
SR 88
Apache Trail, MP 222 – MP 229
PRELIMINARY DRAINAGE REPORT

ADOT Project No. 88 MA 222 F0494 01L
Federal Project No.
SCI Project No. 31138.01

PREPARED FOR:

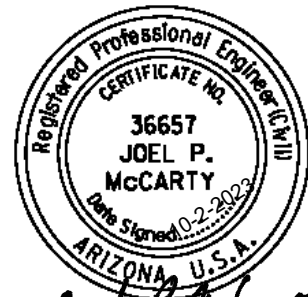
ARIZONA DEPARTMENT OF TRANSPORTATION



PREPARED BY:
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1.0 INTRODUCTION

1.1 Background

Stanley Consultants Inc. prepared this Preliminary Drainage Report for the study of SR 88 from MP 222 to 229. SR 88 was originally constructed in the early 1900's as a service road for the construction of Roosevelt Dam. The road became a state highway in 1922 and was designated a historic road in 1986. The portion of the road for this project is a dirt road that is two lanes in most sections with some portions narrowed to one lane. The road is crossed by multiple drainage structures ranging in size from 18" to single barrel box culverts and three bridges.

The project is surrounded by desert with no development. The watersheds range in elevation from approximately 2,100 feet to over 5,000 feet. The SR 88 corridor is within the Tonto National Forest.

The roadway was closed within the study limits in 2019 after a large rainfall event that left a large rock deposit on the roadway at approximately MP 223.3. The rainfall event was preceded by the Woodbury Fire which burned through a large portion of the contributing watersheds for the project corridor. The fire reduced the vegetative cover within the watersheds leading to an increase in storm water runoff. However, it should be noted that the fire was not in the watersheds where the rockslide occurred that blocked the roadway.

There are no Special Flood Hazard Areas (SFHA) within the project limits and no floodplain mitigation or coordination with FEMA will be required.

Refer to Appendix F for photos taken within the study limits.

See Figure 1 Project Vicinity Map and Figure 2 Project Location Map on the following pages.

1.2 Purpose

The objective of this Preliminary Drainage Report is to document the development of drainage design discharges that interface with the roadway and the evaluation of the existing and proposed culvert capacities as well as the roadside ditches. This report also documents how the sizes of the proposed drainage facilities were developed and identifies the potential drainage impacts associated with the roadway design.

Results from the hydrologic and hydraulic analyses were used to size the proposed drainage facilities. This report documents drainage improvements for the roadway design. Offsite drainage improvements include extensions of existing culverts, new culverts, roadside ditches, and erosion protection.

1.3 Project Description

A Design Concept Report (DCR) is being prepared to look at options for reopening SR 88 and propose improvements. The DCR is different from most studies in that it is evaluating alternatives to reopen the roadway with different levels of risk. The low end of

Figure 1 - Project Vicinity Map



Figure 2 - Project Location Map



improvements would be simply clearing the roadway, reestablishing the roadbed, and providing some improvements such as guardrail improvement. The high end of improvements would potentially pave the roadway section providing greater improvements that will keep the roadway open during future large storm events within the corridor. The DCR will not consider adjusting the roadway vertical or horizontal alignments.

The drainage improvements will be in support of the roadway alternatives and will evaluate providing different levels of protection. SR 88 is a Drainage Frequency Class 3 roadway. Drainage Frequency Class 3 roadways are designed for a 25-year storm event. This study will look at a 25-year design storm as well as future flows based on a resiliency analysis being performed for the project area.

The resiliency analysis looked at future conditions within the project watersheds and determined runoff increases based on changing climate conditions as well as the effects of wildfires. The study produced predictions for the 2030 and 2050 design years. Drainage crossing structures will be analyzed for the existing 25-year storm event as well as the future 2030 and 2050 25-year design flows.

A total of 29 crossings have been included in the study. This includes 3 bridges, box culverts and pipe culverts. The minimum pipe size analyzed was a 36" CMP. ADOT's FIS database lists other culverts larger than 30" that were not part of the analysis. Design level mapping was prepared for this project that identified existing culverts within the study area. Where the survey conflicted with the FIS listings, the survey information

was utilized. The FIS database also identifies culverts that may need to be lined or repaired for continued use. The FIS database should be reviewed as part of final design and additional survey may need to be done to compile a complete listing of existing drainage features in the project area.

The study area also includes smaller culverts (18” – 30” CMP / RCP) that were not analyzed due to the small nature of the watersheds. Costs have been included in the DCR estimate to recognize that these culverts that may require maintenance such as cleaning, lining or repairs to make them functional. Culverts included in the study that were identified by the FIS as needing repairs include R19, R20 and R21.

1.4 FEMA Flood Zones

There are no Federal Emergency Management Agency (FEMA) designated Special Flood Hazard Area (SFHA) located within the project limits. The area is classified as Zone D which is:

“Area of Undetermined Flood Zone”

Coordination with the Federal Emergency Management Agency (FEMA) for floodplain mitigation will not be needed. Refer to Appendix E for Flood Insurance Rate Map (FIRM) examples for the project.

2.0 STUDY AREA

2.1 Drainage Patterns

Offsite flows approach SR 88 from multiple directions with the roadway alignment winding through the steep terrain. The most notable tributary flows originate from the south and flow north to bridge crossings along SR 88 at Fish Creek Canyon and the Lewis and Pranty Creek. These watersheds are large watersheds at approximately 14.5 and 29.7 square miles for Lewis and Pranty Creek and Fish Creek, respectively.

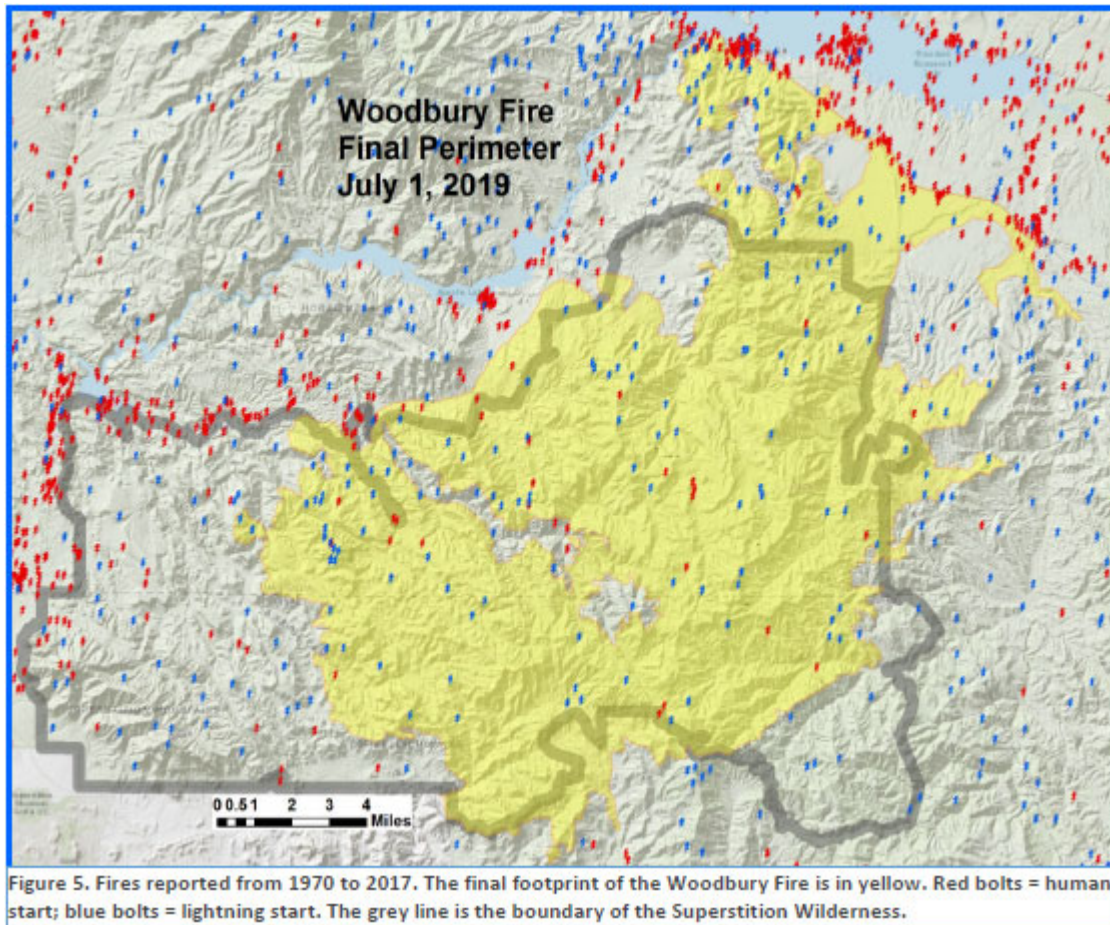
2.2 Field Work

Stanley Consultants conducted a preliminary field reconnaissance visit on January 6, 2023. The field trip was necessary to help determine the existing drainage basin boundaries and document existing hydrologic and hydraulic parameters and conditions. During the site visit several of the existing drainage structures were photographed.

An additional visit was conducted on January 13, 2023, to further evaluate the watershed. A large portion of the watershed was burned by a wildfire in 2019, the Woodbury Fire. The US Forest Service has maps showing the approximate fire burn limits. See Figure 3. From the western end of the project, the fire did not burn in the watersheds contributing runoff to SR 88 from MP 222 to the Fish Creek Canyon bridge. Maps of the fire show that from the Fish Creek Canyon bridge to the eastern end of the project at MP 229, the fire burned to the southern edge of the SR 88. However, based on field observations, the fire did not appear to cause much damage in the watersheds continuing east from the Fish Creek Canyon bridge to approximately MP 224.5. Vegetation, along Lewis and Pranty Creek, where it is immediately adjacent to SR 88

from approximately MP 224.5 to MP 227 also did not appear to have been damaged by the fire. Areas above the creek and watersheds to the east of MP 227 do exhibit signs of fire damage. Areas that were burned were evaluated to determine the current conditions of the vegetation within the watershed. It appears there are a fair amount of grasses that have re-established along with some lesser shrubs in most of the burn areas. However, the burn areas do exhibit less vegetation than the non-burn areas. Based on this, the “% vegetation cover” was reduced from 30% for non-burned watersheds to 10% for burned watersheds.

Figure 3 - Woodbury Fire Final Perimeter



The entire watershed produces large amounts of sediment in runoff events. The soils within the study do not exhibit much cohesion and are fine in nature. The portions of the project within the fire limits appear to be producing even more sediment than the non-burned portions. Several large culverts (greater than 30 inch) were noted to be completely buried on the upstream side from sediment. Portions of the road that are in close proximity to vertical rock outcrop also have significant amounts of larger rocks deposited on the roads and in the inlet side of the cross culverts. A large percentage of the existing culverts on the project are either partially blocked or completely blocked.

Culverts that were located were in mostly good condition with some damage at the ends of metal culverts.

Refer to Appendix F for the project photographs.

2.3 Soil Survey

Detailed soils information was obtained from the United States Department of Agriculture (USDA) Natural Resources Conservation Services (NRCS) Soils Data Mart website. Soil Survey Geographic (SSURGO) data base is available for the watersheds in the study corridor. Soil symbols and names used to conduct hydrologic analyses can be found below on the following Table.

Table 1: SSURGO Soil Data

NRCS Soil Survey	MUSYM	Conductivity (in/hr)
GSMOILMU	S405	0.180
GSMOILMU	S449	0.290
GSMOILMU	S456	0.270
GSMOILMU	S457	0.510

The four soils within the study are Hydrologic Soil Group (HSG) D. The soil's Green and Ampt rainfall loss parameters along with the soil's textural properties can be found in Appendix C. Refer to Appendix B for the project Soil Maps.

3.0 HYDROLOGIC ANALYSIS

3.1 Methodology

ADOT Drainage Design Manual (DDM) Hydrology, January 2014 was followed to develop the design discharges for this project's drainage features. Figures and tables referenced in Section 3.0 are from the ADOT DDM. Precipitation values were developed using the National Oceanic and Atmospheric Association (NOAA) Atlas 14 data obtained from the NOAA website. Please refer to Appendix A for the NOAA 14 rainfall data.

United States Geologic Survey (USGS) 7.5-minute series digital quad maps, aerial photographs and contour mapping, were employed to delineate the sub-basin boundaries using ArcGIS. Land use parameters were identified based on aerial photographs. Flow paths and concentration points were defined based on the location of existing drainage features, existing topography and aerial photographs. Refer to Exhibits 1 and 2 in Appendix B for the existing condition Sub-Basin Maps.

3.2 Rational Method

The Rational Method was used to develop design discharges for all drainage areas less than 160 acres. The following equation was used to estimate discharges for the Rational Method.

$$Q = CIA \quad (2.1)$$

Where,

- Q - Discharge, in cubic feet/second,
- C - Runoff Coefficient (dimensionless),
- I - Intensity, in inches/hour, and
- A - Area, in acres

Runoff Coefficients (C) for the rational method offsite drainage areas were derived using the ADOT Rational Tool program. The watershed is undeveloped desert with a 30% vegetation cover in non-burn areas and 10% vegetation cover in burn areas.

The 25-year, 50-year and 100-year discharge values were estimated using the ADOT Rational Tool. The following equation was used to estimate the time of concentration for the Rational Method calculations.

$$T_c = 11.4L^{0.5} K_b^{0.52} S^{-0.31} i^{-0.038} \quad (2.2)$$

Where,

- T_c - Time of concentration, in hours,
- L - Length of the longest flow path, in miles,
- K_b - Watershed resistance coefficient,
- S - Slope of the longest flow path, in ft/mile, and
- i - Average rainfall intensity, in inches/hr, for a duration of rainfall equal to T_c

A K_b value of 0.1 was selected for the analysis based on the watershed based on the area being foothills with a defined drainage network.

3.3 HEC-HMS Method

The U.S. Army Corps of Engineers HEC-HMS computer program was used to develop design discharges for all drainage areas greater than 160 acres. A set of parameters is required to describe the physical characteristics of a sub-basin. These parameters include the Sub-basin Area, Surface Retention Loss (Max Storage) (IA), Initial Soil Moisture Content (SMC), Saturated Soil Moisture Content (SMC), Soil Suction, Hydraulic Conductivity, Effective Impervious Area, Time of Concentration (T_c), and the Storage Coefficient (R).

Discharges for the 25-year, 50-year, and 100-year storm were calculated. A 24-hour storm duration was used for the discharge estimates. Soil Survey Geographic (SSURGO) data bases were employed to classify soil texture for the purpose of estimating the Green and Ampt rainfall loss parameters.

The Surface Retention Loss was determined based on Table 3.1. The composite values for SMC, and IA were computed using an area-weighted procedure. Correction of Conductivity for vegetation cover was made after the composite value of Conductivity was determined. The value for vegetation cover is 30% for watersheds outside the burn area and 10% within the burn area. The composite value of Conductivity was determined using equation 3.1.

$$\overline{Conductivity} = \text{anti log} \left(\frac{\sum A_i \log Conductivity_i}{A_T} \right) \quad (3.1)$$

Where,

$\overline{Conductivity}$ - composite hydraulic conductivity, in inches/hour,

$Conductivity_i$ - hydraulic conductivity in inches/hour,

A_i - size of soil subarea, and

A_T - size of the drainage area or modeling sub basin.

The composite value of Suction was determined using equation 3.2.

$$\overline{Suction} = \text{anti log} \left(\frac{\sum A_i \log Suction_i}{A_T} \right) \quad (3.2)$$

Where,

$\overline{Suction}$ - composite soil suction, in inches,

$Suction_i$ - conductivity of the soil in a sub-area, in inches,

A_i - size of soil subarea, and

A_T - size of the drainage area or modeling sub basin.

An additional input for the model is effective impervious area. Effective impervious area is defined as the portion of the watershed that is directly connected to the watershed outlet or the portion of watershed where rainfall that falls on that portion contributes directly to runoff. This is typically seen in developed watersheds where there is a series of connected roads and structures. While this watershed does exhibit several areas of large sections of rock outcrop, the rock has areas of pervious soils downstream of the rock. Based on this observation, no effective impervious areas within the project watersheds were modeled.

Per the *Fire ecology report Woodbury Fire Jun 8th – July 15th, 2019* by the USFS soil burn severity was not noted as being very high throughout the burn area with the only area of note being in the Pinyon-Juniper Evergreen Shrub which is in the upper elevations of the Superstitions and only present within the upper reaches of Sub-Basin H1. Of the 15,045 acres burned, the Woodbury Fire report shows 6,680 acres as having moderate severity of fire impact on the soil. The report stated that the fire did not produce temperatures high enough to damage the soils. Therefore, additional

adjustments to soils parameters were not made to account for changes caused by the fire.

The Time of Concentration was determined using the following equation for desert/mountain land use.

$$T_C = 2.4A^{0.1}L^{0.25}L_{CA}^{0.25}S^{-0.2} \quad (4.1)$$

Where,

T_C - Time of concentration, in hours,

A – area, in square miles,

S – Watercourse slope, in ft/mile,

L – Length of the watercourse to the hydraulically most distant point, in miles,

L_{CA} – Length measured from the concentration point along L to a point on L that is perpendicular to the watershed centroid, in miles.

The Storage Coefficient (R) is a Clark unit hydrograph parameter that relates the effects of direct runoff storage in the watershed to unit hydrograph shape. The Storage Coefficient was determined using the following equation.

$$R = 0.37T_C^{1.11}L^{0.8}A^{-0.57} \quad (4.4)$$

Where, R is in hours and the variables are as defined for the T_C equations.

3.4 Resiliency Analysis

Resilient Analytics performed a resiliency analysis of the watershed to determine the effects of future climate patterns as well as potential wildfires would have on the watershed. The study looked at the changes for the years 2030 and 2050. For each year they looked at two different scenarios.

The results of the analysis showed that average runoff across the suite of climate models is expected to increase. The projected increase is attributed to the projected increase in frequency and intensity of future storm events. Due to the nature of the watersheds, the increase in runoff can also be applied directly to the peak flows. A 55% increase was predicted for 2030 and 83% increase for 2050. Refer to the DCR for a more in depth discussion of the findings.

4.0 HYDRAULIC ANALYSIS

4.1 Methodology

The ADOT Highway Drainage Design Manual Hydraulics and the Roadway Design guidelines were followed to design and analyze the project's drainage features.

Offsite drainage features for SR 88 are Drainage Frequency Class III which are required to convey the 25-year peak discharge. Culverts were also analyzed for future predicted

flows determined by the resiliency study for the project. Culvert sizes were determined for the existing 25-year peak discharge as well as the future 2030 and 2050 25-year flows. The existing 25-year flows were used in the low resilience category while the 2030 flows were used for the medium resilience category and the 2050 flows were used for the high resilience category.

A total of 29 existing structures were analyzed for this study. This includes 3 bridges, 10 reinforced concrete box culverts, and 16 CMP culverts.

Trapezoidal sections were modeled in FlowMaster at the three bridges to estimate water surface elevations at the bridges. The estimated water surface elevations were compared to the existing bridge as-builts to determine if the flows are below the bottom of girder elevations. The Initial Bridge Study (Reference 11) includes bridge inspection photographs of the channels along with channel cross sections taken by the ADOT Bridge Group. These photographs and cross sections are included in Appendix G.

The culvert hydraulic capacities, headwater elevations, and outlet velocities were calculated using the HY8 computer program.

4.2 Existing Culvert Hydraulics

Results from the field work revealed many of the existing culverts within the project are obstructed with significant amounts of sediment deposition. The existing culverts that were located exhibit some minor damage at the ends. For a summary of the existing culvert conditions and configurations, refer to Table 8: Existing Culvert Hydraulics in Appendix D.

A hydraulic analysis was done for the existing culverts that were identified in the field surveys along the project. Culvert calculations were performed for the 25-year existing flows. The existing culvert headwater elevations were determined and used to compare against the proposed condition headwater elevations to ensure the proposed design does not adversely impact adjacent properties as compared to the existing condition.

4.3 Proposed Culvert Hydraulics

Proposed culverts shall be sized to convey the 25-year discharge at a headwater elevation generally equal to or less than the headwater elevation determined for the 25-year discharge in the existing culvert hydraulic analysis. Culvert sizes were also determined for the future 2030 and 2050 25-year flows.

Headwater depths were also limited to a maximum of three inches below the adjacent edge of pavement elevation and for new culverts the maximum allowable headwater was set at (HW/D) not to exceed 1.5.

Manning roughness coefficients of 0.024 and 0.013 were used for corrugated metal and concrete culverts, respectively. An entrance loss coefficient of 0.20 was used for existing box culverts with headwalls and new and existing pipe culverts with end-sections. Proposed entrance loss coefficients assume an improved inlet which would be beneficial for the project to help with sedimentation and debris accumulation at the inlets. Final design will dictate the final modeled conditions. An entrance loss coefficient of 0.9 was

used for existing pipe culverts that are projecting from the roadway fill slope with no end treatment. No embedment or inlet depression was modeled at any crossing. Outlet velocities are above the minimum 2 feet per second design criteria.

As part of final design, the need for metal safety end sections should be reviewed to determine if they are applicable for the corridor. If metal safety end sections are utilized at inlets, an entrance loss coefficient of 0.50 is appropriate. The hydraulic output for the existing and proposed condition analyses can be found in Appendix D.

4.4 Hydraulic Results

The analysis of the existing culverts showed that most of them are adequate for the existing 25-year flows. Six culverts would need to be upsized for the existing 25-year flows. For the 2030 flows, 9 of the existing culverts would need to be upsized. For the 2050 flows, 15 would need to be upsized from their current size.

The sections taken at the three bridges revealed that flows at Lewis and Pranty Bridge could overtop the bridge for the existing 25-year flows and would overtop the bridge for both the future 2030 and 2050 25-year flows. The other two bridges are elevated enough to pass flows for the three events analyzed.

Table 2 gives a summary of the existing culverts that were analyzed as well as the proposed sizes for the culverts that need to be upsized for the three storm events.

Table 2: Culvert Analysis Results

Culvert ID	Station	Approximate MP	Existing Size	Proposed 25-Year Size	Proposed 2030 Size	Proposed 2050 Size
H2	1001+80	224.43	15' x 7' RCBC	No Change	No Change	Add 24" CMP
H3	1045+34	225.25	10' x 10' RCBC	No Change	No Change	No Change
H5	1094+34	226.18	6' x 5' RCBC	No Change	Add 2-48" CMP	Add 6' x 5' RCBC and 24" CMP
H6	1139+64	227.04	5' x 5' RCBC	No Change	Add 24" CMP	Add 48" CMP
H8	1234+68	228.84	2-60" CMP	No Change	No Change	No Change
R1	960+85	223.65	6' x 8' RCBC	No Change	Add 24" CMP	Add 42" CMP
R2	1125+60	226.77	48" CMP	8' x 5' RCBC	8' x 6' RCBC	2-6' x 5' RCBC
R3	1074+11	225.80	10' x 6' RCBC	No Change	No Change	No Change
R4	1034+06	225.04	36" CMP	8' x 5' RCBC	2-6' x 5' RCBC	2-6' x 5' RCBC
R5	1188+63	227.97	36" CMP	Add 3-36" CMP	4-48" CMP	12' x 8' RCBC
R6	957+36	223.59	4' x 7' RCBC	No Change	Add 24" CMP	Add 2-24" CMP
R7	948+75	223.42	4' x 7' RCBC	No Change	Add 36" CMP	Add 42" CMP
R8	1187+95	227.95	48" CMP	Add 48" CMP	3-48" CMP	3-48" CMP
R9	1106+66	226.41	18" CMP	3-36" CMP	3-42" CMP	3-42" CMP
R10	941+44	223.28	6' x 7' RCBC	No Change	No Change	No Change
R11	1157+86	227.38	36" CMP	3-36" CMP	4-36" CMP	5-36" CMP
R12	1110+64	226.49	48" CMP	No Change	2-48" CMP	2-48" CMP
R13	1091+38	226.12	12' x 6' RCBC	No Change	No Change	No Change
R14	1021+67	224.777	18" CMP	1-48" CMP	1-48" CMP	2-48" CMP

Culvert ID	Station	Approximate MP	Existing Size	Proposed 25-Year Size	Proposed 2030 Size	Proposed 2050 Size
R15	1212+49	228.42	36" CMP	No Change	No Change	2-36" CMP
R16	1195+62	228.10	36" CMP	No Change	No Change	No Change
R17	934+70	223.16	36" CMP	No Change	No Change	No Change
R18	1222+94	228.61	36" CMP	No Change	No Change	No Change
R19	1053+73	225.41	36" CMP	No Change	No Change	No Change
R20	997+68	224.35	48" CMP	No Change	No Change	No Change
R21	990+25	224.21	48" CMP	No Change	No Change	No Change

Roadside ditches were not analyzed for this report but are proposed along Fish Creek Hill and east of the Dry Wash Bridge. Due to the limited space within the right-of-way, conveyance of the 25-year storm event may not be possible within the ditches. Further analysis of the ditches will be required with final design.

During final design, drainage easements for the 100-year storm event will need to be verified based on the design storm that is chosen.

4.5 Riprap Apron Design

Erosion protection at the outlets of storm drain, proposed and extended culverts will implement dumped riprap aprons with the dimensions based upon riprap aprons outlined in the FHWA Hydraulic Design of Energy Dissipators for Culverts and Channels (HEC-14).

5.0 SUMMARY

The proposed improvements of the SR 88 project were categorized at three different levels based on future risk. Twenty-six existing drainage structures were analyzed to determine if they could convey flows from the existing 25-year storm event and the future 2030 and 2050 25-year storm events. Structures that were found to be undersized for a given flow event would be upsized.

Three bridges were analyzed with a basic trapezoidal section taken upstream of each bridge. It was determined that overtopping could occur at the Lewis and Pranty Creek Bridge.

The impact of the Woodbury Fire was modeled as part of the study. As vegetation returns to the study area, hydrologic characteristics of the watershed will change. The resiliency analysis performed for the study determined that changes in the intensity and frequency of future storms will have the greatest impact on runoff within the watershed. These effects are represented in the 2030 and 2050 predictions.

6.0 REFERENCES

1. Arizona Department of Transportation, "Roadway Design Guidelines", January 2021 with revisions through February, 2022.

2. Arizona Department of Transportation, “Highway Drainage Design Manual, Volumes 1 & 2 Hydrology,” January 2014.
3. Arizona Department of Transportation, “Highway Drainage Design Manual, Hydraulics”, January 2007.
4. National Oceanic and Atmospheric Administration, “NOAA Atlas 14, Volume 1, Version 5.
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8. United States Department of Transportation, Federal Highway Administration, “Hydraulic Design of Energy Dissipators for Culverts and Channels” (HEC 14), July 2006.
9. Arizona Department of Transportation, “Erosion and Pollution Control Manual for Highway Design and Construction”, December 2012.
10. United States Forest Service, “Fire Ecology Report Woodbury Fire Jun 8th – July 15th, 2019”, August 2019.
11. Stanley Consultants, Inc., “Initial Bridge Study ADOT Project No. 88 MA 222 F0494 01L, Fish Creek Bridge Structure No. 00027 SR MP 223.50, Lewis Pranty Creek Bridge Structure No. 00028 SR MP 224.60, Dry Wash Bridge Structure No. 00015 SR 88 MP 225.55”, August 2023.

APPENDIX A
NOAA 14 Rainfall Data



NOAA Atlas 14, Volume 1, Version 5
Location name: Tortilla Flat, Arizona, USA*
Latitude: 33.527°, Longitude: -111.2896°
Elevation: 3098.99 ft**



* source: ESRI Maps
 ** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.244 (0.207-0.294)	0.318 (0.271-0.383)	0.427 (0.361-0.511)	0.509 (0.427-0.608)	0.619 (0.512-0.735)	0.702 (0.574-0.832)	0.786 (0.631-0.929)	0.869 (0.688-1.03)	0.981 (0.756-1.16)	1.07 (0.805-1.27)
10-min	0.371 (0.315-0.447)	0.483 (0.412-0.583)	0.650 (0.550-0.778)	0.775 (0.651-0.925)	0.942 (0.780-1.12)	1.07 (0.873-1.27)	1.20 (0.961-1.41)	1.32 (1.05-1.57)	1.49 (1.15-1.77)	1.62 (1.23-1.93)
15-min	0.460 (0.391-0.554)	0.599 (0.511-0.722)	0.805 (0.682-0.964)	0.960 (0.807-1.15)	1.17 (0.966-1.39)	1.32 (1.08-1.57)	1.48 (1.19-1.75)	1.64 (1.30-1.94)	1.85 (1.43-2.19)	2.01 (1.52-2.40)
30-min	0.619 (0.526-0.746)	0.806 (0.689-0.973)	1.08 (0.918-1.30)	1.29 (1.09-1.54)	1.57 (1.30-1.87)	1.78 (1.46-2.11)	2.00 (1.60-2.36)	2.21 (1.75-2.61)	2.49 (1.92-2.95)	2.71 (2.05-3.23)
60-min	0.766 (0.651-0.923)	0.998 (0.852-1.20)	1.34 (1.14-1.61)	1.60 (1.34-1.91)	1.95 (1.61-2.31)	2.21 (1.80-2.62)	2.47 (1.99-2.92)	2.73 (2.16-3.23)	3.08 (2.38-3.66)	3.36 (2.53-4.00)
2-hr	0.885 (0.759-1.05)	1.15 (0.983-1.36)	1.51 (1.29-1.79)	1.79 (1.52-2.12)	2.17 (1.81-2.55)	2.46 (2.03-2.89)	2.75 (2.23-3.23)	3.05 (2.43-3.57)	3.44 (2.67-4.04)	3.74 (2.85-4.43)
3-hr	0.930 (0.799-1.11)	1.19 (1.02-1.43)	1.55 (1.32-1.85)	1.83 (1.55-2.19)	2.23 (1.85-2.64)	2.54 (2.08-3.00)	2.86 (2.31-3.39)	3.20 (2.53-3.78)	3.65 (2.81-4.33)	4.03 (3.02-4.78)
6-hr	1.14 (0.994-1.32)	1.43 (1.26-1.67)	1.82 (1.58-2.11)	2.12 (1.83-2.45)	2.54 (2.17-2.92)	2.86 (2.41-3.29)	3.20 (2.65-3.68)	3.55 (2.88-4.08)	4.01 (3.17-4.61)	4.37 (3.38-5.04)
12-hr	1.39 (1.22-1.59)	1.75 (1.54-2.01)	2.19 (1.92-2.51)	2.54 (2.21-2.91)	3.02 (2.59-3.44)	3.39 (2.88-3.85)	3.76 (3.15-4.28)	4.13 (3.41-4.71)	4.64 (3.74-5.32)	5.02 (3.98-5.80)
24-hr	1.79 (1.62-2.01)	2.25 (2.04-2.52)	2.85 (2.57-3.19)	3.33 (2.99-3.73)	4.01 (3.56-4.49)	4.54 (3.99-5.09)	5.10 (4.43-5.73)	5.68 (4.87-6.41)	6.49 (5.44-7.37)	7.13 (5.88-8.16)
2-day	2.03 (1.84-2.28)	2.57 (2.32-2.88)	3.29 (2.96-3.69)	3.87 (3.47-4.34)	4.69 (4.16-5.25)	5.34 (4.68-5.99)	6.02 (5.22-6.79)	6.72 (5.75-7.64)	7.71 (6.46-8.85)	8.49 (7.00-9.84)
3-day	2.24 (2.03-2.49)	2.83 (2.57-3.15)	3.65 (3.30-4.05)	4.32 (3.89-4.80)	5.27 (4.70-5.85)	6.03 (5.34-6.73)	6.86 (6.00-7.68)	7.72 (6.66-8.71)	8.94 (7.57-10.2)	9.94 (8.27-11.5)
4-day	2.44 (2.23-2.69)	3.09 (2.82-3.41)	4.00 (3.63-4.41)	4.76 (4.30-5.25)	5.85 (5.24-6.45)	6.73 (5.99-7.46)	7.69 (6.77-8.58)	8.72 (7.58-9.78)	10.2 (8.68-11.6)	11.4 (9.55-13.1)
7-day	2.77 (2.52-3.06)	3.51 (3.20-3.87)	4.57 (4.14-5.05)	5.47 (4.94-6.04)	6.78 (6.07-7.50)	7.88 (6.98-8.74)	9.08 (7.94-10.1)	10.4 (8.97-11.7)	12.3 (10.4-14.0)	13.9 (11.5-16.0)
10-day	3.04 (2.78-3.33)	3.84 (3.51-4.20)	4.97 (4.52-5.45)	5.91 (5.36-6.48)	7.28 (6.54-7.99)	8.39 (7.48-9.25)	9.61 (8.46-10.7)	10.9 (9.49-12.2)	12.8 (10.9-14.5)	14.3 (12.0-16.4)
20-day	3.82 (3.49-4.18)	4.85 (4.43-5.32)	6.27 (5.71-6.87)	7.40 (6.72-8.12)	8.97 (8.09-9.86)	10.2 (9.14-11.3)	11.5 (10.2-12.8)	12.9 (11.3-14.4)	14.7 (12.8-16.6)	16.2 (13.9-18.5)
30-day	4.56 (4.18-4.99)	5.78 (5.29-6.32)	7.44 (6.79-8.14)	8.76 (7.97-9.60)	10.6 (9.58-11.6)	12.0 (10.8-13.3)	13.6 (12.1-15.0)	15.1 (13.3-16.8)	17.3 (15.0-19.5)	19.0 (16.3-21.6)
45-day	5.46 (4.99-5.96)	6.93 (6.33-7.57)	8.89 (8.10-9.72)	10.4 (9.45-11.4)	12.5 (11.3-13.7)	14.1 (12.6-15.5)	15.7 (14.0-17.4)	17.4 (15.4-19.4)	19.8 (17.2-22.2)	21.6 (18.6-24.5)
60-day	6.28 (5.76-6.83)	7.95 (7.29-8.66)	10.1 (9.25-11.0)	11.8 (10.7-12.8)	14.0 (12.7-15.3)	15.6 (14.1-17.2)	17.4 (15.6-19.1)	19.1 (17.0-21.2)	21.4 (18.8-24.0)	23.2 (20.2-26.2)

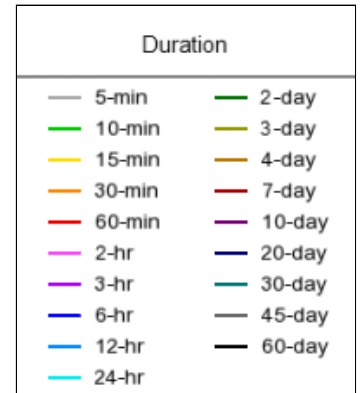
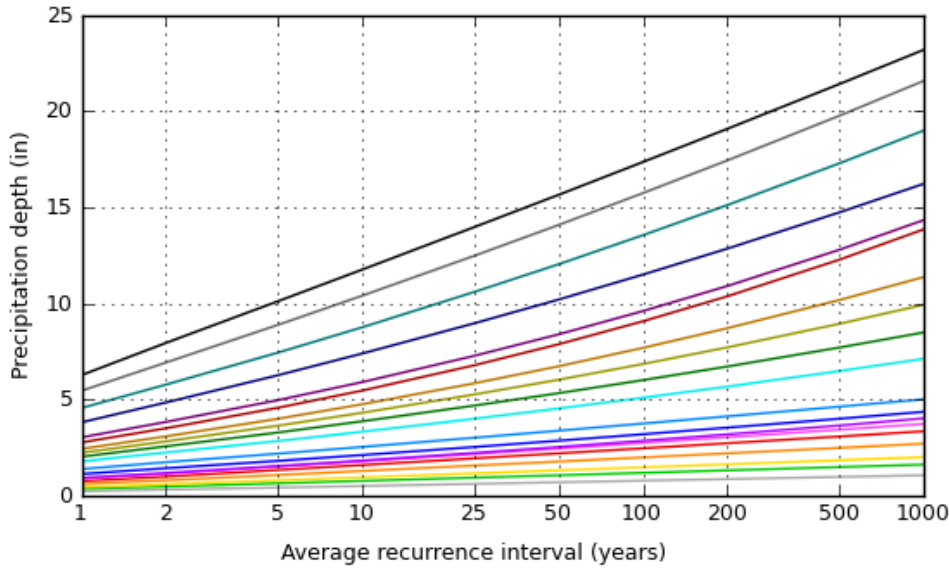
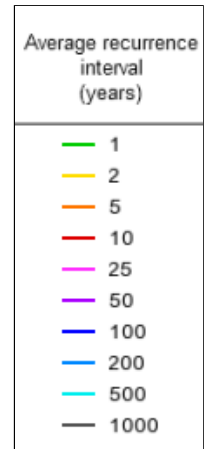
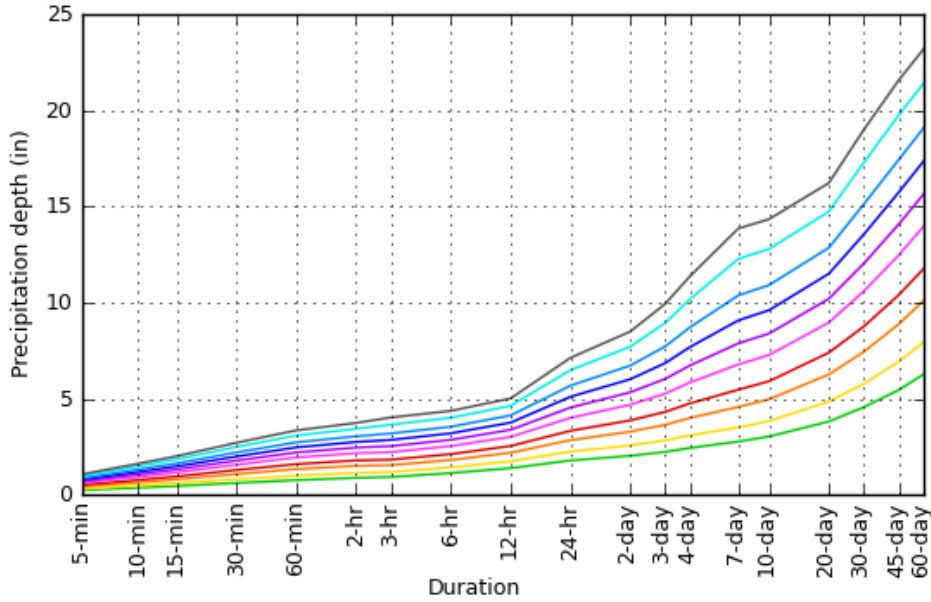
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves

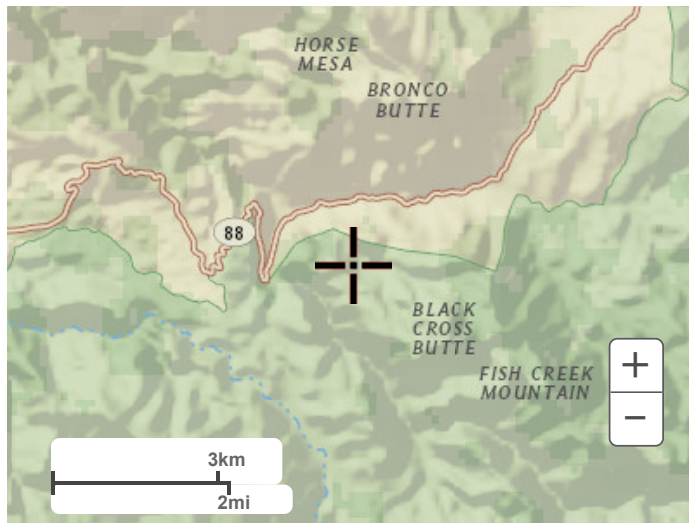
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Maps & aerials

Small scale terrain



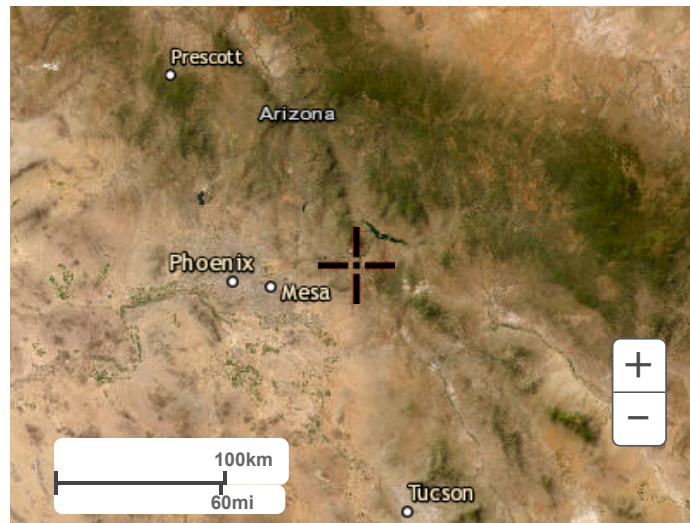
Large scale terrain



Large scale map



Large scale aerial



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NOAA Atlas 14, Volume 1, Version 5
Location name: Tortilla Flat, Arizona, USA*
Latitude: 33.527°, Longitude: -111.2896°
Elevation: 3098.99 ft**



* source: ESRI Maps
 ** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	2.93 (2.48-3.53)	3.82 (3.25-4.60)	5.12 (4.33-6.13)	6.11 (5.12-7.30)	7.43 (6.14-8.82)	8.42 (6.89-9.98)	9.43 (7.57-11.1)	10.4 (8.26-12.3)	11.8 (9.07-13.9)	12.8 (9.66-15.3)
10-min	2.23 (1.89-2.68)	2.90 (2.47-3.50)	3.90 (3.30-4.67)	4.65 (3.91-5.55)	5.65 (4.68-6.71)	6.41 (5.24-7.60)	7.17 (5.77-8.48)	7.94 (6.28-9.39)	8.96 (6.91-10.6)	9.74 (7.36-11.6)
15-min	1.84 (1.56-2.22)	2.40 (2.04-2.89)	3.22 (2.73-3.86)	3.84 (3.23-4.58)	4.67 (3.86-5.54)	5.30 (4.33-6.28)	5.93 (4.76-7.01)	6.56 (5.19-7.76)	7.40 (5.71-8.77)	8.05 (6.08-9.59)
30-min	1.24 (1.05-1.49)	1.61 (1.38-1.95)	2.17 (1.84-2.60)	2.59 (2.17-3.09)	3.14 (2.60-3.73)	3.57 (2.91-4.23)	3.99 (3.21-4.72)	4.42 (3.50-5.22)	4.98 (3.84-5.91)	5.42 (4.09-6.46)
60-min	0.766 (0.651-0.923)	0.998 (0.852-1.20)	1.34 (1.14-1.61)	1.60 (1.34-1.91)	1.95 (1.61-2.31)	2.21 (1.80-2.62)	2.47 (1.99-2.92)	2.73 (2.16-3.23)	3.08 (2.38-3.66)	3.36 (2.53-4.00)
2-hr	0.442 (0.380-0.524)	0.572 (0.492-0.679)	0.756 (0.645-0.896)	0.896 (0.758-1.06)	1.08 (0.904-1.27)	1.23 (1.01-1.45)	1.38 (1.12-1.62)	1.52 (1.21-1.79)	1.72 (1.34-2.02)	1.87 (1.43-2.21)
3-hr	0.310 (0.266-0.370)	0.396 (0.340-0.475)	0.515 (0.440-0.617)	0.610 (0.516-0.728)	0.741 (0.617-0.879)	0.844 (0.693-0.999)	0.953 (0.769-1.13)	1.06 (0.844-1.26)	1.22 (0.936-1.44)	1.34 (1.01-1.59)
6-hr	0.190 (0.166-0.221)	0.239 (0.210-0.278)	0.303 (0.264-0.352)	0.354 (0.306-0.410)	0.424 (0.362-0.488)	0.478 (0.402-0.549)	0.535 (0.442-0.614)	0.592 (0.481-0.681)	0.669 (0.529-0.770)	0.730 (0.564-0.842)
12-hr	0.115 (0.101-0.132)	0.145 (0.128-0.166)	0.182 (0.159-0.208)	0.211 (0.184-0.241)	0.250 (0.215-0.285)	0.281 (0.239-0.319)	0.312 (0.262-0.355)	0.343 (0.283-0.391)	0.385 (0.311-0.441)	0.416 (0.330-0.481)
24-hr	0.075 (0.068-0.084)	0.094 (0.085-0.105)	0.119 (0.107-0.133)	0.139 (0.125-0.155)	0.167 (0.148-0.187)	0.189 (0.166-0.212)	0.213 (0.185-0.239)	0.237 (0.203-0.267)	0.270 (0.227-0.307)	0.297 (0.245-0.340)
2-day	0.042 (0.038-0.047)	0.054 (0.048-0.060)	0.069 (0.062-0.077)	0.081 (0.072-0.090)	0.098 (0.087-0.109)	0.111 (0.098-0.125)	0.125 (0.109-0.141)	0.140 (0.120-0.159)	0.161 (0.135-0.184)	0.177 (0.146-0.205)
3-day	0.031 (0.028-0.035)	0.039 (0.036-0.044)	0.051 (0.046-0.056)	0.060 (0.054-0.067)	0.073 (0.065-0.081)	0.084 (0.074-0.093)	0.095 (0.083-0.107)	0.107 (0.093-0.121)	0.124 (0.105-0.142)	0.138 (0.115-0.159)
4-day	0.025 (0.023-0.028)	0.032 (0.029-0.035)	0.042 (0.038-0.046)	0.050 (0.045-0.055)	0.061 (0.055-0.067)	0.070 (0.062-0.078)	0.080 (0.071-0.089)	0.091 (0.079-0.102)	0.106 (0.090-0.120)	0.119 (0.099-0.136)
7-day	0.017 (0.015-0.018)	0.021 (0.019-0.023)	0.027 (0.025-0.030)	0.033 (0.029-0.036)	0.040 (0.036-0.045)	0.047 (0.042-0.052)	0.054 (0.047-0.060)	0.062 (0.053-0.069)	0.073 (0.062-0.083)	0.082 (0.069-0.095)
10-day	0.013 (0.012-0.014)	0.016 (0.015-0.018)	0.021 (0.019-0.023)	0.025 (0.022-0.027)	0.030 (0.027-0.033)	0.035 (0.031-0.039)	0.040 (0.035-0.044)	0.045 (0.040-0.051)	0.053 (0.045-0.060)	0.060 (0.050-0.068)
20-day	0.008 (0.007-0.009)	0.010 (0.009-0.011)	0.013 (0.012-0.014)	0.015 (0.014-0.017)	0.019 (0.017-0.021)	0.021 (0.019-0.023)	0.024 (0.021-0.027)	0.027 (0.024-0.030)	0.031 (0.027-0.035)	0.034 (0.029-0.039)
30-day	0.006 (0.006-0.007)	0.008 (0.007-0.009)	0.010 (0.009-0.011)	0.012 (0.011-0.013)	0.015 (0.013-0.016)	0.017 (0.015-0.018)	0.019 (0.017-0.021)	0.021 (0.018-0.023)	0.024 (0.021-0.027)	0.026 (0.023-0.030)
45-day	0.005 (0.005-0.006)	0.006 (0.006-0.007)	0.008 (0.007-0.009)	0.010 (0.009-0.011)	0.012 (0.010-0.013)	0.013 (0.012-0.014)	0.015 (0.013-0.016)	0.016 (0.014-0.018)	0.018 (0.016-0.021)	0.020 (0.017-0.023)
60-day	0.004 (0.004-0.005)	0.006 (0.005-0.006)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.010 (0.009-0.011)	0.011 (0.010-0.012)	0.012 (0.011-0.013)	0.013 (0.012-0.015)	0.015 (0.013-0.017)	0.016 (0.014-0.018)

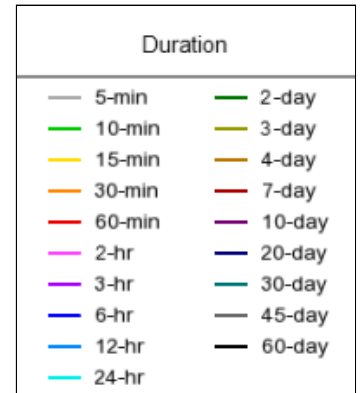
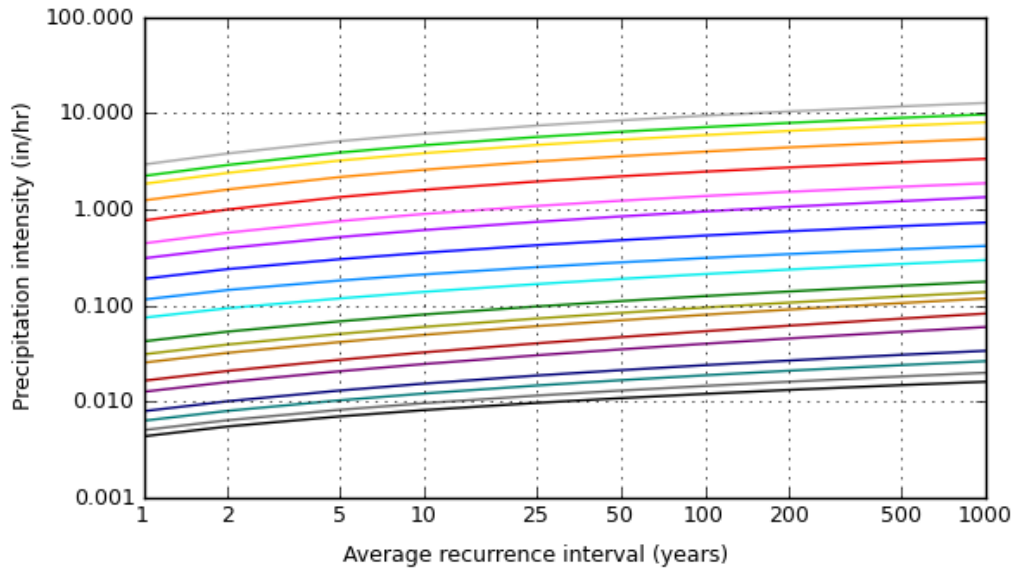
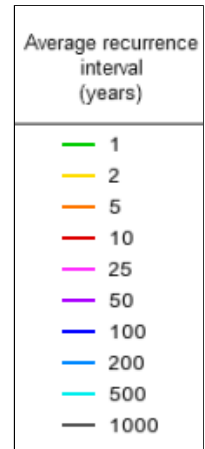
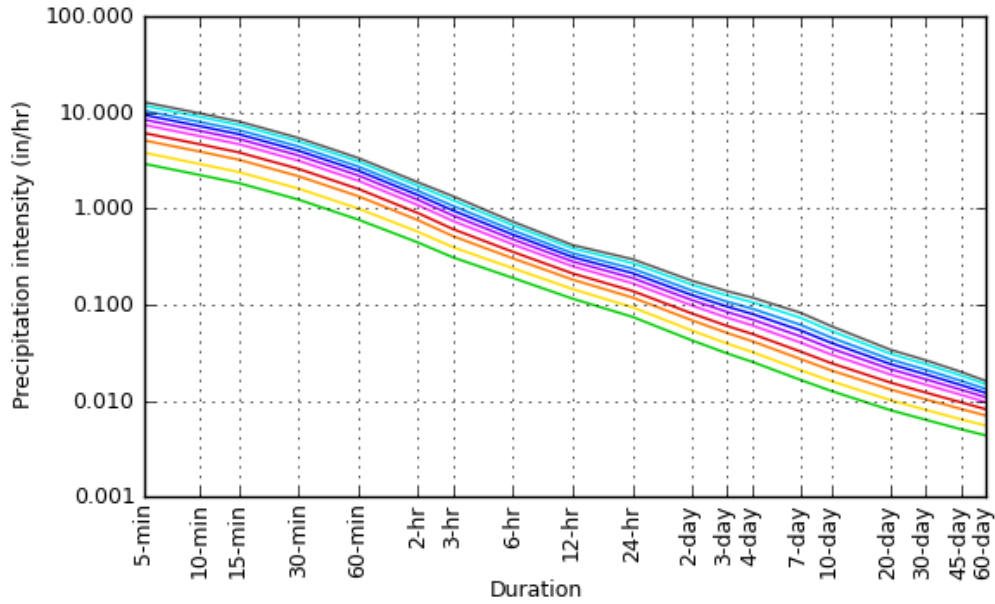
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based intensity-duration-frequency (IDF) curves

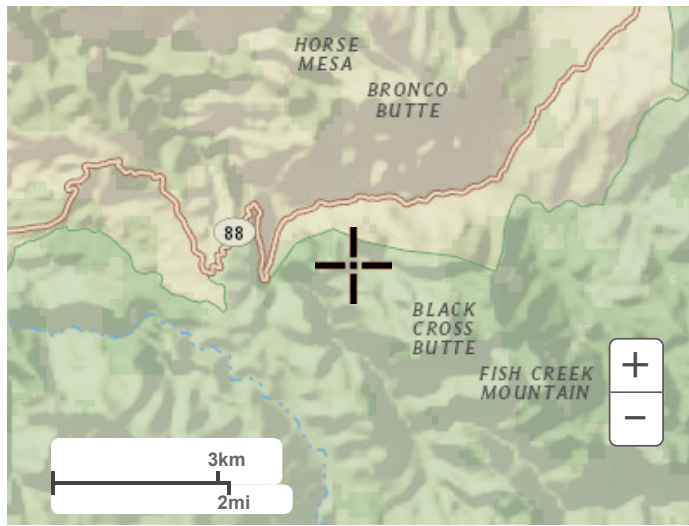
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Maps & aerials

Small scale terrain



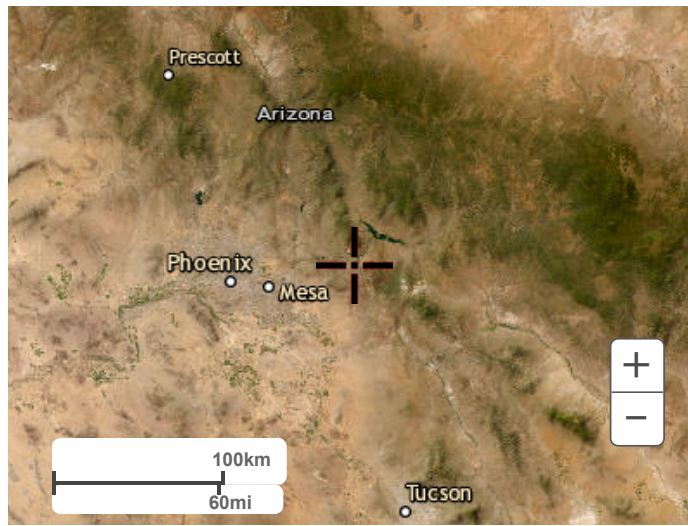
Large scale terrain



Large scale map



Large scale aerial

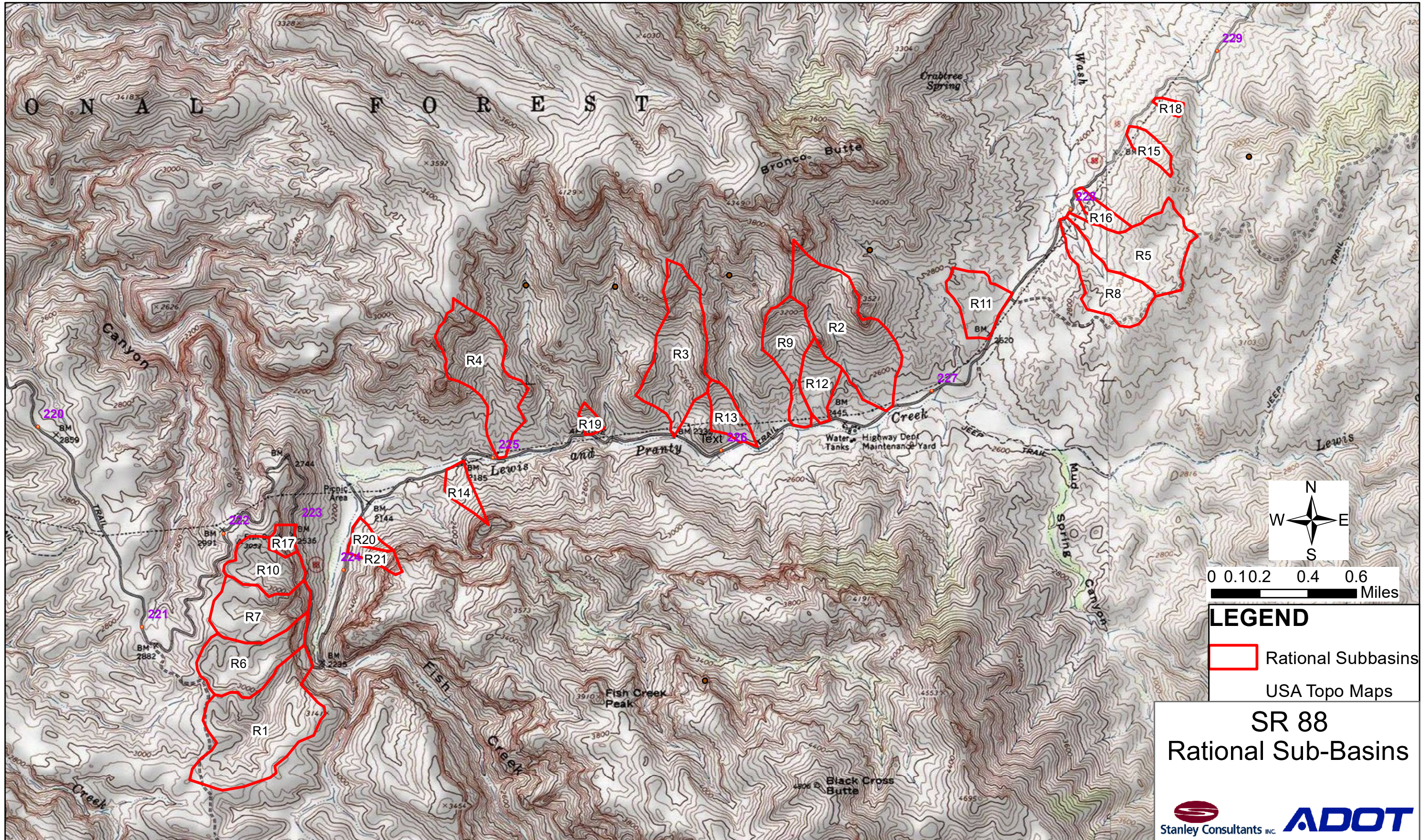


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APPENDIX B
Drainage Maps



LEGEND

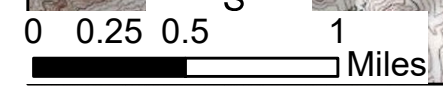
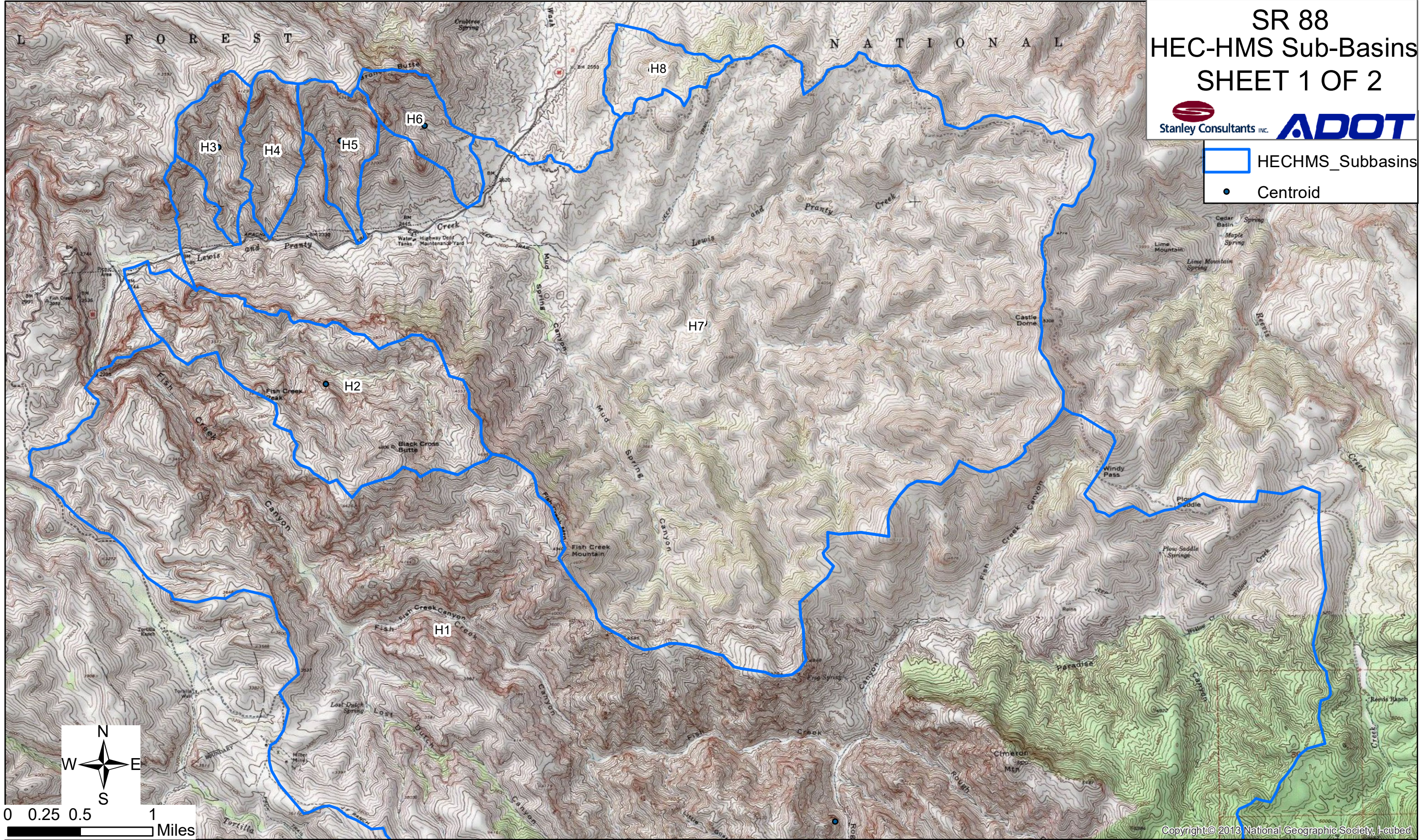
- Rational Subbasins
- USA Topo Maps

SR 88
Rational Sub-Basins

SR 88
HEC-HMS Sub-Basins
SHEET 1 OF 2



HECHMS_Subbasins
Centroid



SR 88
HEC-HMS Sub-Basins
SHEET 2 OF 2



LEGEND
[Blue outline] HECHMS_Subbasins

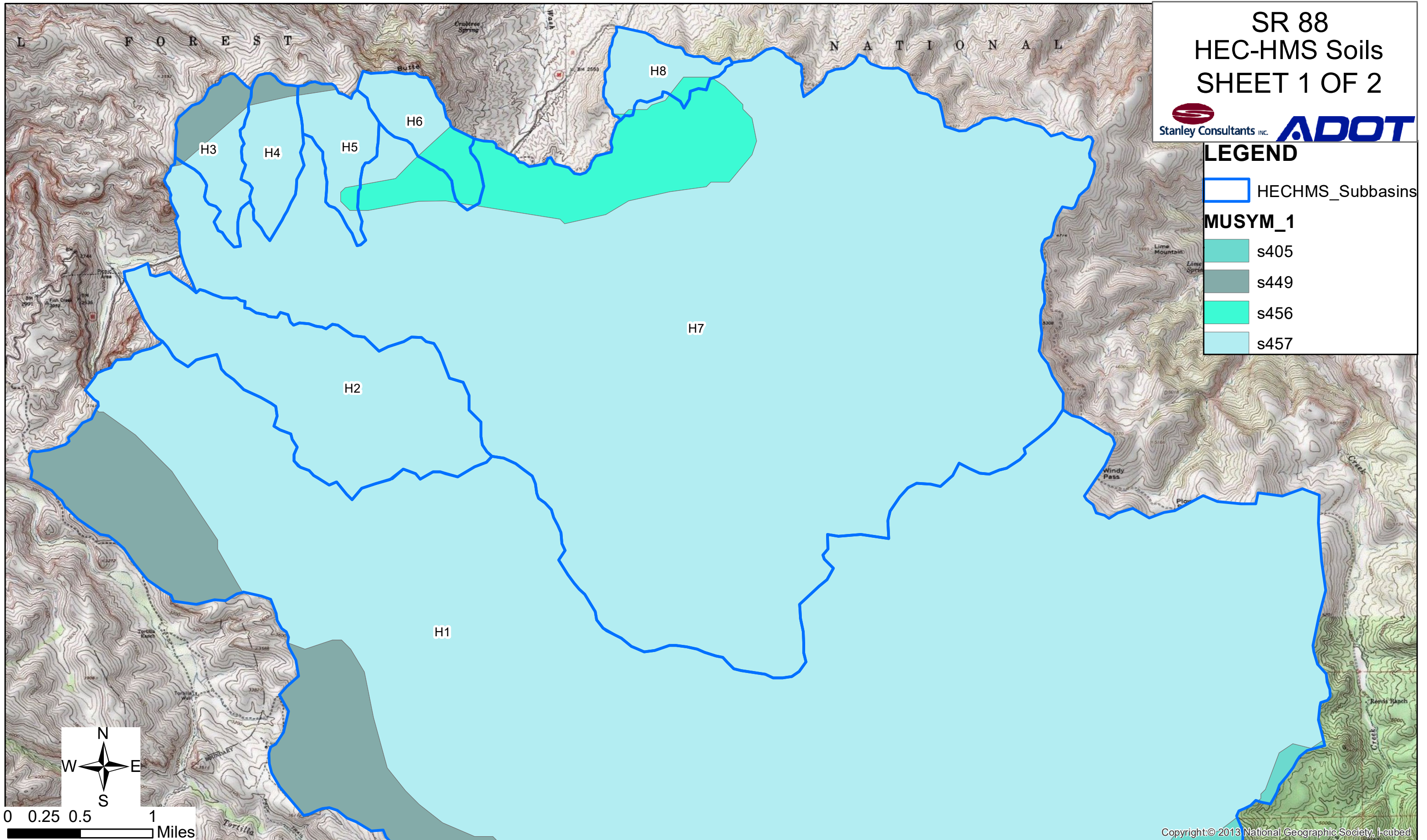


SR 88
HEC-HMS Soils
SHEET 1 OF 2



LEGEND

- HECHMS_Subbasins
- MUSYM_1**
 - s457
 - s449
 - s456
 - s405

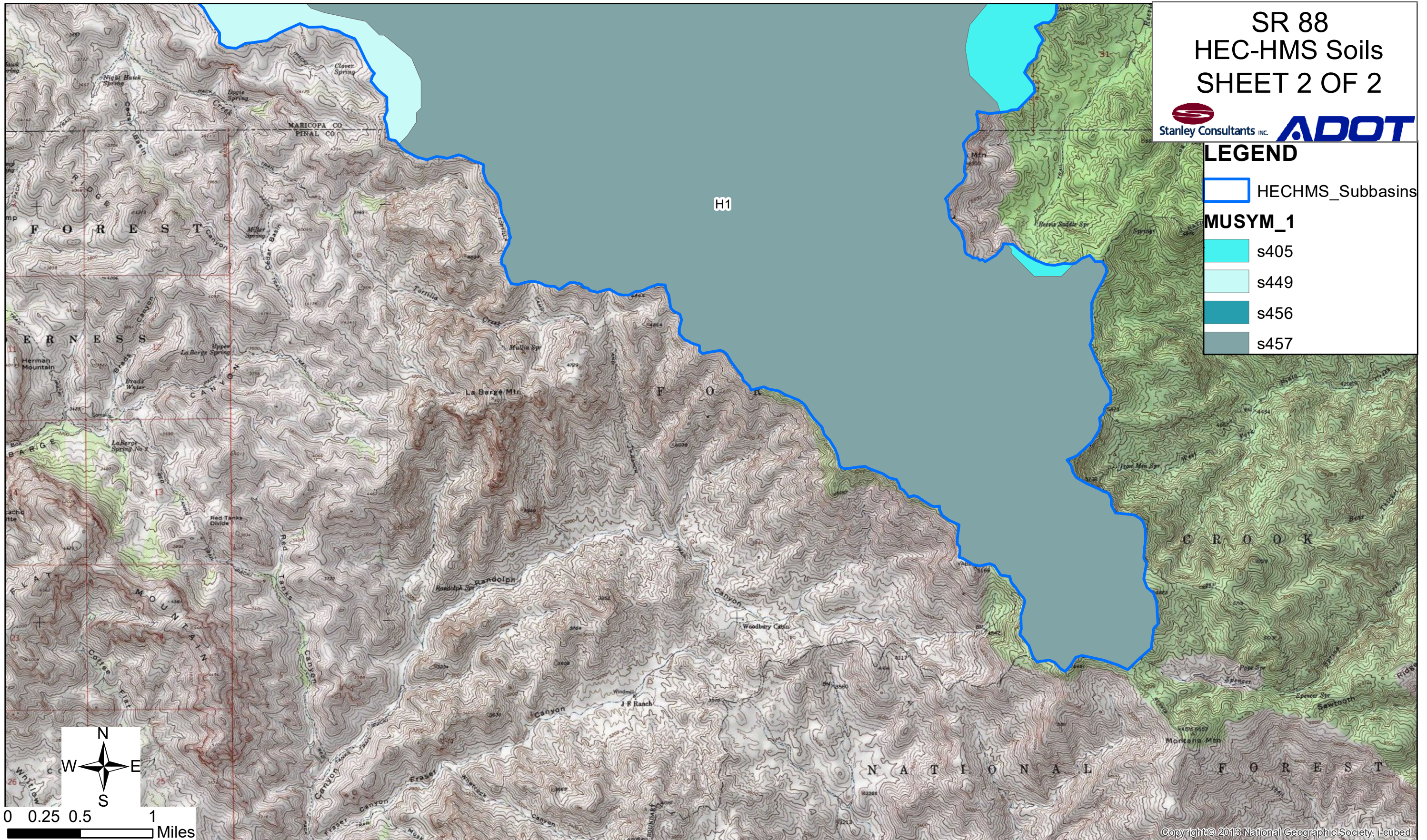


SR 88
HEC-HMS Soils
SHEET 2 OF 2



LEGEND

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 - s449
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 - s457



APPENDIX C
Hydrologic Calculations

Table 3: Existing Discharge Summary, Rational Method

Basin ID	Basin Area (sf)	Total Area (ac)	Low Elevation	Intermediate Elevation	High Elevation	Flow Path Length Low to Intermediate (ft)	Flow Path Length Intermediate to High (ft)	Total Flow Path Length (ft)	Total Flow Path Length (mi)	Computed Watershed Slope (ft/mi)	Kb	25-Year Discharge Estimate				50-Year Discharge Estimate				100-Year Discharge Estimate				
												Computed Tc (min)	i (in/hr)	C	Q (cfs)	Computed Tc (min)	i (in/hr)	C	Q (cfs)	Computed Tc (min)	i (in/hr)	C	Q (cfs)	
R1	4835160	111.00	2245	2800	3120	750	3245	3995	0.757	671.2	0.1	12.9	5.09	0.56	316	12.2	5.92	0.59	388	11.6	6.8	0.62	468	
R2	4091155.2	93.92	2575	3600	4040	4006	414	4420	0.837	1489.7	0.1	10.2	5.61	0.56	295	10	6.42	0.59	356	10	7.2	0.62	419	
R3	3258288.0	74.80	2330	3200	3610	3325	845	4170	0.790	1543.2	0.1	10	5.65	0.56	237	10	6.42	0.59	283	10	7.2	0.62	334	
R4	3162456	72.60	2200	3000	3490	2987	688	3675	0.696	1643.5	0.1	10	5.65	0.56	230	10	6.42	0.59	275	10	7.2	0.62	325	
R5	2813976	64.60	2550		3110	3960		3960	0.750	746.7	0.1	12.3	5.2	0.61	205	11.6	6.05	0.65	254	11	6.93	0.67	300	
R6	2242033.2	51.47	2245	2800	3080	334	2771	3105	0.588	631.8	0.1	11.3	5.39	0.56	156	10.7	6.26	0.59	190	10.2	7.16	0.62	229	
R7	2151864	49.40	2360	2800	3080	150	2154	2304	0.436	762.7	0.1	10	5.65	0.56	157	10	6.42	0.59	187	10	7.2	0.62	221	
R8	1952794.8	44.83	2555		2965	2768		2768	0.524	782.4	0.1	10	5.65	0.61	150	10	6.42	0.65	185	10	7.2	0.67	216	
R9	1691434.8	38.83	2430	3000	3440	2187	636	2823	0.535	1650.9	0.1	10	5.65	0.56	123	10	6.42	0.59	147	10	7.2	0.62	173	
R10	1465358.4	33.64	2400	2800	3080	211	1289	1500	0.284	1394.4	0.1	10	5.65	0.56	107	10	6.42	0.59	128	10	7.2	0.62	150	
R11	1331193.6	30.56	2620		2800	1810		1810	0.343	524.8	0.1	10	5.65	0.61	106	10	6.42	0.65	128	10	7.2	0.67	148	
R12	994474.8	22.83	2435	2800	3050	1520	476	1996	0.378	1489.0	0.1	10	5.65	0.56	73	10	6.42	0.59	87	10	7.2	0.62	102	
R13	754023.6	17.31	2375	2600	2850	1055	471	1526	0.289	1431.3	0.1	10	5.65	0.56	55	10	6.42	0.59	66	10	7.2	0.62	77	
R14	542322	12.45	2180	2600	2840	1212	360	1572	0.298	2088.0	0.1	10	5.65	0.61	43	10	6.42	0.65	52	10	7.2	0.67	60	
R15	477417.6	10.96	2565		3050	1440		1440	0.273	1776.6	0.1	10	5.65	0.61	38	10	6.42	0.65	46	10	7.2	0.67	53	
R16	445618.8	10.23	2520		2920	1498		1498	0.284	1408.5	0.1	10	5.65	0.61	35	10	6.42	0.65	43	10	7.2	0.67	49	
R17	330620.4	7.59	2500	2960	3040	358	252	610	0.116	3374.1	0.1	10	5.65	0.56	24	10	6.42	0.59	29	10	7.2	0.62	34	
R18	153766.8	3.53	2560		2850	1025		1025	0.194	1494.9	0.1	10	5.65	0.61	12	10	6.42	0.65	15	10	7.2	0.67	17	
R19	201682.8	4.63	2270		2685	772		772	0.146	2842.0	0.1	10	5.65	0.56	15	10	6.42	0.59	18	10	7.2	0.62	21	
R20	270072	6.20	2150		2600	1072		1072	0.203	2216.8	0.1	10	5.65	0.61	21	10	6.42	0.65	26	10	7.2	0.67	30	
R21	384199.2	8.82	2155	2800	3125	1003	327	1330	0.252	3747.2	0.1	10	5.65	0.61	30	10	6.42	0.65	37	10	7.2	0.67	43	
Example Computed Watershed Slope Calcs																								
Basin ID																								
	di	Hi	j	S (ft/mi)																				
R3	845	410	1213.09	1543.21																				
	3325	870	6500.217																					
	4170		7713.307																					
R2	di	Hi	j	S (ft/mi)																				
	414	440	401.5819	1489.72																				
	4006	1025	7919.623																					
	4420		8321.205																					

SR 88											Design: JPM Date:		
Table 4: Existing Discharge Summary, HEC-HMS Method											Check: Date:		
Basin ID	Area (ac)	Area (sm)	Low Elevation	High Elevation	Flow Path Length (ft)	Flow Path Length (mi)	L _{ca} (mi)	Average Slope (ft/mi)	T _c (hr)	R (hr)	Q ₂₅ (cfs)	Q ₅₀ (cfs)	Q ₁₀₀ (cfs)
H1	19006.9	29.698	2200	5280	74078	14.030	7.58	219.53	3.680	1.881	2748	3775	4885
H2	1128.8	1.764	2150	4695	18312	3.468	1.97	733.81	1.097	0.803	455	620	797
H3	229.7	0.359	2236	4129	7536	1.427	0.75	1326.31	0.523	0.430	175	233	295
H4	225.5	0.352	2270	4160	6699	1.269	0.68	1489.66	0.483	0.362	172	230	294
H5	212.9	0.333	2390	4210	6704	1.270	0.73	1433.41	0.493	0.383	157	210	269
H6	227.9	0.356	2520	4280	7464	1.414	0.81	1245.02	0.538	0.442	168	224	284
H7	9251.3	14.455	2180	5380	39940	7.564	4.54	423.03	2.264	1.009	2464	3361	4325
H8	194.2	0.303	2565	3325	4694	0.889	0.37	854.88	0.418	0.252	219	286	359
	Time of Concentration												
	Desert/mountain:												
	Storage Coefficient												

SR 88						Design: JPM Date: 01/12/23	
Table 5: Soil Summary				Check: CAD Date:			
NRCS Soil Survey	MUSYM	Initial Content (Volume Ratio)		Saturated Content (Volume Ratio)	Suction (in)	Conductivity (in/hr)	Percent Rock
		Wilting Point (dry)*	Field Capacity (normal)				
GSMSOILMU	S405	0.14	0.27	0.43	12.83	0.18	0.00
GSMSOILMU	S449	0.08	0.17	0.39	5.09	0.29	40.00
GSMSOILMU	S456	0.11	0.2	0.41	5.13	0.27	0.00
GSMSOILMU	S457	0.08	0.08	0.41	3.82	0.51	30.00
*Used in HEC-HMS Model due to land being non-irrigated. (See page 50 of manual)							

SR 88				Design: JPM Date: 1/12/23	
Table 6: Green and Ampt Rainfall Loss Summary				Check: CAD Date:	
Basin ID	Initial Content - Wilting Point	Saturated Content (Volume Ratio)	Suction (in)	Conductivity (in/hr)	Natural Imp. %
H1	0.081	0.409	3.967	0.504	0.000
H2	0.080	0.410	3.820	0.510	0.000
H3	0.080	0.401	4.328	0.487	0.000
H4	0.080	0.408	3.958	0.580	0.000
H5	0.082	0.409	3.932	0.586	0.000
H6	0.091	0.410	4.248	0.495	0.000
H7	0.082	0.410	3.905	0.486	0.000
H8	0.083	0.410	3.948	0.475	0.000

Table 7: Green and Ampt Soil Data Check: CAD Date:

Map Symbol	Rock Outcrop (%)	Conductivity (in/hr)	A _i log(conductivity _i)	Area (sm)	Suction (in)	A _i log(suction _i)	Initial Content - Wilting Point	Saturated Content	Natural Imperviousness
H1									
S449	40.000	0.290	-1.170	2.177	5.090	1.539	0.080	0.390	0.000
S405	0.000	0.180	-0.307	0.412	12.830	0.456	0.140	0.430	0.000
S457	30.000	0.510	-7.928	27.109	3.820	15.779	0.080	0.410	0.000
Total			-9.404	29.698		17.774			
Composite Value =	30.317	0.482			3.967		0.081	0.409	0.000
Adj. Value		0.504							
H2									
S457	30.000	0.510	-0.516	1.764	3.820	1.027	0.080	0.410	0.000
Total			-0.516	1.764		1.027			
Composite Value =		0.510			3.820		0.080	0.410	0.000
Adj. Value		0.510							
H3									
S449	40.000	0.290	-0.084	0.156	5.090	0.110	0.080	0.390	0.000
S457	30.000	0.510	-0.059	0.203	3.820	0.118	0.080	0.410	0.000
Total			-0.143	0.359		0.228			
Composite Value =		0.399			4.328		0.080	0.401	0.000
Adj. Value		0.487							
H4									
S449	40.000	0.290	-0.023	0.044	5.090	0.031	0.080	0.390	0.000
S457	30.000	0.510	-0.090	0.309	3.820	0.180	0.080	0.410	0.000
Total			-0.114	0.352		0.210			
Composite Value =		0.476			3.958		0.080	0.408	0.000
Adj. Value		0.580							
H5									
S456	0.000	0.270	-0.010	0.018	5.130	0.013	0.110	0.410	0.000
S449	40.000	0.290	-0.008	0.015	5.090	0.011	0.080	0.390	0.000
S457	30.000	0.510	-0.088	0.300	3.820	0.174	0.080	0.410	0.000
Total			-0.106	0.333		0.198			
Composite Value =		0.480			3.932		0.082	0.409	0.000
Adj. Value		0.586							
H6									
S456	0.000	0.270	-0.073	0.128	5.130	0.091	0.110	0.410	0.000
S457	30.000	0.510	-0.067	0.228	3.820	0.133	0.080	0.410	0.000
Total			-0.140	0.356		0.224			
Composite Value =		0.406			4.248		0.091	0.410	0.000
Adj. Value		0.495							
H7									
S456	0.000	0.270	-0.615	1.082	5.130	0.768	0.110	0.410	0.000
S449	40.000	0.290	-0.002	0.003	5.090	0.002	0.080	0.390	0.000
S457	30.000	0.510	-3.910	13.371	3.820	7.783	0.080	0.410	0.000
Total			-4.527	14.455		8.553			
Composite Value =		0.486			3.905		0.082	0.410	0.000
Adj. Value		0.486							
H8									
S456	0.000	0.270	-0.019	0.034	5.130	0.024	0.110	0.410	0.000
S457	30.000	0.510	-0.079	0.269	3.820	0.157	0.080	0.410	0.000
Total			-0.098	0.303		0.181			
Composite Value =		0.475			3.948		0.083	0.410	0.000
Adj. Value		0.475							

Table 7: Green and Ampt Soil Data

Check: CAD Date:

VC = 30% for SR 88 reduced to 10% in burn watersheds

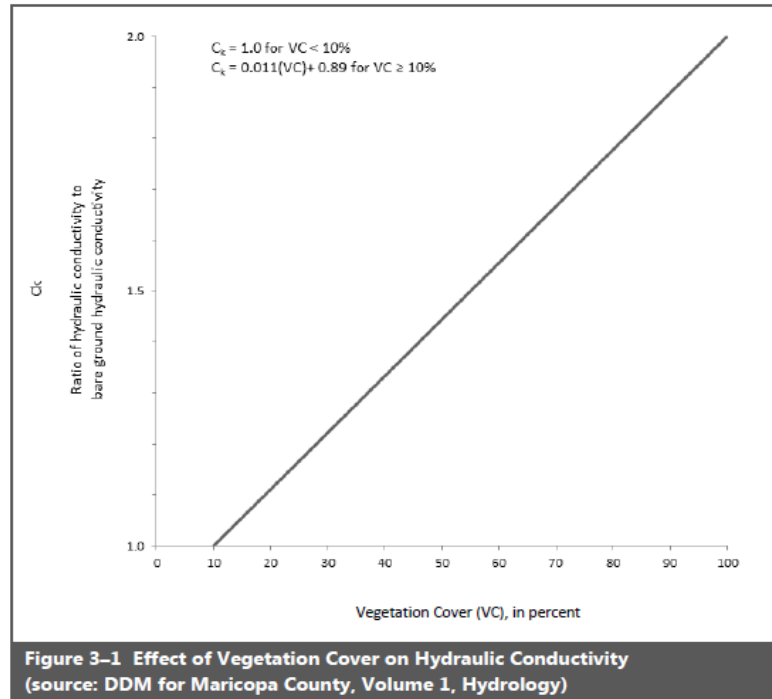


Figure 3-1 Effect of Vegetation Cover on Hydraulic Conductivity
 (source: DDM for Maricopa County, Volume 1, Hydrology)

Note that the adjusted conductivity is limited to two inches per hour (2 in/hr). In no case should a conductivity value greater than two be used.

ADOT RATIONAL METHOD PROGRAM

Computation Date and Time: 09/26/2023 13:38:53

Project Name: SR 88

Project Location:

Company: Stanley Consultants

Project Notes:

Prepared by: JPM Prepared by date: Jan 2023

Checked by: Checked by date:

Summary Table for 25-Year event:

Subbasin ID	Rational Discharge Q (cfs)	Rainfall Coeff. C	Intensity i (inches/hour)	Area A (acres)	Time of Computed Tc (minutes)	Time of Applied Tc (minutes)	Concentration
R1	316.3	0.56	5.09	111.00	12.9	12.9	
R2	295.2	0.56	5.61	93.90	10.2	10.2	
R3	236.8	0.56	5.65	74.80	9.7	10.0	
R4	229.8	0.56	5.65	72.60	8.9	10.0*	
R5	205.0	0.61	5.20	64.60	12.3	12.3	
R6	155.6	0.56	5.39	51.50	11.3	11.3	
R7	156.4	0.56	5.65	49.40	8.9	10.0*	
R8	154.5	0.61	5.65	44.80	9.8	10.0	
R9	122.8	0.56	5.65	38.80	7.5	10.0*	
R10	106.3	0.56	5.65	33.60	5.5	10.0*	
R11	105.5	0.61	5.65	30.60	8.9	10.0*	
R12	72.2	0.56	5.65	22.80	6.4	10.0*	
R13	54.8	0.56	5.65	17.30	5.5	10.0*	
R14	43.1	0.61	5.65	12.50	4.9	10.0*	
R15	37.9	0.61	5.65	11.00	5.0	10.0*	
R16	35.2	0.61	5.65	10.20	5.5	10.0*	

R17	24.1	0.56	5.65	7.60	2.5	10.0*
R18	12.1	0.61	5.65	3.50	4.4	10.0*
R19	14.6	0.56	5.65	4.60	3.0	10.0*
R20	21.4	0.61	5.65	6.20	3.9	10.0*
R21	30.3	0.61	5.65	8.80	3.7	10.0*

*Tc modified, Valid: 10 min to 60 min.

Summary Table for 50-Year event:

Subbasin ID	Rational Discharge	Rainfall Coeff.	Intensity	Area	Time of Computed Tc	Time of Applied Tc	Concentration	Concentration
	Q	C	i	A	(minutes)	(minutes)		
	(cfs)		(inches/hour)	(acres)				
R1	388.0	0.59	5.92	111.00	12.2	12.2		
R2	355.7	0.59	6.42	93.90	9.6	10.0		
R3	283.3	0.59	6.42	74.80	9.3	10.0*		
R4	275.0	0.59	6.42	72.60	8.4	10.0*		
R5	254.0	0.65	6.05	64.60	11.6	11.6		
R6	190.2	0.59	6.26	51.50	10.7	10.7		
R7	187.1	0.59	6.42	49.40	8.4	10.0*		
R8	187.0	0.65	6.42	44.80	9.3	10.0*		
R9	147.0	0.59	6.42	38.80	7.1	10.0*		
R10	127.3	0.59	6.42	33.60	5.2	10.0*		
R11	127.7	0.65	6.42	30.60	8.4	10.0*		
R12	86.4	0.59	6.42	22.80	6.0	10.0*		
R13	65.5	0.59	6.42	17.30	5.3	10.0*		
R14	52.2	0.65	6.42	12.50	4.7	10.0*		
R15	45.9	0.65	6.42	11.00	4.7	10.0*		
R16	42.6	0.65	6.42	10.20	5.2	10.0*		
R17	28.8	0.59	6.42	7.60	2.4	10.0*		
R18	14.6	0.65	6.42	3.50	4.2	10.0*		
R19	17.4	0.59	6.42	4.60	2.9	10.0*		
R20	25.9	0.65	6.42	6.20	3.7	10.0*		
R21	36.7	0.65	6.42	8.80	3.5	10.0*		

*Tc modified, Valid: 10 min to 60 min.

