

**APPENDIX HY-2**  
**Preliminary Drainage Study**

# Oveja Ranch Solar and Battery Energy Storage Project

## Preliminary Drainage Study

Sacramento Municipal Utility District (SMUD)

Project number: 60712052

December 6, 2024



Quality information

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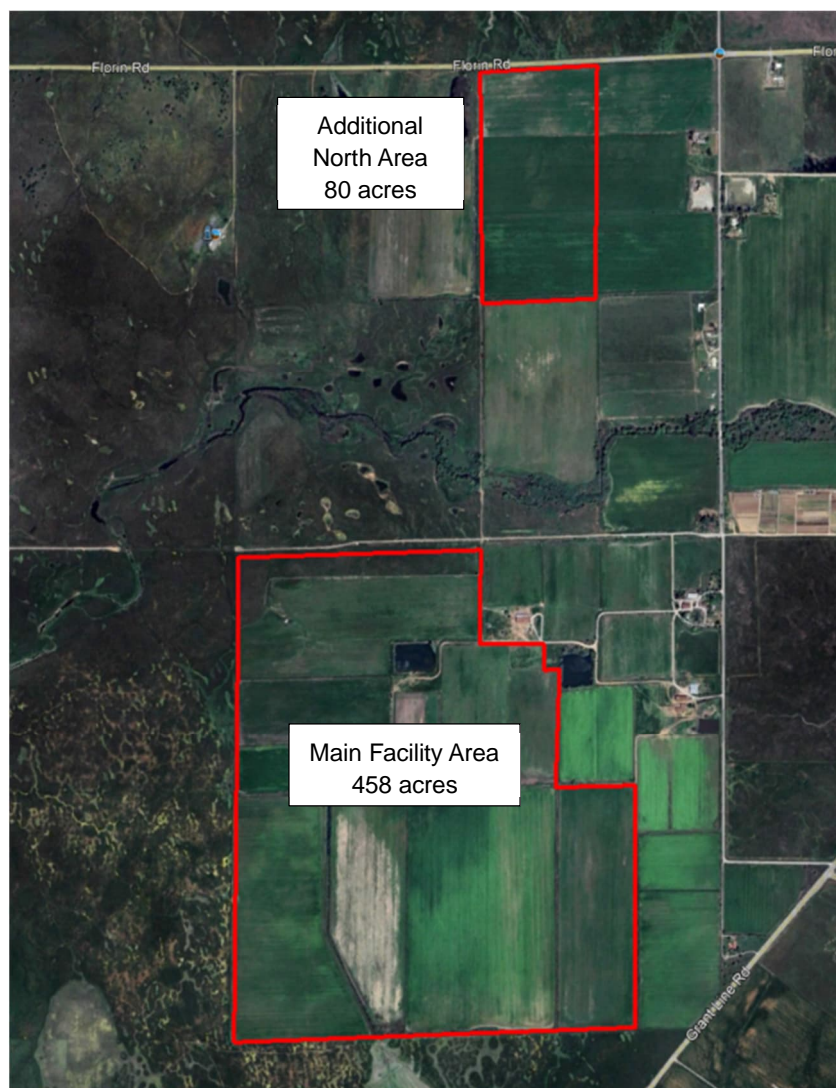
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## 1.0 Introduction

The Sacramento Municipal Utility District (SMUD) plans to construct a new photovoltaic solar facility by developing approximately 538 acres of farmland divided into two separate properties: The main facility set on a 458 acres property, plus 80 acres half a mile north of the main facility, both located southwest of the city of Sacramento, California. The project site is designated as Zone X on the FEMA Flood Insurance Rate Map (FIRM).

Proposed improvements associated with the project include minimal grading to smooth a few rough surfaces, which will not have an impact on the flow path, direction, or time of concentration as compared to pre-development conditions. Clearing and grubbing will be required only for proposed foundations and access roads. The proposed development intends not to impose drainage change, grading disturbance or flooding hazard to itself or to surrounding properties.

**Figure 1-1 - Pre-Development Condition – Property Areas**



Both areas are currently used for farming and are mostly covered with crops and vegetation. The existing farm has an irrigation pond and associated piping, drainage ditches and dirt access roads, all to be preserved. The project objective is to co-locate solar panels with agriculture, maintaining the current farmland use. For the Main Facility Area, solar panels will be distributed in Power Blocks mounted on galvanized steel posts driven into the ground, and gravel roads will be added interconnecting the existing roads and each power block Inverter skid. A Substation, Battery Energy Storage System (BESS), towers, light poles, equipment skids, concrete foundations and steel pile foundations will be added to the farm. For the Additional Area, solar panels will be distributed in three Power Blocks mounted on steel posts similar to Main area, with gravel roads interconnecting each power block Inverter skid and their respective foundations, no Substation or BESS areas are planned.

## **2.0 Site Description**

### **2.1 Pre-Development Conditions – Main Facility Area**

The Main Facility area exhibits slight elevation changes with slopes ranging from approximately 0.2% to 1.0% in most regions. However, several localized sections such as the northwest corner where antenna towers are situated and at the existing irrigation pond berms, steeper slopes of roughly 4% are present. The site is predominately covered by vegetation and crops, and includes dirt access roads and earthen drainage ditches.

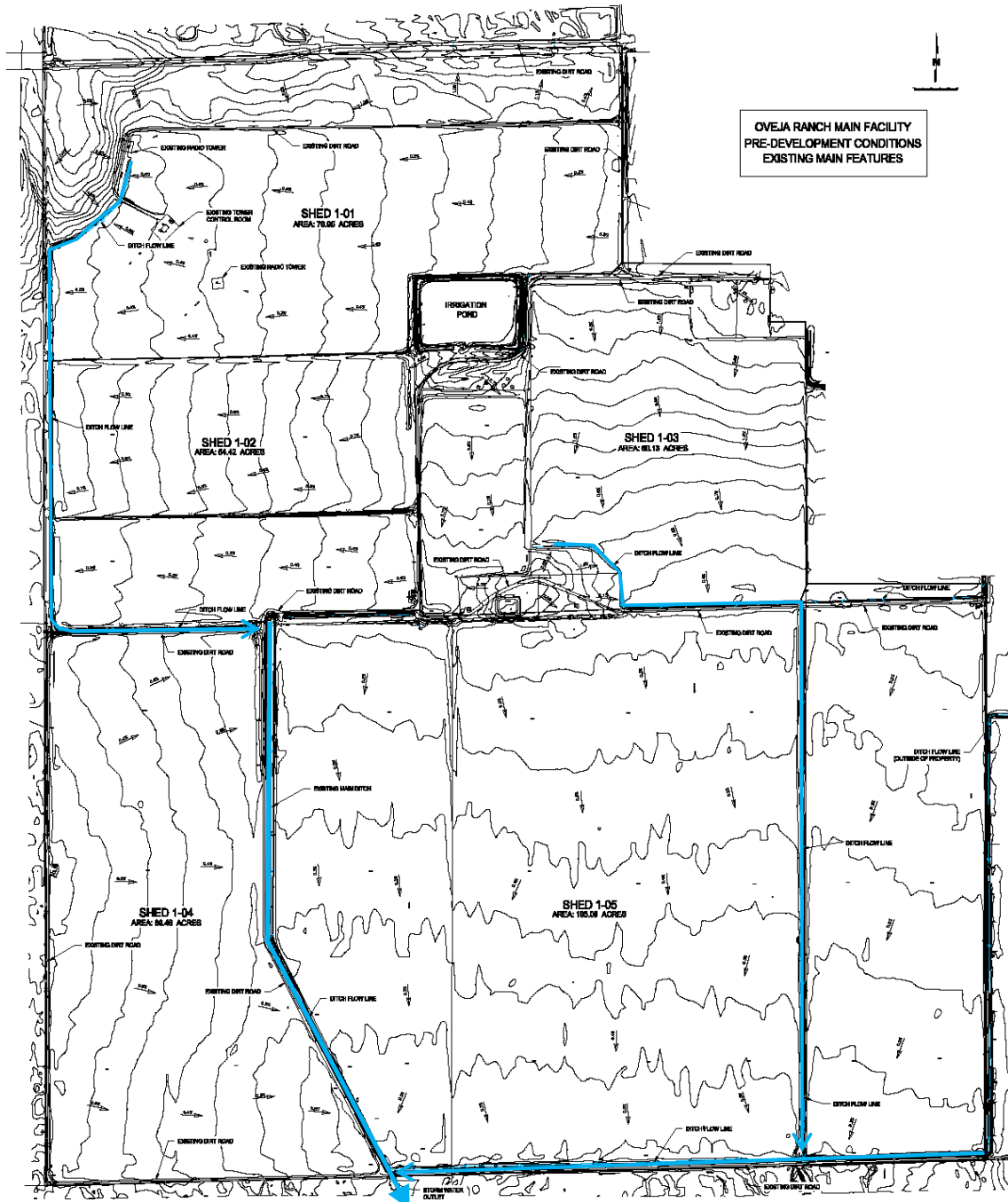
An irrigation pond and associated piping are intended to remain in place for ongoing farming operations. Specific irrigation frequency and details are currently unknown but is assumed there will not be significant changes in the irrigation operations in the post-development conditions.

Preliminary geotechnical data indicates that the upper 15' of soils consist of clay/silt. The Natural Resources Conservation Service (NRCS) classifies the hydraulic Soil Group for this location as C. Soils group C have low infiltration rates when thoroughly wetted and have water transmission rates between 0.05 to 0.15 in/hr.

Stormwater runoff on the site is channeled through drainage ditches, ultimately flowing into a main ditch running south-southeast and converging with another ditch running west located at the south edge of the property. This convergence is considered the outlet of the total storm water flow from the property. Outside of the property, the main ditch follows a southeast direction and connects to another ditch along Grant Line Road.

For general detail of the existing drainage features at the Main Facility Area see figure 2.1-1. Considering the direction of flows and ditches array, the area has been segmented into five (5) different sheds.

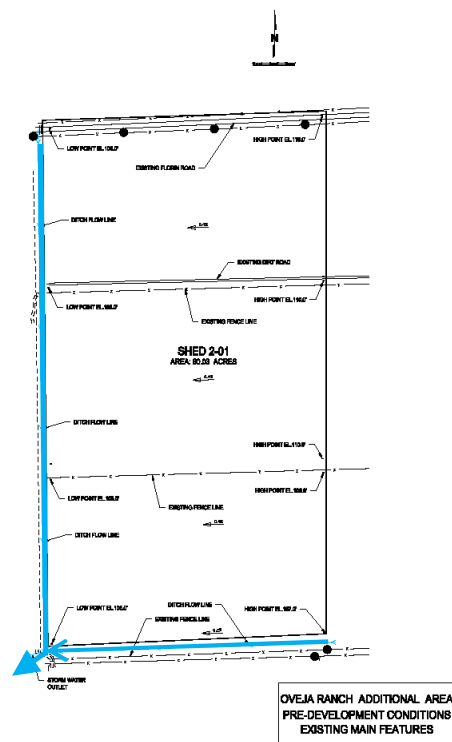
**Figure 2.1-1 - Pre-Development Condition – Main Facility Area - Existing Drainage Features**



The Additional North Area is also predominately covered by vegetation and crops and exhibit a uniform slope of approximately 0.4% from east to west. It includes dirt access roads and two earthen drainage ditches, one at the west side running south and the other at the south side running west. The convergence between these two ditches is considered the outlet of the total storm water flow from the property. Outside of the property, the outlet ditch discharges to a Wetland area.

The Main Facility Area and the Additional North Area have different outlet discharges, and being so, their analysis is treated independently. For general detail of the existing drainage features at the Additional North Area see figure 2.2-1. No survey for contours was found, so the data for land elevations was obtained from Google Earth Pro maps, which is considered adequate for drainage calculations.

**Figure 2.2-1 - Pre-Development Condition – Additional North Area - Existing Drainage Features**



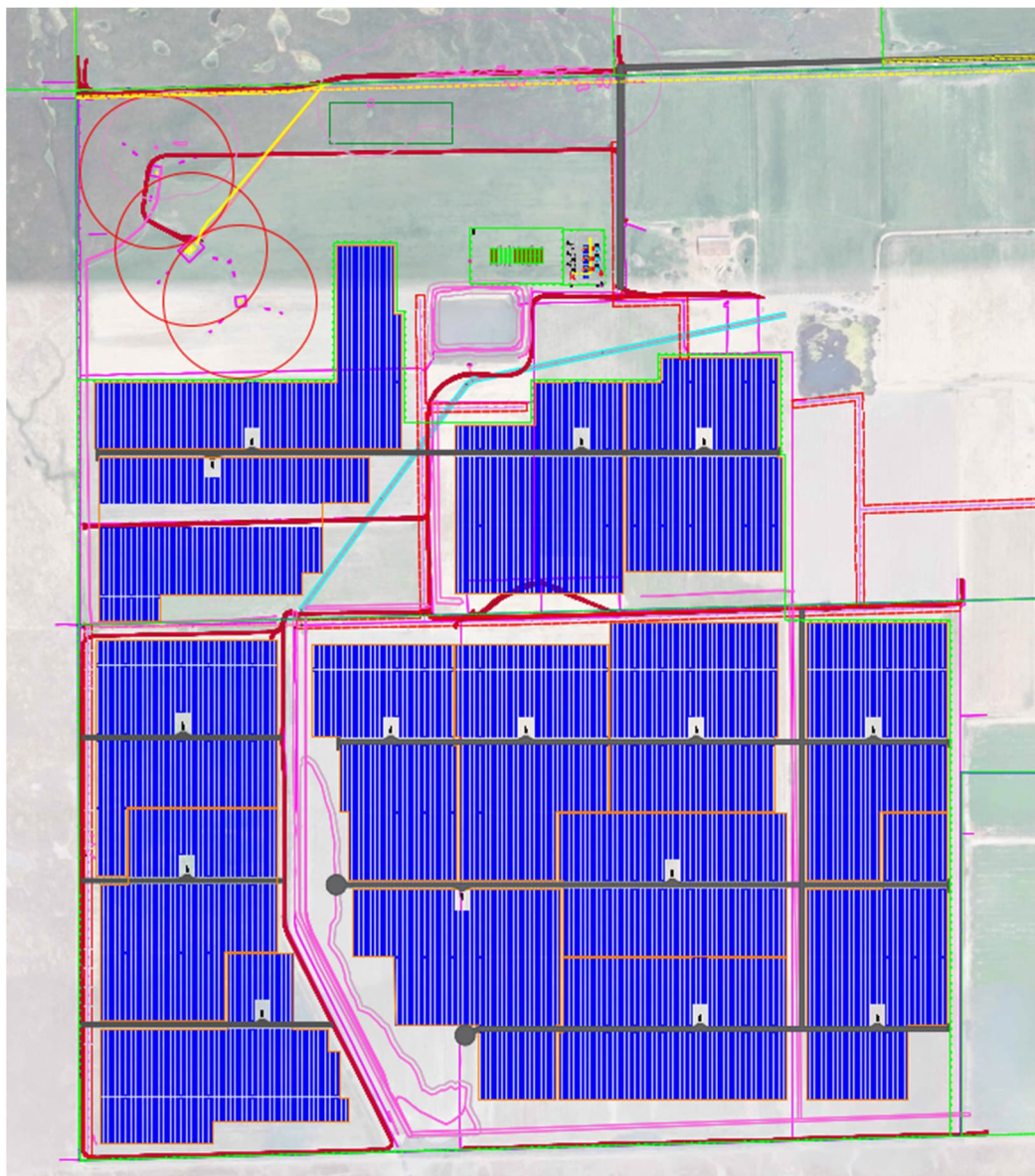
The Sacramento Municipal Utility District (SMUD) plans to construct a new photovoltaic solar facility. The project design intends to co-locate solar panels with agriculture, maintaining the current farmland use. For the Main Facility Area, solar panels will be distributed in 18 Power



Blocks mounted on galvanized steel posts driven into the ground will minimize the need for shallow foundations, which would increase the impervious areas. The existing gravel roads will be combined with new gravel roads to interconnect each power block and provide access to the Inverter skids. According to the recommendations of the geotechnical report, the new gravel roads will have lateral ditches to convey the water reducing the uncontrolled runoff. Light poles, skids and other miscellaneous equipment will be added. The most significant new impervious area will include the Substation and the Battery Energy Storage System (BESS).

Proposed minimal grading modifications associated with the project will not impact stormwater flow conditions as compared to pre-development conditions.

**Figure 2.3-1 - Post-Development Condition – Main Facility Area – General Plan**

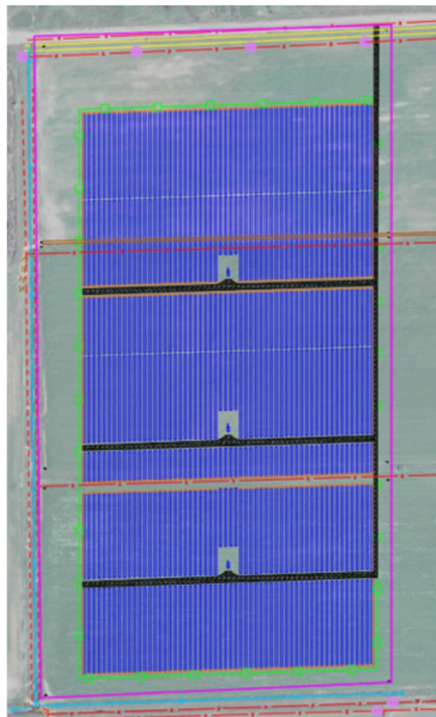




## 2.4 Post-Development conditions – Additional North Area

For the Additional Area, solar panels will be distributed in 3 Power Blocks mounted on galvanized steel posts driven into the ground. The existing gravel roads will be combined with new gravel roads to interconnect each power block and provide access to the Inverter skids. Light poles, skids and other miscellaneous equipment will be added, no Substation or BESS areas are planned. Proposed minimal grading modifications associated with the project will not impact the stormwater flow conditions as compared to pre-development conditions.

**Figure 2.4-1 - Post-Development Condition – Additional North Area – General Plan**



## 3.0 Preliminary Hydrologic Analysis

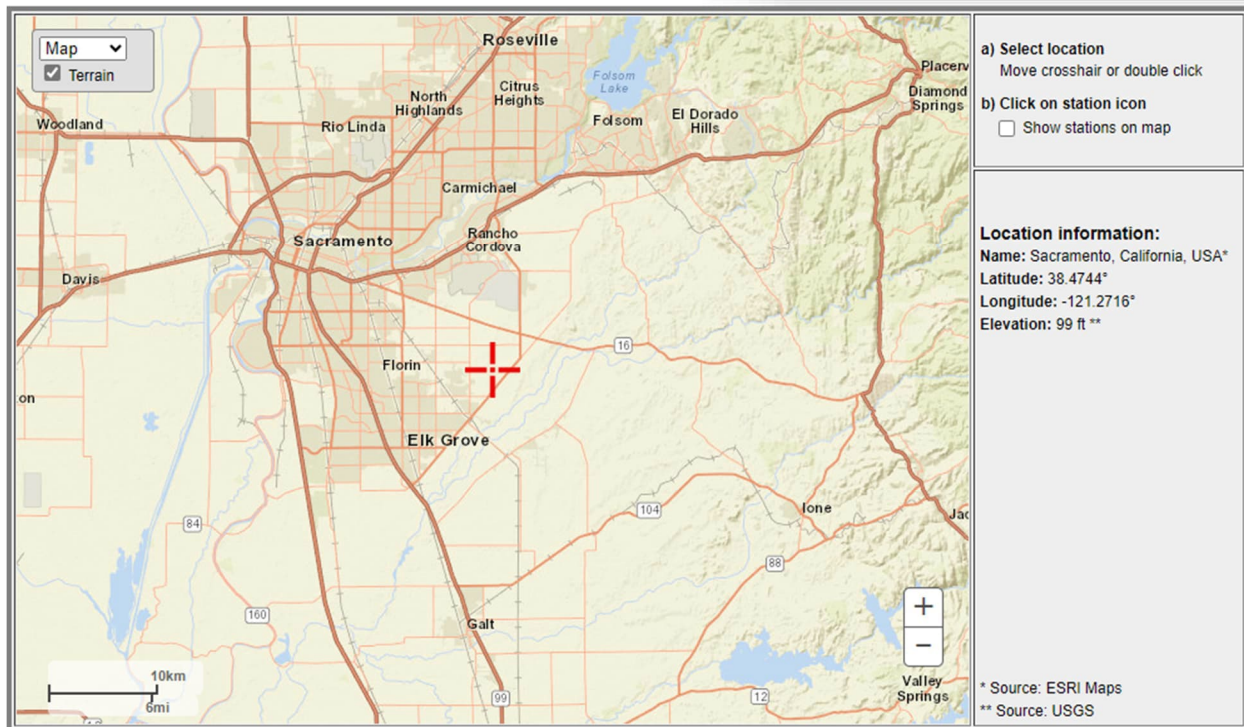
The SMUD Oveja Ranch Preliminary Hydrologic Analyses are based on the City of Sacramento Onsite Design Manual, the Sacramento Region Stormwater Quality Design Manual and the Sacramento County Code of Ordinances.

The Project consists of installing PV arrays and their corresponding Substation and BESS areas, over an existing land being used for farming, and the objective is to co-locate solar panels with agriculture, maintaining the current farmland use. Post-development peak stormwater discharge is limited to the pre-development rate in response to the 2-year, 10-year and 100-year design precipitation events. The peak discharges have been estimated using the HEC-HMS software package developed by the U.S. Army Corps of Engineers.

### 3.1 Precipitation

Design precipitation values are obtained from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 maps for the specific location, both for rain depth (in), and rain intensity (in/hr.). The three storm events described above are taken from the data for multiple durations and recurrences, and are tabulated as part of the figure 3.1-1

Figure 3.1-1 – Precipitation Data



PDS-based precipitation frequency estimates with 90% confidence intervals (in inches/hour) <sup>1</sup>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
24-hr	0.069 (0.062-0.079)	0.089 (0.080-0.101)	0.115 (0.103-0.132)	0.137 (0.121-0.157)	0.166 (0.143-0.197)	0.189 (0.160-0.228)	0.212 (0.176-0.261)	0.236 (0.191-0.299)	0.270 (0.210-0.353)	0.296 (0.223-0.400)

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches) <sup>1</sup>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
24-hr	1.67 (1.50-1.90)	2.15 (1.92-2.44)	2.78 (2.48-3.17)	3.29 (2.92-3.79)	4.00 (3.45-4.73)	4.54 (3.85-5.48)	5.10 (4.23-6.28)	5.68 (4.59-7.18)	6.48 (5.05-8.49)	7.11 (5.37-9.60)

#### SUMMARY OF SELECTED EVENTS

FREQUENCY INTERVAL (years)	DURATION (hr)	Rain Depth (in)	Rain Intensity (in/h)
2	24	2.15	0.089
10	24	3.29	0.137
100	24	5.10	0.212

### 3.2 Time of Concentration

Times of Concentration are estimated for each shed using the Manning formula methodology from TR-55, Urban Hydrology for Small Watersheds, developed by the USDA Natural Resources Conservation Service, and corroborated with the Steel Formula for US Region 7.

### 3.3 Hydrologic Soil Group and Infiltration Characteristics

The Natural Resources Conservation Service (NRCS) classifies the Hydrologic Soil Group (HSG) for this location as C. Soils HSG C have low infiltration rates when thoroughly wetted and have water transmission rates between 0.05 to 0.15 in/hr. In general, the existing grades at the site have slopes ranging from 0.2% to 0.4%, producing the effect of encouraging infiltration.

### 3.4 Existing and New Surfaces Characterization

Existing vegetation is modeled as primarily rangeland with small grain areas. In general, they are in good hydrologic condition for the pre-development stage and won't be substantially modified for the PV areas in the post-development stage. Existing dirt roads will be maintained the same for pre- and post-development conditions with some improvements, and new roads will be gravel surfaces over compacted subgrades. Subgrade improvement using geogrids is encouraged instead of chemical stabilization procedures which may decrease permeability, thus increasing runoff. The Substation and BESS areas will introduce substantial increase in the imperviousness.

Based on the previous descriptions, for HSG C soils, the proposed SCS curves for pre-development and post-development stages are as follows:

- Pre-development conditions:
  - Row Crops Straight Row Good Condition: SCS C=85
  - Small Grain Straight Row Good Condition: SCS C=83
  - Dirt Roads (including ROW): SCS C=87
- Post-development conditions:
  - Row Crops Straight Row Good Condition: SCS C=85

Small Grain Straight Row Good Condition: SCS C=83

Dirt Roads (including ROW): SCS C=87

Gravel Roads (including ROW): SCS C=89

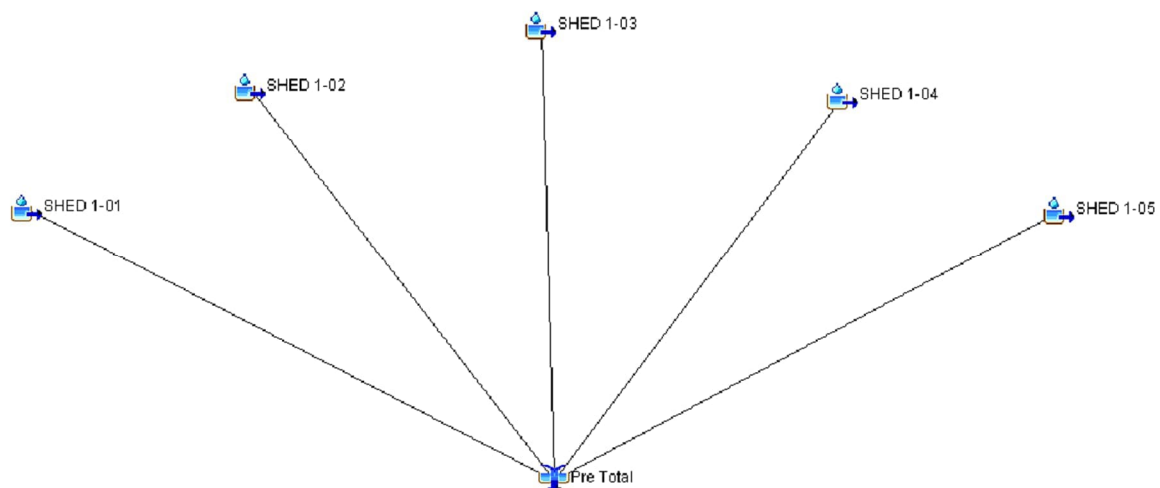
Foundations and Equipment Substation/BESS: SCS C=98

Areas in Substation surfaced with loose yard stone: SCS C=86

### 3.5 Existing Conditions Analysis (Pre-Development)

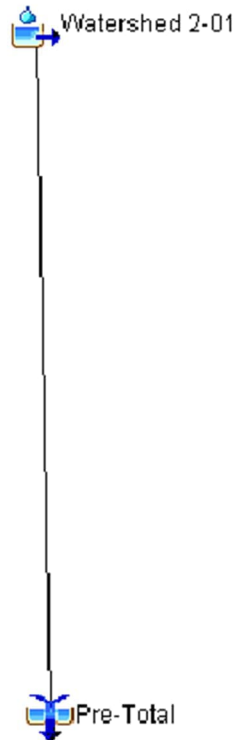
The HEC-HMS Basin Model for the five (5) sheds that conform the Main Facility Area for the pre-development conditions is shown in figure 3.5-1. Each shed characteristics are described in Attachment 1, Supplemental Drawings and exhibits. Input values for the design parameters described above are developed in the Preliminary Hydrologic Design Calculation included in Attachment 2. HEC-HMS is a hydrograph routing software, and runoff hydrographs for each shed are generated in the model and then combined at a junction (a place where multiple flows converge) named “Pre-Total”, providing the peak discharge flowrate for the entire system in response to the selected design precipitation events.

Figure 3.5-1 – Pre-development - Main Facility Basin Model



Since the Additional North Area is a disconnected shed from this system, a HEC-HMS different model was created to obtain a discharge hydrograph for the existing conditions. The shed diagram is shown in figure 3.5-2.

**Figure 3.5-2 – Pre-development – Additional North Area Basin Model**



The shed characteristics are described in Attachment 1, Supplemental Drawings and exhibits. Input values for the design parameters described above are developed in the Preliminary Hydrologic Design Calculation included in Attachment 2.

### **3.6 Proposed Conditions Analysis (Post-Development)**

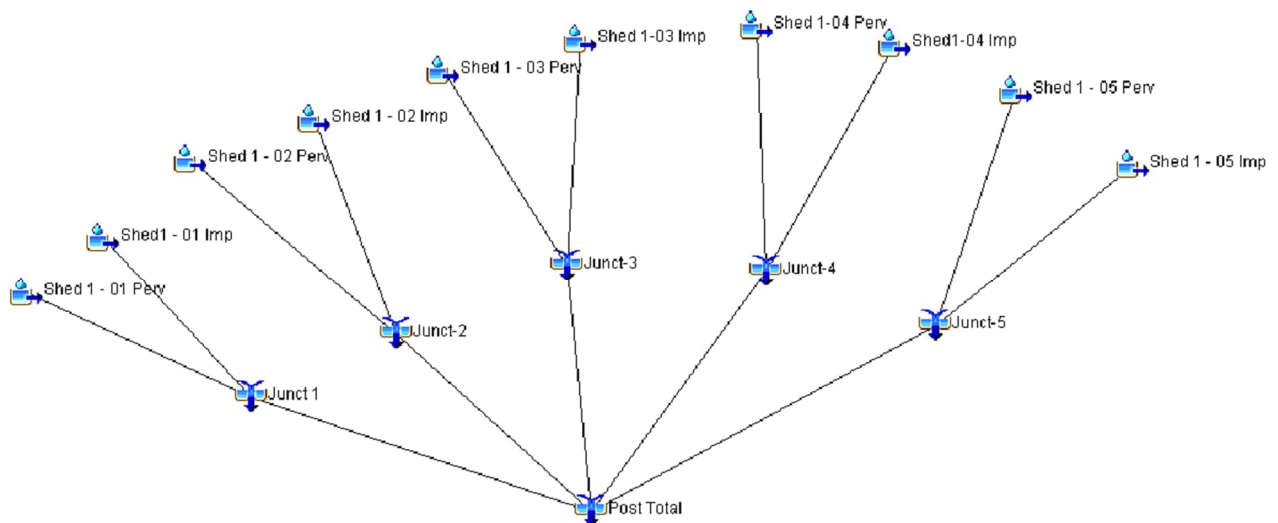
Another set of HEC-HMS models was developed for the sheds including the PV arrays, the Substation and BESS areas, and the Additional North Area, for proposed conditions. For the Main Facility Area, impervious and pervious areas are modeled separately and then combined in a junction. The resulting hydrographs for each shed are combined at a junction named “Post-Total”, which provides the peak discharge flowrates for the Main Facility Area, in response to the design precipitation events. The HEC-HMS Basin Model for the five (5) sheds that comprise the Main Facility Area for the post-development conditions is shown in figure 3.6-1.

Substation and BESS areas located at shed 1-01 are included as Impervious to estimate the post-development increase of runoff on the shed compared to the pre-development conditions. A single local area model was also created to establish the effective runoff increase generated at that area.

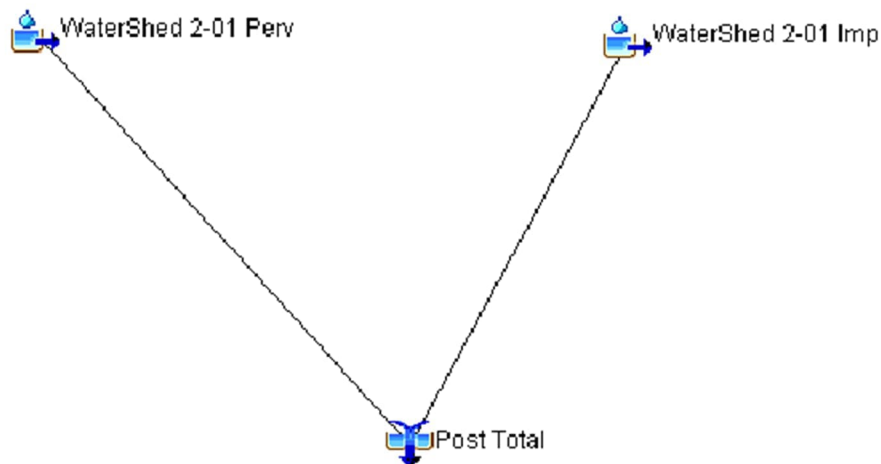
Additional North Area is analyzed in a similar manner, combining pervious and impervious areas, in a junction also named “Post-Total”. Since the shed is independent from the Facility Main Area, the discharge results are reported separately. The model of this area is shown in Figure 3.6-2

Since the intention of the proposed conditions is to maintain the farming use, the areas changing from farming to other uses (gravel roads, foundations, etc.) were added to the calculation assigning a different SCS curve for post-development and were removed as existing farming areas of the same size.

**Figure 3.6-1 – Post-development - Main Facility Basin Model**



**Figure 3.6-2 – Post-development – Additional North Area Basin Model**



## 4.0 Summary Of Results

A summary of results comparing pre-development and post-development conditions is provided in tables 4-1 to 4-4 to establish the changes on Peak Discharges, Total Stormwater Runoff Volumes, and possible required retention volumes to not exceed pre-development runoff in post-development.

Table 4-1 below indicates that for each design storm event, the proposed condition peak discharge and the stormwater runoff volume at the Stormwater Outlet of the Main Facility Area are slightly lower than the corresponding stormwater volume and peak discharge for the existing condition, an improved stormwater condition in post-development is achieved.

**Table 4-1 Stormwater Quantity Results for the Main Facility Area, at the Stormwater Outlet.**

Storm Events	Existing conditions Peak Discharge (cfs)	Proposed conditions Peak Discharge (cfs)	Difference Peak Discharge (cfs)
2-year, 24-hours	40.0	35.9	-4.1
10-year, 24-hours	70.0	66.5	-3.5
100-year, 24-hours	124.1	121.4	-2.7

Storm Events	Existing conditions Volume (acre-ft)	Proposed conditions Volume (acre-ft)	Difference Volume (acre-ft)
2-year, 24-hours	43.7	39.6	-4.1
10-year, 24-hours	79.8	75.6	-4.2
100-year, 24-hours	142.0	138.0	-4.0



Table 4-2 below indicates that for each design storm event, the proposed condition peak discharge and the stormwater runoff volume for the Additional North Area are slightly higher than the corresponding peak discharge and stormwater volume for the existing condition.

**Table 4-2 Stormwater Quantity Results for the Additional North Area, at the Stormwater Outlet.**

Storm Events	Existing conditions Peak Discharge (cfs)	Proposed conditions Peak Discharge (cfs)	Difference Peak Discharge (cfs)
2-year, 24-hours	7.5	7.6	0.1
10-year, 24-hours	13.1	13.2	0.1
100-year, 24-hours	23.0	23.1	0.1

Storm Events	Existing conditions Volume (acre-ft)	Proposed conditions Volume (acre-ft)	Difference Volume (acre-ft)
2-year, 24-hours	7.9	8.0	0.1
10-year, 24-hours	14.3	14.4	0.1
100-year, 24-hours	25.2	25.4	0.2

Table 4-3 below indicates that for each design storm event, the area where Substation and the BESS are located, post-developed condition peak discharge and stormwater runoff volume are slightly higher than the corresponding peak discharge and stormwater volume for the existing condition.

**Table 4-3 Stormwater Quantity Results for Substation & BESS Area**

Storm Events	Existing conditions Peak Discharge (cfs)	Proposed conditions Peak Discharge (cfs)	Difference Peak Discharge (cfs)
2-year, 24-hours	1.3	2.1	0.8
10-year, 24-hours	2.2	3.1	0.9
100-year, 24-hours	3.9	4.8	0.9

Storm Events	Existing conditions Volume (acre-ft)	Proposed conditions Volume (acre-ft)	Difference Volume (acre-ft)
2-year, 24-hours	1.2	2.3	1.1
10-year, 24-hours	2.4	3.6	1.2
100-year, 24-hours	3.8	5.6	1.8

Table 4-4 below shows that for each design storm event, the addition of the proposed Main Facility Area and Additional North Area total runoff volumes result lower than the corresponding volumes



for the pre-developed condition, meaning that the Project won't adversely impact water bodies receiving the generated flows downstream the limits of the Project.

**Table 4-4 Stormwater Volume Variation for the Project**

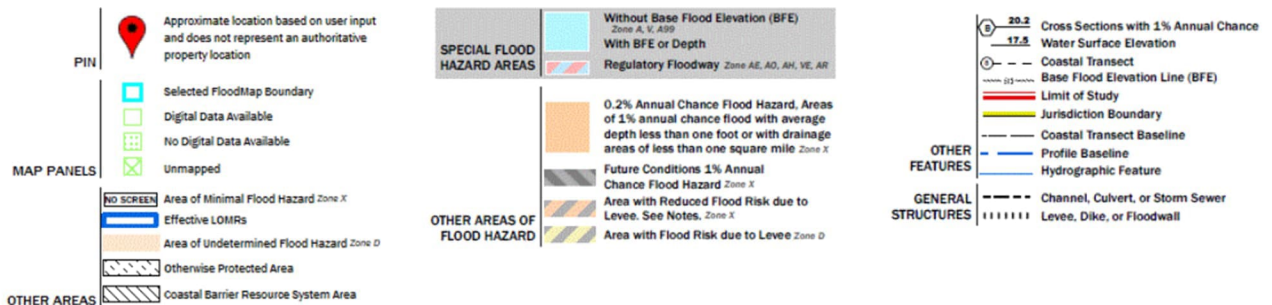
Storm Events	Existing conditions Volume (acre-ft)	Proposed conditions Volume (acre-ft)
2-year, 24-hours	51.6	47.6
10-year, 24-hours	94.1	90.0
100-year, 24-hours	167.2	163.4

## 5.0 Other considerations

### 5.1 FEMA Regulations

The project site is designated as Zone X on the FEMA Flood Insurance Rate Map (FIRM). Figure 5.1-1 shows the FIRMette map for the Main Facility Area.

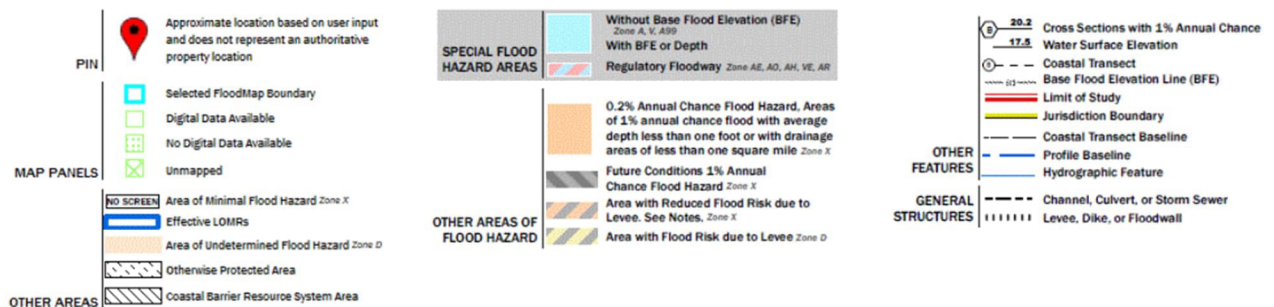
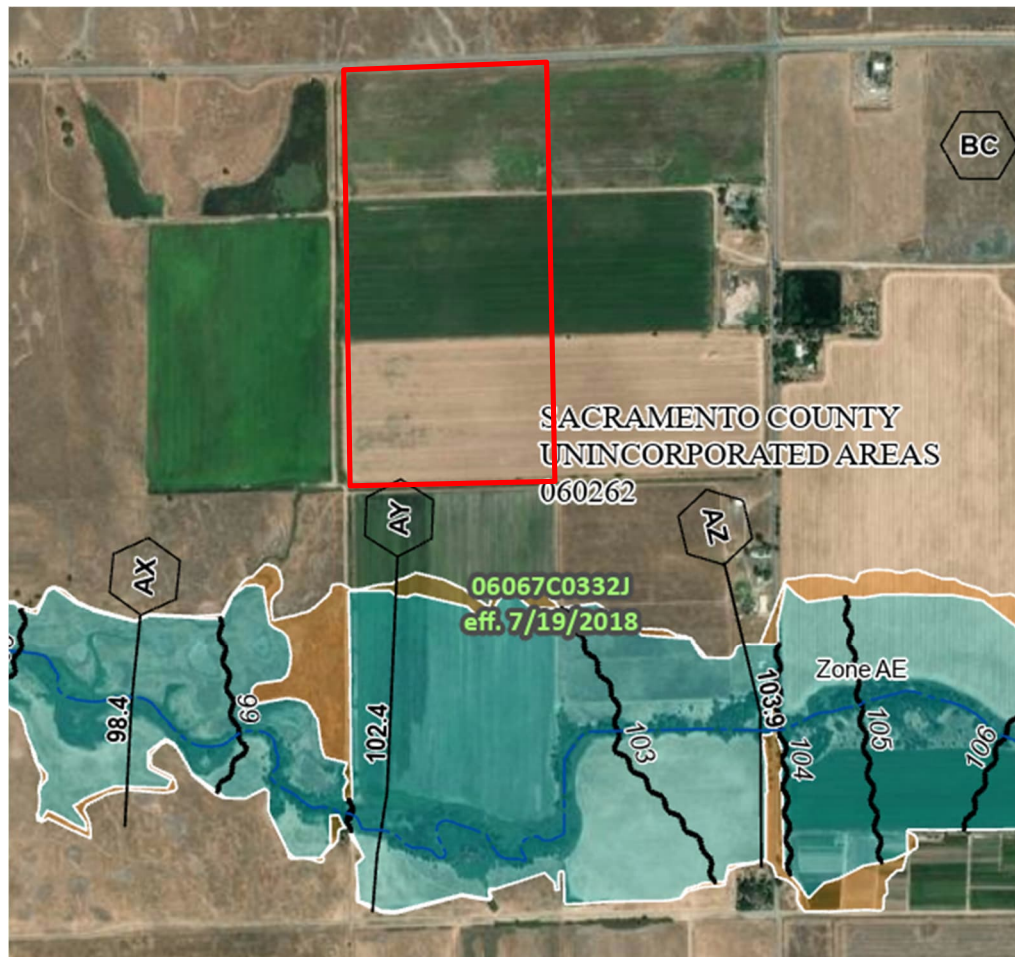
Figure 5.1-1 – FEMA FIRMeTte Map for the Main Facility Area



Zone AE Limit is close to the north property line of the Main Facility.

Figure 5.1-2 shows FIRMette map for the Additional North Area.

Figure 5.1-2 – FEMA FIRMette Map for the Additional North Area



Zone AE Limit is close to the south property line of the Additional North Area.



## 5.2 Existing Culverts and Other Drainage Structures

On September 2024, SMUD performed a visual inspection of existing culverts at the Main Facility proposed areas, including a photographic register of their locations and conditions. Their general locations are shown in the Google Earth images below, both for the Main Facility Area (MFA) and the Additional North Area (ANA), with general descriptions for reference:

**Figure 5.2-1 – Culvert locations for the Main Facility Area (MFA)**



Nine culverts were identified at the MFA: two culverts across the north road not draining storm water inside the area limits, and the other seven inside the facility, that are required to function properly in post-development. The actual condition of many of them is deficient, such as partially

obstructed, others are hardly visible, and in some cases, pictures indicate downstream obstacles impeding proper water flow.

Two of those inside culverts (18" and 30") are located precisely where the final discharge (Outlet) of the MFA takes place, at the south limit of the property. These culverts need to be fully investigated to assure they will evacuate the maximum flows described in Table 4.1. Attached two pictures of these outlet culverts:



Culvert 18"



Culvert 30"

For the Additional North Area (ANA), two culverts were identified at the west boundary, across the main drainage channel. The culvert at the southwest corner will collect the final discharge (Outlet) of the ANA.



Figure 5.2-2 – Culvert locations for the Additional North Area (ANA)



Both culverts appear to be in functional conditions and size, but below pictures reveal ponding downstream, sediment and vegetation obstructions that should be removed at the outlet location.



A detailed survey of all culverts is recommended, describing pipe sizes, lengths, materials, and invert elevations at both ends to obtain slopes and evaluate if the actual capacities correspond to the peak flows evaluated in this report. Tables 5.2-1 and 5.2-2 below identify each culvert and provide GPS coordinates (from Google Earth) for future reference.

**Table 5.2-1 Main Facility Area – Existing Culverts Location**

Description	North Coordinate (Deg. Min. Sec.)	West Coordinate (Deg. Min. Sec.)
12" Culvert MFA-01 (north road)	38° 28' 55.2"	121° 16' 11.2"
Culvert Unknown Size MFA-02 (north road)	38° 28' 55.4"	121° 16' 00.7"
12" Culvert MFA-03	38° 28' 27.1"	121° 16' 31.1"
12" Culvert MFA-04	38° 28' 28.5"	121° 16' 32.0"
12" Culvert MFA-05	38° 28' 28.1"	121° 16' 31.3"
12" Culvert MFA-06	38° 28' 28.3"	121° 16' 23.3"
30" Culvert MFA-07	38° 28' 28.5"	121° 16' 01.2"
18" Culvert MFA-08	38° 28' 02.6"	121° 16' 26.0"
30" Culvert MFA-09 (OUTLET)	38° 28' 02.3"	121° 16' 25.1"

**Table 5.2-2 Additional North Area – Existing Culverts Location**

Description	North Coordinate (Deg. Min. Sec.)	West Coordinate (Deg. Min. Sec.)
(3) 30" Culvert ANA-1	38° 29' 38.6"	121° 16' 12.8"
(3) 30" Culvert ANA-2 (OUTLET)	38° 29' 21.2"	121° 16' 12.7"

## 6.0 Conclusions

This study concludes that the new construction will have minimal adverse impact on the existing drainage areas, runoff patterns, and peak flow rates both on-site and off-site. The addition of impervious areas will only marginally increase runoff on certain places, and in many cases the analysis indicates that runoff can be lower for the post-development conditions. Site grading should be carefully managed to maintain existing flow patterns and minimize peak flow rates from original conditions, and no special compaction is required for areas with panels supported on deep foundations, compaction will be required for gravel roads and shallow foundations. The reduction of runoff may be also attributed to the fact that for the pre-development, the selected types of surfaces for farming have SCS C curves higher or equal to the curves for new gravel road areas with side ditches in the post-development condition. The low slopes of the farmed areas promote the infiltration, reducing the amount of effective runoff. The PV areas are planned to be supported by steel H shaped driven piles that barely affect the runoff surface.

During construction, soil erosion measures should be taken to prevent the flow of sediment into existing drainage ditches. Disturbed areas should be re-planted with native vegetation. Existing ditches and culverts are recommended to be cleaned, re-aligned, and unclogged to promote better flow and discharge.

The evaluation of the changes of runoff generated at the Substation and BESS areas indicated increases of peak flow not greater than 1.0 cubic feet per second. These areas constitute only 1.34 acres inside a shed with a total area of 78.95 acres, and around 40% of the shed area remains undisturbed. If required, the localized excess runoff can either be mitigated with perimeter swales around BESS and Substation Areas that will also help divert flood irrigation water around them, temporary detention, or offset with partial substitution of farmland row crops areas (SCS C=85) with small grain (SCS C=83) or even seeded grassland (SCS C=74) by reduction of the SCS C curve numbers.

The results of this analysis are based on preliminary design data and should be re-evaluated with final design. In addition, existing culverts and drainage ditches should be analyzed for capacity, considering final design data as recommended in Section 5.2.



## A1.1 MAIN FACILITY AREA – SHED DESCRIPTIONS – PRE-DEVELOPMENT

## A1.1 MAIN FACILITY AREA – SHED DESCRIPTIONS – PRE-DEVELOPMENT

$A_{WS5} = 8,496,857$  sf,  $A_{WS5} = 195.06$  acre

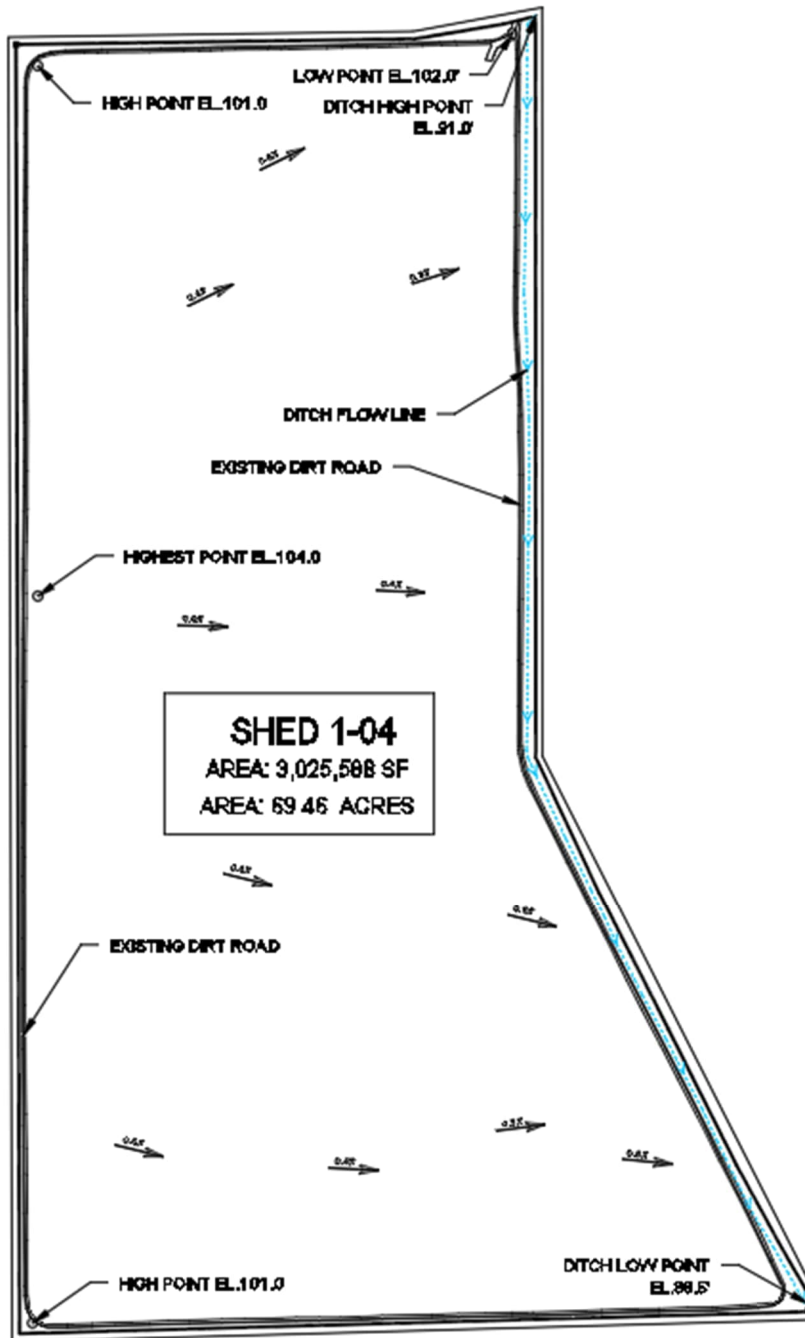
[illegible]

The site plan for Shed 1-02 shows a rectangular area with a central shed footprint. The shed is labeled "SHED 1-02" with an area of 2,370,703 SF and 54.42 acres. To the north of the shed is an "EXISTING POND BERM" at elevation ~113.5, with a "HIGH POINT" at EL. 109.00'. To the northeast is an "IRRIGATION POND" with its "HIGHEST POINT" at EL. 115.0'. To the west of the shed is a "DITCH FLOW LINE" indicated by a dashed blue line with arrows pointing west. The ditch has a "DITCH HIGH POINT" at EL. 95.0' and a "LOW POINT" at EL. 98.0'. The southern boundary of the site has a "DITCH LOW POINT" at EL. 81.0' and a "HIGH POINT" at EL. 102.0'. An "EXISTING DIRT ROAD" runs along the eastern boundary. Numerous spot elevations and slopes are marked throughout the site, including 0.6%, 0.7%, 0.5%, 0.3%, 0.4%, and 0.5% slopes, and elevations such as 109.00', 113.5, 115.0', 95.0', 98.0', 81.0', and 102.0'.

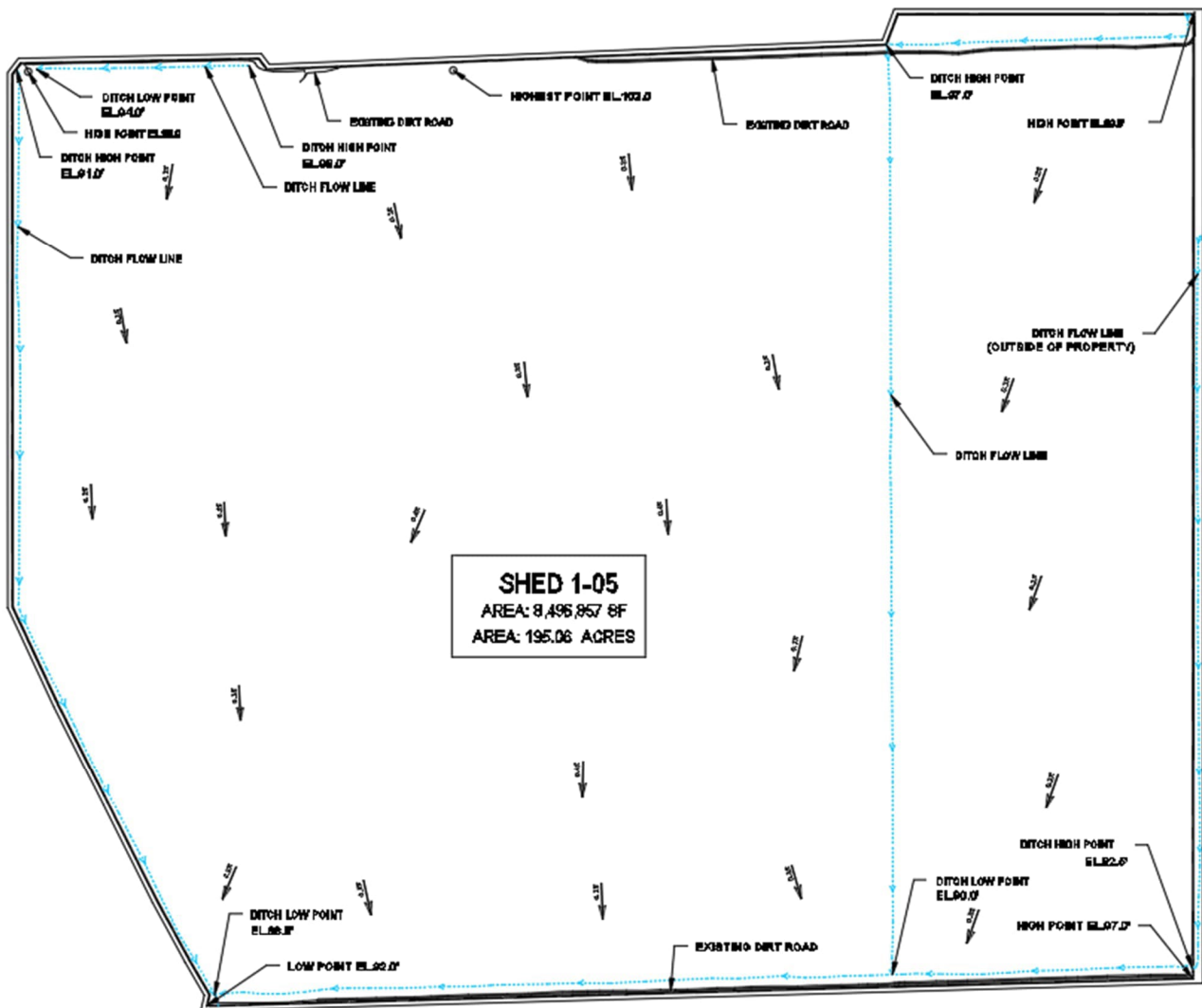
The map shows the site layout with the following features and data:

- Shed 1-03:** A rectangular structure with an area of 2,619,285 SF and 60.13 acres.
- Existing Dirt Road:** Located along the top and bottom edges of the site.
- Ditch Flow Line:** A dashed line indicating the flow of water, with a high point elevation of 99.5' and a low point elevation of 97.0'.
- Elevation Points:**
  - HIGH POINT EL. 108.0'
  - HIGH POINT EL. 113.0'
  - HIGH POINT EL. 104.0'
  - LOW POINT EL. 99.0'
  - DITCH HIGH POINT EL. 99.5'
  - DITCH LOWEST POINT EL. 97.0'
- Slopes:** Various slopes are indicated by arrows and numbers, such as 0.6%, 1.2%, 1.4%, 0.8%, 1.0%, 0.5%, 0.7%, 0.9%, 1.5%, 2.1%, 2.5%, and 2.0%.

## Shed 1-04 – Pre-development



## Shed 1-05 – Pre-development



## Sheds Area Distribution – Pre-development

SHED	RowCrops	AREAS - ACRES			TOTAL
		SmallGrain	DirtRoads		
1-01	78.04	0.00	0.91		78.95
1-02	53.72	0.00	0.70		54.42
1-03	59.30	0.00	0.83		60.13
1-04	68.15	0.00	1.31		69.46
1-05	0.00	194.37	0.69		195.06

## Sheds – SCS Curves

Row Crops Straight Row Good Cond.	C=	85	Applies to sheds 1-01 to 1-04
Small Grain Straight Row Good Cond.	C=	83	Applies to Shed 1-05
Dirt Roads (including ROW)	C=	87	See areas for dirt roads

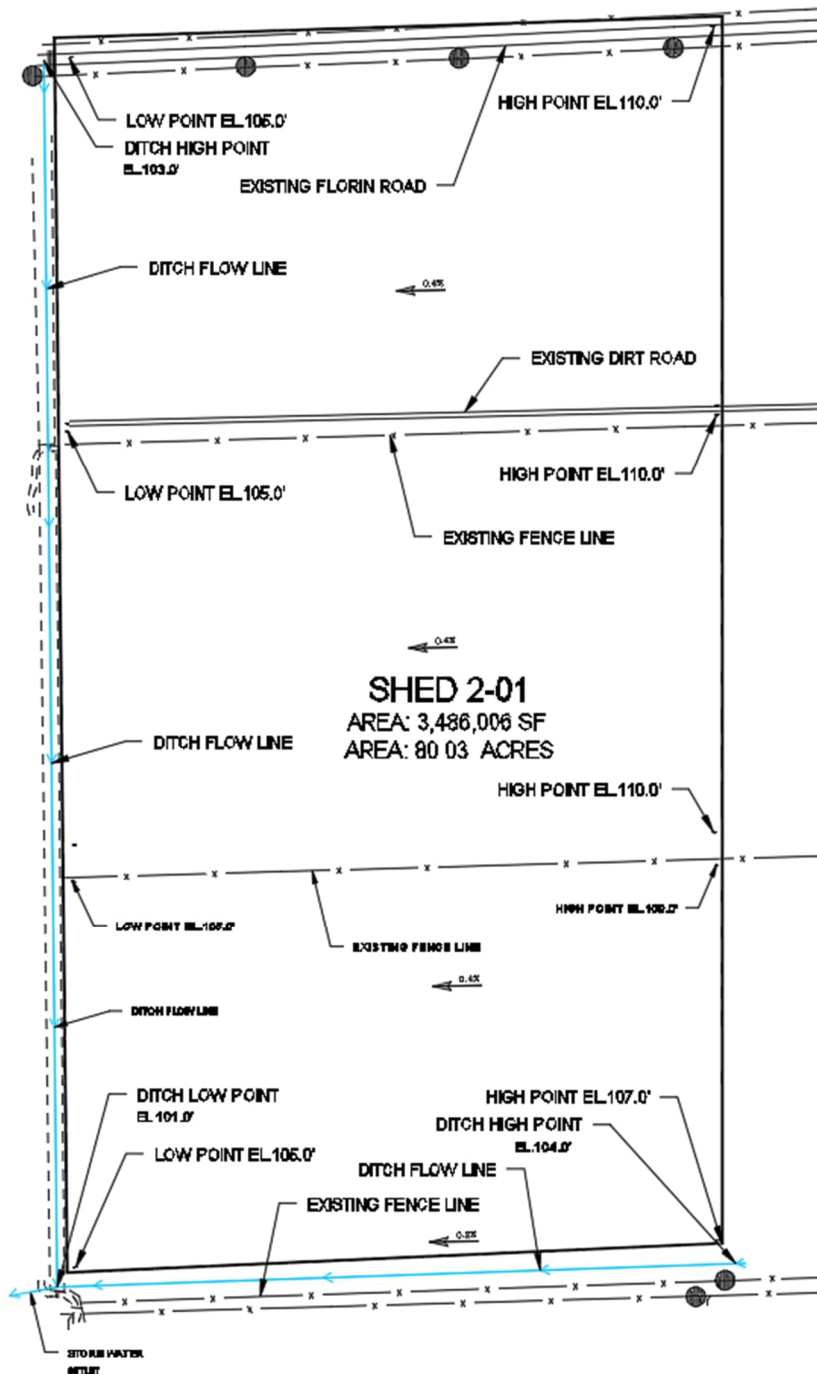
## A1.2 ADDITIONAL NORTH AREA – SHED DESCRIPTIONS PRE-DEVELOPMENT

Sheds 1

### Watershed 2-01 General Area

$A_{WS1} = 3,486,006$  sf,  $A_{WS1} = 80.03$  acre

### Shed 2-01 – Pre-development



## Shed Area Distribution – Pre-development

SHED	AREAS - ACRES		TOTAL
	RowCrops	DirtRoads	
2-01	79.33	0.70	80.03

## Shed – SCS Curves

Row Crops Straight Row Good Cond.  
Dirt Roads (including ROW)

C=	85	Applies to shed 2-01
C=	87	See areas for dirt roads

### A1.3 MAIN FACILITY AREA – SHED DESCRIPTIONS – POST-DEVELOPMENT

Sheds 5

#### Watershed 1-01 General Area

$A_{WS1} = 3,439,264$  sf,  $A_{WS1} = 78.95$  acre

#### Watershed 1-02 General Area

$A_{WS2} = 2,370,703$  sf,  $A_{WS2} = 54.42$  acre

#### Watershed 1-03 General Area

$A_{WS3} = 2,619,285$  sf,  $A_{WS3} = 60.13$  acre

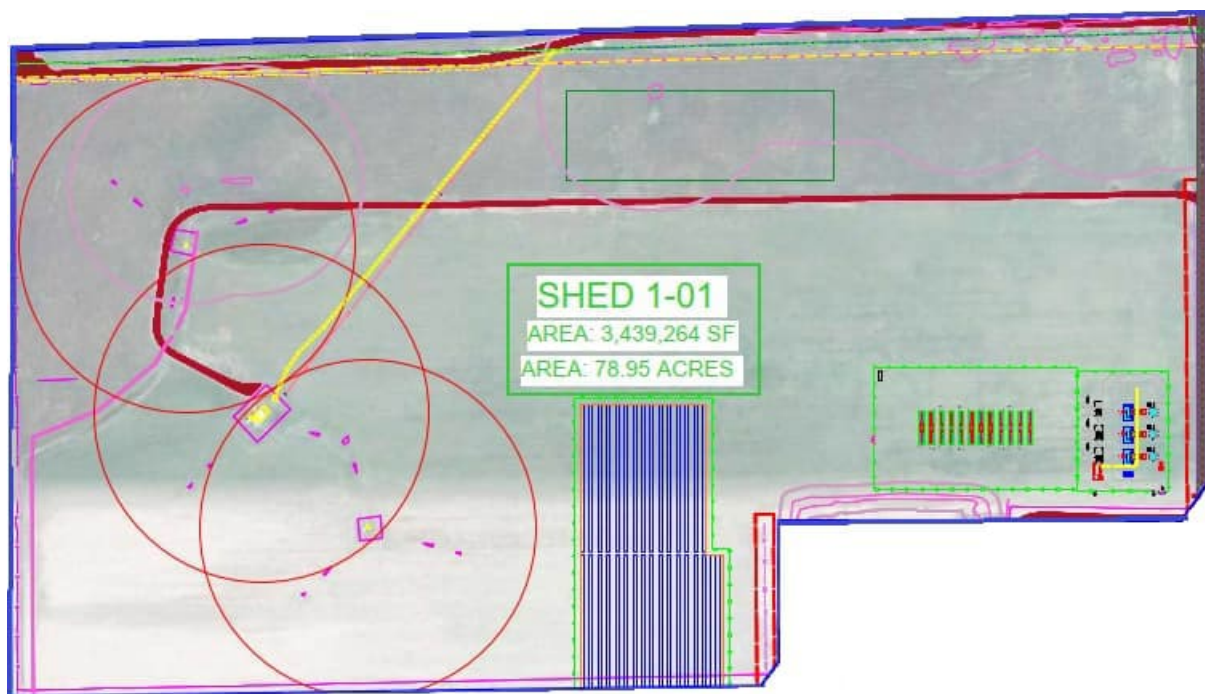
#### Watershed 1-04 General Area

$A_{WS4} = 3,025,588$  sf,  $A_{WS4} = 69.46$  acre

#### Watershed 1-05 General Area

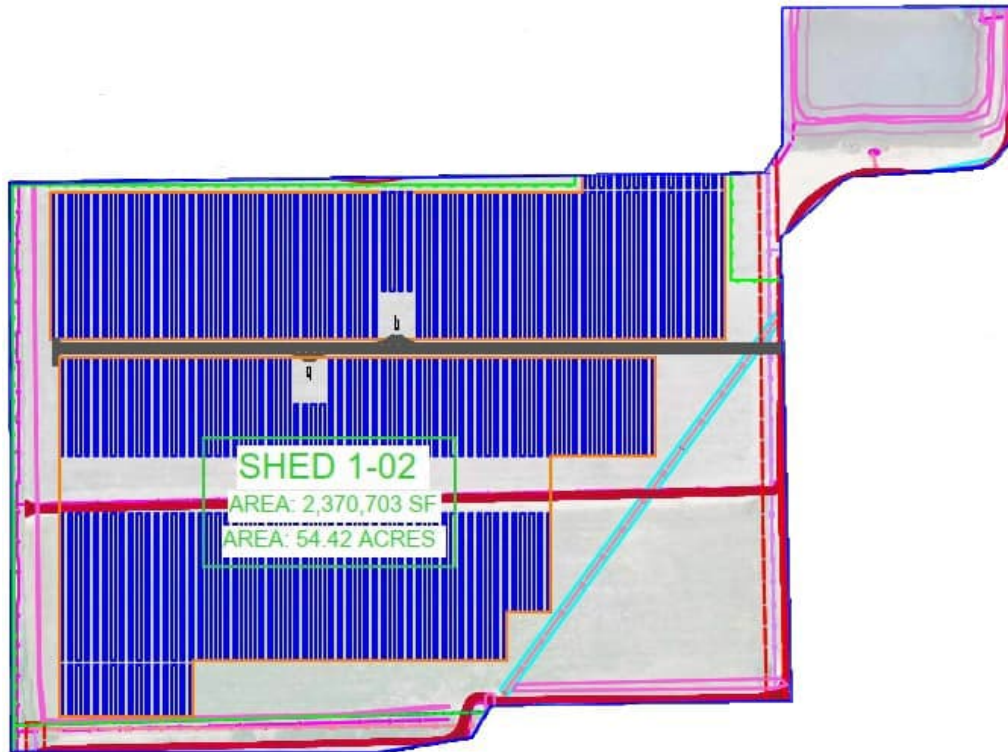
$A_{WS5} = 8,496,857$  sf,  $A_{WS5} = 195.06$  acre

#### Shed 1-01 – Post-development

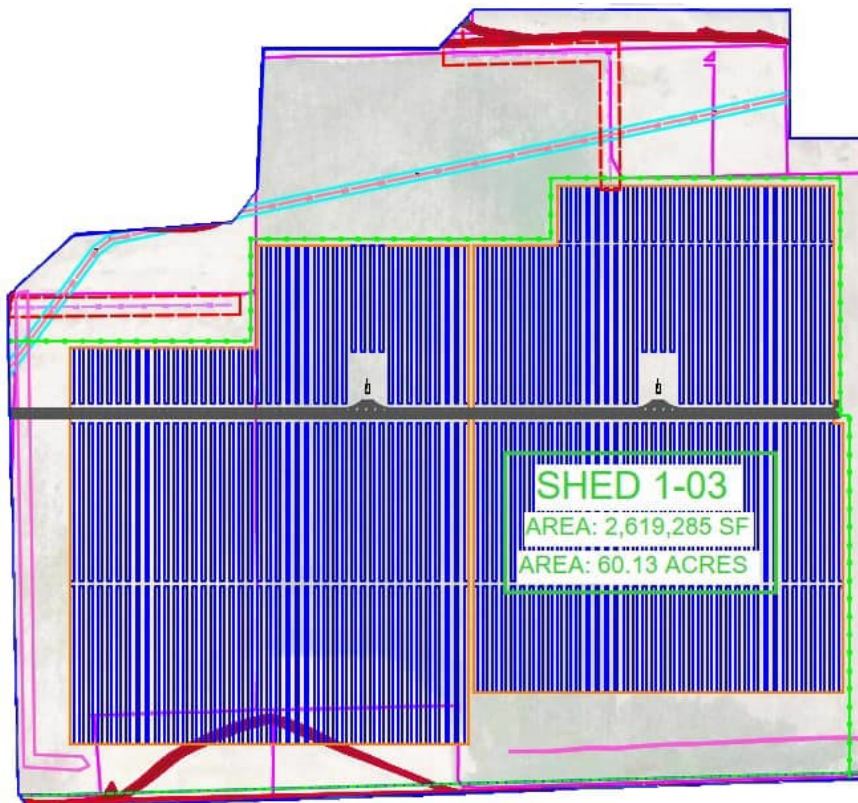




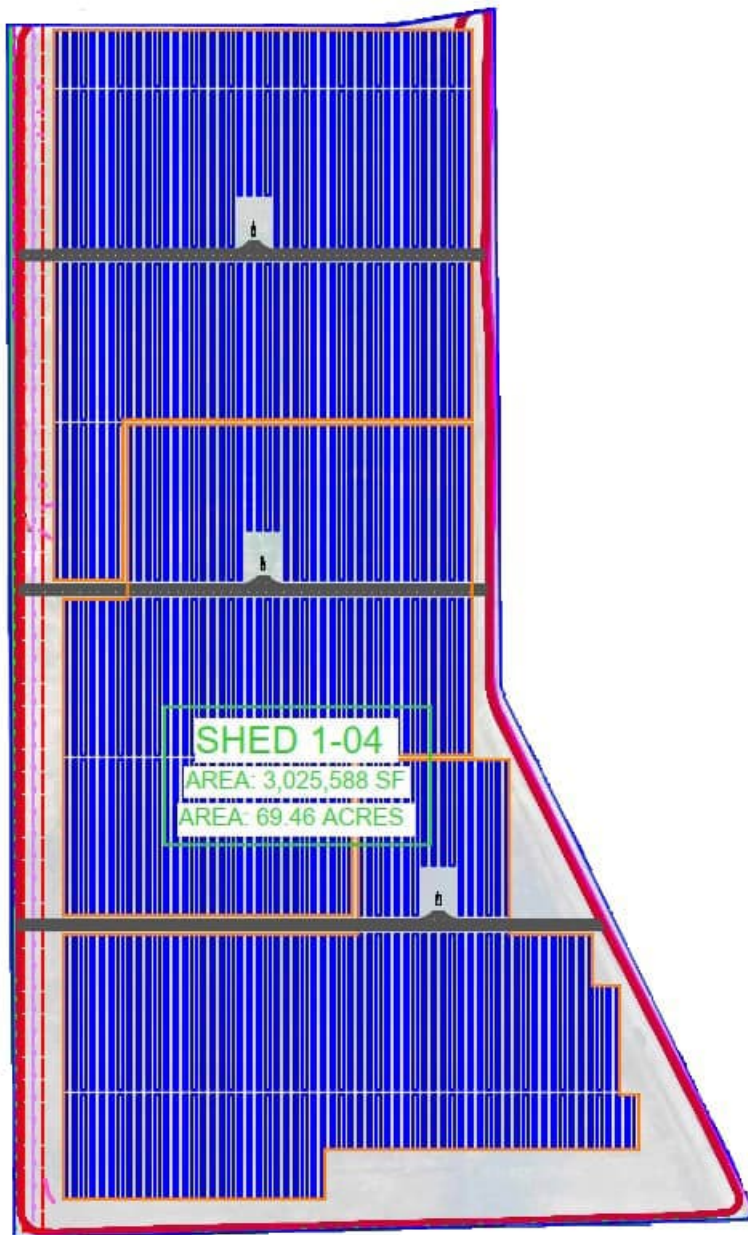
## Shed 1-02 – Post-development



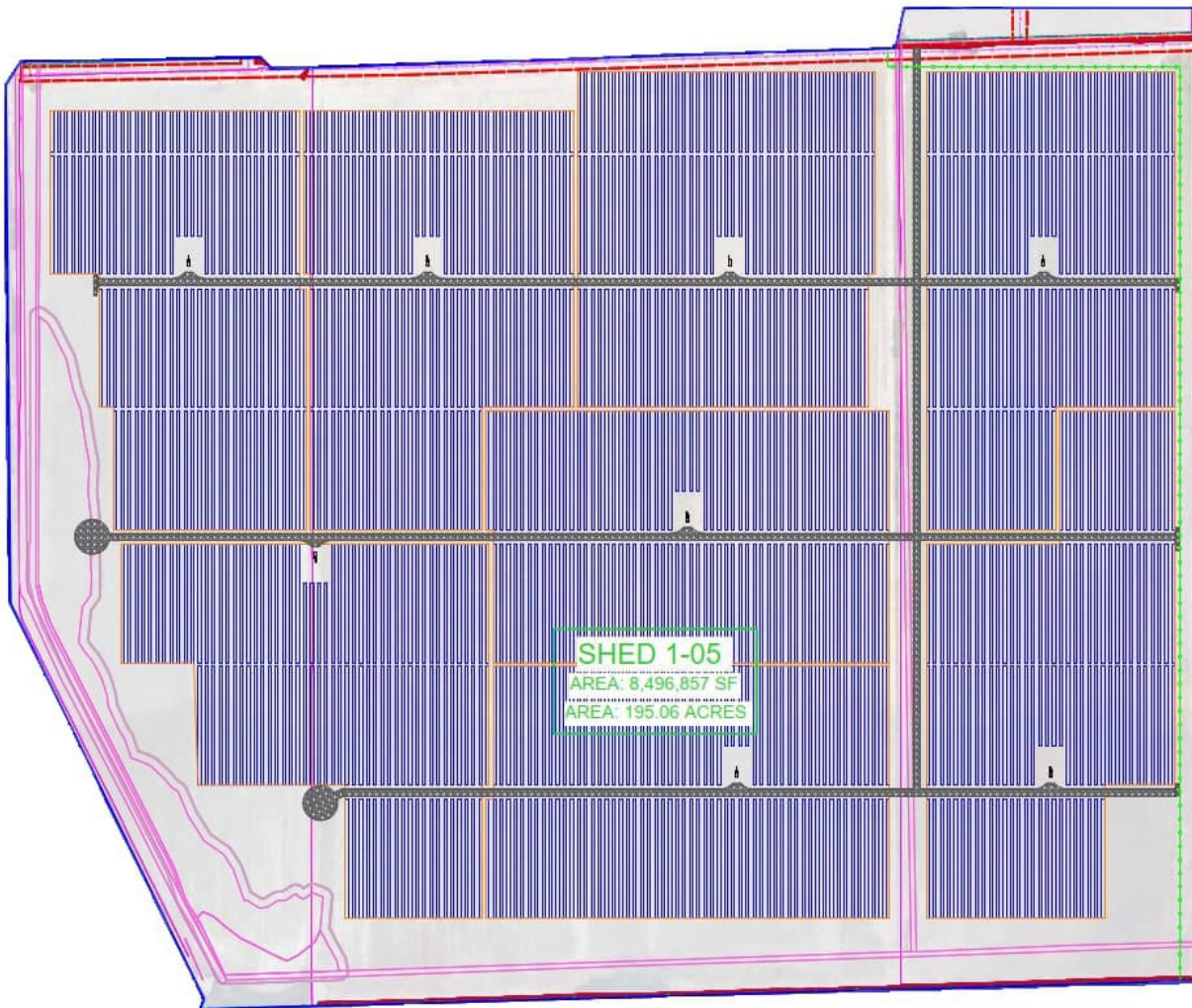
## Shed 1-03 – Post-development



## Shed 1-04 – Post-development



## Shed 1-05 – Post-development



## Sheds Area Distribution – Post-development

SHED	AREAS - ACRES						TOTAL
	RowCrops	SmallGrain	DirtRoads	GravlRoad	Fnd&Equip	YardStne	
1-01	75.79	0.00	0.91	0.61	1.34	0.30	78.95
1-02	52.75	0.00	0.70	0.97	0	0	54.42
1-03	58.56	0.00	0.83	0.74	0	0	60.13
1-04	66.63	0.00	1.31	1.52	0	0	69.46
1-05	0.00	189.87	0.69	4.50	0	0	195.06

