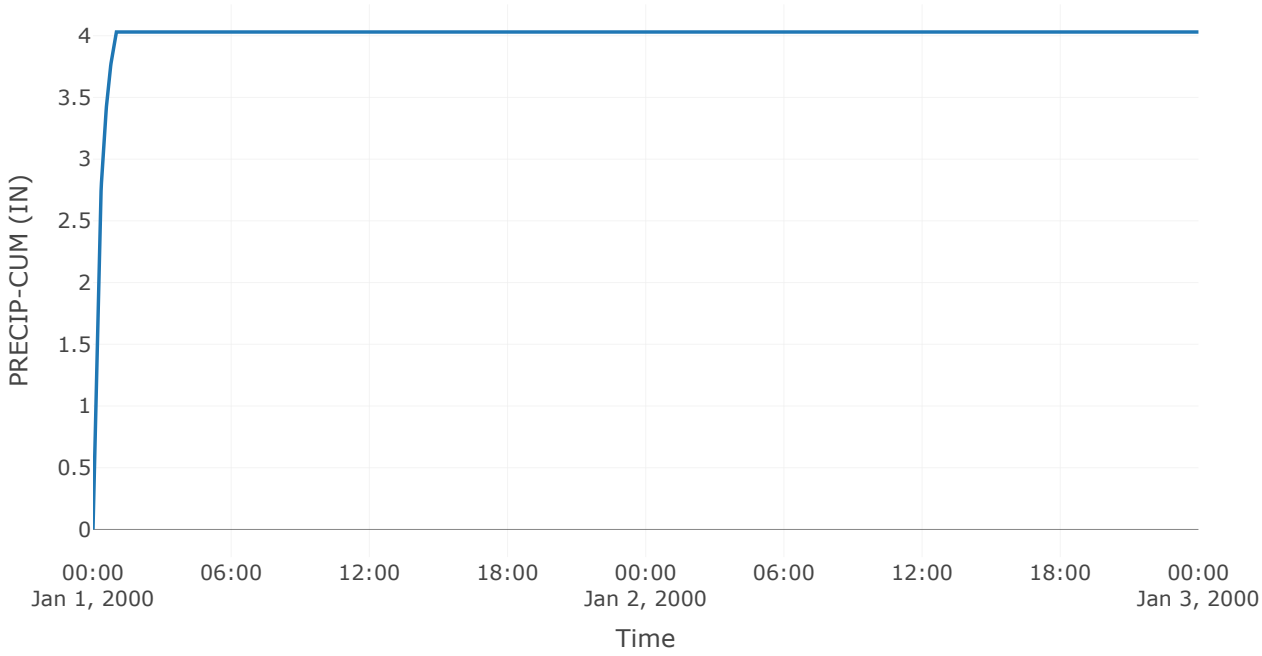
Cumulative Excess Precipitation



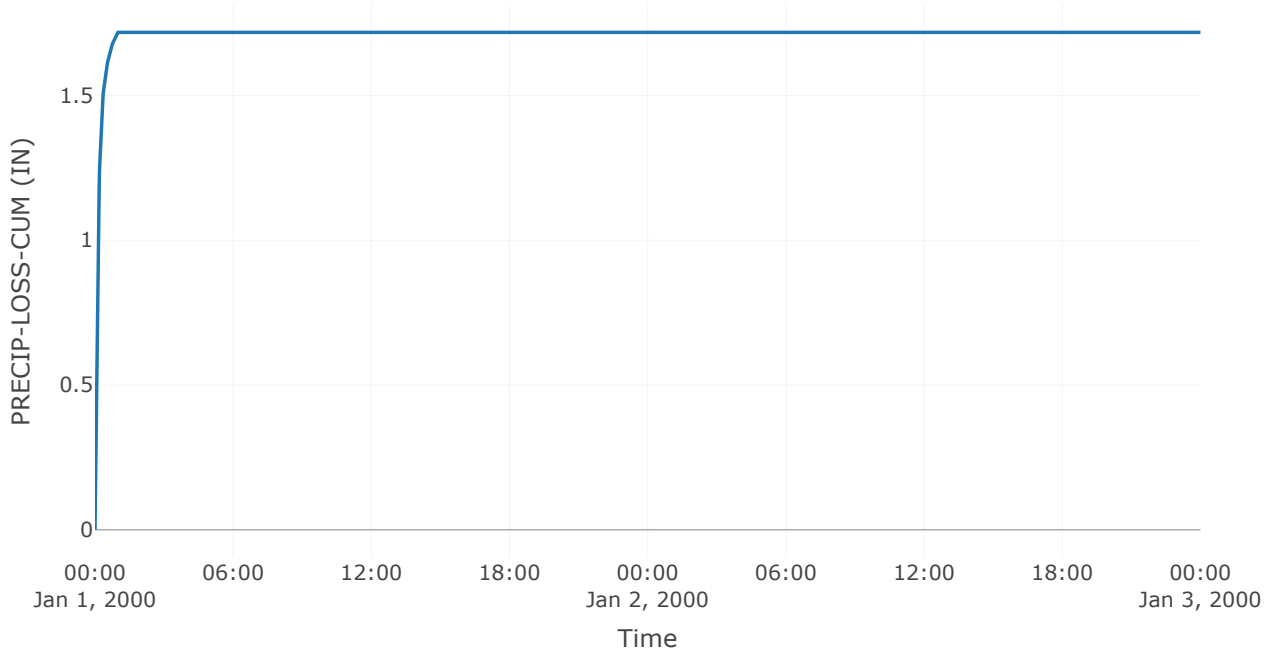
Cumulative Outflow



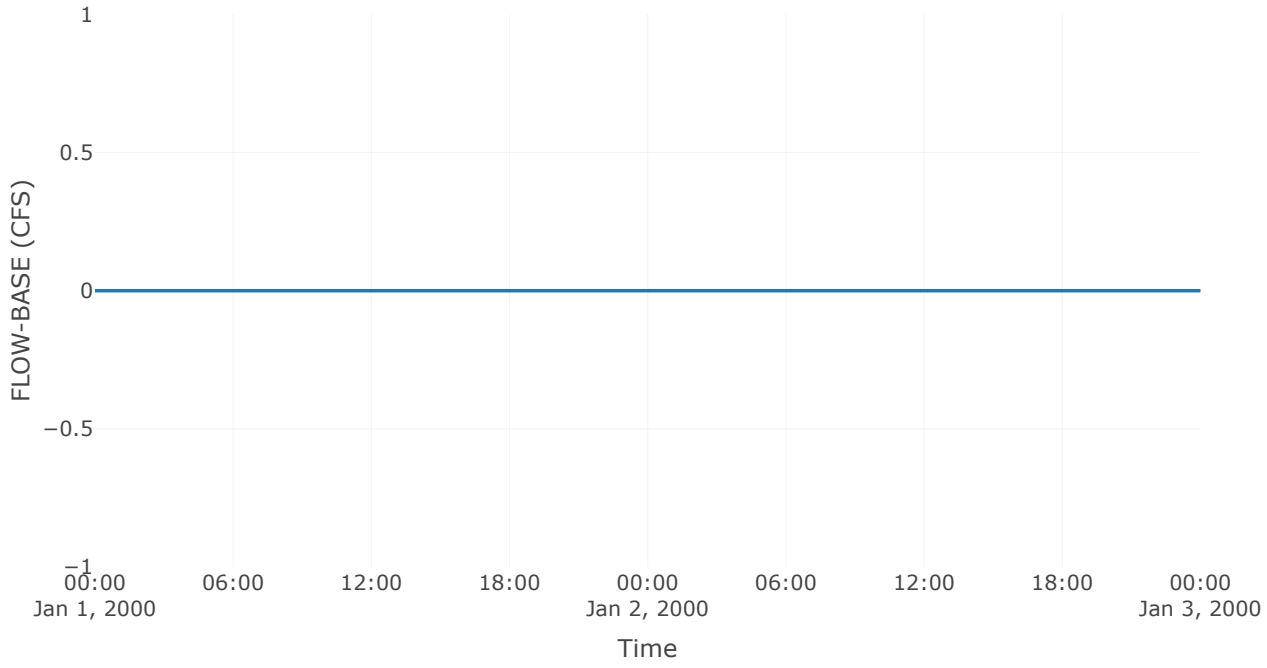
Cumulative Precipitation



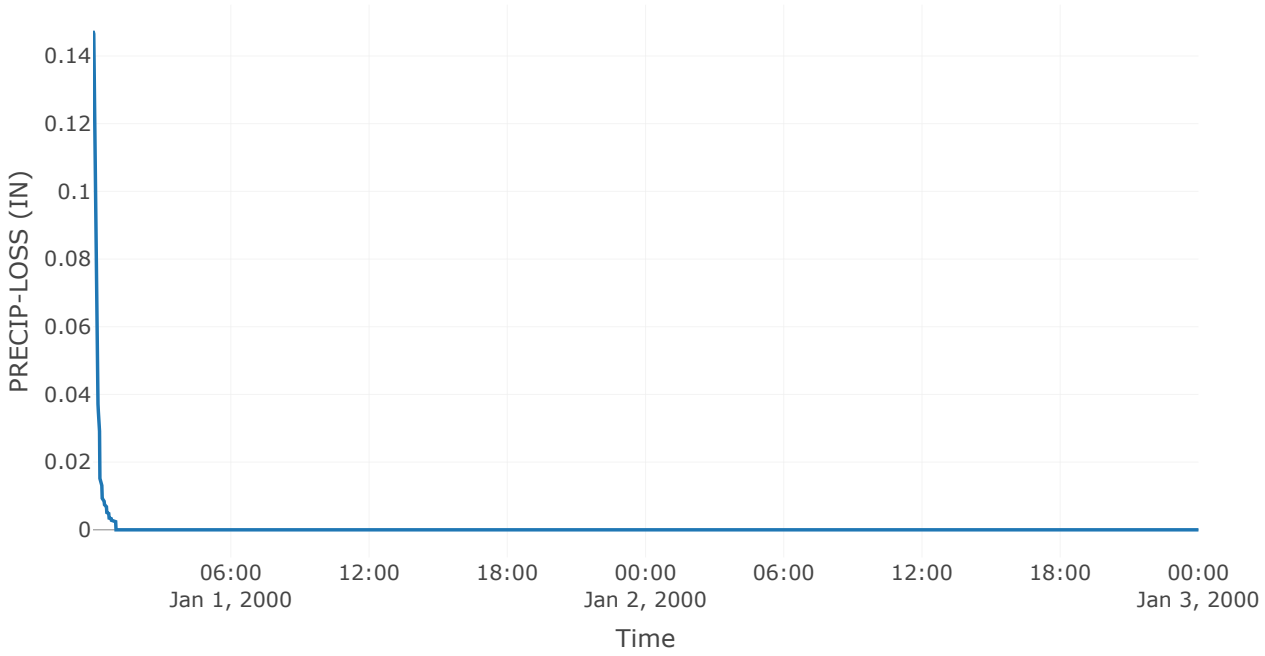
Cumulative Precipitation Loss



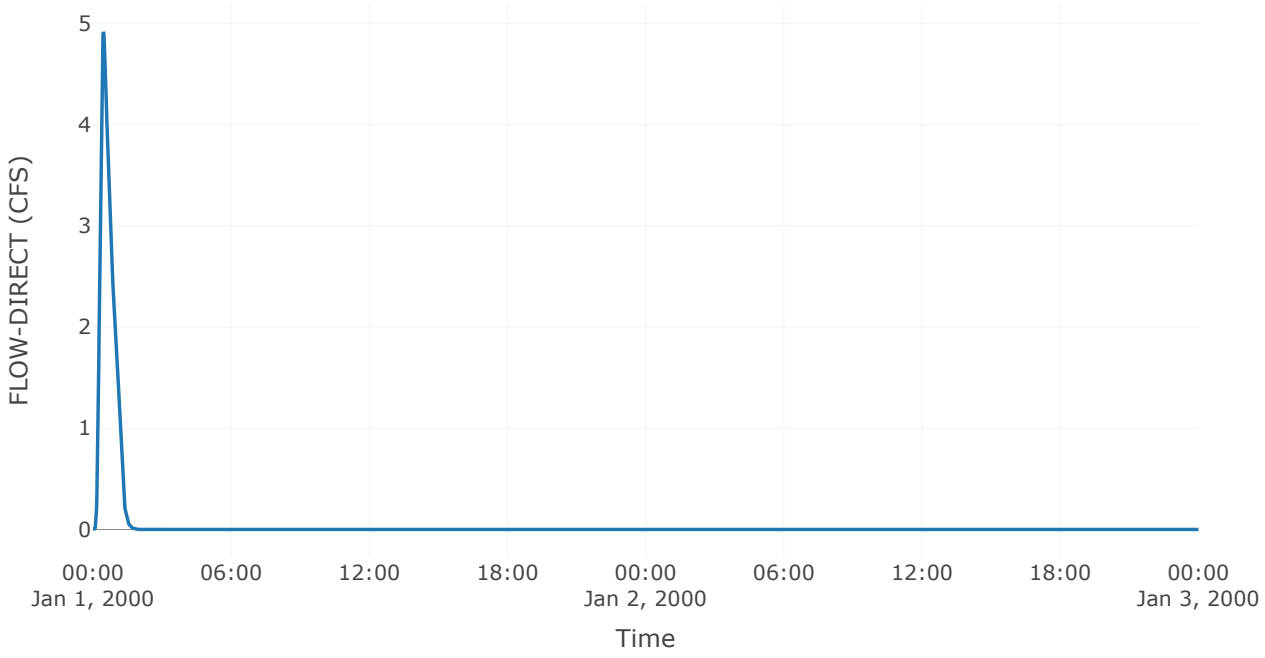
Baseflow

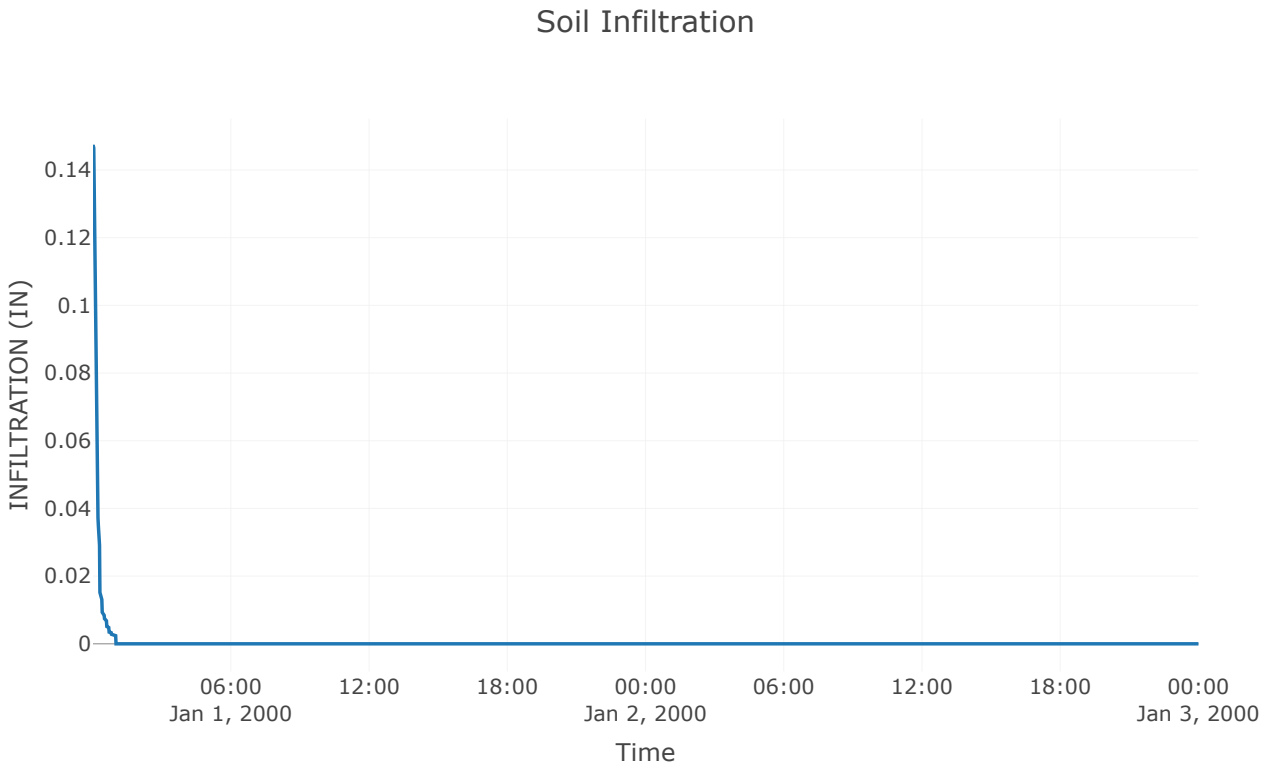


Precipitation Loss



Direct Runoff



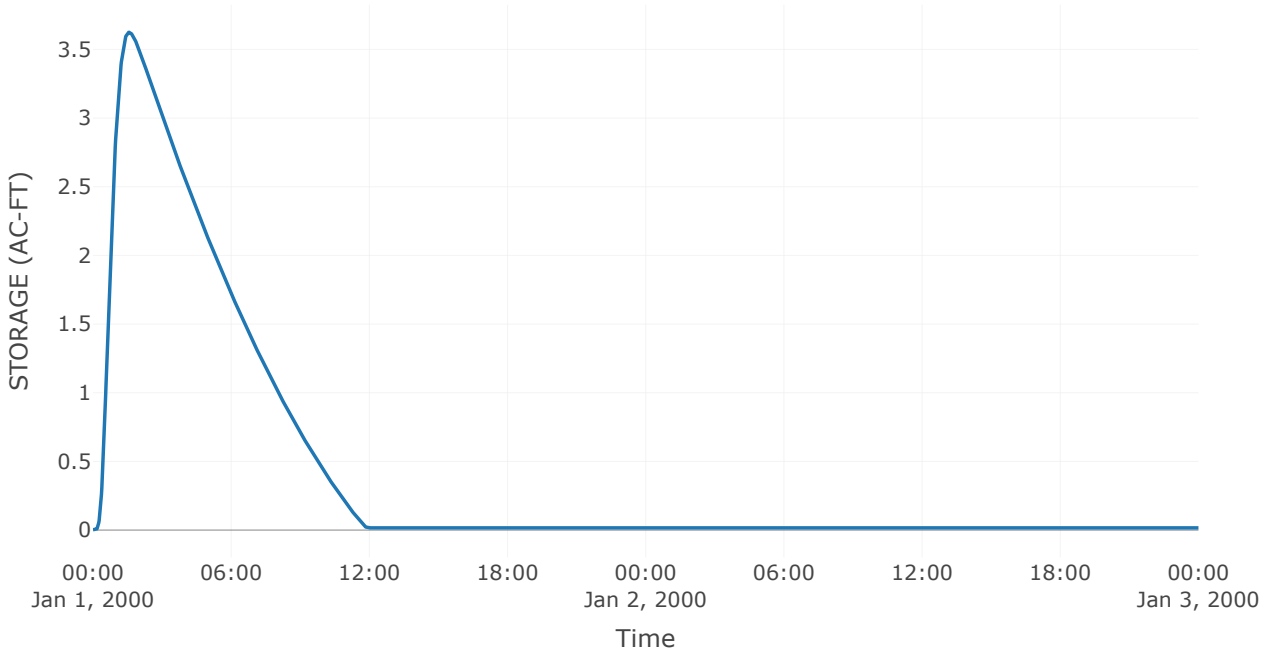

Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 1

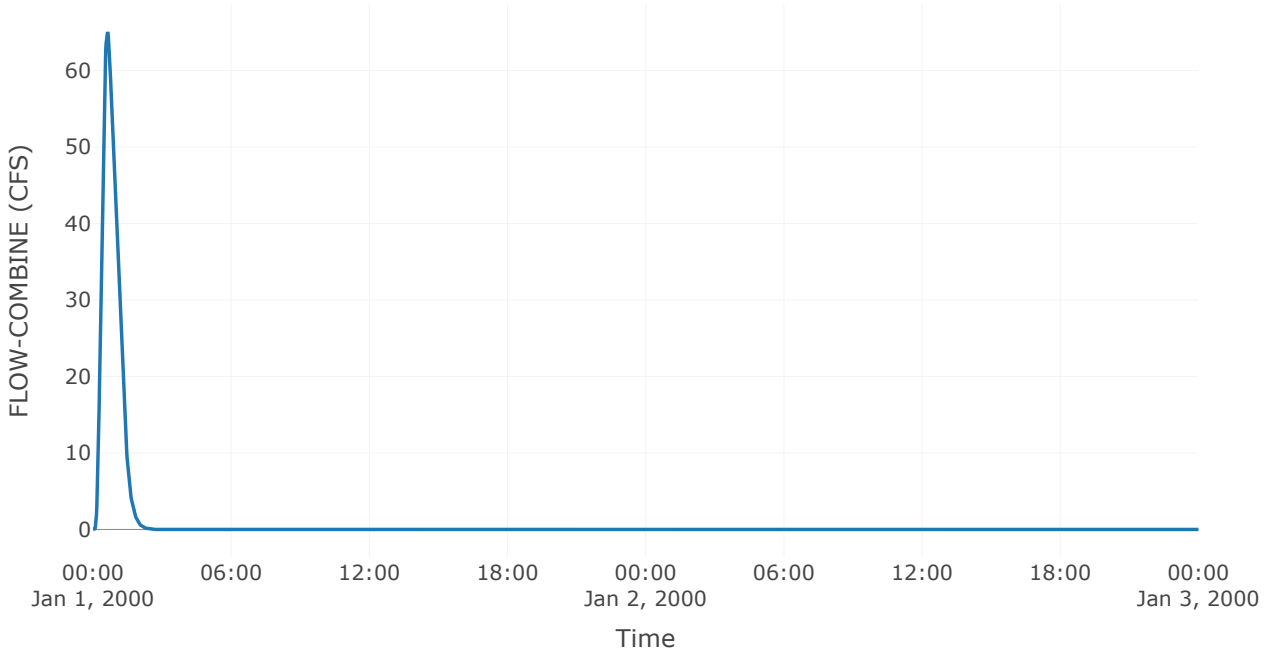
Downstream : Basin 2

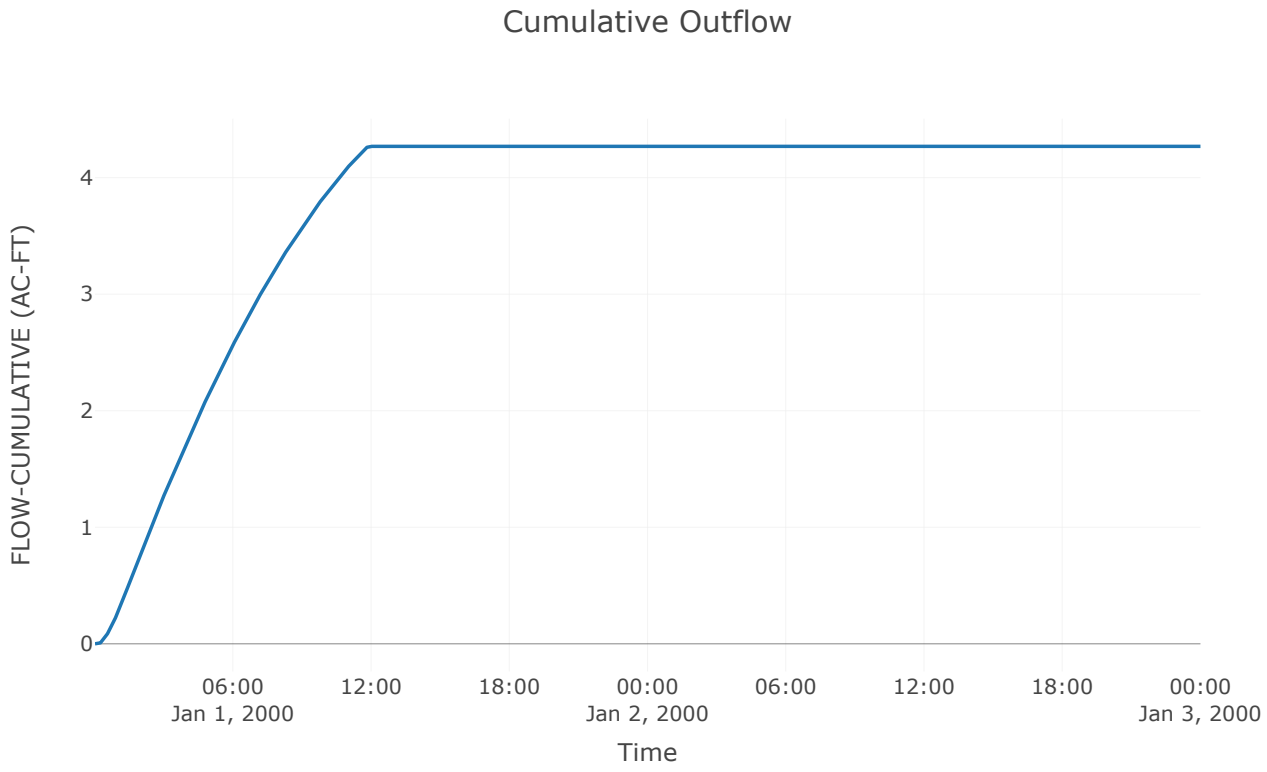
Results: Basin 1	
Peak Discharge (CFS)	6.25
Time of Peak Discharge	01Jan2000, 01:34
Volume (IN)	2.51
Peak Inflow (CFS)	65.04
Time of Peak Inflow	01Jan2000, 00:38
Inflow Volume (AC - FT)	4.28
Maximum Storage (AC - FT)	3.62
Peak Elevation (FT)	699.1
Discharge Volume (AC - FT)	4.27

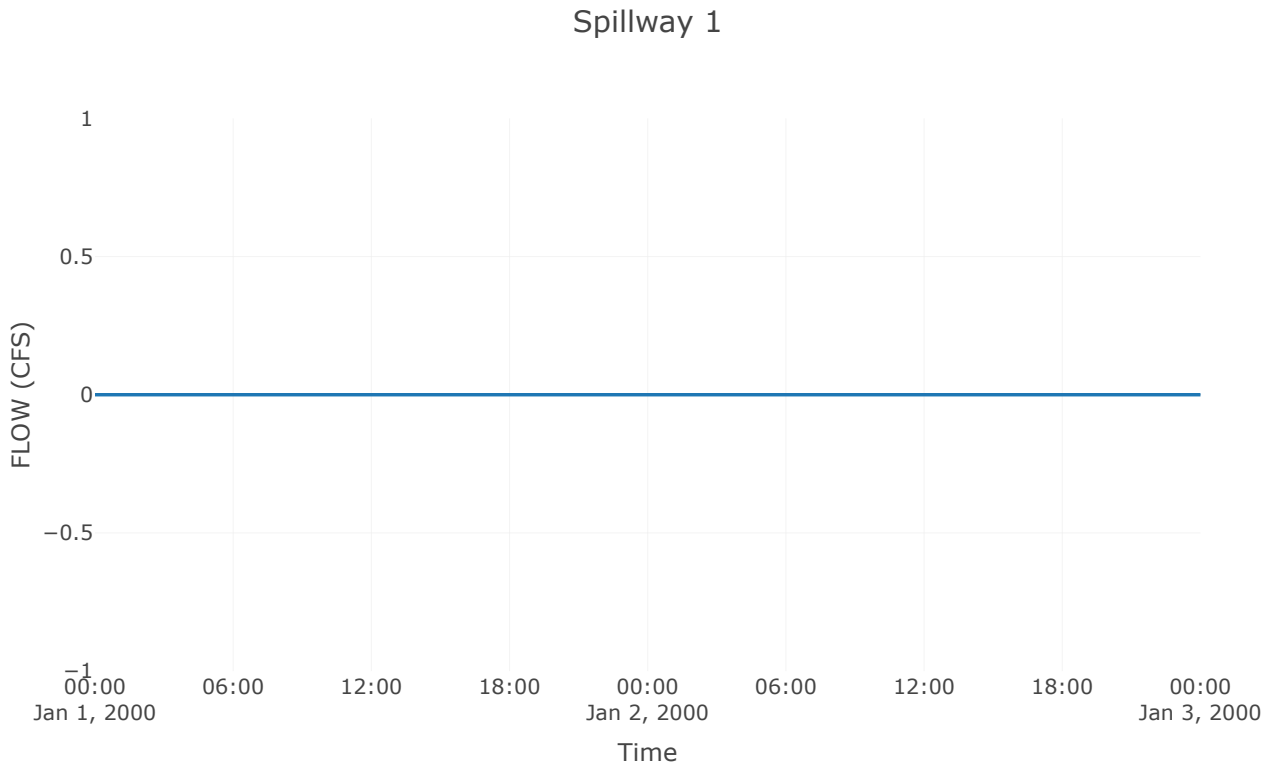
Storage



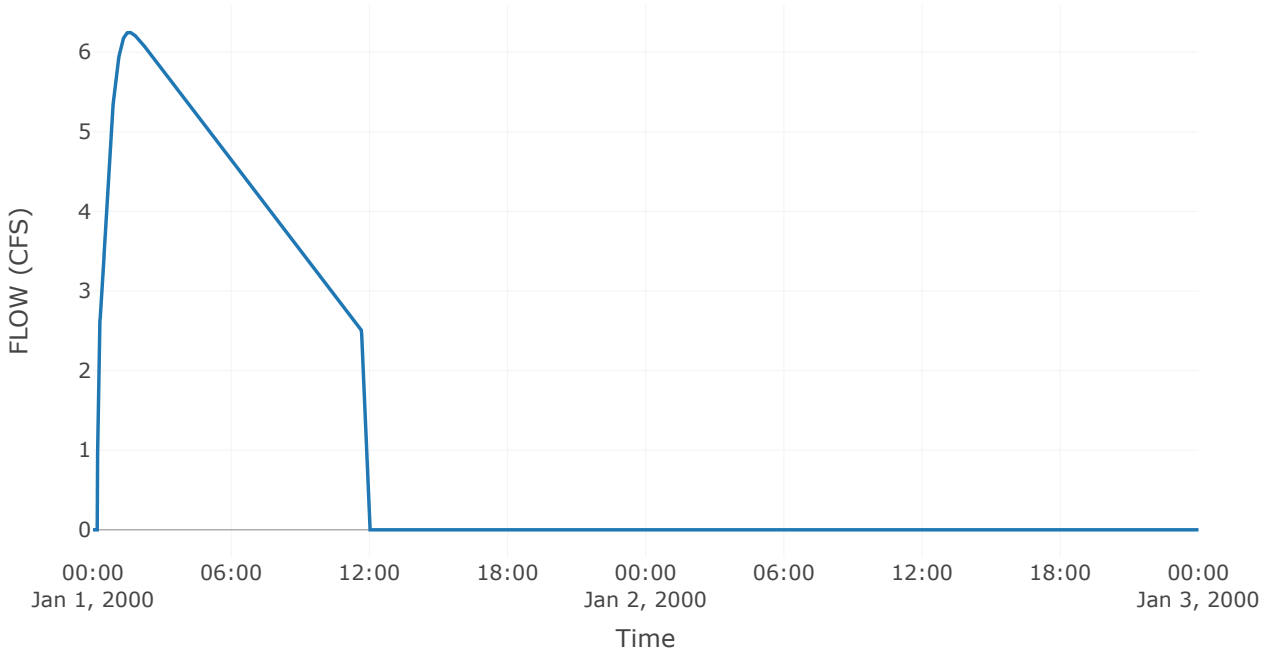
Combined Inflow



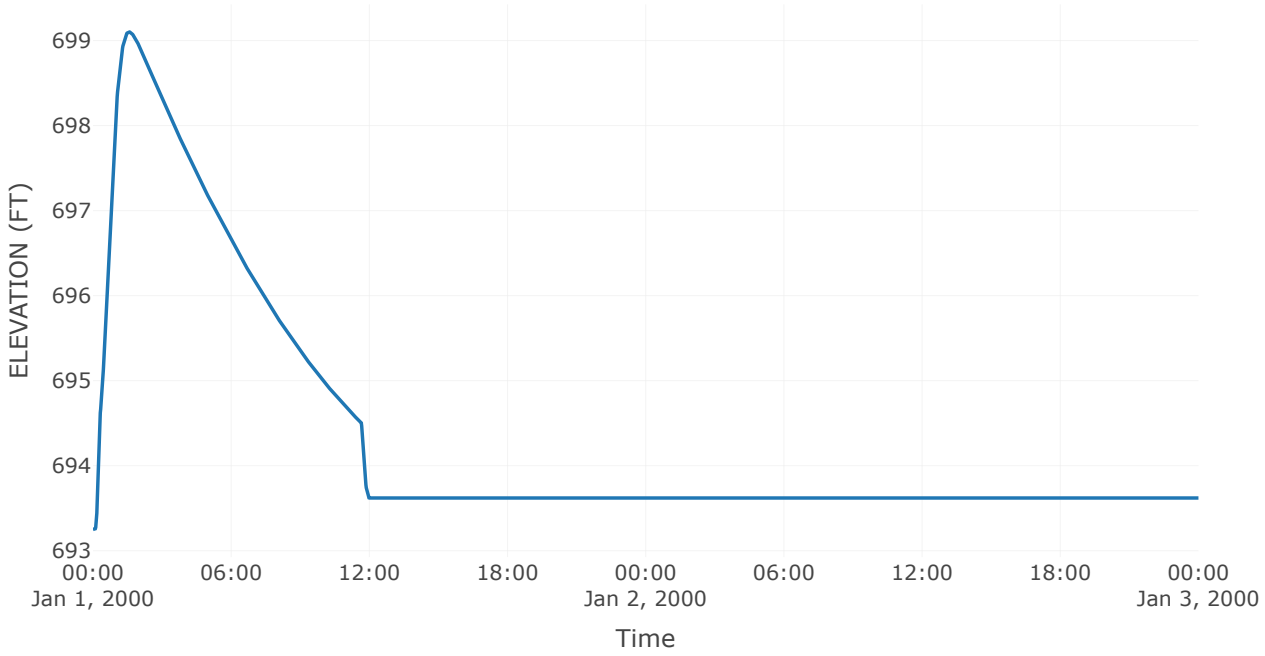

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
4
3
2
1
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

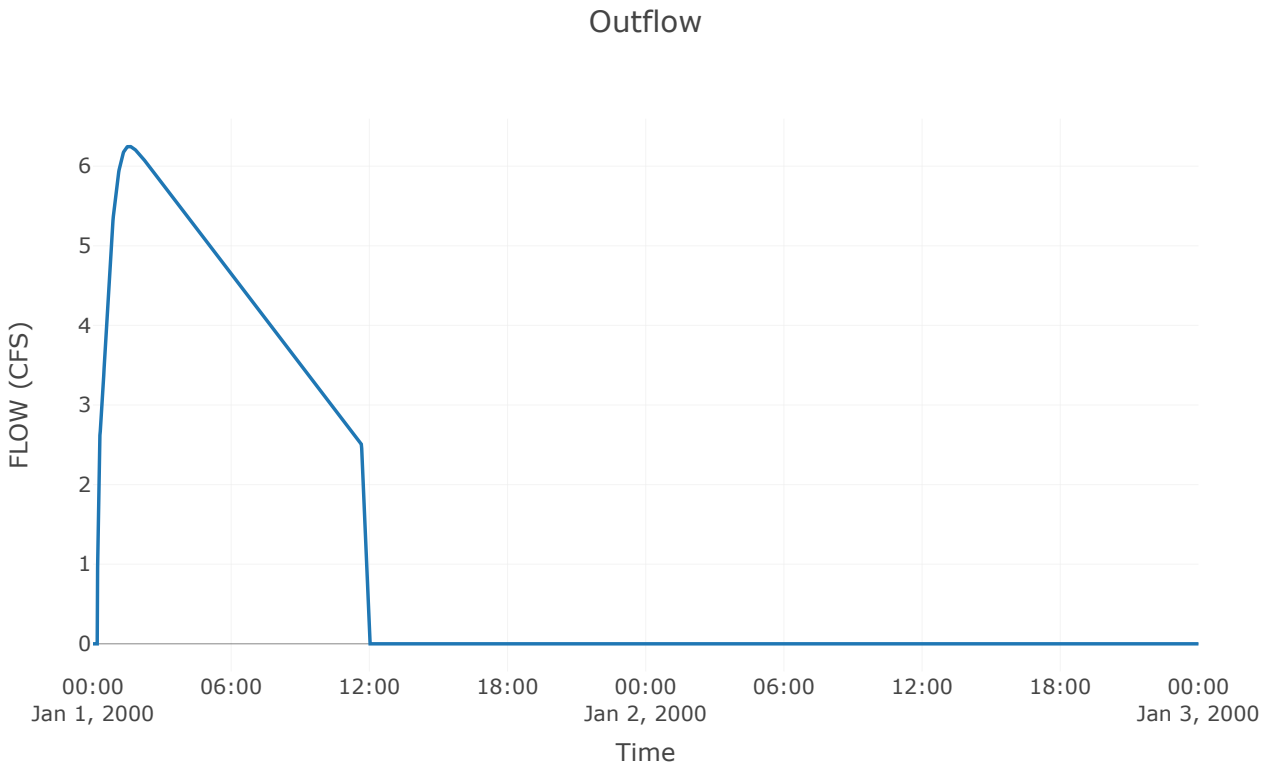

Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
0
1
2
3
4
5
6
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: On-Site Trib 2

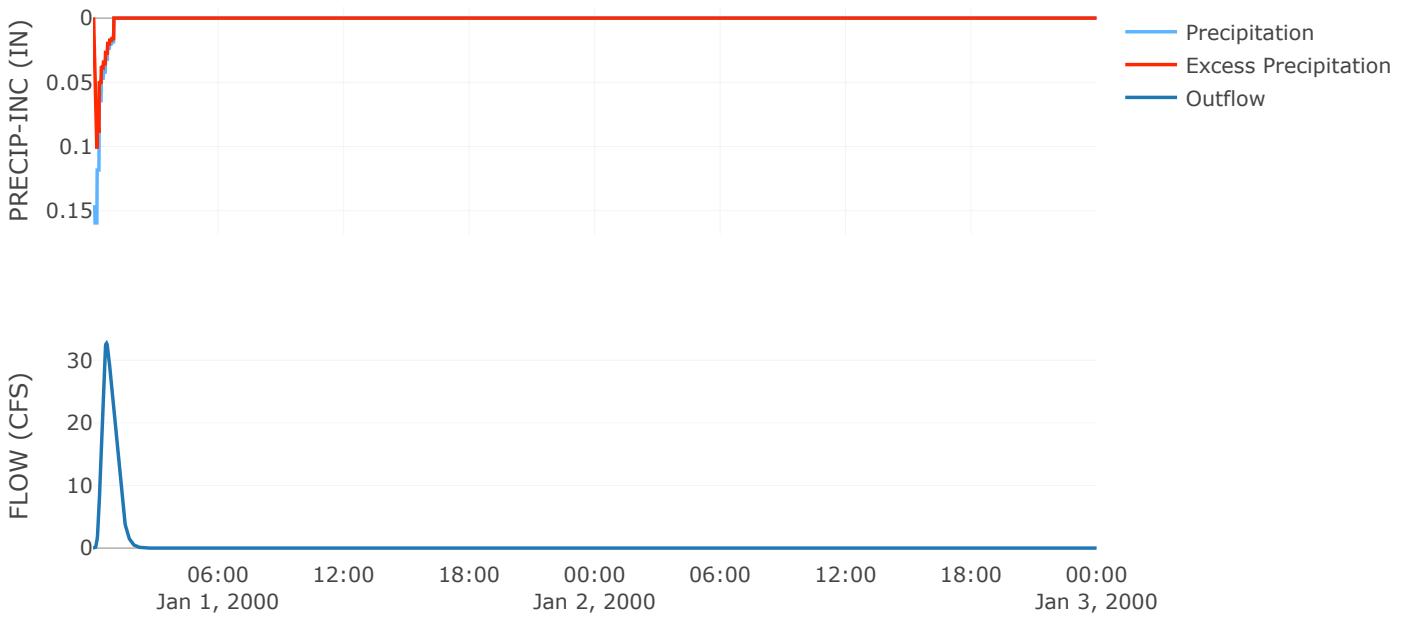
Area (MI2) : 0.02
Downstream : Basin 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

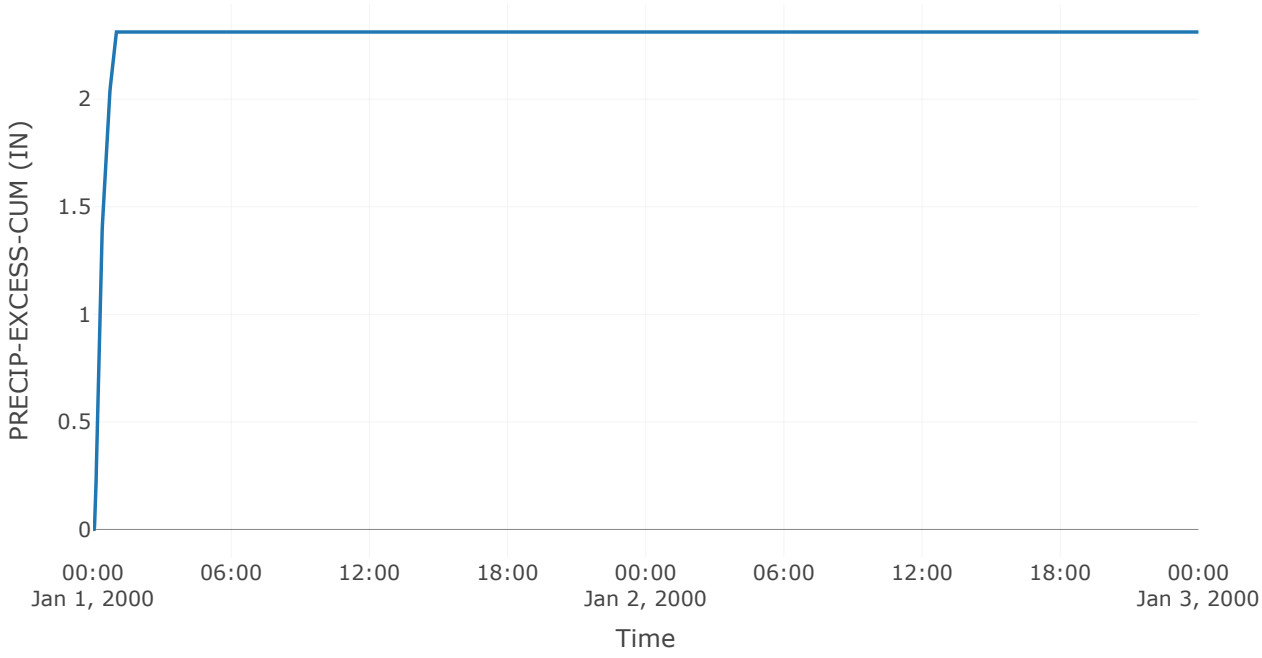
Transform: Scs	
Lag	20.4
Unitgraph Type	Standard

Results: On-Site Trib 2	
Peak Discharge (CFS)	32.72
Time of Peak Discharge	01Jan2000, 00:39
Volume (IN)	2.31
Precipitation Volume (AC - FT)	3.69
Loss Volume (AC - FT)	1.57
Excess Volume (AC - FT)	2.12
Direct Runoff Volume (AC - FT)	2.12
Baseflow Volume (AC - FT)	0