----- DETAILED RESULTS -----

Subbasin: R1

=====

INPUTS:

Description:

Notes:

Area, A: 111 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.757 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 3245

Incremental Change in Elevation, Hi(ft): 3245

Slope Segment #2

Incremental Change in Length, di(ft): 750

Incremental Change in Elevation, Hi(ft): 750

Subbasin Slope, S:671.15 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 30%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	316.3	388.0
Rational Coefficient-C	0.56	0.59
Rainfall intensity-i (inches/hour)	5.09	5.92
Subbasin Total Area-A (acres)	111.00	111.00

Computed Time of Concentration-Tc (minutes) 12.9 12.2

Applied Time of Concentration-Tc (minutes) 12.9 12.2

----- DETAILED RESULTS -----

Subbasin: R2

=====

INPUTS:

Description:

Notes:

Area, A: 93.9 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.837 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 414

Incremental Change in Elevation, Hi(ft): 414

Slope Segment #2

Incremental Change in Length, di(ft): 4006

Incremental Change in Elevation, Hi(ft): 4006

Subbasin Slope, S:1489.72 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 30%

RESULTS:

Parameters 25-Year 50-Year

Discharge-Q (cfs) 295.2 355.7

Rational Coefficient-C 0.56 0.59

Rainfall intensity-i (inches/hour) 5.61 6.42
Subbasin Total Area-A (acres) 93.90 93.90
Computed Time of Concentration-Tc (minutes) 10.2 9.6
Applied Time of Concentration-Tc (minutes) 10.2 10.0

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R3

=====

INPUTS:

Description:

Notes:

Area, A: 74.8 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.79 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 845

Incremental Change in Elevation, Hi(ft): 845

Slope Segment #2

Incremental Change in Length, di(ft): 3325

Incremental Change in Elevation, Hi(ft): 3325

Subbasin Slope, S:1543.21 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 30%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	236.8	283.3
Rational Coefficient-C	0.56	0.59
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	74.80	74.80
Computed Time of Concentration-Tc (minutes)	9.7	9.3
Applied Time of Concentration-Tc (minutes)	10.0	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R4

=====

INPUTS:

Description:

Notes:

Area, A: 72.6 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.696 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 688

Incremental Change in Elevation, Hi(ft): 688

Slope Segment #2

Incremental Change in Length, di(ft): 2987

Incremental Change in Elevation, Hi(ft): 2987

Subbasin Slope, S:1643.52 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 30%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	229.8	275.0
Rational Coefficient-C	0.56	0.59
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	72.60	72.60
Computed Time of Concentration-Tc (minutes)	8.9	8.4
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R5

=====

INPUTS:

Description:

Notes:

Area, A: 64.6 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.75 miles

Slope Method: Method 1

Change in Elevation, H (ft): 560

Subbasin Slope, S:746.67 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 10%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	205.0	254.0
Rational Coefficient-C	0.61	0.65
Rainfall intensity-i (inches/hour)	5.20	6.05
Subbasin Total Area-A (acres)	64.60	64.60
Computed Time of Concentration-Tc (minutes)	12.3	11.6
Applied Time of Concentration-Tc (minutes)	12.3	11.6

----- DETAILED RESULTS -----

Subbasin: R6

=====

INPUTS:

Description:

Notes:

Area, A: 51.5 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.588 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 334

Incremental Change in Elevation, Hi(ft): 334

Slope Segment #2

Incremental Change in Length, di(ft): 2771

Incremental Change in Elevation, Hi(ft): 2771

Subbasin Slope, S:631.78 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 30%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	155.6	190.2
Rational Coefficient-C	0.56	0.59
Rainfall intensity-i (inches/hour)	5.39	6.26
Subbasin Total Area-A (acres)	51.50	51.50
Computed Time of Concentration-Tc (minutes)	11.3	10.7
Applied Time of Concentration-Tc (minutes)	11.3	10.7

----- DETAILED RESULTS -----

Subbasin: R7

=====

INPUTS:

Description:

Notes:

Area, A: 49.4 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.436 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 150

Incremental Change in Elevation, Hi(ft): 150

Slope Segment #2

Incremental Change in Length, di(ft): 2154

Incremental Change in Elevation, Hi(ft): 2154

Subbasin Slope, S:762.74 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 30%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	156.4	187.1
Rational Coefficient-C	0.56	0.59
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	49.40	49.40
Computed Time of Concentration-Tc (minutes)	8.9	8.4
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R8

=====

INPUTS:

Description:

Notes:

Area, A: 44.8 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.524 miles

Slope Method: Method 1

Change in Elevation, H (ft): 410

Subbasin Slope, S:782.44 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 10%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	154.5	187.0
Rational Coefficient-C	0.61	0.65
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	44.80	44.80
Computed Time of Concentration-Tc (minutes)	9.8	9.3
Applied Time of Concentration-Tc (minutes)	10.0	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R9

=====

INPUTS:

Description:

Notes:

Area, A: 38.8 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.535 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 636

Incremental Change in Elevation, Hi(ft): 636

Slope Segment #2

Incremental Change in Length, di(ft): 2187

Incremental Change in Elevation, Hi(ft): 2187

Subbasin Slope, S:1650.93 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 30%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	122.8	147.0
Rational Coefficient-C	0.56	0.59
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	38.80	38.80
Computed Time of Concentration-Tc (minutes)	7.5	7.1
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R10

=====

INPUTS:

Description:

Notes:

Area, A: 33.6 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.284 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 211

Incremental Change in Elevation, Hi(ft): 211

Slope Segment #2

Incremental Change in Length, di(ft): 1289

Incremental Change in Elevation, Hi(ft): 1289

Subbasin Slope, S:1394.35 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 30%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	106.3	127.3
Rational Coefficient-C	0.56	0.59
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	33.60	33.60
Computed Time of Concentration-Tc (minutes)	5.5	5.2
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R11

=====

INPUTS:

Description:

Notes:

Area, A: 30.6 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.343 miles

Slope Method: Method 1

Change in Elevation, H (ft): 180

Subbasin Slope, S:524.78 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 10%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	105.5	127.7
Rational Coefficient-C	0.61	0.65
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	30.60	30.60
Computed Time of Concentration-Tc (minutes)	8.9	8.4
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R12

=====

INPUTS:

Description:

Notes:

Area, A: 22.8 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.378 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 476

Incremental Change in Elevation, Hi(ft): 476

Slope Segment #2

Incremental Change in Length, di(ft): 1520

Incremental Change in Elevation, Hi(ft): 1520

Subbasin Slope, S:1488.99 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 30%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	72.2	86.4
Rational Coefficient-C	0.56	0.59
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	22.80	22.80
Computed Time of Concentration-Tc (minutes)	6.4	6.0
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R13

=====

INPUTS:

Description:

Notes:

Area, A: 17.3 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.289 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 471

Incremental Change in Elevation, Hi(ft): 471

Slope Segment #2

Incremental Change in Length, di(ft): 1055

Incremental Change in Elevation, Hi(ft): 1055

Subbasin Slope, S:1431.27 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 30%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	54.8	65.5
Rational Coefficient-C	0.56	0.59
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	17.30	17.30
Computed Time of Concentration-Tc (minutes)	5.5	5.3
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R14

=====

INPUTS:

Description:

Notes:

Area, A: 12.5 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.298 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 360

Incremental Change in Elevation, Hi(ft): 360

Slope Segment #2

Incremental Change in Length, di(ft): 1212

Incremental Change in Elevation, Hi(ft): 1212

Subbasin Slope, S:2088.02 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 10%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	43.1	52.2
Rational Coefficient-C	0.61	0.65
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	12.50	12.50
Computed Time of Concentration-Tc (minutes)	4.9	4.7
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R15

=====

INPUTS:

Description:

Notes:

Area, A: 11 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.273 miles

Slope Method: Method 1

Change in Elevation, H (ft): 485

Subbasin Slope, S:1776.56 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 10%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	37.9	45.9
Rational Coefficient-C	0.61	0.65
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	11.00	11.00
Computed Time of Concentration-Tc (minutes)	5.0	4.7
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R16

=====

INPUTS:

Description:

Notes:

Area, A: 10.2 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.284 miles

Slope Method: Method 1

Change in Elevation, H (ft): 400

Subbasin Slope, S:1408.45 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 10%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	35.2	42.6
Rational Coefficient-C	0.61	0.65
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	10.20	10.20
Computed Time of Concentration-Tc (minutes)	5.5	5.2
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R17

=====

INPUTS:

Description:

Notes:

Area, A: 7.6 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.116 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 358

Incremental Change in Elevation, Hi(ft): 358

Slope Segment #2

Incremental Change in Length, di(ft): 252

Incremental Change in Elevation, Hi(ft): 252

Subbasin Slope, S:3374.07 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 30%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	24.1	28.8
Rational Coefficient-C	0.56	0.59
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	7.60	7.60
Computed Time of Concentration-Tc (minutes)	2.5	2.4
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R18

=====

INPUTS:

Description:

Notes:

Area, A: 3.5 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.194 miles

Slope Method: Method 1

Change in Elevation, H (ft): 290

Subbasin Slope, S:1494.85 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 10%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	12.1	14.6
Rational Coefficient-C	0.61	0.65
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	3.50	3.50
Computed Time of Concentration-Tc (minutes)	4.4	4.2
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R19

=====

INPUTS:

Description:

Notes:

Area, A: 4.6 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.146 miles

Slope Method: Method 1

Change in Elevation, H (ft): 415

Subbasin Slope, S:2842.47 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 30%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	14.6	17.4
Rational Coefficient-C	0.56	0.59
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	4.60	4.60
Computed Time of Concentration-Tc (minutes)	3.0	2.9
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R20

=====

INPUTS:

Description:

Notes:

Area, A: 6.2 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.203 miles

Slope Method: Method 1

Change in Elevation, H (ft): 450

Subbasin Slope, S:2216.75 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 10%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	21.4	25.9
Rational Coefficient-C	0.61	0.65
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	6.20	6.20
Computed Time of Concentration-Tc (minutes)	3.9	3.7
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

----- DETAILED RESULTS -----

Subbasin: R21

=====

INPUTS:

Description:

Notes:

Area, A: 8.8 acres

Landform Type: Foothills

Flow Type: Defined Drainage Network

Watershed Resistance Coefficient, Kb: 0.1

Longest Flowpath Length, L: 0.252 miles

Slope Method: Method 2

Slope Segment #1

Incremental Change in Length, di(ft): 327

Incremental Change in Elevation, Hi(ft): 327

Slope Segment #2

Incremental Change in Length, di(ft): 1003

Incremental Change in Elevation, Hi(ft): 1003

Subbasin Slope, S:3747.2 ft/mile

Landuse Type: Desert

Hydrologic Soil Group: D

Percent Vegetation Cover: 10%

RESULTS:

Parameters	25-Year	50-Year
Discharge-Q (cfs)	30.3	36.7
Rational Coefficient-C	0.61	0.65
Rainfall intensity-i (inches/hour)	5.65	6.42
Subbasin Total Area-A (acres)	8.80	8.80
Computed Time of Concentration-Tc (minutes)	3.7	3.5
Applied Time of Concentration-Tc (minutes)	10.0*	10.0*

*Some Tc values modified, Valid range: 10 minutes to 1 hour.

Project: Sr88

Simulation Run: 25-yr

Simulation Start: 31 December 2022, 24:00

Simulation End: 2 January 2023, 12:00

HMS Version: 4.10

Executed: 26 September 2023, 21:50

Global Parameter Summary - Subbasin

Element Name	Location	
	Longitude Degrees	Latitude Degrees
H1	-111.22	33.48
H7	-111.23	33.53
H3	-111.29	33.55
H4	-111.29	33.55
H6	-111.27	33.55
H5	-111.28	33.55
H2	-111.28	33.52
H8	-111.24	33.56

Element Name	Area (MI ²)
	Area (MI ²)
H1	29.7
H7	14.46
H3	0.36
H4	0.35
H6	0.36
H5	0.33
H2	1.76
H8	0.3

Element Name	Loss Rate: Green and Ampt					
	Percent Impervious Area	Initial Variable	Initial Content	Saturated Content	Wetting Front Suction	Hydraulic Conductivity
H1	0	Water Content	0.08	0.41	3.97	0.5
H7	0	Water Content	0.08	0.41	3.9	0.49
H3	0	Water Content	0.08	0.4	4.33	0.49
H4	0	Water Content	0.08	0.41	3.96	0.58
H6	0	Water Content	0.09	0.41	4.25	0.49
H5	0	Water Content	0.08	0.41	3.93	0.59
H2	0	Water Content	0.08	0.41	3.82	0.51
H8	0	Water Content	0.08	0.41	3.95	0.48

Transform: Clark

Element Name	Clark Method	Time of Concentration	Storage Coefficient	Time Area Method
H1	Specified	3.68	1.88	Default
H7	Specified	2.26	1.01	Default
H3	Specified	0.52	0.43	Default
H4	Specified	0.48	0.36	Default
H6	Specified	0.54	0.44	Default
H5	Specified	0.49	0.38	Default
H2	Specified	1.1	0.8	Default
H8	Specified	0.42	0.25	Default

Global Parameter Summary - Reach

Downstream

Element Name	Downstream
H3 Reach	Junction - 1
H4 Reach	Junction - 1
H6 Reach	Junction - 1
H5 Reach	Junction - 1

Route: Muskingum Cunge

Element Name	Method	Channel	Length (FT)	Energy Slope (FT/FT)	Mannings n	Bottom Width (FT)	Side Slope (FT/FT)	Initial Variable	Space - Time Method	Index Parameter Type	Index Flow	Maximum Depth Iteration
H3 Reach	Muskingum Cunge	Trapezoid	1952	0.04	0.04	30	3	Combined Inflow	Automatic DX and DT	Index Flow	87	20
H4 Reach	Muskingum Cunge	Trapezoid	3490	0.03	0.04	30	3	Combined Inflow	Automatic DX and DT	Index Flow	86	20
H6 Reach	Muskingum Cunge	Trapezoid	11711	0.03	0.04	30	3	Combined Inflow	Automatic DX and DT	Index Flow	103	20
H5 Reach	Muskingum Cunge	Trapezoid	7077	0.03	0.04	30	3	Combined Inflow	Automatic DX and DT	Index Flow	78	20

Global Results Summary

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
H1	29.7	2747.81	01Jan2023, 15:05	0.57
H7	14.46	2397.45	01Jan2023, 13:50	0.59
H3	0.36	174.86	01Jan2023, 12:30	0.57
H3 Reach	0.36	174.37	01Jan2023, 12:35	0.57
H4	0.35	172.02	01Jan2023, 12:30	0.5
H4 Reach	0.35	173.84	01Jan2023, 12:35	0.51
H6	0.36	167.28	01Jan2023, 12:30	0.57
H6 Reach	0.36	168.45	01Jan2023, 12:50	0.58
H5	0.33	156.91	01Jan2023, 12:30	0.5
H5 Reach	0.33	156.42	01Jan2023, 12:40	0.51
Junction - 1	15.86	2463.85	01Jan2023, 13:45	0.59
H2	1.76	455	01Jan2023, 13:00	0.57
H8	0.3	219.18	01Jan2023, 12:25	0.6

Subbasin: H1

Area (MI²) : 29.7

Latitude Degrees : 33.48

Longitude Degrees : -111.22

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.41
Wetting Front Suction	3.97
Hydraulic Conductivity	0.5

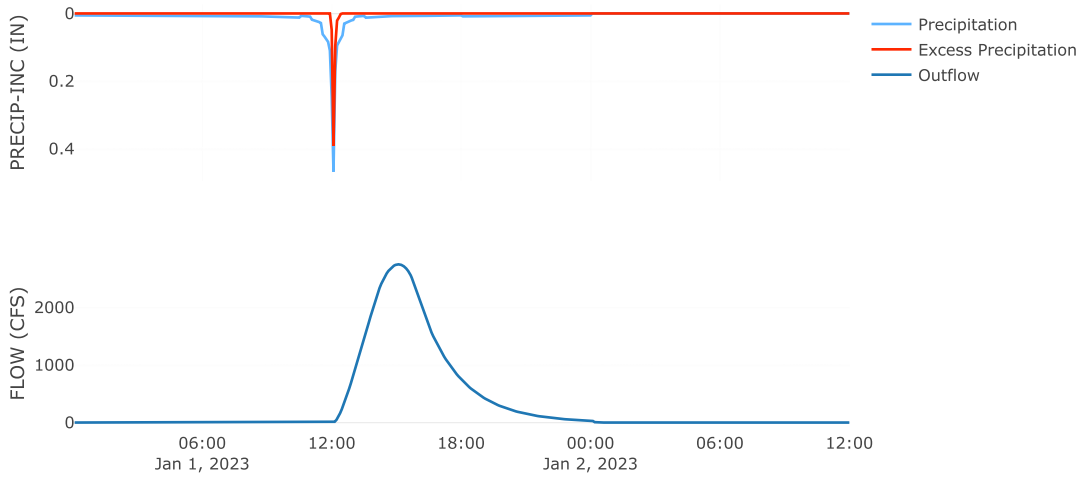
Transform: Clark

Clark Method	Specified
Time of Concentration	3.68
Storage Coefficient	1.88
Time Area Method	Default

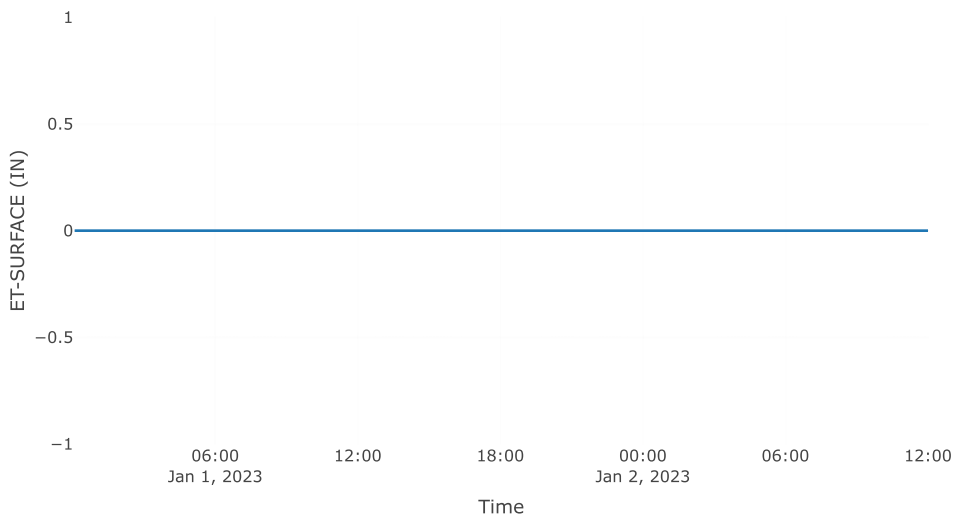
Results: H1

Peak Discharge (CFS)	2747.81
Time of Peak Discharge	01Jan2023, 15:05
Volume (IN)	0.57
Precipitation Volume (AC - FT)	6059.61
Loss Volume (AC - FT)	5155.49
Excess Volume (AC - FT)	904.12
Direct Runoff Volume (AC - FT)	904.12
Baseflow Volume (AC - FT)	0

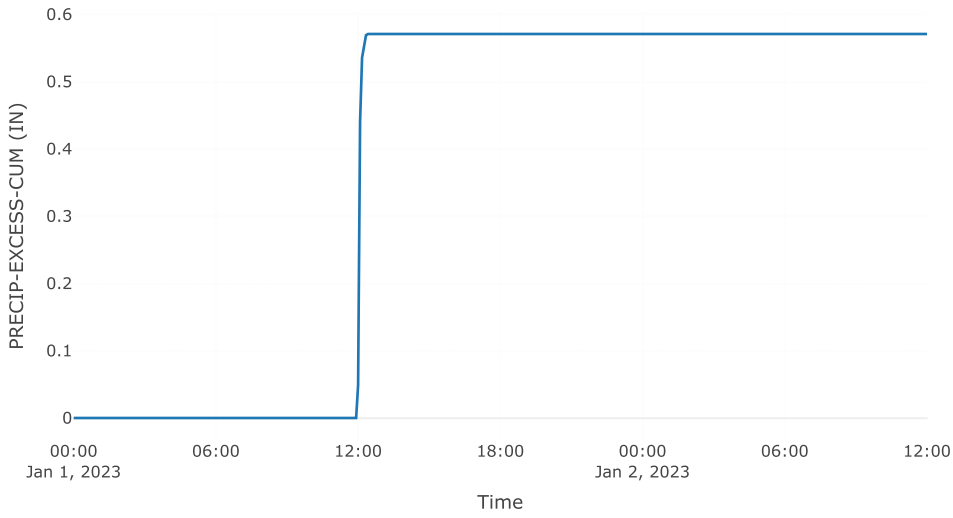
Precipitation and Outflow



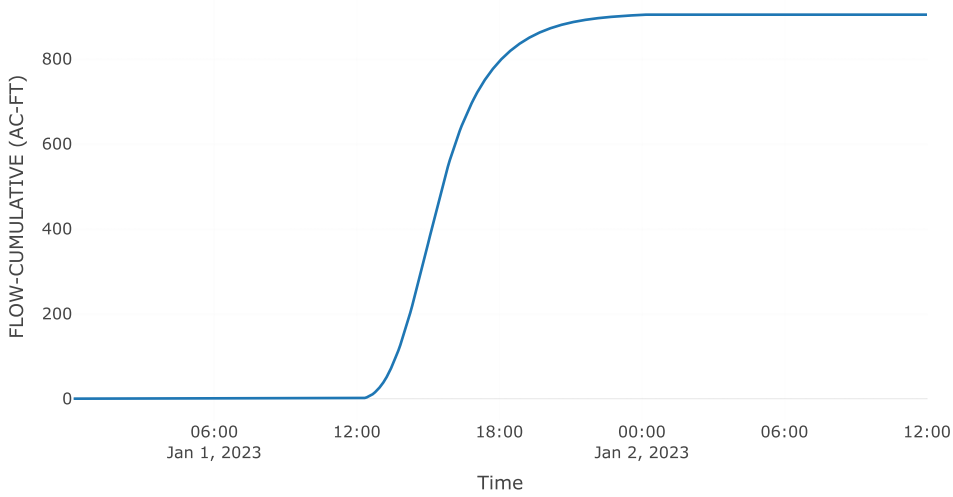
Surface Evapotranspiration



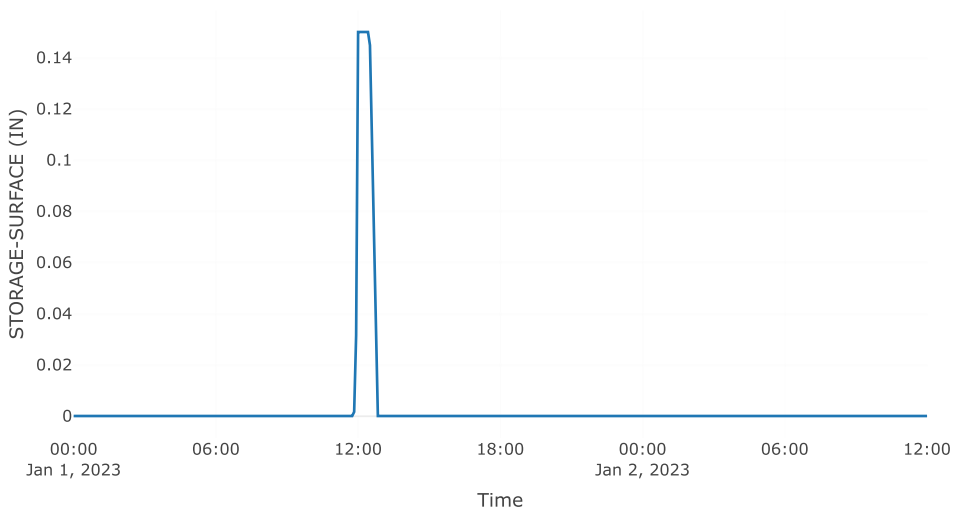
Cumulative Excess Precipitation



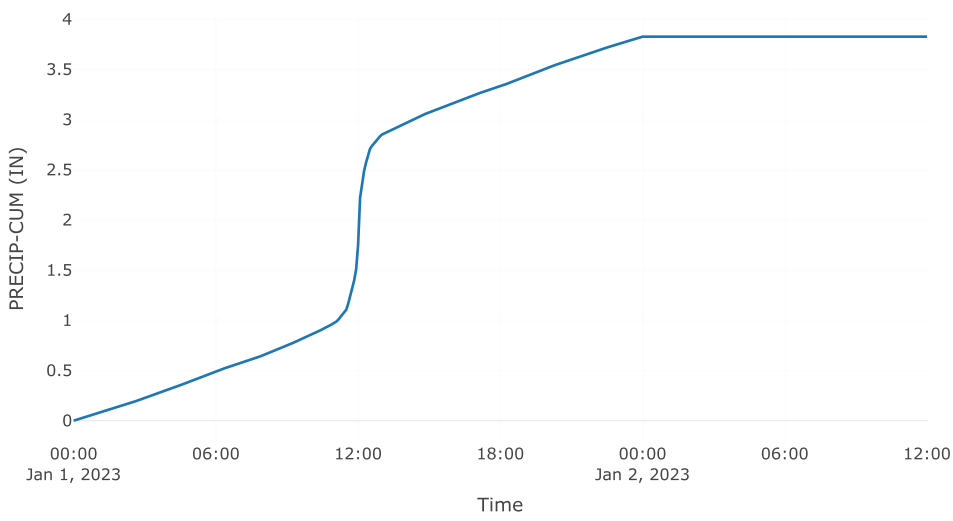
Cumulative Outflow



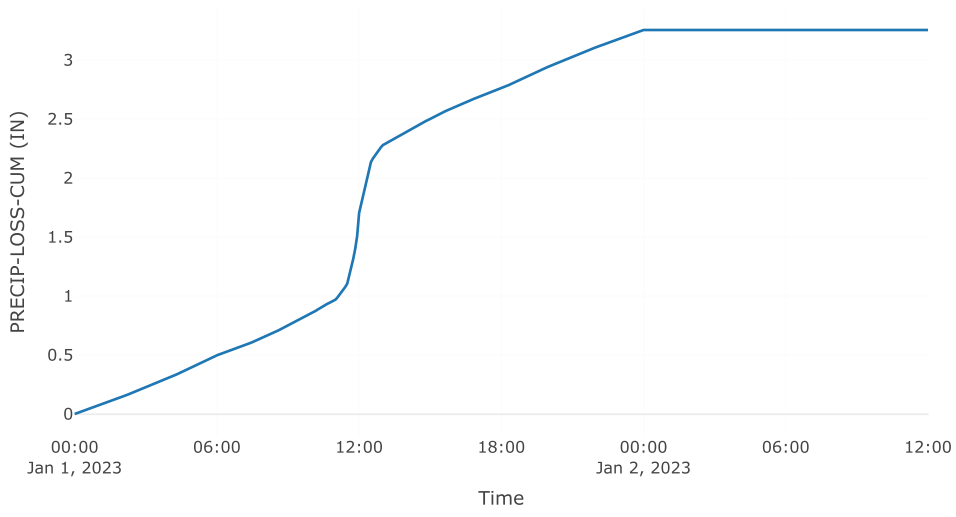
Surface Storage



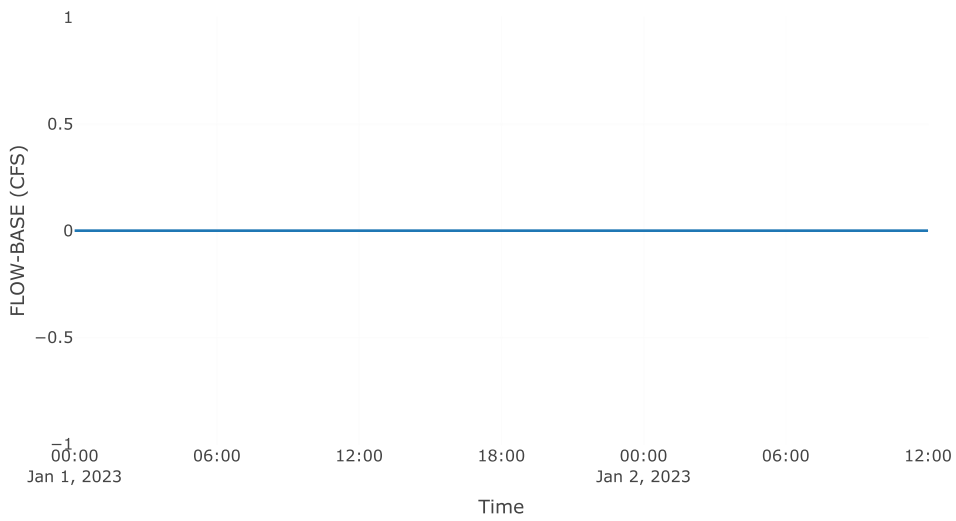
Cumulative Precipitation



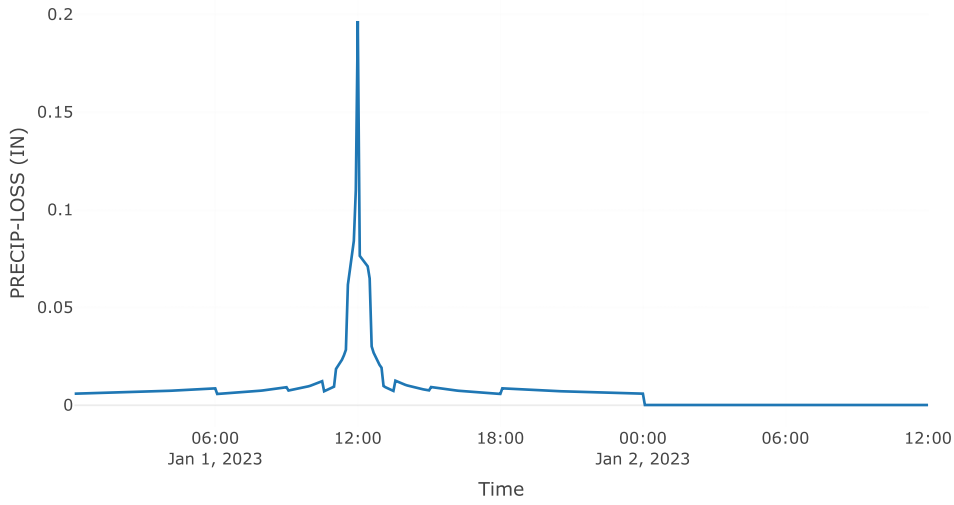
Cumulative Precipitation Loss



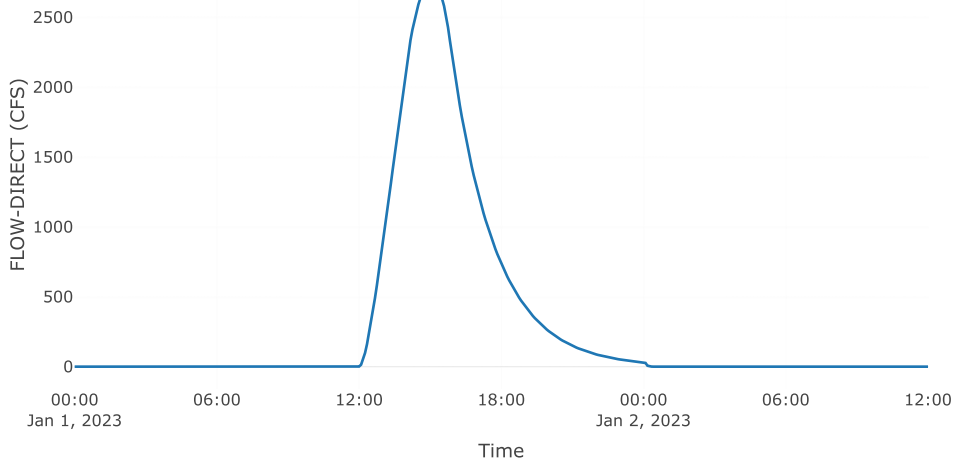
Baseflow



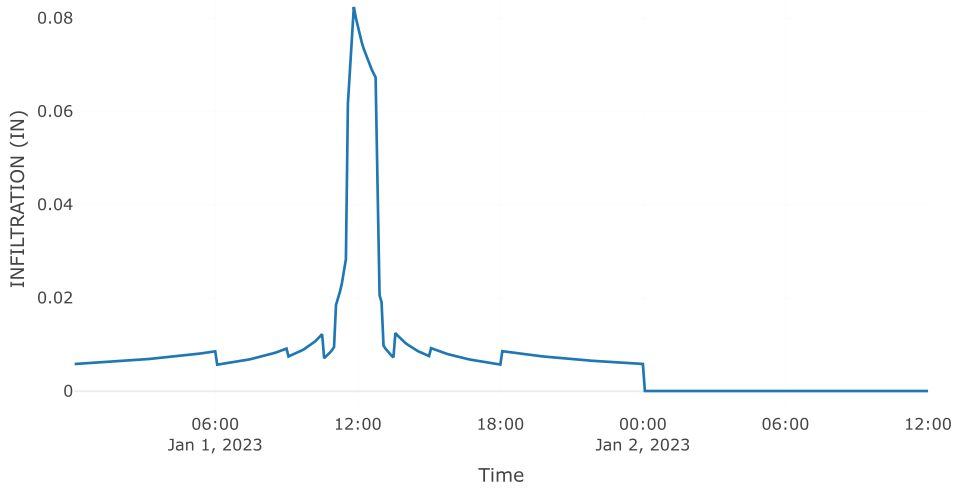
Precipitation Loss



Direct Runoff



Soil Infiltration



Subbasin: H7

Area (MI²) : 14.46

Latitude Degrees : 33.53

Longitude Degrees : -111.23

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.41
Wetting Front Suction	3.9
Hydraulic Conductivity	0.49

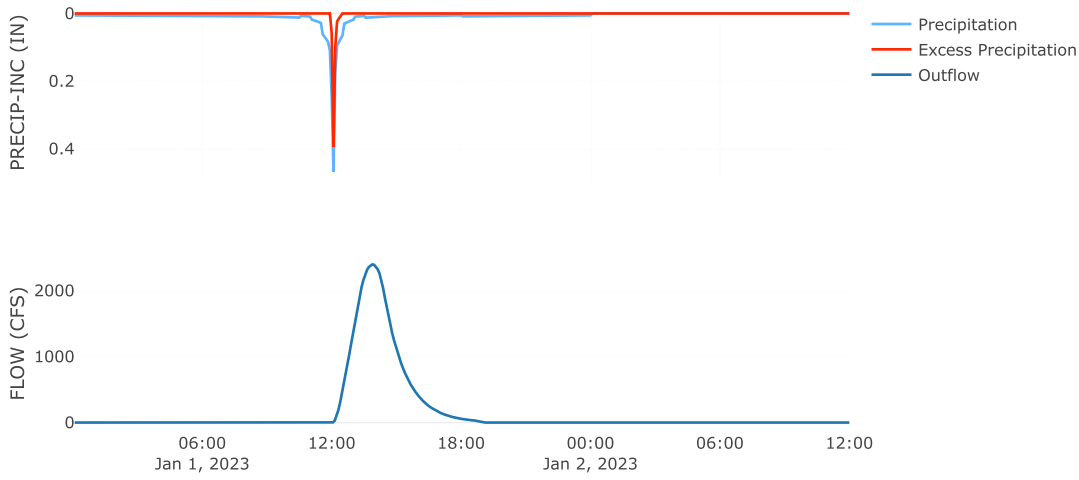
Transform: Clark

Clark Method	Specified
Time of Concentration	2.26
Storage Coefficient	1.01
Time Area Method	Default

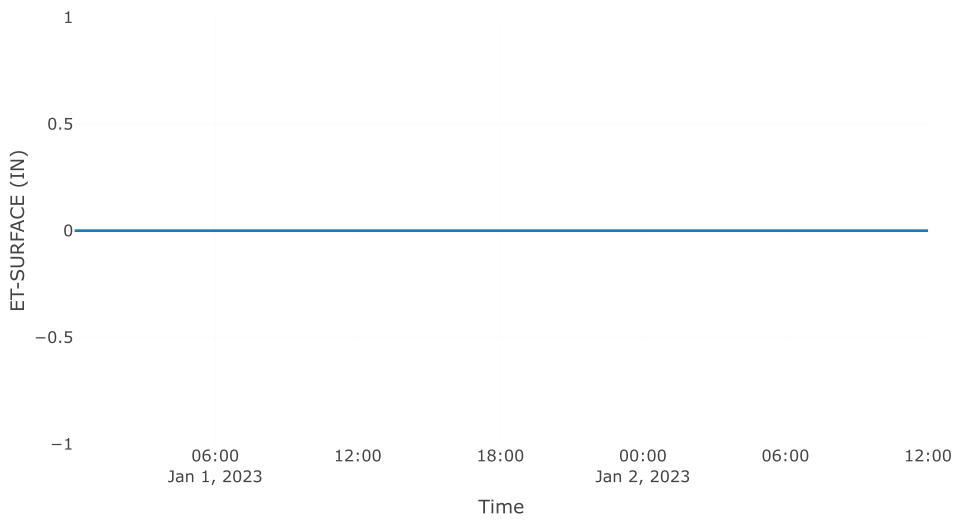
Results: H7

Peak Discharge (CFS)	2397.45
Time of Peak Discharge	01Jan2023, 13:50
Volume (IN)	0.59
Precipitation Volume (AC - FT)	2949.41
Loss Volume (AC - FT)	2490.85
Excess Volume (AC - FT)	458.56
Direct Runoff Volume (AC - FT)	458.56
Baseflow Volume (AC - FT)	0

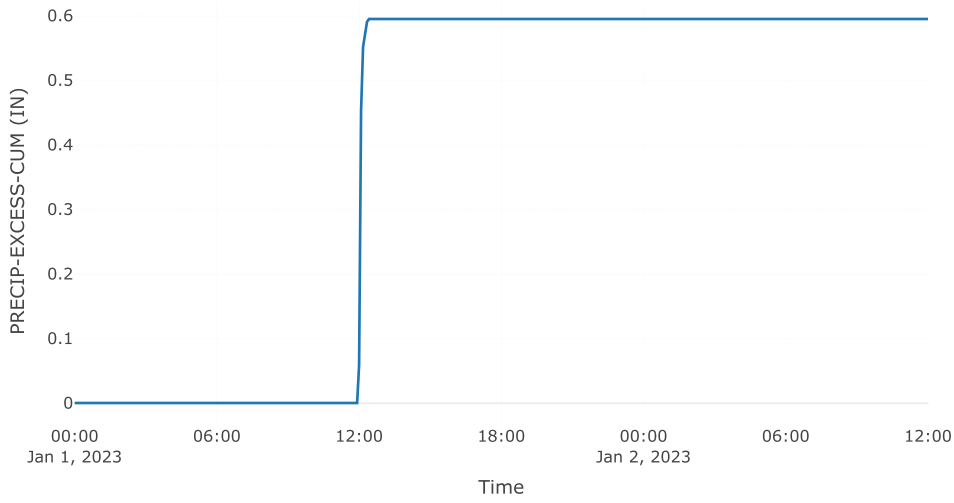
Precipitation and Outflow



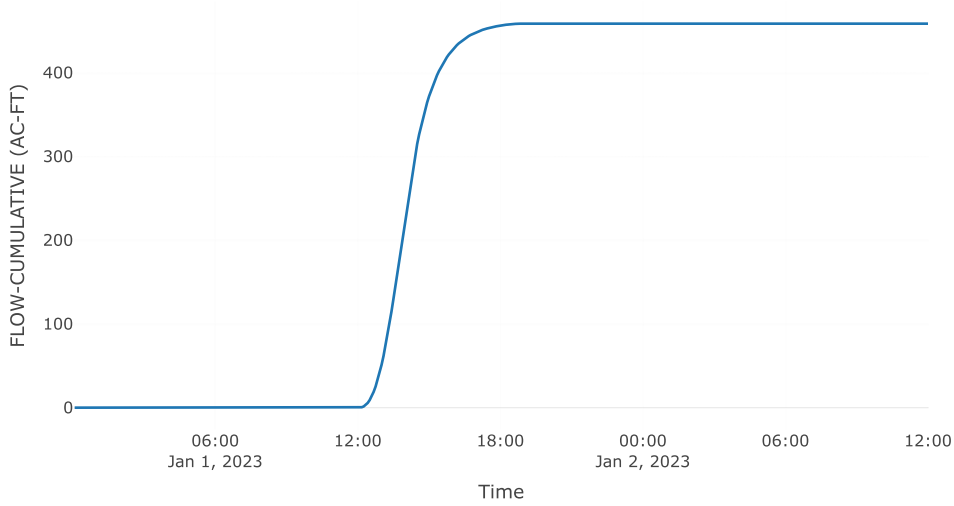
Surface Evapotranspiration



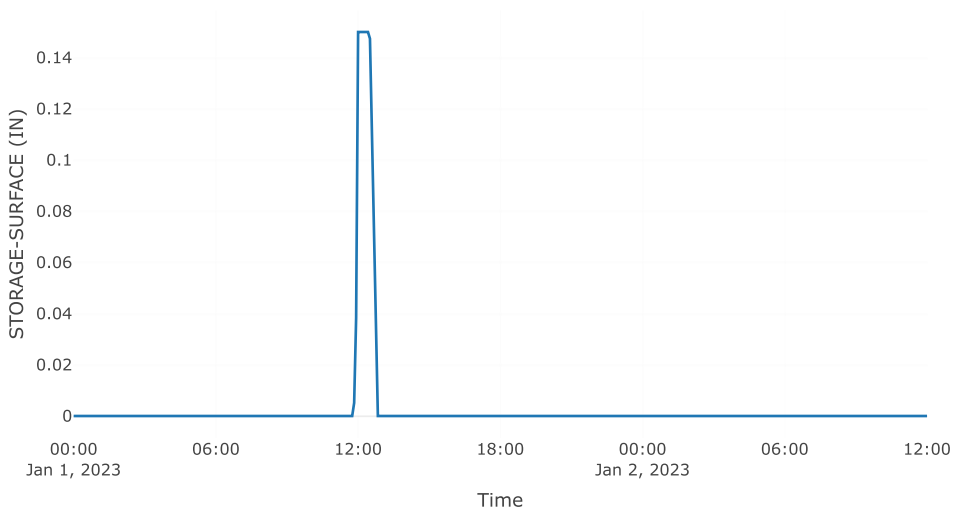
Cumulative Excess Precipitation



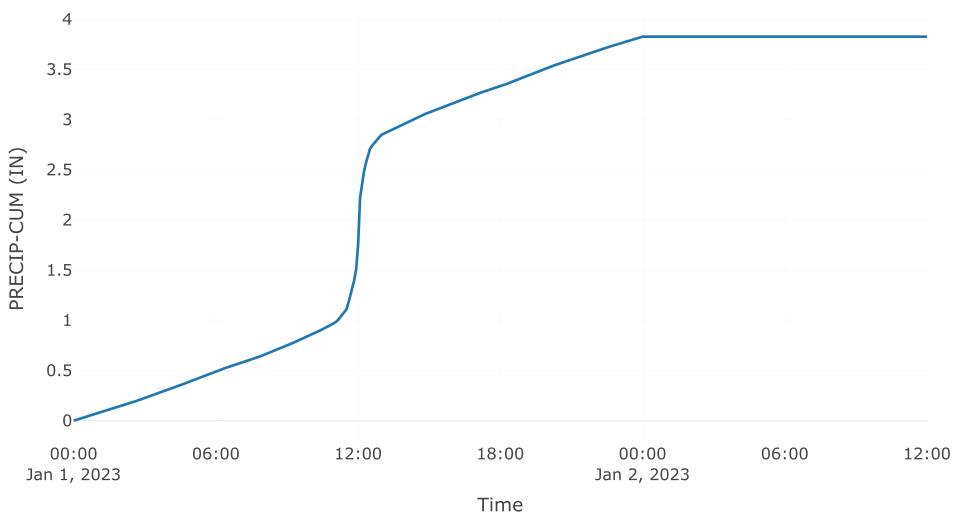
Cumulative Outflow



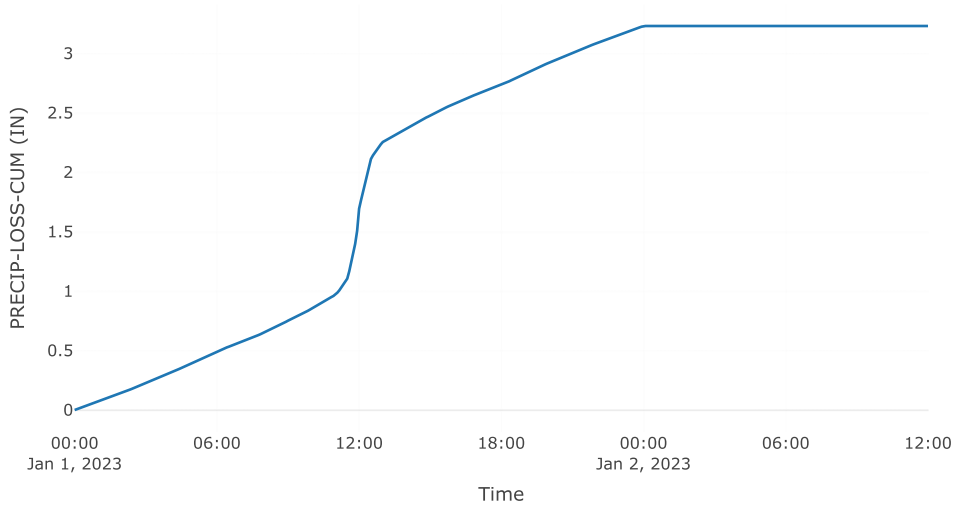
Surface Storage



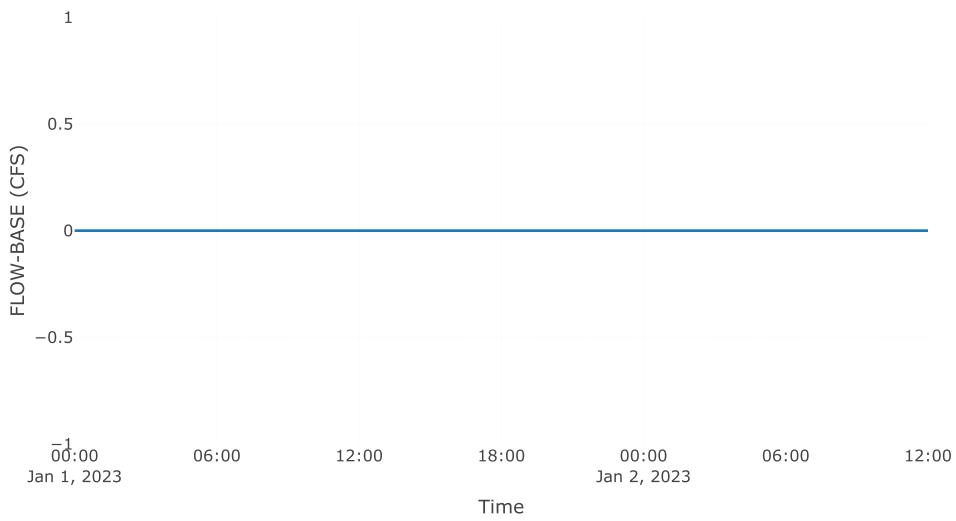
Cumulative Precipitation



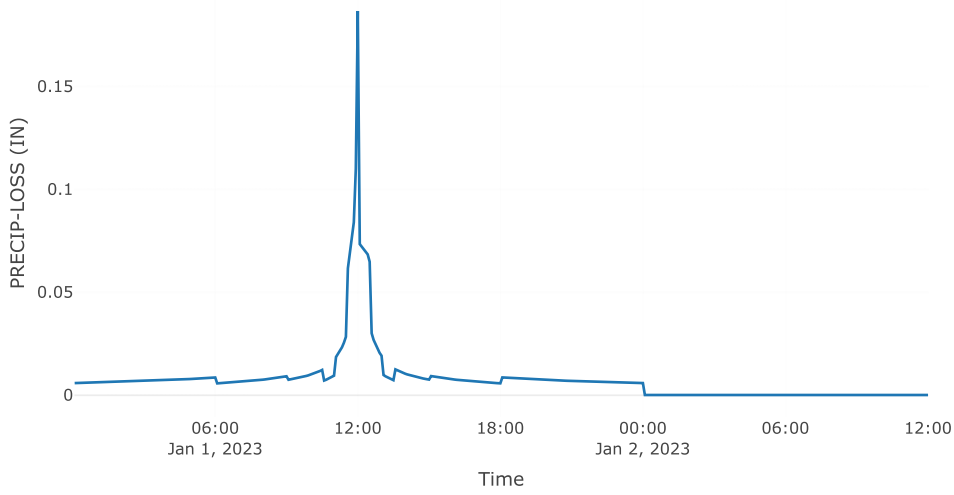
Cumulative Precipitation Loss



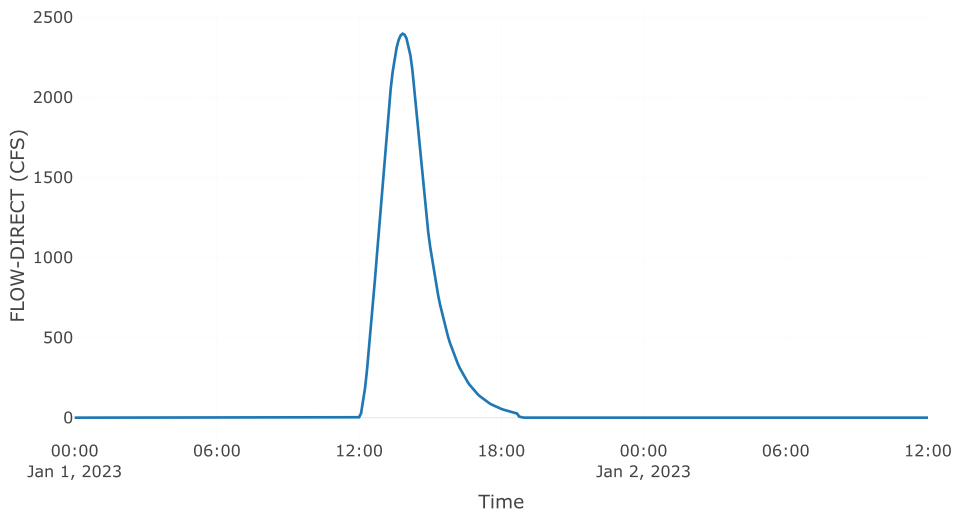
Baseflow



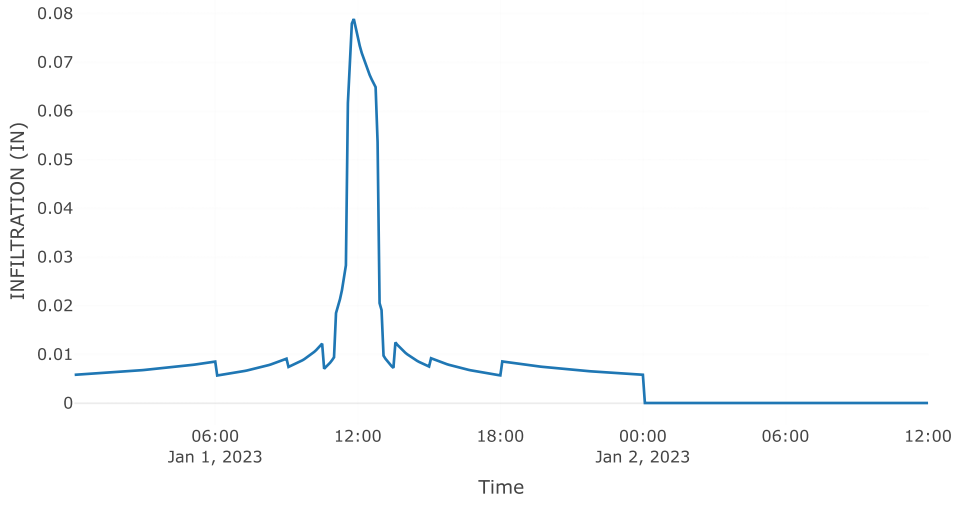
Precipitation Loss



Direct Runoff



Soil Infiltration



Subbasin: H3

Area (MI²) : 0.36

Latitude Degrees : 33.55

Longitude Degrees : -111.29

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.4
Wetting Front Suction	4.33
Hydraulic Conductivity	0.49

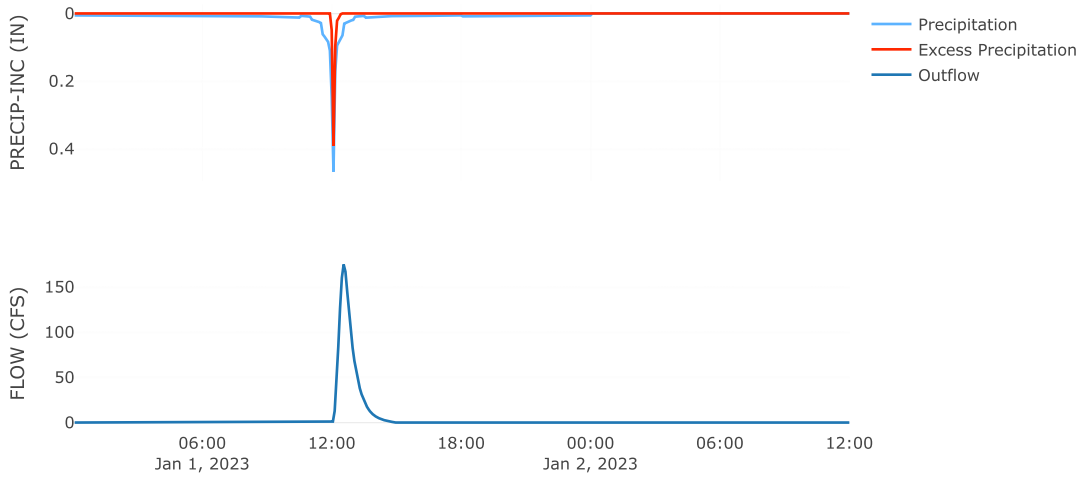
Transform: Clark

Clark Method	Specified
Time of Concentration	0.52
Storage Coefficient	0.43
Time Area Method	Default

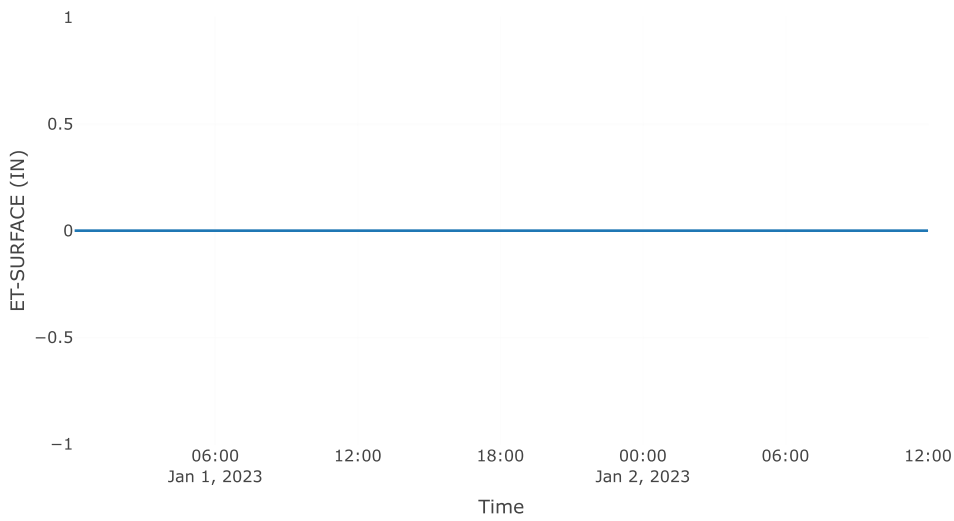
Results: H3

Peak Discharge (CFS)	174.86
Time of Peak Discharge	01Jan2023, 12:30
Volume (IN)	0.57
Precipitation Volume (AC - FT)	73.23
Loss Volume (AC - FT)	62.26
Excess Volume (AC - FT)	10.98
Direct Runoff Volume (AC - FT)	10.98
Baseflow Volume (AC - FT)	0

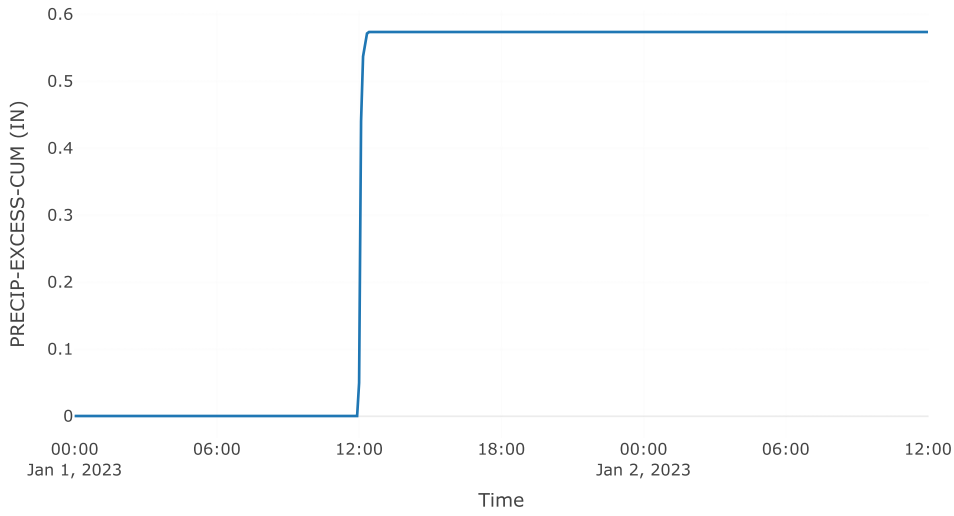
Precipitation and Outflow



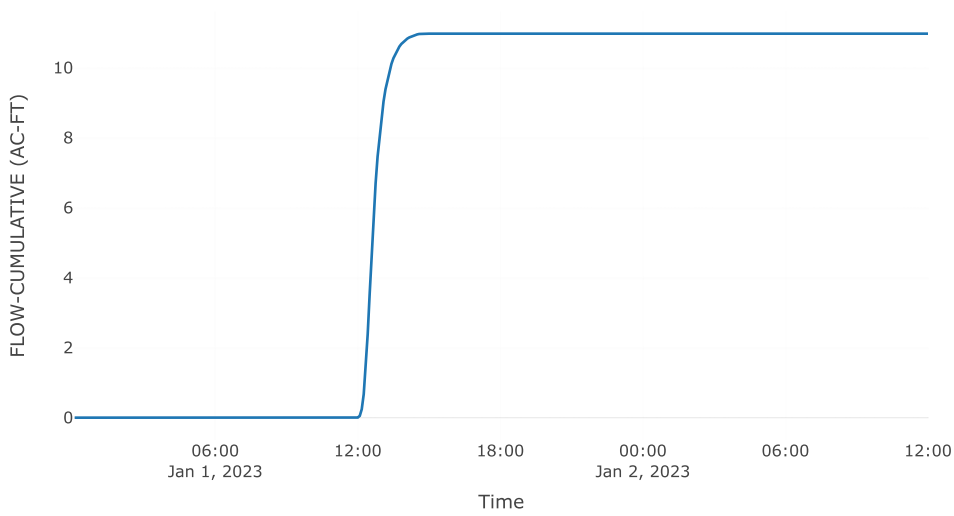
Surface Evapotranspiration



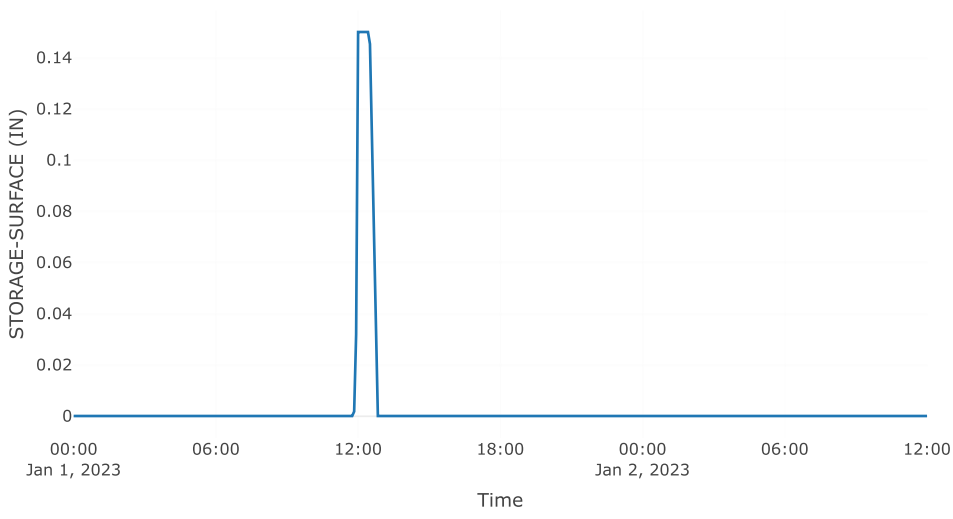
Cumulative Excess Precipitation



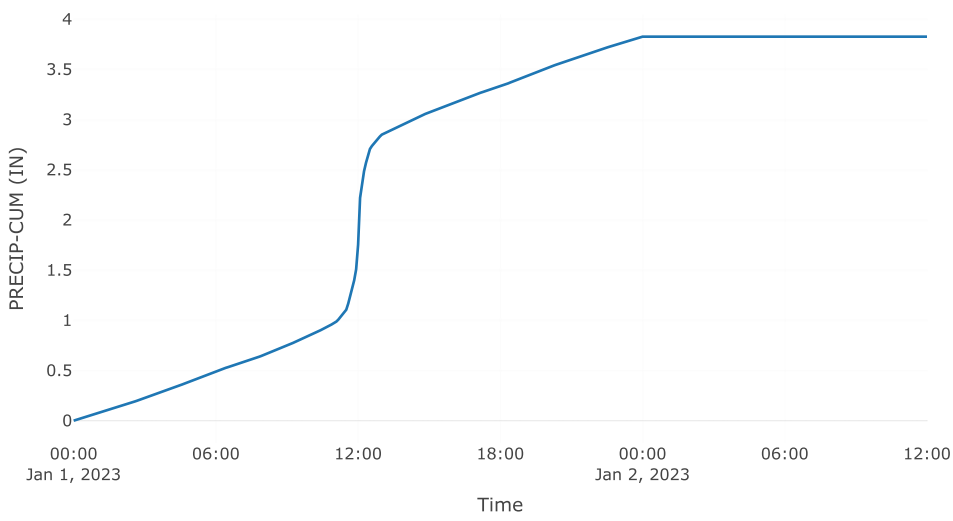
Cumulative Outflow (AC-FT)



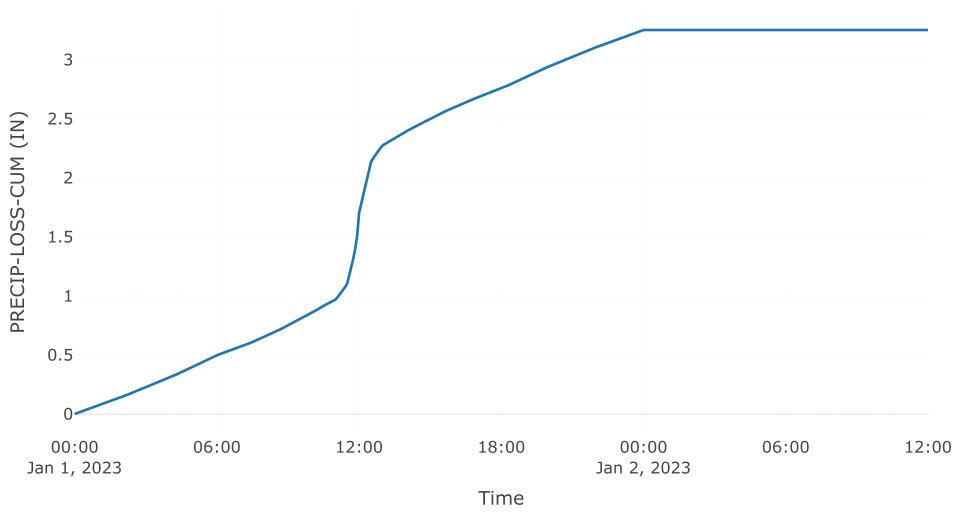
Surface Storage



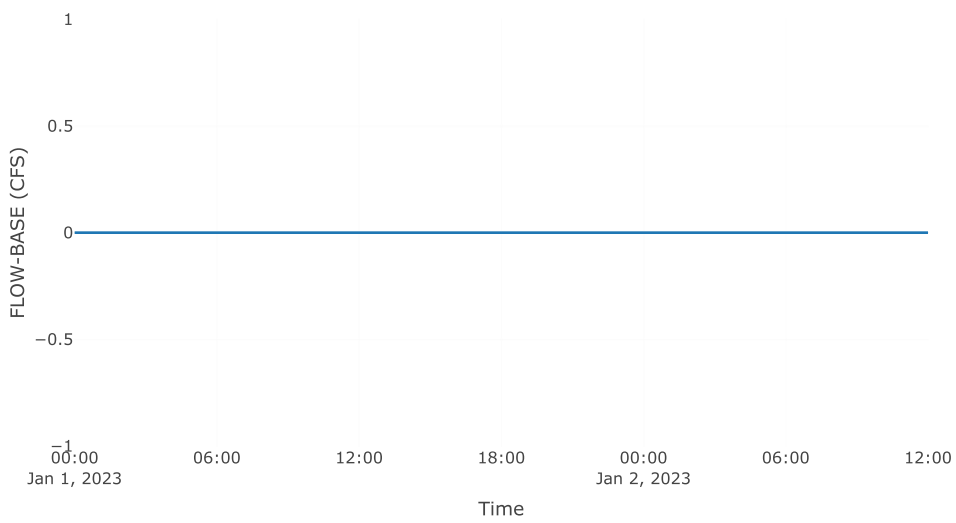
Cumulative Precipitation



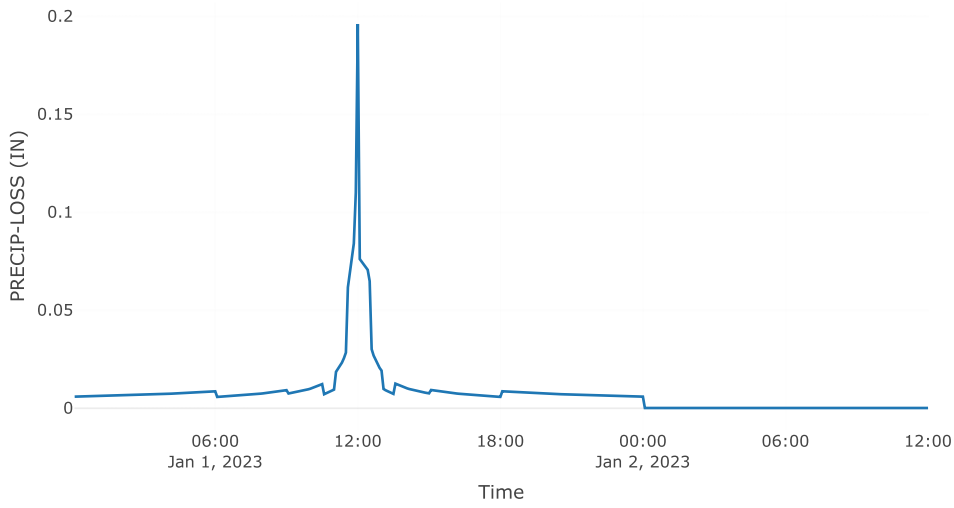
Cumulative Precipitation Loss



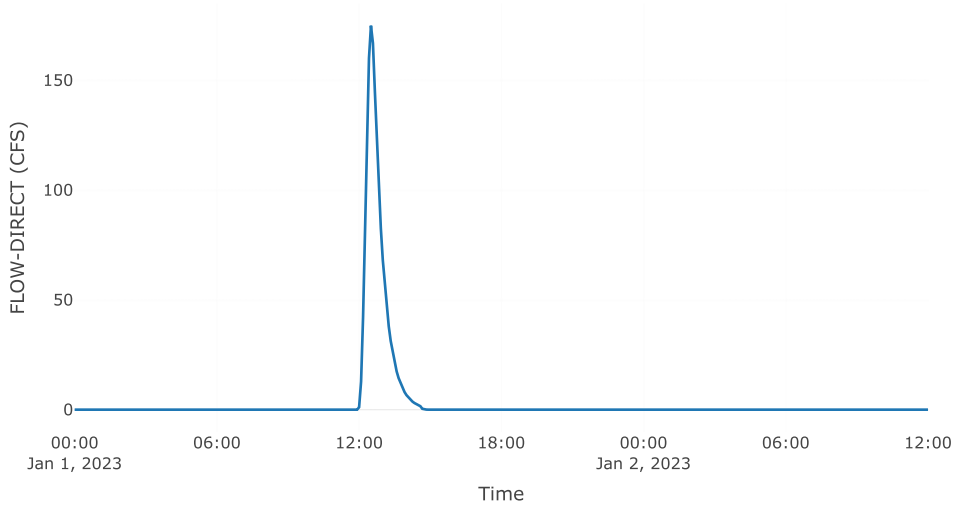
Baseflow



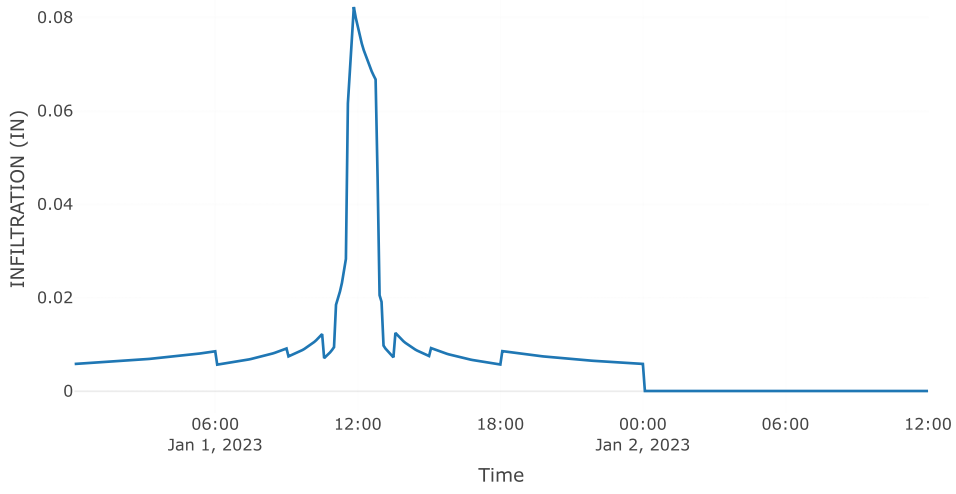
Precipitation Loss



Direct Runoff



Soil Infiltration



Reach: H3 Reach

Downstream : Junction - 1

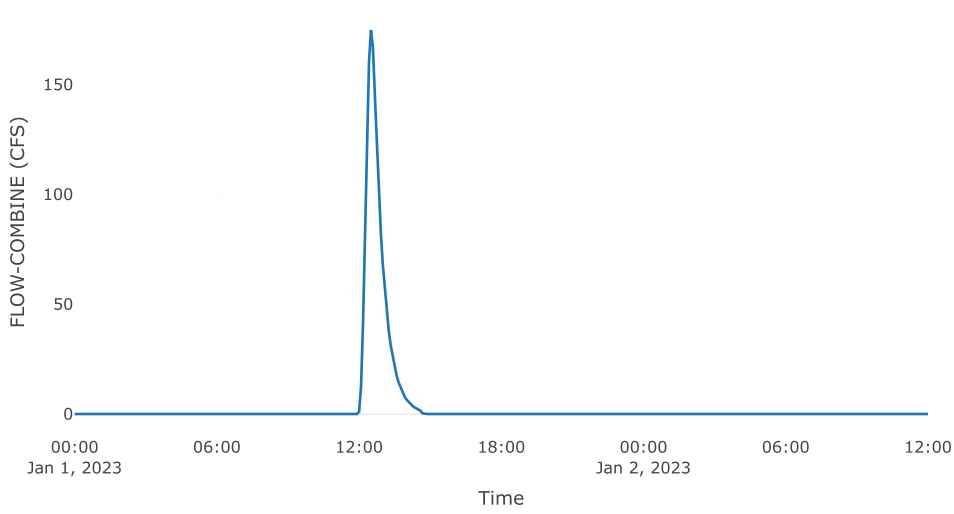
Route: Muskingum Cunge

Method	Muskingum Cunge
Channel	Trapezoid
Length (FT)	1952
Energy Slope (FT/FT)	0.04
Mannings n	0.04
Bottom Width (FT)	30
Side Slope (FT/FT)	3
Initial Variable	Combined Inflow
Space - Time Method	Automatic DX and DT
Index Parameter Type	Index Flow
Index Flow	87
Maximum Depth Iterations	20
Maximum Route Step Iterations	30

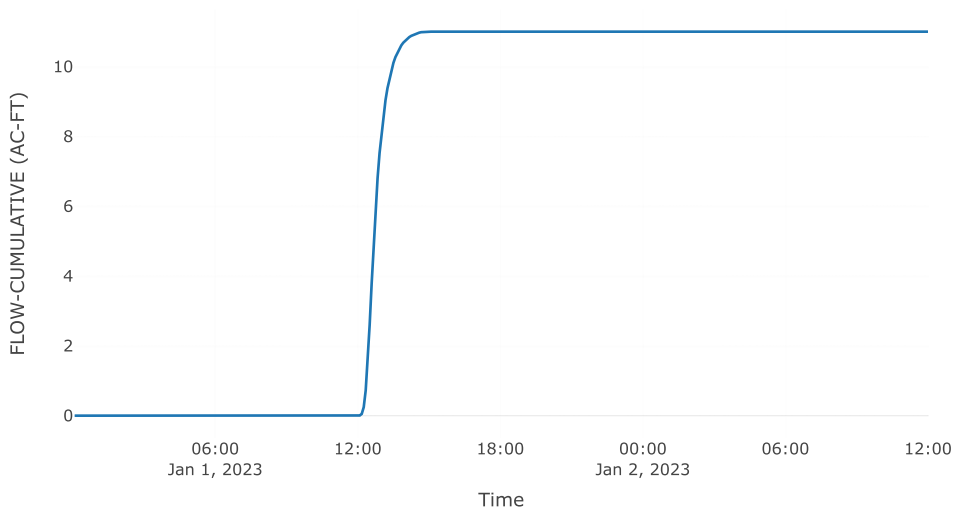
Results: H3 Reach

Peak Discharge (CFS)	174.37
Time of Peak Discharge	01Jan2023, 12:35
Volume (IN)	0.57
Peak Inflow (CFS)	174.86
Inflow Volume (AC - FT)	10.98

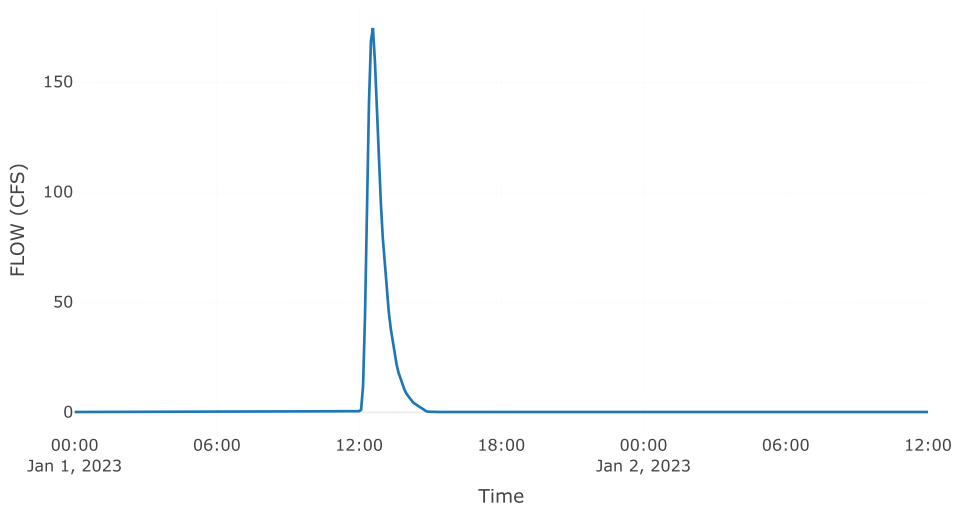
Combined Inflow



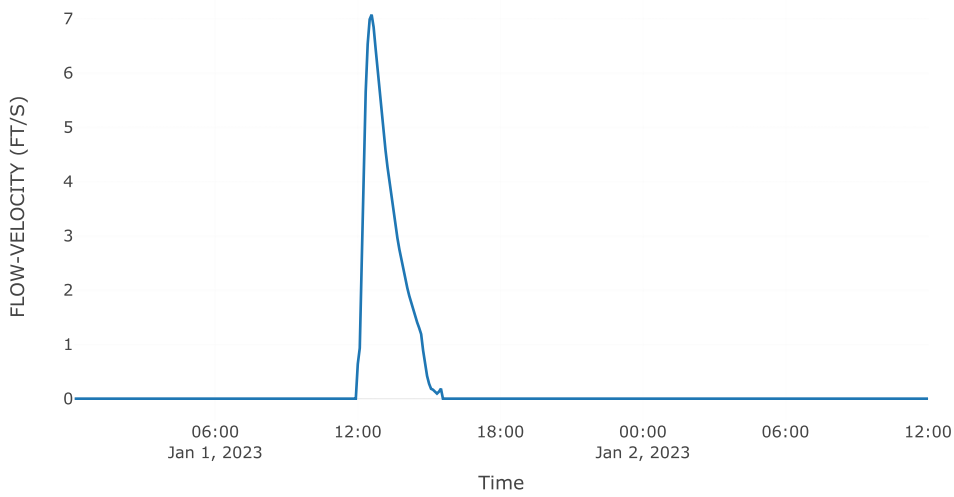
Cumulative Outflow



Outflow



Flow Velocity



Subbasin: H4

Area (MI²) : 0.35

Latitude Degrees : 33.55

Longitude Degrees : -111.29

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.41
Wetting Front Suction	3.96
Hydraulic Conductivity	0.58

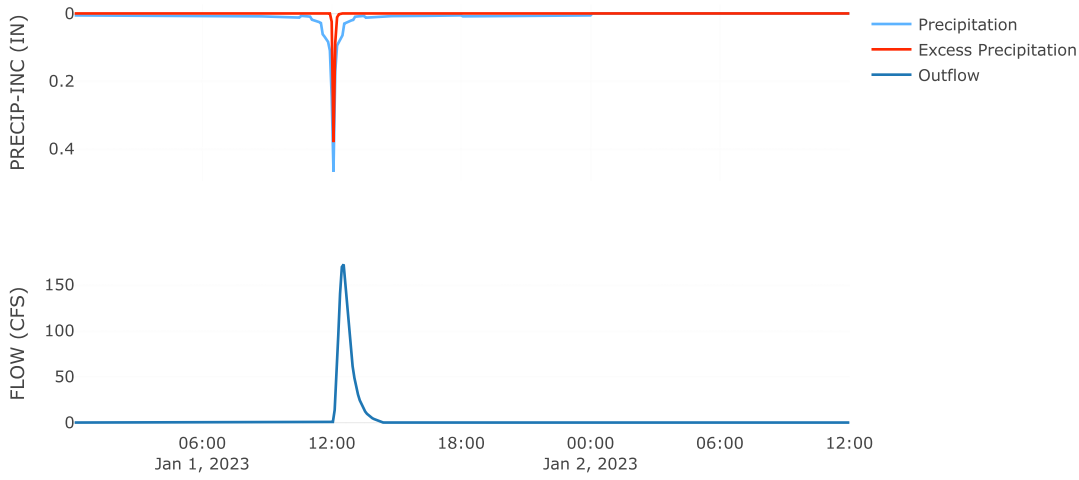
Transform: Clark

Clark Method	Specified
Time of Concentration	0.48
Storage Coefficient	0.36
Time Area Method	Default

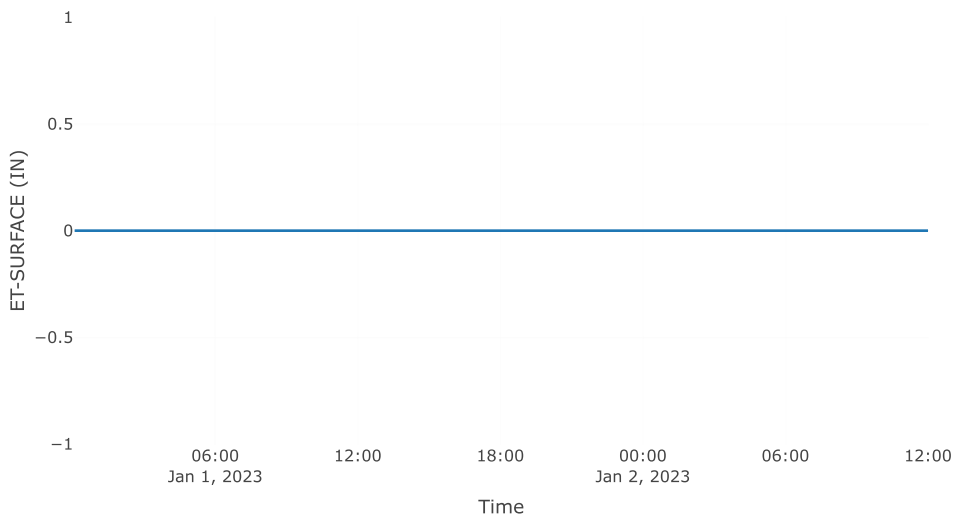
Results: H4

Peak Discharge (CFS)	172.02
Time of Peak Discharge	01Jan2023, 12:30
Volume (IN)	0.5
Precipitation Volume (AC - FT)	71.88
Loss Volume (AC - FT)	62.42
Excess Volume (AC - FT)	9.47
Direct Runoff Volume (AC - FT)	9.47
Baseflow Volume (AC - FT)	0

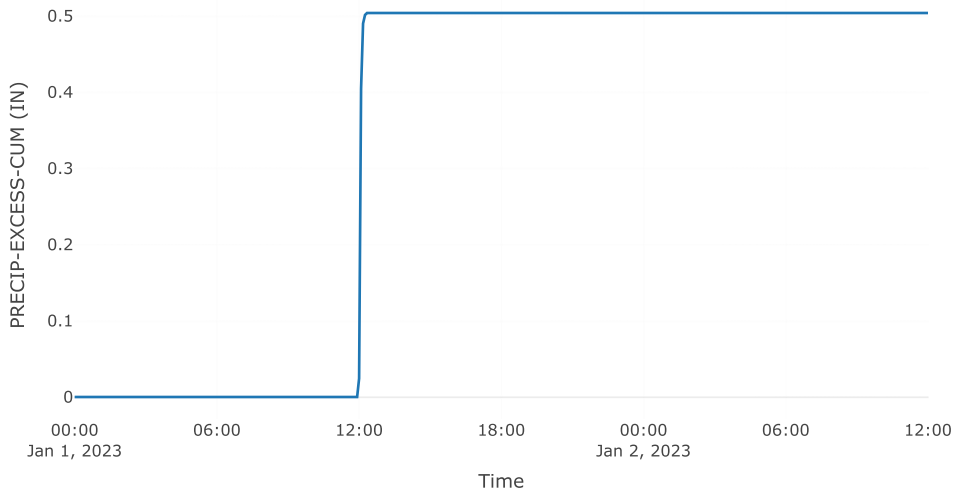
Precipitation and Outflow



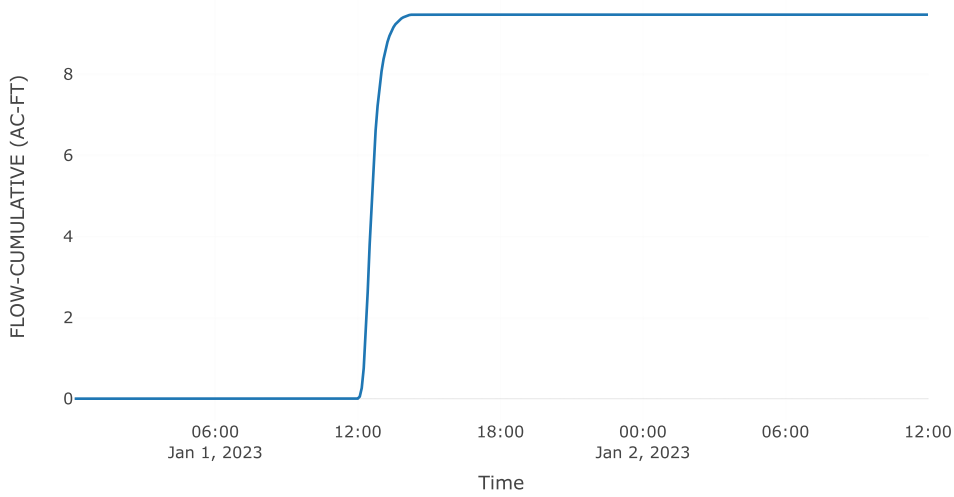
Surface Evapotranspiration



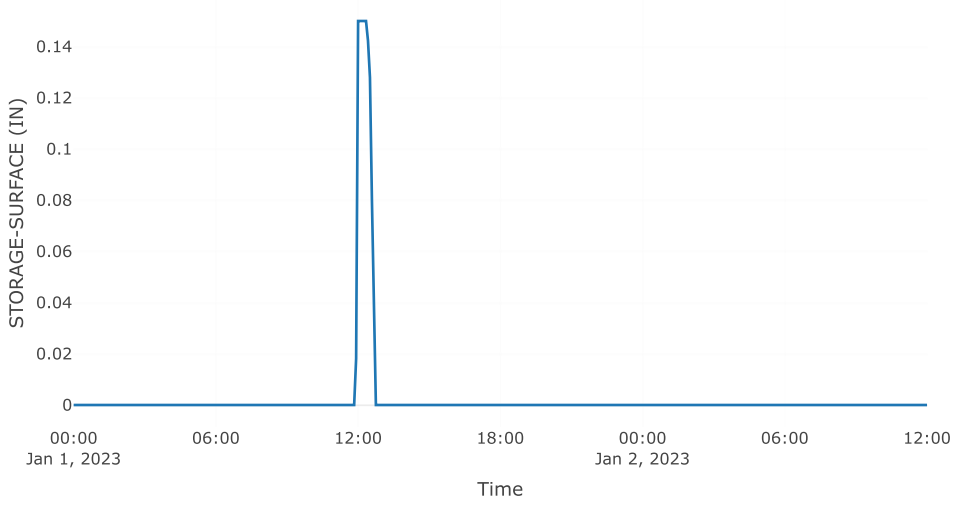
Cumulative Excess Precipitation



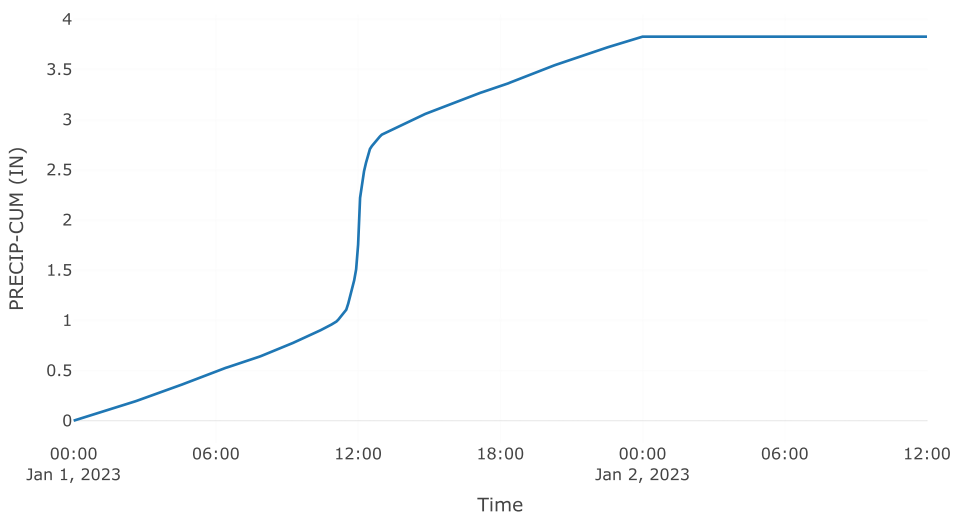
Cumulative Outflow



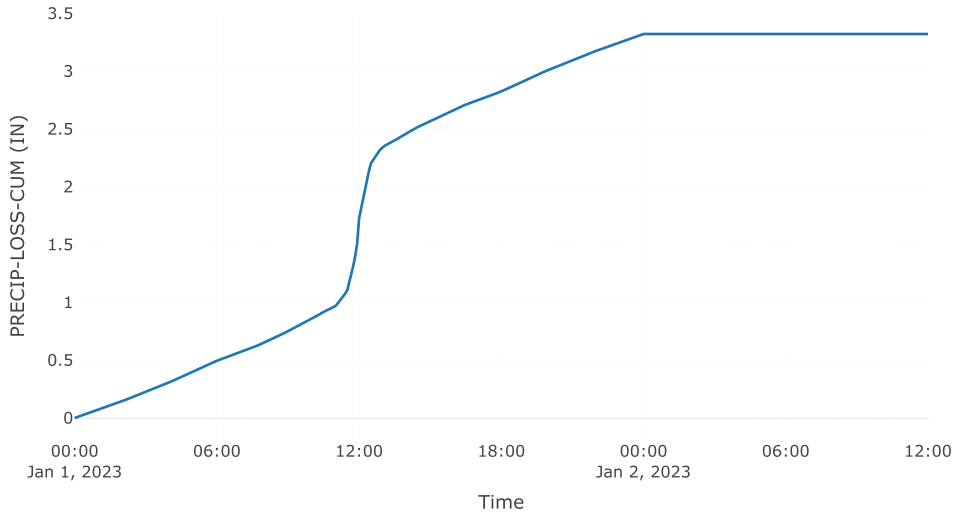
Surface Storage



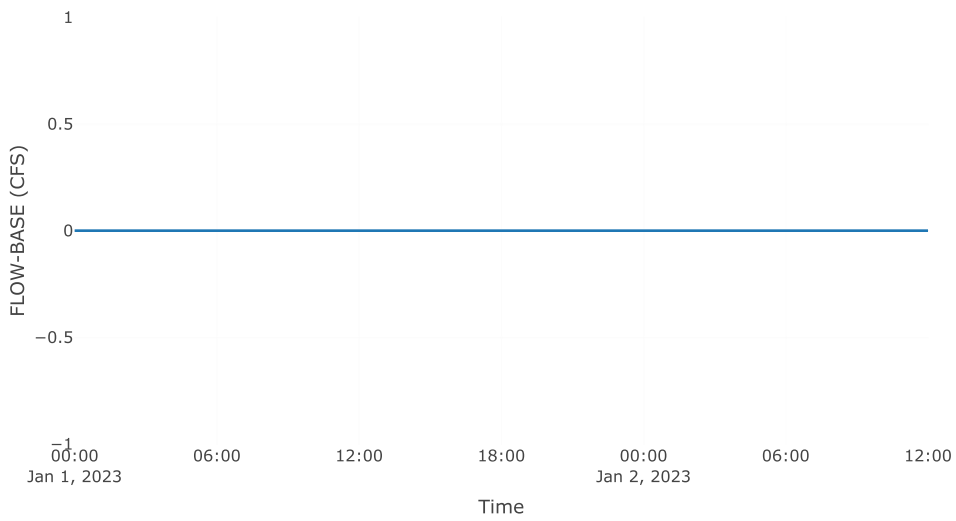
Cumulative Precipitation



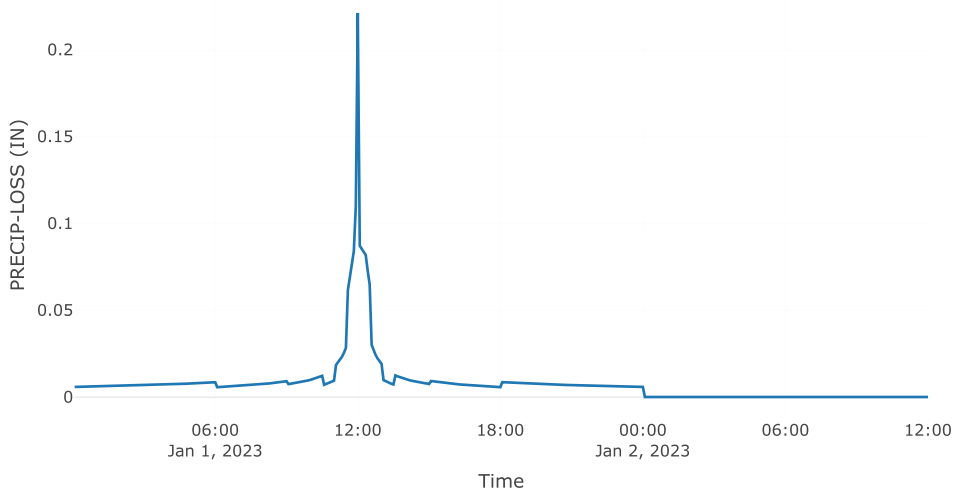
Cumulative Precipitation Loss



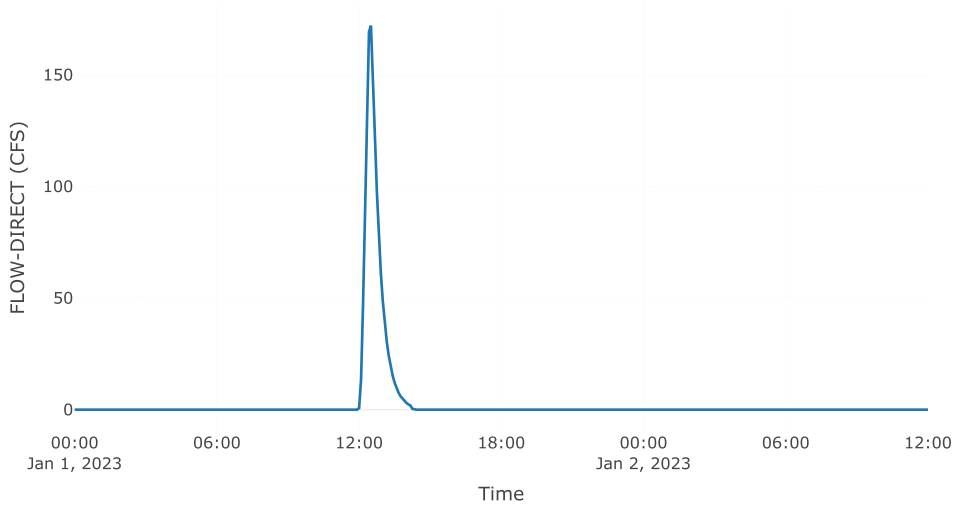
Baseflow



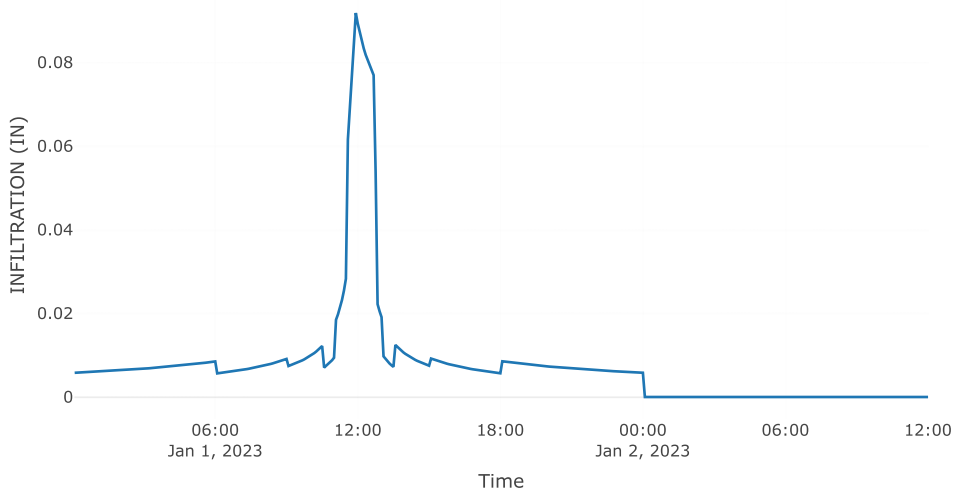
Precipitation Loss



Direct Runoff



Soil Infiltration



Reach: H4 Reach

Downstream : Junction - 1

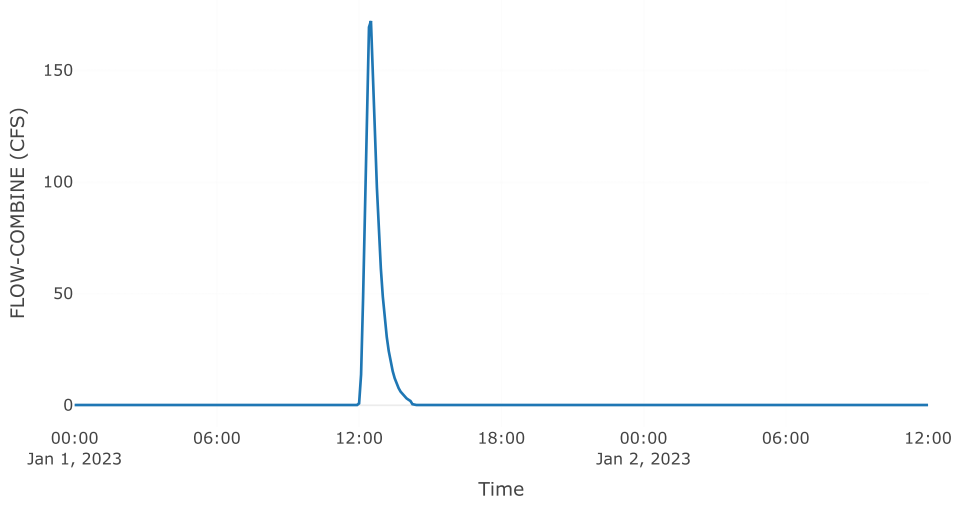
Route: Muskingum Cunge

Method	Muskingum Cunge
Channel	Trapezoid
Length (FT)	3490
Energy Slope (FT/FT)	0.03
Mannings n	0.04
Bottom Width (FT)	30
Side Slope (FT/FT)	3
Initial Variable	Combined Inflow
Space - Time Method	Automatic DX and DT
Index Parameter Type	Index Flow
Index Flow	86
Maximum Depth Iterations	20
Maximum Route Step Iterations	30