## Sheds – SCS Curves

Row Crops Straight Row Good Cond.	C=	85	Applies to sheds 1-01 to 1-04
Small Grain Straight Row Good Cond.	C=	83	Applies to Shed 1-05
Dirt Roads (including ROW)	C=	87	Areas for dirt toads
Gravel Roads (including ROW)	C=	89	Gravel Areas
Found & Equip Substation/BESS	C=	98	Applies to Shed 1-01 only
Subst. surface with loose yard stone	C=	86	Applies to Shed 1-01 only

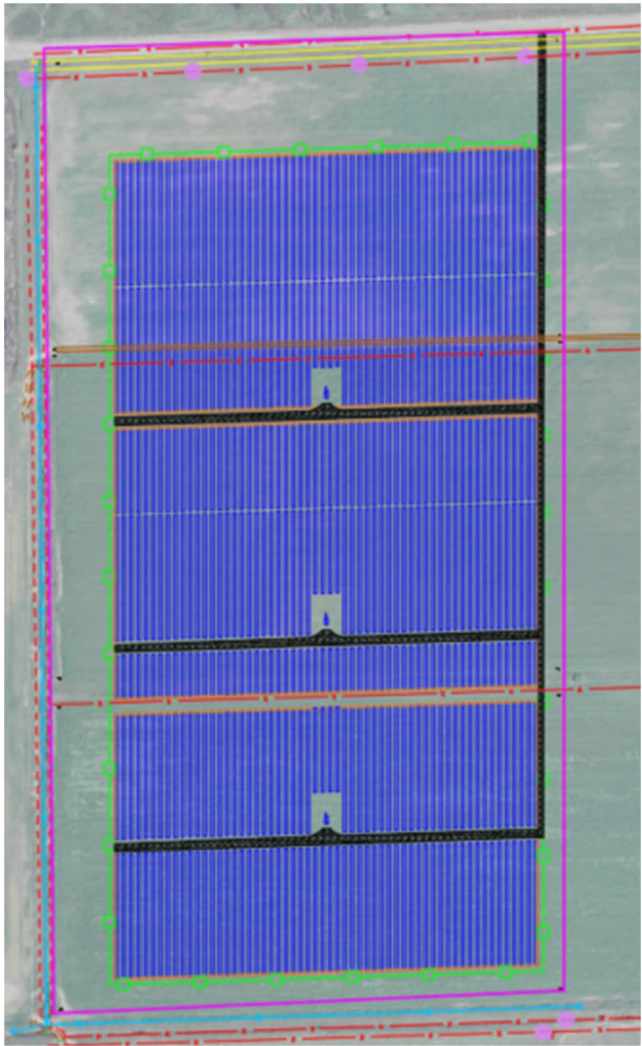
A1.4 ADDITIONAL NORTH AREA – SHED DESCRIPTIONS POST-DEVELOPMENT

Sheds 1

Watershed 2-01 General Area

A<sub>WS1</sub>= 3,486,006 sf, A<sub>WS1</sub>= 80.03 acre

Shed 2-01 – Post-development



Sheds Area Distribution – Post-development

SHED	RowCrops	AREAS - ACRES			TOTAL
		DirtRoads	GravlRoad		
2-01	76.94	0.70	2.39		80.03

## Sheds – SCS Curves

Row Crops Straight Row Good Cond.	C=	85	
Dirt Roads (including ROW)	C=	87	Areas for dirt toads
Gravel Roads (including ROW):	C=	89	Gravel Areas

## A1.5 SUBSTATION & BESS AREA – POST-DEVELOPMENT LOCAL MODEL

SHED	AREAS - ACRES			TOTAL
	RowCrops	DirtRoads	Imp.area	
1-01 (Partial)	1.34	0.00	1.34	1.34

The SCS curve used for this area is described for the full shed

Found & Equip Substation/BESS	C=	98
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## ATTACHMENT 2 – PRELIMINARY HYDROLOGIC DESIGN CALCULATION

A set of Summary Reports from HEC-HMS are included as calculations for each model run and for each precipitation event. Reports are provided in PDF format per the list below:

- A.2-1 MAIN FACILITY AREA – PRE-DEVELOPMENT 2YEAR 24HOUR
- A.2-2 MAIN FACILITY AREA – PRE-DEVELOPMENT 10YEAR 24HOUR
- A.2-3 MAIN FACILITY AREA – PRE-DEVELOPMENT 100YEAR 24HOUR
- A.2-4 MAIN FACILITY AREA – POST-DEVELOPMENT 2YEAR 24HOUR
- A.2-5 MAIN FACILITY AREA – POST-DEVELOPMENT 10YEAR 24HOUR
- A.2-6 MAIN FACILITY AREA – POST-DEVELOPMENT 100YEAR 24HOUR
- A.2-7 ADDITIONAL NORTH AREA – PRE-DEVELOPMENT 2YEAR 24HOUR
- A.2-8 ADDITIONAL NORTH AREA – PRE-DEVELOPMENT 10YEAR 24HOUR
- A.2-9 ADDITIONAL NORTH AREA – PRE-DEVELOPMENT 100YEAR 24HOUR
- A.2-10 ADDITIONAL NORTH AREA – POST-DEVELOPMENT 2YEAR 24HOUR
- A.2-11 ADDITIONAL NORTH AREA – POST-DEVELOPMENT 10YEAR 24HOUR
- A.2-12 ADDITIONAL NORTH AREA – POST-DEVELOPMENT 100YEAR 24HOUR
- A.2-13 SUBSTATION BESS AREA – PRE-DEVELOPMENT 2YEAR 24HOUR
- A.2-14 SUBSTATION BESS AREA – PRE-DEVELOPMENT 10YEAR 24HOUR
- A.2-15 SUBSTATION BESS AREA – PRE-DEVELOPMENT 100YEAR 24HOUR
- A.2-16 SUBSTATION BESS AREA – POST-DEVELOPMENT 2YEAR 24HOUR
- A.2-17 SUBSTATION BESS AREA – POST-DEVELOPMENT 10YEAR 24HOUR
- A.2-18 SUBSTATION BESS AREA – POST-DEVELOPMENT 100YEAR 24HOUR

**A.2-1 MAIN FACILITY AREA – PRE-DEVELOPMENT 2YEAR 24HOUR**

**Project:** Oveja\_Ranch  
**Simulation Run:** 2 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 08 December 2024, 02:51

Global Parameter Summary - Subbasin

Area	
Element Name	Area
SHED I - 01	0.12
SHED I - 02	0.09
SHED I - 03	0.09
SHED I - 04	0.11
SHED I - 05	0.3

Downstream	
Element Name	Downstream
SHED I - 01	Pre Total
SHED I - 02	Pre Total
SHED I - 03	Pre Total
SHED I - 04	Pre Total
SHED I - 05	Pre Total

Loss Rate: Scs			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
SHED I - 01	0	85	0
SHED I - 02	0	85	0
SHED I - 03	0	85	0
SHED I - 04	0	85	0
SHED I - 05	0	83	0

Transform: SCS		
Element Name	Lag	Unitgraph Type
SHED I - 01	233.88	Standard
SHED I - 02	133	Standard
SHED I - 03	192	Standard
SHED I - 04	253	Standard
SHED I - 05	396	Standard

## Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
SHED I - 01	0.12	8.8	10Oct2021, 16:30	1.18
SHED I - 02	0.09	8.1	10Oct2021, 14:30	1.18
SHED I - 03	0.09	7.44	10Oct2021, 15:45	1.18
SHED I - 04	0.11	7.41	10Oct2021, 16:45	1.18
SHED I - 05	0.3	15.09	10Oct2021, 19:45	1.1
Pre Total	0.72	40	10Oct2021, 16:45	1.15

Subbasin: SHED 1-01

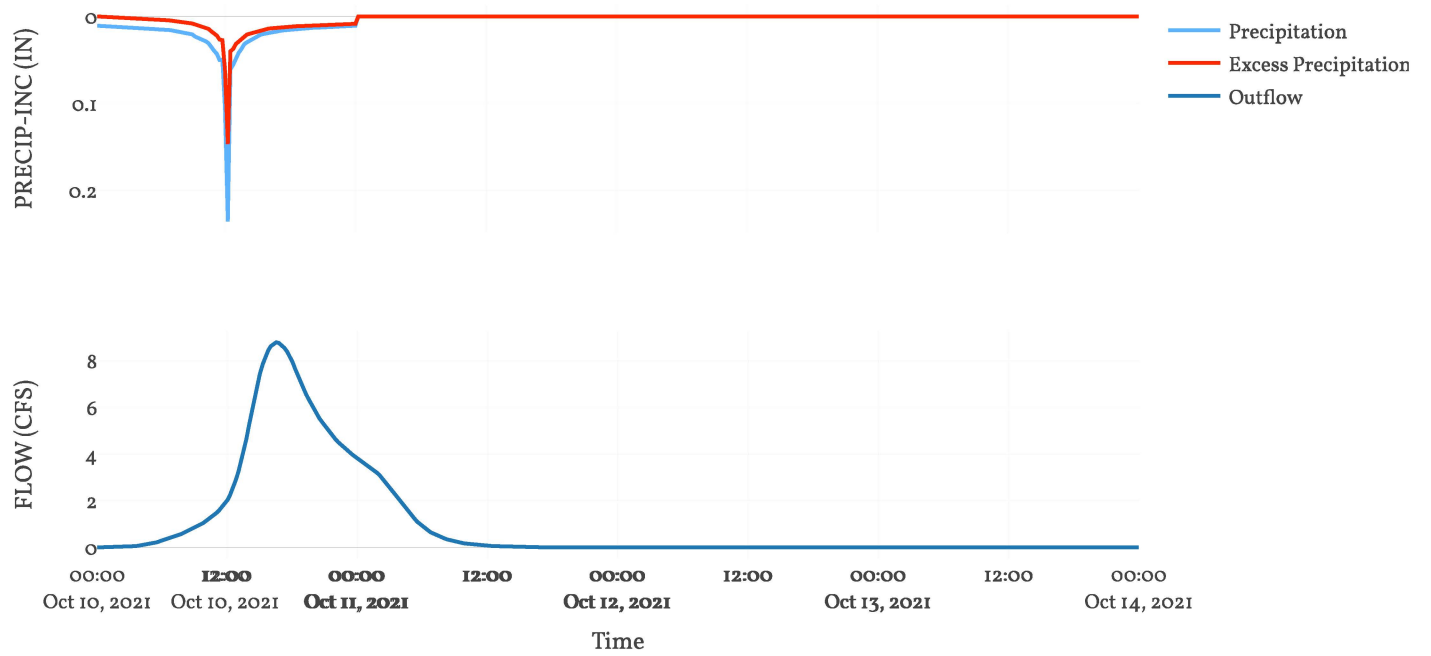
Area : 0.12  
Downstream : Pre Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

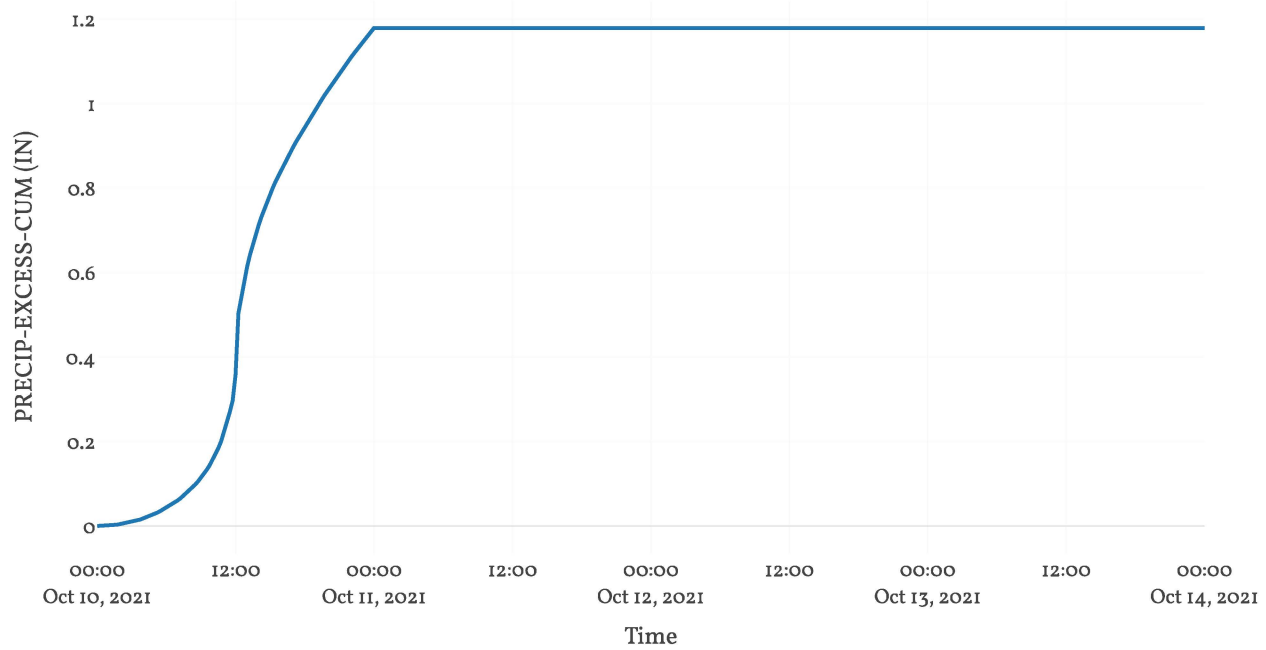
Transform: Scs	
Lag	233.88
Unitgraph Type	Standard

Results: SHED 1-01	
Peak Discharge (CFS)	8.8
Time of Peak Discharge	10Oct2021, 16:30
Volume (IN)	1.18
Precipitation Volume (AC - FT)	14.13
Loss Volume (AC - FT)	6.37
Excess Volume (AC - FT)	7.76
Direct Runoff Volume (AC - FT)	7.76
Baseflow Volume (AC - FT)	0

## Precipitation and Outflow

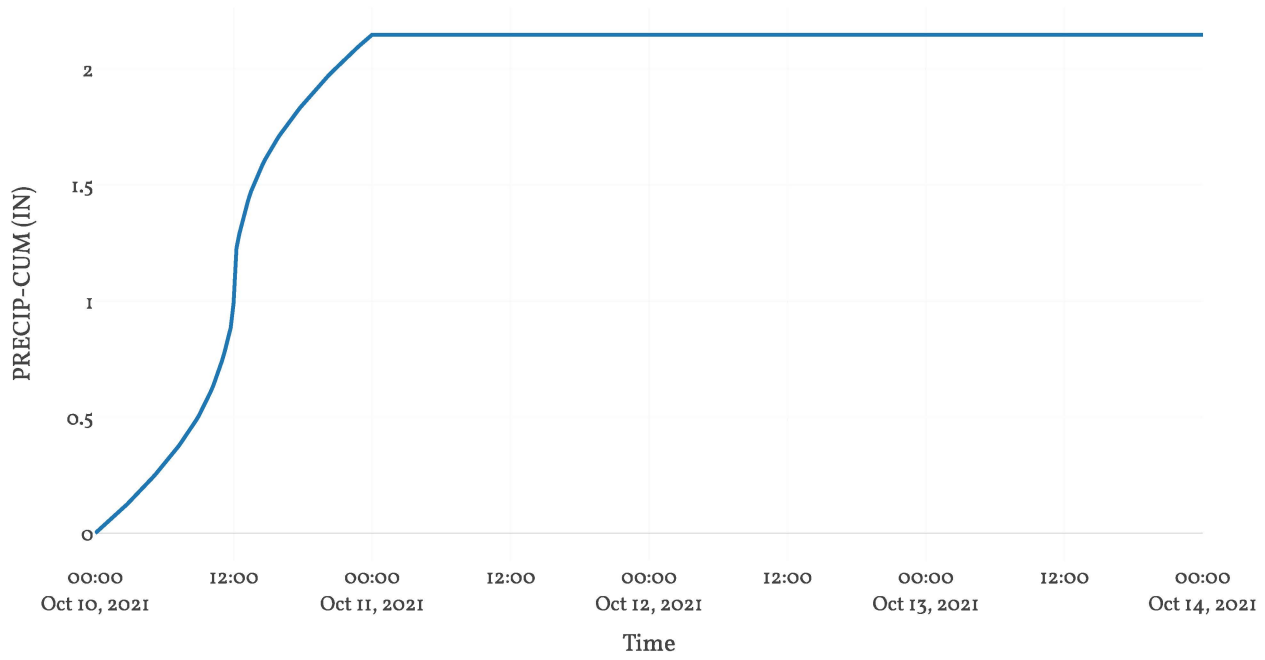


## Cumulative Excess Precipitation

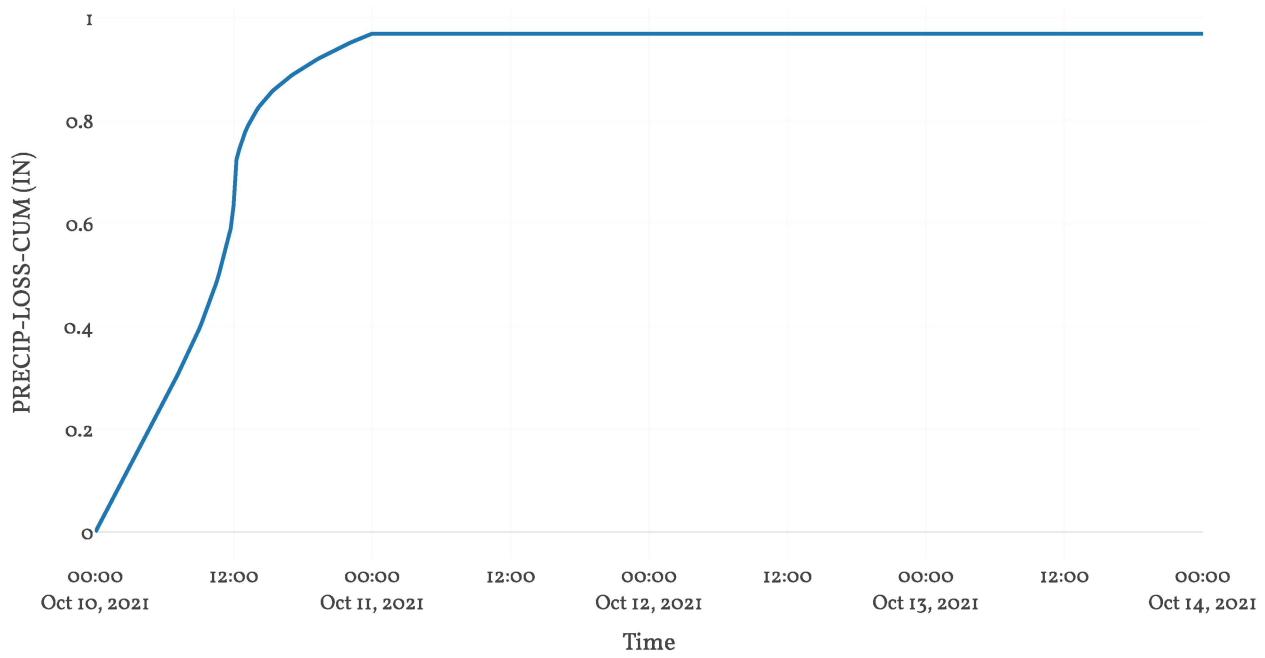




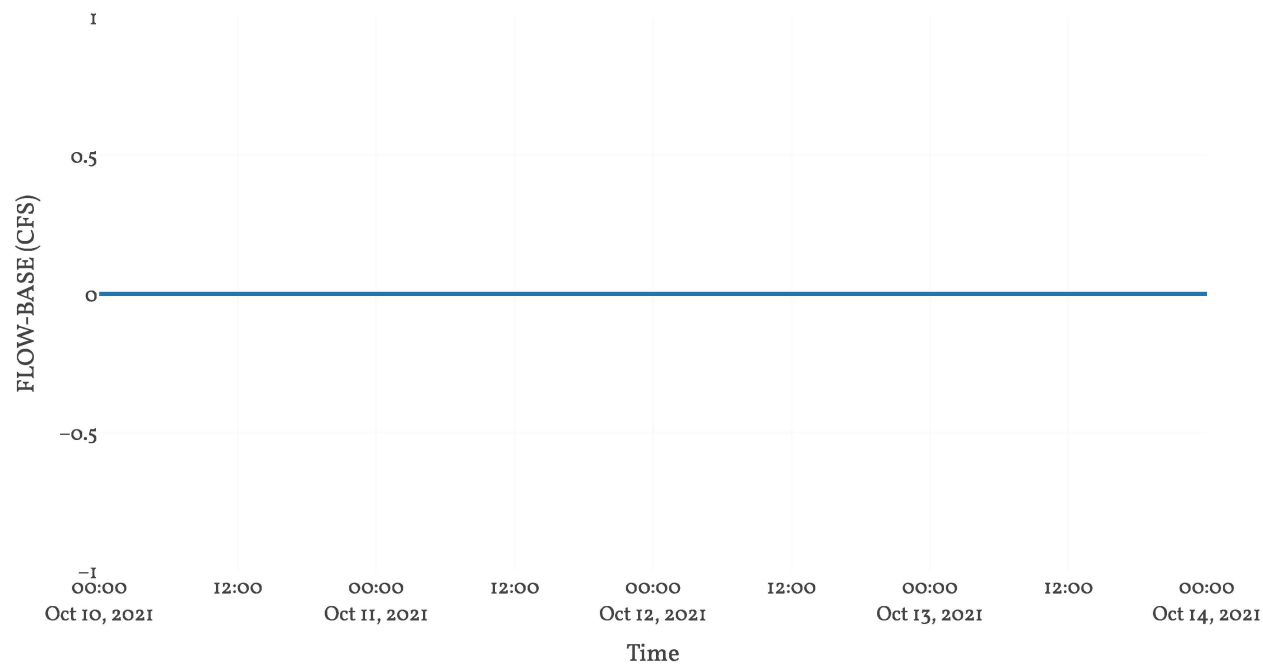
Cumulative Precipitation



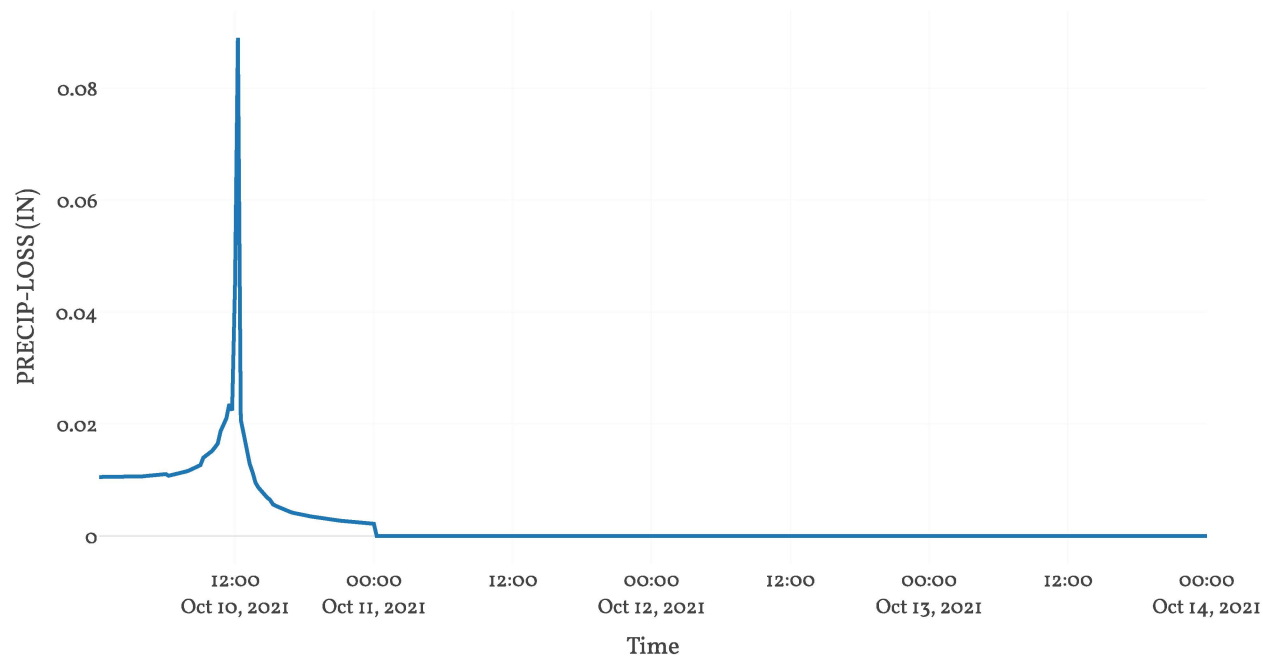
Cumulative Precipitation Loss



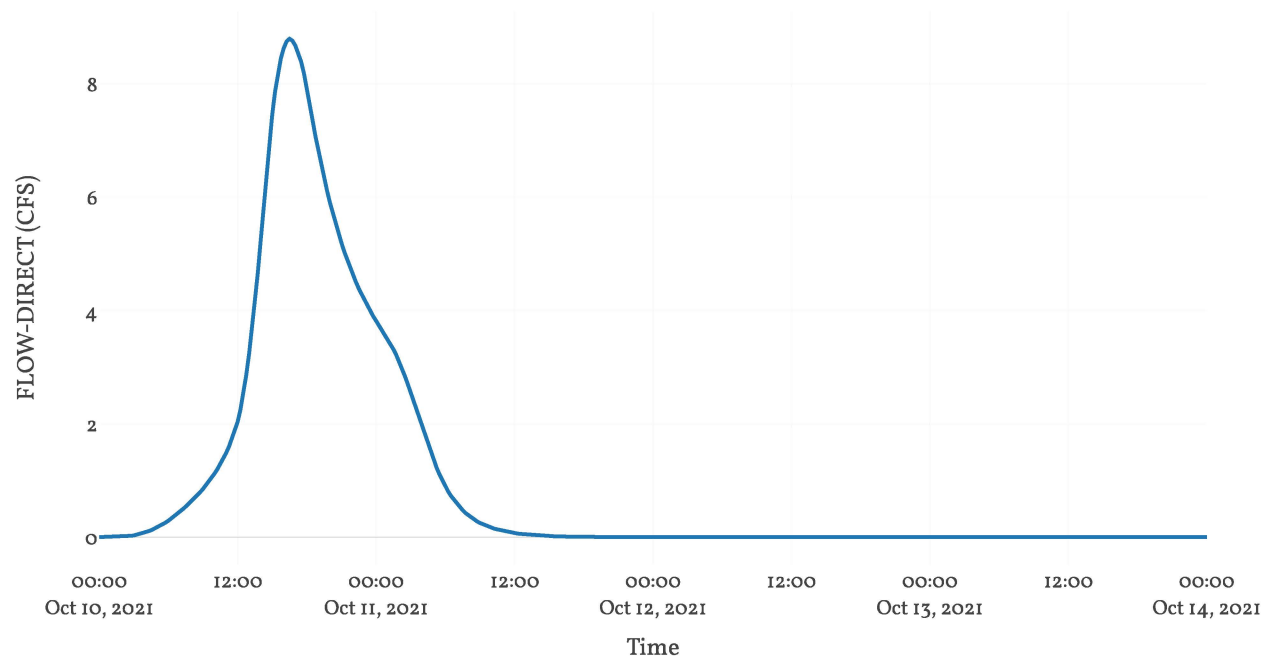
Baseflow



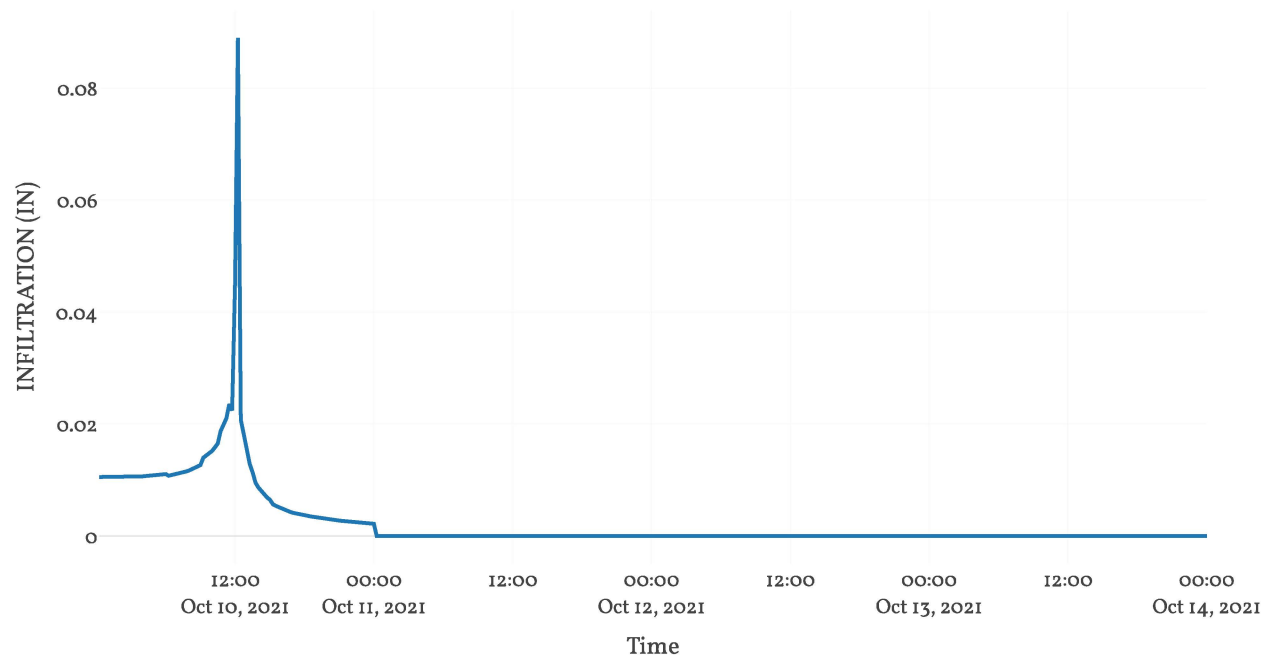
Precipitation Loss



Direct Runoff



Soil Infiltration



Subbasin: SHED 1-02

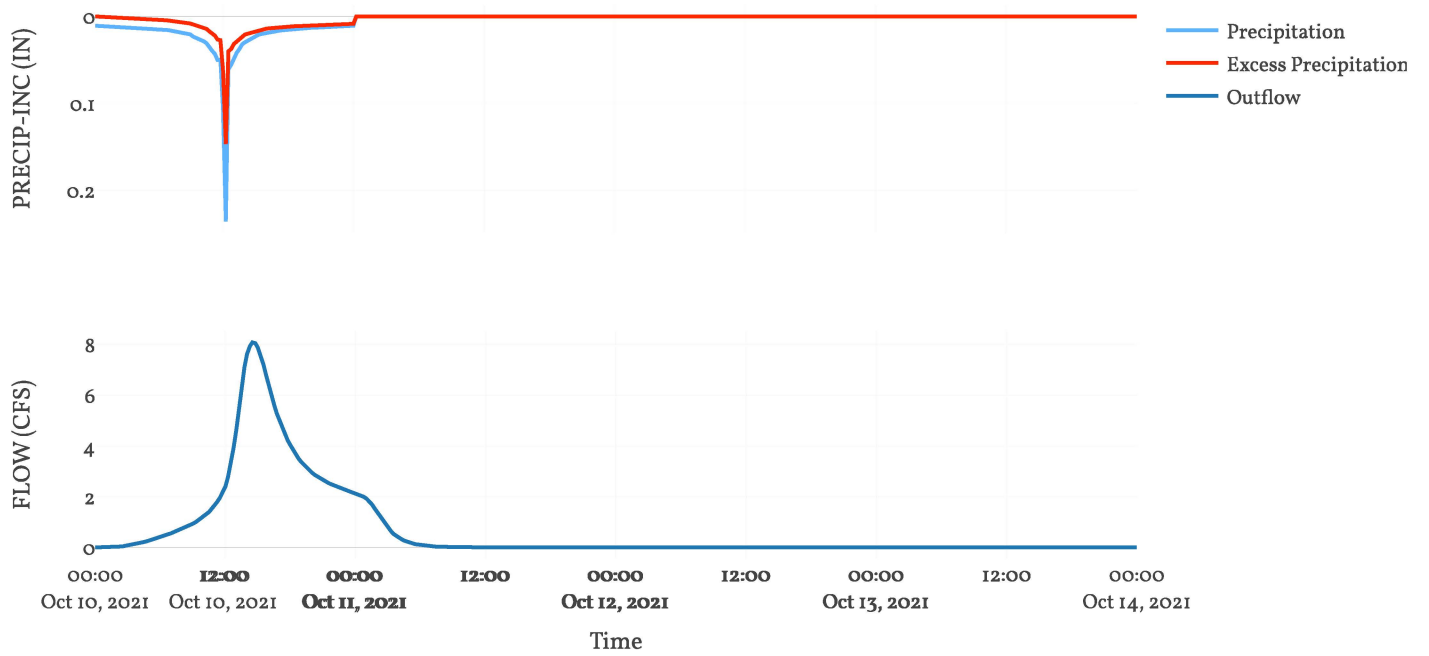
Area : 0.09  
Downstream : Pre Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

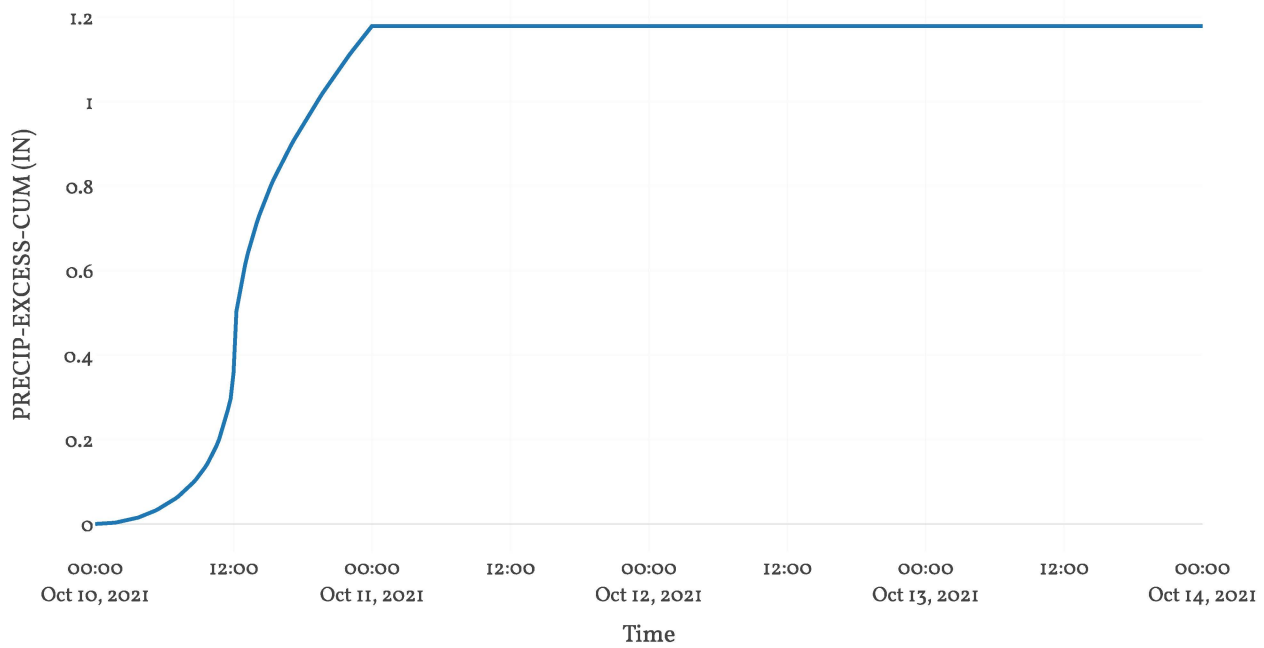
Transform: Scs	
Lag	133
Unitgraph Type	Standard

Results: SHED 1-02	
Peak Discharge (CFS)	8.1
Time of Peak Discharge	10Oct2021, 14:30
Volume (IN)	1.18
Precipitation Volume (AC - FT)	9.74
Loss Volume (AC - FT)	4.39
Excess Volume (AC - FT)	5.35
Direct Runoff Volume (AC - FT)	5.35
Baseflow Volume (AC - FT)	0

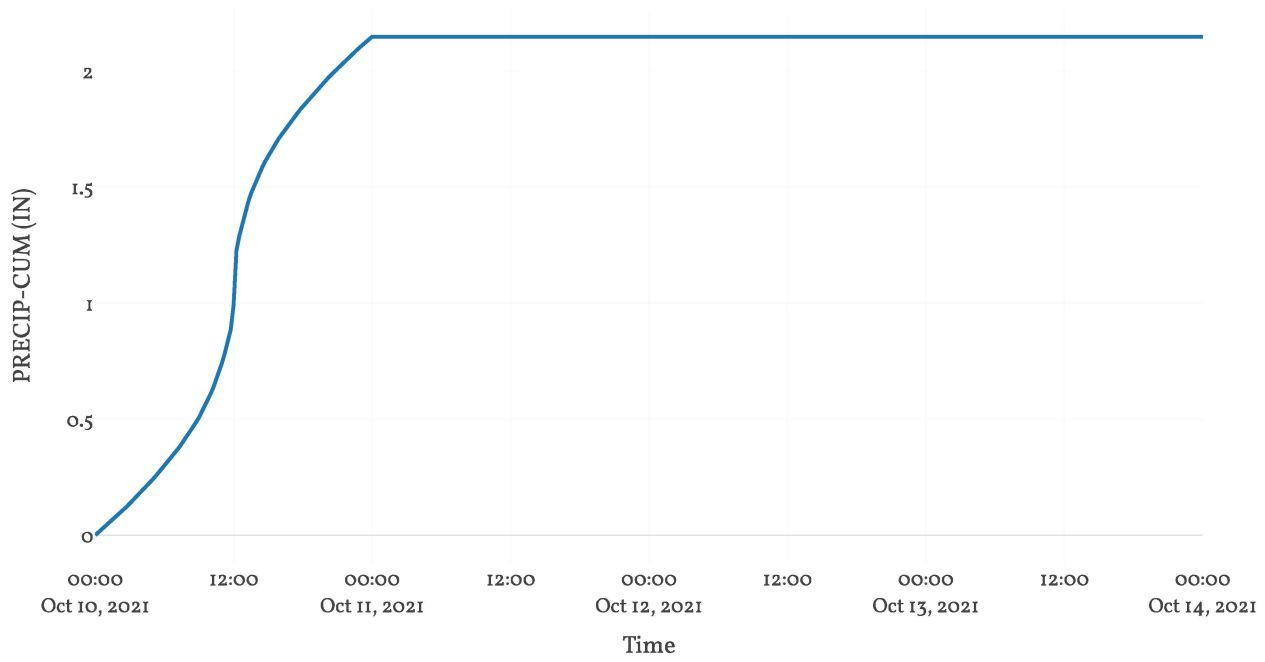
## Precipitation and Outflow



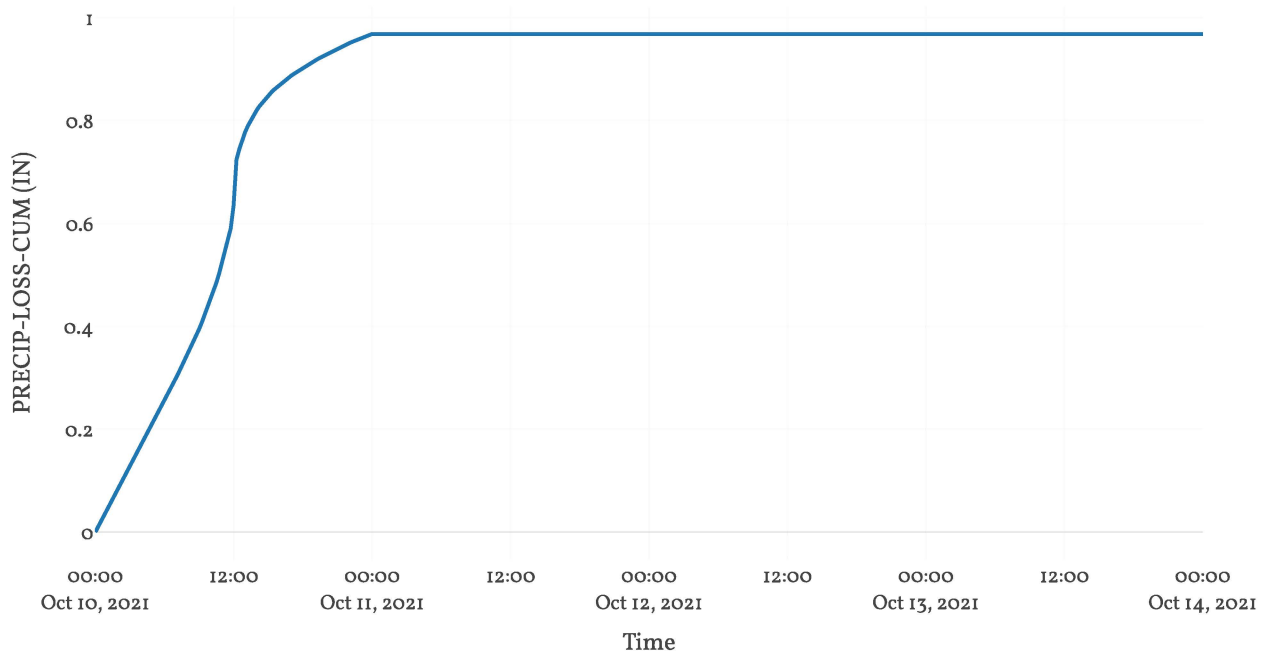
## Cumulative Excess Precipitation



Cumulative Precipitation

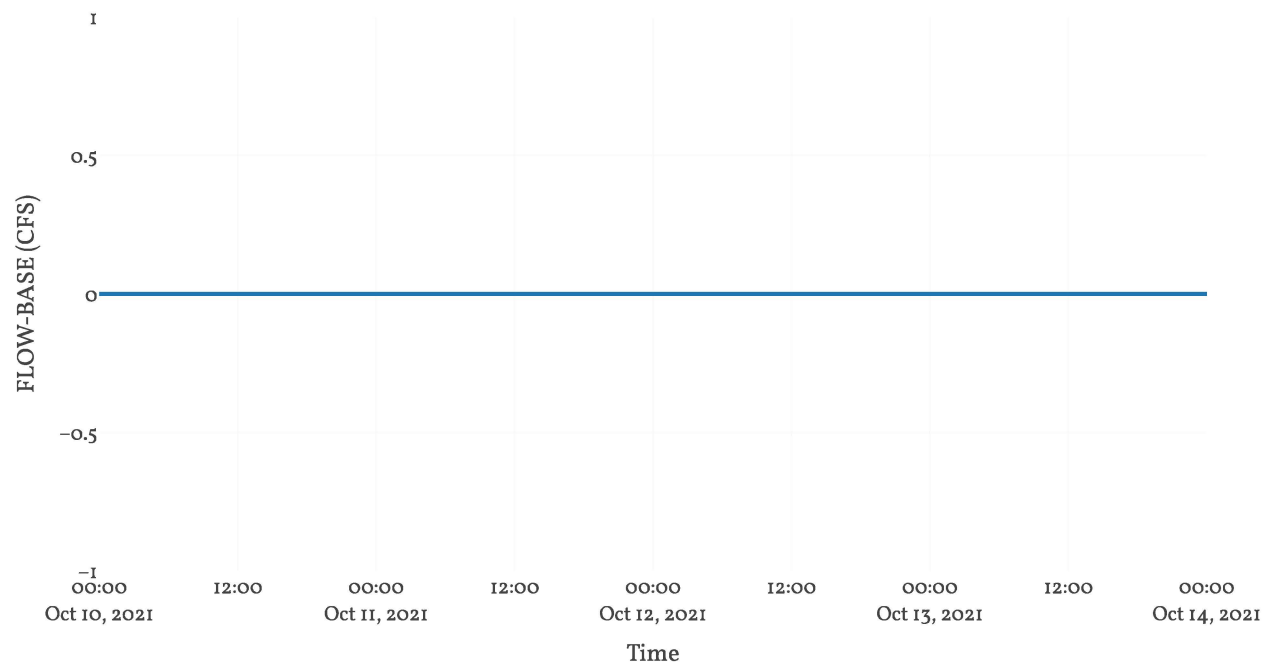


Cumulative Precipitation Loss

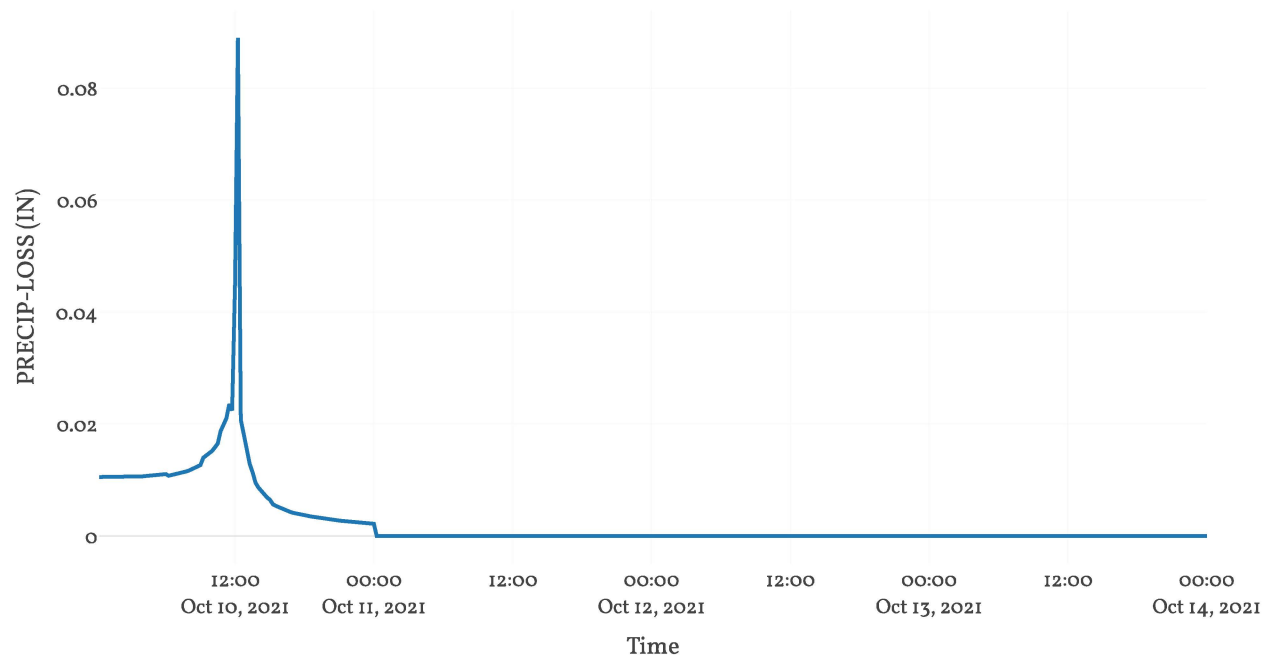




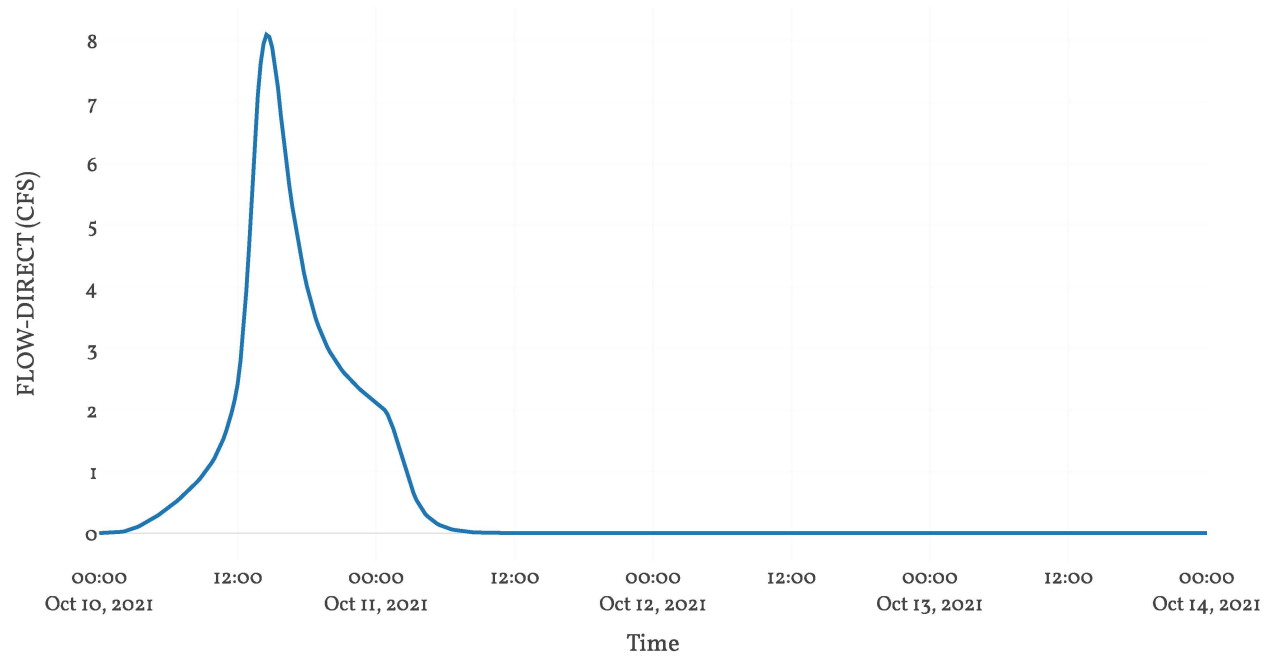
Baseflow



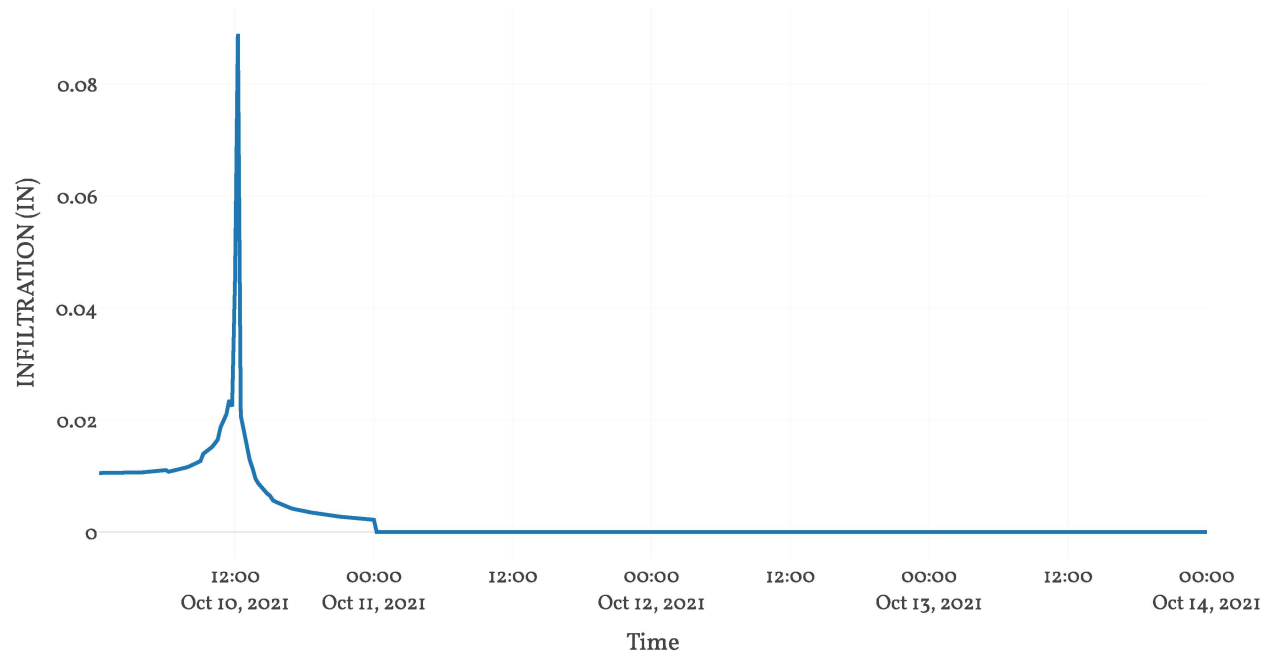
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: SHED 1-03

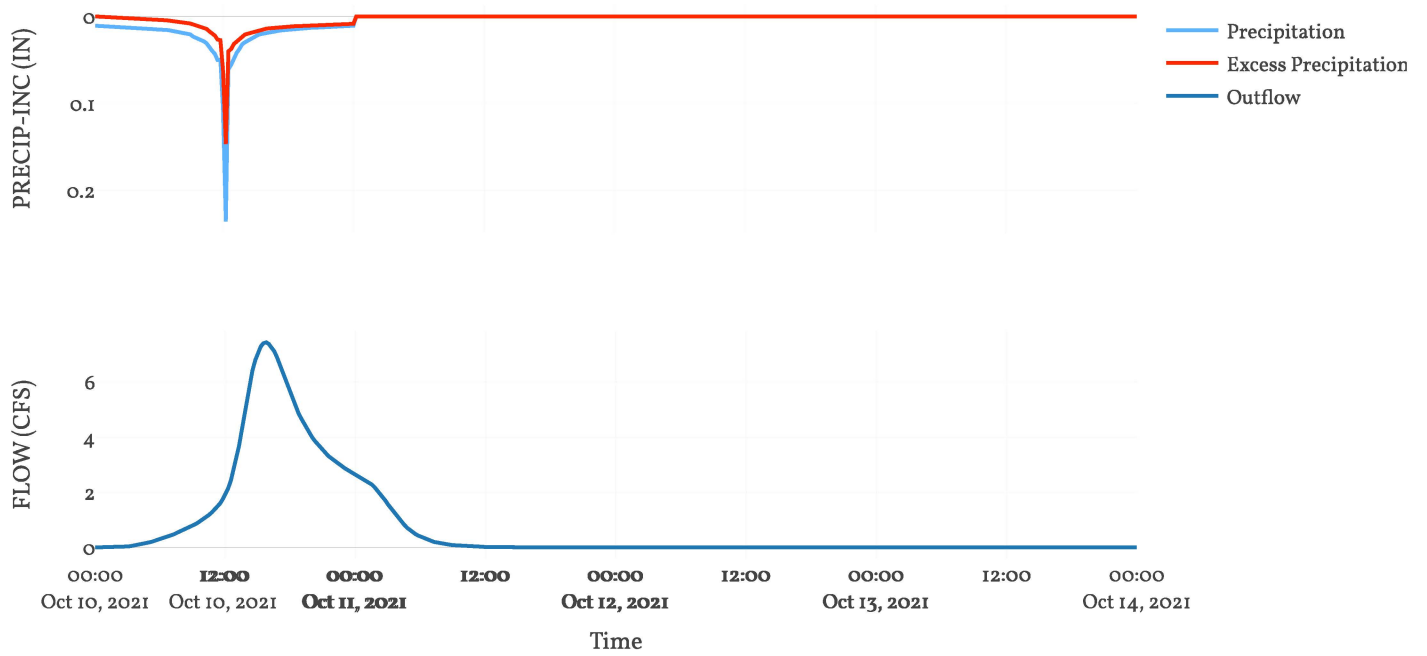
Area : 0.09  
Downstream : Pre Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

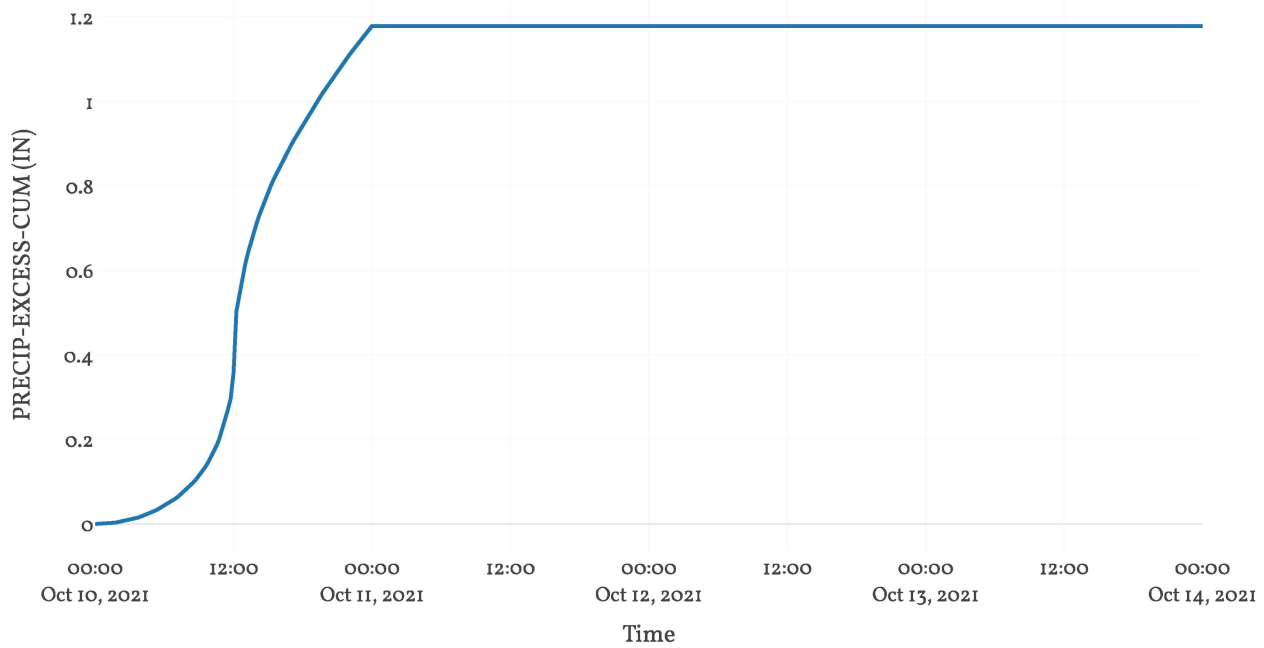
Transform: Scs	
Lag	192
Unitgraph Type	Standard

Results: SHED 1-03	
Peak Discharge (CFS)	7.44
Time of Peak Discharge	10Oct2021, 15:45
Volume (IN)	1.18
Precipitation Volume (AC - FT)	10.76
Loss Volume (AC - FT)	4.85
Excess Volume (AC - FT)	5.91
Direct Runoff Volume (AC - FT)	5.91
Baseflow Volume (AC - FT)	0

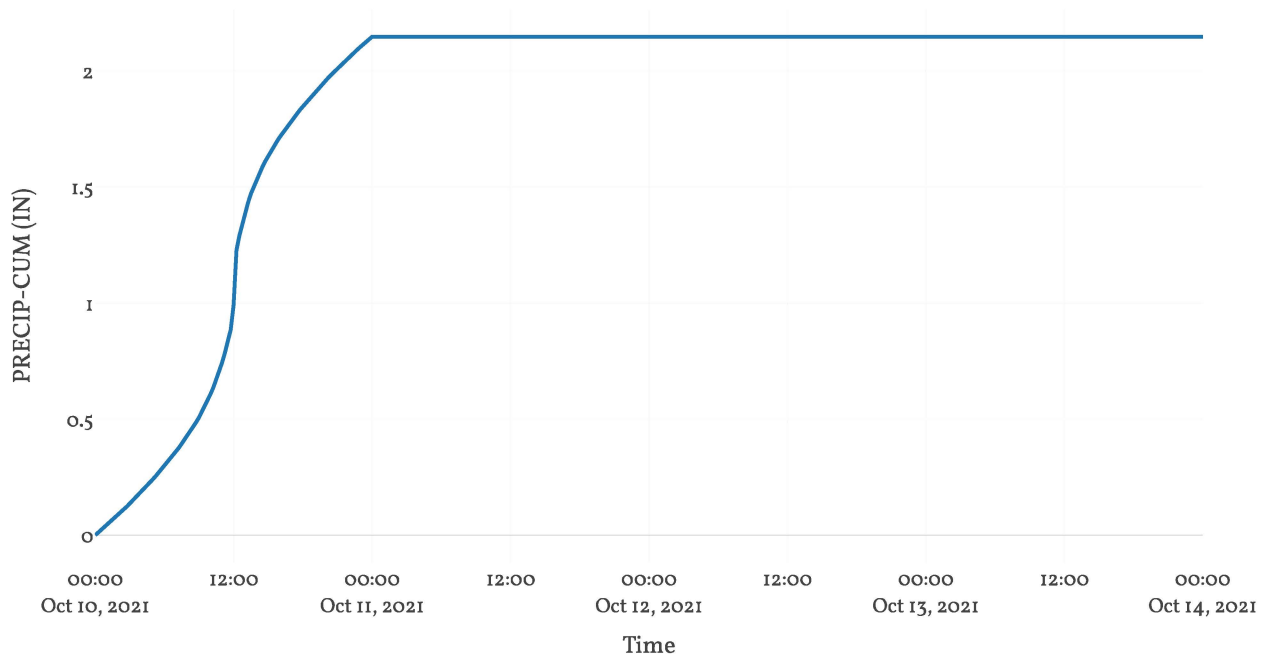
## Precipitation and Outflow



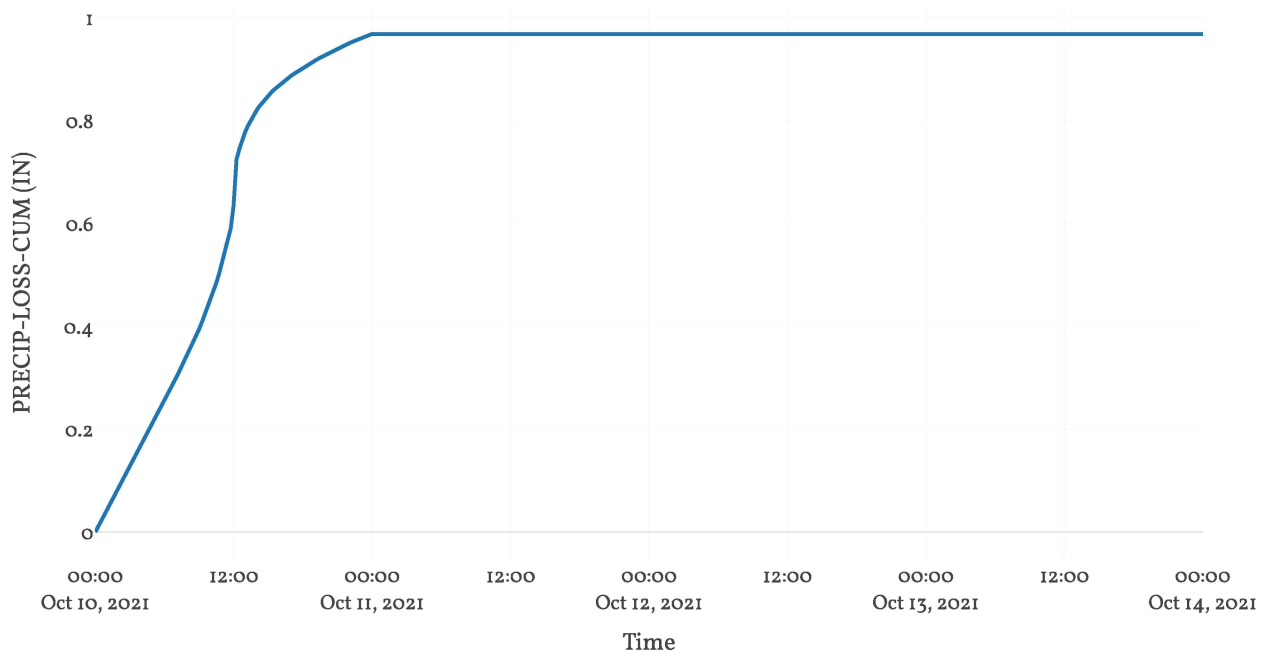
## Cumulative Excess Precipitation



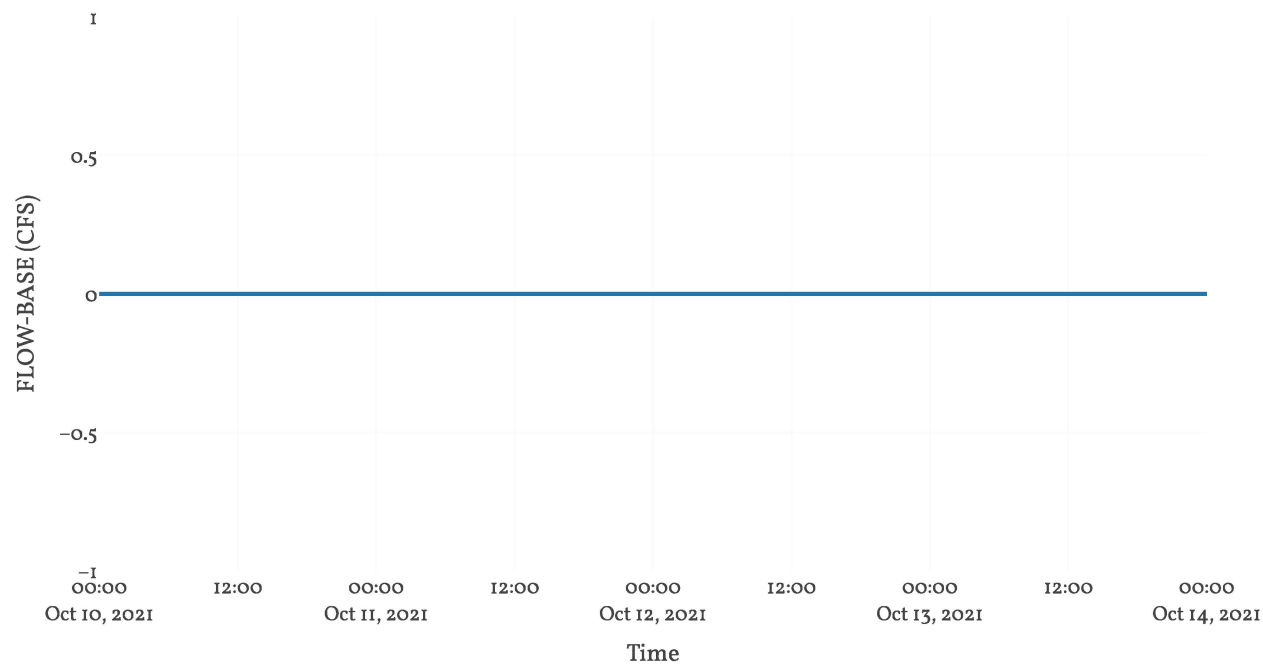
Cumulative Precipitation



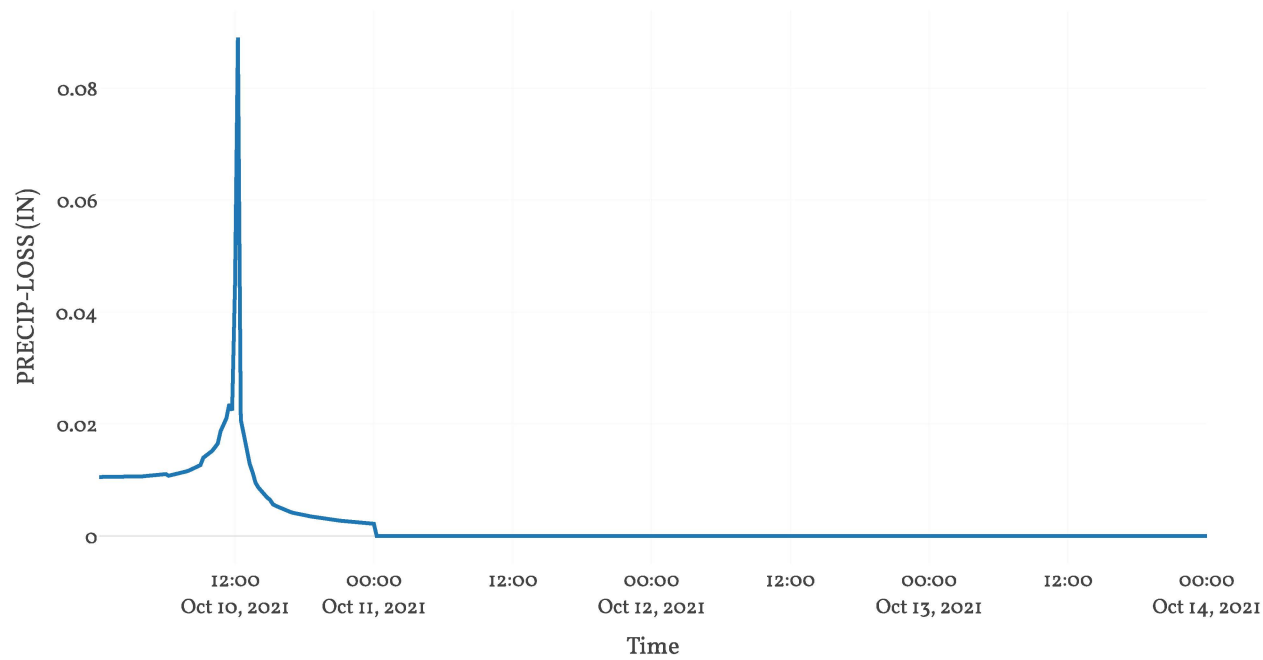
Cumulative Precipitation Loss



Baseflow

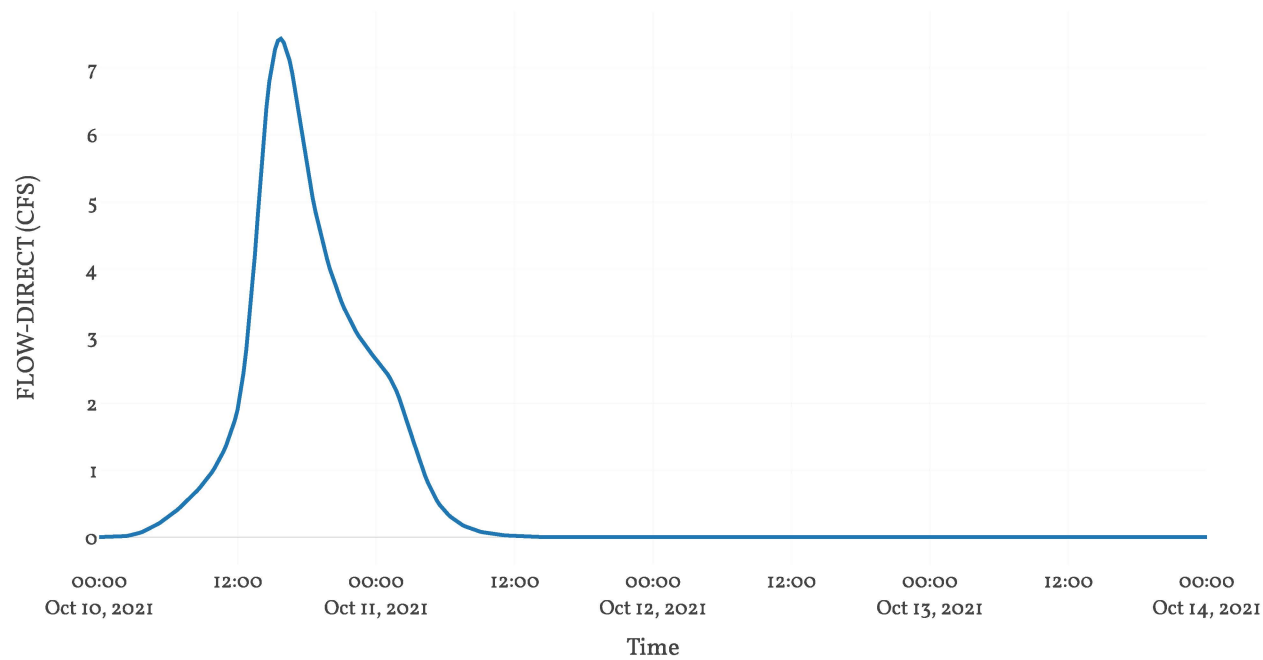


Precipitation Loss

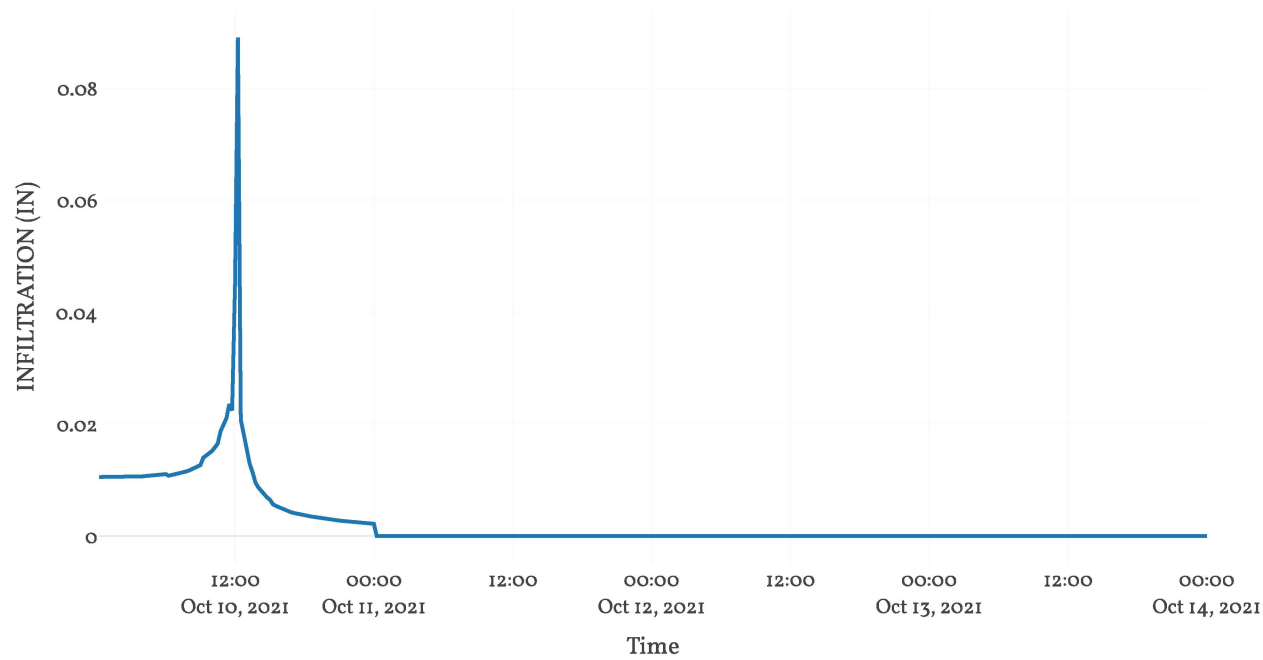




Direct Runoff



Soil Infiltration



# Subbasin: SHED 1-04

Area : 0.11

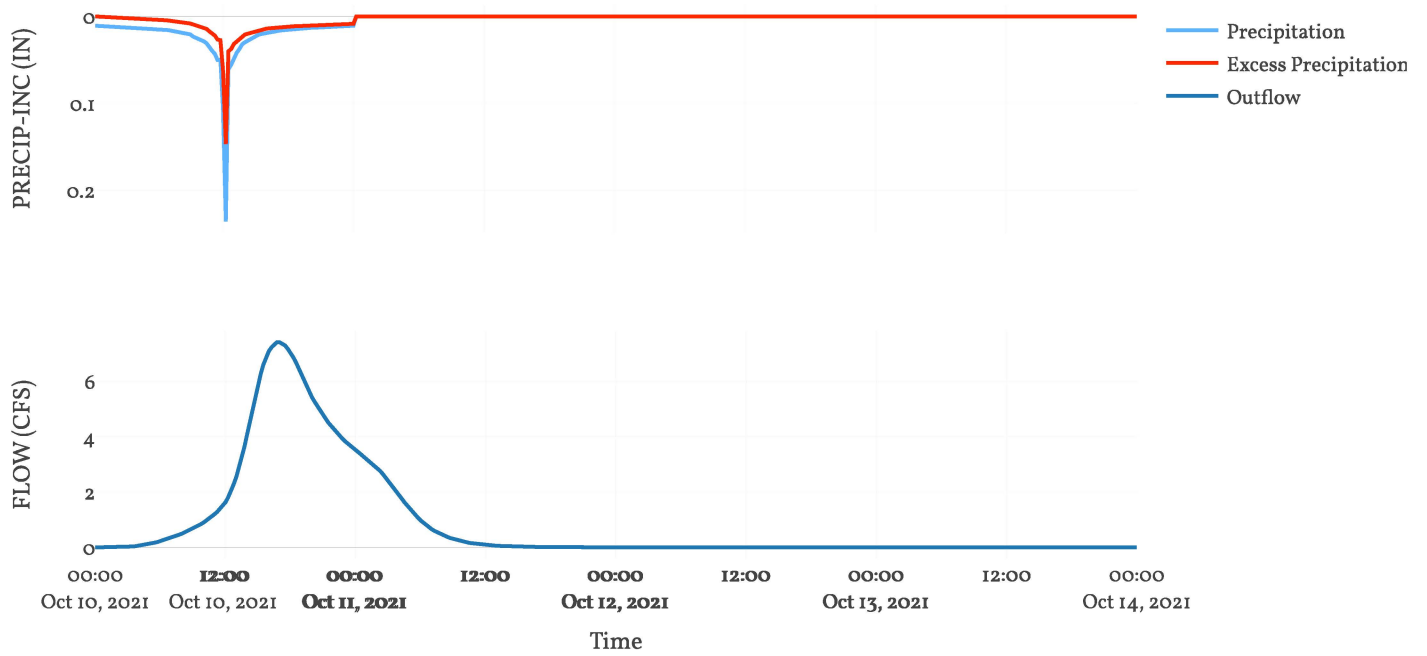
Downstream : Pre Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