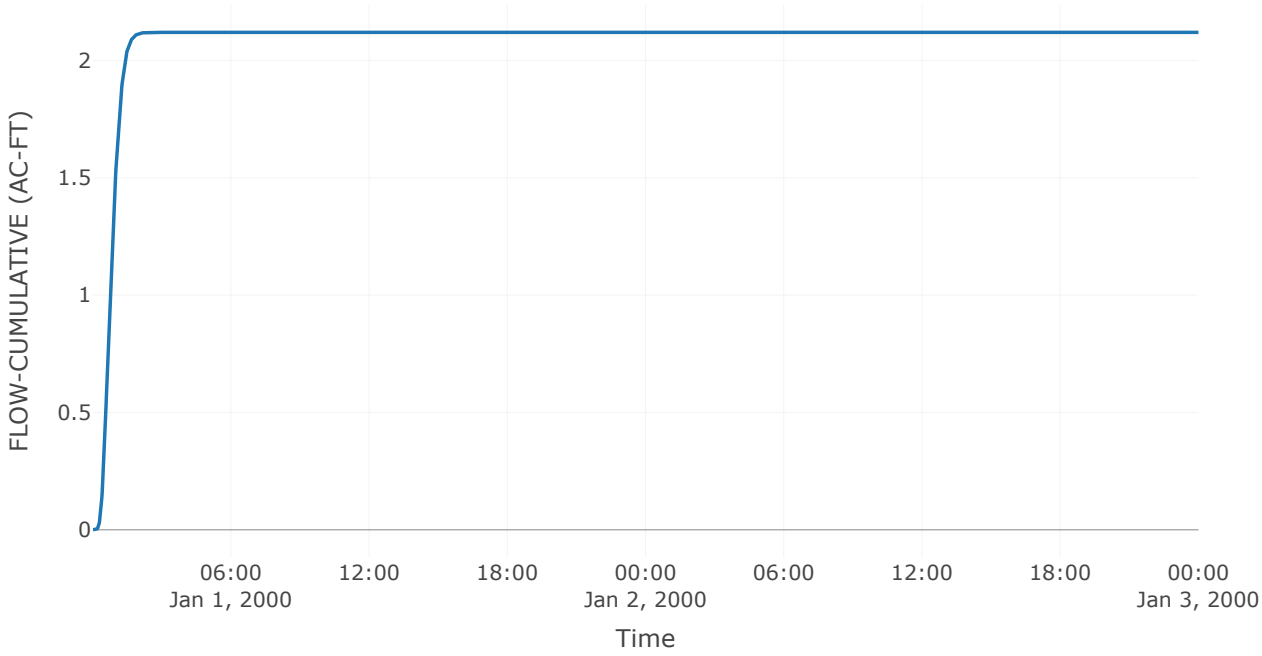
Precipitation and Outflow



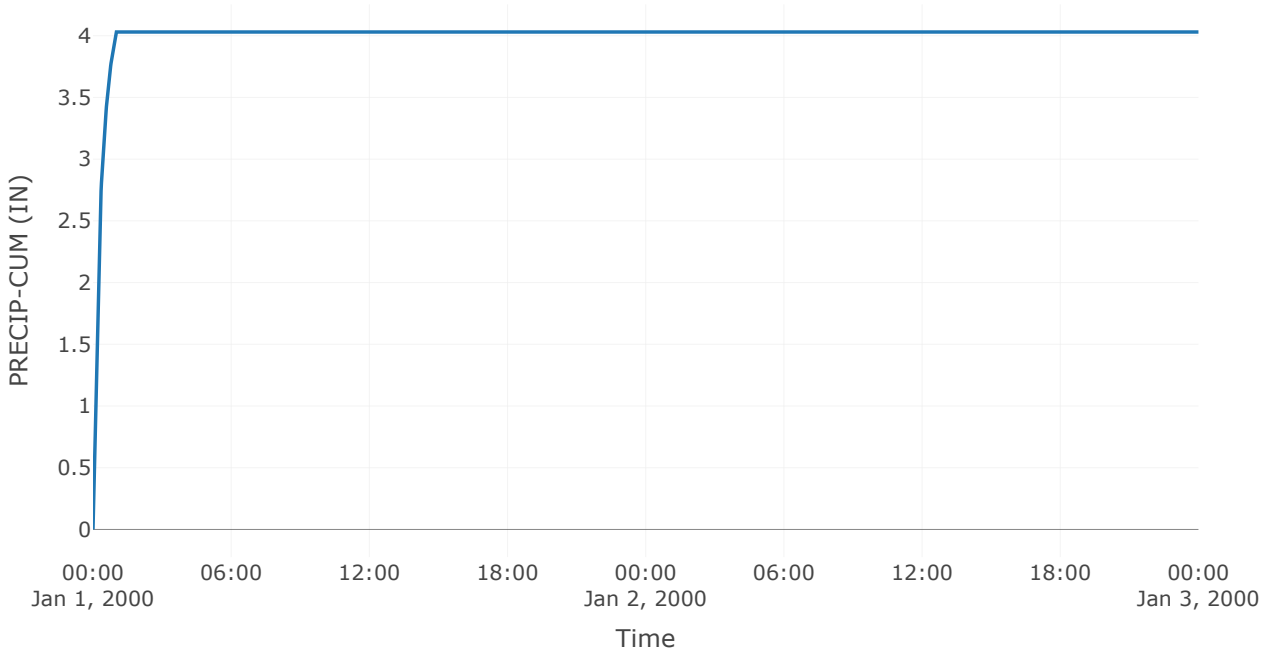
Cumulative Excess Precipitation



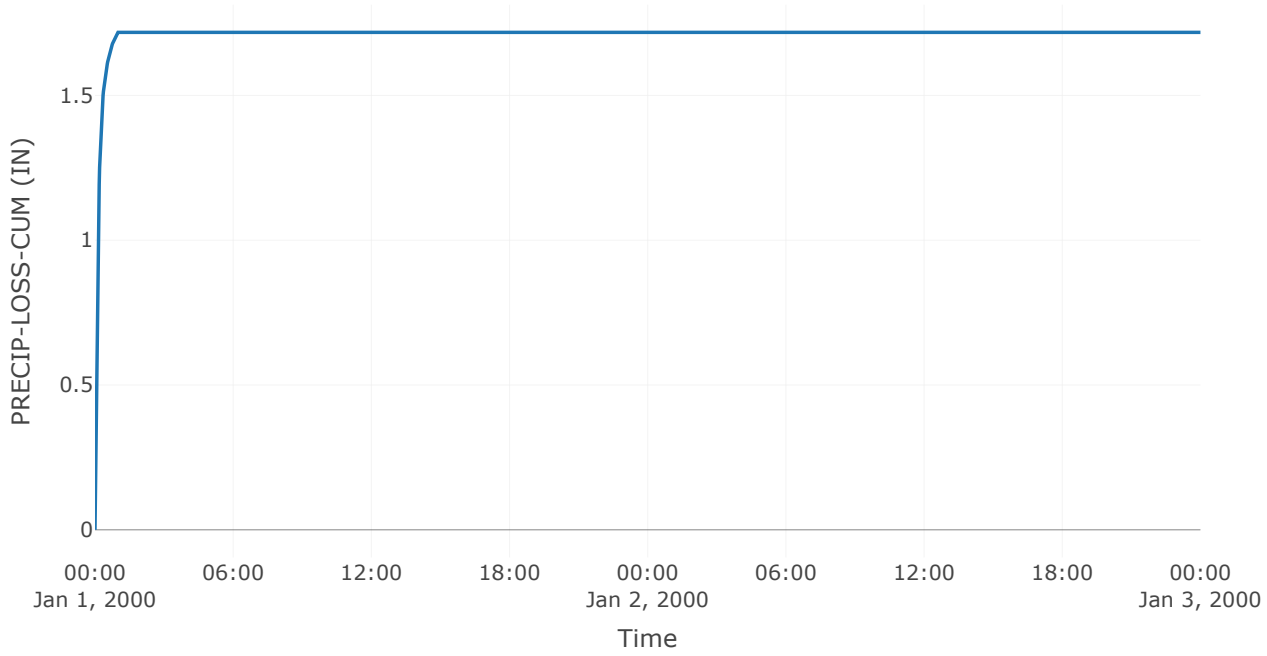
Cumulative Outflow



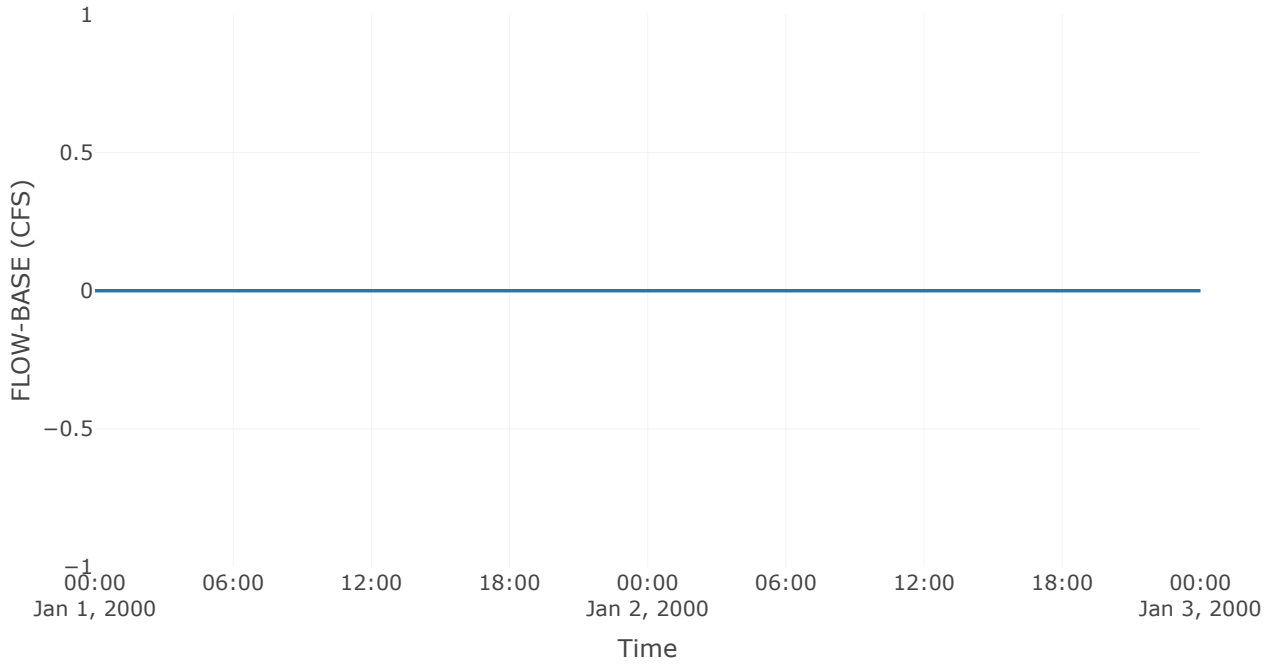
Cumulative Precipitation



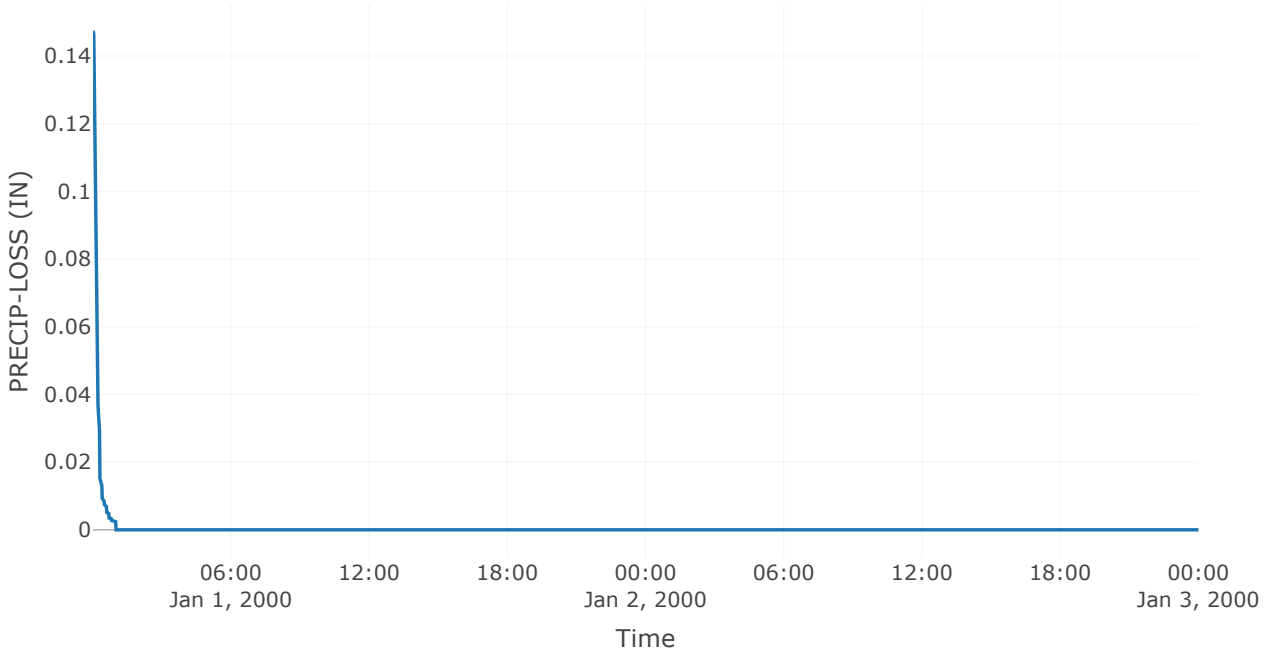
Cumulative Precipitation Loss



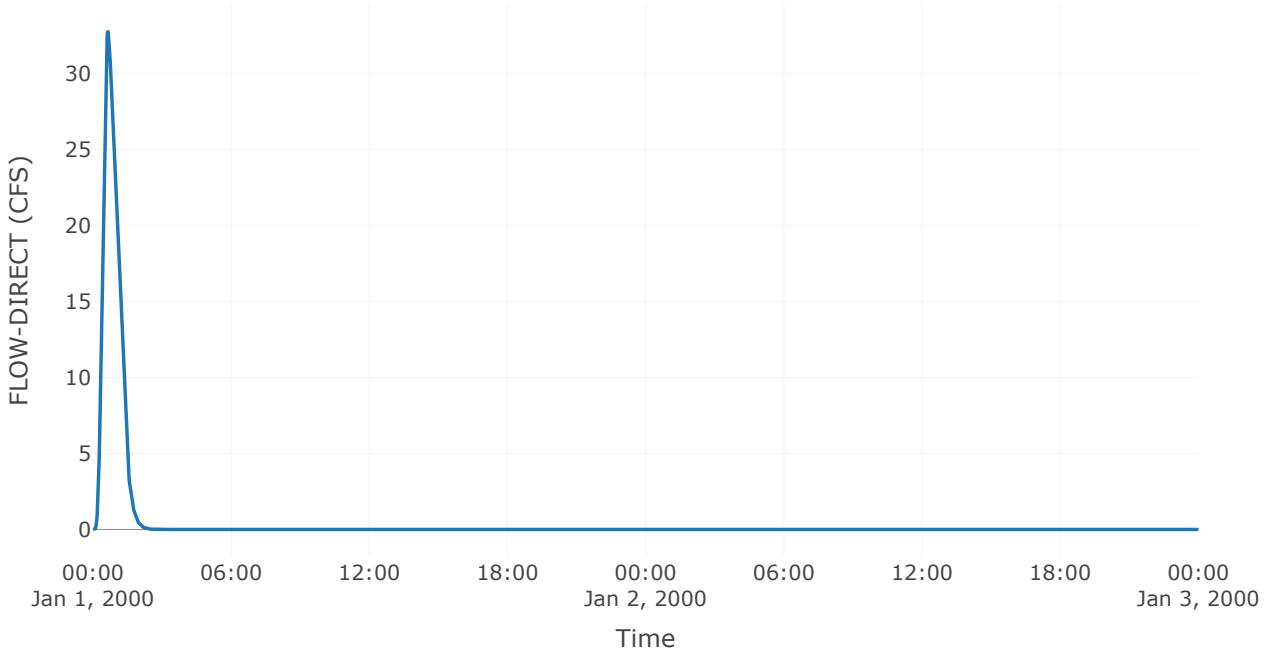
Baseflow

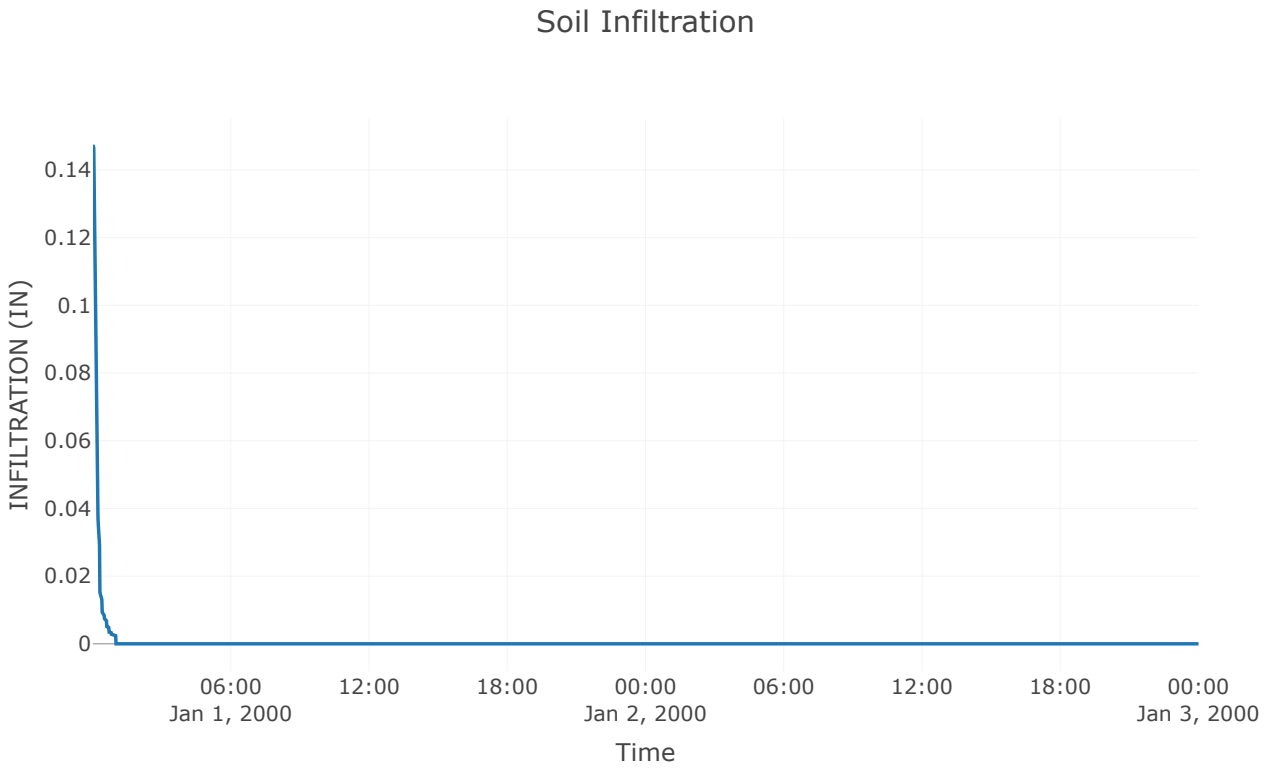


Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Off-Site Trib2

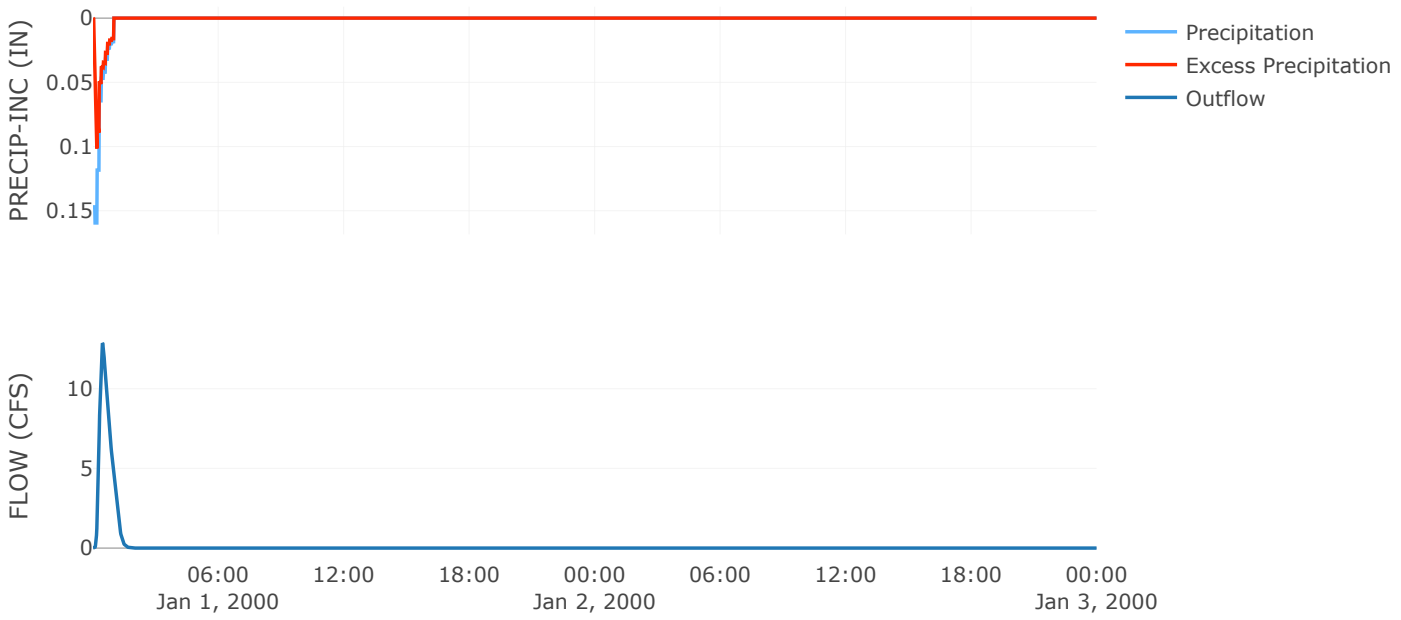
Area (MI2) : 0.01
Downstream : Basin 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

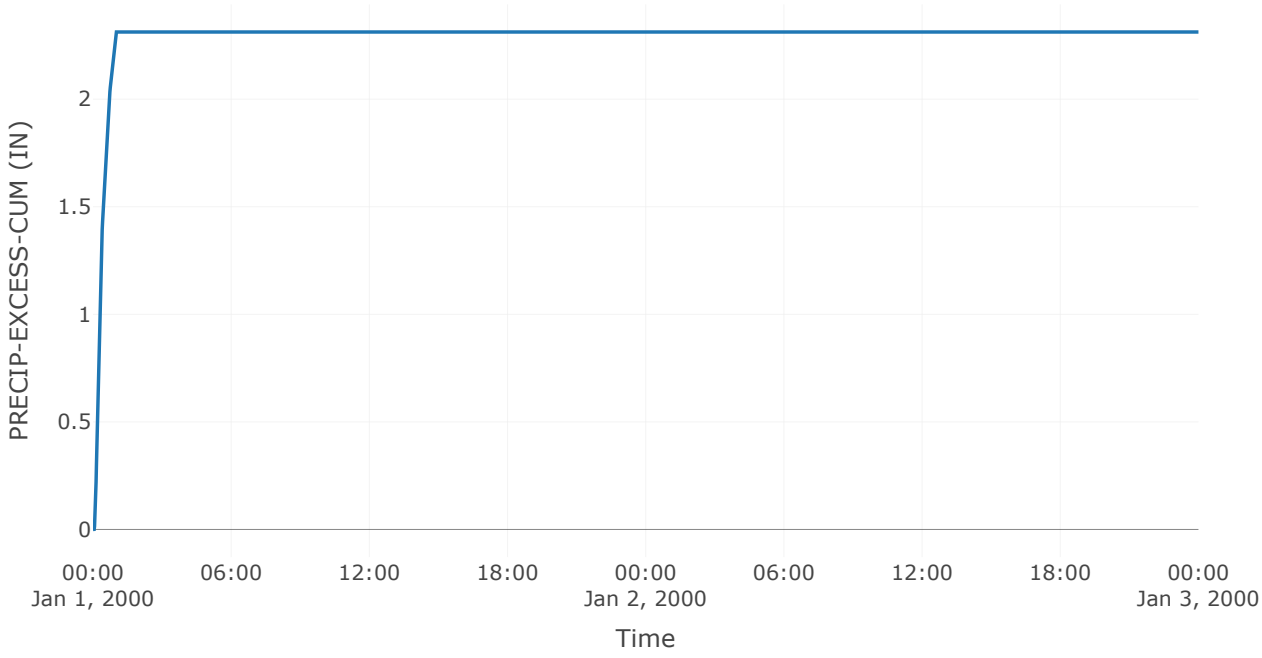
Transform: Scs	
Lag	12
Unitgraph Type	Standard

Results: Off-Site Trib2	
Peak Discharge (CFS)	12.85
Time of Peak Discharge	01Jan2000, 00:27
Volume (IN)	2.31
Precipitation Volume (AC - FT)	1.14
Loss Volume (AC - FT)	0.49
Excess Volume (AC - FT)	0.65
Direct Runoff Volume (AC - FT)	0.65
Baseflow Volume (AC - FT)	0

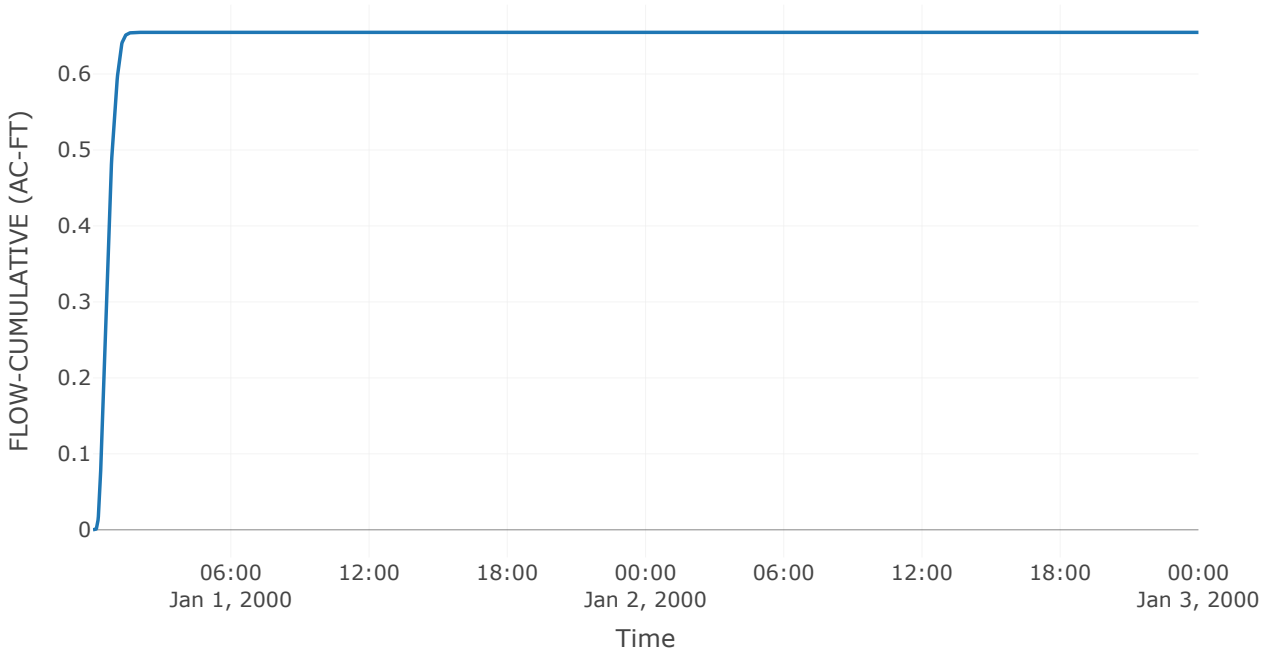
Precipitation and Outflow



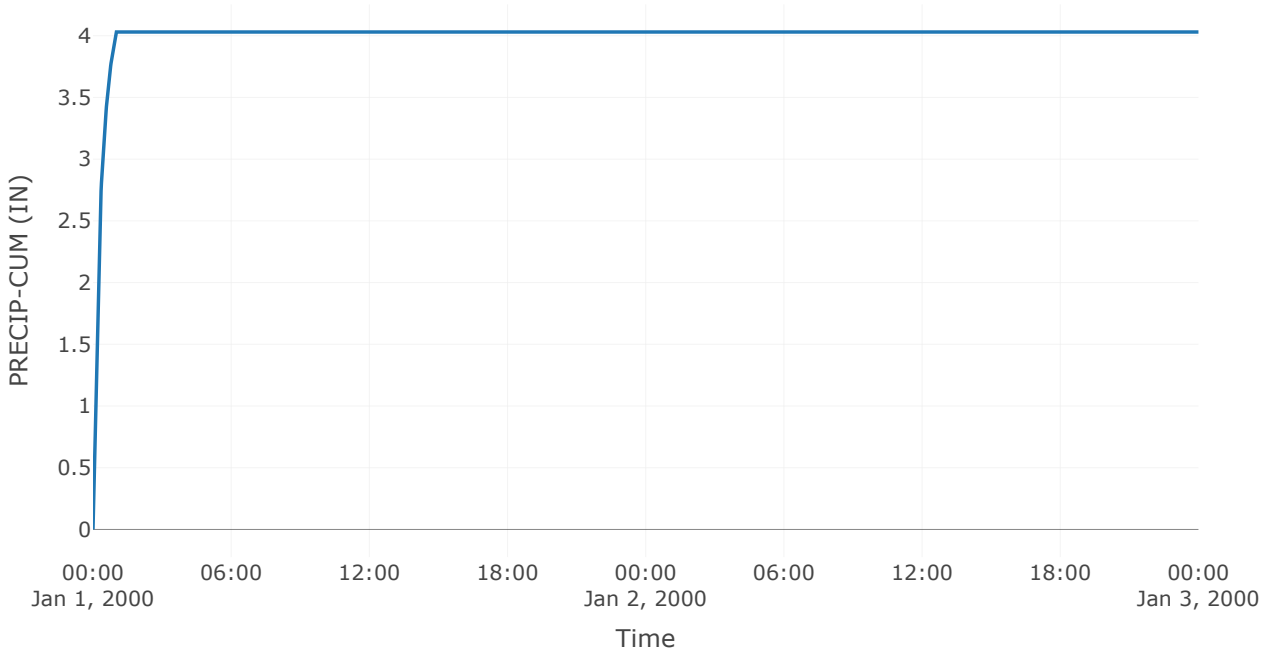
Cumulative Excess Precipitation



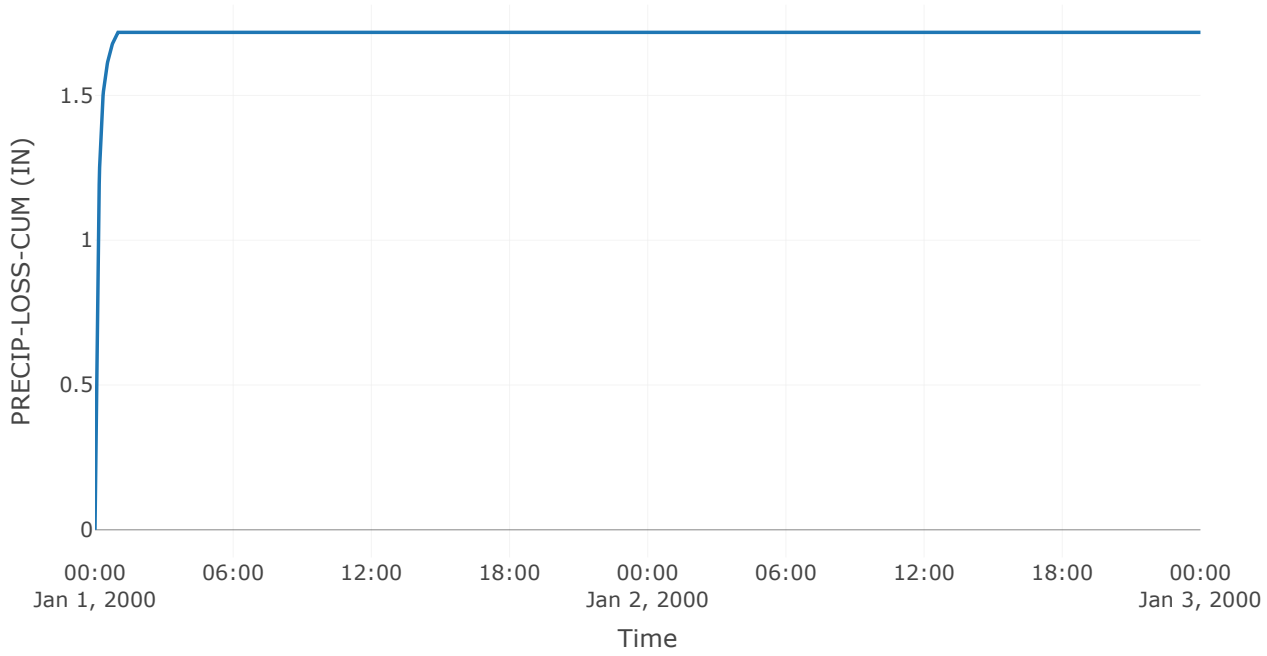
Cumulative Outflow



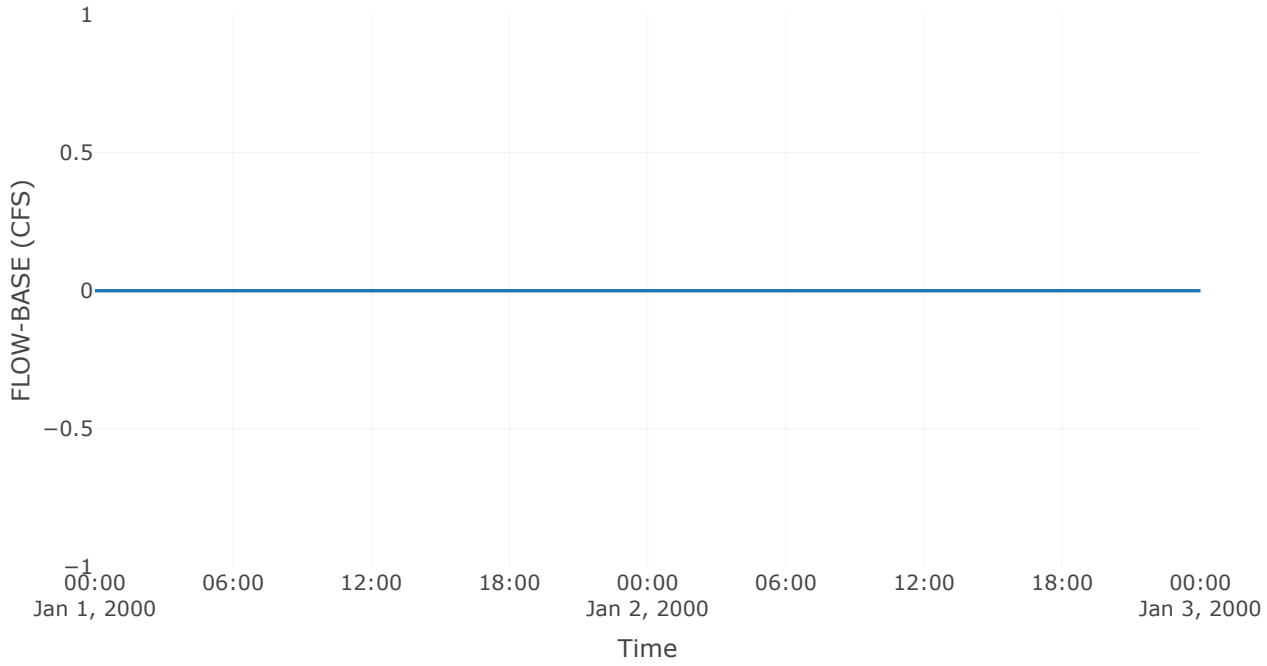
Cumulative Precipitation



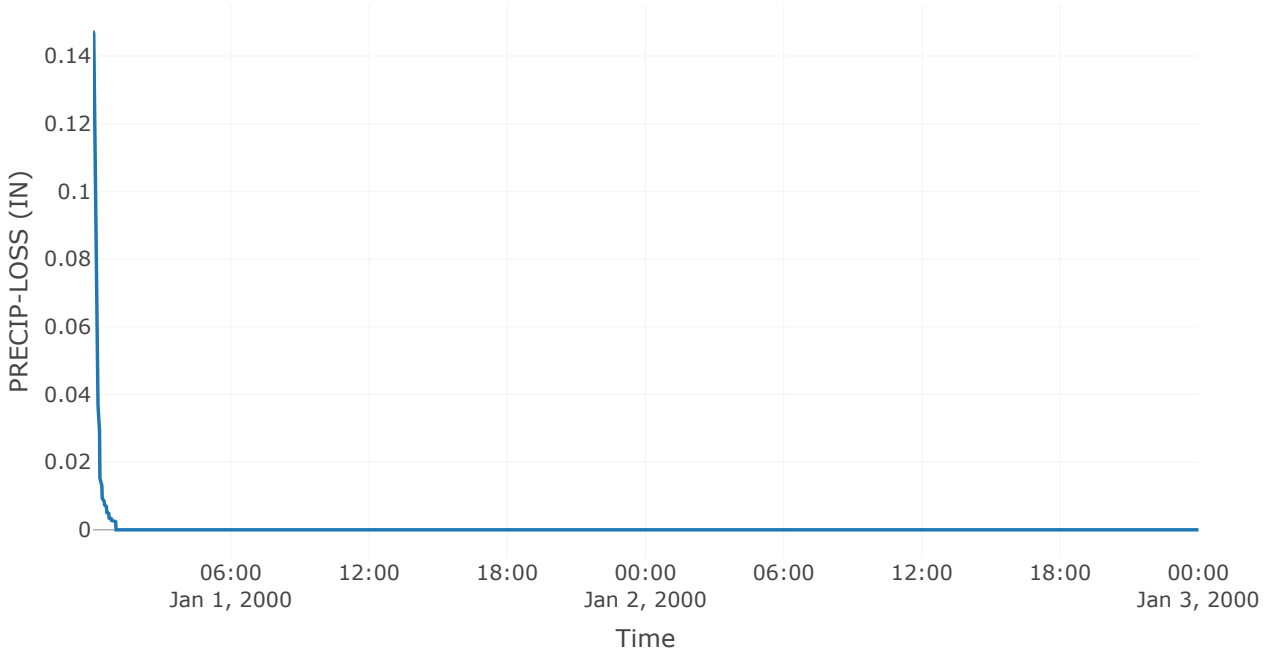
Cumulative Precipitation Loss



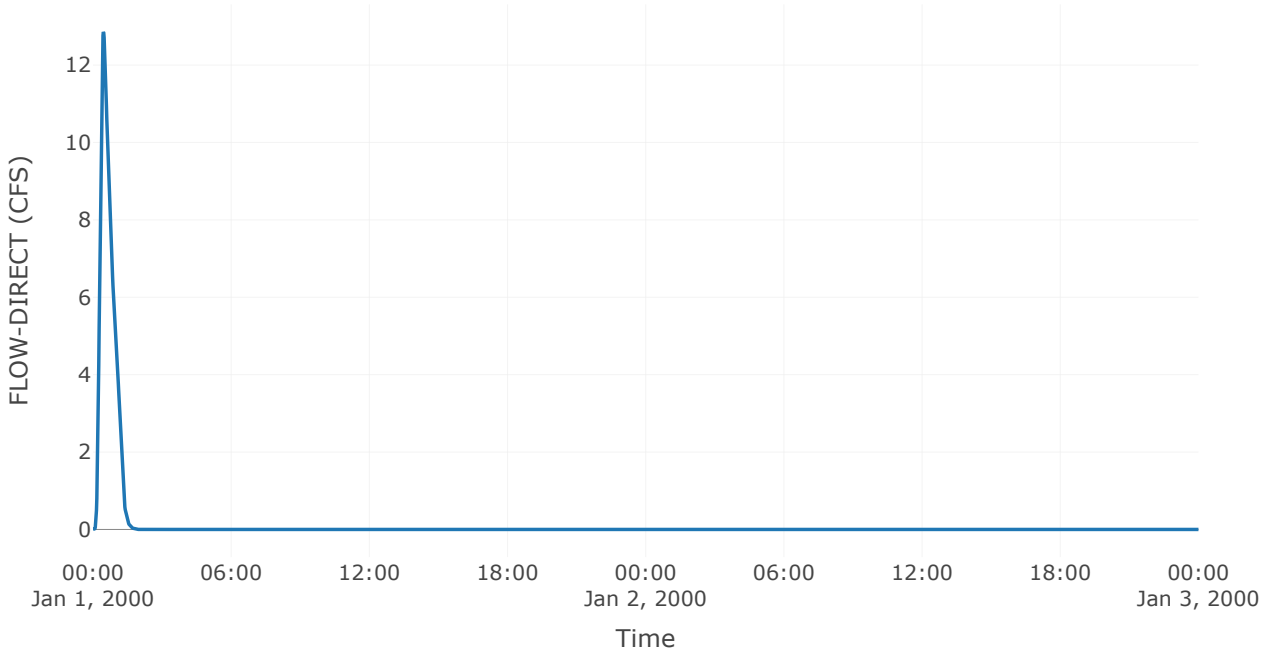
Baseflow

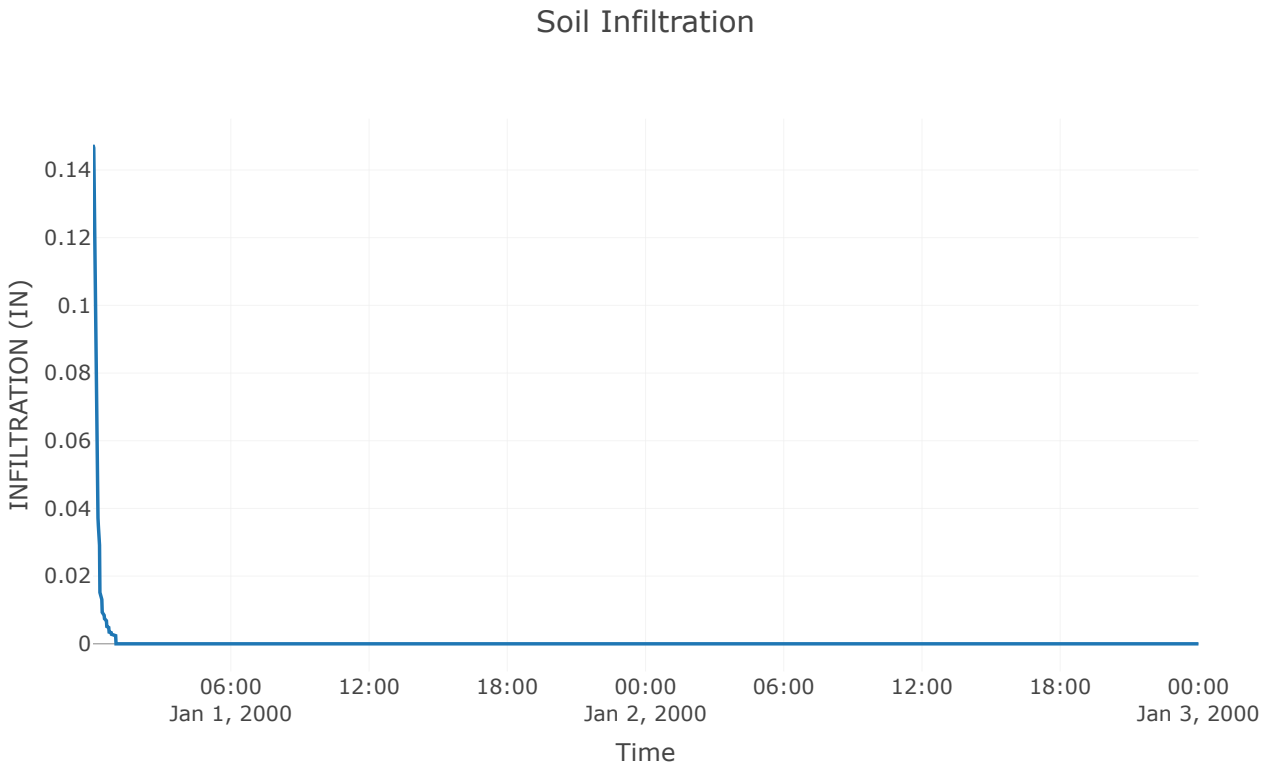


Precipitation Loss



Direct Runoff



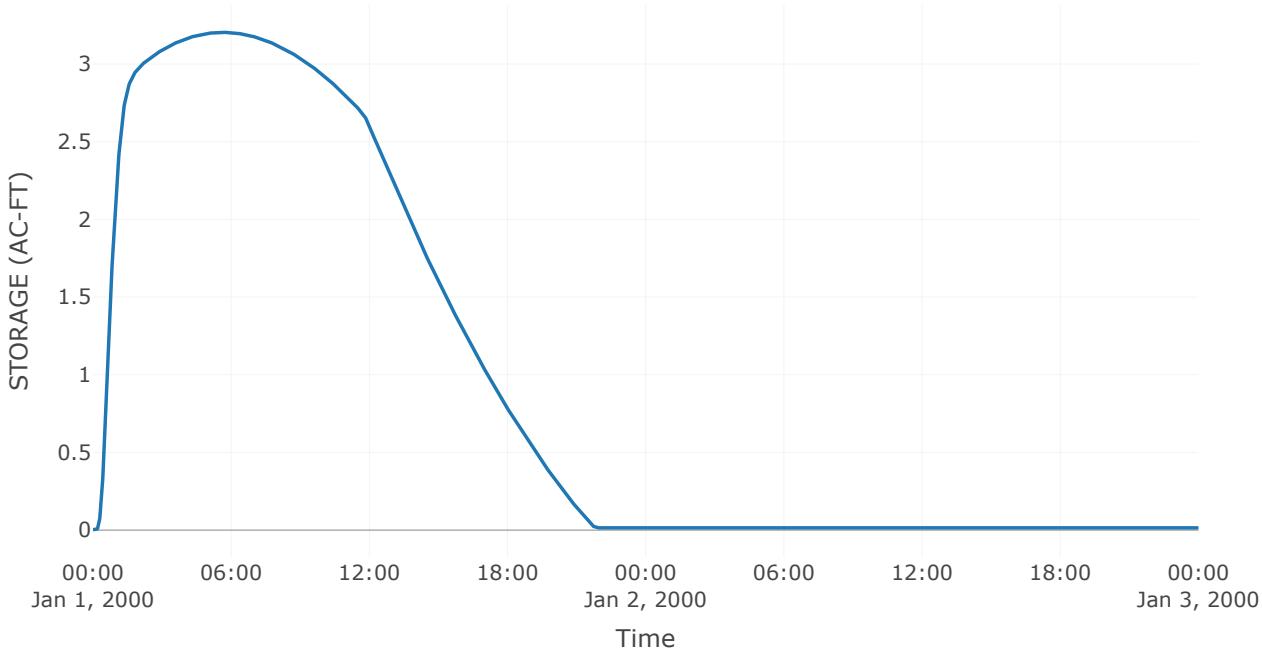

Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 2

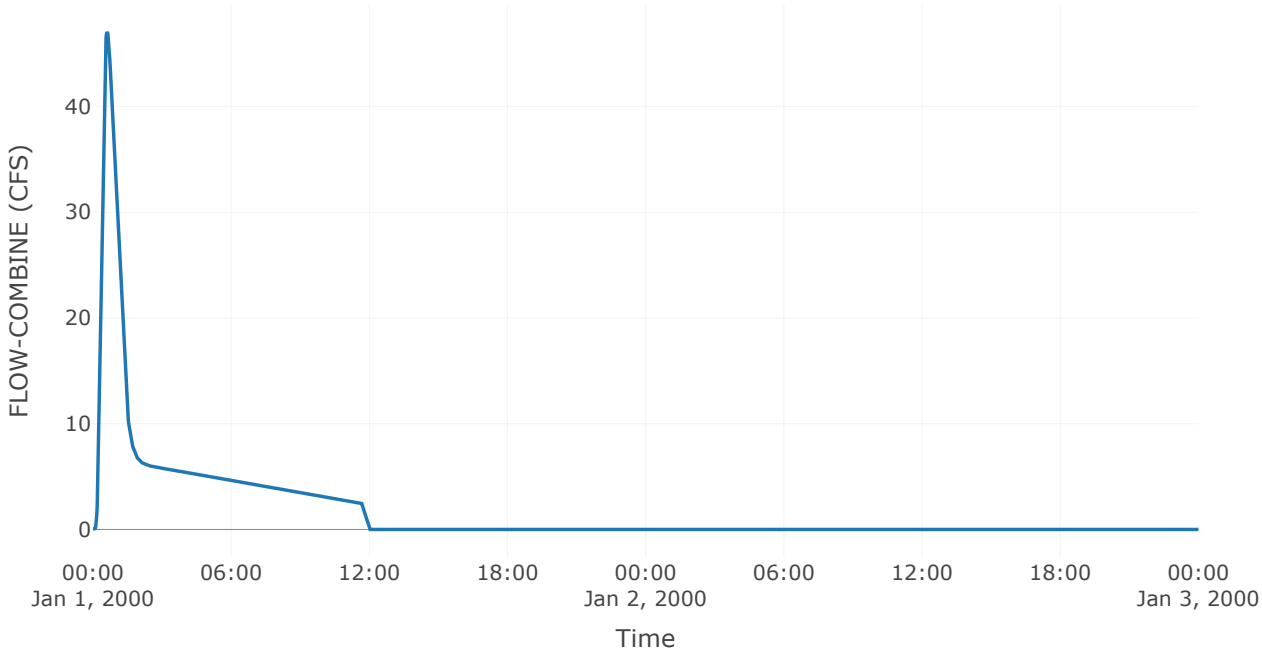
Downstream : Basin 3

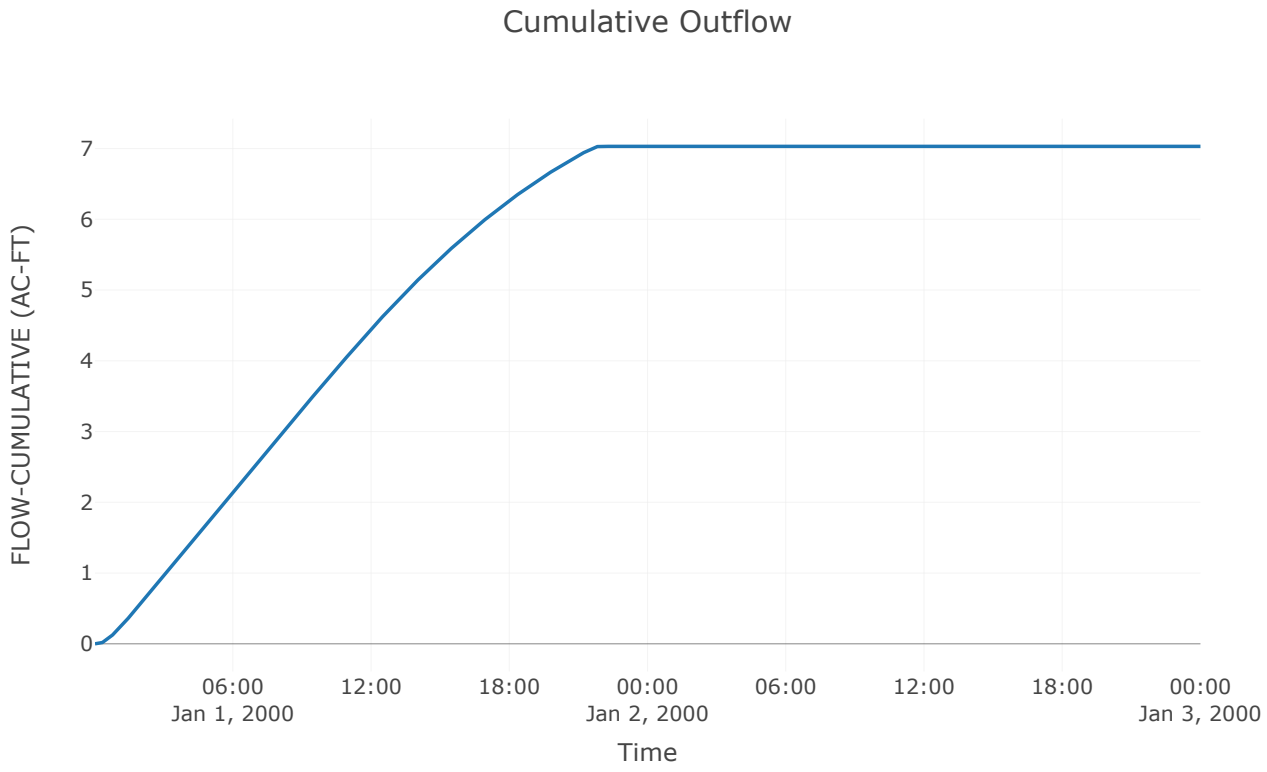
Results: Basin 2	
Peak Discharge (CFS)	4.79
Time of Peak Discharge	01Jan2000, 05:38
Volume (IN)	2.42
Peak Inflow (CFS)	47.05
Time of Peak Inflow	01Jan2000, 00:37
Inflow Volume (AC - FT)	7.04
Maximum Storage (AC - FT)	3.2
Peak Elevation (FT)	695.48
Discharge Volume (AC - FT)	7.03

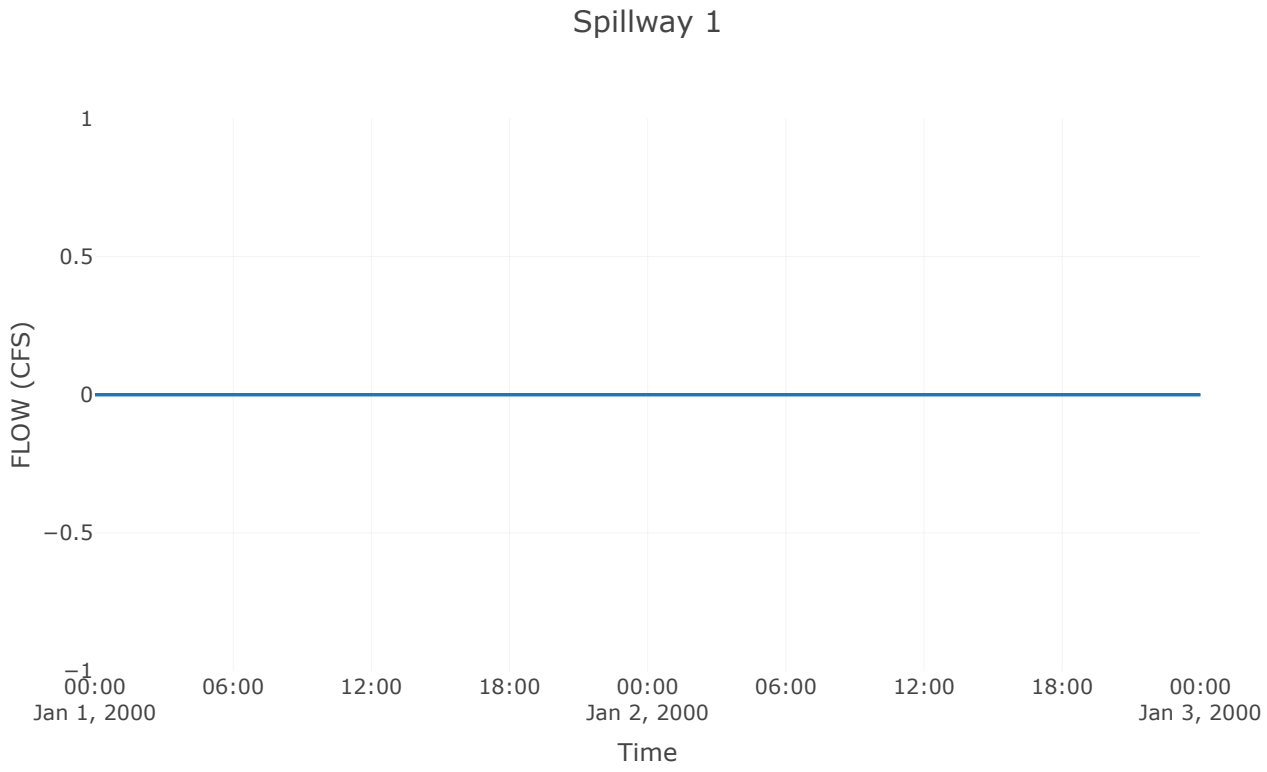
Storage



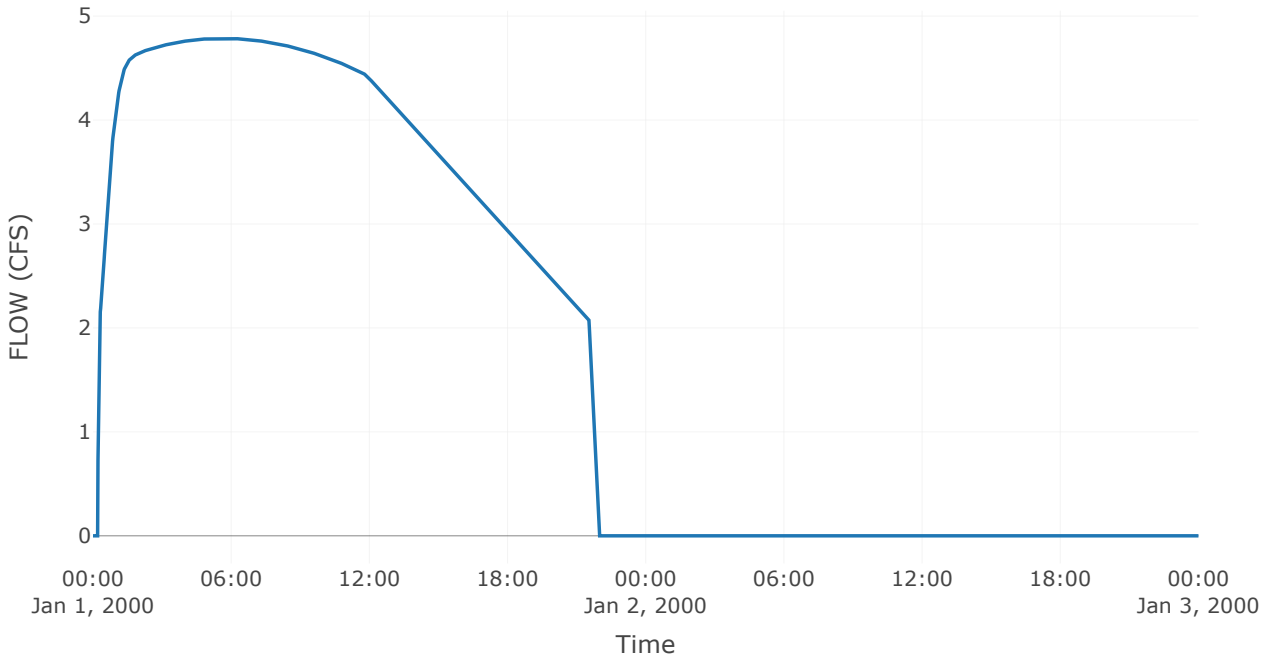
Combined Inflow



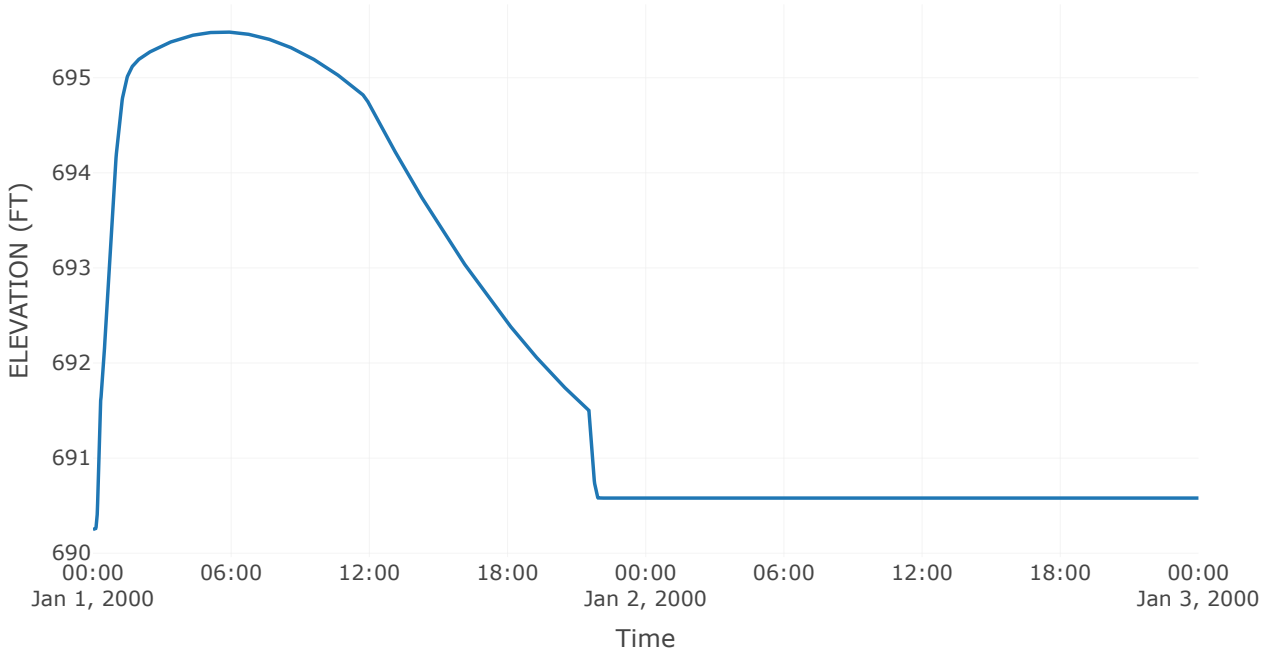

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
7
6
5
4
3
2
1
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