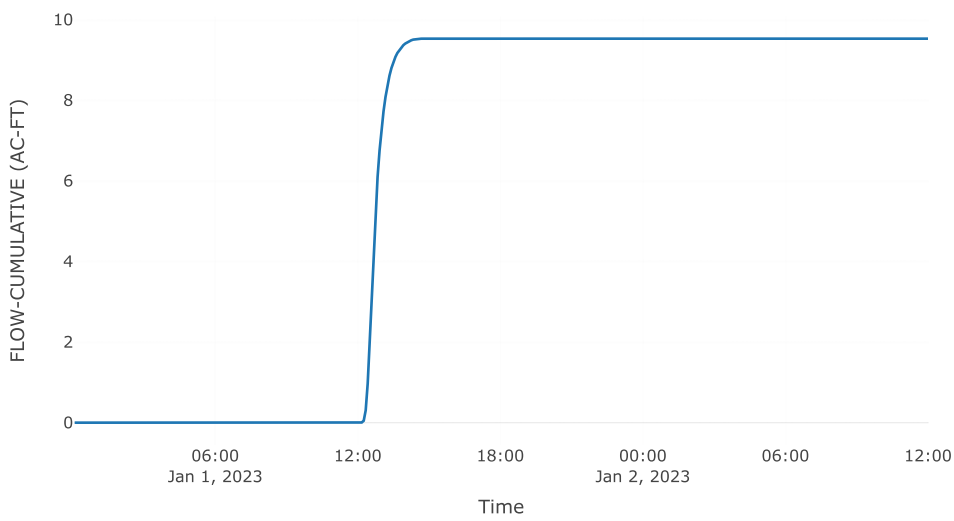
Results: H4 Reach

Peak Discharge (CFS)	173.84
Time of Peak Discharge	01Jan2023, 12:35
Volume (IN)	0.51
Peak Inflow (CFS)	172.02
Inflow Volume (AC - FT)	9.47

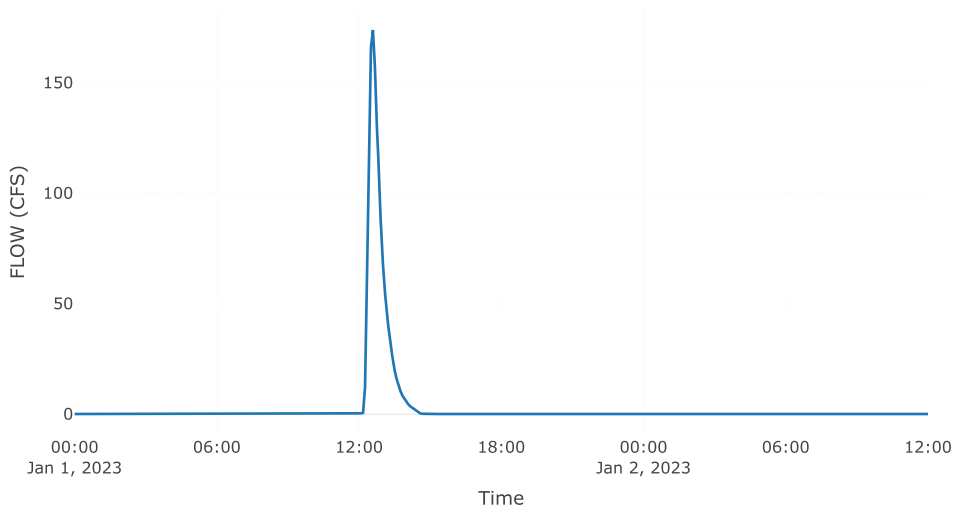
Combined Inflow



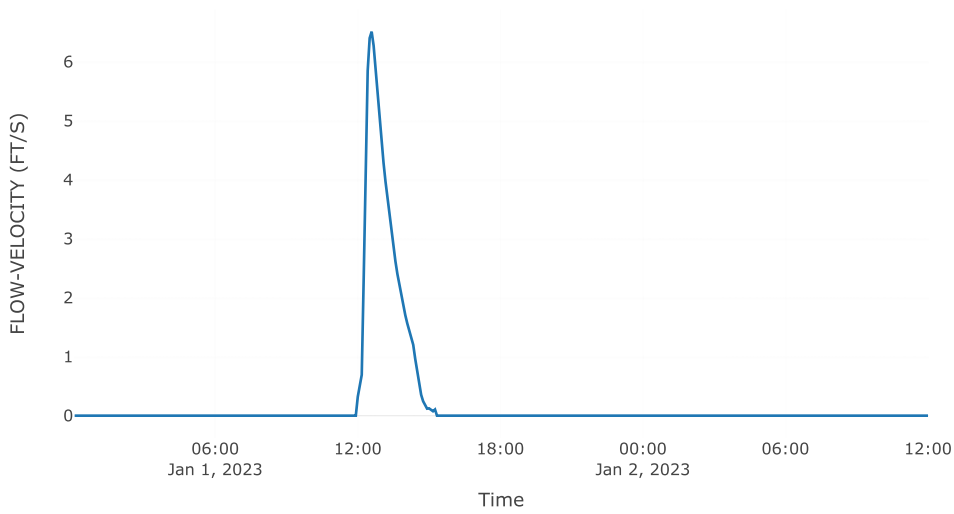
Cumulative Outflow



Outflow



Flow Velocity



Subbasin: H6

Area (MI²) : 0.36

Latitude Degrees : 33.55

Longitude Degrees : -111.27

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.09
Saturated Content	0.41
Wetting Front Suction	4.25
Hydraulic Conductivity	0.49

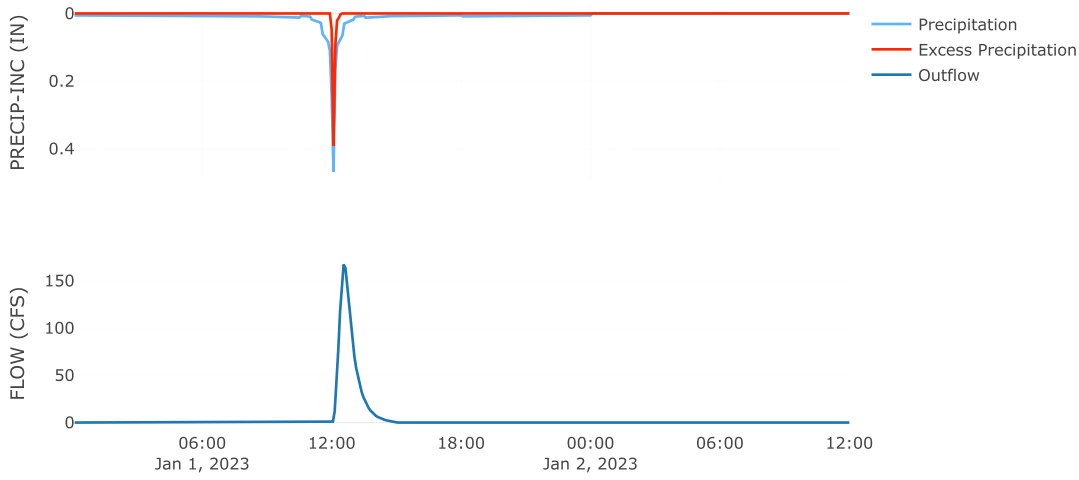
Transform: Clark

Clark Method	Specified
Time of Concentration	0.54
Storage Coefficient	0.44
Time Area Method	Default

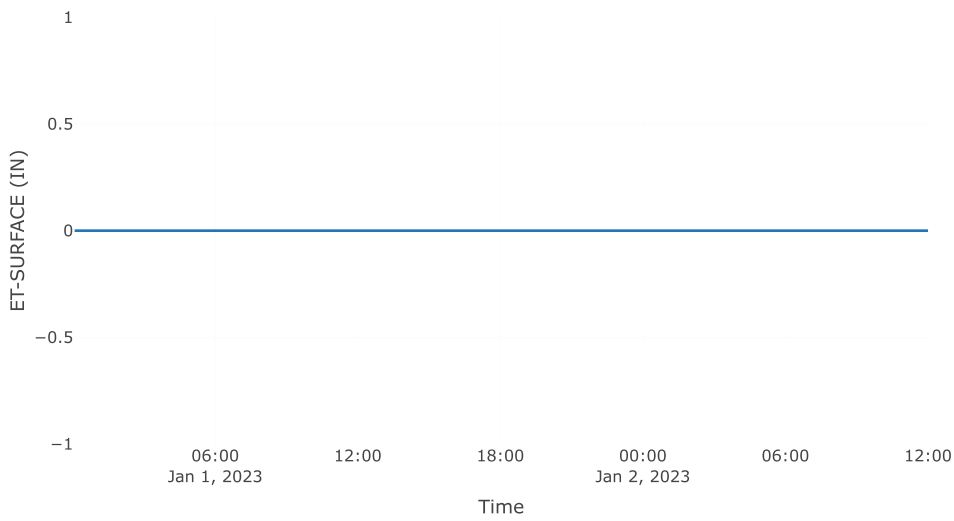
Results: H6

Peak Discharge (CFS)	167.28
Time of Peak Discharge	01Jan2023, 12:30
Volume (IN)	0.57
Precipitation Volume (AC - FT)	72.66
Loss Volume (AC - FT)	61.82
Excess Volume (AC - FT)	10.84
Direct Runoff Volume (AC - FT)	10.84
Baseflow Volume (AC - FT)	0

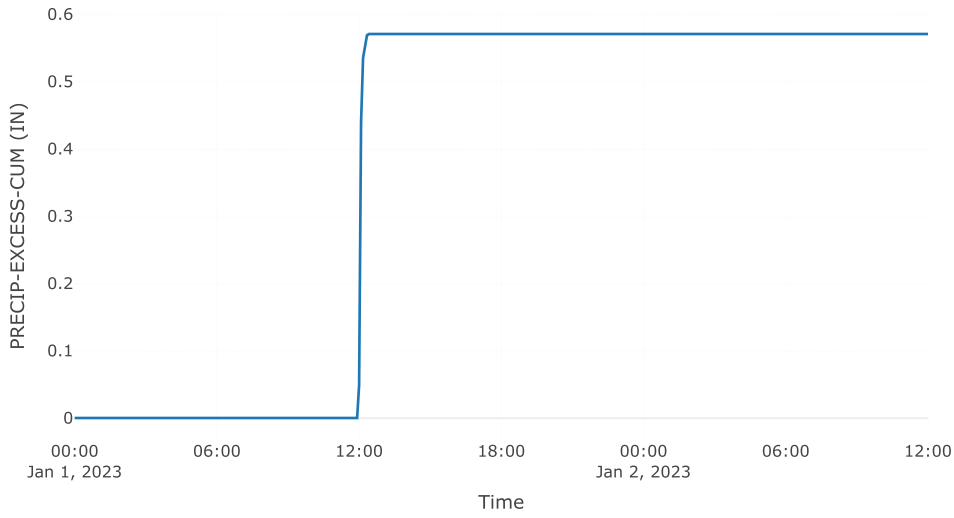
Precipitation and Outflow



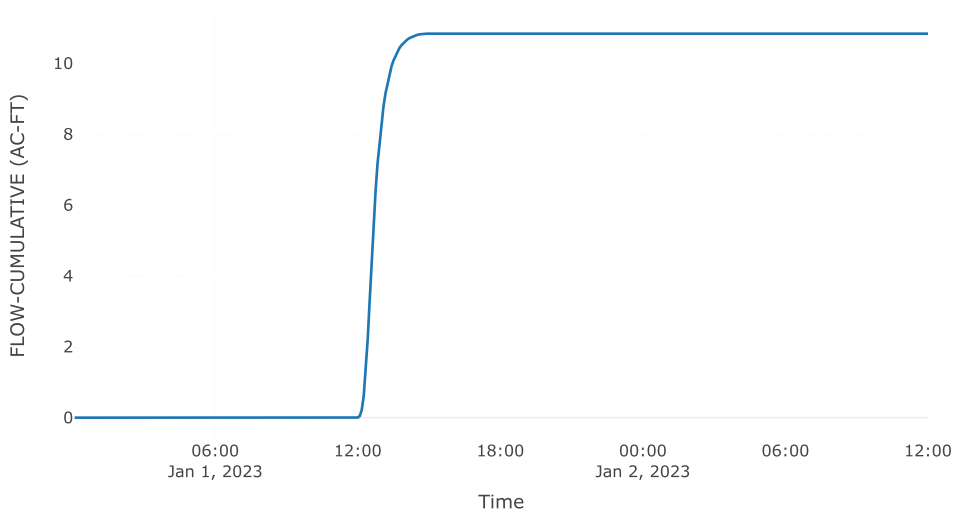
Surface Evapotranspiration



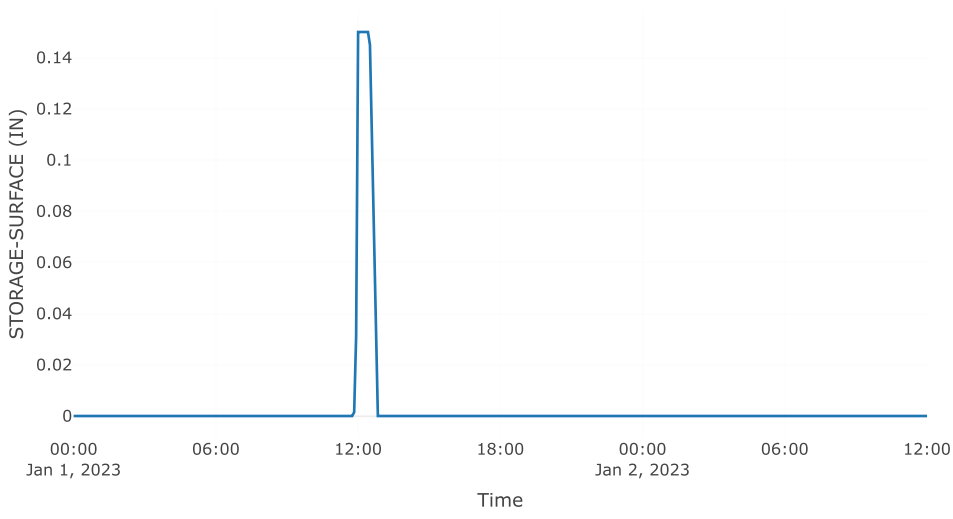
Cumulative Excess Precipitation



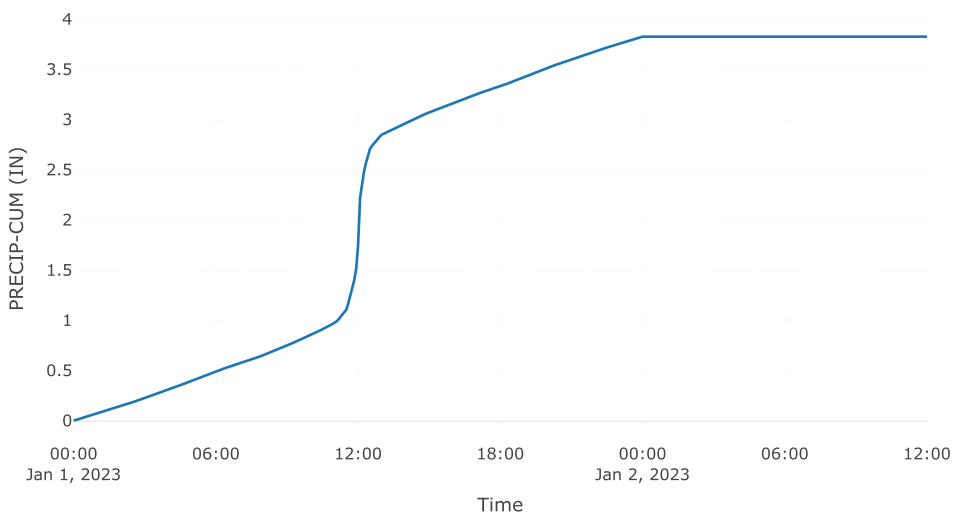
Cumulative Outflow



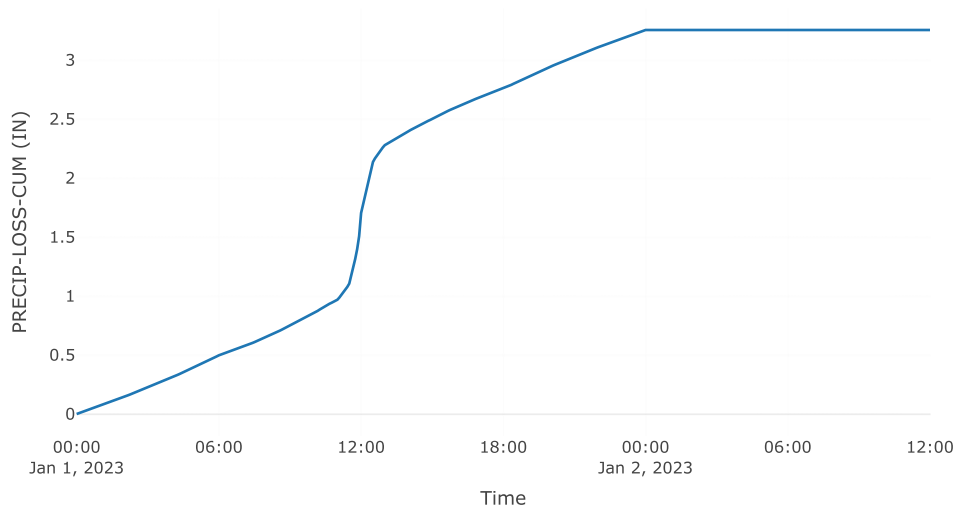
Surface Storage



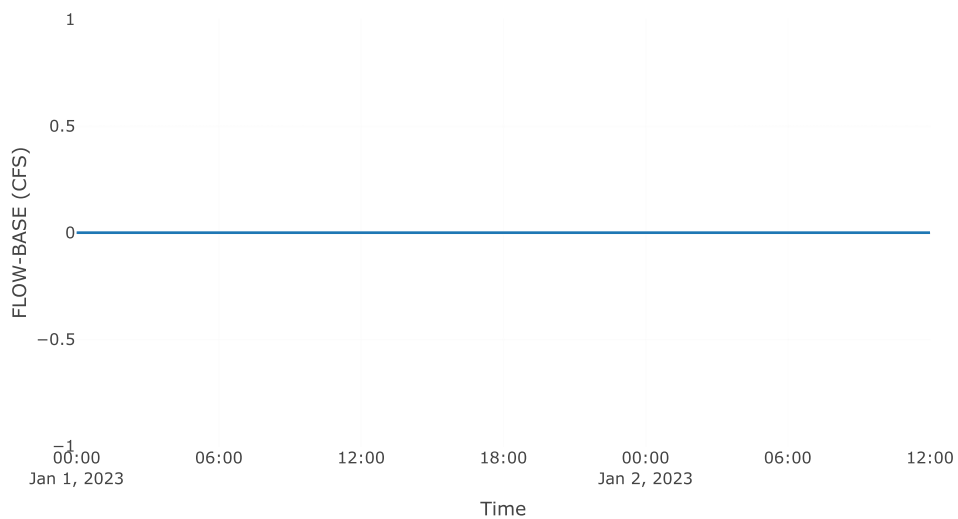
Cumulative Precipitation



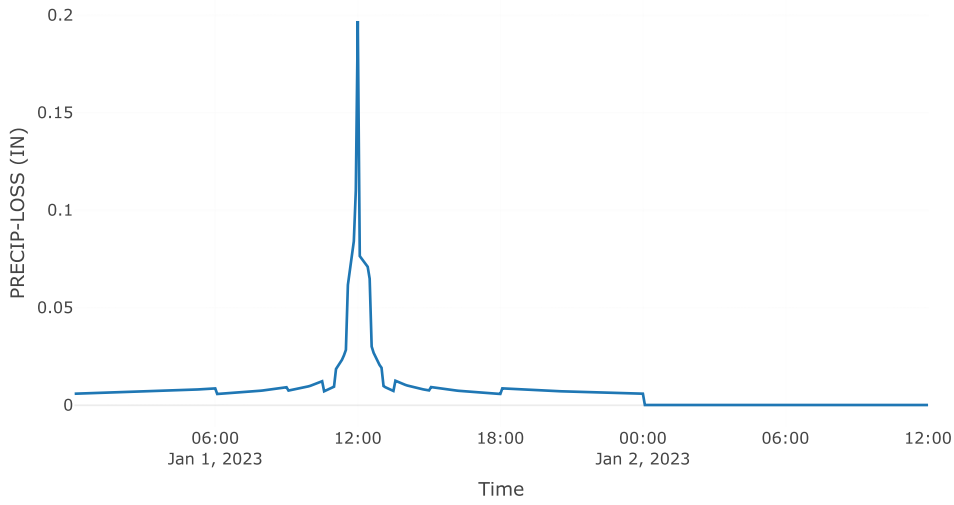
Cumulative Precipitation Loss



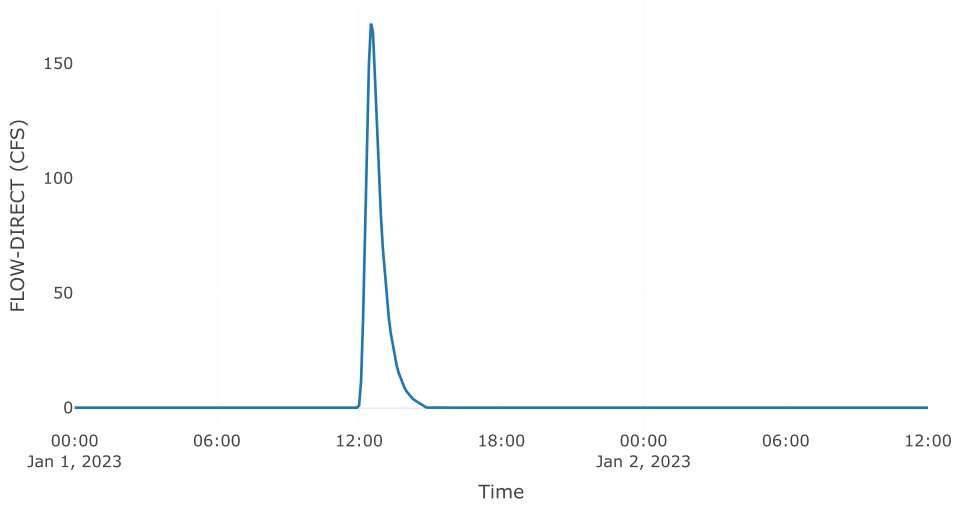
Baseflow



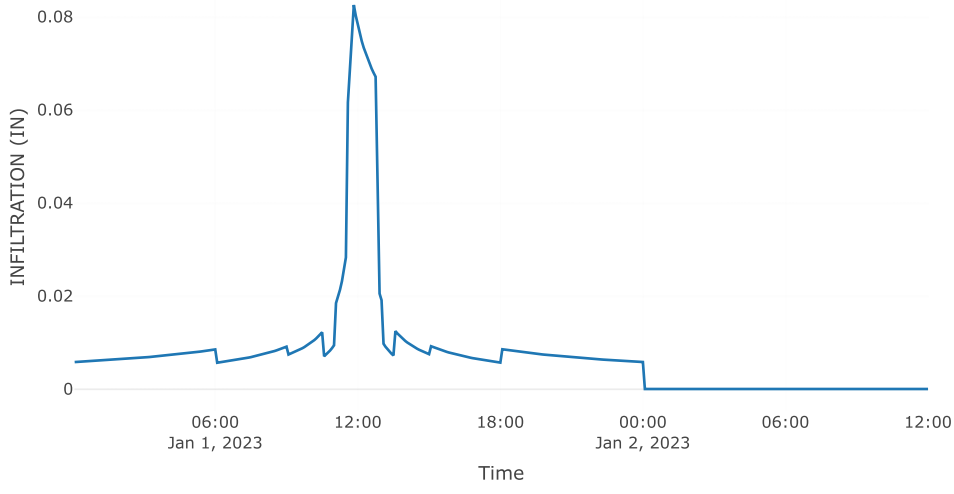
Precipitation Loss



Direct Runoff



Soil Infiltration



Reach: H6 Reach

Downstream : Junction - 1

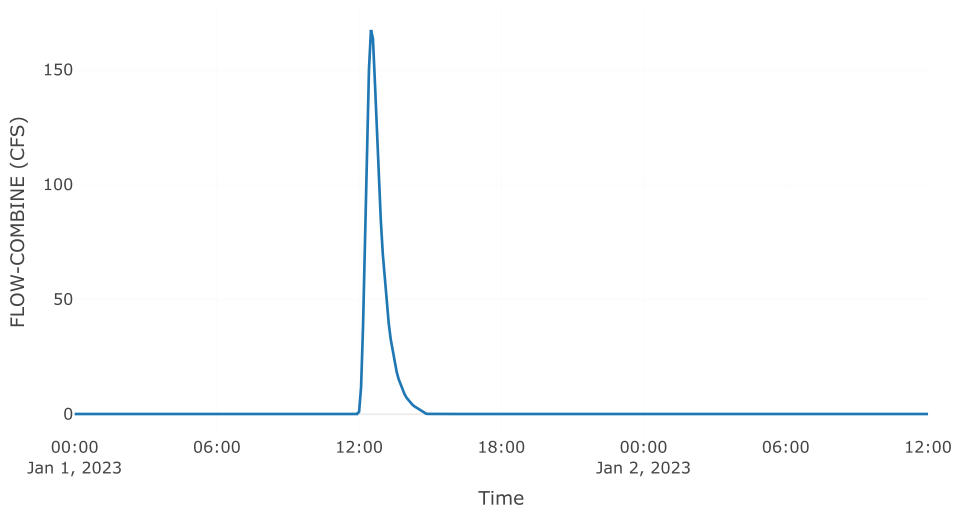
Route: Muskingum Cunge

Method	Muskingum Cunge
Channel	Trapezoid
Length (FT)	11711
Energy Slope (FT/FT)	0.03
Mannings n	0.04
Bottom Width (FT)	30
Side Slope (FT/FT)	3
Initial Variable	Combined Inflow
Space - Time Method	Automatic DX and DT
Index Parameter Type	Index Flow
Index Flow	103
Maximum Depth Iterations	20
Maximum Route Step Iterations	30

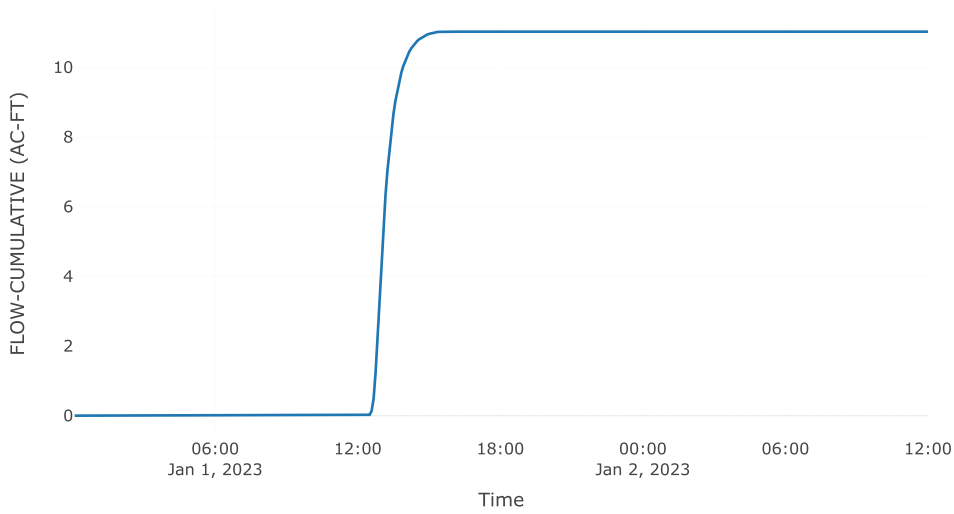
Results: H6 Reach

Peak Discharge (CFS)	168.45
Time of Peak Discharge	01Jan2023, 12:50
Volume (IN)	0.58
Peak Inflow (CFS)	167.28
Inflow Volume (AC - FT)	10.84

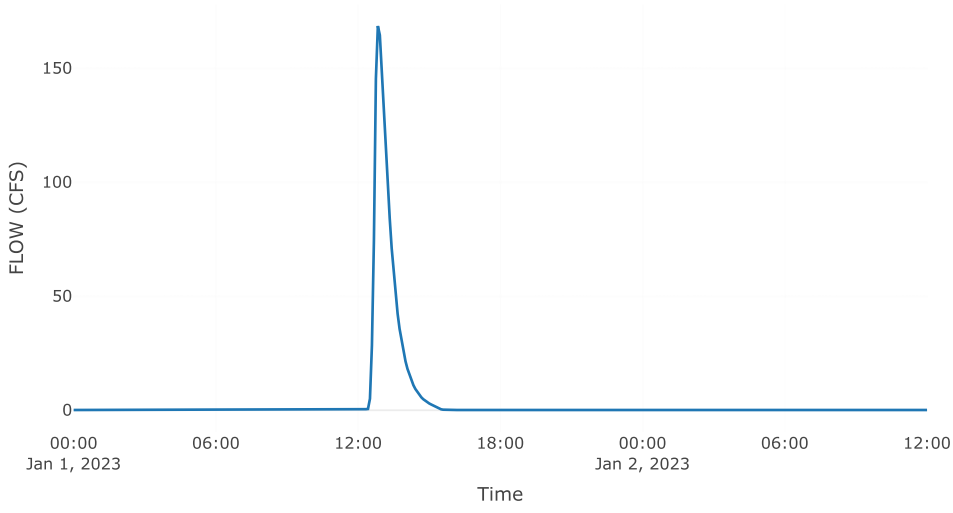
Combined Inflow



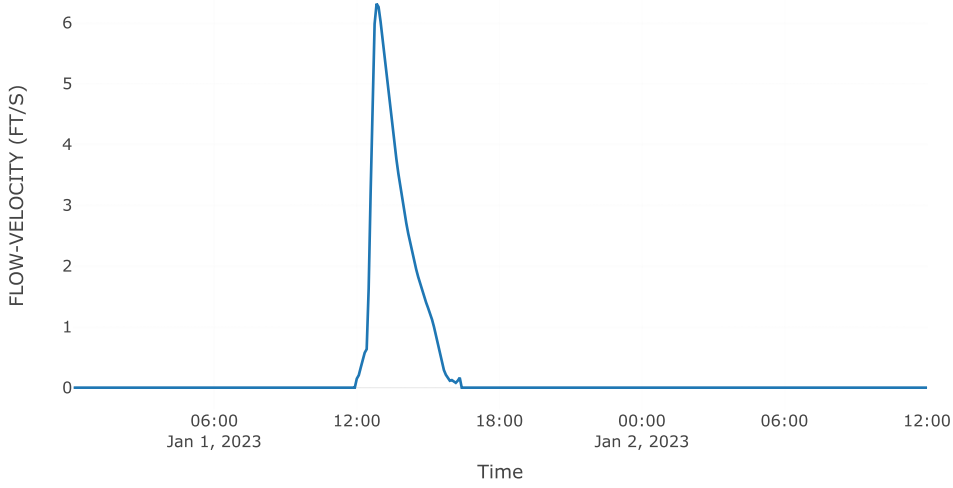
Cumulative Outflow



Outflow



Flow Velocity



Subbasin: H5

Area (MI²) : 0.33

Latitude Degrees : 33.55

Longitude Degrees : -111.28

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.41
Wetting Front Suction	3.93
Hydraulic Conductivity	0.59

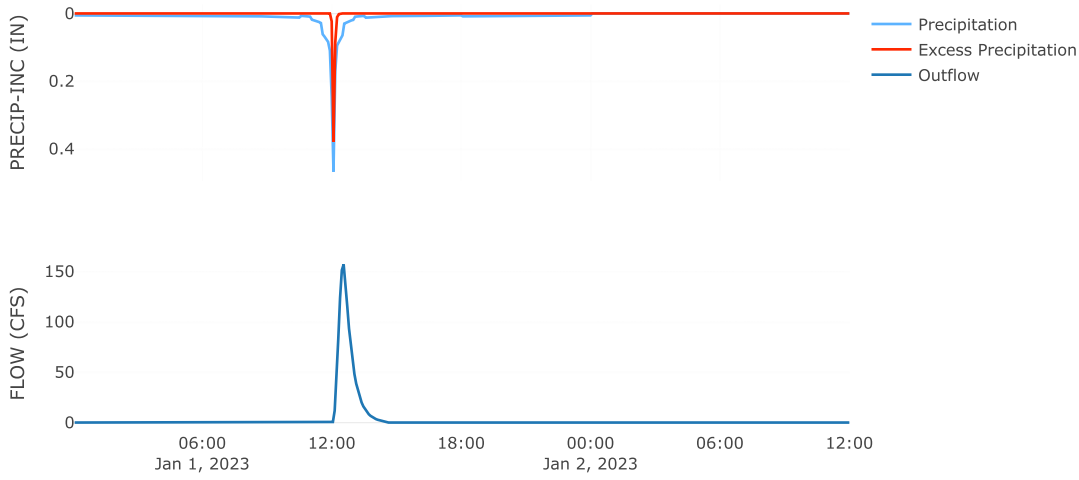
Transform: Clark

Clark Method	Specified
Time of Concentration	0.49
Storage Coefficient	0.38
Time Area Method	Default

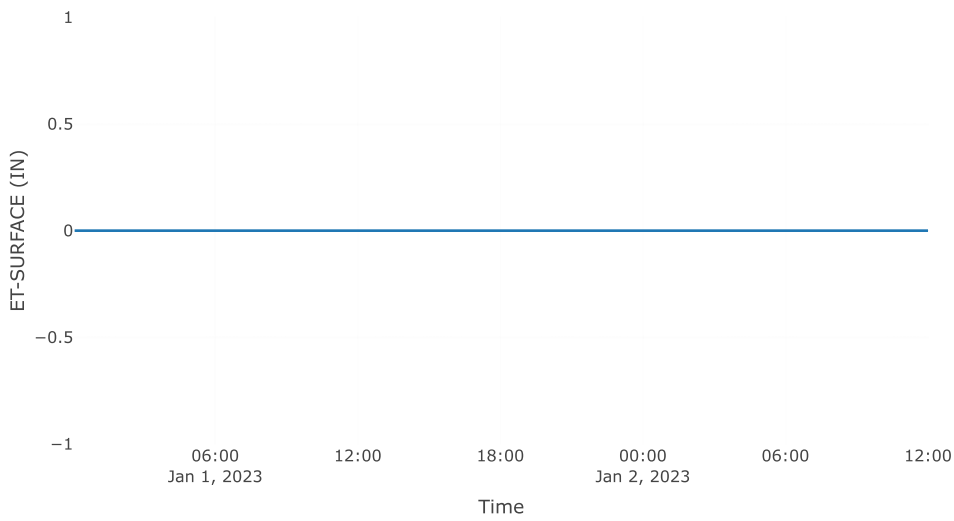
Results: H5

Peak Discharge (CFS)	156.91
Time of Peak Discharge	01Jan2023, 12:30
Volume (IN)	0.5
Precipitation Volume (AC - FT)	67.88
Loss Volume (AC - FT)	59
Excess Volume (AC - FT)	8.89
Direct Runoff Volume (AC - FT)	8.89
Baseflow Volume (AC - FT)	0

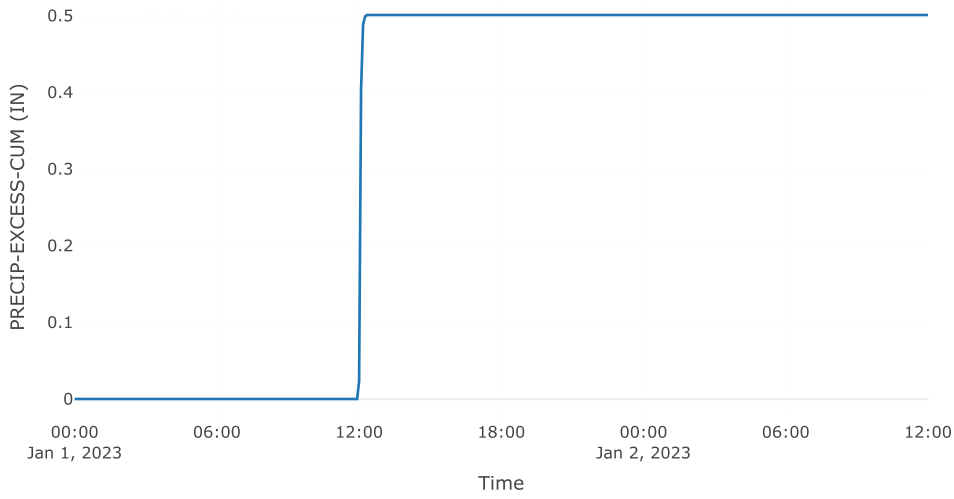
Precipitation and Outflow



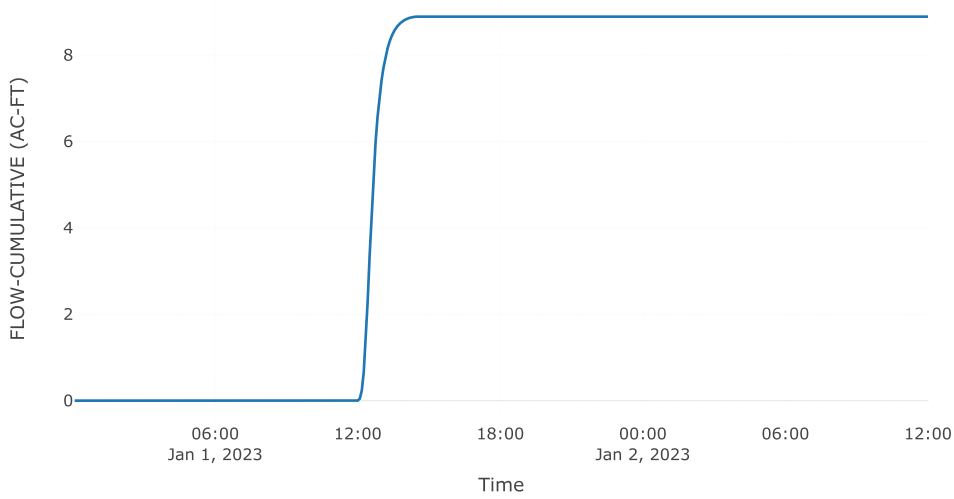
Surface Evapotranspiration



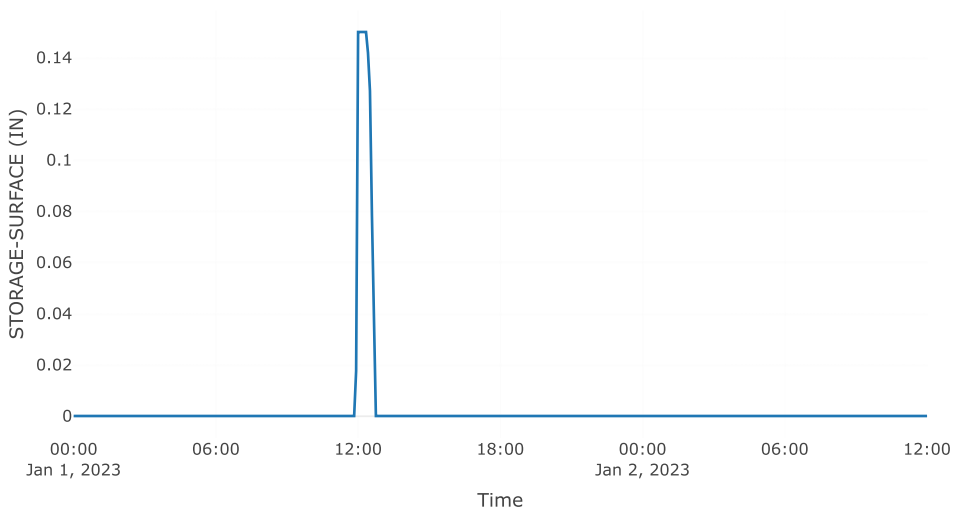
Cumulative Excess Precipitation



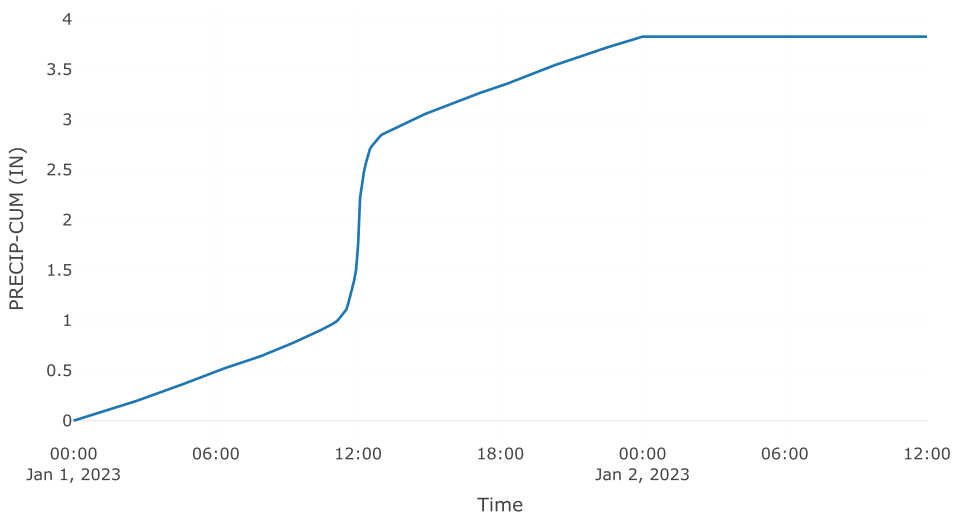
Cumulative Outflow



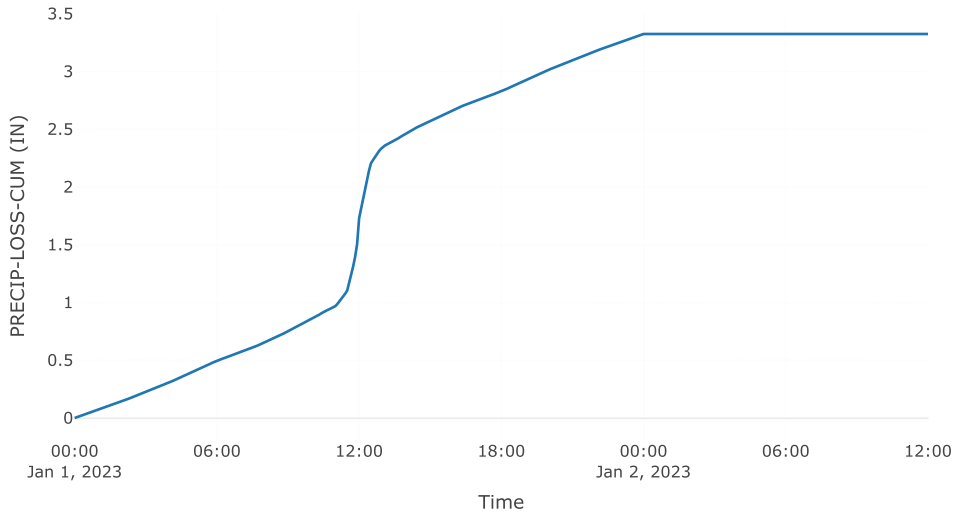
Surface Storage



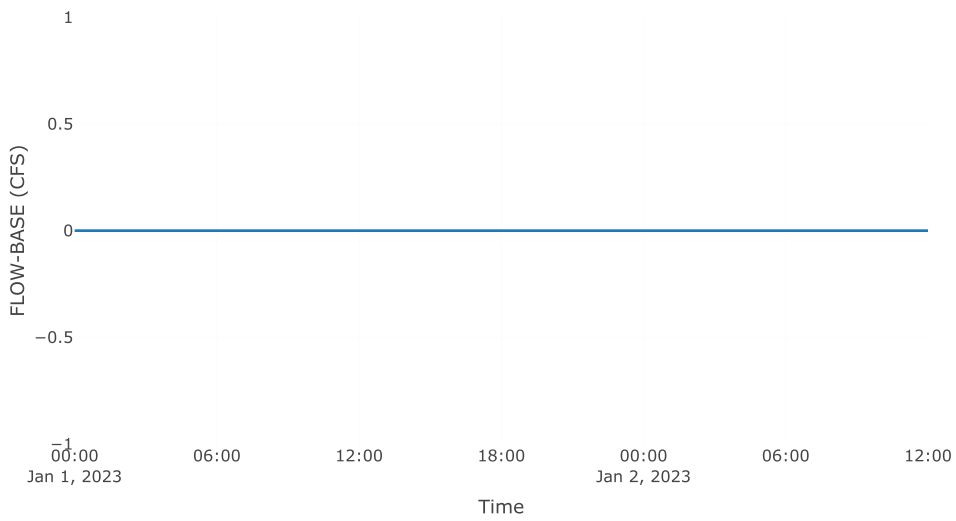
Cumulative Precipitation



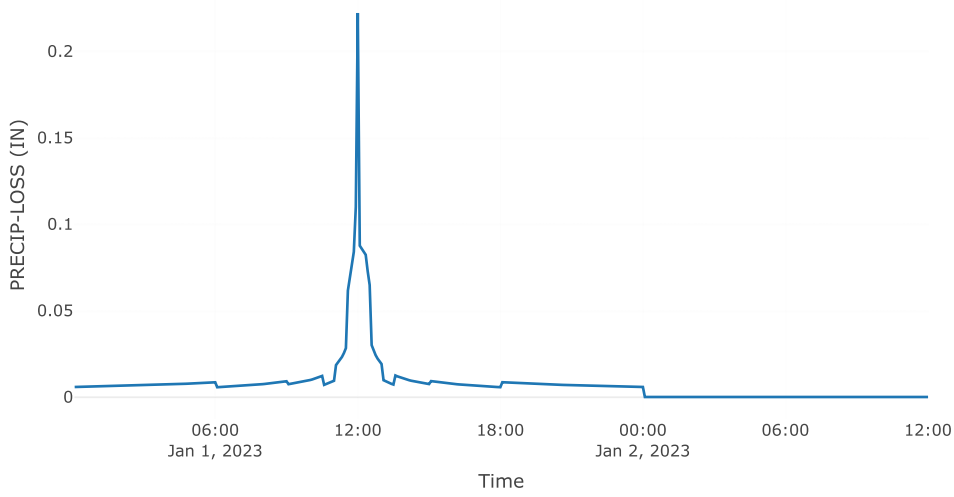
Cumulative Precipitation Loss



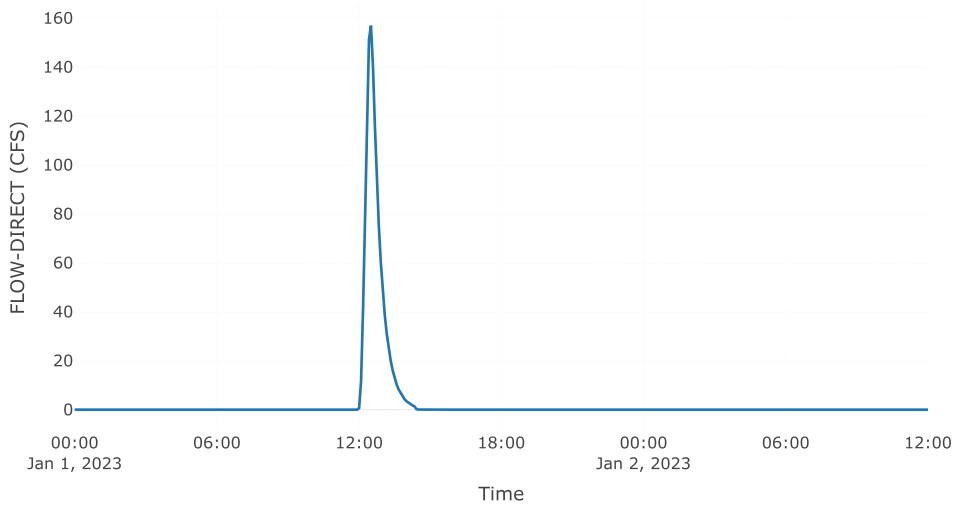
Baseflow



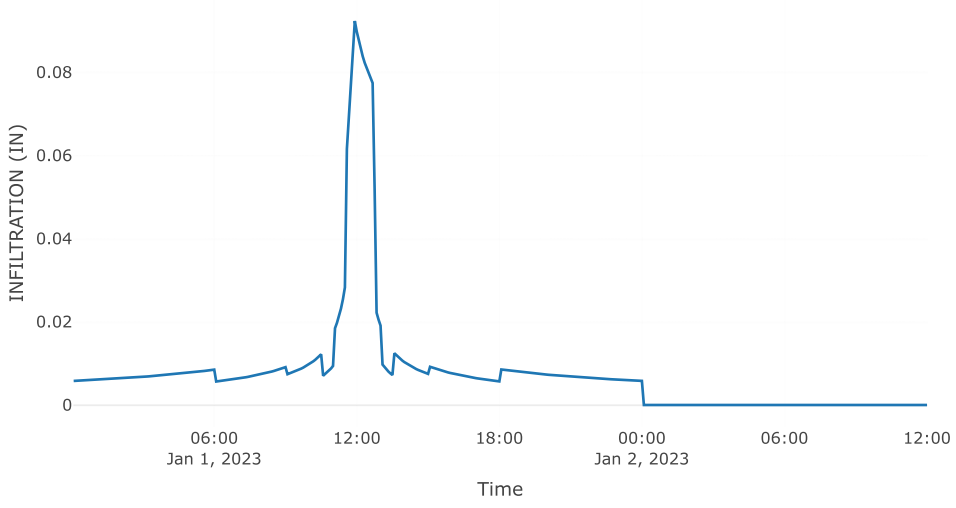
Precipitation Loss



Direct Runoff



Soil Infiltration



Reach: H5 Reach

Downstream : Junction - 1

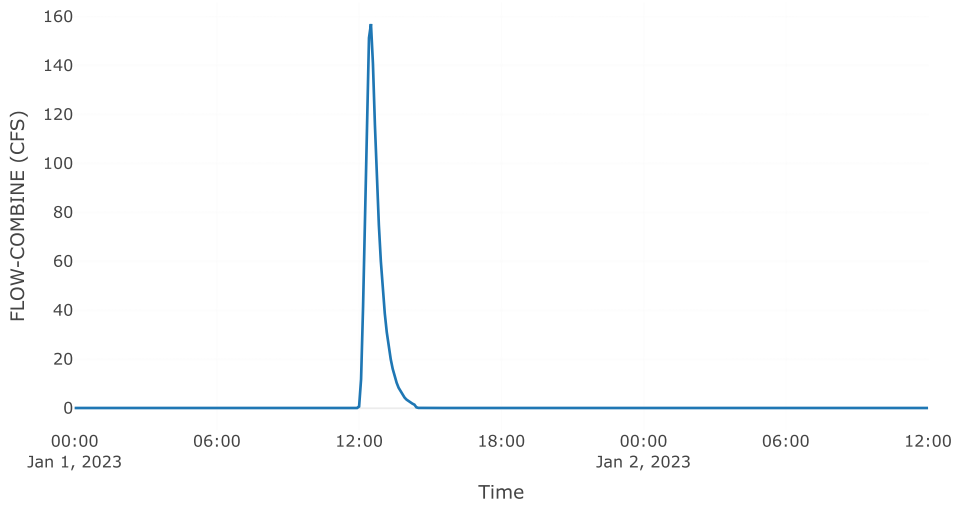
Route: Muskingum Cunge

Method	Muskingum Cunge
Channel	Trapezoid
Length (FT)	7077
Energy Slope (FT/FT)	0.03
Mannings n	0.04
Bottom Width (FT)	30
Side Slope (FT/FT)	3
Initial Variable	Combined Inflow
Space - Time Method	Automatic DX and DT
Index Parameter Type	Index Flow
Index Flow	78
Maximum Depth Iterations	20
Maximum Route Step Iterations	30

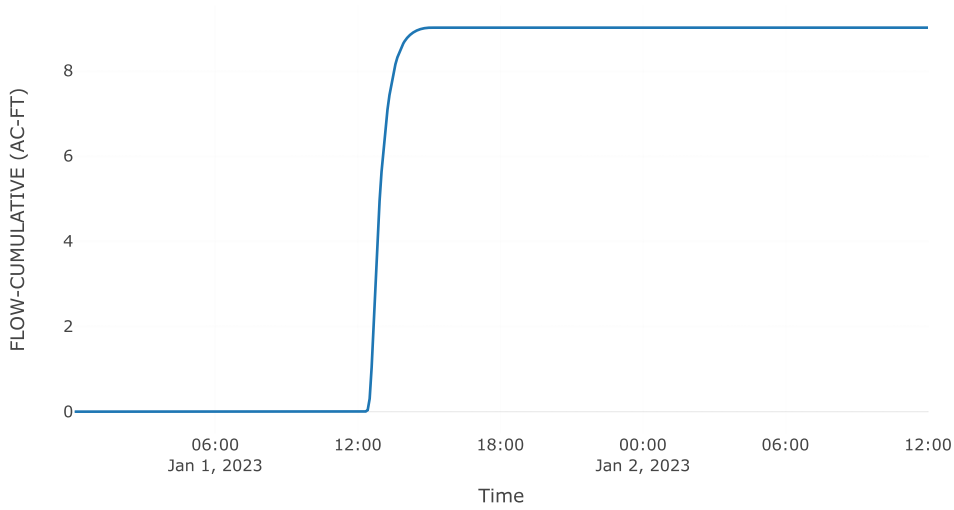
Results: H5 Reach

Peak Discharge (CFS)	156.42
Time of Peak Discharge	01Jan2023, 12:40
Volume (IN)	0.51
Peak Inflow (CFS)	156.91
Inflow Volume (AC - FT)	8.89

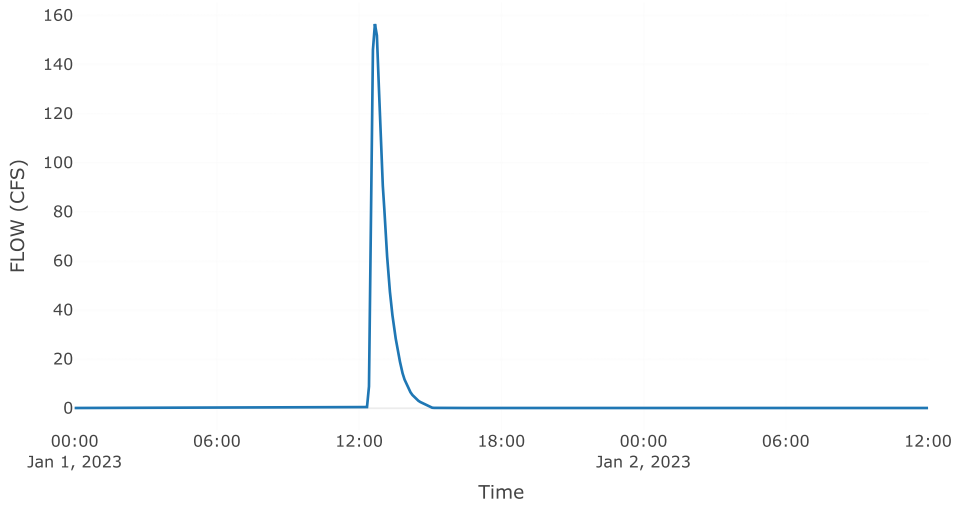
Combined Inflow



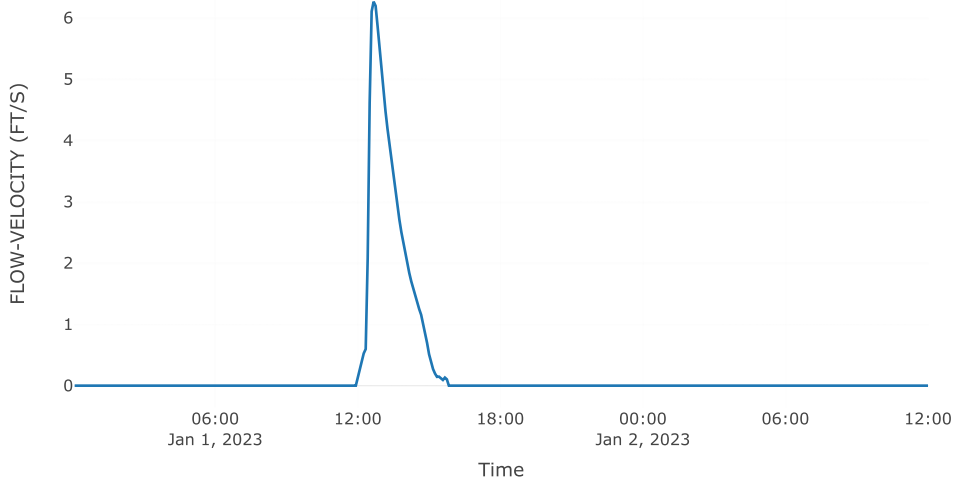
Cumulative Outflow



Outflow



Flow Velocity

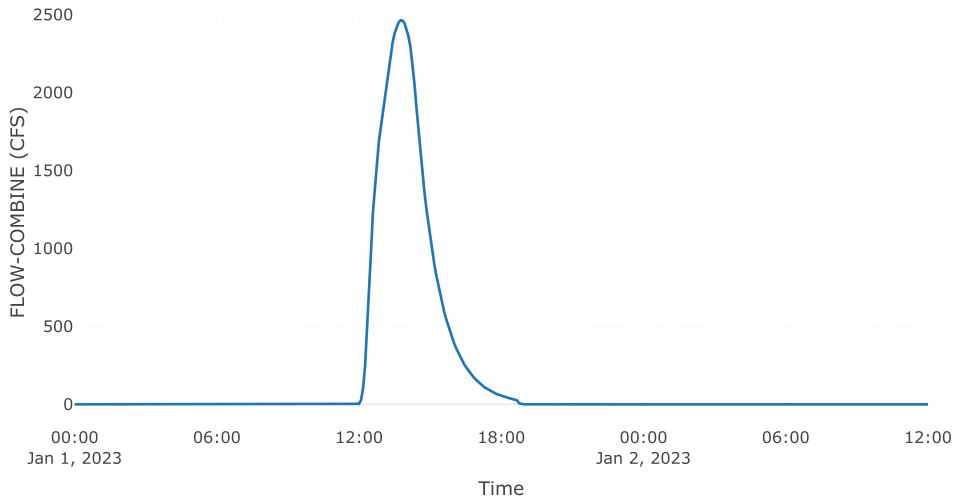


Junction: Junction-1

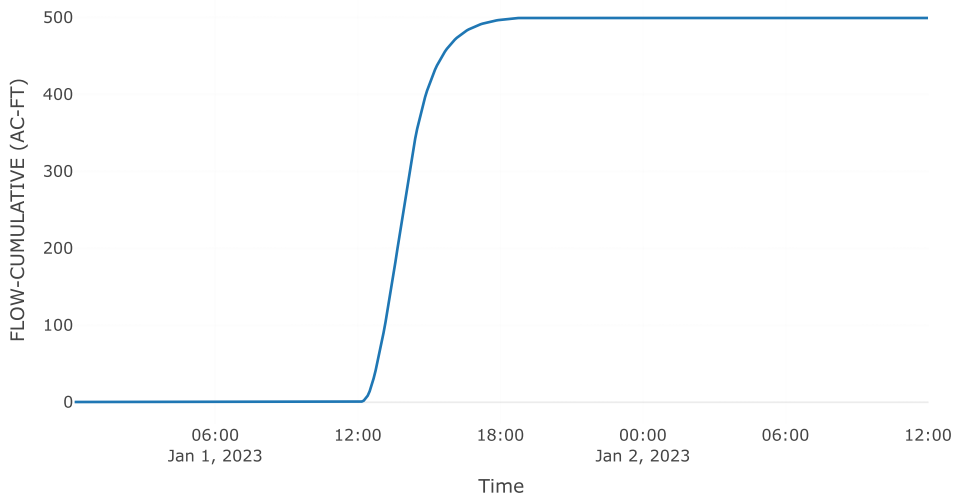
Results: Junction-1

Peak Discharge (CFS)	2463.85
Time of Peak Discharge	01 Jan 2023, 13:45
Volume (IN)	0.59

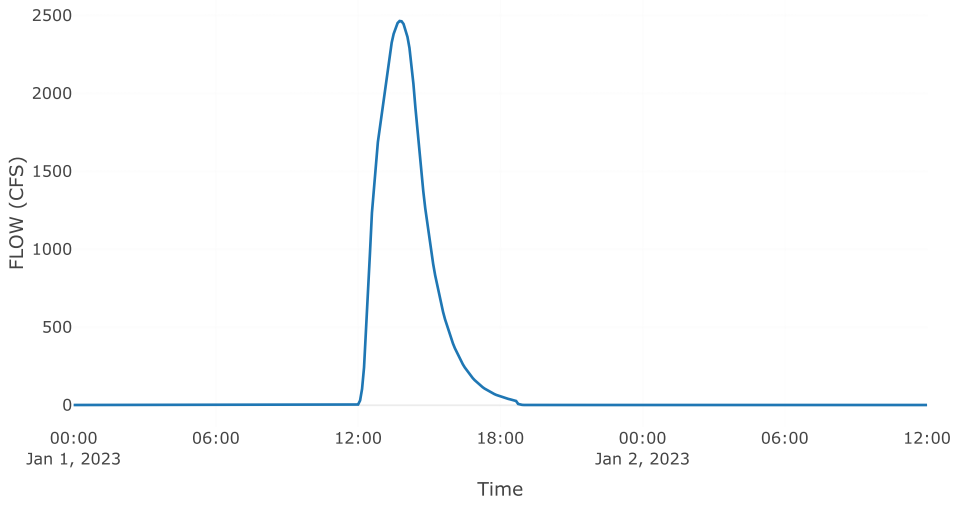
Combined Inflow



Cumulative Outflow



Outflow



Subbasin: H2

Area (MI²) : 1.76

Latitude Degrees : 33.52

Longitude Degrees : -111.28

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.41
Wetting Front Suction	3.82
Hydraulic Conductivity	0.51

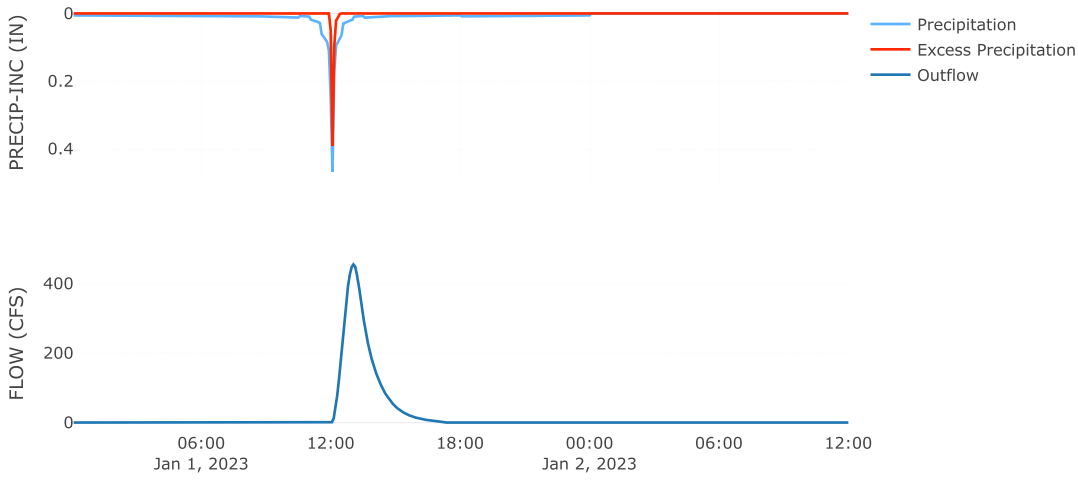
Transform: Clark

Clark Method	Specified
Time of Concentration	1.1
Storage Coefficient	0.8
Time Area Method	Default

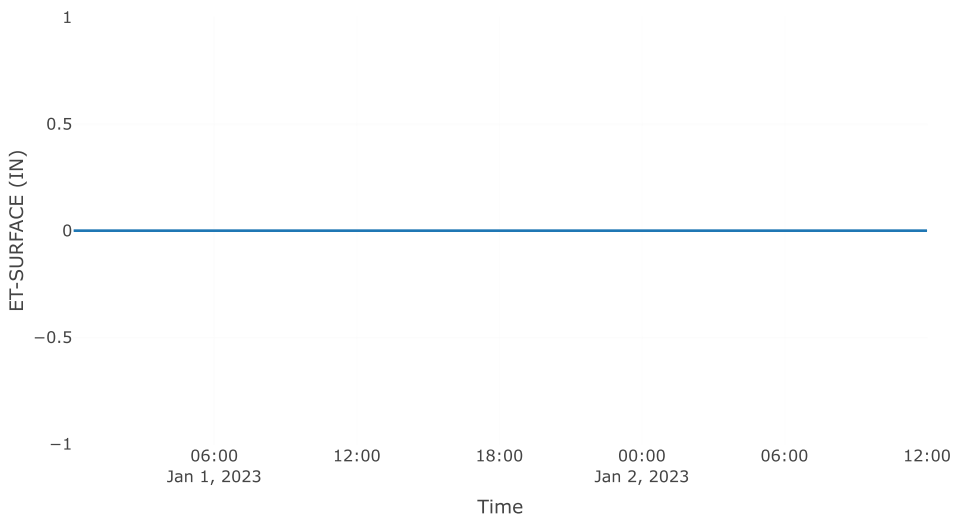
Results: H2

Peak Discharge (CFS)	455
Time of Peak Discharge	01Jan2023, 13:00
Volume (IN)	0.57
Precipitation Volume (AC - FT)	359.89
Loss Volume (AC - FT)	306.08
Excess Volume (AC - FT)	53.81
Direct Runoff Volume (AC - FT)	53.81
Baseflow Volume (AC - FT)	0

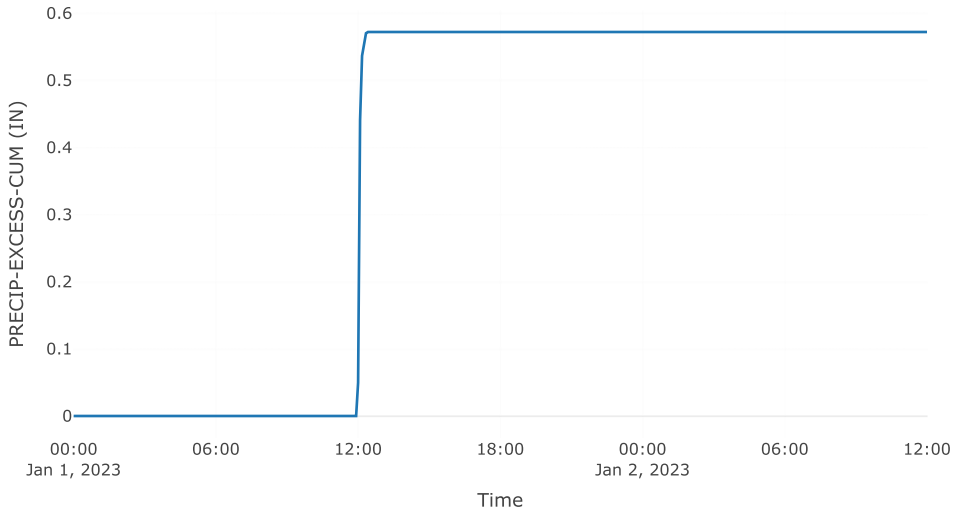
Precipitation and Outflow



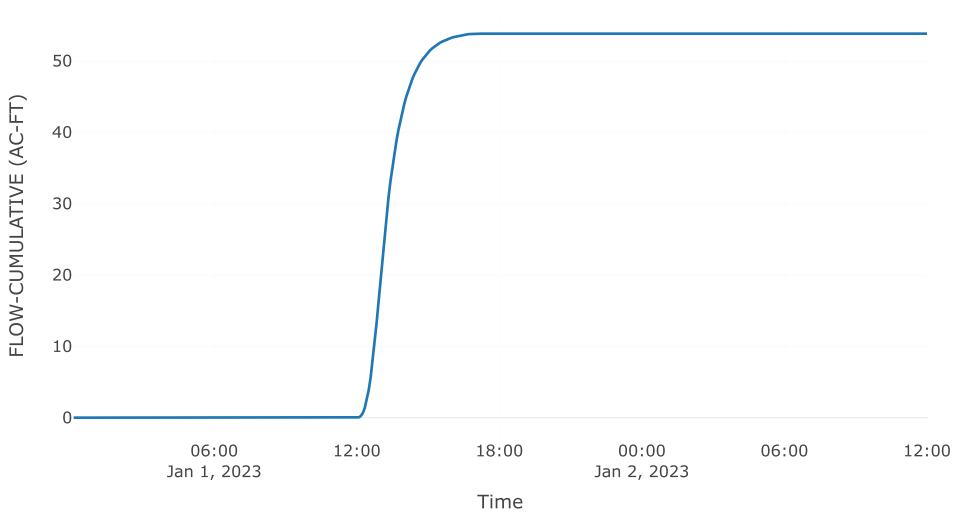
Surface Evapotranspiration



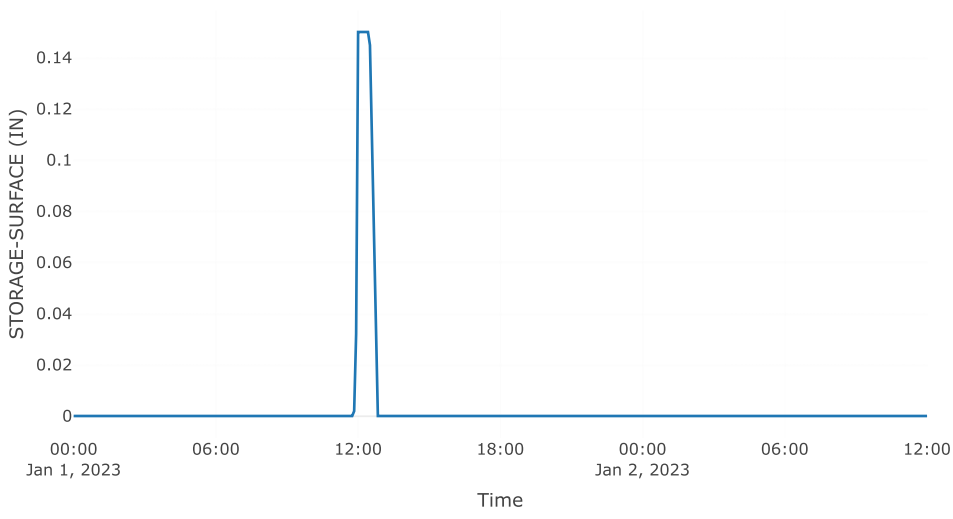
Cumulative Excess Precipitation



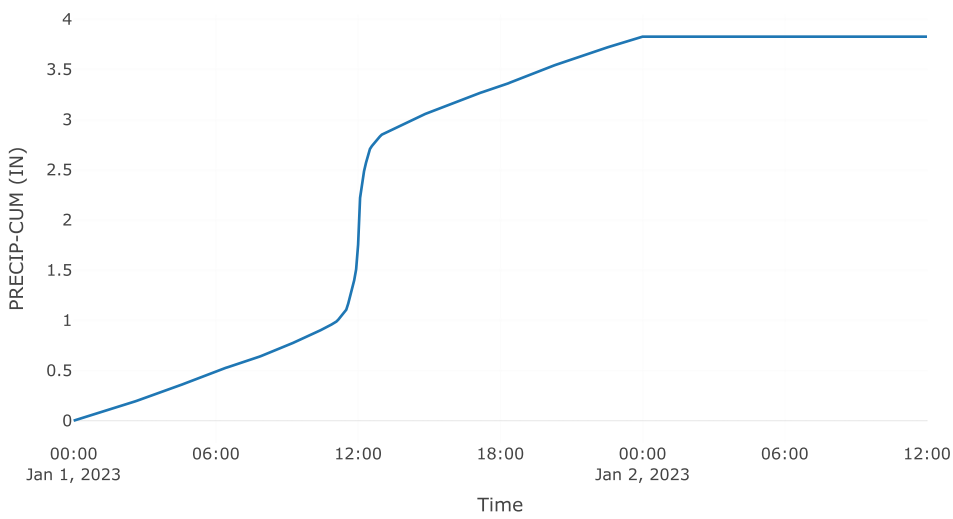
Cumulative Outflow



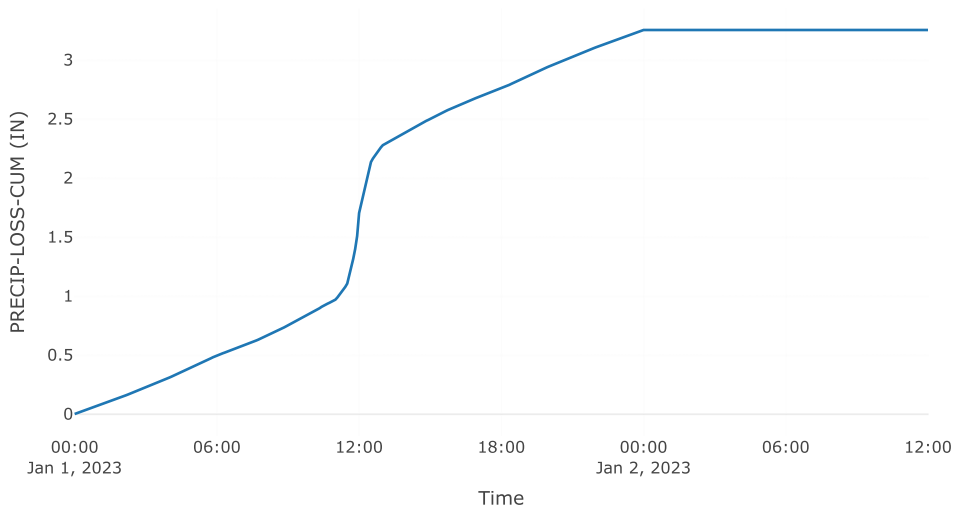
Surface Storage



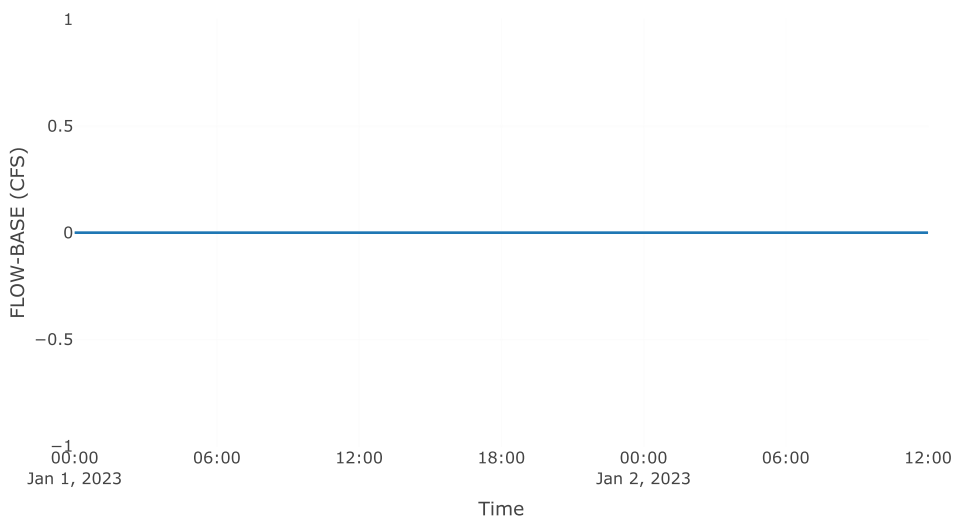
Cumulative Precipitation



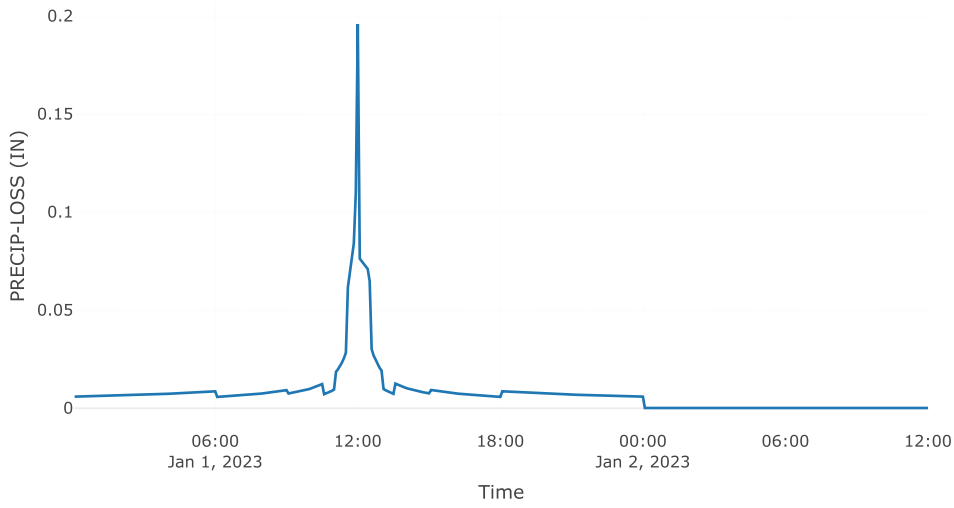
Cumulative Precipitation Loss



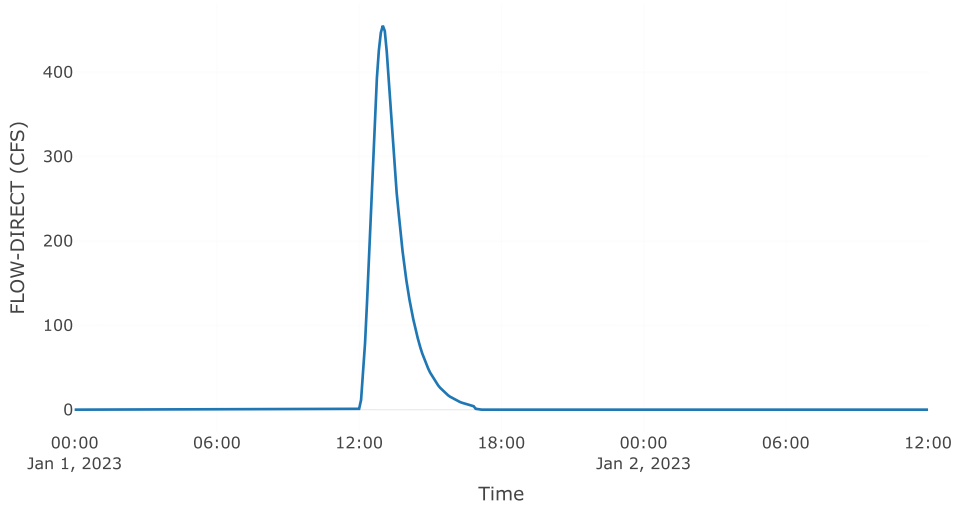
Baseflow



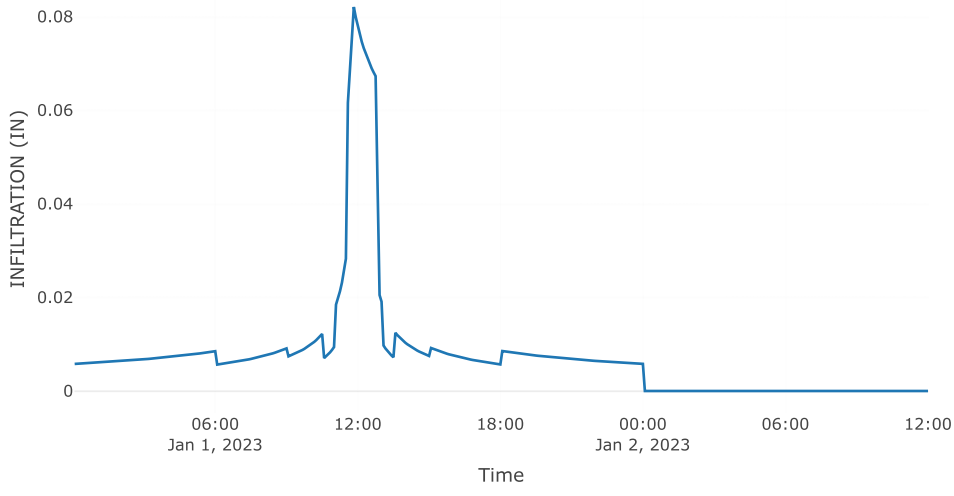
Precipitation Loss



Direct Runoff



Soil Infiltration



Subbasin: H8

Area (MI²) : 0.3

Latitude Degrees : 33.56

Longitude Degrees : -111.24

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.41
Wetting Front Suction	3.95
Hydraulic Conductivity	0.48

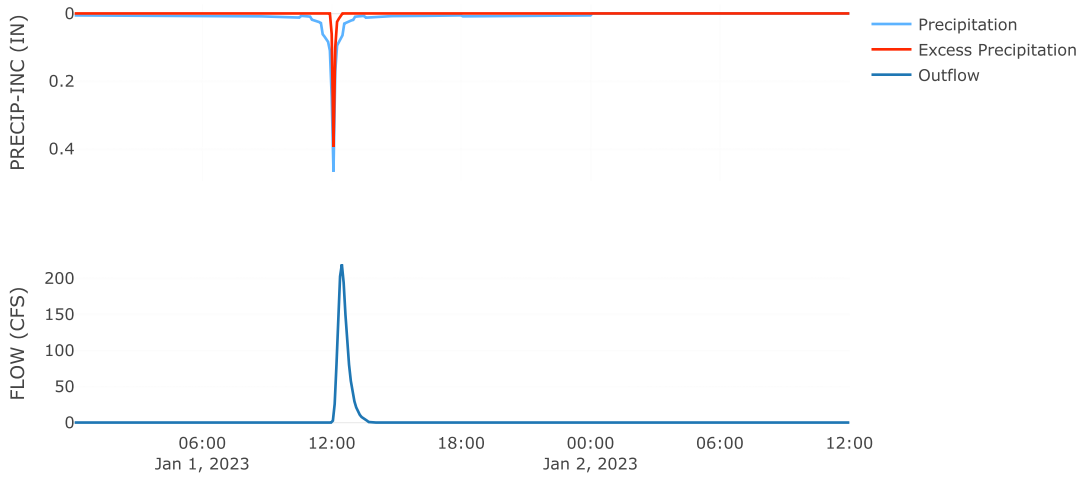
Transform: Clark

Clark Method	Specified
Time of Concentration	0.42
Storage Coefficient	0.25
Time Area Method	Default

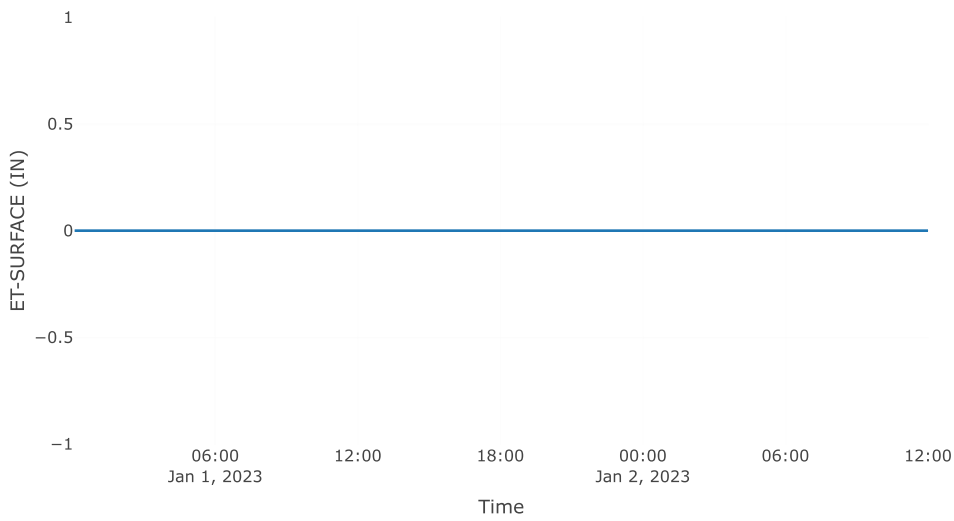
Results: H8

Peak Discharge (CFS)	219.18
Time of Peak Discharge	01Jan2023, 12:25
Volume (IN)	0.6
Precipitation Volume (AC - FT)	61.91
Loss Volume (AC - FT)	52.2
Excess Volume (AC - FT)	9.7
Direct Runoff Volume (AC - FT)	9.7
Baseflow Volume (AC - FT)	0

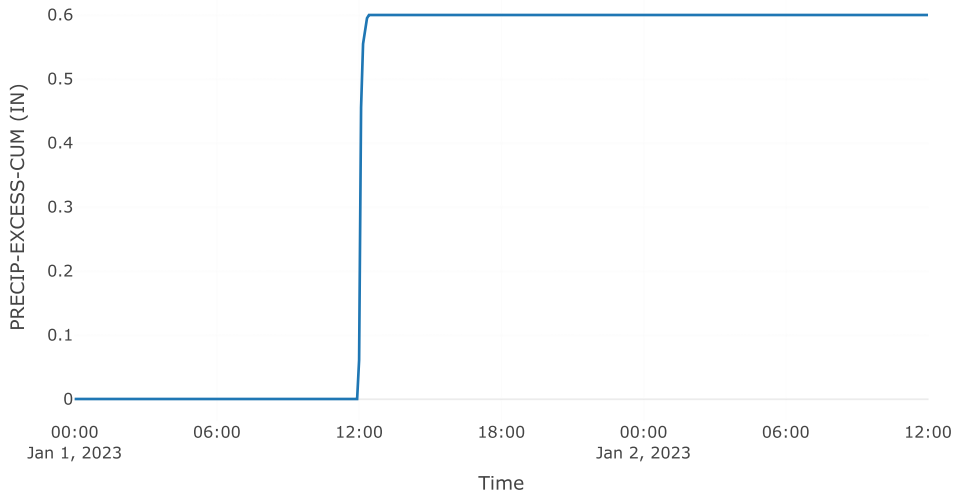
Precipitation and Outflow



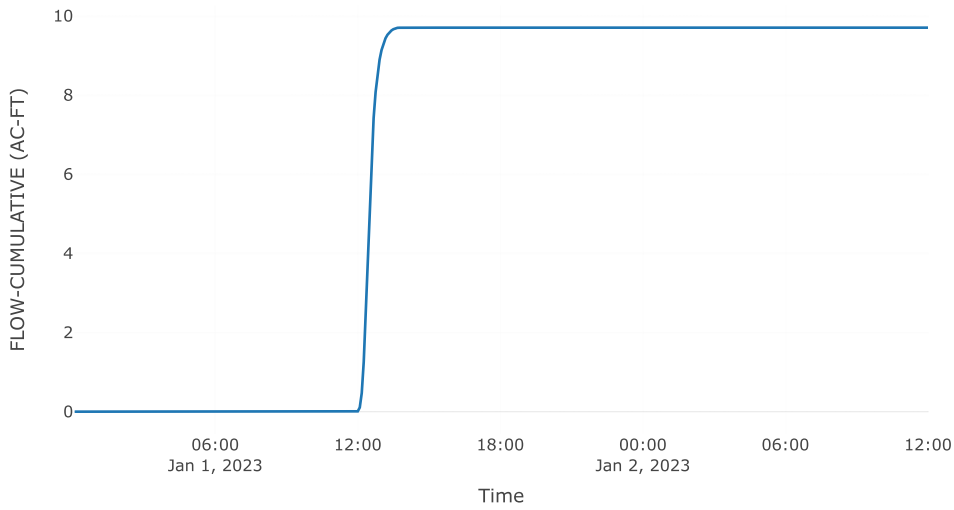
Surface Evapotranspiration



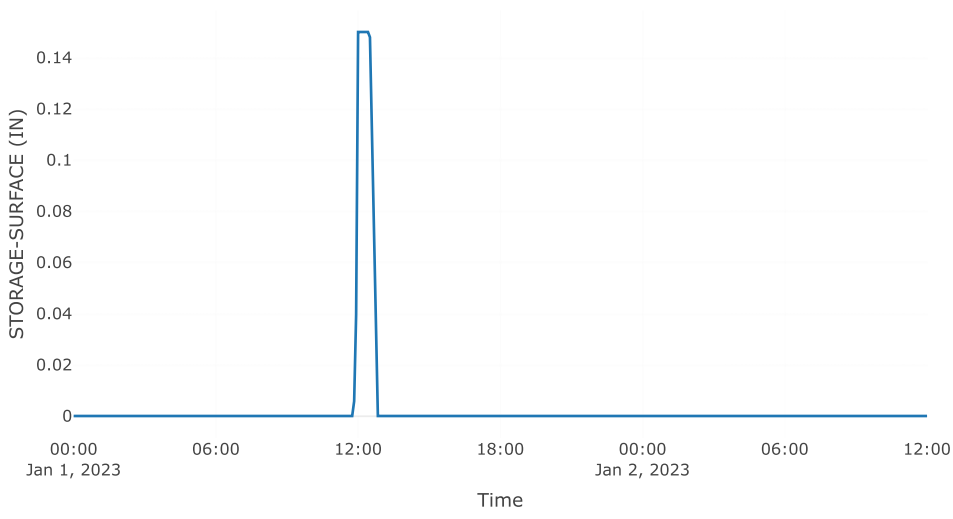
Cumulative Excess Precipitation



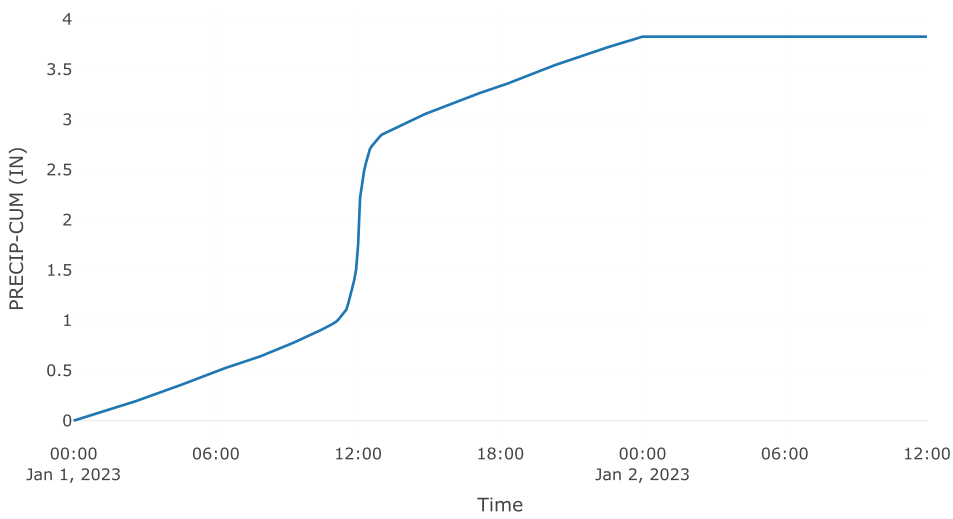
Cumulative Outflow (AC-FT)