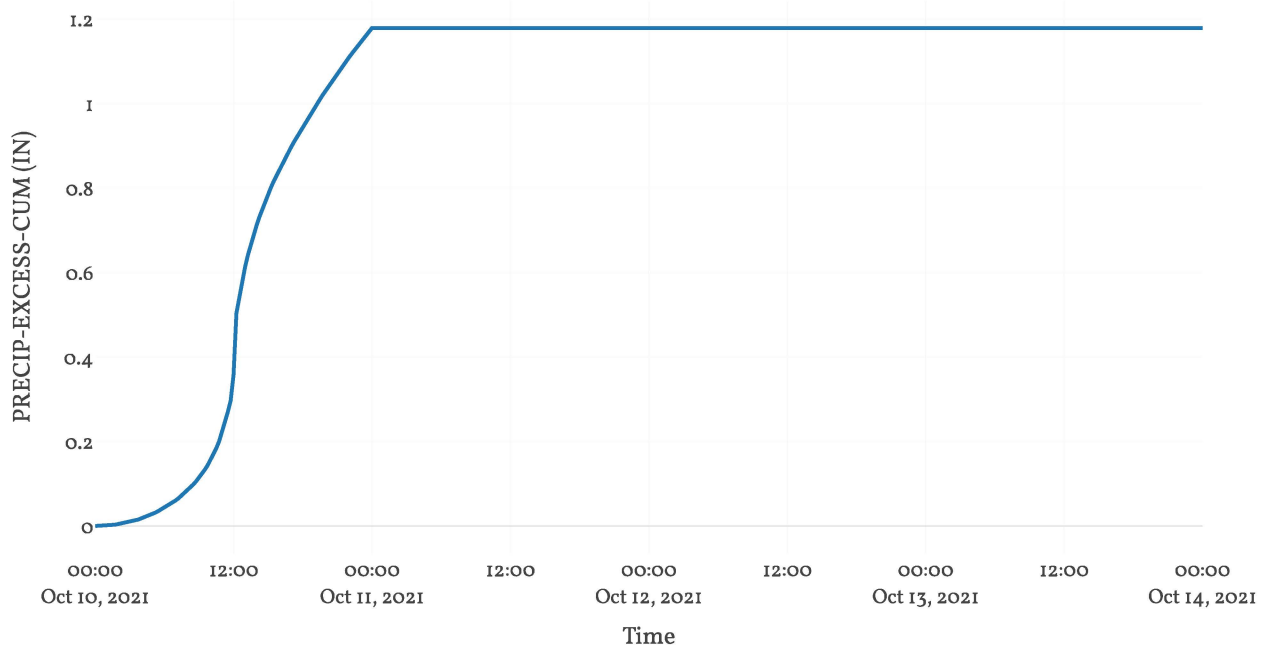
Transform: Scs	
Lag	253
Unitgraph Type	Standard

Results: SHED 1-04	
Peak Discharge (CFS)	7.41
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	1.18
Precipitation Volume (AC - FT)	12.43
Loss Volume (AC - FT)	5.61
Excess Volume (AC - FT)	6.83
Direct Runoff Volume (AC - FT)	6.83
Baseflow Volume (AC - FT)	0

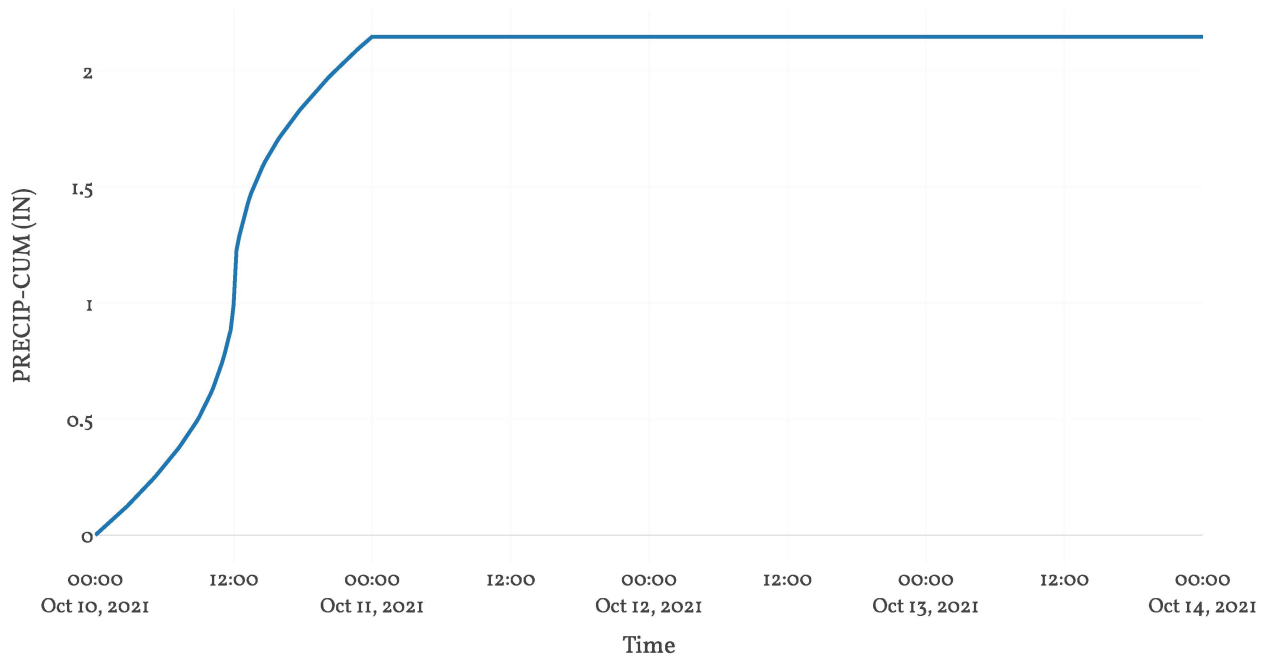
## Precipitation and Outflow



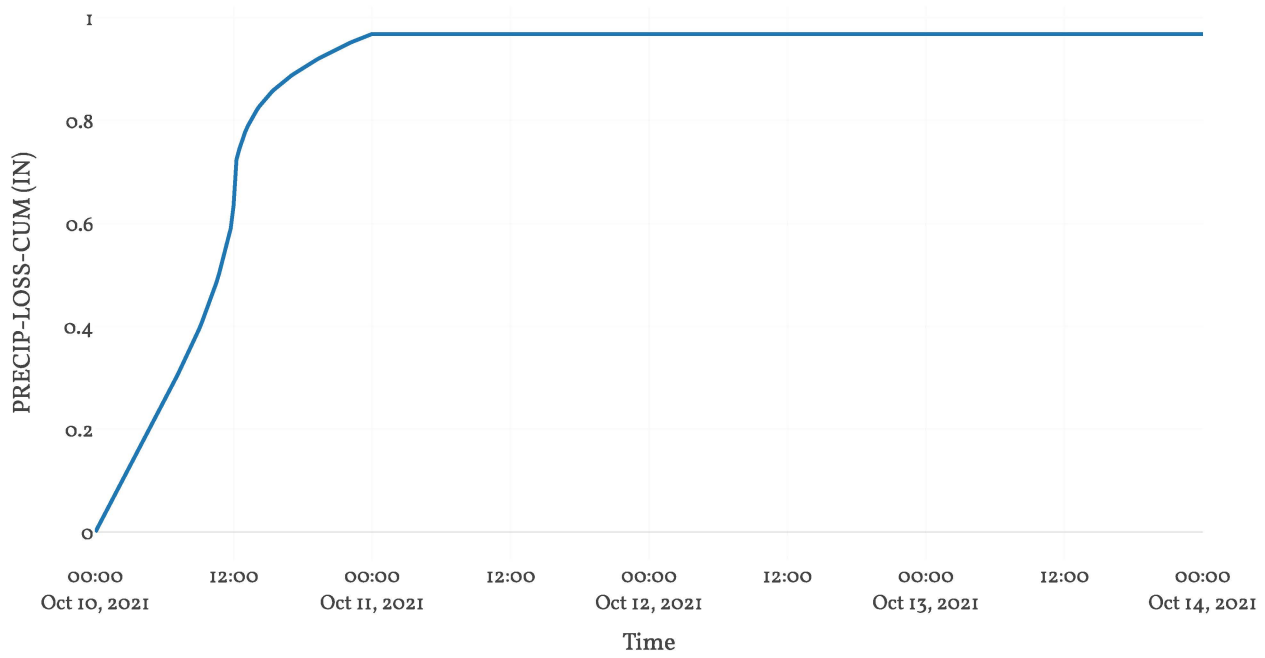
## Cumulative Excess Precipitation



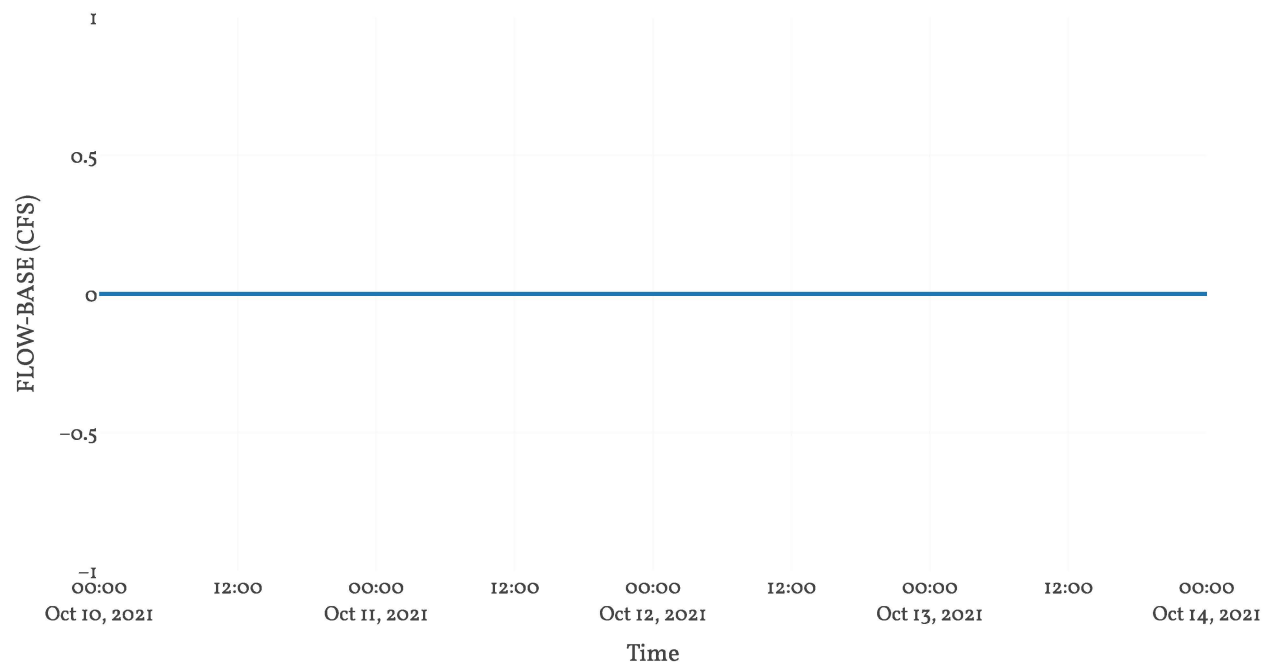
Cumulative Precipitation



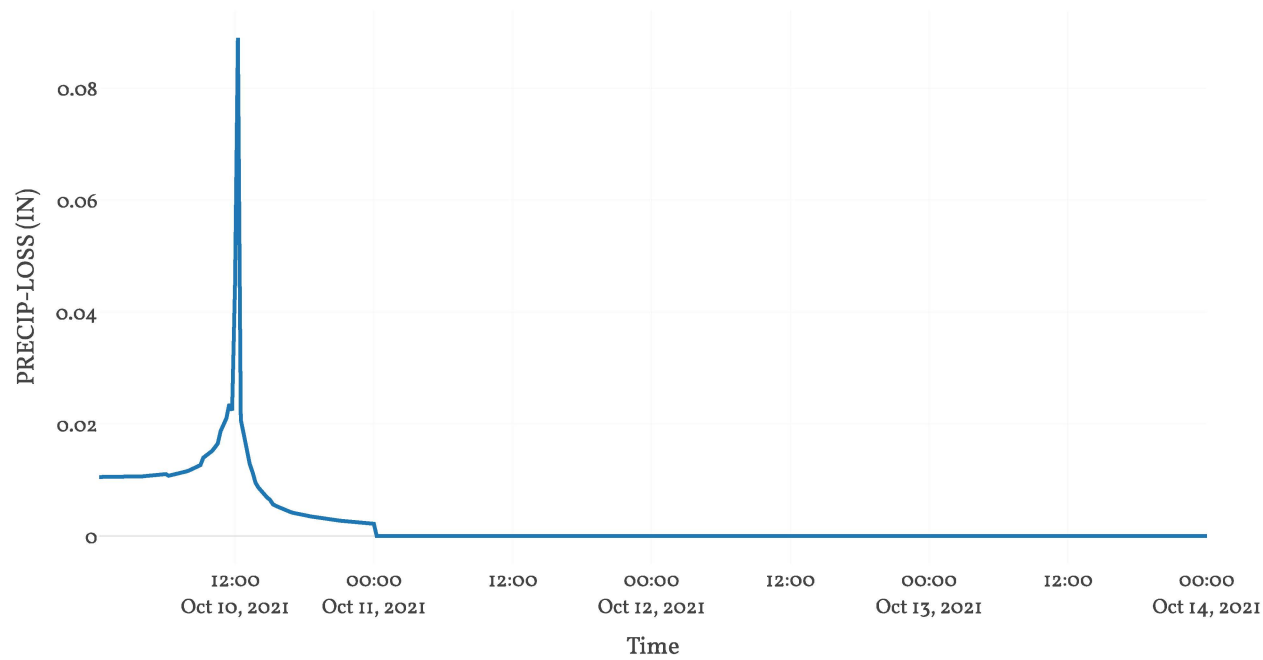
Cumulative Precipitation Loss



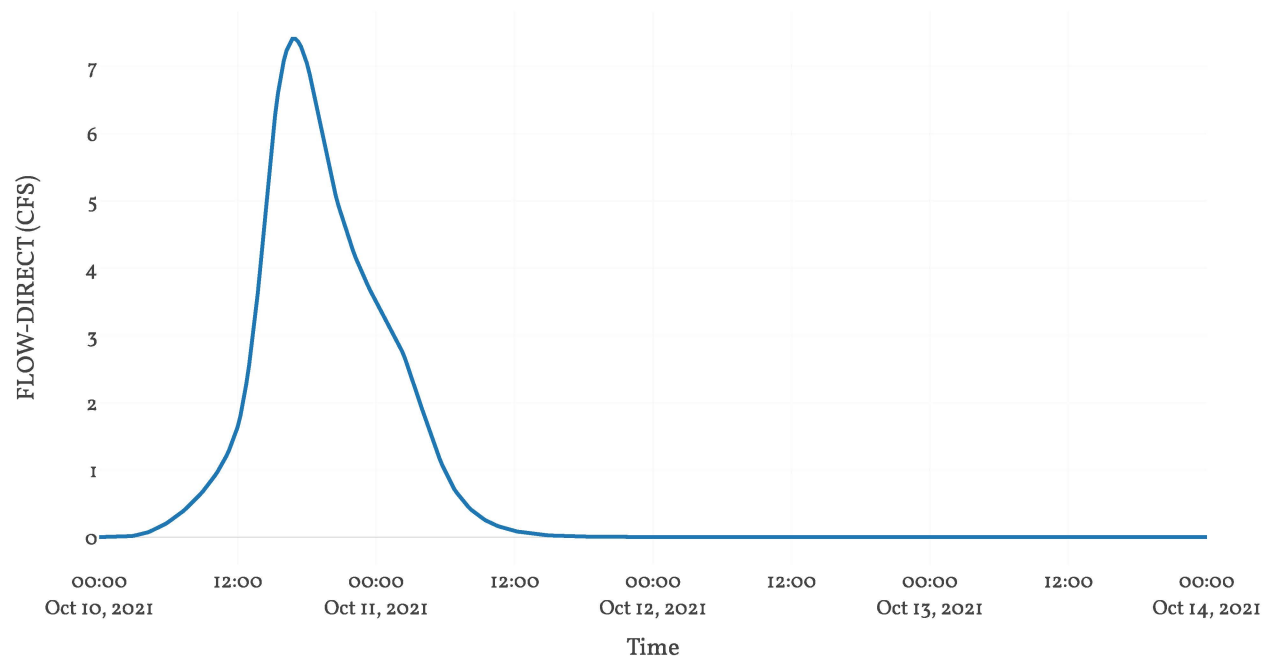
Baseflow



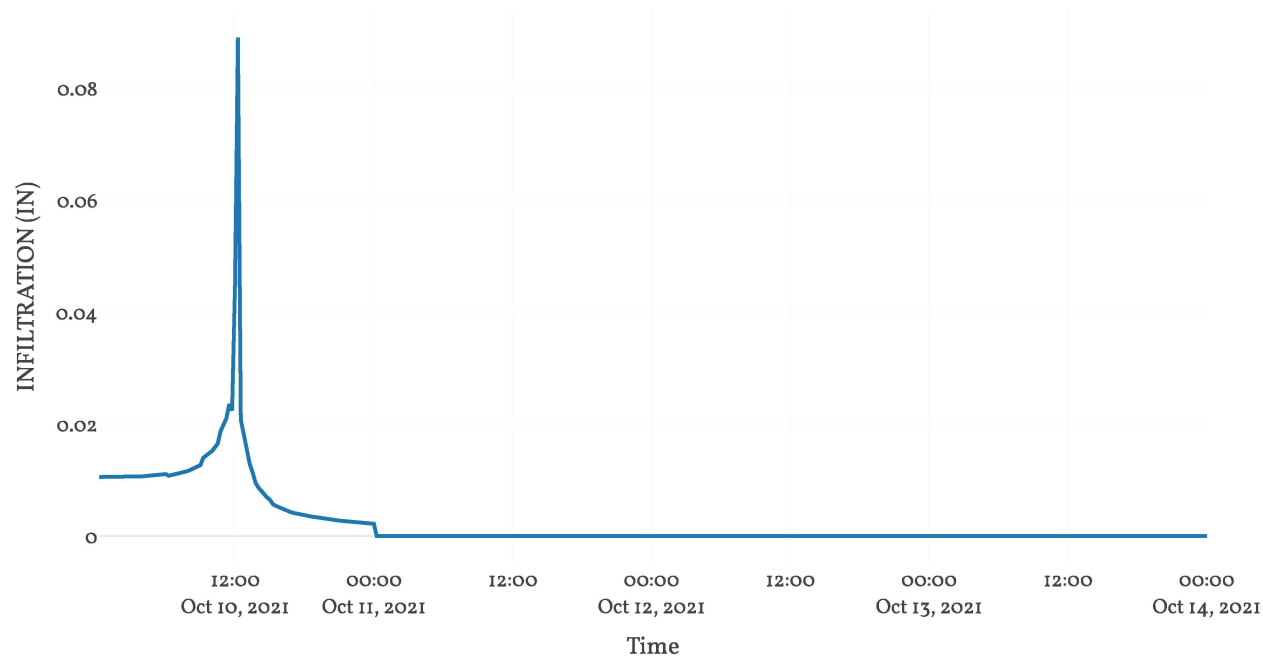
Precipitation Loss



Direct Runoff



Soil Infiltration



Subbasin: SHED 1-05

Area : 0.3  
Downstream : Pre Total

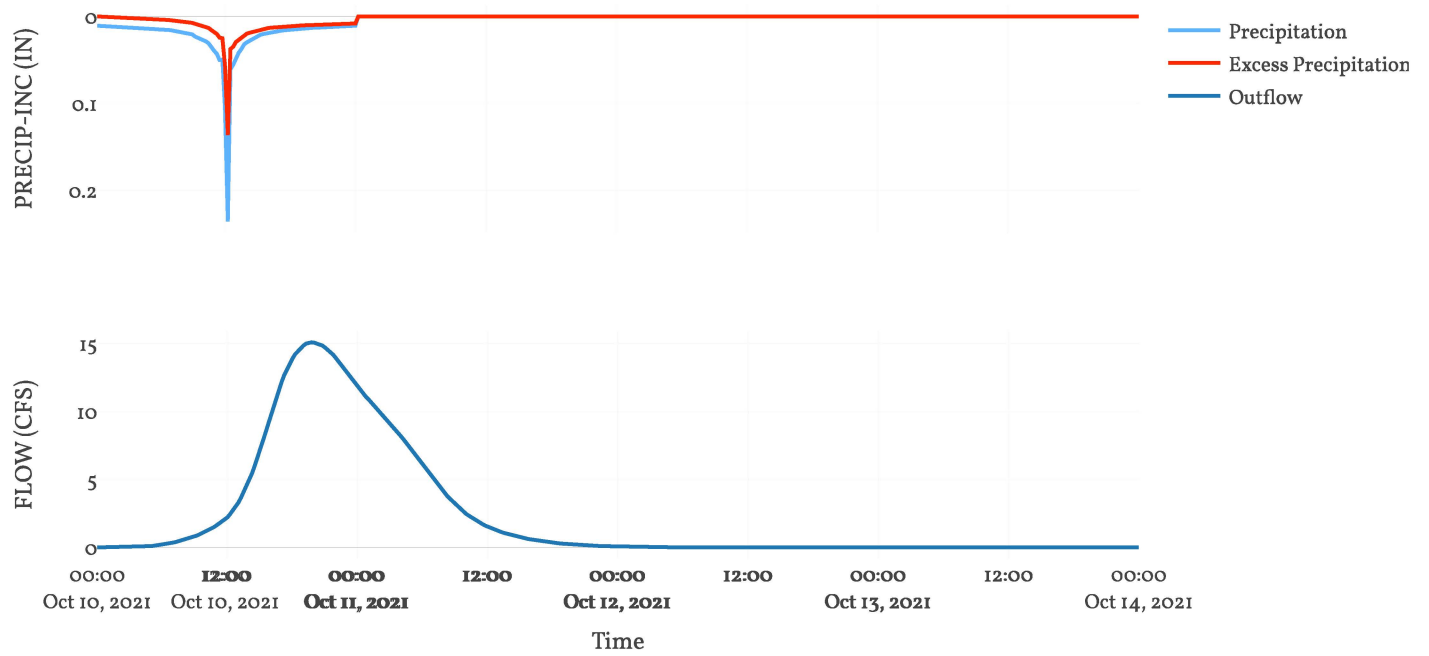
Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83
Initial Abstraction	0

Transform: Scs	
Lag	396
Unitgraph Type	Standard

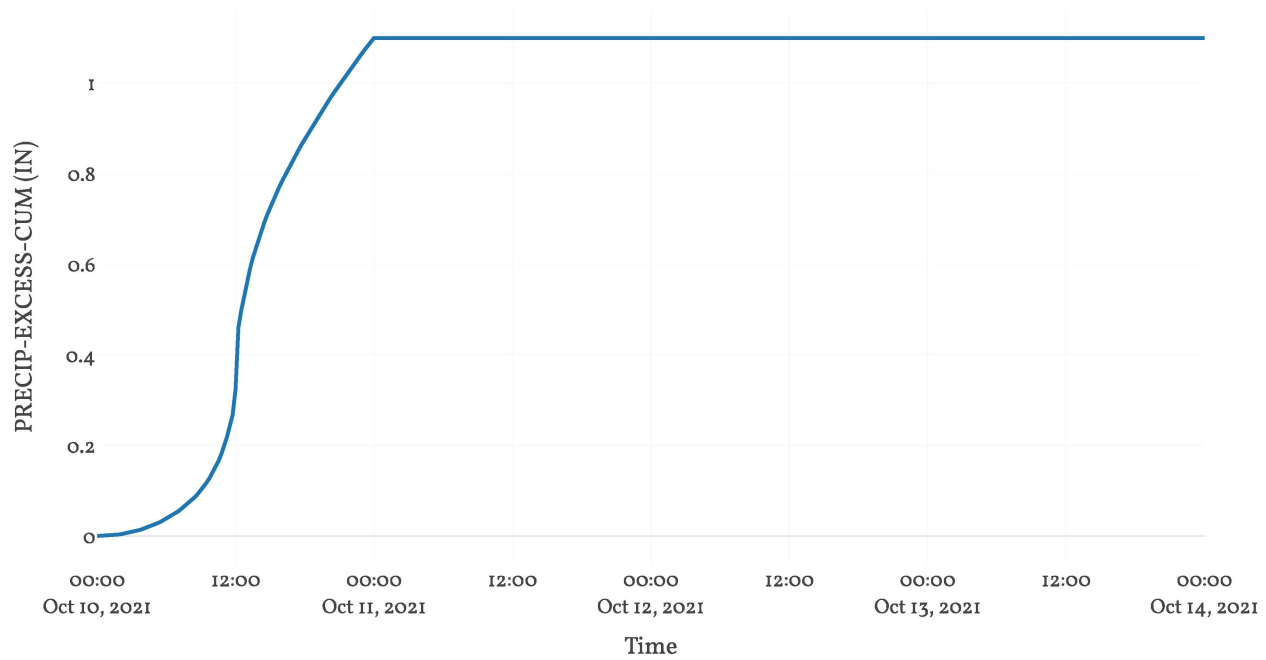
Results: SHED 1-05	
Peak Discharge (CFS)	15.09
Time of Peak Discharge	10Oct2021, 19:45
Volume (IN)	1.1
Precipitation Volume (AC - FT)	34.91
Loss Volume (AC - FT)	17.04
Excess Volume (AC - FT)	17.87
Direct Runoff Volume (AC - FT)	17.87
Baseflow Volume (AC - FT)	0



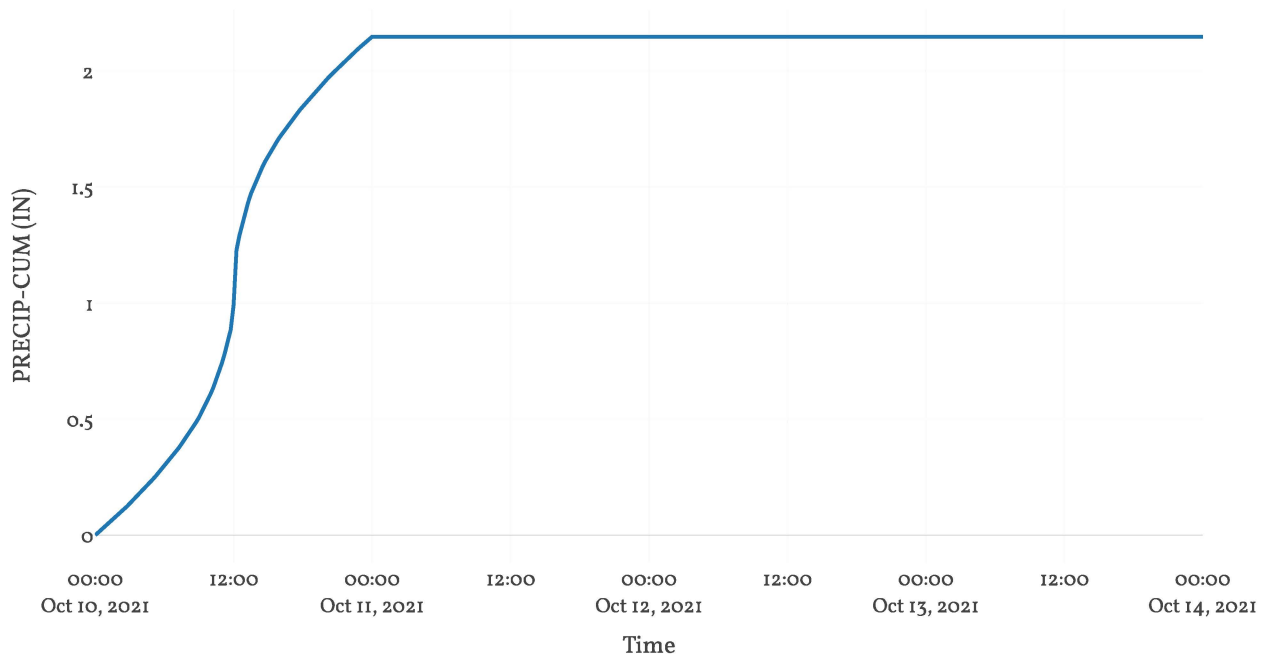
## Precipitation and Outflow



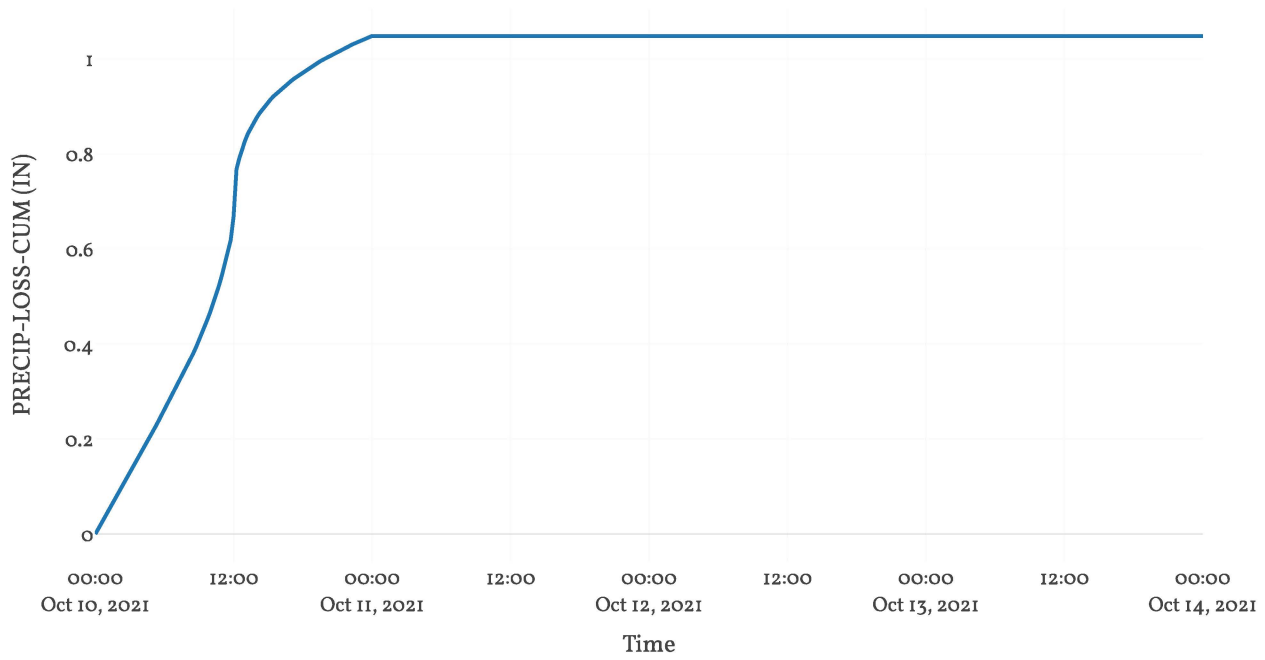
## Cumulative Excess Precipitation



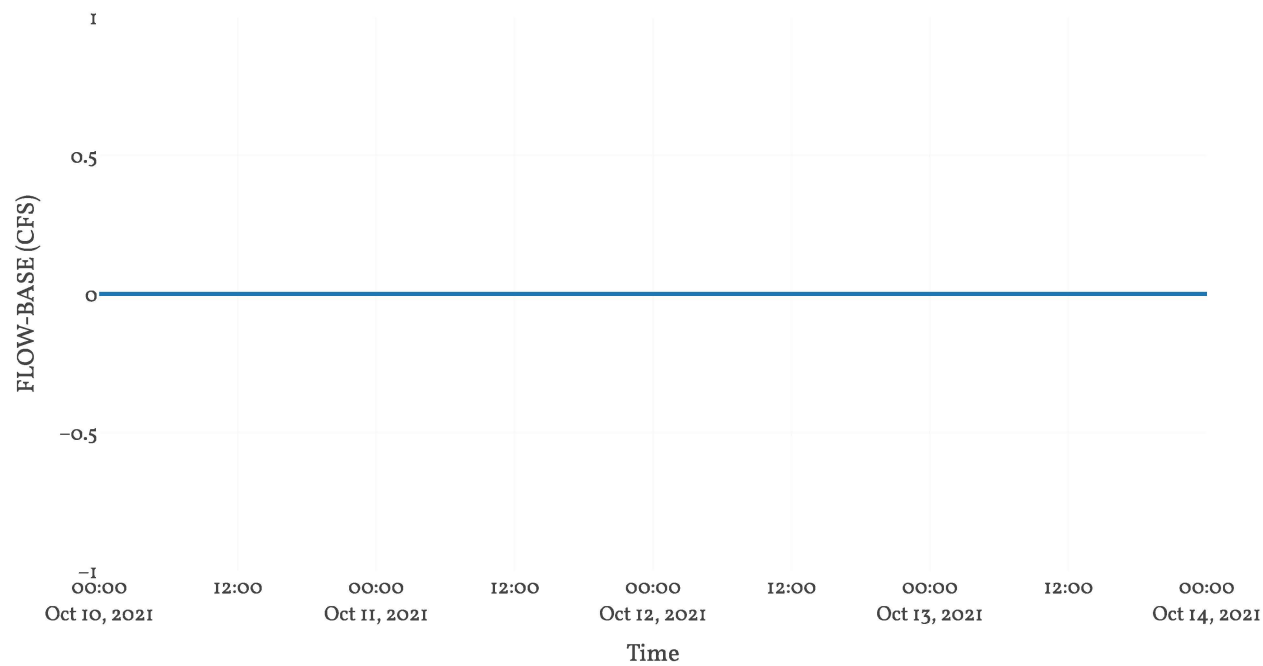
Cumulative Precipitation



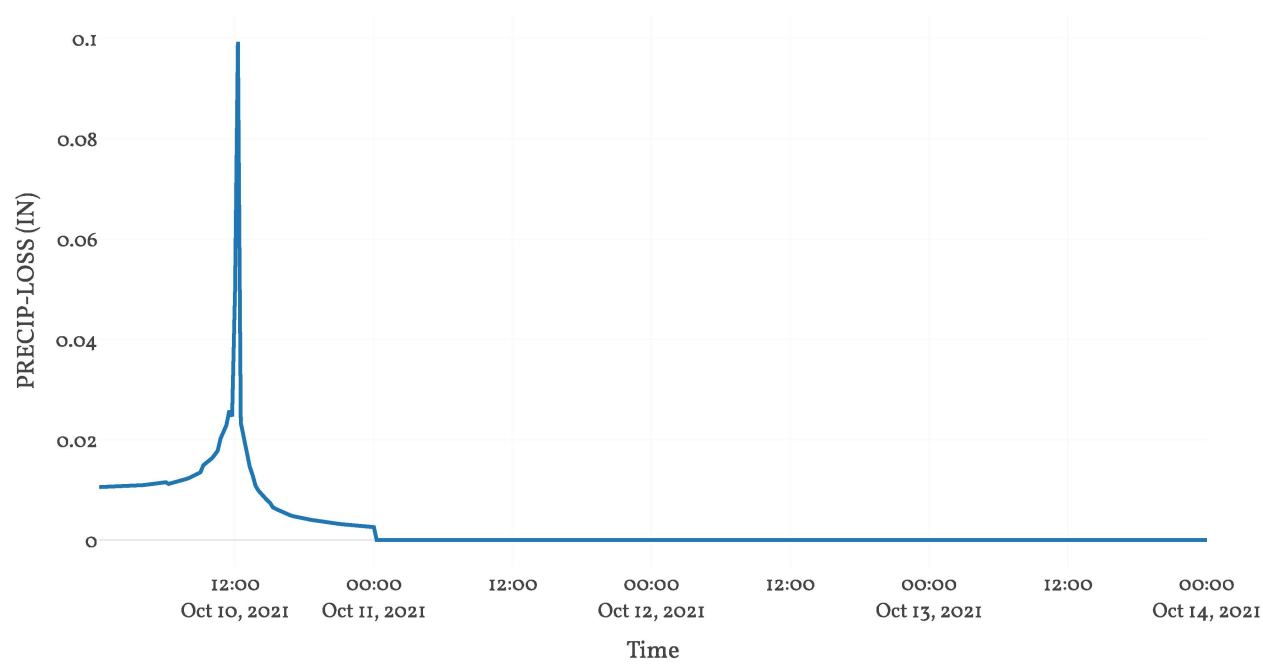
Cumulative Precipitation Loss



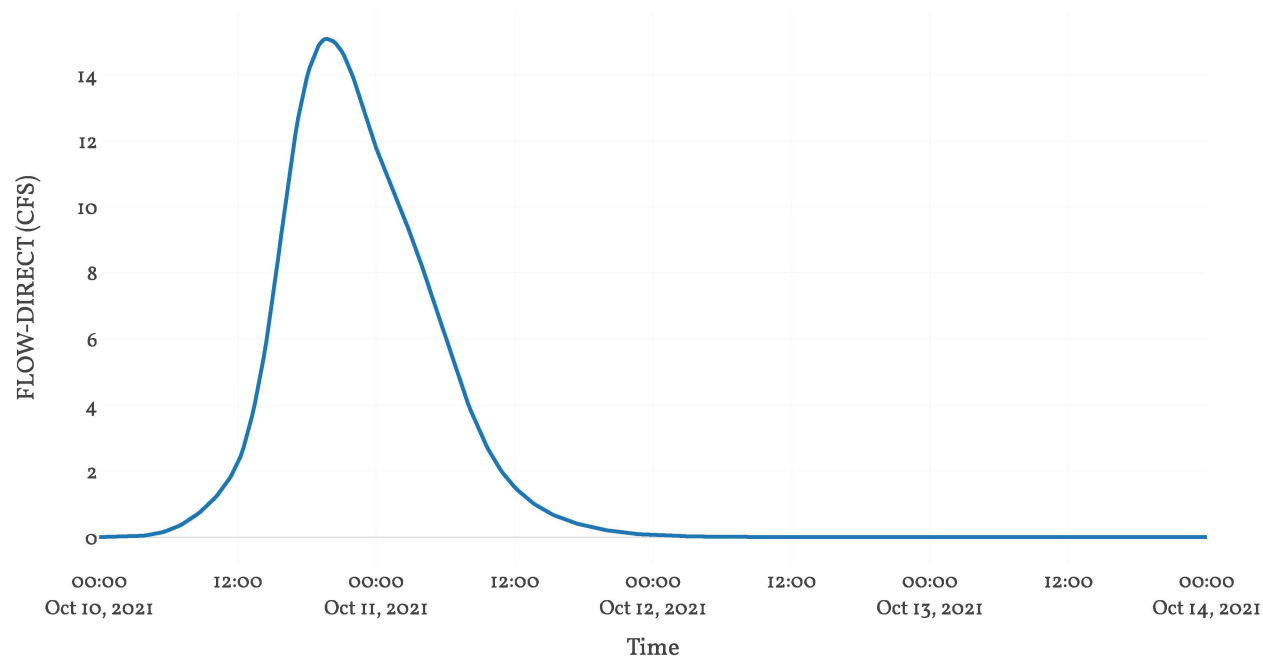
Baseflow



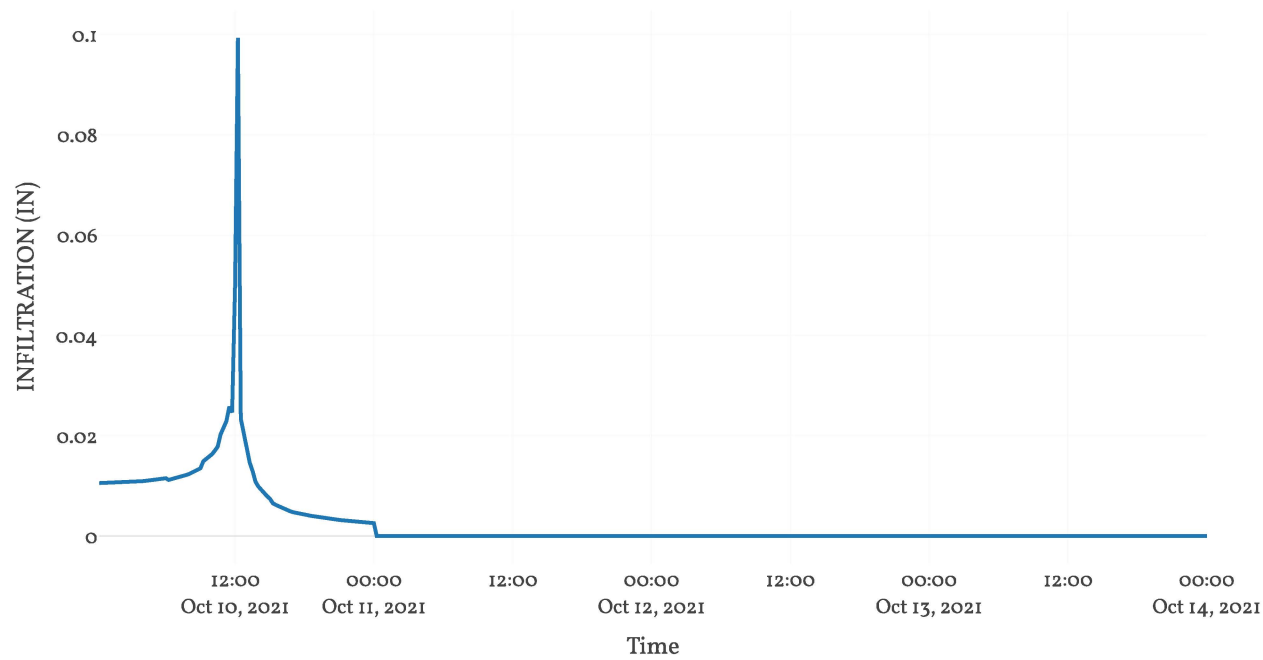
Precipitation Loss



Direct Runoff



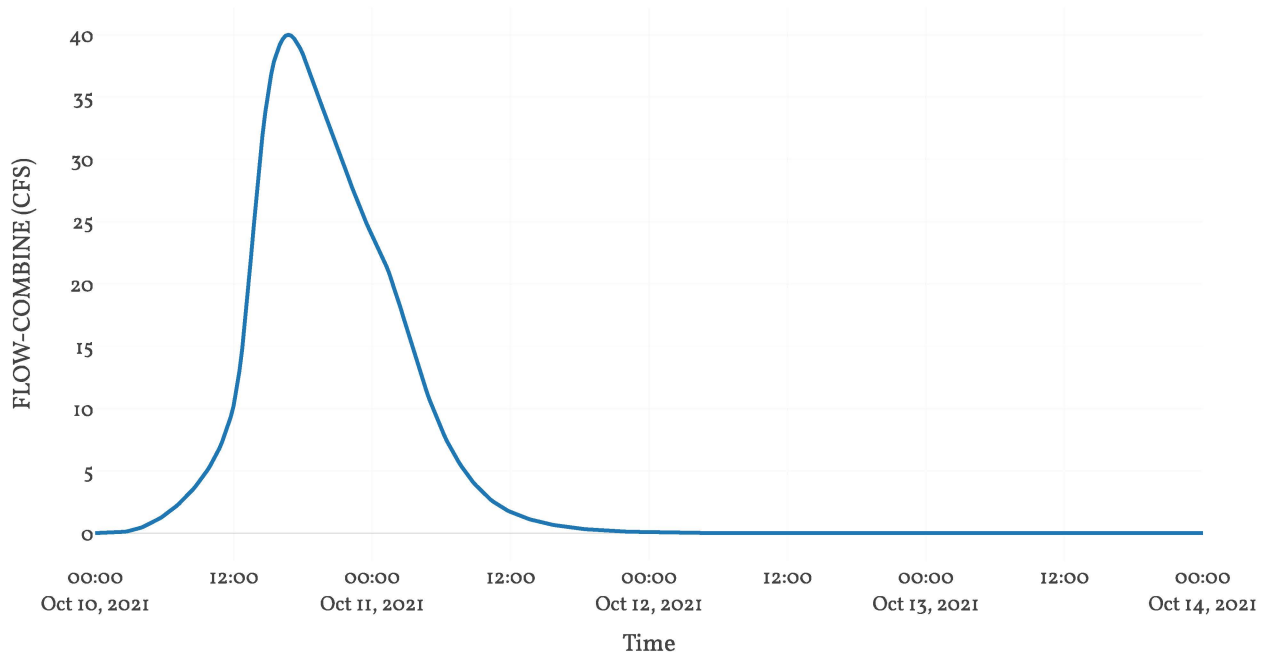
Soil Infiltration



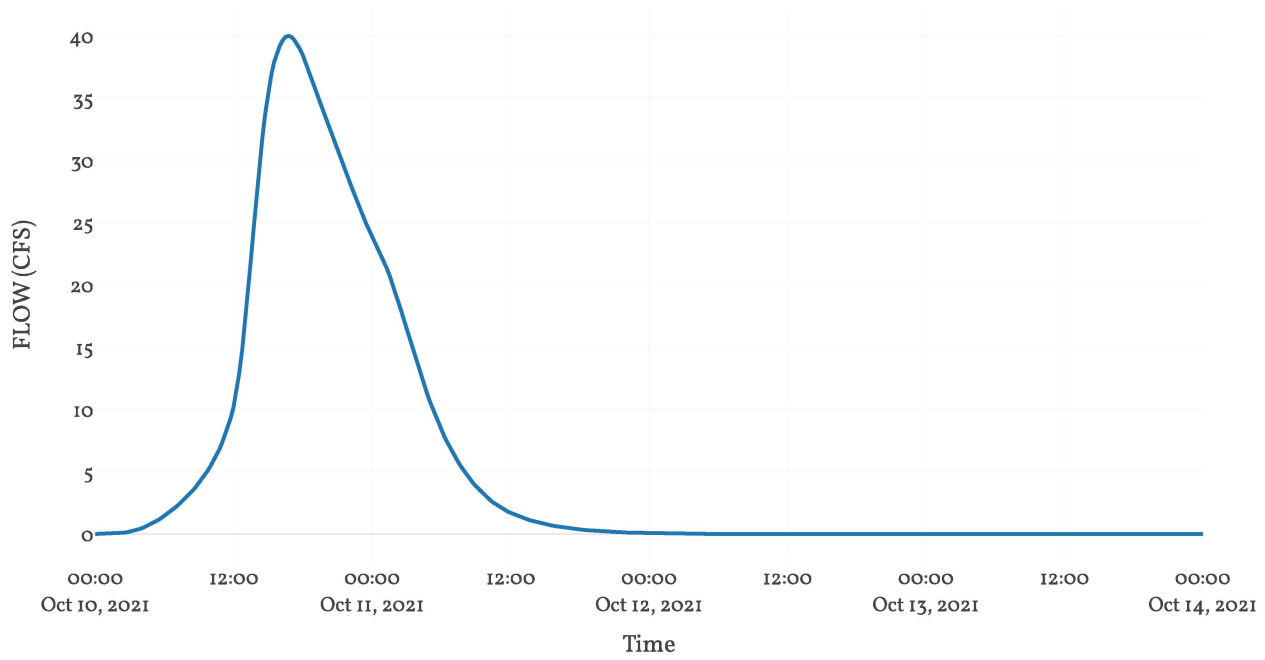
Junction: Pre Total

Results: Pre Total	
Peak Discharge (CFS)	40
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	1.15

Combined Inflow



Outflow







#### **A.2-2 MAIN FACILITY AREA – PRE-DEVELOPMENT 10YEAR 24HOUR**

**Project:** Oveja\_Ranch  
**Simulation Run:** 10 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 08 December 2024, 02:50

Global Parameter Summary - Subbasin

Area	
Element Name	Area
SHED I - 01	0.12
SHED I - 02	0.09
SHED I - 03	0.09
SHED I - 04	0.11
SHED I - 05	0.3

Downstream	
Element Name	Downstream
SHED I - 01	Pre Total
SHED I - 02	Pre Total
SHED I - 03	Pre Total
SHED I - 04	Pre Total
SHED I - 05	Pre Total

Loss Rate: Scs			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
SHED I - 01	0	85	0
SHED I - 02	0	85	0
SHED I - 03	0	85	0
SHED I - 04	0	85	0
SHED I - 05	0	83	0

Transform: SCS		
Element Name	Lag	Unitgraph Type
SHED I - 01	233.88	Standard
SHED I - 02	133	Standard
SHED I - 03	192	Standard
SHED I - 04	253	Standard
SHED I - 05	396	Standard

## Global Results Summary

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
SHED I - 01	0.12	15.21	10Oct2021, 16:30	2.14
SHED I - 02	0.09	13.99	10Oct2021, 14:30	2.14
SHED I - 03	0.09	12.82	10Oct2021, 15:45	2.14
SHED I - 04	0.11	12.85	10Oct2021, 16:45	2.14
SHED I - 05	0.3	26.84	10Oct2021, 19:45	2.02
Pre Total	0.72	70.04	10Oct2021, 16:45	2.09

Subbasin: SHED 1-01

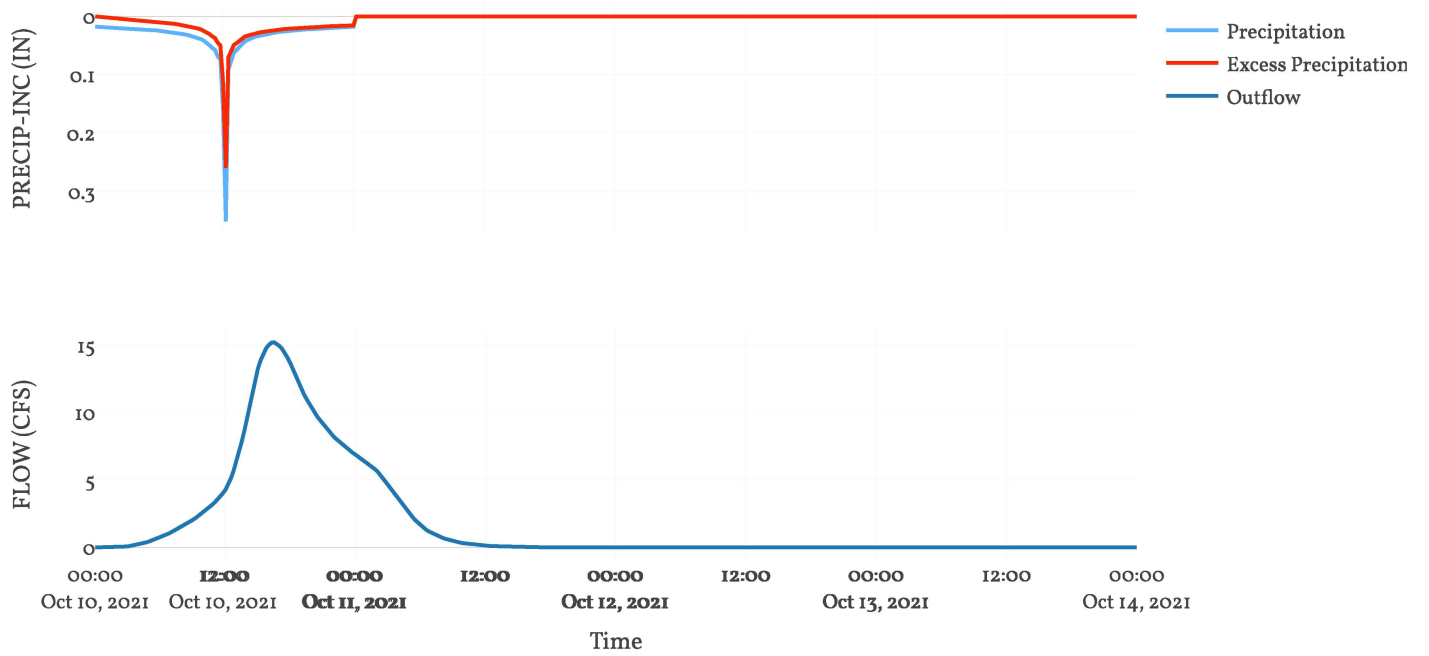
Area : 0.12  
Downstream : Pre Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

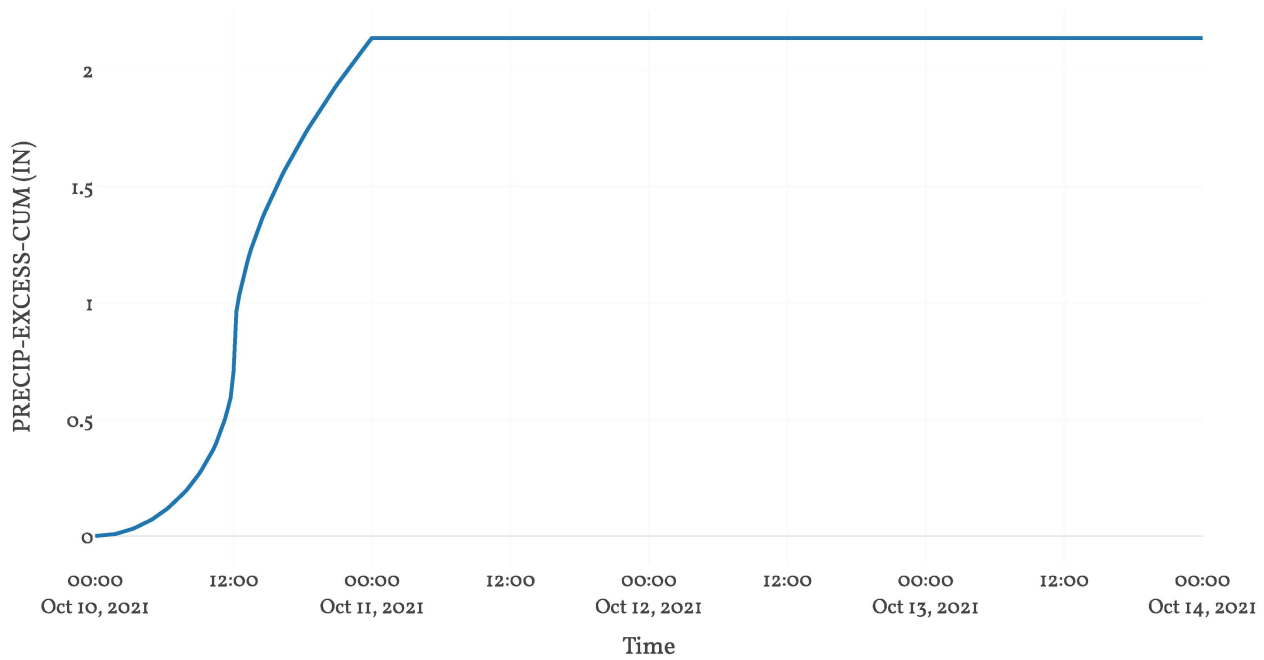
Transform: Scs	
Lag	233.88
Unitgraph Type	Standard

Results: SHED 1-01	
Peak Discharge (CFS)	15.21
Time of Peak Discharge	10Oct2021, 16:30
Volume (IN)	2.14
Precipitation Volume (AC - FT)	21.62
Loss Volume (AC - FT)	7.55
Excess Volume (AC - FT)	14.07
Direct Runoff Volume (AC - FT)	14.07
Baseflow Volume (AC - FT)	0