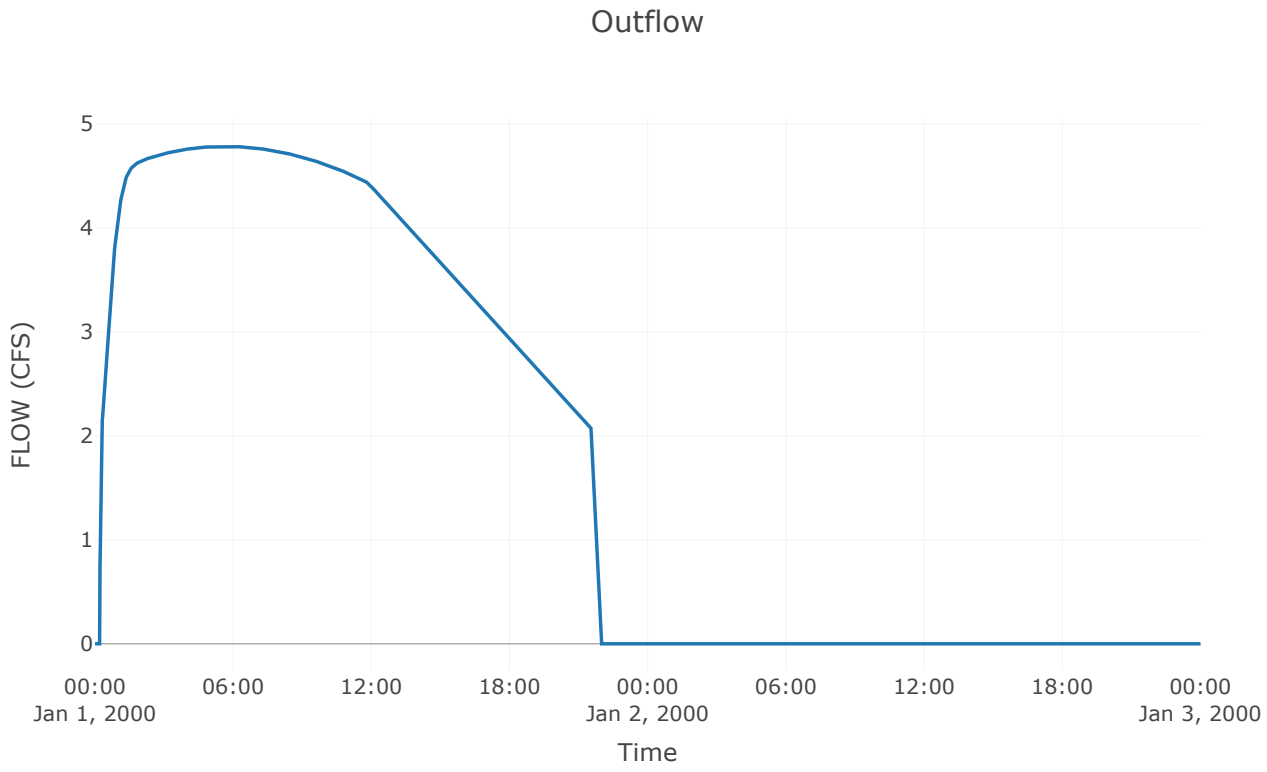

Spillway 1
FLOW (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
5
4
3
2
1
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: On-Site Trib-Area 3

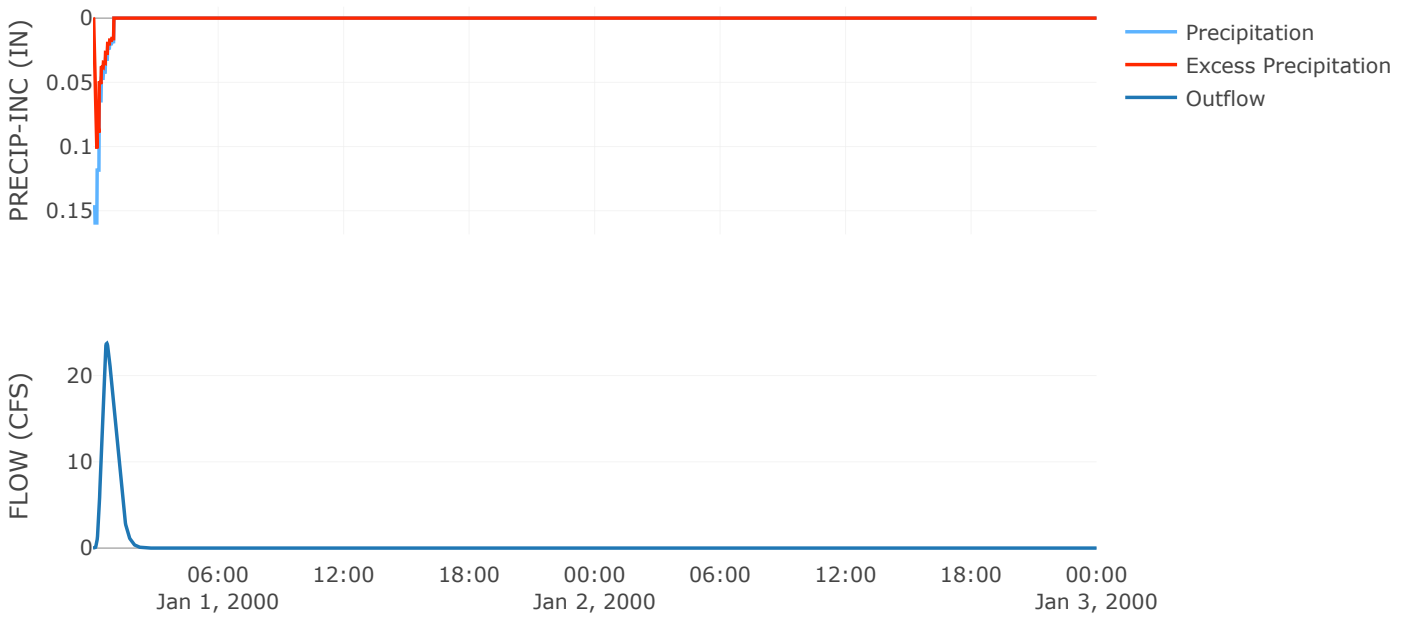
Area (MI2) : 0.01
Downstream : Basin 3

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83

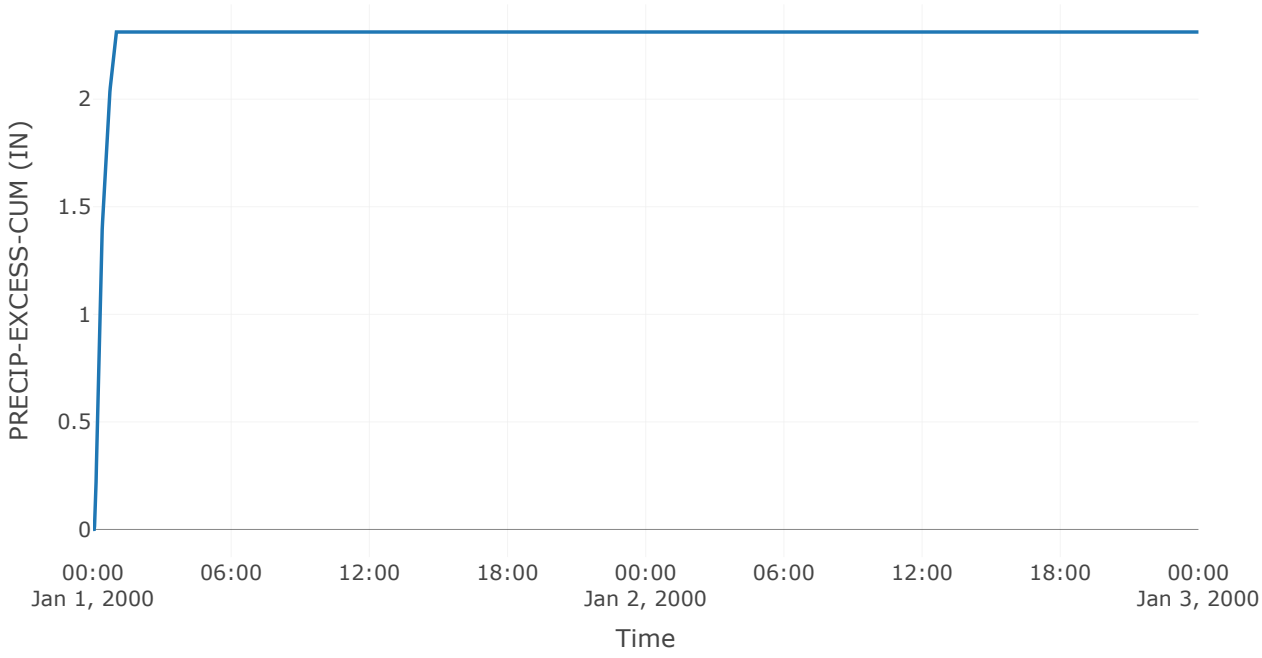
Transform: Scs	
Lag	21
Unitgraph Type	Standard

Results: On-Site Trib-Area 3	
Peak Discharge (CFS)	23.74
Time of Peak Discharge	01Jan2000, 00:39
Volume (IN)	2.31
Precipitation Volume (AC - FT)	2.72
Loss Volume (AC - FT)	1.16
Excess Volume (AC - FT)	1.56
Direct Runoff Volume (AC - FT)	1.56
Baseflow Volume (AC - FT)	0

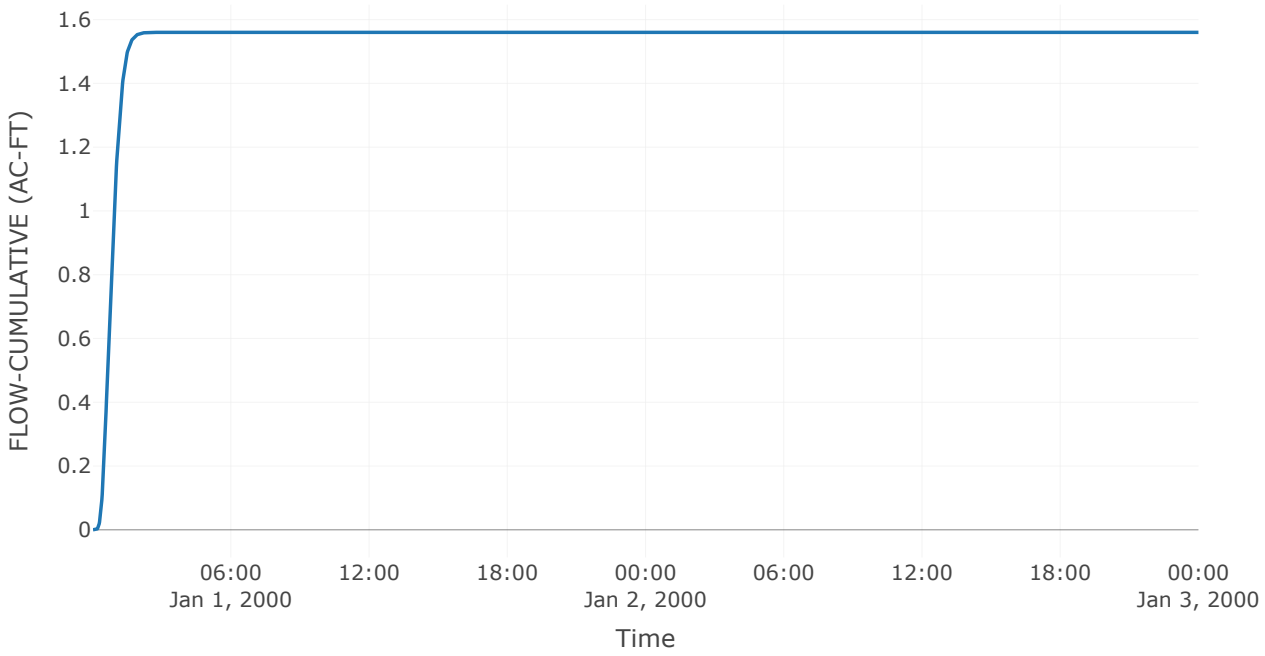
Precipitation and Outflow



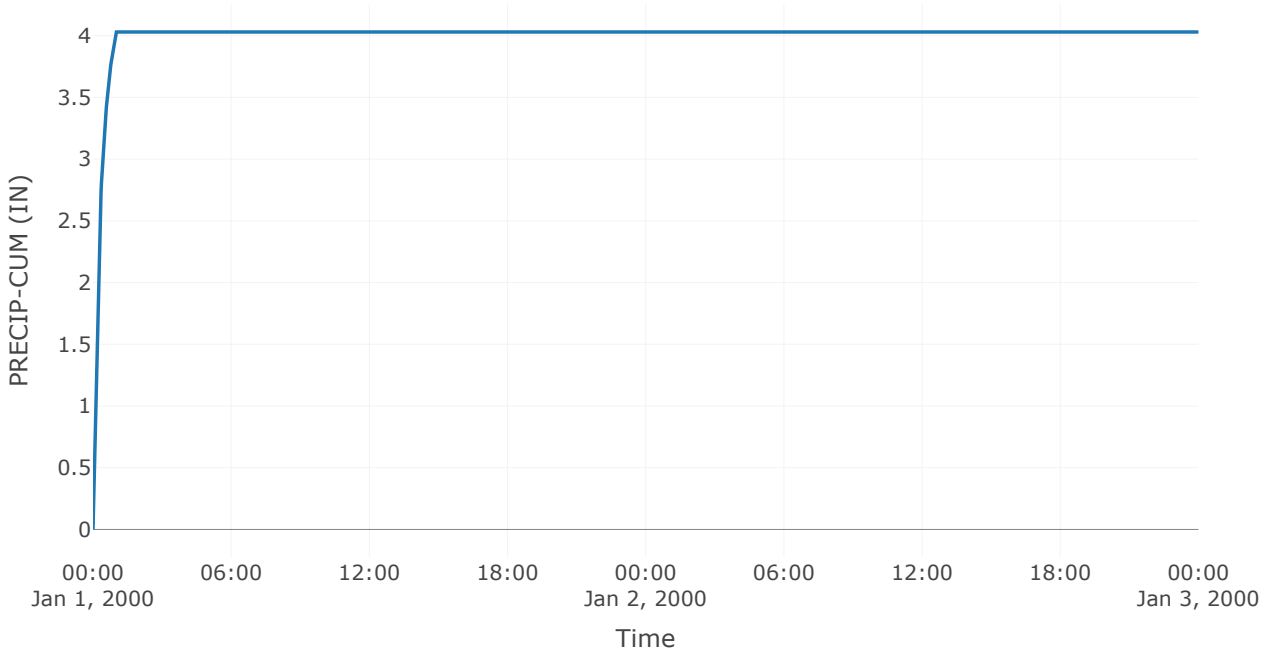
Cumulative Excess Precipitation



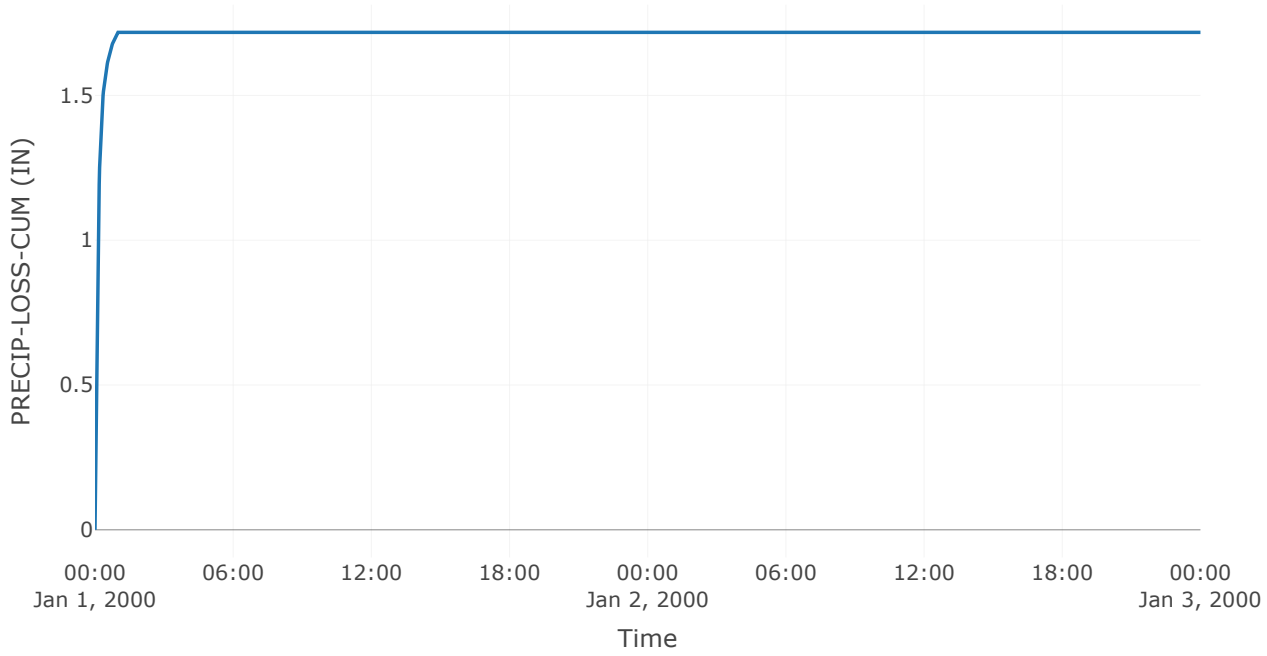
Cumulative Outflow



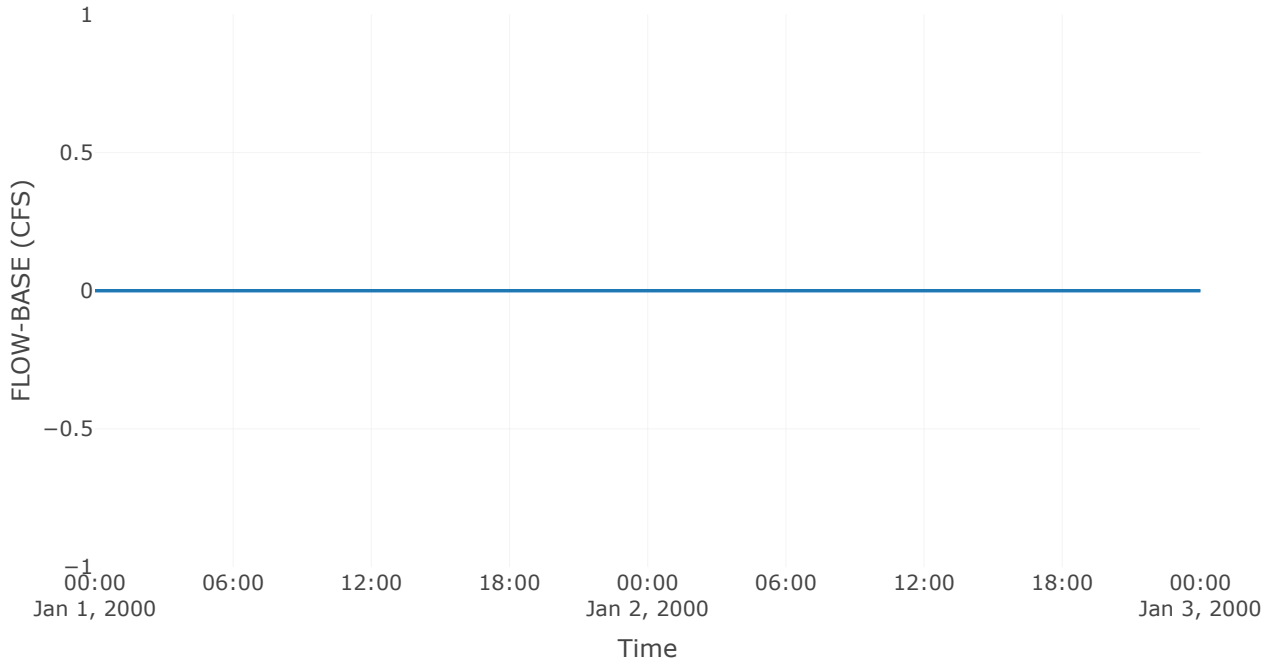
Cumulative Precipitation



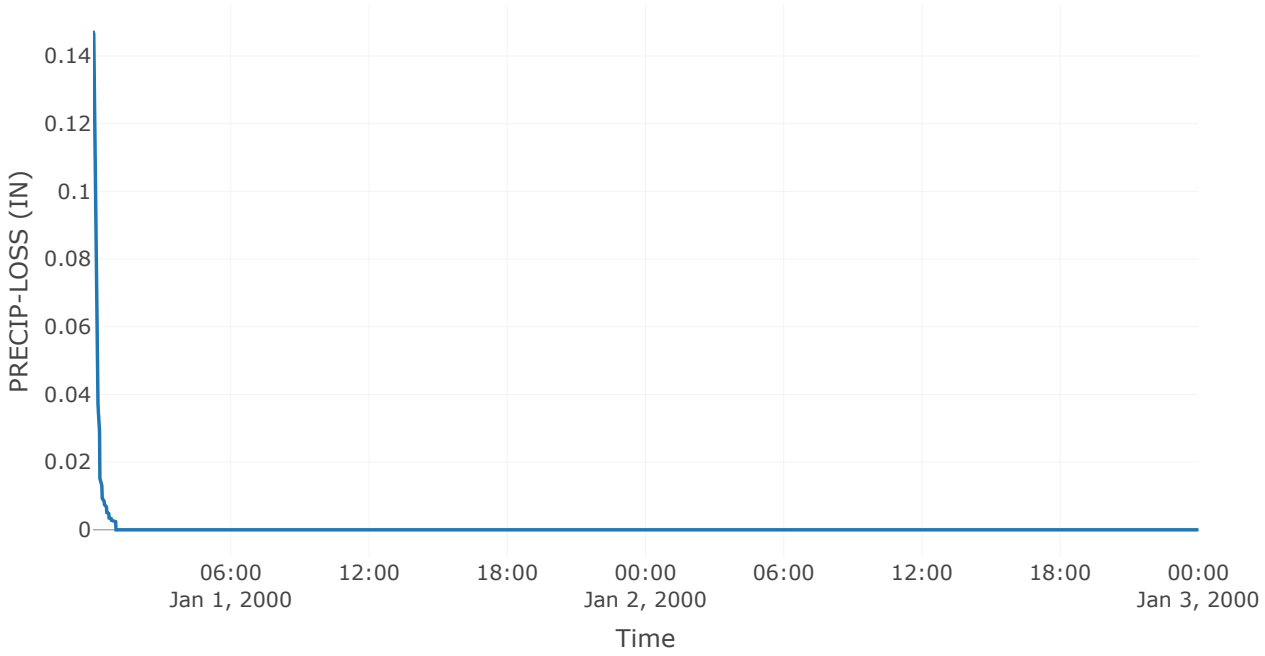
Cumulative Precipitation Loss



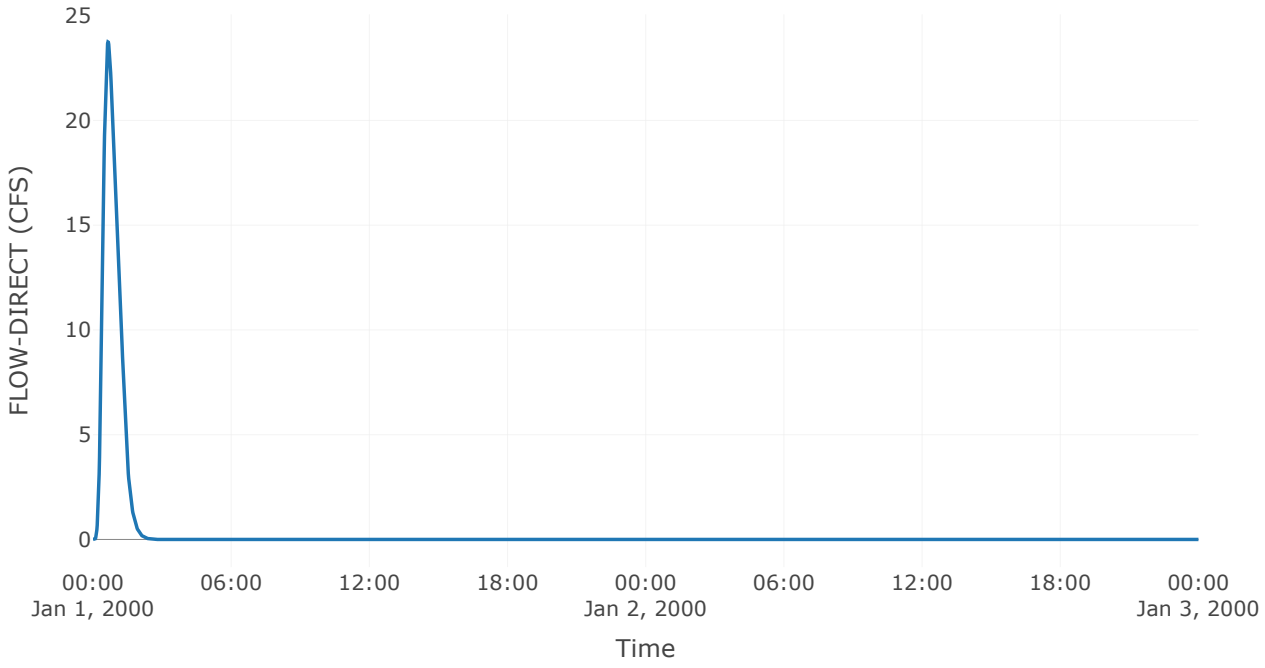
Baseflow

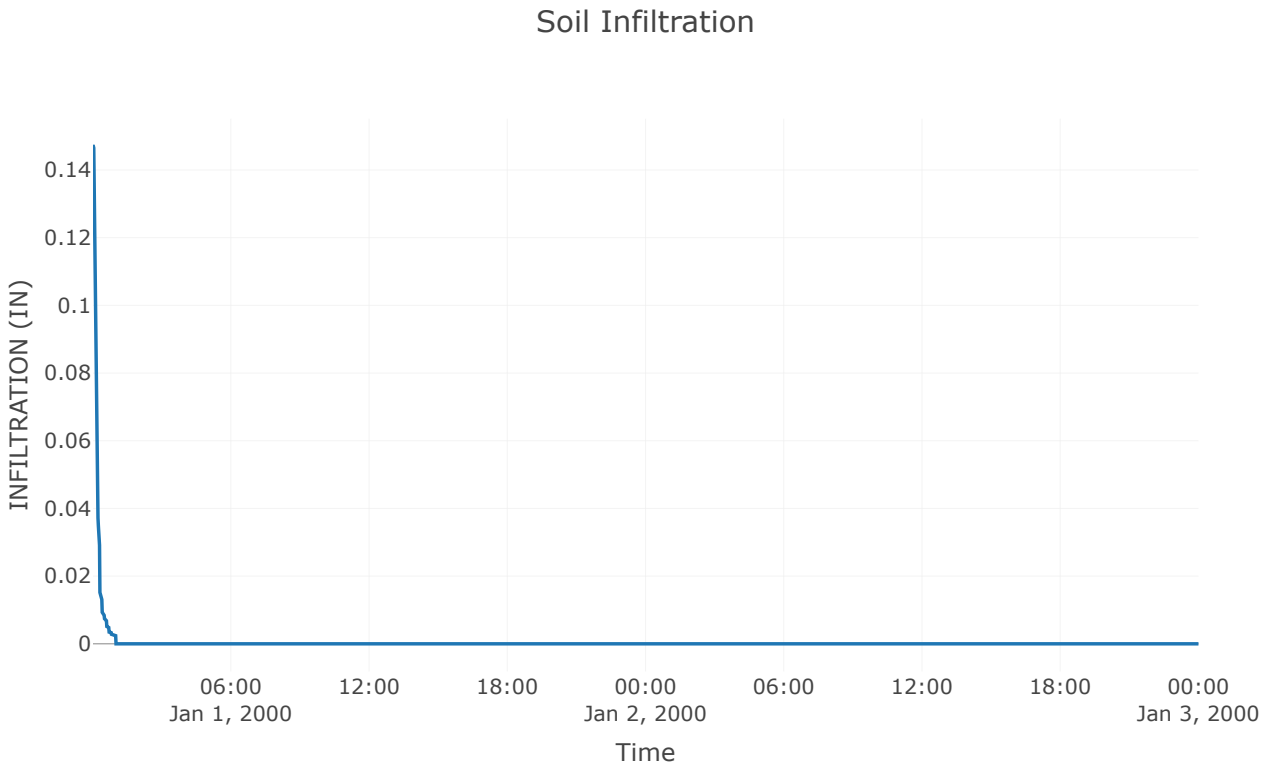


Precipitation Loss



Direct Runoff




Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: LaGrange Highlands Off-Site

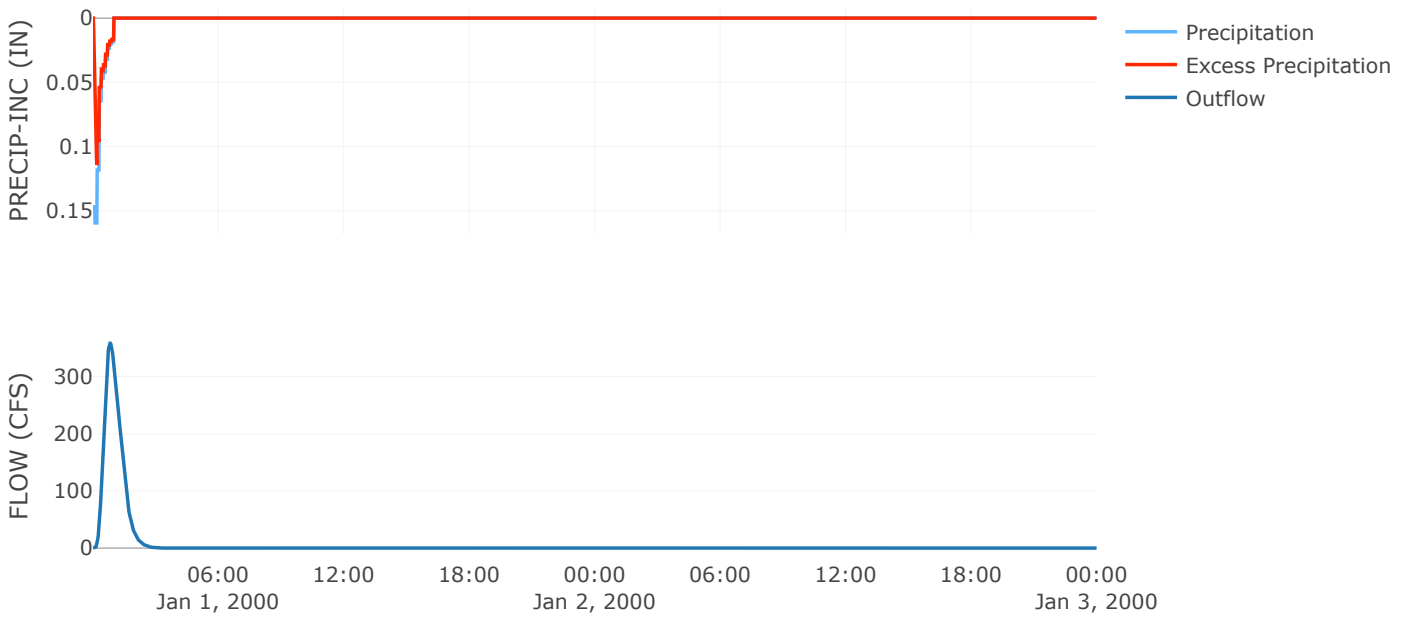
Area (MI2) : 0.2
Downstream : Off - Site Tributary Area

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	86

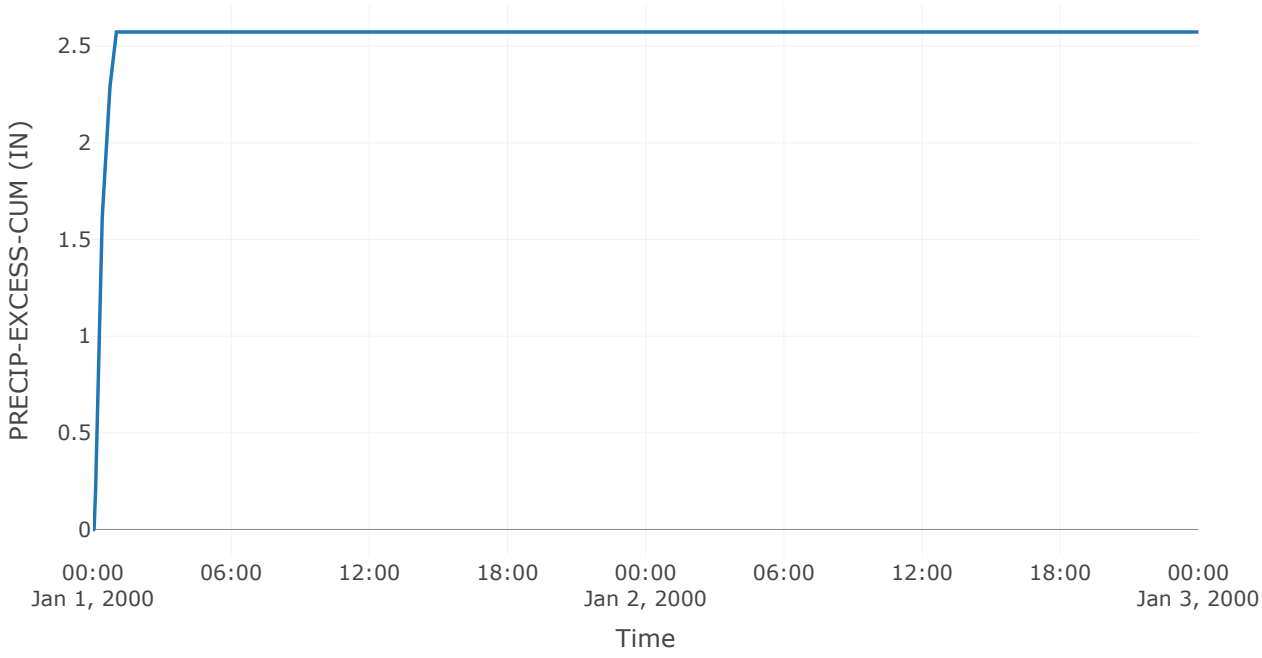
Transform: Scs	
Lag	29.2
Unitgraph Type	Standard

Results: LaGrange Highlands Off-Site	
Peak Discharge (CFS)	358.51
Time of Peak Discharge	01Jan2000, 00:49
Volume (IN)	2.57
Precipitation Volume (AC - FT)	43.45
Loss Volume (AC - FT)	15.7
Excess Volume (AC - FT)	27.75
Direct Runoff Volume (AC - FT)	27.75
Baseflow Volume (AC - FT)	0

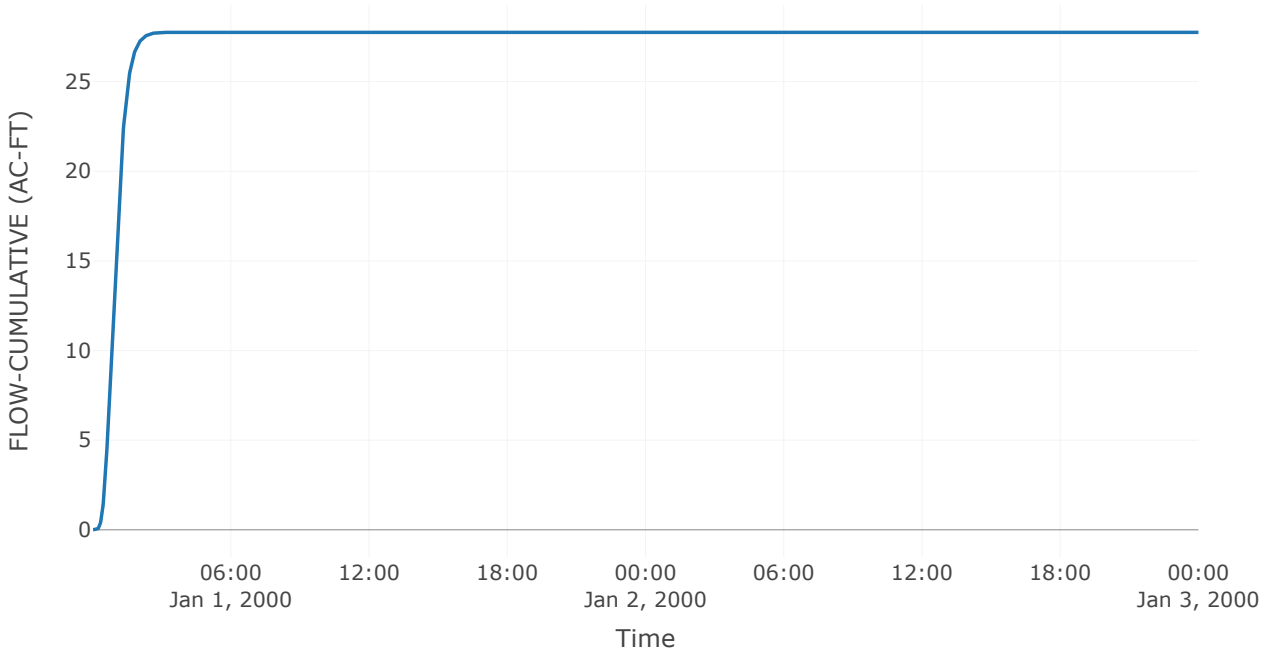
Precipitation and Outflow



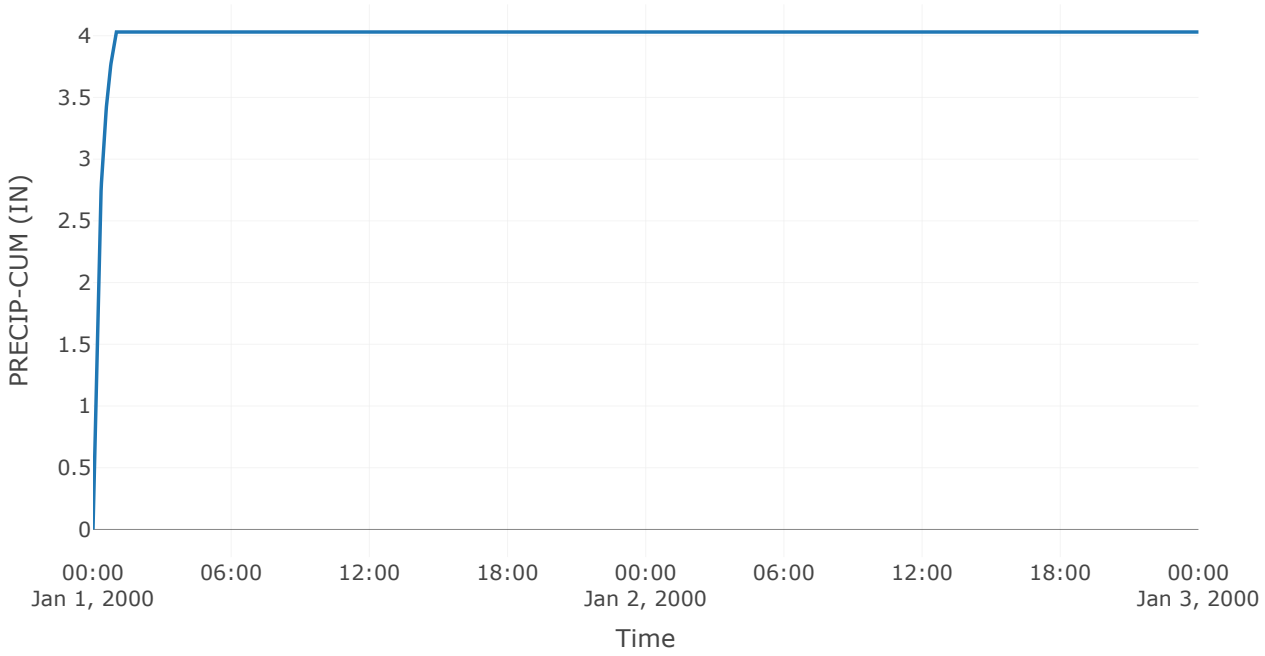
Cumulative Excess Precipitation



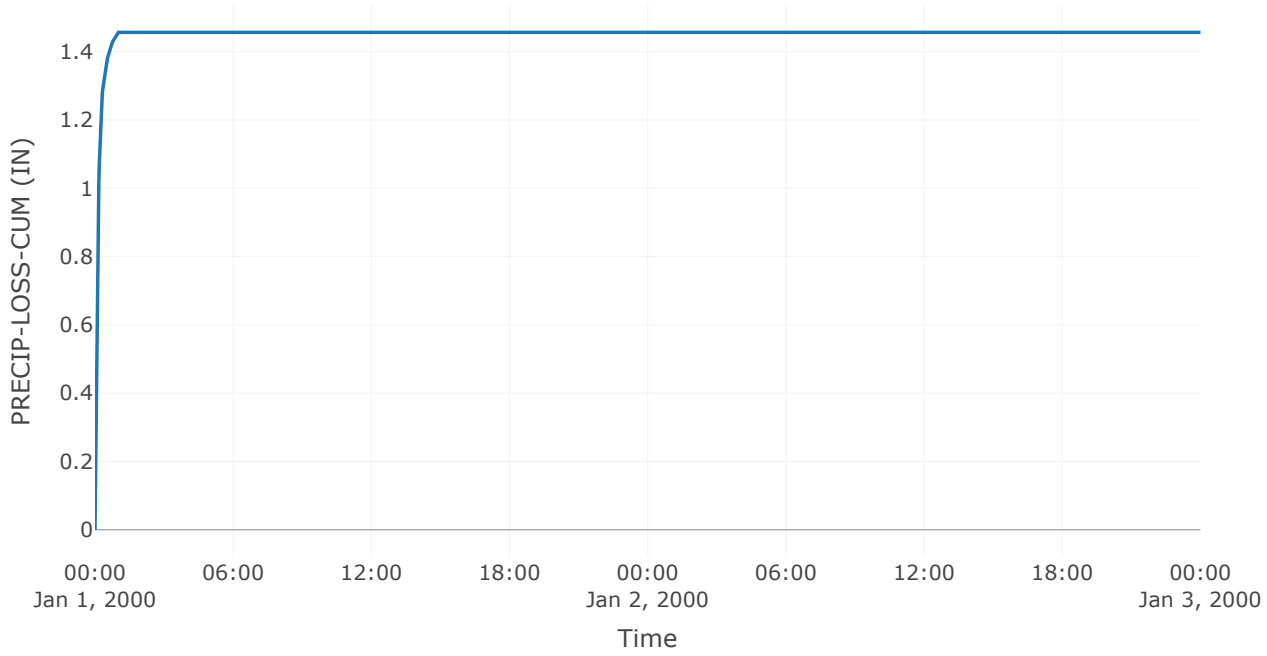
Cumulative Outflow



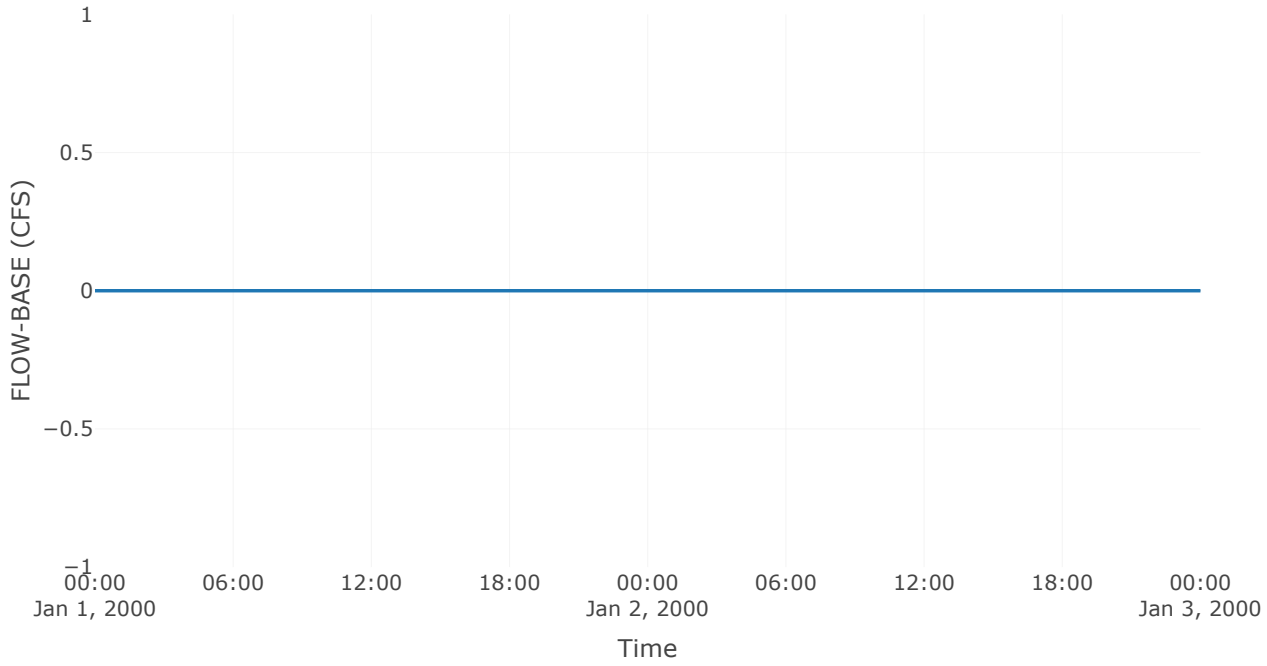
Cumulative Precipitation



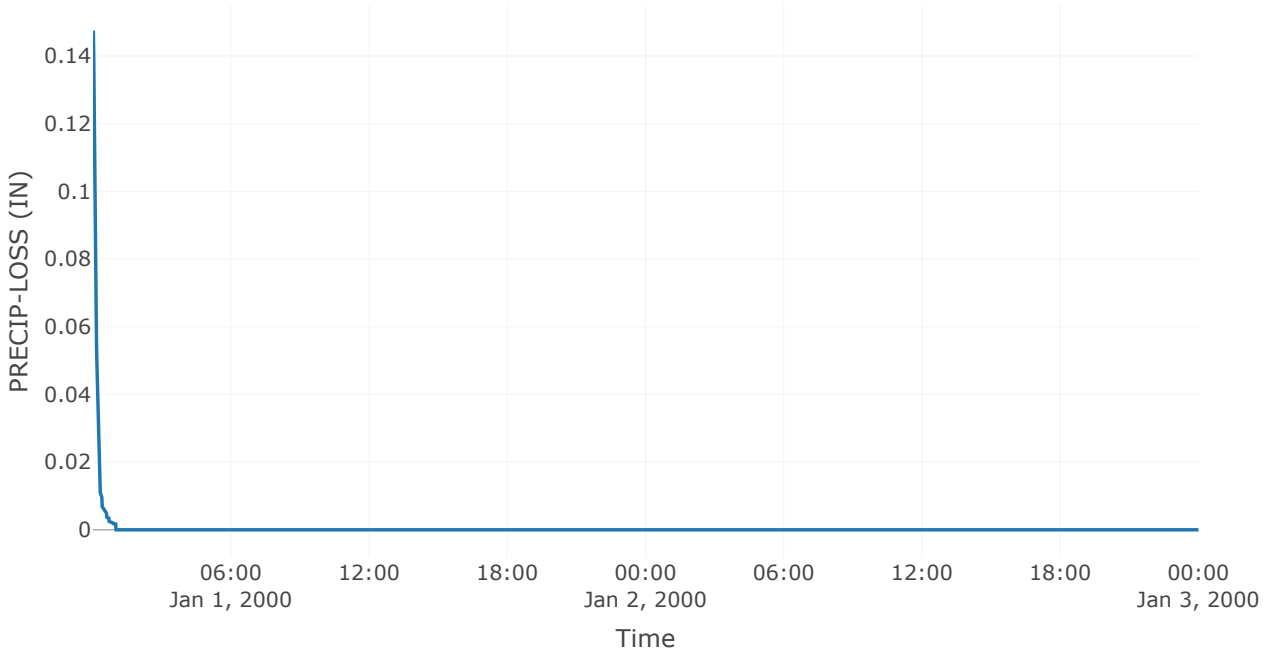
Cumulative Precipitation Loss



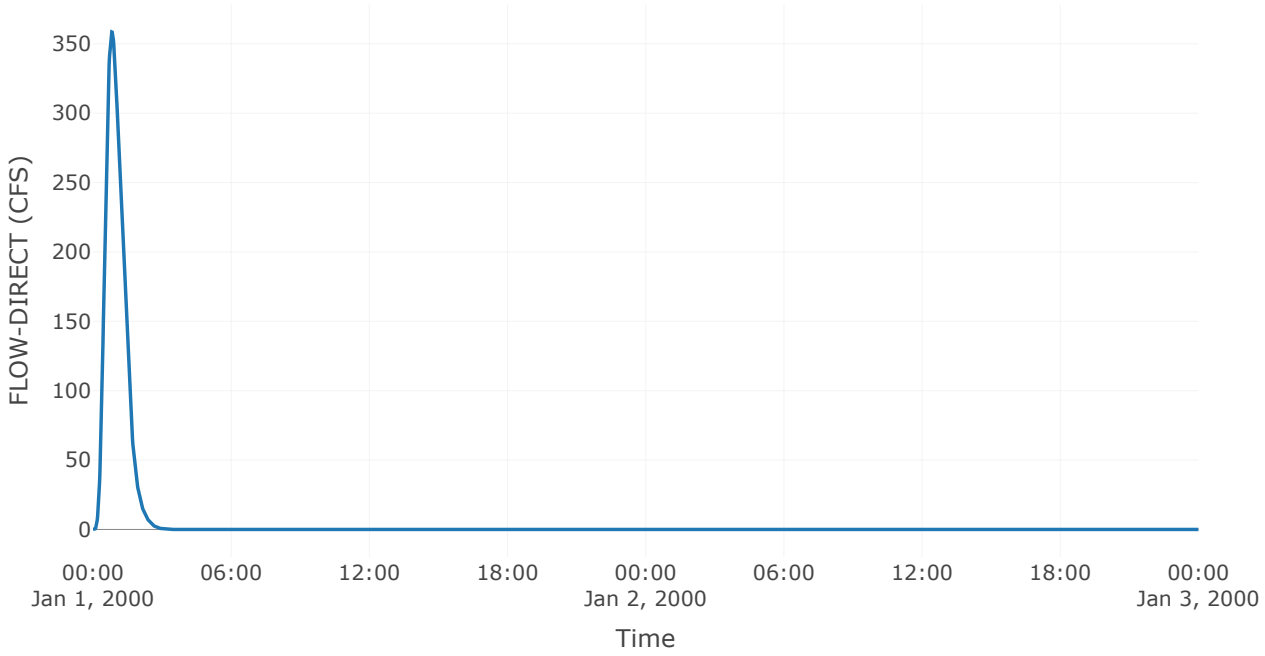
Baseflow

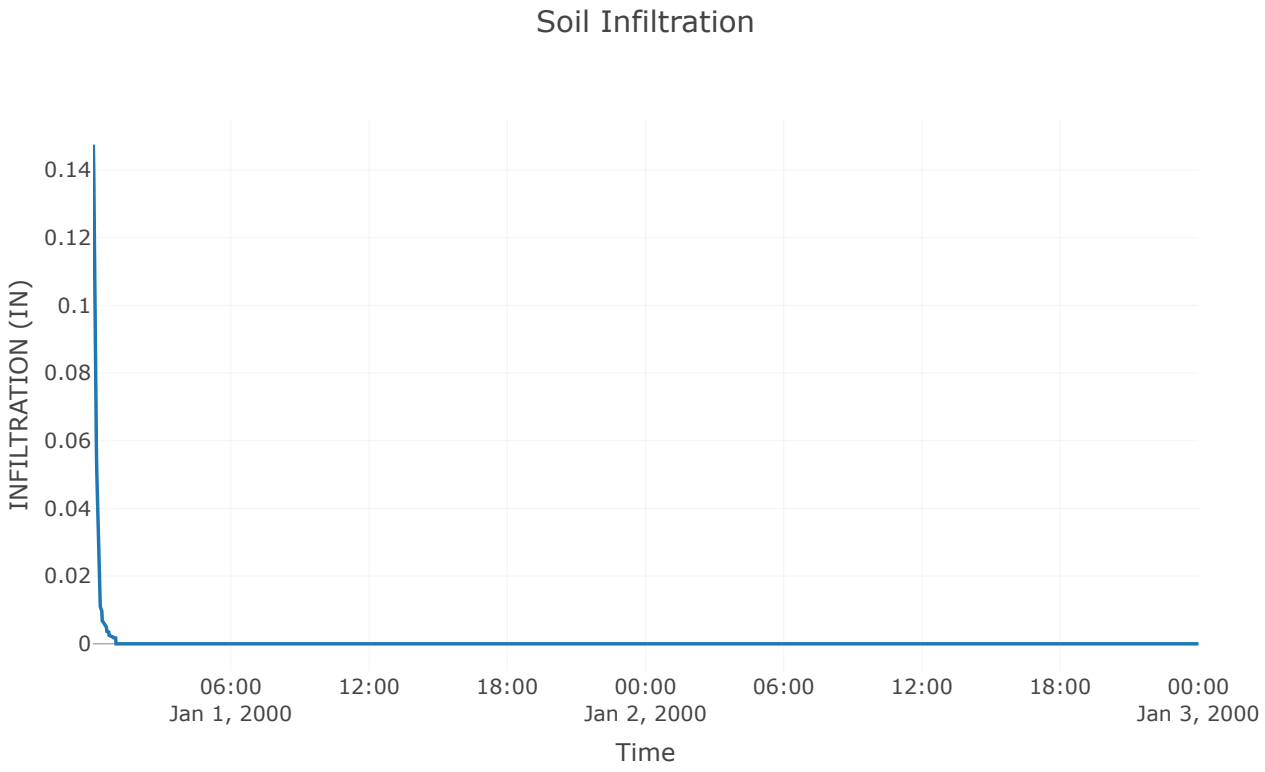


Precipitation Loss



Direct Runoff



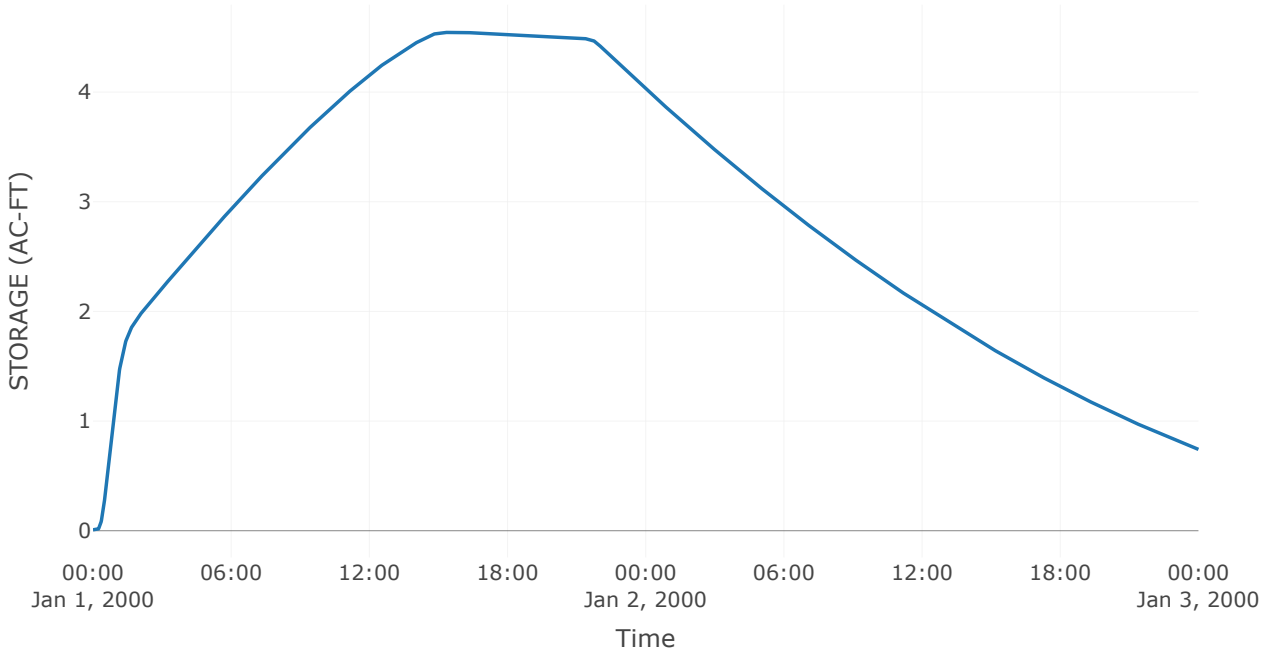

Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Basin 3

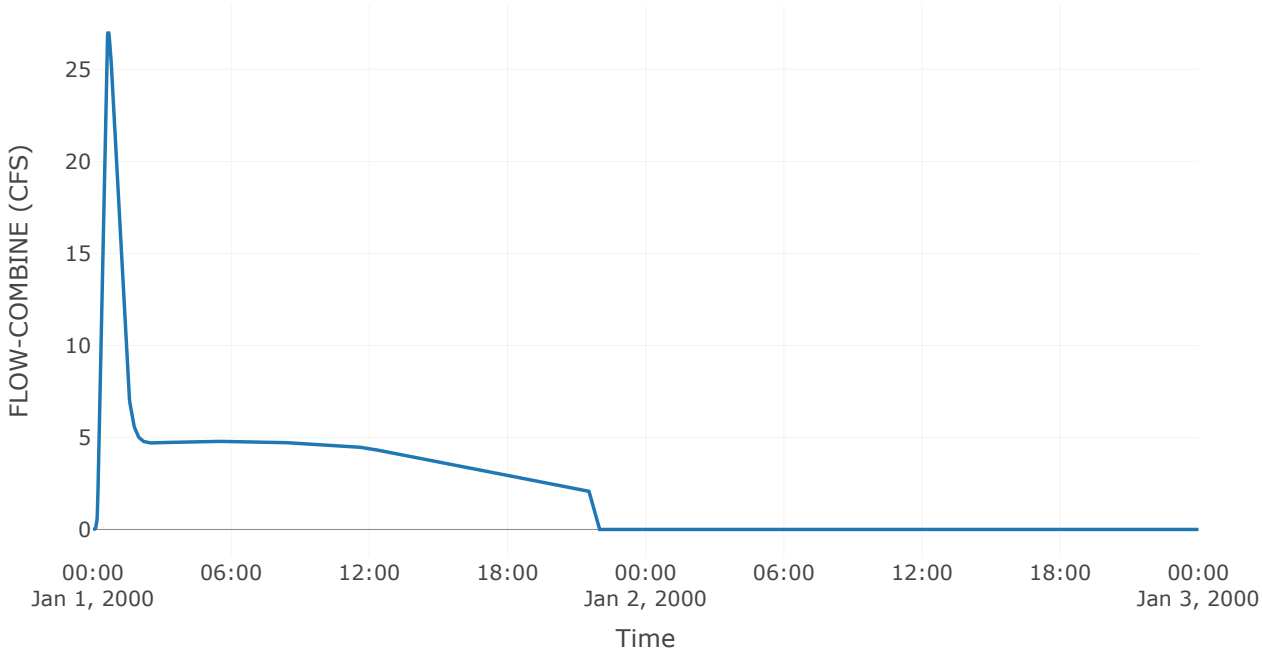
Downstream : Off - Site Tributary Area

Results: Basin 3	
Peak Discharge (CFS)	3.52
Time of Peak Discharge	01Jan2000, 15:36
Volume (IN)	2.2
Peak Inflow (CFS)	27.03
Time of Peak Inflow	01Jan2000, 00:40
Inflow Volume (AC - FT)	8.59
Maximum Storage (AC - FT)	4.54
Peak Elevation (FT)	695.06
Discharge Volume (AC - FT)	7.86