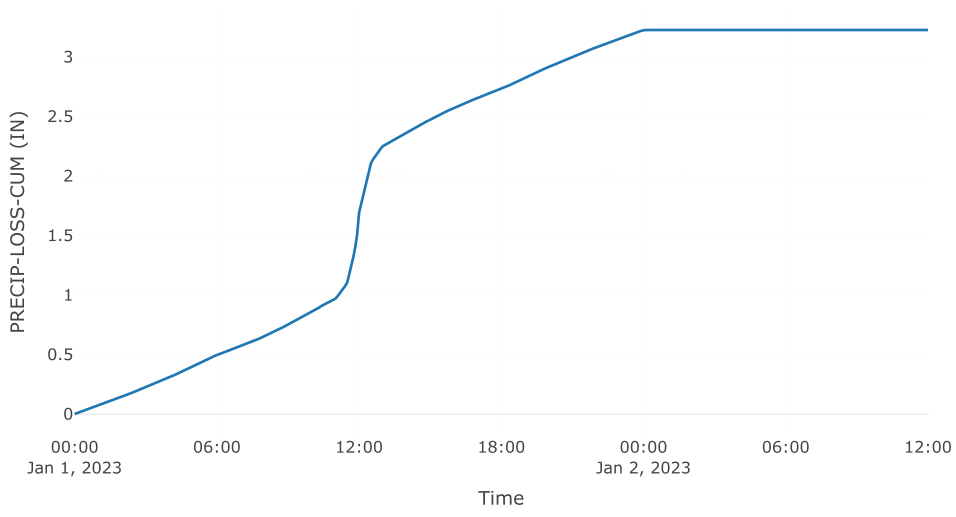
Surface Storage



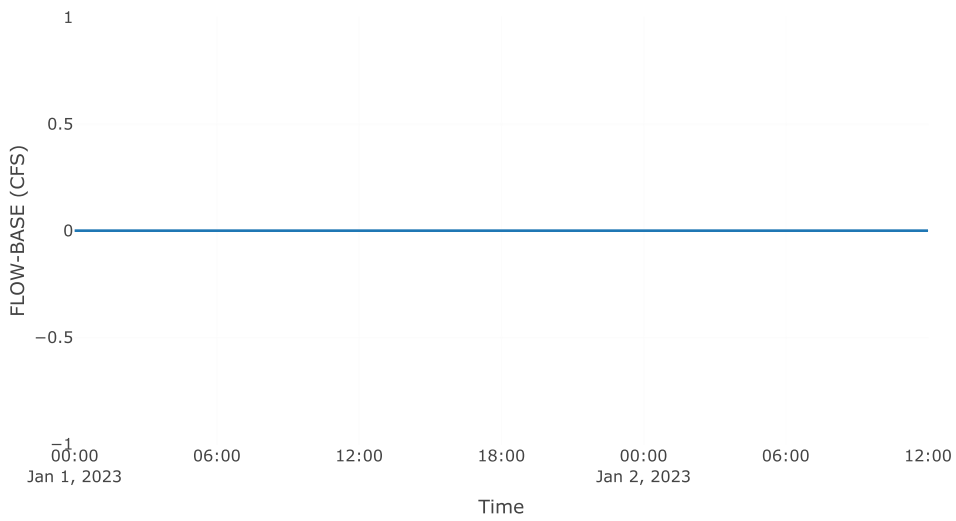
Cumulative Precipitation



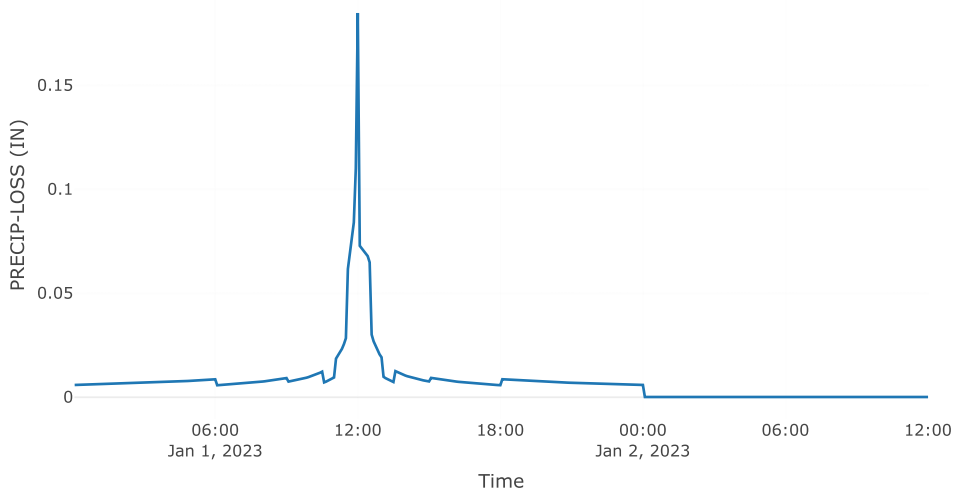
Cumulative Precipitation Loss



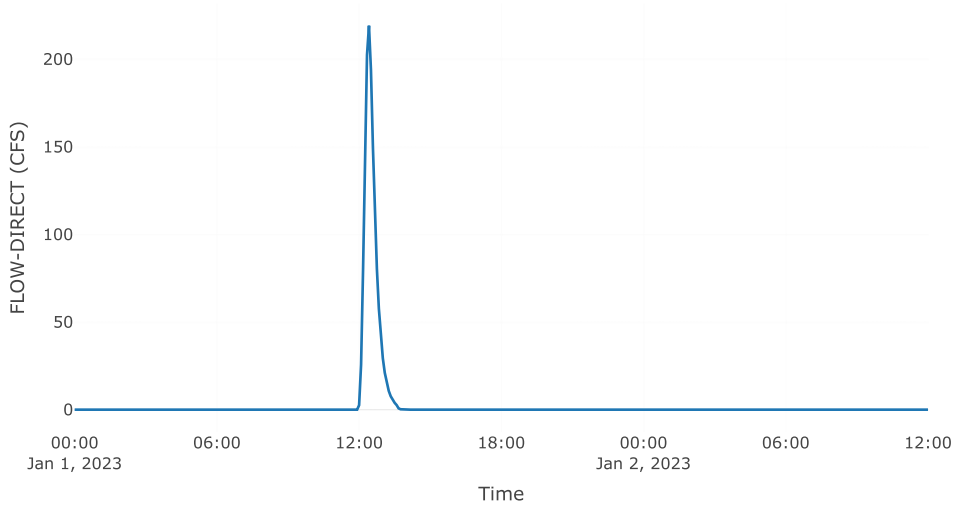
Baseflow



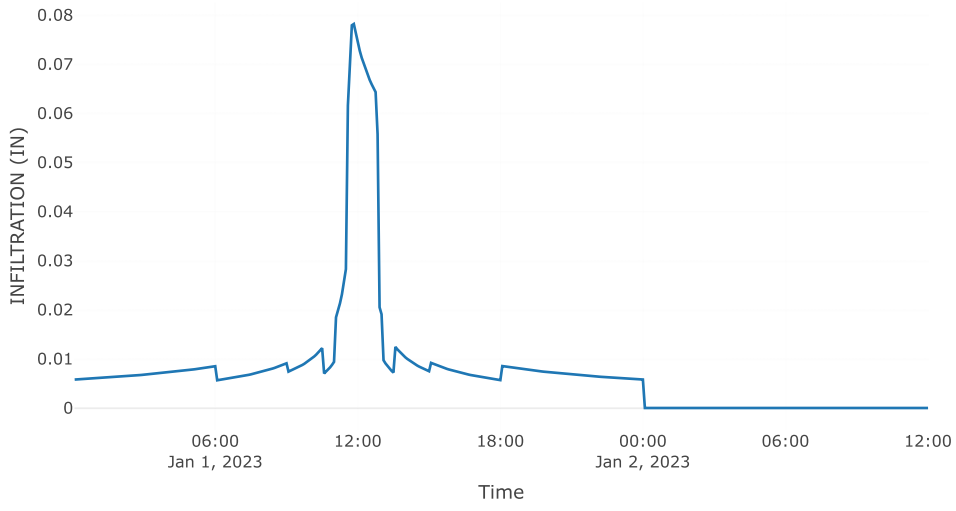
Precipitation Loss



Direct Runoff



Soil Infiltration



Project: Sr88

Simulation Run: 50-yr

Simulation Start: 31 December 2022, 24:00

Simulation End: 2 January 2023, 12:00

HMS Version: 4.10

Executed: 25 September 2023, 20:05

Global Parameter Summary - Subbasin

Element Name	Location	
	Longitude Degrees	Latitude Degrees
H1	-111.22	33.48
H7	-111.23	33.53
H3	-111.29	33.55
H4	-111.29	33.55
H6	-111.27	33.55
H5	-111.28	33.55
H2	-111.28	33.52
H8	-111.24	33.56

Element Name	Area (MI ²)	
	Area (MI ²)	
H1	29.7	
H7	14.46	
H3	0.36	
H4	0.35	
H6	0.36	
H5	0.33	
H2	1.76	
H8	0.3	

Element Name	Loss Rate: Green and Ampt					
	Percent Impervious Area	Initial Variable	Initial Content	Saturated Content	Wetting Front Suction	Hydraulic Conductivity
H1	0	Water Content	0.08	0.41	3.97	0.5
H7	0	Water Content	0.08	0.41	3.9	0.49
H3	0	Water Content	0.08	0.4	4.33	0.49
H4	0	Water Content	0.08	0.41	3.96	0.58
H6	0	Water Content	0.09	0.41	4.25	0.49
H5	0	Water Content	0.08	0.41	3.93	0.59
H2	0	Water Content	0.08	0.41	3.82	0.51
H8	0	Water Content	0.08	0.41	3.95	0.48

Transform: Clark

Element Name	Clark Method	Time of Concentration	Storage Coefficient	Time Area Method
H1	Specified	3.68	1.88	Default
H7	Specified	2.26	1.01	Default
H3	Specified	0.52	0.43	Default
H4	Specified	0.48	0.36	Default
H6	Specified	0.54	0.44	Default
H5	Specified	0.49	0.38	Default
H2	Specified	1.1	0.8	Default
H8	Specified	0.42	0.25	Default

Global Parameter Summary - Reach

Downstream

Element Name	Downstream
H3 Reach	Junction - 1
H4 Reach	Junction - 1
H6 Reach	Junction - 1
H5 Reach	Junction - 1

Route: Muskingum Cunge

Element Name	Method	Channel	Length (FT)	Energy Slope (FT/FT)	Mannings n	Bottom Width (FT)	Side Slope (FT/FT)	Initial Variable	Space - Time Method	Index Parameter Type	Index Flow	Maximum Depth Iteration
H3 Reach	Muskingum Cunge	Trapezoid	1952	0.04	0.04	30	3	Combined Inflow	Automatic DX and DT	Index Flow	87	20
H4 Reach	Muskingum Cunge	Trapezoid	3490	0.03	0.04	30	3	Combined Inflow	Automatic DX and DT	Index Flow	86	20
H6 Reach	Muskingum Cunge	Trapezoid	11711	0.03	0.04	30	3	Combined Inflow	Automatic DX and DT	Index Flow	103	20
H5 Reach	Muskingum Cunge	Trapezoid	7077	0.03	0.04	30	3	Combined Inflow	Automatic DX and DT	Index Flow	78	20

Global Results Summary

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
H1	29.7	3775.07	01Jan2023, 15:05	0.78
H7	14.46	3270.9	01Jan2023, 13:50	0.81
H3	0.36	232.75	01Jan2023, 12:30	0.79
H3 Reach	0.36	231.79	01Jan2023, 12:35	0.79
H4	0.35	229.31	01Jan2023, 12:30	0.69
H4 Reach	0.35	230.64	01Jan2023, 12:35	0.69
H6	0.36	223.11	01Jan2023, 12:30	0.79
H6 Reach	0.36	224.69	01Jan2023, 12:50	0.8
H5	0.33	209.36	01Jan2023, 12:30	0.69
H5 Reach	0.33	209.48	01Jan2023, 12:40	0.69
Junction - 1	15.86	3360.22	01Jan2023, 13:45	0.81
H2	1.76	619.59	01Jan2023, 13:00	0.79
H8	0.3	286.27	01Jan2023, 12:25	0.82

Subbasin: H1

Area (MI²) : 29.7

Latitude Degrees : 33.48

Longitude Degrees : -111.22

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.41
Wetting Front Suction	3.97
Hydraulic Conductivity	0.5

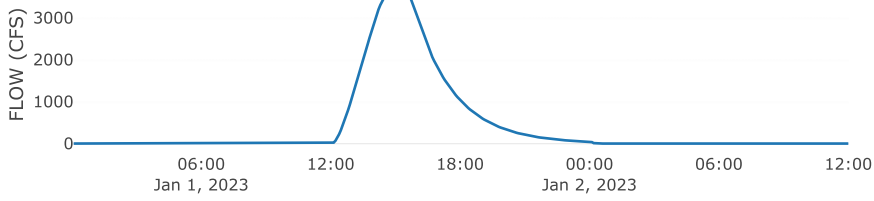
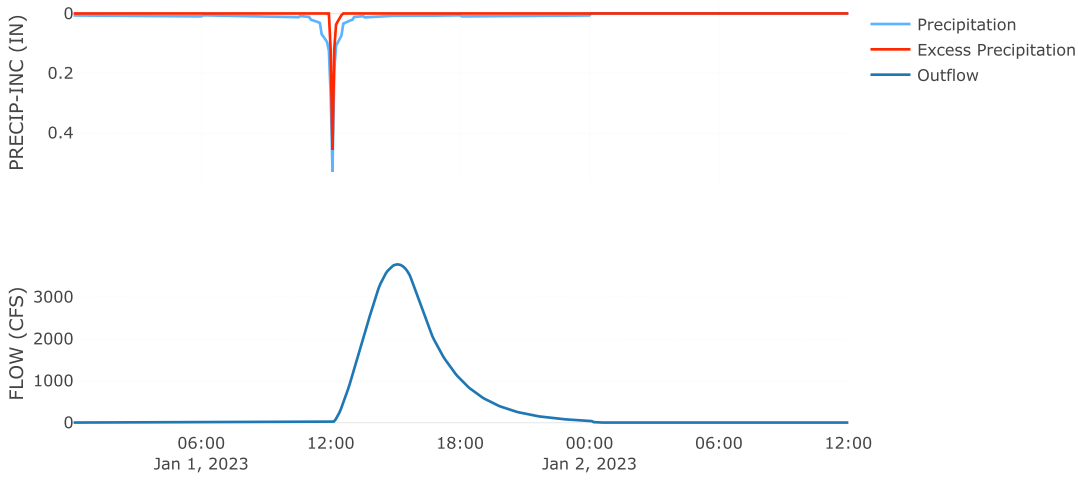
Transform: Clark

Clark Method	Specified
Time of Concentration	3.68
Storage Coefficient	1.88
Time Area Method	Default

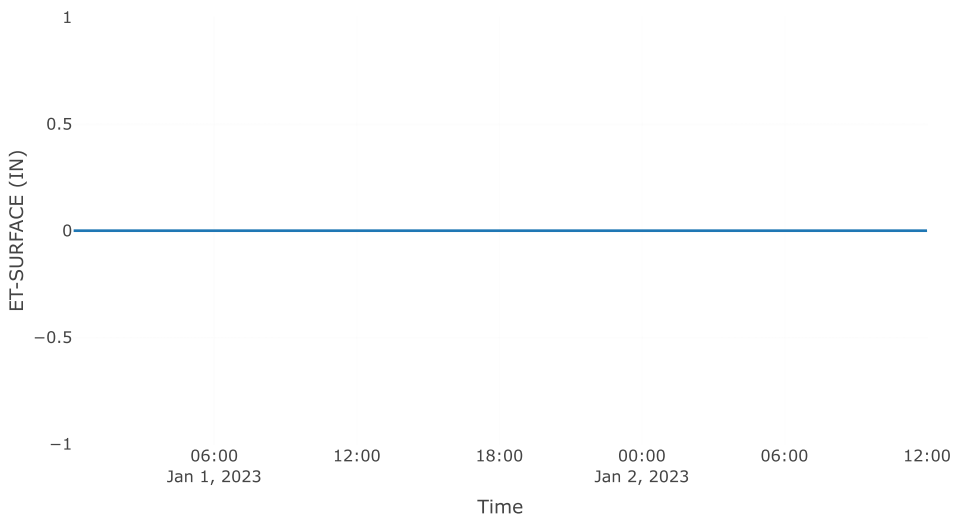
Results: H1

Peak Discharge (CFS)	3775.07
Time of Peak Discharge	01Jan2023, 15:05
Volume (IN)	0.78
Precipitation Volume (AC - FT)	6860.51
Loss Volume (AC - FT)	5617.49
Excess Volume (AC - FT)	1243.02
Direct Runoff Volume (AC - FT)	1243.02
Baseflow Volume (AC - FT)	0

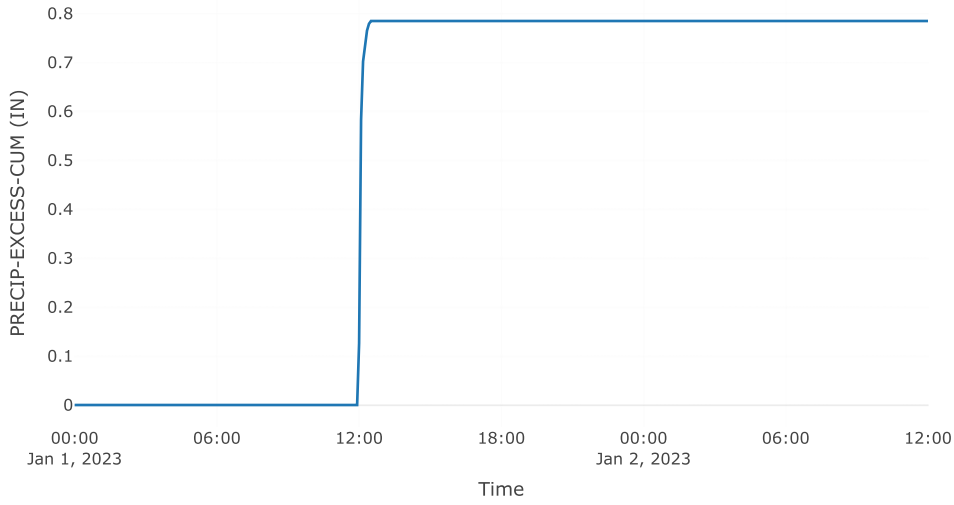
Precipitation and Outflow



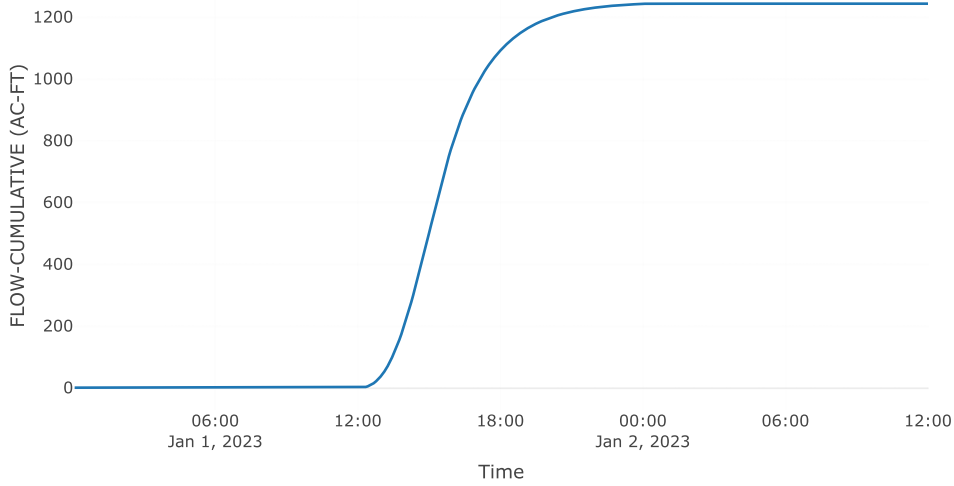
Surface Evapotranspiration



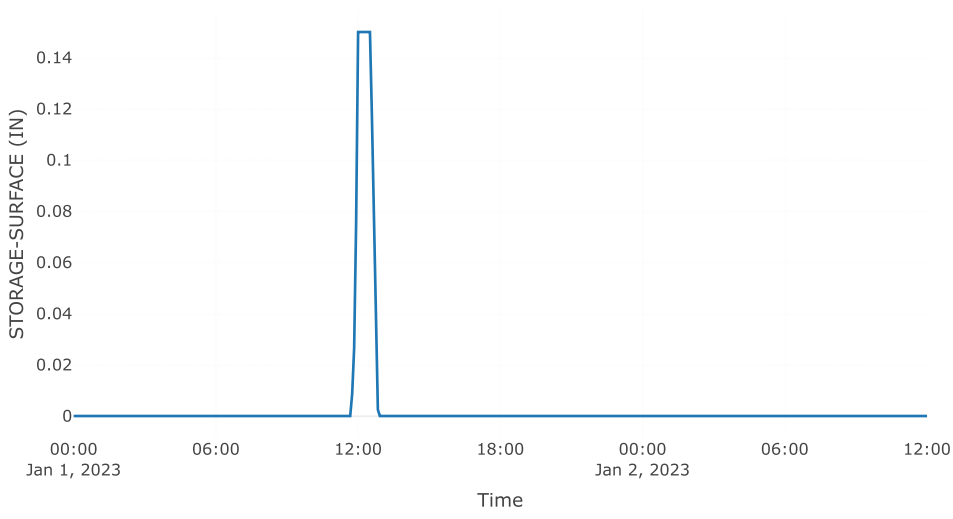
Cumulative Excess Precipitation



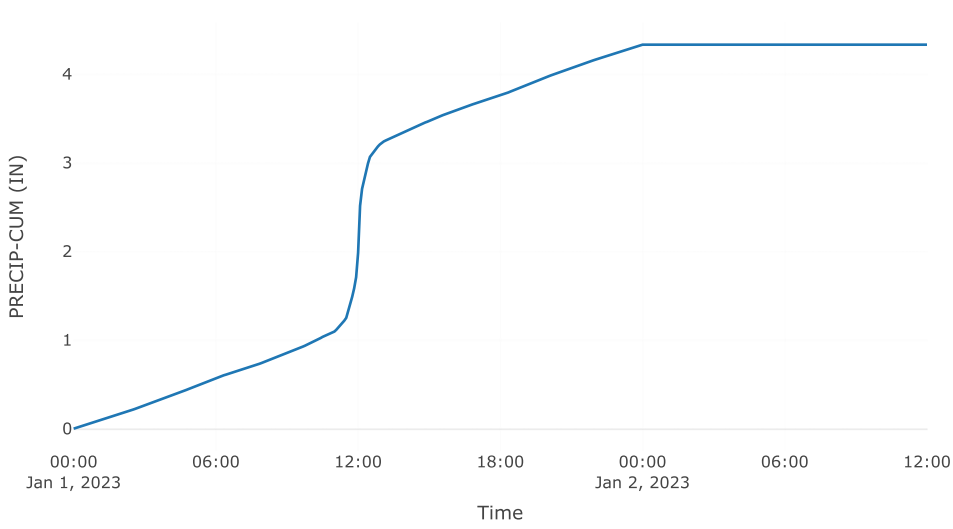
Cumulative Outflow



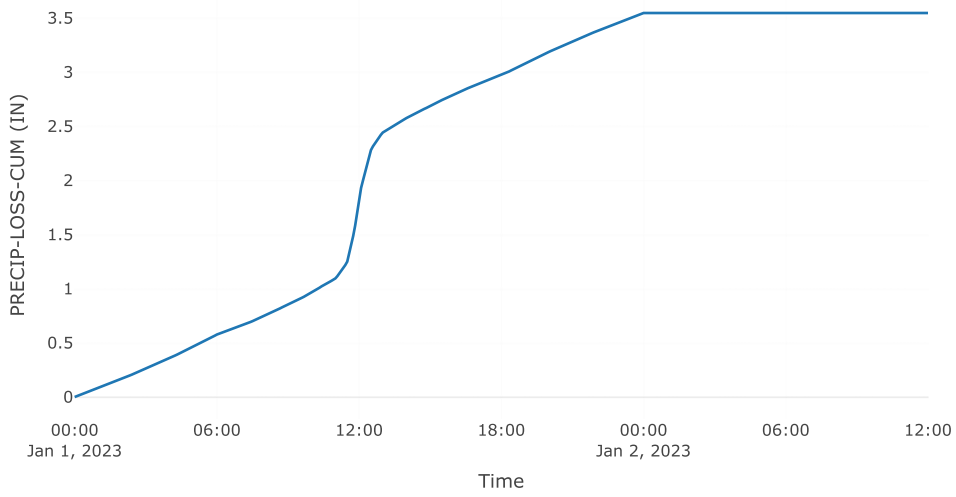
Surface Storage



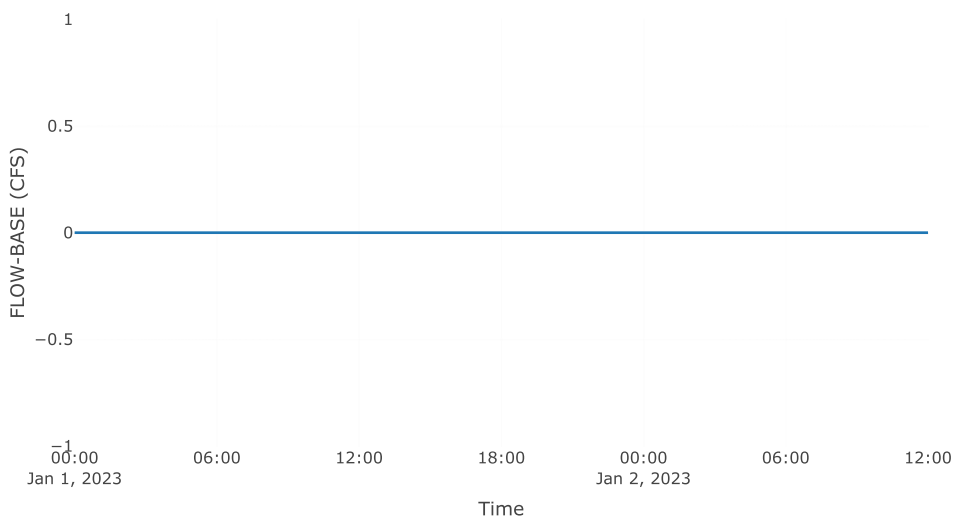
Cumulative Precipitation



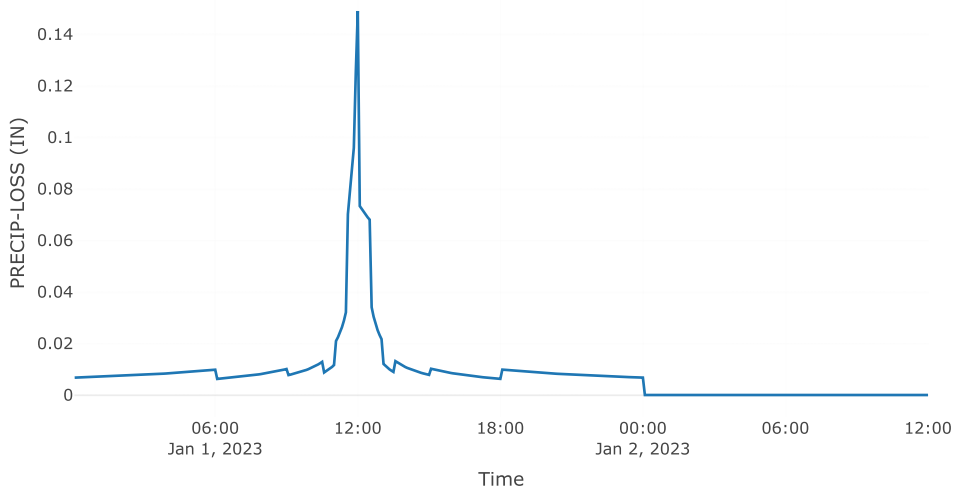
Cumulative Precipitation Loss



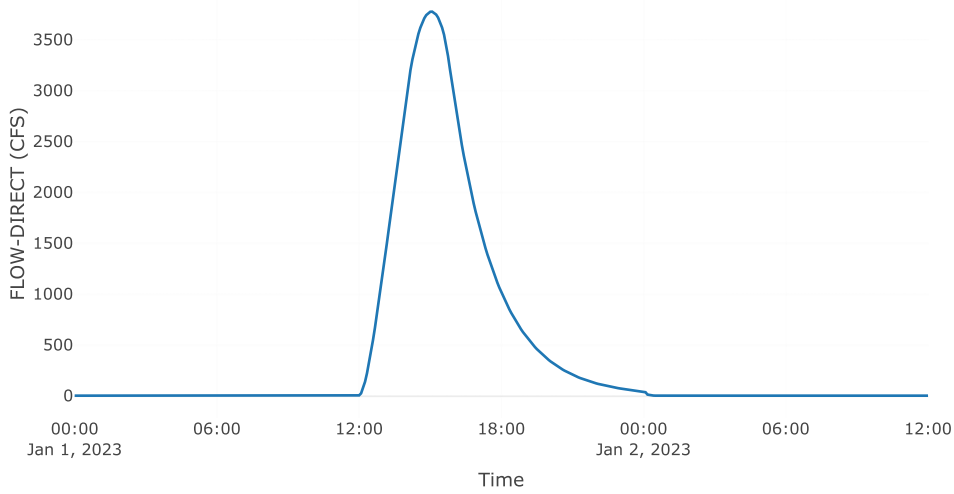
Baseflow



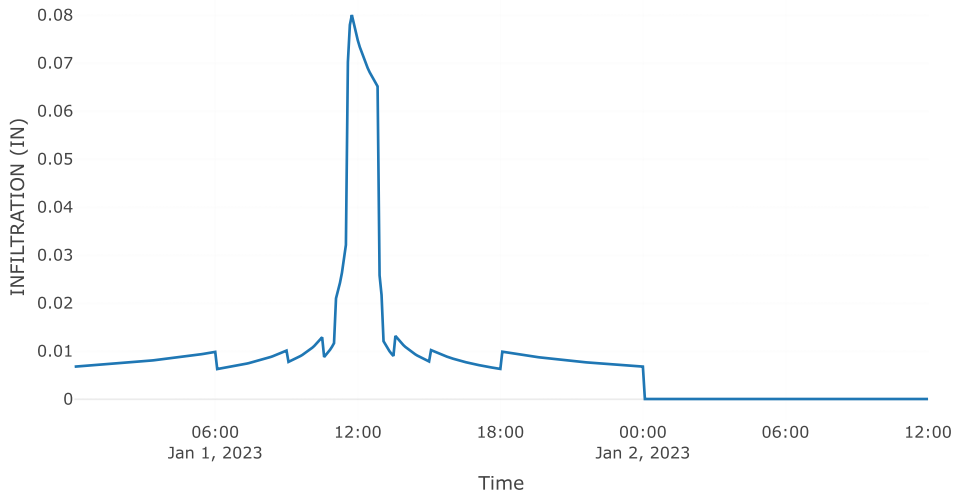
Precipitation Loss



Direct Runoff



Soil Infiltration



Subbasin: H7

Area (MI²) : 14.46

Latitude Degrees : 33.53

Longitude Degrees : -111.23

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.41
Wetting Front Suction	3.9
Hydraulic Conductivity	0.49

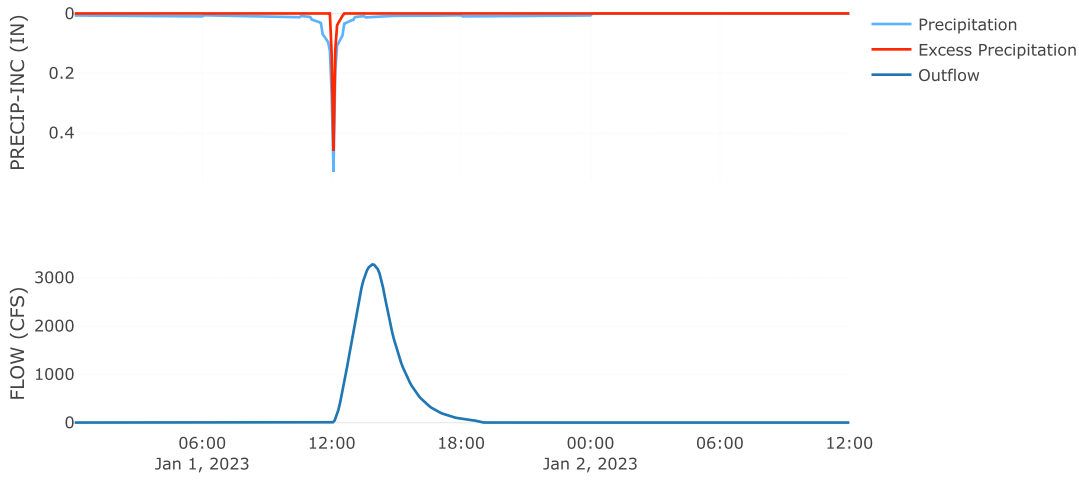
Transform: Clark

Clark Method	Specified
Time of Concentration	2.26
Storage Coefficient	1.01
Time Area Method	Default

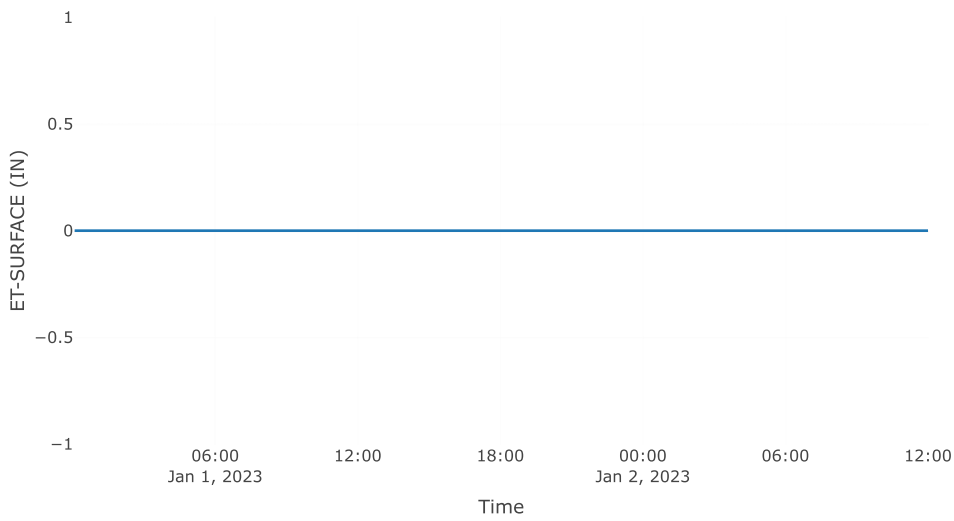
Results: H7

Peak Discharge (CFS)	3270.9
Time of Peak Discharge	01Jan2023, 13:50
Volume (IN)	0.81
Precipitation Volume (AC - FT)	3339.24
Loss Volume (AC - FT)	2712.16
Excess Volume (AC - FT)	627.07
Direct Runoff Volume (AC - FT)	627.07
Baseflow Volume (AC - FT)	0

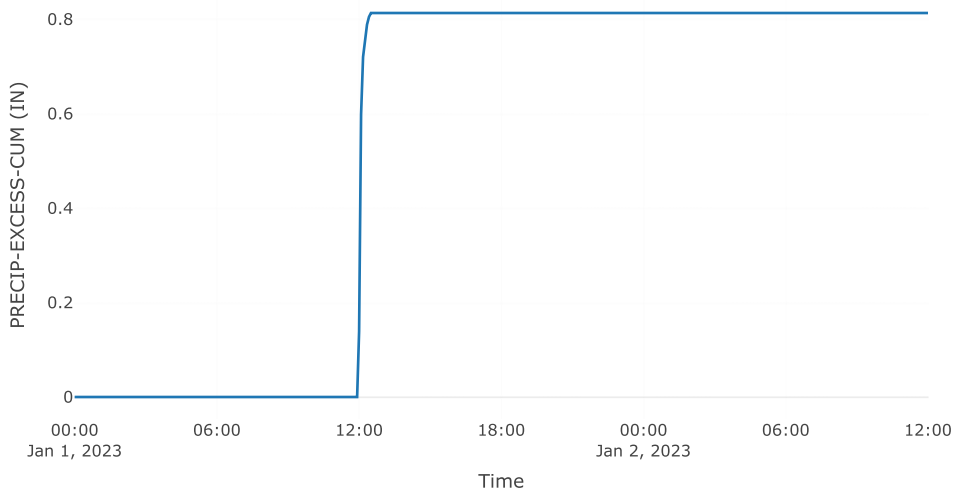
Precipitation and Outflow



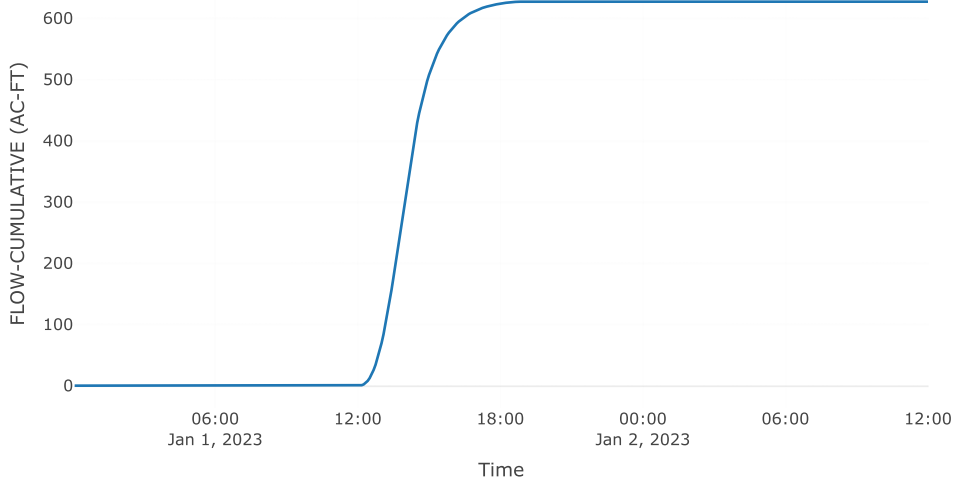
Surface Evapotranspiration



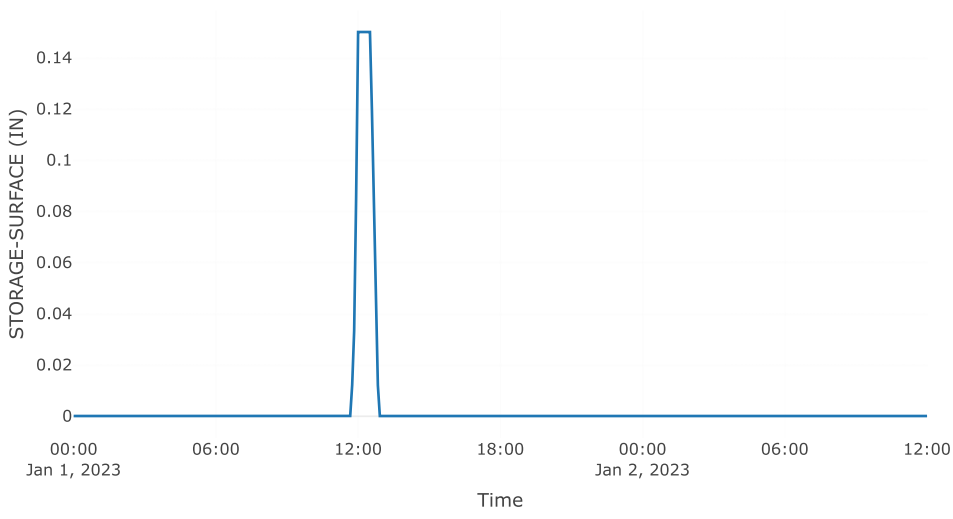
Cumulative Excess Precipitation



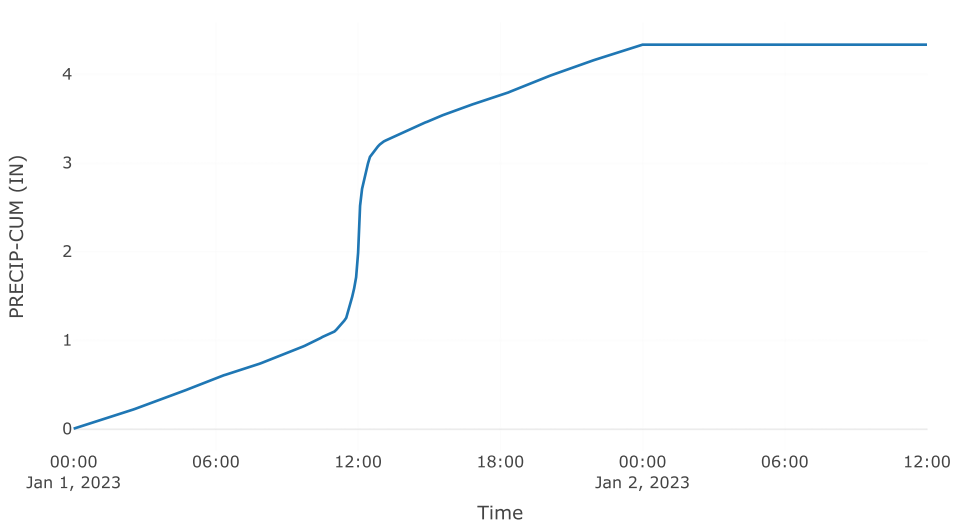
Cumulative Outflow



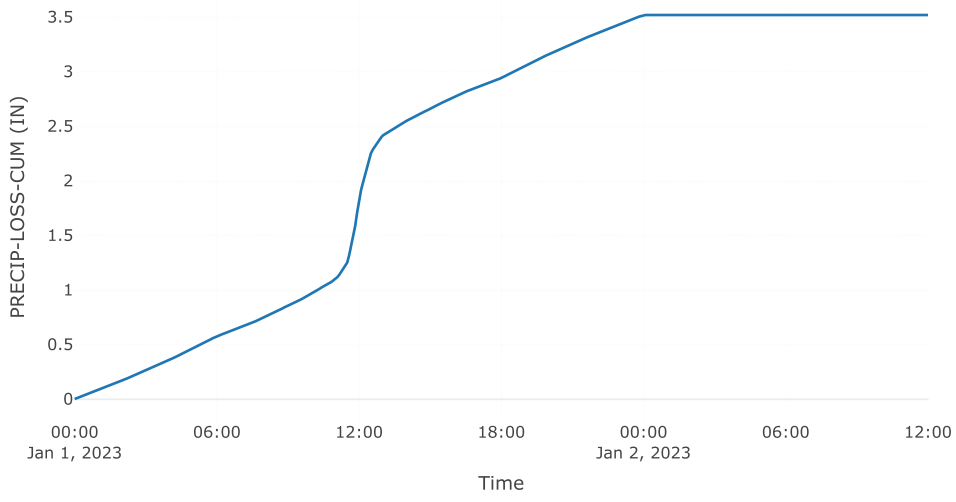
Surface Storage



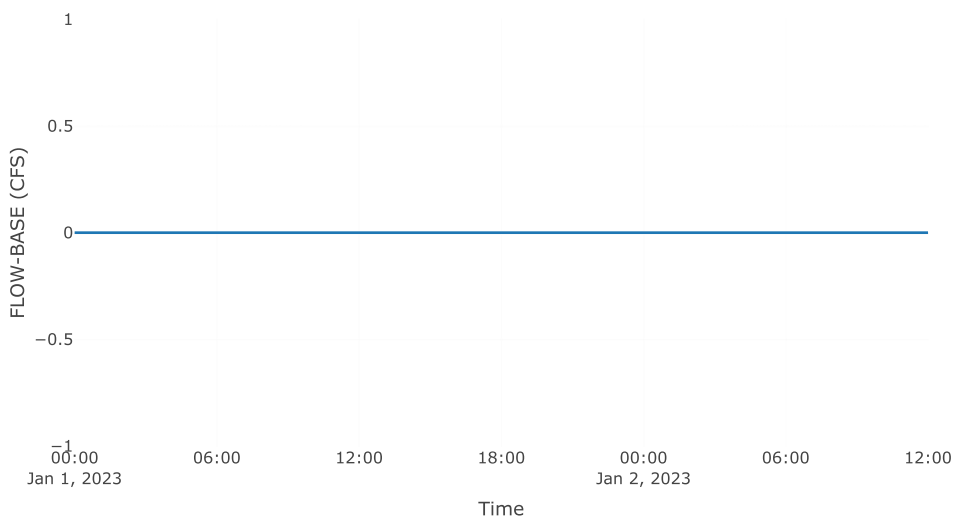
Cumulative Precipitation



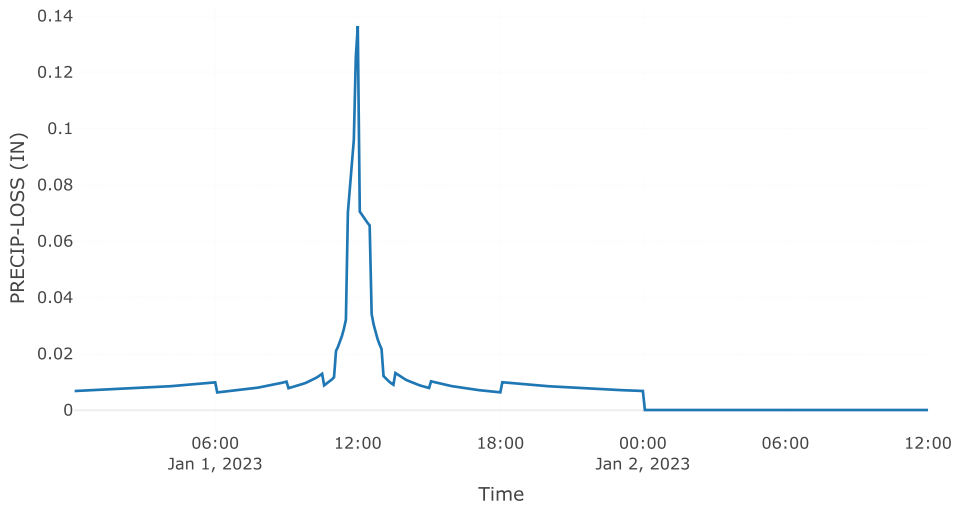
Cumulative Precipitation Loss



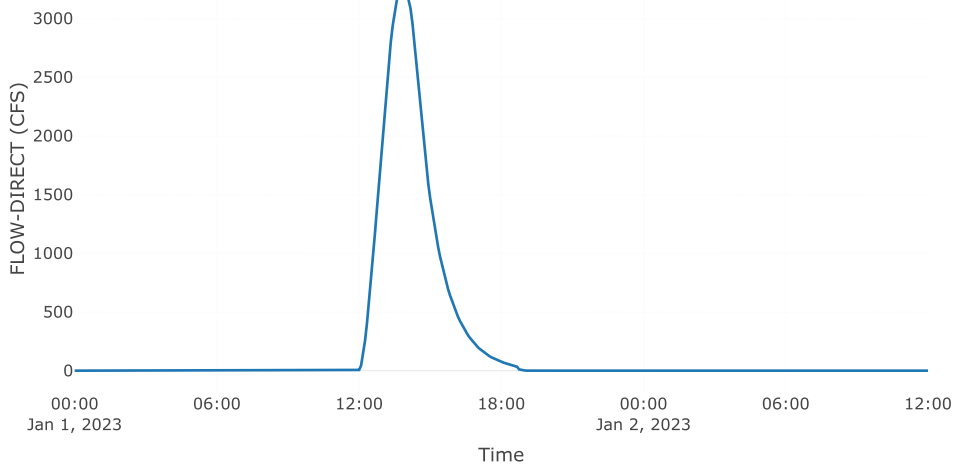
Baseflow



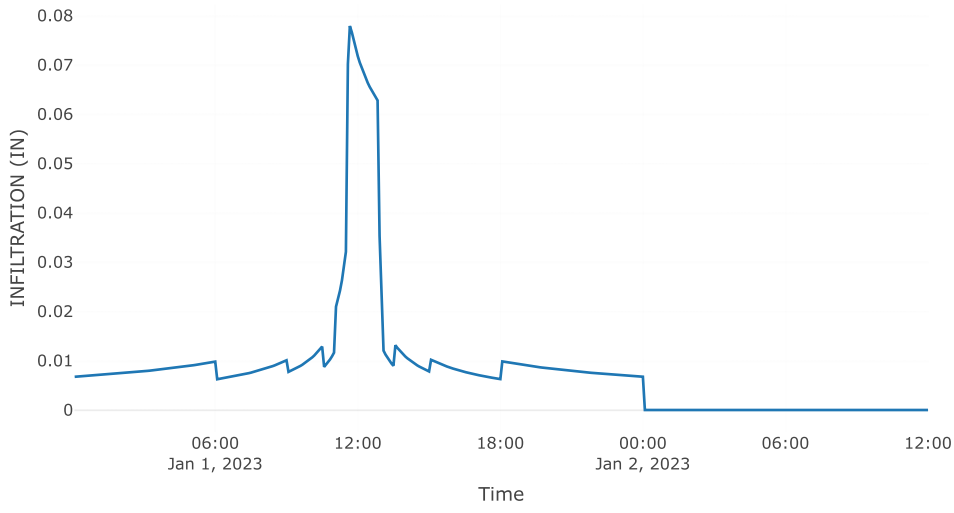
Precipitation Loss



Direct Runoff



Soil Infiltration



Subbasin: H3

Area (MI²) : 0.36

Latitude Degrees : 33.55

Longitude Degrees : -111.29

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.4
Wetting Front Suction	4.33
Hydraulic Conductivity	0.49

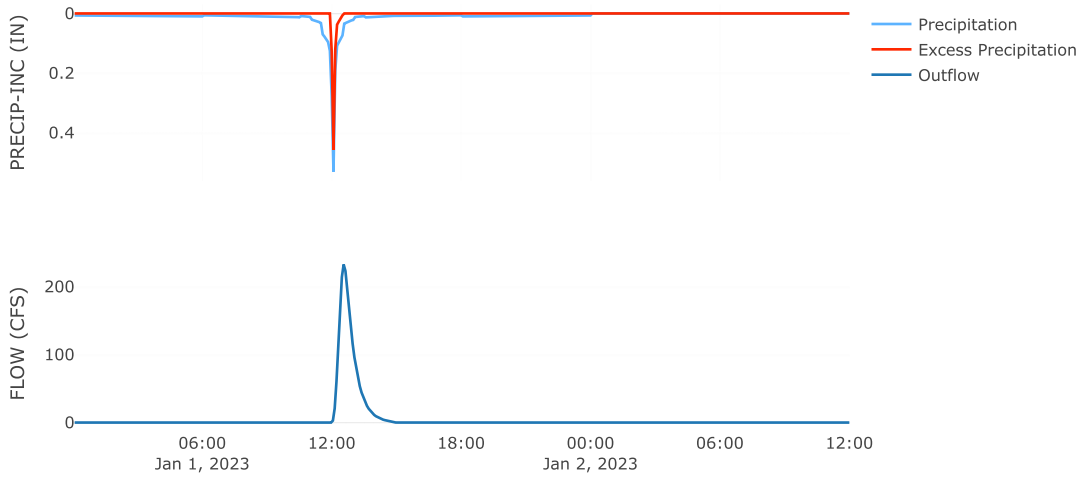
Transform: Clark

Clark Method	Specified
Time of Concentration	0.52
Storage Coefficient	0.43
Time Area Method	Default

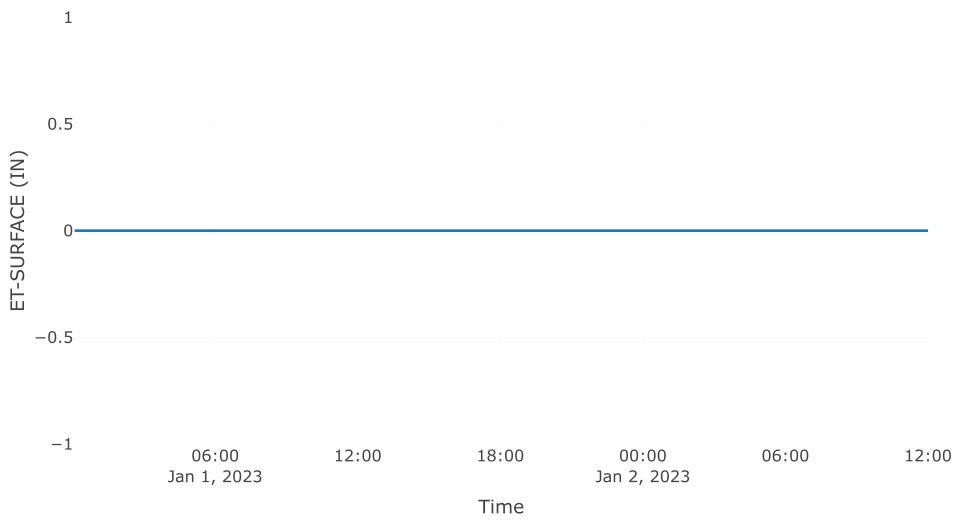
Results: H3

Peak Discharge (CFS)	232.75
Time of Peak Discharge	01Jan2023, 12:30
Volume (IN)	0.79
Precipitation Volume (AC - FT)	82.91
Loss Volume (AC - FT)	67.81
Excess Volume (AC - FT)	15.1
Direct Runoff Volume (AC - FT)	15.1
Baseflow Volume (AC - FT)	0

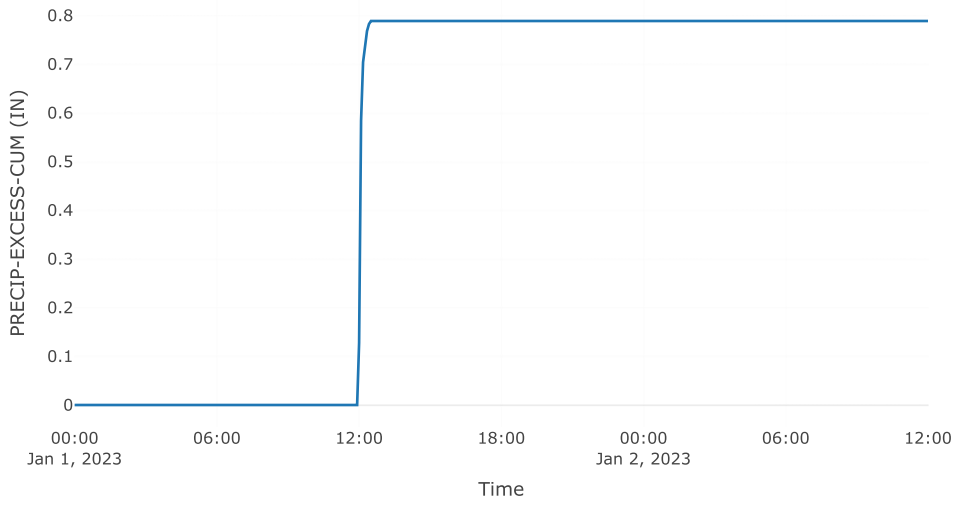
Precipitation and Outflow



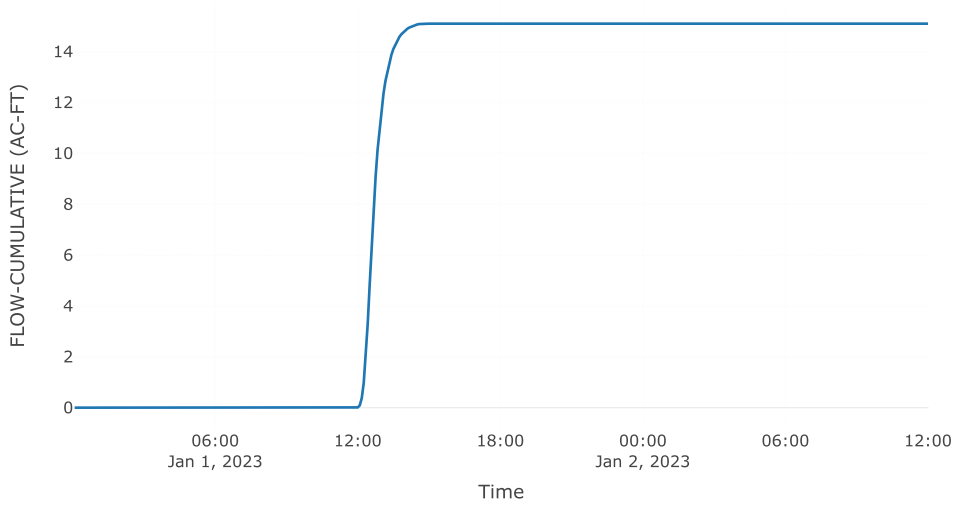
Surface Evapotranspiration



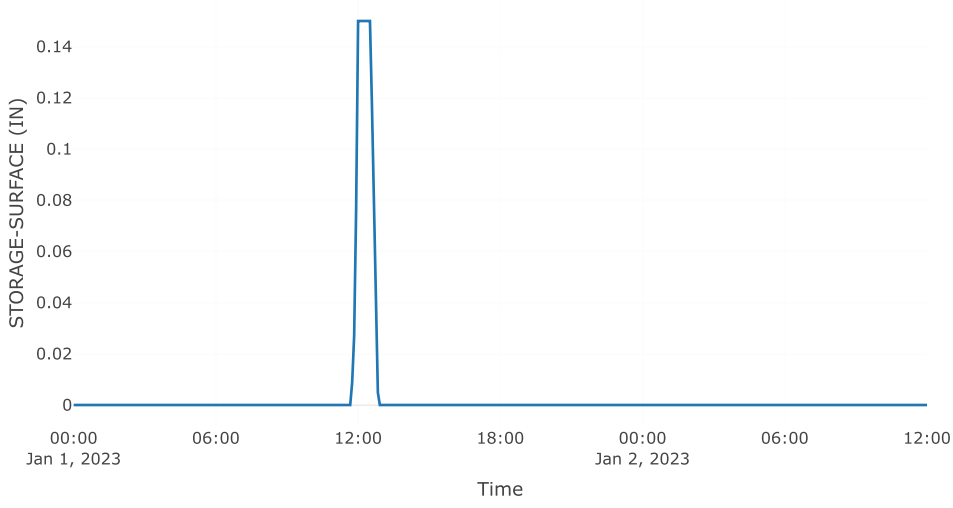
Cumulative Excess Precipitation



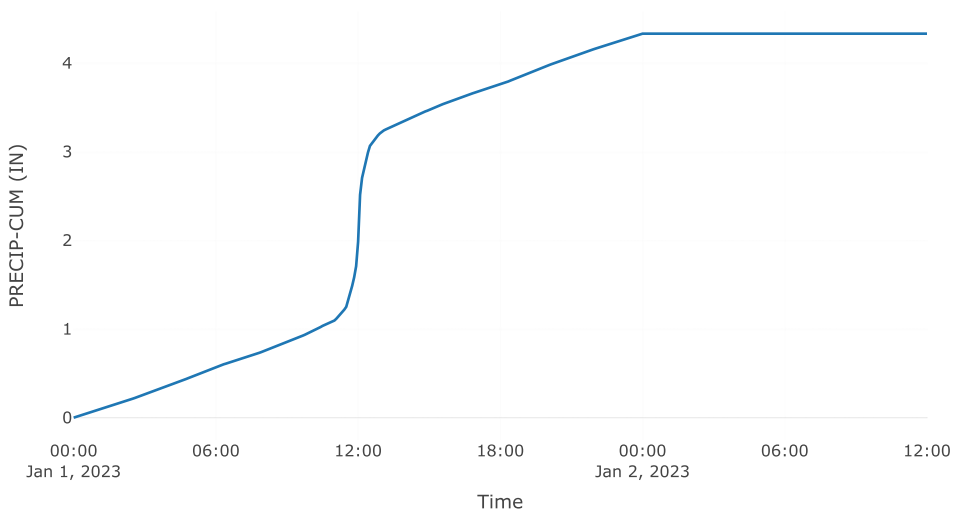
Cumulative Outflow



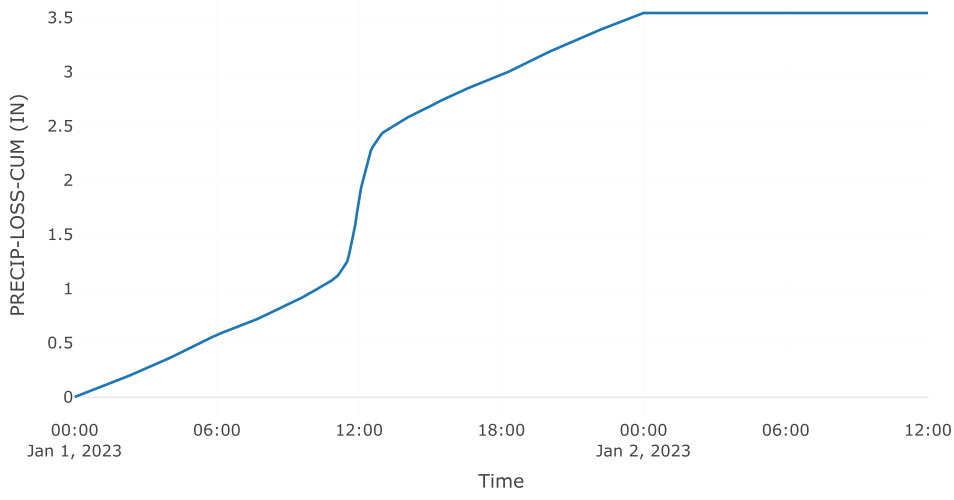
Surface Storage



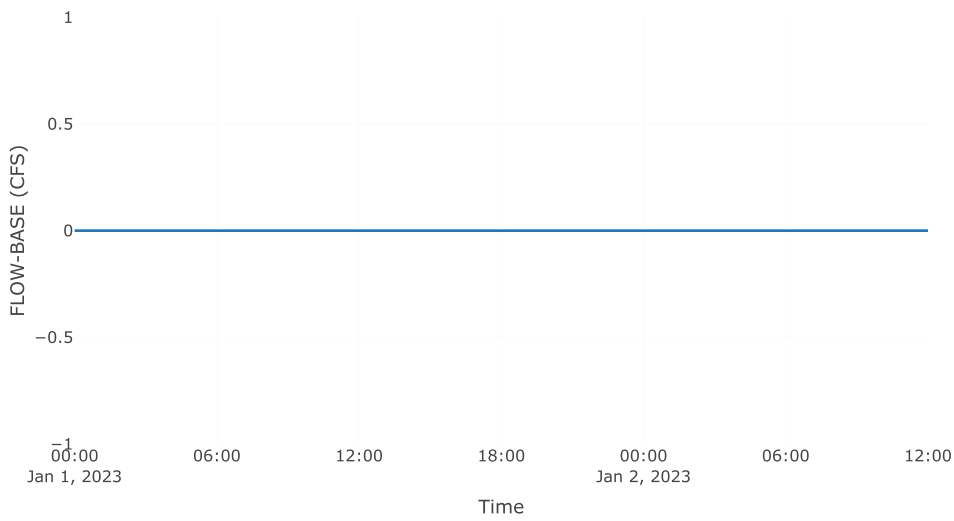
Cumulative Precipitation



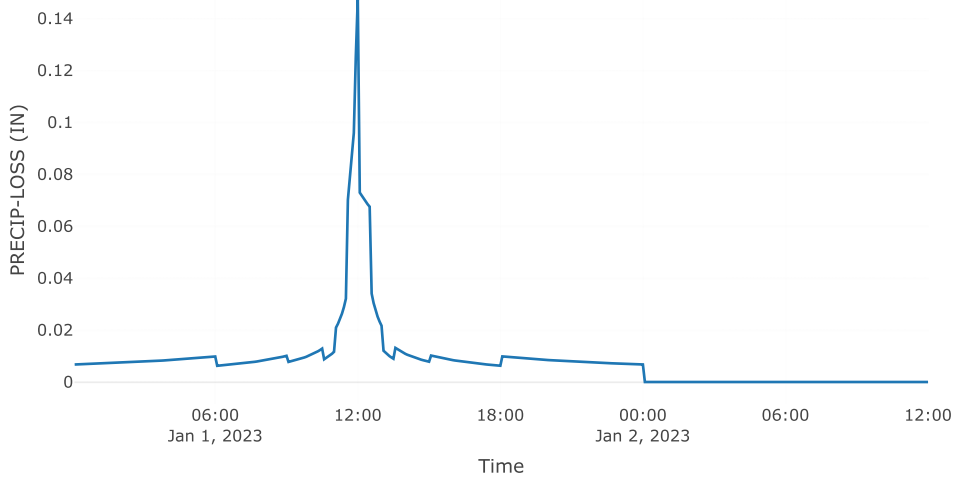
Cumulative Precipitation Loss



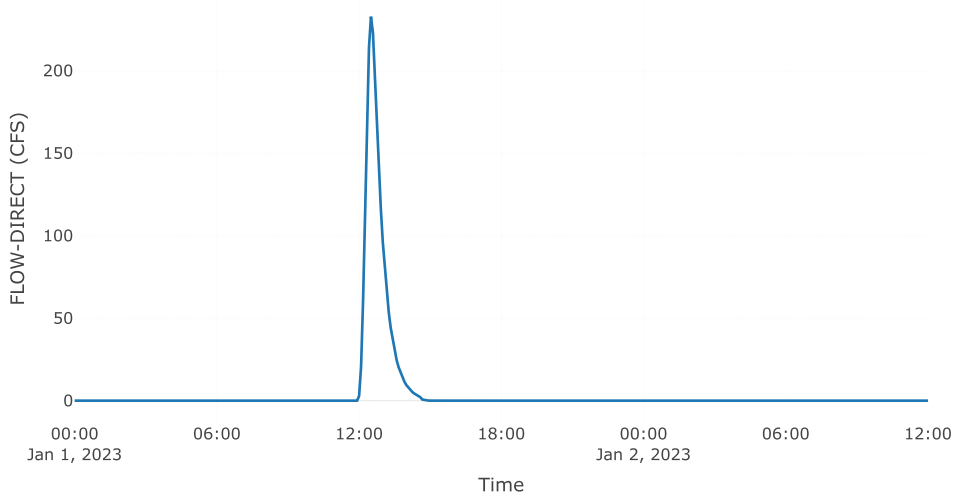
Baseflow



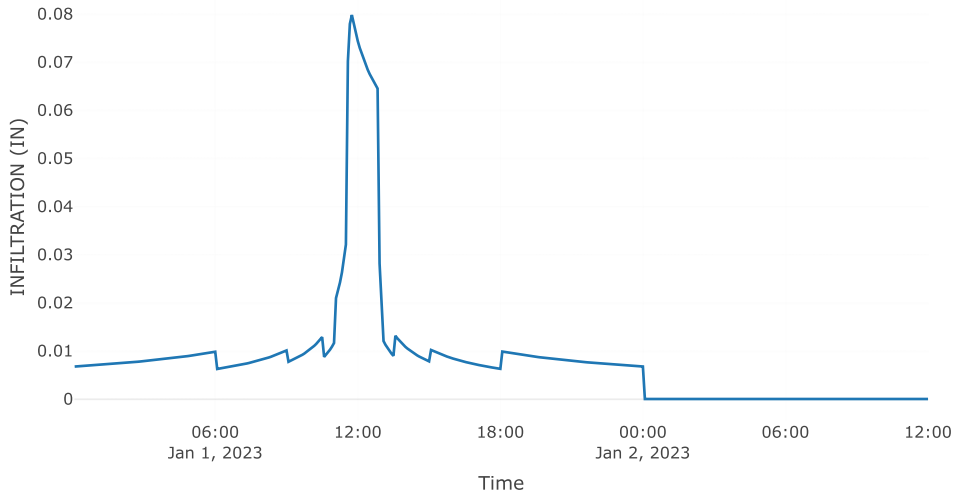
Precipitation Loss



Direct Runoff



Soil Infiltration



Reach: H3 Reach

Downstream : Junction - 1

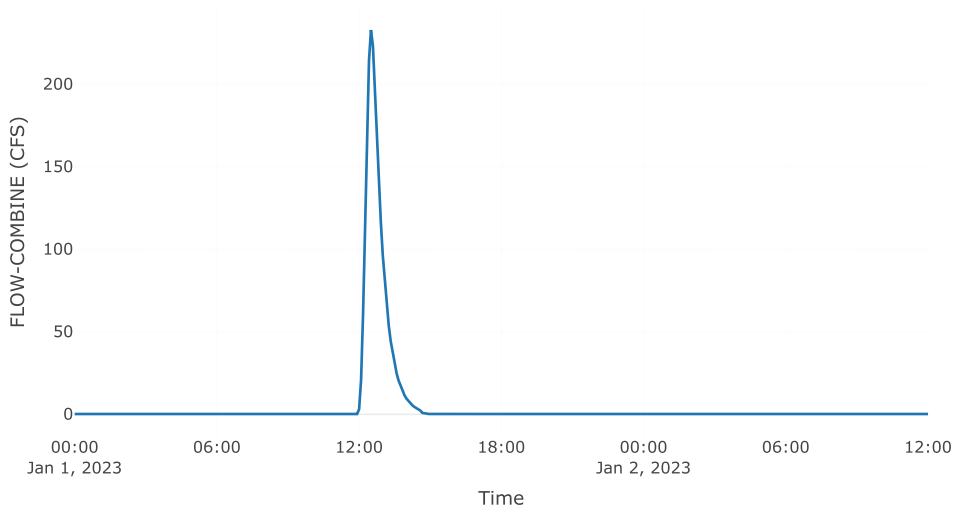
Route: Muskingum Cunge

Method	Muskingum Cunge
Channel	Trapezoid
Length (FT)	1952
Energy Slope (FT/FT)	0.04
Mannings n	0.04
Bottom Width (FT)	30
Side Slope (FT/FT)	3
Initial Variable	Combined Inflow
Space - Time Method	Automatic DX and DT
Index Parameter Type	Index Flow
Index Flow	87
Maximum Depth Iterations	20
Maximum Route Step Iterations	30

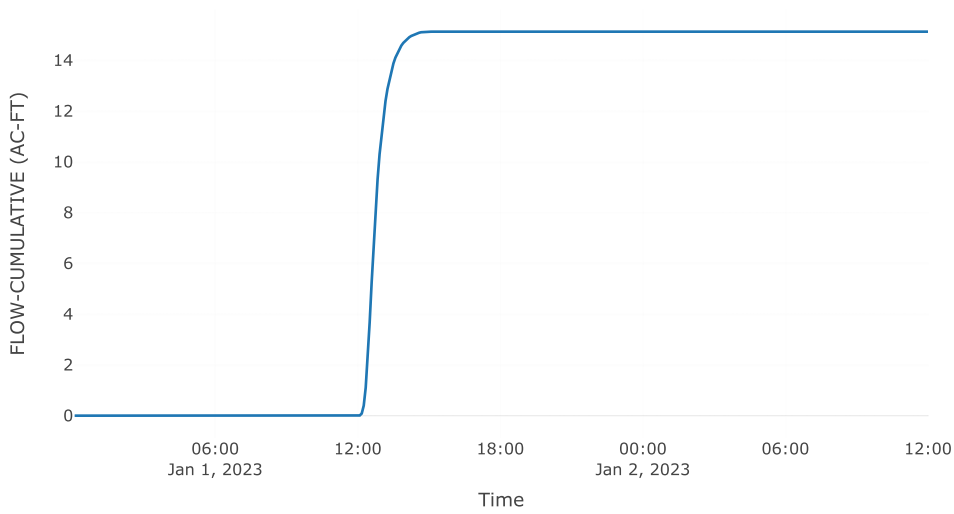
Results: H3 Reach

Peak Discharge (CFS)	231.79
Time of Peak Discharge	01Jan2023, 12:35
Volume (IN)	0.79
Peak Inflow (CFS)	232.75
Inflow Volume (AC - FT)	15.1

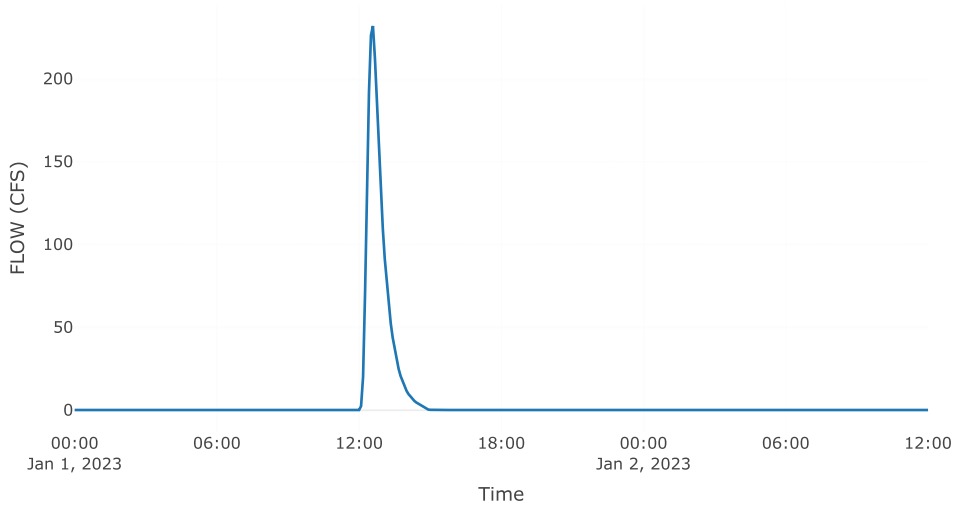
Combined Inflow



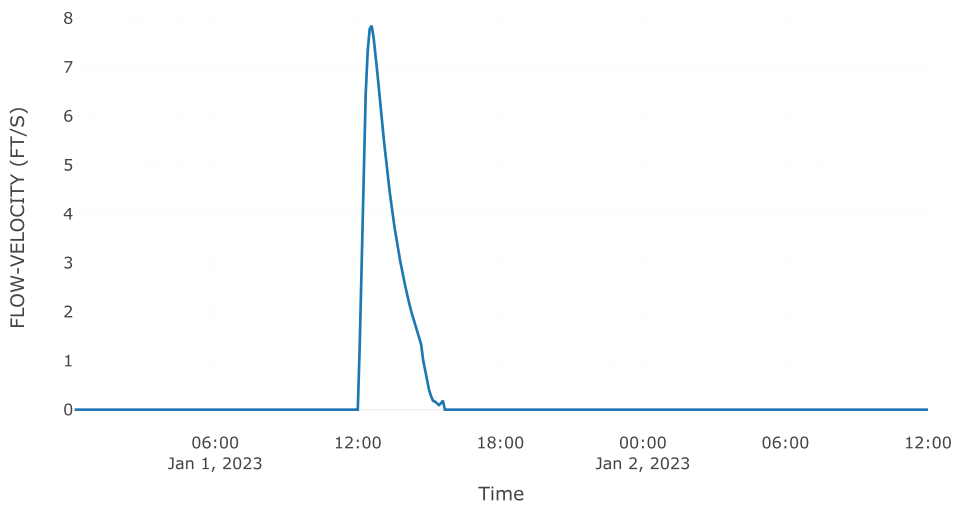
Cumulative Outflow



Outflow



Flow Velocity



Subbasin: H4

Area (MI²) : 0.35

Latitude Degrees : 33.55

Longitude Degrees : -111.29

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.41
Wetting Front Suction	3.96
Hydraulic Conductivity	0.58

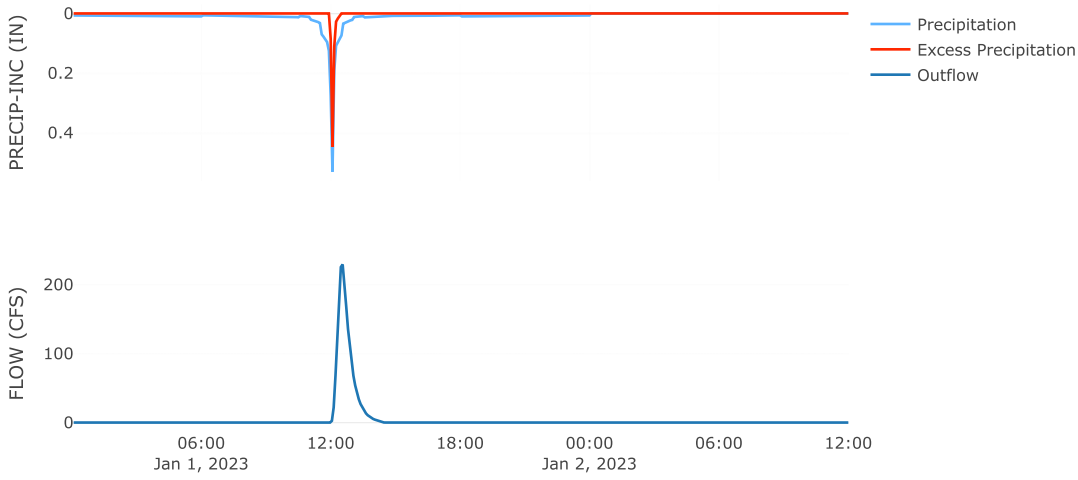
Transform: Clark

Clark Method	Specified
Time of Concentration	0.48
Storage Coefficient	0.36
Time Area Method	Default

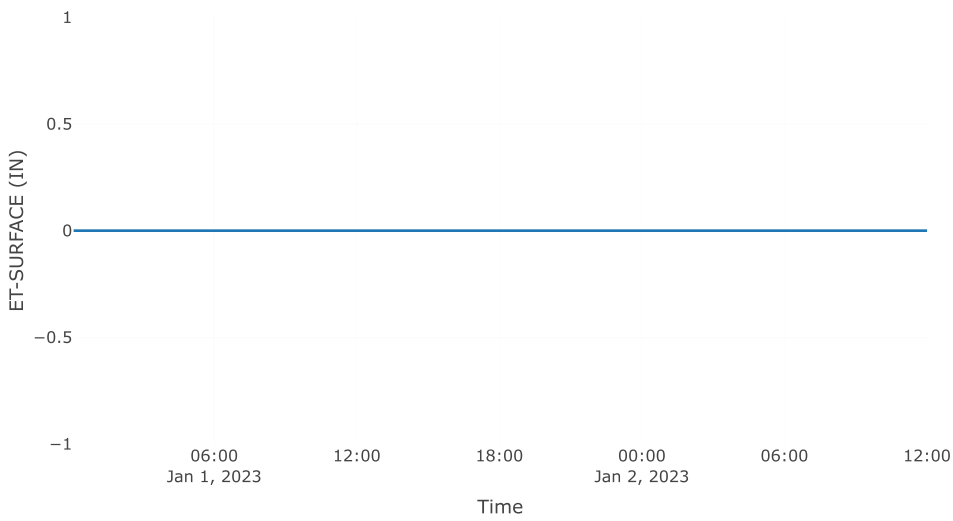
Results: H4

Peak Discharge (CFS)	229.31
Time of Peak Discharge	01Jan2023, 12:30
Volume (IN)	0.69
Precipitation Volume (AC - FT)	81.38
Loss Volume (AC - FT)	68.42
Excess Volume (AC - FT)	12.97
Direct Runoff Volume (AC - FT)	12.97
Baseflow Volume (AC - FT)	0

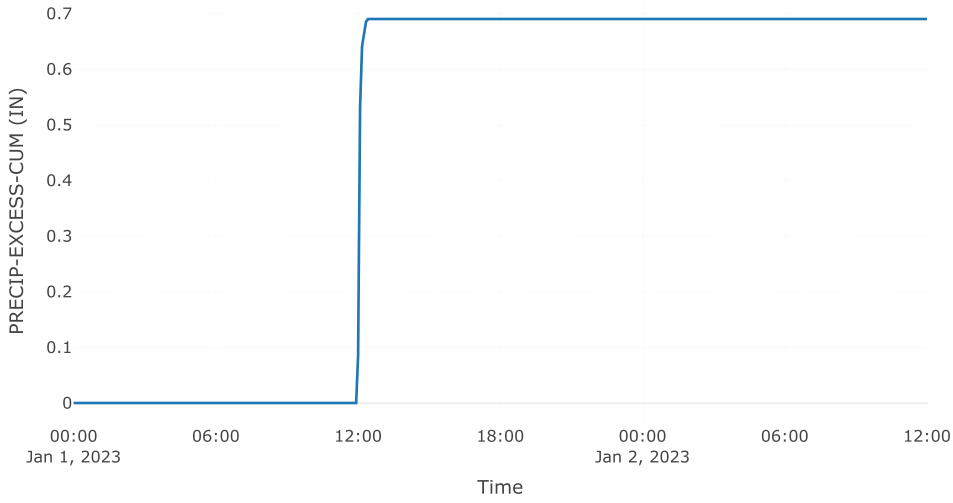
Precipitation and Outflow



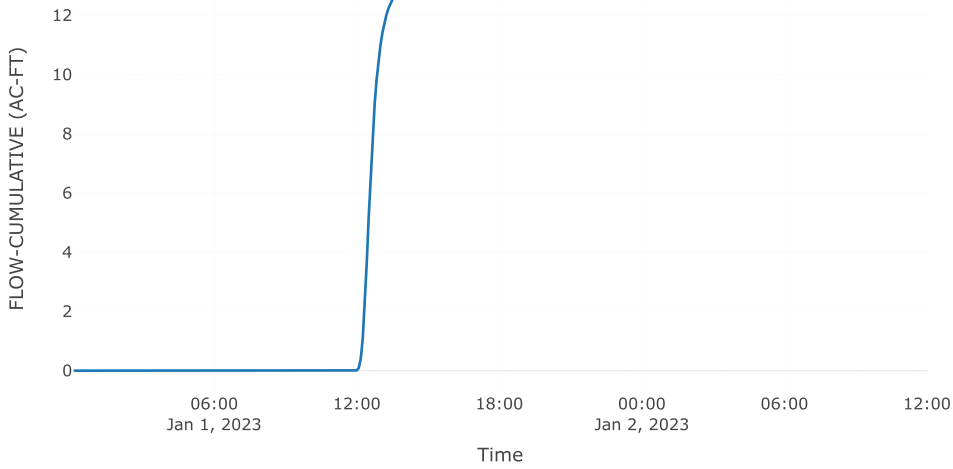
Surface Evapotranspiration



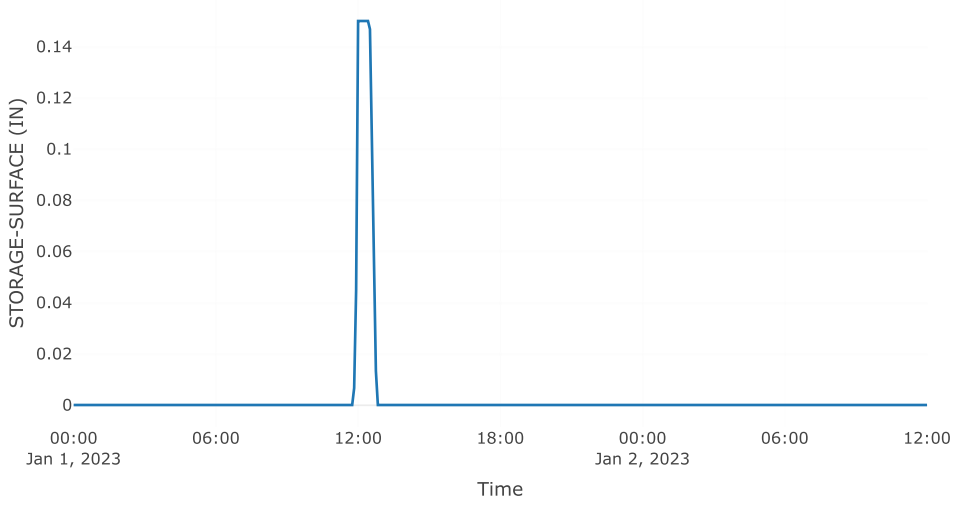
Cumulative Excess Precipitation



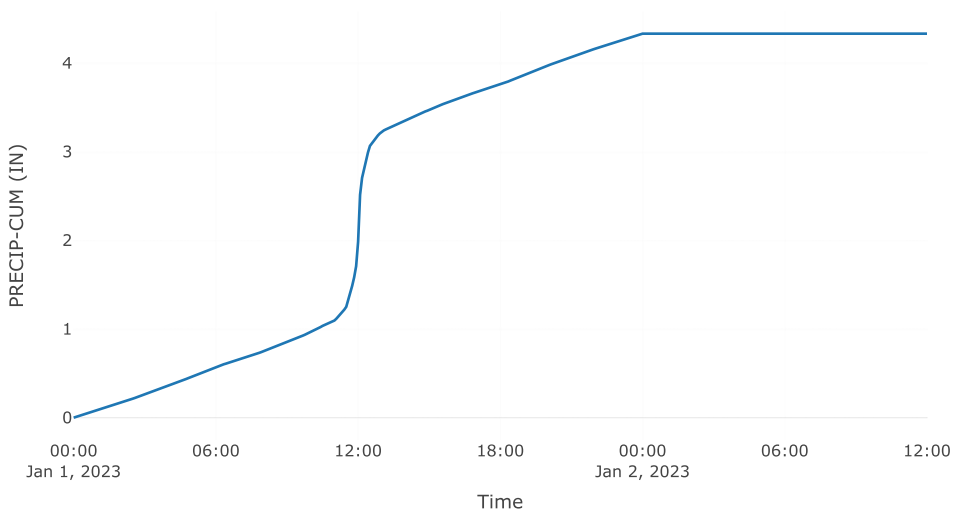
Cumulative Outflow



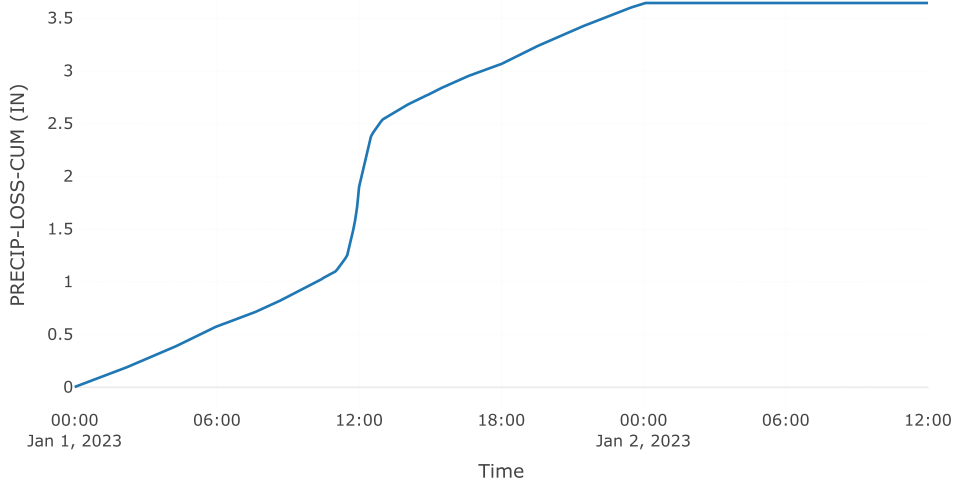
Surface Storage



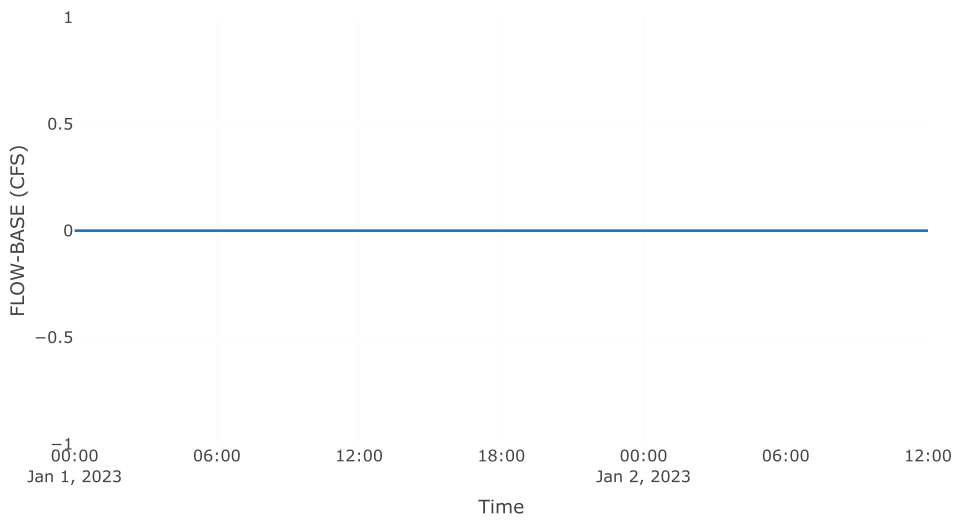
Cumulative Precipitation



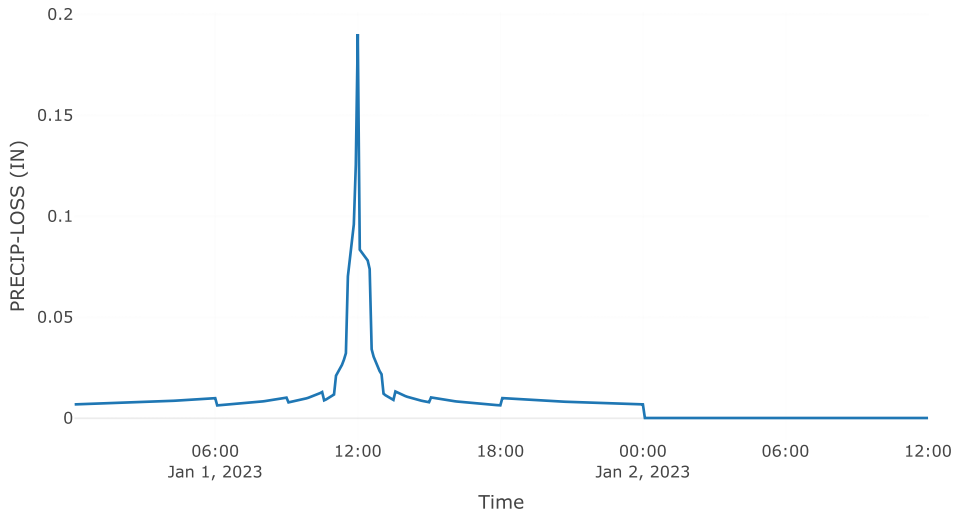
Cumulative Precipitation Loss



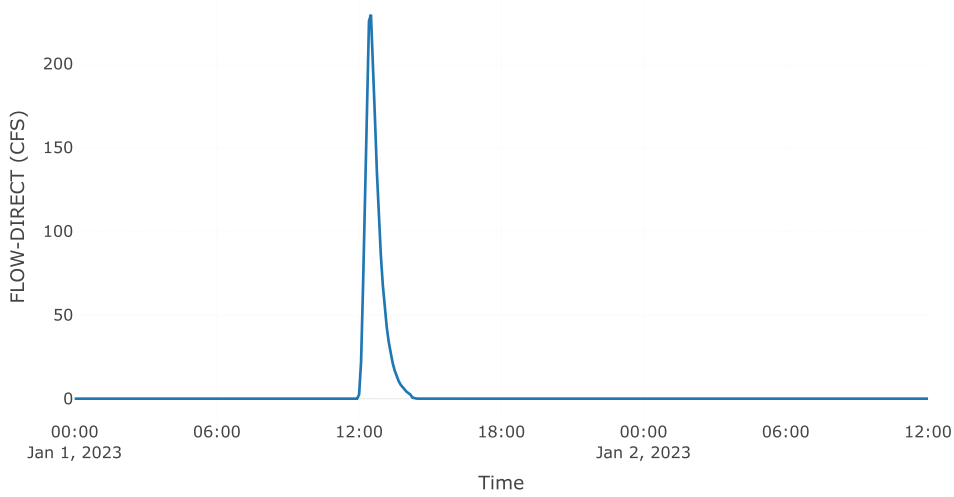
Baseflow



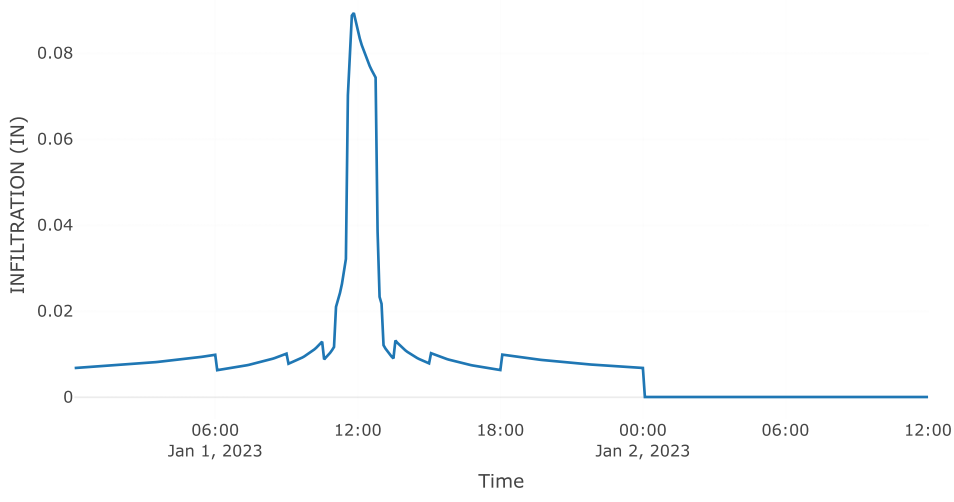
Precipitation Loss



Direct Runoff



Soil Infiltration



Reach: H4 Reach

Downstream : Junction - 1

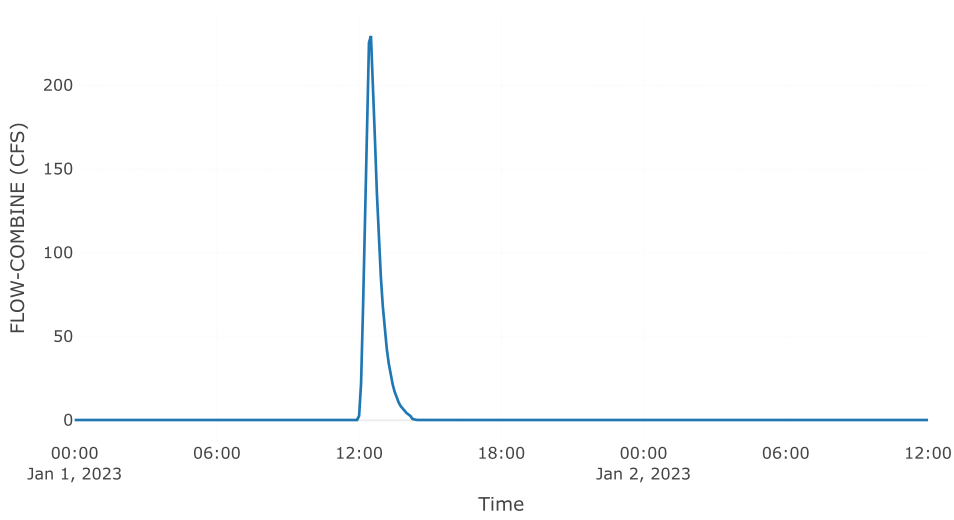
Route: Muskingum Cunge

Method	Muskingum Cunge
Channel	Trapezoid
Length (FT)	3490
Energy Slope (FT/FT)	0.03
Mannings n	0.04
Bottom Width (FT)	30
Side Slope (FT/FT)	3
Initial Variable	Combined Inflow
Space - Time Method	Automatic DX and DT
Index Parameter Type	Index Flow
Index Flow	86
Maximum Depth Iterations	20
Maximum Route Step Iterations	30