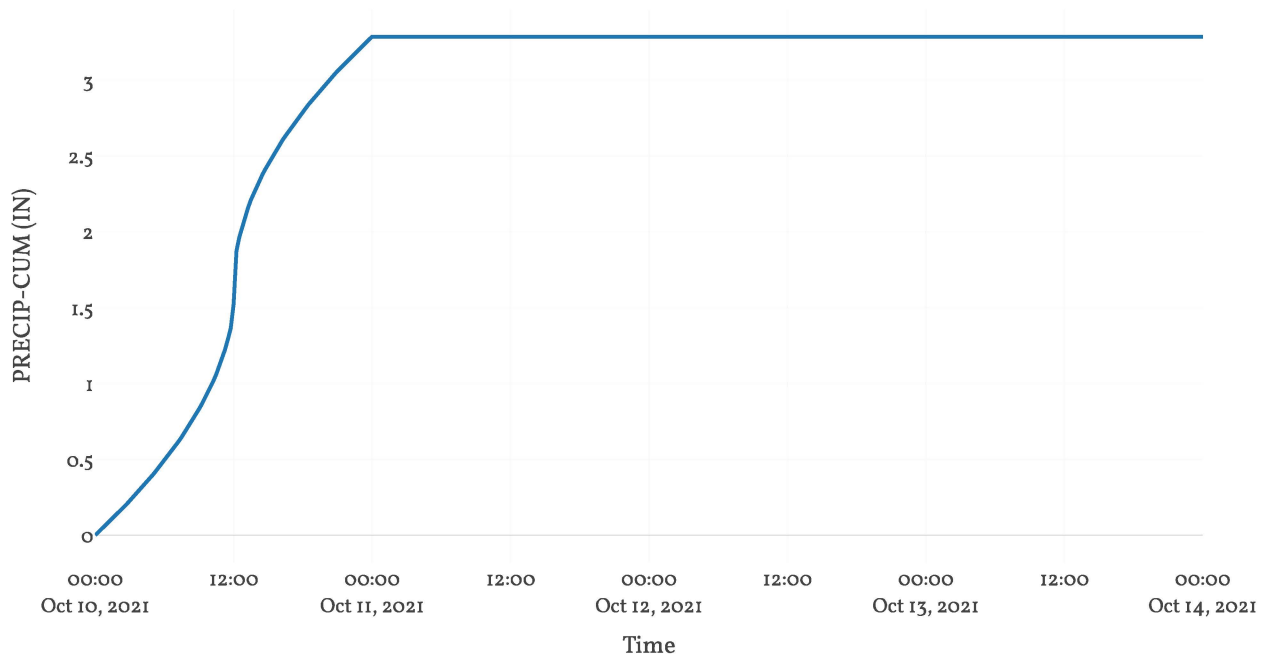
## Precipitation and Outflow



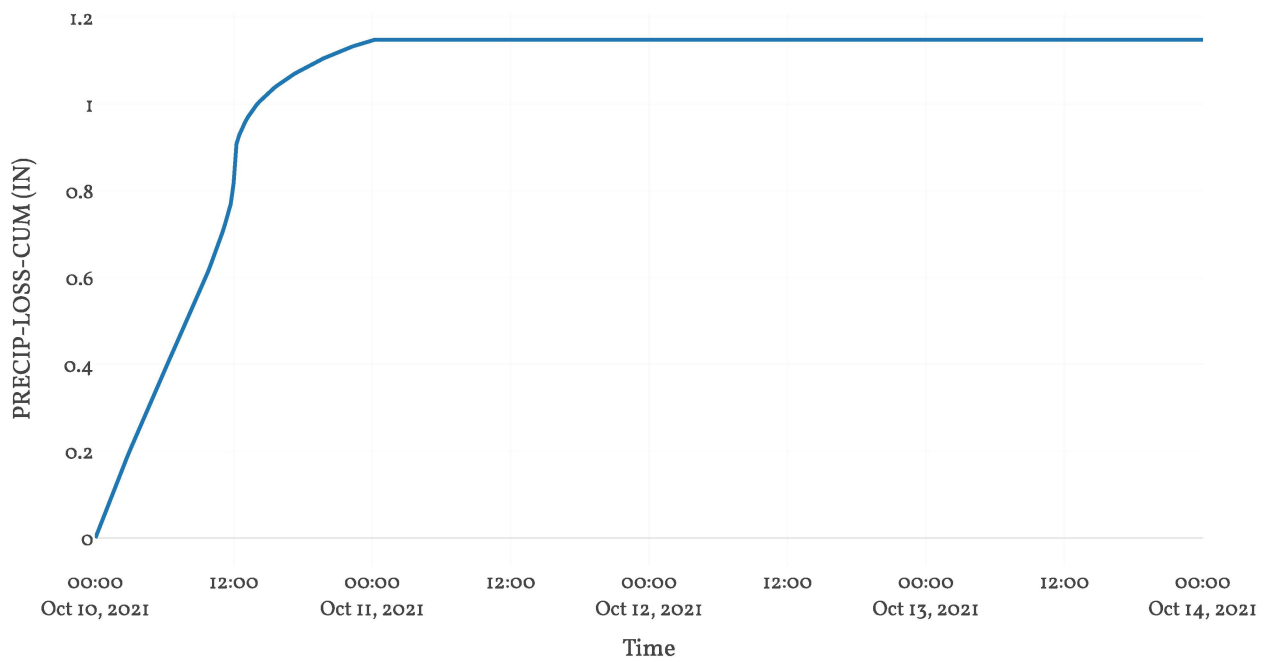
## Cumulative Excess Precipitation



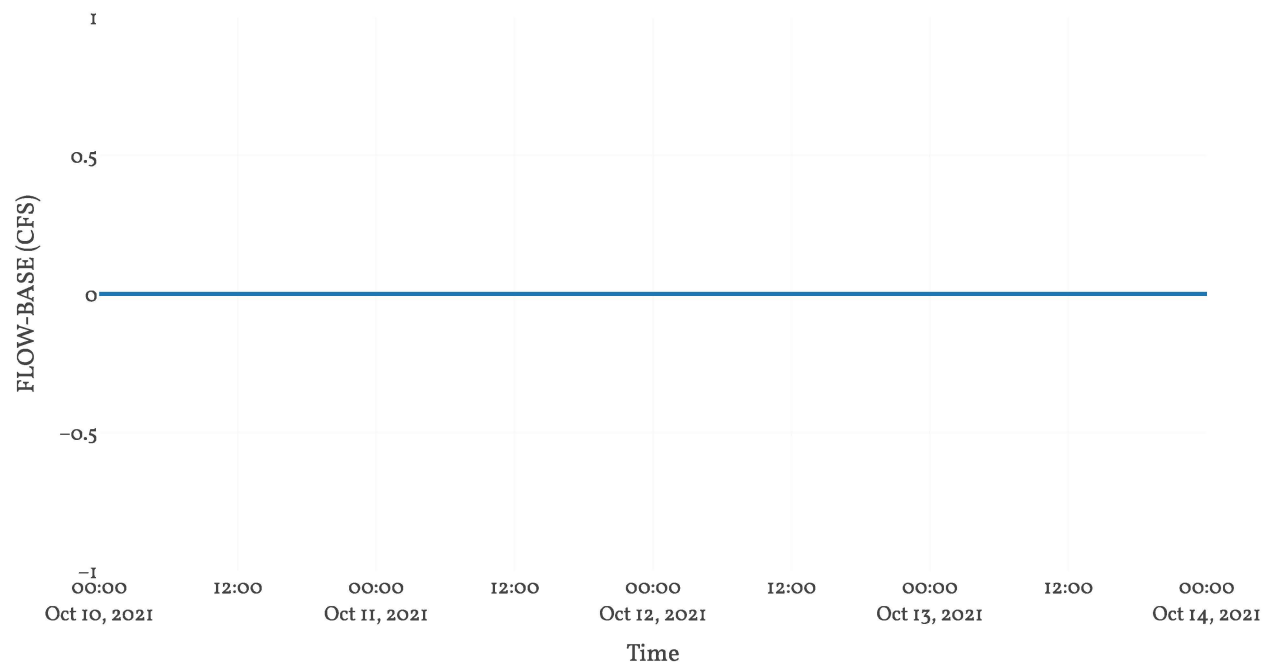
Cumulative Precipitation



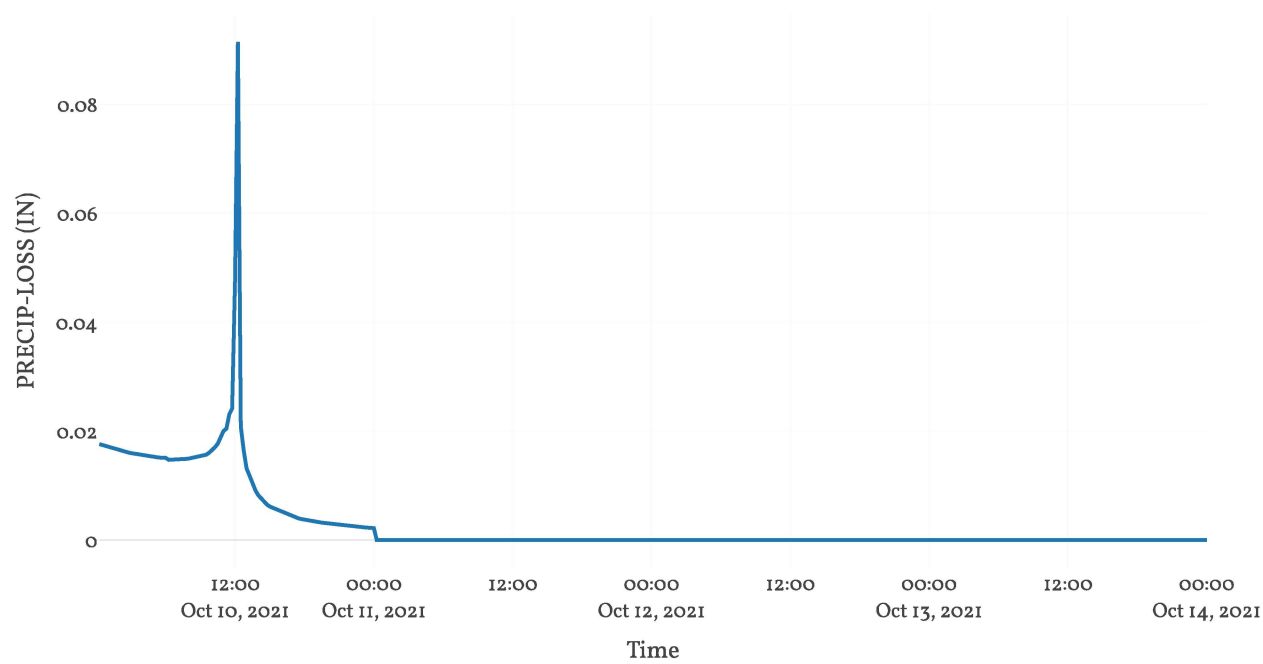
Cumulative Precipitation Loss



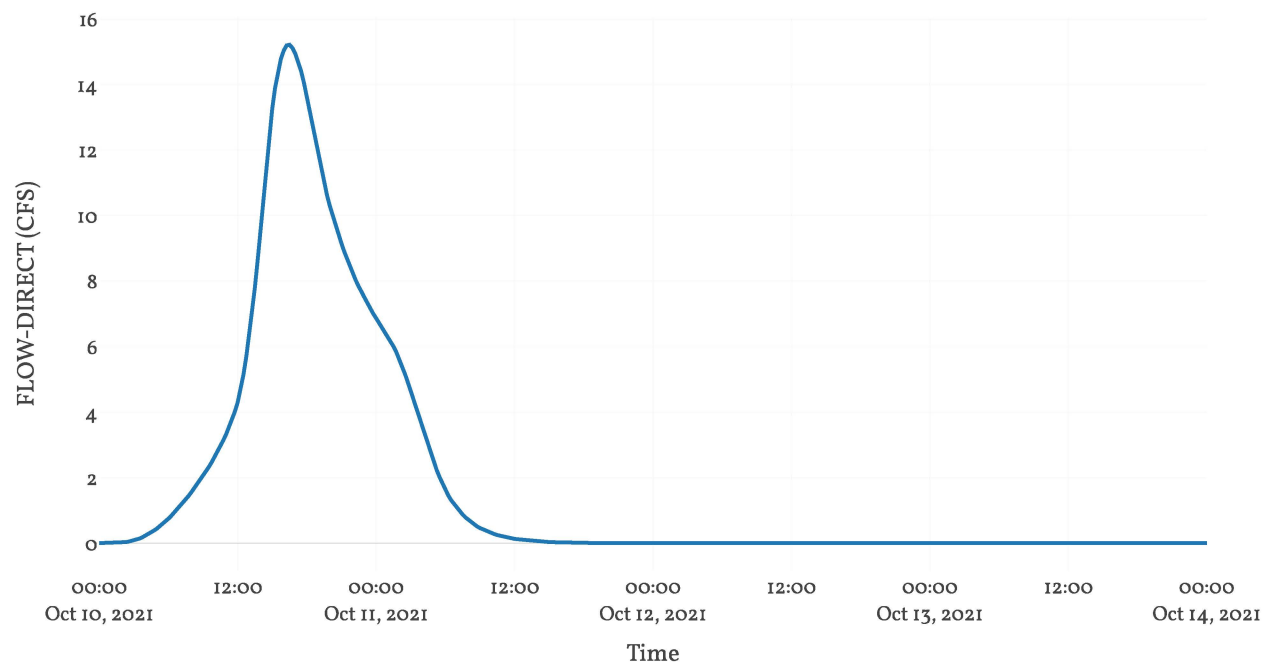
Baseflow



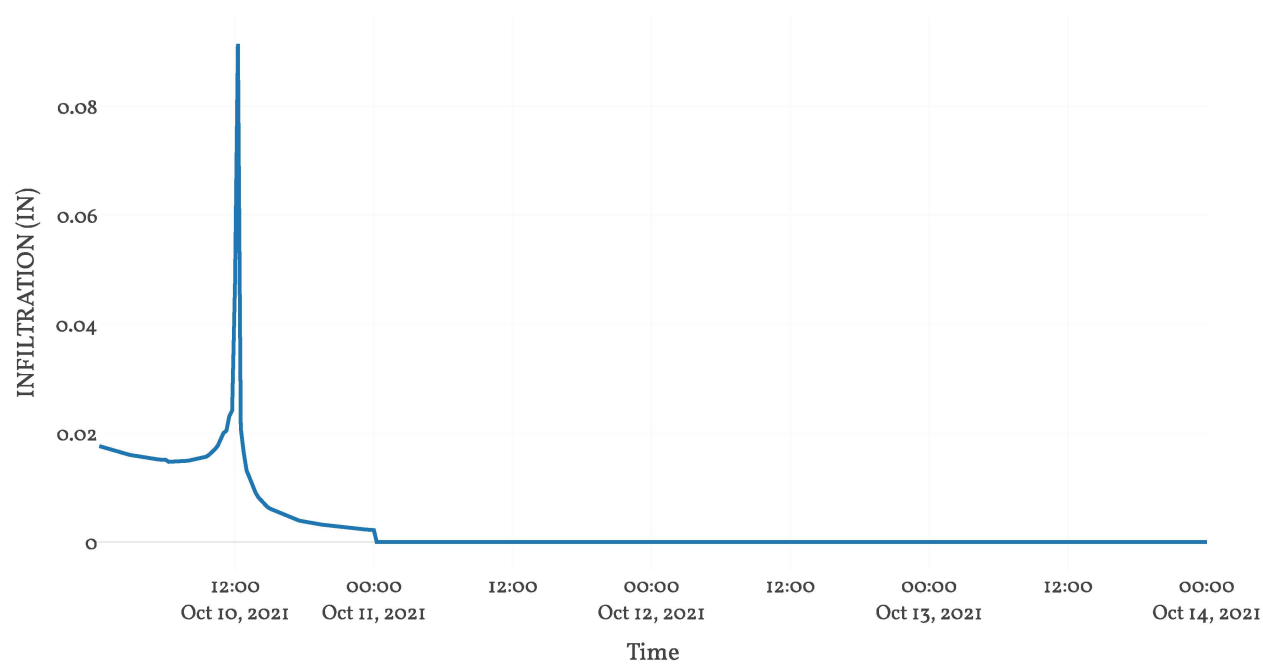
Precipitation Loss



Direct Runoff



Soil Infiltration





# Subbasin: SHED 1-02

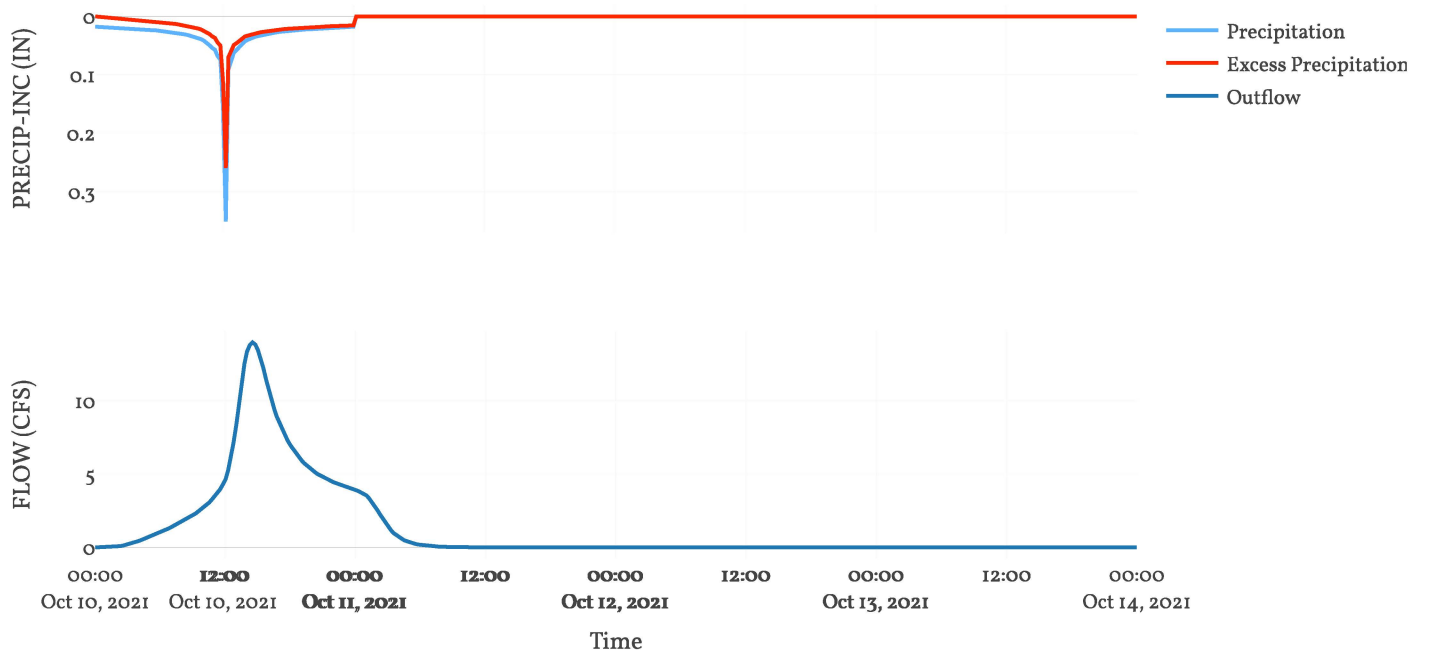
Area : 0.09  
Downstream : Pre Total

Loss Rate: SCS	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

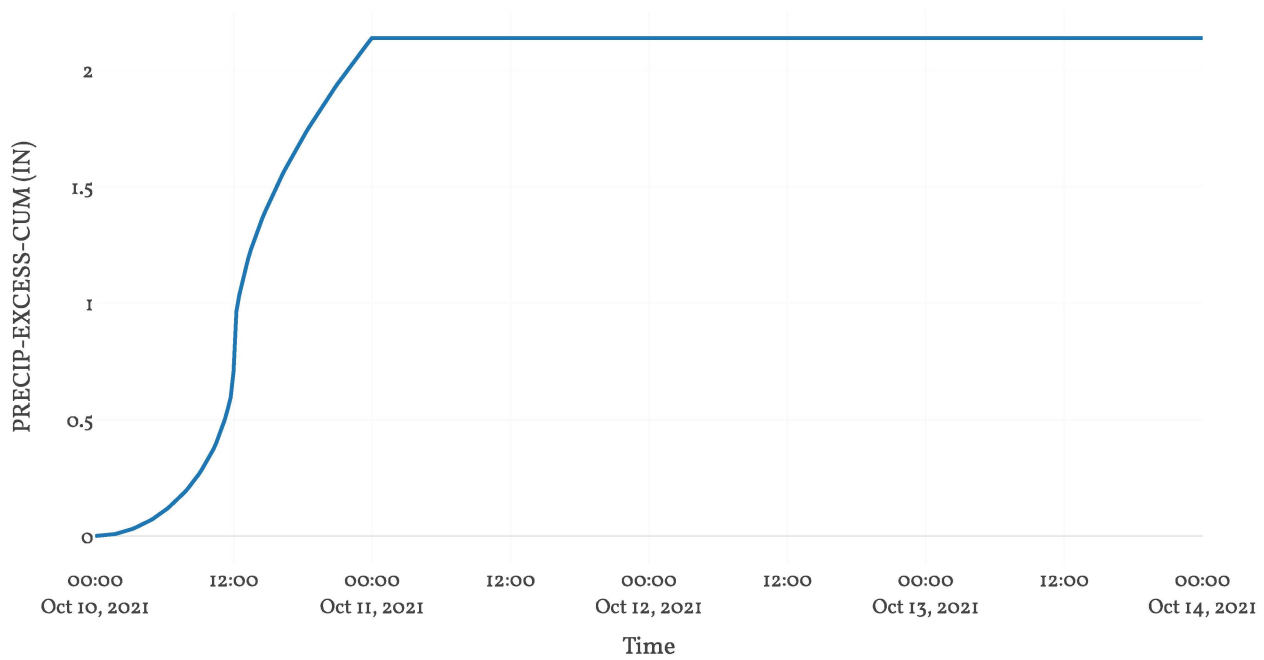
Transform: SCS	
Lag	133
Unitgraph Type	Standard

Results: SHED 1-02	
Peak Discharge (CFS)	13.99
Time of Peak Discharge	10Oct2021, 14:30
Volume (IN)	2.14
Precipitation Volume (AC - FT)	14.91
Loss Volume (AC - FT)	5.21
Excess Volume (AC - FT)	9.7
Direct Runoff Volume (AC - FT)	9.7
Baseflow Volume (AC - FT)	0

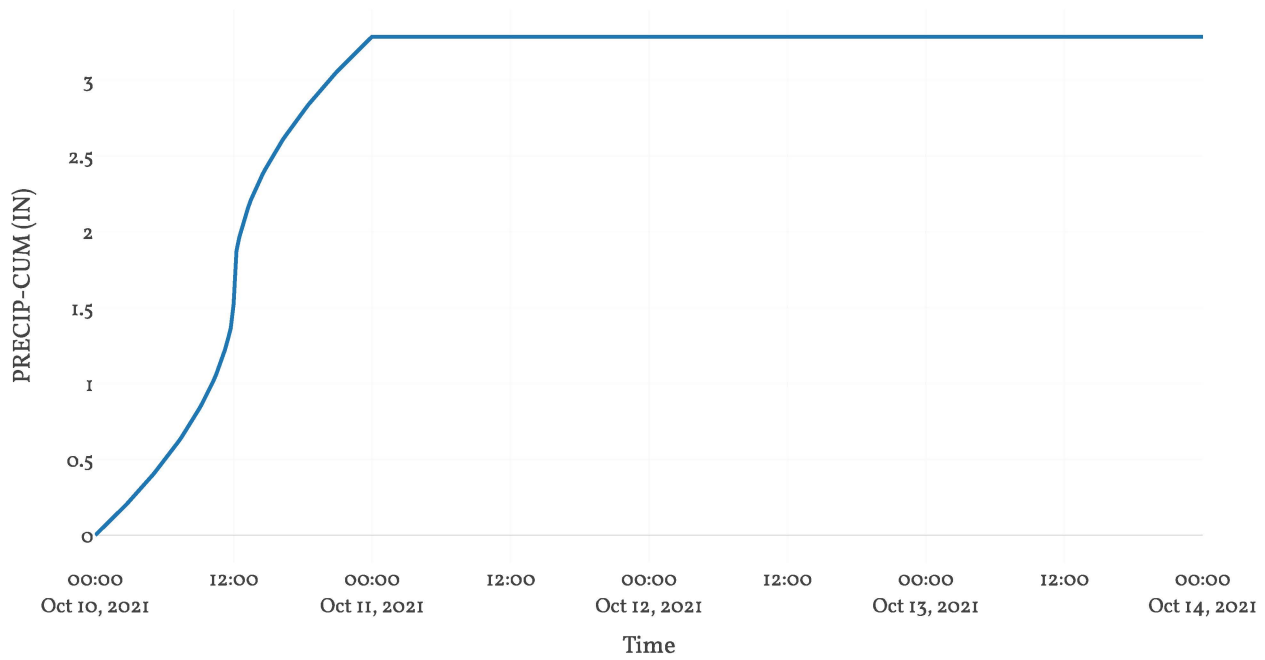
## Precipitation and Outflow



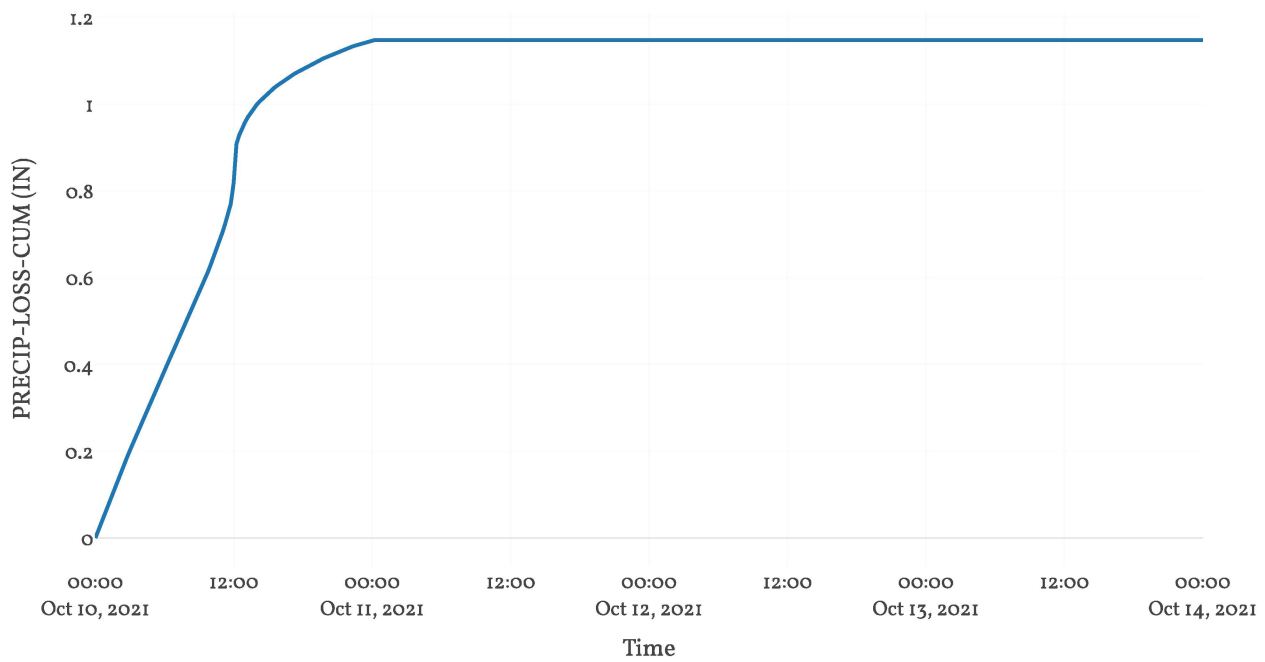
## Cumulative Excess Precipitation



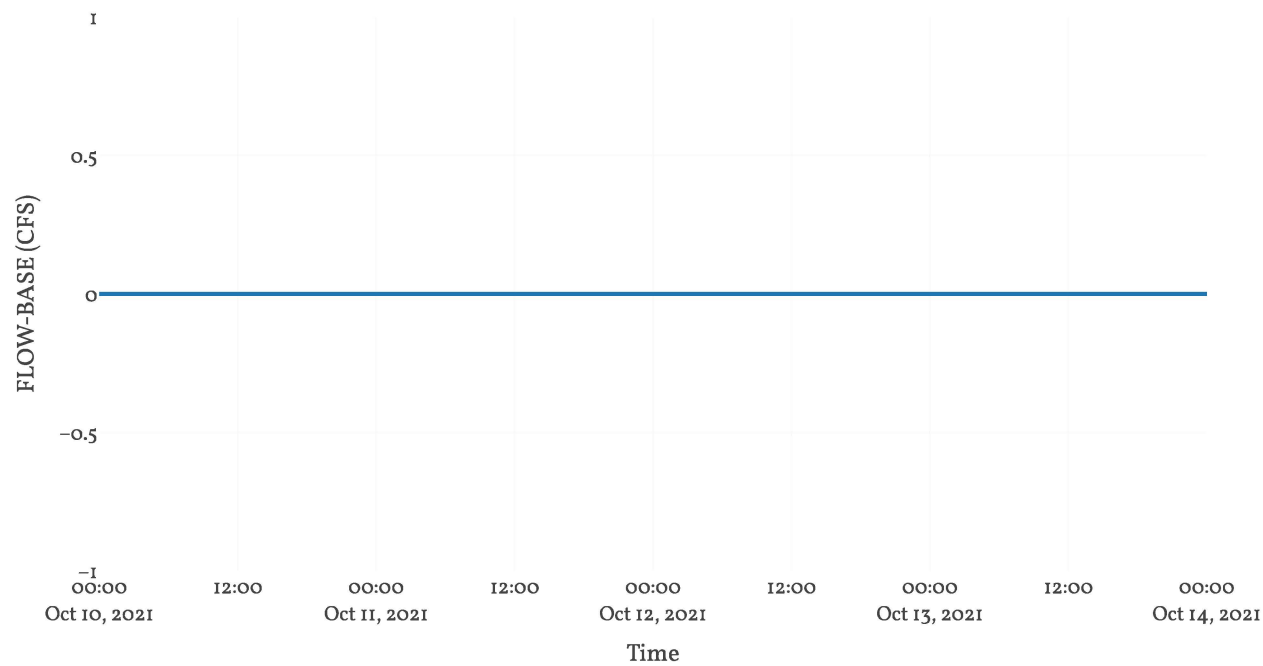
Cumulative Precipitation



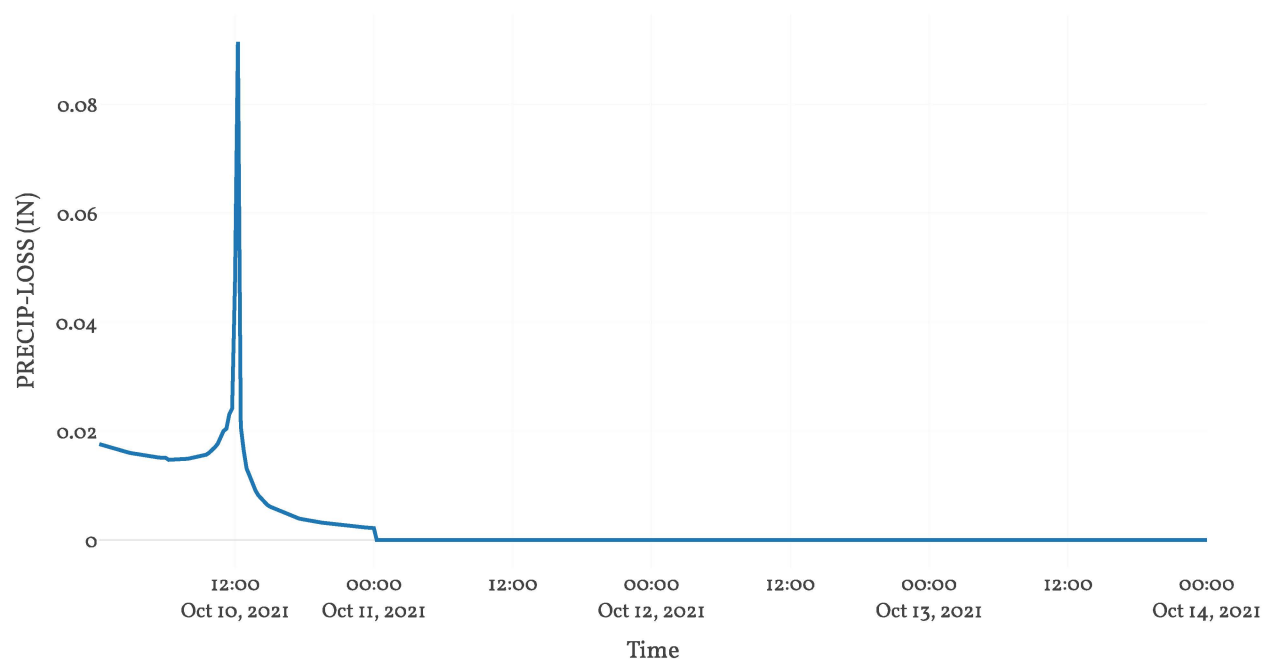
Cumulative Precipitation Loss



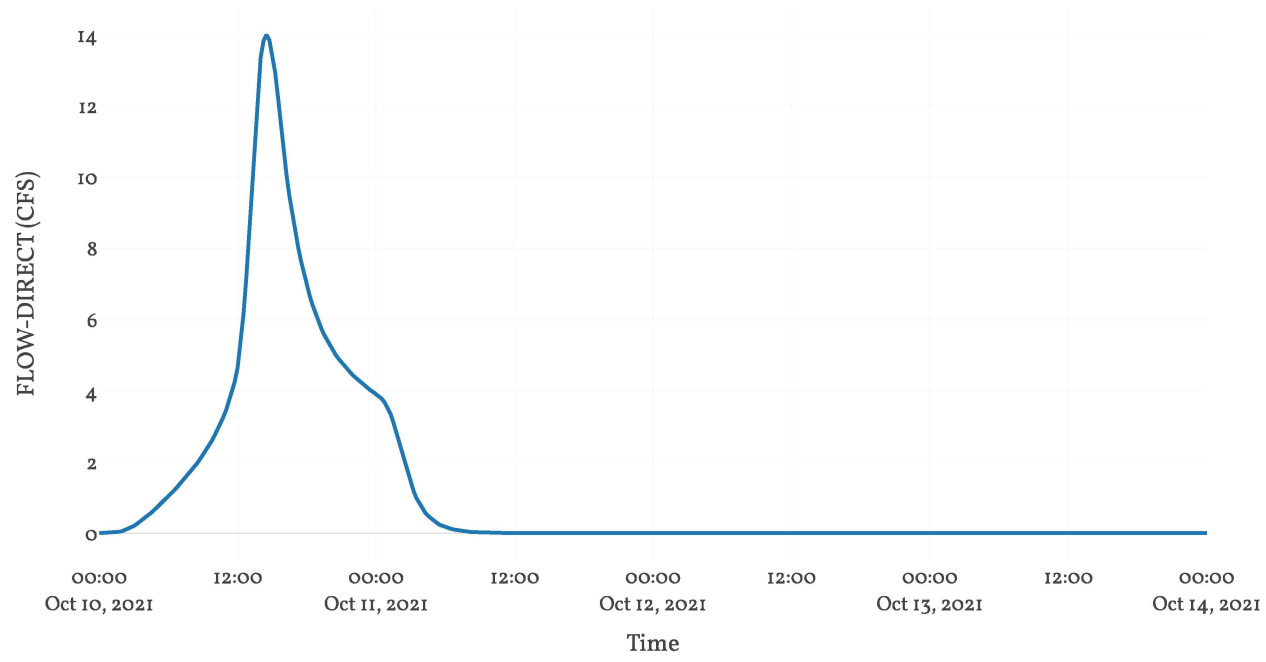
Baseflow



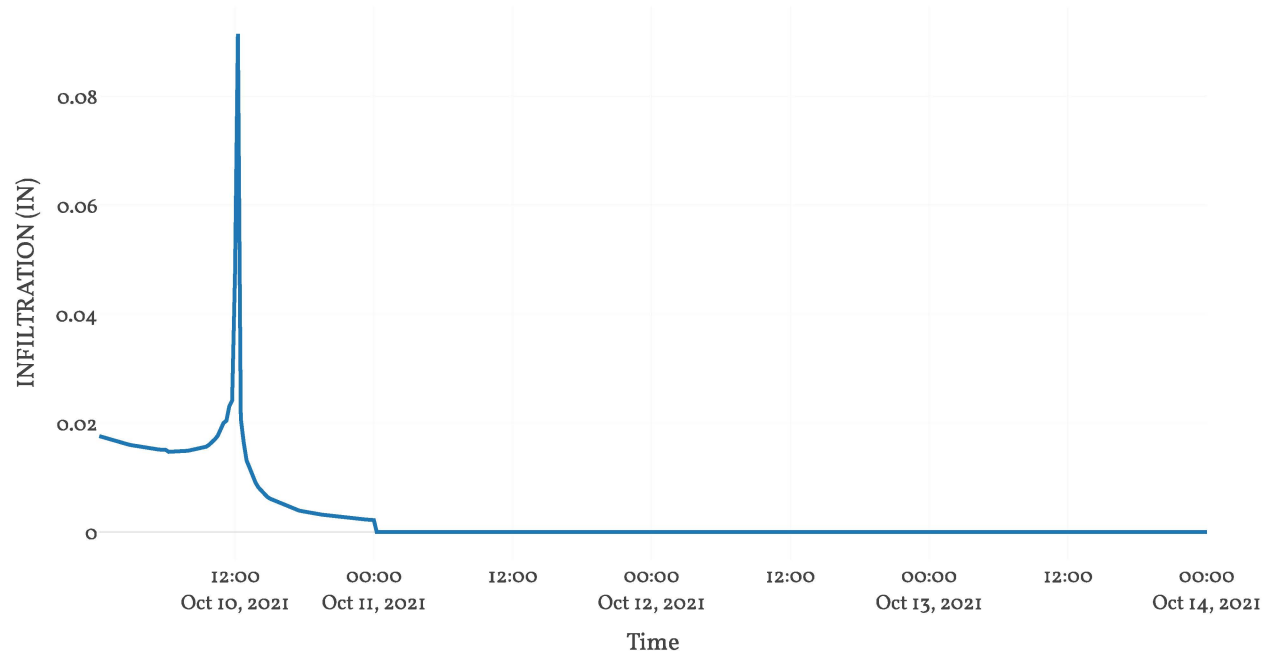
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: SHED 1-03

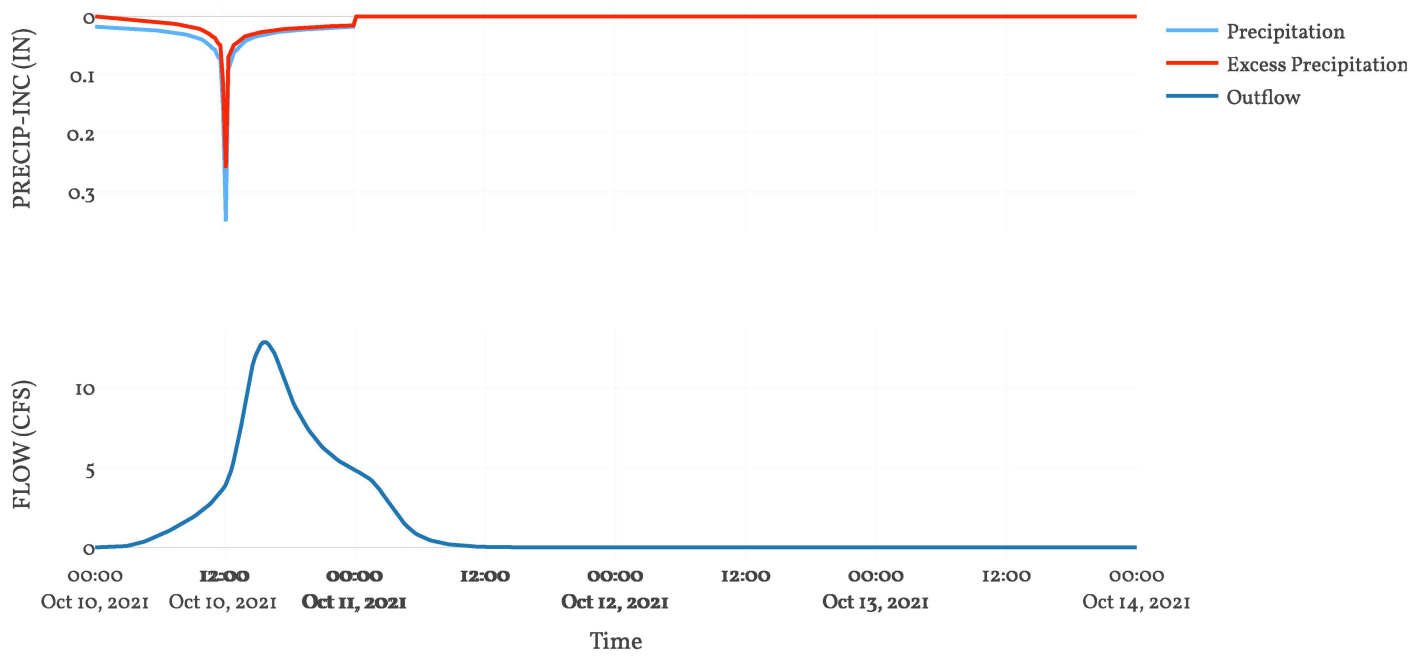
Area : 0.09  
Downstream : Pre Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

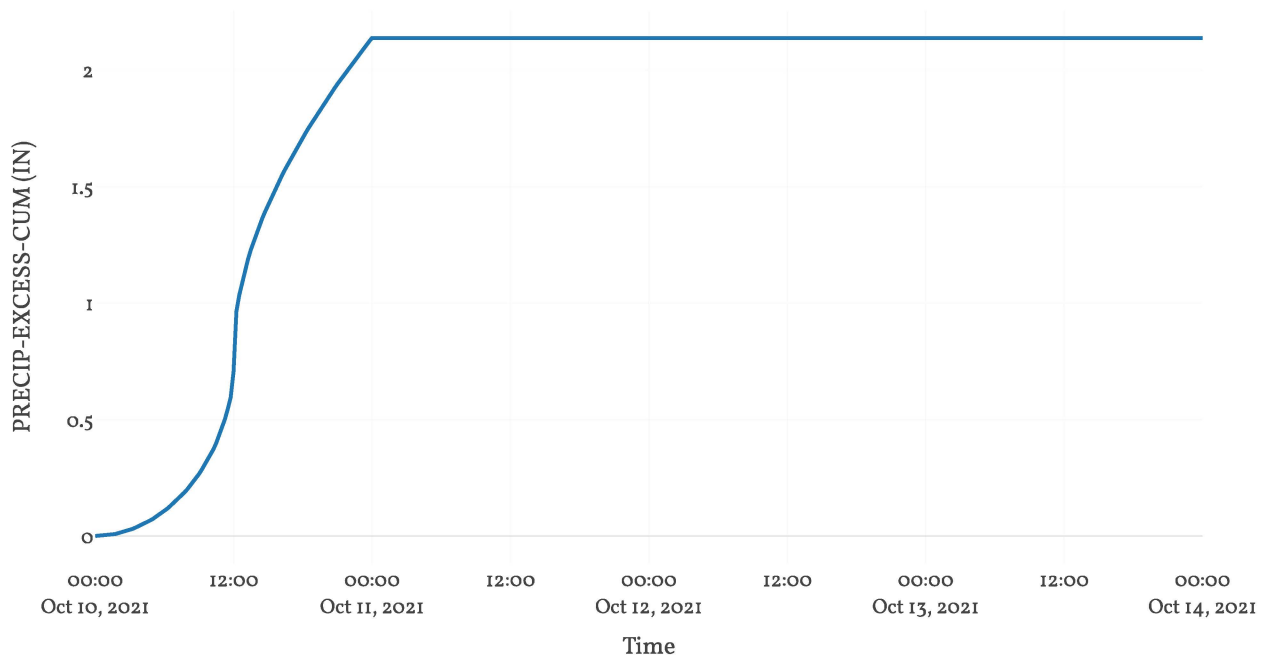
Transform: Scs	
Lag	192
Unitgraph Type	Standard

Results: SHED 1-03	
Peak Discharge (CFS)	12.82
Time of Peak Discharge	10Oct2021, 15:45
Volume (IN)	2.14
Precipitation Volume (AC - FT)	16.47
Loss Volume (AC - FT)	5.75
Excess Volume (AC - FT)	10.72
Direct Runoff Volume (AC - FT)	10.72
Baseflow Volume (AC - FT)	0

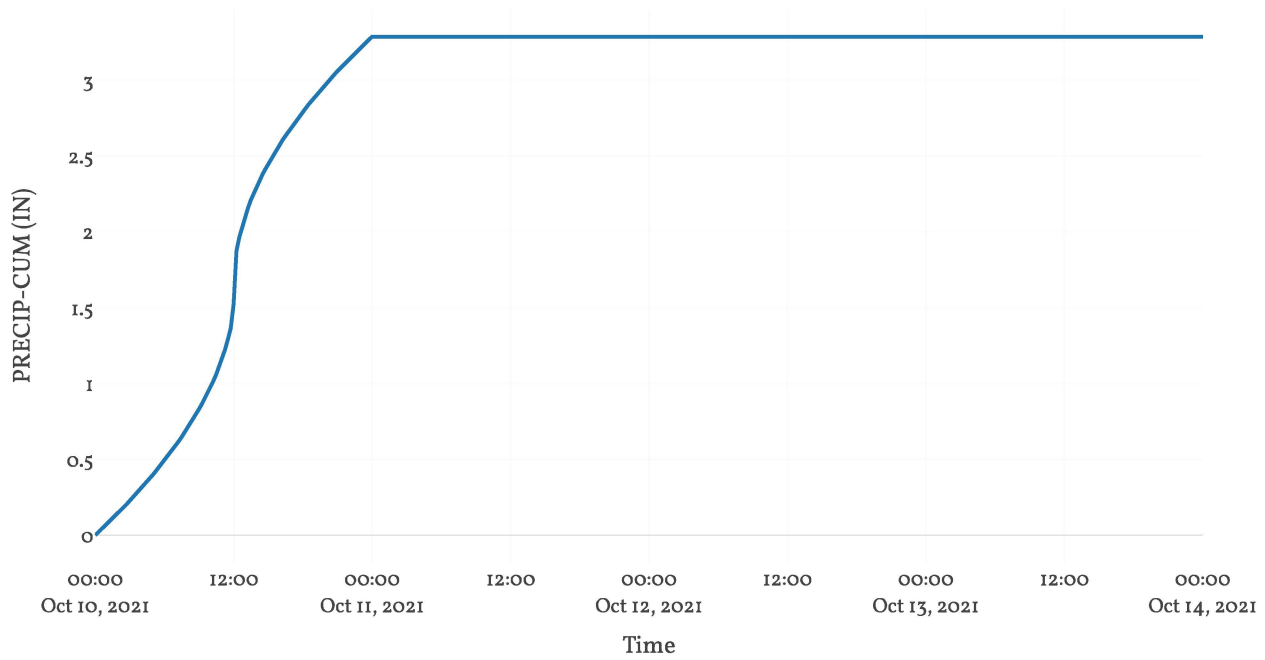
## Precipitation and Outflow



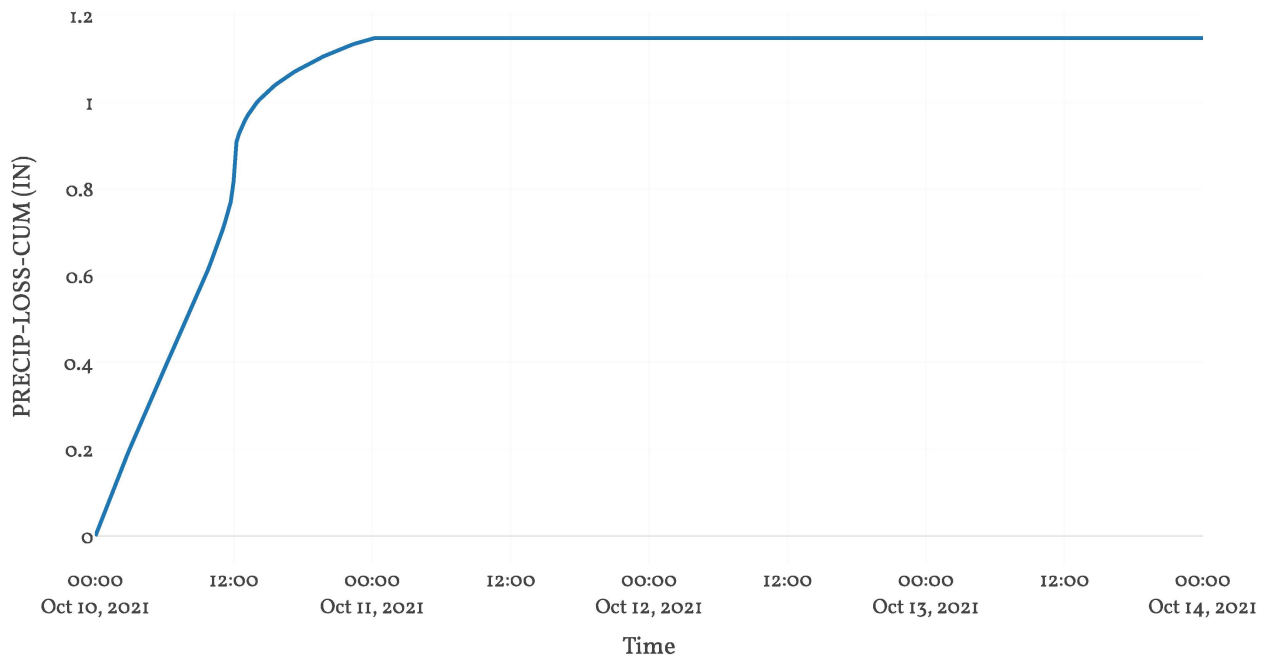
## Cumulative Excess Precipitation



Cumulative Precipitation

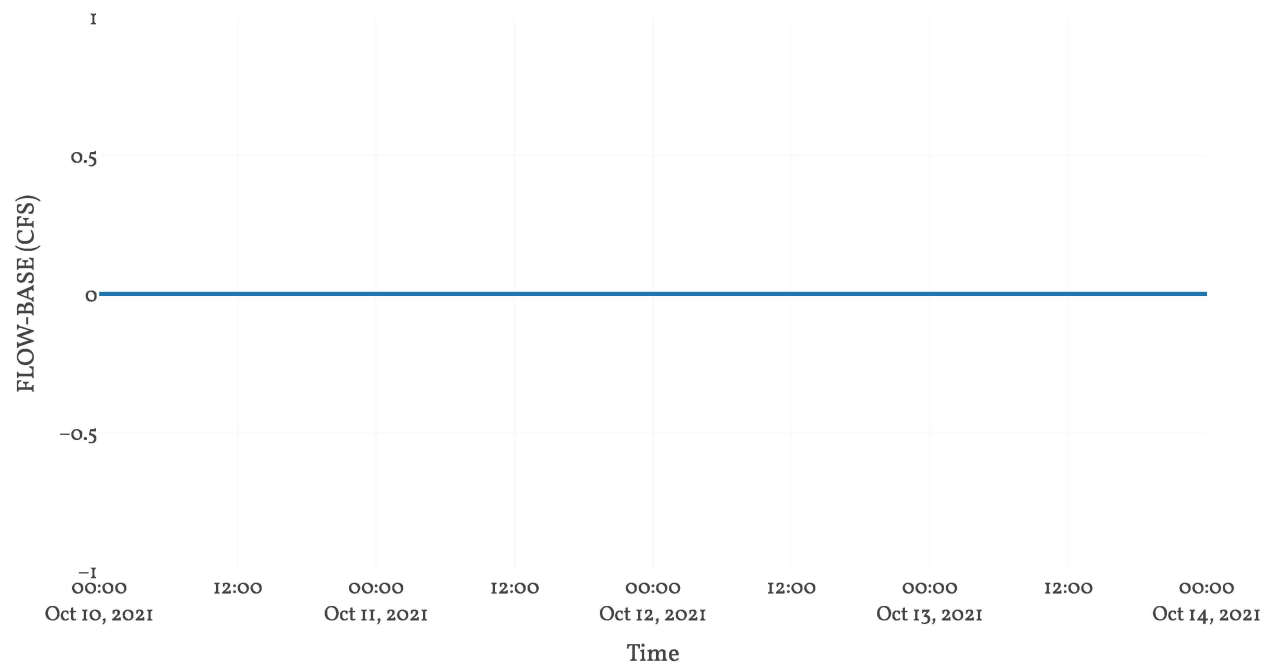


Cumulative Precipitation Loss

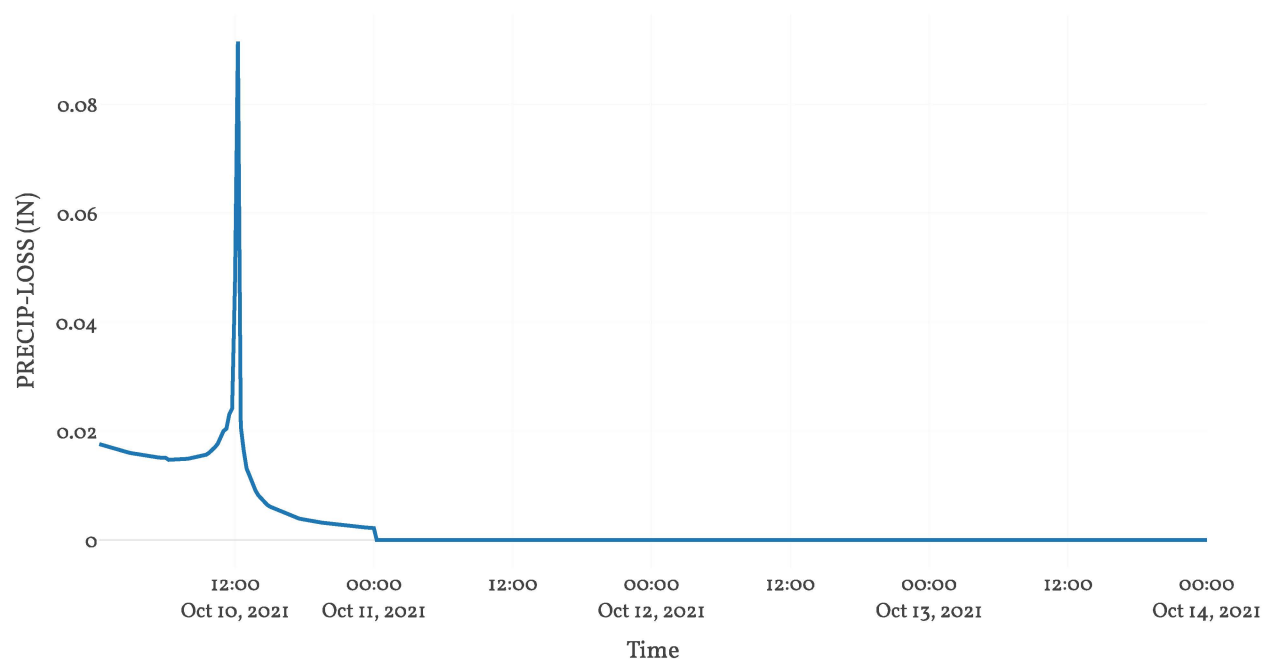




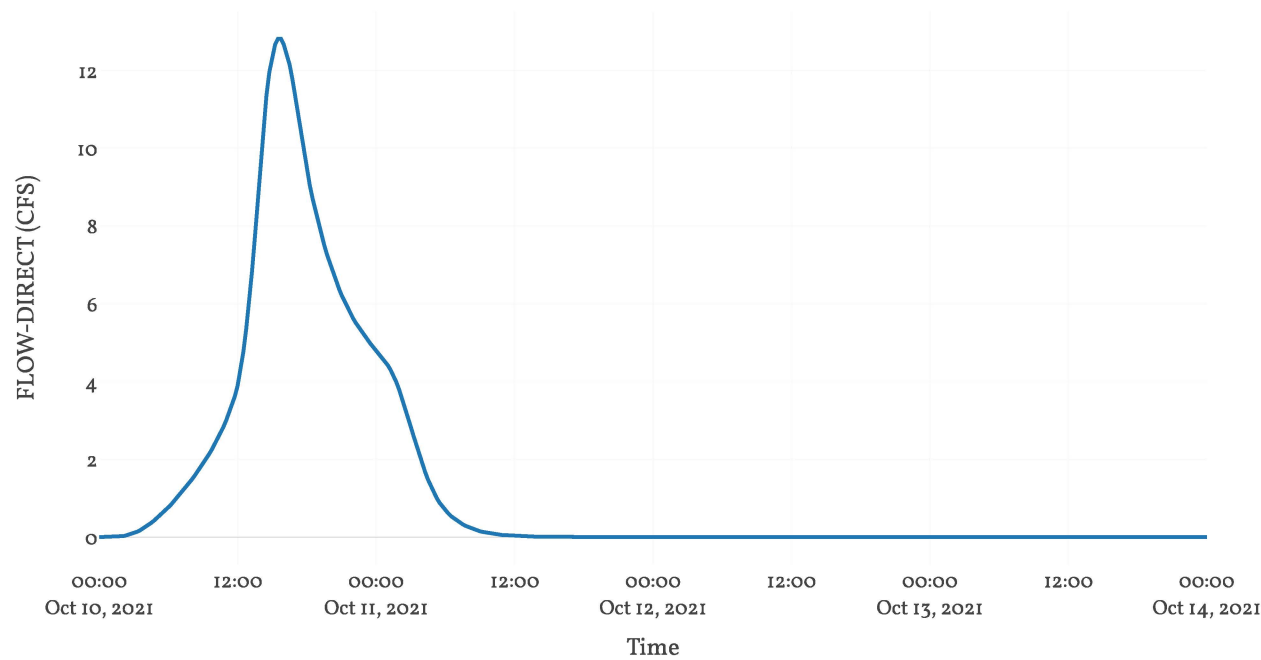
Baseflow



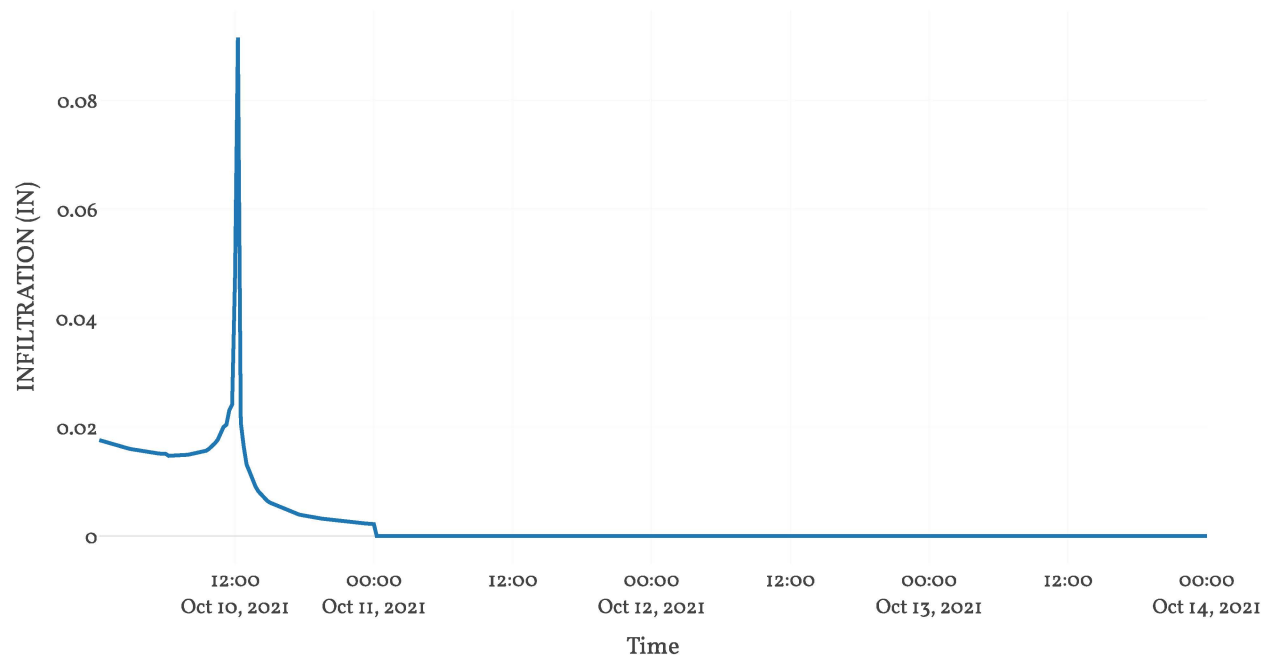
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: SHED 1-04

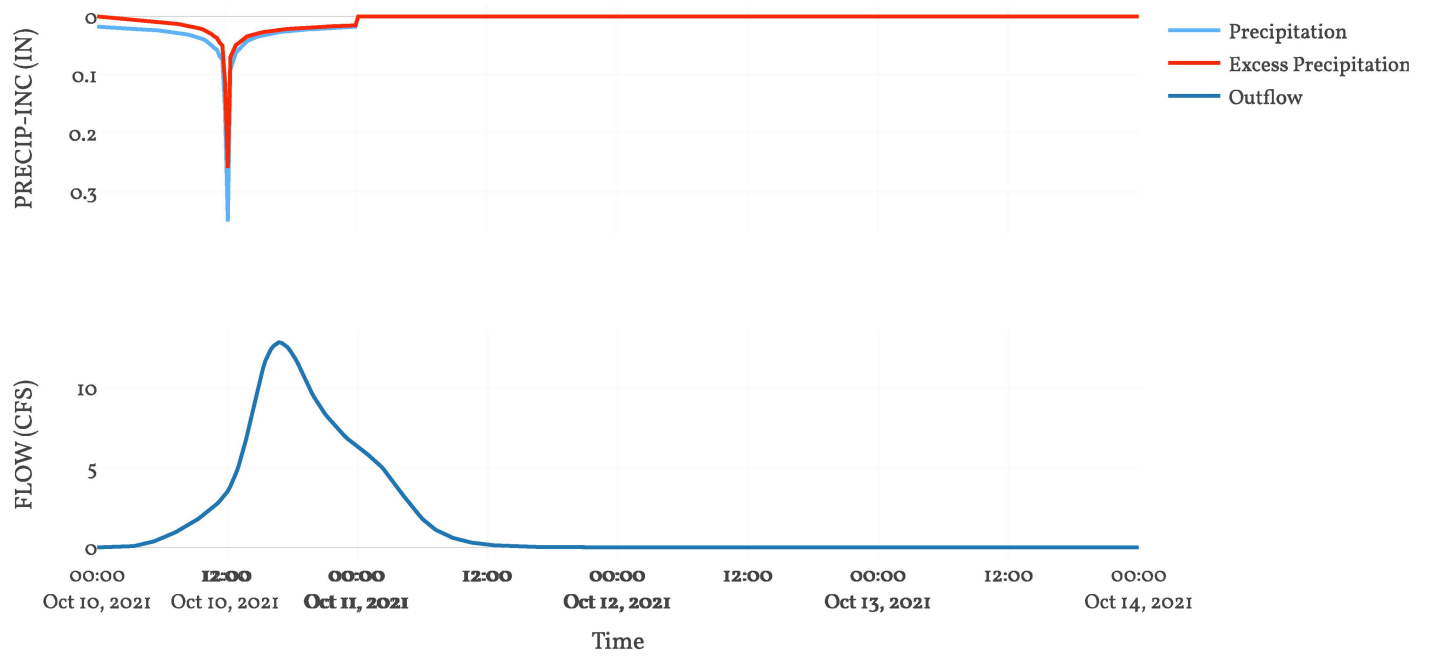
Area : 0.11  
Downstream : Pre Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

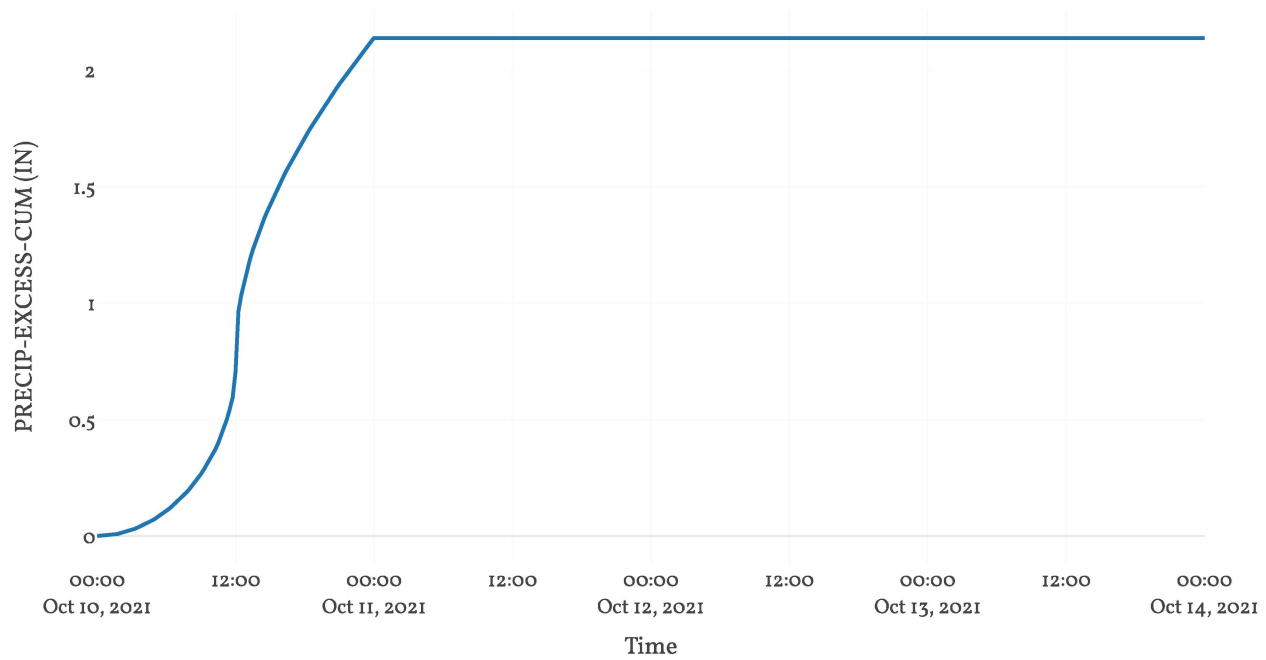
Transform: Scs	
Lag	253
Unitgraph Type	Standard

Results: SHED 1-04	
Peak Discharge (CFS)	12.85
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	2.14
Precipitation Volume (AC - FT)	19.03
Loss Volume (AC - FT)	6.65
Excess Volume (AC - FT)	12.38
Direct Runoff Volume (AC - FT)	12.38
Baseflow Volume (AC - FT)	0

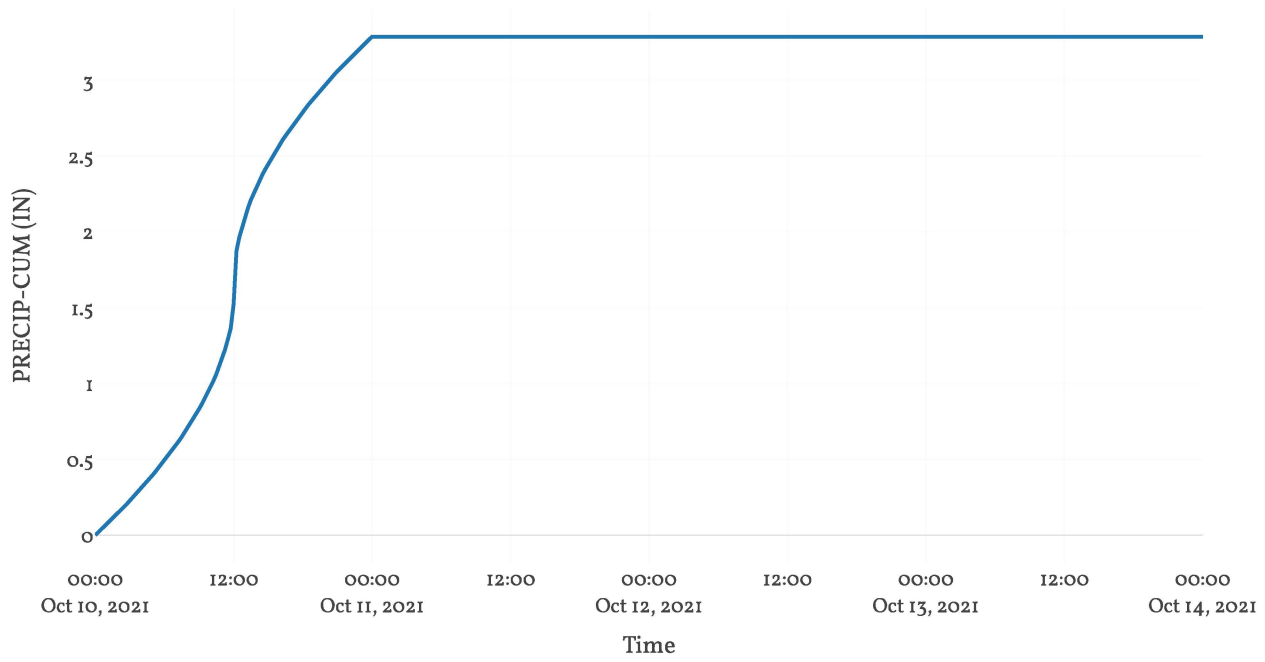
## Precipitation and Outflow



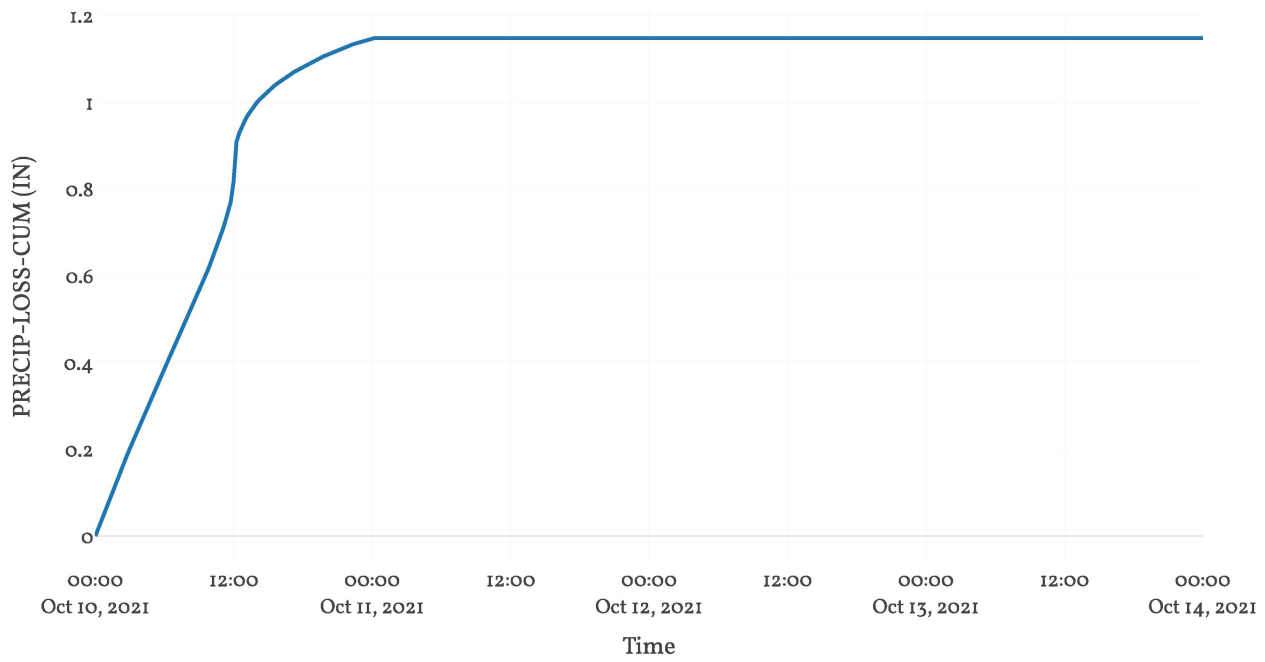
## Cumulative Excess Precipitation



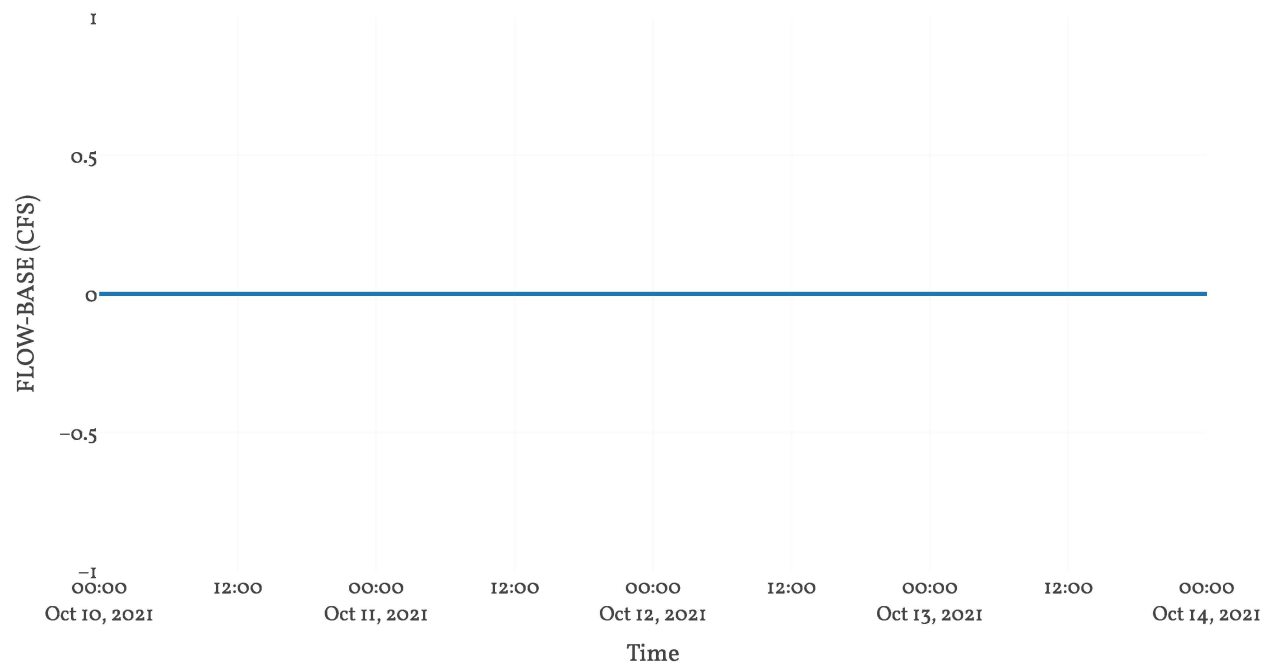
Cumulative Precipitation



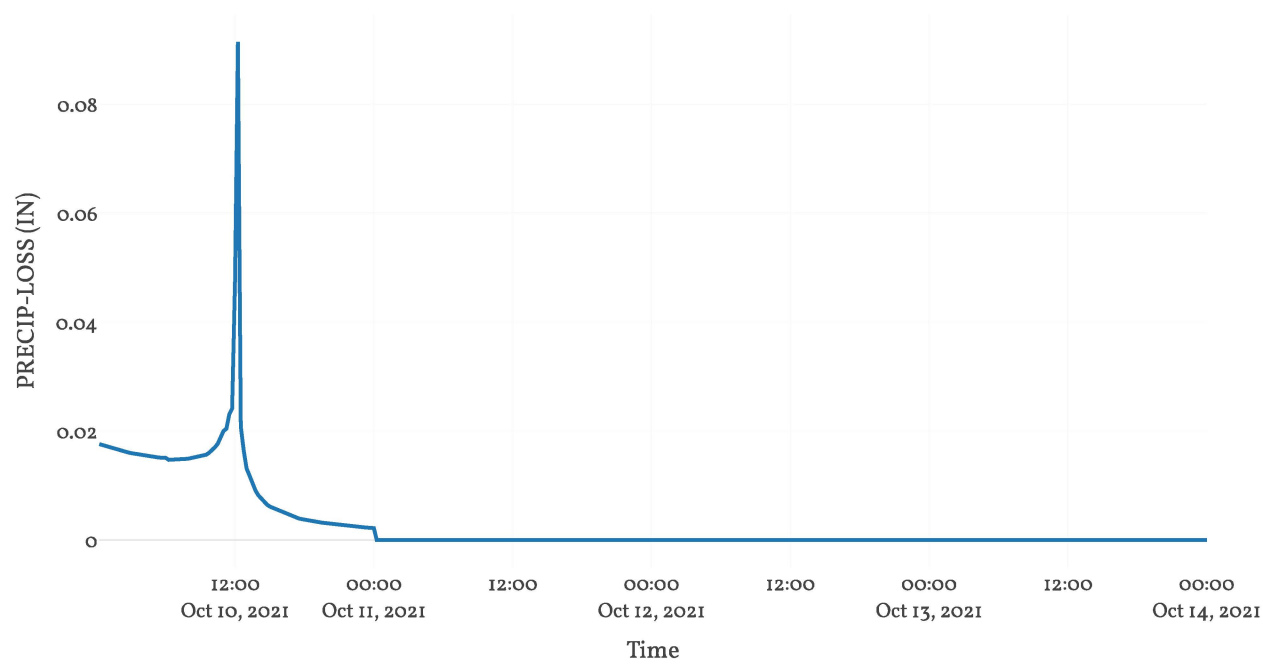
Cumulative Precipitation Loss



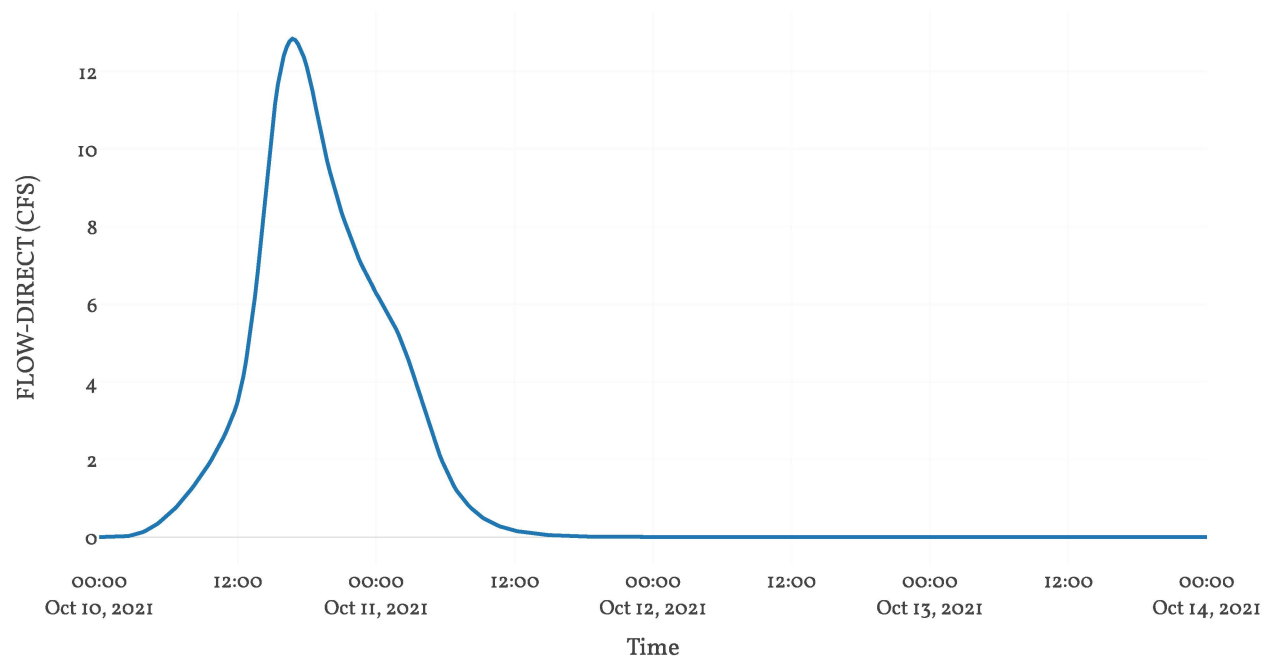
Baseflow



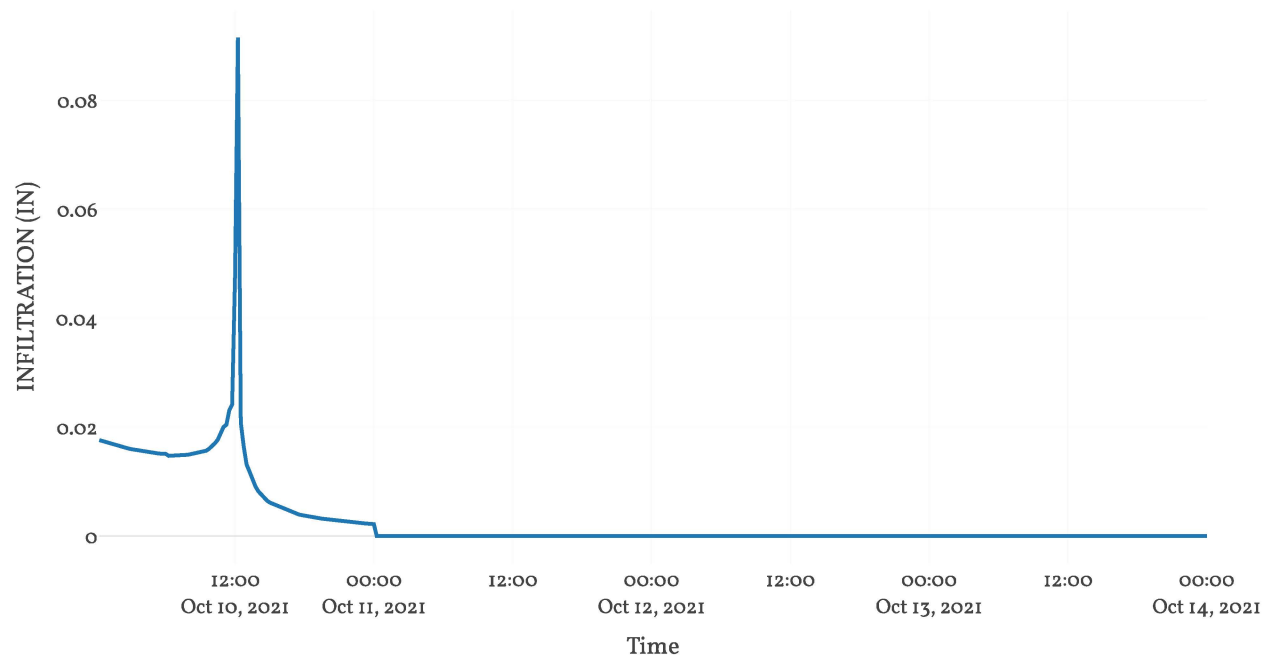
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: SHED 1-05