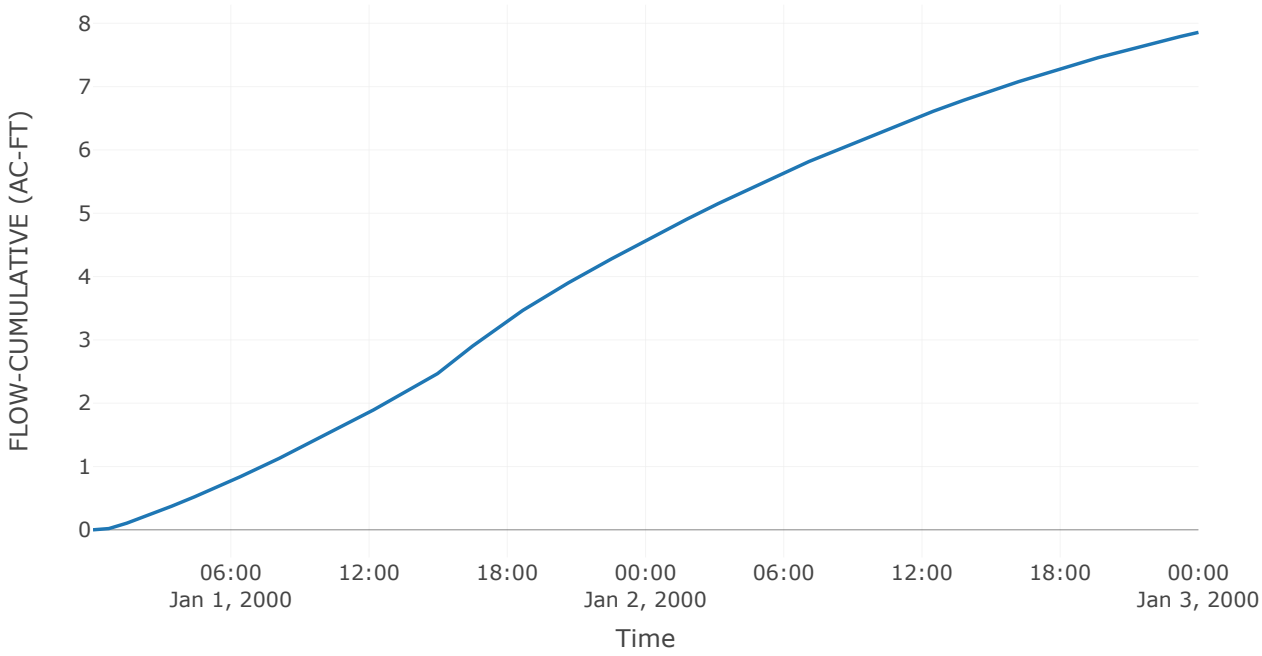
Storage



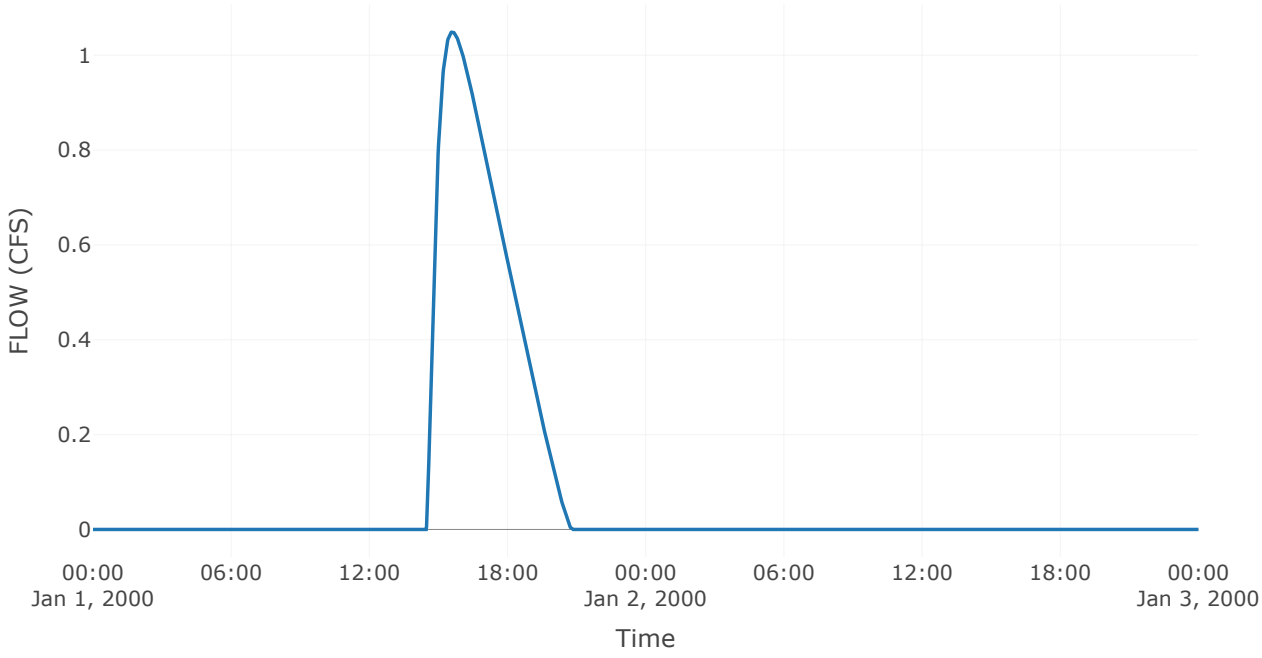
Combined Inflow



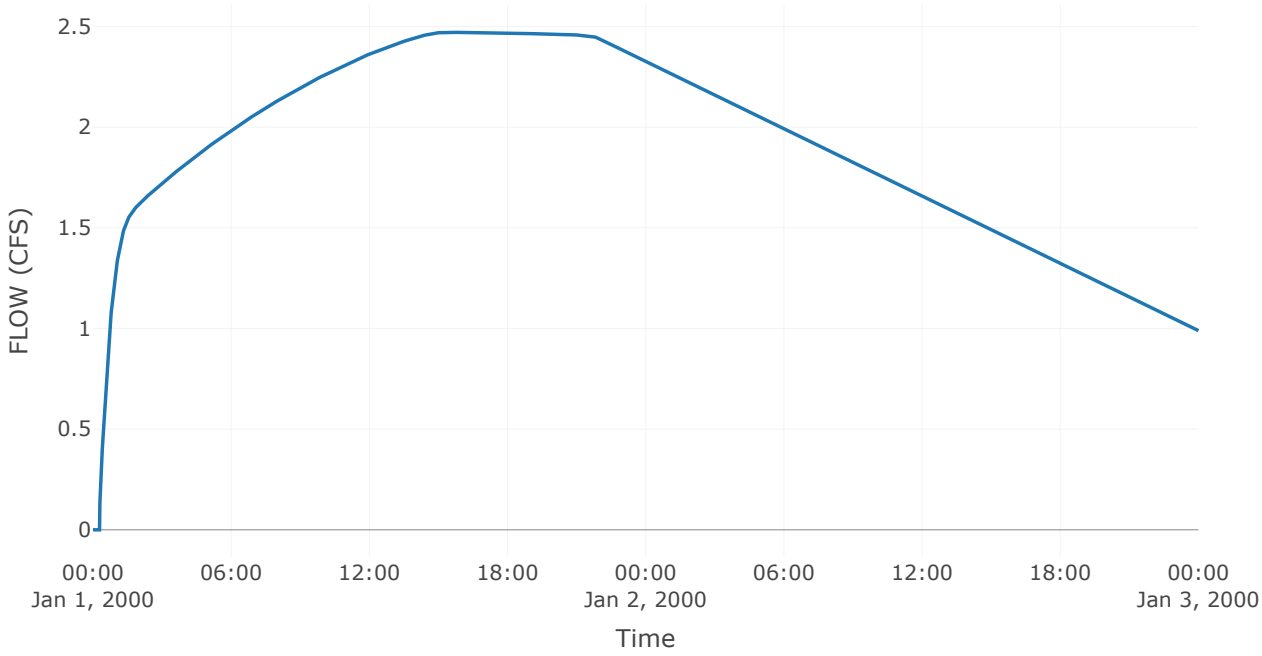
Cumulative Outflow



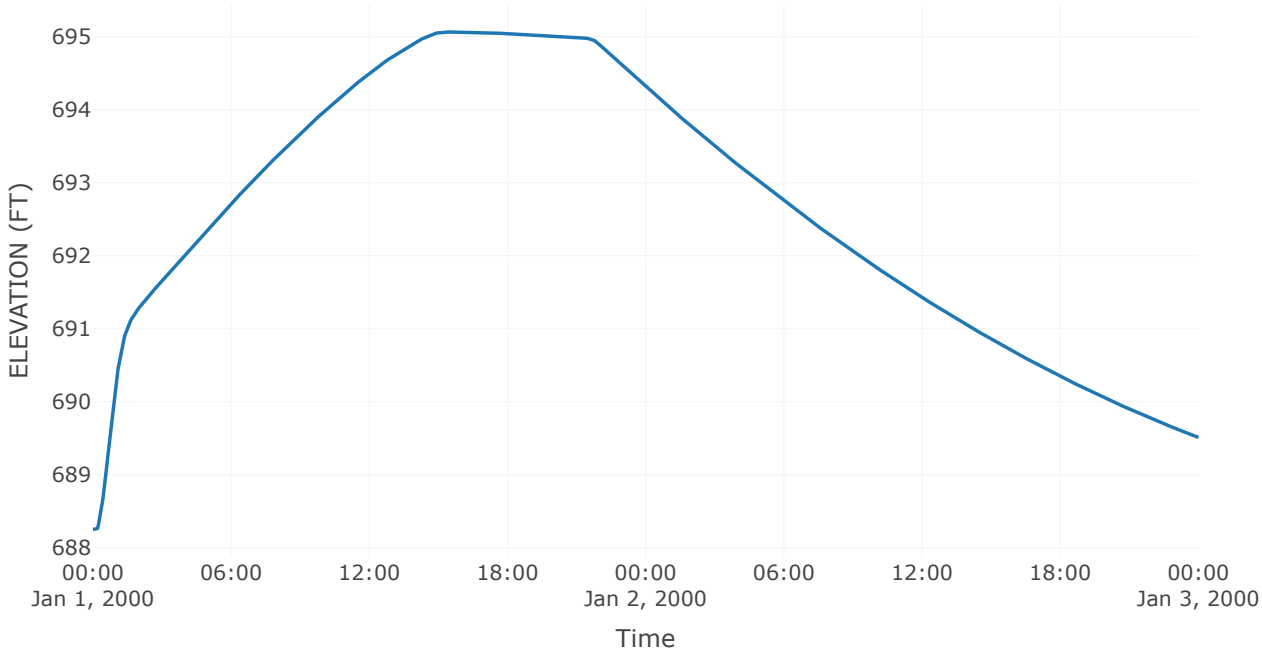
Spillway 1

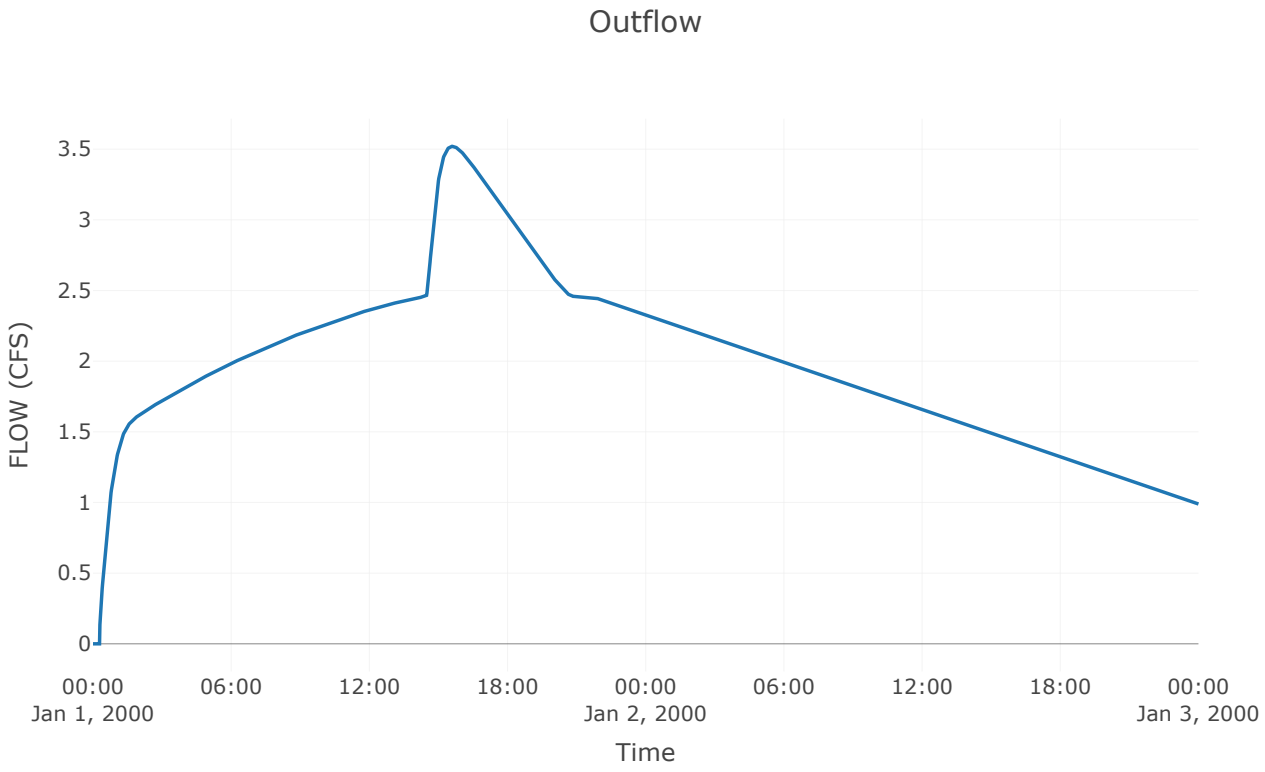


Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
3.5
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

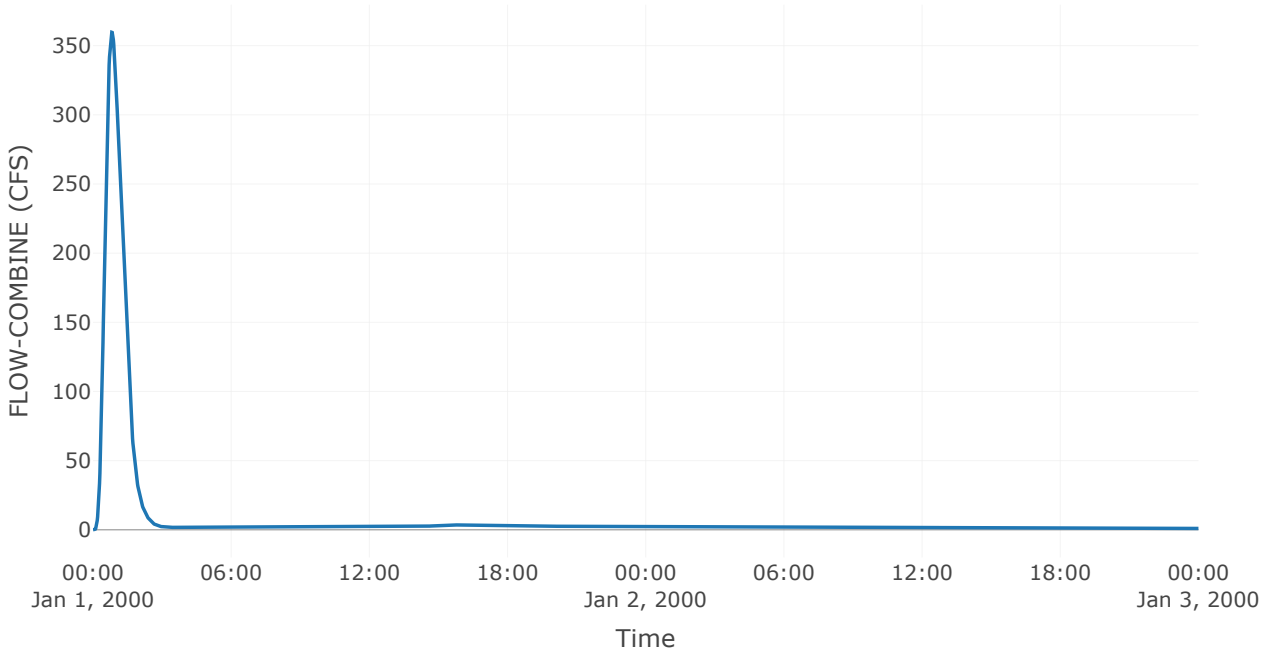
Junction: Off-Site Tributary Area

Downstream : Storage East of Wolf Road

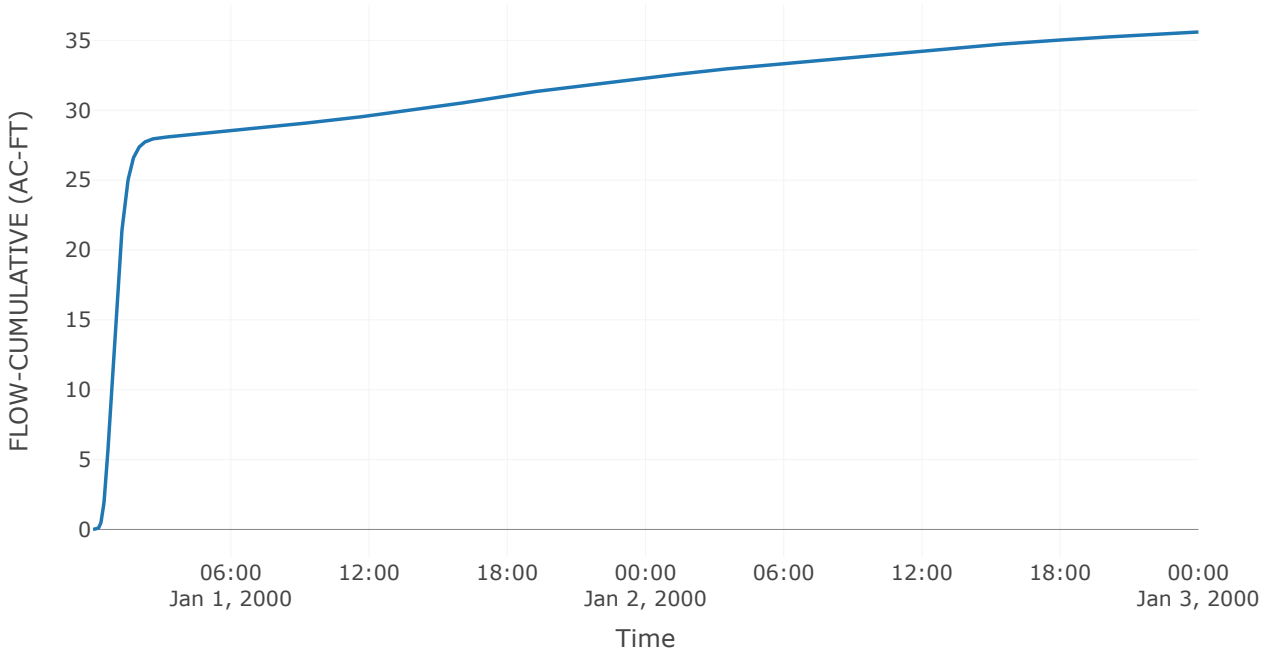
Results: Off-Site Tributary Area

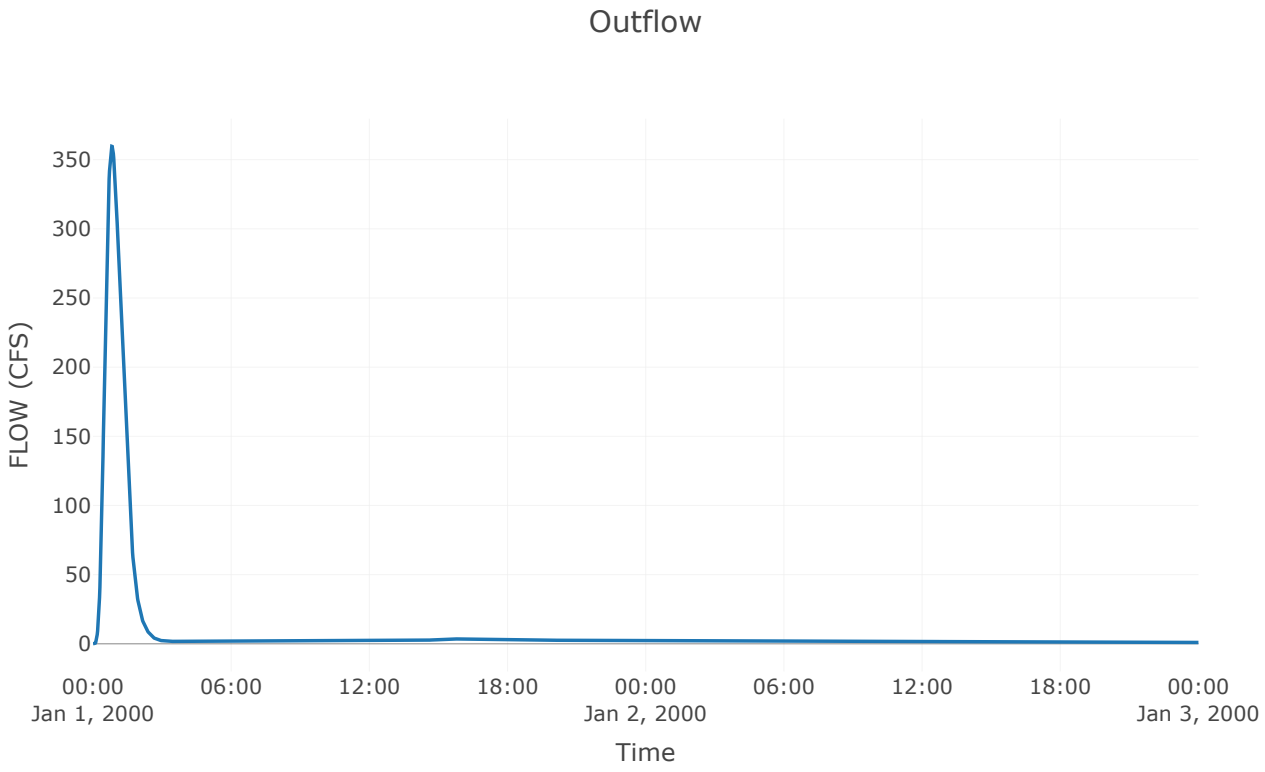
Peak Discharge (CFS)	359.61
Time of Peak Discharge	01Jan2000, 00:49
Volume (IN)	2.48

Combined Inflow



Cumulative Outflow



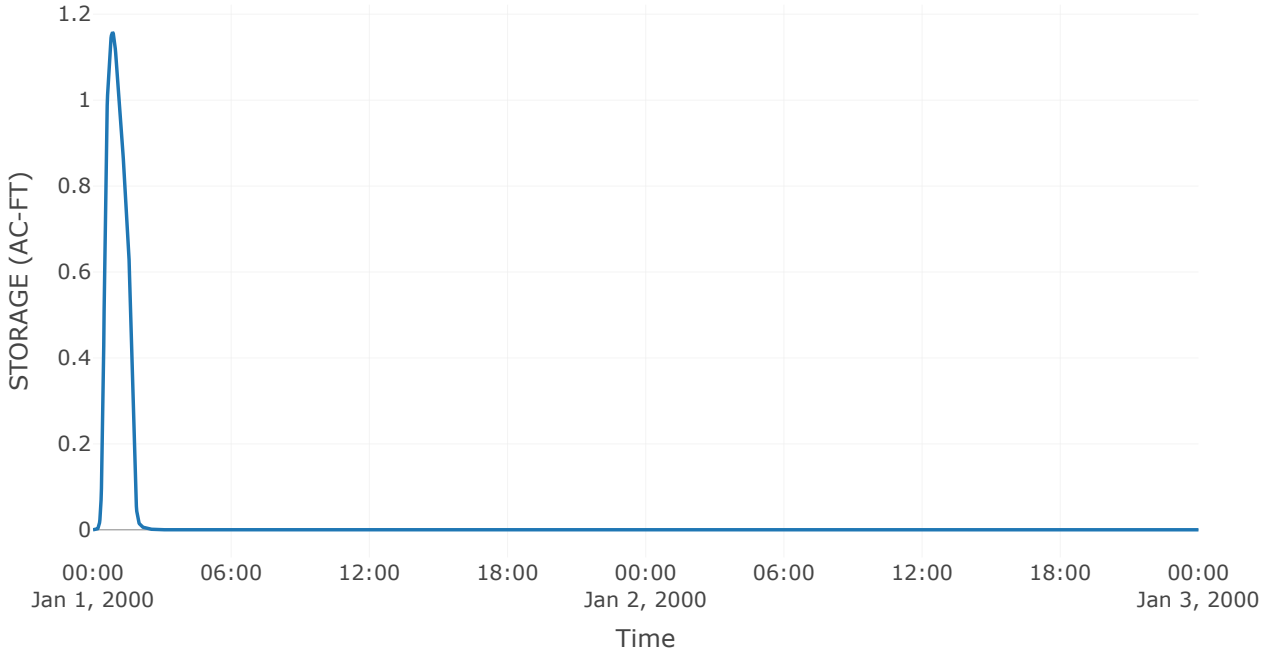

Outflow
FLOW (CFS)
350
300
250
200
150
100
50
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Storage East of Wolf Road

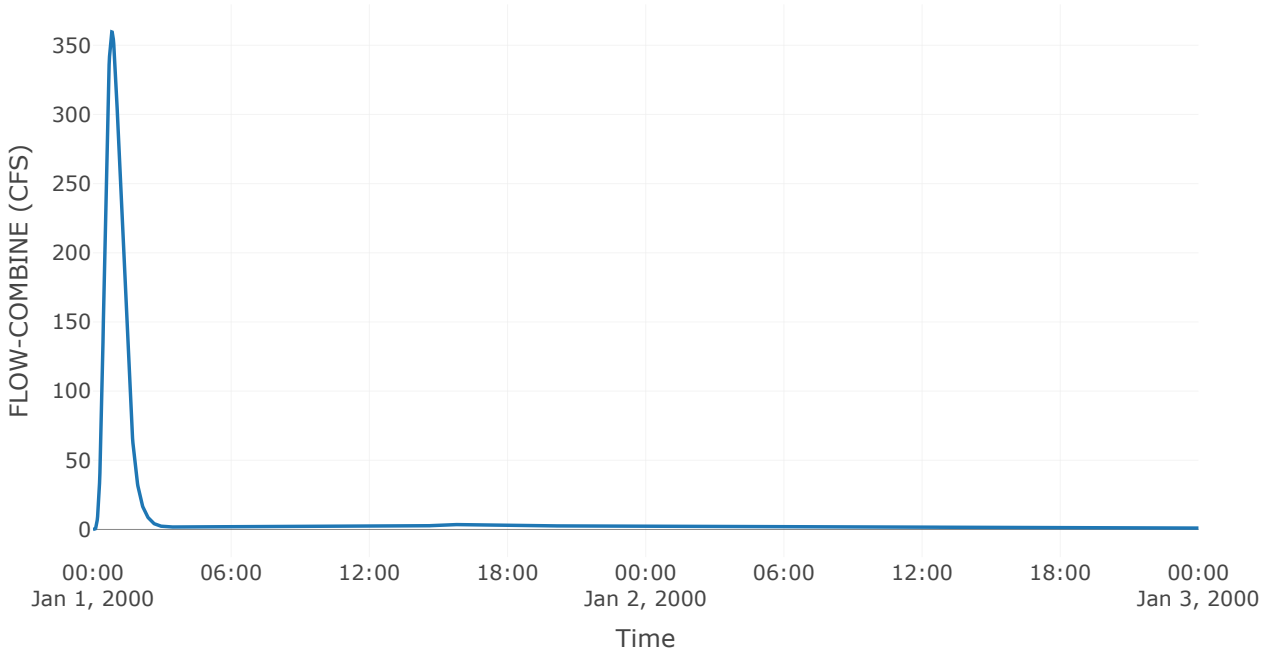
Downstream : Prop Storage West of Wolf Rd

Results: Storage East of Wolf Road	
Peak Discharge (CFS)	328.72
Time of Peak Discharge	01Jan2000, 00:59
Volume (IN)	2.48
Peak Inflow (CFS)	359.61
Time of Peak Inflow	01Jan2000, 00:49
Inflow Volume (AC - FT)	35.6
Maximum Storage (AC - FT)	2.65
Peak Elevation (FT)	664.96
Discharge Volume (AC - FT)	35.6

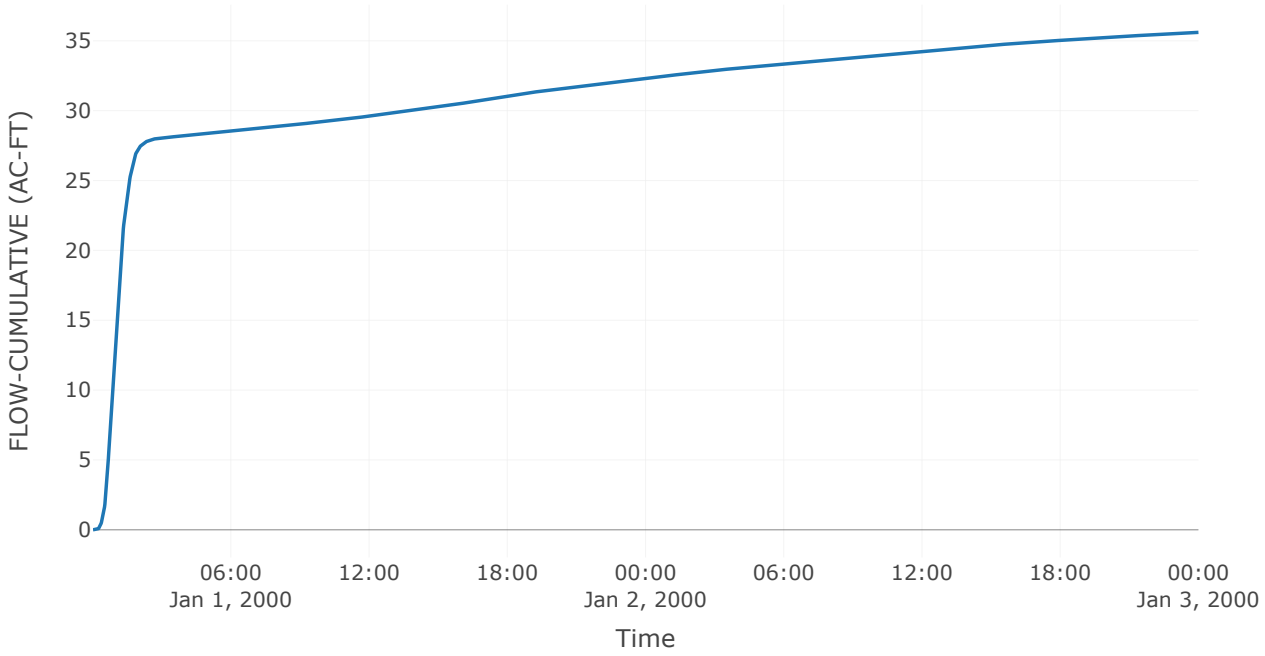
Storage



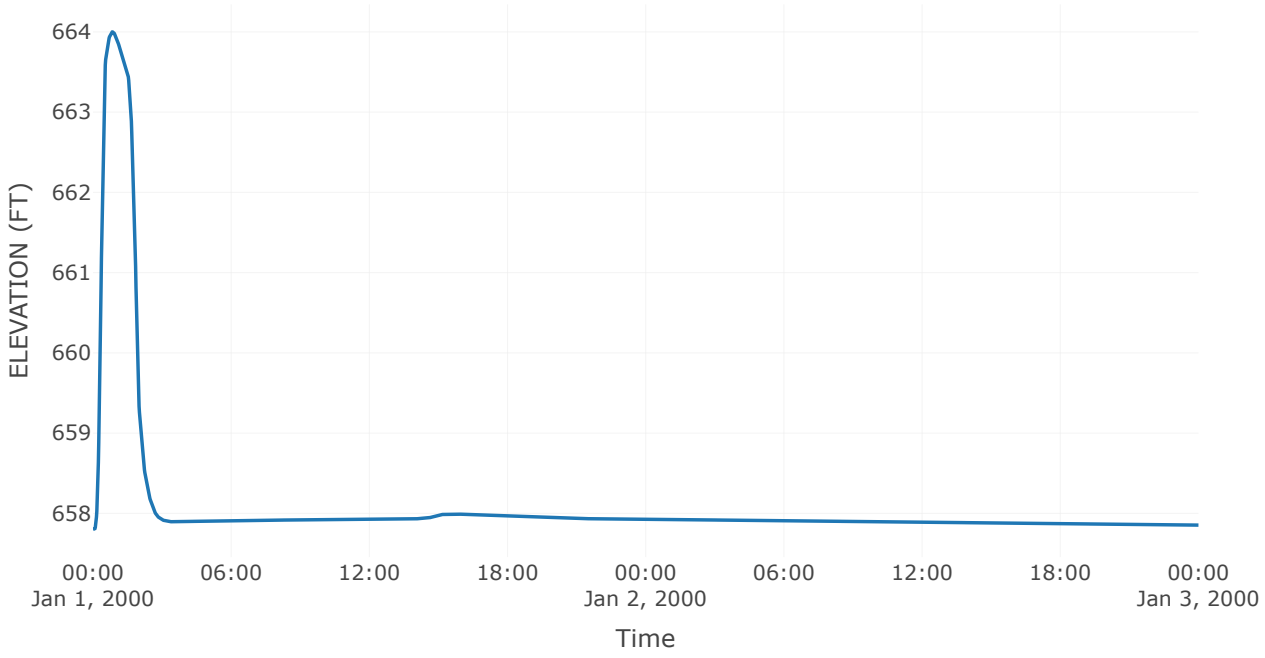
Combined Inflow

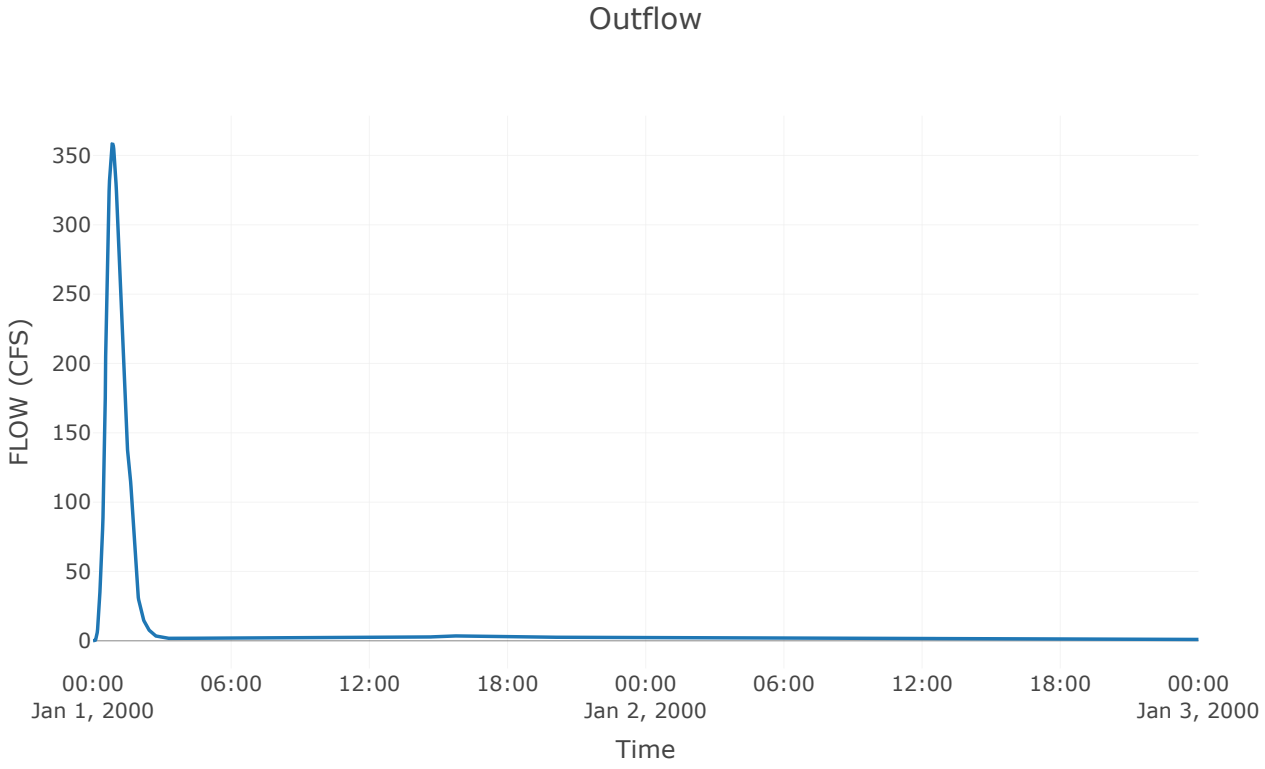


Cumulative Outflow



Pool Elevation



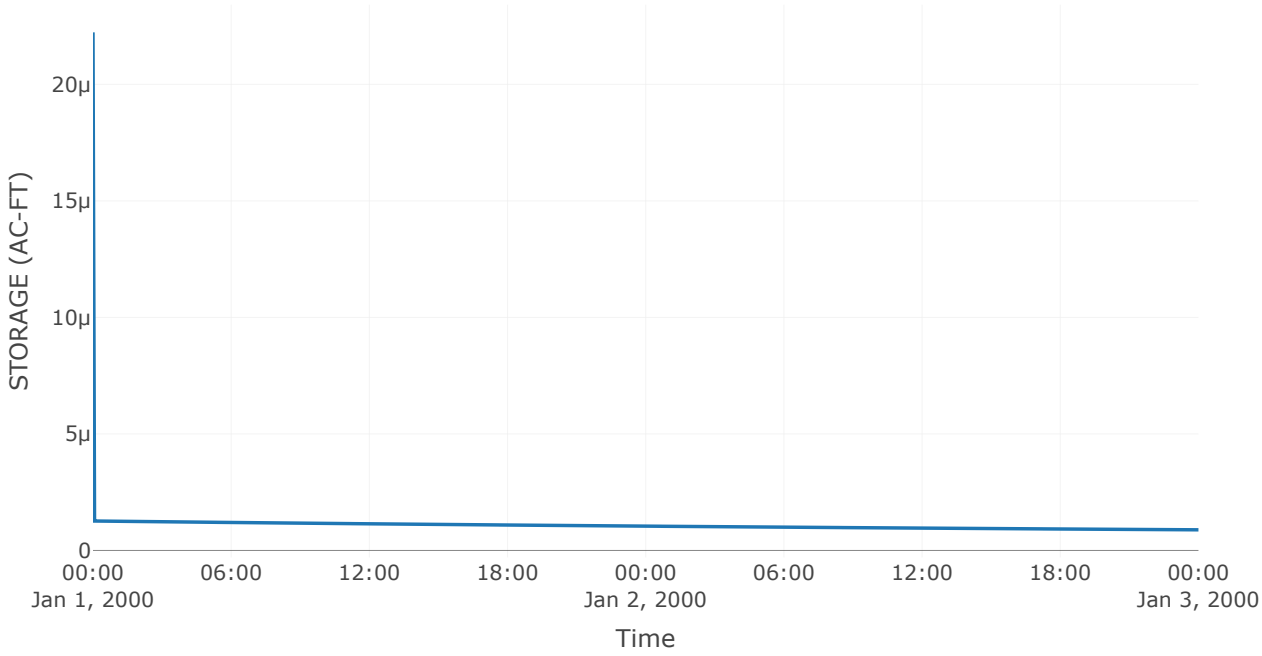

Outflow
FLOW (CFS)
350
300
250
200
150
100
50
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Prop Storage West of Wolf Rd

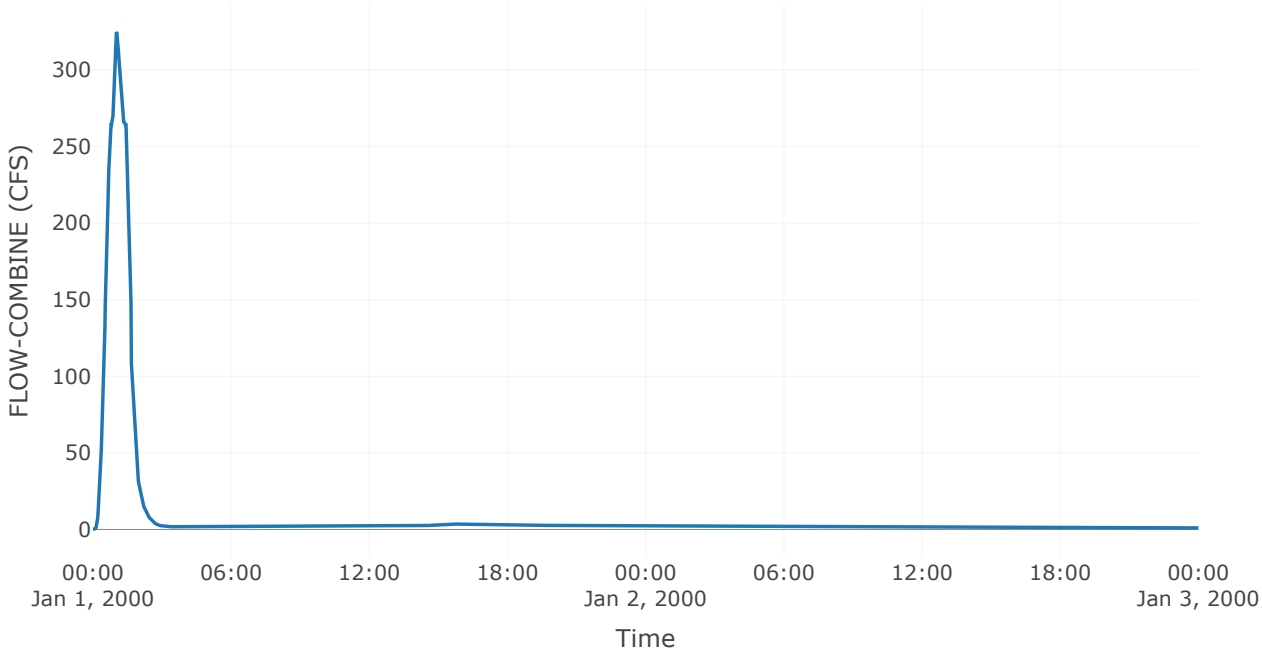
Downstream : Proposed Basin C

Results: Prop Storage West of Wolf Rd	
Peak Discharge (CFS)	329.2
Time of Peak Discharge	01Jan2000, 00:59
Volume (IN)	2.48
Peak Inflow (CFS)	328.72
Time of Peak Inflow	01Jan2000, 00:59
Inflow Volume (AC - FT)	35.6
Maximum Storage (AC - FT)	0.06
Peak Elevation (FT)	657.42
Discharge Volume (AC - FT)	35.57