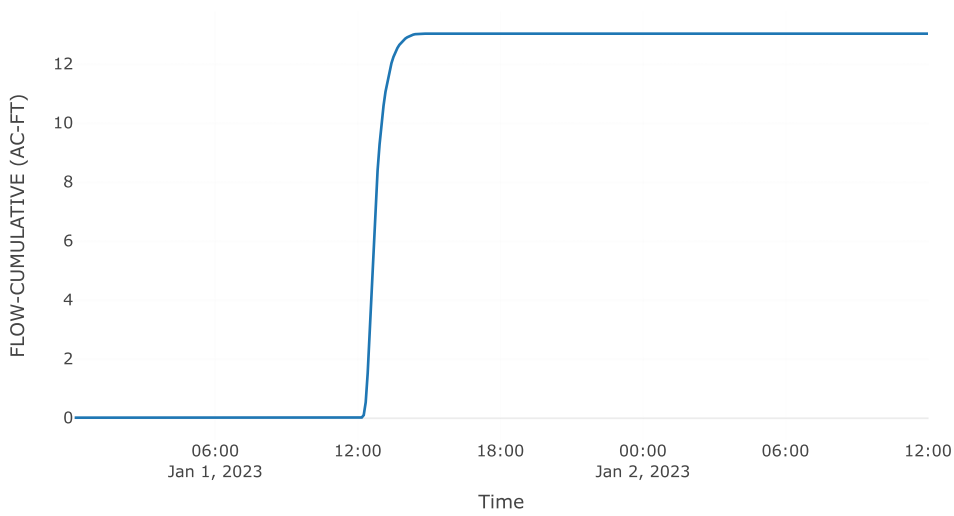
Results: H4 Reach

Peak Discharge (CFS)	230.64
Time of Peak Discharge	01Jan2023, 12:35
Volume (IN)	0.69
Peak Inflow (CFS)	229.31
Inflow Volume (AC - FT)	12.97

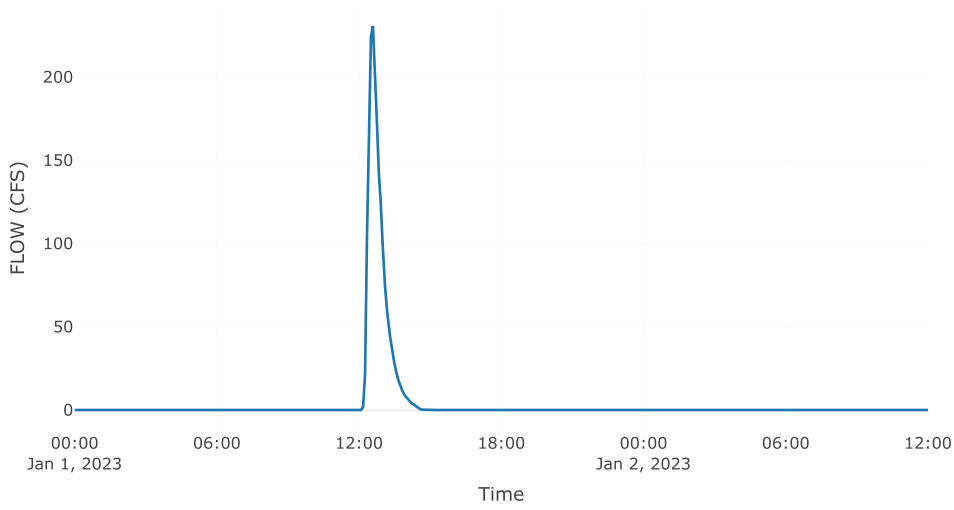
Combined Inflow



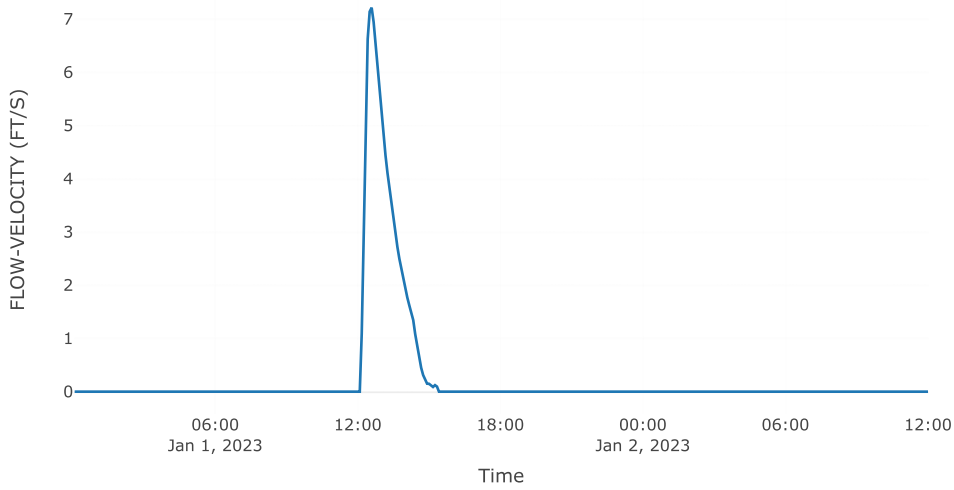
Cumulative Outflow



Outflow



Flow Velocity



Subbasin: H6

Area (MI²) : 0.36

Latitude Degrees : 33.55

Longitude Degrees : -111.27

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.09
Saturated Content	0.41
Wetting Front Suction	4.25
Hydraulic Conductivity	0.49

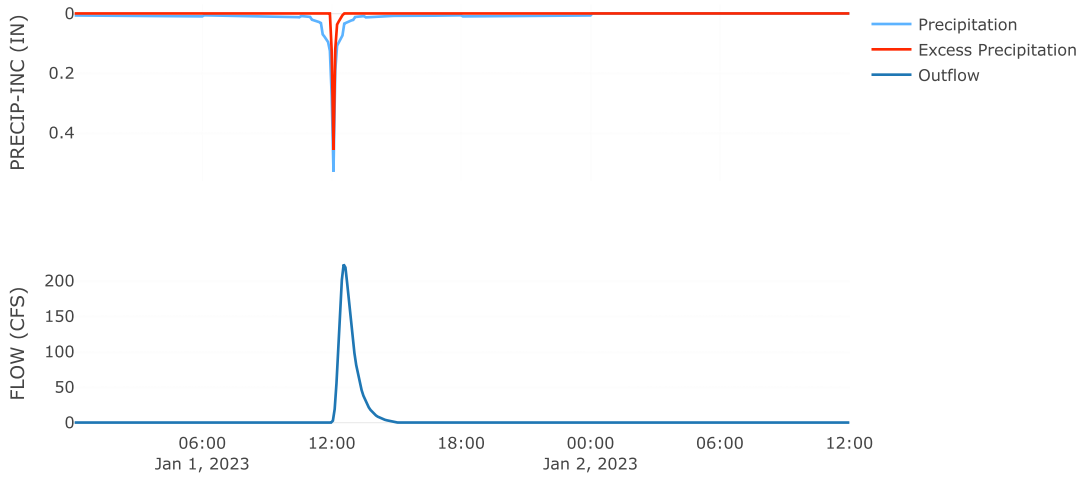
Transform: Clark

Clark Method	Specified
Time of Concentration	0.54
Storage Coefficient	0.44
Time Area Method	Default

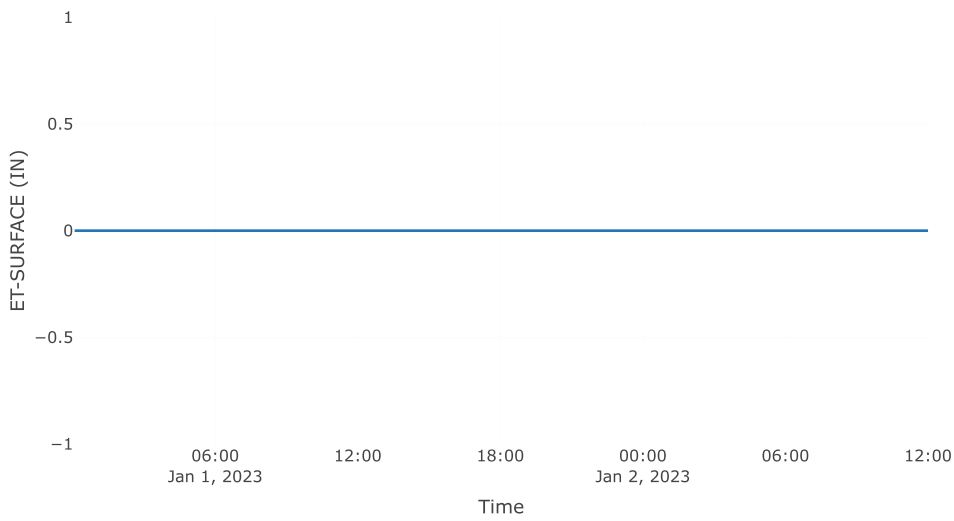
Results: H6

Peak Discharge (CFS)	223.11
Time of Peak Discharge	01Jan2023, 12:30
Volume (IN)	0.79
Precipitation Volume (AC - FT)	82.26
Loss Volume (AC - FT)	67.35
Excess Volume (AC - FT)	14.91
Direct Runoff Volume (AC - FT)	14.91
Baseflow Volume (AC - FT)	0

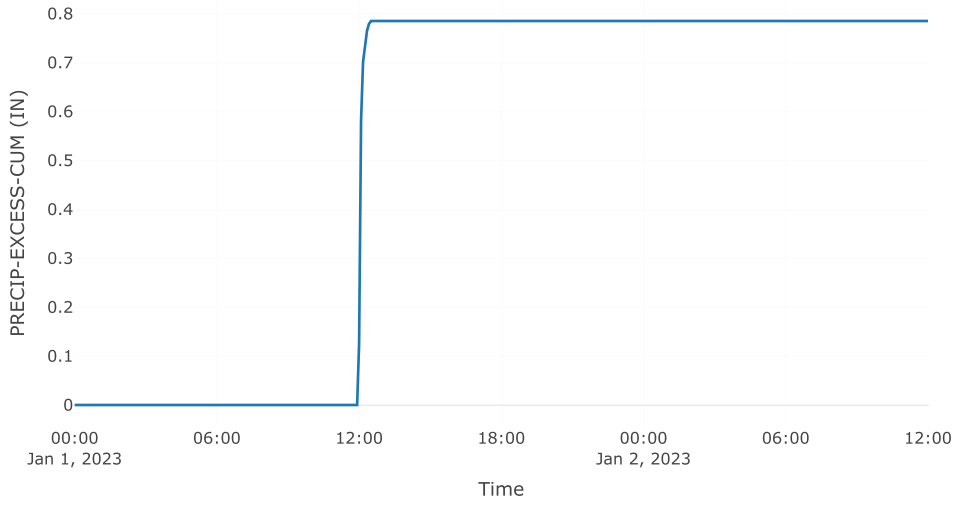
Precipitation and Outflow



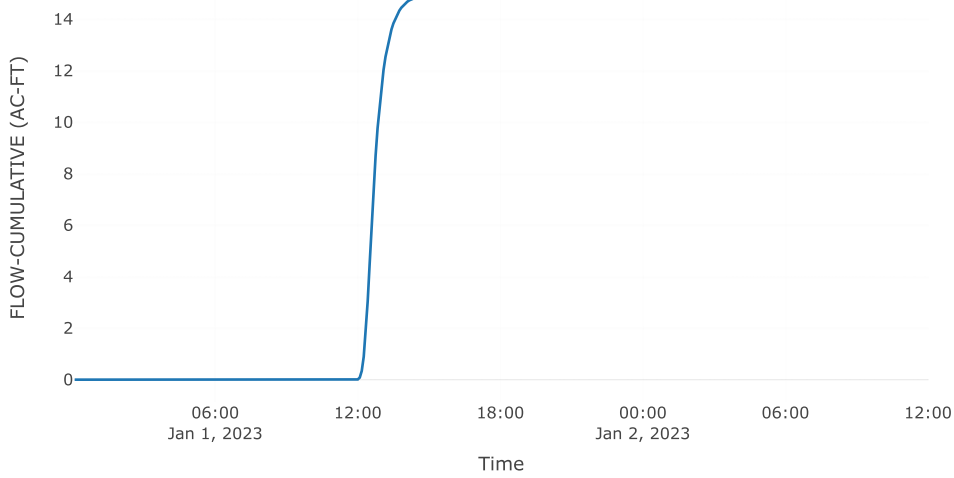
Surface Evapotranspiration



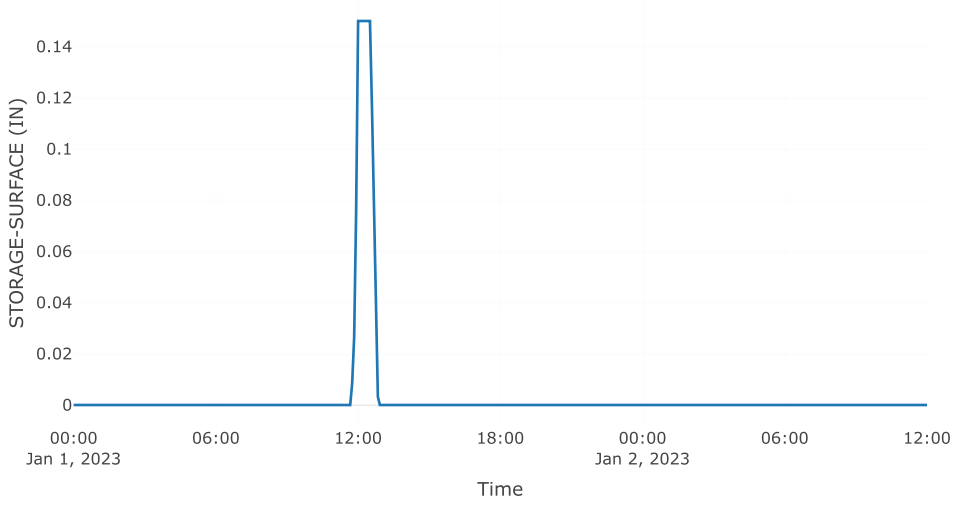
Cumulative Excess Precipitation



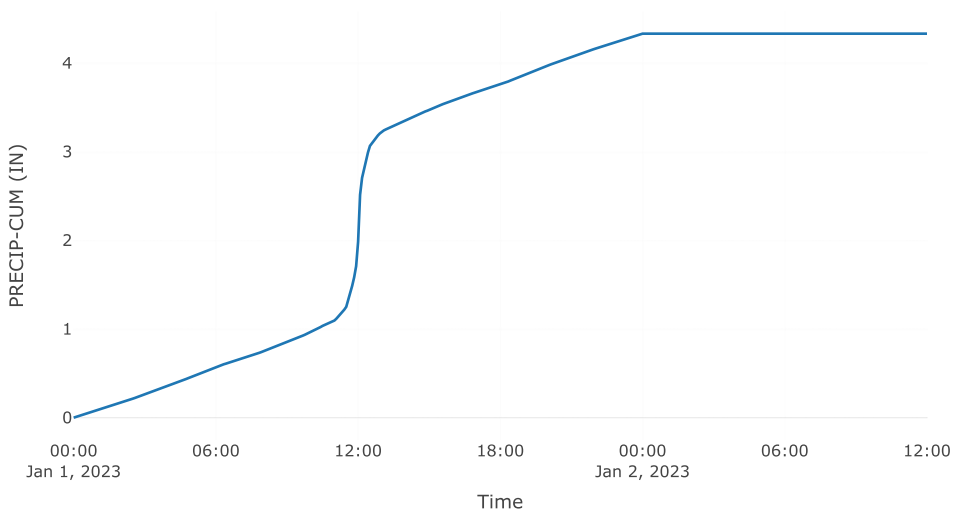
Cumulative Outflow (AC-FT)



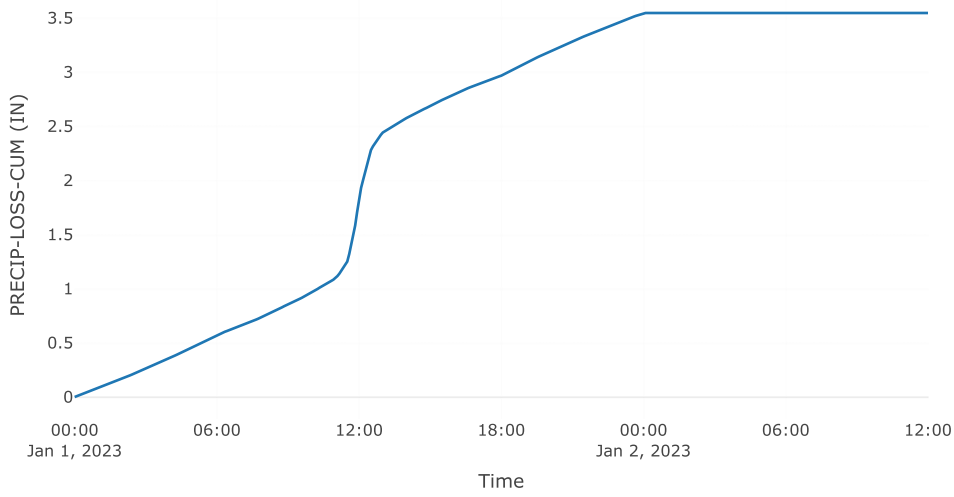
Surface Storage



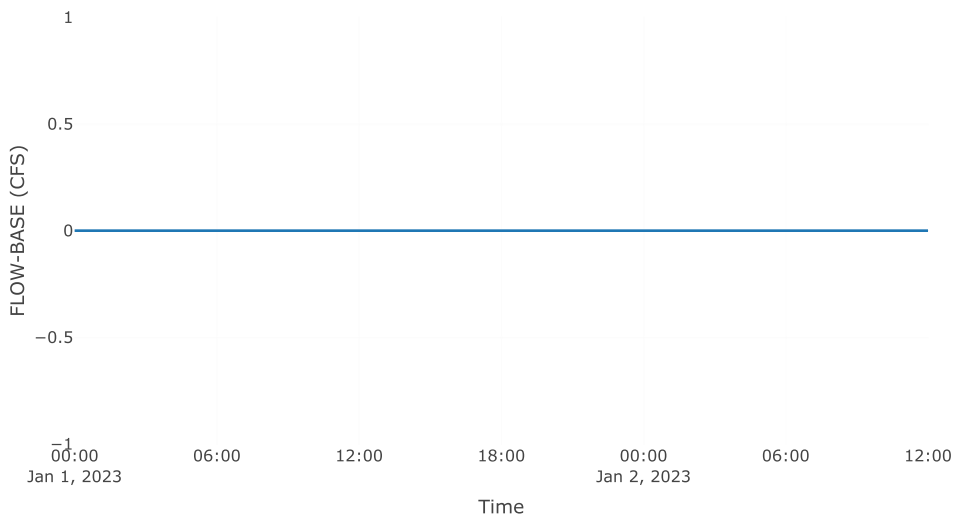
Cumulative Precipitation



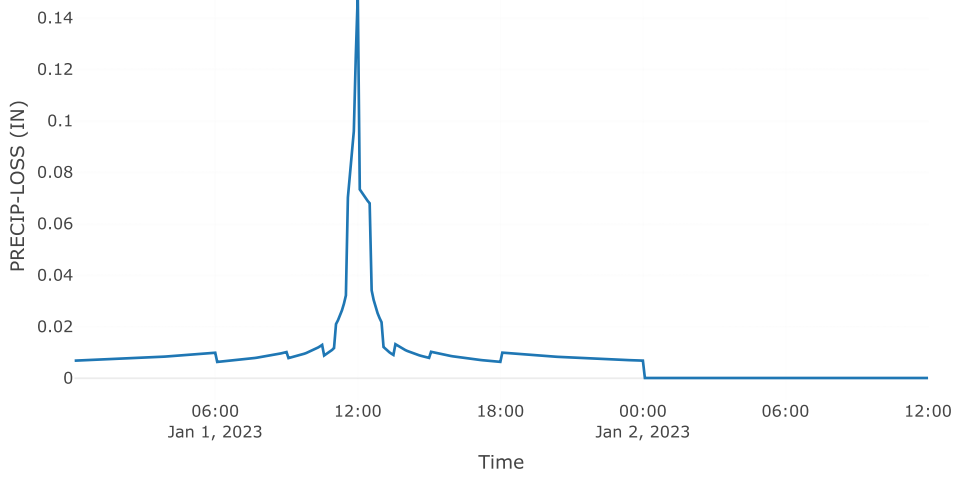
Cumulative Precipitation Loss



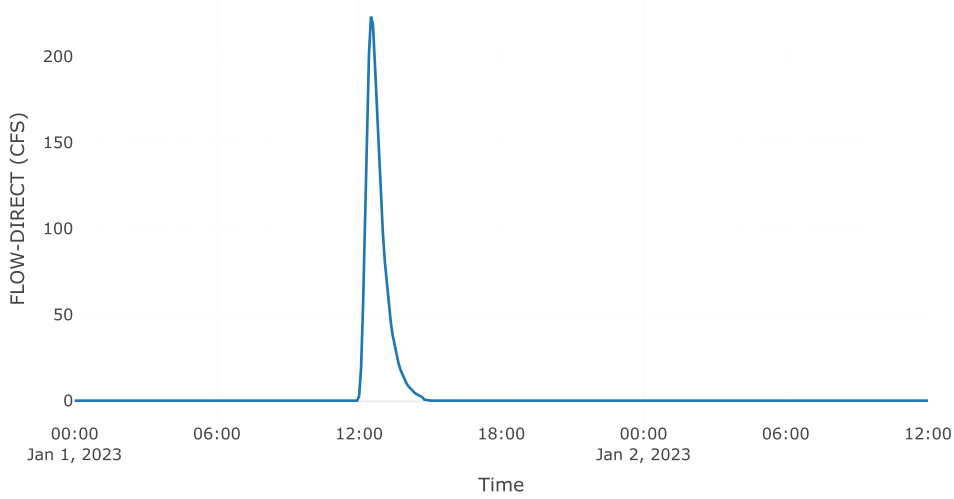
Baseflow



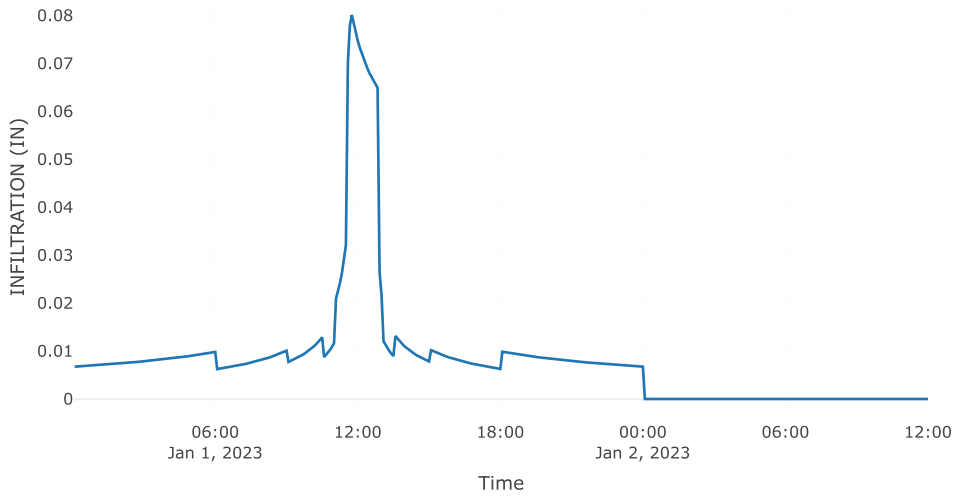
Precipitation Loss



Direct Runoff



Soil Infiltration



Reach: H6 Reach

Downstream : Junction - 1

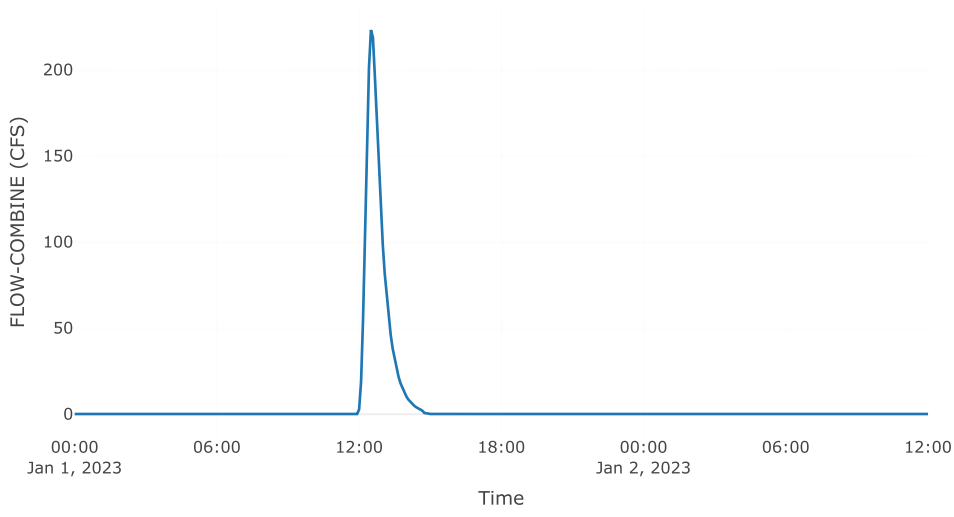
Route: Muskingum Cunge

Method	Muskingum Cunge
Channel	Trapezoid
Length (FT)	11711
Energy Slope (FT/FT)	0.03
Mannings n	0.04
Bottom Width (FT)	30
Side Slope (FT/FT)	3
Initial Variable	Combined Inflow
Space - Time Method	Automatic DX and DT
Index Parameter Type	Index Flow
Index Flow	103
Maximum Depth Iterations	20
Maximum Route Step Iterations	30

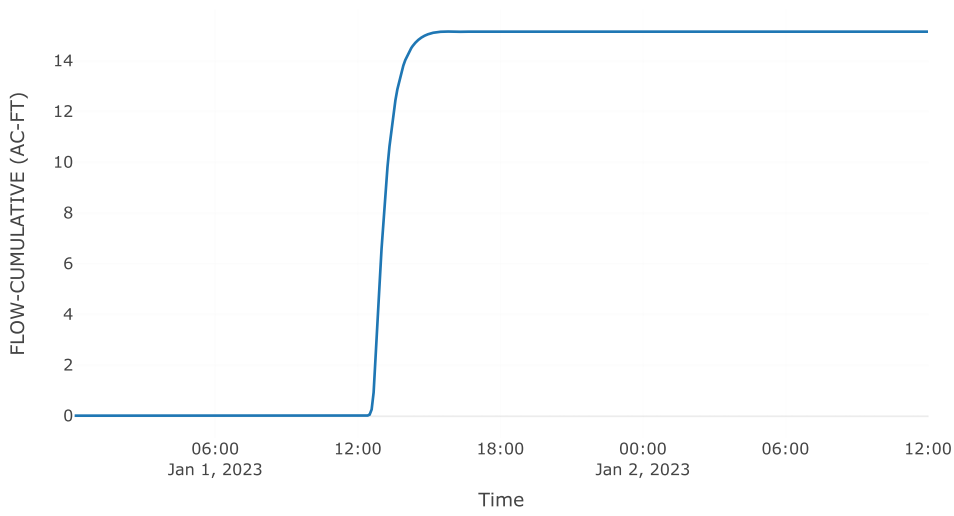
Results: H6 Reach

Peak Discharge (CFS)	224.69
Time of Peak Discharge	01Jan2023, 12:50
Volume (IN)	0.8
Peak Inflow (CFS)	223.11
Inflow Volume (AC - FT)	14.91

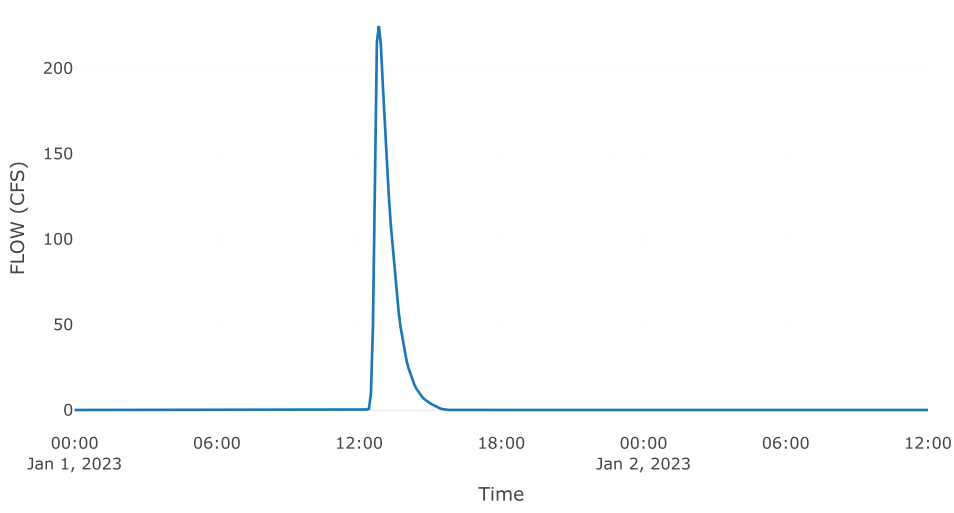
Combined Inflow



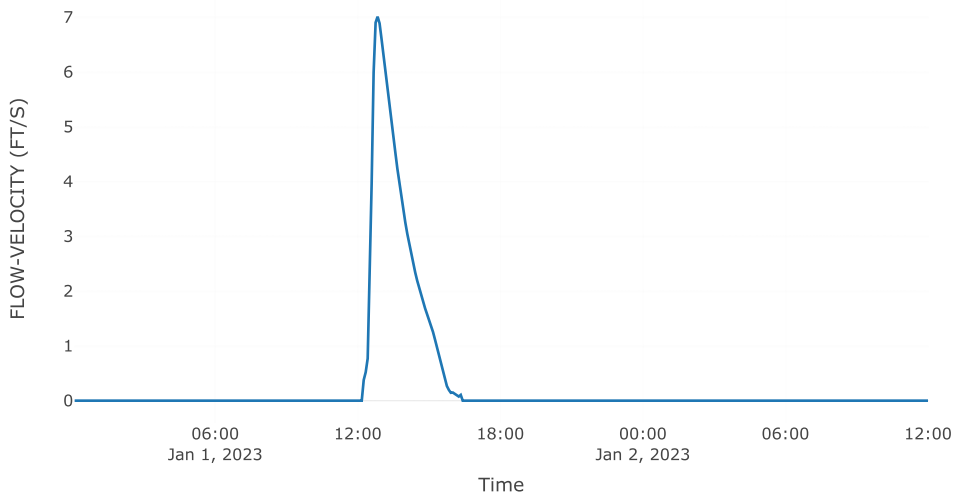
Cumulative Outflow



Outflow



Flow Velocity



Subbasin: H5

Area (MI²) : 0.33

Latitude Degrees : 33.55

Longitude Degrees : -111.28

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.41
Wetting Front Suction	3.93
Hydraulic Conductivity	0.59

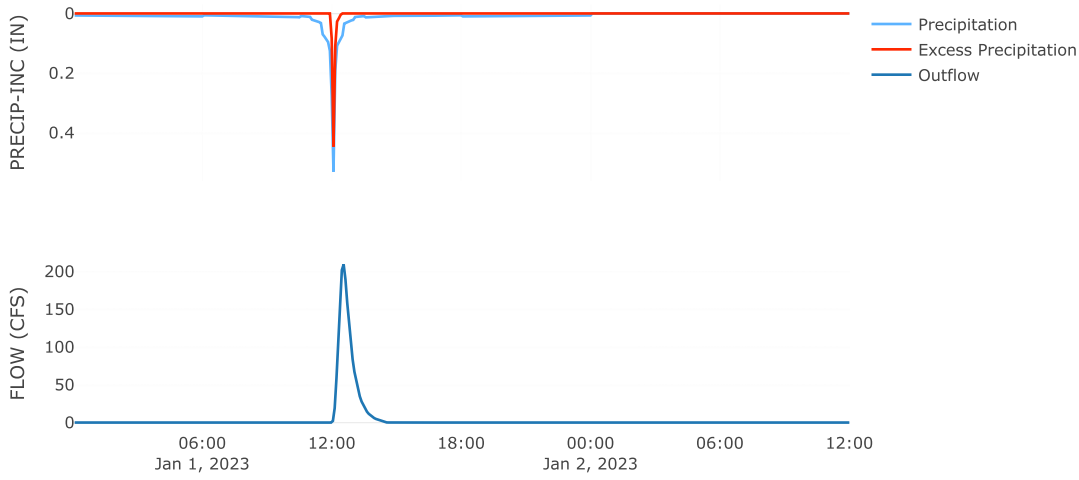
Transform: Clark

Clark Method	Specified
Time of Concentration	0.49
Storage Coefficient	0.38
Time Area Method	Default

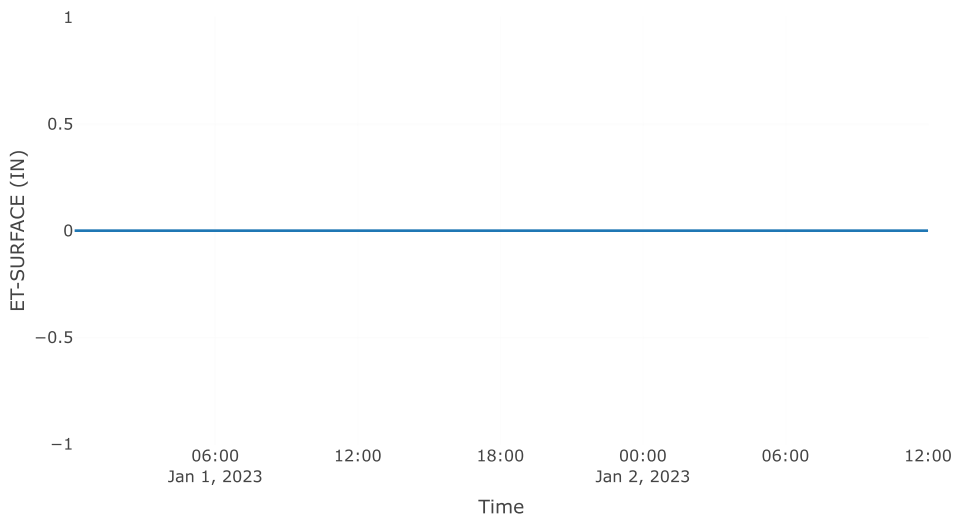
Results: H5

Peak Discharge (CFS)	209.36
Time of Peak Discharge	01Jan2023, 12:30
Volume (IN)	0.69
Precipitation Volume (AC - FT)	76.86
Loss Volume (AC - FT)	64.68
Excess Volume (AC - FT)	12.18
Direct Runoff Volume (AC - FT)	12.18
Baseflow Volume (AC - FT)	0

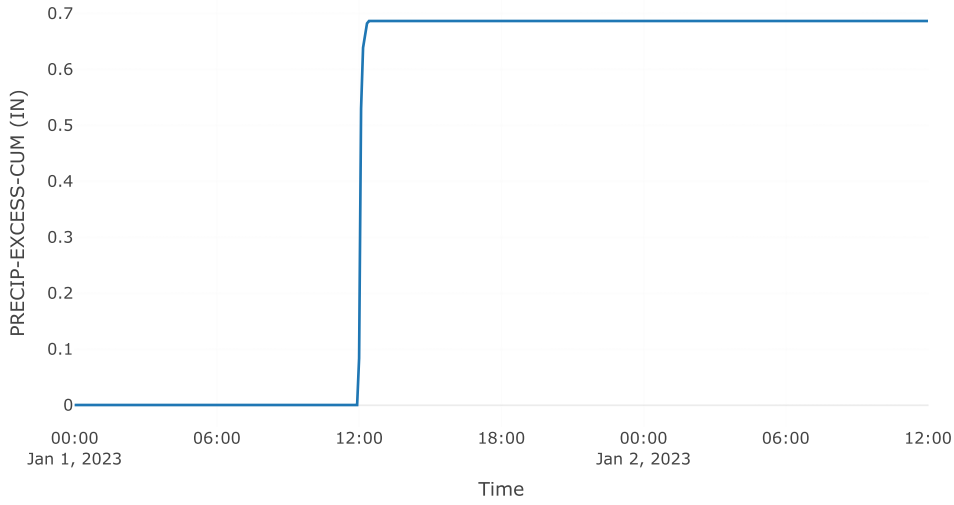
Precipitation and Outflow



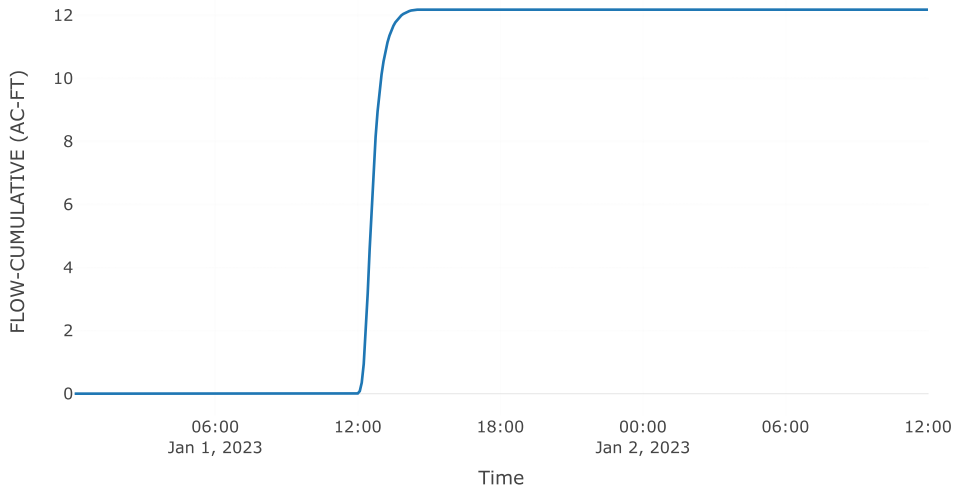
Surface Evapotranspiration



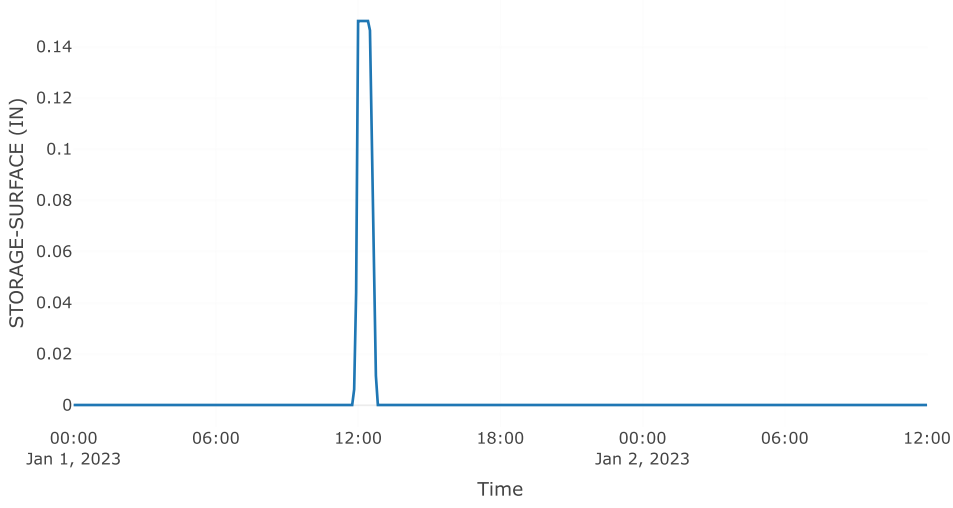
Cumulative Excess Precipitation



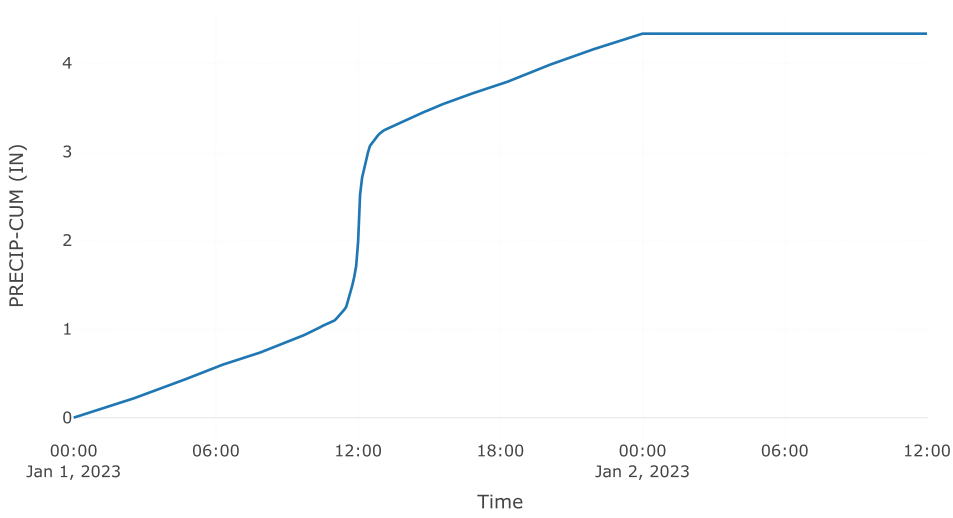
Cumulative Outflow



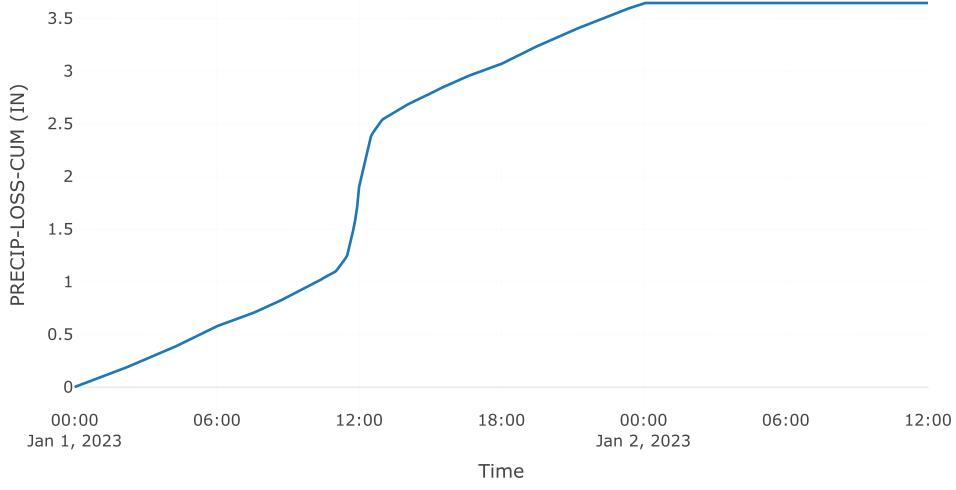
Surface Storage



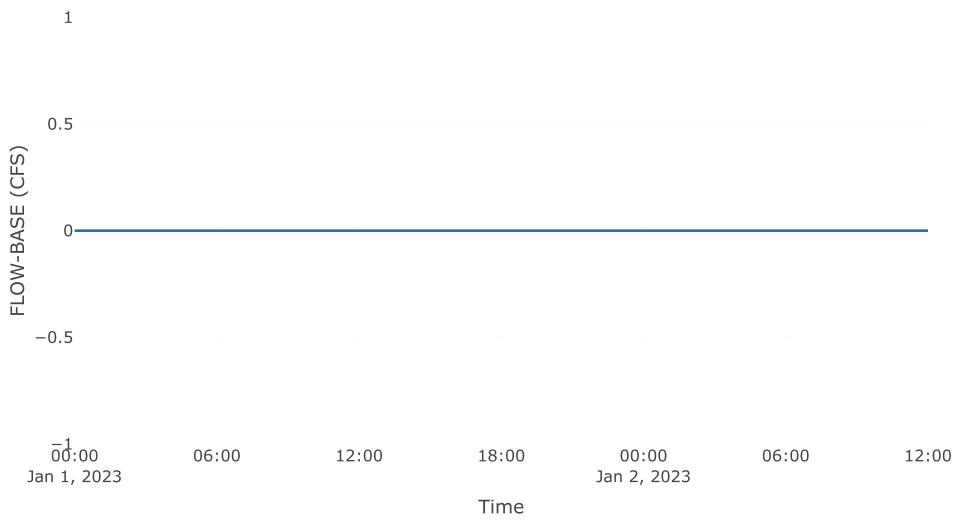
Cumulative Precipitation



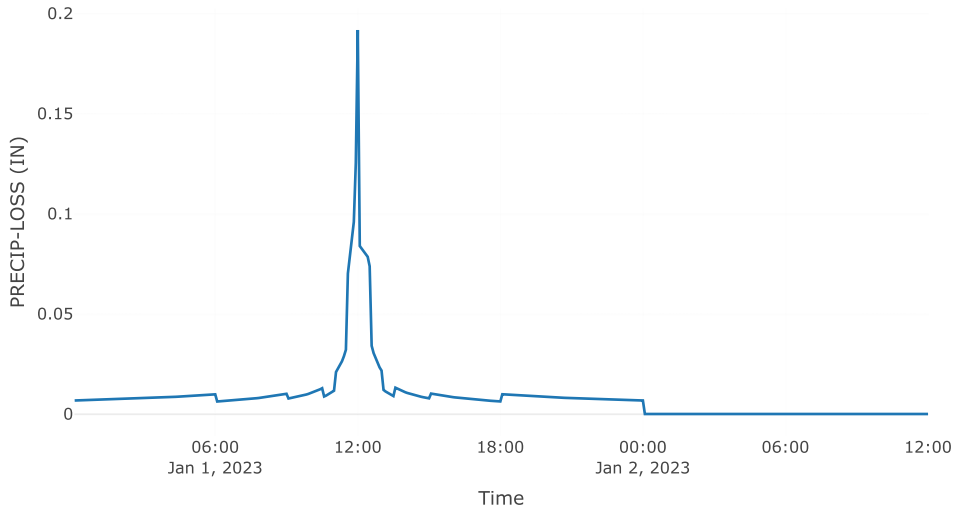
Cumulative Precipitation Loss



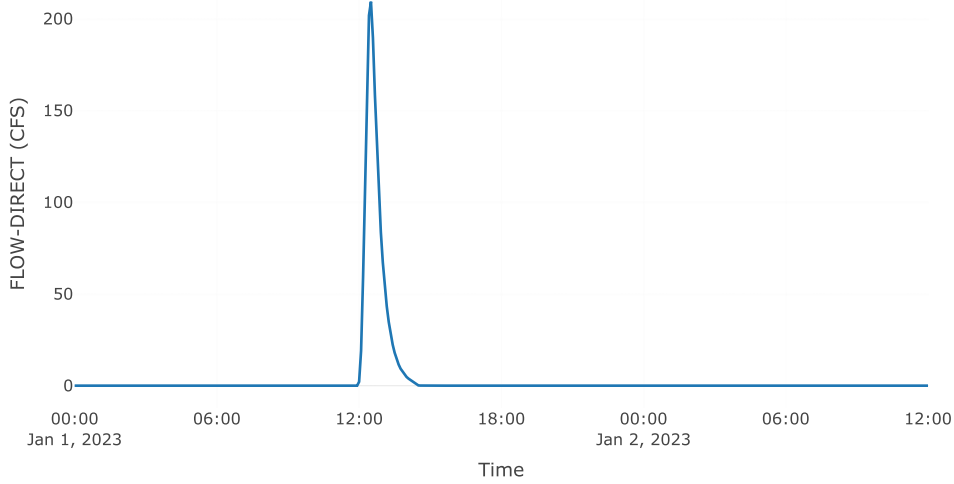
Baseflow



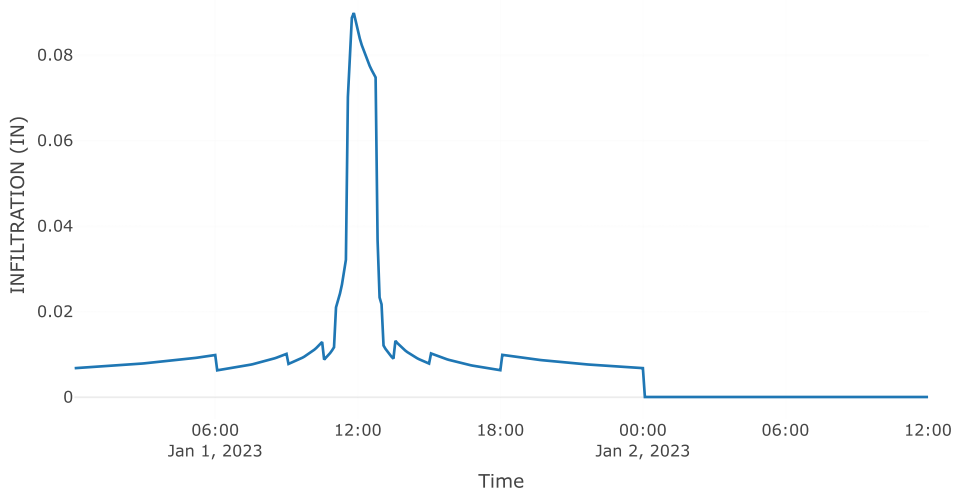
Precipitation Loss



Direct Runoff



Soil Infiltration



Reach: H5 Reach

Downstream : Junction - 1

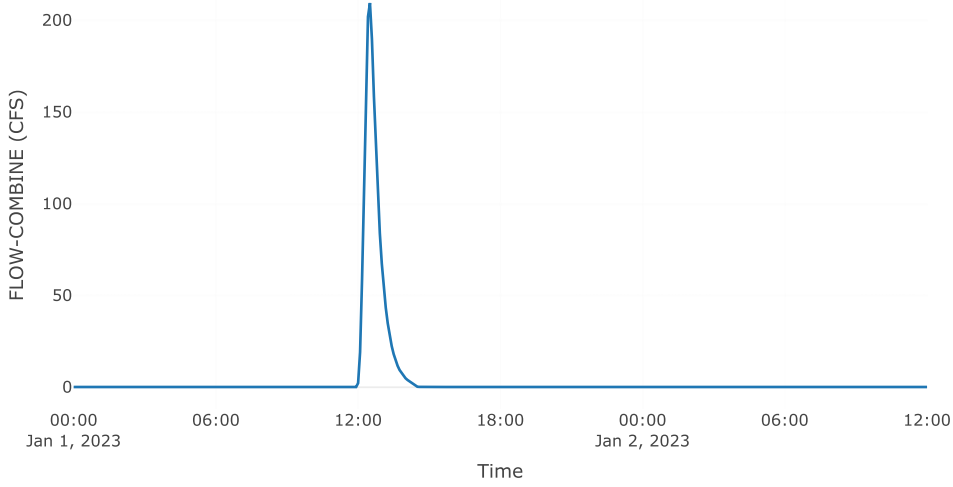
Route: Muskingum Cunge

Method	Muskingum Cunge
Channel	Trapezoid
Length (FT)	7077
Energy Slope (FT/FT)	0.03
Mannings n	0.04
Bottom Width (FT)	30
Side Slope (FT/FT)	3
Initial Variable	Combined Inflow
Space - Time Method	Automatic DX and DT
Index Parameter Type	Index Flow
Index Flow	78
Maximum Depth Iterations	20
Maximum Route Step Iterations	30

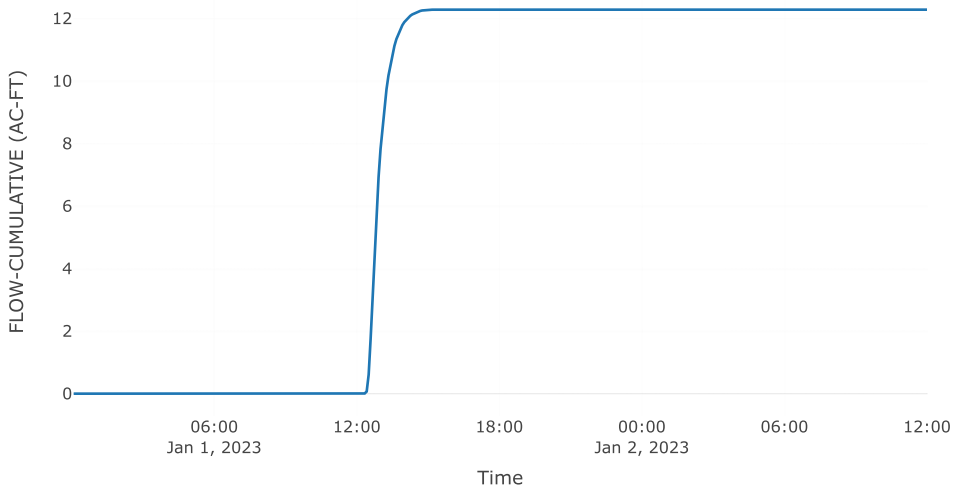
Results: H5 Reach

Peak Discharge (CFS)	209.48
Time of Peak Discharge	01Jan2023, 12:40
Volume (IN)	0.69
Peak Inflow (CFS)	209.36
Inflow Volume (AC - FT)	12.18

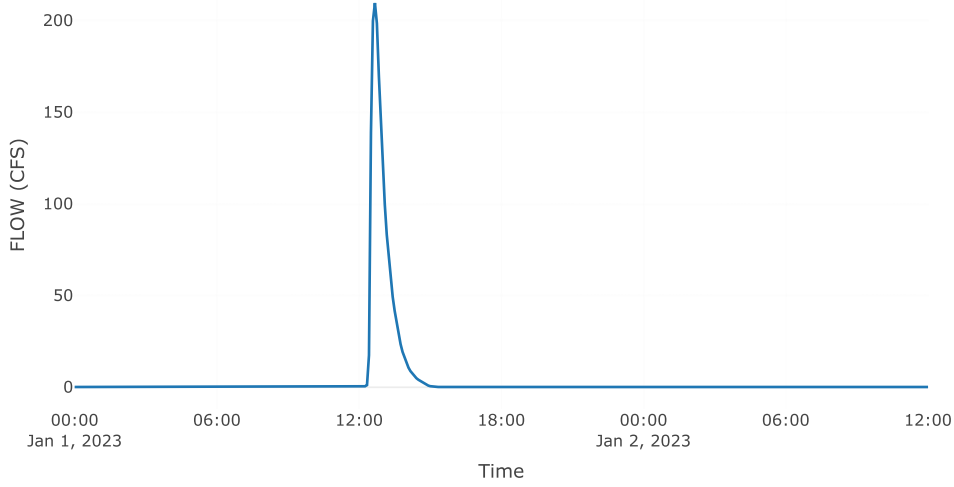
Combined Inflow



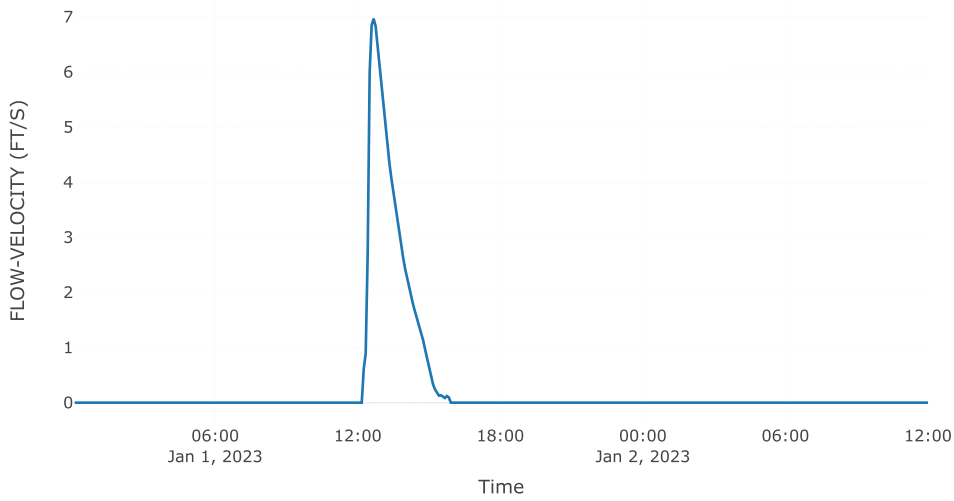
Cumulative Outflow



Outflow



Flow Velocity

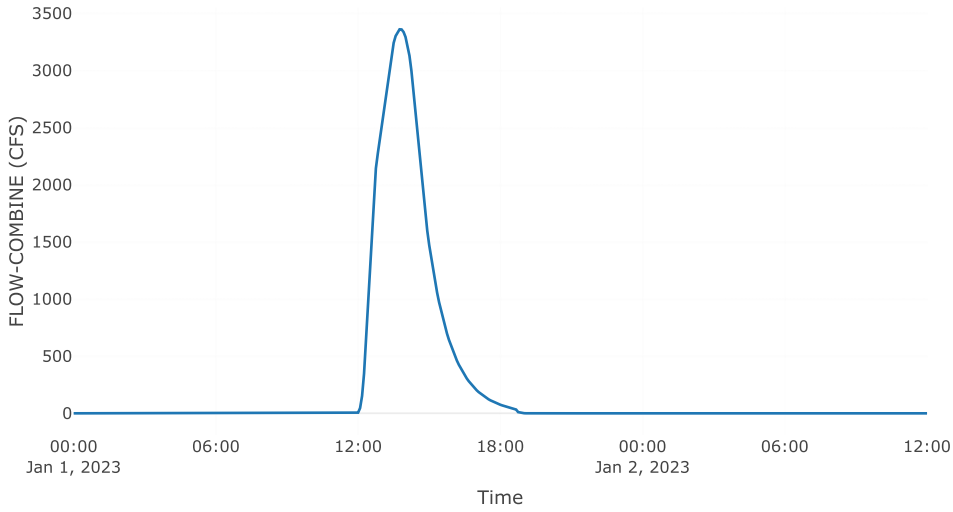


Junction: Junction-1

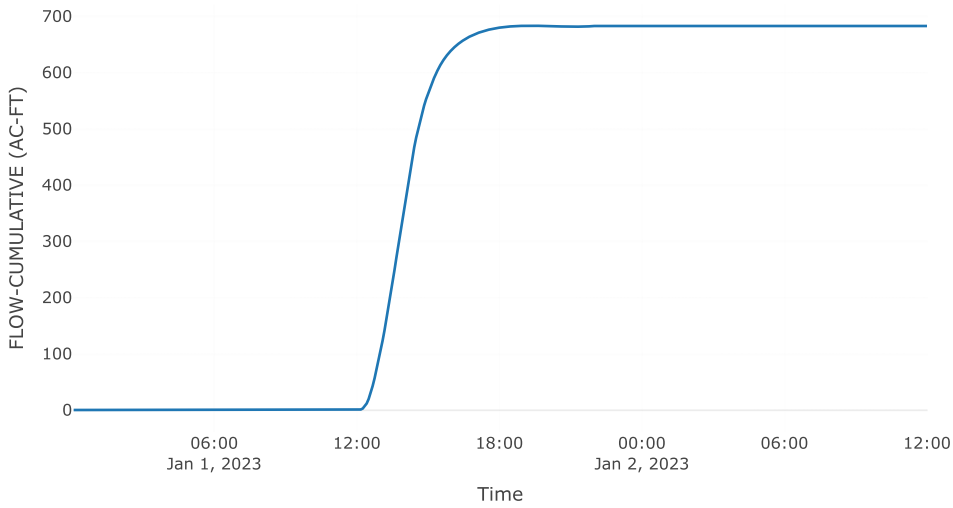
Results: Junction-1

Peak Discharge (CFS)	3360.22
Time of Peak Discharge	01 Jan 2023, 13:45
Volume (IN)	0.81

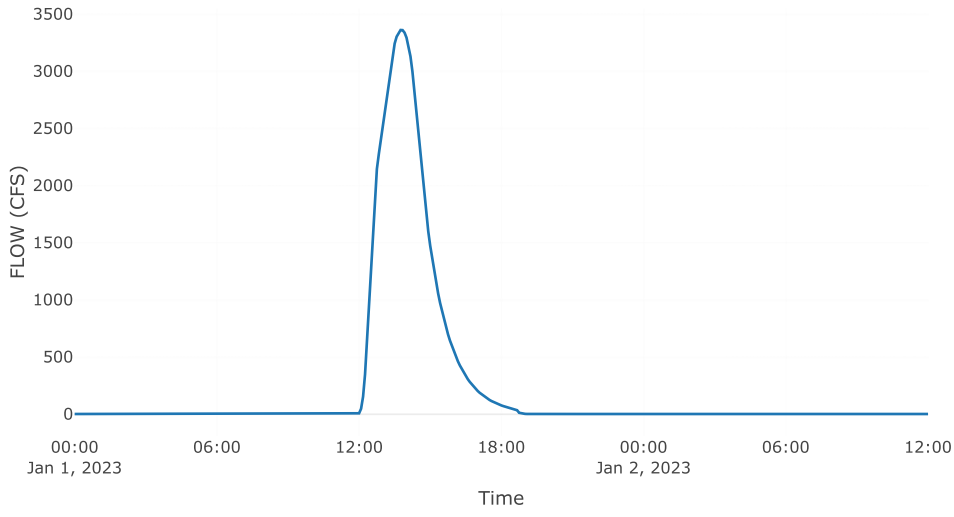
Combined Inflow



Cumulative Outflow



Outflow



Subbasin: H2

Area (MI²) : 1.76

Latitude Degrees : 33.52

Longitude Degrees : -111.28

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.41
Wetting Front Suction	3.82
Hydraulic Conductivity	0.51

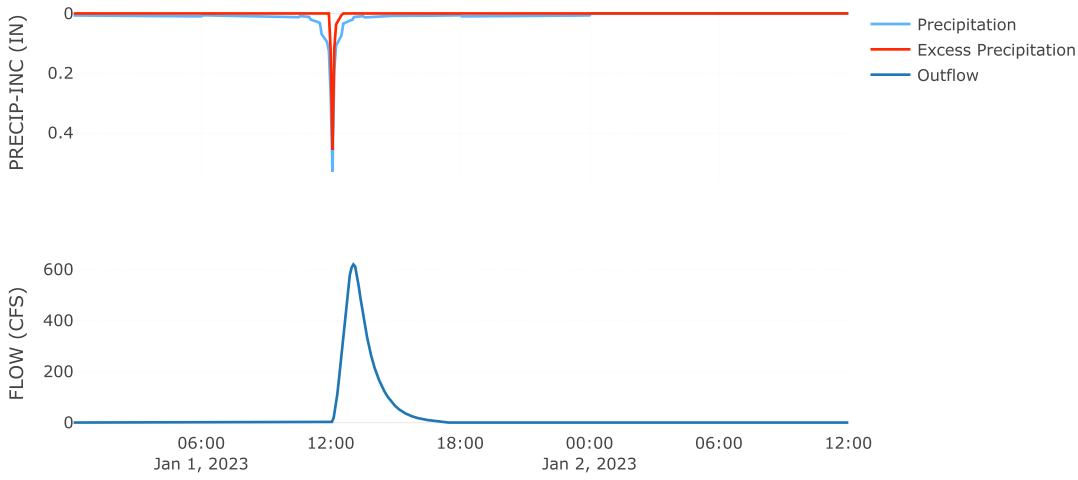
Transform: Clark

Clark Method	Specified
Time of Concentration	1.1
Storage Coefficient	0.8
Time Area Method	Default

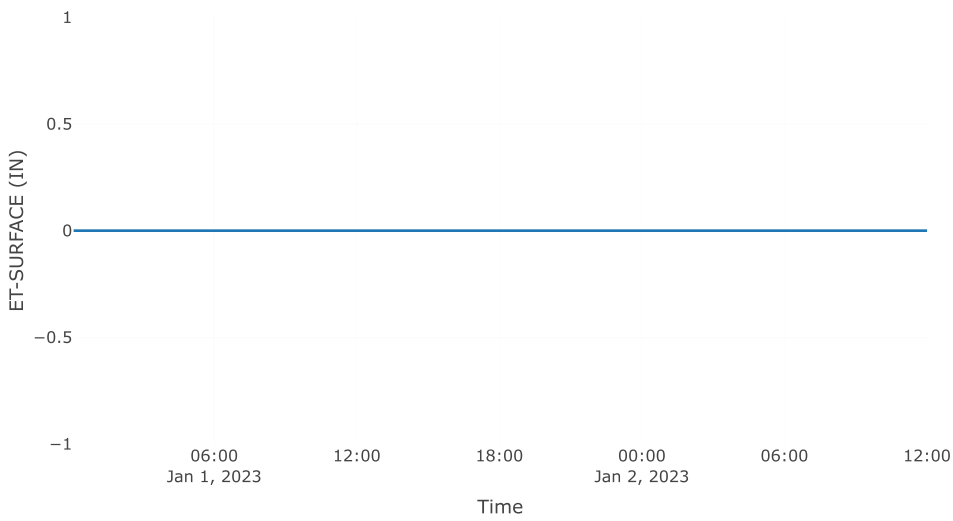
Results: H2

Peak Discharge (CFS)	619.59
Time of Peak Discharge	01Jan2023, 13:00
Volume (IN)	0.79
Precipitation Volume (AC - FT)	407.45
Loss Volume (AC - FT)	333.53
Excess Volume (AC - FT)	73.92
Direct Runoff Volume (AC - FT)	73.92
Baseflow Volume (AC - FT)	0

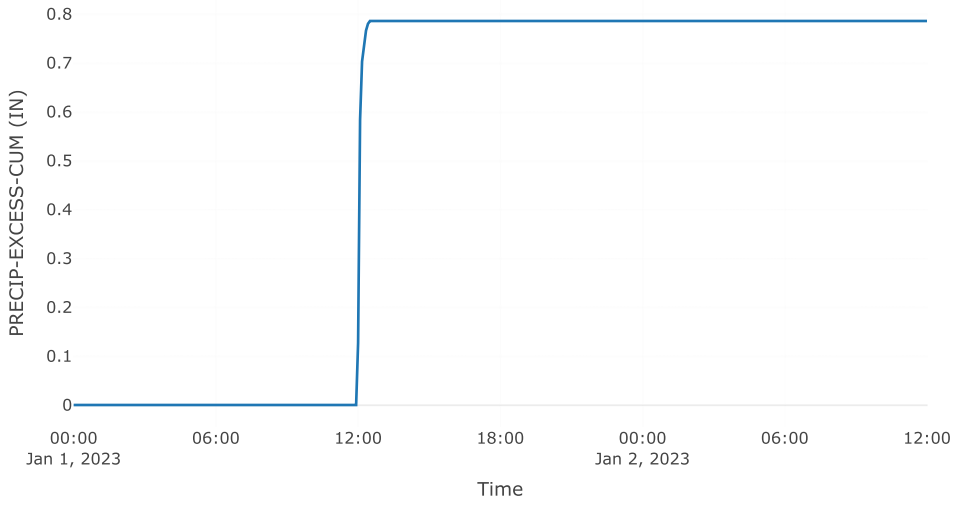
Precipitation and Outflow



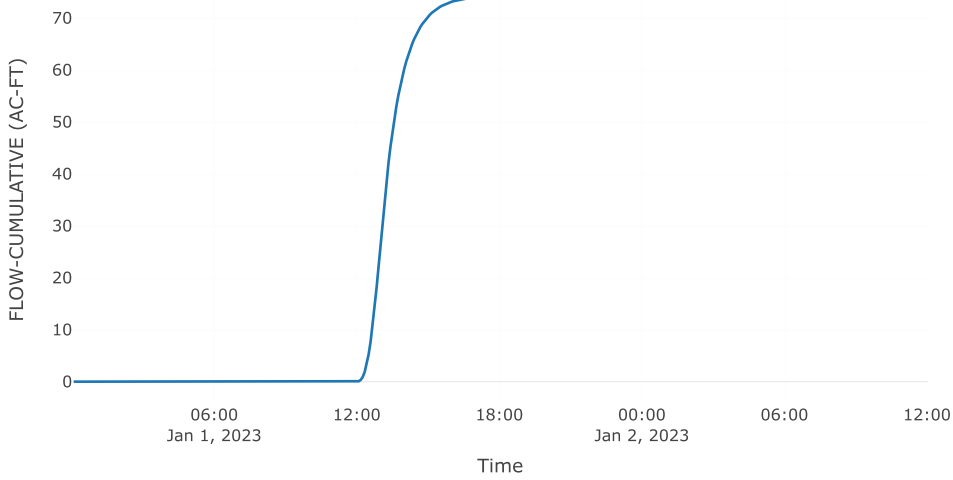
Surface Evapotranspiration



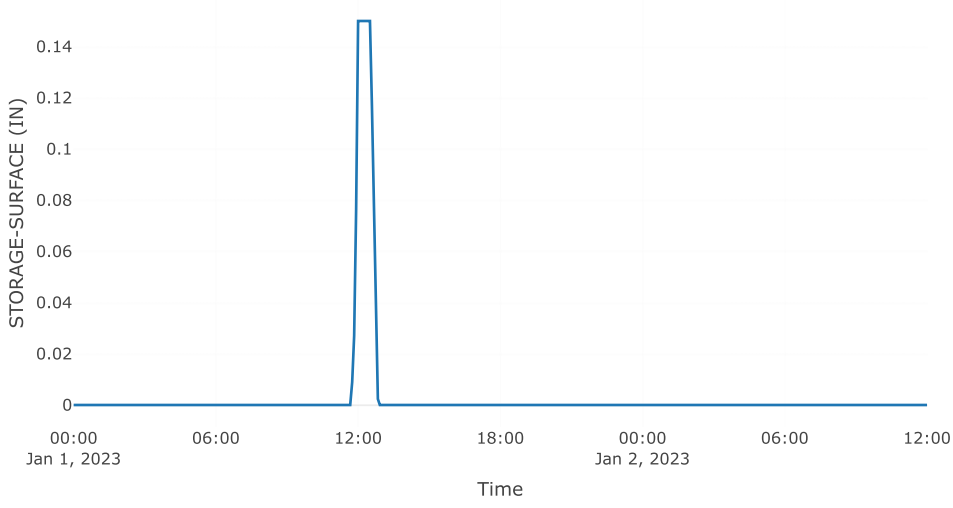
Cumulative Excess Precipitation



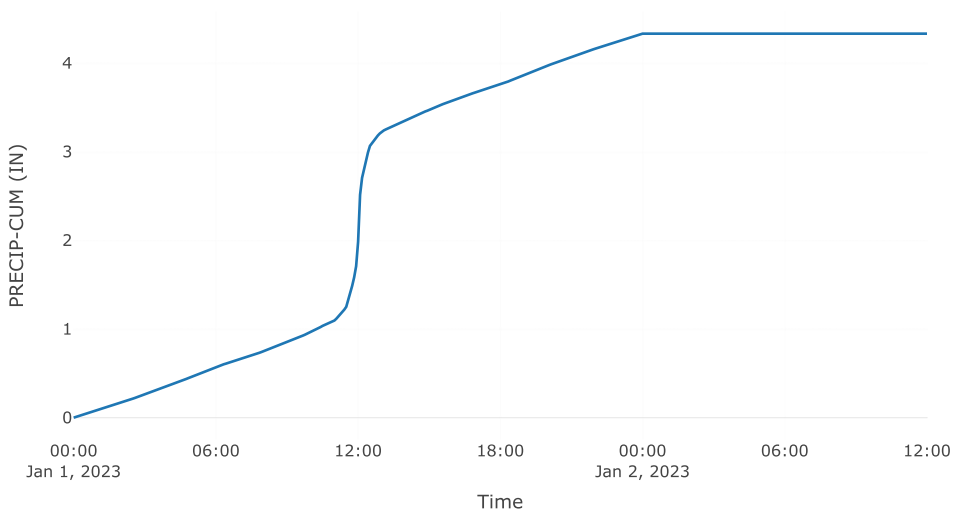
Cumulative Outflow



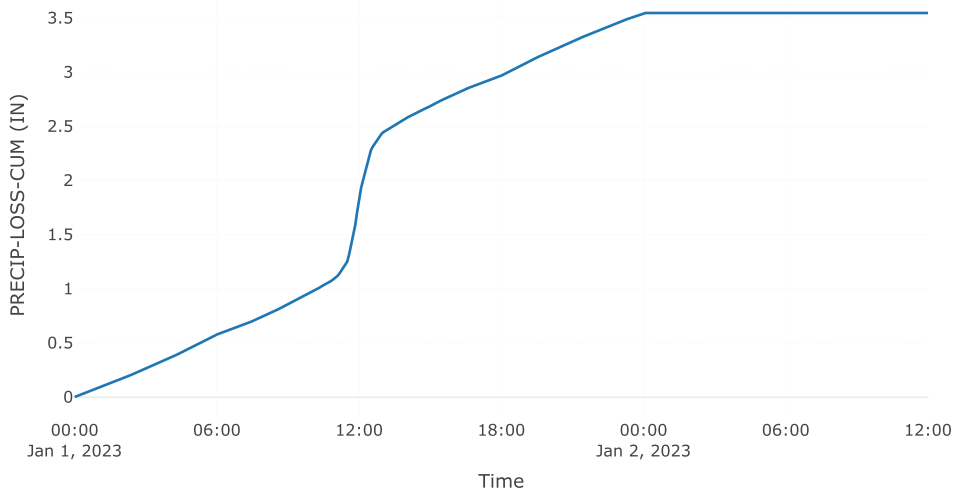
Surface Storage



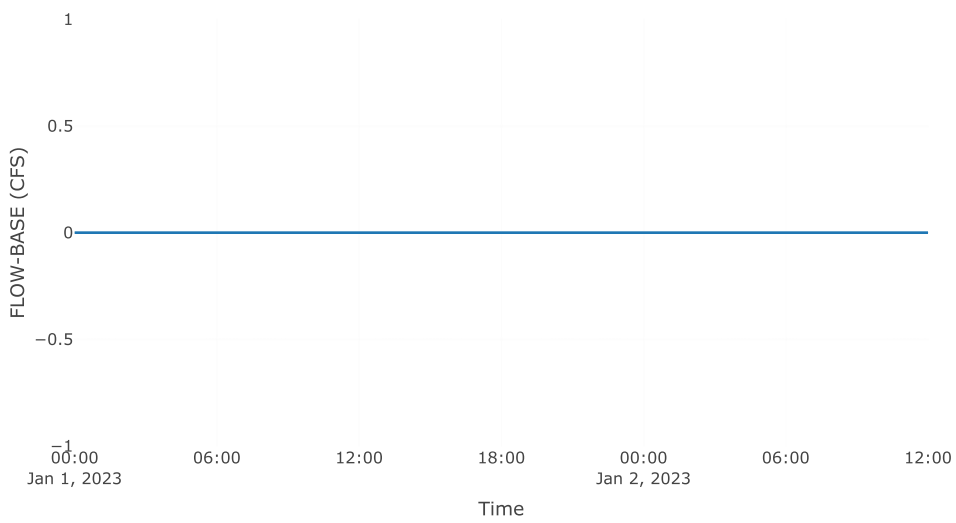
Cumulative Precipitation



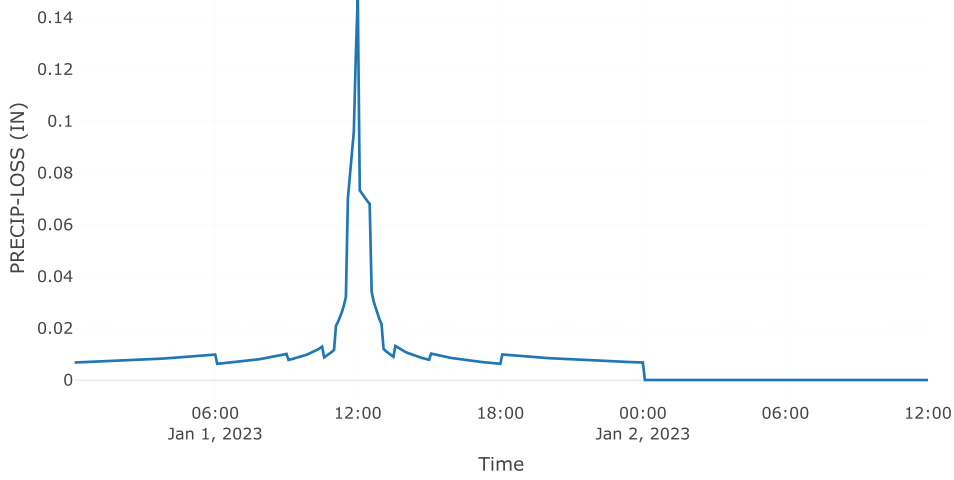
Cumulative Precipitation Loss



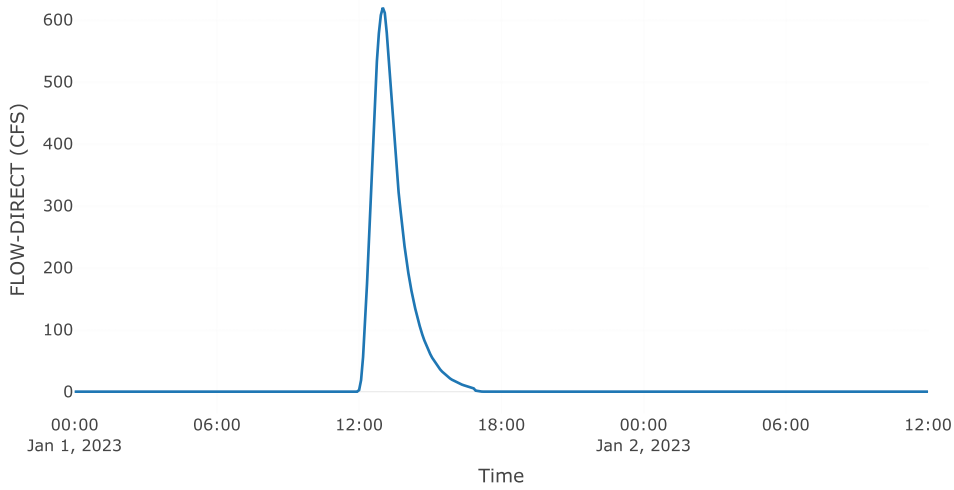
Baseflow



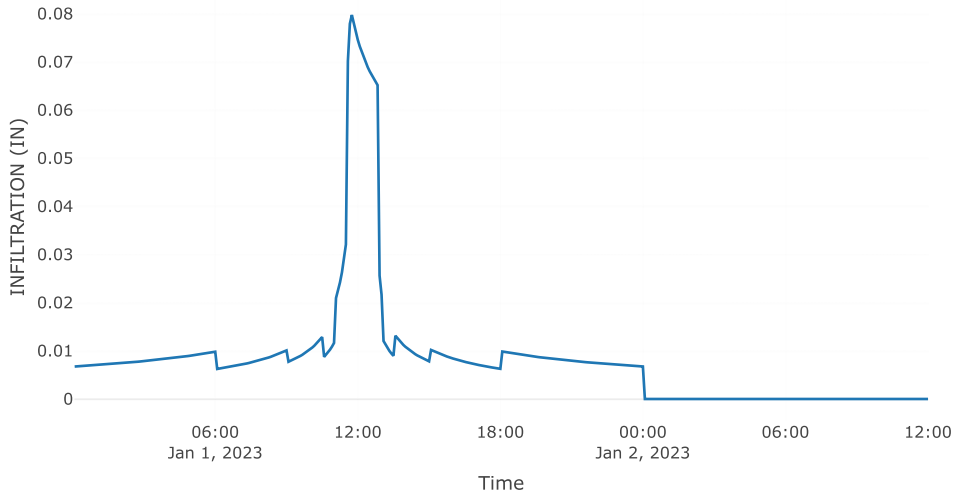
Precipitation Loss



Direct Runoff



Soil Infiltration



Subbasin: H8

Area (MI²) : 0.3

Latitude Degrees : 33.56

Longitude Degrees : -111.24

Loss Rate: Green and Ampt

Percent Impervious Area	0
Initial Variable	Water Content
Initial Content	0.08
Saturated Content	0.41
Wetting Front Suction	3.95
Hydraulic Conductivity	0.48

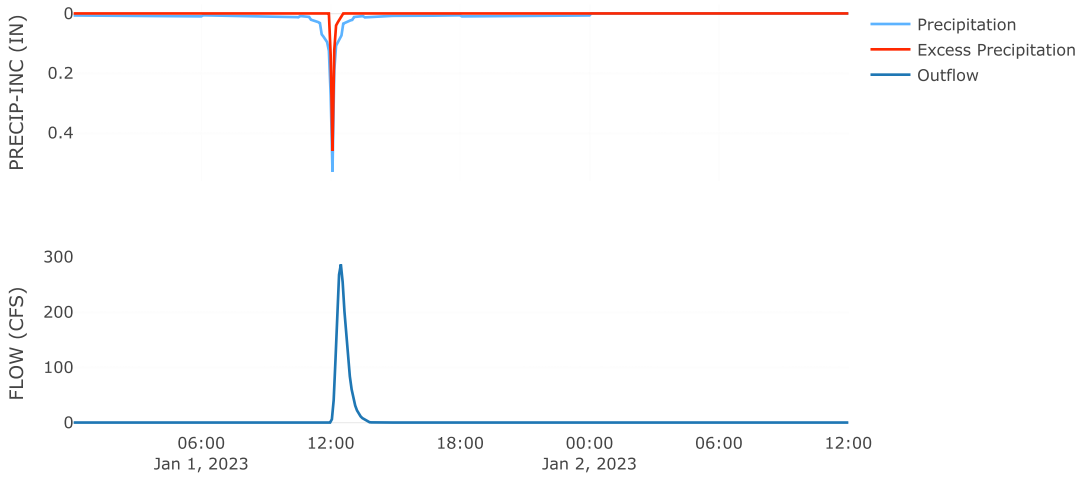
Transform: Clark

Clark Method	Specified
Time of Concentration	0.42
Storage Coefficient	0.25
Time Area Method	Default

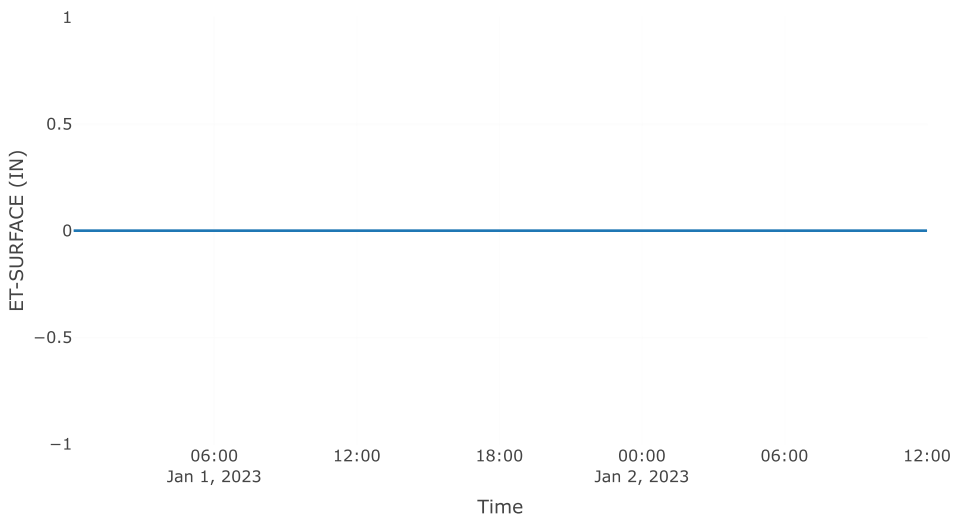
Results: H8

Peak Discharge (CFS)	286.27
Time of Peak Discharge	01Jan2023, 12:25
Volume (IN)	0.82
Precipitation Volume (AC - FT)	70.09
Loss Volume (AC - FT)	56.83
Excess Volume (AC - FT)	13.26
Direct Runoff Volume (AC - FT)	13.26
Baseflow Volume (AC - FT)	0