Area : 0.3  
Downstream : Pre Total

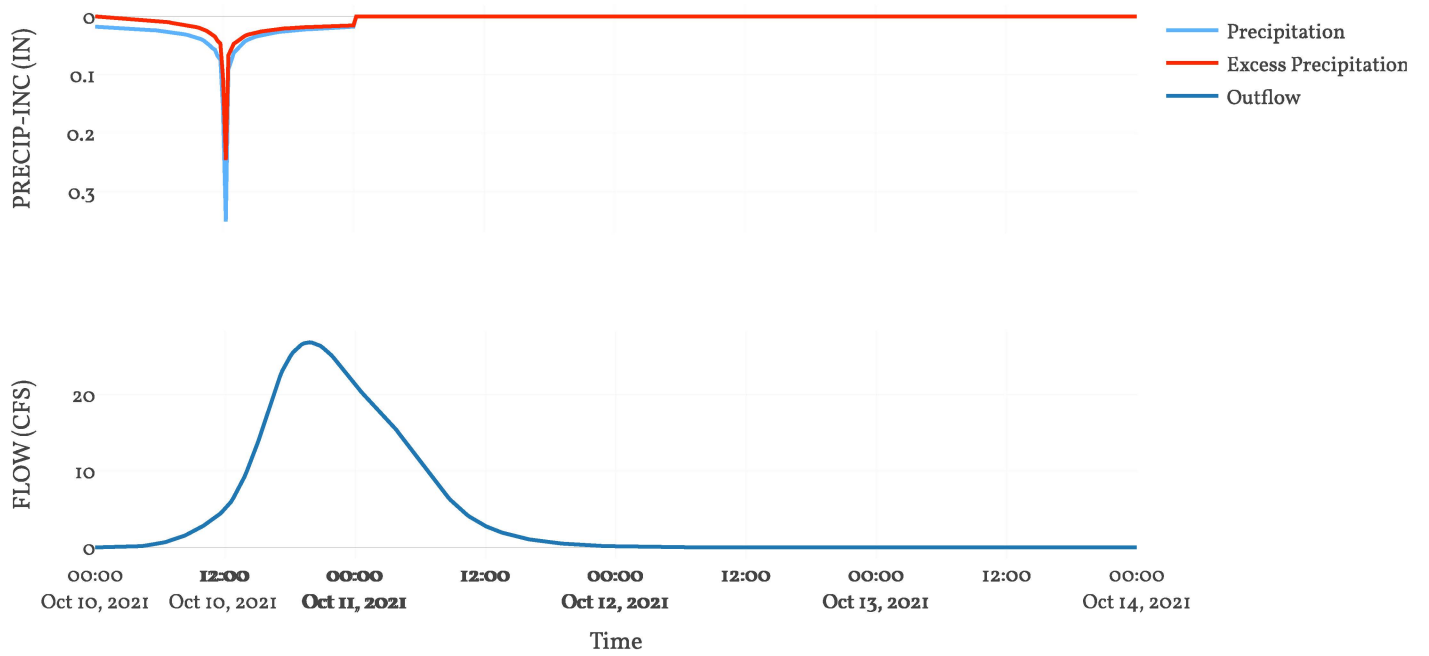
Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83
Initial Abstraction	0

Transform: Scs	
Lag	396
Unitgraph Type	Standard

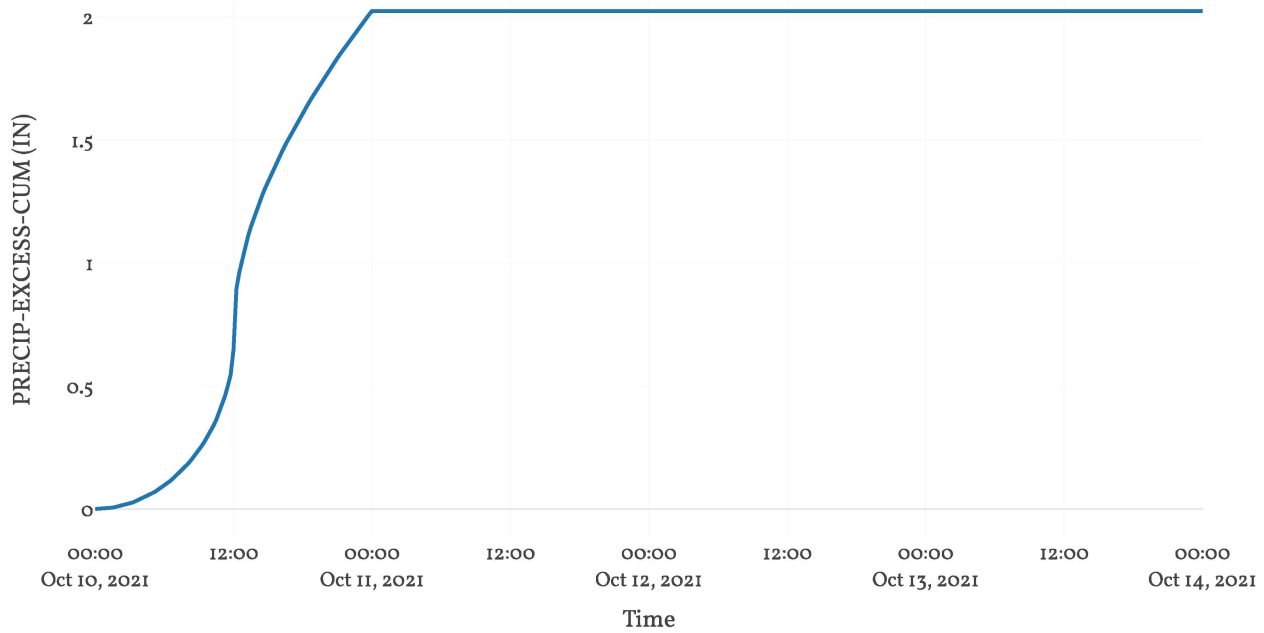
Results: SHED 1-05	
Peak Discharge (CFS)	26.84
Time of Peak Discharge	10Oct2021, 19:45
Volume (IN)	2.02
Precipitation Volume (AC - FT)	53.43
Loss Volume (AC - FT)	20.51
Excess Volume (AC - FT)	32.92
Direct Runoff Volume (AC - FT)	32.92
Baseflow Volume (AC - FT)	0



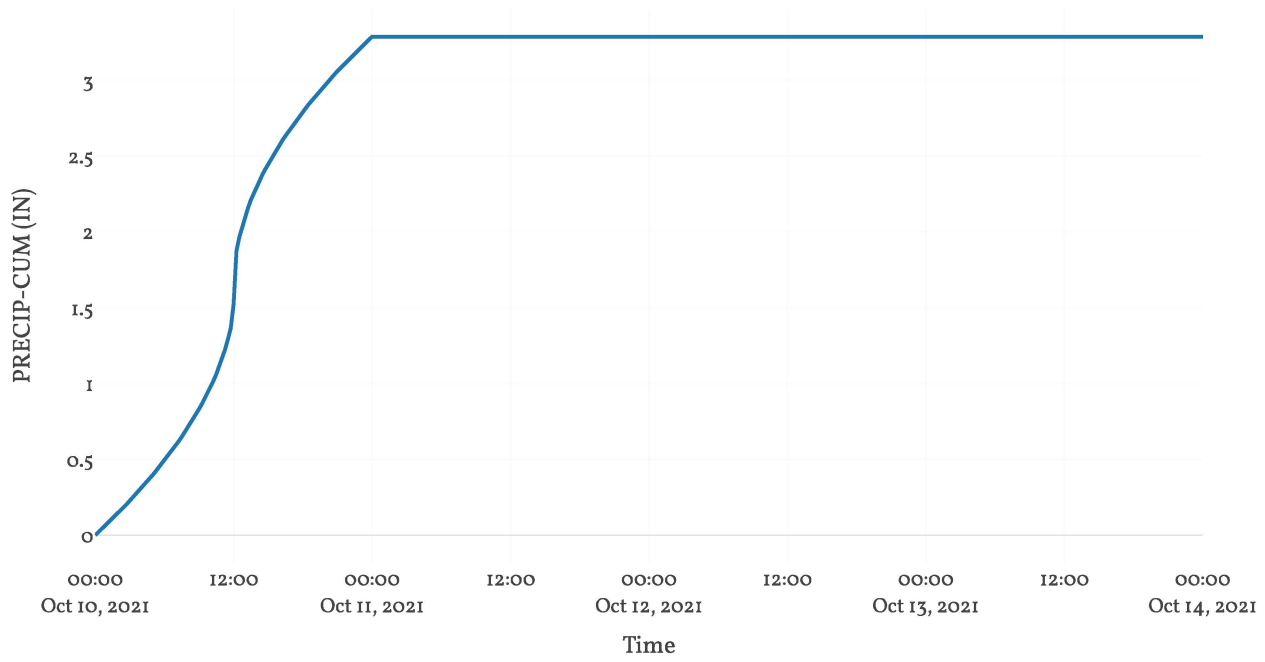
## Precipitation and Outflow



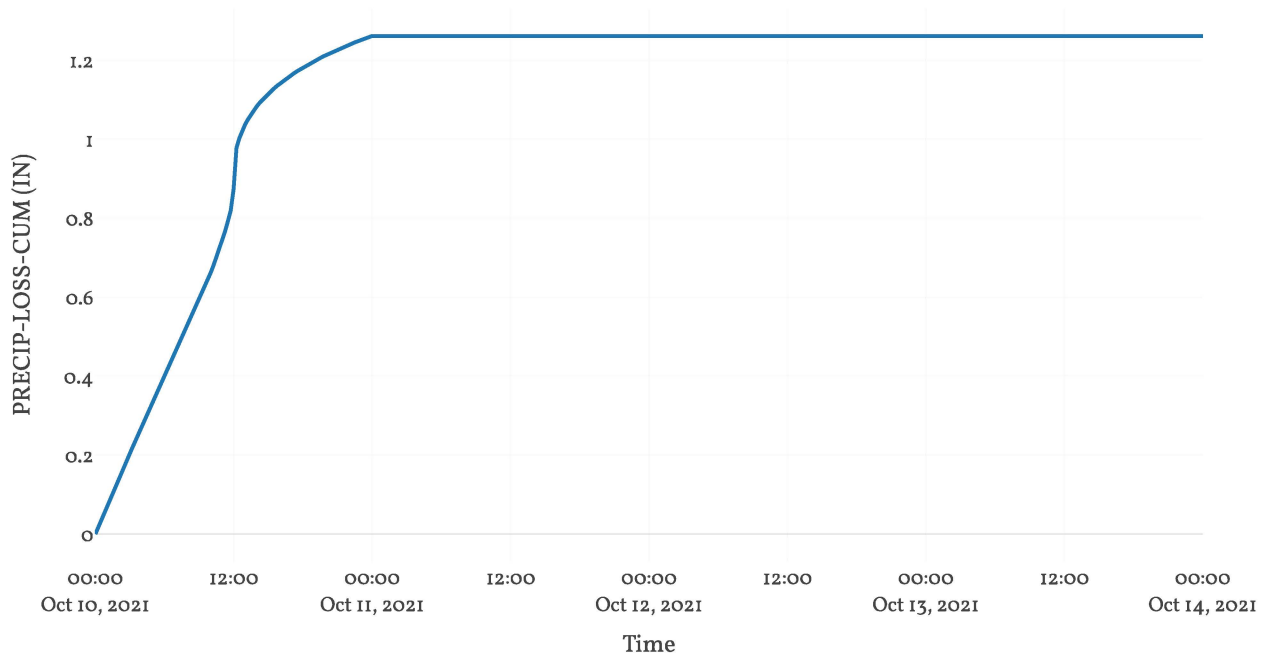
## Cumulative Excess Precipitation



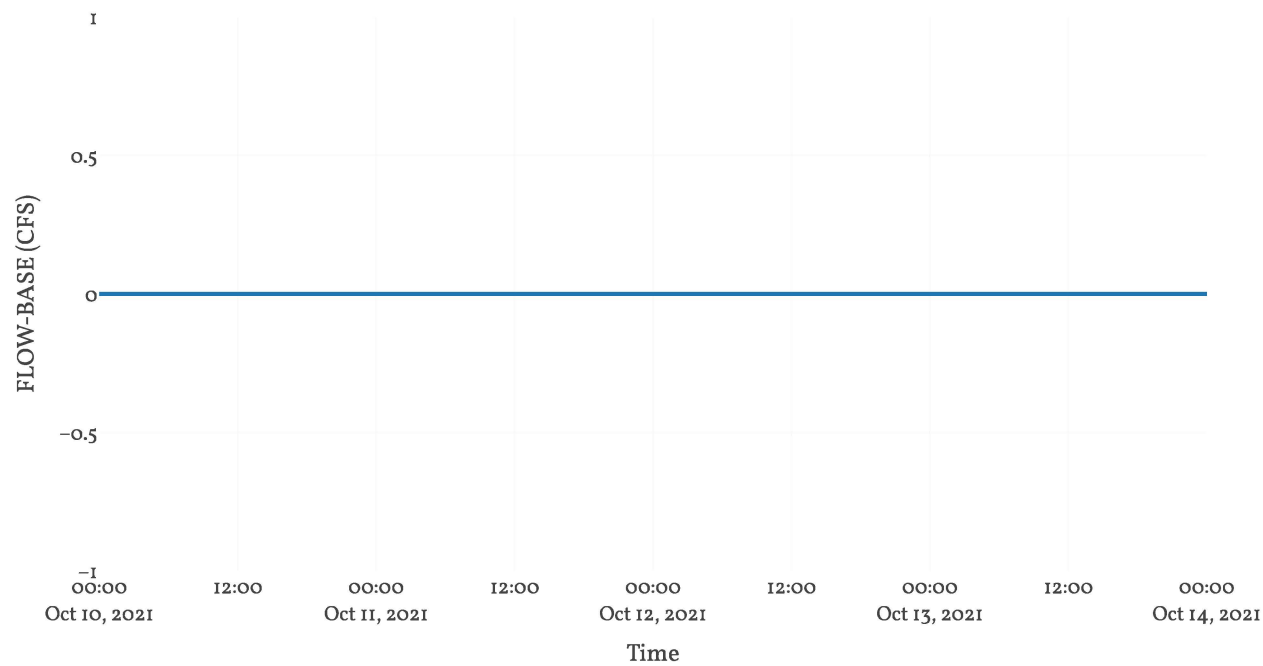
Cumulative Precipitation



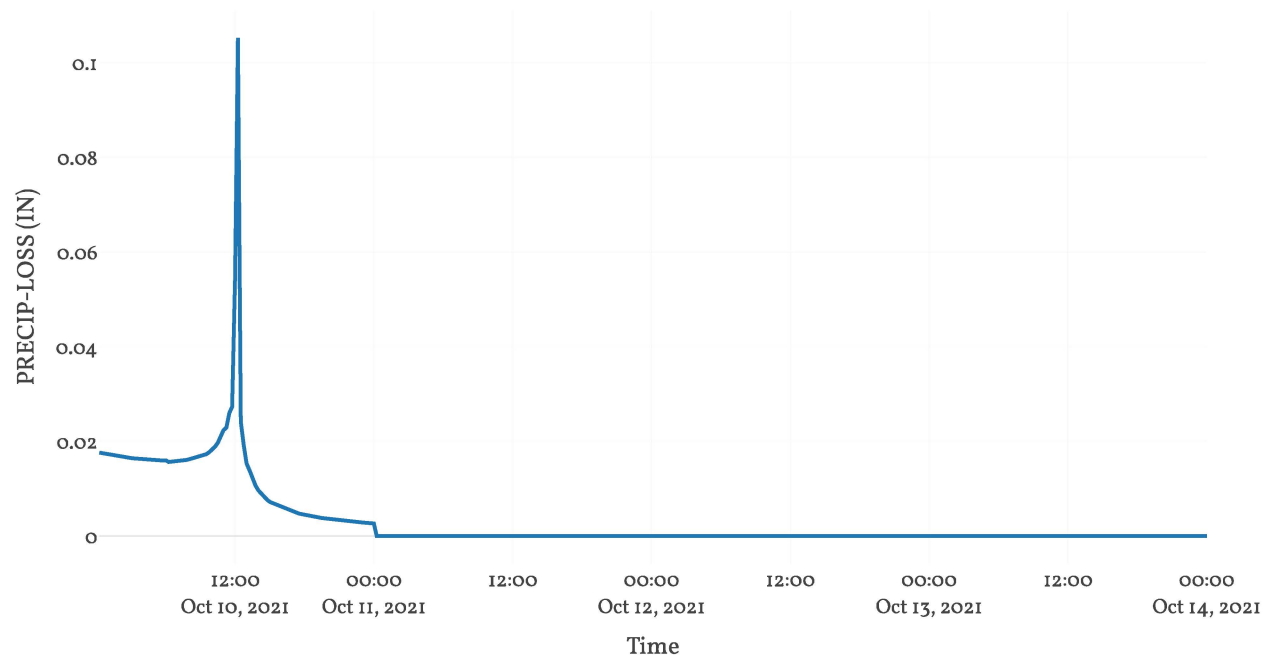
Cumulative Precipitation Loss



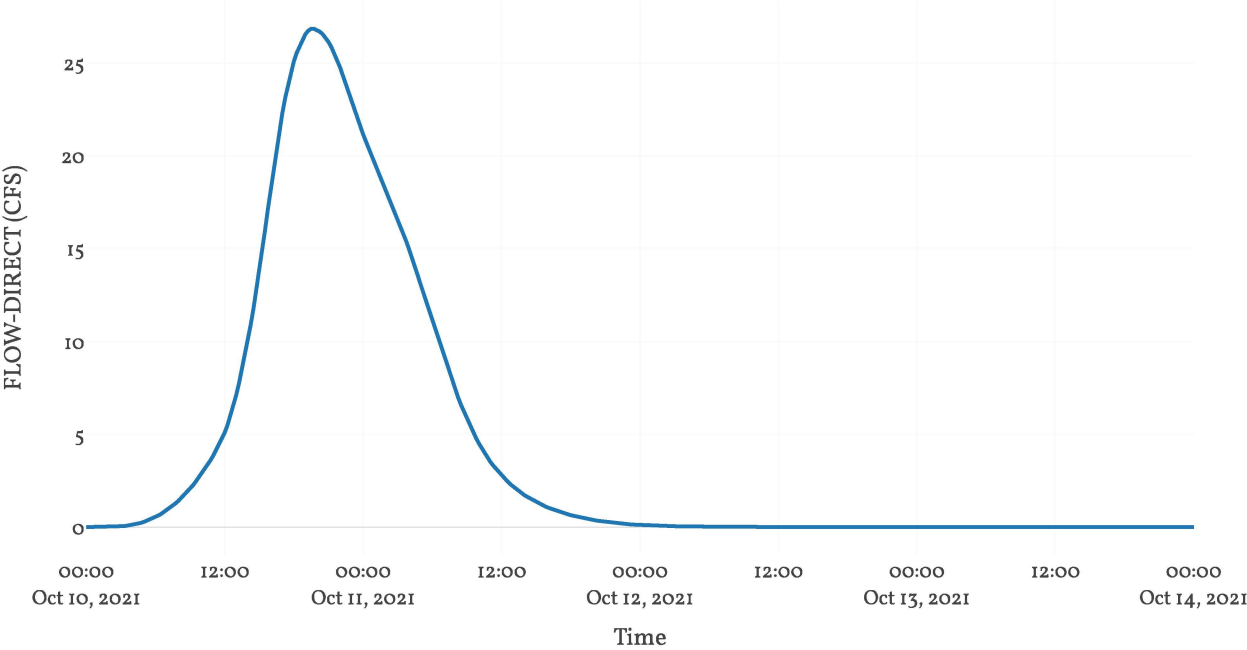
Baseflow



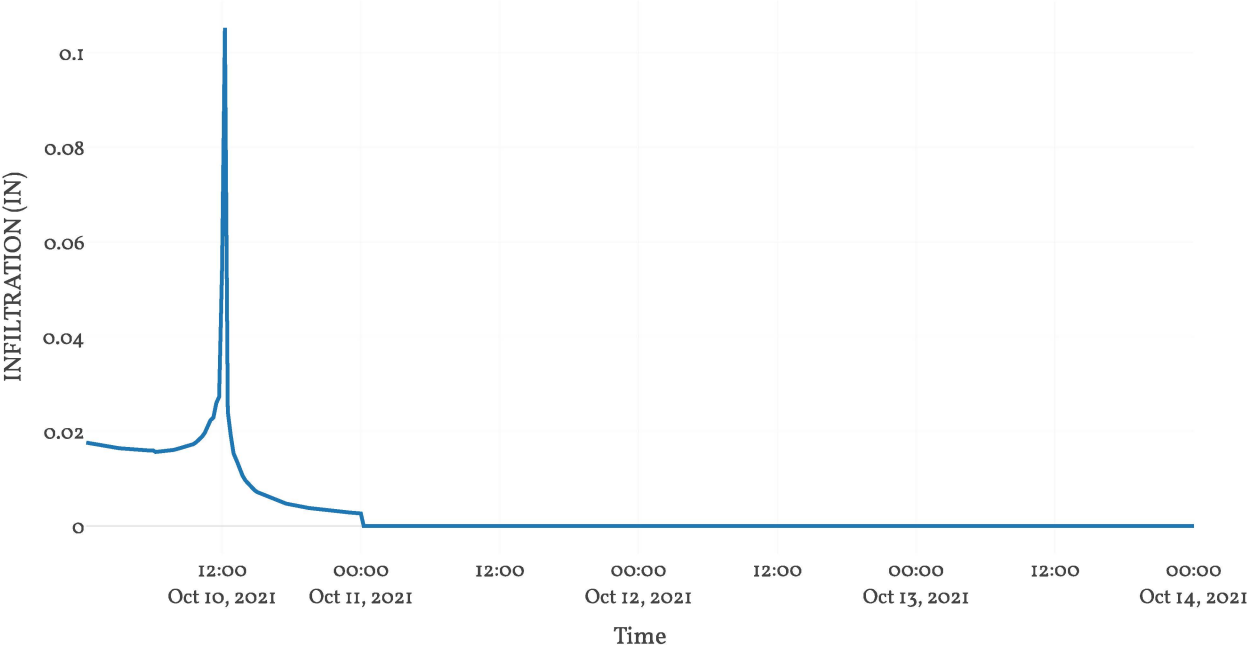
Precipitation Loss



Direct Runoff



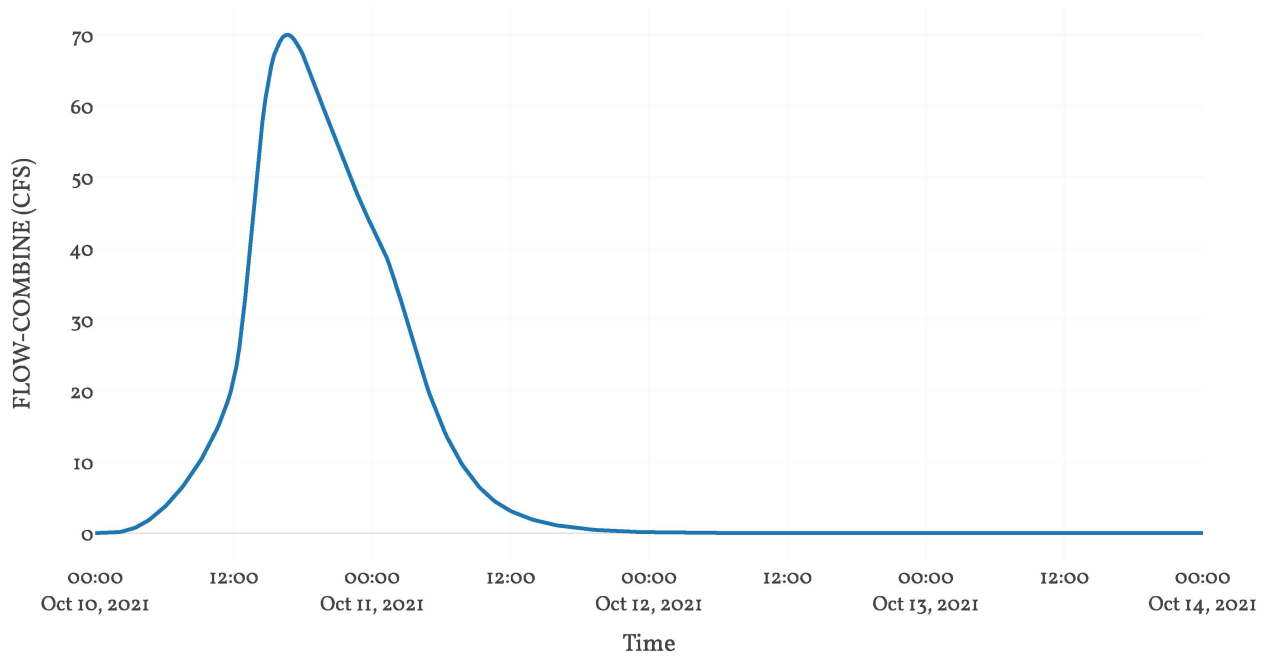
Soil Infiltration



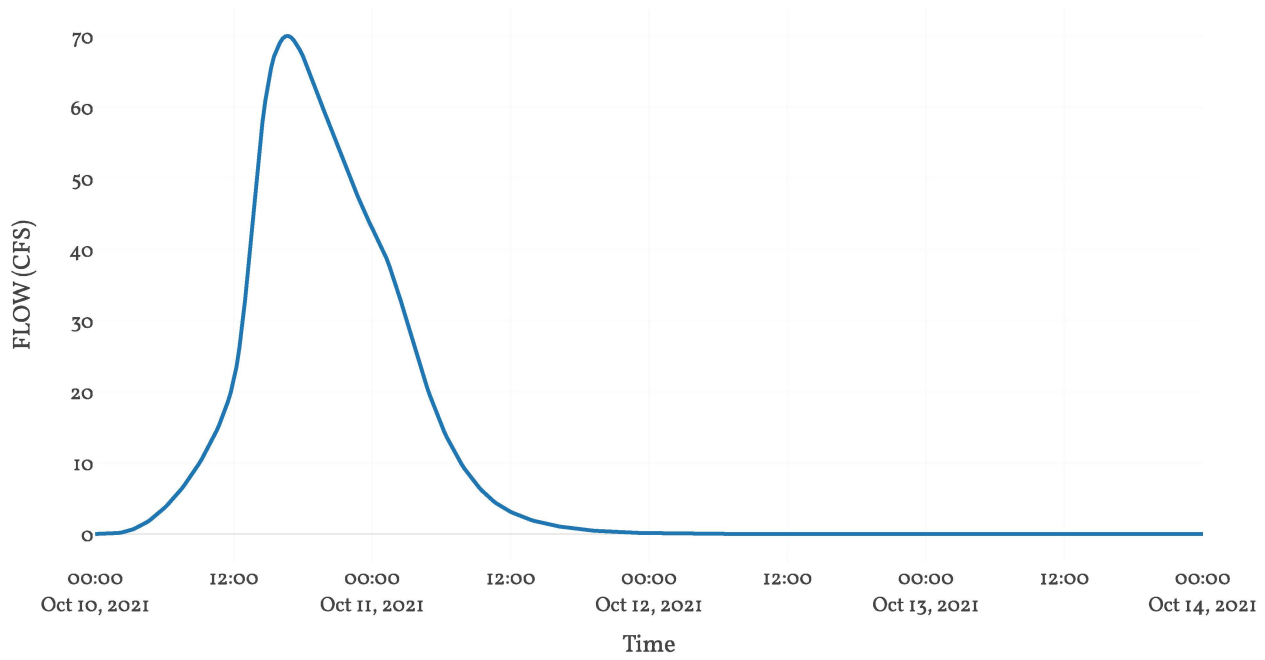
Junction: Pre Total

Results: Pre Total	
Peak Discharge (CFS)	70.04
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	2.09

Combined Inflow



Outflow





**A.2-3 MAIN FACILITY AREA – PRE-DEVELOPMENT 100YEAR 24HOUR**



**Project:** Oveja\_Ranch  
**Simulation Run:** 100 year 24hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 08 December 2024, 02:51

Global Parameter Summary - Subbasin

Area	
Element Name	Area
SHED I - 01	0.12
SHED I - 02	0.09
SHED I - 03	0.09
SHED I - 04	0.11
SHED I - 05	0.3

Downstream	
Element Name	Downstream
SHED I - 01	Pre Total
SHED I - 02	Pre Total
SHED I - 03	Pre Total
SHED I - 04	Pre Total
SHED I - 05	Pre Total

Loss Rate: Scs			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
SHED I - 01	0	85	0
SHED I - 02	0	85	0
SHED I - 03	0	85	0
SHED I - 04	0	85	0
SHED I - 05	0	83	0

Transform: Scs		
Element Name	Lag	Unitgraph Type
SHED I - 01	233.88	Standard
SHED I - 02	133	Standard
SHED I - 03	192	Standard
SHED I - 04	253	Standard
SHED I - 05	396	Standard

## Global Results Summary

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
SHED I - 01	0.12	26.81	10Oct2021, 16:15	3.78
SHED I - 02	0.09	24.89	10Oct2021, 14:30	3.78
SHED I - 03	0.09	22.69	10Oct2021, 15:30	3.78
SHED I - 04	0.11	22.62	10Oct2021, 16:45	3.78
SHED I - 05	0.3	47.92	10Oct2021, 19:30	3.63
Pre Total	0.72	124.07	10Oct2021, 16:30	3.72

Subbasin: SHED 1-01

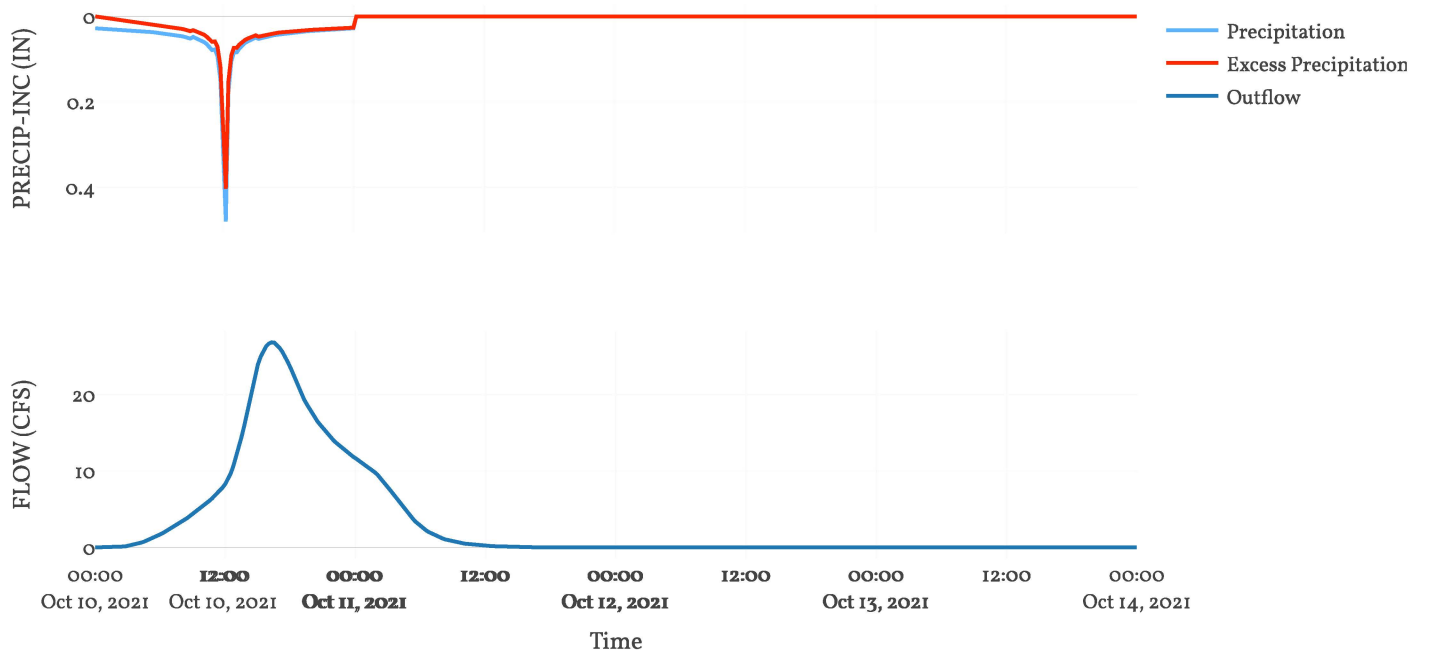
Area : 0.12  
Downstream : Pre Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

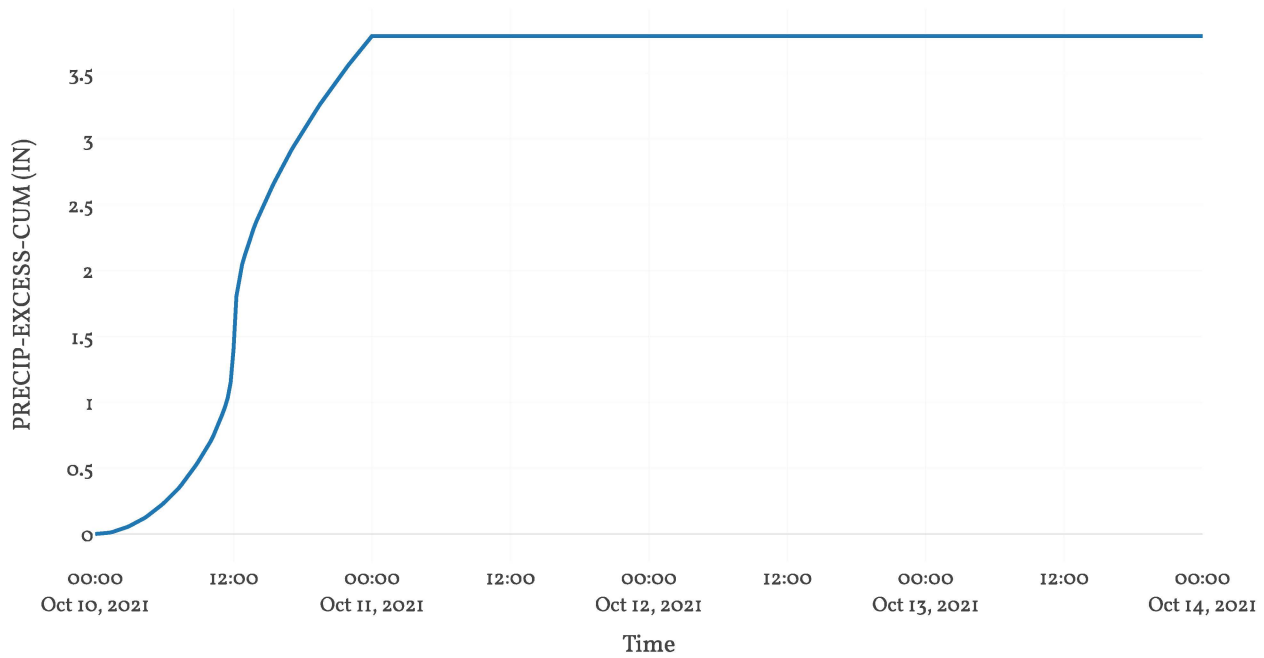
Transform: Scs	
Lag	233.88
Unitgraph Type	Standard

Results: SHED 1-01	
Peak Discharge (CFS)	26.81
Time of Peak Discharge	10Oct2021, 16:15
Volume (IN)	3.78
Precipitation Volume (AC - FT)	33.52
Loss Volume (AC - FT)	8.62
Excess Volume (AC - FT)	24.9
Direct Runoff Volume (AC - FT)	24.9
Baseflow Volume (AC - FT)	0

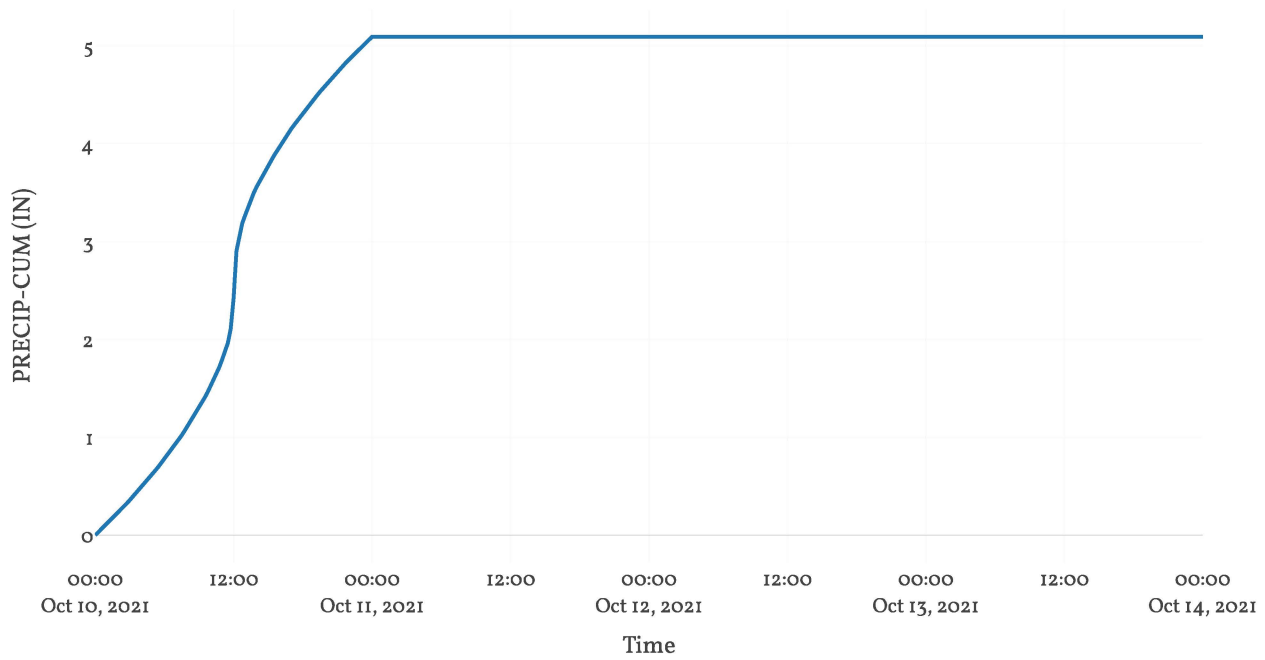
## Precipitation and Outflow



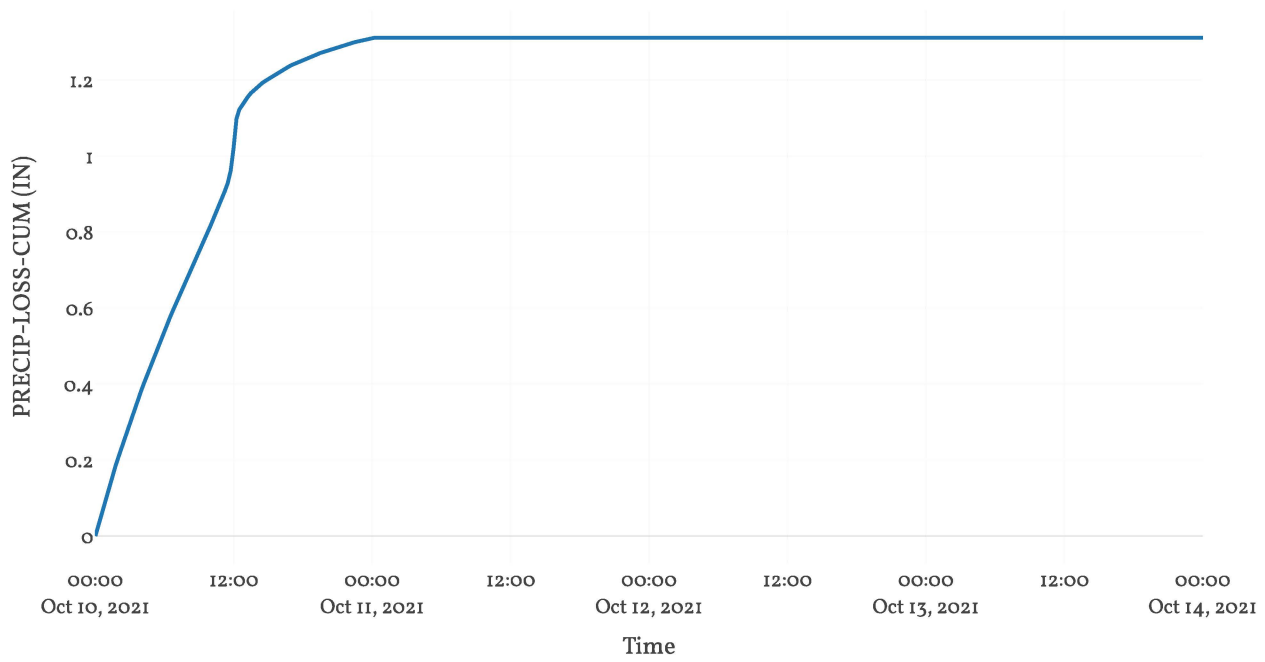
## Cumulative Excess Precipitation



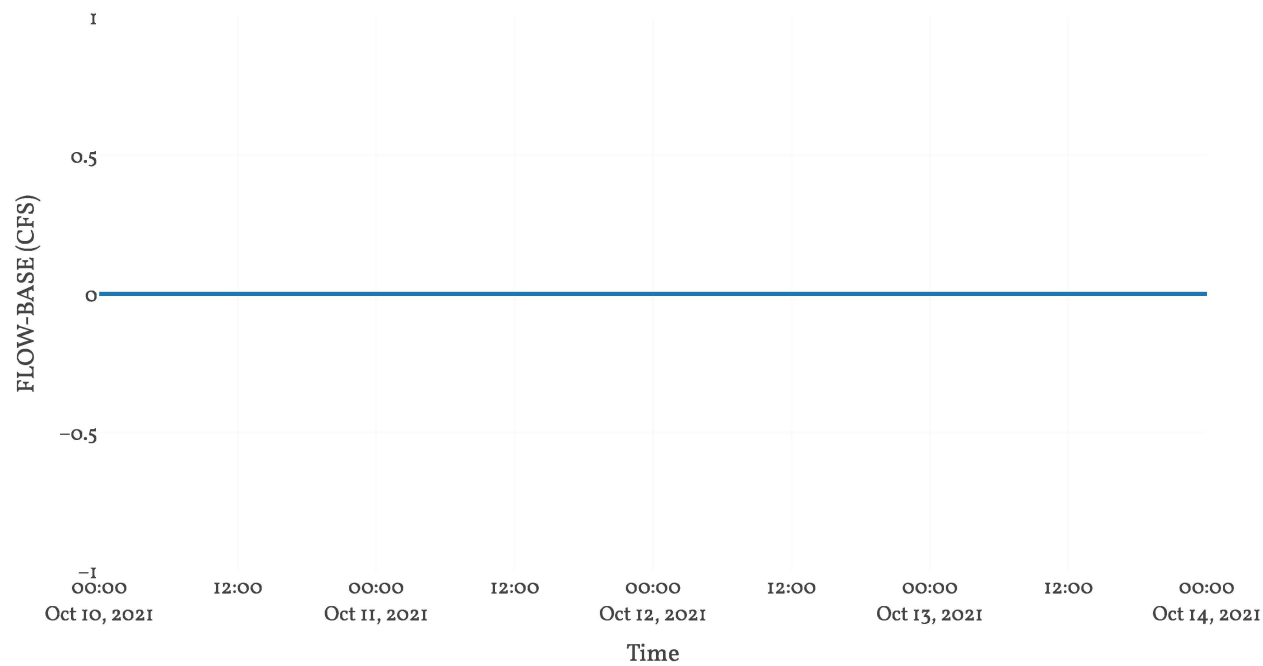
Cumulative Precipitation



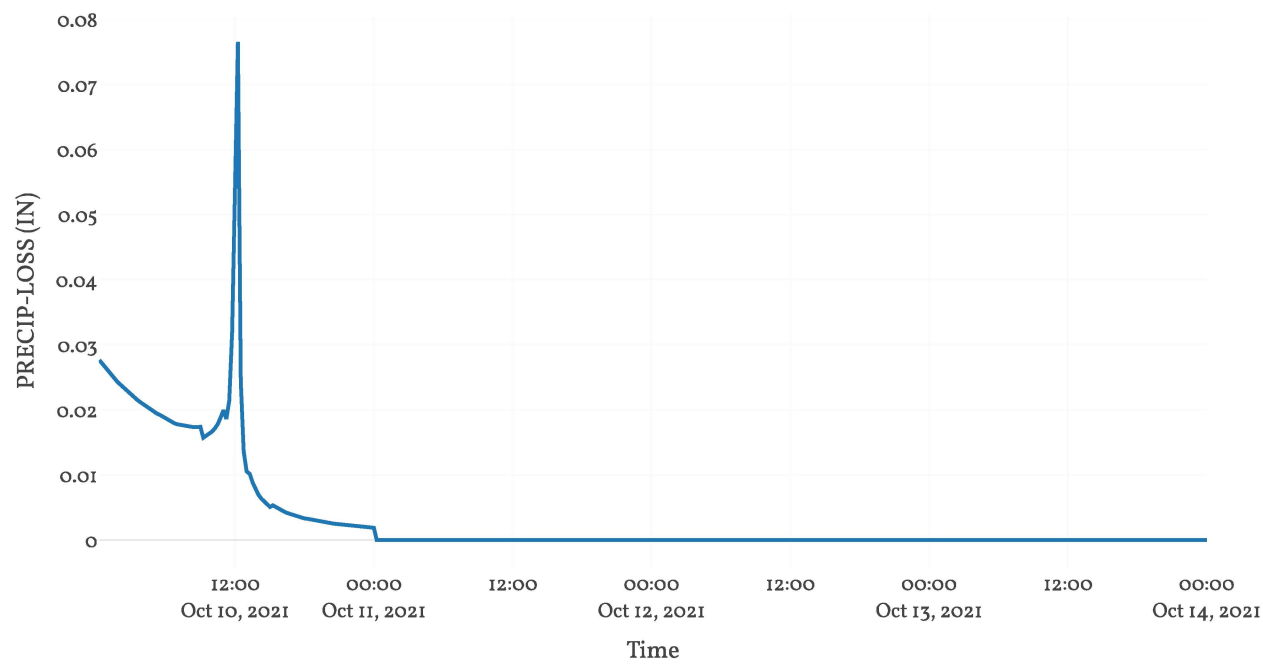
Cumulative Precipitation Loss



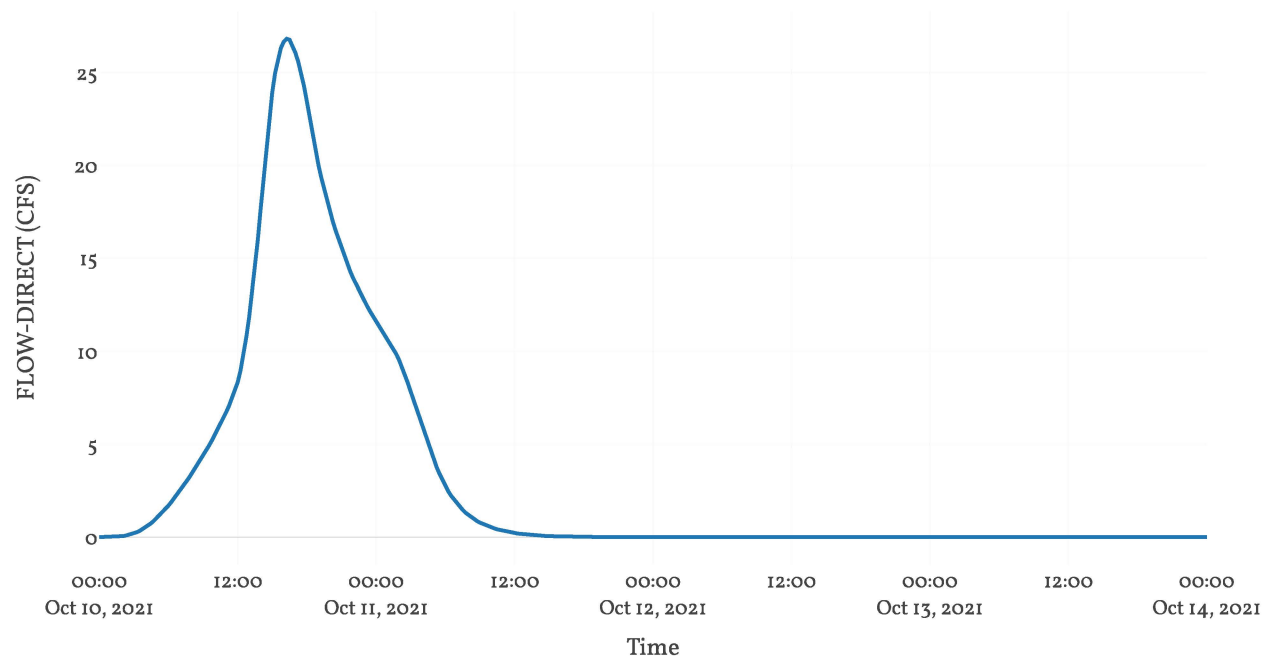
Baseflow



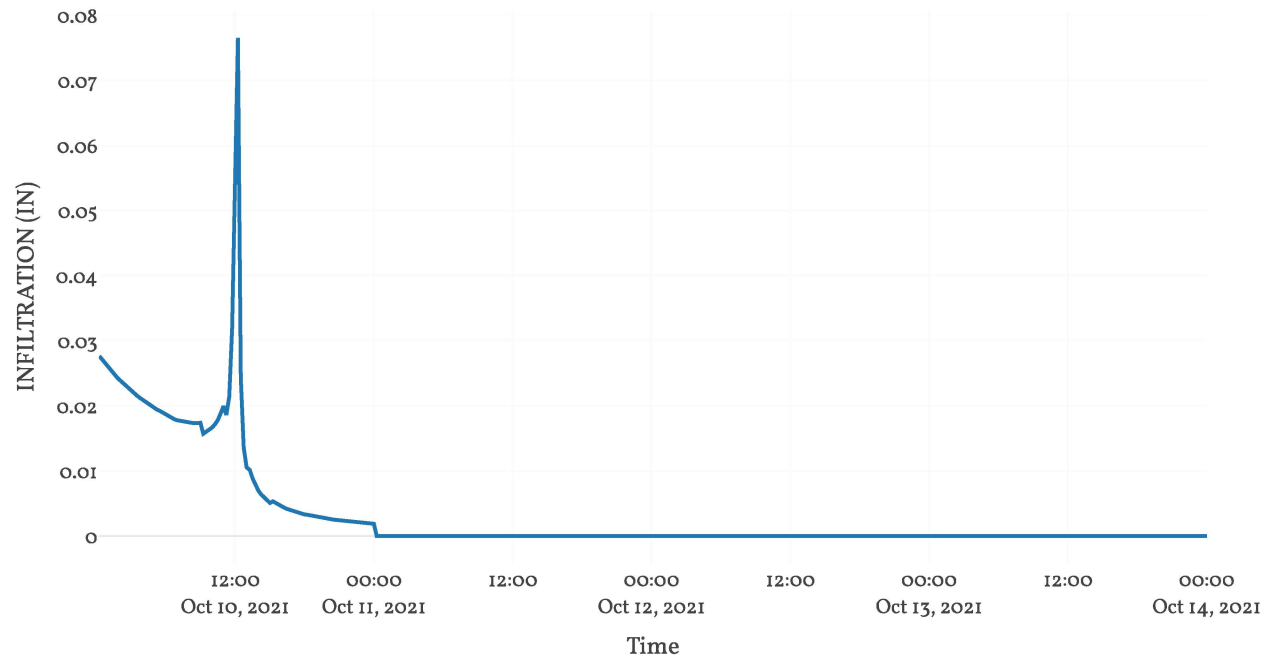
Precipitation Loss



Direct Runoff



Soil Infiltration



Subbasin: SHED 1-02

Area : 0.09  
Downstream : Pre Total

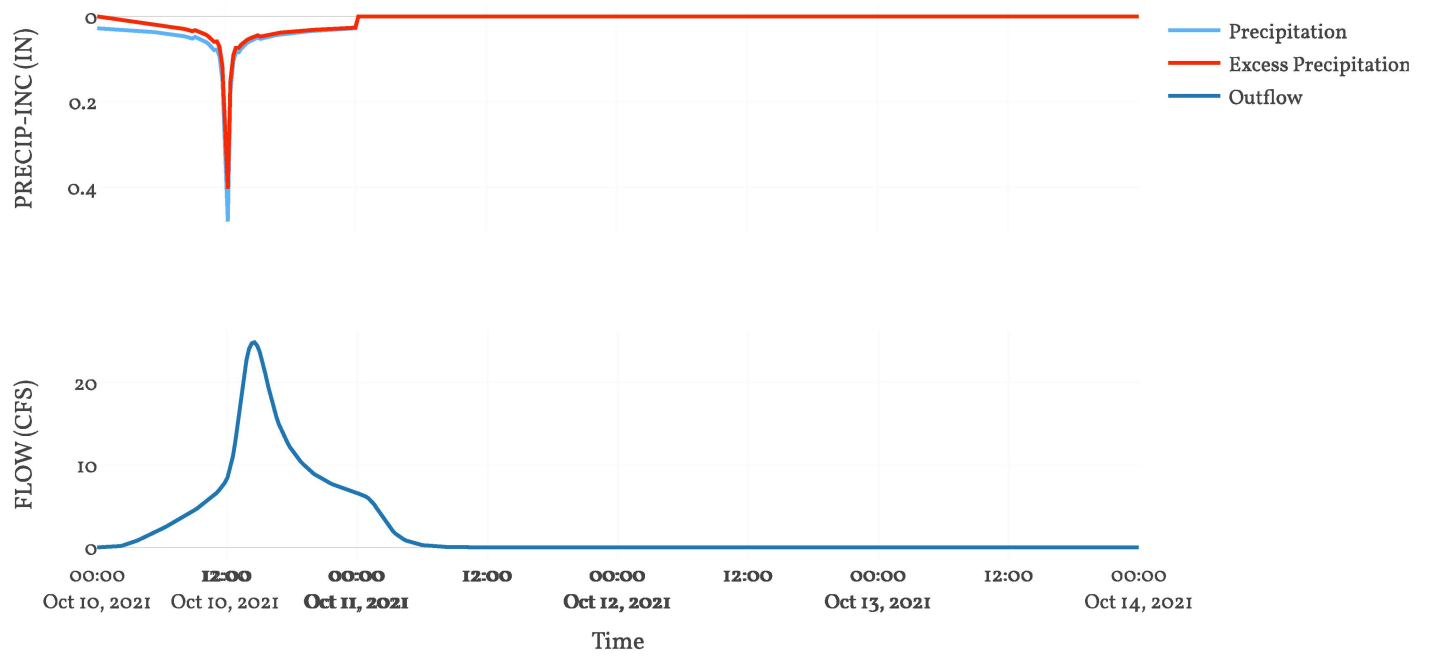
Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

Transform: Scs	
Lag	133
Unitgraph Type	Standard

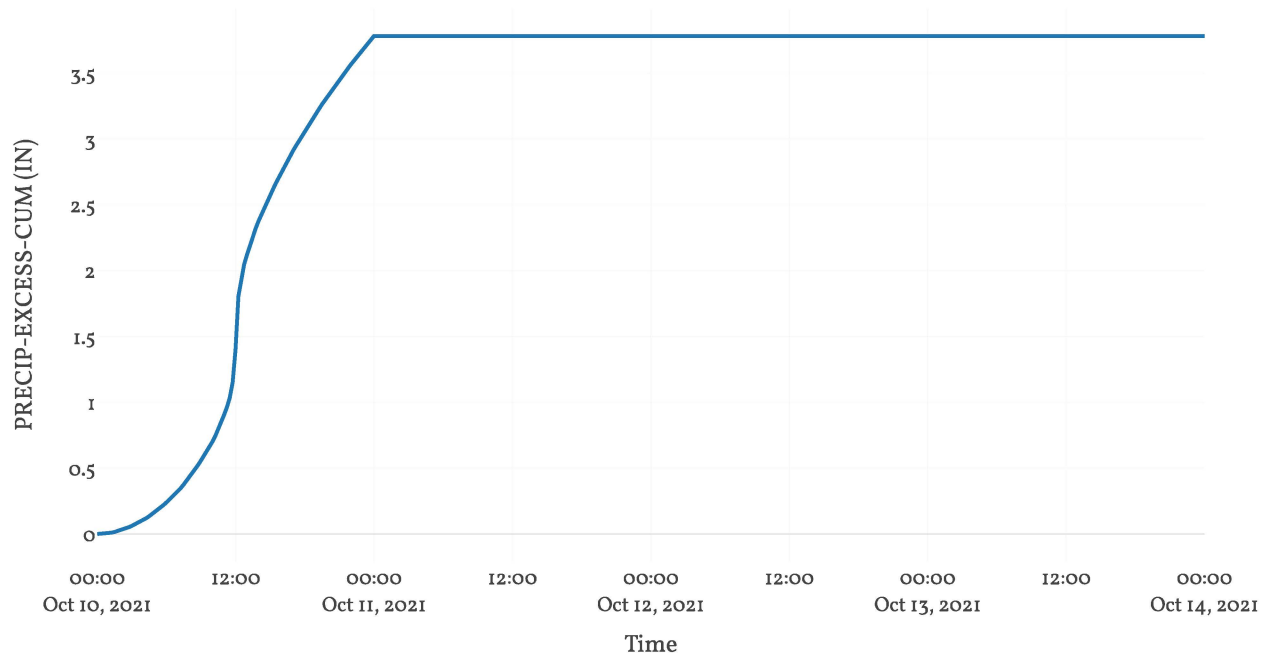
Results: SHED 1-02	
Peak Discharge (CFS)	24.89
Time of Peak Discharge	10Oct2021, 14:30
Volume (IN)	3.78
Precipitation Volume (AC - FT)	23.11
Loss Volume (AC - FT)	5.94
Excess Volume (AC - FT)	17.16
Direct Runoff Volume (AC - FT)	17.16
Baseflow Volume (AC - FT)	0



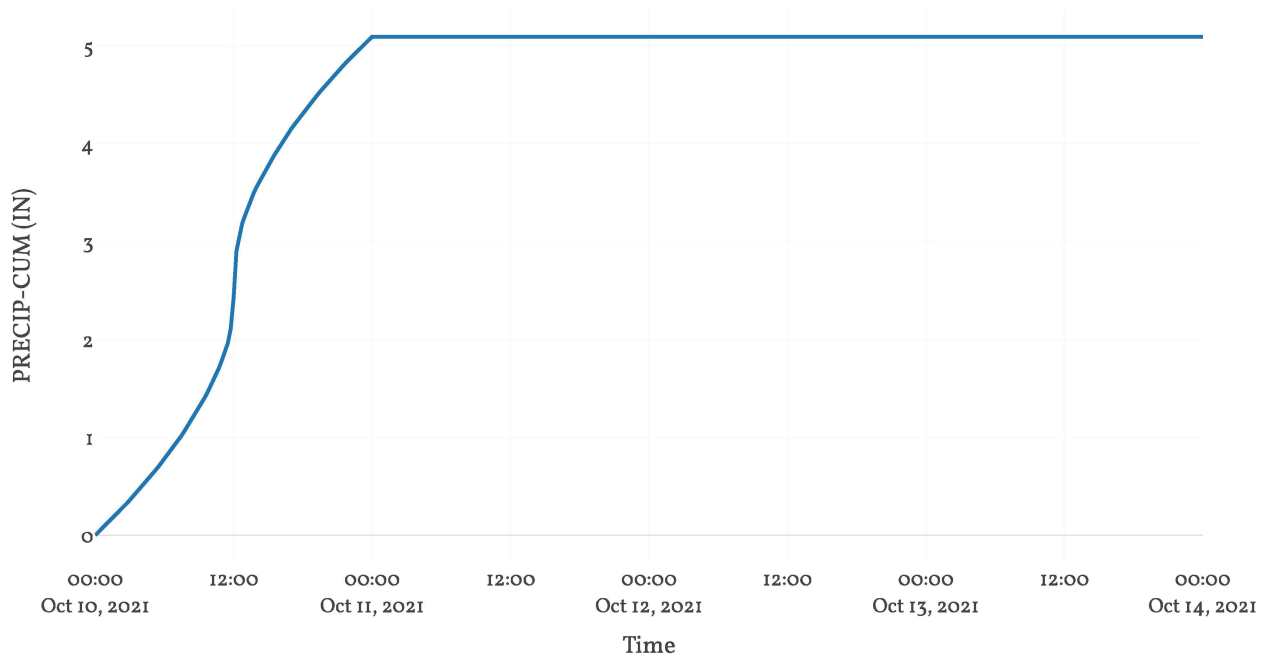
## Precipitation and Outflow



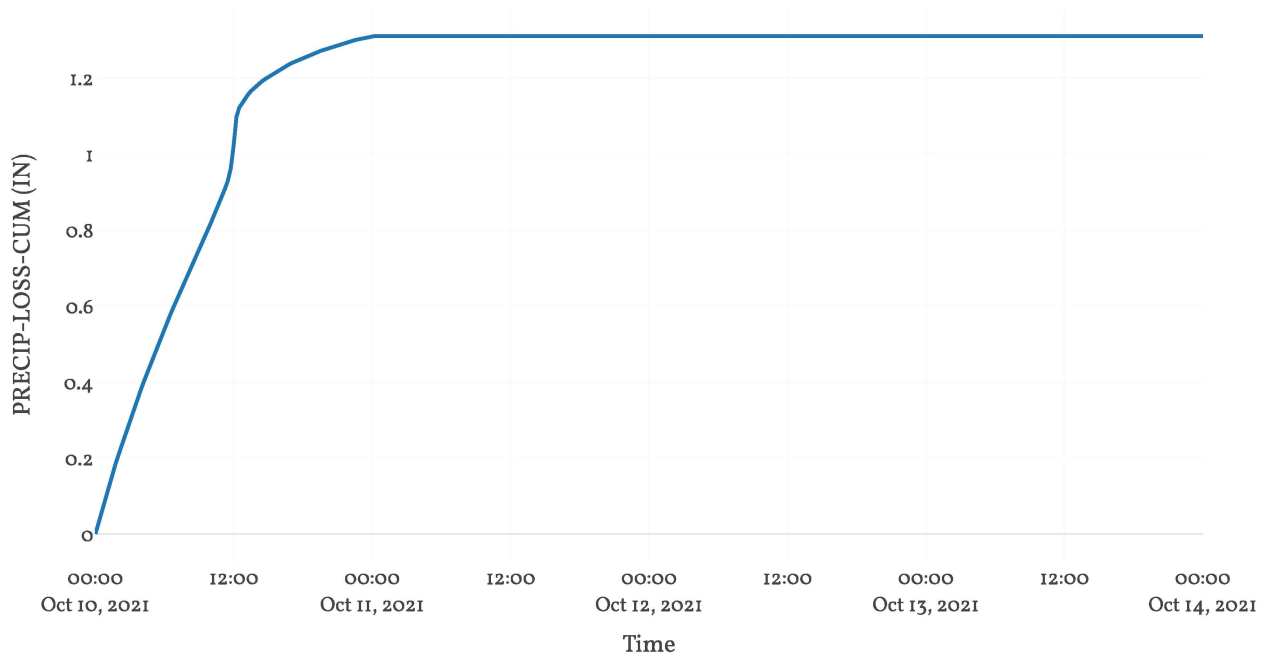
## Cumulative Excess Precipitation



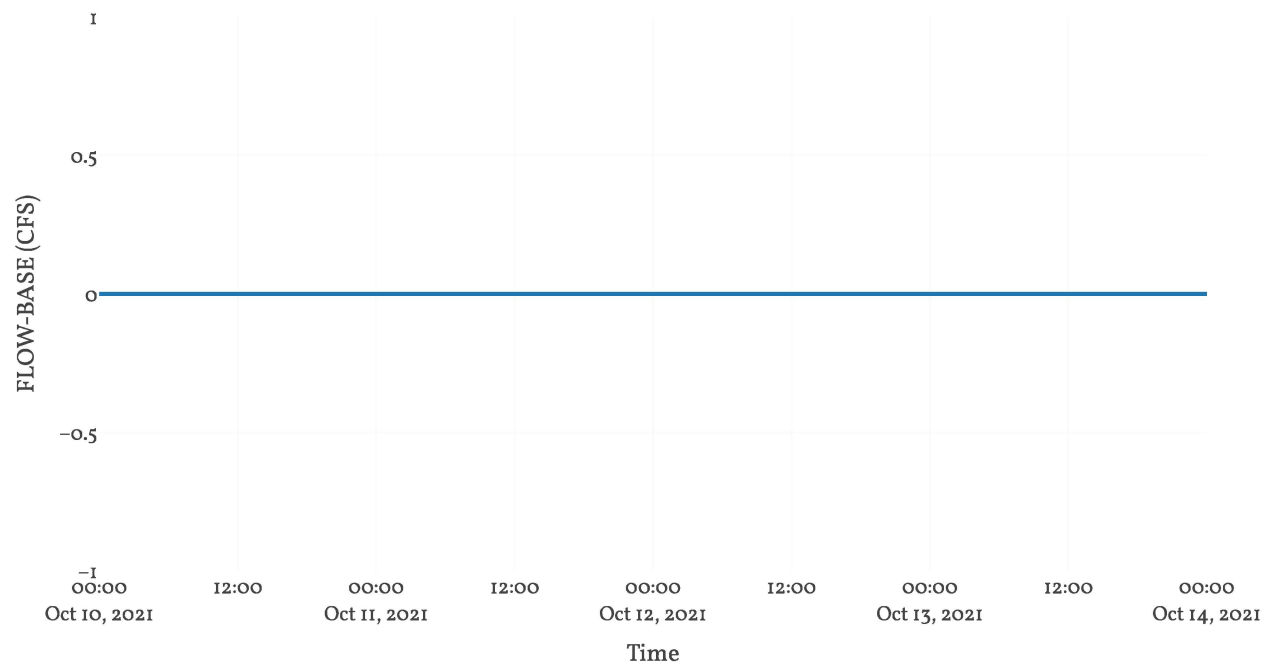
Cumulative Precipitation



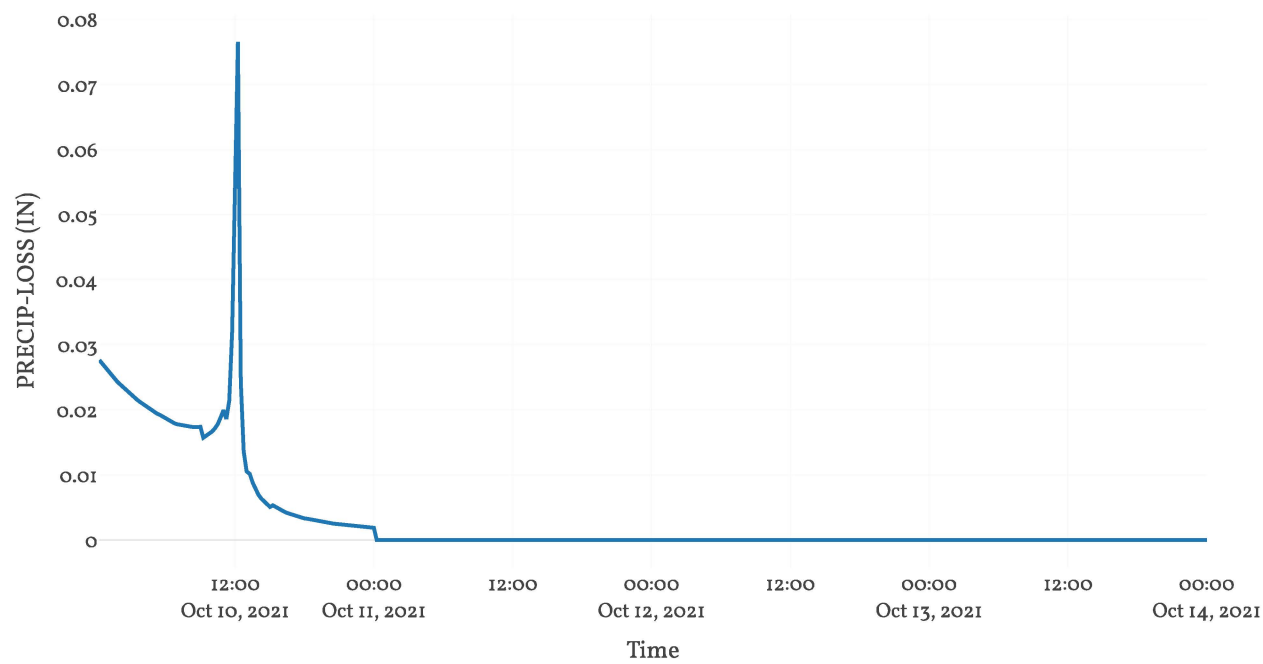
Cumulative Precipitation Loss



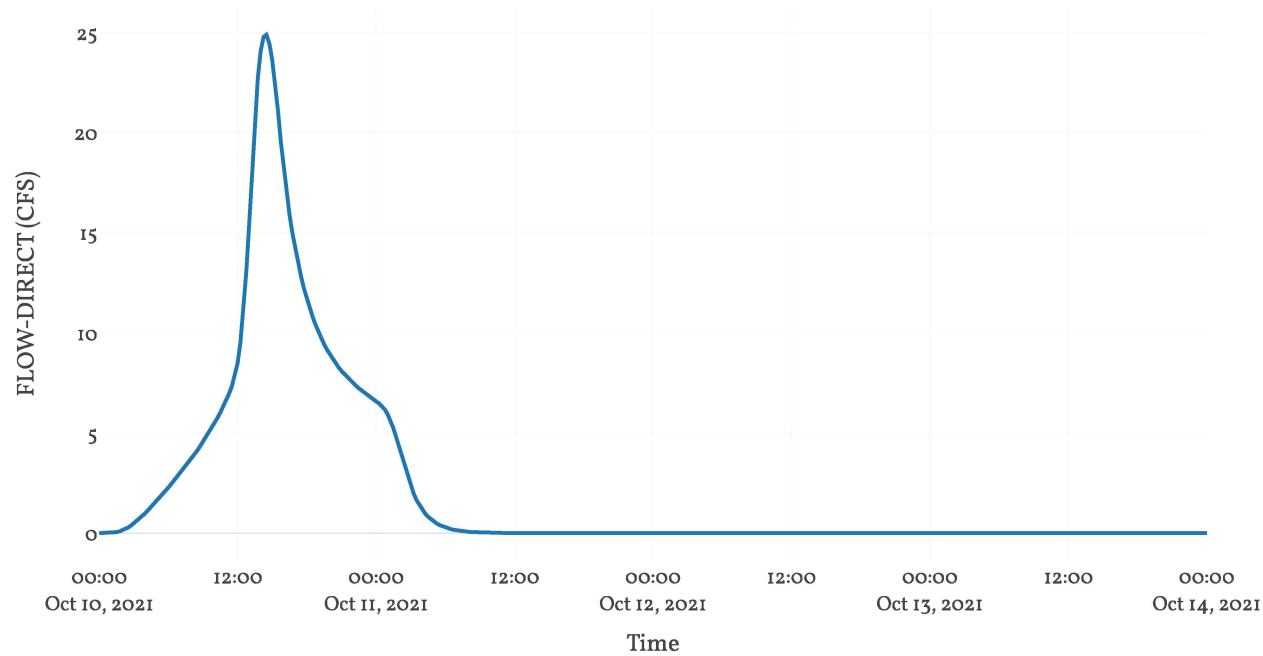
Baseflow



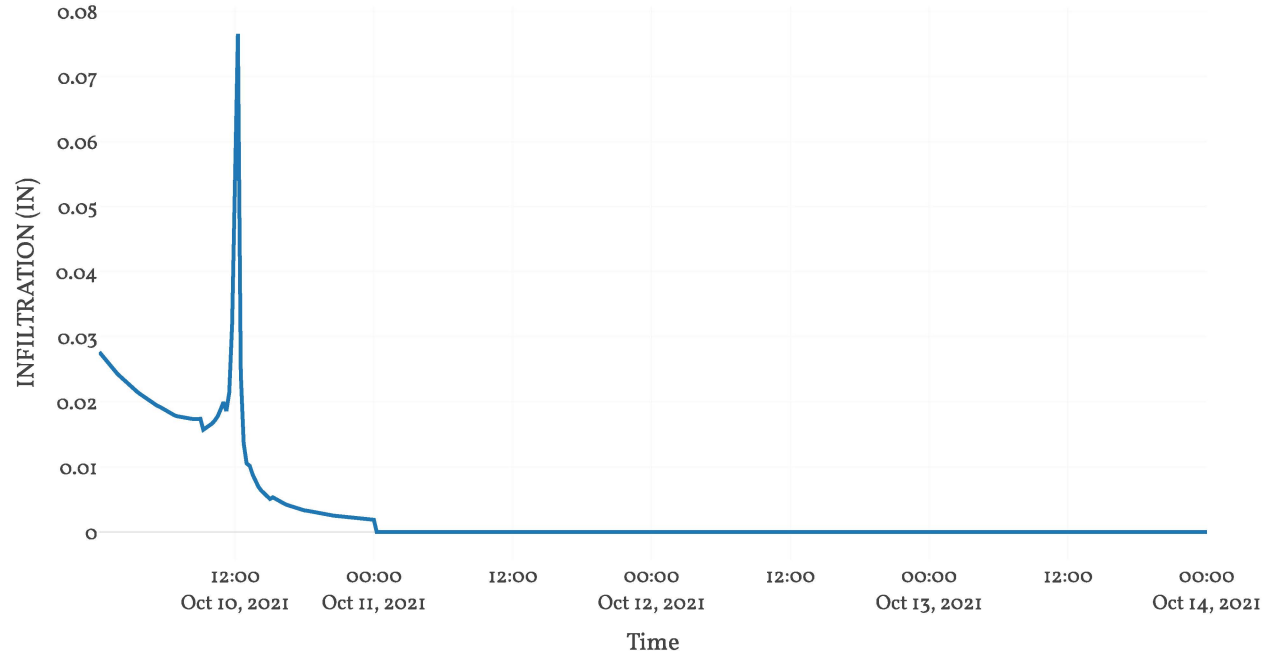
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: SHED 1-03