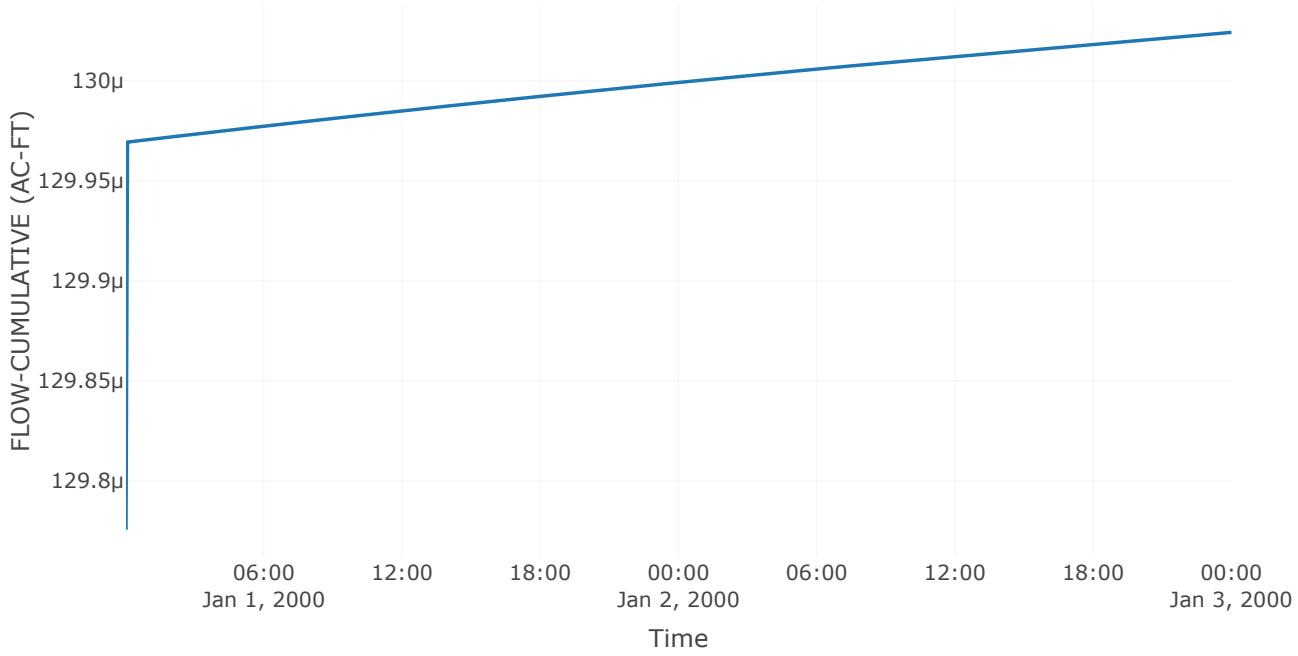
Storage



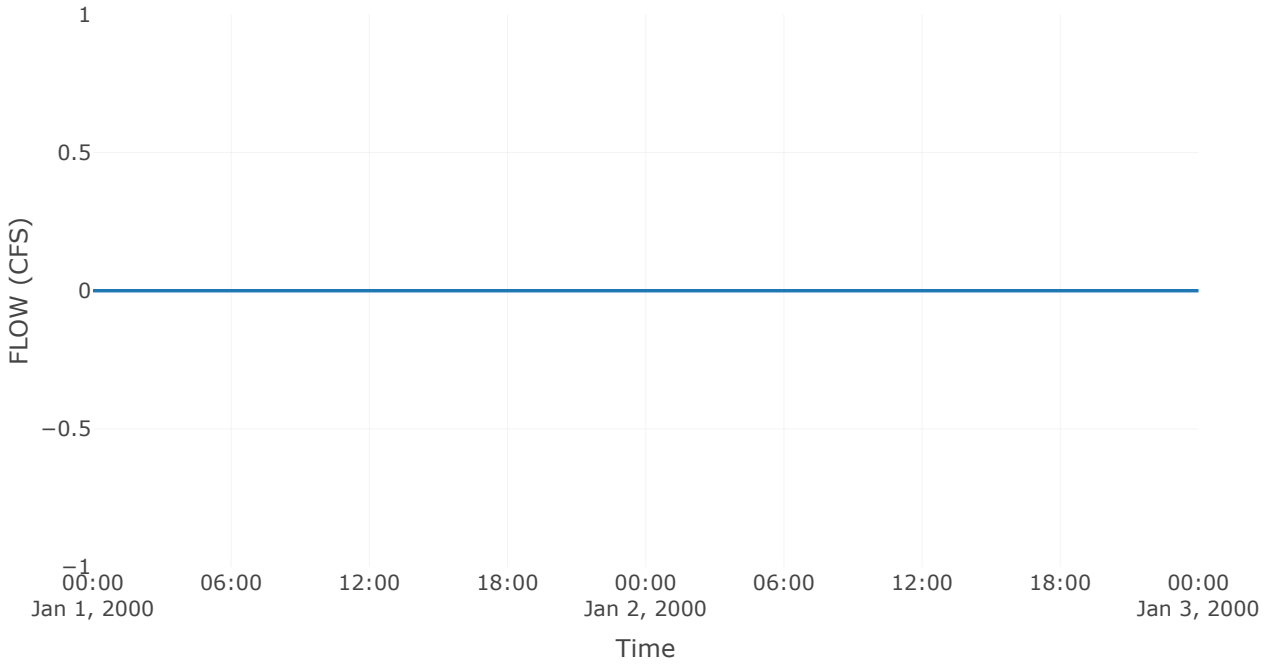
Combined Inflow



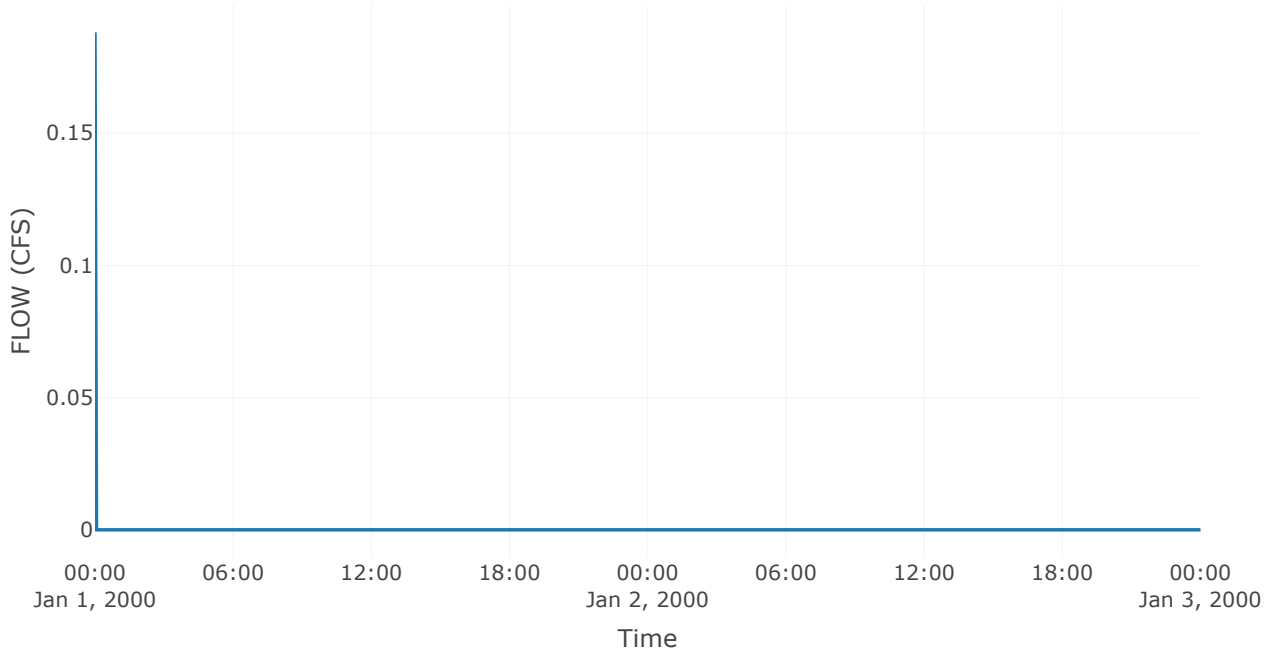
Cumulative Outflow



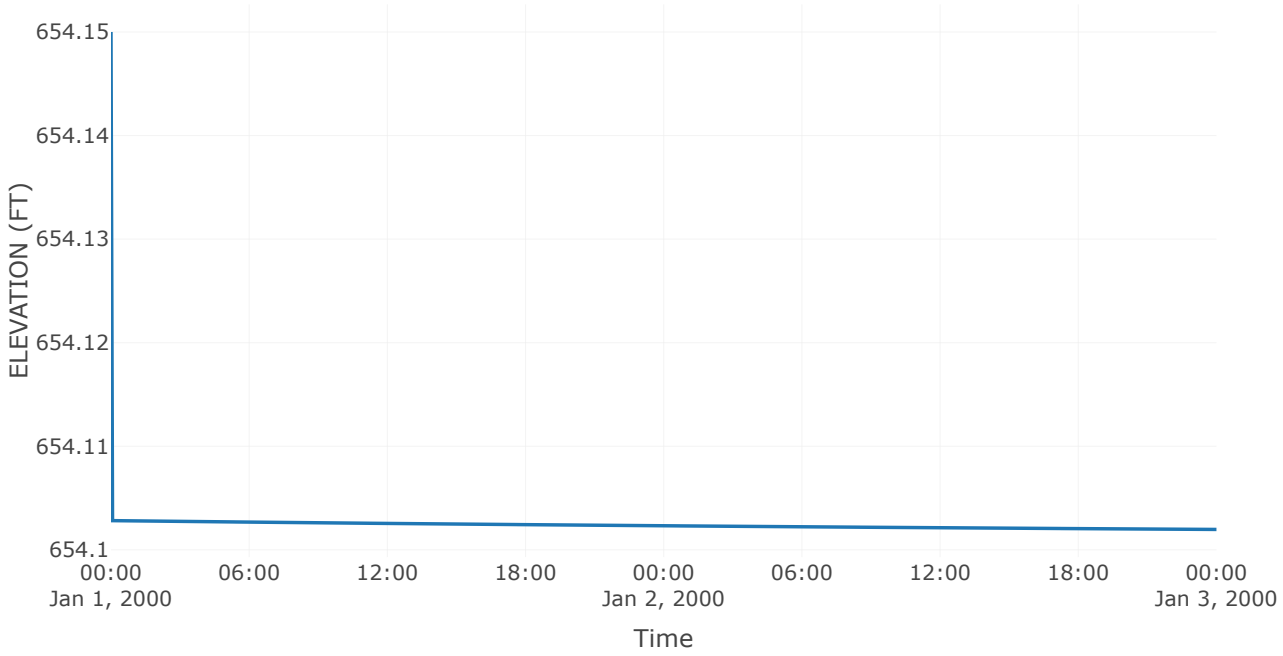
Spillway 1

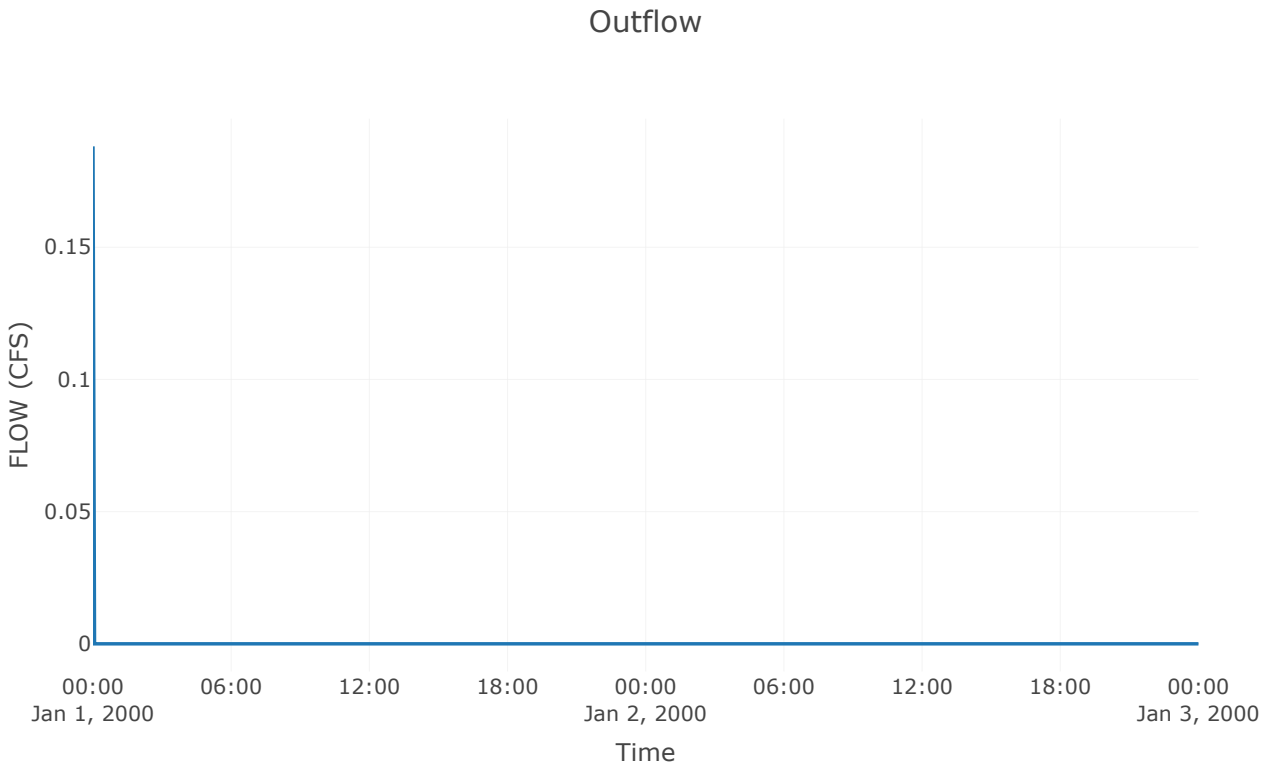


Outlet 1



Pool Elevation




Outflow
FLOW (CFS)
0.15
0.1
0.05
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Subbasin: Prop On-Site

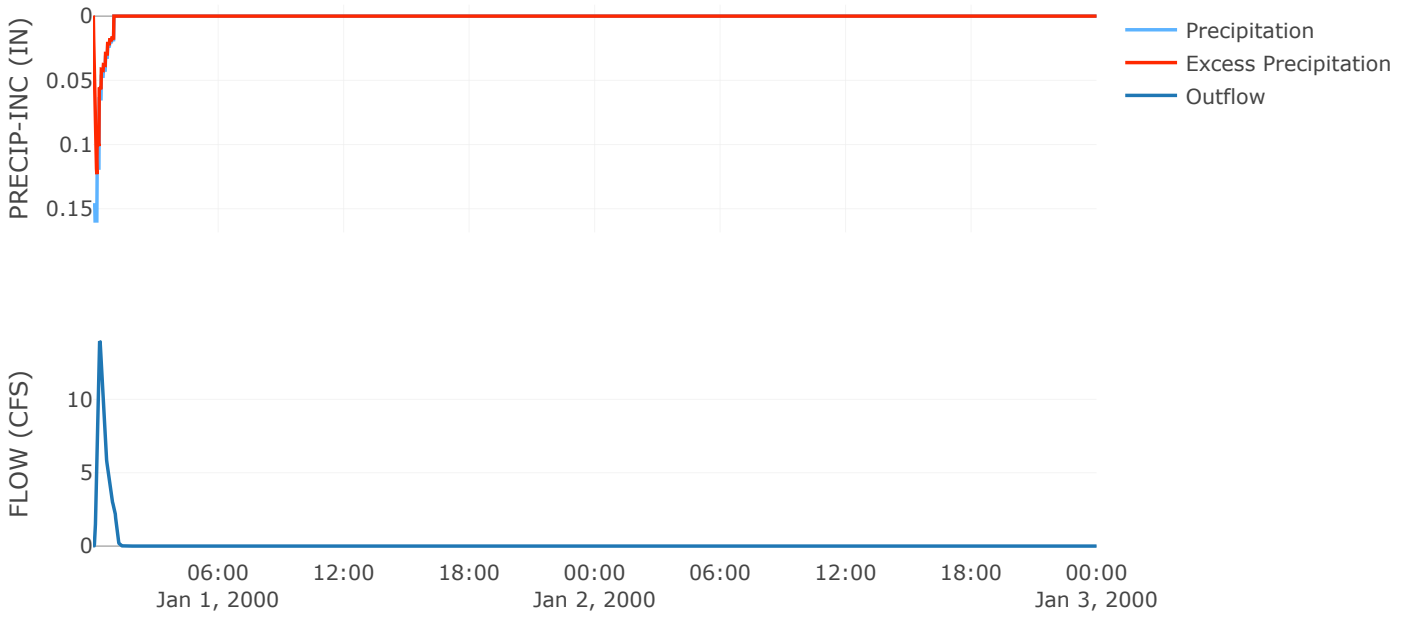
Area (MI2) : 0
Downstream : Proposed Basin C

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	88.03

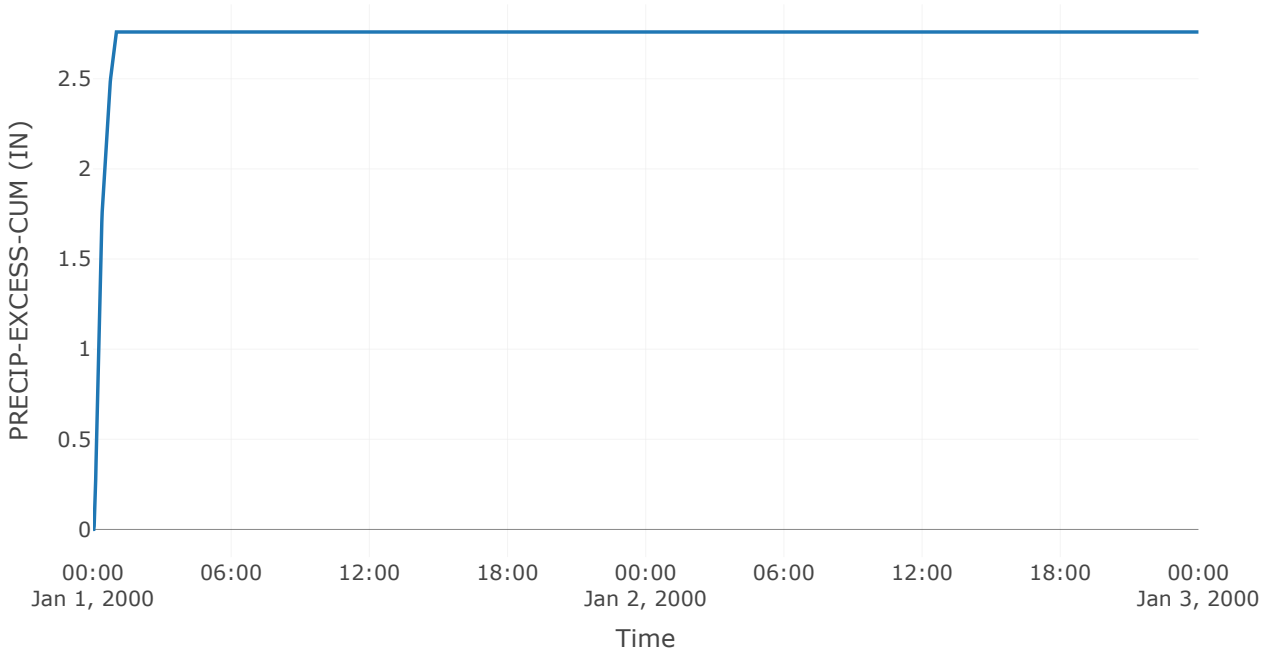
Transform: Scs	
Lag	6
Unitgraph Type	Standard

Results: Prop On-Site	
Peak Discharge (CFS)	13.96
Time of Peak Discharge	01Jan2000, 00:19
Volume (IN)	2.76
Precipitation Volume (AC - FT)	0.81
Loss Volume (AC - FT)	0.26
Excess Volume (AC - FT)	0.55
Direct Runoff Volume (AC - FT)	0.55
Baseflow Volume (AC - FT)	0

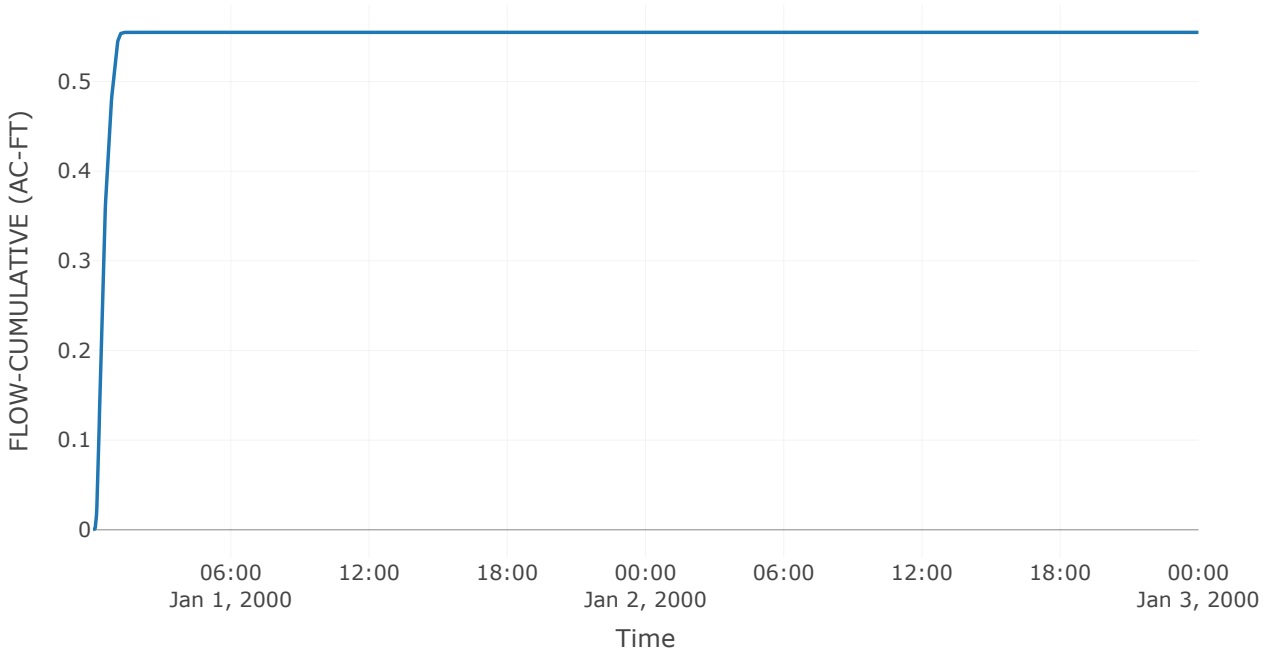
Precipitation and Outflow



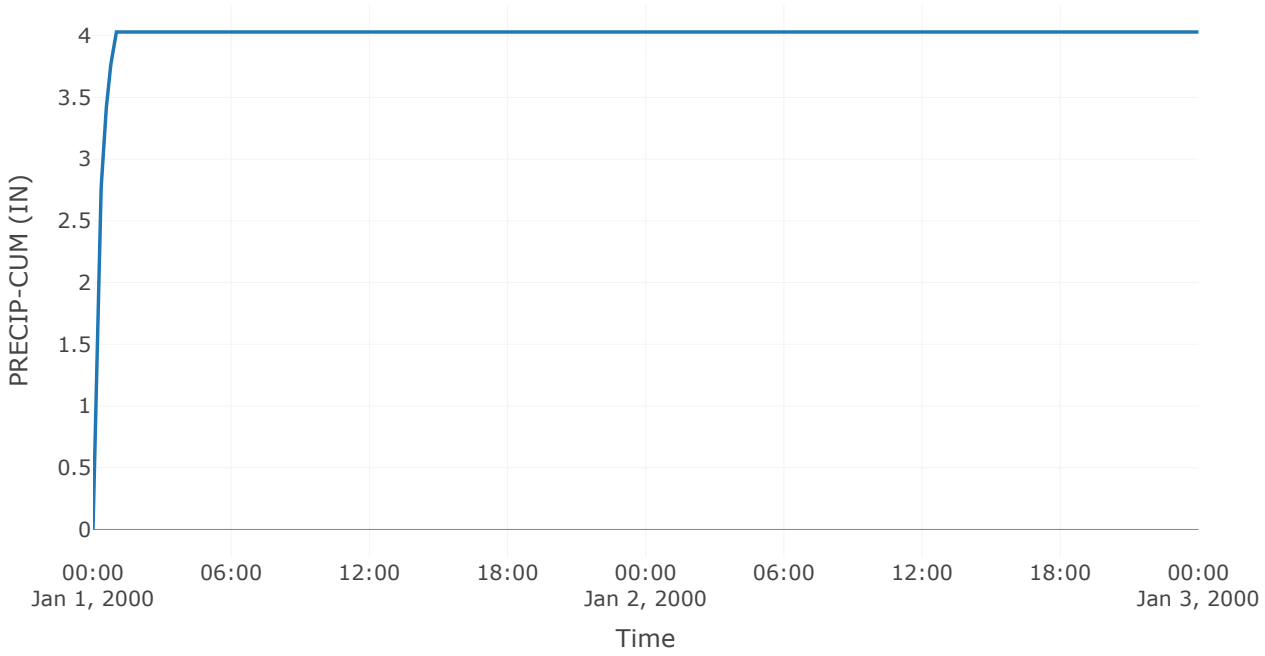
Cumulative Excess Precipitation



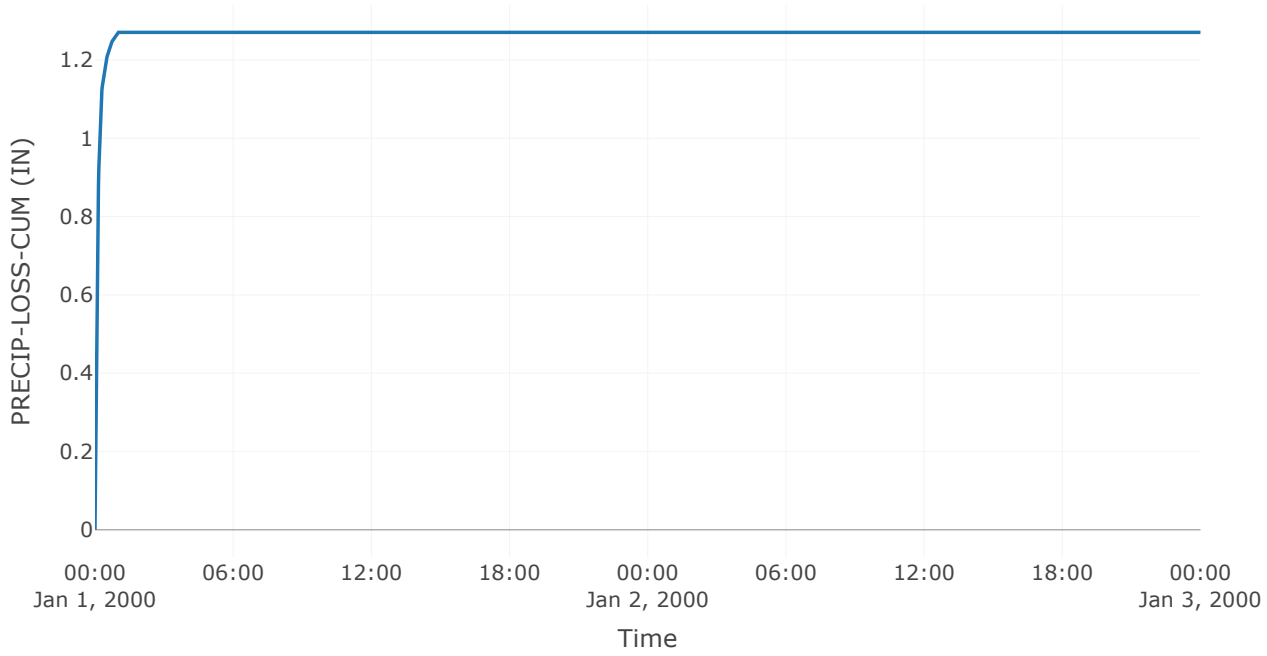
Cumulative Outflow



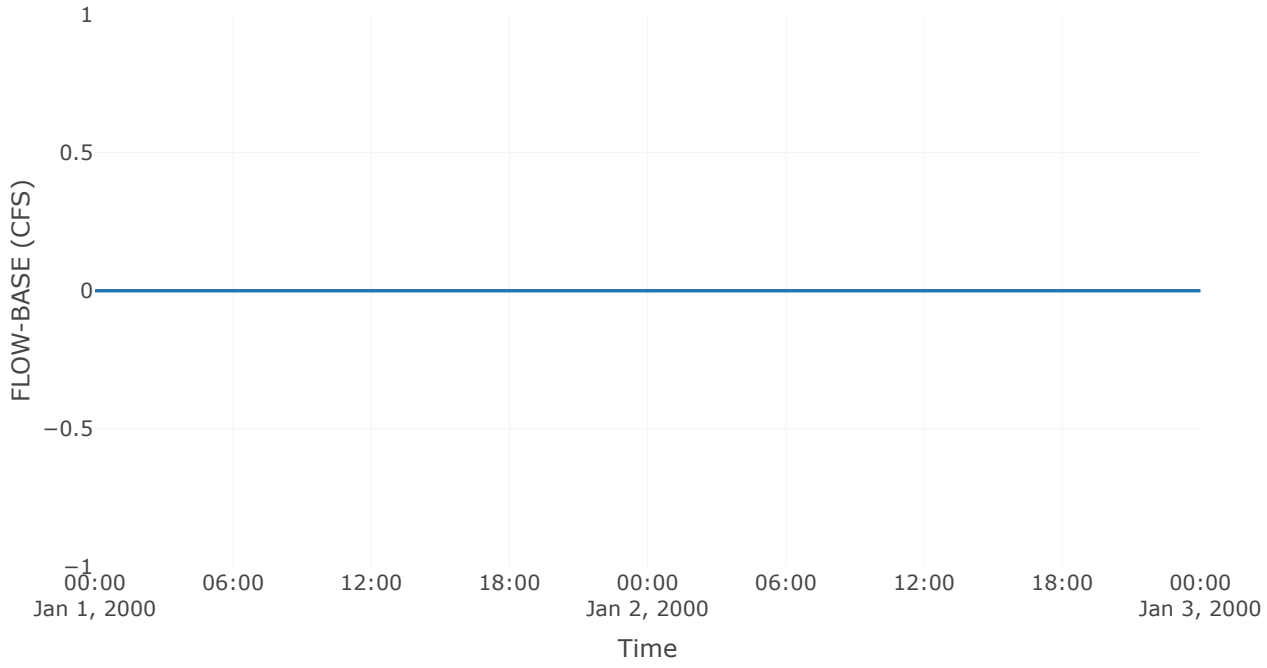
Cumulative Precipitation



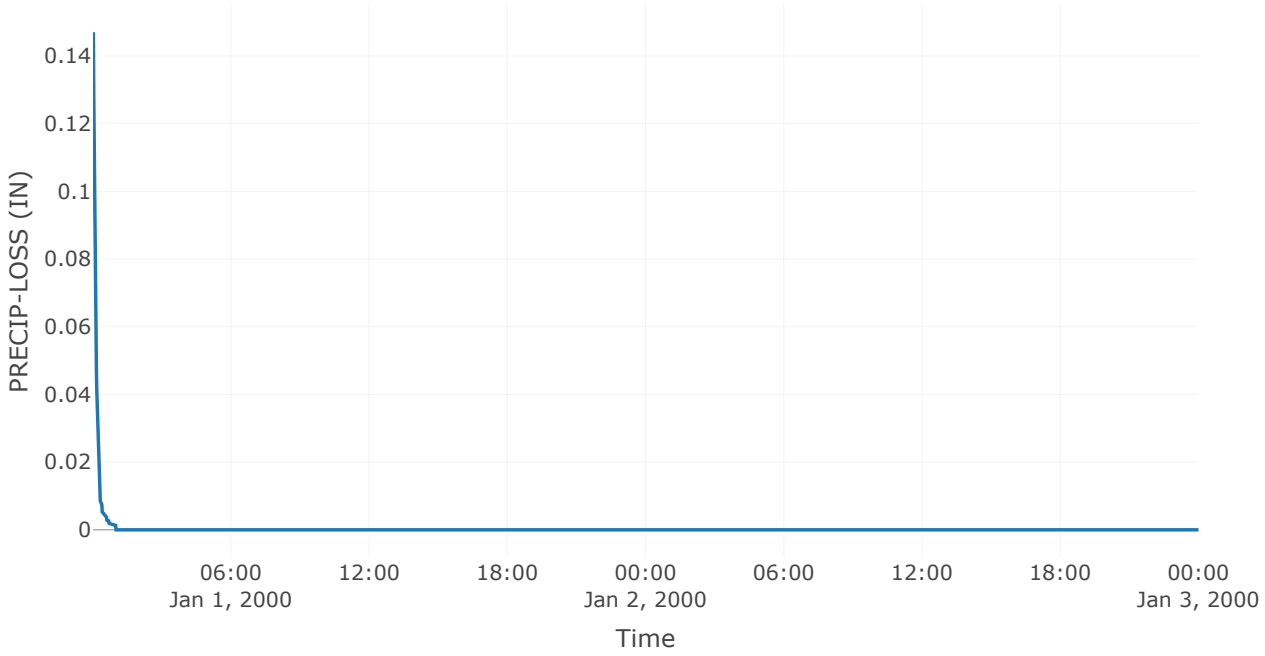
Cumulative Precipitation Loss



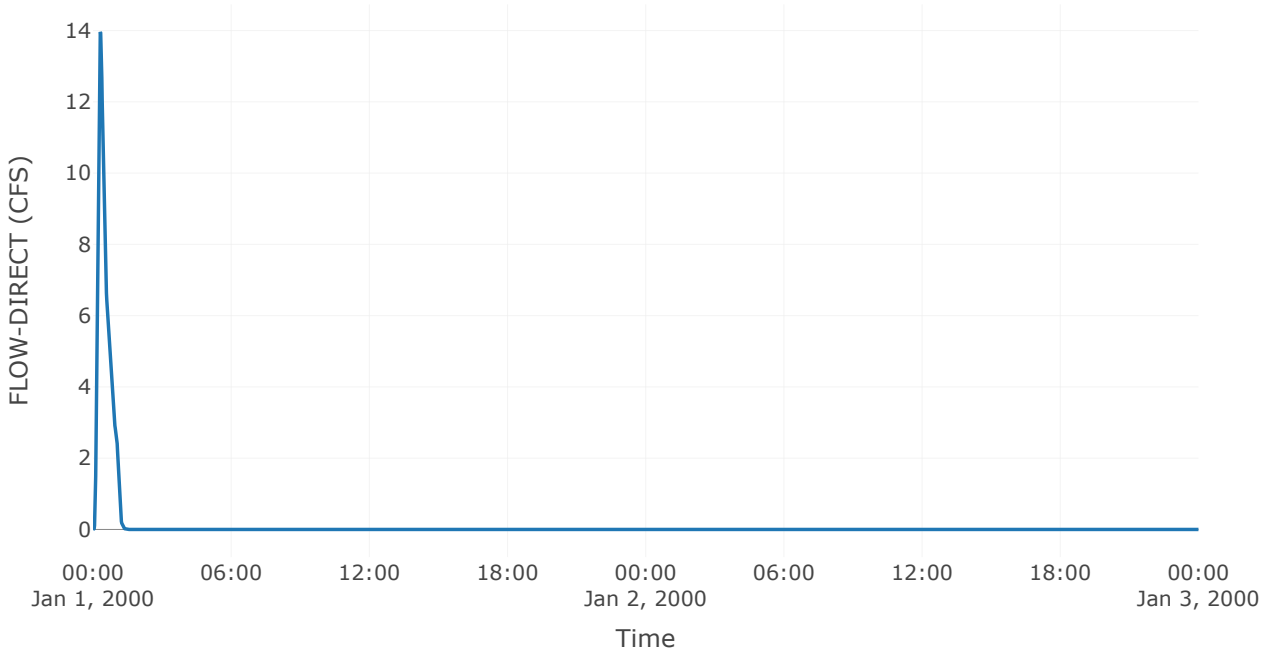
Baseflow

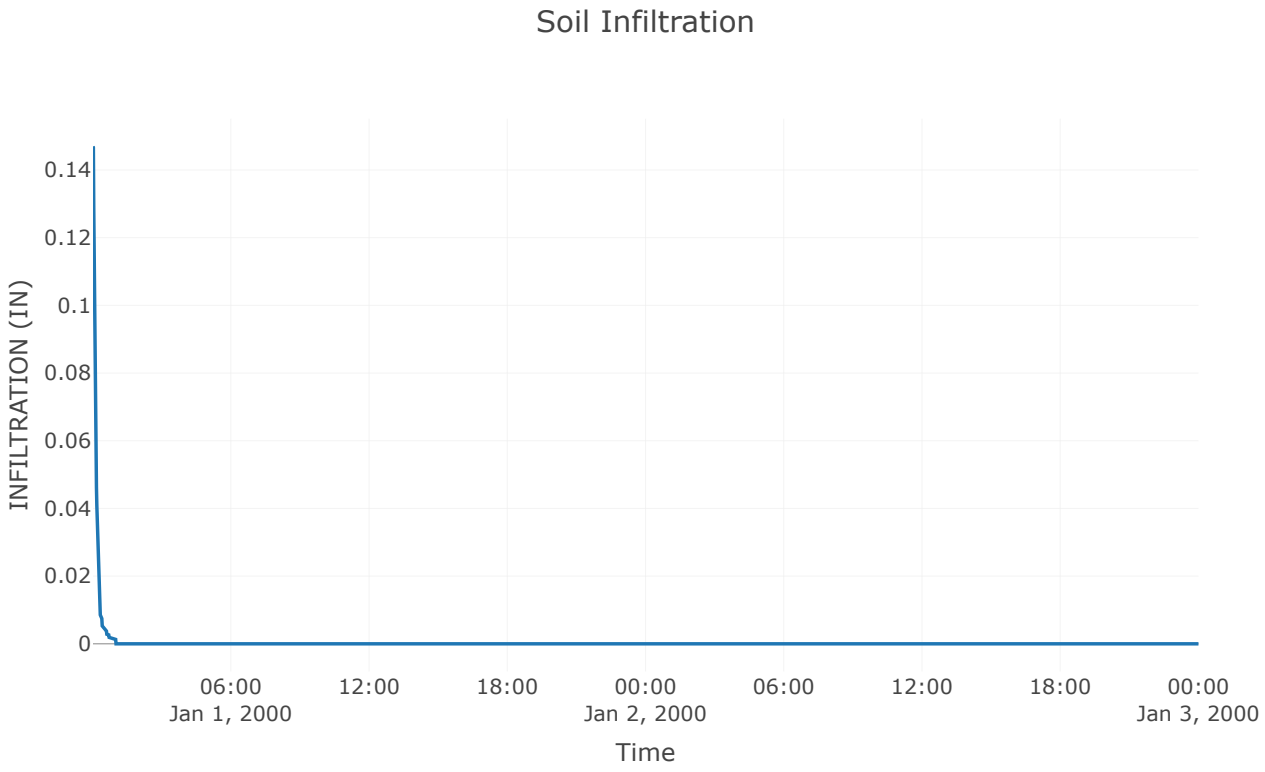


Precipitation Loss



Direct Runoff



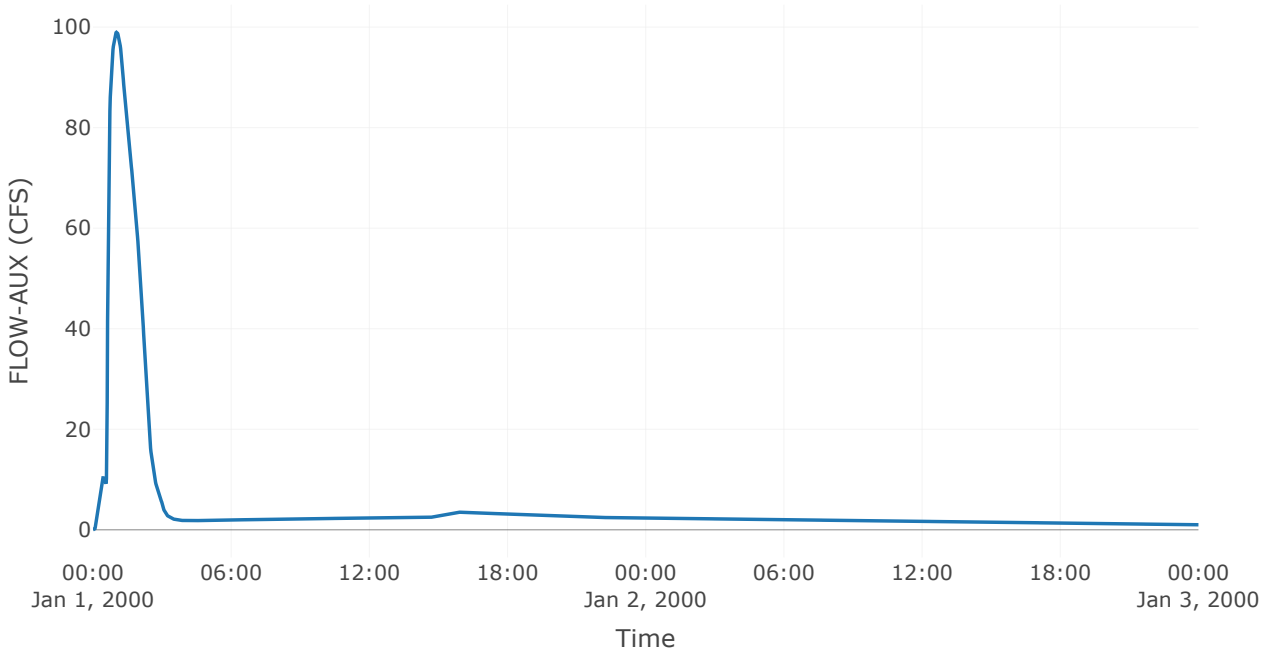

Soil Infiltration
INFILTRATION (IN)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
06:00
Jan 1, 2000
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Proposed Basin C

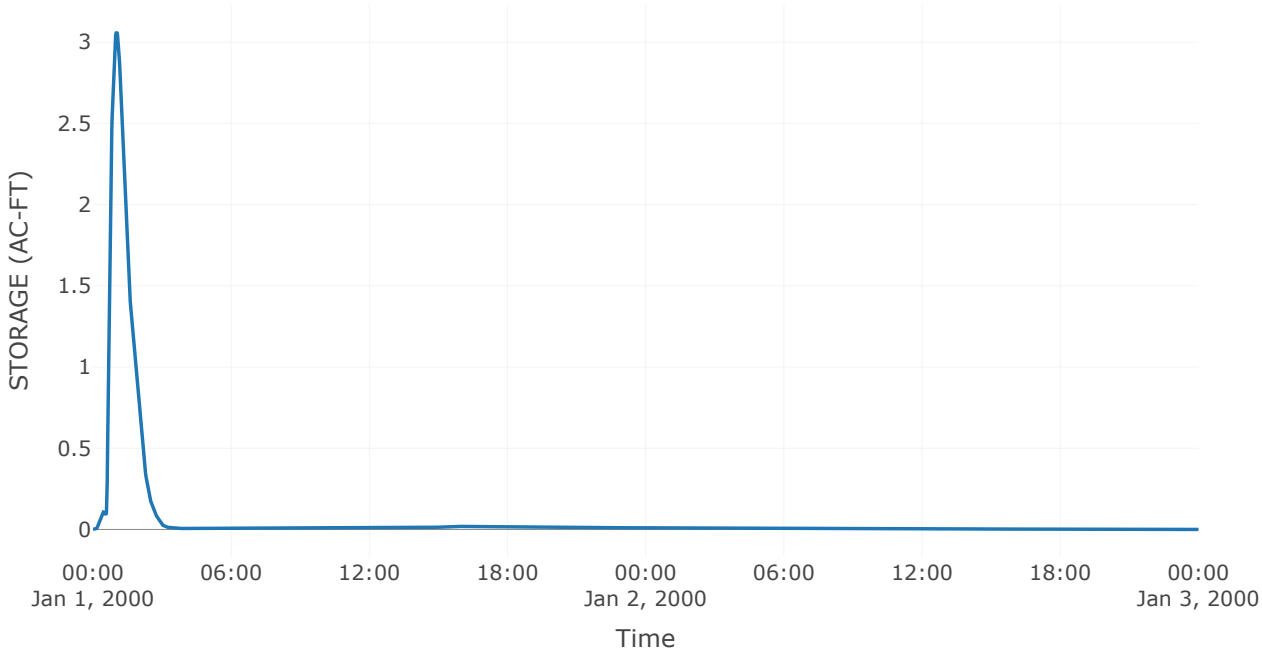
Downstream : Existing Basin A & B

Results: Proposed Basin C	
Peak Discharge (CFS)	213.51
Time of Peak Discharge	01Jan2000, 01:06
Volume (IN)	1.12
Peak Inflow (CFS)	331.98
Time of Peak Inflow	01Jan2000, 00:59
Inflow Volume (AC - FT)	36.12
Maximum Storage (AC - FT)	2.7
Peak Elevation (FT)	655.16
Discharge Volume (AC - FT)	16.31

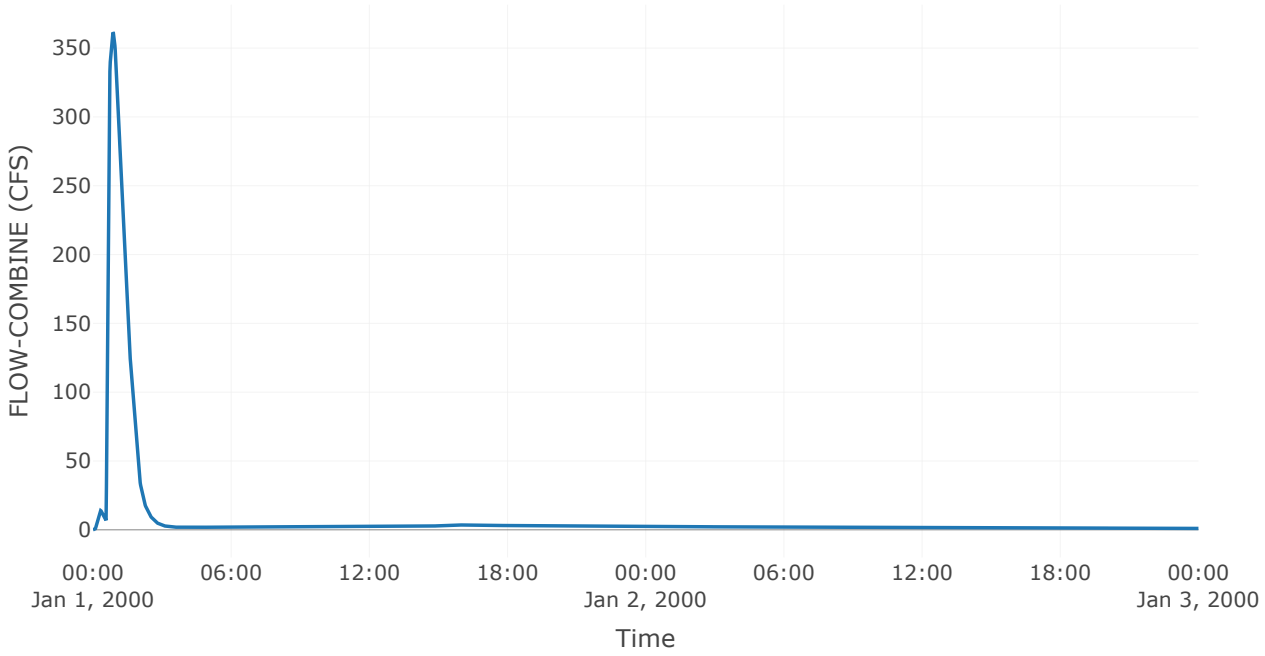
Auxiliary Outflow



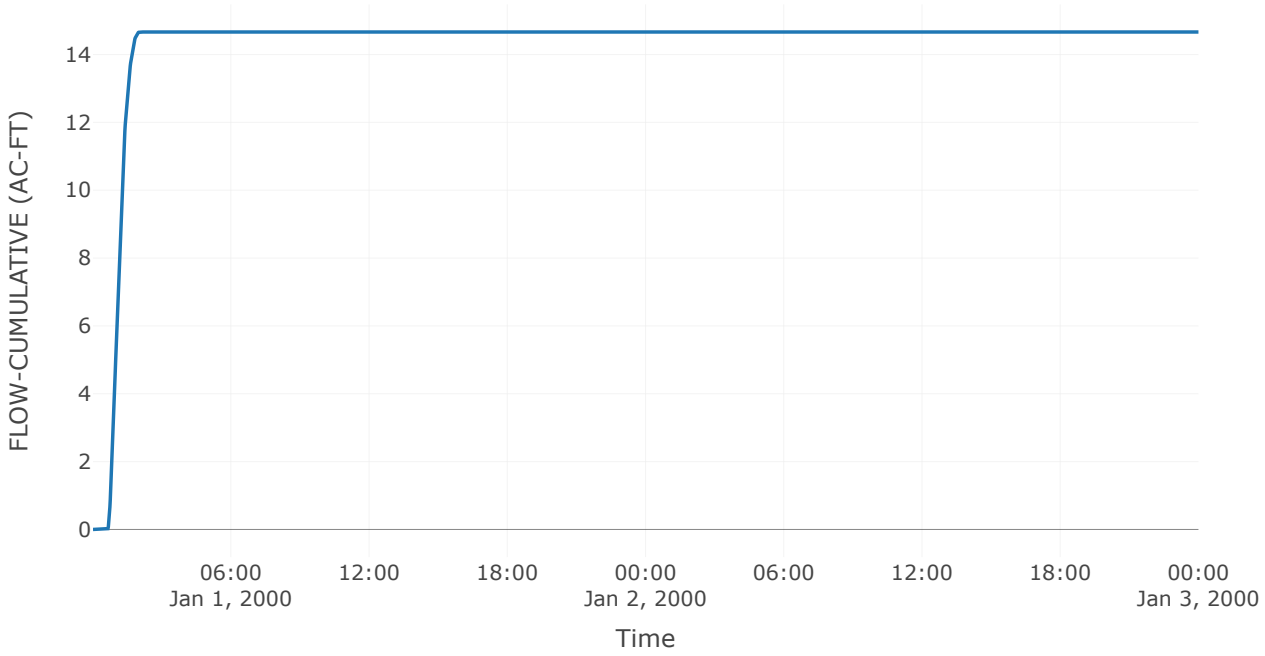
Storage

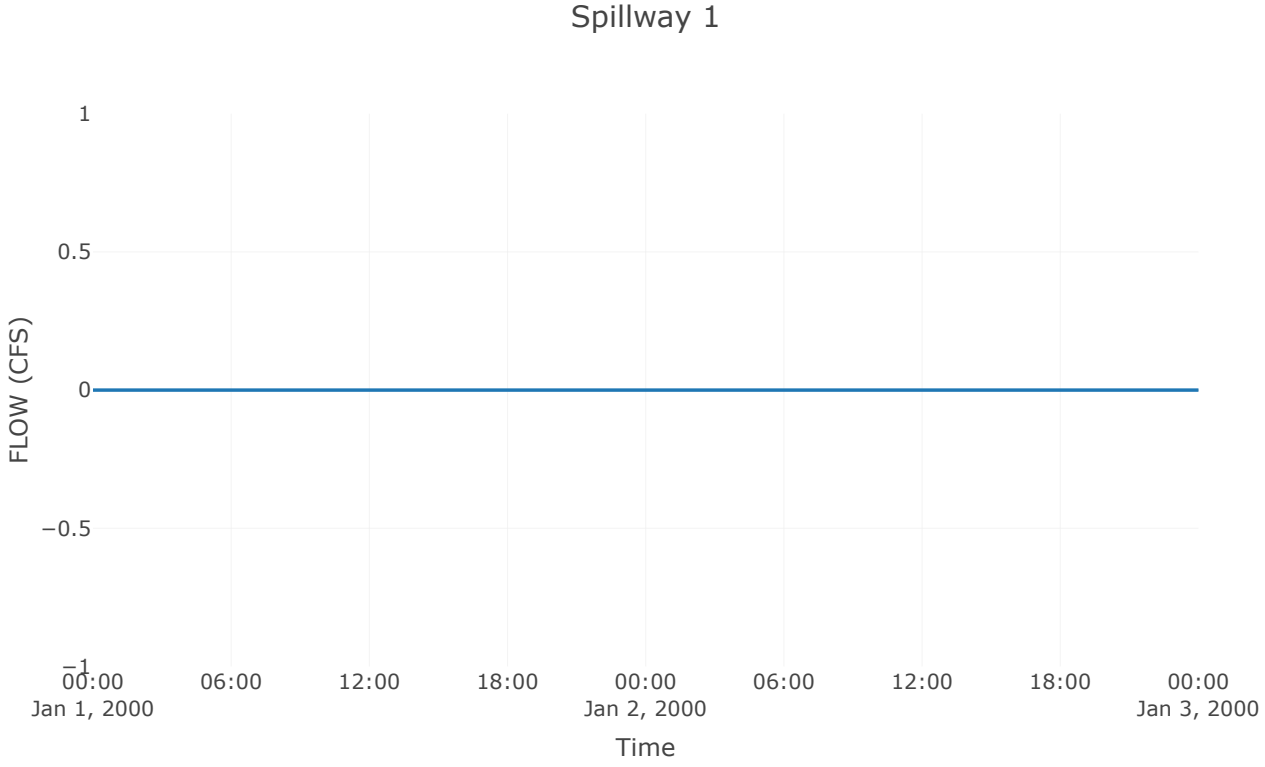


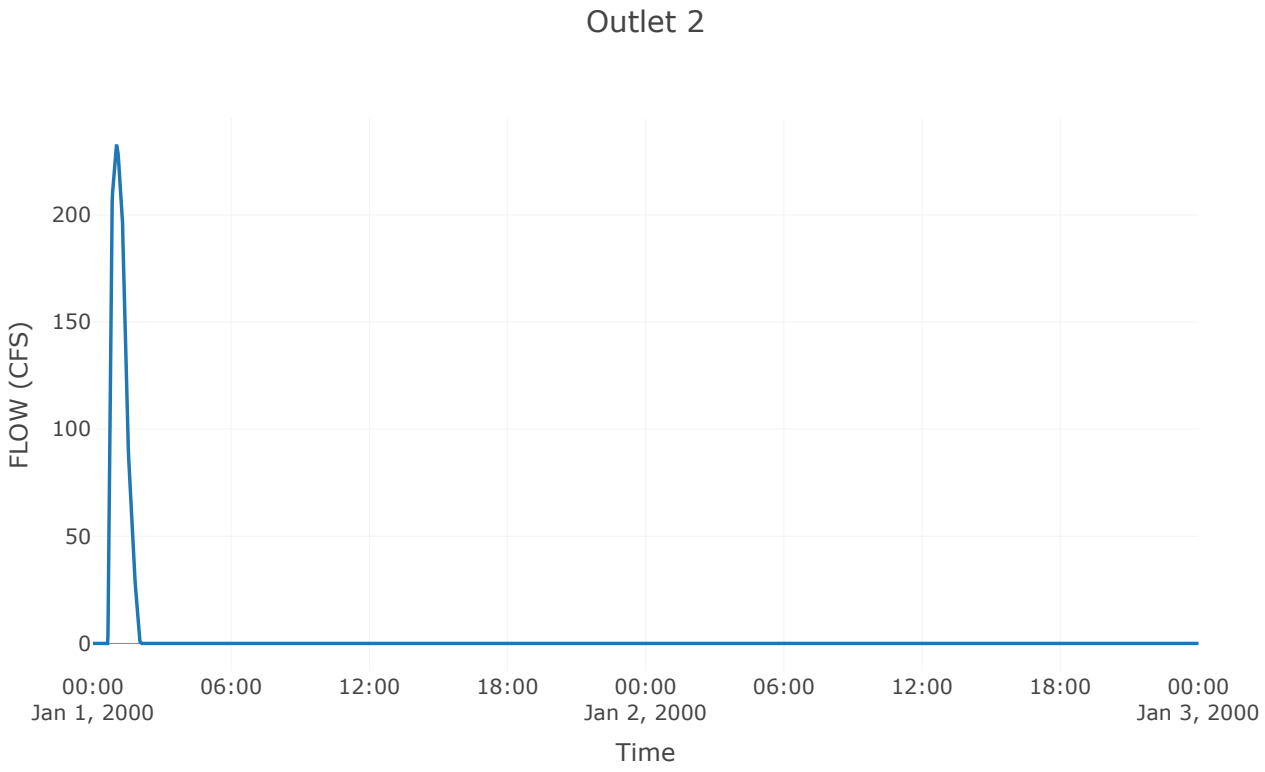
Combined Inflow



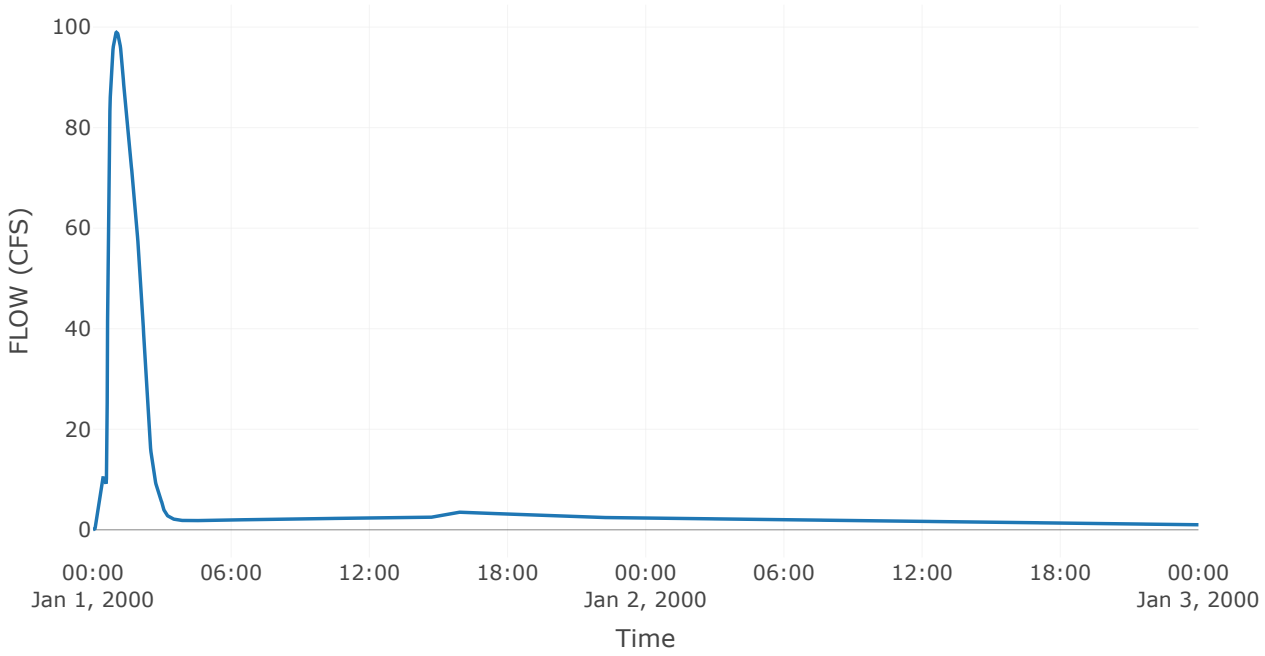
Cumulative Outflow



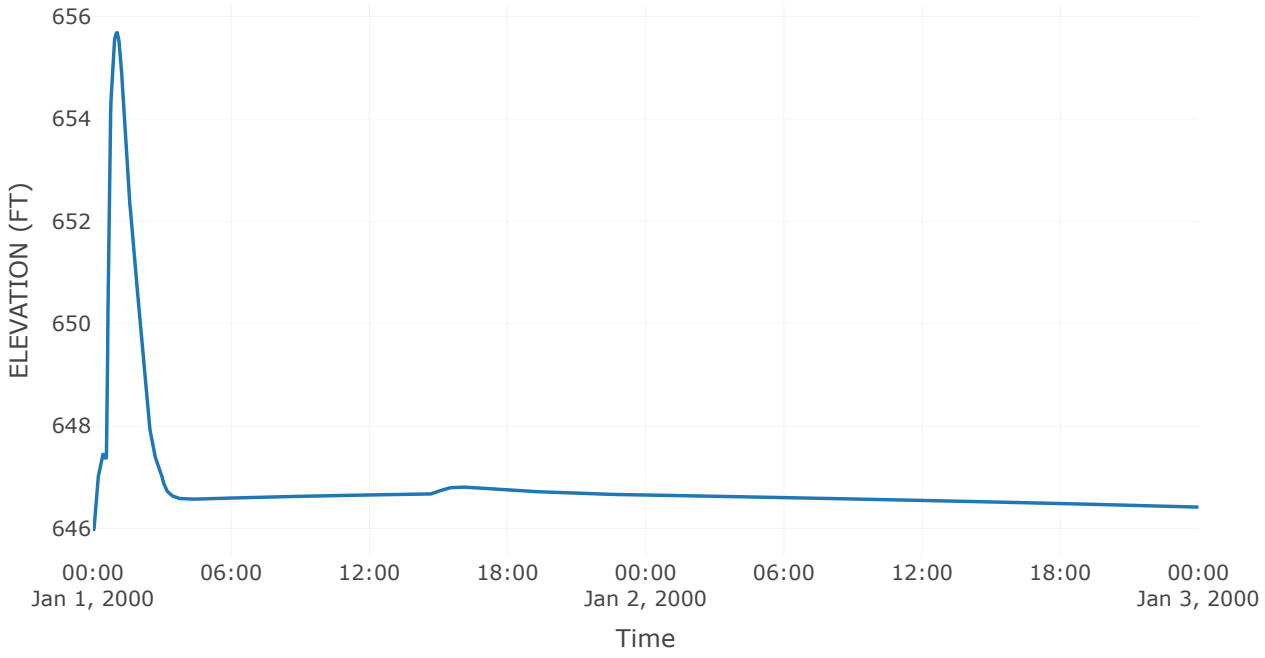

Spillway 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

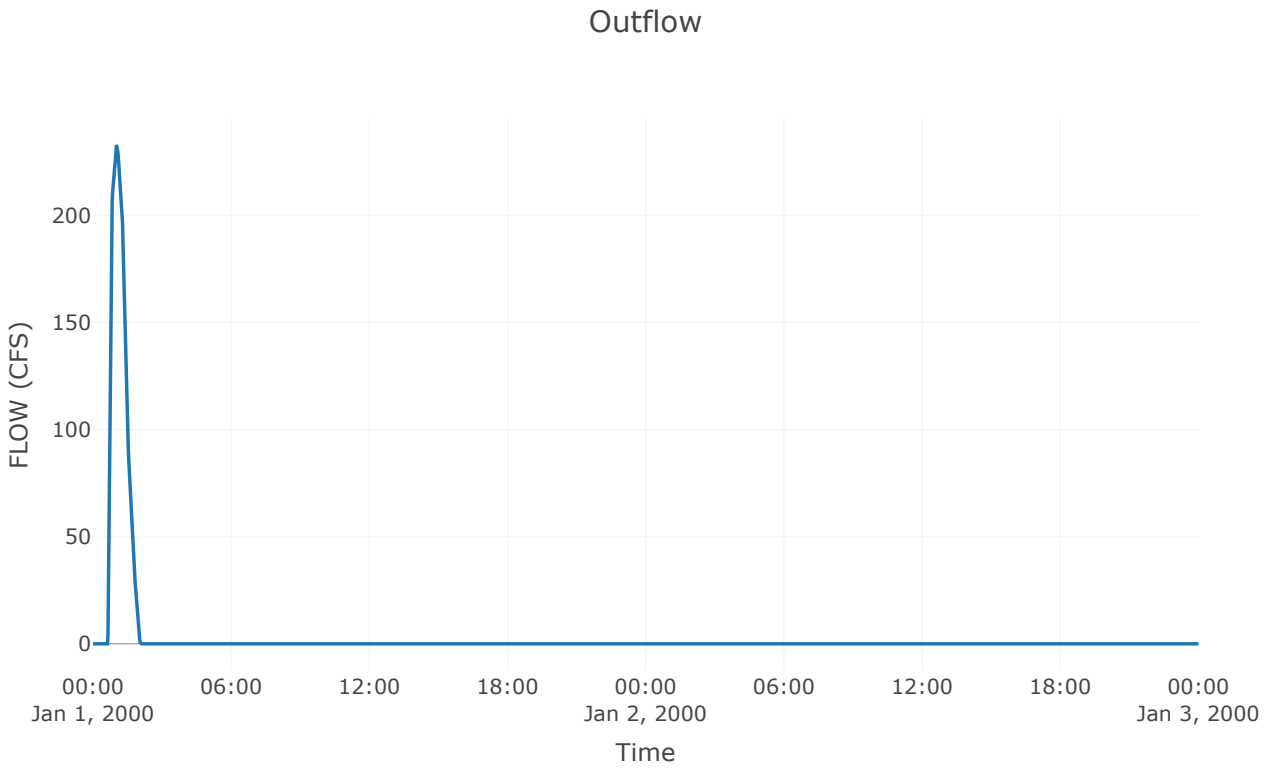

Outlet 2
200
150
100
50
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Outlet 1