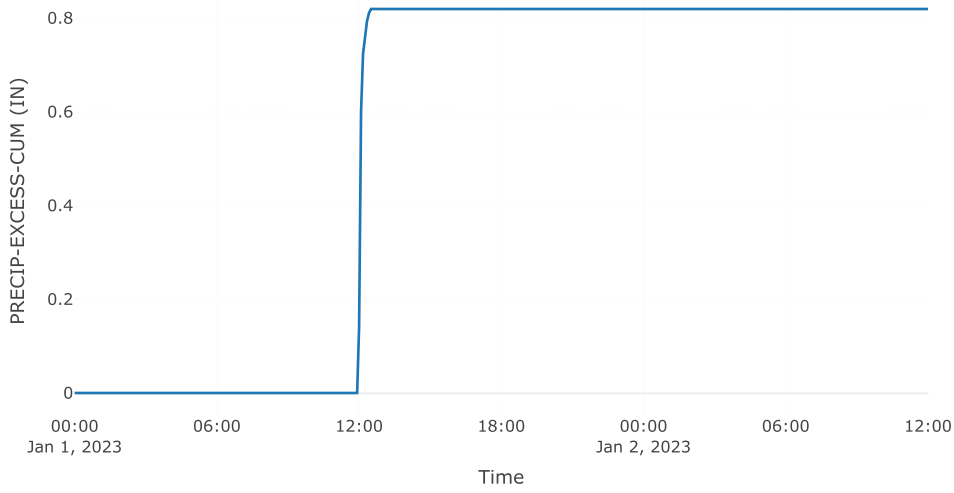
Precipitation and Outflow



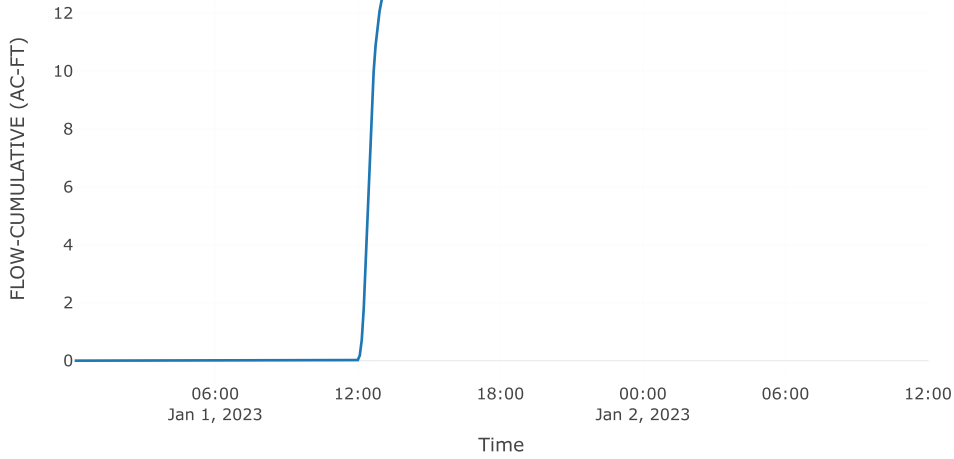
Surface Evapotranspiration



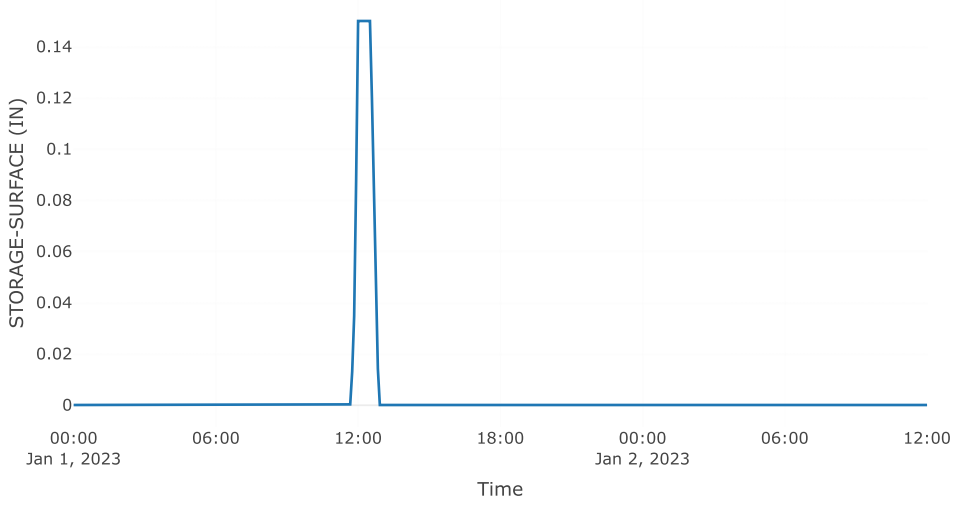
Cumulative Excess Precipitation



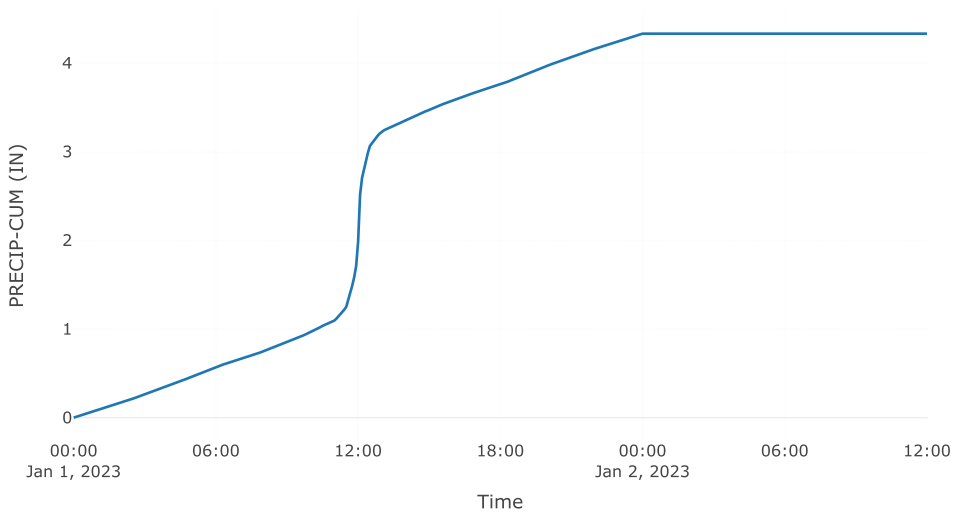
Cumulative Outflow (AC-FT)



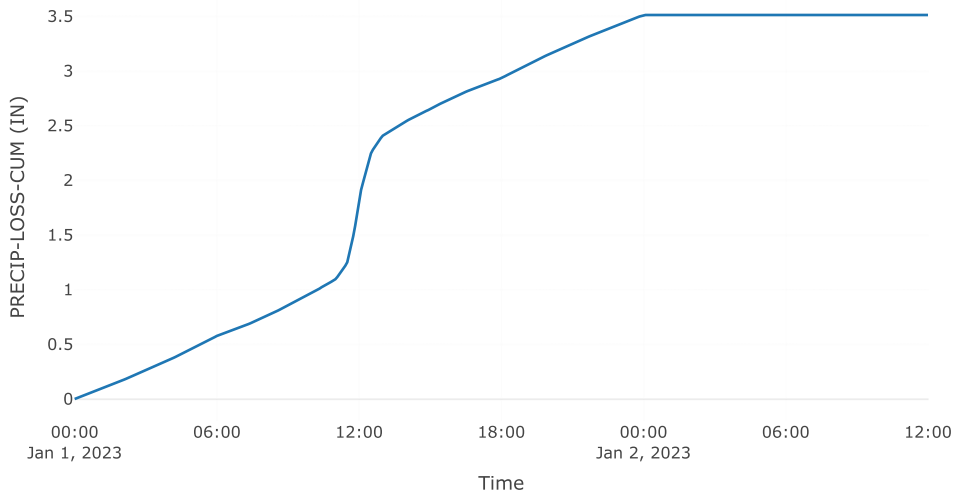
Surface Storage



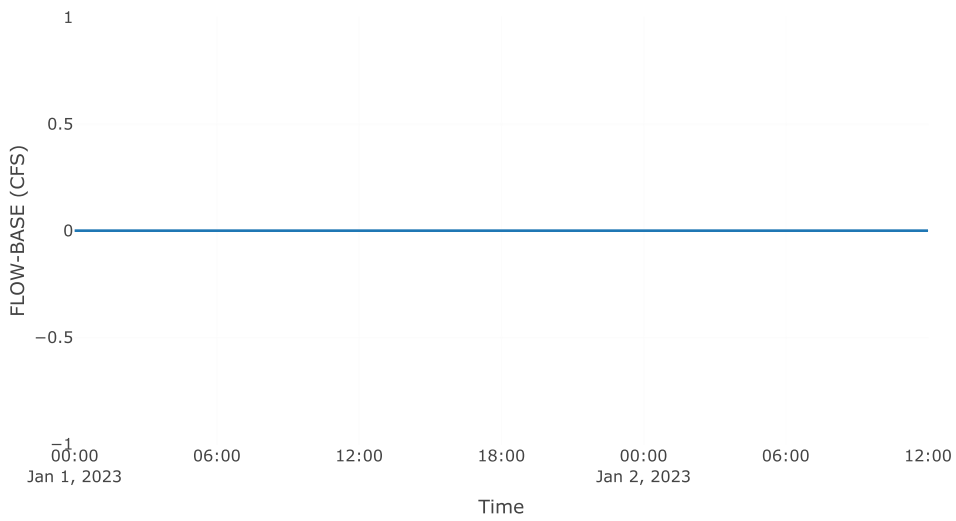
Cumulative Precipitation



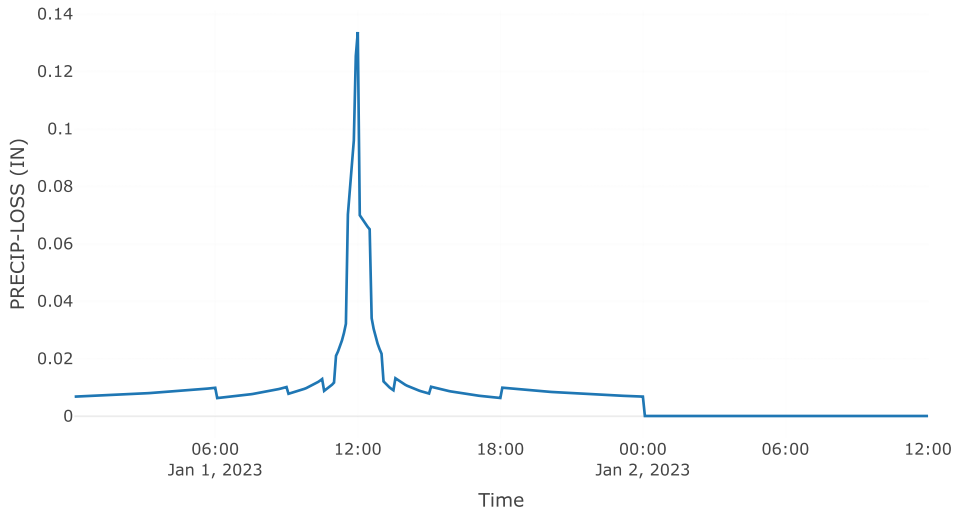
Cumulative Precipitation Loss



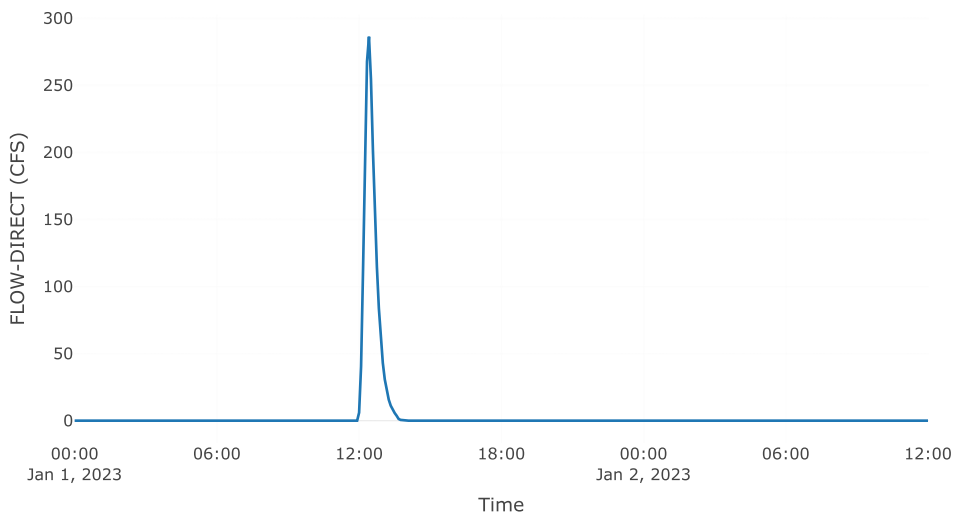
Baseflow



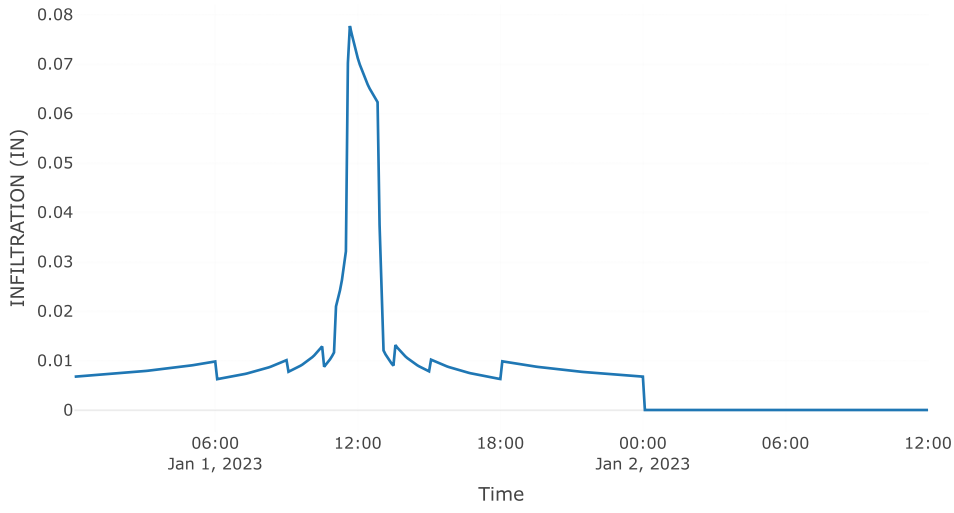
Precipitation Loss



Direct Runoff



Soil Infiltration



APPENDIX D
Hydraulic Calculations

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Table 8: Existing Culvert Hydraulics

Sub-Basin Area ID	Station	Length (ft)	Struc Size	Structure Depth D (ft)	Material	US Invert (ft)	DS Invert (ft)	Slope (ft/ft)	Top of Road Elevation (ft)	Q ₂₅ (cfs)	HWE ₂₅ (ft)	Allowable Headwater Elevation (ft)	Hw ₂₅ /D (ft)	Outlet Velocity ₂₅ (fps)	Headwater 3" Below Edge of Pavement (y/n)
H2	1001+80	25.0	15' x 7'	7	RCBC	2138.20	2138.10	0.004	2145.3	455	2143.37	2145.05	0.74	10.8	Y
H3	1045+34	20.0	10' x 10'	10	RCBC	2223.90	2223.80	0.005	2234.0	175	2227.52	2233.75	0.36	9.2	Y
H5	1094+34	36.9	6' x 5'	5	RCBC	2387.50	2384.10	0.092	2392.5	157	2391.96	2392.25	0.89	19.0	Y
H6	1139+64	45.7	5' x 5'	5	RCBC	2526.50	2523.70	0.061	2534.0	168	2531.95	2533.75	1.09	18.4	Y
H8	1234+68	55.0	2-60"	5	CMP	2562.00	2559.40	0.047	2572.0	219	2566.82	2571.75	0.96	13.6	Y
R1	960+85	26.5	6' x 8'	8	RCBC	2244.00	2242.00	0.075	2254.0	316	2251.25	2253.75	0.91	19.0	Y
R2	1125+60	35.0	48"	4	CMP	2464.00	2462.40	0.046	2473.5	295	2474.51	2473.25	2.63	11.1	N
R3	1074+11	23.2	10' x 6'	6	RCBC	2326.10	2324.60	0.065	2334.9	237	2330.30	2334.65	0.70	15.2	Y
R4	1034+06	35.0	36"	3	CMP	2200.00	2199.00	0.029	2203.5	230	2204.66	2203.25	1.55	9.6	N
R5	1188+63	39.4	36"	3	CMP	2544.10	2540.10	0.102	2547.1	205	2548.11	2546.85	1.34	12.3	N
R6	957+36	20.5	4' x 7'	7	RCBC	2282.20	2281.70	0.024	2290.0	156	2288.45	2289.75	0.89	13.7	Y
R7	948+75	24.7	4' x 7'	7	RCBC	2357.40	2355.30	0.085	2365.0	157	2363.24	2364.75	0.83	18.0	Y
R8	1187+95	55.0	48"	4	CMP	2548.90	2544.00	0.089	2553.5	150	2554.08	2553.25	1.29	16.3	N
R9	1106+66	26.9	18"	1.5	CMP	2420.00	2419.00	0.037	2422.0	123	2422.87	2421.75	1.91	5.6	N
R10	941+44	23.0	6' x 7'	7	RCBC	2425.00	2423.60	0.061	2432.0	107	2428.42	2431.75	0.49	15.0	Y
R11	1157+86	62.6	36"	3	CMP	2622.70	2618.10	0.073	2626.0	106	2626.59	2625.75	1.30	13.2	N
R12	1110+64	28.4	48"	4	CMP	2426.80	2426.50	0.011	2432.0	73	2431.36	2431.75	1.14	8.5	Y
R13	1091+38	21.0	12' x 6'	6	RCBC	2370.50	2370.00	0.024	2377.0	55	2371.97	2376.75	0.24	7.9	Y
R14	1021+67	35.0	18"	1.5	CMP	2173.50	2173.00	0.014	2177.7	43	2178.07	2177.45	3.05	7.9	N
R15	1212+49	54.0	36"	3	CMP	2540.20	2531.70	0.157	2546.0	38	2543.49	2545.75	1.10	16.6	Y
R16	1195+62	68.6	36"	3	CMP	2506.00	2496.70	0.136	2514.0	35	2509.09	2513.75	1.03	15.9	Y
R17	934+70	21.0	36"	3	CMP	2490.50	2489.90	0.029	2495.0	24	2492.96	2494.75	0.82	7.9	Y
R18	1222+94	40.6	36"	3	CMP	2555.50	2549.90	0.138	2558.0	12	2556.95	2557.75	0.48	11.8	Y
R19	1053+73	37.6	36"	3	CMP	2265.20	2262.20	0.080	2272.5	15	2266.96	2272.25	0.59	10.3	Y
R20	997+68	25.9	48"	4	CMP	2139.10	2137.60	0.058	2144.0	21	2141.01	2143.75	0.48	9.3	Y
R21	990+25	34.1	48"	4	CMP	2163.00	2160.80	0.065	2167.0	30	2165.34	2166.75	0.59	10.9	Y

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Table 9: Existing Culvert Hydraulics - Updated

Sub-Basin Area ID	Station	Length (ft)	Struc Size	Structure Depth D (ft)	Material	US Invert (ft)	DS Invert (ft)	Slope (ft/ft)	Top of Road Elevation (ft)	Q ₂₅ (cfs)	HWE ₂₅ (ft)	Allowable Headwater Elevation (ft)	Hw ₂₅ /D (ft)	Outlet Velocity ₂₅ (fps)	Headwater 3" Below Edge of Pavement (y/n)
H2	1001+80	25.0	15' x 7'	7	RCBC	2138.20	2138.10	0.004	2145.3	455	2143.37	2145.05	0.74	10.7	Y
H3	1045+34	20.0	10' x 10'	10	RCBC	2223.90	2223.80	0.005	2234.0	175	2227.52	2233.75	0.36	9.2	Y
H5	1094+34	36.9	6' x 5'	5	RCBC	2387.50	2384.10	0.092	2392.5	157	2391.96	2392.25	0.89	19.0	Y
H6	1139+64	45.7	5' x 5'	5	RCBC	2526.50	2523.70	0.061	2534.0	168	2531.95	2533.75	1.09	18.4	Y
H8	1234+68	55.0	2-60"	5	CMP	2562.00	2559.40	0.047	2572.0	219	2566.82	2571.75	0.96	13.6	Y
R1	960+85	26.5	6' x 8'	8	RCBC	2244.00	2242.00	0.075	2254.0	316	2250.92	2251.25	0.87	19.0	Y
R2	1125+60	35.0	6' x 5'	5	RCBC	2464.00	2462.40	0.046	2473.5	295	2470.95	2473.25	1.39	17.6	Y
R3	1074+11	23.2	10' x 6'	6	RCBC	2326.10	2324.60	0.065	2334.9	237	2330.30	2334.65	0.70	15.3	Y
R4	1034+06	35.0	8' x 5'	5	RCBC	2198.00	2197.50	0.014	2203.5	230	2202.56	2203.25	0.91	12.6	Y
R5	1188+63	39.4	4-36"	3	CMP	2542.10	2540.10	0.051	2547.1	205	2545.90	2546.85	1.27	11.8	Y
R6	957+36	20.5	4' x 7'	7	RCBC	2282.20	2281.70	0.024	2290.0	148	2288.18	2289.75	0.85	13.5	Y
R7	948+75	24.7	4' x 7'	7	RCBC	2357.40	2355.30	0.085	2365.0	157	2363.24	2364.75	0.83	18.0	Y
R8	1187+95	55.0	2-48"	4	CMP	2548.90	2544.00	0.089	2553.5	150	2552.66	2553.25	0.94	14.2	Y
R9	1106+66	26.9	3-36"	3	CMP	2417.50	2417.00	0.019	2422.0	123	2420.72	2421.75	1.07	5.6	Y
R10	941+44	23.0	6' x 7'	7	RCBC	2425.00	2423.60	0.061	2432.0	107	2428.42	2431.75	0.49	15.0	Y
R11	1157+86	62.6	3-36"	3	CMP	2622.70	2618.10	0.073	2626.0	106	2625.48	2625.75	0.93	13.2	Y
R12	1110+64	28.4	48"	4	CMP	2426.80	2426.50	0.011	2432.0	73	2431.36	2431.75	1.14	8.5	Y
R13	1091+38	21.0	12' x 6'	6	RCBC	2370.50	2370.00	0.024	2377.0	55	2371.97	2376.75	0.24	7.9	Y
R14	1021+67	35.0	48"	4	CMP	2173.50	2173.00	0.014	2177.7	43	2176.53	2177.45	0.76	7.3	Y
R15	1212+49	54.0	36"	3	CMP	2540.20	2531.70	0.157	2546.0	38	2543.49	2545.75	1.10	16.6	Y
R16	1195+62	68.6	36"	3	CMP	2506.00	2496.70	0.136	2514.0	35	2509.09	2513.75	1.03	15.9	Y
R17	934+70	21.0	36"	3	CMP	2490.50	2489.90	0.029	2495.0	24	2492.96	2494.75	0.82	7.9	Y
R18	1222+94	40.6	36"	3	CMP	2555.50	2549.90	0.138	2558.0	12	2556.95	2557.75	0.48	11.8	Y
R19	1053+73	37.6	36"	3	CMP	2265.20	2262.20	0.080	2272.5	15	2266.96	2272.25	0.59	10.3	Y
R20	997+68	25.9	48"	4	CMP	2139.10	2137.60	0.058	2144.0	21	2140.96	2143.75	0.47	9.2	Y
R21	990+25	34.1	48"	4	CMP	2163.00	2160.80	0.065	2167.0	30	2165.24	2166.75	0.56	10.6	Y

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Table 10: Proposed 2030 Culvert Hydraulics

Sub-Basin Area ID	Station	Length (ft)	Length Added	Struc Size	Structure Depth D (ft)	Material	US Invert (ft)	DS Invert (ft)	Slope (ft/ft)	Top of Road Elevation (ft)	Q ₂₀₃₀ (cfs)	Diff Allowable and HWE ₂₀₃₀	HWE ₂₀₃₀ (ft)	Allowable Headwater Elevation (ft)	Hw ₂₀₃₀ /D (ft)	Outlet Velocity ₂₀₃₀ (fps)	Headwater 3" Below Edge of Pavement (y/n)
H2	1001+80	25.0		15' x 7'	7	RCBC	2138.20	2138.10	0.0040	2145.3	705	0	2145.13	2145.05	0.99	12.33	N
H3	1045+34	20.0		10' x 10'	10	RCBC	2223.90	2223.80	0.0050	2234.0	271	5	2228.75	2233.75	0.48	10.45	Y
H5	1094+34	36.9		6x5+ 2-48"	5	RCBC	2387.50	2384.10	0.0921	2392.0	243	1	2391.20	2391.75	0.74	18.17	Y
H6	1139+64	45.7		5x5 + 24"	5	RCBC	2526.50	2523.70	0.0613	2534.0	260	1	2532.57	2533.75	1.21	18.96	Y
H8	1234+68	55.0		2-60"	5	CMP	2562.00	2559.40	0.0473	2572.0	339	3	2569.12	2571.75	1.42	15.07	Y
R1	960+85	26.5	6.0	6' x 8' + 24"	8	RCBC	2244.00	2242.00	0.0755	2254.0	490	0	2253.29	2253.75	1.16	20.46	Y
R2	1125+60	28.0		8' x 6'	6	RCBC	2464.00	2462.40	0.0571	2473.5	457	2	2471.18	2473.25	1.20	11.55	Y
R3	1074+11	23.2		10' x 6'	6	RCBC	2326.10	2324.60	0.0647	2334.9	367	3	2331.79	2334.65	0.95	16.72	Y
R4	1034+06	28.0		2-6' x 5'	5	RCBC	2198.00	2197.50	0.0179	2203.5	357	1	2202.66	2203.25	0.93	7.20	Y
R5	1188+63	39.4		4-48"	4	CMP	2541.10	2540.10	0.0254	2546.5	318	1	2545.15	2546.25	1.01	10.33	Y
R6	957+36	25.0	10.0	4' x 7' + 24"	7	RCBC	2281.70	2281.60	0.0040	2290.0	242	1	2289.19	2289.75	1.07	12.49	Y
R7	948+75	29.7	5.0	4x7 + 36"	7	RCBC	2357.40	2355.30	0.0707	2364.50	243	1	2363.57	2364.25	0.88	18.23	Y
R8	1187+95	55.0		3-48"	4.5	CMP	2545.00	2544.00	0.0182	2553.0	233	4	2549.00	2552.75	0.89	9.15	Y
R9	1106+66	26.9		3-42"	3.5	CMP	2417.50	2417.00	0.0186	2422.30	191	1	2421.37	2422.05	1.11	8.69	Y
R10	941+44	29.0	6.0	6' x 7'	7	RCBC	2425.00	2423.60	0.0483	2434.0	166	4	2429.62	2433.75	0.66	16.26	Y
R11	1157+86	66.6	4.0	4-36"	3	CMP	2622.70	2618.10	0.0691	2626.1	164	0	2625.80	2625.85	1.03	12.90	Y
R12	1110+64	28.4		2-48"	4	CMP	2426.80	2426.50	0.0106	2431.8	113	1	2430.70	2431.55	0.97	7.71	Y
R13	1091+38	21.0	4.0	12' x 6'	6	RCBC	2370.50	2370.00	0.0238	2377.0	85	4	2372.46	2376.75	0.33	8.89	Y
R14	1021+67	35.0		48"	4	CMP	2173.50	2173.00	0.0143	2177.7	67	0	2177.22	2177.45	0.93	8.22	Y
R15	1212+49	54.0		36"	3	CMP	2540.20	2531.70	0.1574	2546.0	59	0	2545.61	2545.75	1.80	18.55	Y
R16	1195+62	68.6		36"	3	CMP	2506.00	2496.70	0.1356	2514.0	54	3	2510.85	2513.75	1.62	17.43	Y
R17	934+70	25.0	4.0	36"	3	CMP	2490.50	2489.90	0.0240	2495.0	37	1	2493.90	2494.75	1.13	8.85	Y
R18	1222+94	40.6		36"	3	CMP	2555.50	2549.90	0.1379	2558.0	19	0	2557.45	2557.75	0.65	12.85	Y
R19	1053+73	37.6		36"	3	CMP	2265.20	2262.20	0.0798	2272.5	23	5	2267.52	2272.25	0.77	11.68	Y
R20	997+68	25.9		48"	4	CMP	2139.10	2137.60	0.0579	2144.6	33	3	2141.59	2144.35	0.62	10.45	Y
R21	990+25	34.1		48"	4	CMP	2163.00	2160.80	0.0645	2166.9	47	1	2166.11	2166.65	0.78	12.06	Y

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Table 11: Proposed 2050 Culvert Hydraulics

Sub-Basin Area ID	Station	Length (ft)	Length Added	Struc Size	Structure Depth D (ft)	Material	US Invert (ft)	DS Invert (ft)	Slope (ft/ft)	Top of Road Elevation (ft)	Q ₂₀₅₀ (cfs)	Diff Allowable and HWE ₂₀₃₀	HWE ₂₀₅₀ (ft)	Allowable Headwater Elevation (ft)	Hw _{2050/D} (ft)	Outlet Velocity ₂₀₅₀ (fps)	Headwater 3" Below Edge of Pavement (y/n)
H2	1001+80	34.0	8.0	15'x7' + 24"	7	RCBC	2138.20	2138.10	0.0029	2145.3	699	0	2144.89	2145.05	0.96	12.14	Y
H3	1045+34	28.0	8.0	10' x 10'	10	RCBC	2223.90	2223.80	0.0036	2234.0	320	4	2229.30	2233.75	0.54	10.99	Y
H5	1094+34	44.9	8.0	2-6'x5' + 24"	5	RCBC	2387.50	2384.10	0.0757	2392.0	287	0	2391.45	2391.75	0.79	18.45	Y
H6	1139+64	45.7		5'x5'+48"	5	RCBC	2526.50	2523.70	0.0613	2534.0	307	2	2532.14	2533.75	1.13	18.65	Y
H8	1234+68	59.0	4.0	2-60"	5	CMP	2562.00	2559.40	0.0441	2572.0	401	2	2569.40	2571.75	1.48	15.20	Y
R1	960+85	36.5	10.0	6'x8'+42"	8	RCBC	2244.00	2242.00	0.0548	2254.0	578	0	2253.34	2253.75	1.17	20.36	Y
R2	1125+60	39.0	4.0	2-6' x 5'	6	RCBC	2464.00	2462.40	0.0410	2473.5	540	1	2472.03	2473.25	1.34	6.75	Y
R3	1074+11	31.2	8.0	10' x 6'	6	RCBC	2326.10	2324.60	0.0481	2334.9	434	2	2332.55	2334.65	1.08	17.30	Y
R4	1034+06	35.0		2-6' x 5'	5	RCBC	2198.00	2197.50	0.0143	2203.5	421	0	2203.21	2203.25	1.04	13.11	Y
R5	1188+63	39.4		4-48"	4	CMP	2541.10	2537.10	0.1015	2546.5	375	1	2545.71	2546.25	1.15	10.74	Y
R6	957+36	30.0	9.5	4'x7' + 2-24"	7	RCBC	2281.70	2281.60	0.0033	2290.00	285	0	2289.45	2289.75	1.11	12.27	Y
R7	948+75	33.7	9.0	4'x7' + 42"	7	RCBC	2357.40	2355.30	0.0623	2364.50	287	0	2363.88	2364.25	0.93	18.46	Y
R8	1187+95	55.0		3-48"	4.5	CMP	2545.00	2544.00	0.0182	2553.0	275	3	2549.54	2552.75	1.01	9.43	Y
R9	1106+66	30.9	4.0	3-42"	3.5	CMP	2417.50	2417.00	0.0162	2422.30	225	0	2421.97	2422.05	1.28	9.38	Y
R10	941+44	33.0	10.0	6' x 7'	7	RCBC	2425.00	2423.60	0.0424	2434.0	196	4	2430.18	2433.75	0.74	16.79	Y
R11	1157+86	70.6	8.0	5-36"	3	CMP	2622.70	2618.10	0.0652	2626.1	194	0	2625.67	2625.85	0.99	13.07	Y
R12	1110+64	32.4	4.0	2-48"	4	CMP	2426.80	2426.50	0.0093	2431.80	134	0	2431.12	2431.55	1.08	8.22	Y
R13	1091+38	29.0	8.0	12' x 6'	6	RCBC	2370.50	2370.00	0.0172	2377.0	101	4	2372.70	2376.75	0.37	9.30	Y
R14	1021+67	41.0	6.0	2-48"	4	CMP	2173.50	2173.00	0.0122	2177.7	79	1	2176.38	2177.45	0.72	7.10	Y
R15	1212+49	54.0		2-36"	3	CMP	2540.20	2531.70	0.1574	2546.0	70	3	2543.25	2545.75	1.02	16.77	Y
R16	1195+62	68.6		36"	3	CMP	2506.00	2496.70	0.1356	2514.0	64	2	2512.10	2513.75	2.03	18.08	Y
R17	934+70	29.0	8.0	36"	3	CMP	2490.50	2489.90	0.0207	2495.0	44	0	2494.49	2494.75	1.33	9.23	Y
R18	1222+94	40.6		36"	3	CMP	2555.50	2549.90	0.1379	2558.0	22	0	2557.66	2557.75	0.72	13.41	Y
R19	1053+73	41.6	4.0	36"	3	CMP	2265.20	2262.20	0.0721	2272.5	27	4	2267.79	2272.25	0.86	12.21	Y
R20	997+68	29.9	4.0	48"	4	CMP	2139.10	2137.60	0.0502	2144.6	38	3	2141.82	2144.35	0.68	10.84	Y
R21	990+25	34.1		48"	4	CMP	2163.00	2160.80	0.0645	2166.9	55	0	2166.47	2166.65	0.87	12.52	Y

Culvert Data: EXST R1

Table 1 - Culvert Summary Table: EXST R1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
316.00 cfs	316.00 cfs	2251.25	7.25	3.784	5-S2n	1.50	4.42	2.78	2.40	18.97	6.72
331.20 cfs	331.20 cfs	2251.52	7.52	4.059	5-S2n	1.55	4.56	2.88	2.46	19.15	6.80
346.40 cfs	346.40 cfs	2251.79	7.79	4.338	5-S2n	1.60	4.70	2.99	2.51	19.32	6.89
361.60 cfs	361.60 cfs	2252.07	8.07	4.622	5-S2n	1.65	4.83	3.09	2.56	19.49	6.97
376.80 cfs	376.80 cfs	2252.35	8.35	4.910	5-S2n	1.70	4.97	3.20	2.62	19.65	7.04
388.00 cfs	388.00 cfs	2252.56	8.56	5.125	5-S2n	1.73	5.06	3.27	2.65	19.77	7.10
407.20 cfs	407.20 cfs	2252.93	8.93	5.500	5-S2n	1.79	5.23	3.40	2.72	19.96	7.19
422.40 cfs	422.40 cfs	2253.23	9.23	6.622	5-S2n	1.84	5.36	3.50	2.76	20.11	7.26
437.60 cfs	437.60 cfs	2253.53	9.53	6.865	5-S2n	1.88	5.49	3.60	2.81	20.26	7.33
452.80 cfs	452.80 cfs	2253.85	9.85	7.114	5-S2n	1.93	5.61	3.70	2.86	20.40	7.40
468.00 cfs	464.26 cfs	2254.09	10.09	7.305	5-S2n	1.97	5.71	3.77	2.90	20.50	7.46

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2244.00 ft,

Outlet Elevation (invert): 2242.00 ft

Culvert Length: 25.08 ft,

Culvert Slope: 0.0800

Site Data - EXST R1

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2244.00 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2242.00 ft

Number of Barrels: 1

Culvert Data Summary - EXST R1

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST H2

Table 2 - Culvert Summary Table: EXST H2

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
455.00 cfs	455.00 cfs	2143.37	5.17	3.404	1-S2n	2.53	3.06	2.82	2.24	10.77	7.02
489.20 cfs	489.20 cfs	2143.62	5.42	3.625	1-S2n	2.65	3.21	2.96	2.33	11.02	7.17
523.40 cfs	523.40 cfs	2143.87	5.67	3.848	1-S2n	2.78	3.36	3.10	2.41	11.25	7.31
557.60 cfs	557.60 cfs	2144.11	5.91	4.072	1-S2n	2.90	3.50	3.24	2.50	11.47	7.45
591.80 cfs	591.80 cfs	2144.35	6.15	4.299	1-S2n	3.02	3.64	3.38	2.58	11.68	7.58
620.00 cfs	620.00 cfs	2144.54	6.34	4.487	1-S2n	3.11	3.76	3.49	2.64	11.85	7.68
660.20 cfs	660.20 cfs	2144.82	6.62	4.759	1-S2n	3.25	3.92	3.64	2.73	12.08	7.82
694.40 cfs	694.40 cfs	2145.06	6.86	4.993	1-S2n	3.36	4.05	3.77	2.80	12.27	7.94
728.60 cfs	728.60 cfs	2145.29	7.09	5.231	5-S2n	3.48	4.18	3.90	2.87	12.46	8.05
762.80 cfs	753.69 cfs	2145.47	7.27	5.406	5-S2n	3.56	4.28	3.99	2.94	12.59	8.16
797.00 cfs	774.14 cfs	2145.61	7.41	5.551	5-S2n	3.62	4.36	4.07	3.01	12.69	8.26

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2138.20 ft,

Outlet Elevation (invert): 2138.10 ft

Culvert Length: 25.00 ft,

Culvert Slope: 0.0040

Site Data - EXST H2

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2138.20 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2138.10 ft

Number of Barrels: 1

Culvert Data Summary - EXST H2

Barrel Shape: Concrete Box

Barrel Span: 15.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST H3

Table 3 - Culvert Summary Table: EXST H3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
175.00 cfs	175.00 cfs	2227.52	3.62	2.091	1-S2n	1.70	2.12	1.91	1.52	9.15	5.47
187.00 cfs	187.00 cfs	2227.68	3.78	2.197	1-S2n	1.78	2.21	2.00	1.57	9.34	5.58
199.00 cfs	199.00 cfs	2227.84	3.94	2.302	1-S2n	1.85	2.31	2.09	1.63	9.52	5.69
211.00 cfs	211.00 cfs	2228.00	4.10	2.406	1-S2n	1.93	2.40	2.18	1.68	9.69	5.79
223.00 cfs	223.00 cfs	2228.16	4.26	2.508	1-S2n	2.00	2.49	2.26	1.73	9.85	5.89
233.00 cfs	233.00 cfs	2228.28	4.38	2.593	1-S2n	2.06	2.56	2.33	1.77	9.98	5.96
247.00 cfs	247.00 cfs	2228.46	4.56	2.710	1-S2n	2.15	2.67	2.43	1.83	10.16	6.07
259.00 cfs	259.00 cfs	2228.60	4.70	2.810	1-S2n	2.22	2.75	2.51	1.87	10.31	6.15
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
283.00 cfs	283.00 cfs	2228.89	4.99	3.009	1-S2n	2.36	2.92	2.67	1.96	10.59	6.31
295.00 cfs	295.00 cfs	2229.03	5.13	3.107	1-S2n	2.42	3.00	2.75	2.01	10.72	6.39

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2223.90 ft,

Outlet Elevation (invert): 2223.80 ft

Culvert Length: 20.00 ft,

Culvert Slope: 0.0050

Site Data - EXST H3

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2223.90 ft

Outlet Station: 20.00 ft

Outlet Elevation: 2223.80 ft

Number of Barrels: 1

Culvert Data Summary - EXST H3

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 10.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST H5

Table 4 - Culvert Summary Table: EXST H5

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
157.00 cfs	157.00 cfs	2391.96	4.46	0.052	1-S2n	0.89	2.77	1.38	1.41	18.98	7.10
168.20 cfs	168.20 cfs	2392.19	4.69	0.283	1-S2n	0.93	2.90	1.46	1.46	19.19	7.24
179.40 cfs	179.40 cfs	2392.42	4.92	0.518	1-S2n	0.97	3.03	1.54	1.51	19.40	7.38
190.60 cfs	187.43 cfs	2392.58	5.08	0.689	5-S2n	1.00	3.12	1.60	1.56	19.53	7.51
201.80 cfs	192.00 cfs	2392.68	5.18	0.787	5-S2n	1.02	3.17	1.63	1.61	19.61	7.63
210.00 cfs	194.83 cfs	2392.74	5.24	0.849	5-S2n	1.03	3.20	1.65	1.64	19.67	7.72
224.20 cfs	199.23 cfs	2392.83	5.33	0.945	5-S2n	1.04	3.25	1.68	1.70	19.73	7.86
235.40 cfs	202.39 cfs	2392.89	5.39	1.014	5-S2n	1.06	3.28	1.71	1.74	19.78	7.97
246.60 cfs	205.26 cfs	2392.95	5.45	1.077	5-S2n	1.07	3.31	1.73	1.78	19.83	8.07
257.80 cfs	208.02 cfs	2393.01	5.51	1.138	5-S2n	1.07	3.34	1.74	1.82	19.88	8.17
269.00 cfs	210.64 cfs	2393.07	5.57	1.197	5-S2n	1.08	3.37	1.76	1.86	19.92	8.27

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2387.50 ft,

Outlet Elevation (invert): 2384.10 ft

Culvert Length: 37.06 ft,

Culvert Slope: 0.0921

Site Data - EXST H5

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2387.50 ft

Outlet Station: 36.90 ft

Outlet Elevation: 2384.10 ft

Number of Barrels: 1

Culvert Data Summary - EXST H5

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST H6

Table 5 - Culvert Summary Table: EXST H6

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
168.00 cfs	168.00 cfs	2531.95	5.45	1.624	5-S2n	1.24	3.27	1.83	1.75	18.39	5.65
179.60 cfs	179.60 cfs	2532.25	5.75	1.938	5-S2n	1.30	3.42	1.93	1.81	18.61	5.75
191.20 cfs	191.20 cfs	2532.55	6.05	2.259	5-S2n	1.36	3.57	2.03	1.87	18.82	5.85
202.80 cfs	202.80 cfs	2532.87	6.37	2.588	5-S2n	1.41	3.71	2.13	1.93	19.02	5.95
214.40 cfs	214.40 cfs	2533.19	6.69	3.501	5-S2n	1.47	3.85	2.23	1.98	19.22	6.04
224.00 cfs	224.00 cfs	2533.47	6.97	3.729	5-S2n	1.52	3.96	2.31	2.02	19.37	6.12
237.60 cfs	237.60 cfs	2533.88	7.38	4.065	5-S2n	1.58	4.12	2.43	2.08	19.59	6.22
249.20 cfs	244.80 cfs	2534.10	7.60	4.248	5-S2n	1.61	4.21	2.49	2.13	19.69	6.30
260.80 cfs	248.10 cfs	2534.21	7.71	4.333	5-S2n	1.63	4.24	2.51	2.18	19.74	6.38
272.40 cfs	250.81 cfs	2534.30	7.80	4.404	5-S2n	1.64	4.28	2.54	2.23	19.78	6.45
284.00 cfs	253.24 cfs	2534.38	7.88	4.468	5-S2n	1.65	4.30	2.56	2.28	19.82	6.53

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2526.50 ft,

Outlet Elevation (invert): 2523.70 ft

Culvert Length: 45.79 ft,

Culvert Slope: 0.0613

Site Data - EXST H6

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2526.50 ft

Outlet Station: 45.70 ft

Outlet Elevation: 2523.70 ft

Number of Barrels: 1

Culvert Data Summary - EXST H6

Barrel Shape: Concrete Box

Barrel Span: 5.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST R3

Table 6 - Culvert Summary Table: EXST R3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
237.00 cfs	237.00 cfs	2330.30	4.20	1.467	1-S2n	0.90	2.59	1.54	1.79	15.34	5.99
246.70 cfs	246.70 cfs	2330.42	4.32	1.569	1-S2n	0.92	2.66	1.60	1.82	15.45	6.06
256.40 cfs	256.40 cfs	2330.54	4.44	1.670	1-S2n	0.95	2.73	1.65	1.86	15.57	6.13
266.10 cfs	266.10 cfs	2330.65	4.55	1.773	1-S2n	0.97	2.80	1.70	1.90	15.69	6.20
275.80 cfs	275.80 cfs	2330.76	4.66	1.875	1-S2n	0.99	2.87	1.75	1.94	15.79	6.26
283.00 cfs	283.00 cfs	2330.85	4.75	1.952	1-S2n	1.01	2.92	1.78	1.96	15.87	6.31
295.20 cfs	295.20 cfs	2330.99	4.89	2.082	1-S2n	1.03	3.00	1.84	2.01	16.01	6.39
304.90 cfs	304.90 cfs	2331.10	5.00	2.186	1-S2n	1.06	3.07	1.89	2.04	16.11	6.45
314.60 cfs	314.60 cfs	2331.21	5.11	2.291	1-S2n	1.08	3.13	1.94	2.08	16.21	6.51
324.30 cfs	324.30 cfs	2331.31	5.21	2.396	1-S2n	1.10	3.20	1.99	2.11	16.31	6.56
334.00 cfs	334.00 cfs	2331.42	5.32	2.502	1-S2n	1.12	3.26	2.04	2.14	16.40	6.62

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2326.10 ft,

Outlet Elevation (invert): 2324.60 ft

Culvert Length: 23.25 ft,

Culvert Slope: 0.0647

Site Data - EXST R3

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2326.10 ft

Outlet Station: 23.20 ft

Outlet Elevation: 2324.60 ft

Number of Barrels: 1

Culvert Data Summary - EXST R3

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST R6

Table 7 - Culvert Summary Table: EXST R6

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
156.00 cfs	156.00 cfs	2288.45	6.25	5.306	5-S2n	2.01	3.61	2.86	1.82	13.66	5.62
163.30 cfs	163.30 cfs	2288.70	6.50	5.490	5-S2n	2.08	3.73	2.96	1.86	13.82	5.69
170.60 cfs	170.60 cfs	2288.95	6.75	5.679	5-S2n	2.15	3.84	3.05	1.90	13.97	5.76
177.90 cfs	177.90 cfs	2289.21	7.01	5.874	5-S2n	2.22	3.95	3.15	1.94	14.12	5.82
185.20 cfs	185.20 cfs	2289.49	7.29	6.074	5-S2n	2.29	4.05	3.25	1.98	14.26	5.88
190.00 cfs	190.00 cfs	2289.67	7.47	6.209	5-S2n	2.33	4.12	3.31	2.00	14.35	5.92
199.80 cfs	199.11 cfs	2290.03	7.83	6.476	5-S2n	2.42	4.25	3.43	2.05	14.52	6.00
207.10 cfs	201.45 cfs	2290.12	7.92	6.569	5-S2n	2.44	4.29	3.46	2.09	14.57	6.06
214.40 cfs	203.21 cfs	2290.19	7.99	6.648	5-S2n	2.46	4.31	3.48	2.12	14.60	6.12
221.70 cfs	204.70 cfs	2290.25	8.05	6.720	5-S2n	2.47	4.33	3.50	2.16	14.62	6.17
229.00 cfs	206.04 cfs	2290.31	8.11	6.787	5-S2n	2.48	4.35	3.52	2.19	14.65	6.23

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2282.20 ft,

Outlet Elevation (invert): 2281.70 ft

Culvert Length: 20.51 ft,

Culvert Slope: 0.0244

Site Data - EXST R6

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2282.20 ft

Outlet Station: 20.50 ft

Outlet Elevation: 2281.70 ft

Number of Barrels: 1

Culvert Data Summary - EXST R6

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST R7

Table 8 - Culvert Summary Table: EXST R7

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
157.00 cfs	157.00 cfs	2363.24	5.84	2.299	1-S2n	1.28	3.63	2.18	1.82	17.97	5.63
163.40 cfs	163.40 cfs	2363.41	6.01	2.461	1-S2n	1.32	3.73	2.26	1.86	18.10	5.69
169.80 cfs	169.80 cfs	2363.58	6.18	2.624	1-S2n	1.35	3.83	2.33	1.90	18.24	5.75
176.20 cfs	176.20 cfs	2363.74	6.34	2.789	1-S2n	1.39	3.92	2.40	1.93	18.36	5.81
182.60 cfs	182.60 cfs	2363.91	6.51	2.955	1-S2n	1.43	4.01	2.47	1.96	18.49	5.86
187.00 cfs	187.00 cfs	2364.02	6.62	3.070	1-S2n	1.45	4.08	2.52	1.99	18.57	5.90
195.40 cfs	195.40 cfs	2364.24	6.84	3.291	1-S2n	1.50	4.20	2.61	2.03	18.73	5.97
201.80 cfs	201.80 cfs	2364.41	7.01	3.462	5-S2n	1.53	4.29	2.68	2.06	18.84	6.02
208.20 cfs	208.20 cfs	2364.57	7.17	3.634	5-S2n	1.57	4.38	2.75	2.09	18.95	6.07
214.60 cfs	214.60 cfs	2364.74	7.34	3.808	5-S2n	1.60	4.47	2.81	2.12	19.07	6.12
221.00 cfs	221.00 cfs	2364.91	7.51	3.983	5-S2n	1.64	4.56	2.88	2.16	19.17	6.17

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2357.40 ft,

Outlet Elevation (invert): 2355.30 ft

Culvert Length: 24.79 ft,

Culvert Slope: 0.0850

Site Data - EXST R7

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2357.40 ft

Outlet Station: 24.70 ft

Outlet Elevation: 2355.30 ft

Number of Barrels: 1

Culvert Data Summary - EXST R7

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST R10

Table 9 - Culvert Summary Table: EXST R10

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
107.00 cfs	107.00 cfs	2428.42	3.42	0.562	1-S2n	0.74	2.15	1.19	1.39	15.00	4.97
111.30 cfs	111.30 cfs	2428.51	3.51	0.632	1-S2n	0.76	2.20	1.23	1.41	15.10	5.03
115.60 cfs	115.60 cfs	2428.60	3.60	0.701	1-S2n	0.78	2.26	1.27	1.44	15.22	5.08
119.90 cfs	119.90 cfs	2428.69	3.69	0.771	1-S2n	0.79	2.31	1.30	1.47	15.31	5.13
124.20 cfs	124.20 cfs	2428.78	3.78	0.840	1-S2n	0.81	2.37	1.34	1.50	15.41	5.19
128.00 cfs	128.00 cfs	2428.86	3.86	0.901	1-S2n	0.83	2.42	1.38	1.52	15.50	5.23
132.80 cfs	132.80 cfs	2428.96	3.96	0.979	1-S2n	0.85	2.48	1.42	1.55	15.60	5.29
137.10 cfs	137.10 cfs	2429.05	4.05	1.048	1-S2n	0.87	2.53	1.46	1.58	15.69	5.33
141.40 cfs	141.40 cfs	2429.14	4.14	1.117	1-S2n	0.89	2.58	1.49	1.60	15.79	5.38
145.70 cfs	145.70 cfs	2429.22	4.22	1.186	1-S2n	0.91	2.64	1.53	1.63	15.88	5.43
150.00 cfs	150.00 cfs	2429.31	4.31	1.255	1-S2n	0.92	2.69	1.57	1.65	15.96	5.47

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2425.00 ft,

Outlet Elevation (invert): 2423.26 ft

Culvert Length: 23.07 ft,

Culvert Slope: 0.0757

Site Data - EXST R10

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2425.00 ft

Outlet Station: 23.00 ft

Outlet Elevation: 2423.26 ft

Number of Barrels: 1

Culvert Data Summary - EXST R10

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST R13

Table 10 - Culvert Summary Table: EXST R13

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
55.00 cfs	55.00 cfs	2371.97	1.47	0.381	1-S2n	0.51	0.87	0.58	0.80	7.92	3.80
57.20 cfs	57.20 cfs	2372.01	1.51	0.406	1-S2n	0.52	0.89	0.60	0.81	8.00	3.85
59.40 cfs	59.40 cfs	2372.05	1.55	0.429	1-S2n	0.53	0.91	0.61	0.83	8.09	3.90
61.60 cfs	61.60 cfs	2372.08	1.58	0.453	1-S2n	0.54	0.94	0.63	0.85	8.17	3.94
63.80 cfs	63.80 cfs	2372.12	1.62	0.477	1-S2n	0.56	0.96	0.64	0.87	8.24	3.99
66.00 cfs	66.00 cfs	2372.16	1.66	0.500	1-S2n	0.57	0.98	0.66	0.88	8.32	4.03
68.20 cfs	68.20 cfs	2372.19	1.69	0.523	1-S2n	0.58	1.00	0.68	0.90	8.39	4.08
70.40 cfs	70.40 cfs	2372.23	1.73	0.546	1-S2n	0.59	1.02	0.69	0.92	8.46	4.12
72.60 cfs	72.60 cfs	2372.27	1.77	0.568	1-S2n	0.61	1.04	0.71	0.93	8.53	4.16
74.80 cfs	74.80 cfs	2372.30	1.80	0.591	1-S2n	0.62	1.06	0.72	0.95	8.60	4.20
77.00 cfs	77.00 cfs	2372.34	1.84	0.613	1-S2n	0.63	1.09	0.74	0.96	8.66	4.24

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2370.50 ft,

Outlet Elevation (invert): 2370.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - EXST R13

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2370.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2370.00 ft

Number of Barrels: 1

Culvert Data Summary - EXST R13

Barrel Shape: Concrete Box

Barrel Span: 12.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST H8

Table 11 - Culvert Summary Table: EXST H8

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
219.00 cfs	219.00 cfs	2566.82	4.82	2.953	1-S2n	2.06	2.98	2.14	1.71	13.61	8.49
233.00 cfs	233.00 cfs	2567.05	5.05	3.175	5-S2n	2.13	3.08	2.22	1.76	13.80	8.64
247.00 cfs	247.00 cfs	2567.29	5.29	3.405	5-S2n	2.20	3.18	2.30	1.82	13.98	8.79
261.00 cfs	261.00 cfs	2567.54	5.54	3.643	5-S2n	2.27	3.27	2.38	1.87	14.18	8.93
275.00 cfs	275.00 cfs	2567.80	5.80	3.891	5-S2n	2.34	3.36	2.45	1.92	14.35	9.07
286.00 cfs	286.00 cfs	2568.01	6.01	4.091	5-S2n	2.40	3.43	2.51	1.96	14.47	9.17
303.00 cfs	303.00 cfs	2568.35	6.35	4.411	5-S2n	2.48	3.53	2.60	2.02	14.67	9.32
317.00 cfs	317.00 cfs	2568.64	6.64	4.685	5-S2n	2.55	3.61	2.67	2.07	14.83	9.44
331.00 cfs	331.00 cfs	2568.94	6.94	4.968	5-S2n	2.61	3.69	2.75	2.12	14.98	9.55
345.00 cfs	345.00 cfs	2569.26	7.26	5.260	5-S2n	2.68	3.76	2.82	2.16	15.13	9.67
359.00 cfs	359.00 cfs	2569.59	7.59	5.561	5-S2n	2.75	3.84	2.89	2.21	15.28	9.77

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2562.00 ft,

Outlet Elevation (invert): 2559.40 ft

Culvert Length: 55.06 ft,

Culvert Slope: 0.0473

Site Data - EXST H8

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2562.00 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2559.40 ft

Number of Barrels: 2

Culvert Data Summary - EXST H8

Barrel Shape: Circular

Barrel Diameter: 5.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R11

Table 12 - Culvert Summary Table: EXST R11

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
106.00 cfs	43.63 cfs	2626.59	3.89	0.0*	5-S2n	1.40	2.15	1.43	1.68	13.16	6.31
110.20 cfs	43.89 cfs	2626.62	3.92	0.0*	5-S2n	1.41	2.16	1.43	1.71	13.19	6.37
114.40 cfs	44.15 cfs	2626.64	3.94	0.0*	5-S2n	1.41	2.16	1.43	1.74	13.22	6.44
118.60 cfs	44.40 cfs	2626.66	3.96	0.0*	5-S2n	1.42	2.17	1.44	1.77	13.25	6.50
122.80 cfs	44.65 cfs	2626.69	3.99	0.0*	5-S2n	1.42	2.18	1.44	1.80	13.28	6.56
128.00 cfs	44.94 cfs	2626.71	4.01	0.0*	5-S2n	1.42	2.18	1.45	1.84	13.31	6.63
131.20 cfs	45.12 cfs	2626.73	4.03	0.0*	5-S2n	1.43	2.19	1.45	1.86	13.33	6.68
135.40 cfs	45.35 cfs	2626.75	4.05	0.0*	5-S2n	1.43	2.19	1.45	1.89	13.36	6.73
139.60 cfs	45.57 cfs	2626.77	4.07	0.0*	5-S2n	1.44	2.20	1.46	1.91	13.39	6.79
143.80 cfs	45.79 cfs	2626.79	4.09	0.0*	5-S2n	1.44	2.20	1.46	1.94	13.41	6.84
148.00 cfs	46.00 cfs	2626.81	4.11	0.0*	5-S2n	1.44	2.21	1.46	1.97	13.44	6.89

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type: Straight Culvert

Inlet Elevation (invert): 2622.70 ft,

Outlet Elevation (invert): 2618.10 ft

Culvert Length: 62.77 ft,

Culvert Slope: 0.0735

Site Data - EXST R11

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2622.70 ft

Outlet Station: 62.60 ft

Outlet Elevation: 2618.10 ft

Number of Barrels: 1

Culvert Data Summary - EXST R11

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R12

Table 13 - Culvert Summary Table: EXST R12

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
73.00 cfs	73.00 cfs	2431.36	4.42	4.556	7-M2c	3.00	2.58	2.58	1.21	8.50	6.29
75.90 cfs	75.90 cfs	2431.47	4.57	4.672	7-M2c	3.10	2.64	2.64	1.23	8.64	6.36
78.80 cfs	78.80 cfs	2431.59	4.72	4.788	7-M2c	3.22	2.69	2.69	1.26	8.77	6.43
81.70 cfs	81.70 cfs	2431.70	4.88	4.905	7-M2c	3.36	2.74	2.74	1.28	8.91	6.49
84.60 cfs	84.60 cfs	2431.83	5.03	5.022	7-M2c	3.53	2.79	2.79	1.30	9.05	6.56
87.00 cfs	87.00 cfs	2431.97	5.17	5.120	7-M2c	4.00	2.83	2.83	1.32	9.16	6.61
90.40 cfs	88.64 cfs	2432.06	5.26	5.188	7-M2c	4.00	2.85	2.85	1.35	9.24	6.68
93.30 cfs	89.43 cfs	2432.11	5.31	5.221	7-M2c	4.00	2.87	2.87	1.37	9.28	6.74
96.20 cfs	90.11 cfs	2432.15	5.35	5.249	7-M2c	4.00	2.88	2.88	1.39	9.31	6.80
99.10 cfs	90.72 cfs	2432.19	5.39	5.274	7-M2c	4.00	2.89	2.89	1.41	9.34	6.86
102.00 cfs	91.27 cfs	2432.22	5.42	5.298	7-M2c	4.00	2.90	2.90	1.43	9.37	6.91

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2426.80 ft,

Outlet Elevation (invert): 2426.50 ft

Culvert Length: 28.40 ft,

Culvert Slope: 0.0106

Site Data - EXST R12

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2426.80 ft

Outlet Station: 28.40 ft

Outlet Elevation: 2426.50 ft

Number of Barrels: 1

Culvert Data Summary - EXST R12

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R14

Table 14 - Culvert Summary Table: EXST R14

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
43.00 cfs	13.39 cfs	2178.07	4.05	4.567	7-M2c	1.50	1.36	1.36	0.78	7.94	4.48
44.70 cfs	13.42 cfs	2178.08	4.06	4.580	7-M2c	1.50	1.36	1.36	0.80	7.95	4.53
46.40 cfs	13.44 cfs	2178.09	4.07	4.594	7-M2c	1.50	1.37	1.37	0.81	7.96	4.59
48.10 cfs	13.46 cfs	2178.11	4.08	4.607	7-M2c	1.50	1.37	1.37	0.83	7.97	4.64
49.80 cfs	13.49 cfs	2178.12	4.09	4.621	7-M2c	1.50	1.37	1.37	0.85	7.98	4.69
52.00 cfs	13.52 cfs	2178.13	4.11	4.635	7-M2c	1.50	1.37	1.37	0.87	8.00	4.76
53.20 cfs	13.53 cfs	2178.14	4.11	4.643	7-M2c	1.50	1.37	1.37	0.88	8.00	4.79
54.90 cfs	13.55 cfs	2178.16	4.13	4.656	7-M2c	1.50	1.37	1.37	0.89	8.01	4.84
56.60 cfs	13.57 cfs	2178.17	4.14	4.667	7-M2c	1.50	1.37	1.37	0.91	8.02	4.89
58.30 cfs	13.60 cfs	2178.18	4.15	4.679	7-M2c	1.50	1.37	1.37	0.92	8.03	4.94
60.00 cfs	13.61 cfs	2178.19	4.16	4.692	7-M2c	1.50	1.37	1.37	0.94	8.04	4.98

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2173.50 ft,

Outlet Elevation (invert): 2173.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - EXST R14

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2173.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2173.00 ft

Number of Barrels: 1

Culvert Data Summary - EXST R14

Barrel Shape: Circular

Barrel Diameter: 1.50 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R15

Table 15 - Culvert Summary Table: EXST R15

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
38.00 cfs	38.00 cfs	2543.49	3.29	0.0*	5-S2n	1.05	2.01	1.08	0.73	16.62	5.15
39.50 cfs	39.50 cfs	2543.61	3.41	0.0*	5-S2n	1.08	2.05	1.08	0.74	17.34	5.21
41.00 cfs	41.00 cfs	2543.74	3.54	0.0*	5-S2n	1.10	2.09	1.13	0.76	16.86	5.28
42.50 cfs	42.50 cfs	2543.87	3.67	0.0*	5-S2n	1.12	2.12	1.15	0.77	17.08	5.34
44.00 cfs	44.00 cfs	2544.00	3.80	0.0*	5-S2n	1.14	2.16	1.16	0.79	17.41	5.40
46.00 cfs	46.00 cfs	2544.19	3.99	0.0*	5-S2n	1.17	2.21	1.20	0.81	17.38	5.47
47.00 cfs	47.00 cfs	2544.28	4.08	0.0*	5-S2n	1.18	2.23	1.22	0.82	17.47	5.51
48.50 cfs	48.50 cfs	2544.43	4.23	0.0*	5-S2n	1.20	2.27	1.24	0.83	17.68	5.56
50.00 cfs	50.00 cfs	2544.58	4.38	0.0*	5-S2n	1.22	2.30	1.25	0.85	17.91	5.62
51.50 cfs	51.50 cfs	2544.74	4.54	0.0*	5-S2n	1.24	2.33	1.28	0.86	17.91	5.67
53.00 cfs	53.00 cfs	2544.90	4.70	0.0*	5-S2n	1.26	2.37	1.30	0.87	17.99	5.72

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2540.20 ft,

Outlet Elevation (invert): 2531.70 ft

Culvert Length: 54.66 ft,

Culvert Slope: 0.1574

Site Data - EXST R15

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2540.20 ft

Outlet Station: 54.00 ft

Outlet Elevation: 2531.70 ft

Number of Barrels: 1

Culvert Data Summary - EXST R15

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R16

Table 16 - Culvert Summary Table: EXST R16

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
35.00 cfs	35.00 cfs	2509.09	3.09	0.0*	5-S2n	1.05	1.92	1.05	0.78	15.90	4.37
36.40 cfs	36.40 cfs	2509.19	3.19	0.0*	5-S2n	1.07	1.96	1.09	0.79	15.68	4.42
37.80 cfs	37.80 cfs	2509.31	3.31	0.0*	5-S2n	1.09	2.00	1.09	0.81	16.23	4.48
39.20 cfs	39.20 cfs	2509.42	3.42	0.0*	5-S2n	1.11	2.04	1.11	0.83	16.40	4.53
40.60 cfs	40.60 cfs	2509.54	3.54	0.0*	5-S2n	1.14	2.07	1.16	0.84	16.10	4.58
42.00 cfs	42.00 cfs	2509.66	3.66	0.0*	5-S2n	1.16	2.11	1.17	0.86	16.48	4.63
43.00 cfs	43.00 cfs	2509.74	3.74	0.0*	5-S2n	1.17	2.14	1.17	0.87	16.82	4.66
44.80 cfs	44.80 cfs	2509.91	3.91	0.0*	5-S2n	1.20	2.18	1.23	0.89	16.49	4.72
46.20 cfs	46.20 cfs	2510.04	4.04	0.0*	5-S2n	1.22	2.21	1.24	0.91	16.70	4.76
47.60 cfs	47.60 cfs	2510.17	4.17	0.0*	5-S2n	1.24	2.25	1.26	0.92	16.98	4.81
49.00 cfs	49.00 cfs	2510.31	4.31	0.0*	5-S2n	1.26	2.28	1.26	0.93	17.42	4.85

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2506.00 ft,

Outlet Elevation (invert): 2496.70 ft

Culvert Length: 69.23 ft,

Culvert Slope: 0.1356

Site Data - EXST R16

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2506.00 ft

Outlet Station: 68.60 ft

Outlet Elevation: 2496.70 ft

Number of Barrels: 1

Culvert Data Summary - EXST R16

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R17

Table 17 - Culvert Summary Table: EXST R17

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
24.00 cfs	24.00 cfs	2492.96	2.46	1.411	1-S2n	1.31	1.58	1.33	0.79	7.93	4.76
25.00 cfs	25.00 cfs	2493.03	2.53	1.482	1-S2n	1.34	1.61	1.36	0.81	8.01	4.81
26.00 cfs	26.00 cfs	2493.10	2.60	1.554	1-S2n	1.37	1.65	1.39	0.82	8.10	4.87
27.00 cfs	27.00 cfs	2493.17	2.67	1.626	1-S2n	1.39	1.68	1.42	0.84	8.18	4.92
28.00 cfs	28.00 cfs	2493.24	2.74	1.700	1-S2n	1.42	1.71	1.45	0.86	8.25	4.97
29.00 cfs	29.00 cfs	2493.31	2.81	1.774	1-S2n	1.45	1.74	1.48	0.87	8.33	5.02
30.00 cfs	30.00 cfs	2493.38	2.88	1.850	1-S2n	1.48	1.77	1.51	0.89	8.40	5.07
31.00 cfs	31.00 cfs	2493.45	2.95	1.926	1-S2n	1.51	1.80	1.54	0.90	8.47	5.11
32.00 cfs	32.00 cfs	2493.52	3.02	2.003	5-S2n	1.54	1.83	1.57	0.92	8.53	5.16
33.00 cfs	33.00 cfs	2493.60	3.10	2.082	5-S2n	1.57	1.86	1.60	0.93	8.60	5.21
34.00 cfs	34.00 cfs	2493.67	3.17	2.161	5-S2n	1.60	1.89	1.63	0.95	8.66	5.25

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2490.50 ft,

Outlet Elevation (invert): 2489.90 ft

Culvert Length: 21.01 ft,

Culvert Slope: 0.0286

Site Data - EXST R17

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2490.50 ft

Outlet Station: 21.00 ft

Outlet Elevation: 2489.90 ft

Number of Barrels: 1

Culvert Data Summary - EXST R17

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R18

Table 18 - Culvert Summary Table: EXST R18

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
12.00 cfs	12.00 cfs	2556.95	1.45	0.0*	1-S2n	0.61	1.10	0.60	0.48	11.81	3.89
12.50 cfs	12.50 cfs	2556.99	1.49	0.0*	1-S2n	0.62	1.12	0.62	0.49	11.91	3.94
13.00 cfs	13.00 cfs	2557.02	1.52	0.0*	1-S2n	0.63	1.15	0.63	0.50	12.05	3.99
13.50 cfs	13.50 cfs	2557.06	1.56	0.0*	1-S2n	0.64	1.17	0.64	0.51	12.19	4.03
14.00 cfs	14.00 cfs	2557.10	1.60	0.0*	1-S2n	0.65	1.19	0.67	0.52	11.88	4.08
14.50 cfs	14.50 cfs	2557.13	1.63	0.0*	1-S2n	0.66	1.21	0.66	0.53	12.45	4.12
15.00 cfs	15.00 cfs	2557.17	1.67	0.0*	1-S2n	0.68	1.23	0.68	0.54	12.57	4.17
15.50 cfs	15.50 cfs	2557.21	1.71	0.0*	1-S2n	0.69	1.26	0.69	0.55	12.68	4.21
16.00 cfs	16.00 cfs	2557.24	1.74	0.0*	1-S2n	0.70	1.28	0.73	0.56	12.10	4.25
16.50 cfs	16.50 cfs	2557.28	1.78	0.0*	1-S2n	0.71	1.30	0.73	0.57	12.42	4.29
17.00 cfs	17.00 cfs	2557.31	1.81	0.0*	1-S2n	0.72	1.32	0.73	0.58	12.81	4.33

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2555.50 ft,

Outlet Elevation (invert): 2549.90 ft

Culvert Length: 40.98 ft,

Culvert Slope: 0.1379

Site Data - EXST R18

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2555.50 ft

Outlet Station: 40.60 ft

Outlet Elevation: 2549.90 ft

Number of Barrels: 1

Culvert Data Summary - EXST R18

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R19

Table 19 - Culvert Summary Table: EXST R19

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
15.00 cfs	15.00 cfs	2266.96	1.76	0.0*	1-S2n	0.78	1.23	0.78	0.61	10.34	3.62
15.60 cfs	15.60 cfs	2267.00	1.80	0.0*	1-S2n	0.79	1.26	0.79	0.62	10.46	3.67
16.20 cfs	16.20 cfs	2267.04	1.84	0.0*	1-S2n	0.81	1.29	0.84	0.63	10.08	3.71
16.80 cfs	16.80 cfs	2267.09	1.89	0.0*	1-S2n	0.82	1.31	0.85	0.65	10.26	3.75
17.40 cfs	17.40 cfs	2267.13	1.93	0.0*	1-S2n	0.84	1.33	0.85	0.66	10.48	3.79
18.00 cfs	18.00 cfs	2267.17	1.97	0.0*	1-S2n	0.85	1.36	0.86	0.67	10.73	3.83
18.60 cfs	18.60 cfs	2267.21	2.01	0.0*	1-S2n	0.87	1.38	0.87	0.68	11.00	3.86
19.20 cfs	19.20 cfs	2267.26	2.06	0.0*	1-S2n	0.88	1.40	0.88	0.69	11.10	3.90
19.80 cfs	19.80 cfs	2267.30	2.10	0.0*	1-S2n	0.89	1.43	0.92	0.71	10.72	3.94
20.40 cfs	20.40 cfs	2267.34	2.14	0.0*	1-S2n	0.91	1.45	0.94	0.72	10.84	3.97
21.00 cfs	21.00 cfs	2267.38	2.18	0.0*	1-S2n	0.92	1.47	0.95	0.73	10.98	4.01

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2265.20 ft,

Outlet Elevation (invert): 2262.20 ft

Culvert Length: 37.72 ft,

Culvert Slope: 0.0798

Site Data - EXST R19

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2265.20 ft

Outlet Station: 37.60 ft

Outlet Elevation: 2262.20 ft

Number of Barrels: 1

Culvert Data Summary - EXST R19

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R2

Table 20 - Culvert Summary Table: EXST R2

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
295.00 cfs	140.03 cfs	2474.51	9.12	10.514	4-FFf	2.81	3.51	4.00	0.72	11.14	43.13
307.40 cfs	140.52 cfs	2474.57	9.17	10.565	4-FFf	2.82	3.52	4.00	0.74	11.18	43.72
319.80 cfs	140.99 cfs	2474.61	9.22	10.615	4-FFf	2.82	3.52	4.00	0.76	11.22	44.30
332.20 cfs	141.46 cfs	2474.66	9.26	10.664	4-FFf	2.83	3.52	4.00	0.78	11.26	44.86
344.60 cfs	141.92 cfs	2474.71	9.31	10.712	4-FFf	2.84	3.53	4.00	0.79	11.29	45.41
356.00 cfs	142.33 cfs	2474.76	9.35	10.755	4-FFf	2.84	3.53	4.00	0.81	11.33	45.90
369.40 cfs	142.80 cfs	2474.81	9.40	10.806	4-FFf	2.85	3.54	4.00	0.82	11.36	46.46
381.80 cfs	143.23 cfs	2474.85	9.44	10.851	4-FFf	2.86	3.54	4.00	0.84	11.40	46.96
394.20 cfs	143.65 cfs	2474.90	9.48	10.896	4-FFf	2.86	3.54	4.00	0.86	11.43	47.45
406.60 cfs	144.06 cfs	2474.94	9.52	10.941	4-FFf	2.87	3.55	4.00	0.87	11.46	47.93
419.00 cfs	144.46 cfs	2474.98	9.56	10.984	4-FFf	2.88	3.55	4.00	0.89	11.50	48.40

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2464.00 ft,

Outlet Elevation (invert): 2462.40 ft

Culvert Length: 35.04 ft,

Culvert Slope: 0.0457

Site Data - EXST R2

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2464.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2462.40 ft

Number of Barrels: 1

Culvert Data Summary - EXST R2

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R20

Table 21 - Culvert Summary Table: EXST R20

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
21.00 cfs	21.00 cfs	2141.01	1.91	0.0*	1-S2n	0.90	1.35	0.94	0.67	9.32	4.47
21.90 cfs	21.90 cfs	2141.05	1.95	0.0*	1-S2n	0.92	1.38	0.96	0.69	9.43	4.52
22.80 cfs	22.80 cfs	2141.09	1.99	0.027	1-S2n	0.94	1.41	0.98	0.70	9.55	4.58
23.70 cfs	23.70 cfs	2141.14	2.04	0.066	1-S2n	0.96	1.44	1.00	0.72	9.69	4.63
24.60 cfs	24.60 cfs	2141.19	2.09	0.104	1-S2n	0.98	1.46	1.01	0.73	9.81	4.68
25.50 cfs	25.50 cfs	2141.23	2.13	0.142	1-S2n	1.00	1.49	1.04	0.74	9.84	4.73
26.00 cfs	26.00 cfs	2141.26	2.16	0.163	1-S2n	1.01	1.51	1.05	0.75	9.87	4.76
27.30 cfs	27.30 cfs	2141.32	2.22	0.217	1-S2n	1.03	1.55	1.08	0.77	9.97	4.83
28.20 cfs	28.20 cfs	2141.36	2.26	0.255	1-S2n	1.05	1.57	1.10	0.79	10.06	4.87
29.10 cfs	29.10 cfs	2141.41	2.31	0.293	1-S2n	1.06	1.60	1.12	0.80	10.15	4.92
30.00 cfs	30.00 cfs	2141.45	2.35	0.331	1-S2n	1.08	1.62	1.13	0.81	10.26	4.96

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2139.10 ft,

Outlet Elevation (invert): 2137.60 ft

Culvert Length: 25.94 ft,

Culvert Slope: 0.0579

Site Data - EXST R20

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2139.10 ft

Outlet Station: 25.90 ft

Outlet Elevation: 2137.60 ft

Number of Barrels: 1

Culvert Data Summary - EXST R20

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R21

Table 22 - Culvert Summary Table: EXST R21

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
30.00 cfs	30.00 cfs	2165.34	2.34	0.0*	1-S2n	1.05	1.62	1.09	0.73	10.87	4.34
31.30 cfs	31.30 cfs	2165.40	2.40	0.0*	1-S2n	1.07	1.66	1.11	0.75	11.00	4.40
32.60 cfs	32.60 cfs	2165.46	2.46	0.0*	1-S2n	1.10	1.70	1.14	0.77	11.05	4.46
33.90 cfs	33.90 cfs	2165.52	2.52	0.0*	1-S2n	1.12	1.73	1.16	0.78	11.14	4.52
35.20 cfs	35.20 cfs	2165.58	2.58	0.0*	1-S2n	1.14	1.77	1.19	0.80	11.26	4.57
37.00 cfs	37.00 cfs	2165.66	2.66	0.0*	1-S2n	1.17	1.81	1.22	0.82	11.47	4.65
37.80 cfs	37.80 cfs	2165.70	2.70	0.0*	1-S2n	1.18	1.83	1.23	0.84	11.51	4.68
39.10 cfs	39.10 cfs	2165.76	2.76	0.036	1-S2n	1.20	1.87	1.26	0.85	11.55	4.73
40.40 cfs	40.40 cfs	2165.82	2.82	0.094	1-S2n	1.23	1.90	1.28	0.87	11.63	4.78
41.70 cfs	41.70 cfs	2165.87	2.87	0.151	1-S2n	1.25	1.93	1.30	0.88	11.72	4.83
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2163.00 ft,

Outlet Elevation (invert): 2160.80 ft

Culvert Length: 34.17 ft,

Culvert Slope: 0.0645

Site Data - EXST R21

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2163.00 ft

Outlet Station: 34.10 ft

Outlet Elevation: 2160.80 ft

Number of Barrels: 1

Culvert Data Summary - EXST R21

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R4

Table 23 - Culvert Summary Table: EXST R4

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
230.00 cfs	50.84 cfs	2204.66	4.66	3.876	5-S2n	2.09	2.32	2.10	1.95	9.62	7.45
239.50 cfs	51.20 cfs	2204.70	4.70	3.910	5-S2n	2.10	2.33	2.11	1.99	9.63	7.54
249.00 cfs	51.54 cfs	2204.74	4.74	3.945	5-S2n	2.11	2.33	2.12	2.03	9.65	7.62
258.50 cfs	51.88 cfs	2204.77	4.77	3.978	5-S2n	2.12	2.34	2.13	2.07	9.66	7.70
268.00 cfs	52.21 cfs	2204.81	4.81	4.011	5-S2n	2.13	2.35	2.14	2.11	9.67	7.78
275.00 cfs	52.45 cfs	2204.84	4.84	4.035	5-S2n	2.14	2.35	2.15	2.14	9.68	7.84
287.00 cfs	52.85 cfs	2204.88	4.88	4.075	5-S2n	2.15	2.36	2.16	2.19	9.69	7.93
296.50 cfs	53.15 cfs	2204.91	4.91	4.106	5-S2n	2.16	2.37	2.17	2.22	9.70	8.01
306.00 cfs	53.45 cfs	2204.95	4.95	4.137	5-S2n	2.17	2.38	2.18	2.26	9.71	8.08
315.50 cfs	53.75 cfs	2204.98	4.98	4.167	5-S2n	2.18	2.38	2.19	2.29	9.72	8.15
325.00 cfs	54.05 cfs	2205.01	5.01	4.198	5-S2n	2.19	2.39	2.20	2.33	9.73	8.21

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2200.00 ft,

Outlet Elevation (invert): 2199.00 ft

Culvert Length: 35.01 ft,

Culvert Slope: 0.0286

Site Data - EXST R4

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2200.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2199.00 ft

Number of Barrels: 1

Culvert Data Summary - EXST R4

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R5

Table 24 - Culvert Summary Table: EXST R5

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
205.00 cfs	62.37 cfs	2548.11	6.01	4.237	5-S2n	1.97	2.54	2.02	2.00	12.29	7.35
214.50 cfs	62.67 cfs	2548.15	6.05	4.274	5-S2n	1.97	2.55	2.03	2.04	12.31	7.44
224.00 cfs	62.97 cfs	2548.19	6.09	4.310	5-S2n	1.98	2.55	2.04	2.09	12.32	7.53
233.50 cfs	63.26 cfs	2548.23	6.13	4.345	5-S2n	1.99	2.56	2.04	2.13	12.33	7.61
243.00 cfs	63.54 cfs	2548.27	6.17	4.379	5-S2n	1.99	2.56	2.05	2.17	12.35	7.70
254.00 cfs	63.86 cfs	2548.31	6.21	4.417	5-S2n	2.00	2.57	2.06	2.22	12.36	7.79
262.00 cfs	64.08 cfs	2548.34	6.24	4.445	5-S2n	2.00	2.57	2.06	2.26	12.37	7.86
271.50 cfs	64.35 cfs	2548.38	6.28	4.477	5-S2n	2.01	2.57	2.07	2.30	12.39	7.93
281.00 cfs	64.60 cfs	2548.41	6.31	4.508	5-S2n	2.02	2.58	2.07	2.34	12.40	8.01
290.50 cfs	64.85 cfs	2548.45	6.35	4.539	5-S2n	2.02	2.58	2.08	2.38	12.42	8.08
300.00 cfs	65.10 cfs	2548.48	6.38	4.570	5-S2n	2.03	2.59	2.08	2.41	12.43	8.15

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2542.10 ft,

Outlet Elevation (invert): 2540.10 ft

Culvert Length: 39.45 ft,

Culvert Slope: 0.0508

Site Data - EXST R5

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2542.10 ft

Outlet Station: 39.40 ft

Outlet Elevation: 2540.10 ft

Number of Barrels: 1

Culvert Data Summary - EXST R5

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R8

Table 25 - Culvert Summary Table: EXST R8

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
150.00 cfs	89.89 cfs	2554.08	5.18	0.217	5-S2n	1.73	2.87	1.81	1.70	16.32	6.73
156.60 cfs	90.52 cfs	2554.12	5.22	0.258	5-S2n	1.73	2.88	1.81	1.74	16.35	6.82
163.20 cfs	91.11 cfs	2554.15	5.25	0.298	5-S2n	1.74	2.89	1.82	1.78	16.37	6.90
169.80 cfs	91.68 cfs	2554.19	5.29	0.335	5-S2n	1.74	2.90	1.83	1.81	16.40	6.97
176.40 cfs	92.23 cfs	2554.22	5.32	0.372	5-S2n	1.75	2.91	1.83	1.85	16.42	7.05
185.00 cfs	92.94 cfs	2554.26	5.36	0.419	5-S2n	1.76	2.92	1.84	1.89	16.45	7.14
189.60 cfs	93.30 cfs	2554.28	5.38	0.444	5-S2n	1.76	2.93	1.85	1.92	16.47	7.19
196.20 cfs	93.81 cfs	2554.31	5.41	0.478	5-S2n	1.77	2.94	1.85	1.95	16.49	7.26
202.80 cfs	94.31 cfs	2554.35	5.45	0.512	5-S2n	1.77	2.94	1.86	1.98	16.52	7.32
209.40 cfs	94.79 cfs	2554.38	5.48	0.545	5-S2n	1.78	2.95	1.86	2.02	16.54	7.39
216.00 cfs	95.27 cfs	2554.40	5.50	0.577	5-S2n	1.78	2.96	1.87	2.05	16.56	7.45

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2548.90 ft,

Outlet Elevation (invert): 2544.00 ft

Culvert Length: 55.22 ft,

Culvert Slope: 0.0891

Site Data - EXST R8

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2548.90 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2544.00 ft

Number of Barrels: 1

Culvert Data Summary - EXST R8

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R9

Table 26 - Culvert Summary Table: EXST R9

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
123.00 cfs	9.97 cfs	2422.87	2.64	2.868	4-FFf	1.12	1.22	1.50	2.11	5.64	7.11
128.60 cfs	9.92 cfs	2422.90	2.62	2.895	4-FFf	1.12	1.21	1.50	2.15	5.61	7.20
134.20 cfs	9.87 cfs	2422.92	2.60	2.922	4-FFf	1.11	1.21	1.50	2.20	5.59	7.28
139.80 cfs	9.82 cfs	2422.95	2.59	2.949	4-FFf	1.11	1.21	1.50	2.24	5.56	7.35
145.40 cfs	9.77 cfs	2422.98	2.57	2.975	4-FFf	1.10	1.21	1.50	2.28	5.53	7.43
152.00 cfs	9.72 cfs	2423.01	2.55	3.006	4-FFf	1.10	1.20	1.50	2.33	5.50	7.52
156.60 cfs	9.68 cfs	2423.03	2.54	3.026	4-FFf	1.09	1.20	1.50	2.37	5.48	7.58
162.20 cfs	9.64 cfs	2423.05	2.53	3.051	4-FFf	1.09	1.20	1.50	2.41	5.45	7.65
167.80 cfs	9.59 cfs	2423.08	2.51	3.075	4-FFf	1.08	1.20	1.50	2.45	5.43	7.71
173.40 cfs	9.55 cfs	2423.10	2.50	3.100	4-FFf	1.08	1.19	1.50	2.48	5.40	7.78
179.00 cfs	9.51 cfs	2423.12	2.49	3.124	4-FFf	1.08	1.19	1.50	2.52	5.38	7.84

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2420.00 ft,

Outlet Elevation (invert): 2419.00 ft

Culvert Length: 26.92 ft,

Culvert Slope: 0.0372

Site Data - EXST R9

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2420.00 ft

Outlet Station: 26.90 ft

Outlet Elevation: 2419.00 ft

Number of Barrels: 1

Culvert Data Summary - EXST R9

Barrel Shape: Circular

Barrel Diameter: 1.50 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R2 UPDATE

Table 27 - Culvert Summary Table: R2 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
295.00 cfs	295.00 cfs	2470.59	6.59	4.956	5-S2n	1.74	4.22	2.79	0.72	17.61	43.13
307.40 cfs	307.40 cfs	2470.82	6.82	5.182	5-S2n	1.79	4.34	2.88	0.74	17.76	43.72
319.80 cfs	319.80 cfs	2471.05	7.05	5.414	5-S2n	1.84	4.45	2.98	0.76	17.91	44.30
332.20 cfs	332.20 cfs	2471.28	7.28	5.652	5-S2n	1.89	4.57	3.07	0.78	18.06	44.86
344.60 cfs	344.60 cfs	2471.53	7.53	5.896	5-S2n	1.94	4.68	3.16	0.79	18.19	45.41
356.00 cfs	356.00 cfs	2471.76	7.76	6.126	5-S2n	1.99	4.78	3.24	0.81	18.32	45.90
369.40 cfs	369.40 cfs	2472.03	8.03	6.403	5-S2n	2.04	4.90	3.33	0.82	18.47	46.46
381.80 cfs	381.80 cfs	2472.30	8.30	6.661	5-S2n	2.09	5.00	3.42	0.84	18.60	46.96
394.20 cfs	394.20 cfs	2472.57	8.57	6.877	5-S2n	2.14	5.00	3.51	0.86	18.74	47.45
406.60 cfs	406.60 cfs	2472.85	8.85	7.099	5-S2n	2.18	5.00	3.59	0.87	18.89	47.93
419.00 cfs	419.00 cfs	2473.13	9.13	7.328	5-S2n	2.23	5.00	3.67	0.89	19.05	48.40

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2464.00 ft,

Outlet Elevation (invert): 2462.40 ft

Culvert Length: 35.04 ft,

Culvert Slope: 0.0457

Site Data - R2 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2464.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2462.40 ft

Number of Barrels: 1

Culvert Data Summary - R2 UPDATE

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: 1.5:1 Bevel (90°) Headwall

Inlet Depression: None

Culvert Data: R4 UPDATE

Table 28 - Culvert Summary Table: R4 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
230.00 cfs	230.00 cfs	2202.56	4.56	3.108	1-S2n	1.72	2.95	2.28	1.95	12.59	7.45
239.50 cfs	239.50 cfs	2202.68	4.68	3.244	1-S2n	1.76	3.03	2.35	1.99	12.72	7.54
249.00 cfs	249.00 cfs	2202.80	4.80	3.382	1-S2n	1.81	3.11	2.42	2.03	12.85	7.62
258.50 cfs	258.50 cfs	2202.93	4.93	3.520	1-S2n	1.86	3.19	2.49	2.07	12.98	7.70
268.00 cfs	268.00 cfs	2203.05	5.05	3.660	5-S2n	1.91	3.27	2.56	2.11	13.09	7.78
275.00 cfs	275.00 cfs	2203.14	5.14	3.764	5-S2n	1.94	3.32	2.61	2.14	13.18	7.84
287.00 cfs	287.00 cfs	2203.29	5.29	3.944	5-S2n	2.00	3.42	2.69	2.19	13.33	7.93
296.50 cfs	296.50 cfs	2203.41	5.41	4.088	5-S2n	2.04	3.49	2.76	2.22	13.44	8.01
306.00 cfs	305.40 cfs	2203.52	5.52	4.224	5-S2n	2.09	3.56	2.82	2.26	13.54	8.08
315.50 cfs	311.39 cfs	2203.60	5.60	4.317	5-S2n	2.11	3.61	2.86	2.29	13.61	8.15
325.00 cfs	316.37 cfs	2203.66	5.66	4.394	5-S2n	2.14	3.65	2.89	2.33	13.67	8.21

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2198.00 ft,

Outlet Elevation (invert): 2197.50 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R4 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2198.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2197.50 ft

Number of Barrels: 1

Culvert Data Summary - R4 UPDATE

Barrel Shape: Concrete Box

Barrel Span: 8.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: 1.5:1 Bevel (90°) Headwall

Inlet Depression: None

Culvert Data: R9 UPDATE

Table 29 - Culvert Summary Table: R9 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
123.00 cfs	123.00 cfs	2420.72	3.18	3.225	7-M1t	2.09	2.09	2.11	2.11	7.73	7.11
128.60 cfs	128.60 cfs	2420.81	3.29	3.314	3-M2t	2.16	2.13	2.15	2.15	7.90	7.20
134.20 cfs	134.20 cfs	2420.91	3.41	3.405	3-M2t	2.24	2.18	2.20	2.20	8.06	7.28
139.80 cfs	139.80 cfs	2421.03	3.53	3.497	3-M2t	2.32	2.22	2.24	2.24	8.23	7.35
145.40 cfs	145.40 cfs	2421.16	3.66	3.592	3-M2t	2.41	2.27	2.28	2.28	8.39	7.43
152.00 cfs	152.00 cfs	2421.31	3.81	3.709	3-M2t	2.54	2.32	2.33	2.33	8.59	7.52
156.60 cfs	156.60 cfs	2421.42	3.92	3.794	3-M2t	2.66	2.35	2.37	2.37	8.73	7.58
162.20 cfs	162.20 cfs	2421.56	4.06	3.901	3-M2t	3.00	2.39	2.41	2.41	8.89	7.65
167.80 cfs	167.80 cfs	2421.71	4.21	4.015	3-M2t	3.00	2.43	2.45	2.45	9.06	7.71
173.40 cfs	173.40 cfs	2421.86	4.36	4.135	3-M2t	3.00	2.46	2.48	2.48	9.23	7.78
179.00 cfs	178.79 cfs	2422.01	4.51	4.261	3-M2t	3.00	2.49	2.52	2.52	9.39	7.84

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2417.50 ft,

Outlet Elevation (invert): 2417.00 ft

Culvert Length: 26.90 ft,

Culvert Slope: 0.0186

Site Data - R9 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2417.50 ft

Outlet Station: 26.90 ft

Outlet Elevation: 2417.00 ft

Number of Barrels: 3

Culvert Data Summary - R9 UPDATE

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R5 UPDATE

Table 30 - Culvert Summary Table: R5 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
205.00 cfs	205.00 cfs	2545.90	3.80	2.433	5-S2n	1.72	2.33	1.77	2.00	11.77	7.35
214.50 cfs	214.50 cfs	2546.08	3.98	2.626	5-S2n	1.77	2.38	1.83	2.04	11.91	7.44
224.00 cfs	224.00 cfs	2546.26	4.16	2.825	5-S2n	1.83	2.43	1.88	2.09	12.04	7.53
233.50 cfs	233.50 cfs	2546.46	4.36	3.031	5-S2n	1.88	2.47	1.93	2.13	12.14	7.61
243.00 cfs	243.00 cfs	2546.66	4.56	3.243	5-S2n	1.93	2.51	1.99	2.17	12.23	7.70
254.00 cfs	254.00 cfs	2546.90	4.80	3.496	5-S2n	1.99	2.56	2.05	2.22	12.35	7.79
262.00 cfs	262.00 cfs	2547.08	4.98	3.686	5-S2n	2.04	2.59	2.09	2.26	12.45	7.86
271.50 cfs	267.07 cfs	2547.20	5.10	3.808	5-S2n	2.06	2.61	2.12	2.30	12.51	7.93
281.00 cfs	270.52 cfs	2547.29	5.19	3.893	5-S2n	2.08	2.62	2.14	2.34	12.52	8.01
290.50 cfs	273.41 cfs	2547.36	5.26	3.964	5-S2n	2.10	2.63	2.16	2.38	12.54	8.08
300.00 cfs	276.03 cfs	2547.42	5.32	4.029	5-S2n	2.12	2.64	2.18	2.41	12.57	8.15