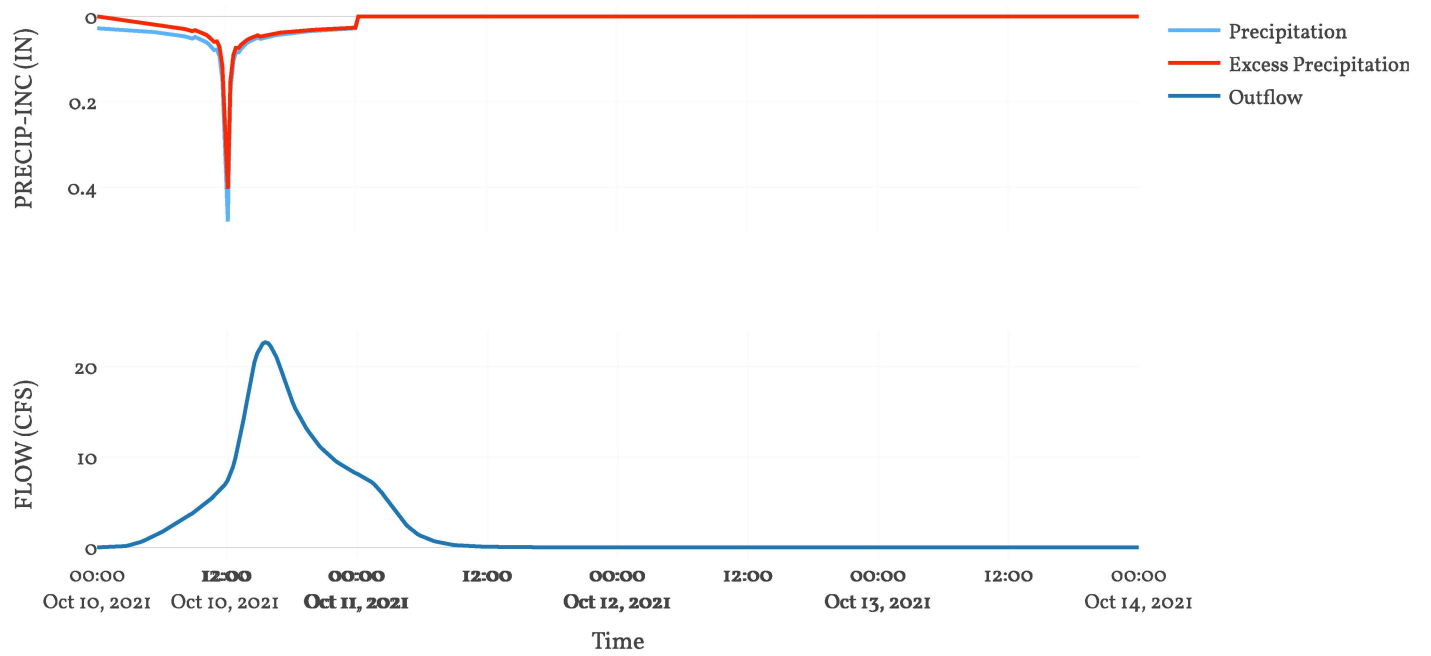
Area : 0.09  
Downstream : Pre Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

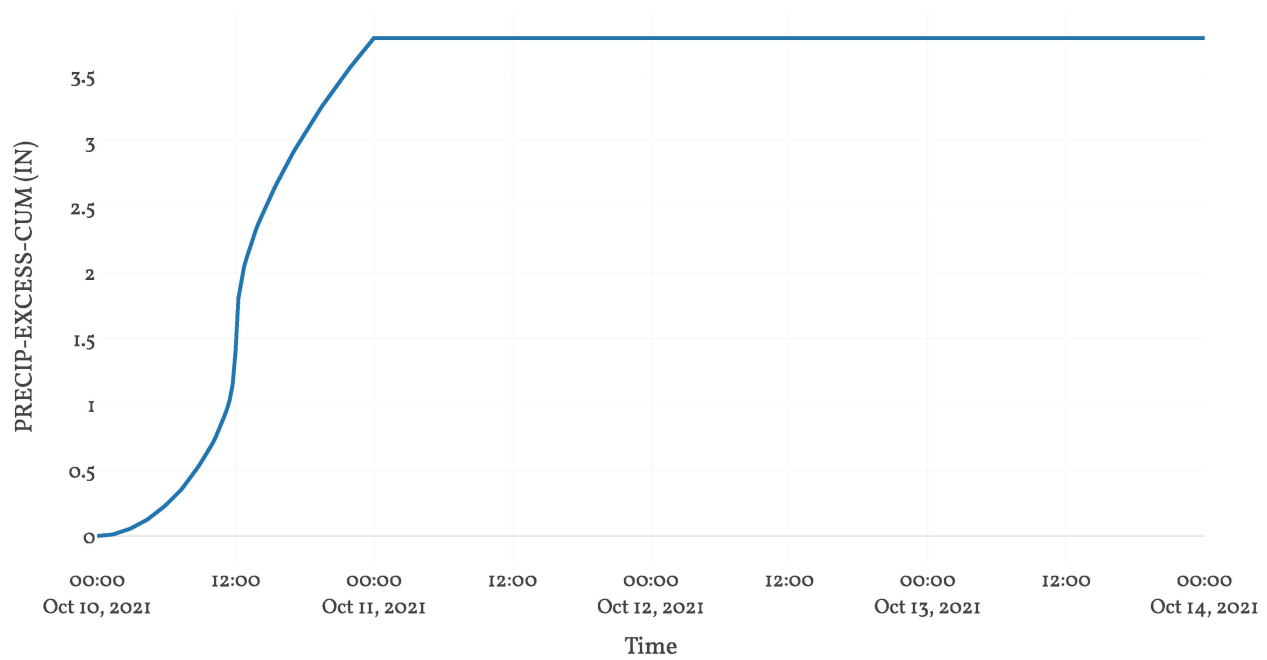
Transform: Scs	
Lag	192
Unitgraph Type	Standard

Results: SHED 1-03	
Peak Discharge (CFS)	22.69
Time of Peak Discharge	10Oct2021, 15:30
Volume (IN)	3.78
Precipitation Volume (AC - FT)	25.53
Loss Volume (AC - FT)	6.57
Excess Volume (AC - FT)	18.96
Direct Runoff Volume (AC - FT)	18.96
Baseflow Volume (AC - FT)	0

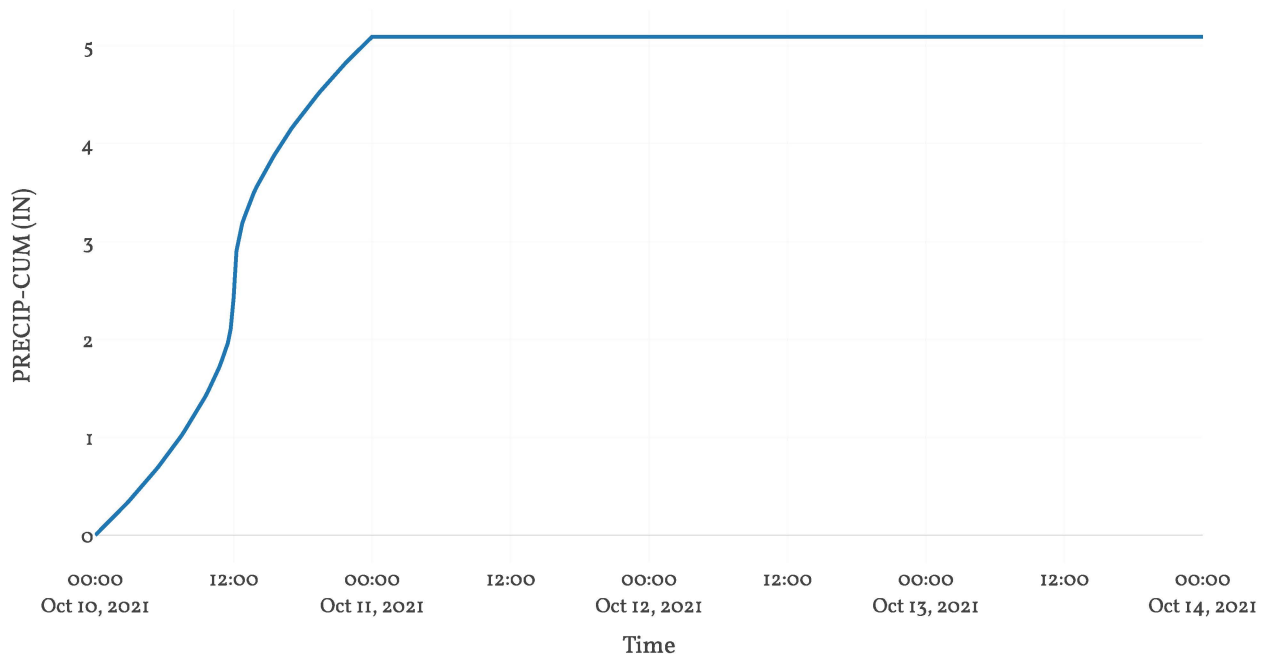
## Precipitation and Outflow



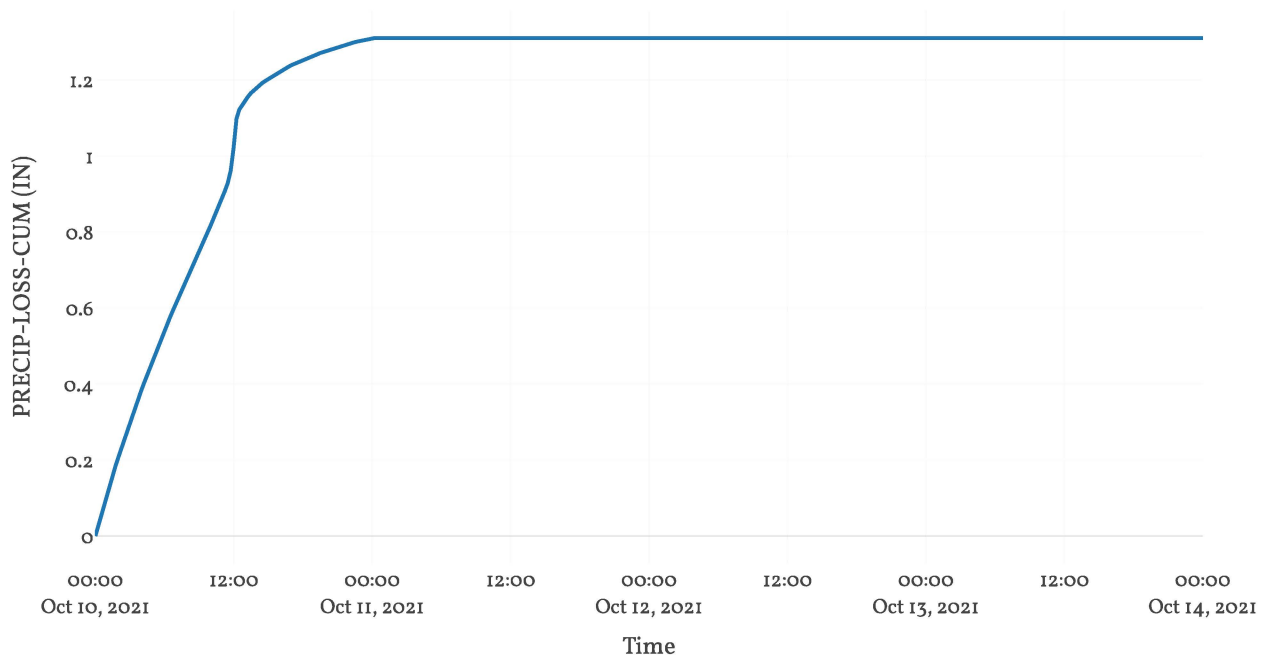
## Cumulative Excess Precipitation



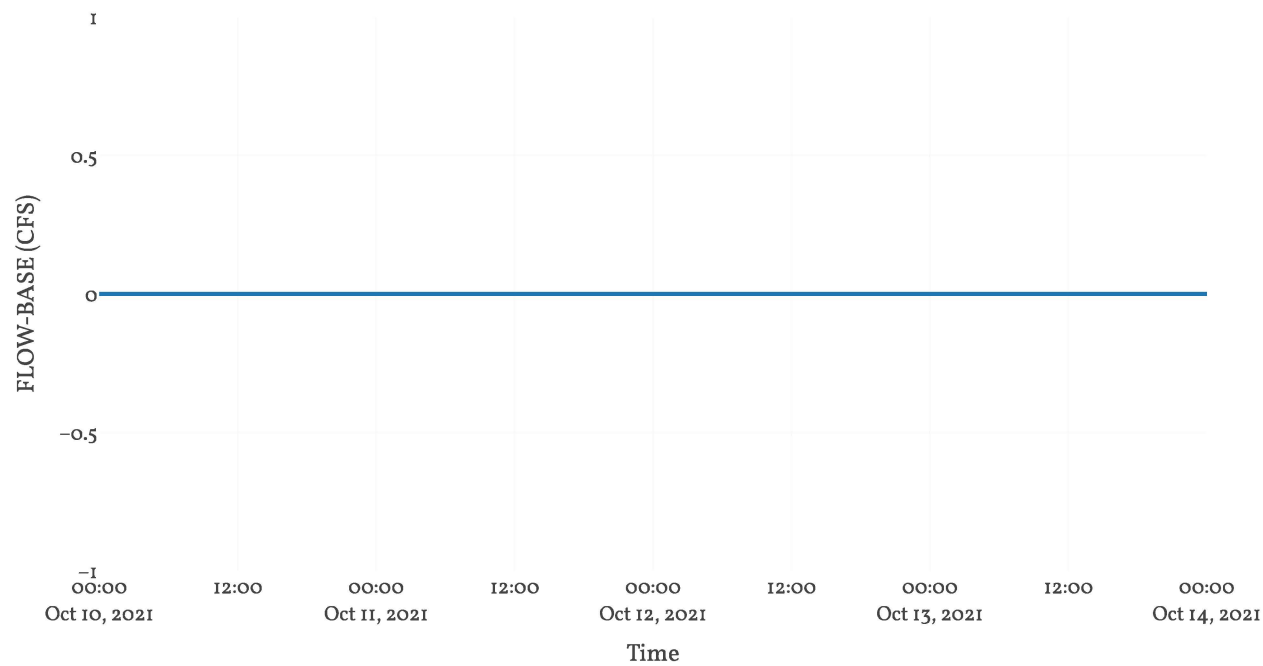
Cumulative Precipitation



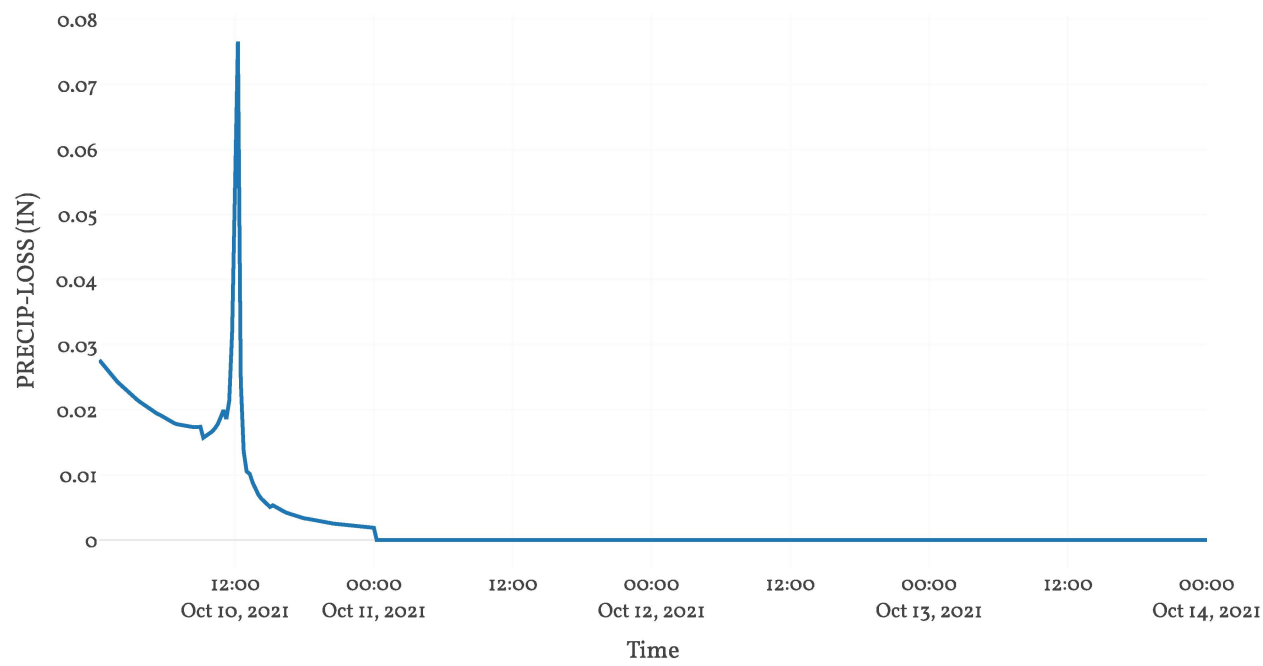
Cumulative Precipitation Loss



Baseflow

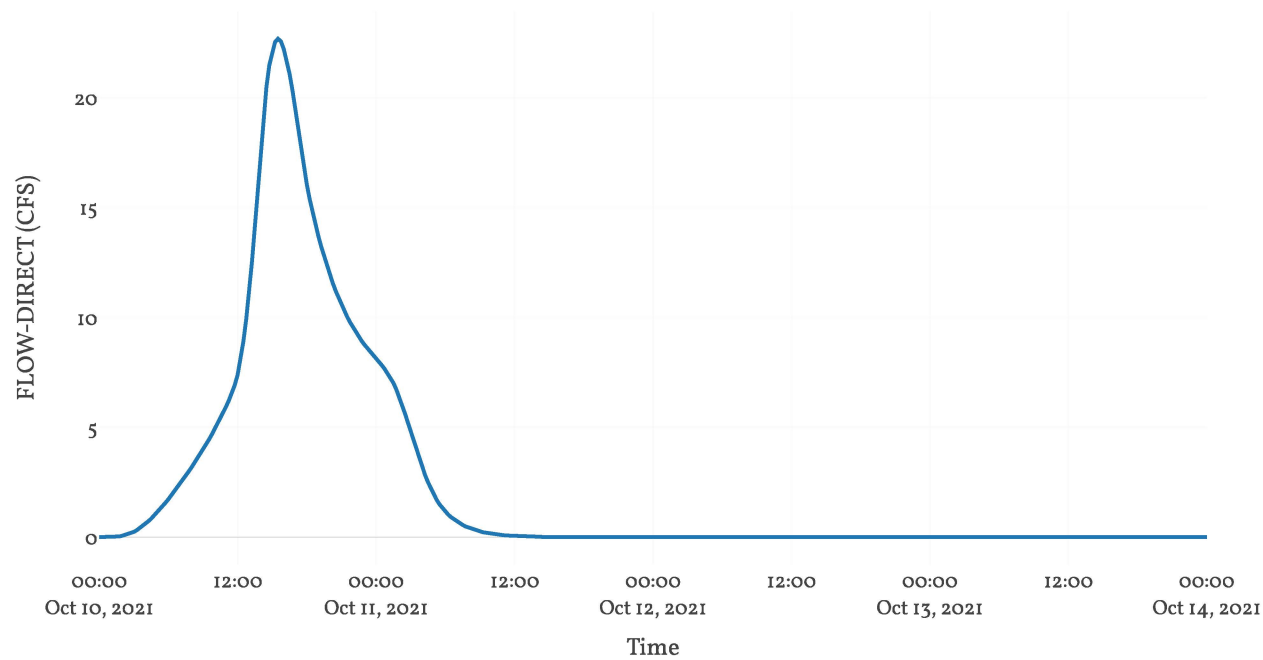


Precipitation Loss

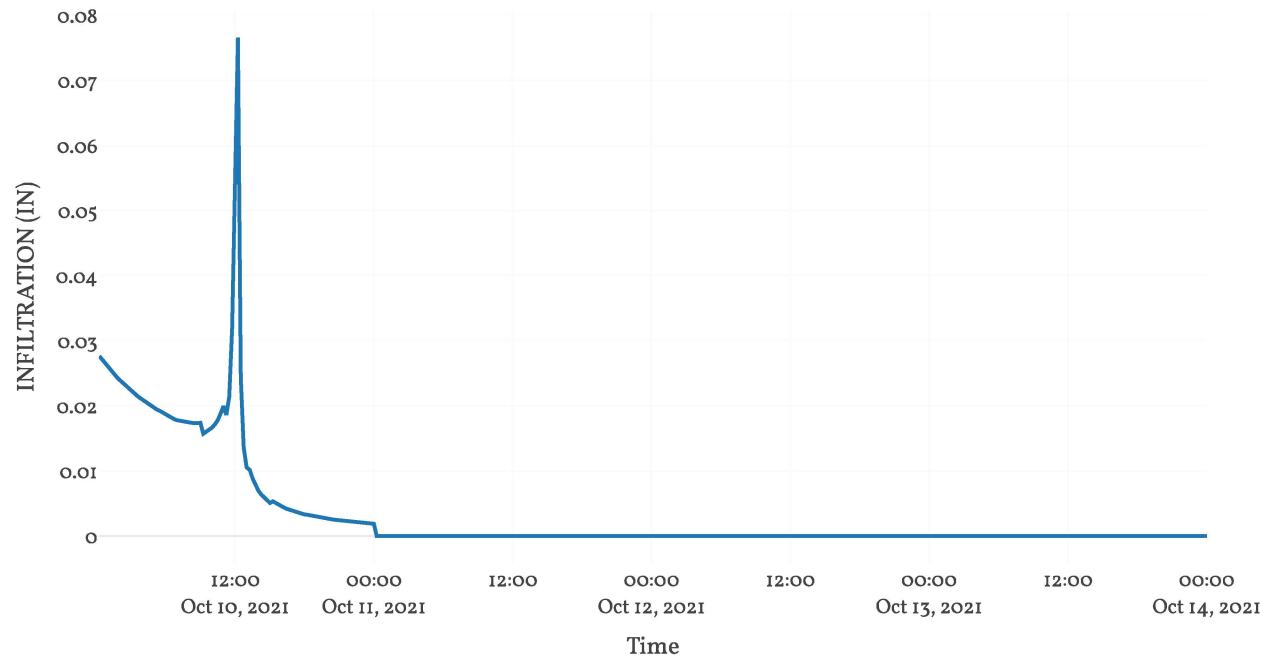




Direct Runoff



Soil Infiltration



Subbasin: SHED 1-04

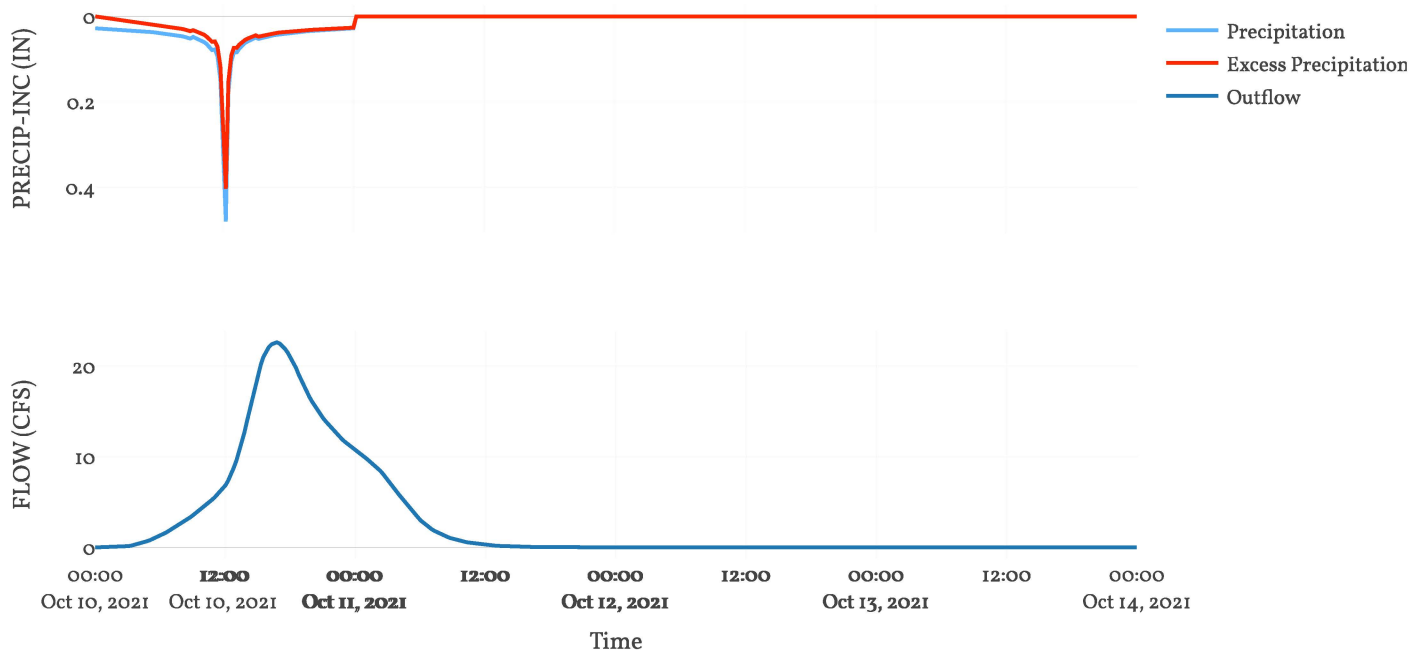
Area : 0.11  
Downstream : Pre Total

Loss Rate: SCS	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

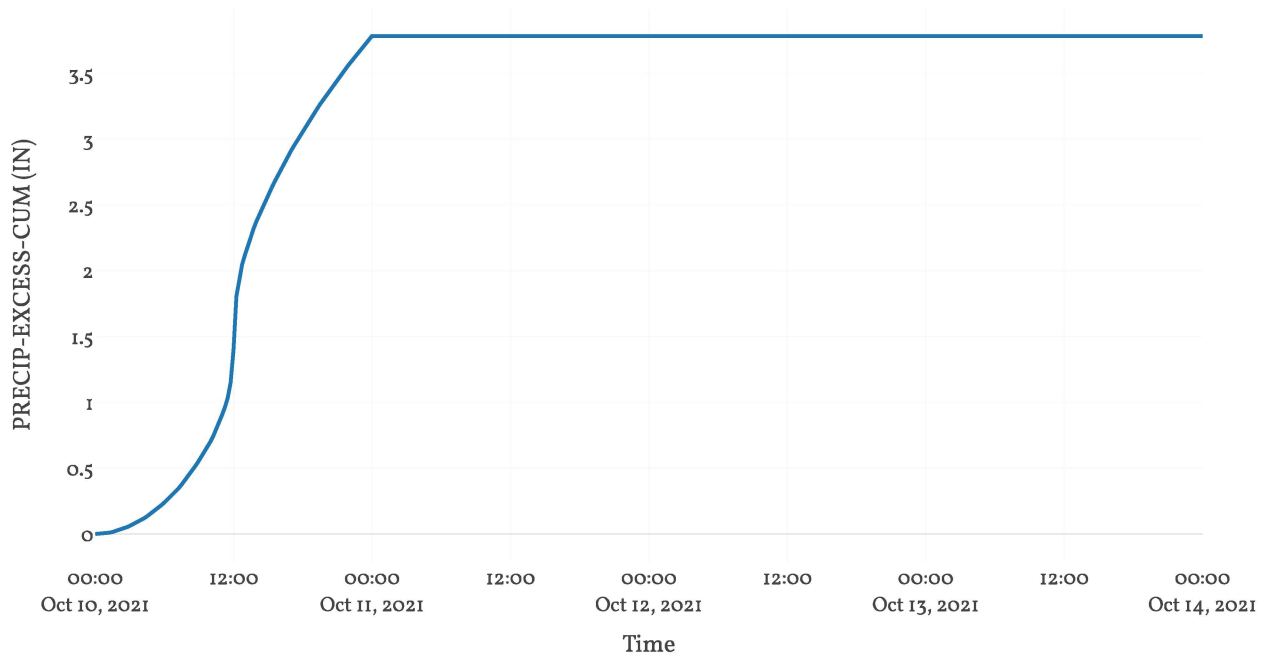
Transform: SCS	
Lag	253
Unitgraph Type	Standard

Results: SHED 1-04	
Peak Discharge (CFS)	22.62
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	3.78
Precipitation Volume (AC - FT)	29.49
Loss Volume (AC - FT)	7.59
Excess Volume (AC - FT)	21.9
Direct Runoff Volume (AC - FT)	21.9
Baseflow Volume (AC - FT)	0

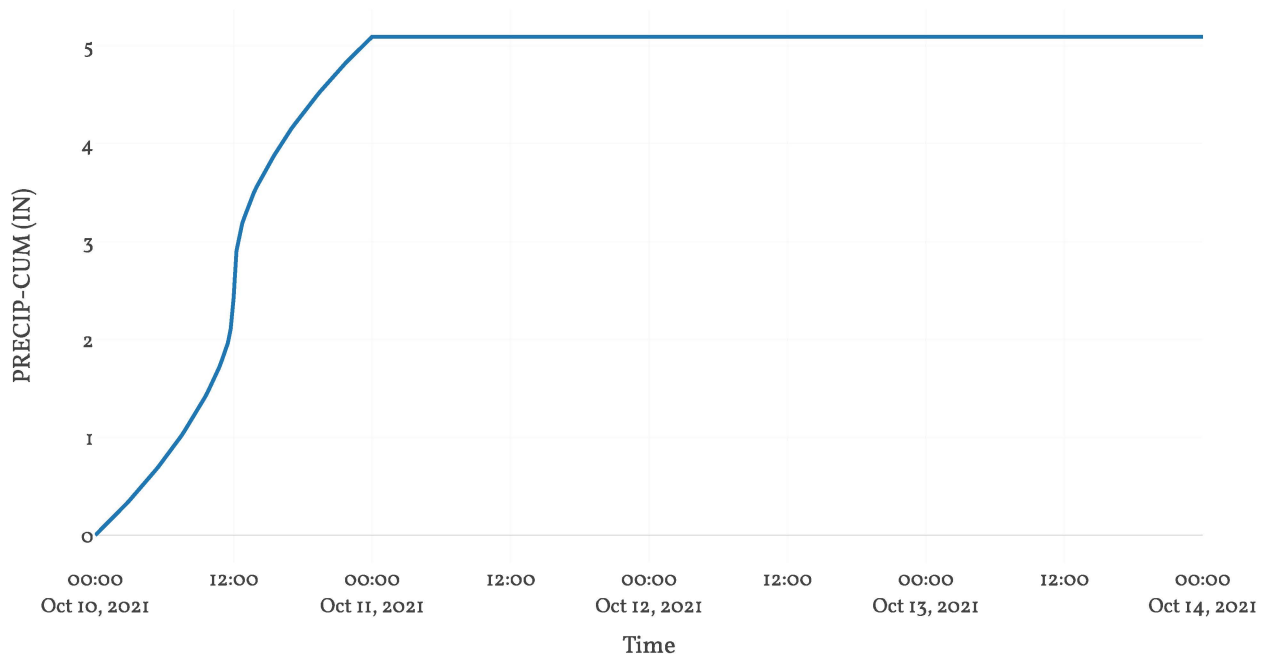
## Precipitation and Outflow



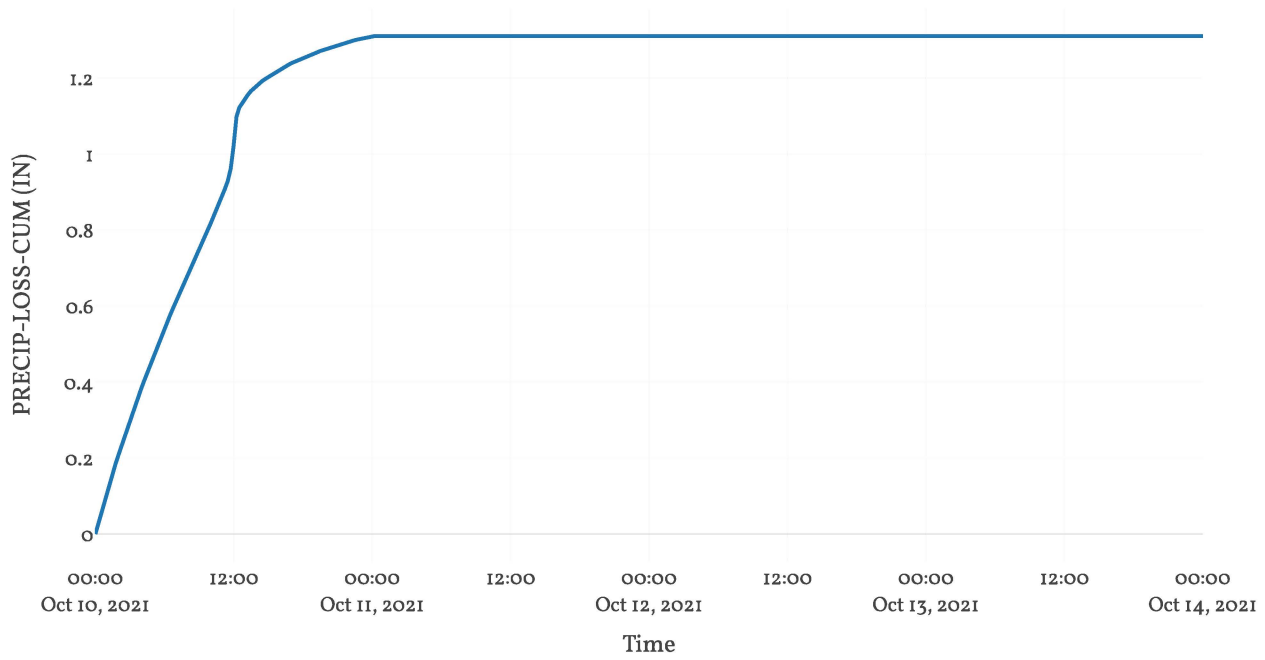
## Cumulative Excess Precipitation



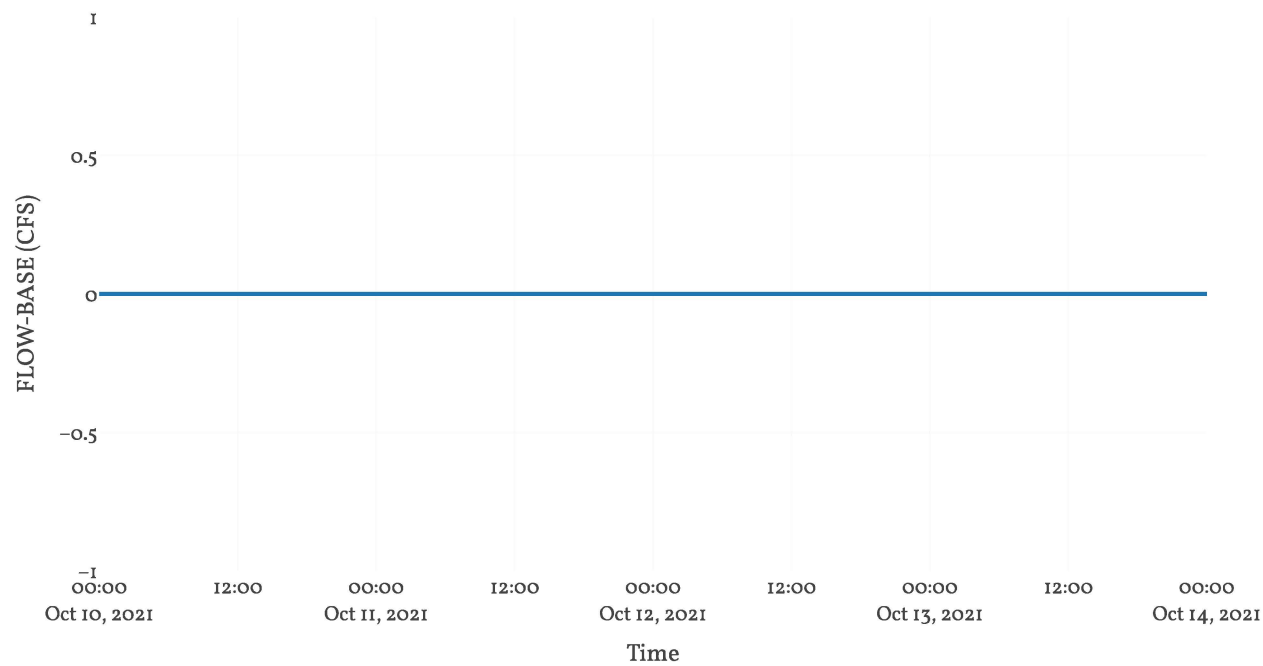
Cumulative Precipitation



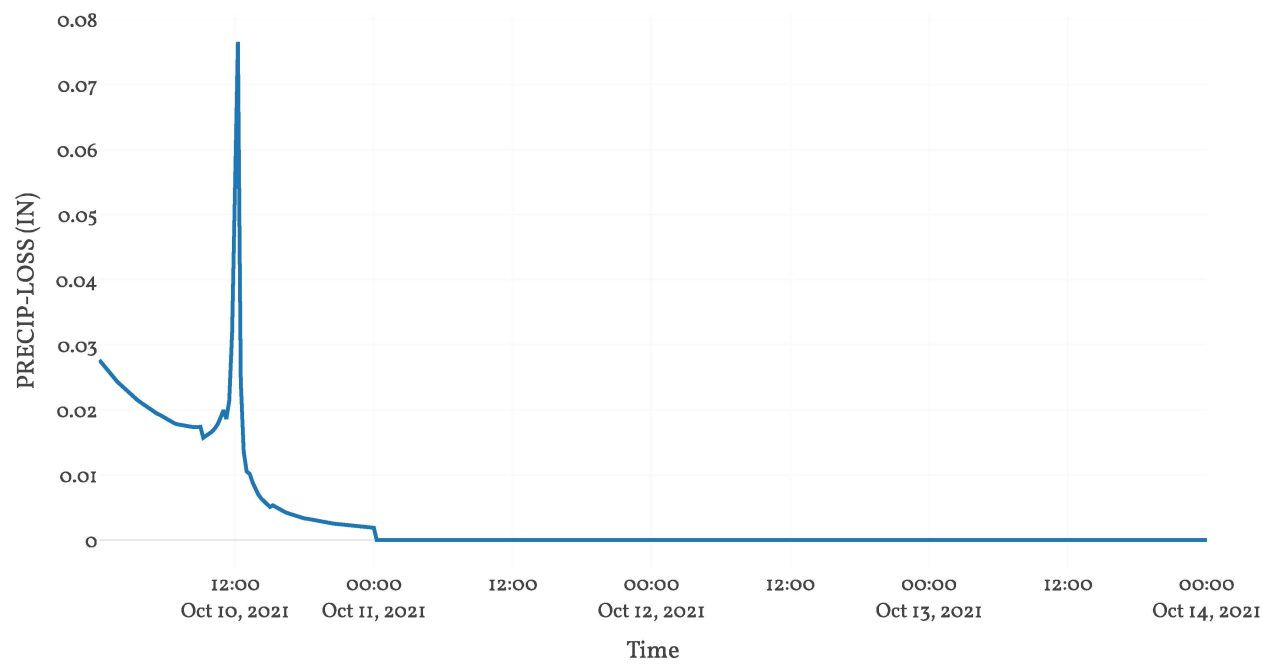
Cumulative Precipitation Loss



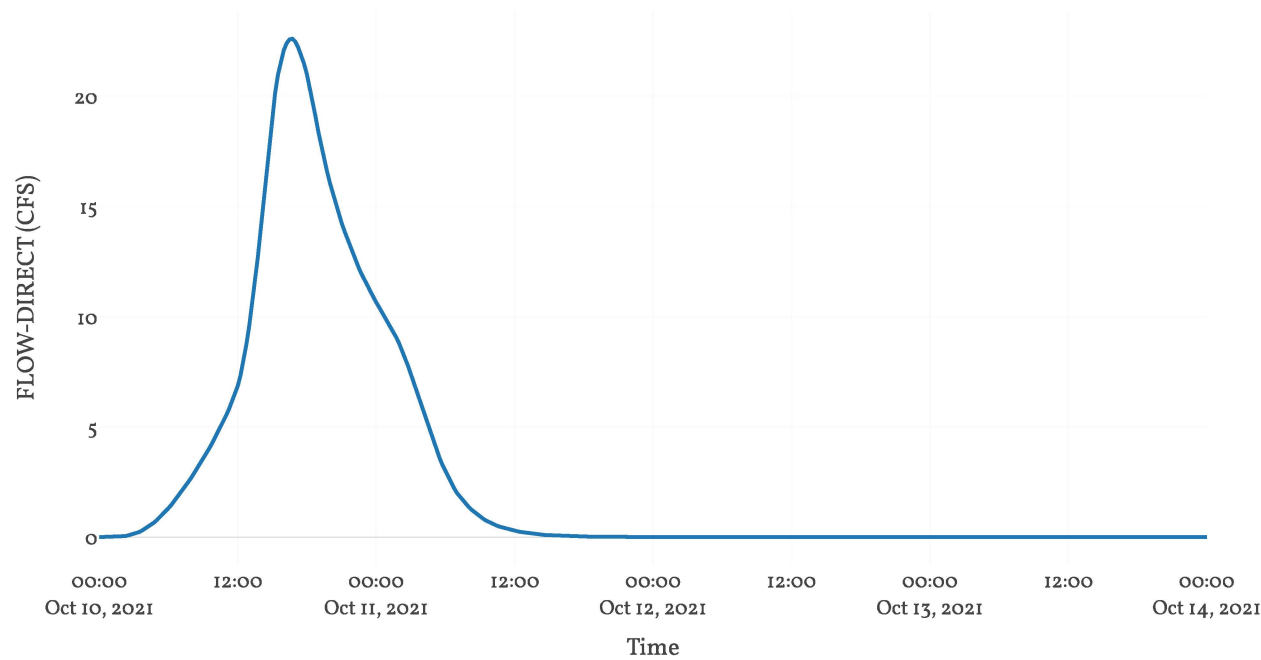
Baseflow



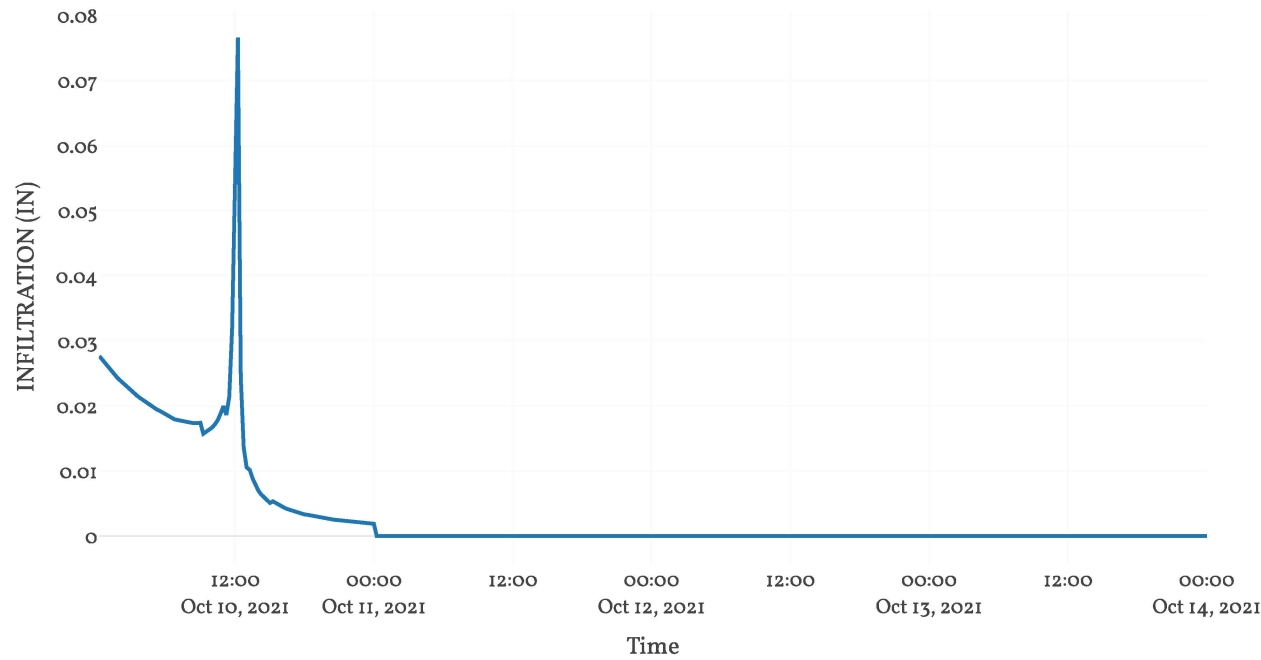
Precipitation Loss



Direct Runoff



Soil Infiltration



Subbasin: SHED 1-05

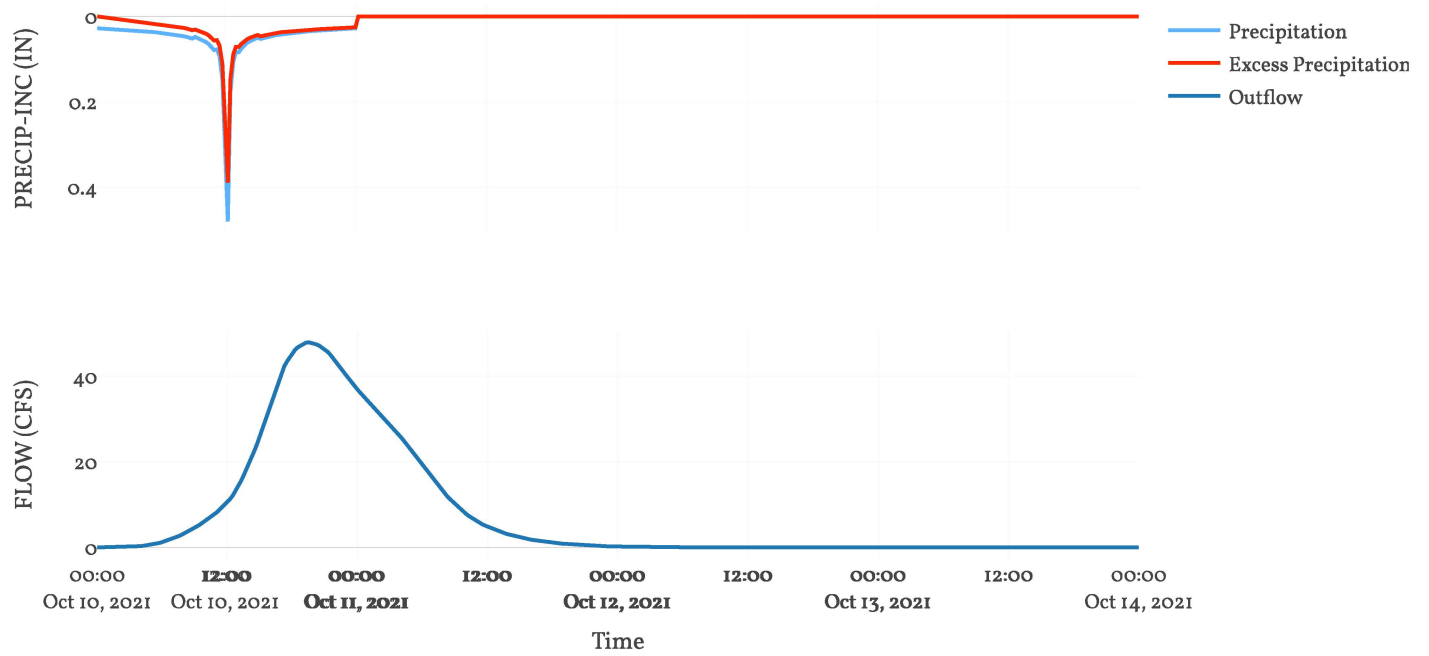
Area : 0.3  
Downstream : Pre Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	83
Initial Abstraction	0

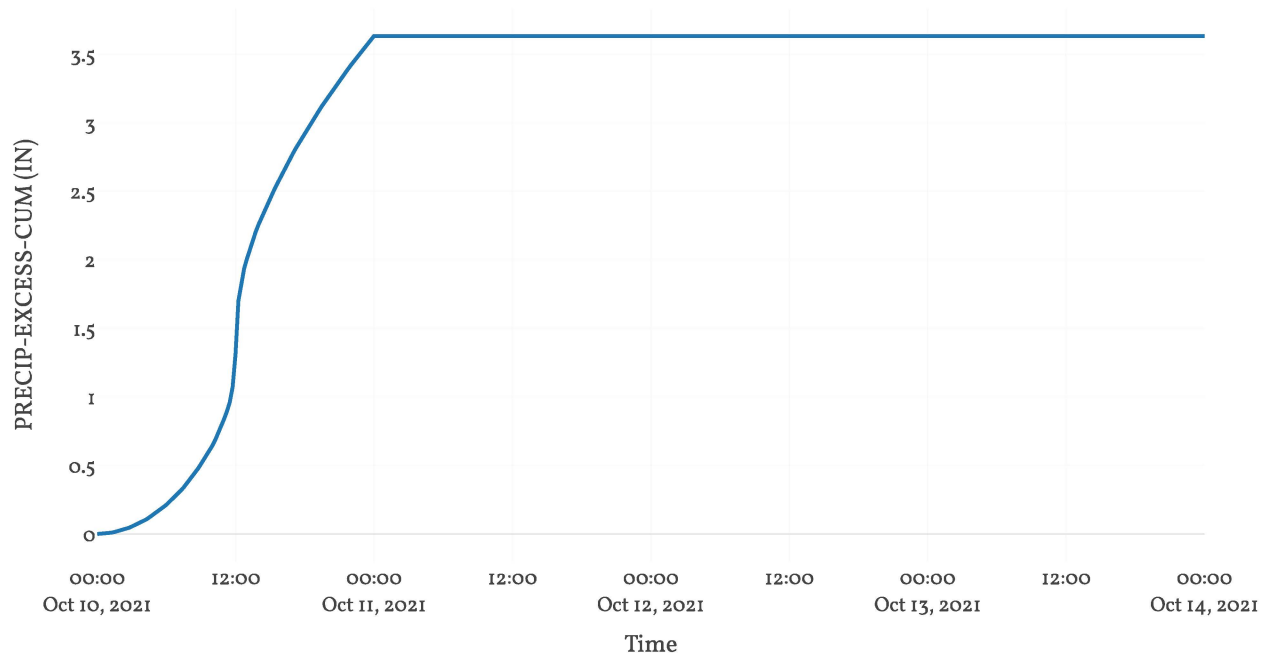
Transform: Scs	
Lag	396
Unitgraph Type	Standard

Results: SHED 1-05	
Peak Discharge (CFS)	47.92
Time of Peak Discharge	10Oct2021, 19:30
Volume (IN)	3.63
Precipitation Volume (AC - FT)	82.82
Loss Volume (AC - FT)	23.75
Excess Volume (AC - FT)	59.07
Direct Runoff Volume (AC - FT)	59.07
Baseflow Volume (AC - FT)	0

## Precipitation and Outflow

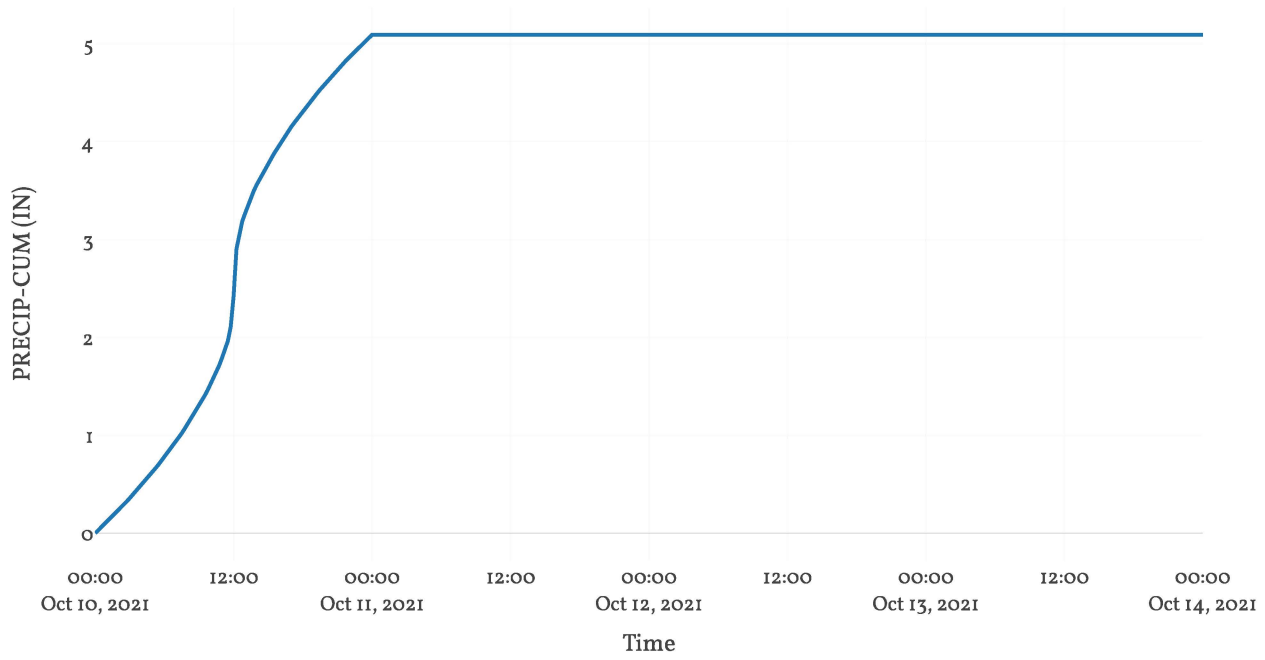


## Cumulative Excess Precipitation

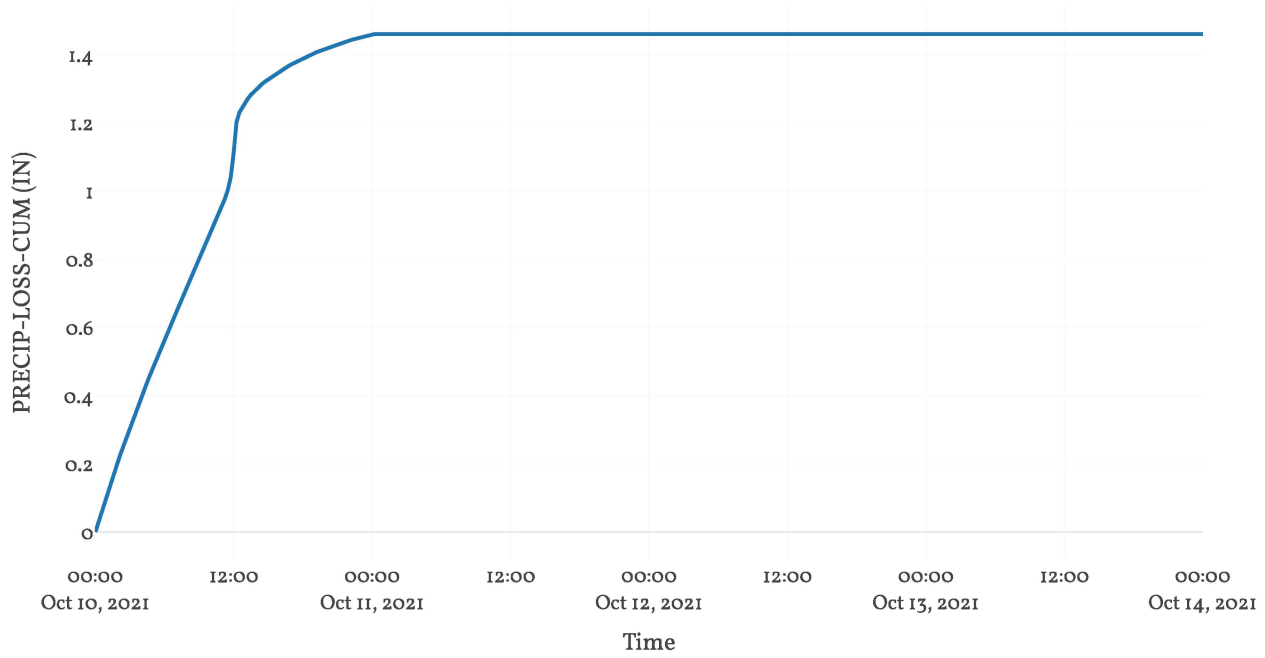




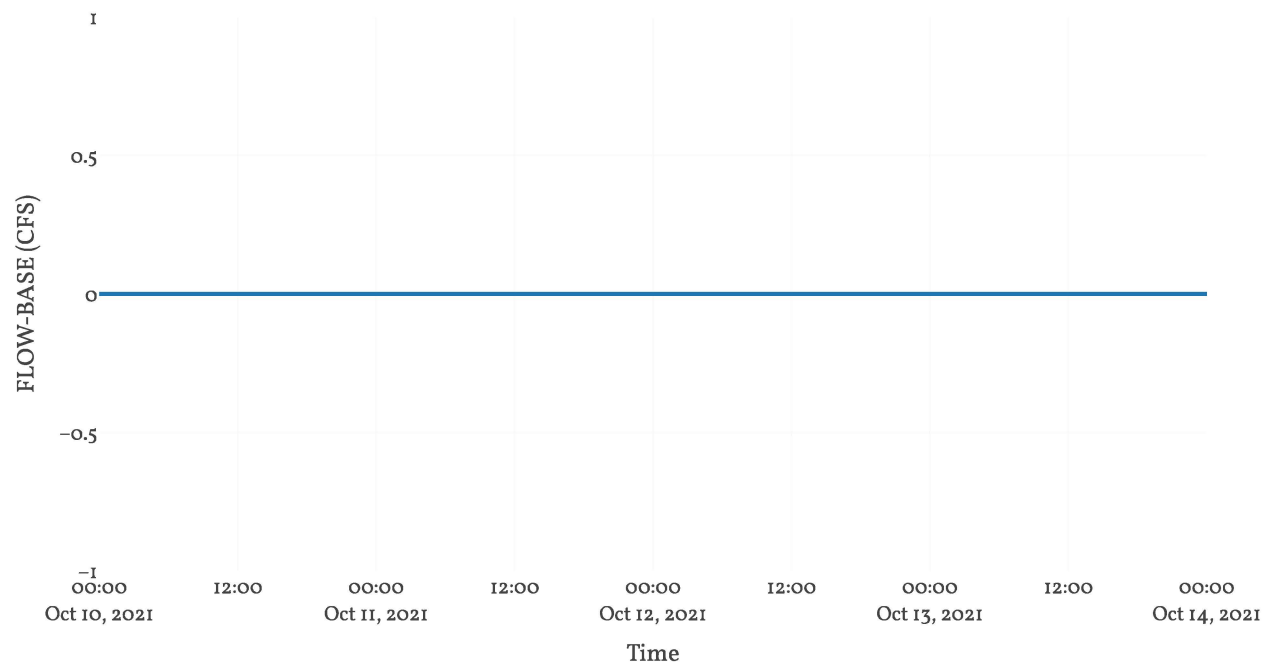
Cumulative Precipitation



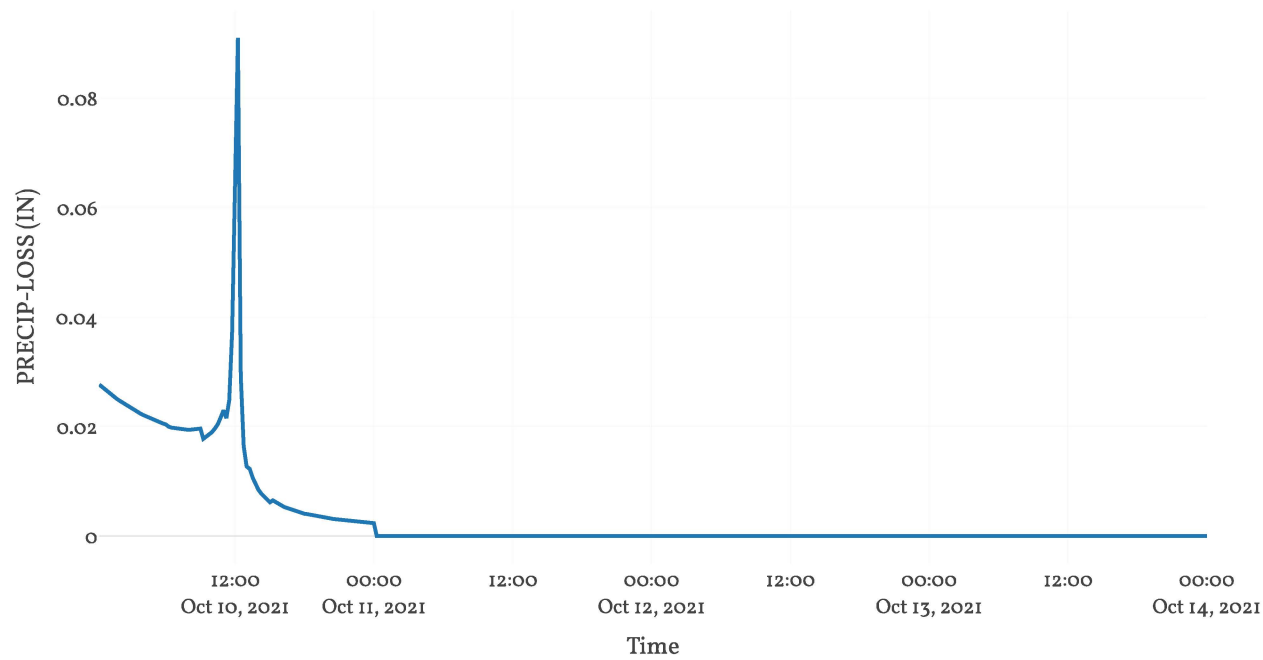
Cumulative Precipitation Loss



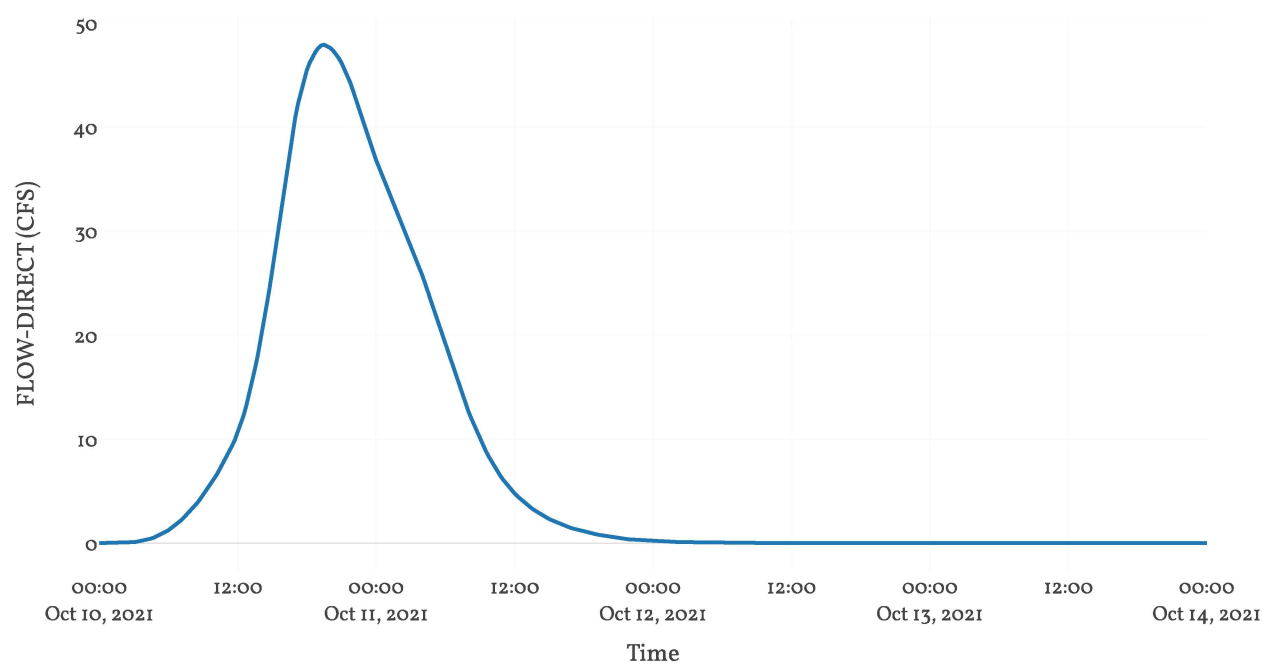
Baseflow



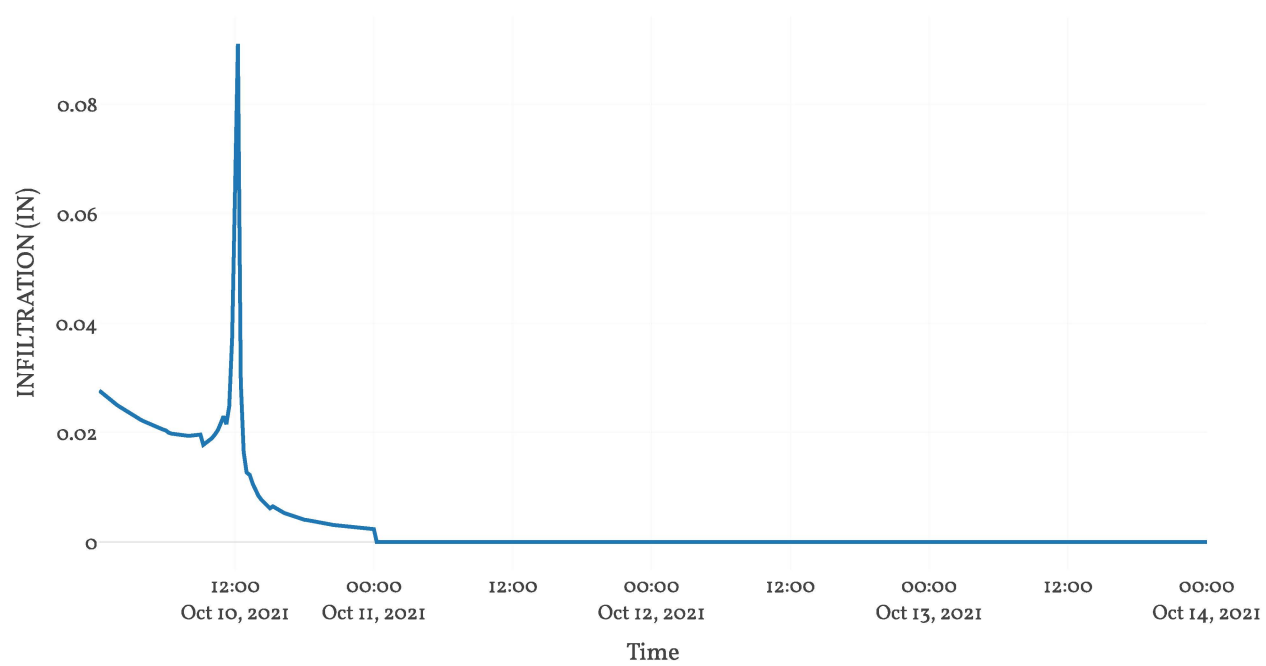
Precipitation Loss



Direct Runoff



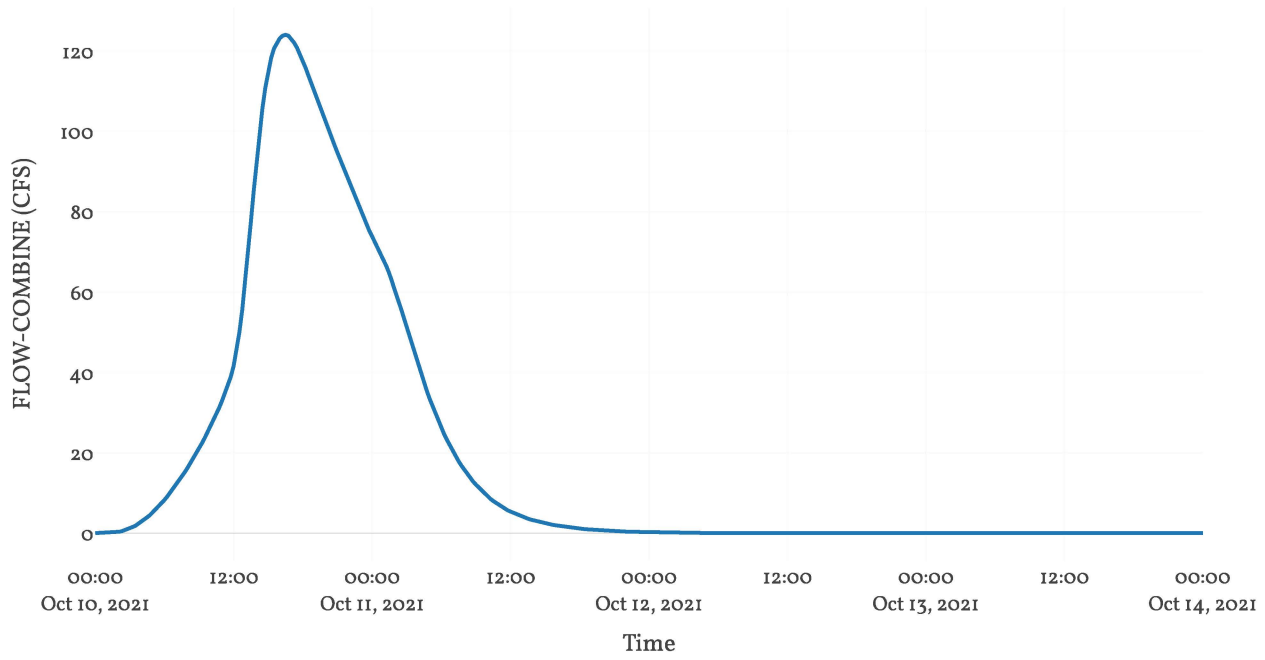
Soil Infiltration



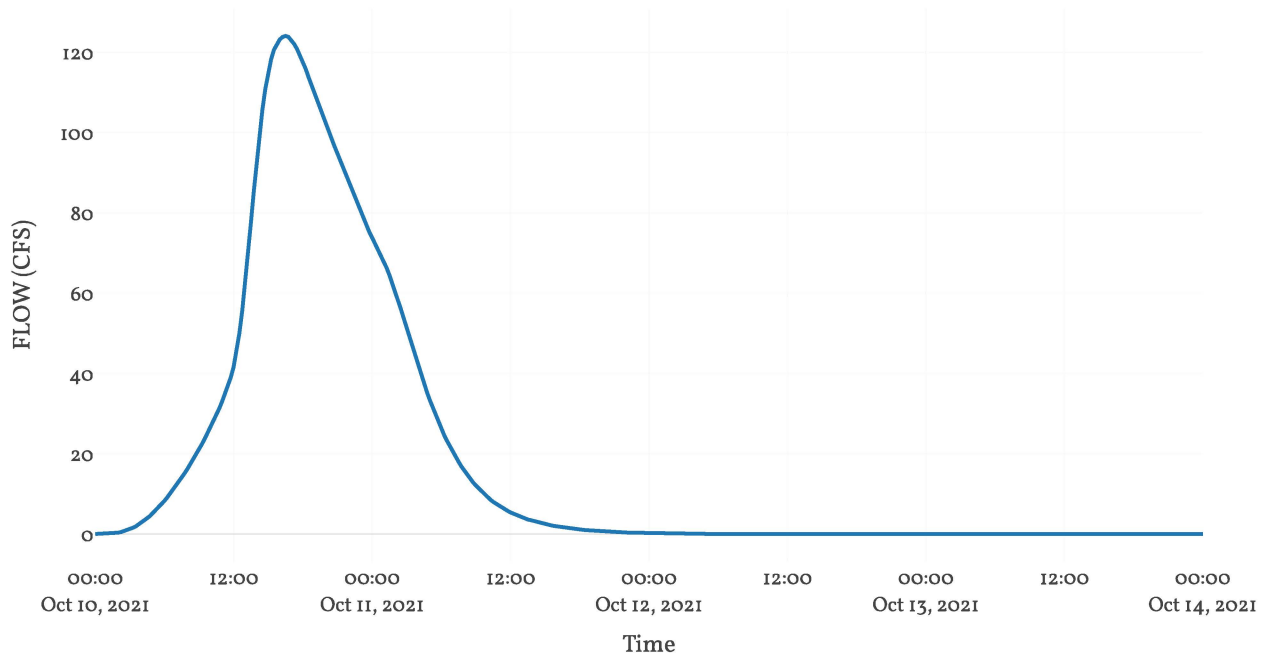
Junction: Pre Total

Results: Pre Total	
Peak Discharge (CFS)	124.07
Time of Peak Discharge	10Oct2021, 16:30
Volume (IN)	3.72