Pool Elevation

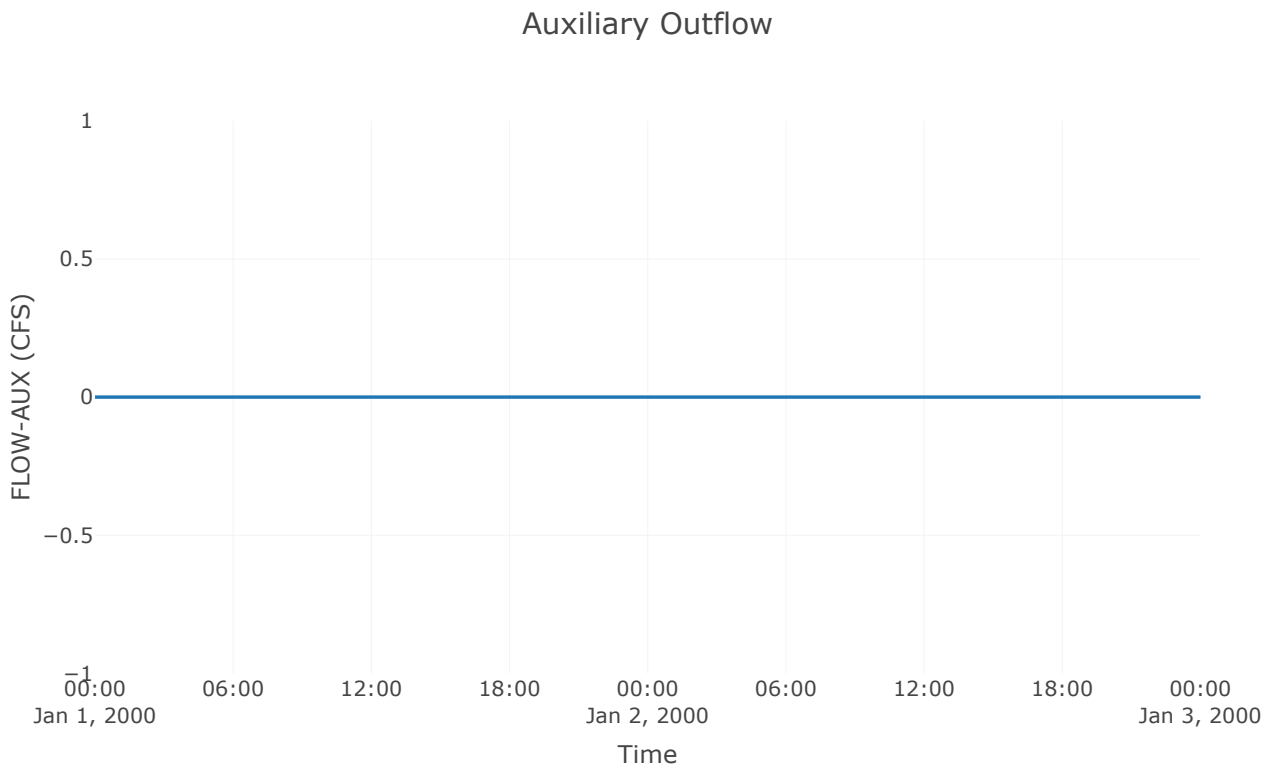


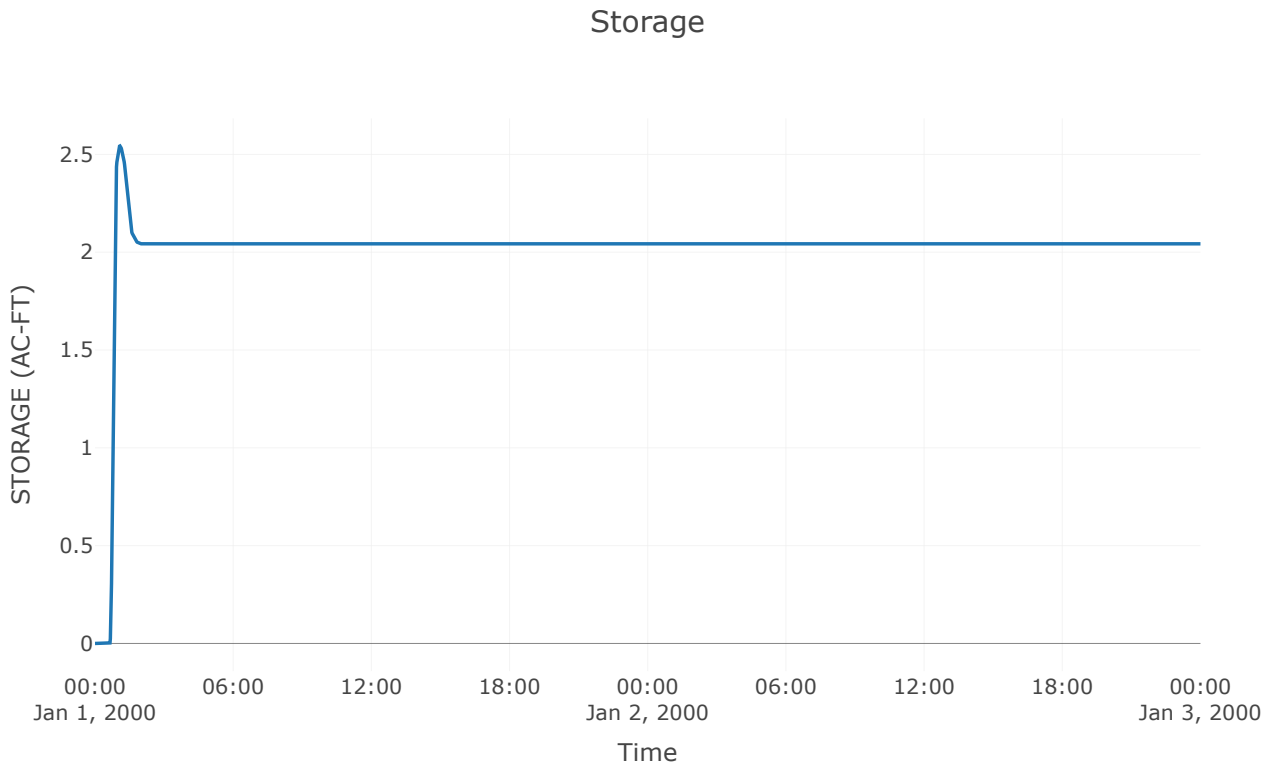

Outflow
FLOW (CFS)
200
150
100
50
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Existing Basin A & B

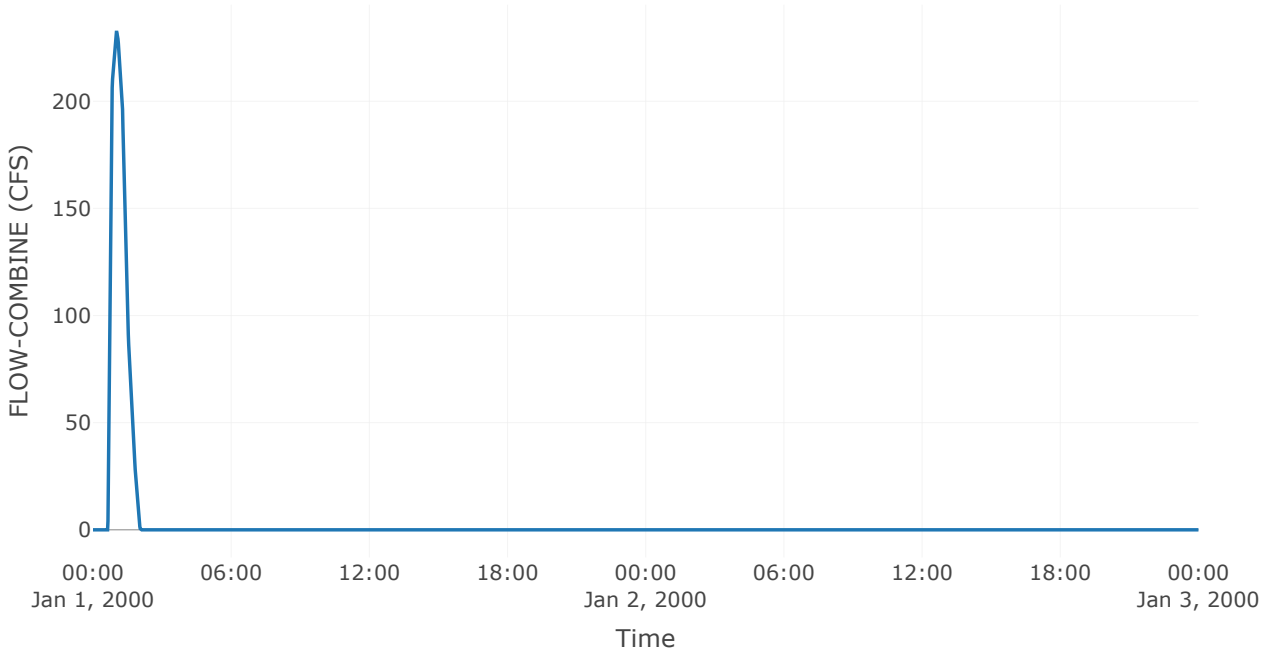
Downstream : Outlet Storm Box

Results: Existing Basin A & B	
Peak Discharge (CFS)	212.2
Time of Peak Discharge	01Jan2000, 01:09
Volume (IN)	0.97
Peak Inflow (CFS)	213.51
Time of Peak Inflow	01Jan2000, 01:06
Inflow Volume (AC - FT)	16.31
Maximum Storage (AC - FT)	2.47
Peak Elevation (FT)	654.19
Discharge Volume (AC - FT)	14.1

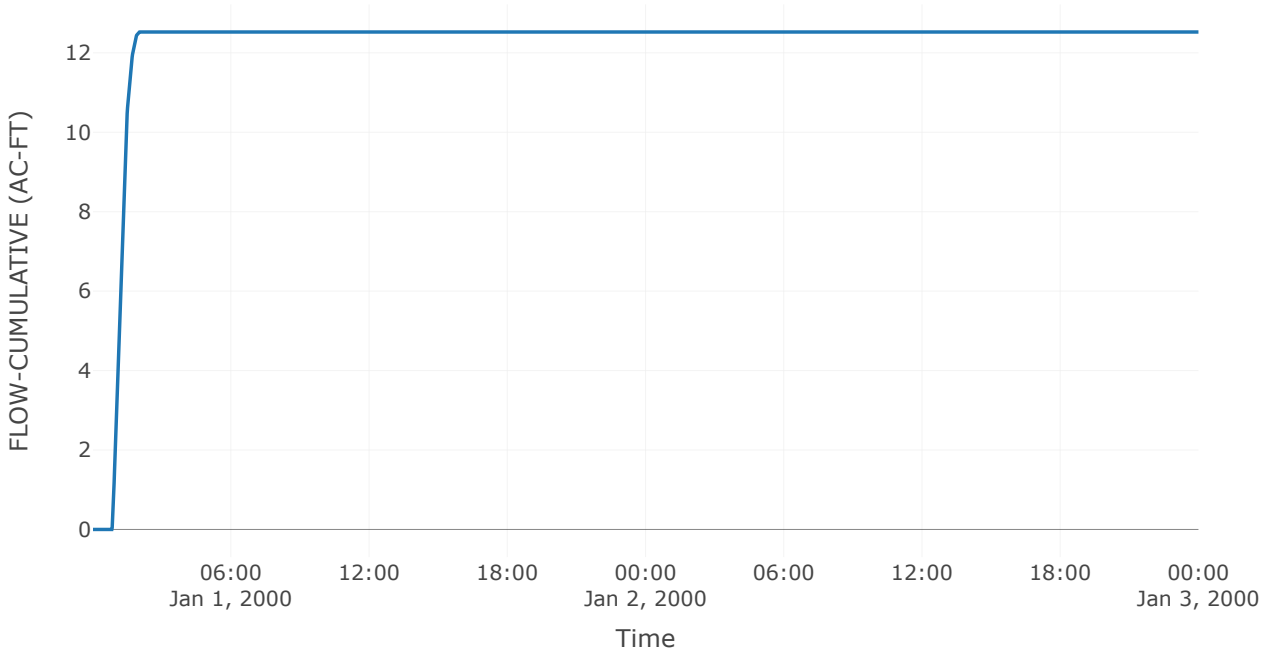

Auxiliary Outflow
FLOW-AUX (CFS)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

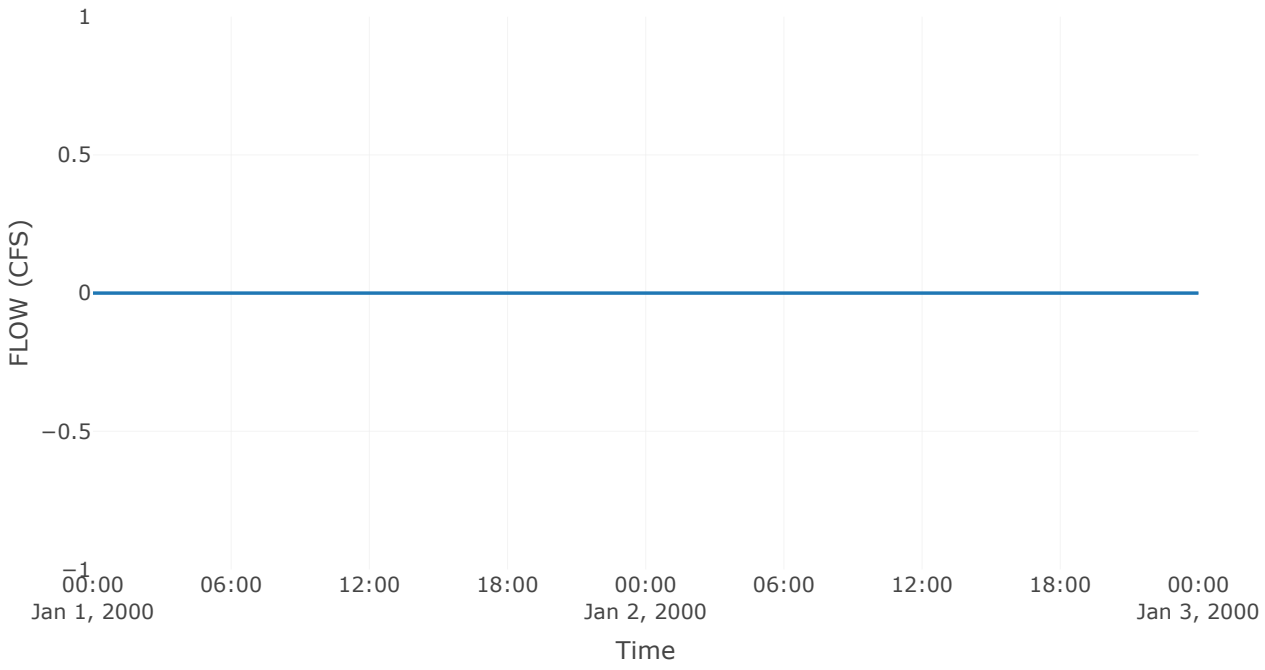

Storage
STORAGE (AC-FT)
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

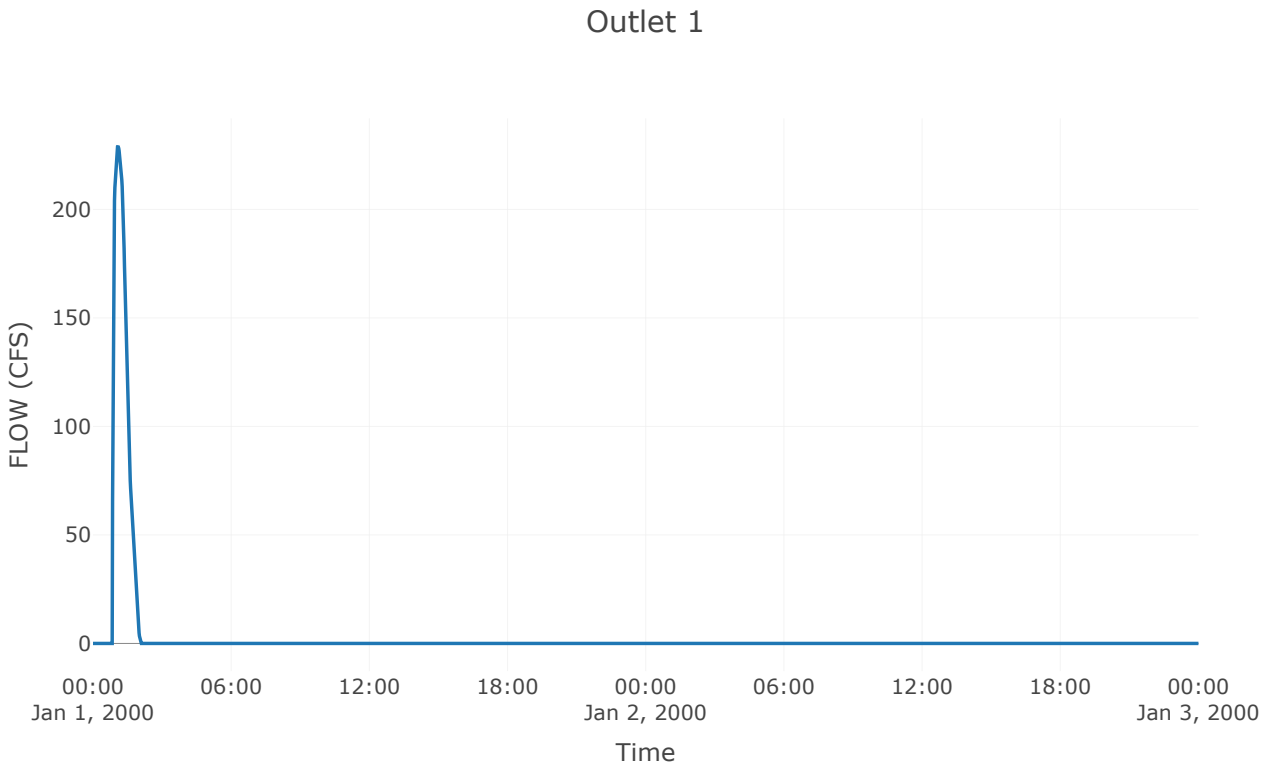
Combined Inflow



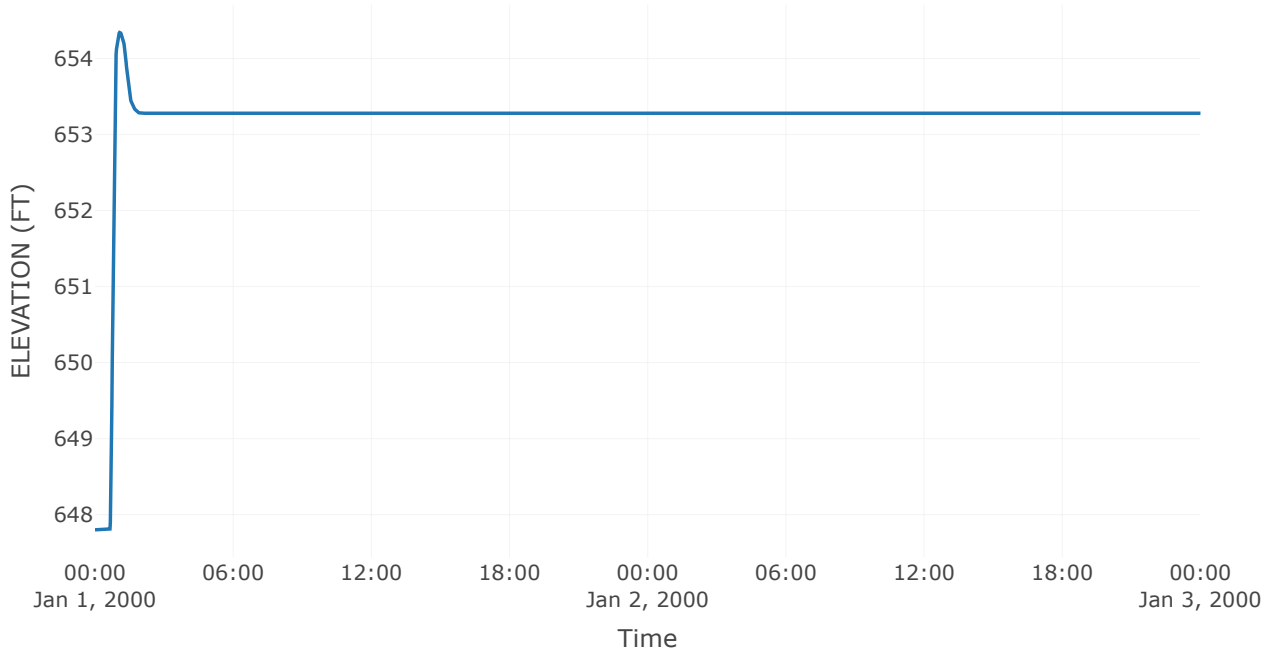
Cumulative Outflow



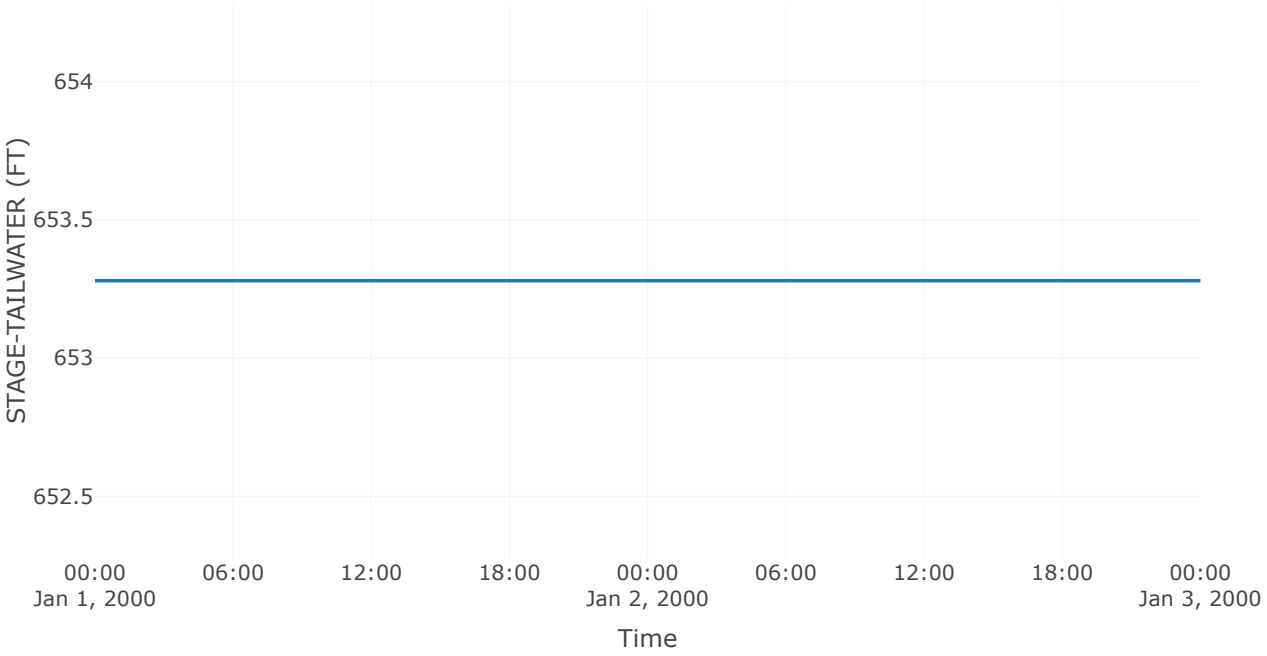

Spillway 1
1
0.5
0
−0.5
−1
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

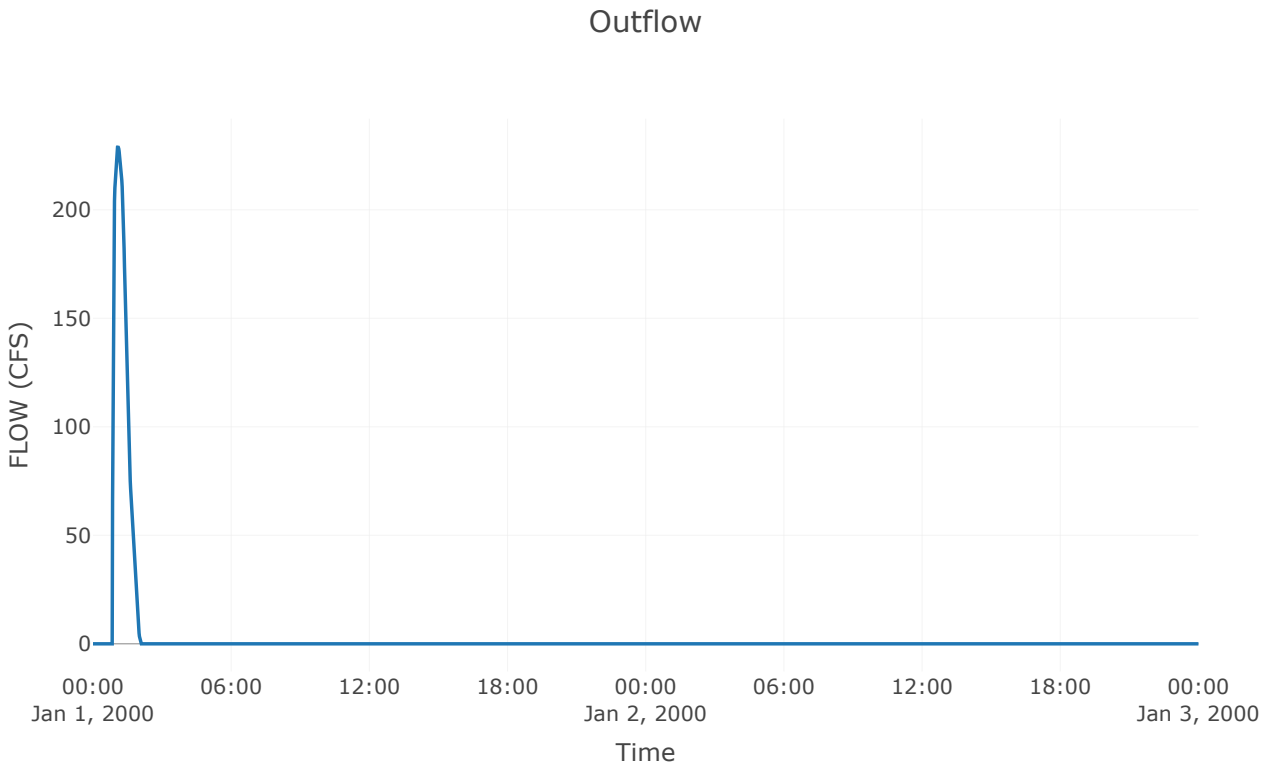

Outlet 1
200
150
100
50
0
FLOW (CFS)
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Pool Elevation



Tailwater Stage



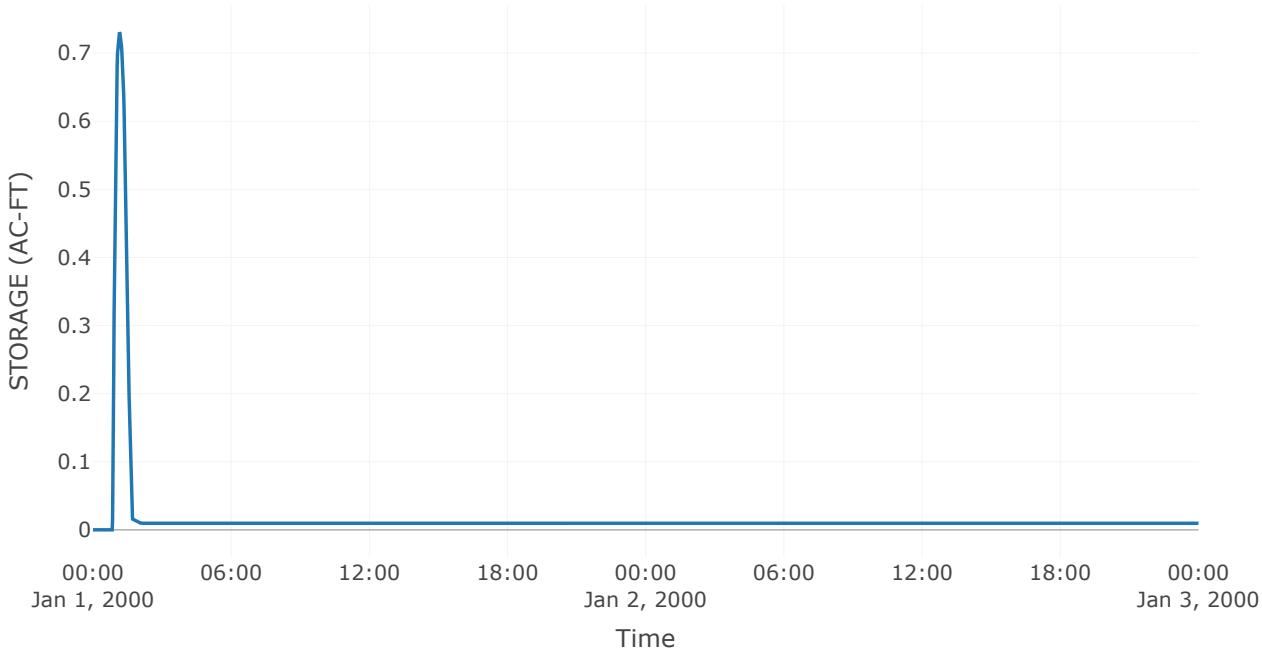

Outflow
FLOW (CFS)
200
150
100
50
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

Reservoir: Outlet Storm Box

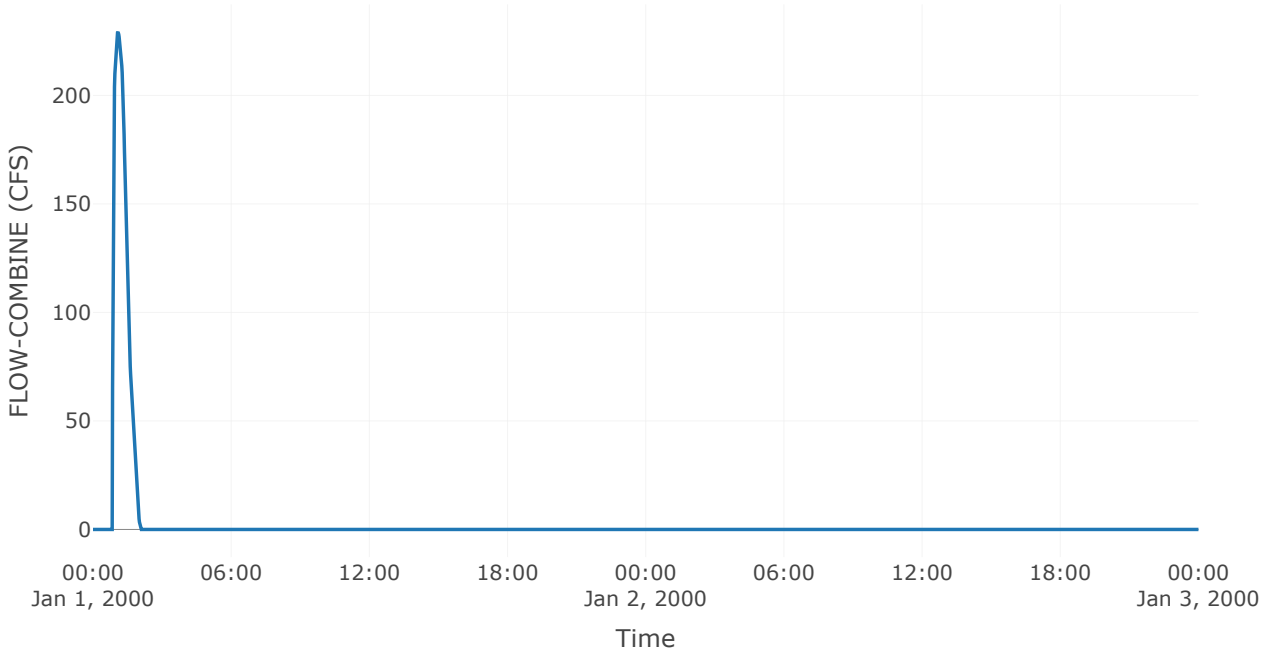
Downstream : 55th Street Outlet

Results: Outlet Storm Box	
Peak Discharge (CFS)	210.73
Time of Peak Discharge	01Jan2000, 01:12
Volume (IN)	0.97
Peak Inflow (CFS)	212.2
Time of Peak Inflow	01Jan2000, 01:09
Inflow Volume (AC - FT)	14.1
Maximum Storage (AC - FT)	0.67
Peak Elevation (FT)	654.66
Discharge Volume (AC - FT)	14.06

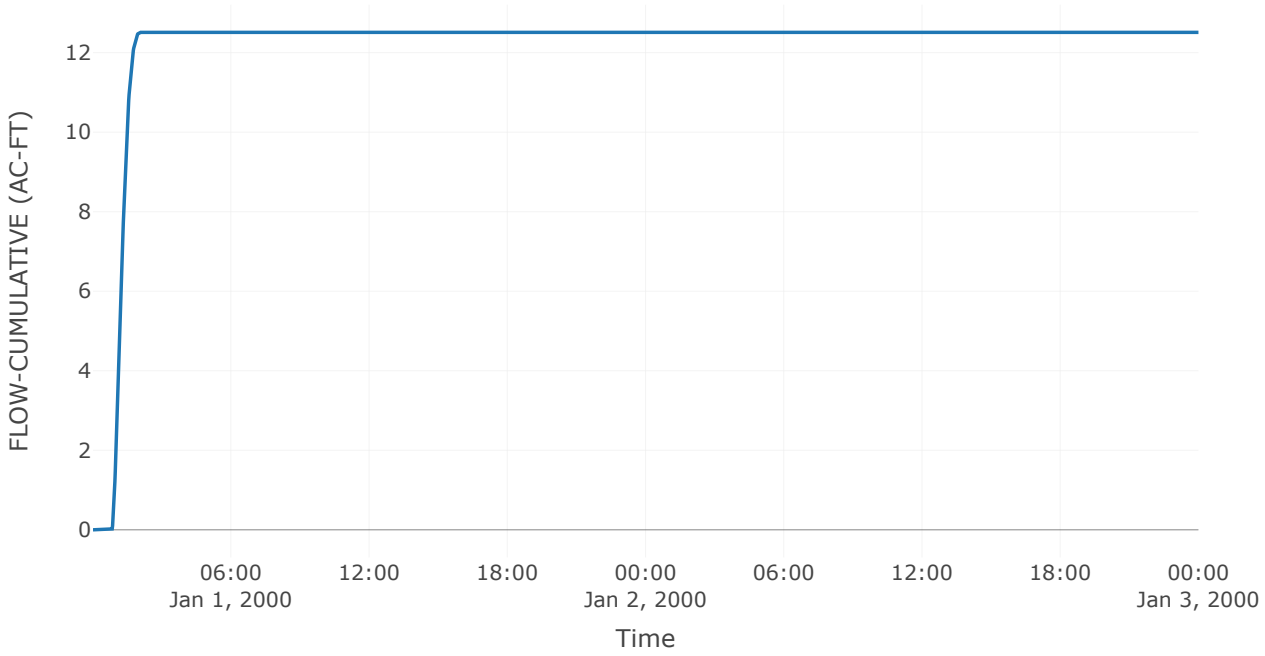
Storage



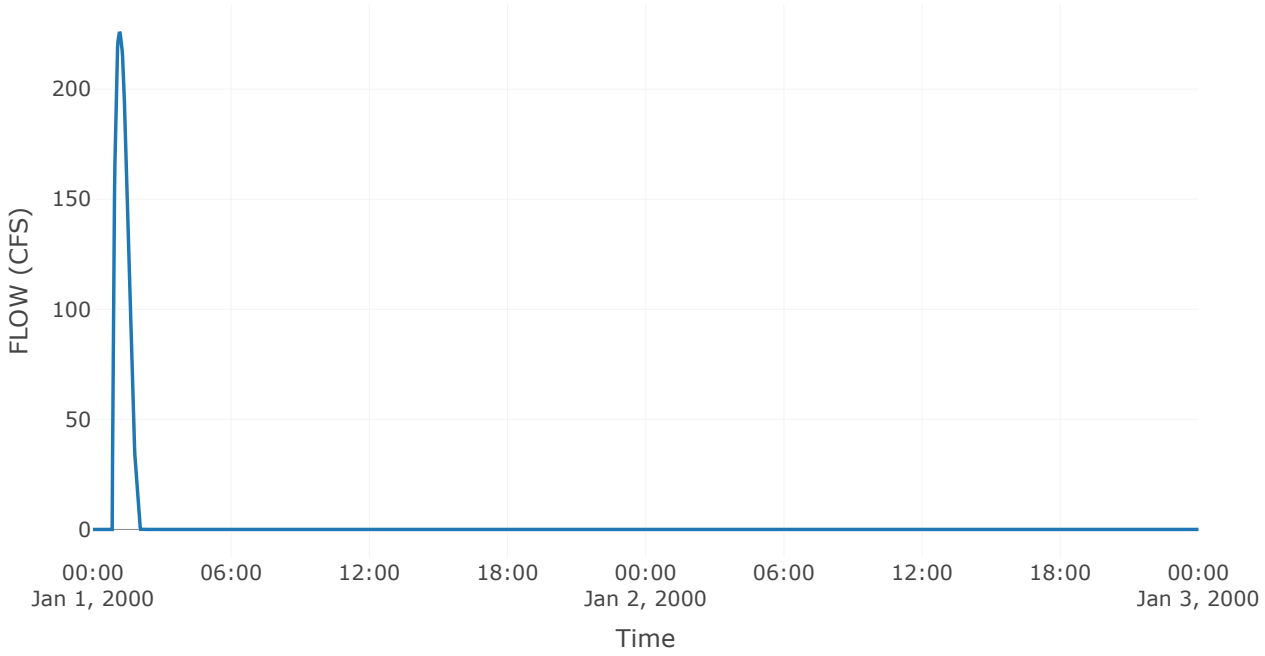
Combined Inflow



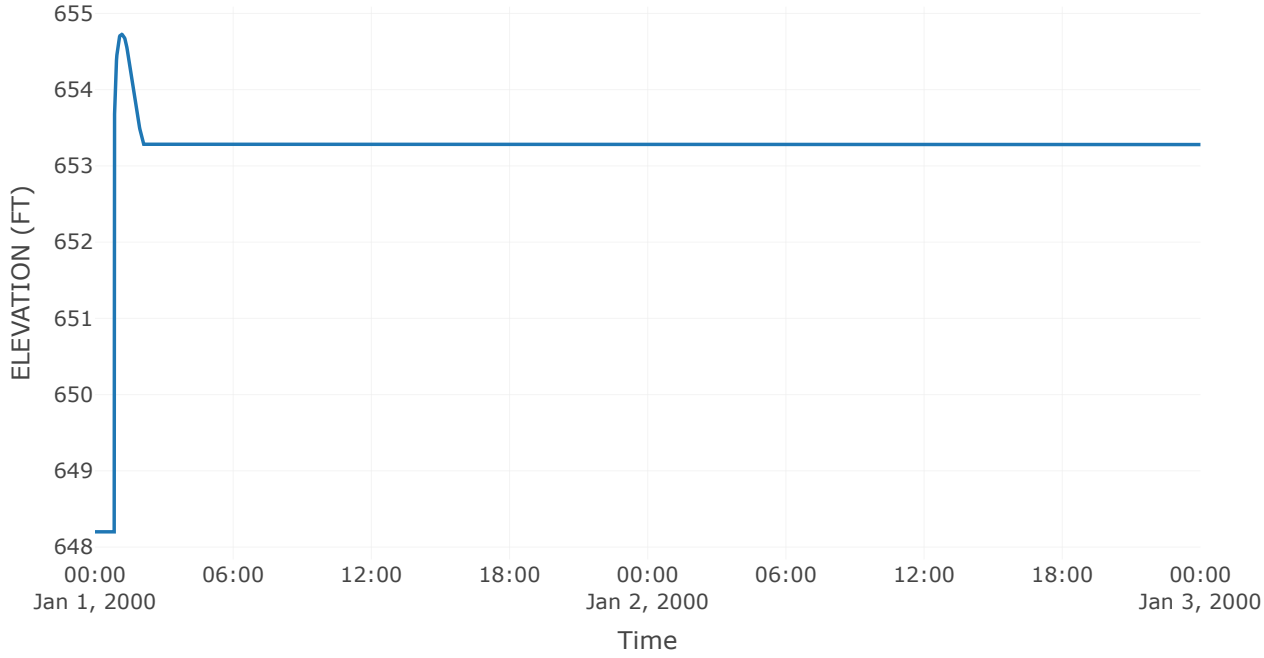
Cumulative Outflow



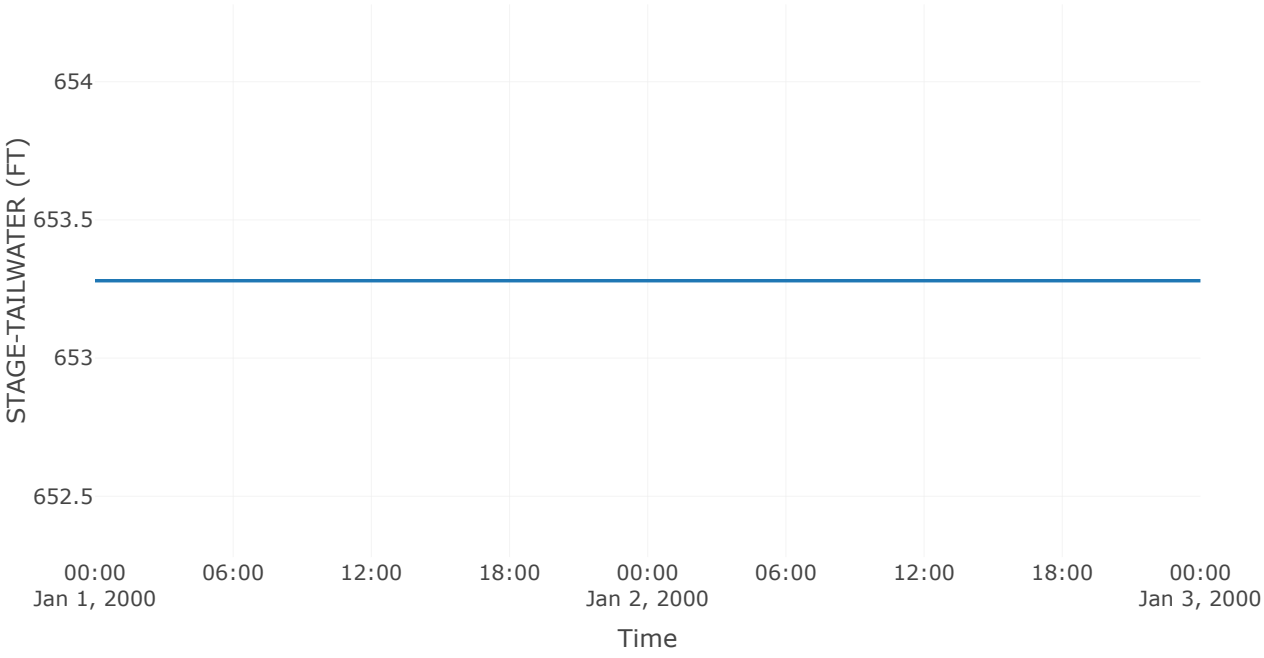
Spillway 1

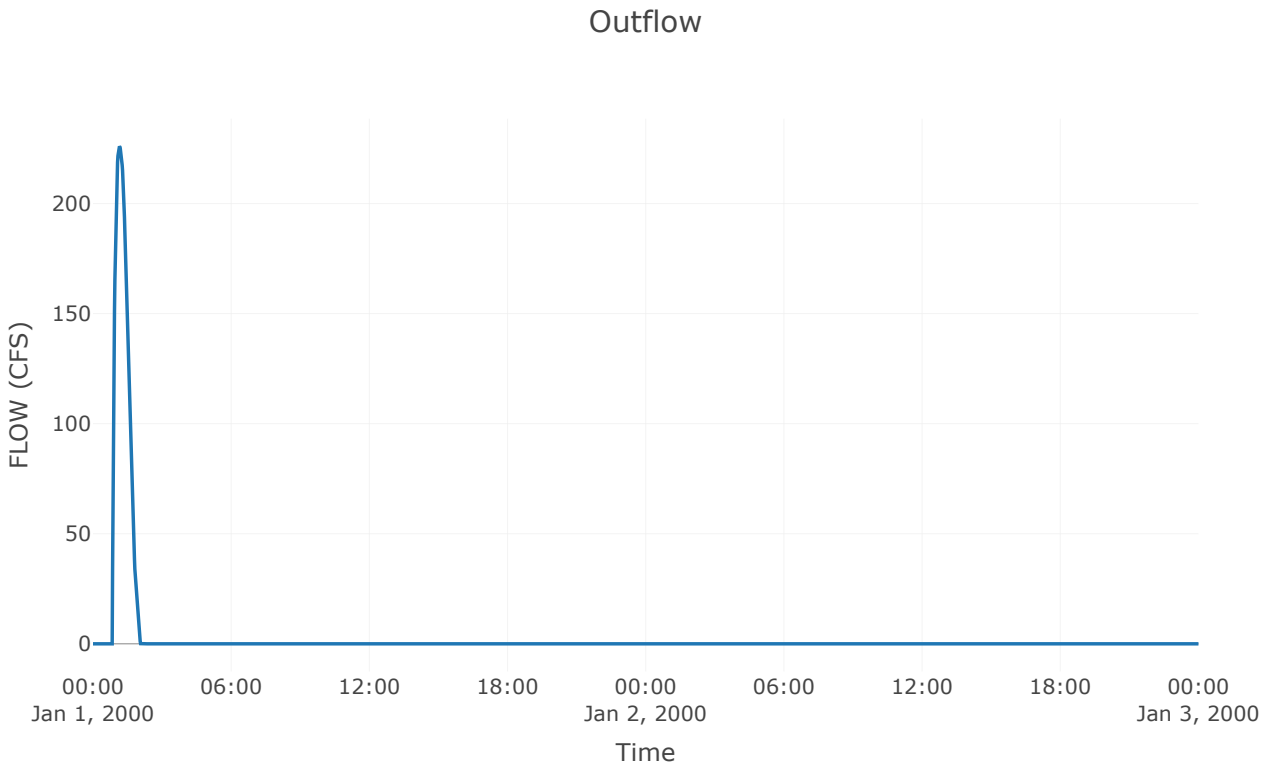


Pool Elevation



Tailwater Stage

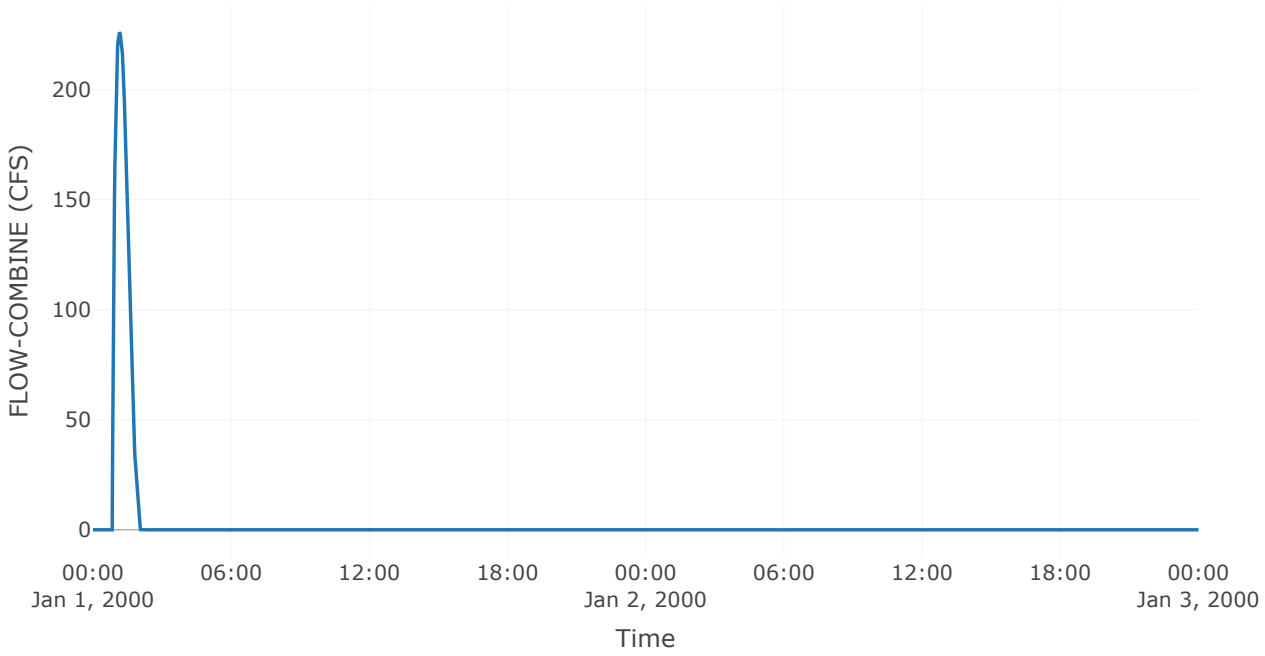



Outflow
FLOW (CFS)
200
150
100
50
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