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2542.10 ft,

Outlet Elevation (invert): 2540.10 ft

Culvert Length: 39.45 ft,

Culvert Slope: 0.0508

Site Data - R5 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2542.10 ft

Outlet Station: 39.40 ft

Outlet Elevation: 2540.10 ft

Number of Barrels: 4

Culvert Data Summary - R5 UPDATE

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R8 UPDATE

Table 31 - Culvert Summary Table: R8 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
150.00 cfs	150.00 cfs	2552.66	3.76	0.0*	1-S2n	1.56	2.62	1.62	1.70	15.72	6.73
156.60 cfs	156.60 cfs	2552.78	3.88	0.0*	1-S2n	1.60	2.68	1.66	1.74	15.82	6.82
163.20 cfs	163.20 cfs	2552.90	4.00	0.0*	5-S2n	1.64	2.74	1.70	1.78	15.98	6.90
169.80 cfs	169.80 cfs	2553.03	4.13	0.0*	5-S2n	1.67	2.79	1.74	1.81	16.16	6.97
176.40 cfs	176.40 cfs	2553.16	4.26	0.0*	5-S2n	1.71	2.85	1.78	1.85	16.26	7.05
185.00 cfs	185.00 cfs	2553.33	4.43	0.0*	5-S2n	1.75	2.92	1.84	1.89	16.43	7.14
189.60 cfs	189.60 cfs	2553.43	4.53	0.0*	5-S2n	1.78	2.95	1.86	1.92	16.54	7.19
196.20 cfs	194.93 cfs	2553.54	4.64	0.074	5-S2n	1.81	2.99	1.89	1.95	16.66	7.26
202.80 cfs	197.96 cfs	2553.61	4.71	0.652	5-S2n	1.82	3.01	1.91	1.98	16.70	7.32
209.40 cfs	200.46 cfs	2553.67	4.77	0.713	5-S2n	1.83	3.03	1.93	2.02	16.74	7.39
216.00 cfs	202.73 cfs	2553.72	4.82	0.769	5-S2n	1.85	3.05	1.94	2.05	16.78	7.45

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type: Straight Culvert

Inlet Elevation (invert): 2548.90 ft,

Outlet Elevation (invert): 2544.00 ft

Culvert Length: 55.22 ft,

Culvert Slope: 0.0891

Site Data - R8 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2548.90 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2544.00 ft

Number of Barrels: 2

Culvert Data Summary - R8 UPDATE

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R11 UPDATE

Table 32 - Culvert Summary Table: R11 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
106.00 cfs	106.00 cfs	2625.48	2.78	0.0*	1-S2n	1.24	1.93	1.27	1.68	12.41	6.31
110.20 cfs	110.20 cfs	2625.56	2.86	0.0*	1-S2n	1.27	1.97	1.29	1.71	12.64	6.37
114.40 cfs	114.40 cfs	2625.63	2.93	0.0*	1-S2n	1.30	2.01	1.30	1.74	13.01	6.44
118.60 cfs	118.60 cfs	2625.71	3.01	0.0*	5-S2n	1.32	2.05	1.32	1.77	13.14	6.50
122.80 cfs	122.80 cfs	2625.79	3.09	0.0*	5-S2n	1.35	2.08	1.38	1.80	12.90	6.56
128.00 cfs	128.00 cfs	2625.90	3.20	0.0*	5-S2n	1.38	2.13	1.41	1.84	13.06	6.63
131.20 cfs	131.20 cfs	2625.96	3.26	0.0*	5-S2n	1.40	2.15	1.43	1.86	13.17	6.68
135.40 cfs	134.49 cfs	2626.03	3.33	0.0*	5-S2n	1.42	2.18	1.45	1.89	13.30	6.73
139.60 cfs	136.64 cfs	2626.08	3.38	0.0*	5-S2n	1.44	2.20	1.46	1.91	13.38	6.79
143.80 cfs	138.44 cfs	2626.12	3.42	0.0*	5-S2n	1.45	2.21	1.47	1.94	13.45	6.84
148.00 cfs	140.09 cfs	2626.15	3.45	0.0*	5-S2n	1.46	2.23	1.46	1.97	13.71	6.89

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2622.70 ft,

Outlet Elevation (invert): 2618.10 ft

Culvert Length: 62.77 ft,

Culvert Slope: 0.0735

Site Data - R11 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2622.70 ft

Outlet Station: 62.60 ft

Outlet Elevation: 2618.10 ft

Number of Barrels: 3

Culvert Data Summary - R11 UPDATE

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R14 UPDATE

Table 33 - Culvert Summary Table: R14 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
43.00 cfs	43.00 cfs	2176.53	3.03	1.912	1-S2n	1.91	1.96	1.91	0.78	7.25	4.48
44.70 cfs	44.70 cfs	2176.61	3.11	1.989	1-S2n	1.95	2.00	1.96	0.80	7.32	4.53
46.40 cfs	46.40 cfs	2176.68	3.18	2.066	1-S2n	1.99	2.04	1.99	0.81	7.41	4.59
48.10 cfs	48.10 cfs	2176.76	3.26	2.144	1-S2n	2.04	2.08	2.04	0.83	7.47	4.64
49.80 cfs	49.80 cfs	2176.83	3.33	2.223	1-S2n	2.08	2.12	2.08	0.85	7.54	4.69
52.00 cfs	52.00 cfs	2176.93	3.43	2.326	1-S2n	2.14	2.17	2.14	0.87	7.62	4.76
53.20 cfs	53.20 cfs	2176.99	3.49	2.383	1-S2n	2.17	2.19	2.17	0.88	7.66	4.79
54.90 cfs	54.90 cfs	2177.06	3.56	2.464	1-S2n	2.21	2.23	2.21	0.89	7.72	4.84
56.60 cfs	56.60 cfs	2177.14	3.64	2.546	1-S2n	2.25	2.26	2.25	0.91	7.77	4.89
58.30 cfs	58.30 cfs	2177.22	3.72	2.629	1-S2n	2.29	2.30	2.29	0.92	7.83	4.94
60.00 cfs	60.00 cfs	2177.67	3.79	4.167	7-M2c	2.33	2.33	2.33	0.94	7.88	4.98

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2173.50 ft,

Outlet Elevation (invert): 2173.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R14 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2173.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2173.00 ft

Number of Barrels: 1

Culvert Data Summary - R14 UPDATE

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting (Ke=0.9)

Inlet Depression: None

Culvert Data: H2 2030

Table 1 - Culvert Summary Table: H2 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97
705.00 cfs	705.00 cfs	2145.13	6.93	5.067	1-S2n	3.40	4.09	3.81	2.82	12.33	7.97

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2138.20 ft,

Outlet Elevation (invert): 2138.10 ft

Culvert Length: 25.00 ft,

Culvert Slope: 0.0040

Site Data - H2 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2138.20 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2138.10 ft

Number of Barrels: 1

Culvert Data Summary - H2 2030

Barrel Shape: Concrete Box

Barrel Span: 15.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H2 2050 BOX

Table 2 - Culvert Summary Table: H2 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2138.20 ft,

Outlet Elevation (invert): 2138.10 ft

Culvert Length: 25.00 ft,

Culvert Slope: 0.0040

Site Data - H2 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2138.20 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2138.10 ft

Number of Barrels: 1

Culvert Data Summary - H2 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 15.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H2 2050 CULVERT

Table 3 - Culvert Summary Table: H2 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2138.20 ft,

Outlet Elevation (invert): 2138.10 ft

Culvert Length: 25.00 ft,

Culvert Slope: 0.0040

Site Data - H2 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2138.20 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2138.10 ft

Number of Barrels: 1

Culvert Data Summary - H2 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: H3 2030 CULVERT

Table 4 - Culvert Summary Table: H3 2030 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2223.90 ft,

Outlet Elevation (invert): 2223.80 ft

Culvert Length: 20.00 ft,

Culvert Slope: 0.0050

Site Data - H3 2030 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2223.90 ft

Outlet Station: 20.00 ft

Outlet Elevation: 2223.80 ft

Number of Barrels: 1

Culvert Data Summary - H3 2030 CULVERT

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 10.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H3 2050

Table 5 - Culvert Summary Table: H3 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2223.90 ft,

Outlet Elevation (invert): 2223.80 ft

Culvert Length: 20.00 ft,

Culvert Slope: 0.0050

Site Data - H3 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2223.90 ft

Outlet Station: 20.00 ft

Outlet Elevation: 2223.80 ft

Number of Barrels: 1

Culvert Data Summary - H3 2050

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 10.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H5 2030 BOX

Table 6 - Culvert Summary Table: H5 2030 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2387.50 ft,

Outlet Elevation (invert): 2384.10 ft

Culvert Length: 37.06 ft,

Culvert Slope: 0.0921

Site Data - H5 2030 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2387.50 ft

Outlet Station: 36.90 ft

Outlet Elevation: 2384.10 ft

Number of Barrels: 1

Culvert Data Summary - H5 2030 BOX

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H5 2030 CULVERT

Table 7 - Culvert Summary Table: H5 2030 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2387.50 ft,

Outlet Elevation (invert): 2384.10 ft

Culvert Length: 37.06 ft,

Culvert Slope: 0.0921

Site Data - H5 2030 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2387.50 ft

Outlet Station: 36.90 ft

Outlet Elevation: 2384.10 ft

Number of Barrels: 2

Culvert Data Summary - H5 2030 CULVERT

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: H5 2050 BOX

Table 8 - Culvert Summary Table: H5 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2387.50 ft,

Outlet Elevation (invert): 2384.10 ft

Culvert Length: 37.06 ft,

Culvert Slope: 0.0921

Site Data - H5 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2387.50 ft

Outlet Station: 36.90 ft

Outlet Elevation: 2384.10 ft

Number of Barrels: 2

Culvert Data Summary - H5 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H5 2050 CULVERT

Table 9 - Culvert Summary Table: H5 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2387.50 ft,

Outlet Elevation (invert): 2384.10 ft

Culvert Length: 37.06 ft,

Culvert Slope: 0.0921

Site Data - H5 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2387.50 ft

Outlet Station: 36.90 ft

Outlet Elevation: 2384.10 ft

Number of Barrels: 1

Culvert Data Summary - H5 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: H6 2030 BOX

Table 10 - Culvert Summary Table: H6 2030 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2526.50 ft,

Outlet Elevation (invert): 2523.70 ft

Culvert Length: 45.79 ft,

Culvert Slope: 0.0613

Site Data - H6 2030 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2526.50 ft

Outlet Station: 45.70 ft

Outlet Elevation: 2523.70 ft

Number of Barrels: 1

Culvert Data Summary - H6 2030 BOX

Barrel Shape: Concrete Box

Barrel Span: 5.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: HT 2030 CULVERT

Table 11 - Culvert Summary Table: HT 2030 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37

Culvert Barrel Data

Culvert Barrel Type: Straight Culvert

Inlet Elevation (invert): 2526.50 ft,

Outlet Elevation (invert): 2523.70 ft

Culvert Length: 45.79 ft,

Culvert Slope: 0.0613

Site Data - HT 2030 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2526.50 ft

Outlet Station: 45.70 ft

Outlet Elevation: 2523.70 ft

Number of Barrels: 1

Culvert Data Summary - HT 2030 CULVERT

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: H6 2050 BOX

Table 12 - Culvert Summary Table: H6 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2526.50 ft,

Outlet Elevation (invert): 2523.70 ft

Culvert Length: 45.79 ft,

Culvert Slope: 0.0613

Site Data - H6 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2526.50 ft

Outlet Station: 45.70 ft

Outlet Elevation: 2523.70 ft

Number of Barrels: 1

Culvert Data Summary - H6 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 5.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H6 2050 CULVERT

Table 13 - Culvert Summary Table: H6 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2526.50 ft,

Outlet Elevation (invert): 2523.70 ft

Culvert Length: 45.79 ft,

Culvert Slope: 0.0613

Site Data - H6 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2526.50 ft

Outlet Station: 45.70 ft

Outlet Elevation: 2523.70 ft

Number of Barrels: 1

Culvert Data Summary - H6 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: H8 2030

Table 14 - Culvert Summary Table: H8 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62
339.00 cfs	339.00 cfs	2569.12	7.12	5.134	5-S2n	2.65	3.73	2.79	2.14	15.07	9.62

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2562.00 ft,

Outlet Elevation (invert): 2559.40 ft

Culvert Length: 55.06 ft,

Culvert Slope: 0.0473

Site Data - H8 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2562.00 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2559.40 ft

Number of Barrels: 2

Culvert Data Summary - H8 2030

Barrel Shape: Circular

Barrel Diameter: 5.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: H8 2050

Table 15 - Culvert Summary Table: H8 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2562.00 ft,

Outlet Elevation (invert): 2559.40 ft

Culvert Length: 55.06 ft,

Culvert Slope: 0.0473

Site Data - H8 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2562.00 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2559.40 ft

Number of Barrels: 2

Culvert Data Summary - H8 2050

Barrel Shape: Circular

Barrel Diameter: 5.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R1 2030

Table 16 - Culvert Summary Table: R1 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2244.00 ft,

Outlet Elevation (invert): 2242.00 ft

Culvert Length: 25.08 ft,

Culvert Slope: 0.0800

Site Data - R1 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2244.00 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2242.00 ft

Number of Barrels: 1

Culvert Data Summary - R1 2030

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 8.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R1 2030 CULVERT

Table 17 - Culvert Summary Table: R1 2030 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2244.00 ft,

Outlet Elevation (invert): 2242.00 ft

Culvert Length: 25.08 ft,

Culvert Slope: 0.0800

Site Data - R1 2030 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2244.00 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2242.00 ft

Number of Barrels: 1

Culvert Data Summary - R1 2030 CULVERT

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Culvert Data: R1 2050 BOX

Table 18 - Culvert Summary Table: R1 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76
544.00 cfs	447.42 cfs	2253.32	9.32	5.661	5-S2n	1.91	5.57	3.66	3.12	20.35	7.76

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2244.00 ft,

Outlet Elevation (invert): 2242.00 ft

Culvert Length: 25.08 ft,

Culvert Slope: 0.0800

Site Data - R1 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2244.00 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2242.00 ft

Number of Barrels: 1

Culvert Data Summary - R1 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 8.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R1 2050 CULVERT

Table 19 - Culvert Summary Table: R1 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76
544.00 cfs	96.53 cfs	2253.32	9.32	7.352	5-S1f	1.45	2.76	3.00	3.12	13.66	7.76

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2244.00 ft,

Outlet Elevation (invert): 2242.00 ft

Culvert Length: 25.08 ft,

Culvert Slope: 0.0800

Site Data - R1 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2244.00 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2242.00 ft

Number of Barrels: 1

Culvert Data Summary - R1 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Culvert Data: R2 2030

Table 20 - Culvert Summary Table: R2 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2464.00 ft,

Outlet Elevation (invert): 2462.40 ft

Culvert Length: 35.04 ft,

Culvert Slope: 0.0457

Site Data - R2 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2464.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2462.40 ft

Number of Barrels: 1

Culvert Data Summary - R2 2030

Barrel Shape: Concrete Box

Barrel Span: 8.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: 1.5:1 Bevel (90°) Headwall

Inlet Depression: None

Culvert Data: R2 2050 BOX

Table 21 - Culvert Summary Table: R2 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81
518.00 cfs	408.63 cfs	2472.56	7.99	8.562	4-FFf	1.71	4.33	5.00	1.00	10.22	51.81

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2464.00 ft,

Outlet Elevation (invert): 2462.40 ft

Culvert Length: 35.04 ft,

Culvert Slope: 0.0457

Site Data - R2 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2464.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2462.40 ft

Number of Barrels: 1

Culvert Data Summary - R2 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 8.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R2 2050 CULVERT

Table 22 - Culvert Summary Table: R2 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81
518.00 cfs	109.38 cfs	2472.56	5.06	8.563	4-FFf	1.86	2.40	3.00	1.00	7.74	51.81

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2464.00 ft,

Outlet Elevation (invert): 2462.40 ft

Culvert Length: 35.04 ft,

Culvert Slope: 0.0457

Site Data - R2 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2464.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2462.40 ft

Number of Barrels: 2

Culvert Data Summary - R2 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R3 2030

Table 23 - Culvert Summary Table: R3 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2326.10 ft,

Outlet Elevation (invert): 2324.60 ft

Culvert Length: 23.25 ft,

Culvert Slope: 0.0647

Site Data - R3 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2326.10 ft

Outlet Station: 23.20 ft

Outlet Elevation: 2324.60 ft

Number of Barrels: 1

Culvert Data Summary - R3 2030

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: RE 2050

Table 24 - Culvert Summary Table: RE 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
421.00 cfs	421.00 cfs	2332.40	6.30	3.483	5-S2n	1.30	3.80	2.45	2.41	17.20	7.07
421.00 cfs	421.00 cfs	2332.40	6.30	3.483	5-S2n	1.30	3.80	2.45	2.41	17.20	7.07
421.00 cfs	421.00 cfs	2332.40	6.30	3.483	5-S2n	1.30	3.80	2.45	2.41	17.20	7.07
421.00 cfs	421.00 cfs	2332.40	6.30	3.483	5-S2n	1.30	3.80	2.45	2.41	17.20	7.07
421.00 cfs	421.00 cfs	2332.40	6.30	3.483	5-S2n	1.30	3.80	2.45	2.41	17.20	7.07
421.00 cfs	421.00 cfs	2332.40	6.30	3.483	5-S2n	1.30	3.80	2.45	2.41	17.20	7.07
421.00 cfs	421.00 cfs	2332.40	6.30	3.483	5-S2n	1.30	3.80	2.45	2.41	17.20	7.07
421.00 cfs	421.00 cfs	2332.40	6.30	3.483	5-S2n	1.30	3.80	2.45	2.41	17.20	7.07
421.00 cfs	421.00 cfs	2332.40	6.30	3.483	5-S2n	1.30	3.80	2.45	2.41	17.20	7.07
421.00 cfs	421.00 cfs	2332.40	6.30	3.483	5-S2n	1.30	3.80	2.45	2.41	17.20	7.07
421.00 cfs	421.00 cfs	2332.40	6.30	3.483	5-S2n	1.30	3.80	2.45	2.41	17.20	7.07
421.00 cfs	421.00 cfs	2332.40	6.30	3.483	5-S2n	1.30	3.80	2.45	2.41	17.20	7.07

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2326.10 ft,

Outlet Elevation (invert): 2324.60 ft

Culvert Length: 23.25 ft,

Culvert Slope: 0.0647

Site Data - RE 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2326.10 ft

Outlet Station: 23.20 ft

Outlet Elevation: 2324.60 ft

Number of Barrels: 1

Culvert Data Summary - RE 2050

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R4 2030 BOX

Table 25 - Culvert Summary Table: R4 2030 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2203.09	5.09	4.508	5-JS1t	1.84	3.02	4.13	2.63	7.20	8.54

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2198.00 ft,

Outlet Elevation (invert): 2197.50 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R4 2030 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2198.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2197.50 ft

Number of Barrels: 2

Culvert Data Summary - R4 2030 BOX

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R4 2050 BOX

Table 26 - Culvert Summary Table: R4 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82
421.00 cfs	234.44 cfs	2203.18	5.04	5.182	1-S1t	1.74	2.99	4.16	2.66	7.05	8.82

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2198.00 ft,

Outlet Elevation (invert): 2197.50 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R4 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2198.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2197.50 ft

Number of Barrels: 1

Culvert Data Summary - R4 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 8.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R4 2050 CULVERT

Table 27 - Culvert Summary Table: R4 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82
421.00 cfs	186.49 cfs	2203.18	4.61	5.182	4-FFf	3.28	2.93	4.00	2.66	7.42	8.82

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2198.00 ft,

Outlet Elevation (invert): 2197.50 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R4 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2198.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2197.50 ft

Number of Barrels: 2

Culvert Data Summary - R4 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R5 2030

Table 28 - Culvert Summary Table: R5 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82
318.00 cfs	318.00 cfs	2546.15	4.05	0.715	1-S2n	1.65	2.93	1.80	1.95	16.67	7.82

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2542.10 ft,

Outlet Elevation (invert): 2538.10 ft

Culvert Length: 39.60 ft,

Culvert Slope: 0.1015

Site Data - R5 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2542.10 ft

Outlet Station: 39.40 ft

Outlet Elevation: 2538.10 ft

Number of Barrels: 3

Culvert Data Summary - R5 2030

Barrel Shape: Circular

Barrel Diameter: 5.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R5 2050

Table 29 - Culvert Summary Table: R5 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07
353.00 cfs	353.00 cfs	2545.86	4.76	1.648	1-S2n	0.88	3.00	1.43	2.06	20.50	8.07

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2541.10 ft,

Outlet Elevation (invert): 2537.10 ft

Culvert Length: 39.60 ft,

Culvert Slope: 0.1015

Site Data - R5 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2541.10 ft

Outlet Station: 39.40 ft

Outlet Elevation: 2537.10 ft

Number of Barrels: 1

Culvert Data Summary - R5 2050

Barrel Shape: Concrete Box

Barrel Span: 12.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R6 2030

Table 30 - Culvert Summary Table: R6 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29
242.00 cfs	242.00 cfs	2285.33	2.54	3.131	1-S1t	0.93	1.66	3.35	0.85	3.61	4.29

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2282.20 ft,

Outlet Elevation (invert): 2281.70 ft

Culvert Length: 25.00 ft,

Culvert Slope: 0.0200

Site Data - R6 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2282.20 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2281.70 ft

Number of Barrels: 5

Culvert Data Summary - R6 2030

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: 1.5:1 Bevel (90°) Headwall

Inlet Depression: None

Culvert Data: R6 2050 4x7

Table 31 - Culvert Summary Table: R6 2050 4x7

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
271.00 cfs	57.03 cfs	2287.26	2.86	1.729	1-S2n	1.34	1.85	1.56	1.65	9.13	5.95
271.00 cfs	57.03 cfs	2287.26	2.86	1.729	1-S2n	1.34	1.85	1.56	1.65	9.13	5.95
271.00 cfs	57.03 cfs	2287.26	2.86	1.729	1-S2n	1.34	1.85	1.56	1.65	9.13	5.95
271.00 cfs	57.03 cfs	2287.26	2.86	1.729	1-S2n	1.34	1.85	1.56	1.65	9.13	5.95
271.00 cfs	57.03 cfs	2287.26	2.86	1.729	1-S2n	1.34	1.85	1.56	1.65	9.13	5.95
271.00 cfs	57.03 cfs	2287.26	2.86	1.729	1-S2n	1.34	1.85	1.56	1.65	9.13	5.95
271.00 cfs	57.03 cfs	2287.26	2.86	1.729	1-S2n	1.34	1.85	1.56	1.65	9.13	5.95
271.00 cfs	57.03 cfs	2287.26	2.86	1.729	1-S2n	1.34	1.85	1.56	1.65	9.13	5.95
271.00 cfs	57.03 cfs	2287.26	2.86	1.729	1-S2n	1.34	1.85	1.56	1.65	9.13	5.95
271.00 cfs	57.03 cfs	2287.26	2.86	1.729	1-S2n	1.34	1.85	1.56	1.65	9.13	5.95
271.00 cfs	57.03 cfs	2287.26	2.86	1.729	1-S2n	1.34	1.85	1.56	1.65	9.13	5.95
271.00 cfs	57.03 cfs	2287.26	2.86	1.729	1-S2n	1.34	1.85	1.56	1.65	9.13	5.95

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2284.40 ft,

Outlet Elevation (invert): 2284.20 ft

Culvert Length: 20.50 ft,

Culvert Slope: 0.0098

Site Data - R6 2050 4x7

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2284.40 ft

Outlet Station: 20.50 ft

Outlet Elevation: 2284.20 ft

Number of Barrels: 1

Culvert Data Summary - R6 2050 4x7

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: 1.5:1 Bevel (90°) Headwall

Inlet Depression: None

Culvert Data: R6 2030 15X7

Table 32 - Culvert Summary Table: R6 2030 15X7

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
271.00 cfs	213.85 cfs	2287.26	2.86	1.727	1-S2n	1.16	1.85	1.51	1.65	9.47	5.95
271.00 cfs	213.85 cfs	2287.26	2.86	1.727	1-S2n	1.16	1.85	1.51	1.65	9.47	5.95
271.00 cfs	213.85 cfs	2287.26	2.86	1.727	1-S2n	1.16	1.85	1.51	1.65	9.47	5.95
271.00 cfs	213.85 cfs	2287.26	2.86	1.727	1-S2n	1.16	1.85	1.51	1.65	9.47	5.95
271.00 cfs	213.85 cfs	2287.26	2.86	1.727	1-S2n	1.16	1.85	1.51	1.65	9.47	5.95
271.00 cfs	213.85 cfs	2287.26	2.86	1.727	1-S2n	1.16	1.85	1.51	1.65	9.47	5.95
271.00 cfs	213.85 cfs	2287.26	2.86	1.727	1-S2n	1.16	1.85	1.51	1.65	9.47	5.95
271.00 cfs	213.85 cfs	2287.26	2.86	1.727	1-S2n	1.16	1.85	1.51	1.65	9.47	5.95
271.00 cfs	213.85 cfs	2287.26	2.86	1.727	1-S2n	1.16	1.85	1.51	1.65	9.47	5.95
271.00 cfs	213.85 cfs	2287.26	2.86	1.727	1-S2n	1.16	1.85	1.51	1.65	9.47	5.95
271.00 cfs	213.85 cfs	2287.26	2.86	1.727	1-S2n	1.16	1.85	1.51	1.65	9.47	5.95
271.00 cfs	213.85 cfs	2287.26	2.86	1.727	1-S2n	1.16	1.85	1.51	1.65	9.47	5.95

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2284.40 ft,

Outlet Elevation (invert): 2284.20 ft

Culvert Length: 20.50 ft,

Culvert Slope: 0.0098

Site Data - R6 2030 15X7

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2284.40 ft

Outlet Station: 20.50 ft

Outlet Elevation: 2284.20 ft

Number of Barrels: 1

Culvert Data Summary - R6 2030 15X7

Barrel Shape: Concrete Box

Barrel Span: 15.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: 1.5:1 Bevel (90°) Headwall

Inlet Depression: None

Culvert Data: R7 2030 BOX

Table 33 - Culvert Summary Table: R7 2030 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33
243.00 cfs	169.55 cfs	2363.57	6.17	2.618	1-S2n	1.35	3.82	2.33	2.26	18.23	6.33

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2357.40 ft,

Outlet Elevation (invert): 2355.30 ft

Culvert Length: 24.79 ft,

Culvert Slope: 0.0850

Site Data - R7 2030 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2357.40 ft

Outlet Station: 24.70 ft

Outlet Elevation: 2355.30 ft

Number of Barrels: 1

Culvert Data Summary - R7 2030 BOX

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: Culvert 2

Table 34 - Culvert Summary Table: Culvert 2

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33
243.00 cfs	73.46 cfs	2363.57	6.17	3.572	5-S2n	1.28	2.70	1.78	2.26	16.77	6.33

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2357.40 ft,

Outlet Elevation (invert): 2355.30 ft

Culvert Length: 29.77 ft,

Culvert Slope: 0.0707

Site Data - Culvert 2

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2357.40 ft

Outlet Station: 29.70 ft

Outlet Elevation: 2355.30 ft

Number of Barrels: 1

Culvert Data Summary - Culvert 2

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Culvert Data: R7 2050 BOX

Table 35 - Culvert Summary Table: R7 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61
287.00 cfs	178.43 cfs	2363.80	6.40	2.847	1-S2n	1.40	3.95	2.42	2.44	18.40	6.61

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2357.40 ft,

Outlet Elevation (invert): 2355.30 ft

Culvert Length: 24.79 ft,

Culvert Slope: 0.0850

Site Data - R7 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2357.40 ft

Outlet Station: 24.70 ft

Outlet Elevation: 2355.30 ft

Number of Barrels: 1

Culvert Data Summary - R7 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R7 2050 CULVERT

Table 36 - Culvert Summary Table: R7 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61
287.00 cfs	108.56 cfs	2363.80	6.40	4.157	5-S2n	1.95	3.15	2.21	2.44	15.23	6.61

Culvert Barrel Data

Culvert Barrel Type: Straight Culvert

Inlet Elevation (invert): 2357.40 ft,

Outlet Elevation (invert): 2355.30 ft

Culvert Length: 24.79 ft,

Culvert Slope: 0.0850

Site Data - R7 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2357.40 ft

Outlet Station: 24.70 ft

Outlet Elevation: 2355.30 ft

Number of Barrels: 1

Culvert Data Summary - R7 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R8 2030

Table 37 - Culvert Summary Table: R8 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
233.00 cfs	233.00 cfs	2551.32	3.92	0.0*	1-S2n	1.67	2.91	1.77	2.13	16.77	7.61
233.00 cfs	233.00 cfs	2551.32	3.92	0.0*	1-S2n	1.67	2.91	1.77	2.13	16.77	7.61
233.00 cfs	233.00 cfs	2551.32	3.92	0.0*	1-S2n	1.67	2.91	1.77	2.13	16.77	7.61
233.00 cfs	233.00 cfs	2551.32	3.92	0.0*	1-S2n	1.67	2.91	1.77	2.13	16.77	7.61
233.00 cfs	233.00 cfs	2551.32	3.92	0.0*	1-S2n	1.67	2.91	1.77	2.13	16.77	7.61
233.00 cfs	233.00 cfs	2551.32	3.92	0.0*	1-S2n	1.67	2.91	1.77	2.13	16.77	7.61
233.00 cfs	233.00 cfs	2551.32	3.92	0.0*	1-S2n	1.67	2.91	1.77	2.13	16.77	7.61
233.00 cfs	233.00 cfs	2551.32	3.92	0.0*	1-S2n	1.67	2.91	1.77	2.13	16.77	7.61
233.00 cfs	233.00 cfs	2551.32	3.92	0.0*	1-S2n	1.67	2.91	1.77	2.13	16.77	7.61
233.00 cfs	233.00 cfs	2551.32	3.92	0.0*	1-S2n	1.67	2.91	1.77	2.13	16.77	7.61
233.00 cfs	233.00 cfs	2551.32	3.92	0.0*	1-S2n	1.67	2.91	1.77	2.13	16.77	7.61
233.00 cfs	233.00 cfs	2551.32	3.92	0.0*	1-S2n	1.67	2.91	1.77	2.13	16.77	7.61

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2547.40 ft,

Outlet Elevation (invert): 2542.50 ft

Culvert Length: 55.22 ft,

Culvert Slope: 0.0891

Site Data - R8 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2547.40 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2542.50 ft

Number of Barrels: 2

Culvert Data Summary - R8 2030

Barrel Shape: Circular

Barrel Diameter: 6.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R8 2050

Table 38 - Culvert Summary Table: R8 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
275.00 cfs	275.00 cfs	2551.06	3.66	0.0*	1-S2n	1.48	2.57	1.55	2.14	15.85	7.84
275.00 cfs	275.00 cfs	2551.06	3.66	0.0*	1-S2n	1.48	2.57	1.55	2.14	15.85	7.84
275.00 cfs	275.00 cfs	2551.06	3.66	0.0*	1-S2n	1.48	2.57	1.55	2.14	15.85	7.84
275.00 cfs	275.00 cfs	2551.06	3.66	0.0*	1-S2n	1.48	2.57	1.55	2.14	15.85	7.84
275.00 cfs	275.00 cfs	2551.06	3.66	0.0*	1-S2n	1.48	2.57	1.55	2.14	15.85	7.84
275.00 cfs	275.00 cfs	2551.06	3.66	0.0*	1-S2n	1.48	2.57	1.55	2.14	15.85	7.84
275.00 cfs	275.00 cfs	2551.06	3.66	0.0*	1-S2n	1.48	2.57	1.55	2.14	15.85	7.84
275.00 cfs	275.00 cfs	2551.06	3.66	0.0*	1-S2n	1.48	2.57	1.55	2.14	15.85	7.84
275.00 cfs	275.00 cfs	2551.06	3.66	0.0*	1-S2n	1.48	2.57	1.55	2.14	15.85	7.84
275.00 cfs	275.00 cfs	2551.06	3.66	0.0*	1-S2n	1.48	2.57	1.55	2.14	15.85	7.84
275.00 cfs	275.00 cfs	2551.06	3.66	0.0*	1-S2n	1.48	2.57	1.55	2.14	15.85	7.84
275.00 cfs	275.00 cfs	2551.06	3.66	0.0*	1-S2n	1.48	2.57	1.55	2.14	15.85	7.84

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2547.40 ft,

Outlet Elevation (invert): 2542.50 ft

Culvert Length: 55.22 ft,

Culvert Slope: 0.0891

Site Data - R8 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2547.40 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2542.50 ft

Number of Barrels: 3

Culvert Data Summary - R8 2050

Barrel Shape: Circular

Barrel Diameter: 6.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R9 2030

Table 39 - Culvert Summary Table: R9 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68
191.00 cfs	191.00 cfs	2421.71	3.47	4.212	1-S1f	1.82	2.41	4.00	2.05	5.07	7.68

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2417.50 ft,

Outlet Elevation (invert): 2416.50 ft

Culvert Length: 26.92 ft,

Culvert Slope: 0.0372

Site Data - R9 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2417.50 ft

Outlet Station: 26.90 ft

Outlet Elevation: 2416.50 ft

Number of Barrels: 3

Culvert Data Summary - R9 2030

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R9 2050

Table 40 - Culvert Summary Table: R9 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37
225.00 cfs	225.00 cfs	2421.83	4.00	4.329	1-S1f	2.00	2.62	4.00	1.67	5.97	7.37

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2417.50 ft,

Outlet Elevation (invert): 2416.50 ft

Culvert Length: 26.92 ft,

Culvert Slope: 0.0372

Site Data - R9 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2417.50 ft

Outlet Station: 26.90 ft

Outlet Elevation: 2416.50 ft

Number of Barrels: 3

Culvert Data Summary - R9 2050

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Culvert Data: R10 2030

Table 41 - Culvert Summary Table: R10 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2425.00 ft,

Outlet Elevation (invert): 2423.26 ft

Culvert Length: 23.07 ft,

Culvert Slope: 0.0757

Site Data - R10 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2425.00 ft

Outlet Station: 23.00 ft

Outlet Elevation: 2423.26 ft

Number of Barrels: 1

Culvert Data Summary - R10 2030

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R10 2050

Table 42 - Culvert Summary Table: R10 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2425.00 ft,

Outlet Elevation (invert): 2423.26 ft

Culvert Length: 23.07 ft,

Culvert Slope: 0.0757

Site Data - R10 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2425.00 ft

Outlet Station: 23.00 ft

Outlet Elevation: 2423.26 ft

Number of Barrels: 1

Culvert Data Summary - R10 2050

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R11 2030

Table 43 - Culvert Summary Table: R11 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08
164.00 cfs	164.00 cfs	2624.72	5.02	3.648	5-JS1f	1.60	2.40	3.00	2.07	7.73	7.08

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2619.70 ft,

Outlet Elevation (invert): 2615.10 ft

Culvert Length: 62.77 ft,

Culvert Slope: 0.0735

Site Data - R11 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2619.70 ft

Outlet Station: 62.60 ft

Outlet Elevation: 2615.10 ft

Number of Barrels: 3

Culvert Data Summary - R11 2030

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R11 2050

Table 44 - Culvert Summary Table: R11 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
194.00 cfs	131.02 cfs	2626.60	3.90	0.0*	5-S2n	1.40	2.15	1.43	2.24	13.17	7.40
194.00 cfs	131.02 cfs	2626.60	3.90	0.0*	5-S2n	1.40	2.15	1.43	2.24	13.17	7.40
194.00 cfs	131.02 cfs	2626.60	3.90	0.0*	5-S2n	1.40	2.15	1.43	2.24	13.17	7.40
194.00 cfs	131.02 cfs	2626.60	3.90	0.0*	5-S2n	1.40	2.15	1.43	2.24	13.17	7.40
194.00 cfs	131.02 cfs	2626.60	3.90	0.0*	5-S2n	1.40	2.15	1.43	2.24	13.17	7.40
194.00 cfs	131.02 cfs	2626.60	3.90	0.0*	5-S2n	1.40	2.15	1.43	2.24	13.17	7.40
194.00 cfs	131.02 cfs	2626.60	3.90	0.0*	5-S2n	1.40	2.15	1.43	2.24	13.17	7.40
194.00 cfs	131.02 cfs	2626.60	3.90	0.0*	5-S2n	1.40	2.15	1.43	2.24	13.17	7.40
194.00 cfs	131.02 cfs	2626.60	3.90	0.0*	5-S2n	1.40	2.15	1.43	2.24	13.17	7.40
194.00 cfs	131.02 cfs	2626.60	3.90	0.0*	5-S2n	1.40	2.15	1.43	2.24	13.17	7.40
194.00 cfs	131.02 cfs	2626.60	3.90	0.0*	5-S2n	1.40	2.15	1.43	2.24	13.17	7.40
194.00 cfs	131.02 cfs	2626.60	3.90	0.0*	5-S2n	1.40	2.15	1.43	2.24	13.17	7.40

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2622.70 ft,

Outlet Elevation (invert): 2618.10 ft

Culvert Length: 62.77 ft,

Culvert Slope: 0.0735

Site Data - R11 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2622.70 ft

Outlet Station: 62.60 ft

Outlet Elevation: 2618.10 ft

Number of Barrels: 3

Culvert Data Summary - R11 2050

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R12 2030

Table 45 - Culvert Summary Table: R12 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2426.80 ft,

Outlet Elevation (invert): 2426.50 ft

Culvert Length: 28.40 ft,

Culvert Slope: 0.0106

Site Data - R12 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2426.80 ft

Outlet Station: 28.40 ft

Outlet Elevation: 2426.50 ft

Number of Barrels: 2

Culvert Data Summary - R12 2030

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R12 2050

Table 46 - Culvert Summary Table: R12 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2426.80 ft,

Outlet Elevation (invert): 2426.50 ft

Culvert Length: 28.40 ft,

Culvert Slope: 0.0106

Site Data - R12 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2426.80 ft

Outlet Station: 28.40 ft

Outlet Elevation: 2426.50 ft

Number of Barrels: 2

Culvert Data Summary - R12 2050

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R13 2030

Table 47 - Culvert Summary Table: R13 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2370.50 ft,

Outlet Elevation (invert): 2370.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R13 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2370.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2370.00 ft

Number of Barrels: 1

Culvert Data Summary - R13 2030

Barrel Shape: Concrete Box

Barrel Span: 12.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R13 2050

Table 48 - Culvert Summary Table: R13 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2370.50 ft,

Outlet Elevation (invert): 2370.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R13 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2370.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2370.00 ft

Number of Barrels: 1

Culvert Data Summary - R13 2050

Barrel Shape: Concrete Box

Barrel Span: 12.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R14 2030

Table 49 - Culvert Summary Table: R14 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16
67.00 cfs	67.00 cfs	2177.22	3.63	3.725	2-M2c	2.51	2.47	2.47	1.00	8.22	5.16

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2173.50 ft,

Outlet Elevation (invert): 2173.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R14 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2173.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2173.00 ft

Number of Barrels: 1

Culvert Data Summary - R14 2030

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R14 2050

Table 50 - Culvert Summary Table: R14 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43
79.00 cfs	79.00 cfs	2176.38	2.88	1.756	1-S2n	1.82	1.88	1.82	1.10	7.10	5.43

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2173.50 ft,

Outlet Elevation (invert): 2173.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R14 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2173.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2173.00 ft

Number of Barrels: 2

Culvert Data Summary - R14 2050

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R15 2030

Table 51 - Culvert Summary Table: R15 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2540.20 ft,

Outlet Elevation (invert): 2531.70 ft

Culvert Length: 54.66 ft,

Culvert Slope: 0.1574

Site Data - R15 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2540.20 ft

Outlet Station: 54.00 ft

Outlet Elevation: 2531.70 ft

Number of Barrels: 1

Culvert Data Summary - R15 2030

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R15 2050

Table 52 - Culvert Summary Table: R15 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2540.20 ft,

Outlet Elevation (invert): 2531.70 ft

Culvert Length: 54.66 ft,

Culvert Slope: 0.1574

Site Data - R15 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2540.20 ft

Outlet Station: 54.00 ft

Outlet Elevation: 2531.70 ft

Number of Barrels: 2

Culvert Data Summary - R15 2050

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R16 2030

Table 53 - Culvert Summary Table: R16 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2506.00 ft,

Outlet Elevation (invert): 2496.70 ft

Culvert Length: 69.23 ft,

Culvert Slope: 0.1356

Site Data - R16 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2506.00 ft

Outlet Station: 68.60 ft

Outlet Elevation: 2496.70 ft

Number of Barrels: 1

Culvert Data Summary - R16 2030

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R17 2030

Table 54 - Culvert Summary Table: R17 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37
37.00 cfs	36.51 cfs	2495.02	4.52	3.871	5-S2n	1.99	2.05	1.99	0.99	8.73	5.37

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2490.50 ft,

Outlet Elevation (invert): 2489.90 ft

Culvert Length: 21.01 ft,

Culvert Slope: 0.0286

Site Data - R17 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2490.50 ft

Outlet Station: 21.00 ft

Outlet Elevation: 2489.90 ft

Number of Barrels: 1

Culvert Data Summary - R17 2030

Barrel Shape: Circular

Barrel Diameter: 2.50 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R16 2050

Table 55 - Culvert Summary Table: R16 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2506.00 ft,

Outlet Elevation (invert): 2496.70 ft

Culvert Length: 69.23 ft,

Culvert Slope: 0.1356

Site Data - R16 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2506.00 ft

Outlet Station: 68.60 ft

Outlet Elevation: 2496.70 ft

Number of Barrels: 1

Culvert Data Summary - R16 2050

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R17 2050

Table 56 - Culvert Summary Table: R17 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2490.50 ft,

Outlet Elevation (invert): 2489.90 ft

Culvert Length: 21.01 ft,

Culvert Slope: 0.0286

Site Data - R17 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2490.50 ft

Outlet Station: 21.00 ft

Outlet Elevation: 2489.90 ft

Number of Barrels: 2

Culvert Data Summary - R17 2050

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R18 2030

Table 57 - Culvert Summary Table: R18 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2555.50 ft,

Outlet Elevation (invert): 2549.90 ft

Culvert Length: 40.98 ft,

Culvert Slope: 0.1379

Site Data - R18 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2555.50 ft

Outlet Station: 40.60 ft

Outlet Elevation: 2549.90 ft

Number of Barrels: 1

Culvert Data Summary - R18 2030

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R19 2030

Table 58 - Culvert Summary Table: R19 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2265.20 ft,

Outlet Elevation (invert): 2262.20 ft

Culvert Length: 37.72 ft,

Culvert Slope: 0.0798

Site Data - R19 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2265.20 ft

Outlet Station: 37.60 ft

Outlet Elevation: 2262.20 ft

Number of Barrels: 1

Culvert Data Summary - R19 2030

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R19 2050

Table 59 - Culvert Summary Table: R19 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
15.00 cfs	15.00 cfs	2266.96	1.76	0.0*	1-S2n	0.78	1.23	0.78	0.61	10.34	3.62
15.60 cfs	15.60 cfs	2267.00	1.80	0.0*	1-S2n	0.79	1.26	0.79	0.62	10.46	3.67
16.20 cfs	16.20 cfs	2267.04	1.84	0.0*	1-S2n	0.81	1.29	0.84	0.63	10.08	3.71
16.80 cfs	16.80 cfs	2267.09	1.89	0.0*	1-S2n	0.82	1.31	0.85	0.65	10.26	3.75
17.40 cfs	17.40 cfs	2267.13	1.93	0.0*	1-S2n	0.84	1.33	0.85	0.66	10.48	3.79
18.00 cfs	18.00 cfs	2267.17	1.97	0.0*	1-S2n	0.85	1.36	0.86	0.67	10.73	3.83
18.60 cfs	18.60 cfs	2267.21	2.01	0.0*	1-S2n	0.87	1.38	0.87	0.68	11.00	3.86
19.20 cfs	19.20 cfs	2267.26	2.06	0.0*	1-S2n	0.88	1.40	0.88	0.69	11.10	3.90
19.80 cfs	19.80 cfs	2267.30	2.10	0.0*	1-S2n	0.89	1.43	0.92	0.71	10.72	3.94
20.40 cfs	20.40 cfs	2267.34	2.14	0.0*	1-S2n	0.91	1.45	0.94	0.72	10.84	3.97
21.00 cfs	21.00 cfs	2267.38	2.18	0.0*	1-S2n	0.92	1.47	0.95	0.73	10.98	4.01

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2265.20 ft,

Outlet Elevation (invert): 2262.20 ft

Culvert Length: 37.72 ft,

Culvert Slope: 0.0798

Site Data - R19 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2265.20 ft

Outlet Station: 37.60 ft

Outlet Elevation: 2262.20 ft

Number of Barrels: 1

Culvert Data Summary - R19 2050

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R20 2030

Table 60 - Culvert Summary Table: R20 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10
33.00 cfs	33.00 cfs	2141.59	2.49	0.457	1-S2n	1.14	1.71	1.20	0.86	10.45	5.10

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2139.10 ft,

Outlet Elevation (invert): 2137.60 ft

Culvert Length: 25.94 ft,

Culvert Slope: 0.0579

Site Data - R20 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2139.10 ft

Outlet Station: 25.90 ft

Outlet Elevation: 2137.60 ft

Number of Barrels: 1

Culvert Data Summary - R20 2030

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R20 2050

Table 61 - Culvert Summary Table: R20 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31
38.00 cfs	38.00 cfs	2141.82	2.72	0.669	1-S2n	1.22	1.84	1.29	0.92	10.84	5.31

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2139.10 ft,

Outlet Elevation (invert): 2137.60 ft

Culvert Length: 25.94 ft,

Culvert Slope: 0.0579

Site Data - R20 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2139.10 ft

Outlet Station: 25.90 ft

Outlet Elevation: 2137.60 ft

Number of Barrels: 1

Culvert Data Summary - R20 2050

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R21 2030

Table 62 - Culvert Summary Table: R21 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02
47.00 cfs	47.00 cfs	2166.11	3.11	0.390	1-S2n	1.33	2.05	1.39	0.95	12.06	5.02

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2163.00 ft,

Outlet Elevation (invert): 2160.80 ft

Culvert Length: 34.17 ft,

Culvert Slope: 0.0645

Site Data - R21 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2163.00 ft

Outlet Station: 34.10 ft

Outlet Elevation: 2160.80 ft

Number of Barrels: 1

Culvert Data Summary - R21 2030

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R21 2050

Table 63 - Culvert Summary Table: R21 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28
55.00 cfs	55.00 cfs	2166.47	3.47	0.765	1-S2n	1.44	2.23	1.52	1.03	12.52	5.28

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2163.00 ft,

Outlet Elevation (invert): 2160.80 ft

Culvert Length: 34.17 ft,

Culvert Slope: 0.0645

Site Data - R21 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2163.00 ft

Outlet Station: 34.10 ft

Outlet Elevation: 2160.80 ft

Number of Barrels: 1

Culvert Data Summary - R21 2050

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R1

Table 64 - Culvert Summary Table: EXST R1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
316.00 cfs	316.00 cfs	2251.25	7.25	3.784	5-S2n	1.50	4.42	2.78	2.40	18.97	6.72
331.20 cfs	331.20 cfs	2251.52	7.52	4.059	5-S2n	1.55	4.56	2.88	2.46	19.15	6.80
346.40 cfs	346.40 cfs	2251.79	7.79	4.338	5-S2n	1.60	4.70	2.99	2.51	19.32	6.89
361.60 cfs	361.60 cfs	2252.07	8.07	4.622	5-S2n	1.65	4.83	3.09	2.56	19.49	6.97
376.80 cfs	376.80 cfs	2252.35	8.35	4.910	5-S2n	1.70	4.97	3.20	2.62	19.65	7.04
388.00 cfs	388.00 cfs	2252.56	8.56	5.125	5-S2n	1.73	5.06	3.27	2.65	19.77	7.10
407.20 cfs	407.20 cfs	2252.93	8.93	5.500	5-S2n	1.79	5.23	3.40	2.72	19.96	7.19
422.40 cfs	422.40 cfs	2253.23	9.23	6.622	5-S2n	1.84	5.36	3.50	2.76	20.11	7.26
437.60 cfs	437.60 cfs	2253.53	9.53	6.865	5-S2n	1.88	5.49	3.60	2.81	20.26	7.33
452.80 cfs	452.80 cfs	2253.85	9.85	7.114	5-S2n	1.93	5.61	3.70	2.86	20.40	7.40
468.00 cfs	464.26 cfs	2254.09	10.09	7.305	5-S2n	1.97	5.71	3.77	2.90	20.50	7.46

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2244.00 ft,

Outlet Elevation (invert): 2242.00 ft

Culvert Length: 25.08 ft,

Culvert Slope: 0.0800

Site Data - EXST R1

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2244.00 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2242.00 ft

Number of Barrels: 1

Culvert Data Summary - EXST R1

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST H2

Table 65 - Culvert Summary Table: EXST H2

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
382.00 cfs	382.00 cfs	2142.81	4.61	2.936	1-S2n	2.25	2.72	2.49	2.04	10.21	6.66
412.20 cfs	412.20 cfs	2143.05	4.85	3.129	1-S2n	2.37	2.86	2.63	2.12	10.45	6.81
442.40 cfs	442.40 cfs	2143.28	5.08	3.323	1-S2n	2.48	3.00	2.76	2.21	10.68	6.96
472.60 cfs	472.60 cfs	2143.50	5.30	3.518	1-S2n	2.59	3.14	2.89	2.29	10.90	7.10
502.80 cfs	502.80 cfs	2143.72	5.52	3.714	1-S2n	2.70	3.27	3.02	2.36	11.11	7.23
520.00 cfs	520.00 cfs	2143.84	5.64	3.826	1-S2n	2.76	3.34	3.09	2.41	11.23	7.30
563.20 cfs	563.20 cfs	2144.15	5.95	4.109	1-S2n	2.92	3.52	3.26	2.51	11.51	7.47
593.40 cfs	593.40 cfs	2144.36	6.16	4.310	1-S2n	3.02	3.65	3.38	2.58	11.69	7.59
623.60 cfs	623.60 cfs	2144.57	6.37	4.512	1-S2n	3.13	3.77	3.50	2.65	11.87	7.70
653.80 cfs	653.80 cfs	2144.78	6.58	4.716	1-S2n	3.23	3.89	3.62	2.72	12.05	7.80
684.00 cfs	684.00 cfs	2144.99	6.79	4.922	1-S2n	3.33	4.01	3.73	2.78	12.22	7.90

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2138.20 ft,

Outlet Elevation (invert): 2138.10 ft

Culvert Length: 25.00 ft,

Culvert Slope: 0.0040

Site Data - EXST H2

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2138.20 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2138.10 ft

Number of Barrels: 1

Culvert Data Summary - EXST H2

Barrel Shape: Concrete Box

Barrel Span: 15.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST H3

Table 66 - Culvert Summary Table: EXST H3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
175.00 cfs	175.00 cfs	2227.52	3.62	2.091	1-S2n	1.70	2.12	1.91	1.52	9.15	5.47
187.00 cfs	187.00 cfs	2227.68	3.78	2.197	1-S2n	1.78	2.21	2.00	1.57	9.34	5.58
199.00 cfs	199.00 cfs	2227.84	3.94	2.302	1-S2n	1.85	2.31	2.09	1.63	9.52	5.69
211.00 cfs	211.00 cfs	2228.00	4.10	2.406	1-S2n	1.93	2.40	2.18	1.68	9.69	5.79
223.00 cfs	223.00 cfs	2228.16	4.26	2.508	1-S2n	2.00	2.49	2.26	1.73	9.85	5.89
233.00 cfs	233.00 cfs	2228.28	4.38	2.593	1-S2n	2.06	2.56	2.33	1.77	9.98	5.96
247.00 cfs	247.00 cfs	2228.46	4.56	2.710	1-S2n	2.15	2.67	2.43	1.83	10.16	6.07
259.00 cfs	259.00 cfs	2228.60	4.70	2.810	1-S2n	2.22	2.75	2.51	1.87	10.31	6.15
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
283.00 cfs	283.00 cfs	2228.89	4.99	3.009	1-S2n	2.36	2.92	2.67	1.96	10.59	6.31
295.00 cfs	295.00 cfs	2229.03	5.13	3.107	1-S2n	2.42	3.00	2.75	2.01	10.72	6.39

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2223.90 ft,

Outlet Elevation (invert): 2223.80 ft

Culvert Length: 20.00 ft,

Culvert Slope: 0.0050

Site Data - EXST H3

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2223.90 ft

Outlet Station: 20.00 ft

Outlet Elevation: 2223.80 ft

Number of Barrels: 1

Culvert Data Summary - EXST H3

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 10.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST H5

Table 67 - Culvert Summary Table: EXST H5

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
157.00 cfs	157.00 cfs	2391.96	4.46	0.052	1-S2n	0.89	2.77	1.38	1.41	18.98	7.10
168.20 cfs	168.20 cfs	2392.19	4.69	0.283	1-S2n	0.93	2.90	1.46	1.46	19.19	7.24
179.40 cfs	179.40 cfs	2392.42	4.92	0.518	1-S2n	0.97	3.03	1.54	1.51	19.40	7.38
190.60 cfs	187.43 cfs	2392.58	5.08	0.689	5-S2n	1.00	3.12	1.60	1.56	19.53	7.51
201.80 cfs	192.00 cfs	2392.68	5.18	0.787	5-S2n	1.02	3.17	1.63	1.61	19.61	7.63
210.00 cfs	194.83 cfs	2392.74	5.24	0.849	5-S2n	1.03	3.20	1.65	1.64	19.67	7.72
224.20 cfs	199.23 cfs	2392.83	5.33	0.945	5-S2n	1.04	3.25	1.68	1.70	19.73	7.86
235.40 cfs	202.39 cfs	2392.89	5.39	1.014	5-S2n	1.06	3.28	1.71	1.74	19.78	7.97
246.60 cfs	205.26 cfs	2392.95	5.45	1.077	5-S2n	1.07	3.31	1.73	1.78	19.83	8.07
257.80 cfs	208.02 cfs	2393.01	5.51	1.138	5-S2n	1.07	3.34	1.74	1.82	19.88	8.17
269.00 cfs	210.64 cfs	2393.07	5.57	1.197	5-S2n	1.08	3.37	1.76	1.86	19.92	8.27

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2387.50 ft,

Outlet Elevation (invert): 2384.10 ft

Culvert Length: 37.06 ft,

Culvert Slope: 0.0921

Site Data - EXST H5

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2387.50 ft

Outlet Station: 36.90 ft

Outlet Elevation: 2384.10 ft

Number of Barrels: 1

Culvert Data Summary - EXST H5

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST H6

Table 68 - Culvert Summary Table: EXST H6

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
168.00 cfs	168.00 cfs	2531.95	5.45	1.624	5-S2n	1.24	3.27	1.83	1.75	18.39	5.65
179.60 cfs	179.60 cfs	2532.25	5.75	1.938	5-S2n	1.30	3.42	1.93	1.81	18.61	5.75
191.20 cfs	191.20 cfs	2532.55	6.05	2.259	5-S2n	1.36	3.57	2.03	1.87	18.82	5.85
202.80 cfs	202.80 cfs	2532.87	6.37	2.588	5-S2n	1.41	3.71	2.13	1.93	19.02	5.95
214.40 cfs	214.40 cfs	2533.19	6.69	3.501	5-S2n	1.47	3.85	2.23	1.98	19.22	6.04
224.00 cfs	224.00 cfs	2533.47	6.97	3.729	5-S2n	1.52	3.96	2.31	2.02	19.37	6.12
237.60 cfs	237.60 cfs	2533.88	7.38	4.065	5-S2n	1.58	4.12	2.43	2.08	19.59	6.22
249.20 cfs	244.80 cfs	2534.10	7.60	4.248	5-S2n	1.61	4.21	2.49	2.13	19.69	6.30
260.80 cfs	248.10 cfs	2534.21	7.71	4.333	5-S2n	1.63	4.24	2.51	2.18	19.74	6.38
272.40 cfs	250.81 cfs	2534.30	7.80	4.404	5-S2n	1.64	4.28	2.54	2.23	19.78	6.45
284.00 cfs	253.24 cfs	2534.38	7.88	4.468	5-S2n	1.65	4.30	2.56	2.28	19.82	6.53

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2526.50 ft,

Outlet Elevation (invert): 2523.70 ft

Culvert Length: 45.79 ft,

Culvert Slope: 0.0613

Site Data - EXST H6

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2526.50 ft

Outlet Station: 45.70 ft

Outlet Elevation: 2523.70 ft

Number of Barrels: 1

Culvert Data Summary - EXST H6

Barrel Shape: Concrete Box

Barrel Span: 5.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST R3

Table 69 - Culvert Summary Table: EXST R3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
237.00 cfs	237.00 cfs	2330.30	4.20	1.467	1-S2n	0.90	2.59	1.54	1.79	15.34	5.99
246.70 cfs	246.70 cfs	2330.42	4.32	1.569	1-S2n	0.92	2.66	1.60	1.82	15.45	6.06
256.40 cfs	256.40 cfs	2330.54	4.44	1.670	1-S2n	0.95	2.73	1.65	1.86	15.57	6.13
266.10 cfs	266.10 cfs	2330.65	4.55	1.773	1-S2n	0.97	2.80	1.70	1.90	15.69	6.20
275.80 cfs	275.80 cfs	2330.76	4.66	1.875	1-S2n	0.99	2.87	1.75	1.94	15.79	6.26
283.00 cfs	283.00 cfs	2330.85	4.75	1.952	1-S2n	1.01	2.92	1.78	1.96	15.87	6.31
295.20 cfs	295.20 cfs	2330.99	4.89	2.082	1-S2n	1.03	3.00	1.84	2.01	16.01	6.39
304.90 cfs	304.90 cfs	2331.10	5.00	2.186	1-S2n	1.06	3.07	1.89	2.04	16.11	6.45
314.60 cfs	314.60 cfs	2331.21	5.11	2.291	1-S2n	1.08	3.13	1.94	2.08	16.21	6.51
324.30 cfs	324.30 cfs	2331.31	5.21	2.396	1-S2n	1.10	3.20	1.99	2.11	16.31	6.56
334.00 cfs	334.00 cfs	2331.42	5.32	2.502	1-S2n	1.12	3.26	2.04	2.14	16.40	6.62

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2326.10 ft,

Outlet Elevation (invert): 2324.60 ft

Culvert Length: 23.25 ft,

Culvert Slope: 0.0647

Site Data - EXST R3

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2326.10 ft

Outlet Station: 23.20 ft

Outlet Elevation: 2324.60 ft

Number of Barrels: 1

Culvert Data Summary - EXST R3

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST R6

Table 70 - Culvert Summary Table: EXST R6

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
156.00 cfs	156.00 cfs	2288.23	6.03	4.571	1-S2n	2.01	3.61	2.86	1.82	13.66	5.62
163.30 cfs	163.30 cfs	2288.42	6.22	4.685	1-S2n	2.08	3.73	2.96	1.86	13.82	5.69
170.60 cfs	170.60 cfs	2288.61	6.41	4.801	1-S2n	2.15	3.84	3.05	1.90	13.97	5.76
177.90 cfs	177.90 cfs	2288.80	6.60	4.919	1-S2n	2.22	3.95	3.15	1.94	14.12	5.82
185.20 cfs	185.20 cfs	2288.99	6.79	5.039	1-S2n	2.29	4.05	3.25	1.98	14.26	5.88
190.00 cfs	190.00 cfs	2289.11	6.91	5.120	1-S2n	2.33	4.12	3.31	2.00	14.35	5.92
199.80 cfs	199.80 cfs	2289.37	7.17	5.288	5-S2n	2.42	4.26	3.44	2.05	14.53	6.00
207.10 cfs	207.10 cfs	2289.56	7.36	5.416	5-S2n	2.49	4.37	3.53	2.09	14.67	6.06
214.40 cfs	214.40 cfs	2289.75	7.55	5.546	5-S2n	2.56	4.47	3.62	2.12	14.80	6.12
221.70 cfs	221.70 cfs	2289.94	7.74	5.679	5-S2n	2.63	4.57	3.71	2.16	14.93	6.17
229.00 cfs	226.54 cfs	2290.07	7.87	5.780	5-S2n	2.67	4.64	3.77	2.19	15.01	6.23

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2282.20 ft,

Outlet Elevation (invert): 2281.70 ft

Culvert Length: 20.51 ft,

Culvert Slope: 0.0244

Site Data - EXST R6

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2282.20 ft

Outlet Station: 20.50 ft

Outlet Elevation: 2281.70 ft

Number of Barrels: 1

Culvert Data Summary - EXST R6

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST R7

Table 71 - Culvert Summary Table: EXST R7

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
157.00 cfs	157.00 cfs	2363.24	5.84	2.299	1-S2n	1.28	3.63	2.18	1.82	17.97	5.63
163.40 cfs	163.40 cfs	2363.41	6.01	2.461	1-S2n	1.32	3.73	2.26	1.86	18.10	5.69
169.80 cfs	169.80 cfs	2363.58	6.18	2.624	1-S2n	1.35	3.83	2.33	1.90	18.24	5.75
176.20 cfs	176.20 cfs	2363.74	6.34	2.789	1-S2n	1.39	3.92	2.40	1.93	18.36	5.81
182.60 cfs	182.60 cfs	2363.91	6.51	2.955	1-S2n	1.43	4.01	2.47	1.96	18.49	5.86
187.00 cfs	187.00 cfs	2364.02	6.62	3.070	1-S2n	1.45	4.08	2.52	1.99	18.57	5.90
195.40 cfs	195.40 cfs	2364.24	6.84	3.291	1-S2n	1.50	4.20	2.61	2.03	18.73	5.97
201.80 cfs	201.80 cfs	2364.41	7.01	3.462	5-S2n	1.53	4.29	2.68	2.06	18.84	6.02
208.20 cfs	208.20 cfs	2364.57	7.17	3.634	5-S2n	1.57	4.38	2.75	2.09	18.95	6.07
214.60 cfs	214.60 cfs	2364.74	7.34	3.808	5-S2n	1.60	4.47	2.81	2.12	19.07	6.12
221.00 cfs	221.00 cfs	2364.91	7.51	3.983	5-S2n	1.64	4.56	2.88	2.16	19.17	6.17

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2357.40 ft,

Outlet Elevation (invert): 2355.30 ft

Culvert Length: 24.79 ft,

Culvert Slope: 0.0850

Site Data - EXST R7

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2357.40 ft

Outlet Station: 24.70 ft

Outlet Elevation: 2355.30 ft

Number of Barrels: 1

Culvert Data Summary - EXST R7

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST R10

Table 72 - Culvert Summary Table: EXST R10

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
107.00 cfs	107.00 cfs	2428.42	3.42	0.562	1-S2n	0.74	2.15	1.19	1.39	15.00	4.97
111.30 cfs	111.30 cfs	2428.51	3.51	0.632	1-S2n	0.76	2.20	1.23	1.41	15.10	5.03
115.60 cfs	115.60 cfs	2428.60	3.60	0.701	1-S2n	0.78	2.26	1.27	1.44	15.22	5.08
119.90 cfs	119.90 cfs	2428.69	3.69	0.771	1-S2n	0.79	2.31	1.30	1.47	15.31	5.13
124.20 cfs	124.20 cfs	2428.78	3.78	0.840	1-S2n	0.81	2.37	1.34	1.50	15.41	5.19
128.00 cfs	128.00 cfs	2428.86	3.86	0.901	1-S2n	0.83	2.42	1.38	1.52	15.50	5.23
132.80 cfs	132.80 cfs	2428.96	3.96	0.979	1-S2n	0.85	2.48	1.42	1.55	15.60	5.29
137.10 cfs	137.10 cfs	2429.05	4.05	1.048	1-S2n	0.87	2.53	1.46	1.58	15.69	5.33
141.40 cfs	141.40 cfs	2429.14	4.14	1.117	1-S2n	0.89	2.58	1.49	1.60	15.79	5.38
145.70 cfs	145.70 cfs	2429.22	4.22	1.186	1-S2n	0.91	2.64	1.53	1.63	15.88	5.43
150.00 cfs	150.00 cfs	2429.31	4.31	1.255	1-S2n	0.92	2.69	1.57	1.65	15.96	5.47

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2425.00 ft,

Outlet Elevation (invert): 2423.26 ft

Culvert Length: 23.07 ft,

Culvert Slope: 0.0757

Site Data - EXST R10

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2425.00 ft

Outlet Station: 23.00 ft

Outlet Elevation: 2423.26 ft

Number of Barrels: 1

Culvert Data Summary - EXST R10

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST R13

Table 73 - Culvert Summary Table: EXST R13

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
55.00 cfs	55.00 cfs	2371.97	1.47	0.381	1-S2n	0.51	0.87	0.58	0.80	7.92	3.80
57.20 cfs	57.20 cfs	2372.01	1.51	0.406	1-S2n	0.52	0.89	0.60	0.81	8.00	3.85
59.40 cfs	59.40 cfs	2372.05	1.55	0.429	1-S2n	0.53	0.91	0.61	0.83	8.09	3.90
61.60 cfs	61.60 cfs	2372.08	1.58	0.453	1-S2n	0.54	0.94	0.63	0.85	8.17	3.94
63.80 cfs	63.80 cfs	2372.12	1.62	0.477	1-S2n	0.56	0.96	0.64	0.87	8.24	3.99
66.00 cfs	66.00 cfs	2372.16	1.66	0.500	1-S2n	0.57	0.98	0.66	0.88	8.32	4.03
68.20 cfs	68.20 cfs	2372.19	1.69	0.523	1-S2n	0.58	1.00	0.68	0.90	8.39	4.08
70.40 cfs	70.40 cfs	2372.23	1.73	0.546	1-S2n	0.59	1.02	0.69	0.92	8.46	4.12
72.60 cfs	72.60 cfs	2372.27	1.77	0.568	1-S2n	0.61	1.04	0.71	0.93	8.53	4.16
74.80 cfs	74.80 cfs	2372.30	1.80	0.591	1-S2n	0.62	1.06	0.72	0.95	8.60	4.20
77.00 cfs	77.00 cfs	2372.34	1.84	0.613	1-S2n	0.63	1.09	0.74	0.96	8.66	4.24

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2370.50 ft,

Outlet Elevation (invert): 2370.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - EXST R13

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2370.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2370.00 ft

Number of Barrels: 1

Culvert Data Summary - EXST R13

Barrel Shape: Concrete Box

Barrel Span: 12.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: EXST H8

Table 74 - Culvert Summary Table: EXST H8

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
192.00 cfs	192.00 cfs	2566.37	4.37	2.549	1-S2n	1.92	2.79	1.99	1.59	13.21	8.17
204.90 cfs	204.90 cfs	2566.58	4.58	2.739	1-S2n	1.99	2.88	2.07	1.65	13.38	8.33
217.80 cfs	217.80 cfs	2566.80	4.80	2.935	1-S2n	2.06	2.98	2.14	1.70	13.58	8.48
230.70 cfs	230.70 cfs	2567.01	5.01	3.138	5-S2n	2.12	3.07	2.21	1.75	13.77	8.62
243.60 cfs	243.60 cfs	2567.23	5.23	3.348	5-S2n	2.19	3.15	2.28	1.80	13.93	8.76
253.00 cfs	253.00 cfs	2567.40	5.40	3.506	5-S2n	2.23	3.22	2.34	1.84	14.06	8.85
269.40 cfs	269.40 cfs	2567.70	5.70	3.791	5-S2n	2.32	3.32	2.42	1.90	14.29	9.01
282.30 cfs	282.30 cfs	2567.94	5.94	4.023	5-S2n	2.38	3.40	2.49	1.95	14.43	9.13
295.20 cfs	295.20 cfs	2568.19	6.19	4.263	5-S2n	2.44	3.48	2.56	2.00	14.58	9.25
308.10 cfs	308.10 cfs	2568.45	6.45	4.510	5-S2n	2.50	3.56	2.63	2.04	14.72	9.36
321.00 cfs	321.00 cfs	2568.73	6.73	4.765	5-S2n	2.57	3.63	2.70	2.08	14.87	9.47

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2562.00 ft,

Outlet Elevation (invert): 2559.40 ft

Culvert Length: 55.06 ft,

Culvert Slope: 0.0473

Site Data - EXST H8

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2562.00 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2559.40 ft

Number of Barrels: 2

Culvert Data Summary - EXST H8

Barrel Shape: Circular

Barrel Diameter: 5.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R11

Table 75 - Culvert Summary Table: EXST R11

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
106.00 cfs	43.63 cfs	2626.59	3.89	0.0*	5-S2n	1.40	2.15	1.43	1.68	13.16	6.31
110.20 cfs	43.89 cfs	2626.62	3.92	0.0*	5-S2n	1.41	2.16	1.43	1.71	13.19	6.37
114.40 cfs	44.15 cfs	2626.64	3.94	0.0*	5-S2n	1.41	2.16	1.43	1.74	13.22	6.44
118.60 cfs	44.40 cfs	2626.66	3.96	0.0*	5-S2n	1.42	2.17	1.44	1.77	13.25	6.50
122.80 cfs	44.65 cfs	2626.69	3.99	0.0*	5-S2n	1.42	2.18	1.44	1.80	13.28	6.56
128.00 cfs	44.94 cfs	2626.71	4.01	0.0*	5-S2n	1.42	2.18	1.45	1.84	13.31	6.63
131.20 cfs	45.12 cfs	2626.73	4.03	0.0*	5-S2n	1.43	2.19	1.45	1.86	13.33	6.68
135.40 cfs	45.35 cfs	2626.75	4.05	0.0*	5-S2n	1.43	2.19	1.45	1.89	13.36	6.73
139.60 cfs	45.57 cfs	2626.77	4.07	0.0*	5-S2n	1.44	2.20	1.46	1.91	13.39	6.79
143.80 cfs	45.79 cfs	2626.79	4.09	0.0*	5-S2n	1.44	2.20	1.46	1.94	13.41	6.84
148.00 cfs	46.00 cfs	2626.81	4.11	0.0*	5-S2n	1.44	2.21	1.46	1.97	13.44	6.89

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type: Straight Culvert

Inlet Elevation (invert): 2622.70 ft,

Outlet Elevation (invert): 2618.10 ft

Culvert Length: 62.77 ft,

Culvert Slope: 0.0735

Site Data - EXST R11

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2622.70 ft

Outlet Station: 62.60 ft

Outlet Elevation: 2618.10 ft

Number of Barrels: 1

Culvert Data Summary - EXST R11

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R12

Table 76 - Culvert Summary Table: EXST R12

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
73.00 cfs	73.00 cfs	2431.36	4.42	4.556	7-M2c	3.00	2.58	2.58	1.21	8.50	6.29
75.90 cfs	75.90 cfs	2431.47	4.57	4.672	7-M2c	3.10	2.64	2.64	1.23	8.64	6.36
78.80 cfs	78.80 cfs	2431.59	4.72	4.788	7-M2c	3.22	2.69	2.69	1.26	8.77	6.43
81.70 cfs	81.70 cfs	2431.70	4.88	4.905	7-M2c	3.36	2.74	2.74	1.28	8.91	6.49
84.60 cfs	84.60 cfs	2431.83	5.03	5.022	7-M2c	3.53	2.79	2.79	1.30	9.05	6.56
87.00 cfs	87.00 cfs	2431.97	5.17	5.120	7-M2c	4.00	2.83	2.83	1.32	9.16	6.61
90.40 cfs	88.64 cfs	2432.06	5.26	5.188	7-M2c	4.00	2.85	2.85	1.35	9.24	6.68
93.30 cfs	89.43 cfs	2432.11	5.31	5.221	7-M2c	4.00	2.87	2.87	1.37	9.28	6.74
96.20 cfs	90.11 cfs	2432.15	5.35	5.249	7-M2c	4.00	2.88	2.88	1.39	9.31	6.80
99.10 cfs	90.72 cfs	2432.19	5.39	5.274	7-M2c	4.00	2.89	2.89	1.41	9.34	6.86
102.00 cfs	91.27 cfs	2432.22	5.42	5.298	7-M2c	4.00	2.90	2.90	1.43	9.37	6.91

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2426.80 ft,

Outlet Elevation (invert): 2426.50 ft

Culvert Length: 28.40 ft,

Culvert Slope: 0.0106

Site Data - EXST R12

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2426.80 ft

Outlet Station: 28.40 ft

Outlet Elevation: 2426.50 ft

Number of Barrels: 1

Culvert Data Summary - EXST R12

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R14

Table 77 - Culvert Summary Table: EXST R14

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
40.00 cfs	40.00 cfs	2176.40	2.90	1.778	1-S2n	1.83	1.89	1.83	0.75	7.13	4.37
41.60 cfs	41.60 cfs	2176.47	2.97	1.849	1-S2n	1.87	1.93	1.87	0.76	7.19	4.43
43.20 cfs	43.20 cfs	2176.54	3.04	1.921	1-S2n	1.91	1.96	1.92	0.78	7.26	4.48
44.80 cfs	44.80 cfs	2176.61	3.11	1.993	1-S2n	1.95	2.00	1.96	0.80	7.33	4.54
46.40 cfs	46.40 cfs	2176.68	3.18	2.066	1-S2n	1.99	2.04	1.99	0.81	7.41	4.59
48.00 cfs	48.00 cfs	2176.75	3.25	2.139	1-S2n	2.04	2.08	2.04	0.83	7.47	4.64
49.60 cfs	49.60 cfs	2176.83	3.33	2.213	1-S2n	2.08	2.11	2.08	0.84	7.53	4.69
51.20 cfs	51.20 cfs	2176.90	3.40	2.288	1-S2n	2.12	2.15	2.12	0.86	7.59	4.74
52.80 cfs	52.80 cfs	2176.97	3.47	2.364	1-S2n	2.16	2.18	2.16	0.87	7.65	4.78
54.40 cfs	54.40 cfs	2177.04	3.54	2.440	1-S2n	2.20	2.22	2.20	0.89	7.70	4.83
56.00 cfs	56.00 cfs	2177.11	3.61	2.517	1-S2n	2.24	2.25	2.24	0.90	7.75	4.87

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2173.50 ft,

Outlet Elevation (invert): 2173.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - EXST R14

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2173.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2173.00 ft

Number of Barrels: 1

Culvert Data Summary - EXST R14

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R15

Table 78 - Culvert Summary Table: EXST R15

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
38.00 cfs	38.00 cfs	2543.49	3.29	0.0*	5-S2n	1.05	2.01	1.08	0.73	16.62	5.15
39.50 cfs	39.50 cfs	2543.61	3.41	0.0*	5-S2n	1.08	2.05	1.08	0.74	17.34	5.21
41.00 cfs	41.00 cfs	2543.74	3.54	0.0*	5-S2n	1.10	2.09	1.13	0.76	16.86	5.28
42.50 cfs	42.50 cfs	2543.87	3.67	0.0*	5-S2n	1.12	2.12	1.15	0.77	17.08	5.34
44.00 cfs	44.00 cfs	2544.00	3.80	0.0*	5-S2n	1.14	2.16	1.16	0.79	17.41	5.40
46.00 cfs	46.00 cfs	2544.19	3.99	0.0*	5-S2n	1.17	2.21	1.20	0.81	17.38	5.47
47.00 cfs	47.00 cfs	2544.28	4.08	0.0*	5-S2n	1.18	2.23	1.22	0.82	17.47	5.51
48.50 cfs	48.50 cfs	2544.43	4.23	0.0*	5-S2n	1.20	2.27	1.24	0.83	17.68	5.56
50.00 cfs	50.00 cfs	2544.58	4.38	0.0*	5-S2n	1.22	2.30	1.25	0.85	17.91	5.62
51.50 cfs	51.50 cfs	2544.74	4.54	0.0*	5-S2n	1.24	2.33	1.28	0.86	17.91	5.67
53.00 cfs	53.00 cfs	2544.90	4.70	0.0*	5-S2n	1.26	2.37	1.30	0.87	17.99	5.72

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2540.20 ft,

Outlet Elevation (invert): 2531.70 ft

Culvert Length: 54.66 ft,

Culvert Slope: 0.1574

Site Data - EXST R15

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2540.20 ft

Outlet Station: 54.00 ft

Outlet Elevation: 2531.70 ft

Number of Barrels: 1

Culvert Data Summary - EXST R15

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R16

Table 79 - Culvert Summary Table: EXST R16

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
35.00 cfs	35.00 cfs	2509.09	3.09	0.0*	5-S2n	1.05	1.92	1.05	0.78	15.90	4.37
36.40 cfs	36.40 cfs	2509.19	3.19	0.0*	5-S2n	1.07	1.96	1.09	0.79	15.68	4.42
37.80 cfs	37.80 cfs	2509.31	3.31	0.0*	5-S2n	1.09	2.00	1.09	0.81	16.23	4.48
39.20 cfs	39.20 cfs	2509.42	3.42	0.0*	5-S2n	1.11	2.04	1.11	0.83	16.40	4.53
40.60 cfs	40.60 cfs	2509.54	3.54	0.0*	5-S2n	1.14	2.07	1.16	0.84	16.10	4.58
42.00 cfs	42.00 cfs	2509.66	3.66	0.0*	5-S2n	1.16	2.11	1.17	0.86	16.48	4.63
43.00 cfs	43.00 cfs	2509.74	3.74	0.0*	5-S2n	1.17	2.14	1.17	0.87	16.82	4.66
44.80 cfs	44.80 cfs	2509.91	3.91	0.0*	5-S2n	1.20	2.18	1.23	0.89	16.49	4.72
46.20 cfs	46.20 cfs	2510.04	4.04	0.0*	5-S2n	1.22	2.21	1.24	0.91	16.70	4.76
47.60 cfs	47.60 cfs	2510.17	4.17	0.0*	5-S2n	1.24	2.25	1.26	0.92	16.98	4.81
49.00 cfs	49.00 cfs	2510.31	4.31	0.0*	5-S2n	1.26	2.28	1.26	0.93	17.42	4.85

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2506.00 ft,

Outlet Elevation (invert): 2496.70 ft

Culvert Length: 69.23 ft,

Culvert Slope: 0.1356

Site Data - EXST R16

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2506.00 ft

Outlet Station: 68.60 ft

Outlet Elevation: 2496.70 ft

Number of Barrels: 1

Culvert Data Summary - EXST R16

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R17

Table 80 - Culvert Summary Table: EXST R17

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
24.00 cfs	24.00 cfs	2492.96	2.46	1.411	1-S2n	1.31	1.58	1.33	0.79	7.93	4.76
25.00 cfs	25.00 cfs	2493.03	2.53	1.482	1-S2n	1.34	1.61	1.36	0.81	8.01	4.81
26.00 cfs	26.00 cfs	2493.10	2.60	1.554	1-S2n	1.37	1.65	1.39	0.82	8.10	4.87
27.00 cfs	27.00 cfs	2493.17	2.67	1.626	1-S2n	1.39	1.68	1.42	0.84	8.18	4.92
28.00 cfs	28.00 cfs	2493.24	2.74	1.700	1-S2n	1.42	1.71	1.45	0.86	8.25	4.97
29.00 cfs	29.00 cfs	2493.31	2.81	1.774	1-S2n	1.45	1.74	1.48	0.87	8.33	5.02
30.00 cfs	30.00 cfs	2493.38	2.88	1.850	1-S2n	1.48	1.77	1.51	0.89	8.40	5.07
31.00 cfs	31.00 cfs	2493.45	2.95	1.926	1-S2n	1.51	1.80	1.54	0.90	8.47	5.11
32.00 cfs	32.00 cfs	2493.52	3.02	2.003	5-S2n	1.54	1.83	1.57	0.92	8.53	5.16
33.00 cfs	33.00 cfs	2493.60	3.10	2.082	5-S2n	1.57	1.86	1.60	0.93	8.60	5.21
34.00 cfs	34.00 cfs	2493.67	3.17	2.161	5-S2n	1.60	1.89	1.63	0.95	8.66	5.25

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2490.50 ft,

Outlet Elevation (invert): 2489.90 ft

Culvert Length: 21.01 ft,

Culvert Slope: 0.0286

Site Data - EXST R17

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2490.50 ft

Outlet Station: 21.00 ft

Outlet Elevation: 2489.90 ft

Number of Barrels: 1

Culvert Data Summary - EXST R17

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R18

Table 81 - Culvert Summary Table: EXST R18

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
12.00 cfs	12.00 cfs	2556.95	1.45	0.0*	1-S2n	0.61	1.10	0.60	0.48	11.81	3.89
12.50 cfs	12.50 cfs	2556.99	1.49	0.0*	1-S2n	0.62	1.12	0.62	0.49	11.91	3.94
13.00 cfs	13.00 cfs	2557.02	1.52	0.0*	1-S2n	0.63	1.15	0.63	0.50	12.05	3.99
13.50 cfs	13.50 cfs	2557.06	1.56	0.0*	1-S2n	0.64	1.17	0.64	0.51	12.19	4.03
14.00 cfs	14.00 cfs	2557.10	1.60	0.0*	1-S2n	0.65	1.19	0.67	0.52	11.88	4.08
14.50 cfs	14.50 cfs	2557.13	1.63	0.0*	1-S2n	0.66	1.21	0.66	0.53	12.45	4.12
15.00 cfs	15.00 cfs	2557.17	1.67	0.0*	1-S2n	0.68	1.23	0.68	0.54	12.57	4.17
15.50 cfs	15.50 cfs	2557.21	1.71	0.0*	1-S2n	0.69	1.26	0.69	0.55	12.68	4.21
16.00 cfs	16.00 cfs	2557.24	1.74	0.0*	1-S2n	0.70	1.28	0.73	0.56	12.10	4.25
16.50 cfs	16.50 cfs	2557.28	1.78	0.0*	1-S2n	0.71	1.30	0.73	0.57	12.42	4.29
17.00 cfs	17.00 cfs	2557.31	1.81	0.0*	1-S2n	0.72	1.32	0.73	0.58	12.81	4.33

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2555.50 ft,

Outlet Elevation (invert): 2549.90 ft

Culvert Length: 40.98 ft,

Culvert Slope: 0.1379

Site Data - EXST R18

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2555.50 ft

Outlet Station: 40.60 ft

Outlet Elevation: 2549.90 ft

Number of Barrels: 1

Culvert Data Summary - EXST R18

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R19

Table 82 - Culvert Summary Table: EXST R19

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
15.00 cfs	15.00 cfs	2266.96	1.76	0.0*	1-S2n	0.78	1.23	0.78	0.61	10.34	3.62
15.60 cfs	15.60 cfs	2267.00	1.80	0.0*	1-S2n	0.79	1.26	0.79	0.62	10.46	3.67
16.20 cfs	16.20 cfs	2267.04	1.84	0.0*	1-S2n	0.81	1.29	0.84	0.63	10.08	3.71
16.80 cfs	16.80 cfs	2267.09	1.89	0.0*	1-S2n	0.82	1.31	0.85	0.65	10.26	3.75
17.40 cfs	17.40 cfs	2267.13	1.93	0.0*	1-S2n	0.84	1.33	0.85	0.66	10.48	3.79
18.00 cfs	18.00 cfs	2267.17	1.97	0.0*	1-S2n	0.85	1.36	0.86	0.67	10.73	3.83
18.60 cfs	18.60 cfs	2267.21	2.01	0.0*	1-S2n	0.87	1.38	0.87	0.68	11.00	3.86
19.20 cfs	19.20 cfs	2267.26	2.06	0.0*	1-S2n	0.88	1.40	0.88	0.69	11.10	3.90
19.80 cfs	19.80 cfs	2267.30	2.10	0.0*	1-S2n	0.89	1.43	0.92	0.71	10.72	3.94
20.40 cfs	20.40 cfs	2267.34	2.14	0.0*	1-S2n	0.91	1.45	0.94	0.72	10.84	3.97
21.00 cfs	21.00 cfs	2267.38	2.18	0.0*	1-S2n	0.92	1.47	0.95	0.73	10.98	4.01

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2265.20 ft,

Outlet Elevation (invert): 2262.20 ft

Culvert Length: 37.72 ft,

Culvert Slope: 0.0798

Site Data - EXST R19

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2265.20 ft

Outlet Station: 37.60 ft

Outlet Elevation: 2262.20 ft

Number of Barrels: 1

Culvert Data Summary - EXST R19

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R2

Table 83 - Culvert Summary Table: EXST R2

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
295.00 cfs	140.03 cfs	2474.51	9.12	10.514	4-FFf	2.81	3.51	4.00	0.72	11.14	43.13
307.40 cfs	140.52 cfs	2474.57	9.17	10.565	4-FFf	2.82	3.52	4.00	0.74	11.18	43.72
319.80 cfs	140.99 cfs	2474.61	9.22	10.615	4-FFf	2.82	3.52	4.00	0.76	11.22	44.30
332.20 cfs	141.46 cfs	2474.66	9.26	10.664	4-FFf	2.83	3.52	4.00	0.78	11.26	44.86
344.60 cfs	141.92 cfs	2474.71	9.31	10.712	4-FFf	2.84	3.53	4.00	0.79	11.29	45.41
356.00 cfs	142.33 cfs	2474.76	9.35	10.755	4-FFf	2.84	3.53	4.00	0.81	11.33	45.90
369.40 cfs	142.80 cfs	2474.81	9.40	10.806	4-FFf	2.85	3.54	4.00	0.82	11.36	46.46
381.80 cfs	143.23 cfs	2474.85	9.44	10.851	4-FFf	2.86	3.54	4.00	0.84	11.40	46.96
394.20 cfs	143.65 cfs	2474.90	9.48	10.896	4-FFf	2.86	3.54	4.00	0.86	11.43	47.45
406.60 cfs	144.06 cfs	2474.94	9.52	10.941	4-FFf	2.87	3.55	4.00	0.87	11.46	47.93
419.00 cfs	144.46 cfs	2474.98	9.56	10.984	4-FFf	2.88	3.55	4.00	0.89	11.50	48.40

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2464.00 ft,

Outlet Elevation (invert): 2462.40 ft

Culvert Length: 35.04 ft,

Culvert Slope: 0.0457

Site Data - EXST R2

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2464.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2462.40 ft

Number of Barrels: 1

Culvert Data Summary - EXST R2

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R20

Table 84 - Culvert Summary Table: EXST R20

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
20.00 cfs	20.00 cfs	2140.96	1.86	0.0*	1-S2n	0.88	1.32	0.91	0.65	9.24	4.40
20.80 cfs	20.80 cfs	2141.00	1.90	0.0*	1-S2n	0.90	1.34	0.94	0.67	9.30	4.45
21.60 cfs	21.60 cfs	2141.04	1.94	0.0*	1-S2n	0.92	1.37	0.95	0.68	9.39	4.50
22.40 cfs	22.40 cfs	2141.08	1.98	0.010	1-S2n	0.93	1.40	0.97	0.69	9.49	4.55
23.20 cfs	23.20 cfs	2141.12	2.02	0.044	1-S2n	0.95	1.42	0.99	0.71	9.61	4.60
24.00 cfs	24.00 cfs	2141.16	2.06	0.078	1-S2n	0.96	1.45	1.00	0.72	9.74	4.65
24.80 cfs	24.80 cfs	2141.20	2.10	0.112	1-S2n	0.98	1.47	1.02	0.73	9.81	4.69
25.60 cfs	25.60 cfs	2141.24	2.14	0.146	1-S2n	1.00	1.50	1.04	0.75	9.84	4.74
26.40 cfs	26.40 cfs	2141.27	2.17	0.180	1-S2n	1.01	1.52	1.06	0.76	9.89	4.78
27.20 cfs	27.20 cfs	2141.31	2.21	0.213	1-S2n	1.03	1.54	1.08	0.77	9.96	4.82
28.00 cfs	28.00 cfs	2141.35	2.25	0.247	1-S2n	1.04	1.57	1.09	0.78	10.03	4.86

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2139.10 ft,

Outlet Elevation (invert): 2137.60 ft

Culvert Length: 25.94 ft,

Culvert Slope: 0.0579

Site Data - EXST R20

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2139.10 ft

Outlet Station: 25.90 ft

Outlet Elevation: 2137.60 ft

Number of Barrels: 1

Culvert Data Summary - EXST R20

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R21

Table 85 - Culvert Summary Table: EXST R21

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
28.00 cfs	28.00 cfs	2165.24	2.24	0.0*	1-S2n	1.02	1.57	1.05	0.70	10.60	4.24
29.10 cfs	29.10 cfs	2165.29	2.29	0.0*	1-S2n	1.04	1.60	1.07	0.72	10.74	4.29
30.20 cfs	30.20 cfs	2165.35	2.35	0.0*	1-S2n	1.05	1.63	1.09	0.73	10.90	4.35
31.30 cfs	31.30 cfs	2165.40	2.40	0.0*	1-S2n	1.07	1.66	1.11	0.75	11.00	4.40
32.40 cfs	32.40 cfs	2165.45	2.45	0.0*	1-S2n	1.09	1.69	1.14	0.76	11.04	4.45
33.00 cfs	33.00 cfs	2165.48	2.48	0.0*	1-S2n	1.10	1.71	1.15	0.77	11.07	4.48
34.60 cfs	34.60 cfs	2165.55	2.55	0.0*	1-S2n	1.13	1.75	1.18	0.79	11.20	4.55
35.70 cfs	35.70 cfs	2165.60	2.60	0.0*	1-S2n	1.15	1.78	1.20	0.81	11.31	4.59
36.80 cfs	36.80 cfs	2165.65	2.65	0.0*	1-S2n	1.17	1.81	1.21	0.82	11.44	4.64
37.90 cfs	37.90 cfs	2165.70	2.70	0.0*	1-S2n	1.18	1.83	1.23	0.84	11.51	4.68
39.00 cfs	39.00 cfs	2165.75	2.75	0.032	1-S2n	1.20	1.86	1.26	0.85	11.55	4.73

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2163.00 ft,

Outlet Elevation (invert): 2160.80 ft

Culvert Length: 34.17 ft,

Culvert Slope: 0.0645

Site Data - EXST R21

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2163.00 ft

Outlet Station: 34.10 ft

Outlet Elevation: 2160.80 ft

Number of Barrels: 1

Culvert Data Summary - EXST R21

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R4

Table 86 - Culvert Summary Table: EXST R4

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
230.00 cfs	50.84 cfs	2204.66	4.66	3.876	5-S2n	2.09	2.32	2.10	1.95	9.62	7.45
239.50 cfs	51.20 cfs	2204.70	4.70	3.910	5-S2n	2.10	2.33	2.11	1.99	9.63	7.54
249.00 cfs	51.54 cfs	2204.74	4.74	3.945	5-S2n	2.11	2.33	2.12	2.03	9.65	7.62
258.50 cfs	51.88 cfs	2204.77	4.77	3.978	5-S2n	2.12	2.34	2.13	2.07	9.66	7.70
268.00 cfs	52.21 cfs	2204.81	4.81	4.011	5-S2n	2.13	2.35	2.14	2.11	9.67	7.78
275.00 cfs	52.45 cfs	2204.84	4.84	4.035	5-S2n	2.14	2.35	2.15	2.14	9.68	7.84
287.00 cfs	52.85 cfs	2204.88	4.88	4.075	5-S2n	2.15	2.36	2.16	2.19	9.69	7.93
296.50 cfs	53.15 cfs	2204.91	4.91	4.106	5-S2n	2.16	2.37	2.17	2.22	9.70	8.01
306.00 cfs	53.45 cfs	2204.95	4.95	4.137	5-S2n	2.17	2.38	2.18	2.26	9.71	8.08
315.50 cfs	53.75 cfs	2204.98	4.98	4.167	5-S2n	2.18	2.38	2.19	2.29	9.72	8.15
325.00 cfs	54.05 cfs	2205.01	5.01	4.198	5-S2n	2.19	2.39	2.20	2.33	9.73	8.21

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2200.00 ft,

Outlet Elevation (invert): 2199.00 ft

Culvert Length: 35.01 ft,

Culvert Slope: 0.0286

Site Data - EXST R4

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2200.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2199.00 ft