Combined Inflow



Outflow





#### **A.2-4 MAIN FACILITY AREA – POST-DEVELOPMENT 2YEAR 24HOUR**

**Project:** Oveja\_Ranch\_Post\_Development  
**Simulation Run:** 2 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 09 December 2024, 11:06

Global Parameter Summary - Subbasin

Area	
Element Name	Area
Shed I - 01 Perv	0.12
ShedI - 01 Imp	0
Shed I - 05 Perv	0.3
Shed I - 05 Imp	0.01
Shed I - 02 Perv	0.08
Shed I - 02 Imp	0
Shed I - 03 Perv	0.09
Shed I - 03 Imp	0
Shed I - 04 Perv	0.11
ShedI - 04 Imp	0

Downstream	
Element Name	Downstream
Shed I - 01 Perv	Junct 1
ShedI - 01 Imp	Junct 1
Shed I - 05 Perv	Junct - 5
Shed I - 05 Imp	Junct - 5
Shed I - 02 Perv	Junct - 2
Shed I - 02 Imp	Junct - 2
Shed I - 03 Perv	Junct - 3
Shed I - 03 Imp	Junct - 3
Shed I - 04 Perv	Junct - 4
ShedI - 04 Imp	Junct - 4



### Loss Rate: Scs

Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
Shed I - 01 Perv	0	85	Not Specified
ShedI - 01 Imp	100	93.94	Not Specified
Shed I - 05 Perv	0	85	Not Specified
Shed I - 05 Imp	100	89	Not Specified
Shed I - 02 Perv	0	85	0
Shed I - 02 Imp	100	89	0
Shed I - 03 Perv	0	85	0
Shed I - 03 Imp	100	89	0
Shed I - 04 Perv	0	85	0
ShedI - 04 Imp	100	89	0

### Transform: Scs

Element Name	Lag	Unitgraph Type
Shed I - 01 Perv	233.88	Standard
ShedI - 01 Imp	233.88	Standard
Shed I - 05 Perv	396.32	Standard
Shed I - 05 Imp	396.32	Standard
Shed I - 02 Perv	133.24	Standard
Shed I - 02 Imp	133.24	Standard
Shed I - 03 Perv	192.84	Standard
Shed I - 03 Imp	192.85	Standard
Shed I - 04 Perv	253.4	Standard
ShedI - 04 Imp	253.4	Standard

## Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Shed I - 01 Perv	0.12	6.71	10Oct2021, 16:45	0.91
ShedI - 01 Imp	0	0.42	10Oct2021, 16:15	2.15
Shed I - 05 Perv	0.3	12.44	10Oct2021, 20:30	0.91
Shed I - 05 Imp	0.01	0.64	10Oct2021, 19:00	2.15
Junct - 5	0.3	13.06	10Oct2021, 20:30	0.93
Junct I	0.12	7.13	10Oct2021, 16:45	0.94
Shed I - 02 Perv	0.08	7.93	10Oct2021, 14:30	1.18
Shed I - 02 Imp	0	0.24	10Oct2021, 14:30	2.15
Shed I - 03 Perv	0.09	7.32	10Oct2021, 15:45	1.18
Shed I - 03 Imp	0	0.15	10Oct2021, 15:30	2.15
Shed I - 04 Perv	0.11	7.23	10Oct2021, 17:00	1.18
ShedI - 04 Imp	0	0.28	10Oct2021, 16:30	2.15
Junct - 4	0.11	7.51	10Oct2021, 16:45	1.2

Junct - 3	0.09	7.47	10Oct2021, 15:45	1.19
Junct - 2	0.08	8.17	10Oct2021, 14:30	1.2
Post Total	0.71	35.86	10Oct2021, 16:45	1.04

Subbasin: Shed 1 - 01 Perv

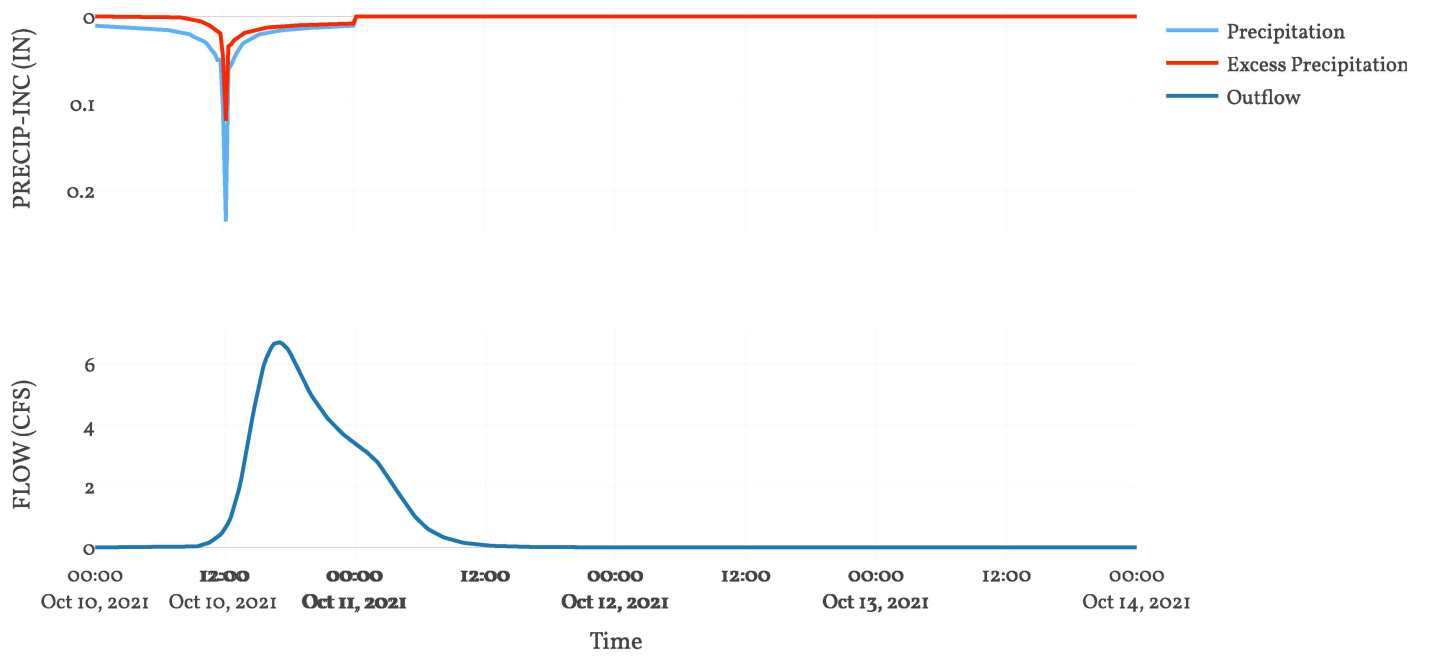
Area : 0.12  
Downstream : Junct 1

Loss Rate: SCS	
Percent Impervious Area	0
Curve Number	85

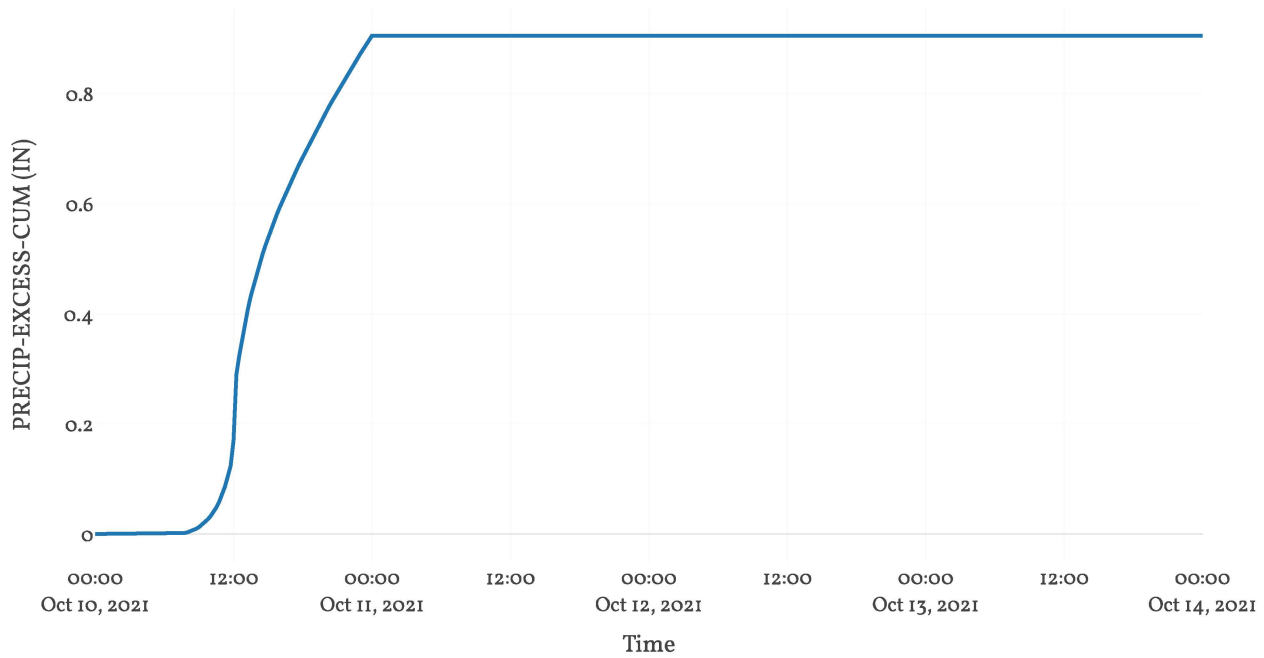
Transform: SCS	
Lag	233.88
Unitgraph Type	Standard

Results: Shed 1 - 01 Perv	
Peak Discharge (CFS)	6.71
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	0.91
Precipitation Volume (AC - FT)	13.71
Loss Volume (AC - FT)	7.93
Excess Volume (AC - FT)	5.78
Direct Runoff Volume (AC - FT)	5.78
Baseflow Volume (AC - FT)	0

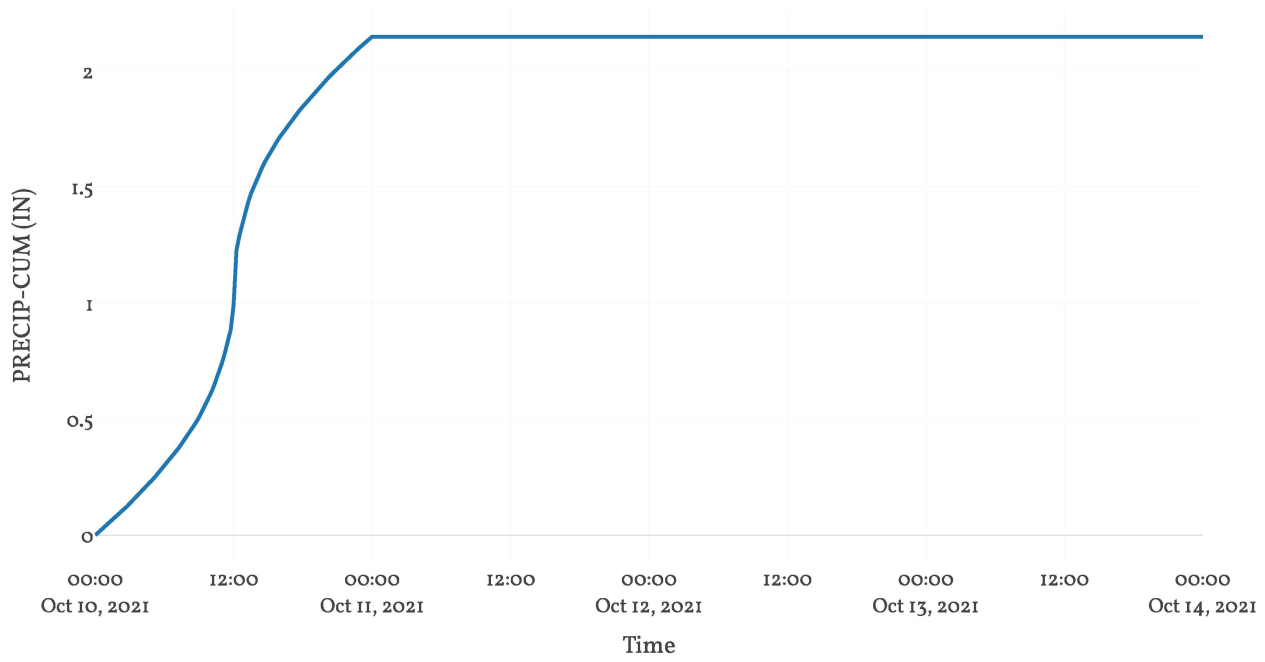
## Precipitation and Outflow



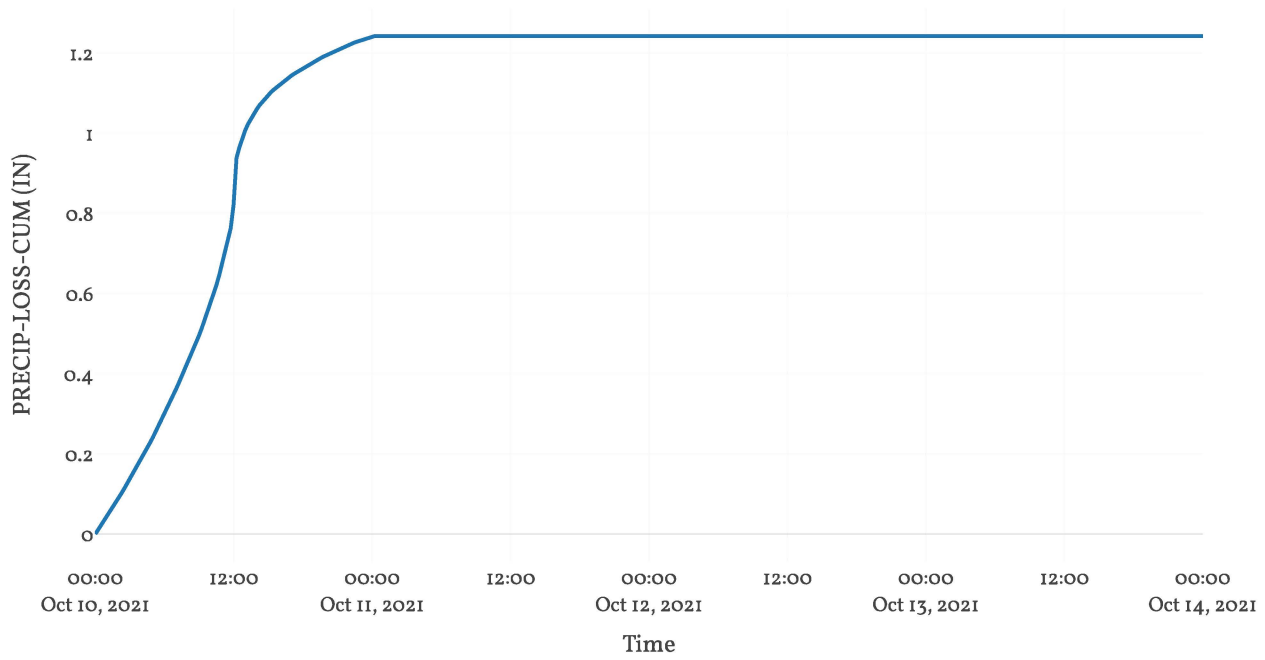
## Cumulative Excess Precipitation



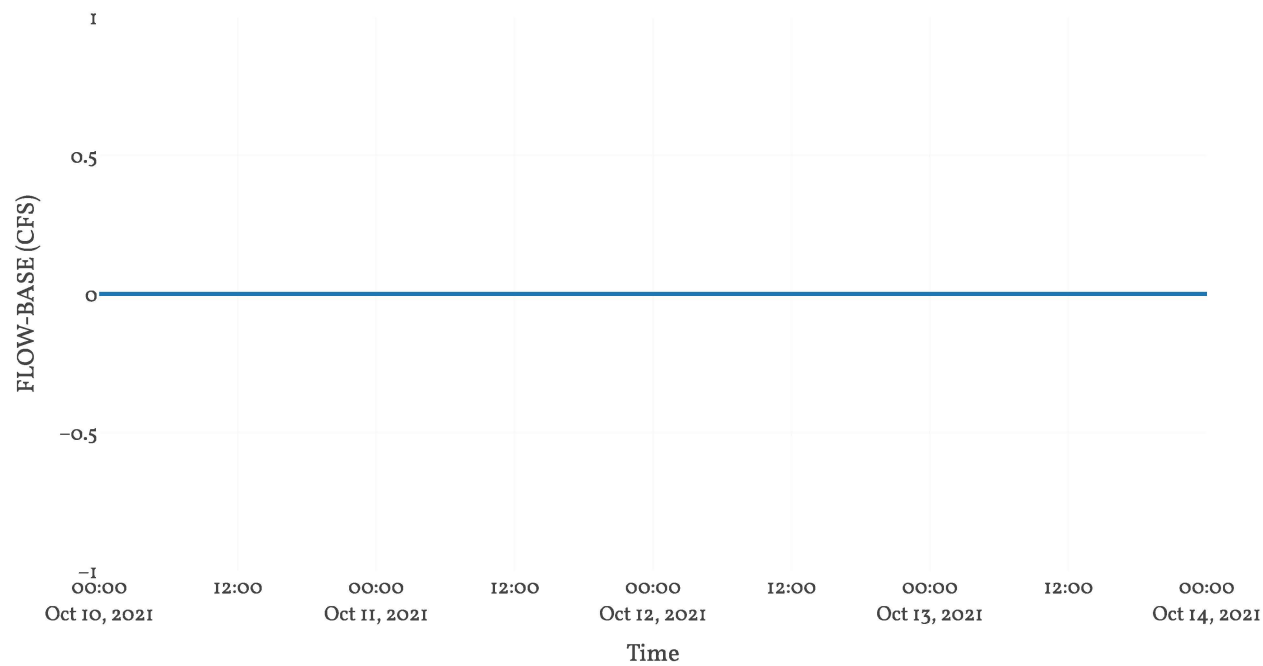
Cumulative Precipitation



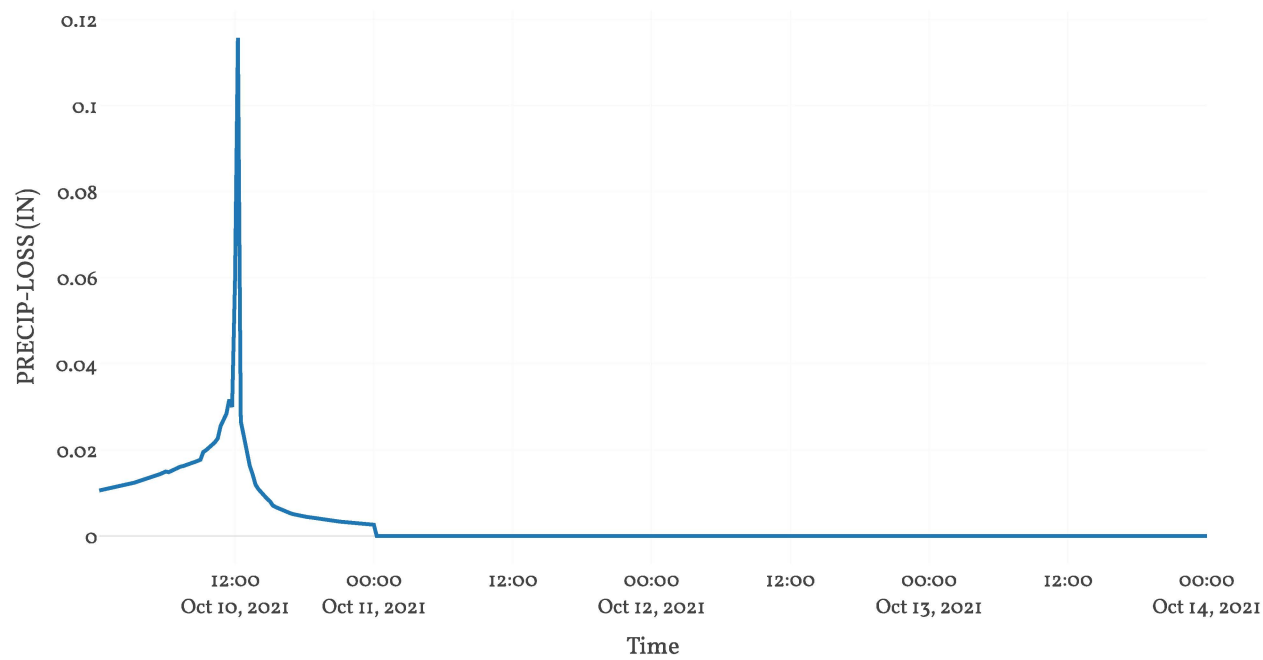
Cumulative Precipitation Loss



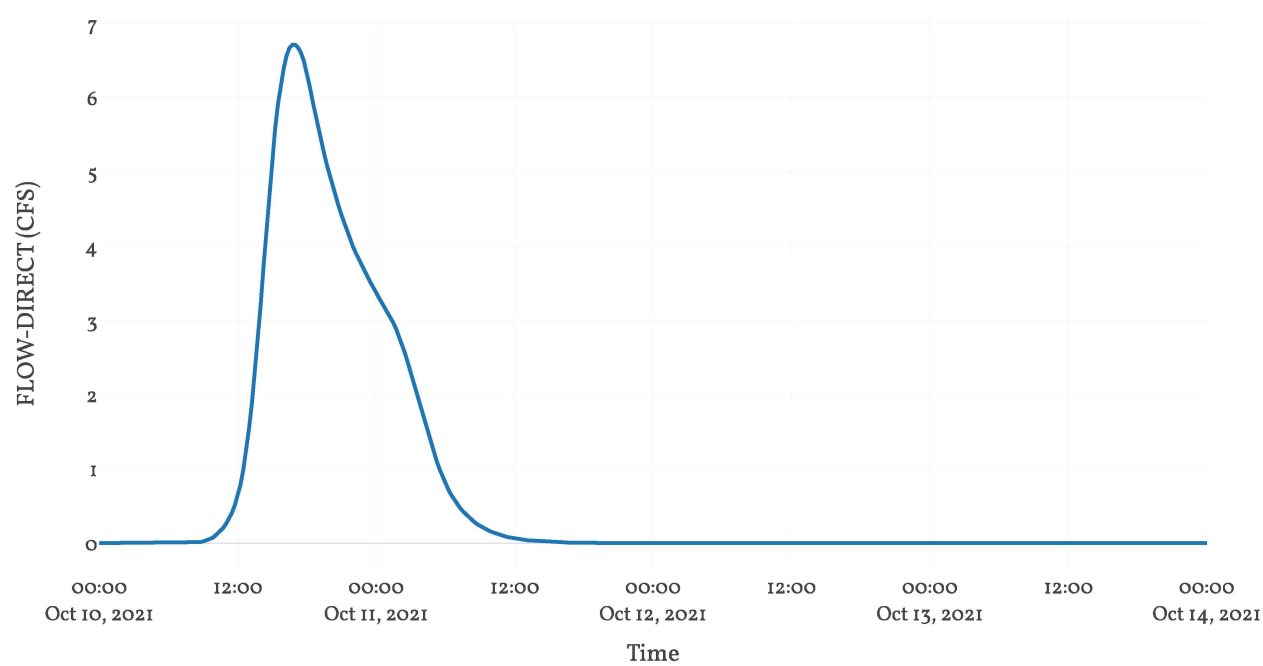
Baseflow



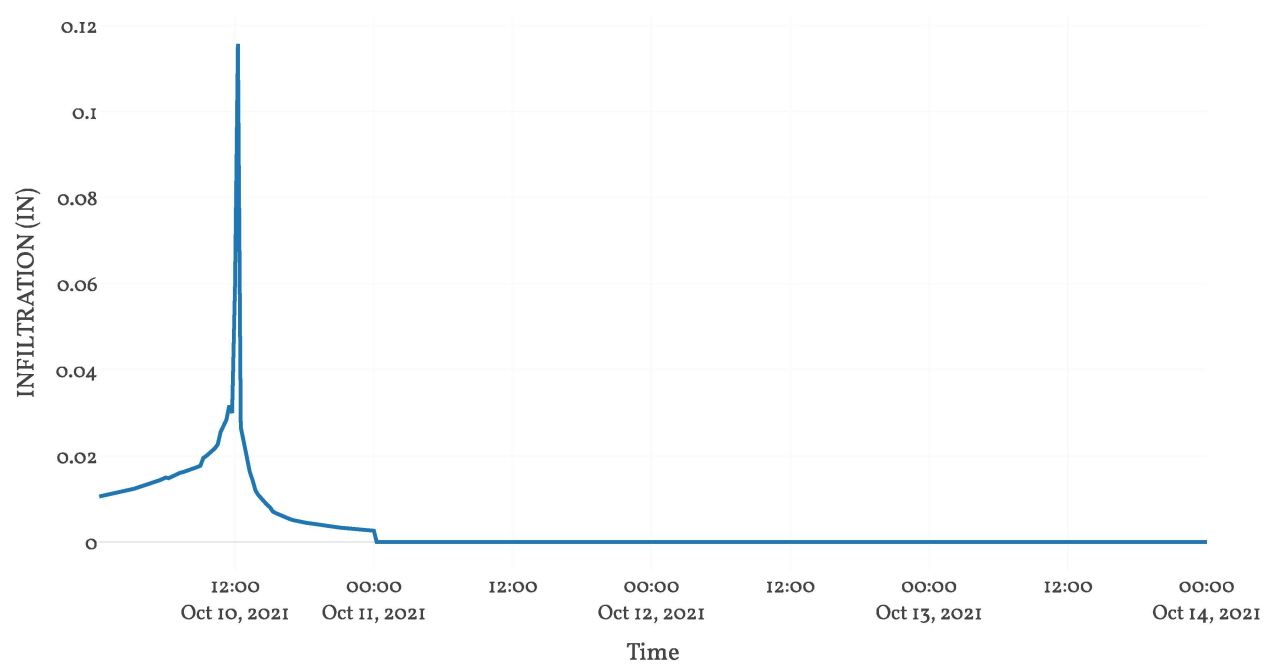
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed1 - 01 Imp

Area : 0  
Downstream : Junct 1

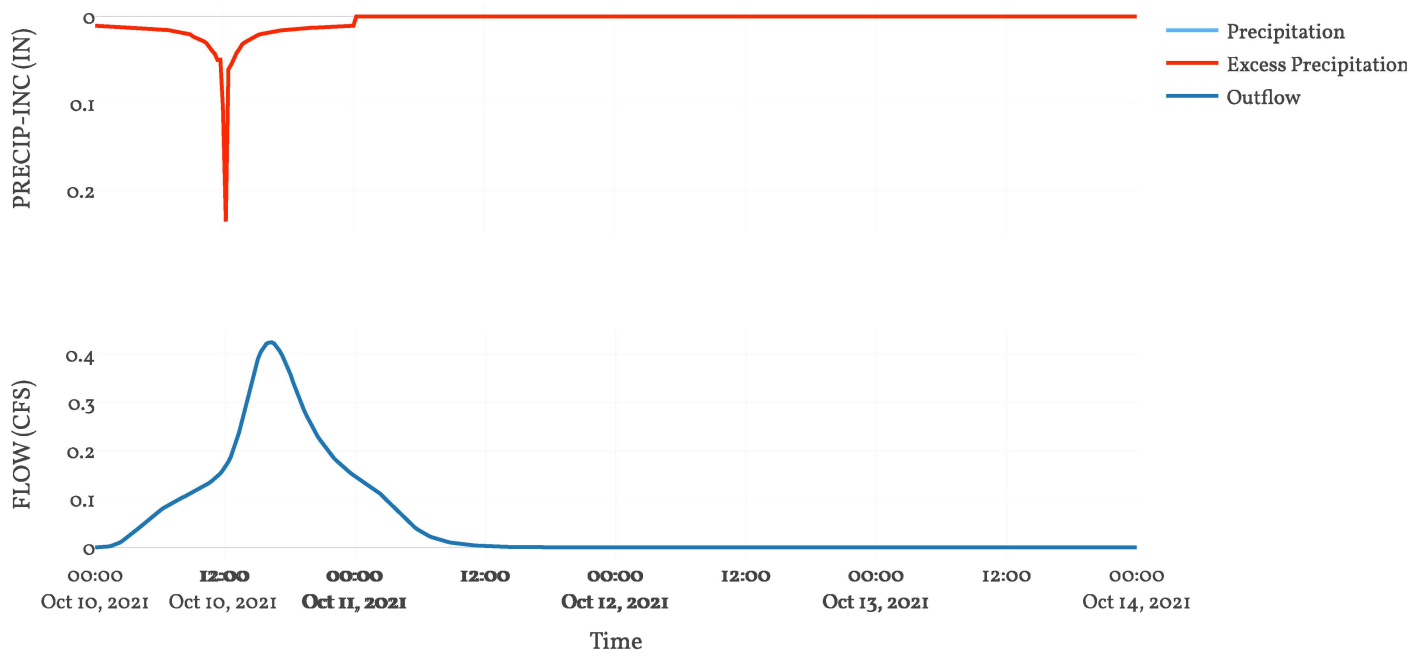
Loss Rate: SCS	
Percent Impervious Area	100
Curve Number	93.94

Transform: SCS	
Lag	233.88
Unitgraph Type	Standard

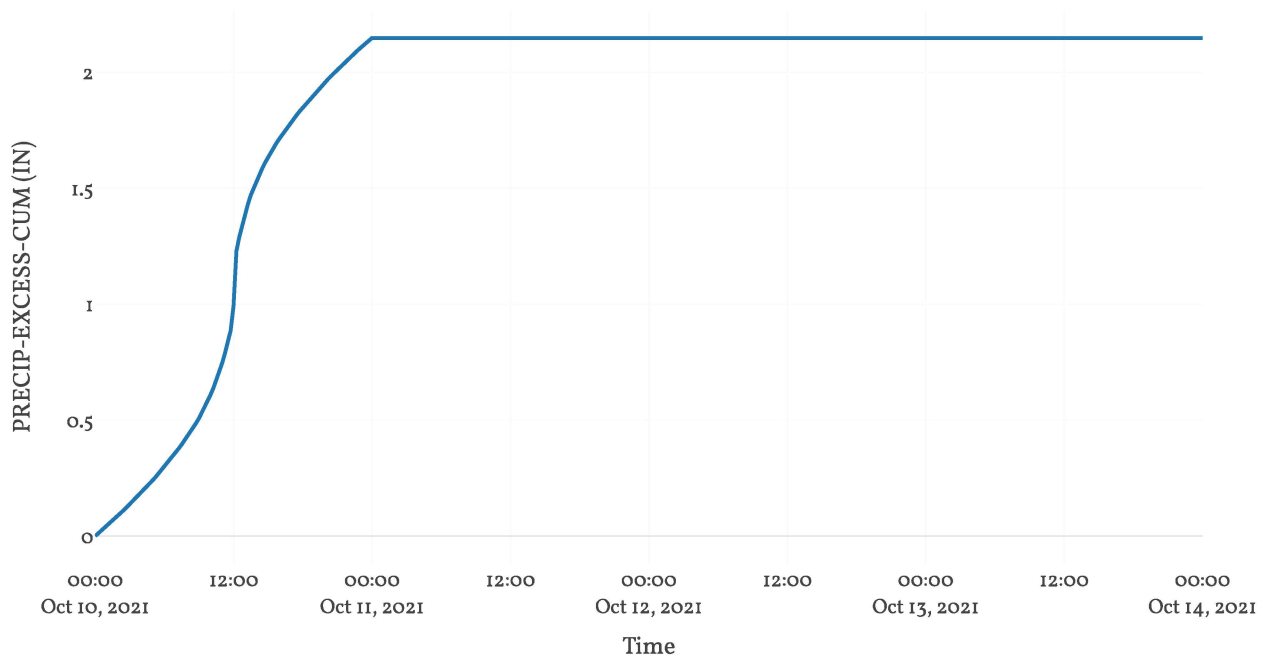
Results: Shed1 - 01 Imp	
Peak Discharge (CFS)	0.42
Time of Peak Discharge	10Oct2021, 16:15
Volume (IN)	2.15
Precipitation Volume (AC - FT)	0.4
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.4
Direct Runoff Volume (AC - FT)	0.4
Baseflow Volume (AC - FT)	0



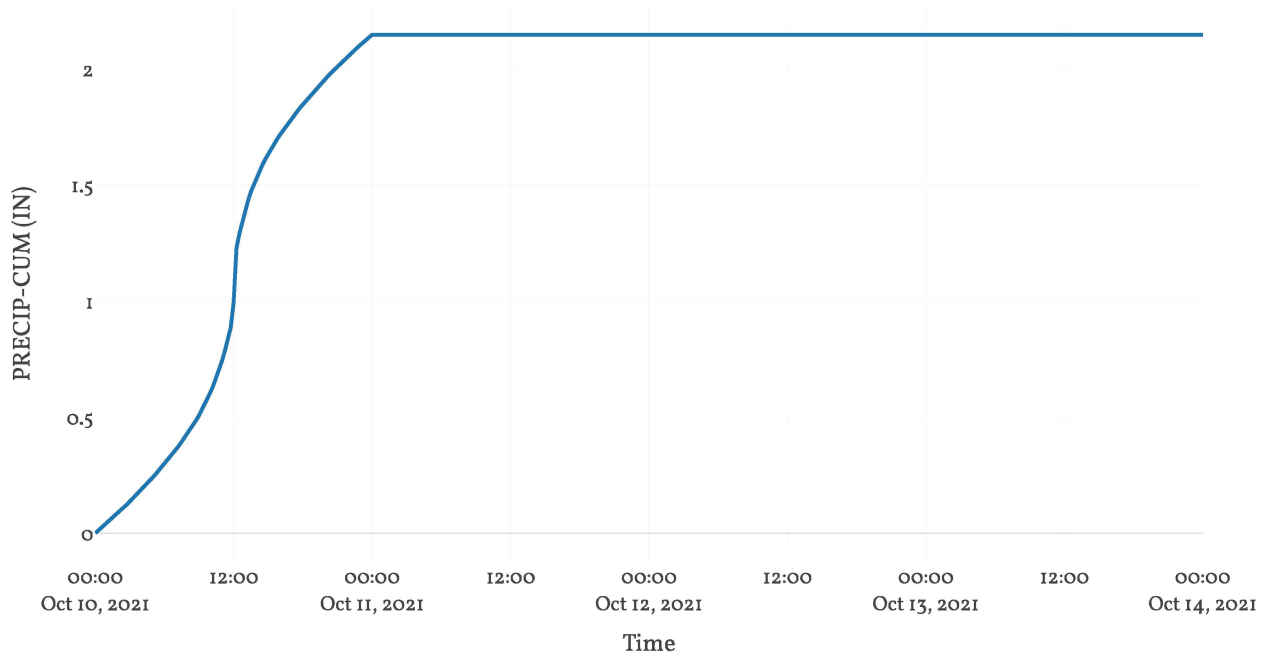
## Precipitation and Outflow



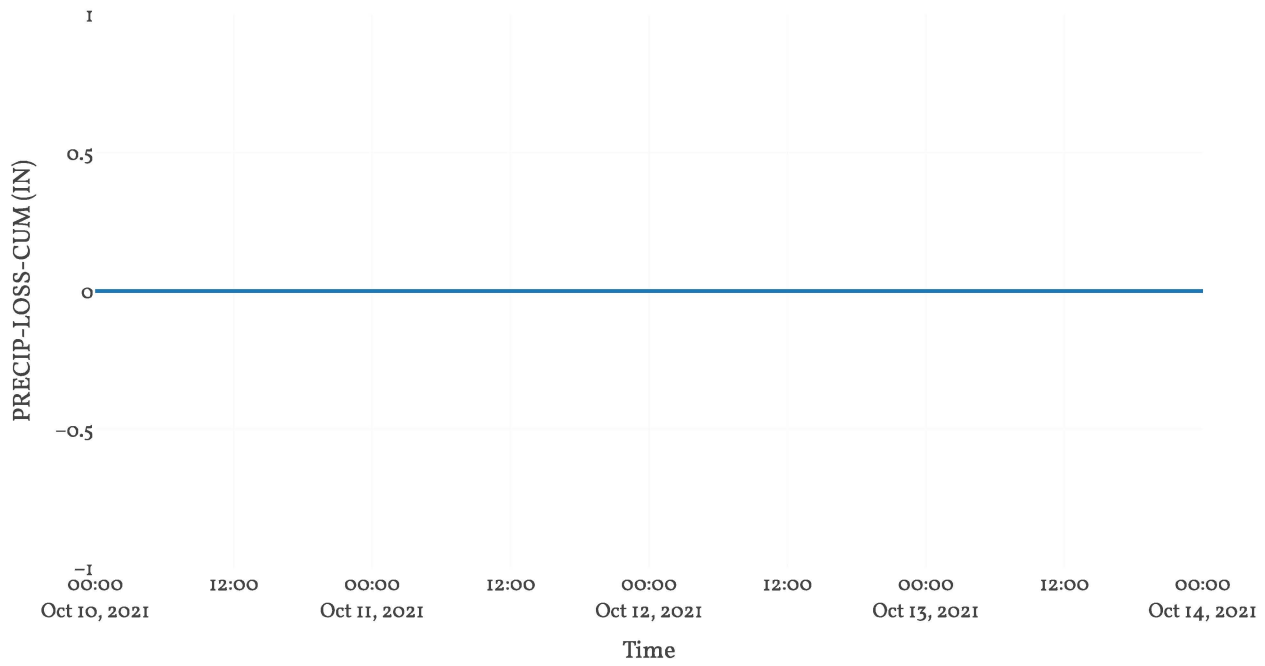
## Cumulative Excess Precipitation



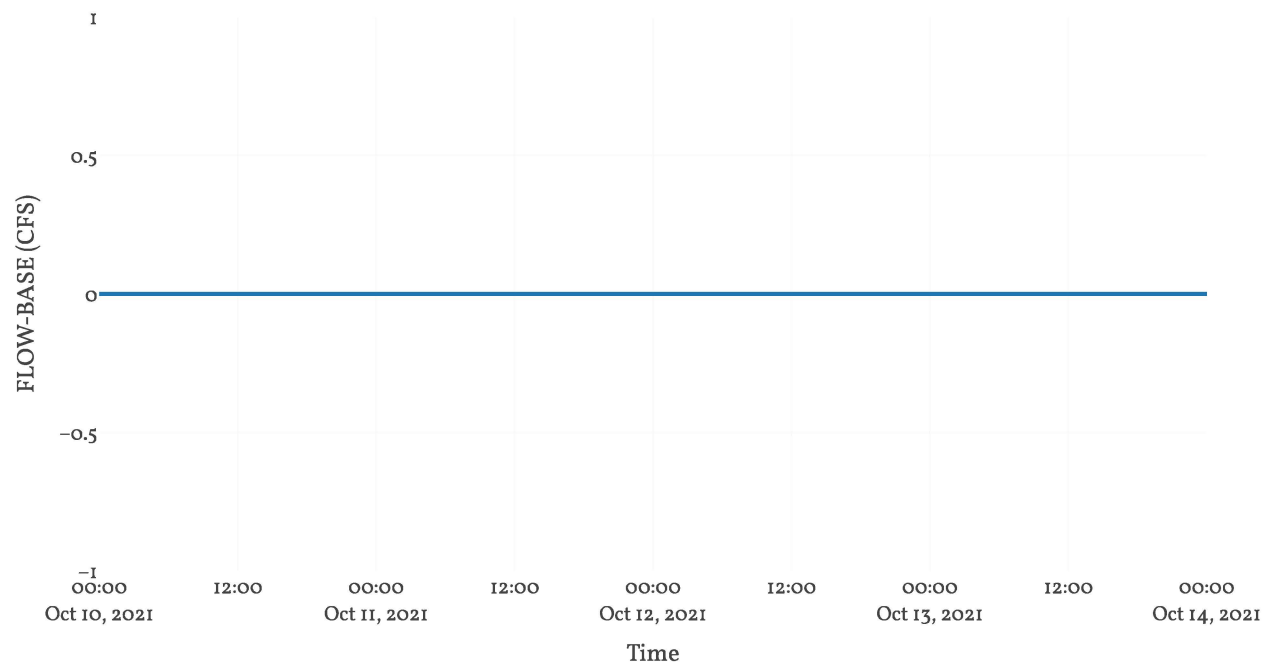
Cumulative Precipitation



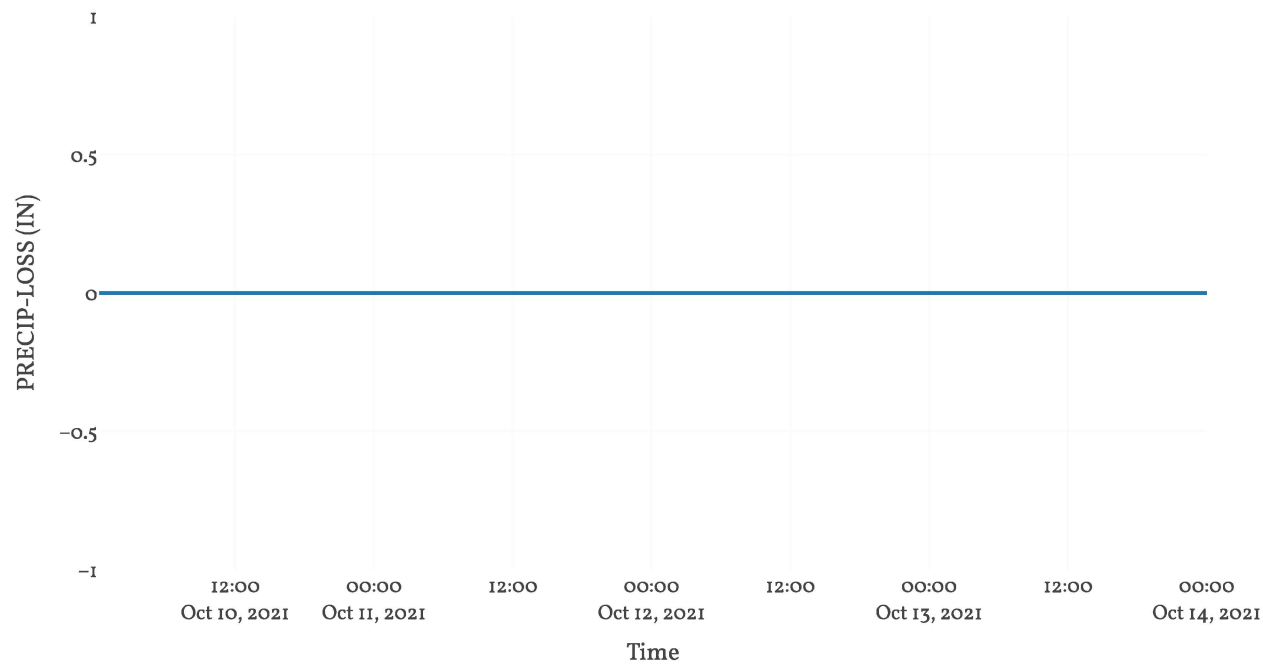
Cumulative Precipitation Loss



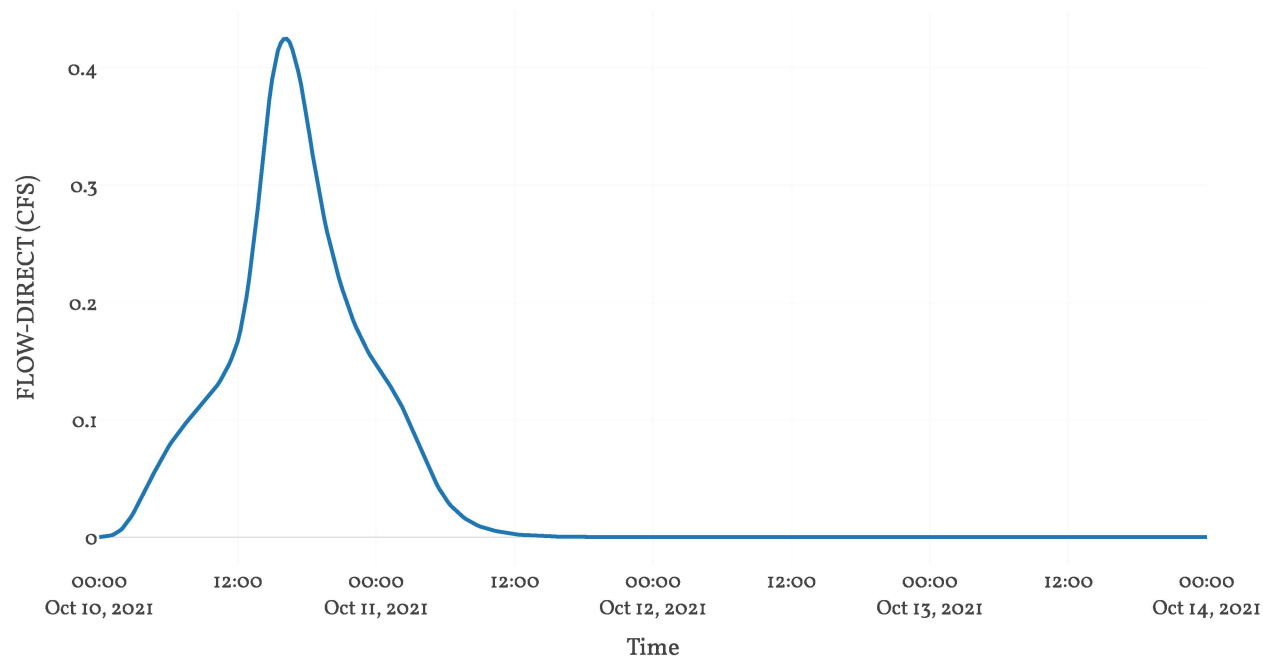
Baseflow



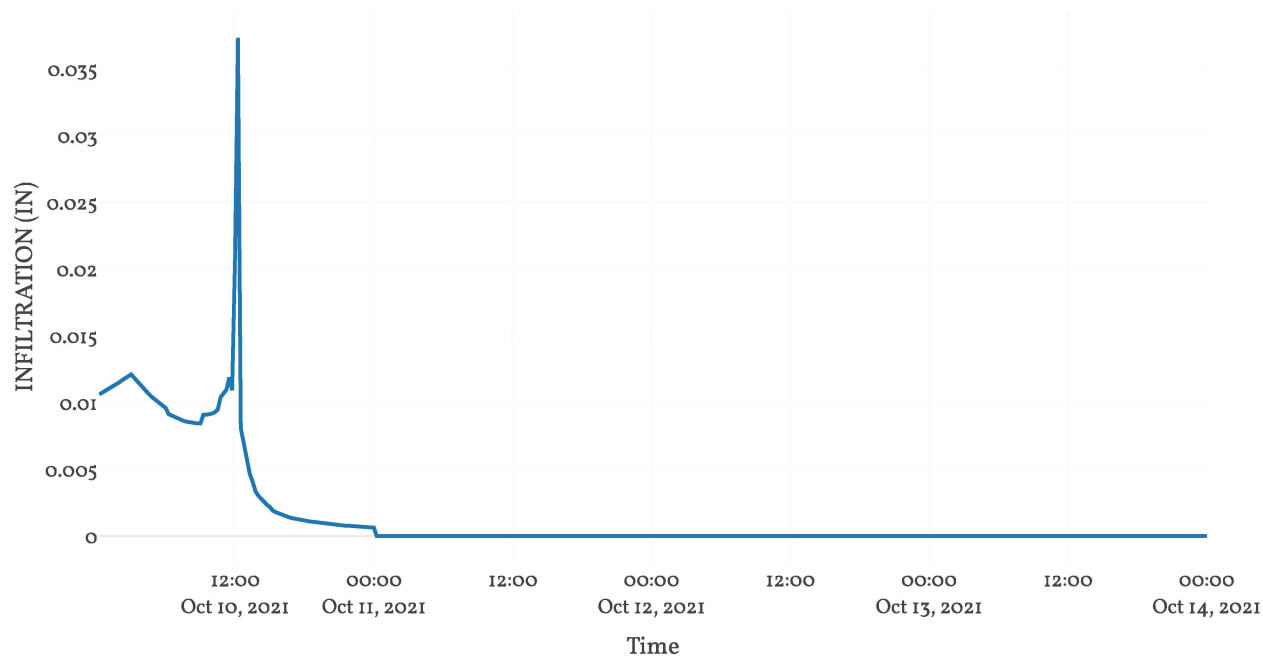
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1 - 05 Perv

Area : 0.3

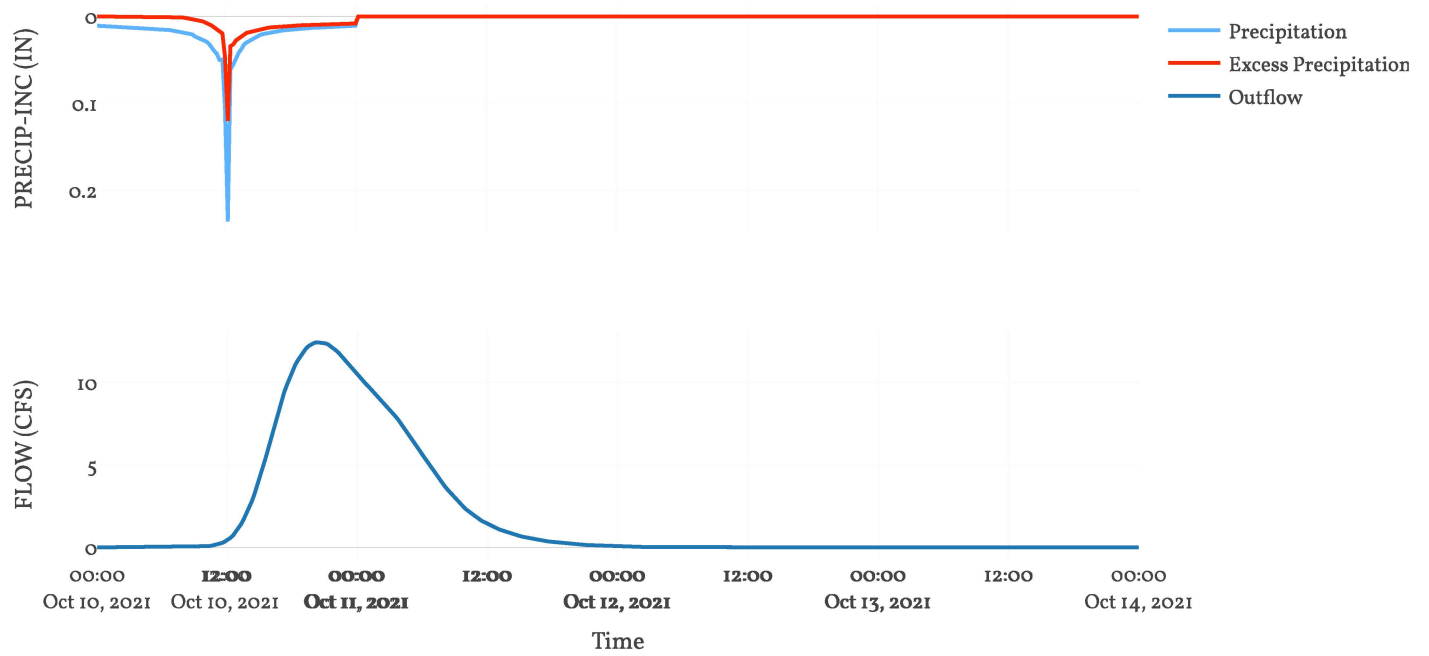
Downstream : Junct - 5

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85

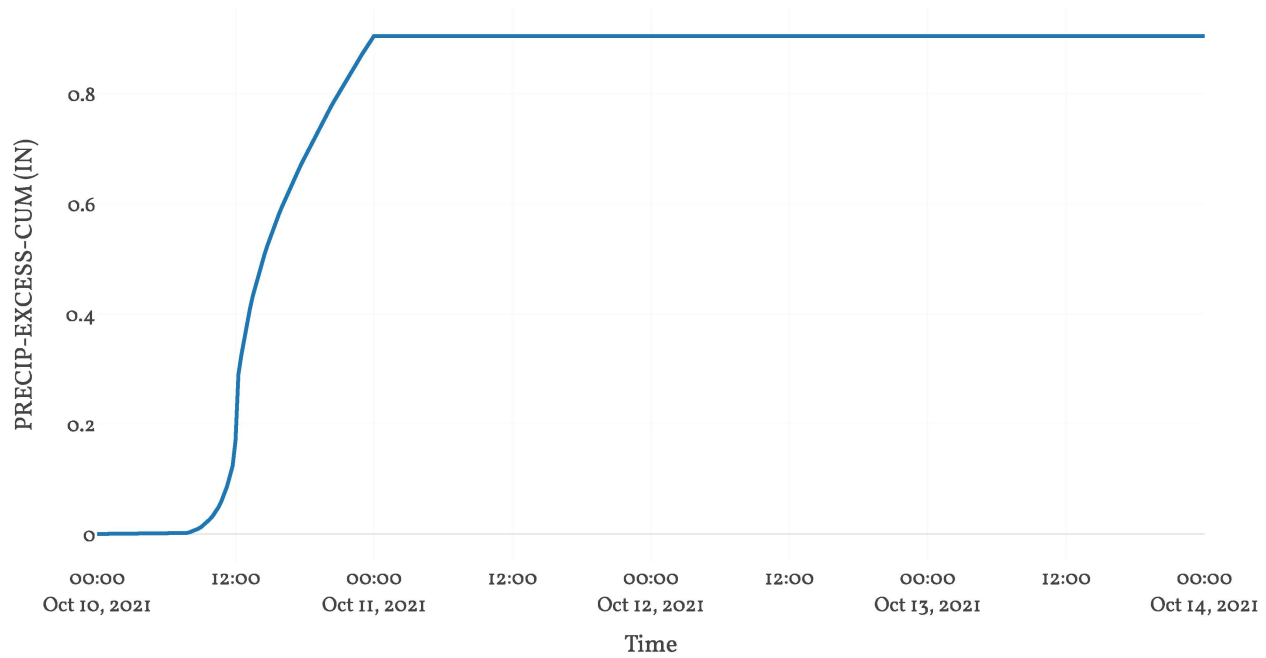
Transform: Scs	
Lag	396.32
Unitgraph Type	Standard

Results: Shed 1 - 05 Perv	
Peak Discharge (CFS)	12.44
Time of Peak Discharge	10Oct2021, 20:30
Volume (IN)	0.91
Precipitation Volume (AC - FT)	34.05
Loss Volume (AC - FT)	19.7
Excess Volume (AC - FT)	14.35
Direct Runoff Volume (AC - FT)	14.35
Baseflow Volume (AC - FT)	0

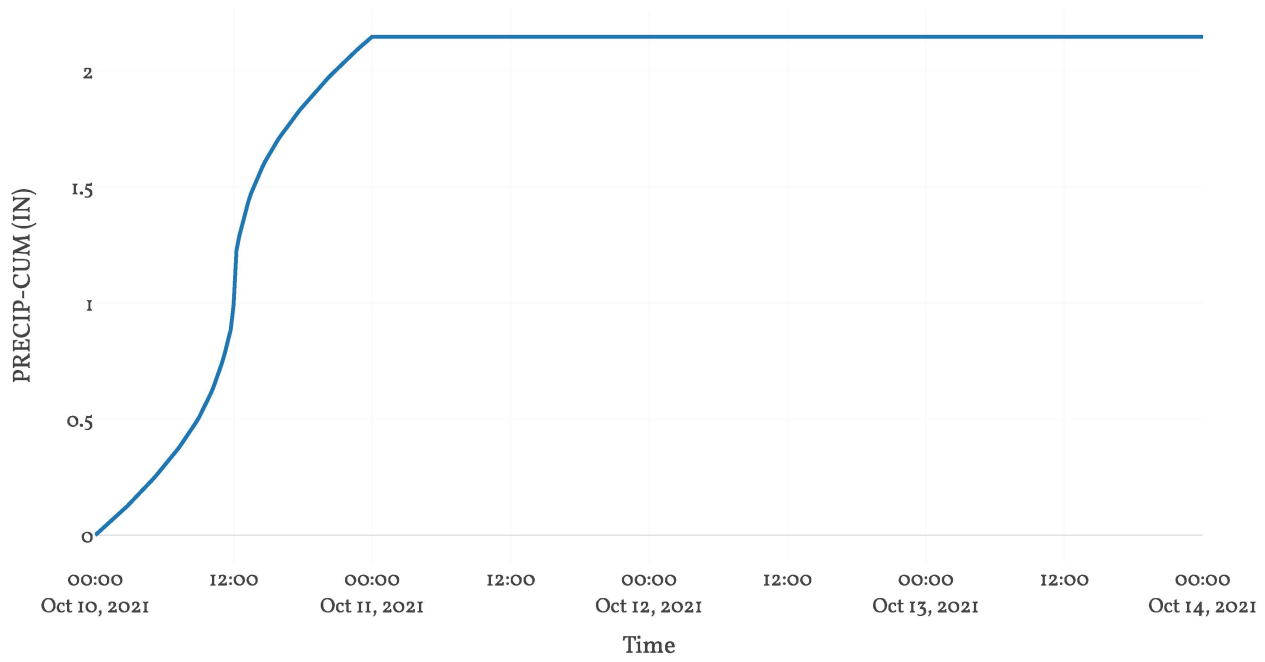
## Precipitation and Outflow



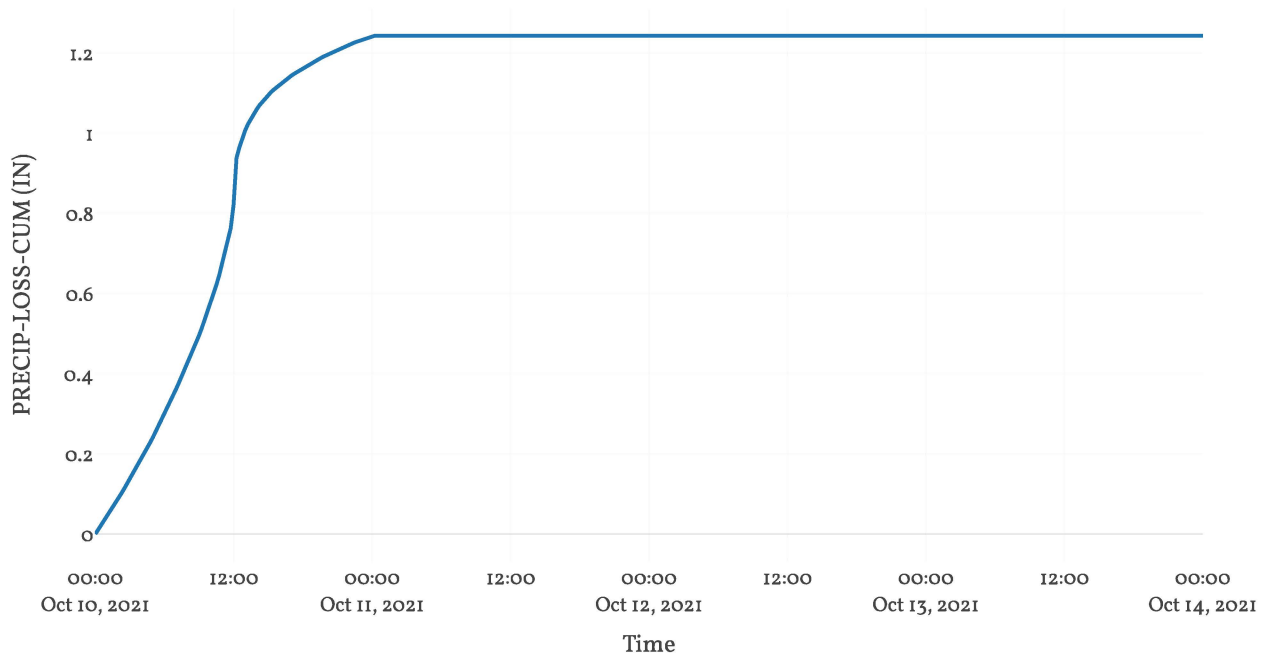
## Cumulative Excess Precipitation



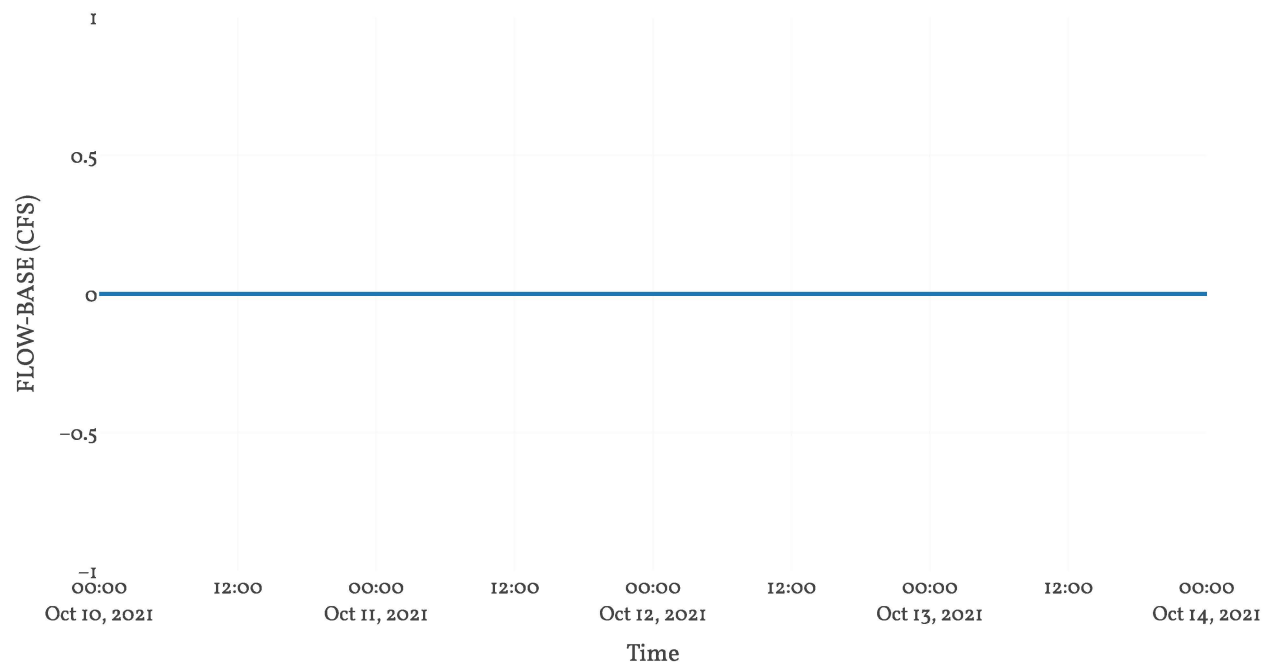
Cumulative Precipitation



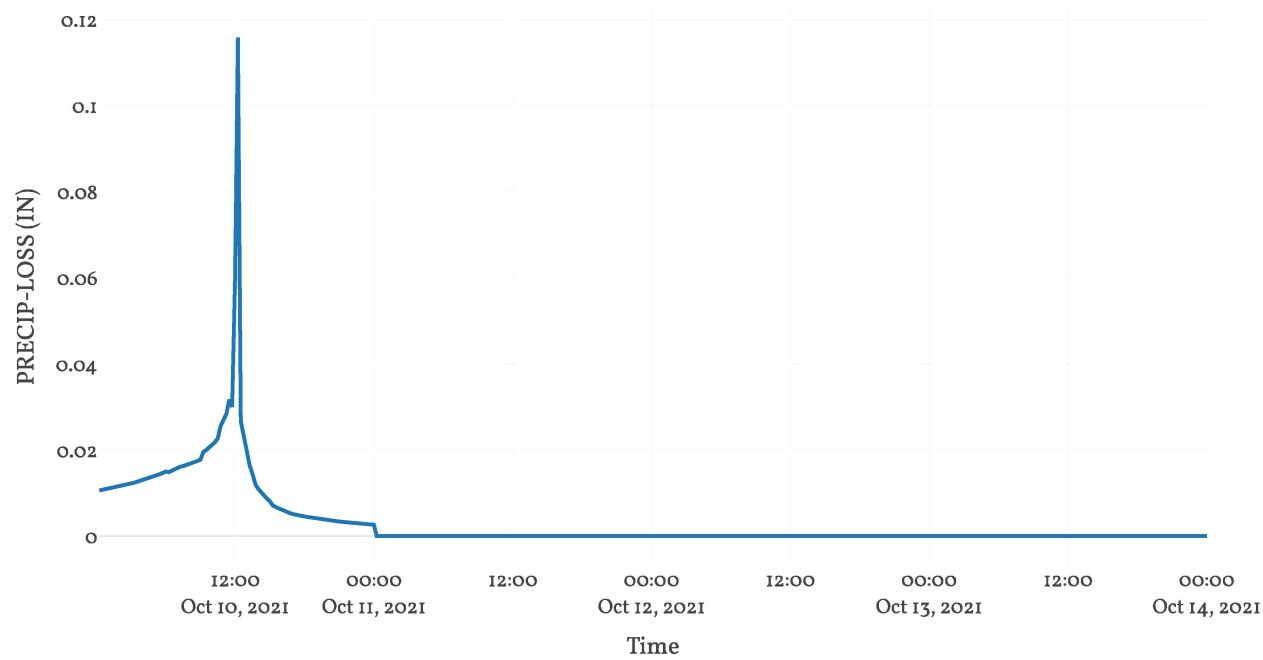
Cumulative Precipitation Loss



Baseflow

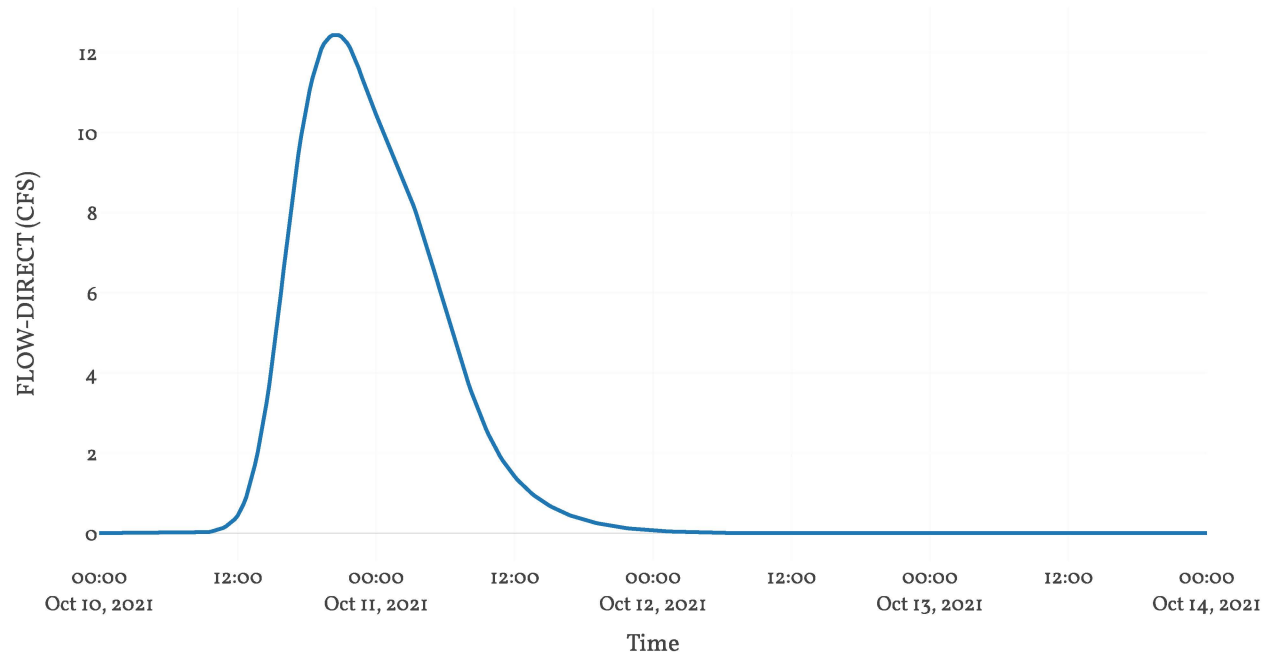


Precipitation Loss

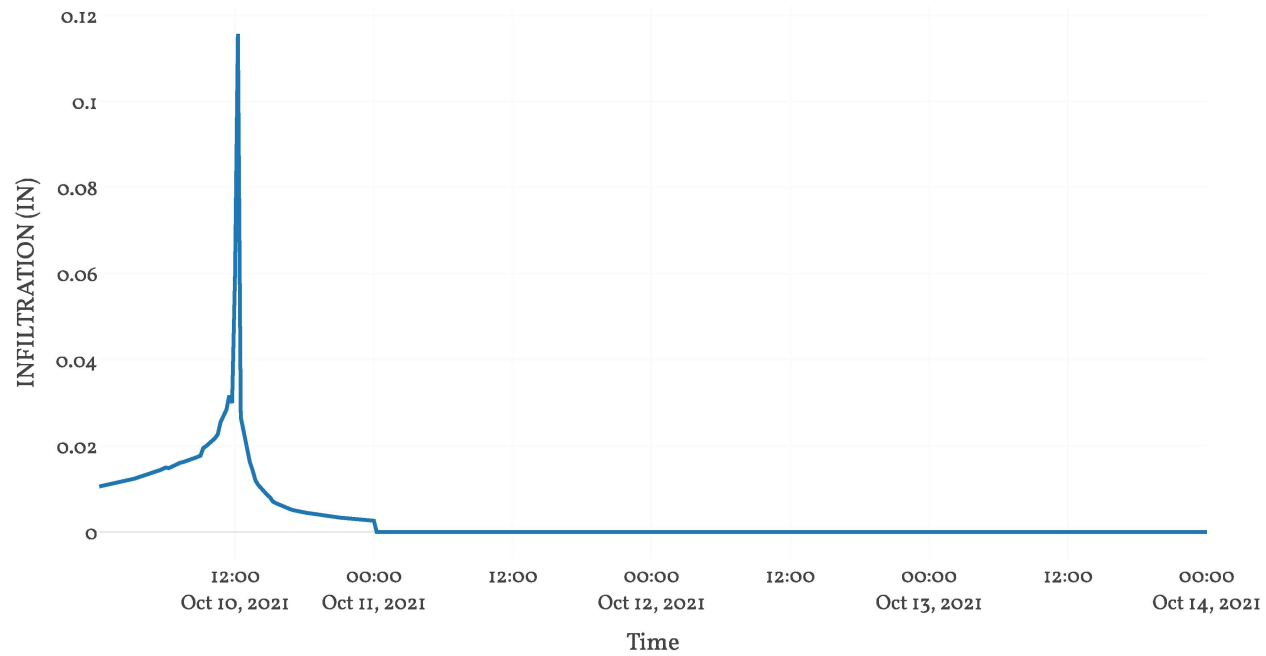




Direct Runoff



Soil Infiltration



# Subbasin: Shed 1 - 05 Imp

Area : 0.01

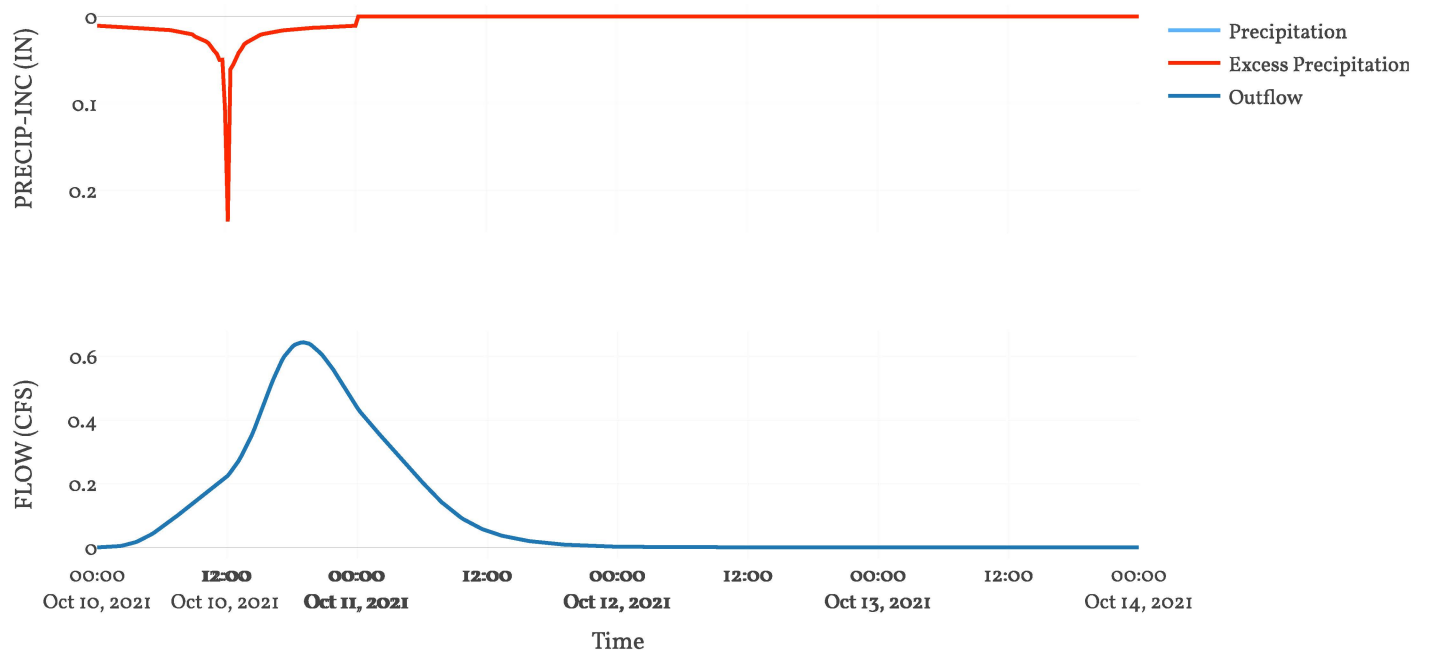
Downstream : Junct - 5

Loss Rate: SCS	
Percent Impervious Area	100
Curve Number	89

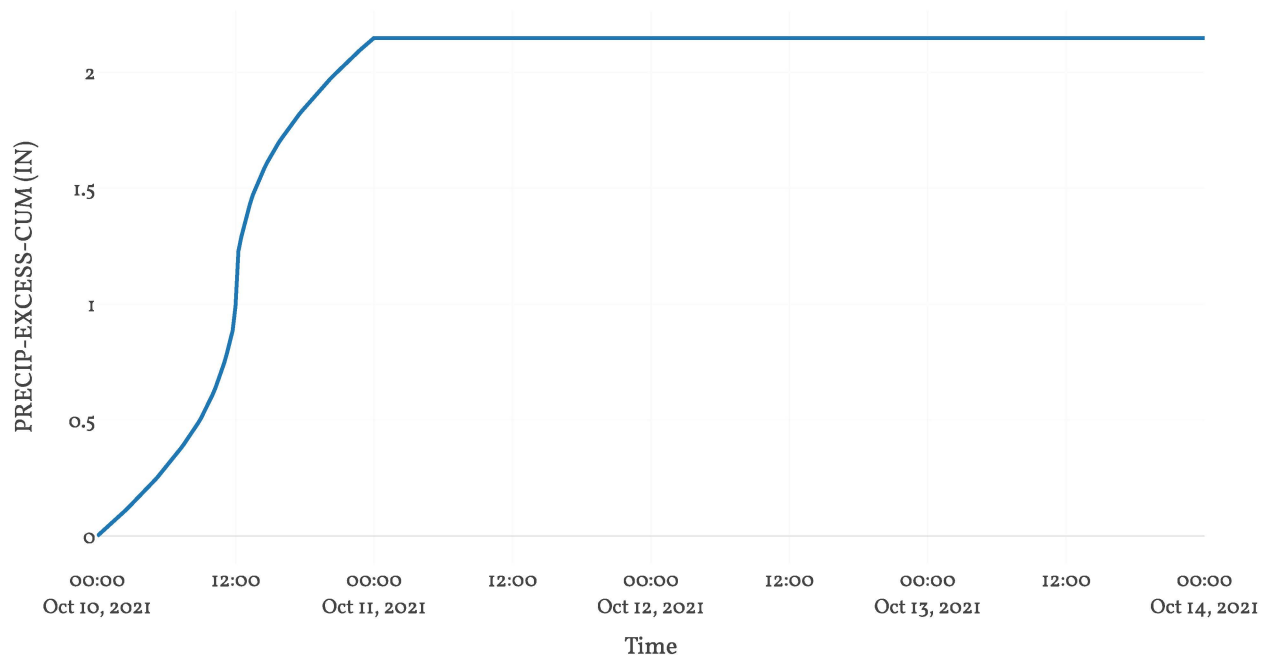
Transform: SCS	
Lag	396.32
Unitgraph Type	Standard