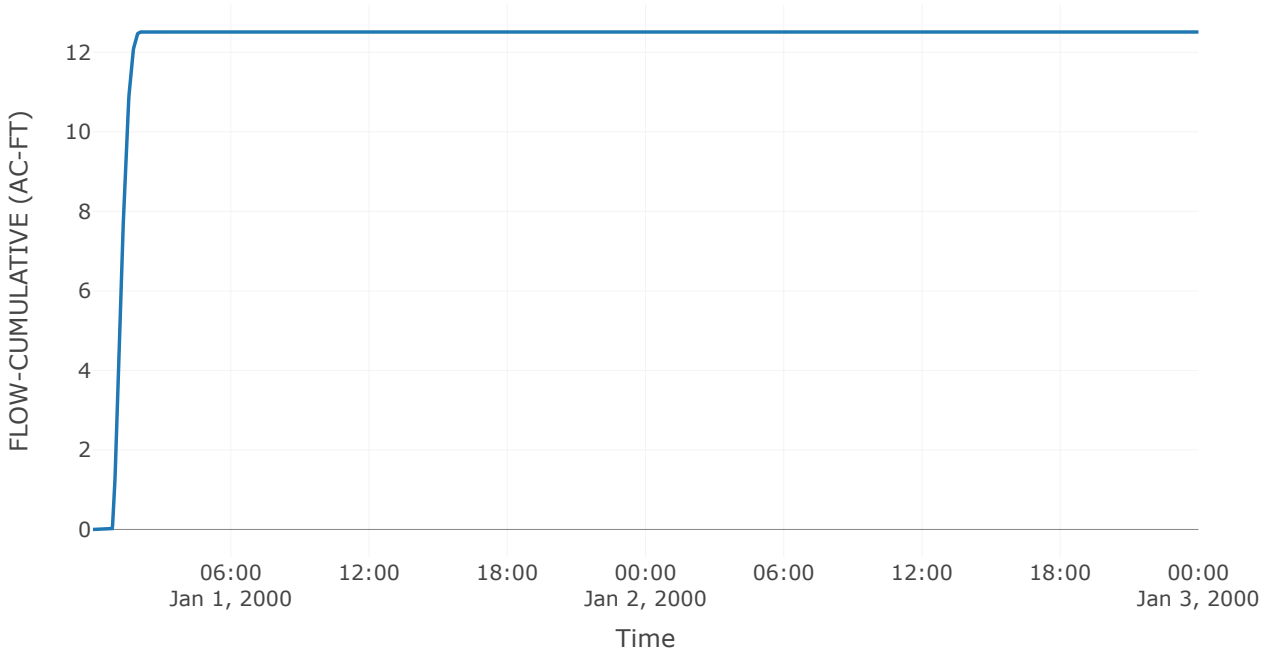
Sink: 55th Street Outlet

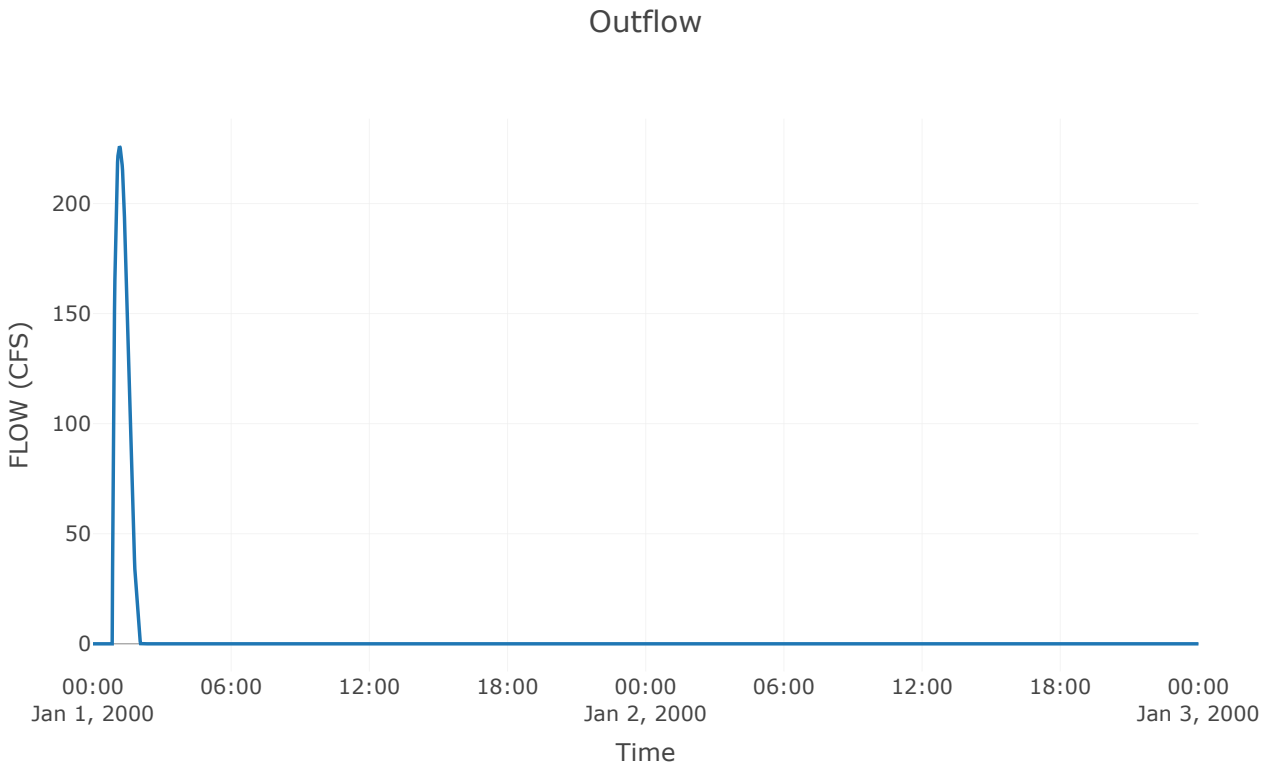
Results: 55th Street Outlet	
Peak Discharge (CFS)	210.73
Time of Peak Discharge	01Jan2000, 01:12
Volume (IN)	0.97

Combined Inflow

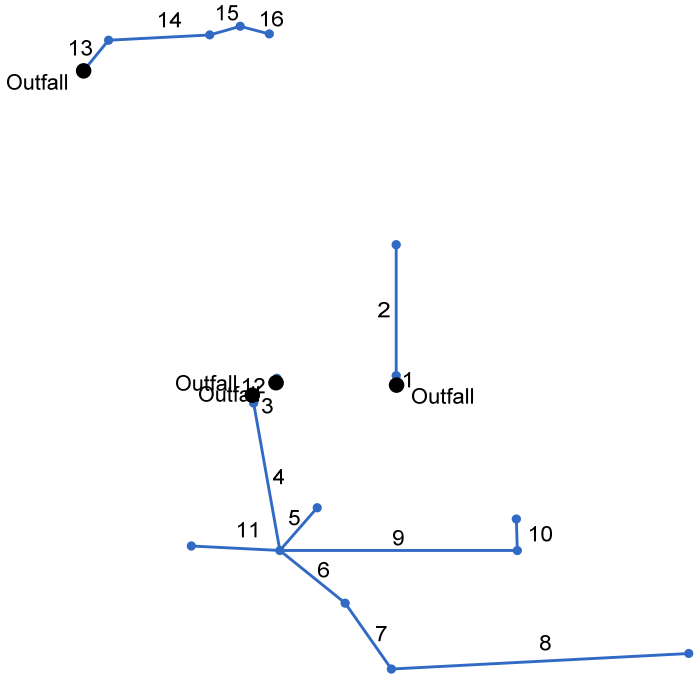


Cumulative Outflow




Outflow
FLOW (CFS)
200
150
100
50
0
00:00
Jan 1, 2000
06:00
12:00
18:00
00:00
Jan 2, 2000
06:00
12:00
18:00
00:00
Jan 3, 2000
Time

HERITAGE CROSSING



Project File: STORM SEWER DESIGN 2024-12-04.stm	Number of lines: 16	Date: 3/17/2025

Storm Sewer Tabulation

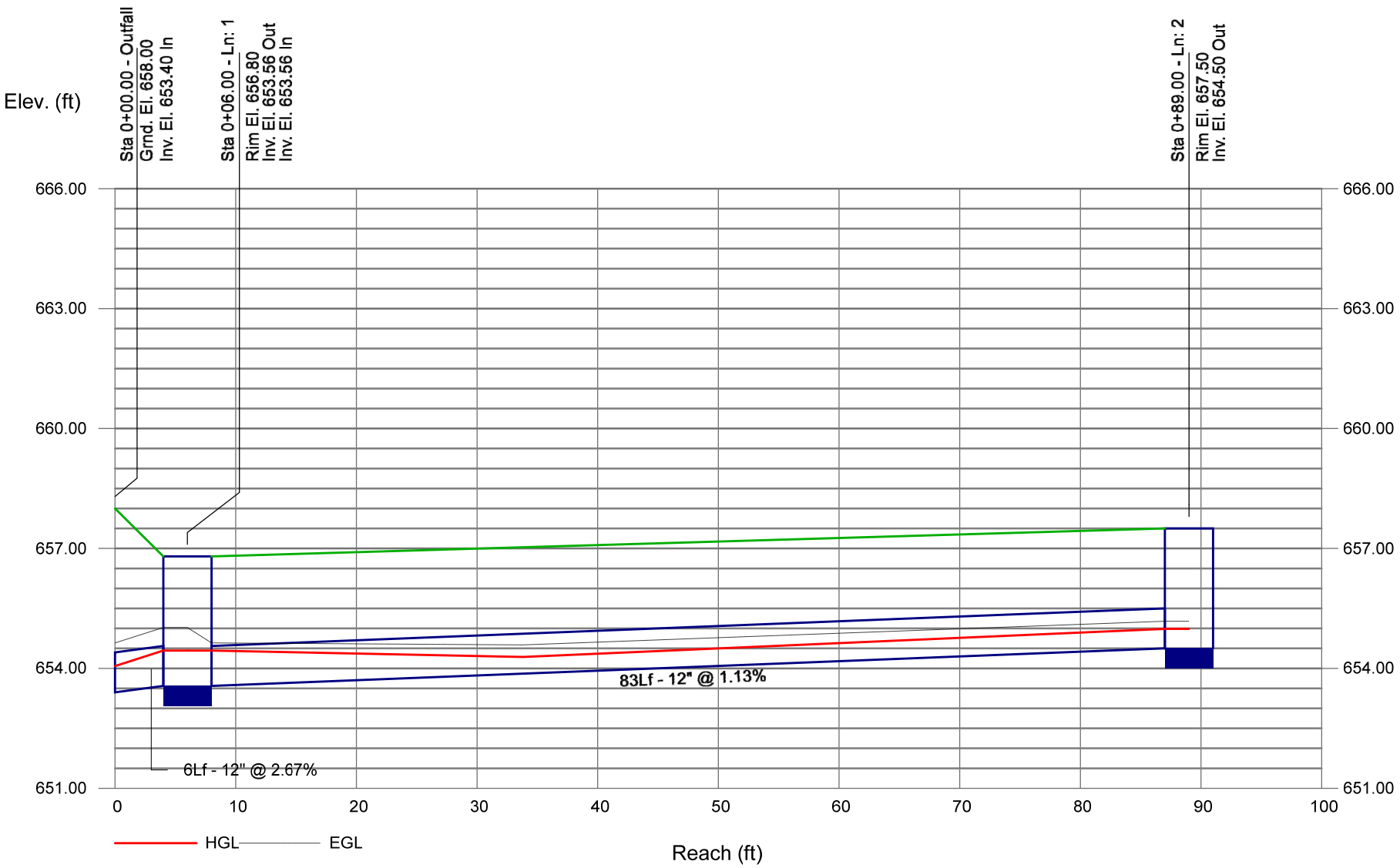
Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	6	0.49	0.69	0.90	0.44	0.62	5.0	5.8	7.2	4.48	5.82	7.13	12	2.67	653.40	653.56	654.06	654.44	658.00	656.80	C1-C2
2	1	83	0.20	0.20	0.90	0.18	0.18	5.0	5.0	7.4	1.34	3.79	2.67	12	1.13	653.56	654.50	654.44	654.99	656.80	657.50	C2-C3
3	End	5	0.23	1.40	0.90	0.21	1.11	5.0	8.3	6.6	7.33	9.13	7.39	15	2.00	653.10	653.20	653.95	654.28	656.68	656.75	D2-D3
4	3	95	0.23	1.17	0.90	0.21	0.90	5.0	8.0	6.7	6.02	6.11	5.55	15	0.89	653.20	654.05	654.28	655.04	656.75	657.30	D3-D4
5	4	36	0.14	0.14	0.90	0.13	0.13	5.0	5.0	7.4	0.94	5.72	2.16	12	2.58	654.30	655.23	655.56	655.64	657.30	658.23	D4-D10
6	4	53	0.15	0.50	0.65	0.10	0.31	5.0	7.6	6.8	2.11	5.58	3.41	12	2.45	654.30	655.60	655.56	656.22	657.30	658.60	D4-D5
7	6	51	0.10	0.35	0.65	0.07	0.22	5.0	7.2	6.9	1.48	4.99	3.25	12	1.96	655.60	656.60	656.22	657.11	658.60	659.60	D5-D6
8	7	188	0.25	0.25	0.60	0.15	0.15	5.0	5.0	7.4	1.12	4.02	3.03	12	1.28	656.60	659.00	657.11	659.44	659.60	662.00	D6-D7
9	4	150	0.12	0.25	0.90	0.11	0.23	5.0	5.3	7.4	1.65	5.39	2.94	12	2.29	654.30	657.73	655.56	658.28	657.30	660.93	D4-D8
10	9	20	0.13	0.13	0.90	0.12	0.12	5.0	5.0	7.4	0.87	3.56	2.53	12	1.00	657.73	657.93	658.28	658.32	660.93	660.93	D8-D9
11	4	56	0.05	0.05	0.65	0.03	0.03	5.0	5.0	7.4	0.24	3.98	0.42	12	1.25	654.30	655.00	655.56	655.56	657.30	658.00	D11-D4
12	End	3	0.14	0.14	0.90	0.13	0.13	5.0	5.0	7.4	0.94	3.56	3.48	12	1.00	653.10	653.13	653.45	653.54	656.68	656.70	F1-F2
13	End	25	0.00	0.69	0.00	0.00	0.52	5.0	5.4	7.3	3.79	7.12	7.33	12	4.00	648.00	649.00	648.52	649.83	649.00	653.50	A1-A2
14	13	64	0.13	0.69	0.90	0.12	0.52	5.0	5.2	7.4	3.83	3.96	5.61	12	1.23	650.30	651.09	651.09	651.92	653.50	654.35	A2-A3
15	14	20	0.15	0.56	0.90	0.14	0.40	5.0	5.1	7.4	2.97	3.56	4.52	12	1.00	651.09	651.29	651.92	652.03	654.35	654.35	A3-A4
16	15	19	0.41	0.41	0.65	0.27	0.27	5.0	5.0	7.4	1.98	3.74	3.61	12	1.11	651.29	651.50	652.03	652.10	654.35	654.50	A4-A5

HERITAGE CROSSING | Number of lines: 16 | Run Date: 3/18/2025

NOTES:Intensity = 181.97 / (Inlet time + 20.80) ^ 0.98; Return period =Yrs. 10 ; c = cir e = ellip b = box

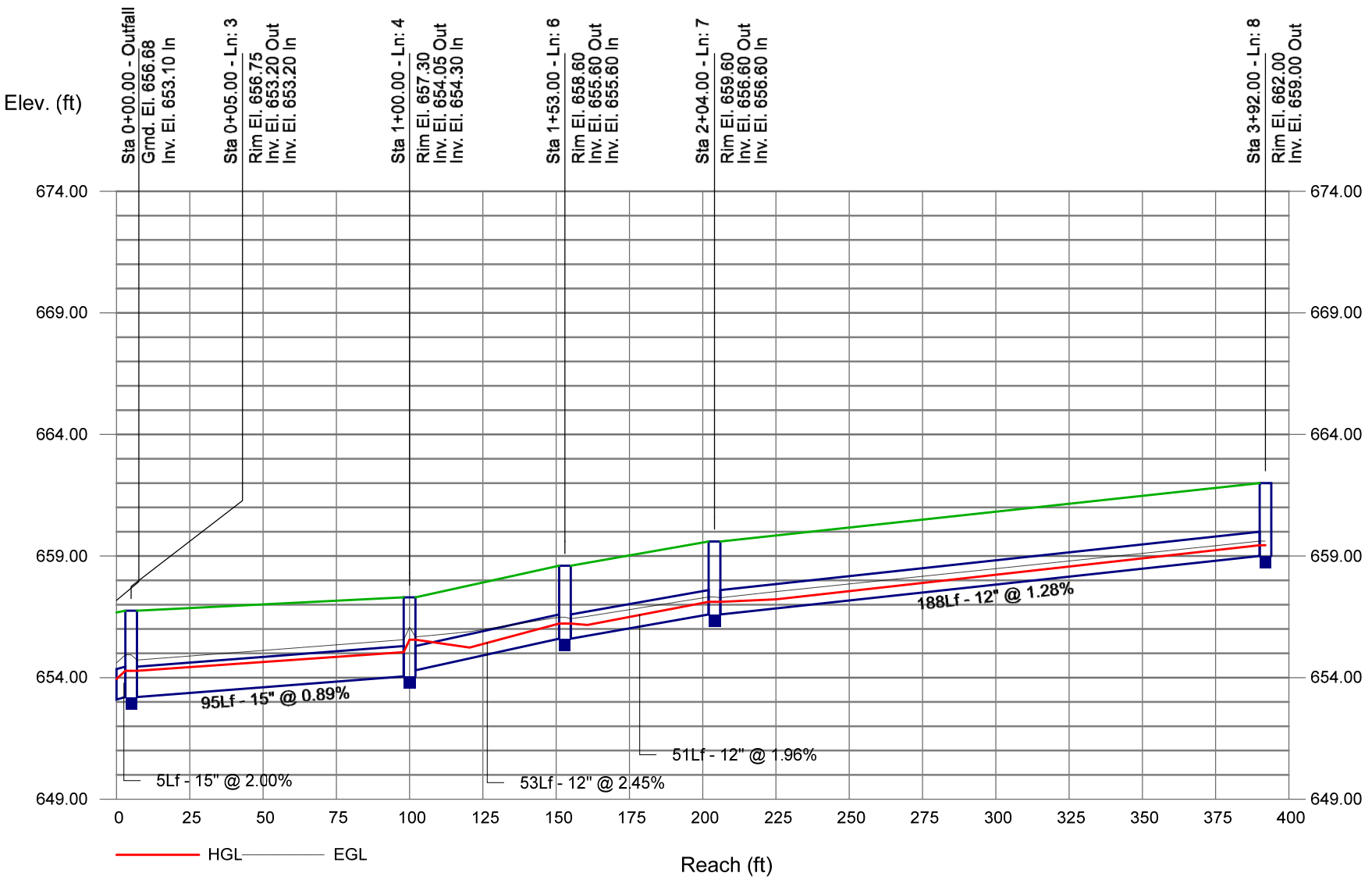
Storm Sewer Profile

Proj. file: STORM SEWER DESIGN 2024-12-04.stm



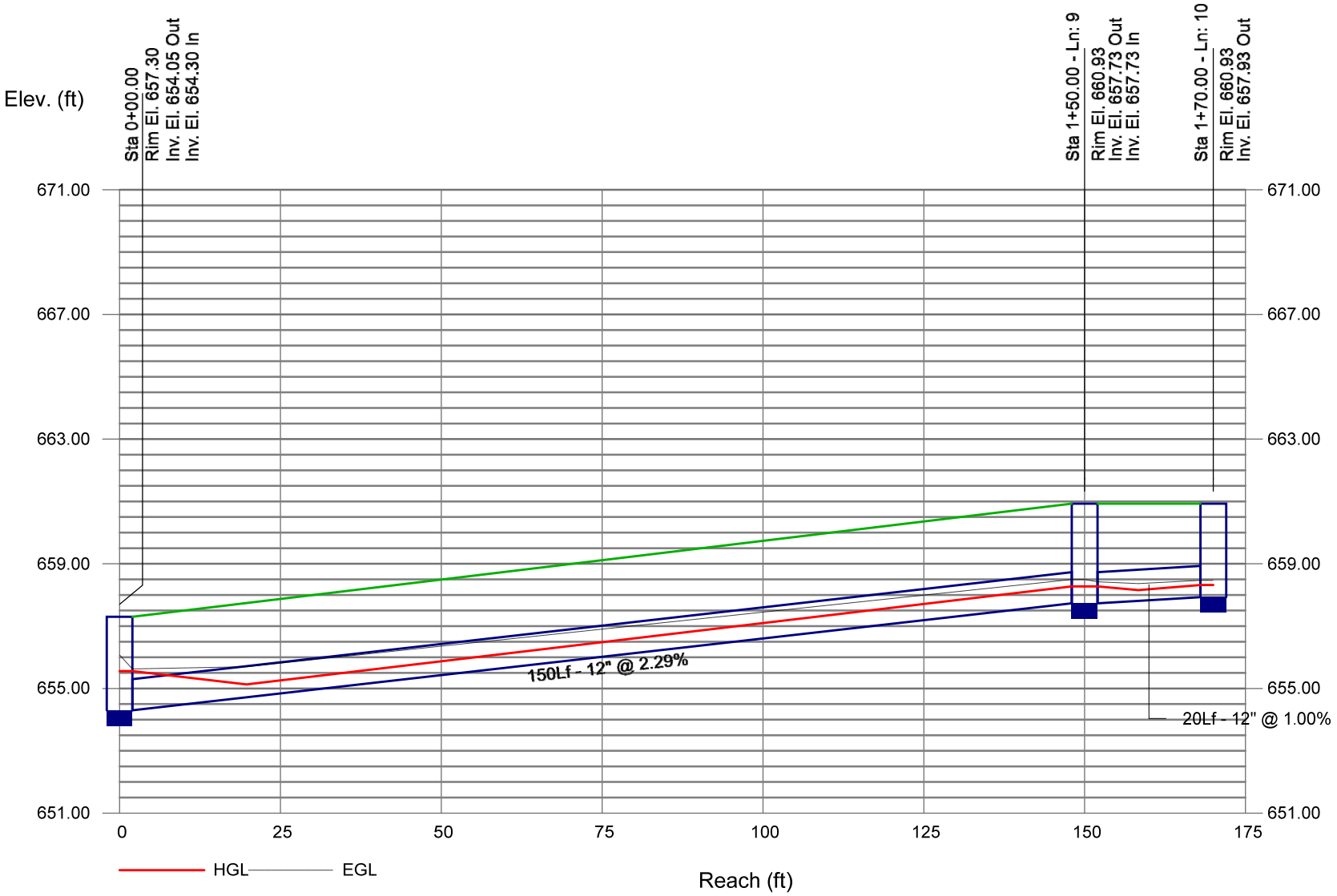
Storm Sewer Profile

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Storm Sewer Profile

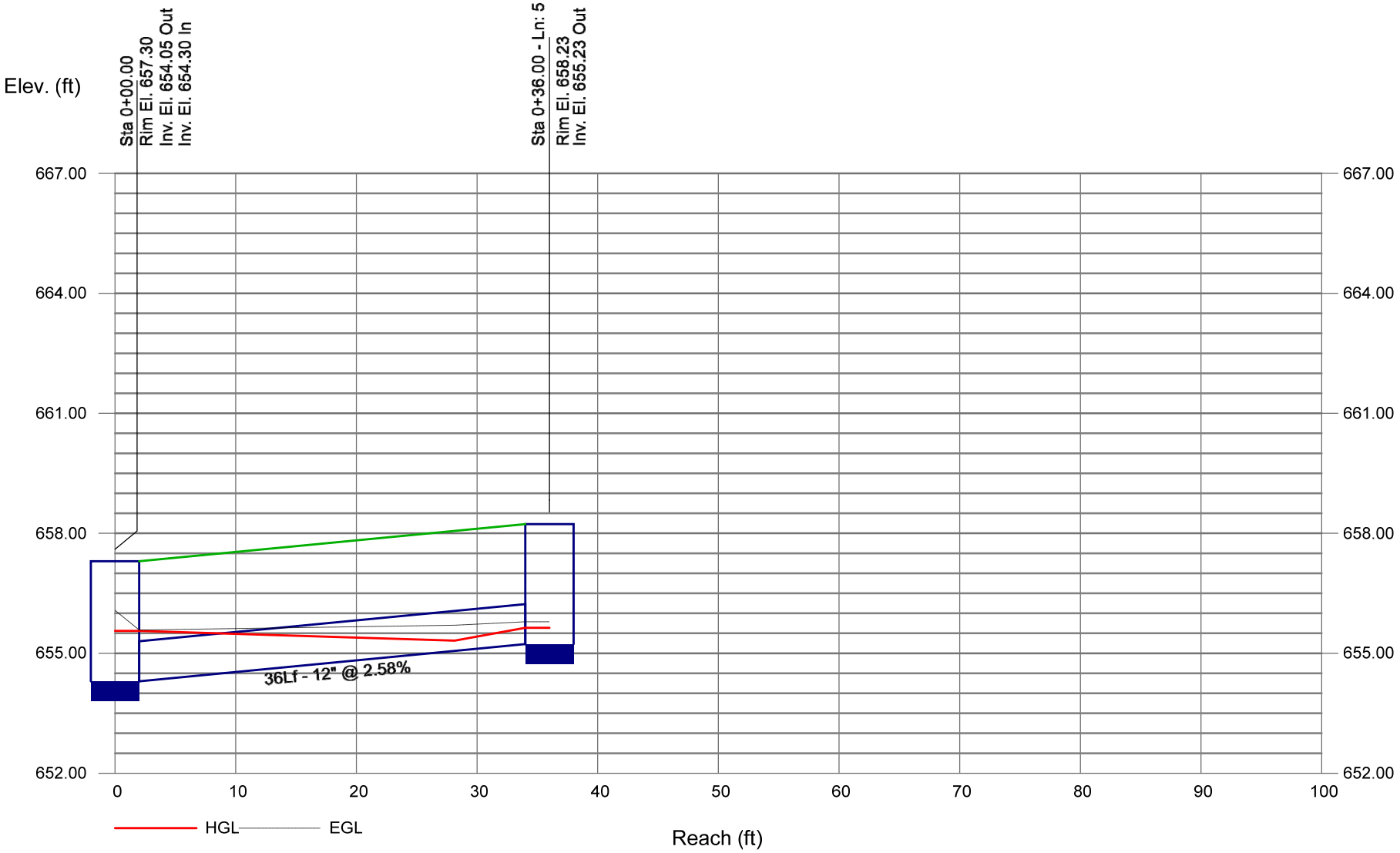
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Autodesk Civil 3D

Storm Sewer Profile

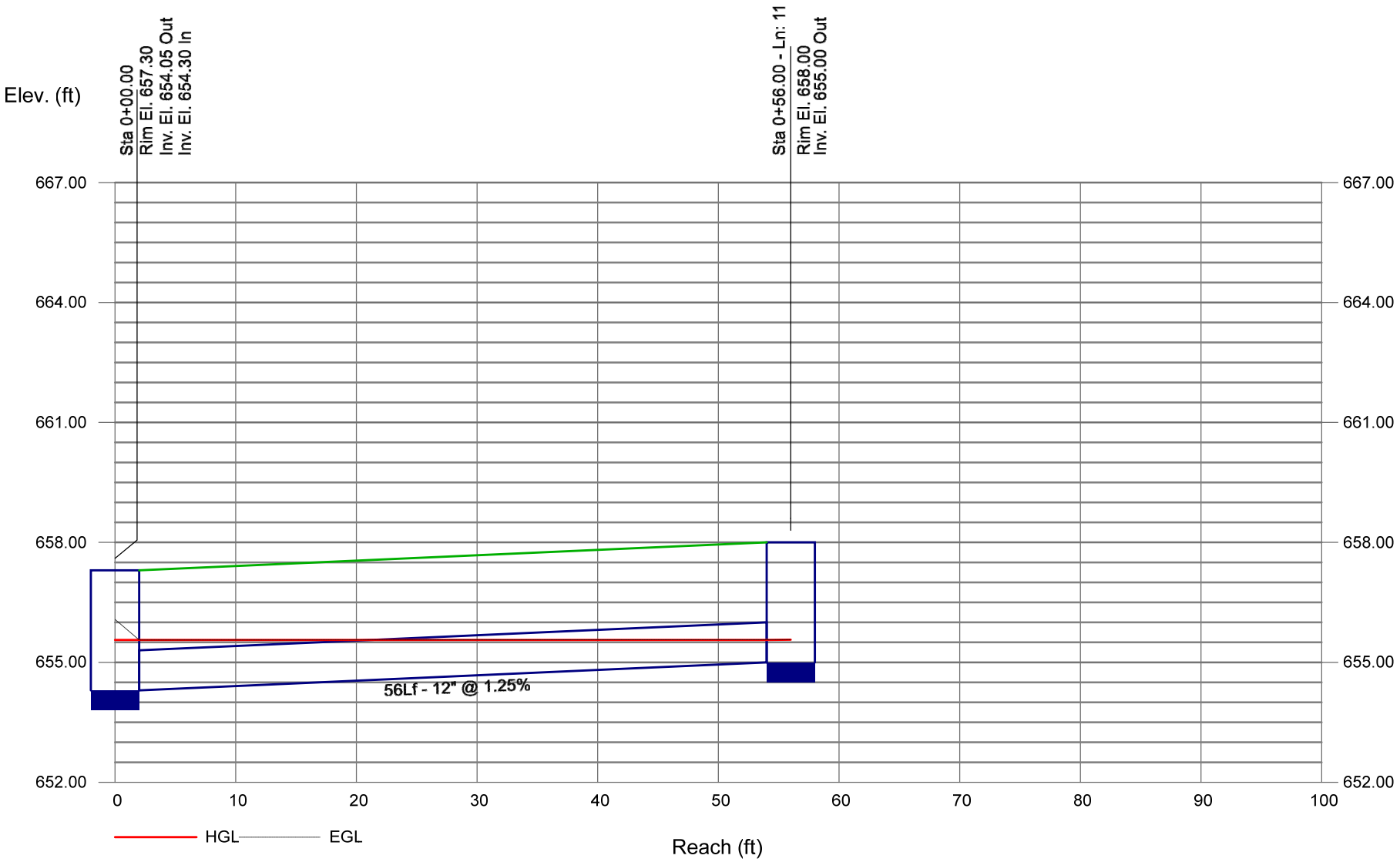
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Autodesk Storm and Sanitary Analysis

Storm Sewer Profile

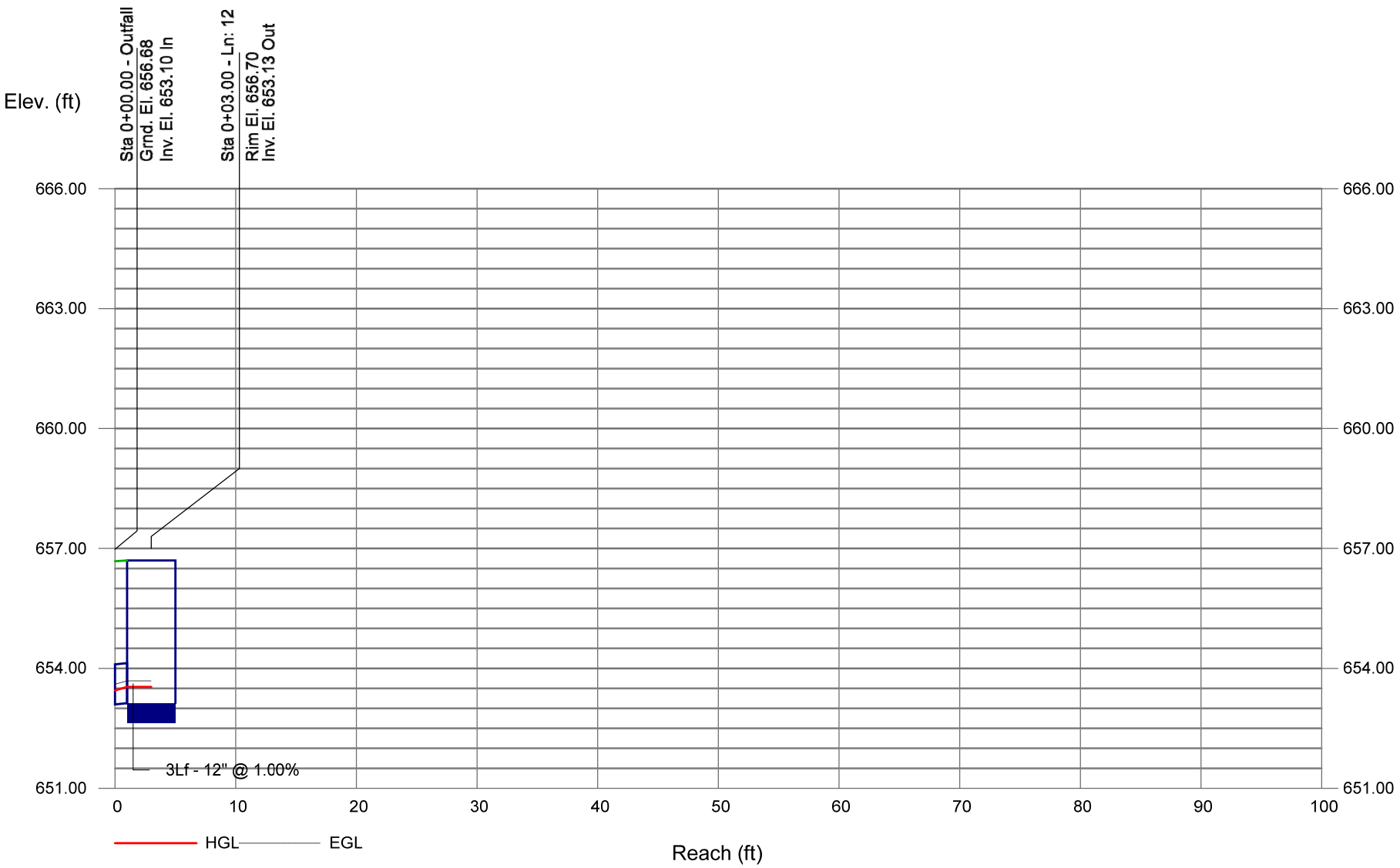
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Bentley Systems

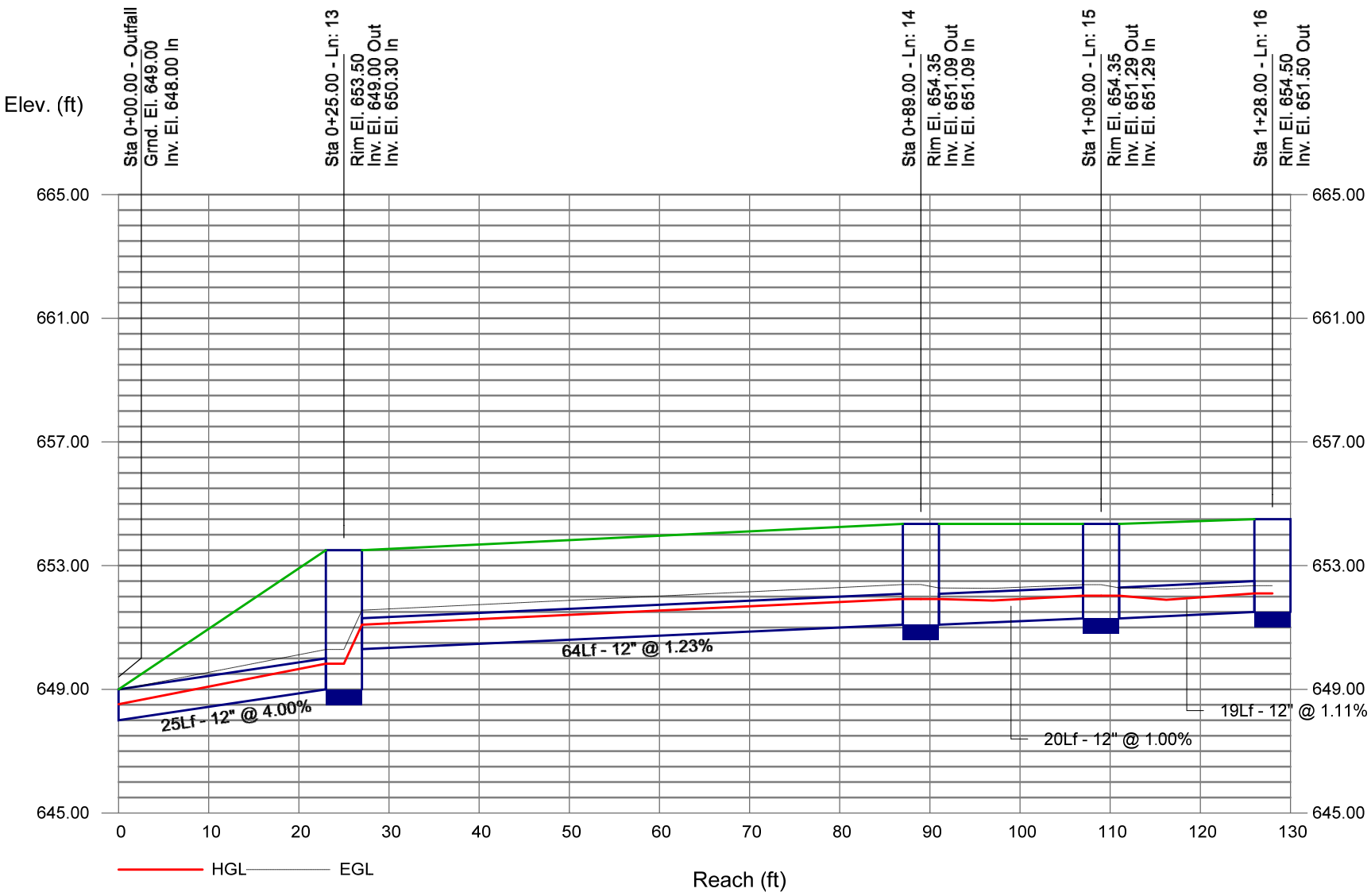
Storm Sewer Profile

Proj. file: STORM SEWER DESIGN 2024-12-04.stm



Storm Sewer Profile

Proj. file: STORM SEWER DESIGN 2024-12-04.stm




GRAND AVE.
HERITAGE CT.
LAWN AVENUE
WOLF ROAD
PARK PLACE
BASIN "A"
BASIN "B"
BASIN "C"
Retention Pond
Water Elevation: 647.8
(04/15/2024)
EXISTING STORMWATER MANAGEMENT AREA
HWL = 654.5
EXISTING OVERLAND FLOOD ROUTE FROM HERITAGE COURT
OVERFLOW ELEV. = 655.12
EXISTING OVERLAND FLOOD ROUTE FROM STORM BOX
OVERFLOW ELEV. = 653.26
EXISTING OVERLAND FLOOD ROUTE FROM TOP OF CURB
OVERFLOW ELEV. = 655.72
915 W. 55th Street
5505 Grand Avenue
5507 Grand Avenue
5511 Grand Avenue
5515 Grand Avenue
5519 Grand Avenue
5523 Grand Avenue
5527 Grand Avenue
5601 Lawn Drive
5605 Lawn Drive
5609 Lawn Drive
5615 Lawn Drive
LOT 1
LOT 2
LOT 3
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 12
LOT 13
LOT 14
LOT 40
LOT 41
LOT 42
LOT 43
LOT 44
PARCEL 1
PARCEL 2
WESTERN SPRINGS TOWNHOMES
(DOCUMENT 99297584)
MAXTED SUBDIVISION
(DOCUMENT 14442019)
SPRINGWOOD MANOR SUBDIVISION
(DOCUMENT 22769411)
VAILS FAIRWAY SUBDIVISION
(DOCUMENT 16879637227691411)
RIDGEWOOD SUBDIVISION
(DOCUMENT 1906891161)
(DOCUMENT 19613589)
28' Storm Sewer Easement per Document 26776577
10' P.U.E. per Document 16879637
10' P.U.E. per Document 19610359
5' P.U.E per Document 109089916
10' C.E. Co. Easement per Document 26787715
DEDICATED PER DOCUMENT 16879637
665.70 BM
N. Line, Lot 4
E. Line, W. 1/2, N. Line, Lot 4
S. Line, N. 74' Lot 4
S. Line, Lot 4 N. Line, Lot 5
E. Line, W. 1/2, Lot 5
S. Line, Lot 5 N. Line, Lot 6
E. Lines, Lots 4 - 6
W. Lines, Lots 4 - 6
33' BUILDING LINE PER DOCUMENT 14442019
30' BUILDING LINE PER DOCUMENT 14442019
Box Culvert Inv. 648.06 (See detail)
Box Culvert Inv. 648.00 (See detail)
Box Culvert Inv. 648.02 (See detail)
Box Culvert Inv. 648.80 (See detail)
Pipe Culvert Inv. 648.00 (See detail)
Catch Basin (CL) Rim 652.96 (18" RCP) Inv. 647.96
Catch Basin (CL) Rim 653.83 (12" RCP, W) Inv. 650.32 (12" RCP, S) Inv. 649.31
Catch Basin (CL) Rim 653.87 (12" RCP) Inv. 651.47
Inlet Rim 651.84 (12" RCP) Inv. 651.45
12" RCP Inv. 648.02
24" RCP Inv. 648.06
Catch Basin (CL) Rim 655.26 (24" RCP) Inv. 646.81
Catch Basin (CL) Rim 655.47 (36" RCP) Inv. (No Data)
Catch Basin (DL) Rim 650.51 (36" RCP) Inv. 645.98
Catch Basin (CL) Rim 656.51 (36" RCP) Inv. 648.23
Sanitary Manhole Rim 655.29 Inv. 647.69
Inlet Rim 654.95 Inv. 651.35
Inlet Rim 649.27 Inv. 646.47
Inlet Rim 652.11 Inv. 649.11
Inlet Rim 654.65 Inv. 652.40
Inlet Rim 657.10 Inv. 651.60
Inlet Rim 657.05 Inv. 653.95
Inlet Rim 664.14 Inv. 659.46
Inlet Rim 663.82 Inv. 659.32
Inlet Rim 664.22 Inv. 658.82
Inlet Rim 664.28 Inv. 656.53
Sanitary Manhole Rim 661.61 Inv. 653.16
Catch Basin (CL) Rim 665.50 Inv. 658.47
Catch Basin (CL) Rim 665.56 Inv. 654.56
Sanitary Manhole Rim 665.01 Inv. 653.99
Inlet Rim 665.09 Inv. 660.19
Inlet Rim 665.18 Inv. 660.53
Inlet Rim 664.82 Inv. 659.97
Inlet Rim 664.92 Inv. 660.24
Inlet Rim 664.70 Inv. 660.59
Inlet Rim 664.82 Inv. 660.61
Sanitary Manhole Rim 666.96 Inv. 657.79
Sanitary Manhole Rim 658.59 Inv. 656.91
1 Story Brick Building T/F 644.15
1 Story Brick Building T/F 664.50
1 Story Brick Garage
G.F. 660.17
G.F. 660.11
Elevator
Fire Dept. Connection
Gas Piping
Wood Post / Address Sign
Wood Post Fence
Broadband Handhold
Flagpole
Telephone Cabinet
Elec. Meter Base
Flagstone Walk
Flagstone Ret. Wall
Wood Retaining Wall
Brick Retaining Wall
Curb a 0.6' E
Curb a 1.5' E
Curb a 0.9' E
Curb a 0.7' E
Curb a 10' E
Curb a 1.4'
Dep. Curb
Gutter Flow
Pool
Fence
Wood Fence
Overhead Wires
Concrete Walk
Asphalt Path
Top of Bank
Toe of Bank
Edge of Water
Wood Post
Sign
Bollard
Light Pole
Utility Pole
Guy Wire
Mailbox
Tree
Shrub
Bush
Hedge
Deciduous Tree
Evergreen Tree
Conifer Tree
Ornamental Tree
Stump
Shed
Gazebo
Pergola
Playground Equipment
Basketball Hoop
Swing Set
Slide
Sandbox
Picnic Table
Bench
Trash Can
Grill
Fire Pit
Fire Hydrant
Water Valve
Water Meter
Water Shut-Off
Water Well
Sanitary Sewer Manhole
Storm Sewer Manhole
Storm Sewer Inlet
Storm Sewer Catch Basin
Storm Sewer Cleanout
Storm Sewer Flared End
Storm Sewer Headwall
Storm Sewer Culvert
Storm Sewer Pipe
Sanitary Sewer Pipe
Water Main
Gas Main
Gas Meter
Gas Valve
Gas Line Marker
Electric Meter
Electric Box
Electric Manhole
Electric Pedestal
Electric Transformer
Electric Vault
Electric Line
Electric Line Marker
Telephone Pedestal
Telephone Manhole
Telephone Line
Telephone Line Marker
Cable TV Pedestal
Cable TV Line
Cable TV Line Marker
Fiber Optic Manhole
Fiber Optic Line
Fiber Optic Line Marker
Light Pole
Traffic Signal
Traffic Signal Pedestal
Traffic Signal Cabinet
Traffic Signal Pull Box
Traffic Signal Line
Traffic Signal Line Marker
Traffic Signal Mast Arm
Traffic Signal Span Wire
Traffic Signal Pole
Traffic Signal Pole with Light
Traffic Signal Pole with Sign
Traffic Signal Pole with Light and Sign
Traffic Signal Pole with Light and Sign and Mast Arm
Traffic Signal Pole with Light and Sign and Span Wire
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box
Traffic Signal Pole with Light and Sign and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line and Line Marker and Mast Arm and Span Wire and Pedestal and Cabinet and Pull Box and Line
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GRAPHIC SCALE

30 0 15 30

(IN FEET)
1 inch = 30 ft.

PROPOSED CONDITIONS FLOODING EXHIBIT

REVIEW SET
NOT FOR CONSTRUCTION

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	12/11/24	PER VILLAGE REVIEW	DMV
2	03-11-25	PER REVISED CULVERT	DMV

McNAUGHTON DEVELOPMENT
11S220 JACKSON ST. Ste. 101
BURR RIDGE, ILLINOIS 60527
(630) 325-3400

PROPOSED FLOODING EXHIBIT
FOR
HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

DESIGNTEK ENGINEERING, INC.
CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326-4961
FAX: (708) 326-4692
IL Prof. Lic. No.: 184-003740

PROJECT INFORMATION
Project No.: 24-0001
Scale: 1"=30'
Date: 09-05-2024
Design By: SDD
Drawn By: SDD
Checked By: DMV

1 OF 1

PROPOSED CONDITIONS FLOODING EXHIBIT

STORM SEWER DRAINAGE AREA EXHIBIT

GRAPHIC SCALE
30 0 15 30
(IN FEET)
1 inch = 30 ft.

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	06-17-24	PER LAGRANGE HIGHLANDS SD	DMV
2	08-19-24	PER WESTERN SPRINGS REVIEW	SDD
3	10-17-24	PER VILLAGE REVIEW	SDD
4	11-04-24	PER CDDOTH REVIEW	DMV
5	12-12-24	PER VILLAGE REVIEW	DMV
6	01-27-25	PER REVISED GEOMETRY	DMV
7	03-17-25	PER CULVERT REVISION	DMV

McNAUGHTON DEVELOPMENT
11S220 JACKSON ST. Ste. 101
BURR RIDGE, ILLINOIS 60527
(630) 325-3400

FINAL ENGINEERING PLANS
FOR
HERITAGE CROSSING
5600 SOUTH WOLF ROAD
WESTERN SPRINGS, ILLINOIS

DESIGNTEK ENGINEERING, INC.
CONSULTING, CIVIL ENGINEERING & LAND SURVEYING
9930 W. 190TH STREET, SUITE L
MOKENA, ILLINOIS 60448
(708) 326-4961
FAX: (708) 326-4962
IL PROF. LIC. No.: 184-003740

DEI

PROJECT INFORMATION
Project No.: 24-0001
Scale: 1" = 30'
Date: MAY 22, 2024
Design By: SDD
Drawn By: DEI
Checked By: SDD

EX1
OF
EX1

REVIEW SET
NOT FOR CONSTRUCTION

L:\Projects\2024\24-0001\Engineering\DWG\Final\24-0001 FE.dwg Plot Date: 3/18/2025 11:16:25 AM By:sheth

ORDINANCE NO. 25-3240
VOTE: Roll call vote.
AYES: Trustees Avakian, Chen, Fink, Lewis, Tyrrell
NAYS: Nawrocki
ABSENT: None.
ABSTAIN: None.
DATE: February 10, 2025.
OTHER: Published in Pamphlet Form.

AN ORDINANCE APPROVING A MAP AMENDMENT TO REZONE THE 5600 SOUTH WOLF ROAD PROPERTY, WESTERN SPRINGS, ILLINOIS, FROM THE O – LIMITED OFFICE ZONING DISTRICT TO THE R4 - MULTIPLE-FAMILY RESIDENCE DISTRICT; APPROVING AN APPLICATION FOR A CONDITIONAL USE PERMIT FOR A PLANNED DEVELOPMENT FOR THE CONSTRUCTION AND OPERATION OF THE PROPOSED 29 UNIT HERITAGE CROSSING TOWNHOME DEVELOPMENT LOCATED AT THE 5600 SOUTH WOLF ROAD PROPERTY, INCLUDING THE APPROVAL OF THE COMBINED PRELIMINARY / FINAL DEVELOPMENT PLANS, SUBJECT TO VILLAGE PLAN REVIEW PROCESS, AND APPROVAL OF CERTAIN DEVELOPMENT ALLOWANCES, EXCEPTIONS AND VARIATIONS FROM THE VILLAGE ZONING REGULATIONS, INCLUDING A WAIVER OF THE FIVE (5) ACRE MINIMUM LOT AREA REQUIREMENT AND A REDUCTION OF CERTAIN PLANNED DEVELOPMENT SUBMISSION REQUIREMENTS.