Number of Barrels: 1

Culvert Data Summary - EXST R4

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R5

Table 87 - Culvert Summary Table: EXST R5

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
205.00 cfs	62.37 cfs	2548.11	6.01	4.237	5-S2n	1.97	2.54	2.02	2.00	12.29	7.35
214.50 cfs	62.67 cfs	2548.15	6.05	4.274	5-S2n	1.97	2.55	2.03	2.04	12.31	7.44
224.00 cfs	62.97 cfs	2548.19	6.09	4.310	5-S2n	1.98	2.55	2.04	2.09	12.32	7.53
233.50 cfs	63.26 cfs	2548.23	6.13	4.345	5-S2n	1.99	2.56	2.04	2.13	12.33	7.61
243.00 cfs	63.54 cfs	2548.27	6.17	4.379	5-S2n	1.99	2.56	2.05	2.17	12.35	7.70
254.00 cfs	63.86 cfs	2548.31	6.21	4.417	5-S2n	2.00	2.57	2.06	2.22	12.36	7.79
262.00 cfs	64.08 cfs	2548.34	6.24	4.445	5-S2n	2.00	2.57	2.06	2.26	12.37	7.86
271.50 cfs	64.35 cfs	2548.38	6.28	4.477	5-S2n	2.01	2.57	2.07	2.30	12.39	7.93
281.00 cfs	64.60 cfs	2548.41	6.31	4.508	5-S2n	2.02	2.58	2.07	2.34	12.40	8.01
290.50 cfs	64.85 cfs	2548.45	6.35	4.539	5-S2n	2.02	2.58	2.08	2.38	12.42	8.08
300.00 cfs	65.10 cfs	2548.48	6.38	4.570	5-S2n	2.03	2.59	2.08	2.41	12.43	8.15

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2542.10 ft,

Outlet Elevation (invert): 2540.10 ft

Culvert Length: 39.45 ft,

Culvert Slope: 0.0508

Site Data - EXST R5

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2542.10 ft

Outlet Station: 39.40 ft

Outlet Elevation: 2540.10 ft

Number of Barrels: 1

Culvert Data Summary - EXST R5

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R8

Table 88 - Culvert Summary Table: EXST R8

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
150.00 cfs	89.89 cfs	2554.08	5.18	0.217	5-S2n	1.73	2.87	1.81	1.70	16.32	6.73
156.60 cfs	90.52 cfs	2554.12	5.22	0.258	5-S2n	1.73	2.88	1.81	1.74	16.35	6.82
163.20 cfs	91.11 cfs	2554.15	5.25	0.298	5-S2n	1.74	2.89	1.82	1.78	16.37	6.90
169.80 cfs	91.68 cfs	2554.19	5.29	0.335	5-S2n	1.74	2.90	1.83	1.81	16.40	6.97
176.40 cfs	92.23 cfs	2554.22	5.32	0.372	5-S2n	1.75	2.91	1.83	1.85	16.42	7.05
185.00 cfs	92.94 cfs	2554.26	5.36	0.419	5-S2n	1.76	2.92	1.84	1.89	16.45	7.14
189.60 cfs	93.30 cfs	2554.28	5.38	0.444	5-S2n	1.76	2.93	1.85	1.92	16.47	7.19
196.20 cfs	93.81 cfs	2554.31	5.41	0.478	5-S2n	1.77	2.94	1.85	1.95	16.49	7.26
202.80 cfs	94.31 cfs	2554.35	5.45	0.512	5-S2n	1.77	2.94	1.86	1.98	16.52	7.32
209.40 cfs	94.79 cfs	2554.38	5.48	0.545	5-S2n	1.78	2.95	1.86	2.02	16.54	7.39
216.00 cfs	95.27 cfs	2554.40	5.50	0.577	5-S2n	1.78	2.96	1.87	2.05	16.56	7.45

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2548.90 ft,

Outlet Elevation (invert): 2544.00 ft

Culvert Length: 55.22 ft,

Culvert Slope: 0.0891

Site Data - EXST R8

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2548.90 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2544.00 ft

Number of Barrels: 1

Culvert Data Summary - EXST R8

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: EXST R9

Table 89 - Culvert Summary Table: EXST R9

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
123.00 cfs	9.97 cfs	2422.87	2.64	2.868	4-FFf	1.12	1.22	1.50	2.11	5.64	7.11
128.60 cfs	9.92 cfs	2422.90	2.62	2.895	4-FFf	1.12	1.21	1.50	2.15	5.61	7.20
134.20 cfs	9.87 cfs	2422.92	2.60	2.922	4-FFf	1.11	1.21	1.50	2.20	5.59	7.28
139.80 cfs	9.82 cfs	2422.95	2.59	2.949	4-FFf	1.11	1.21	1.50	2.24	5.56	7.35
145.40 cfs	9.77 cfs	2422.98	2.57	2.975	4-FFf	1.10	1.21	1.50	2.28	5.53	7.43
152.00 cfs	9.72 cfs	2423.01	2.55	3.006	4-FFf	1.10	1.20	1.50	2.33	5.50	7.52
156.60 cfs	9.68 cfs	2423.03	2.54	3.026	4-FFf	1.09	1.20	1.50	2.37	5.48	7.58
162.20 cfs	9.64 cfs	2423.05	2.53	3.051	4-FFf	1.09	1.20	1.50	2.41	5.45	7.65
167.80 cfs	9.59 cfs	2423.08	2.51	3.075	4-FFf	1.08	1.20	1.50	2.45	5.43	7.71
173.40 cfs	9.55 cfs	2423.10	2.50	3.100	4-FFf	1.08	1.19	1.50	2.48	5.40	7.78
179.00 cfs	9.51 cfs	2423.12	2.49	3.124	4-FFf	1.08	1.19	1.50	2.52	5.38	7.84

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2420.00 ft,

Outlet Elevation (invert): 2419.00 ft

Culvert Length: 26.92 ft,

Culvert Slope: 0.0372

Site Data - EXST R9

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2420.00 ft

Outlet Station: 26.90 ft

Outlet Elevation: 2419.00 ft

Number of Barrels: 1

Culvert Data Summary - EXST R9

Barrel Shape: Circular

Barrel Diameter: 1.50 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R2 UPDATE

Table 90 - Culvert Summary Table: R2 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
295.00 cfs	295.00 cfs	2470.59	6.59	4.956	5-S2n	1.74	4.22	2.79	0.72	17.61	43.13
307.40 cfs	307.40 cfs	2470.82	6.82	5.182	5-S2n	1.79	4.34	2.88	0.74	17.76	43.72
319.80 cfs	319.80 cfs	2471.05	7.05	5.414	5-S2n	1.84	4.45	2.98	0.76	17.91	44.30
332.20 cfs	332.20 cfs	2471.28	7.28	5.652	5-S2n	1.89	4.57	3.07	0.78	18.06	44.86
344.60 cfs	344.60 cfs	2471.53	7.53	5.896	5-S2n	1.94	4.68	3.16	0.79	18.19	45.41
356.00 cfs	356.00 cfs	2471.76	7.76	6.126	5-S2n	1.99	4.78	3.24	0.81	18.32	45.90
369.40 cfs	369.40 cfs	2472.03	8.03	6.403	5-S2n	2.04	4.90	3.33	0.82	18.47	46.46
381.80 cfs	381.80 cfs	2472.30	8.30	6.661	5-S2n	2.09	5.00	3.42	0.84	18.60	46.96
394.20 cfs	394.20 cfs	2472.57	8.57	6.877	5-S2n	2.14	5.00	3.51	0.86	18.74	47.45
406.60 cfs	406.60 cfs	2472.85	8.85	7.099	5-S2n	2.18	5.00	3.59	0.87	18.89	47.93
419.00 cfs	419.00 cfs	2473.13	9.13	7.328	5-S2n	2.23	5.00	3.67	0.89	19.05	48.40

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2464.00 ft,

Outlet Elevation (invert): 2462.40 ft

Culvert Length: 35.04 ft,

Culvert Slope: 0.0457

Site Data - R2 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2464.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2462.40 ft

Number of Barrels: 1

Culvert Data Summary - R2 UPDATE

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: 1.5:1 Bevel (90°) Headwall

Inlet Depression: None

Culvert Data: R4 UPDATE

Table 91 - Culvert Summary Table: R4 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
230.00 cfs	230.00 cfs	2202.56	4.56	3.108	1-S2n	1.72	2.95	2.28	1.95	12.59	7.45
239.50 cfs	239.50 cfs	2202.68	4.68	3.244	1-S2n	1.76	3.03	2.35	1.99	12.72	7.54
249.00 cfs	249.00 cfs	2202.80	4.80	3.382	1-S2n	1.81	3.11	2.42	2.03	12.85	7.62
258.50 cfs	258.50 cfs	2202.93	4.93	3.520	1-S2n	1.86	3.19	2.49	2.07	12.98	7.70
268.00 cfs	268.00 cfs	2203.05	5.05	3.660	5-S2n	1.91	3.27	2.56	2.11	13.09	7.78
275.00 cfs	275.00 cfs	2203.14	5.14	3.764	5-S2n	1.94	3.32	2.61	2.14	13.18	7.84
287.00 cfs	287.00 cfs	2203.29	5.29	3.944	5-S2n	2.00	3.42	2.69	2.19	13.33	7.93
296.50 cfs	296.50 cfs	2203.41	5.41	4.088	5-S2n	2.04	3.49	2.76	2.22	13.44	8.01
306.00 cfs	305.40 cfs	2203.52	5.52	4.224	5-S2n	2.09	3.56	2.82	2.26	13.54	8.08
315.50 cfs	311.39 cfs	2203.60	5.60	4.317	5-S2n	2.11	3.61	2.86	2.29	13.61	8.15
325.00 cfs	316.37 cfs	2203.66	5.66	4.394	5-S2n	2.14	3.65	2.89	2.33	13.67	8.21

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2198.00 ft,

Outlet Elevation (invert): 2197.50 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R4 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2198.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2197.50 ft

Number of Barrels: 1

Culvert Data Summary - R4 UPDATE

Barrel Shape: Concrete Box

Barrel Span: 8.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: 1.5:1 Bevel (90°) Headwall

Inlet Depression: None

Culvert Data: R9 UPDATE

Table 92 - Culvert Summary Table: R9 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
123.00 cfs	123.00 cfs	2420.72	3.18	3.225	7-M1t	2.09	2.09	2.11	2.11	7.73	7.11
128.60 cfs	128.60 cfs	2420.81	3.29	3.314	3-M2t	2.16	2.13	2.15	2.15	7.90	7.20
134.20 cfs	134.20 cfs	2420.91	3.41	3.405	3-M2t	2.24	2.18	2.20	2.20	8.06	7.28
139.80 cfs	139.80 cfs	2421.03	3.53	3.497	3-M2t	2.32	2.22	2.24	2.24	8.23	7.35
145.40 cfs	145.40 cfs	2421.16	3.66	3.592	3-M2t	2.41	2.27	2.28	2.28	8.39	7.43
152.00 cfs	152.00 cfs	2421.31	3.81	3.709	3-M2t	2.54	2.32	2.33	2.33	8.59	7.52
156.60 cfs	156.60 cfs	2421.42	3.92	3.794	3-M2t	2.66	2.35	2.37	2.37	8.73	7.58
162.20 cfs	162.20 cfs	2421.56	4.06	3.901	3-M2t	3.00	2.39	2.41	2.41	8.89	7.65
167.80 cfs	167.80 cfs	2421.71	4.21	4.015	3-M2t	3.00	2.43	2.45	2.45	9.06	7.71
173.40 cfs	173.40 cfs	2421.86	4.36	4.135	3-M2t	3.00	2.46	2.48	2.48	9.23	7.78
179.00 cfs	178.79 cfs	2422.01	4.51	4.261	3-M2t	3.00	2.49	2.52	2.52	9.39	7.84

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2417.50 ft,

Outlet Elevation (invert): 2417.00 ft

Culvert Length: 26.90 ft,

Culvert Slope: 0.0186

Site Data - R9 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2417.50 ft

Outlet Station: 26.90 ft

Outlet Elevation: 2417.00 ft

Number of Barrels: 3

Culvert Data Summary - R9 UPDATE

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R5 UPDATE

Table 93 - Culvert Summary Table: R5 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
205.00 cfs	205.00 cfs	2545.90	3.80	2.433	5-S2n	1.72	2.33	1.77	2.00	11.77	7.35
214.50 cfs	214.50 cfs	2546.08	3.98	2.626	5-S2n	1.77	2.38	1.83	2.04	11.91	7.44
224.00 cfs	224.00 cfs	2546.26	4.16	2.825	5-S2n	1.83	2.43	1.88	2.09	12.04	7.53
233.50 cfs	233.50 cfs	2546.46	4.36	3.031	5-S2n	1.88	2.47	1.93	2.13	12.14	7.61
243.00 cfs	243.00 cfs	2546.66	4.56	3.243	5-S2n	1.93	2.51	1.99	2.17	12.23	7.70
254.00 cfs	254.00 cfs	2546.90	4.80	3.496	5-S2n	1.99	2.56	2.05	2.22	12.35	7.79
262.00 cfs	262.00 cfs	2547.08	4.98	3.686	5-S2n	2.04	2.59	2.09	2.26	12.45	7.86
271.50 cfs	267.07 cfs	2547.20	5.10	3.808	5-S2n	2.06	2.61	2.12	2.30	12.51	7.93
281.00 cfs	270.52 cfs	2547.29	5.19	3.893	5-S2n	2.08	2.62	2.14	2.34	12.52	8.01
290.50 cfs	273.41 cfs	2547.36	5.26	3.964	5-S2n	2.10	2.63	2.16	2.38	12.54	8.08
300.00 cfs	276.03 cfs	2547.42	5.32	4.029	5-S2n	2.12	2.64	2.18	2.41	12.57	8.15

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2542.10 ft,

Outlet Elevation (invert): 2540.10 ft

Culvert Length: 39.45 ft,

Culvert Slope: 0.0508

Site Data - R5 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2542.10 ft

Outlet Station: 39.40 ft

Outlet Elevation: 2540.10 ft

Number of Barrels: 4

Culvert Data Summary - R5 UPDATE

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R8 UPDATE

Table 94 - Culvert Summary Table: R8 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
150.00 cfs	150.00 cfs	2552.66	3.76	0.0*	1-S2n	1.56	2.62	1.62	1.70	15.72	6.73
156.60 cfs	156.60 cfs	2552.78	3.88	0.0*	1-S2n	1.60	2.68	1.66	1.74	15.82	6.82
163.20 cfs	163.20 cfs	2552.90	4.00	0.0*	5-S2n	1.64	2.74	1.70	1.78	15.98	6.90
169.80 cfs	169.80 cfs	2553.03	4.13	0.0*	5-S2n	1.67	2.79	1.74	1.81	16.16	6.97
176.40 cfs	176.40 cfs	2553.16	4.26	0.0*	5-S2n	1.71	2.85	1.78	1.85	16.26	7.05
185.00 cfs	185.00 cfs	2553.33	4.43	0.0*	5-S2n	1.75	2.92	1.84	1.89	16.43	7.14
189.60 cfs	189.60 cfs	2553.43	4.53	0.0*	5-S2n	1.78	2.95	1.86	1.92	16.54	7.19
196.20 cfs	194.93 cfs	2553.54	4.64	0.074	5-S2n	1.81	2.99	1.89	1.95	16.66	7.26
202.80 cfs	197.96 cfs	2553.61	4.71	0.652	5-S2n	1.82	3.01	1.91	1.98	16.70	7.32
209.40 cfs	200.46 cfs	2553.67	4.77	0.713	5-S2n	1.83	3.03	1.93	2.02	16.74	7.39
216.00 cfs	202.73 cfs	2553.72	4.82	0.769	5-S2n	1.85	3.05	1.94	2.05	16.78	7.45

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2548.90 ft,

Outlet Elevation (invert): 2544.00 ft

Culvert Length: 55.22 ft,

Culvert Slope: 0.0891

Site Data - R8 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2548.90 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2544.00 ft

Number of Barrels: 2

Culvert Data Summary - R8 UPDATE

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R11 UPDATE

Table 95 - Culvert Summary Table: R11 UPDATE

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
106.00 cfs	106.00 cfs	2625.48	2.78	0.0*	1-S2n	1.24	1.93	1.27	1.68	12.41	6.31
110.20 cfs	110.20 cfs	2625.56	2.86	0.0*	1-S2n	1.27	1.97	1.29	1.71	12.64	6.37
114.40 cfs	114.40 cfs	2625.63	2.93	0.0*	1-S2n	1.30	2.01	1.30	1.74	13.01	6.44
118.60 cfs	118.60 cfs	2625.71	3.01	0.0*	5-S2n	1.32	2.05	1.32	1.77	13.14	6.50
122.80 cfs	122.80 cfs	2625.79	3.09	0.0*	5-S2n	1.35	2.08	1.38	1.80	12.90	6.56
128.00 cfs	128.00 cfs	2625.90	3.20	0.0*	5-S2n	1.38	2.13	1.41	1.84	13.06	6.63
131.20 cfs	131.20 cfs	2625.96	3.26	0.0*	5-S2n	1.40	2.15	1.43	1.86	13.17	6.68
135.40 cfs	134.49 cfs	2626.03	3.33	0.0*	5-S2n	1.42	2.18	1.45	1.89	13.30	6.73
139.60 cfs	136.64 cfs	2626.08	3.38	0.0*	5-S2n	1.44	2.20	1.46	1.91	13.38	6.79
143.80 cfs	138.44 cfs	2626.12	3.42	0.0*	5-S2n	1.45	2.21	1.47	1.94	13.45	6.84
148.00 cfs	140.09 cfs	2626.15	3.45	0.0*	5-S2n	1.46	2.23	1.46	1.97	13.71	6.89

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2622.70 ft,

Outlet Elevation (invert): 2618.10 ft

Culvert Length: 62.77 ft,

Culvert Slope: 0.0735

Site Data - R11 UPDATE

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2622.70 ft

Outlet Station: 62.60 ft

Outlet Elevation: 2618.10 ft

Number of Barrels: 3

Culvert Data Summary - R11 UPDATE

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: H2 2030

Table 96 - Culvert Summary Table: H2 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
592.00 cfs	592.00 cfs	2144.35	6.15	4.300	1-S2n	3.02	3.64	3.38	2.58	11.69	7.58
592.00 cfs	592.00 cfs	2144.35	6.15	4.300	1-S2n	3.02	3.64	3.38	2.58	11.69	7.58
592.00 cfs	592.00 cfs	2144.35	6.15	4.300	1-S2n	3.02	3.64	3.38	2.58	11.69	7.58
592.00 cfs	592.00 cfs	2144.35	6.15	4.300	1-S2n	3.02	3.64	3.38	2.58	11.69	7.58
592.00 cfs	592.00 cfs	2144.35	6.15	4.300	1-S2n	3.02	3.64	3.38	2.58	11.69	7.58
592.00 cfs	592.00 cfs	2144.35	6.15	4.300	1-S2n	3.02	3.64	3.38	2.58	11.69	7.58
592.00 cfs	592.00 cfs	2144.35	6.15	4.300	1-S2n	3.02	3.64	3.38	2.58	11.69	7.58
592.00 cfs	592.00 cfs	2144.35	6.15	4.300	1-S2n	3.02	3.64	3.38	2.58	11.69	7.58
592.00 cfs	592.00 cfs	2144.35	6.15	4.300	1-S2n	3.02	3.64	3.38	2.58	11.69	7.58
592.00 cfs	592.00 cfs	2144.35	6.15	4.300	1-S2n	3.02	3.64	3.38	2.58	11.69	7.58
592.00 cfs	592.00 cfs	2144.35	6.15	4.300	1-S2n	3.02	3.64	3.38	2.58	11.69	7.58
592.00 cfs	592.00 cfs	2144.35	6.15	4.300	1-S2n	3.02	3.64	3.38	2.58	11.69	7.58

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2138.20 ft,

Outlet Elevation (invert): 2138.10 ft

Culvert Length: 25.00 ft,

Culvert Slope: 0.0040

Site Data - H2 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2138.20 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2138.10 ft

Number of Barrels: 1

Culvert Data Summary - H2 2030

Barrel Shape: Concrete Box

Barrel Span: 15.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H2 2050 BOX

Table 97 - Culvert Summary Table: H2 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95
699.00 cfs	669.71 cfs	2144.89	6.69	4.824	1-S2n	3.28	3.96	3.68	2.81	12.14	7.95

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2138.20 ft,

Outlet Elevation (invert): 2138.10 ft

Culvert Length: 25.00 ft,

Culvert Slope: 0.0040

Site Data - H2 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2138.20 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2138.10 ft

Number of Barrels: 1

Culvert Data Summary - H2 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 15.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H2 2050 CULVERT

Table 98 - Culvert Summary Table: H2 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95
699.00 cfs	29.26 cfs	2144.89	5.98	6.688	4-FFf	2.00	1.85	2.00	2.81	9.31	7.95

Culvert Barrel Data

Culvert Barrel Type: Straight Culvert

Inlet Elevation (invert): 2138.20 ft,

Outlet Elevation (invert): 2138.10 ft

Culvert Length: 25.00 ft,

Culvert Slope: 0.0040

Site Data - H2 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2138.20 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2138.10 ft

Number of Barrels: 1

Culvert Data Summary - H2 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: H3 2030 CULVERT

Table 99 - Culvert Summary Table: H3 2030 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23
271.00 cfs	271.00 cfs	2228.75	4.85	2.910	1-S2n	2.29	2.84	2.59	1.92	10.45	6.23

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2223.90 ft,

Outlet Elevation (invert): 2223.80 ft

Culvert Length: 20.00 ft,

Culvert Slope: 0.0050

Site Data - H3 2030 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2223.90 ft

Outlet Station: 20.00 ft

Outlet Elevation: 2223.80 ft

Number of Barrels: 1

Culvert Data Summary - H3 2030 CULVERT

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 10.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H3 2050

Table 100 - Culvert Summary Table: H3 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54
320.00 cfs	320.00 cfs	2229.30	5.40	3.311	1-S2n	2.57	3.17	2.91	2.09	10.99	6.54

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2223.90 ft,

Outlet Elevation (invert): 2223.80 ft

Culvert Length: 20.00 ft,

Culvert Slope: 0.0050

Site Data - H3 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2223.90 ft

Outlet Station: 20.00 ft

Outlet Elevation: 2223.80 ft

Number of Barrels: 1

Culvert Data Summary - H3 2050

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 10.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H5 2030 BOX

Table 101 - Culvert Summary Table: H5 2030 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04
243.00 cfs	120.38 cfs	2391.20	3.70	0.0*	1-S2n	0.75	2.32	1.10	1.77	18.17	8.04

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2387.50 ft,

Outlet Elevation (invert): 2384.10 ft

Culvert Length: 37.06 ft,

Culvert Slope: 0.0921

Site Data - H5 2030 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2387.50 ft

Outlet Station: 36.90 ft

Outlet Elevation: 2384.10 ft

Number of Barrels: 1

Culvert Data Summary - H5 2030 BOX

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H5 2030 CULVERT

Table 102 - Culvert Summary Table: H5 2030 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04
243.00 cfs	122.65 cfs	2391.20	3.70	0.0*	1-S2n	1.39	2.36	1.48	1.77	14.54	8.04

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2387.50 ft,

Outlet Elevation (invert): 2384.10 ft

Culvert Length: 37.06 ft,

Culvert Slope: 0.0921

Site Data - H5 2030 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2387.50 ft

Outlet Station: 36.90 ft

Outlet Elevation: 2384.10 ft

Number of Barrels: 2

Culvert Data Summary - H5 2030 CULVERT

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: H5 2050 BOX

Table 103 - Culvert Summary Table: H5 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42
287.00 cfs	264.42 cfs	2391.45	3.95	0.0*	1-S2n	0.80	2.47	1.19	1.93	18.45	8.42

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2387.50 ft,

Outlet Elevation (invert): 2384.10 ft

Culvert Length: 37.06 ft,

Culvert Slope: 0.0921

Site Data - H5 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2387.50 ft

Outlet Station: 36.90 ft

Outlet Elevation: 2384.10 ft

Number of Barrels: 2

Culvert Data Summary - H5 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H5 2050 CULVERT

Table 104 - Culvert Summary Table: H5 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42
287.00 cfs	22.58 cfs	2391.45	3.95	1.300	5-S2n	1.12	1.69	1.12	1.93	12.43	8.42

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2387.50 ft,

Outlet Elevation (invert): 2384.10 ft

Culvert Length: 37.06 ft,

Culvert Slope: 0.0921

Site Data - H5 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2387.50 ft

Outlet Station: 36.90 ft

Outlet Elevation: 2384.10 ft

Number of Barrels: 1

Culvert Data Summary - H5 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: H6 2030 BOX

Table 105 - Culvert Summary Table: H6 2030 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37
260.00 cfs	227.47 cfs	2533.57	7.07	3.814	5-S2n	1.53	4.01	2.34	2.18	19.43	6.37

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2526.50 ft,

Outlet Elevation (invert): 2523.70 ft

Culvert Length: 45.79 ft,

Culvert Slope: 0.0613

Site Data - H6 2030 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2526.50 ft

Outlet Station: 45.70 ft

Outlet Elevation: 2523.70 ft

Number of Barrels: 1

Culvert Data Summary - H6 2030 BOX

Barrel Shape: Concrete Box

Barrel Span: 5.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: HT 2030 CULVERT

Table 106 - Culvert Summary Table: HT 2030 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37
260.00 cfs	32.48 cfs	2533.57	7.07	5.726	4-FFf	2.00	1.90	2.00	2.18	10.34	6.37

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2526.50 ft,

Outlet Elevation (invert): 2523.70 ft

Culvert Length: 45.79 ft,

Culvert Slope: 0.0613

Site Data - HT 2030 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2526.50 ft

Outlet Station: 45.70 ft

Outlet Elevation: 2523.70 ft

Number of Barrels: 1

Culvert Data Summary - HT 2030 CULVERT

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: H6 2050 BOX

Table 107 - Culvert Summary Table: H6 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66
307.00 cfs	200.48 cfs	2532.80	6.30	2.522	5-S2n	1.40	3.68	2.11	2.37	18.98	6.66

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2526.50 ft,

Outlet Elevation (invert): 2523.70 ft

Culvert Length: 45.79 ft,

Culvert Slope: 0.0613

Site Data - H6 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2526.50 ft

Outlet Station: 45.70 ft

Outlet Elevation: 2523.70 ft

Number of Barrels: 1

Culvert Data Summary - H6 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 5.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: H6 2050 CULVERT

Table 108 - Culvert Summary Table: H6 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66
307.00 cfs	106.53 cfs	2532.80	6.30	3.736	5-S2n	2.12	3.12	2.24	2.37	14.72	6.66

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2526.50 ft,

Outlet Elevation (invert): 2523.70 ft

Culvert Length: 45.79 ft,

Culvert Slope: 0.0613

Site Data - H6 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2526.50 ft

Outlet Station: 45.70 ft

Outlet Elevation: 2523.70 ft

Number of Barrels: 1

Culvert Data Summary - H6 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: H8 2030

Table 109 - Culvert Summary Table: H8 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27
298.00 cfs	298.00 cfs	2568.25	6.25	4.316	5-S2n	2.45	3.50	2.58	2.01	14.61	9.27

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2562.00 ft,

Outlet Elevation (invert): 2559.40 ft

Culvert Length: 55.06 ft,

Culvert Slope: 0.0473

Site Data - H8 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2562.00 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2559.40 ft

Number of Barrels: 2

Culvert Data Summary - H8 2030

Barrel Shape: Circular

Barrel Diameter: 5.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: H8 2050

Table 110 - Culvert Summary Table: H8 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71
351.00 cfs	351.00 cfs	2569.40	7.40	5.388	5-S2n	2.71	3.80	2.85	2.18	15.20	9.71

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2562.00 ft,

Outlet Elevation (invert): 2559.40 ft

Culvert Length: 55.06 ft,

Culvert Slope: 0.0473

Site Data - H8 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2562.00 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2559.40 ft

Number of Barrels: 2

Culvert Data Summary - H8 2050

Barrel Shape: Circular

Barrel Diameter: 5.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R1 2030

Table 111 - Culvert Summary Table: R1 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55
490.00 cfs	445.82 cfs	2253.29	9.29	5.633	5-S2n	1.91	5.56	3.65	2.97	20.33	7.55

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2244.00 ft,

Outlet Elevation (invert): 2242.00 ft

Culvert Length: 25.08 ft,

Culvert Slope: 0.0800

Site Data - R1 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2244.00 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2242.00 ft

Number of Barrels: 1

Culvert Data Summary - R1 2030

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 8.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R1 2030 CULVERT

Table 112 - Culvert Summary Table: R1 2030 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55
490.00 cfs	44.18 cfs	2253.29	9.29	6.379	5-S2n	1.16	2.00	1.52	2.97	17.20	7.55

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2244.00 ft,

Outlet Elevation (invert): 2242.00 ft

Culvert Length: 25.08 ft,

Culvert Slope: 0.0800

Site Data - R1 2030 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2244.00 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2242.00 ft

Number of Barrels: 1

Culvert Data Summary - R1 2030 CULVERT

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Culvert Data: R1 2050 BOX

Table 113 - Culvert Summary Table: R1 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89
578.00 cfs	448.95 cfs	2253.34	9.34	5.688	5-S2n	1.92	5.58	3.67	3.21	20.36	7.89

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2244.00 ft,

Outlet Elevation (invert): 2242.00 ft

Culvert Length: 25.08 ft,

Culvert Slope: 0.0800

Site Data - R1 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2244.00 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2242.00 ft

Number of Barrels: 1

Culvert Data Summary - R1 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 8.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R1 2050 CULVERT

Table 114 - Culvert Summary Table: R1 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
578.00 cfs	129.02 cfs	2253.34	9.34	5.940	5-S2n	1.58	3.30	2.36	3.21	18.70	7.89
578.00 cfs	129.02 cfs	2253.34	9.34	5.940	5-S2n	1.58	3.30	2.36	3.21	18.70	7.89
578.00 cfs	129.02 cfs	2253.34	9.34	5.940	5-S2n	1.58	3.30	2.36	3.21	18.70	7.89
578.00 cfs	129.02 cfs	2253.34	9.34	5.940	5-S2n	1.58	3.30	2.36	3.21	18.70	7.89
578.00 cfs	129.02 cfs	2253.34	9.34	5.940	5-S2n	1.58	3.30	2.36	3.21	18.70	7.89
578.00 cfs	129.02 cfs	2253.34	9.34	5.940	5-S2n	1.58	3.30	2.36	3.21	18.70	7.89
578.00 cfs	129.02 cfs	2253.34	9.34	5.940	5-S2n	1.58	3.30	2.36	3.21	18.70	7.89
578.00 cfs	129.02 cfs	2253.34	9.34	5.940	5-S2n	1.58	3.30	2.36	3.21	18.70	7.89
578.00 cfs	129.02 cfs	2253.34	9.34	5.940	5-S2n	1.58	3.30	2.36	3.21	18.70	7.89
578.00 cfs	129.02 cfs	2253.34	9.34	5.940	5-S2n	1.58	3.30	2.36	3.21	18.70	7.89
578.00 cfs	129.02 cfs	2253.34	9.34	5.940	5-S2n	1.58	3.30	2.36	3.21	18.70	7.89
578.00 cfs	129.02 cfs	2253.34	9.34	5.940	5-S2n	1.58	3.30	2.36	3.21	18.70	7.89

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2244.00 ft,

Outlet Elevation (invert): 2242.00 ft

Culvert Length: 25.08 ft,

Culvert Slope: 0.0800

Site Data - R1 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2244.00 ft

Outlet Station: 25.00 ft

Outlet Elevation: 2242.00 ft

Number of Barrels: 1

Culvert Data Summary - R1 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 3.50 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Culvert Data: R2 2030

Table 115 - Culvert Summary Table: R2 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78
457.00 cfs	457.00 cfs	2471.18	7.18	5.931	5-JS1f	1.84	4.66	6.00	0.93	9.52	49.78

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2464.00 ft,

Outlet Elevation (invert): 2462.40 ft

Culvert Length: 35.04 ft,

Culvert Slope: 0.0457

Site Data - R2 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2464.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2462.40 ft

Number of Barrels: 1

Culvert Data Summary - R2 2030

Barrel Shape: Concrete Box

Barrel Span: 8.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: 1.5:1 Bevel (90°) Headwall

Inlet Depression: None

Culvert Data: R2 2050 BOX

Table 116 - Culvert Summary Table: R2 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50
540.00 cfs	540.00 cfs	2472.03	7.04	8.030	4-FFf	1.63	3.98	5.00	1.02	9.00	52.50

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2464.00 ft,

Outlet Elevation (invert): 2462.40 ft

Culvert Length: 35.04 ft,

Culvert Slope: 0.0457

Site Data - R2 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2464.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2462.40 ft

Number of Barrels: 2

Culvert Data Summary - R2 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R3 2030

Table 117 - Culvert Summary Table: R3 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80
367.00 cfs	367.00 cfs	2331.79	5.69	2.867	1-S2n	1.19	3.47	2.20	2.25	16.72	6.80

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2326.10 ft,

Outlet Elevation (invert): 2324.60 ft

Culvert Length: 23.25 ft,

Culvert Slope: 0.0647

Site Data - R3 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2326.10 ft

Outlet Station: 23.20 ft

Outlet Elevation: 2324.60 ft

Number of Barrels: 1

Culvert Data Summary - R3 2030

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: RE 2050

Table 118 - Culvert Summary Table: RE 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13
434.00 cfs	434.00 cfs	2332.55	6.45	3.635	5-S2n	1.33	3.88	2.51	2.45	17.30	7.13

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2326.10 ft,

Outlet Elevation (invert): 2324.60 ft

Culvert Length: 23.25 ft,

Culvert Slope: 0.0647

Site Data - RE 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2326.10 ft

Outlet Station: 23.20 ft

Outlet Elevation: 2324.60 ft

Number of Barrels: 1

Culvert Data Summary - RE 2050

Barrel Shape: Concrete Box

Barrel Span: 10.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R4 2030 BOX

Table 119 - Culvert Summary Table: R4 2030 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54
357.00 cfs	357.00 cfs	2202.66	4.66	4.343	1-JS1t	1.84	3.02	4.13	2.63	7.20	8.54

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2198.00 ft,

Outlet Elevation (invert): 2197.50 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R4 2030 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2198.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2197.50 ft

Number of Barrels: 2

Culvert Data Summary - R4 2030 BOX

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: 1.5:1 Bevel (90°) Headwall

Inlet Depression: None

Culvert Data: R4 2050 BOX

Table 120 - Culvert Summary Table: R4 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82
421.00 cfs	421.00 cfs	2203.21	5.21	4.647	5-S2n	2.07	3.37	2.68	2.66	13.11	8.82

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2198.00 ft,

Outlet Elevation (invert): 2197.50 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R4 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2198.00 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2197.50 ft

Number of Barrels: 2

Culvert Data Summary - R4 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 5.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: 1.5:1 Bevel (90°) Headwall

Inlet Depression: None

Culvert Data: R5 2030

Table 121 - Culvert Summary Table: R5 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82
318.00 cfs	318.00 cfs	2545.15	4.05	2.855	5-S2n	2.33	2.70	2.36	1.95	10.33	7.82

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2541.10 ft,

Outlet Elevation (invert): 2540.10 ft

Culvert Length: 39.41 ft,

Culvert Slope: 0.0254

Site Data - R5 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2541.10 ft

Outlet Station: 39.40 ft

Outlet Elevation: 2540.10 ft

Number of Barrels: 4

Culvert Data Summary - R5 2030

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R5 2050

Table 122 - Culvert Summary Table: R5 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22
375.00 cfs	375.00 cfs	2545.71	4.61	3.541	5-S2n	2.60	2.94	2.62	2.13	10.74	8.22

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2541.10 ft,

Outlet Elevation (invert): 2540.10 ft

Culvert Length: 39.41 ft,

Culvert Slope: 0.0254

Site Data - R5 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2541.10 ft

Outlet Station: 39.40 ft

Outlet Elevation: 2540.10 ft

Number of Barrels: 4

Culvert Data Summary - R5 2050

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R6 2030

Table 123 - Culvert Summary Table: R6 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29
242.00 cfs	204.03 cfs	2289.19	7.34	7.487	7-M2c	4.70	4.32	4.32	0.85	11.80	4.29

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2281.70 ft,

Outlet Elevation (invert): 2281.60 ft

Culvert Length: 20.50 ft,

Culvert Slope: 0.0049

Site Data - R6 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2281.70 ft

Outlet Station: 20.50 ft

Outlet Elevation: 2281.60 ft

Number of Barrels: 1

Culvert Data Summary - R6 2030

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R6 2030 CULVERT

Table 124 - Culvert Summary Table: R6 2030 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
242.00 cfs	37.97 cfs	2289.19	6.43	7.485	6-FFc	2.00	2.00	2.00	0.85	12.09	4.29
242.00 cfs	37.97 cfs	2289.19	6.43	7.485	6-FFc	2.00	2.00	2.00	0.85	12.09	4.29
242.00 cfs	37.97 cfs	2289.19	6.43	7.485	6-FFc	2.00	2.00	2.00	0.85	12.09	4.29
242.00 cfs	37.97 cfs	2289.19	6.43	7.485	6-FFc	2.00	2.00	2.00	0.85	12.09	4.29
242.00 cfs	37.97 cfs	2289.19	6.43	7.485	6-FFc	2.00	2.00	2.00	0.85	12.09	4.29
242.00 cfs	37.97 cfs	2289.19	6.43	7.485	6-FFc	2.00	2.00	2.00	0.85	12.09	4.29
242.00 cfs	37.97 cfs	2289.19	6.43	7.485	6-FFc	2.00	2.00	2.00	0.85	12.09	4.29
242.00 cfs	37.97 cfs	2289.19	6.43	7.485	6-FFc	2.00	2.00	2.00	0.85	12.09	4.29
242.00 cfs	37.97 cfs	2289.19	6.43	7.485	6-FFc	2.00	2.00	2.00	0.85	12.09	4.29
242.00 cfs	37.97 cfs	2289.19	6.43	7.485	6-FFc	2.00	2.00	2.00	0.85	12.09	4.29
242.00 cfs	37.97 cfs	2289.19	6.43	7.485	6-FFc	2.00	2.00	2.00	0.85	12.09	4.29
242.00 cfs	37.97 cfs	2289.19	6.43	7.485	6-FFc	2.00	2.00	2.00	0.85	12.09	4.29

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2281.70 ft,

Outlet Elevation (invert): 2281.60 ft

Culvert Length: 30.00 ft,

Culvert Slope: 0.0033

Site Data - R6 2030 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2281.70 ft

Outlet Station: 30.00 ft

Outlet Elevation: 2281.60 ft

Number of Barrels: 1

Culvert Data Summary - R6 2030 CULVERT

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R6 2050 4x7

Table 125 - Culvert Summary Table: R6 2050 4x7

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04
285.00 cfs	216.87 cfs	2289.45	7.69	7.747	7-M2c	5.81	4.50	4.50	1.70	12.04	6.04

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2281.70 ft,

Outlet Elevation (invert): 2281.60 ft

Culvert Length: 30.00 ft,

Culvert Slope: 0.0033

Site Data - R6 2050 4x7

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2281.70 ft

Outlet Station: 30.00 ft

Outlet Elevation: 2281.60 ft

Number of Barrels: 1

Culvert Data Summary - R6 2050 4x7

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R6 2050 CULVERT

Table 126 - Culvert Summary Table: R6 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04
285.00 cfs	68.07 cfs	2289.45	7.75	7.630	7-M2c	2.00	1.91	1.91	1.70	11.01	6.04

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2281.70 ft,

Outlet Elevation (invert): 2281.60 ft

Culvert Length: 30.00 ft,

Culvert Slope: 0.0033

Site Data - R6 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2281.70 ft

Outlet Station: 30.00 ft

Outlet Elevation: 2281.60 ft

Number of Barrels: 2

Culvert Data Summary - R6 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R7 2030 BOX

Table 127 - Culvert Summary Table: R7 2030 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33
243.00 cfs	169.27 cfs	2363.56	6.16	2.611	1-S2n	1.35	3.82	2.32	2.26	18.22	6.33

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2357.40 ft,

Outlet Elevation (invert): 2355.30 ft

Culvert Length: 24.79 ft,

Culvert Slope: 0.0850

Site Data - R7 2030 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2357.40 ft

Outlet Station: 24.70 ft

Outlet Elevation: 2355.30 ft

Number of Barrels: 1

Culvert Data Summary - R7 2030 BOX

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R7 2030 CULVERT

Table 128 - Culvert Summary Table: R7 2030 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
243.00 cfs	73.74 cfs	2363.56	6.16	3.244	5-S2n	1.18	2.70	1.72	2.26	17.56	6.33
243.00 cfs	73.74 cfs	2363.56	6.16	3.244	5-S2n	1.18	2.70	1.72	2.26	17.56	6.33
243.00 cfs	73.74 cfs	2363.56	6.16	3.244	5-S2n	1.18	2.70	1.72	2.26	17.56	6.33
243.00 cfs	73.74 cfs	2363.56	6.16	3.244	5-S2n	1.18	2.70	1.72	2.26	17.56	6.33
243.00 cfs	73.74 cfs	2363.56	6.16	3.244	5-S2n	1.18	2.70	1.72	2.26	17.56	6.33
243.00 cfs	73.74 cfs	2363.56	6.16	3.244	5-S2n	1.18	2.70	1.72	2.26	17.56	6.33
243.00 cfs	73.74 cfs	2363.56	6.16	3.244	5-S2n	1.18	2.70	1.72	2.26	17.56	6.33
243.00 cfs	73.74 cfs	2363.56	6.16	3.244	5-S2n	1.18	2.70	1.72	2.26	17.56	6.33
243.00 cfs	73.74 cfs	2363.56	6.16	3.244	5-S2n	1.18	2.70	1.72	2.26	17.56	6.33
243.00 cfs	73.74 cfs	2363.56	6.16	3.244	5-S2n	1.18	2.70	1.72	2.26	17.56	6.33
243.00 cfs	73.74 cfs	2363.56	6.16	3.244	5-S2n	1.18	2.70	1.72	2.26	17.56	6.33
243.00 cfs	73.74 cfs	2363.56	6.16	3.244	5-S2n	1.18	2.70	1.72	2.26	17.56	6.33

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2357.40 ft,

Outlet Elevation (invert): 2355.00 ft

Culvert Length: 24.82 ft,

Culvert Slope: 0.0972

Site Data - R7 2030 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2357.40 ft

Outlet Station: 24.70 ft

Outlet Elevation: 2355.00 ft

Number of Barrels: 1

Culvert Data Summary - R7 2030 CULVERT

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Culvert Data: R7 2050 BOX

Table 129 - Culvert Summary Table: R7 2050 BOX

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61
287.00 cfs	181.38 cfs	2363.88	6.48	2.923	1-S2n	1.42	4.00	2.46	2.44	18.46	6.61

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2357.40 ft,

Outlet Elevation (invert): 2355.30 ft

Culvert Length: 24.79 ft,

Culvert Slope: 0.0850

Site Data - R7 2050 BOX

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2357.40 ft

Outlet Station: 24.70 ft

Outlet Elevation: 2355.30 ft

Number of Barrels: 1

Culvert Data Summary - R7 2050 BOX

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R7 2050 CULVERT

Table 130 - Culvert Summary Table: R7 2050 CULVERT

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61
287.00 cfs	105.62 cfs	2363.88	6.48	4.386	5-S2n	2.08	3.13	2.33	2.44	15.55	6.61

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2357.40 ft,

Outlet Elevation (invert): 2355.30 ft

Culvert Length: 24.79 ft,

Culvert Slope: 0.0850

Site Data - R7 2050 CULVERT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2357.40 ft

Outlet Station: 24.70 ft

Outlet Elevation: 2355.30 ft

Number of Barrels: 1

Culvert Data Summary - R7 2050 CULVERT

Barrel Shape: Circular

Barrel Diameter: 3.50 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R8 2030

Table 131 - Culvert Summary Table: R8 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61
233.00 cfs	233.00 cfs	2549.00	4.00	2.925	1-S2n	2.56	2.67	2.56	2.13	9.15	7.61

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2545.00 ft,

Outlet Elevation (invert): 2544.00 ft

Culvert Length: 55.01 ft,

Culvert Slope: 0.0182

Site Data - R8 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2545.00 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2544.00 ft

Number of Barrels: 3

Culvert Data Summary - R8 2030

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R8 2050

Table 132 - Culvert Summary Table: R8 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84
275.00 cfs	275.00 cfs	2549.54	4.54	3.653	5-S2n	2.89	2.90	2.89	2.14	9.43	7.84

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2545.00 ft,

Outlet Elevation (invert): 2544.00 ft

Culvert Length: 55.01 ft,

Culvert Slope: 0.0182

Site Data - R8 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2545.00 ft

Outlet Station: 55.00 ft

Outlet Elevation: 2544.00 ft

Number of Barrels: 3

Culvert Data Summary - R8 2050

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R9 2030

Table 133 - Culvert Summary Table: R9 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68
191.00 cfs	191.00 cfs	2421.37	3.87	3.182	5-S2n	2.49	2.50	2.49	2.05	8.69	7.68

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2417.50 ft,

Outlet Elevation (invert): 2417.00 ft

Culvert Length: 26.90 ft,

Culvert Slope: 0.0186

Site Data - R9 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2417.50 ft

Outlet Station: 26.90 ft

Outlet Elevation: 2417.00 ft

Number of Barrels: 3

Culvert Data Summary - R9 2030

Barrel Shape: Circular

Barrel Diameter: 3.50 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R9 2050

Table 134 - Culvert Summary Table: R9 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37
225.00 cfs	225.00 cfs	2421.97	4.47	4.342	7-M2c	2.89	2.71	2.71	1.67	9.38	7.37

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2417.50 ft,

Outlet Elevation (invert): 2417.00 ft

Culvert Length: 26.90 ft,

Culvert Slope: 0.0186

Site Data - R9 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2417.50 ft

Outlet Station: 26.90 ft

Outlet Elevation: 2417.00 ft

Number of Barrels: 3

Culvert Data Summary - R9 2050

Barrel Shape: Circular

Barrel Diameter: 3.50 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R10 2030

Table 135 - Culvert Summary Table: R10 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63
166.00 cfs	166.00 cfs	2429.62	4.62	1.511	1-S2n	0.99	2.88	1.70	1.74	16.26	5.63

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2425.00 ft,

Outlet Elevation (invert): 2423.26 ft

Culvert Length: 23.07 ft,

Culvert Slope: 0.0757

Site Data - R10 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2425.00 ft

Outlet Station: 23.00 ft

Outlet Elevation: 2423.26 ft

Number of Barrels: 1

Culvert Data Summary - R10 2030

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R10 2050

Table 136 - Culvert Summary Table: R10 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90
196.00 cfs	196.00 cfs	2430.18	5.18	1.996	1-S2n	1.10	3.21	1.95	1.89	16.79	5.90

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2425.00 ft,

Outlet Elevation (invert): 2423.26 ft

Culvert Length: 23.07 ft,

Culvert Slope: 0.0757

Site Data - R10 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2425.00 ft

Outlet Station: 23.00 ft

Outlet Elevation: 2423.26 ft

Number of Barrels: 1

Culvert Data Summary - R10 2050

Barrel Shape: Concrete Box

Barrel Span: 6.00 ft

Barrel Rise: 7.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R11 2030

Table 137 - Culvert Summary Table: R11 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08
164.00 cfs	164.00 cfs	2625.80	3.10	0.0*	5-S2n	1.35	2.09	1.38	2.07	12.90	7.08

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2622.70 ft,

Outlet Elevation (invert): 2618.10 ft

Culvert Length: 62.77 ft,

Culvert Slope: 0.0735

Site Data - R11 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2622.70 ft

Outlet Station: 62.60 ft

Outlet Elevation: 2618.10 ft

Number of Barrels: 4

Culvert Data Summary - R11 2030

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R11 2050

Table 138 - Culvert Summary Table: R11 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
194.00 cfs	194.00 cfs	2625.67	2.97	0.0*	1-S2n	1.31	2.03	1.31	2.24	13.07	7.40
194.00 cfs	194.00 cfs	2625.67	2.97	0.0*	1-S2n	1.31	2.03	1.31	2.24	13.07	7.40
194.00 cfs	194.00 cfs	2625.67	2.97	0.0*	1-S2n	1.31	2.03	1.31	2.24	13.07	7.40
194.00 cfs	194.00 cfs	2625.67	2.97	0.0*	1-S2n	1.31	2.03	1.31	2.24	13.07	7.40
194.00 cfs	194.00 cfs	2625.67	2.97	0.0*	1-S2n	1.31	2.03	1.31	2.24	13.07	7.40
194.00 cfs	194.00 cfs	2625.67	2.97	0.0*	1-S2n	1.31	2.03	1.31	2.24	13.07	7.40
194.00 cfs	194.00 cfs	2625.67	2.97	0.0*	1-S2n	1.31	2.03	1.31	2.24	13.07	7.40
194.00 cfs	194.00 cfs	2625.67	2.97	0.0*	1-S2n	1.31	2.03	1.31	2.24	13.07	7.40
194.00 cfs	194.00 cfs	2625.67	2.97	0.0*	1-S2n	1.31	2.03	1.31	2.24	13.07	7.40
194.00 cfs	194.00 cfs	2625.67	2.97	0.0*	1-S2n	1.31	2.03	1.31	2.24	13.07	7.40
194.00 cfs	194.00 cfs	2625.67	2.97	0.0*	1-S2n	1.31	2.03	1.31	2.24	13.07	7.40

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2622.70 ft,

Outlet Elevation (invert): 2618.10 ft

Culvert Length: 62.77 ft,

Culvert Slope: 0.0735

Site Data - R11 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2622.70 ft

Outlet Station: 62.60 ft

Outlet Elevation: 2618.10 ft

Number of Barrels: 5

Culvert Data Summary - R11 2050

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R12 2030

Table 139 - Culvert Summary Table: R12 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11
113.00 cfs	113.00 cfs	2430.70	3.64	3.897	2-M2c	2.48	2.26	2.26	1.51	7.71	7.11

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2426.80 ft,

Outlet Elevation (invert): 2426.50 ft

Culvert Length: 28.40 ft,

Culvert Slope: 0.0106

Site Data - R12 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2426.80 ft

Outlet Station: 28.40 ft

Outlet Elevation: 2426.50 ft

Number of Barrels: 2

Culvert Data Summary - R12 2030

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R12 2050

Table 140 - Culvert Summary Table: R12 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45
134.00 cfs	134.00 cfs	2431.12	4.13	4.318	7-M2c	2.80	2.47	2.47	1.65	8.22	7.45

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2426.80 ft,

Outlet Elevation (invert): 2426.50 ft

Culvert Length: 28.40 ft,

Culvert Slope: 0.0106

Site Data - R12 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2426.80 ft

Outlet Station: 28.40 ft

Outlet Elevation: 2426.50 ft

Number of Barrels: 2

Culvert Data Summary - R12 2050

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R13 2030

Table 141 - Culvert Summary Table: R13 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38
85.00 cfs	85.00 cfs	2372.46	1.96	0.693	1-S2n	0.67	1.16	0.80	1.02	8.89	4.38

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2370.50 ft,

Outlet Elevation (invert): 2370.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R13 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2370.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2370.00 ft

Number of Barrels: 1

Culvert Data Summary - R13 2030

Barrel Shape: Concrete Box

Barrel Span: 12.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R13 2050

Table 142 - Culvert Summary Table: R13 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62
101.00 cfs	101.00 cfs	2372.70	2.20	0.848	1-S2n	0.74	1.30	0.91	1.12	9.30	4.62

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2370.50 ft,

Outlet Elevation (invert): 2370.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R13 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2370.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2370.00 ft

Number of Barrels: 1

Culvert Data Summary - R13 2050

Barrel Shape: Concrete Box

Barrel Span: 12.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: None

Culvert Data: R14 2030

Table 143 - Culvert Summary Table: R14 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03
62.00 cfs	62.00 cfs	2177.06	3.46	3.559	2-M2c	2.38	2.37	2.37	0.96	7.98	5.03

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2173.50 ft,

Outlet Elevation (invert): 2173.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R14 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2173.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2173.00 ft

Number of Barrels: 1

Culvert Data Summary - R14 2030

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Beveled Edge (1:1)

Inlet Depression: None

Culvert Data: R14 2050

Table 144 - Culvert Summary Table: R14 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30
73.00 cfs	73.00 cfs	2176.24	2.74	1.625	1-S2n	1.74	1.80	1.74	1.05	6.96	5.30

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2173.50 ft,

Outlet Elevation (invert): 2173.00 ft

Culvert Length: 35.00 ft,

Culvert Slope: 0.0143

Site Data - R14 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2173.50 ft

Outlet Station: 35.00 ft

Outlet Elevation: 2173.00 ft

Number of Barrels: 2

Culvert Data Summary - R14 2050

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R15 2030

Table 145 - Culvert Summary Table: R15 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91
59.00 cfs	59.00 cfs	2545.61	5.41	0.0*	5-S2n	1.34	2.48	1.38	0.93	18.55	5.91

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2540.20 ft,

Outlet Elevation (invert): 2531.70 ft

Culvert Length: 54.66 ft,

Culvert Slope: 0.1574

Site Data - R15 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2540.20 ft

Outlet Station: 54.00 ft

Outlet Elevation: 2531.70 ft

Number of Barrels: 1

Culvert Data Summary - R15 2030

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R15 2050

Table 146 - Culvert Summary Table: R15 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23
70.00 cfs	70.00 cfs	2543.25	3.05	0.0*	5-S2n	1.01	1.92	1.01	1.02	16.77	6.23

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2540.20 ft,

Outlet Elevation (invert): 2531.70 ft

Culvert Length: 54.66 ft,

Culvert Slope: 0.1574

Site Data - R15 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2540.20 ft

Outlet Station: 54.00 ft

Outlet Elevation: 2531.70 ft

Number of Barrels: 2

Culvert Data Summary - R15 2050

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R16 2030

Table 147 - Culvert Summary Table: R16 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2506.00 ft,

Outlet Elevation (invert): 2496.70 ft

Culvert Length: 69.23 ft,

Culvert Slope: 0.1356

Site Data - R16 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2506.00 ft

Outlet Station: 68.60 ft

Outlet Elevation: 2496.70 ft

Number of Barrels: 1

Culvert Data Summary - R16 2030

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R17 2030

Table 148 - Culvert Summary Table: R17 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37
37.00 cfs	37.00 cfs	2493.90	3.40	2.406	5-S2n	1.68	1.98	1.72	0.99	8.85	5.37

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2490.50 ft,

Outlet Elevation (invert): 2489.90 ft

Culvert Length: 21.01 ft,

Culvert Slope: 0.0286

Site Data - R17 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2490.50 ft

Outlet Station: 21.00 ft

Outlet Elevation: 2489.90 ft

Number of Barrels: 1

Culvert Data Summary - R17 2030

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R16 2050

Table 149 - Culvert Summary Table: R16 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00
54.00 cfs	54.00 cfs	2510.85	4.85	0.0*	5-S2n	1.33	2.39	1.35	0.99	17.43	5.00

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2506.00 ft,

Outlet Elevation (invert): 2496.70 ft

Culvert Length: 69.23 ft,

Culvert Slope: 0.1356

Site Data - R16 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2506.00 ft

Outlet Station: 68.60 ft

Outlet Elevation: 2496.70 ft

Number of Barrels: 1

Culvert Data Summary - R16 2050

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R17 2050

Table 150 - Culvert Summary Table: R17 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37
37.00 cfs	37.00 cfs	2492.58	2.08	1.035	1-S2n	1.13	1.38	1.15	0.99	7.42	5.37

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2490.50 ft,

Outlet Elevation (invert): 2489.90 ft

Culvert Length: 21.01 ft,

Culvert Slope: 0.0286

Site Data - R17 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2490.50 ft

Outlet Station: 21.00 ft

Outlet Elevation: 2489.90 ft

Number of Barrels: 2

Culvert Data Summary - R17 2050

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R18 2030

Table 151 - Culvert Summary Table: R18 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48
19.00 cfs	19.00 cfs	2557.45	1.95	0.0*	1-S2n	0.76	1.40	0.79	0.62	12.85	4.48

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2555.50 ft,

Outlet Elevation (invert): 2549.90 ft

Culvert Length: 40.98 ft,

Culvert Slope: 0.1379

Site Data - R18 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2555.50 ft

Outlet Station: 40.60 ft

Outlet Elevation: 2549.90 ft

Number of Barrels: 1

Culvert Data Summary - R18 2030

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R19 2030

Table 152 - Culvert Summary Table: R19 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12
23.00 cfs	23.00 cfs	2267.52	2.32	0.0*	1-S2n	0.97	1.54	0.97	0.77	11.68	4.12

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2265.20 ft,

Outlet Elevation (invert): 2262.20 ft

Culvert Length: 37.72 ft,

Culvert Slope: 0.0798

Site Data - R19 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2265.20 ft

Outlet Station: 37.60 ft

Outlet Elevation: 2262.20 ft

Number of Barrels: 1

Culvert Data Summary - R19 2030

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R19 2050

Table 153 - Culvert Summary Table: R19 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
15.00 cfs	15.00 cfs	2266.96	1.76	0.0*	1-S2n	0.78	1.23	0.78	0.61	10.34	3.62
15.60 cfs	15.60 cfs	2267.00	1.80	0.0*	1-S2n	0.79	1.26	0.79	0.62	10.46	3.67
16.20 cfs	16.20 cfs	2267.04	1.84	0.0*	1-S2n	0.81	1.29	0.84	0.63	10.08	3.71
16.80 cfs	16.80 cfs	2267.09	1.89	0.0*	1-S2n	0.82	1.31	0.85	0.65	10.26	3.75
17.40 cfs	17.40 cfs	2267.13	1.93	0.0*	1-S2n	0.84	1.33	0.85	0.66	10.48	3.79
18.00 cfs	18.00 cfs	2267.17	1.97	0.0*	1-S2n	0.85	1.36	0.86	0.67	10.73	3.83
18.60 cfs	18.60 cfs	2267.21	2.01	0.0*	1-S2n	0.87	1.38	0.87	0.68	11.00	3.86
19.20 cfs	19.20 cfs	2267.26	2.06	0.0*	1-S2n	0.88	1.40	0.88	0.69	11.10	3.90
19.80 cfs	19.80 cfs	2267.30	2.10	0.0*	1-S2n	0.89	1.43	0.92	0.71	10.72	3.94
20.40 cfs	20.40 cfs	2267.34	2.14	0.0*	1-S2n	0.91	1.45	0.94	0.72	10.84	3.97
21.00 cfs	21.00 cfs	2267.38	2.18	0.0*	1-S2n	0.92	1.47	0.95	0.73	10.98	4.01

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2265.20 ft,

Outlet Elevation (invert): 2262.20 ft

Culvert Length: 37.72 ft,

Culvert Slope: 0.0798

Site Data - R19 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2265.20 ft

Outlet Station: 37.60 ft

Outlet Elevation: 2262.20 ft

Number of Barrels: 1

Culvert Data Summary - R19 2050

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R20 2050

Table 155 - Culvert Summary Table: R20 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
20.00 cfs	20.00 cfs	2140.96	1.86	0.0*	1-S2n	0.88	1.32	0.91	0.65	9.24	4.40
20.80 cfs	20.80 cfs	2141.00	1.90	0.0*	1-S2n	0.90	1.34	0.94	0.67	9.30	4.45
21.60 cfs	21.60 cfs	2141.04	1.94	0.0*	1-S2n	0.92	1.37	0.95	0.68	9.39	4.50
22.40 cfs	22.40 cfs	2141.08	1.98	0.010	1-S2n	0.93	1.40	0.97	0.69	9.49	4.55
23.20 cfs	23.20 cfs	2141.12	2.02	0.044	1-S2n	0.95	1.42	0.99	0.71	9.61	4.60
24.00 cfs	24.00 cfs	2141.16	2.06	0.078	1-S2n	0.96	1.45	1.00	0.72	9.74	4.65
24.80 cfs	24.80 cfs	2141.20	2.10	0.112	1-S2n	0.98	1.47	1.02	0.73	9.81	4.69
25.60 cfs	25.60 cfs	2141.24	2.14	0.146	1-S2n	1.00	1.50	1.04	0.75	9.84	4.74
26.40 cfs	26.40 cfs	2141.27	2.17	0.180	1-S2n	1.01	1.52	1.06	0.76	9.89	4.78
27.20 cfs	27.20 cfs	2141.31	2.21	0.213	1-S2n	1.03	1.54	1.08	0.77	9.96	4.82
28.00 cfs	28.00 cfs	2141.35	2.25	0.247	1-S2n	1.04	1.57	1.09	0.78	10.03	4.86

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2139.10 ft,

Outlet Elevation (invert): 2137.60 ft

Culvert Length: 25.94 ft,

Culvert Slope: 0.0579

Site Data - R20 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2139.10 ft

Outlet Station: 25.90 ft

Outlet Elevation: 2137.60 ft

Number of Barrels: 1

Culvert Data Summary - R20 2050

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R21 2030

Table 156 - Culvert Summary Table: R21 2030

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88
43.00 cfs	43.00 cfs	2165.93	2.93	0.209	1-S2n	1.27	1.96	1.32	0.90	11.83	4.88

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2163.00 ft,

Outlet Elevation (invert): 2160.80 ft

Culvert Length: 34.17 ft,

Culvert Slope: 0.0645

Site Data - R21 2030

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2163.00 ft

Outlet Station: 34.10 ft

Outlet Elevation: 2160.80 ft

Number of Barrels: 1

Culvert Data Summary - R21 2030

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Culvert Data: R21 2050

Table 157 - Culvert Summary Table: R21 2050

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
28.00 cfs	28.00 cfs	2165.24	2.24	0.0*	1-S2n	1.02	1.57	1.05	0.70	10.60	4.24
29.10 cfs	29.10 cfs	2165.29	2.29	0.0*	1-S2n	1.04	1.60	1.07	0.72	10.74	4.29
30.20 cfs	30.20 cfs	2165.35	2.35	0.0*	1-S2n	1.05	1.63	1.09	0.73	10.90	4.35
31.30 cfs	31.30 cfs	2165.40	2.40	0.0*	1-S2n	1.07	1.66	1.11	0.75	11.00	4.40
32.40 cfs	32.40 cfs	2165.45	2.45	0.0*	1-S2n	1.09	1.69	1.14	0.76	11.04	4.45
33.00 cfs	33.00 cfs	2165.48	2.48	0.0*	1-S2n	1.10	1.71	1.15	0.77	11.07	4.48
34.60 cfs	34.60 cfs	2165.55	2.55	0.0*	1-S2n	1.13	1.75	1.18	0.79	11.20	4.55
35.70 cfs	35.70 cfs	2165.60	2.60	0.0*	1-S2n	1.15	1.78	1.20	0.81	11.31	4.59
36.80 cfs	36.80 cfs	2165.65	2.65	0.0*	1-S2n	1.17	1.81	1.21	0.82	11.44	4.64
37.90 cfs	37.90 cfs	2165.70	2.70	0.0*	1-S2n	1.18	1.83	1.23	0.84	11.51	4.68
39.00 cfs	39.00 cfs	2165.75	2.75	0.032	1-S2n	1.20	1.86	1.26	0.85	11.55	4.73

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 2163.00 ft,

Outlet Elevation (invert): 2160.80 ft

Culvert Length: 34.17 ft,

Culvert Slope: 0.0645

Site Data - R21 2050

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2163.00 ft

Outlet Station: 34.10 ft

Outlet Elevation: 2160.80 ft

Number of Barrels: 1

Culvert Data Summary - R21 2050

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

25-Yr for H1 Fish Creek Bridge

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.035
Channel Slope	0.005 ft/ft
Left Side Slope	1.000 H:V
Right Side Slope	1.000 H:V
Bottom Width	15.00 ft
Discharge	2,748.00 cfs

Results	
Normal Depth	10.49 ft
Flow Area	267.2 ft ²
Wetted Perimeter	44.7 ft
Hydraulic Radius	5.98 ft
Top Width	35.97 ft
Critical Depth	8.36 ft
Critical Slope	0.013 ft/ft
Velocity	10.28 ft/s
Velocity Head	1.64 ft
Specific Energy	12.13 ft
Froude Number	0.665
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.00 ft
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	10.49 ft
Critical Depth	8.36 ft
Channel Slope	0.005 ft/ft
Critical Slope	0.013 ft/ft

Approximate wash FL elevation: 2196
Approximate bridge deck elevation: 2234

25-Yr for H4 Dry Wash Bridge

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.035
Channel Slope	0.010 ft/ft
Left Side Slope	1.000 H:V
Right Side Slope	1.000 H:V
Bottom Width	4.00 ft
Discharge	172.00 cfs

Results	
Normal Depth	3.52 ft
Flow Area	26.4 ft ²
Wetted Perimeter	14.0 ft
Hydraulic Radius	1.90 ft
Top Width	11.04 ft
Critical Depth	2.99 ft
Critical Slope	0.019 ft/ft
Velocity	6.50 ft/s
Velocity Head	0.66 ft
Specific Energy	4.18 ft
Froude Number	0.741
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.00 ft
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	3.52 ft
Critical Depth	2.99 ft
Channel Slope	0.010 ft/ft
Critical Slope	0.019 ft/ft

Approximate wash FL elevation: 2283
Approximate bridge deck elevation: 2299.5

25-Yr for H7 Lewis and Pranty Bridge

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.035
Channel Slope	0.015 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	25.00 ft
Discharge	2,464.00 cfs

Results	
Normal Depth	5.35 ft
Flow Area	191.1 ft ²
Wetted Perimeter	48.9 ft
Hydraulic Radius	3.91 ft
Top Width	46.41 ft
Critical Depth	5.72 ft
Critical Slope	0.012 ft/ft
Velocity	12.89 ft/s
Velocity Head	2.58 ft
Specific Energy	7.94 ft
Froude Number	1.120
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.00 ft
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.35 ft
Critical Depth	5.72 ft
Channel Slope	0.015 ft/ft
Critical Slope	0.012 ft/ft

Approximate wash FL elevation: 2177
Approximate bridge deck elevation: 2185

APPENDIX E

Flood Insurance Rate Maps

National Flood Hazard Layer FIRMMette



111°18'32"W 33°32'18"N



Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		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 <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard <i>Zone D</i>
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



0 250 500 1,000 1,500 2,000 Feet 1:6,000
 Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020
 111°17'55"W 33°31'48"N

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

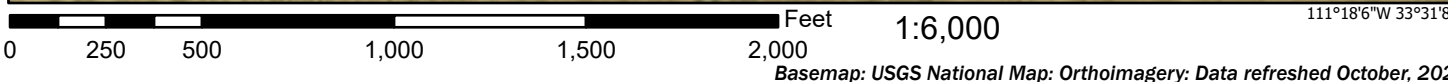
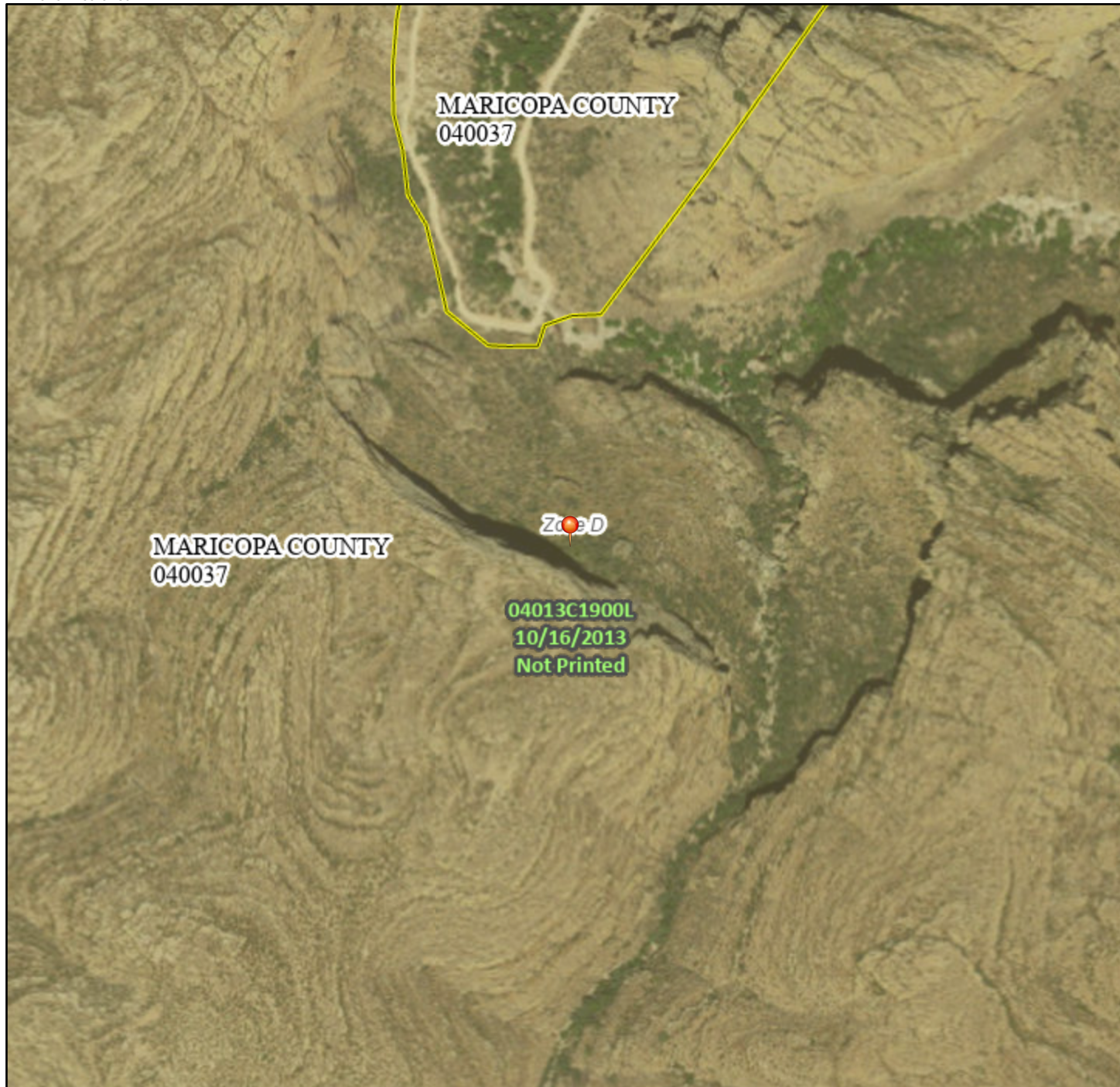
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/6/2023 at 5:01 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new 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.

National Flood Hazard Layer FIRMette



111°18'43"W 33°31'38"N



Legend

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

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>	With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		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 <i>Zone X</i>	Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>	Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>	Area with Flood Risk due to Levee <i>Zone D</i>

OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>	Effective LOMRs	Area of Undetermined Flood Hazard <i>Zone D</i>

GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer	Levee, Dike, or Floodwall

OTHER FEATURES	Cross Sections with 1% Annual Chance Water Surface Elevation	Coastal Transect	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

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 **2/6/2023 at 4:46 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.

National Flood Hazard Layer FIRMette



111°18'7"W 33°32'26"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

111°17'30"W 33°31'56"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		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 <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard <i>Zone D</i>
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
MAP PANELS		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped

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 2/6/2023 at 4:58 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.

APPENDIX F
Project Photographs



Approximately MP 225 looking west



Existing 10' x 10' RCBC



Inlet of Culvert at approximately MP 225.8



Outlet of culvert at approximately MP 225.8



Looking south at approximately MP 226



Looking south at approximately MP 226



Lewis and Pranty Creek



Existing downstream end of CMP at approximately MP 228



Existing upstream end of CMP at approximately MP 228



Existing upstream end of CMP at approximately MP 228



Looking south at approximately MP 228.5



Existing culvert outlet at east end of project



Buried inlet at east end of project



Looking south at east end of project

APPENDIX G
ADOT Bridge Group Data

BRIDGE GROUP

Bridge Inspection Photographs

Structure Number :	00027	Structure Name :	Fish Creek Bridge	Inspected by :	HDR-Tucker/HDR
Route :	88	Road Name :	SR 88	Inspection Type:	FC In-Depth
MP :	223.5	Agency :	ADOT	Inspection Date :	Saturday, September 8, 2018
ADOT District:	Southeast	District Org:	5231	Next Insp. Due By :	09/08/2020

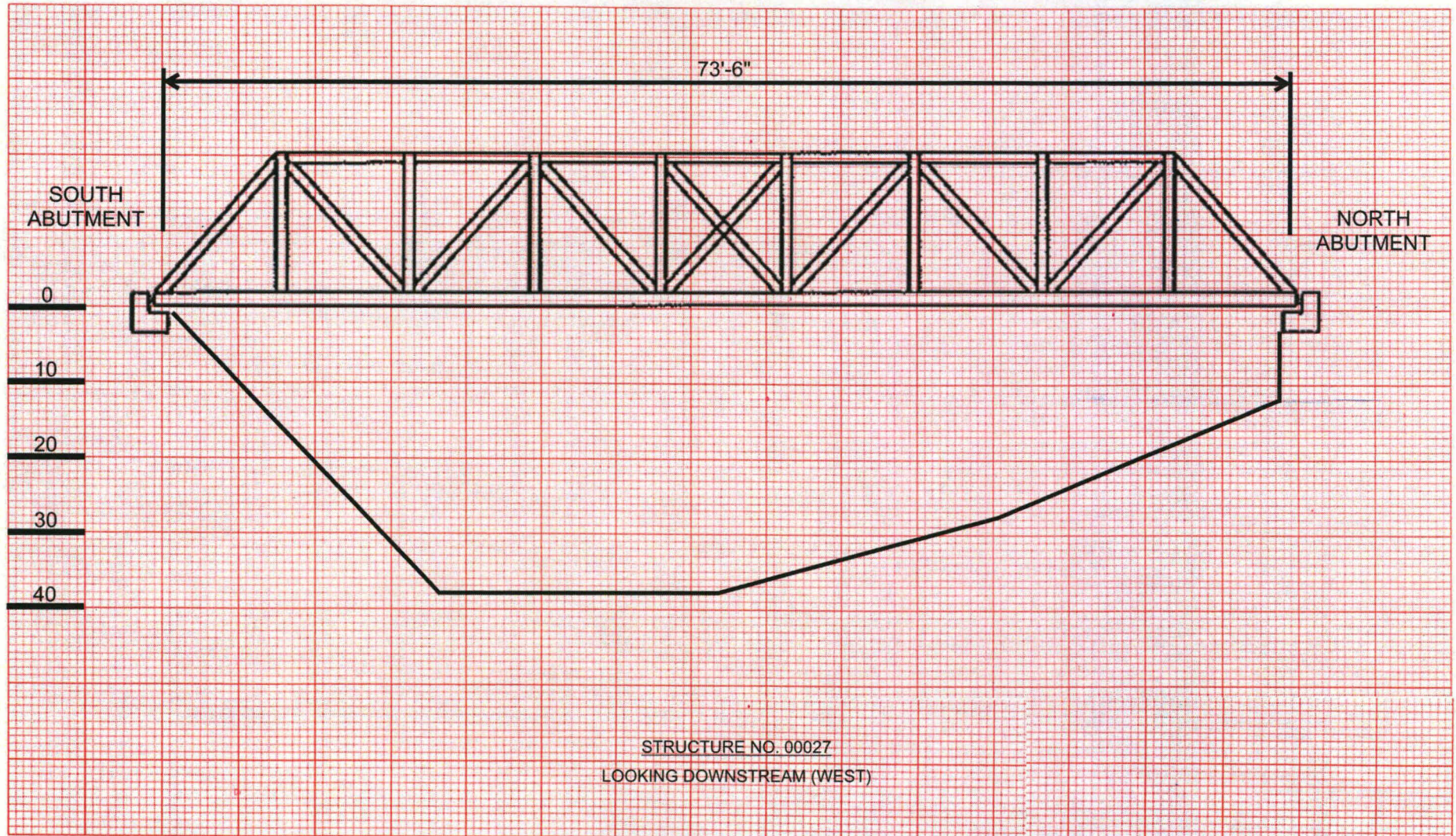


File Name : 00027-2018-09-08-Photo-B.jpg
Description : Photo B. Elevation ID, looking West

Name of Structure: Fish Creek Bridge
 Structure No. 27
 Location: Route 88 MP 223.50

Channel Profile Diagram

Arizona Department of Transportation
 Bridge Group
 Supplemental Page to Bridge Inspection Report



Insp. No.	Insp. date	Inspector's Initial	Channel Profile Location (U/S or D/S)	Depth at Abut. 'A1' face or at Support, 'P' (RHS)	Depth at quarter span	Depth at mid span	Depth at 3/4 span	Depth at the left side of Support 'P'	Depth at the right side of Support 'P'	Depth at quarter span	Depth at mid span	Depth at 3/4 span	Depth at the left side of Support 'P'	Depth at the Right side of Support 'P'	Depth at quarter span	Depth at mid span	Depth at 3/4 span	Depth at Abut. 'A2' face or at Support, 'P' (LHS)
	09/08/18	HDR	U/S	0.2'	38.2'	38.2'	28.1'											12.5'

BRIDGE GROUP

Bridge Inspection Photographs

Structure Number :	00028	Structure Name :	Lewis Pranty Crk Br	Inspected by :	HDR-Ashby/Tucker
Route :	88	Road Name :	SR 88	Inspection Type:	FC In-Depth
MP :	224.6	Agency :	ADOT	Inspection Date :	Thursday, August 30, 2018
ADOT District:	Southeast	District Org:	5357	Next Insp. Due By :	08/30/2020



File Name : 00028-2018-08-30-Photo-C.jpg
Description : Photo C - Elevation ID looking East

Name of Structure: Lewis Prentz Crk Br
 Structure No. 0028
 Location: Route 88 MP# 224.50

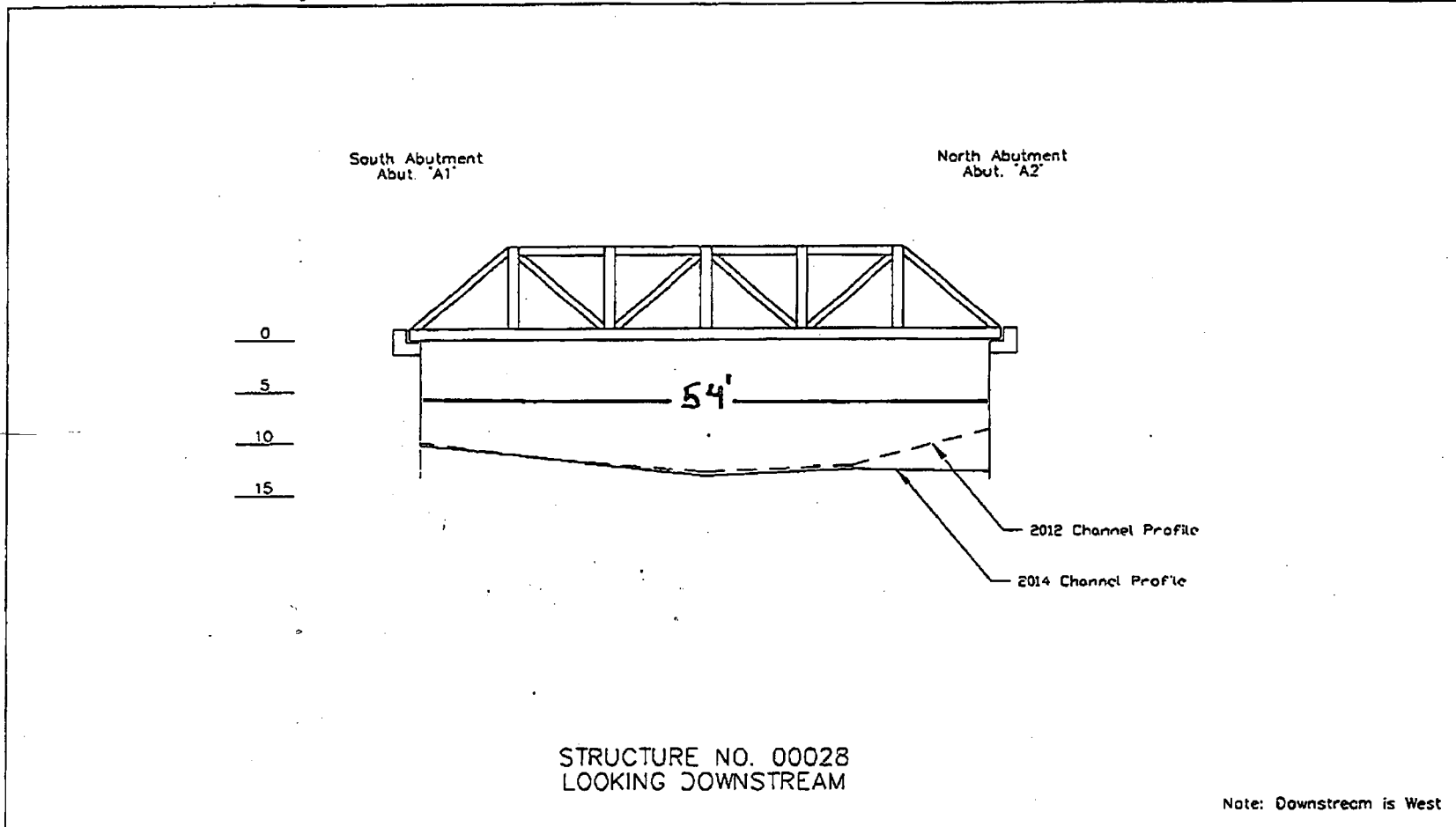
Channel Profile Diagram

Arizona Department of Transportation

Bridge Group

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Supplemental Page to Bridge Inspection Report



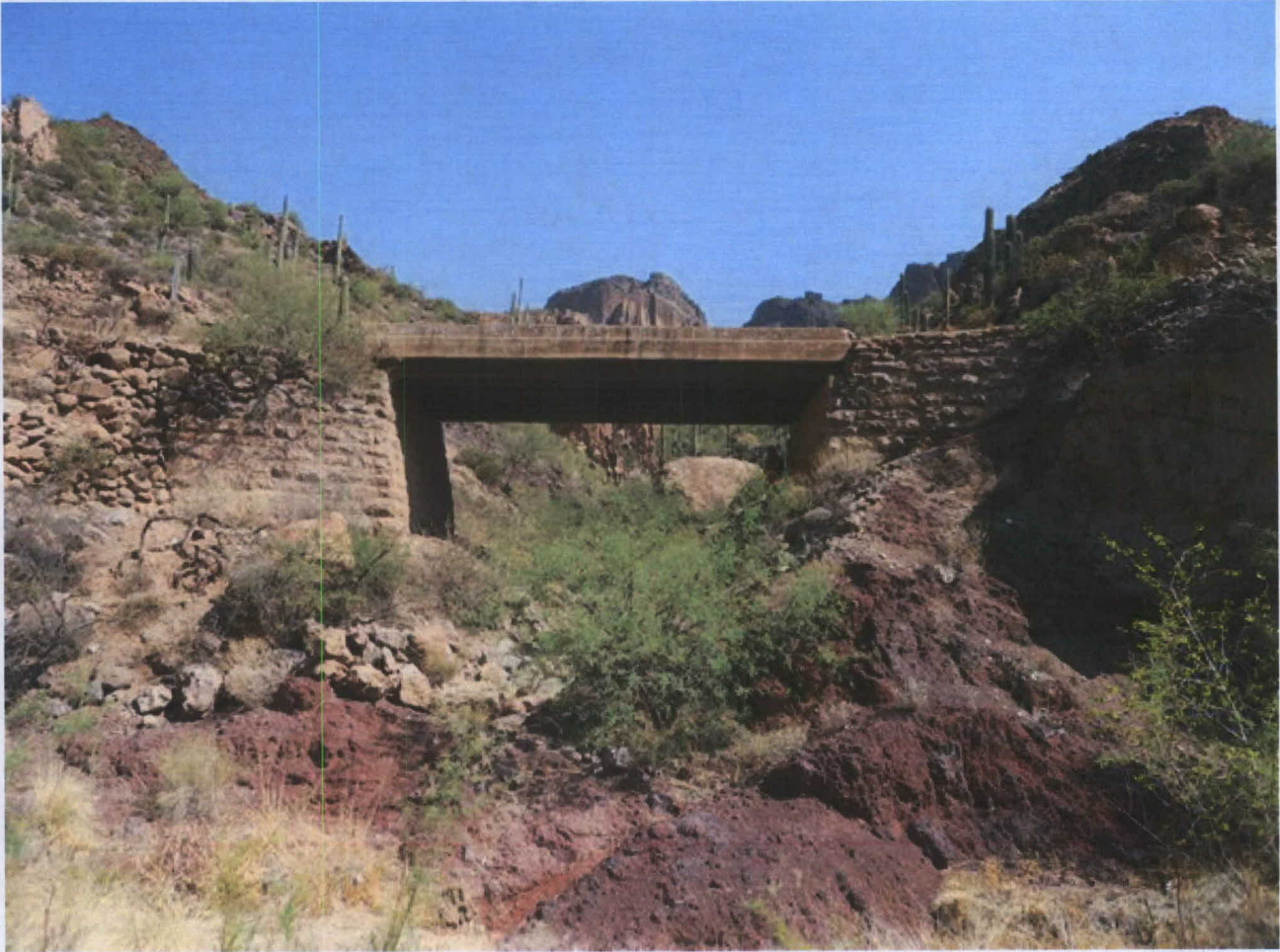
Insp. No.	Insp. date	Inspector's Initial	Channel Profile Location (U/S or O/S)	Depth at Abut. 'A1' face or at Support 'P' (RHS)	Depth at quarter span	Depth at mid span	Depth at 3/4 span	Depth at the left side of Support 'P'	Depth at the right side of Support 'P'	Depth at quarter span	Depth at mid span	Depth at 3/4 span	Depth at the left side of Support 'P'	Depth at the right side of Support 'P'	Depth at quarter span	Depth at mid span	Depth at 3/4 span	Depth at Abut. 'A2' face or at Support 'P' (LHS)
23	10/15/12	DJP	U/S	9.82	11.60	12.69	12.10											8.40
24	9/23/14	BKS/JAC	U/S	10.1	11.6	13.1	12.4											12.7
25	3/12/16	DT/AH	U/S	9.8	11.6	13.1	12.2											12.2
	8/30/18	HDR	U/S	9.8	11.6	12.8	12.6											12.2

Note: Channel depths will be measured from the bottom of the girder or the slab. For short span (<40'), depths at quarter & three-quarter lengths may not be necessary. Local scour, if observed at locations other than above, will be noted on this sheet with inspection date; RHS-->Right Hand Side; LHS-->Left Hand Side

BRIDGE GROUP

Bridge Inspection Photographs

Structure Number :	00015	Structure Name :	Dry Wash Bridge	Inspected by :	ADOT-Sharma/Casteel
Route :	88	Road Name :	SR 88	Inspection Type:	Routine
MP :	225.55	Agency :	ADOT	Inspection Date :	Wednesday, August 1, 2018
ADOT District:	Southeast	District Org:	5357	Next Insp. Due By :	08/01/2020



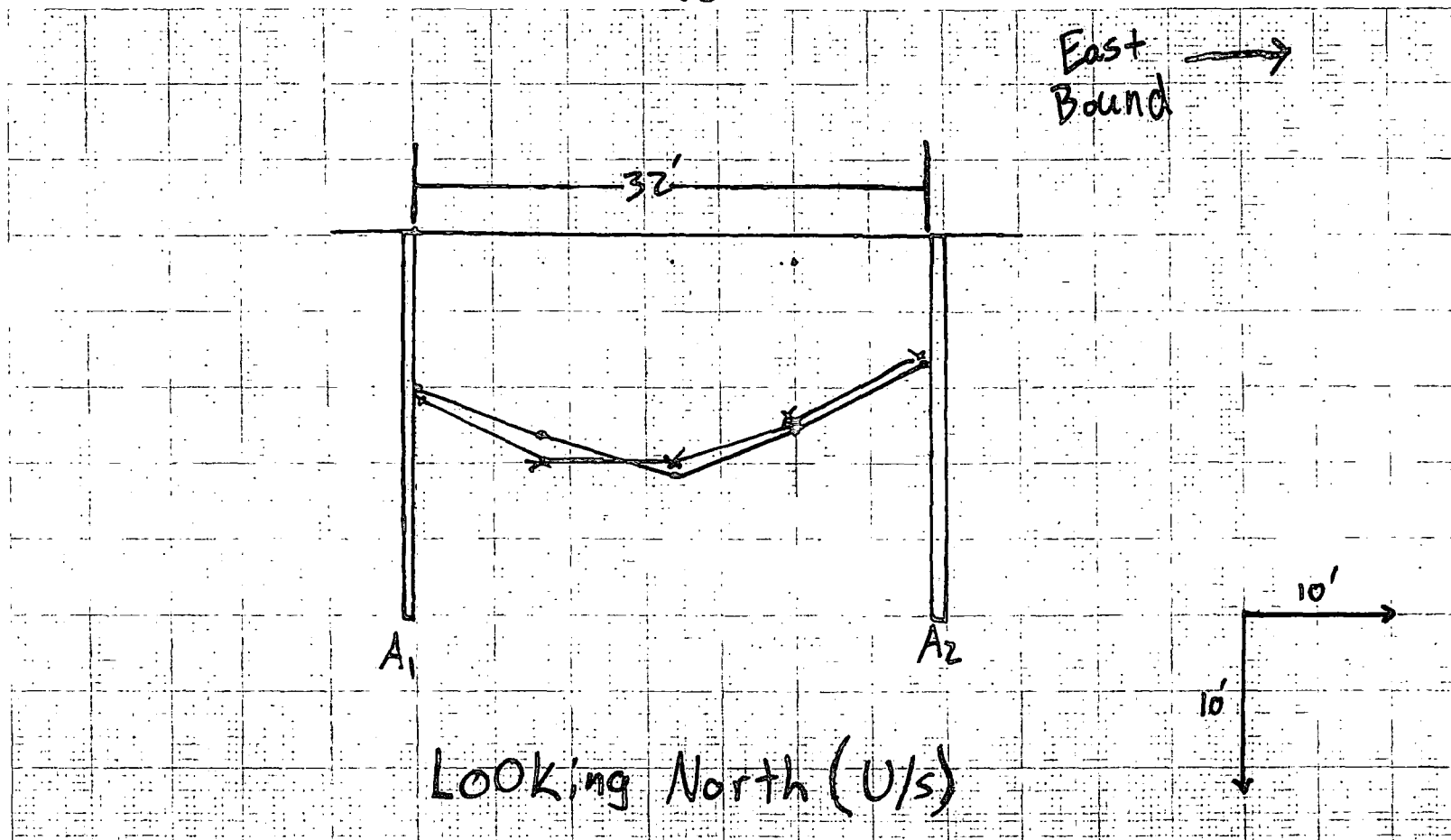
File Name : 00015-2018-08-01-Photo-b.jpg

Description : Elevation ID looking N

Name of Structure: Dry Wash Bridge
 Structure No. 88 15
 Location: Route 225.55 MP

Channel Profile Diagram
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Insp. No.	Insp. date	Inspec-tor's Initial	Channel Profile Location (U/S or D/S)	Depth at Abut (A) face or at Support, 'P' (RHS)	Depth at quarter span	Depth at mid span	Depth at 3/4 span	Depth at the left side of Support 'P'	Depth at the right side of Support 'P'	Depth at quarter span	Depth at mid span	Depth at 3/4 span	Depth at the left side of Support 'P'	Depth at the Right side of Support 'P'	Depth at quarter span	Depth at mid span	Depth at 3/4 span	Depth at Abut (A2) face or at Support, 'P' (LHS)
22	7/13/04	SS/AN	D/S	10'-9"	13'-8"	15'-8"	12'-7"											8'-8"
23	8/16/04	DT/AN	D/S	10'-7"	14'-8"	14'-3"	12'-6"											7'-9"
24	8-1-14	MS AC	D/S	10'-6"	14'-8"	14'-3"	12'-6"											7'-9"