WHEREAS, McNaughton Development, LLC, with its principal business office located at 11S220 Jackson Street, Burr Ridge, Illinois 60527 ("Applicant"), is the contract purchaser and prospective developer of the real property commonly known as 5600 South Wolf Road, Western Springs, Illinois ("Property"). Casey and Fran Gaik (collectively the "Property Owner") are the fee simple title owners of the Property and have submitted a written authorization to the Village of Western Springs ("Village") that allowed the Applicant to file with the Village a completed "General Information Application for Land Use and Development in the Village" form with supporting documents (the "Application") for the redevelopment of the Property as a twenty-nine (29) unit residential townhome development (the "Development"). The Property Owner has further executed a "Written Consent and Waiver" to allow McNaughton Development, LLC to enter into this Agreement, a copy of which is on file with the Community Development Department and is incorporated herein by reference and made a part hereof; and

WHEREAS, in 2024, the Applicant submitted the Application to the Village requesting approval of a conditional use permit for a planned development, a map amendment, an amendment to the Village's Comprehensive Land Use Plan, a plat of consolidation, a plat of abrogation for storm sewer easement and public utility easement, a plat of vacation relating to a portion of Lawn Avenue, which is utilized as a stormwater detention basin, certain development allowances, exceptions and variations, and other zoning relief as noted below in accordance with the applicable provisions of the Village's Development Control Ordinance ("DCO"), in order to construct the Development, which is commonly referred to as the Heritage Crossing Subdivision or the Heritage Crossing Townhome Development. A copy of the Application

is on file with the Village's Community Development Department and is incorporated herein by reference; and

WHEREAS, the proposed Development consists of nine (9) townhome buildings with unit counts of either three-units or four-units. Each dwelling unit will have a balcony, a rear patio, and an attached, front-loaded garage with a driveway accessed by a private street through the Development. The Development will have off-street community parking spaces, possible on street-parking, sidewalks, an expanded stormwater detention basin system and stormwater management facilities and other private and public infrastructure, open space, landscaped areas and streetlights. The Applicant proposes to extend private Heritage Court to the southeast through the Property to the Development's access driveway proposed along Wolf Road. The existing portion of Heritage Court, a private road, currently services only the Heritage Springs Townhome Development, connects to 55th Street to the north of the Property and is maintained by the Heritage Springs Homeowner's Association. The Applicant's plans indicate that the new portion of Heritage Court will match the existing road's width. An automatic gate will separate the Development from the existing Heritage Springs Subdivision to the north. Vehicle access between the adjacent subdivisions will be controlled by a swing gate and gate access will only be granted to residents of both subdivisions with clicker-access and Village emergency service vehicles. The swing gate will be improved with an Opticom system that will give Village emergency service vehicles access similar to the systems on streetlights. The Developer agrees to accept title to a sixty-six (66.00) foot by two hundred twenty-five (225.00) foot portion of Lawn Avenue (the "ROW Parcel") that will be vacated by the passage of a vacation ordinance and a plat of right-of-way vacation and retention of stormwater facility easement by the Village for purposes of incorporation into the Property and the Development so that the Developer can construct an expanded stormwater detention basin system as part of the construction of the Development; and

WHEREAS, as part of the Application and its Exhibits, the Applicant requested one-stage final approval of the submitted "Development Plans" for the Development, which have been revised by the Developer since their initial filing and which are listed at the end of this Ordinance as part of **Group Exhibit "1"** and made a part hereof. The Application and other documents that comprise **Group Exhibit "1"** are on file with the Village Clerk's Office and the Community Development Department and are incorporated by reference into this Ordinance and made a part hereof. The Applicant shall submit a set of "Final Development Plans" (i.e., architectural plans and engineering plans) for Village staff review and Village Engineer review prior to those Plans being considered for final approval by the President and Board of Trustees of the Village (the "Corporate Authorities") at a public meeting in order for the Developer to be eligible to receive a site development permit or building permit to commence site work on the Property or construction of the Development; and

WHEREAS, the Property is legally described as follows:

PARCEL 1: THE WEST ½ OF LOT 4 (EXCEPT THE NORTH 75 FEET THEREOF), LOTS 5 AND 6 IN MAXTED SUBDIVISION BEING A SUBDIVISION OF THE EAST 473 FEET OF THE NORTH 775.5 FEET (EXCEPT THE EAST 145.2 FEET OF THE WEST 178.2 FEET OF THE NORTH 350 FEET THEREOF) OF THE NORTH EAST ¼ OF SECTION 18, TOWNSHIP 38 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

PARCEL 2: LOT 1 IN VIAL'S FAIRWAY, A SUBDIVISION OF PART OF THE NORTH EAST ¼ OF SECTION 18, TOWNSHIP 38 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN,

ACCORDING TO THE PLAT RECORDED APRIL 17, 1957 AS DOCUMENT 16879637 IN COOK COUNTY, ILLINOIS.

Legal Description for the Lawn Avenue ROW Parcel is as follows:

THAT PART OF THE 66 FEET WIDE LAWN AVENUE, LYING SOUTH OF THE NORTH LINE OF WESTERN SPRINGS TOWNHOMES, RECORDED MARCH 29, 1999, AS DOCUMENT NO. 99297584, LYING NORTH OF THE SOUTH LINE OF RIDGEWOOD UNIT 12, RECORDED OCTOBER 6, 1965, AS DOCUMENT NO. 19610359, LYING WEST OF THE EAST LINE OF THE WEST ½ OF LOT 4 (EXCEPT THE NORTH 75 FEET THEREOF), LOTS 5 AND 6 IN MAXTED SUBDIVISION, RECORDED NOVEMBER 13, 1948, AS DOCUMENT NO. 14442019, AND LYING EAST OF THE WEST LINE OF RIDGEWOOD UNIT NO. 11, RECORDED APRIL 3, 1964, AS DOCUMENT NO. 19089916, IN THE EAST HALF OF SECTION 18, TOWNSHIP 38 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN, COOK COUNTY, ILLINOIS.

Common Address: 5600 South Wolf Road, Western Springs, Illinois

P.I.N.S: Parcel 1: 18-18-200-017-0000, Parcel 2: 18-18-200-038-0000 and Parcel 3: 18-18-200-001-0000 (Lawn Avenue ROW Parcel); and

WHEREAS, with the passage of **Resolution No. 25-**2878 **on** 2/10**, 2025**, the Corporate Authorities of the Village approved the following relief from certain DCO submittal requirements for planned developments for this Development:

a. Waiver of the five (5) acre minimum land area requirement for planned developments.
b. Waiver of the submittal requirement of a "Market Study" prepared by a qualified, independent market research firm per Subsection 10-8-8(B)(4)(d) of the DCO. This waiver is supported by the fact that the Applicant has submitted a report with supporting market and financial data relative to other recent, active townhouse developments in the Village to demonstrate the market demand for the housing type and base cost.
c. Waiver of the submittal requirement of a "Site lighting plan" per Subsection 10-8-8(B)(3)(g) of the DCO, due to the relatively small size of the Development. There will be site lighting details and specifications provided by the Applicant; and

WHEREAS, the remaining zoning relief necessary for the Applicant to construct the Development is set forth in Section 3 below of this Ordinance; and

WHEREAS, a public hearing has been conducted by the Western Springs Plan Commission relative to the Application during public meetings held on August 13, 2024, September 24, 2024 and November 18, 2024, as required by the applicable provisions of State law, including the Illinois Open Meetings Act, 5 ILCS 120/ and Division 11-13 of the Illinois Municipal Code (65 ILCS 5/ 11-13), and the applicable provisions of the DCO (the "Public Hearing"). Prior to conducting the Public Hearing, a notice of Public Hearing was published in a newspaper, a "zoning application pending" sign was posted at the Property, a notice of Public Hearing was mailed to those persons who are required to be mailed the notice in compliance with applicable State law and the DCO, and separate agendas for each of the Plan Commission meetings where the Public Hearing sessions were held were posted as required by the Open Meetings Act; and

WHEREAS, at the November 18, 2024, Public Hearing session, the Western Springs Plan Commission, after finding that sufficient evidence was presented at the Public Hearing to conclude that the applicable standards relating to the requested zoning relief were met, passed a motion approving Report and Recommendation No. 24-02, which recommended approval of the zoning relief needed for the Applicant to construct the Development, subject to certain conditions related to the Development (See, Section V (Conditions) of Report and Recommendation No. 24-02). A copy of Report and Recommendation No. 24-02 is on file with the Village Clerk's Office and is incorporated into this Ordinance by reference; and

WHEREAS, at open public meetings held on January 9, 2025 and January 16, 2025, the Village's Planning and Zoning Committee ("Committee") reviewed and discussed the proposed Heritage Crossing Townhome Development and Plan Commission Report and Recommendation No. 24-02 and this Ordinance, and received input from the Village staff on the matter, and provided an opportunity for public input on the matter. At its January 16, 2025 meeting, the Committee recommended that the Corporate Authorities of Village consider the Development and this Ordinance; and

WHEREAS, the Village Board, at open public meetings held **on January 13, 2025, January 27, 2025 and February 10, 2025,** reviewed and discussed the Applicant's Application and its request for zoning relief, the findings, recommendations and conditions of the Plan Commission as set forth in Report and Recommendation No. 24-02, received input from Village staff and provided an opportunity for public input. At the 2/10 **, 2025** public meeting, the Village Board considered the findings, recommendations and conditions of the Plan Commission as set forth in Report and Recommendation No. 24-02 and, with the passage of this Ordinance, the Village Board, after finding that sufficient evidence was presented at the Public Hearing to conclude that the applicable standards relating to the requested zoning relief were met, then accepted, adopted and approved the findings, recommendations and conditions set forth in Report and Recommendation No. 24-02, subject to the approvals and conditions of this Ordinance; and

WHEREAS, in accordance with the authority granted by Sections 11-13-1 and 11-13-1.1 of the Illinois Municipal Code (65 ILCS 5/11-13-1 and 11-13-1.1) and the applicable provisions of the DCO, the Village President and Board of Trustees of the Village of Western Springs approve the zoning relief, as requested by the Applicant, relative to the issuance of the Conditional Use Permit for a Planned Development for the construction, operation and maintenance of the Development, subject to the Village-approved zoning relief contained in Section 2 below and the conditions contained in Section 3 below in this Ordinance.

BE IT ORDAINED BY THE PRESIDENT AND BOARD OF TRUSTEES OF THE VILLAGE OF WESTERN SPRINGS, COOK COUNTY, ILLINOIS, AS FOLLOWS:

SECTION 1. Incorporation. The above recitals are incorporated by reference into Section 1 of this Ordinance as material terms and provisions.

SECTION 2. Approval of Requested Zoning Relief. Pursuant to the applicable provisions of Title 10 (Development Control Ordinance) of the Western Springs Municipal Code, the President and Board of Trustees approve the following zoning relief and development approvals relative to the Property in order to allow the construction and operation of the Development under a Conditional Use Permit for Planned Development, subject to the conditions set forth in Section 4 below:

A. Approval of a conditional use permit for a planned development in accordance with Chapter 3 (Conditional Uses) and Chapter 8 (Planned Developments) of the DCO to construct the Development, subject to the requested exceptions, variations and zoning relief from the DCO regulations;

B. A waiver of the five (5) acre minimum land area requirement under Section 10-8-3 (Guidelines) of the DCO, with the Village Board having found just cause to grant this waiver based the five (5) acre area requirement being outdated for the development of infill parcels within the Village and the consistent past precedent of other Village Boards waiving this requirement for other recent planned developments recognizing that Section 10-8-3 states "it is not intended that each and every one of these guidelines be rigidly conformed to, provided that just cause for any departure from these guidelines is demonstrated";

C. Reduction of certain planned development submission materials under Section 10-8-8 (Submittal Requirements) of the DCO as set forth below; approval of a single stage Final Plan review and approval process (i.e., a combined Preliminary Plan / Final Plan approval) for the Development per Subsection 10-8-8(C) of the DCO, provided that the Applicant complies with the submittal and plan review requirements of Section 10-8-5(C) (Final Plan) of the DCO, subject to the reduction in the submittal requirements and other exceptions authorized by this Ordinance;

D. A Comprehensive Plan Amendment to the Long-Range Land Use Map that reclassifies the Property from the O – Limited Office Zoning District to the R4 - Multiple-Family Residence District;

E. A map amendment to re-zone the Property and the Lawn Avenue ROW Parcel from the O – Limited Office Zoning District to the R4 - Multiple-Family Residence District;

F. An Exception (Variations) from Subsection 10-8-4(B)(1)(d) (Exceptions From District Regulations; Site Design Regulations; Exceptions From District Regulations) of the DCO applicable only to the Development to provide: "Along the periphery of such planned developments, set back yards shall be provided as required by the regulations of the underlying zoning district, except that in the R4 - Multiple-Family Residence District variations of not more than 61% to the front yard regulation and the corner side yard regulation may be allowed as part of the approval of the planned development.";

G. An Exception (Variations) from Subsection 10-8-4(B)(1)(e) (Exceptions From District Regulations; Site Design Regulations; Exceptions From District Regulations) of the DCO to provide: "Building height shall comply with the Zoning District regulations approved by the Village for the planned development, except that a variation of not more than 9% above the maximum height of buildings and structures may be allowed as part of the approval of a planned development.";

H. Exceptions (Text Amendments / Variations) from requirements of Section 10-6-5 (R4 - Multiple-Family Residence District) regulations, including:

   i. Subsection 10-6-5(D): Minimum Development Parcel Size: Required: five (5) acres (217,800 square feet); and Requested: 2.76 acres;

   ii. Subsection 10-6-5(E)(1): Minimum Yards Requirements: Front Yard: Required: Twenty-five feet (25'); and Requested: Seven Feet (7');

   iii. Subsection 10-6-5(E)(2): Minimum Yards Requirements: Corner Side Yard: Required: Twenty-five feet (25'); and Requested: fourteen feet and five inches (14.42');

   iv. Subsection 10-6-5(E)(3): Minimum Yards Requirements: Interior Side Yard: Required: Thirty feet (30'); and Requested: six feet and eight inches (6.67');

v. Subsection 10-6-5(E)(4): Minimum Yards Requirements: Rear Yard: Required: Thirty feet (30'); and Requested: Twelve feet and nine inches (12.75'); and

vi. Any additional exception(s) or variation(s) identified at the Public Hearing from the other use, bulk and site design requirements contained in the DCO that are necessary to permit the construction of the Development and allow the above Property to be used for its intended purposes in accordance with the filed Application shall also be considered for Village approval; and

l. A variation from Subsection 10-11-11 (C)(2) (Stormwater Management Requirements For All Developments; Detention; Streets) of the DCO to allow the portion of the north end of Heritage Court (a private street) between the north lot line of the Property to a point approximately forty feet (40') south of the north lot line of the Property, which is not intended to be used for primary ingress and egress vehicle access to the Property, to be designed and constructed to temporarily hold stormwater during certain rain events to facilitate the movement of excess stormwater from the Property to the on-site stormwater detention basins and to draw stormwater off of the remainder of Heritage Court and away from the private driveways of northerly dwelling units so that there is no ponding of stormwater in front of the dwelling units. The standards for consideration and approval of the proposed map amendment and text amendments are set forth in Section 10-3-12 (Amendments) of the DCO; and

SECTION 3. Conditions of Approval of Requested Zoning Relief. The above zoning relief and development approvals granted for the Development as contained in Section 2 above are subject to the following conditions:

1. General

a. The Applicant shall comply with all of the applicable federal, state, county, local and special district laws, ordinances and regulations, including the provisions of the Village's Municipal Code, relative to the construction and maintenance of the Development, except as otherwise modified by Village approvals.

b. The uses generally approved for this Conditional Use Permit for Planned Development for the Development are limited to residential uses and uses ancillary to the foregoing uses. Such ancillary uses shall comply with the requirements for accessory uses established under the DCO. The approval of the Conditional Use Permit for Planned Development for the Development does not authorize the Applicant or any other tenant or occupant to use the Property without applying for and obtaining any required temporary use permit, conditional use permit, or any other Village or other governmental approval. Such specific use approval shall be obtained by the Applicant, tenant or occupant of the Property before commencing such use.

c. In regard to the construction, operation and maintenance of the Development, these conditions shall be the only conditional use and planned development conditions applicable to that use of the Property, unless amended by mutual agreement of the Applicant and the Village, or unless amended by ordinance approved by the Village Board after the required public hearing.

d. The Applicant shall pay the required impact fees (i.e., school site / school improvement impact fee; and park and recreation site impact fee) to the Village in lieu of land dedication, as calculated by the Village, in accordance with the formula set forth in Section 10-10-14 of the DCO, at the time it applies for a building permit

e. In the event that the Applicant does not obtain a site development permit or a building permit and commence and actively perform construction of the Development within twelve (12) months of the approval of the Conditional Use Permit for Planned Development for this Project, the Conditional Use Permit for Planned Development for this Project shall expire in accordance with Section 10-3-14(L) of the DCO, unless the 12-month period is extended by approval of an ordinance by the President and Board of Trustees of the Village. Any extension of the above 12-month period to avoid an expiration of the Conditional Use Permit for Planned Development for this Project shall be approved by an ordinance passed by the President and Board of Trustees of the Village, in their discretion. Approval of such an extension does not require a public hearing, but such ordinance must be approved by the President and Board of Trustees of the Village at a public meeting in accordance with the Open Meetings Act. The Applicant shall use all commercially reasonable efforts to secure all necessary governmental permits needed to complete the Development and to actively and diligently pursue completion of the Development. The Applicant shall use all commercially reasonable efforts to hire an adequate number of experienced contractors, subcontractors and other skilled labor, and provide for adequate equipment and building materials to ensure that construction of the Development is actively and diligently pursued.

f. The Applicant shall revise the Declaration of Covenants, Conditions and Restrictions for the Homeowners Association (the "Declaration") in accordance with comments provided by the Village Attorney and shall file the Declaration with the Cook County Clerk's Office, Recording Division ("CCCORD") prior to the sale of any portion of the Property to any other person. The Declaration shall require that, at the closing of each dwelling unit, the Applicant shall allocate $600.00 (or an amount equal to three (3) months' Community Assessment) and pay said amount into a "Capital Reserve" fund, as defined and required by the Declaration, for the maintenance reserve account for the benefit of and use of the Homeowners Association for maintenance purposes consistent with the Declaration. In addition, the Declaration shall provide for adequate building reserve funds to pay for operating expenses (insurance, building maintenance and cleaning vendors, utilities, security) and short-term and long-term maintenance, repair and replacement expenses for the exterior and interior of the building and its common areas, and also contain all necessary cross access easements for driveway use and garage access for the benefit of each of the dwelling units as well as common area easements for use, repair, replacement and maintenance of common areas and common elements (driveway, fencing, landscaping, roof and exterior building materials) of the building.

g. The Village and the Applicant shall execute the Final Plat of Heritage Crossing and the Declaration, which shall be filed against title to the above-described property with the CCCORD. The Plat shall be filed by the Village, at the Developer's cost, along with a certified copy of the Ordinance approving the Development. The Declaration shall be filed by the Developer, at its cost, with the CCCORD after the townhome units are constructed but prior to the sale and conveyance of legal title to any townhome. The Declaration shall

contain provisions that are enforceable against the Applicant, and any successor owners, property managers, associations, lessees, licensees, transferees, receivers or successors in interest, which, in part, provides for the future installation, maintenance, repair and replacement of all stormwater management and other drainage structures, public utilities, water and sewer mains and related structures, including without limitation fire hydrants, driveway and parking lot improvements, parking lot and landscape lighting, and landscaping and retaining wall improvements. The Plat and the Declaration shall be in a form and content approved by the Village Engineer and the Village Attorney. The Plat and the Declaration shall impose on the Applicant, and any successor owners, lessees, licensees, transferees, receivers or successors in interest, at their cost, the obligation and responsibility of performing all future maintenance, repair and replacement work in regard to the above-described development improvements as reasonably deemed necessary by the Director of Code Enforcement and the Village Engineer in order to comply with the Village Code, as amended, and shall grant to the Village a non-exclusive easement for entry upon and access to all parts of the Property, for purposes of providing the Village with the right but not the obligation to perform such maintenance, repair and replacement work, in its sole, reasonable discretion, along with the right to recover the cost of such work directly from the owners, successor owners or successors in interest or to lien the property and take all other action provided for in 65 ILCS 5/11-31-2, as amended, or similar applicable law, including any law contained in the Illinois Municipal Code, as amended. The Applicant, and any successor owners, property managers, associations, lessees, licensees, transferees, receivers or successors in interest, at their cost, shall repair pavement, concrete, landscaped areas or other areas damaged by the Village if the Village performs such future installation, maintenance, repair and replacement work.

h. Prior to the issuance of a building or development permit, the Applicant shall submit a construction schedule, routing, construction staging, restoration plan and phasing plan with map and plan exhibits, which are in conformance with the final set of Village approved engineering and construction plans for the Development. These plans shall identify construction access routes, temporary detours, regular street cleaning intervals and refuse removal, and other appropriate safety, restricted access and "good neighbor" practices. Standard Village construction hours shall apply, except as otherwise permitted by the Village Manager.

i. Prior to the issuance of a building or development permit, the Applicant shall enter into a Maintenance and Development Agreement with the Village, as prepared by the Village Attorney and approved by the Village Board, which includes conditions for the construction and long-term maintenance of the Development, consisting generally of the following items:

    i. The posting of an irrevocable letter of credit or other form of security with the Village to secure the completion of the required SSA Maintained Improvements and the landscape improvements for the Development (the "Developer Security"). The Developer Security shall be in a form acceptable to the Village Attorney and of a dollar amount to be determined by the Village Engineer and shall be managed by the Village in accordance with Subsection 10-10-19(2) (Land Dedications and Completion,

Maintenance and Acceptance of Improvements; Posting of a Bond, Cash, or Other Securities) of the Municipal Code;

ii. The posting of a two-year maintenance bond (performance and payment bond) for the SSA Maintained Improvements and the landscape improvements;

iii. The submittal of construction access plans for the Development requiring the Applicant and all of its employees, consultants and development and construction crews to use Wolf Road as the sole point of ingress and egress to the Development. It is the Applicant's responsibility to ensure that access to the site is maintained during all Development construction activities;

iv. The Applicant shall either enter into a private tow company contract to enforce the community parking spaces with the Development or enter into a private parking / private street enforcement agreement with the Village that will allow for the posting of appropriate parking regulation signs and vehicle speed signs to enable Village police officers to issue parking tickets and traffic citations to enforce the parking and traffic regulations of Heritage Court within the Heritage Crossing Subdivision;

v. At the request of the Applicant and the Homeowners Association for Heritage Springs Subdivision, the Village will consider approving an amendment to the planned development ordinance granted for the Heritage Springs Subdivision to allow for additional on-street parking spaces and the operation of the swing gate and such other requested amendments that are necessitated by the Development, and the Village will also consider entering into a private parking / private street enforcement agreement that will allow for the posting of appropriate parking regulation signs and vehicle speed signs to enable Village police officers to issue parking tickets and traffic citations to enforce the parking and traffic regulations of Heritage Court within the Heritage Springs Subdivision;

vi. Prior to the issuance of a building or development permit, the submittal to the Village of a fully executed agreement with Cook County for perpetual maintenance of the Project-related roadway structures and all infrastructure improvements within the portion of the Wolf Road right-of-way, as required by Cook County;

vii. Per Section 10-11-11 (Stormwater Management Requirements For All Developments) of the DCO, prior to obtaining any type of building or site development permit for the Project, the Applicant shall execute and enter into a stormwater management facilities maintenance agreement ("stormwater maintenance agreement") with the Village, as prepared by the Village Attorney and approved by the Village Board, relative to the stormwater drainage facilities located on the Property, which facilities shall be the responsibility of the Applicant and its successor owners (i.e., the Homeowners Association). Within the stormwater maintenance agreement, the Applicant shall guarantee that the Applicant and all of the successor owners of the Property will maintain the stormwater management facilities and the stormwater drainage system and provide to the Village periodic written reports on the stormwater management facilities' monitoring and maintenance. The stormwater maintenance agreement shall also specifically authorize representatives of the Village

to enter onto the Property for the purpose of inspections of the stormwater drainage system. Such agreement shall be recorded with the CCCORD. The stormwater maintenance agreement shall include a schedule for regular maintenance of each aspect of the Property's stormwater drainage system and shall provide for access to the system for inspection by authorized personnel of the Village. The stormwater maintenance agreement shall also stipulate that, if the appropriate authorized personnel of the Village notify the property owner in writing of maintenance problems which require correction, the property owner shall make such corrections within thirty (30) calendar days of such notification. If the corrections are not made within this time period, the Village may have the necessary work completed and assess the cost to the property owner.

viii. Revise the Declaration to exclude/prohibit charcoal grills on the proposed balconies.

j. Prior to the sale of any portion of the Property by the Developer or the issuance of any occupancy permits for the Development, the Developer shall participate in good faith in the formation process, and not object to the formation, of a dormant "Special Service Area" ("SSA") to be established by the Village, at the Developer's cost, pursuant to 35 ILCS 200/27-5, et seq. The SSA shall govern the Property for the purpose of ensuring, as and when appropriate, the maintenance, repair and replacement of the "SSA Maintained Improvements". The SSA Maintained Improvements shall include those public and privately-owned and developed improvements within the Development or within utility easements outside of the Property that are necessary to support and serve some or all of the Development including, but not limited to, new or the replacement, maintenance, extension or upsizing of existing public or private stormwater detention and drainage facilities, including the Lawn Avenue Detention Basin, the Outlot 31 Detention Basin and the Outlot 33 Detention Basin (each detention basin shall be privately-owned and maintained by the Homeowners Association), privately-owned Heritage Court, the Heritage Court Gate Access Improvements and its Opticom sensor system, other roads or pathways, drive aisles, curbs, light poles and light fixtures for roads, sidewalk and pedestrian pathways, and access drives, sanitary sewer mains and service lines and other sanitary sewer system facilities and equipment (i.e., lift stations), water mains and service lines and other water system facilities and equipment (i.e., pump and/or booster stations, vaults, generators, water storage tank or tower), and electric, telecommunications, cable and gas service lines and facilities.

k. The individual dwelling units and platted lots within the Development shall not be permitted to request variations from the Village's Municipal Code that are unique and specific to the individual dwelling unit and lot owner. Amendments to the planned development ordinance that are not unique and specific to an individual dwelling unit and a specific lot owner may be applied for and presented to the Village in accordance with the applicable provisions of the Municipal Code.

l. The residential buildings must comply with the architecture approved by the Village's Planned Development Ordinance.

m. The exterior of the newly constructed buildings and other above grade structures of the Project shall be constructed primarily of high quality brick, brick veneer that is a minimum

of three-fourths inches and individually adhered, stone, masonry, architectural-faced concrete block, stamped concrete panels, cement fiber board (i.e., Hardies or LP cement board products), architectural metals, and synthetic architectural products to provide a high quality aesthetic appearance. Sidewalks and pedestrian pathways shall be constructed of concrete. Vinyl siding shall not be permitted. Exterior Insulation and Finish Systems (EIFS) materials (i.e., Dry-vit materials) shall not be permitted. The Applicant agrees to take all commercially reasonable steps to ensure that the building design, building materials and exterior color schemes of the proposed building and its related landscaping are designed to blend in and complement the adjacent residential uses.

n. The Applicant shall prepare and submit to the Village final versions of the Plat of Heritage Crossing Subdivision, the Plat of Abrogation for Storm Sewer Easement and Public Utility Easement, and the Plat of Vacation of Public Right-of-Way that have been revised to address the review comments of the Village Engineer and the Village Attorney. The Plat of Heritage Crossing Subdivision shall be revised to specifically identify all terms and conditions associated with the road and driveway usage and maintenance, including cleanliness standards, snow removal and other required reasonable terms. These Plats, and any other plats that may be required for this Development, are subject to approval by the Village Board (or the Trustees), and, if approved, then said Plats will be filed with the CCCORD, by the Village Attorney, at the Applicant's cost prior to the sale of any dwelling unit.

o. In accordance with Subsection 9-1A-1 (Plan Review Deposits and Fees) and Subsection 9-1B-5: (Additional Deposit Required) of the Municipal Code, within five (5) business days of Village Board approval of the Requested Zoning Relief, the Applicant shall provide to the Village a developer-reimbursable costs / plan review escrow deposit of $58,000.00 to defray the Village's cost of plan reviews and payment of other developer-reimbursable costs incurred by the Village relative to the processing of the Application and the plan reviews by the Village staff and Village consultants of the development plans submitted for development permit approval. The developer-reimbursable costs / plan review escrow deposit shall always maintain a positive cash balance of not less than $10,000.00 and the Applicant shall provide the Village with additional funds to replenish the escrow within five (5) business days upon written demand from the Village.

p. Once the Property is rezoned from its current designation of O – Limited Office Zoning District to the R4 - Multiple-Family Residence District, with a conditional use permit for planned development overlay approval, to allow for the construction and operation of the Development, it will expand the types of other possible adaptive uses that could be developed on the Property under the R4 - Multiple-Family Residence District classification, if the Development is not constructed, subject to Village approval of another conditional use permit for a planned development after the conducting of the required public hearing.

q. The conditional use permit for planned development ordinance and its conditions shall be covenants of record that run with the land and shall be placed in a recordable format, acceptable to the Village Attorney, and then recorded by the Village against title to the Property with the Cook County Clerk's Office – Recording Division, at the Applicant's cost.

r. The approval of the Requested Zoning Relief is subject to the Developer purchasing the Property from the Property Owner.

s. Execution by the Applicant of the ACKNOWLEDGMENT Page that is part of the conditional use permit for planned development ordinance.

2. Engineering

a. The Applicant, at its cost, shall install a new eight inch (8.00") ductile iron watermain and new fire hydrants to service the Development. The Developer shall obtain an IEPA permit for the new watermain. The Village, at the Applicant's cost, shall have a water system engineering inspection performed and an assessment report prepared by a licensed professional water system engineer to verify the condition and capacity of the existing adjacent water main located in the Heritage Springs Subdivision and to provide a recommendation for the sizing of the water main that will service the Development. The Applicant, at its cost, shall be responsible for any repairs and/or replacement related to its connection to and extension of the existing water main that are determined by the water system engineer to be necessary to provide adequate water main and service line connections to the Development.

b. The Applicant shall be responsible to pay for any damage to any public improvements caused by any activities related to the Development. The Village will be the sole arbiter of determining if the damage was caused by the Applicant's actions. Within seven (7) calendar days of inspecting any damage, the Village will notify the Applicant in writing and define the scope of the damage and expected repairs. The Village and the Applicant will discuss whether the damage is to be repaired by the Applicant or if the estimated costs of repairs are paid to the Village.

c. The existing drainage pattern for the Property will not be altered by the construction of the Development, the stormwater drainage system, the landscaping or any of the related improvements.

d. The Applicant shall submit to the Village, as part of the Village plan review and approval process, an updated geometric plan that shows not only the location of a safety rail on top of the retaining walls, as shown on the current geometric plan, but also contains a detailed and structural design and calculations for the safety rail, which are needed to ensure the rail is adequate and meets applicable codes.

e. The Applicant's engineer shall submit to the Village, as part of the Village plan review and approval process, accurate calculations showing that the stormwater management system is able to manage bypass stormwater appropriately as determined by the Village Engineer.

f. The Applicant shall submit to the Village, as part of the Village plan review and approval process, accurate calculations that show that the rate of flow of the stormwater drainage bypass system is equal to or less than the current rate of all bypass flows (low flow and

overland). This submittal must demonstrate that the bypass stormwater does not reach the Lawn Avenue Detention Basin faster than it currently does under the existing conditions.

g. The Village will not accept the twin 54" aluminum pipes that are proposed by the Applicant to be installed in the rear yard of Units 1 through 7. The Applicant shall submit to the Village, as part of the Village plan review and approval process, an updated design plan that utilizes reinforced concrete pipes or precast reinforced concrete box culverts to convey the stormwater. The Applicant shall submit to the Village design calculations that demonstrate the proposed pipes meet all relevant design criteria for capacity and velocity of stormwater.

h. The Applicant shall submit to the Village, as part of the Village plan review and approval process, a detailed operations and maintenance ("O&M") plan for the enclosed stormwater drainage bypass system. The O&M plan is required to be incorporated into the final plat of subdivision, the Declaration, and the Maintenance and Development Agreement.

i. The Applicant shall submit to the Village, as part of the Village plan review and approval process, an updated design plan that shows:

   i. All components of the stormwater bypass system (open channel and piping) are secured and not accessible to the public.

   ii. The Applicant shall install infrastructure to ensure that the stormwater bypass system is not a danger to the public.

j. The Applicant shall submit to the Village, as part of the Village plan review and approval process, a wetland plantings plan for the stormwater basins to be used with the volume control retention system needed to be designed by a licensed / certified ecologist and reviewed by the Village prior to the issuance of any site development permit. This plan must also include a maintenance plan.

k. The Applicant shall submit to the Village, as part of the Village plan review and approval process, a set of structural design plans sealed by an Illinois licensed structural engineer for the retaining walls.

l. The Applicant shall submit to the Village, as part of the Village plan review and approval process, an O&M plan for the stormwater detention basins. The Applicant shall create an O&M plan for the stormwater detention basins and create a mechanism to fund all required maintenance activities for the establishment period of three (3) to five (5) years. A licensed / certified ecologist with experience in wetland basins shall produce this type of O&M plan for Village review and approval prior to the issuance of any site development permit.

m. The Applicant shall submit to the Village, as part of the Village plan review and approval process, an exhibit showing that the street light photometrics conform with the Village Code for Village review prior to the issuance of any site development permit.

n. The plans have been updated to show new retaining walls along the west edge of the Lawn Avenue Detention Basin which will require the removal of the existing walls. However, the structural design of this new retaining wall and the other proposed retaining walls are not complete and are not provided. The Applicant shall submit to the Village, as part of the Village plan review and approval process, complete retaining wall details, elevations, and signoff approval by an Illinois licensed structural engineer.

o. Since the structural design is not complete, it is not known if tiebacks or over excavation needed to construct the walls will be contained within the Property. Work needed to construct the new retaining walls cannot take place on private property unless temporary or permanent easements are acquired. Construction limits behind the retaining walls shall be identified and contained within the Property or copies of executed easements are to be provided prior to the issuance of any site development permit.

p. Neighboring properties cannot be flooded as a result of any interim construction conditions or activities by the Applicant that could occur if the old retaining wall is torn down and the new retaining wall is not yet complete. The development plans shall contain provisions that temporarily protect the west property line to a pre-project elevation. The development plans shall identify a stormwater management plan that the Applicant shall comply with to address stormwater management issues during the site development phase and construction phase of the Development.

q. The retaining wall design of the detention area between Units 20 and 21 shall be constructed and maintained to accommodate for overland flows that may occur if the twin 54" sewers are overwhelmed or not functioning properly

r. Replace the existing flat grate that is part of the existing Heritage Springs stormwater system, which is prone to clogging, with a vaulted frame and grate. A vaulted grate will be much less prone to clogging and will improve performance and reliability of both developments' stormwater management systems.

s. The plans show inlets proposed to be located on the Heritage Springs property. The Applicant shall submit to the Village, as part of the Village plan review and approval process, an updated plan that relocates the inlets to the south so they are located on the Heritage Crossing's property and adjusts the location of the inlets directly under the proposed swing gate to be fully located on Heritage Crossing property. The plans also need to be updated so that the Heritage Court roadway vertical curve is adjusted so the low point is moved south, which will result in the inlets being placed on the Heritage Crossing property and relocate the depressional area from Heritage Springs to Heritage Crossing.

t. The Applicant shall submit to the Village, as part of the Village plan review and approval process, a set of street lighting plans for the Development, which include all lighting conduits, cables, controllers, and service location. Also, these plans shall include light pole foundation and controller foundation details, and the street lighting plans shall be signed and sealed by an Illinois licensed structural engineer.

u. The Applicant's narrative report shall be updated and resubmitted to the Village with a section discussing the development of the HEC-HMS modeling and results.

v. The Applicant shall submit to the Village, as part of the Village plan review and approval process, a report that discusses how the hydraulic modeling impacted the subdivision grading plan.

w. The Applicant's narrative report shall be updated and resubmitted to the Village with a section discussing the worst-case flooding scenario. This updated report shall include exhibits sent to Engineering on October 31, 2024, which illustrate stormwater storage in this worst-case scenario. The updated report shall clearly state there is a net increase in stormwater storage despite the removal of the existing parking lot area and the back-filling of that parking lot area with soil as part of the site development work and lot grading work.

x. The proposed design of the dual culverts suggests a full-flowing velocity of 14 ft/s, well above the acceptable maximum velocity. The Applicant's next plan submittal shall contain documentation that confirms 11 ft/s is the maximum flow velocity through these culvert stormwater pipes.

y. The Applicant shall submit to the Village, as part of the Village plan review and approval process, a set of calculations for the riprap sizing at the outfall of the dual culverts. The current riprap gradation, shape and area do not appear to match the design provided by the Illinois Urban Manual. Furthermore, the detail provided (IL-610 on Sheet 6) is missing dimensions and shall be updated by the Applicant.

z. The Applicant shall submit to the Village, as part of the Village plan review and approval process, an updated grading plan for the Property line north of Unit 14 that demonstrates that the final re-grading of the area will prevent overland flow from continuing onto the Heritage Springs property.

aa. The Applicant shall submit to the Village, as part of the Village plan review and approval process, an updated Stormwater Management Report and HEC-HMS Model that includes:

    i. An updated Stormwater Management Report's narrative revised to include a discussion of modeling results, reference and a discussion of the supporting modeling documentation, and also shall include a set of inundation maps.

    ii. Clarification on how the discharge flows are defined between stormwater detention basins. The HEC-HMS files provided indicate that the discharge curves for all stormwater detention basins are turned off in both existing and proposed scenarios. Additionally, many of the nodes do not have discharge functions defined.

    iii. Clarification on the distinction between the nodes "Storage East of Wolf Road" and "Box Inlet East Side Wolf Rd". Pages 71 and 72 of the report show stage-storage tables for these nodes, but the areas for elevations 664.0 and 665.0 match for these two, suggesting some volume may be double-counted. Furthermore, the "Box Inlet-

East Side Wolf Rd" node table differs significantly from that shown in the HEC-HMS model.

iv. Provide a set of HEC-HMS results that match the conservative scenario displayed in the inundation maps because: (i) The inundation maps provided are for the scenario where the Ashbrook Subdivision ponds are not modeled, and the 2-hour duration storm is the critical duration., (ii) However, the HEC-HMS results provided are for the scenario where the ponds are modeled, and the 1-hour duration is critical.

v. Revise the inundation maps to reflect flood elevations upstream of Basin "C". For example, the "Storage West Side Wolf Road" node has critical duration elevations in excess of 660, which need to be shown on the inundation maps. This would include surcharging inlets along the dual culverts under proposed conditions.

bb. The Applicant shall submit to the Village, as part of the Village plan review and approval process, a written response to each of the initial plan review comments from the Village Engineer and Village's consulting engineer contained in Attachment 4 of the Village Staff Memo dated November 18, 2024.

cc. The Applicant shall submit to the Village, as part of the Village plan review and approval process, a set of final engineering plans that include the location of all utilities and light poles that demonstrate there are no conflicts between utilities, light poles, and the proposed landscape areas.

3. Landscaping

a. The Applicant (and any successor owners, property managers, property associations), at its cost, shall be required to maintain each building façade and long-term lawn and landscape maintenance of the green spaces for the Development, which obligations shall be set forth in a combined Property Maintenance Plan / Landscaping Plan for the Village's plan review approval and final Village Board approval. Maintenance standards, tree replacement standards and other appropriate landscaping standards shall be part of the Applicant's Property Maintenance Plan / Landscape Plan for the Project, and the Applicant shall comply with the obligations and standards contained in the Property Maintenance Plan.

4. Right-Of-Way, Road, and Traffic

a. The Applicant proposes to maintain the current Wolf Road access point as the primary point of ingress and egress for the Development, subject to Cook County Department of Transportation and Highways approval of certain Wolf Road right-of-way modifications (i.e., required Project-related reconfiguration work to Wolf Road that may include a deceleration / turning lane) and modifications to the existing drainage culvert improvements that will allow it to construct the Development consistent with the current Site Plan. The Village's consideration of approval of the Development is conditioned on the Cook County Department of Transportation and Highways' approval of the current Wolf Road access point as the primary point of ingress and egress for the Development based on the current Site Plan and the Applicant's agreement to abide by the conditions

of approval required of the Applicant by the Cook County Department of Transportation and Highways relative to the Wolf Road right-of-way modifications and modifications to the existing drainage culvert improvements. The Applicant, at its cost, shall be responsible for entering into all easements, maintenance agreements and other binding documents with the Cook County Department of Transportation and Highways, and completing the Wolf Road right-of-way modifications and any modifications to the existing drainage culvert improvements. Other than the Village's plan review process, the Village shall not be obligated to participate in the Cook County Department of Transportation and Highways' required Wolf Road right-of-way modifications and modifications to the existing drainage culvert improvements that are necessary to construct the Development under the current Site Plan and that will allow the Applicant to construct the Development consistent with the current Site Plan. In the event the Cook County Department of Transportation and Highways does not approve of the current Wolf Road access point as the primary point of ingress and egress for the Development, the Applicant will have to petition for an amendment to the planned development ordinance and present a revised Site Plan with a modified point of ingress and egress for the Development for review and consideration by the Plan Commission at a public hearing and then review and consideration by the Village Board.

b. The Applicant, at its cost, shall construct a fence and swing gate across Heritage Court at the north lot line where the new Heritage Court meets the existing Heritage Court that serves the Heritage Springs Subdivision. The swing gate shall be operated by an Opticom sensor that shall be taller than the proposed fence/gate. The design of the swing gate shall ensure that gate electrical and control equipment is elevated one foot (1.0') above flood elevation. The swing gate must work at all times and shall have a battery backup system capable of operating the gate for at least 24 hours after loss of power to ensure operation during power outages. The swing gate must have appropriate sensors on both sides to ensure the gate can operate in either direction for emergency vehicles. Design plans, operational details, and loss of power procedure for the swing gate and the Opticom system must be submitted by the Applicant for review and approval by the Village's Director of Fire and EMS before any permit is issued for site development. The Applicant shall enter into an operations and maintenance agreement with the Homeowners Association for the Heritage Springs Subdivision relative to the swing gate and the Opticom sensor(s).

c. Vehicles parked in the driveway of Units 8, 15 and 21 may not overhang the curb or the sidewalk (if present).

d. New sidewalks installed by the Applicant are required along the west side of Wolf Road and the north side of Park Place frontage per the Village Code. Replacement of existing sidewalks along the west side of Wolf Road as needed as a result of the new access to Wolf Road is required by the Applicant. Placement of sidewalks must be as far from the paved roadways as practical, but the Village will defer to the Cook County Department of Transportation and Highways, as they will review and approve sidewalk placement and issue the permit for the work. On Park Place, placement of the sidewalk shall be one foot (1.0') inside the public right-of-way along the southern edge of the Development, except where it conflicts with the existing Ridgewood sign and the sidewalk shall dead end at west termini point. All new sidewalks shall comply with IDOT and Illinois Accessibility Code

standards for slopes. The northwest corner of the Park Place and Wolf Road sidewalk ramp shall be removed and replaced by the Applicant.

e. As part of the Maintenance and Development Agreement and the Declaration, the Applicant and the Heritage Crossing Homeowners Association shall be obligated to maintain the swing gate on a regular basis and to repair the swing gate, as needed, to ensure that the swing gate operates at all times.

f. The Applicant shall submit to the Village, as part of the Village plan review and approval process, updated plans that Convert the turnaround area north of Unit 15 to grasscrete or similar material.

g. The Applicant shall submit to the Village, as part of the Village plan review and approval process, an updated version of the color site plan prepared by BSB Design (revised November 5, 2024) with the crosswalk shown perpendicular (not angled) to Heritage Court, consistent with the Final Engineering Plans for Heritage Crossing, prepared by DesignTek Engineering, Inc. (revised November 4, 2024).

5. Signage

a. Provide information on any roadway vehicle traffic signage related to Heritage Court and other proposed subdivision signage type (private) for Village review for the Development for Village Board approval as part of its consideration of the planned development ordinance. All approved and required on-site parking restriction signage that pertains to the Development shall be installed and maintained by the Applicant, at its cost, or the Homeowners Association, at its cost.

b. Provide for the Ridgewood monument sign, in its current location, or in an alternate location in close proximity to its current location, as agreed upon by the Ridgewood Subdivision Civic Association and Cook County. If the Ridgewood monument sign remains in its current location, the Developer, at its cost, shall provide to the Ridgewood Subdivision Civic Association an easement over the portion of the Property that the sign is partially located on. If the sign is relocated, the Developer, at its cost, will make the required legal arrangements (i.e., easement agreement or land dedication) with either the Ridgewood Subdivision Civic Association or Cook County, or both, to provide for the long-term placement and maintenance of the monument sign.

c. The placement of the sidewalk on Park Place will require the movement of the Ridgewood subdivision sign. The relocation of the subdivision sign must be addressed by the Applicant as part of the Village plan review and approval process. The Applicant is required to provide the written approval from the Ridgewood Civic Association of the subdivision sign design and sign placement.

d. The Developer must submit a detailed construction traffic control plan / operations manual for the review and approval of the Director of Law Enforcement, the Director of Engineering Services, and the Director of Community Development's approval prior to the issuance of the site development permit. The plan / operation manual must demonstrate that the Developer is providing the appropriate onsite traffic control

personnel to ensure that the traffic entering and leaving the site does not impact pedestrians, bicycles, or vehicles traveling around the site. Heightened management should occur during school pick-up and drop-off times. The Developer will be responsible to reimburse the Village or the school district for the cost of crossing guard(s) or other traffic control personnel who are retained to assist with pedestrians traveling to and from the Highlands School on school days during school pick-up and drop-off times while site development work is ongoing.

SECTION 4. Acknowledgement and Agreement to Comply With the Obligations, Conditions, Terms and Provisions Set Forth in This Ordinance. The Applicant agrees to comply with all of the obligations, conditions, terms and provisions of this Ordinance. The Applicant acknowledges and agrees that the Village is not and will not be, in any way, liable for any damages or injuries that may be sustained as a result of the Village's approval of this Ordinance or its review and approval of any plans for the Development or the issuance of any permits for the Development, and that the Village's review and approval of any such plans and issuance of any such permits do not and will not, in any way, be deemed to insure the Applicant against third party claims, causes of action and damages or injuries of any kind at any time. The Applicant consents to the approvals granted in the Approval Ordinance and all conditions of those approvals and also to the recordation of this Ordinance with the CCCORD against title to the Property for the purpose of providing notice that the Applicant, and its transferees, successors-in-interest, all legal or beneficial owners of record, assigns, tenants, licensees and all subsequent owners of the Property or any part of the Property, or any other person and each and all homeowners associations or their equivalent within the Property, are subject to the obligations, conditions, terms and provisions of this Ordinance.

SECTION 5. Termination of Ordinance for Failure of Developer to Acquire Title to the Property. This validity of this Ordinance is subject to the Developer purchasing the Property from the Property Owner. In the event the Developer does not purchase the Property from the Property Owner, upon written notice delivered to the Village Manager of the termination of the real estate purchase contract entered into between the Property Owner and the Developer, this Ordinance shall automatically terminate without further action by the Corporate Authorities of the Village and shall be void and unenforceable. If the Developer does not purchase the Property, the Developer agrees to waive all claims, causes of action and damages of any kind that the Developer could file against the Village arising out of or related to the termination of this Ordinance. The Developer is required to provide written notice to the Village within five (5) calendar days of the termination of the real estate purchase contract.

SECTION 6. Severability. The sections, terms, provisions and conditions of this Ordinance shall be severable, and if any section, term, provision or condition is found to be invalid or unenforceable for any reason by a court of competent, final jurisdiction, the remaining sections, terms, provisions and conditions shall remain in full force and effect.

SECTION 7. Repealer; Covenants that Runs With the Land. Any Ordinance, or portion thereof, in conflict with this Ordinance is repealed to the extent of such conflict. The terms, provisions and conditions set forth in this Ordinance, including those incorporated herein by reference, are covenants that run with the land and shall be released or amended only by mutual agreement of the Applicant and the Village, or unless amended by ordinance approved by the Village Board after the required public hearing.

SECTION 8. Filing with Cook County Recorder of Deeds Office. A certified copy of this Ordinance shall be recorded against title to the Property with the Cook County Clerk's Office, Recording Division

("CCCORD") by the Village, at the Applicant's cost. The Village shall provide the Applicant with a stamped copy of this Ordinance after it is filed with the CCCORD. The terms, provisions and conditions set forth in this Ordinance, including those incorporated herein by reference, are covenants that run with the land and shall be released or amended only upon the written consent of the Village Board.

SECTION 9. Effective Date. This Ordinance shall be in full force and effect from and after its adoption, approval and publication, as provided by law.

PASSED by the Board of Trustees of the Village of Western Springs, Cook County, Illinois, at a Regular Meeting thereof, held on the 10 day of Feb., 2025, and approved by me as President on the same day.

Heidi Rudolph, Village President

ATTEST:

Edward Tymick, Village Clerk

This Ordinance was published by me in pamphlet form on the 10th day of February, 2025.

Edward Tymick, Village Clerk

Group Exhibit "1"

The Application consists of information supporting the requested zoning relief, a description of the proposed improvements to be constructed as part of the Development, and the proposed Preliminary Development Plans, as follows:

Code Section	Requirement	Proposed
10-4-4(F)3a: Fences, Height Restrictions	Front yard: 3.5 ft. Rear & side yards: 6 ft.	8 ft.
10-6-5(D): Minimum Development Parcel Size	5 ac.	2.76 ac.
10-6-5(E)(1): Minimum Front Yard	25 ft.	7 ft.
10-6-5(E)(2): Minimum Corner Side Yard	25 ft.	14.48 ft.
10-6-5(E)(3): Minimum Interior Side Yard	30 ft.	6.67 ft.
10-6-5(E)(4): Minimum Rear Yard	30 ft.	12.75 ft.
10-8-4(B)(1)(e): Maximum Building Height	35 ft.	36.33 ft.
10-10-7: Street Design Criteria	Pavement width of 27 ft.	23 ft.
10-10-7: Street Design Criteria	Minium horizontal curve radius of 150 ft.	40 ft.
10-10-7: Street Design Criteria	Minimum vertical curves 100 ft. in length	50 ft.
10-11-11(C)2: Detention	Streets are not to be used for the storage of excess stormwater, ponding depths shall not encroach more than 3' on the adjacent traffic lane and shall not remain flooded for more than 8 hours for any event less than or equal to the 100-year event	Allow for storage of 1.5 ft on the entire street width from the northern property line to a point roughly 36.5 ft. south along the Heritage Court.

(incorporated herein by reference and with copies on file at
the Village Clerk's Office and the Community Development Department)

ACKNOWLEDGMENT AND AGREEMENT
TO COMPLY WITH THE OBLIGATIONS, CONDITIONS, TERMS AND PROVISIONS
SET FORTH IN WESTERN SPRINGS ORDINANCE NO. 25-3240

I, Paul McNaughton, Managing Member of McNaughton Development, LLC, the contract purchaser of the above-described Property (5600 South Wolf Road) and the prospective acquirer of the Lawn Avenue ROW Parcel, have read and understand each of the above obligations, conditions, terms and provisions of this Ordinance that are required of the McNaughton Development, LLC, including the obligations, conditions, terms and provisions set forth at Section 3 above, and have signed this ACKNOWLEDGMENT AND AGREEMENT, as an authorized corporate officer of McNaughton Development, LLC, to confirm that McNaughton Development, LLC shall be bound by such obligations, conditions, terms and provisions.

McNaughton Development, LLC

By: _____
Managing Member

Name: Paul McNaughton

Date: 3.12., 2025.

By: _____
Notary Public

Date: MARCH 12, 2025.

Commission Expires: 11.18.2028

Official Seal
AGNIESZKA LUKASZCZYK
Notary Public, State of Illinois
Commission No. 777019
My Commission Expires November 18, 2028

Official Seal
AGNIESZKA LUKASZCZYK
Notary Public, State of Illinois
Commission No. 777019
My Commission Expires November 18, 2028

STATE OF ILLINOIS)
) SS
COUNTY OF COOK)

CLERK'S CERTIFICATE

I, Edward Tymick, Village Clerk of the Village of Western Springs, in the County of Cook and State of Illinois, certify that the attached document is a true and correct copy of that certain Ordinance now on file in my office, entitled:

Ordinance No. 25-3240

AN ORDINANCE APPROVING A MAP AMENDMENT TO REZONE THE 5600 SOUTH WOLF ROAD PROPERTY, WESTERN SPRINGS, ILLINOIS, FROM THE O – LIMITED OFFICE ZONING DISTRICT TO THE R4 - MULTIPLE-FAMILY RESIDENCE DISTRICT; APPROVING AN APPLICATION FOR A CONDITIONAL USE PERMIT FOR A PLANNED DEVELOPMENT FOR THE CONSTRUCTION AND OPERATION OF THE PROPOSED 29 UNIT HERITAGE CROSSING TOWNHOME DEVELOPMENT LOCATED AT THE 5600 SOUTH WOLF ROAD PROPERTY, INCLUDING THE APPROVAL OF THE COMBINED PRELIMINARY / FINAL DEVELOPMENT PLANS, SUBJECT TO VILLAGE PLAN REVIEW PROCESS, AND APPROVAL OF CERTAIN DEVELOPMENT ALLOWANCES, EXCEPTIONS AND VARIATIONS FROM THE VILLAGE ZONING REGULATIONS, INCLUDING A WAIVER OF THE FIVE (5) ACRE MINIMUM LOT AREA REQUIREMENT AND A REDUCTION OF CERTAIN PLANNED DEVELOPMENT SUBMISSION REQUIREMENTS

which Ordinance was passed by a roll call vote of the Board of Trustees of the Village of Western Springs at a Regular Meeting on the 10th day of February 2025, at which meeting a quorum was present, and approved by the President of the Village of Western Springs on the 10th day of February 2025.

I further certify that the vote on the question of the passage of said Ordinance by the Board of Trustees of the Village of Western Springs was taken by Ayes and Nays and recorded in the minutes of the Board of Trustees of the Village of Western Springs, and that the result of said vote was as follows, to-wit:

AYES: Trustees Avakian, Chen, Fink, Lewis, Tyrrell

NAYS: Trustee Nawrocki

ABSENT: None.

I do further certify that the original Ordinance, of which the foregoing is a true copy, is entrusted to my care for safekeeping, and that I am the lawful keeper of the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Village of Western Springs, this 10th day of February 2025.

Edward Tymick, Village Clerk

[SEAL]

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