Results: Shed 1 - 05 Imp	
Peak Discharge (CFS)	0.64
Time of Peak Discharge	10Oct2021, 19:00
Volume (IN)	2.15
Precipitation Volume (AC - FT)	0.8
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.8
Direct Runoff Volume (AC - FT)	0.8
Baseflow Volume (AC - FT)	0

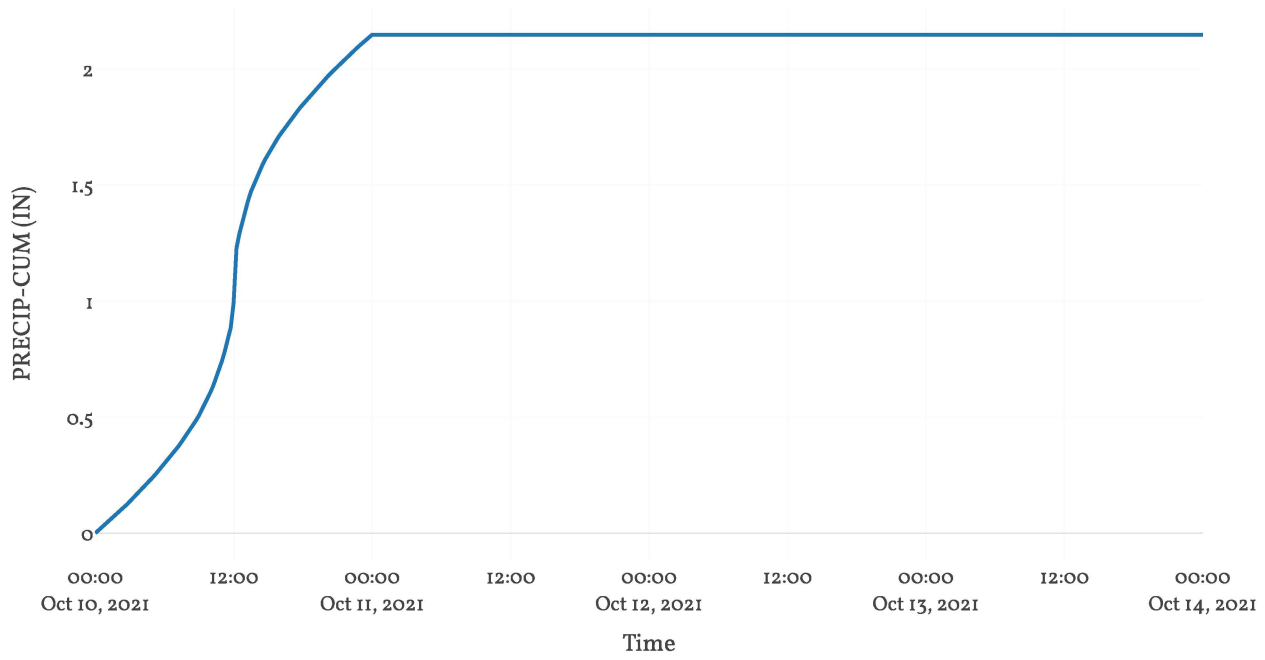
## Precipitation and Outflow



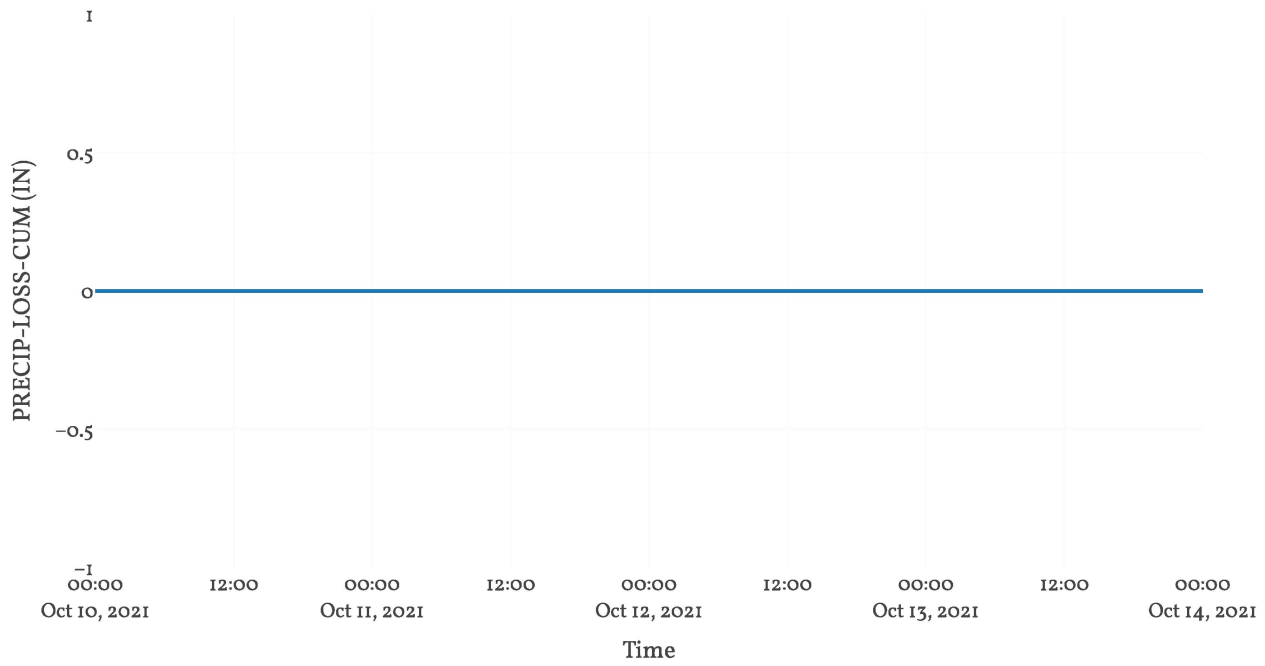
## Cumulative Excess Precipitation



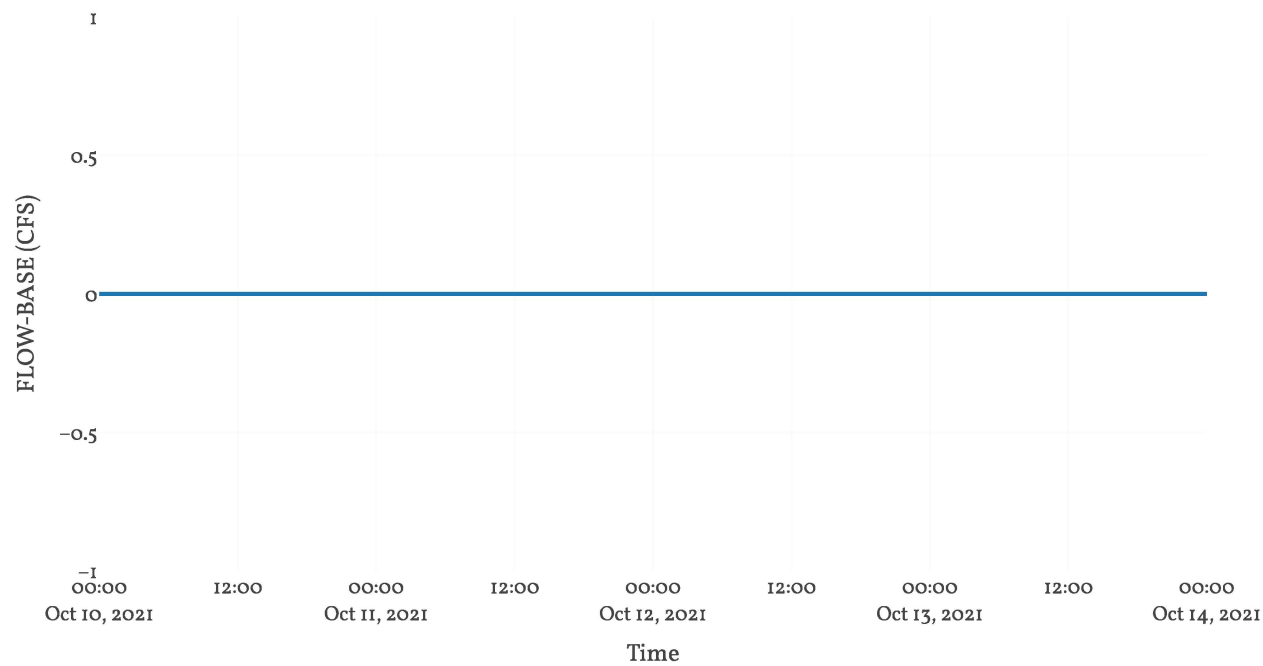
Cumulative Precipitation



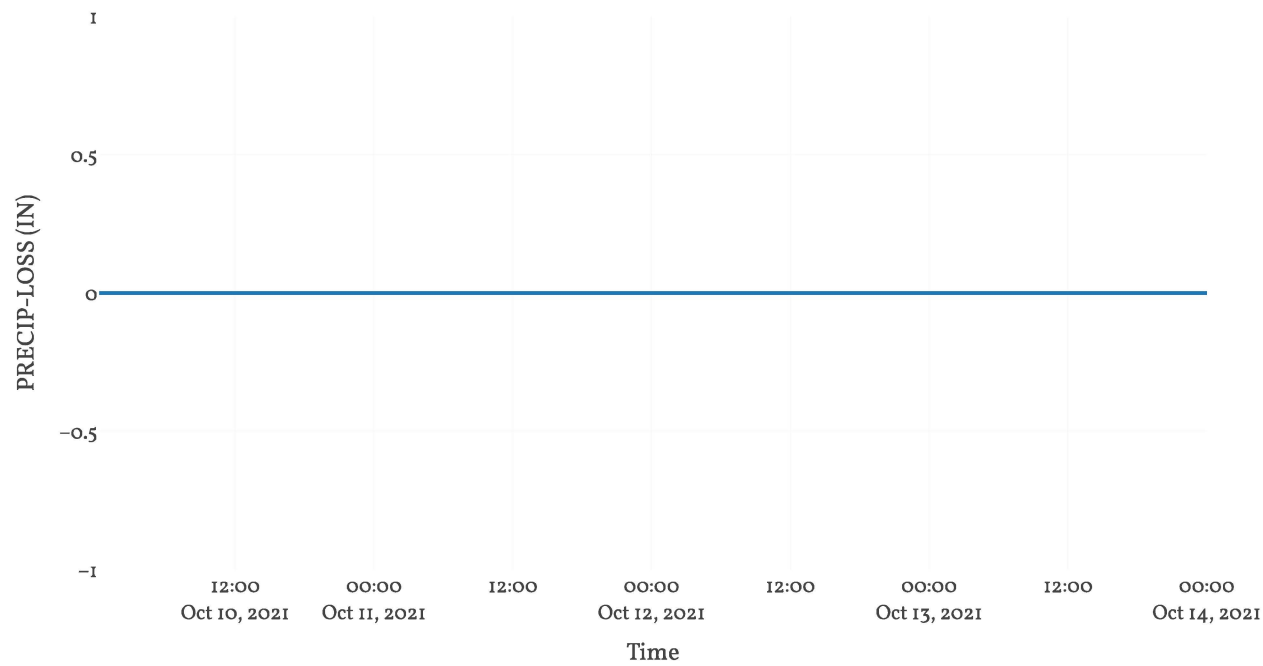
Cumulative Precipitation Loss



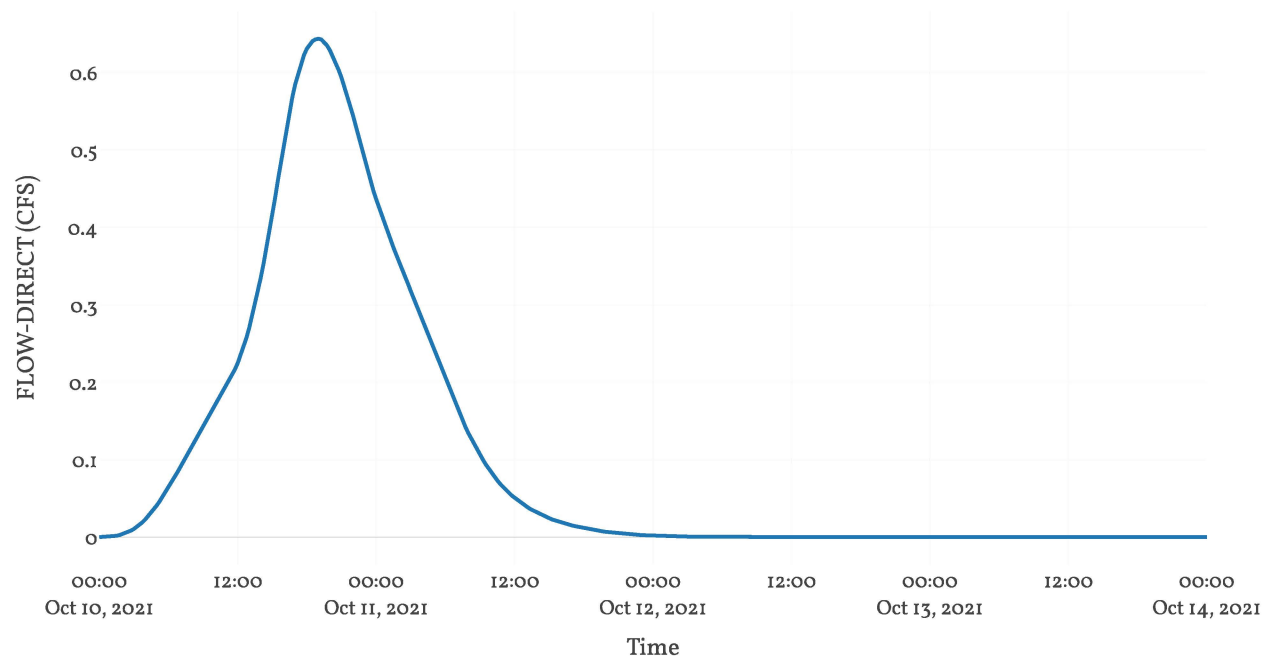
Baseflow



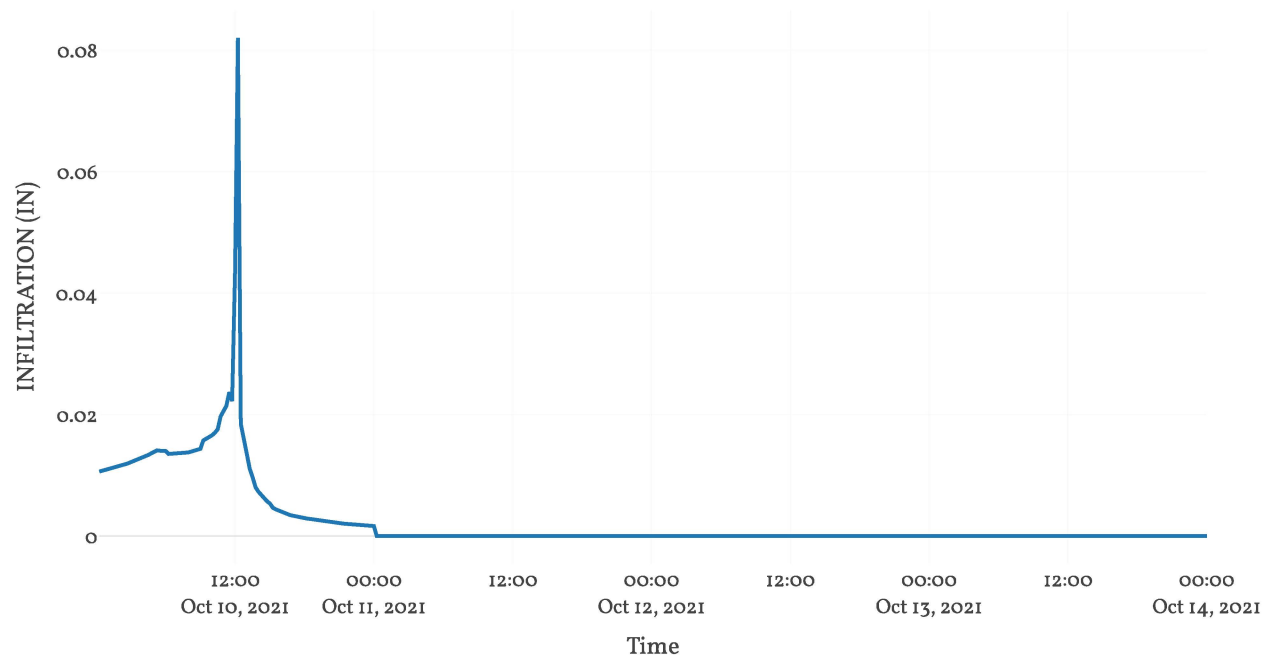
Precipitation Loss



Direct Runoff



Soil Infiltration

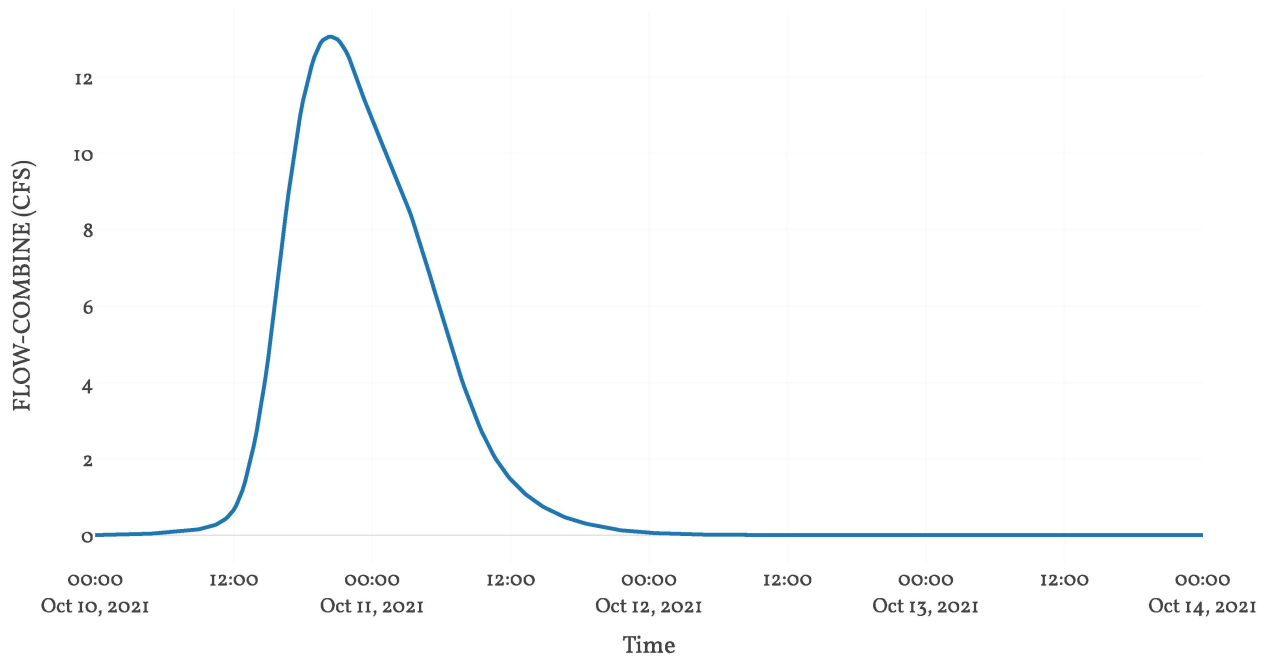


# Junction: Junct-5

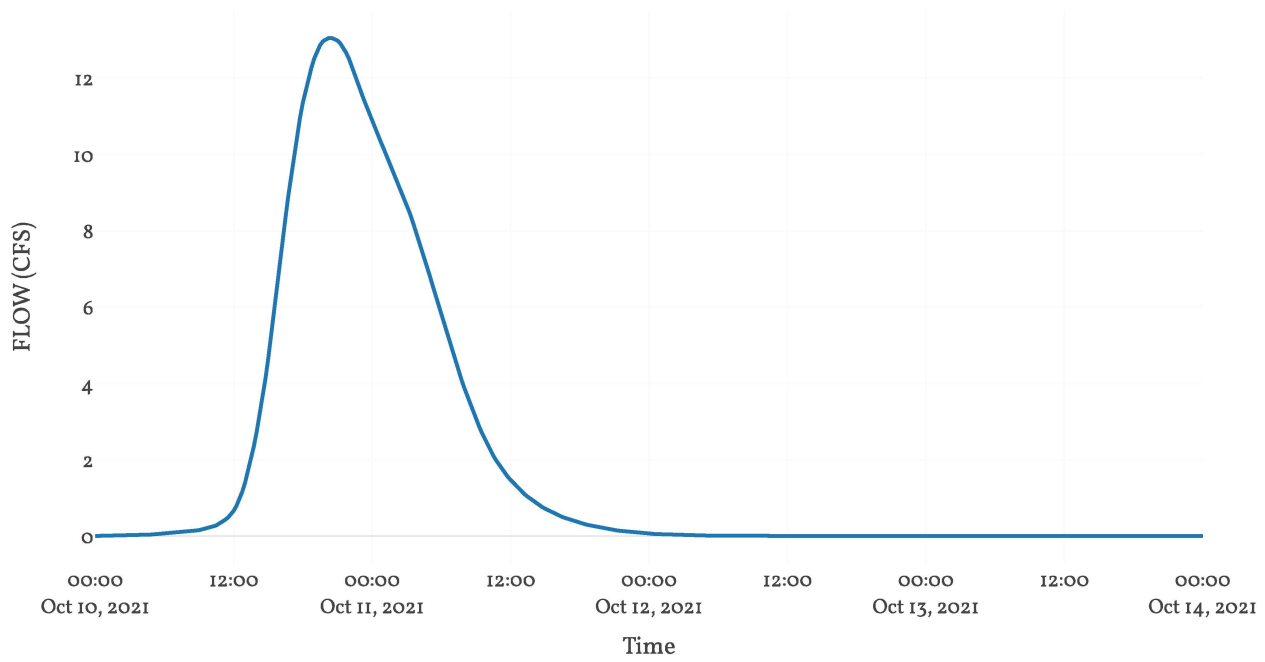
Downstream : Post Total

Results: Junct-5	
Peak Discharge (CFS)	13.06
Time of Peak Discharge	10Oct2021, 20:30
Volume (IN)	0.93

Combined Inflow



Outflow



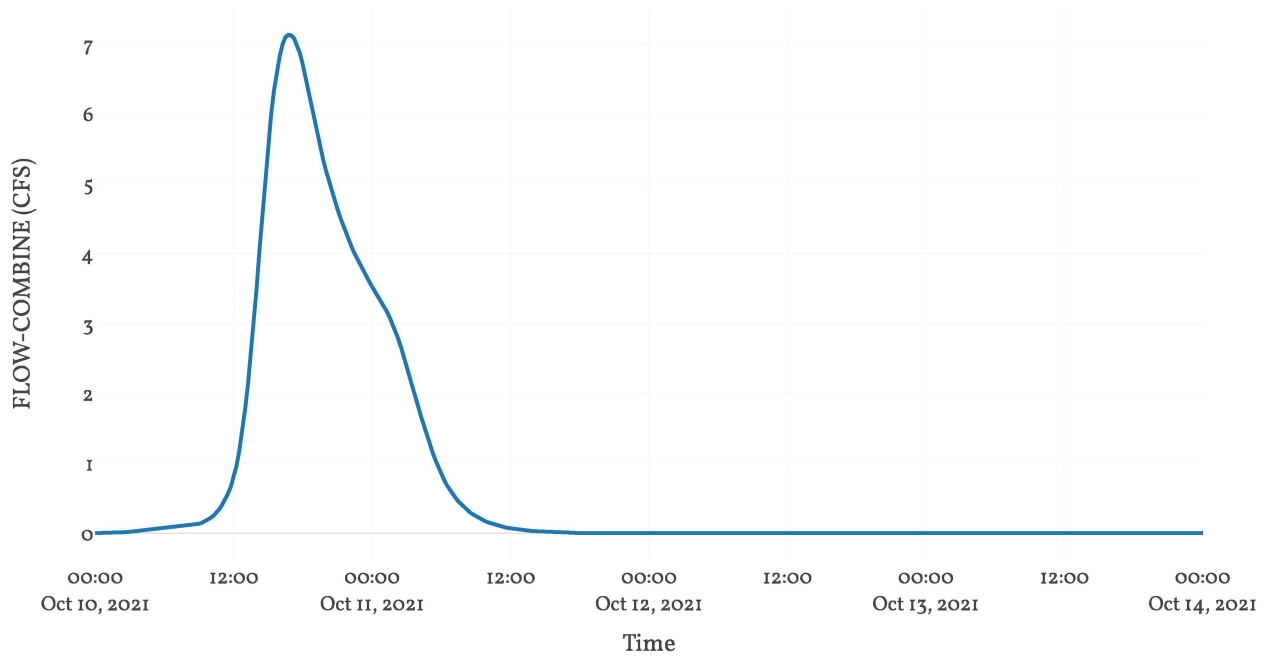


# Junction: Junct I

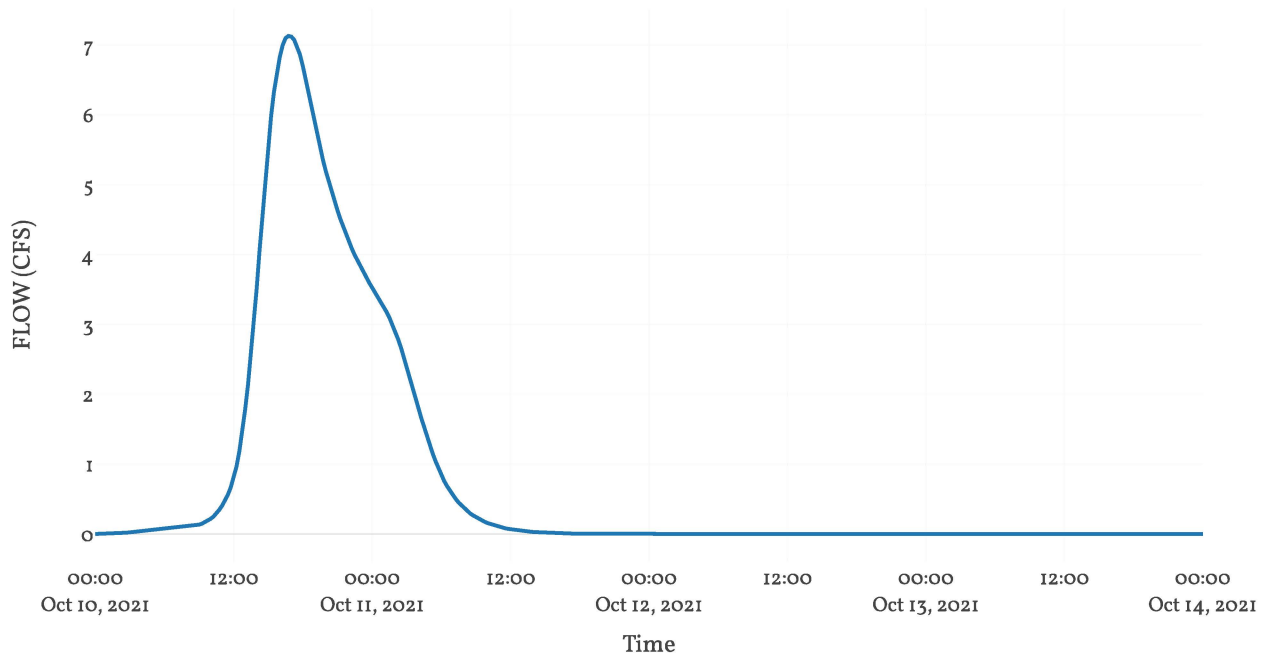
Downstream : Post Total

Results: Junct I	
Peak Discharge (CFS)	7.13
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	0.94

Combined Inflow



Outflow



Subbasin: Shed 1 - 02 Perv

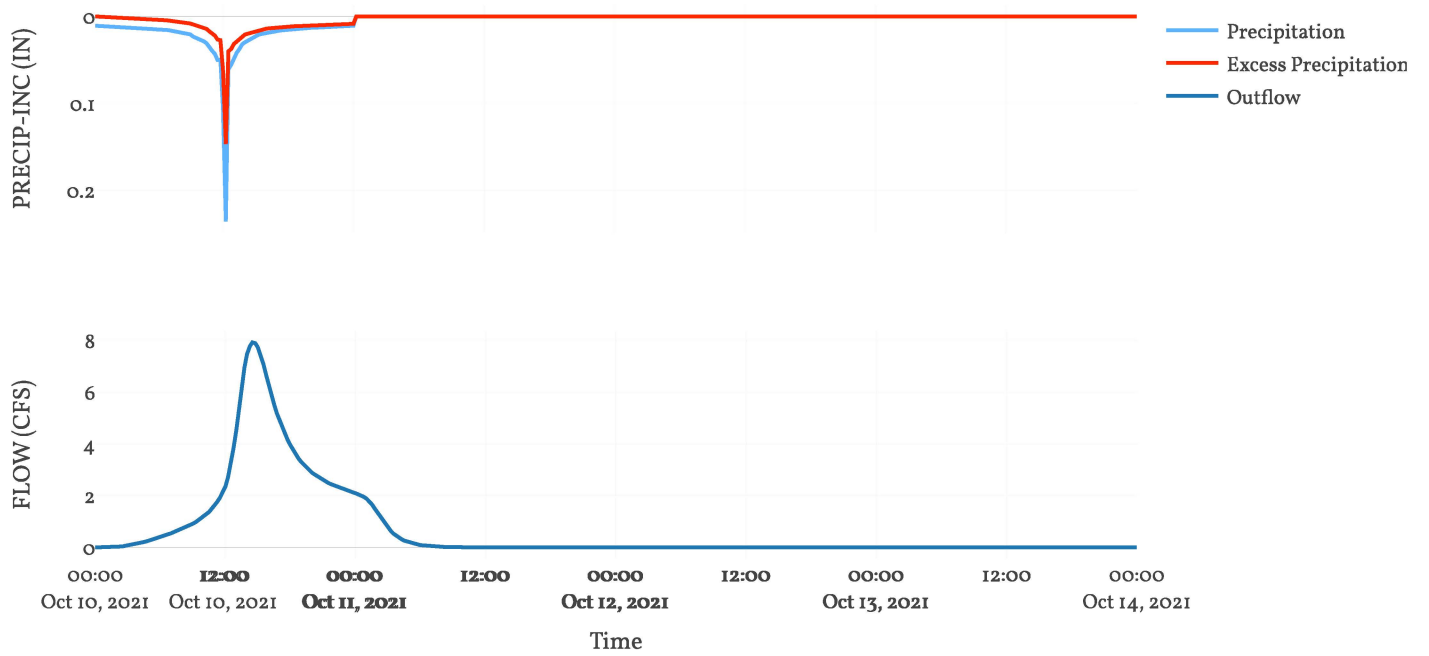
Area : 0.08  
Downstream : Junct - 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

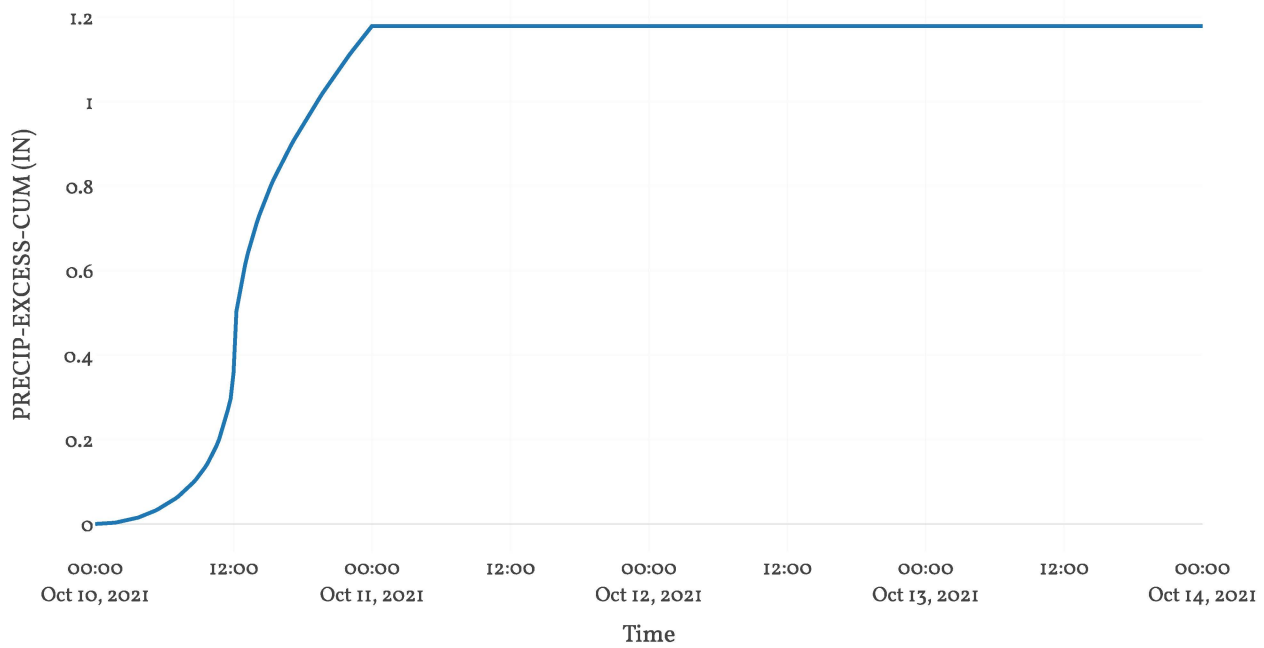
Transform: Scs	
Lag	133.24
Unitgraph Type	Standard

Results: Shed 1 - 02 Perv	
Peak Discharge (CFS)	7.93
Time of Peak Discharge	10Oct2021, 14:30
Volume (IN)	1.18
Precipitation Volume (AC - FT)	9.55
Loss Volume (AC - FT)	4.31
Excess Volume (AC - FT)	5.24
Direct Runoff Volume (AC - FT)	5.24
Baseflow Volume (AC - FT)	0

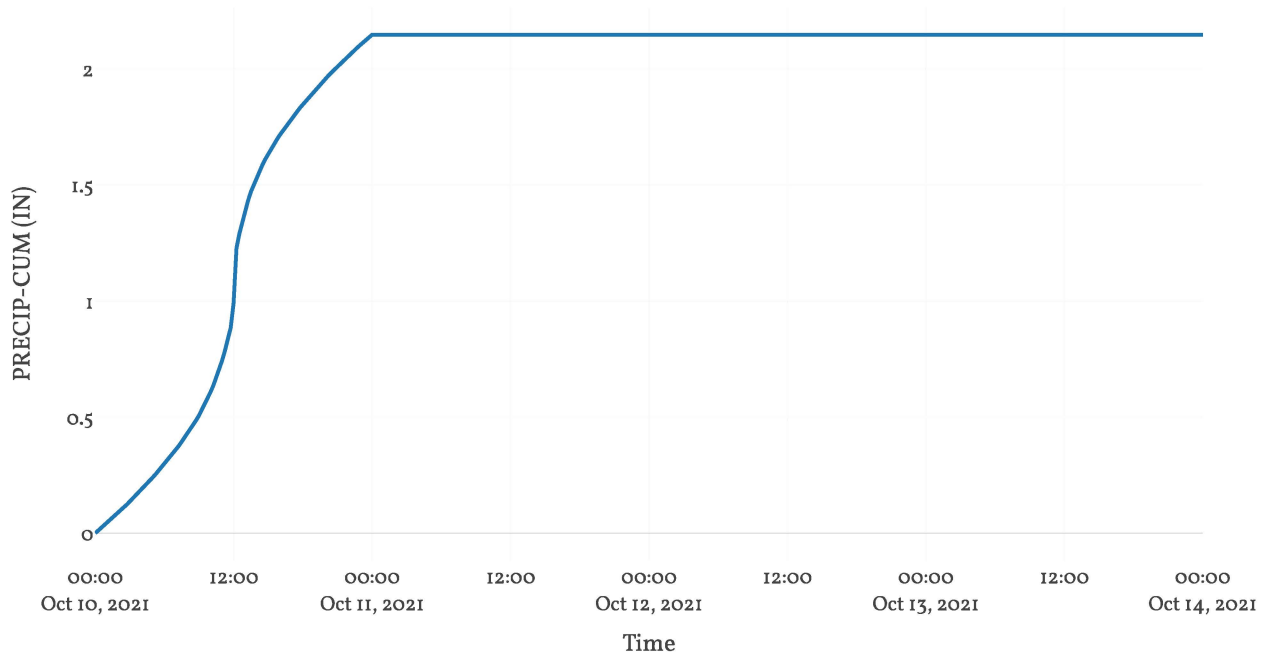
## Precipitation and Outflow



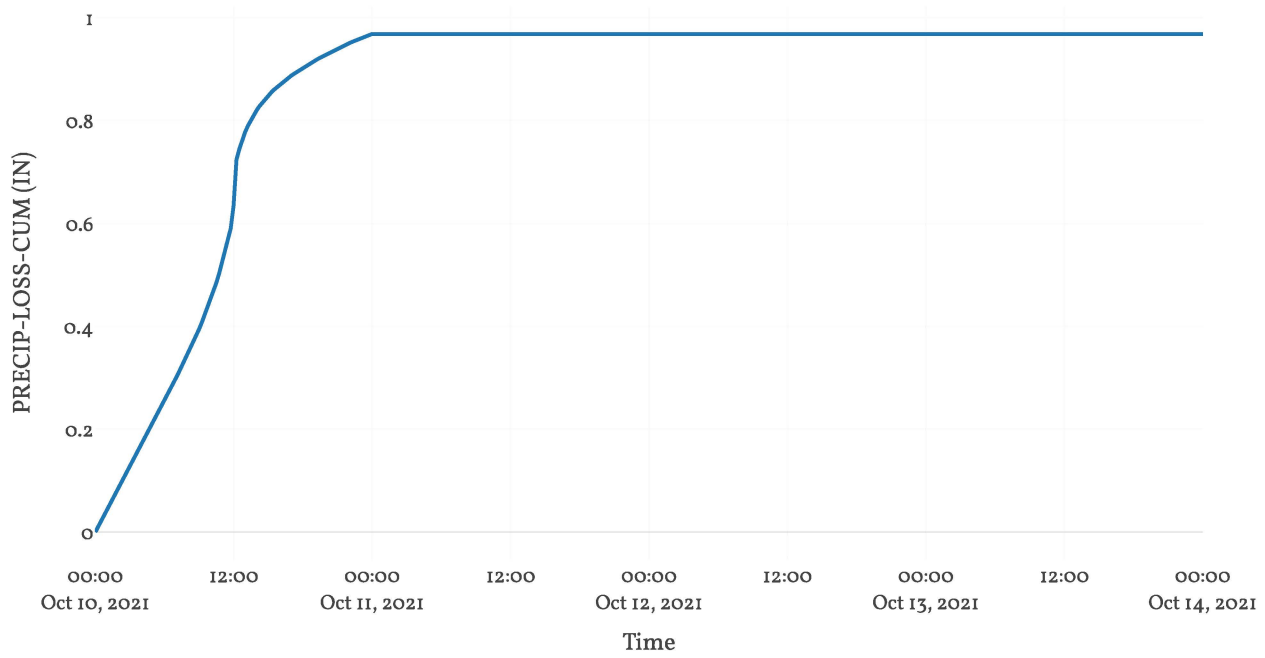
## Cumulative Excess Precipitation



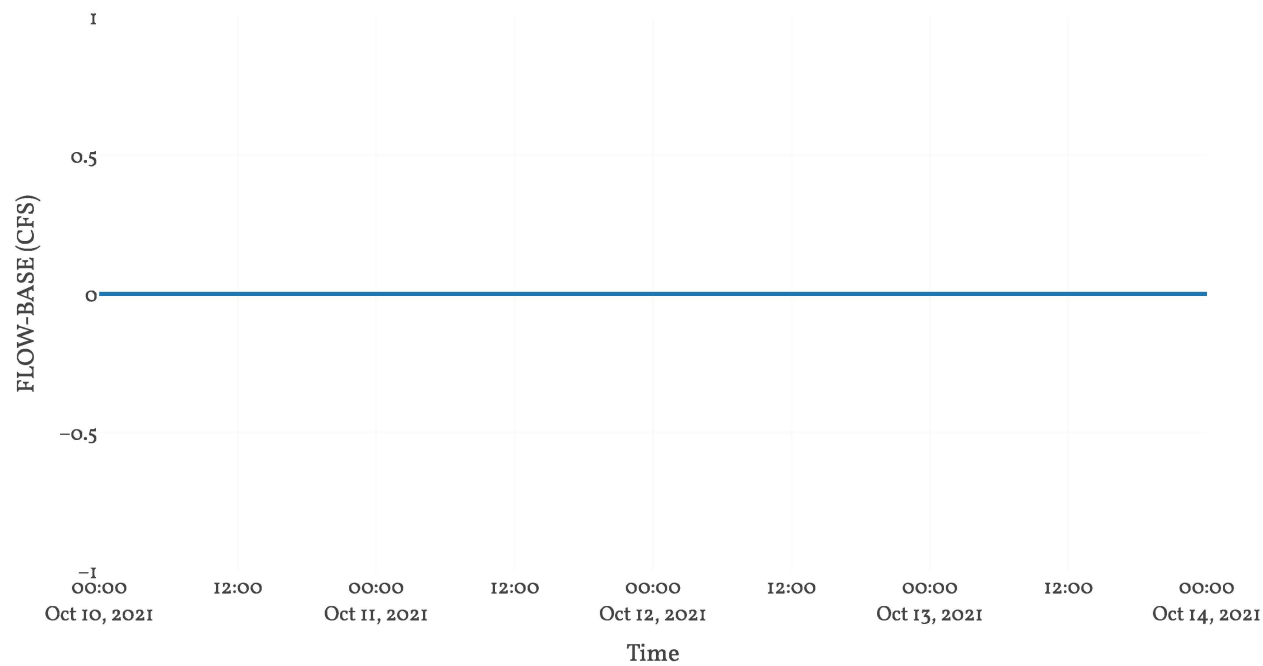
Cumulative Precipitation



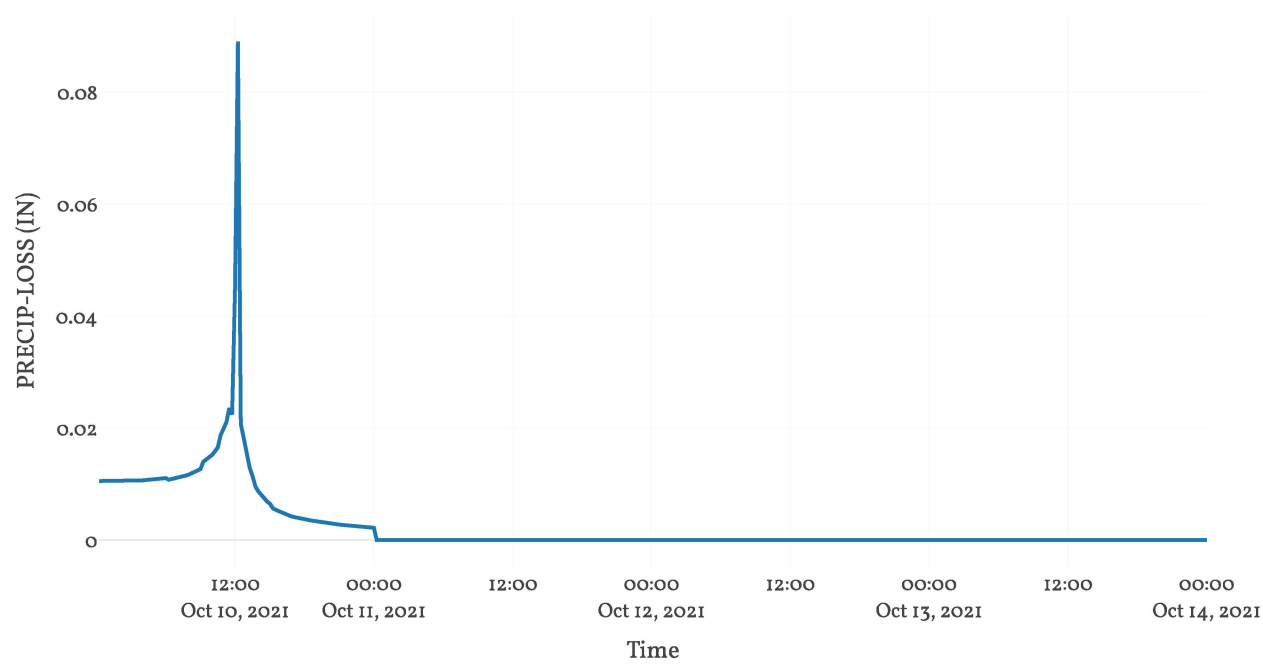
Cumulative Precipitation Loss



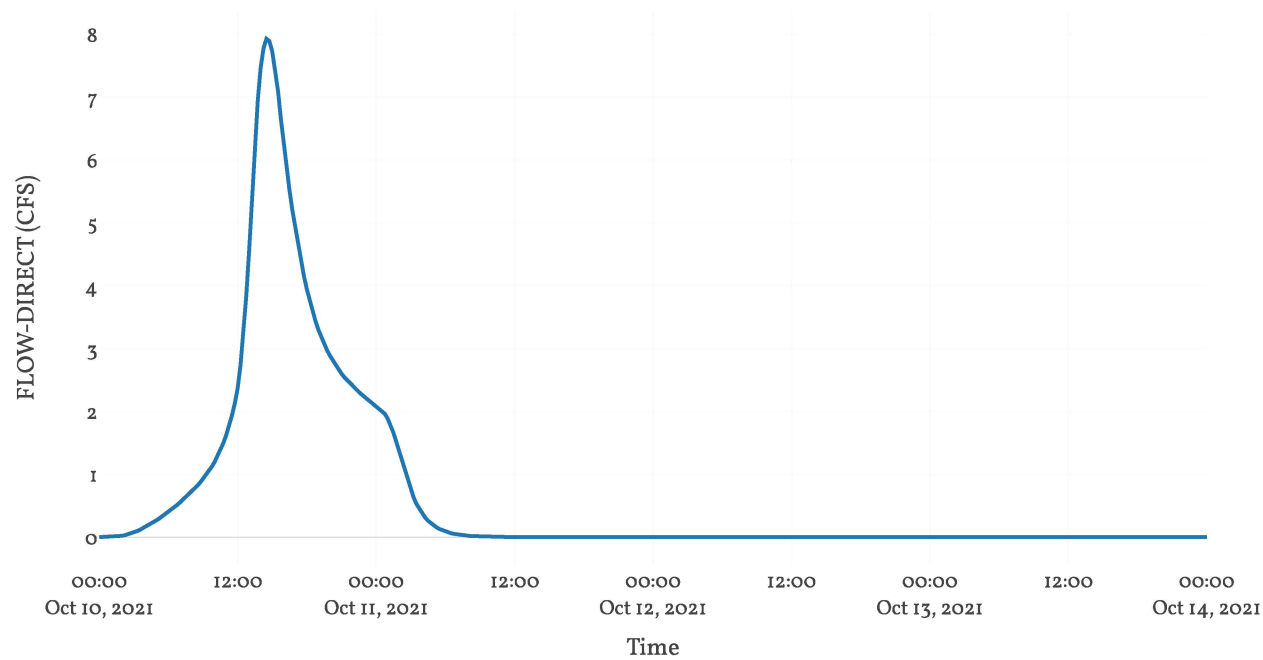
Baseflow



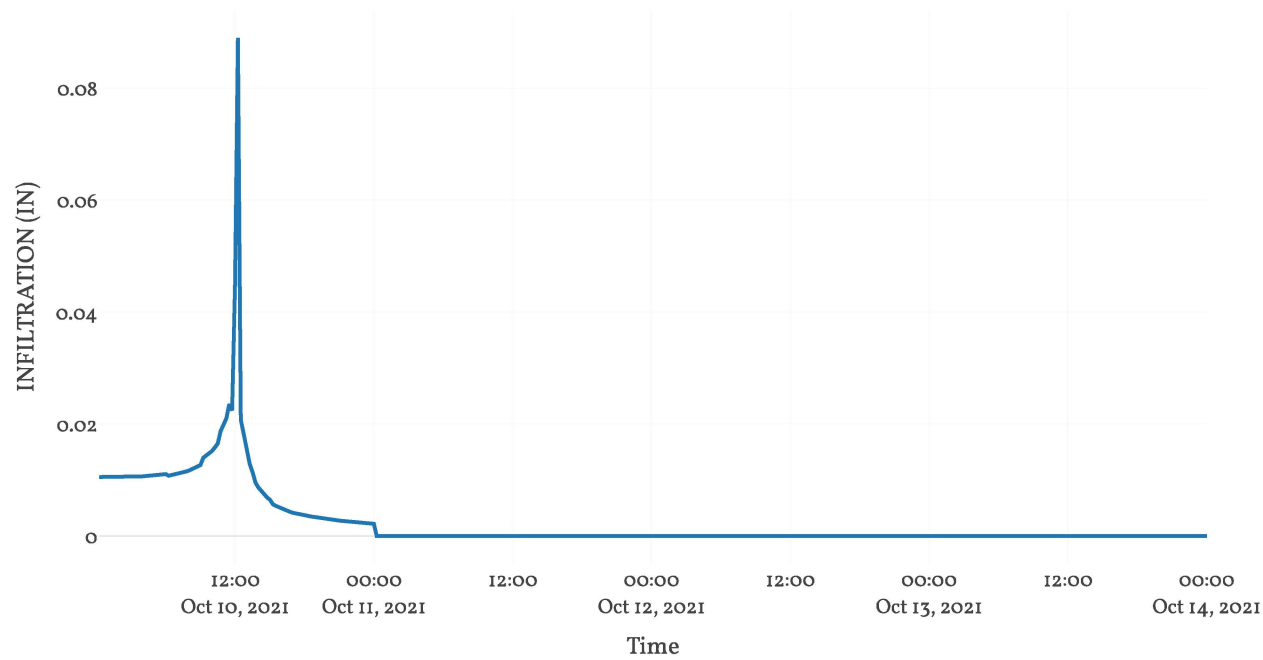
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1 - 02 Imp

Area : 0  
Downstream : Junct - 2

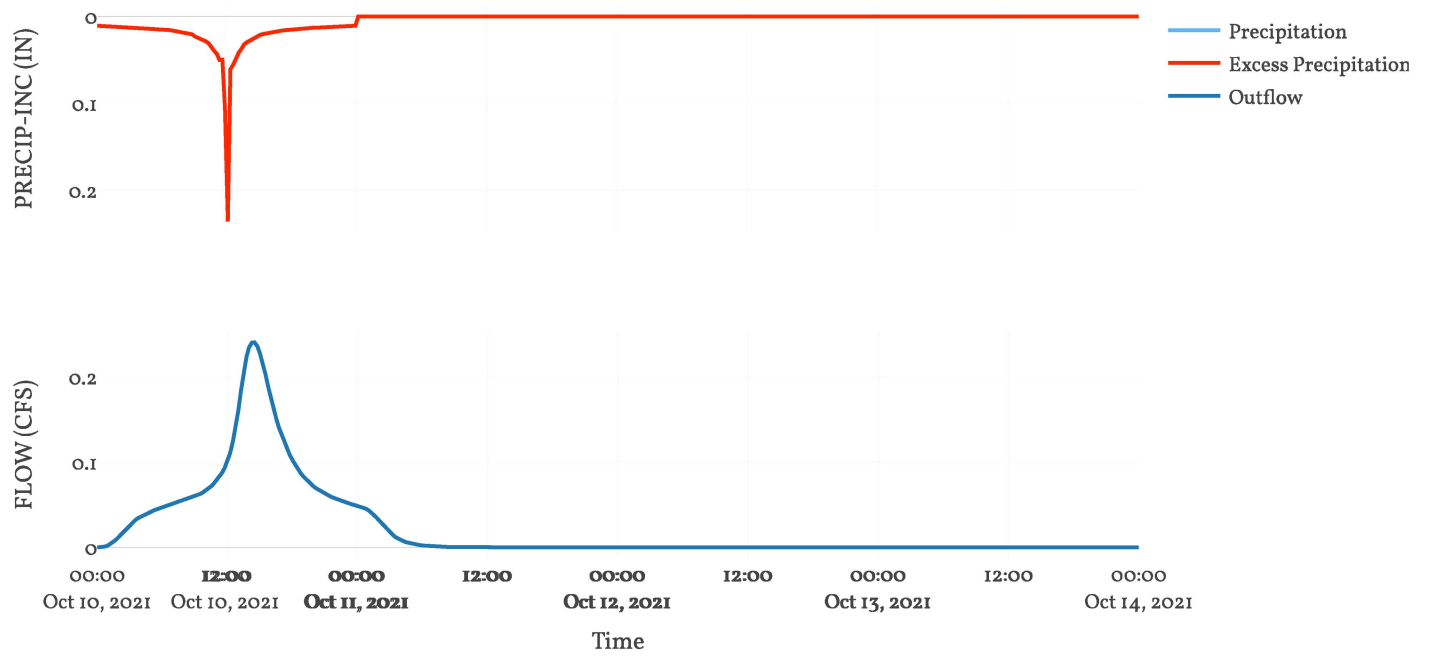
Loss Rate: Scs	
Percent Impervious Area	100
Curve Number	89
Initial Abstraction	0

Transform: Scs	
Lag	133.24
Unitgraph Type	Standard

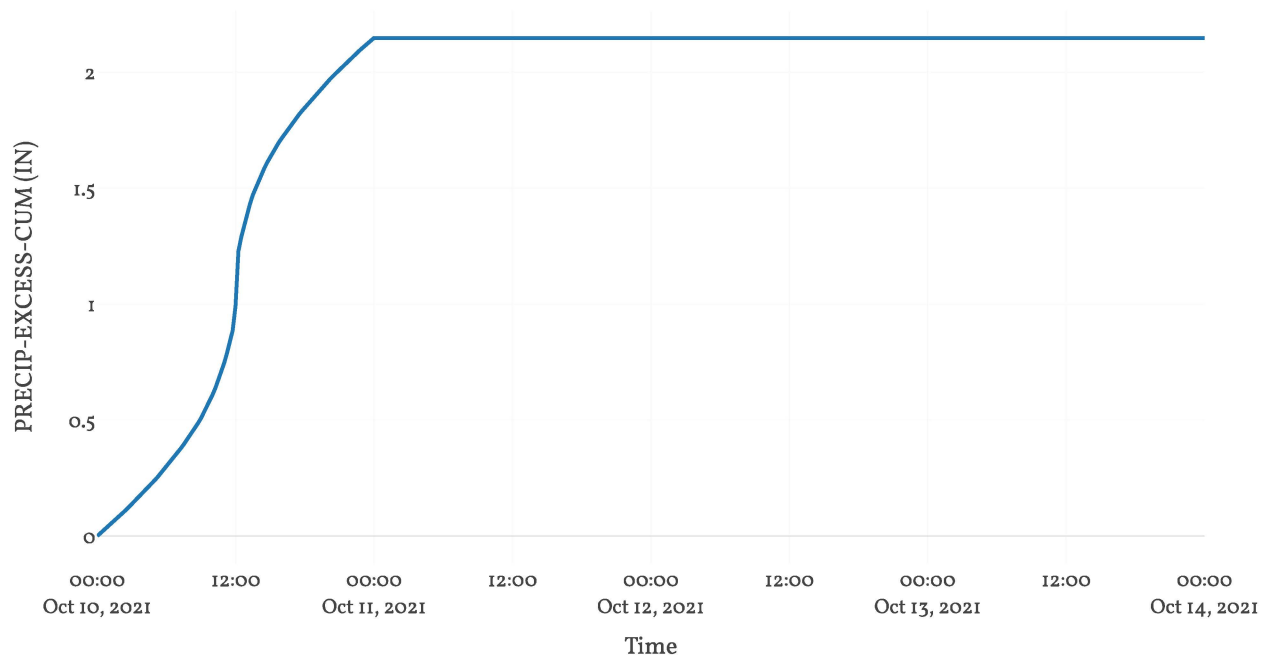
Results: Shed 1 - 02 Imp	
Peak Discharge (CFS)	0.24
Time of Peak Discharge	10Oct2021, 14:30
Volume (IN)	2.15
Precipitation Volume (AC - FT)	0.17
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.17
Direct Runoff Volume (AC - FT)	0.17
Baseflow Volume (AC - FT)	0



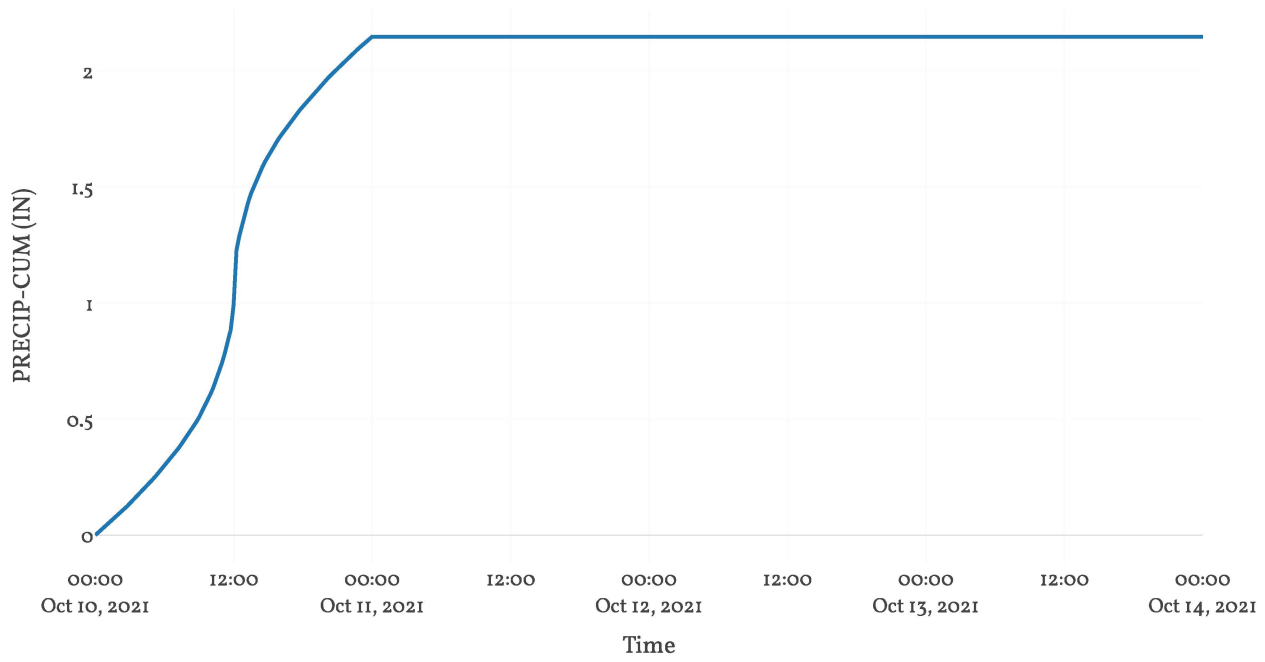
## Precipitation and Outflow



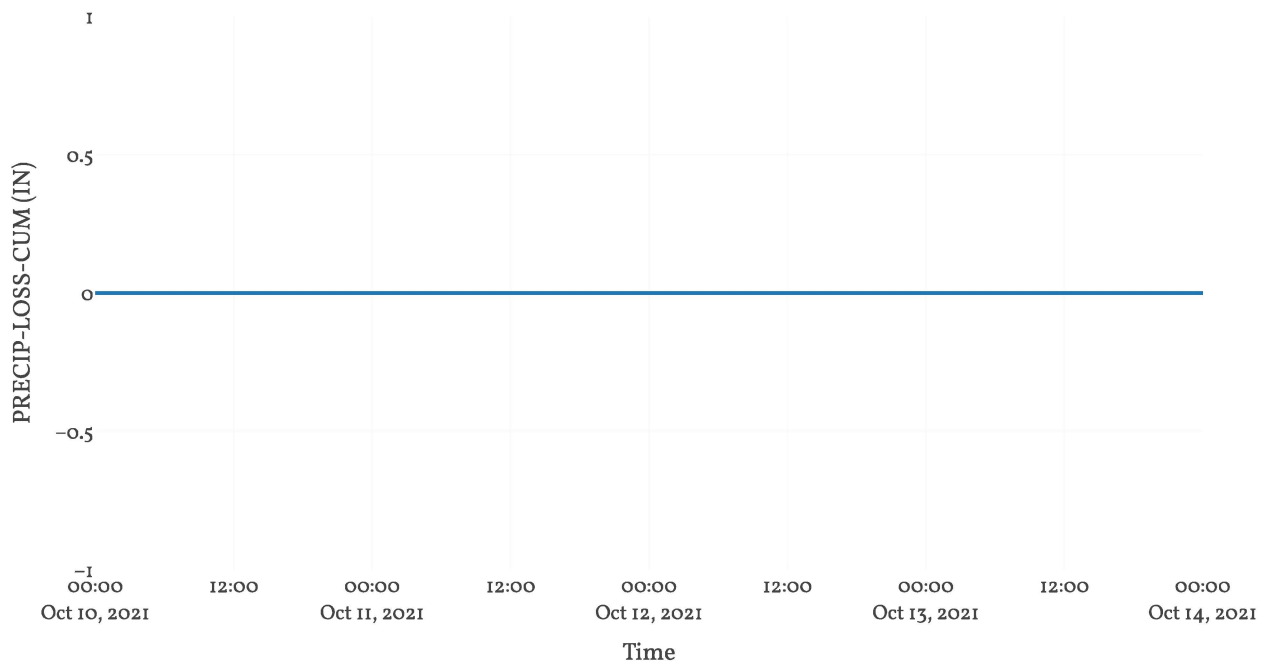
## Cumulative Excess Precipitation



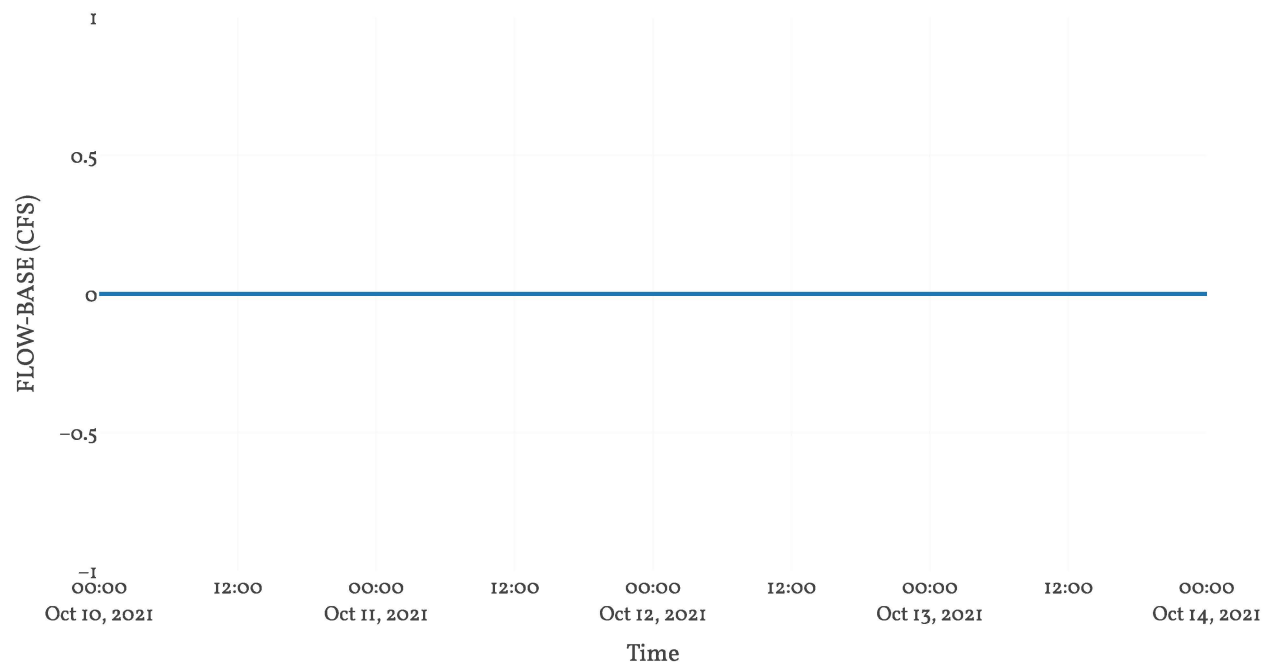
Cumulative Precipitation



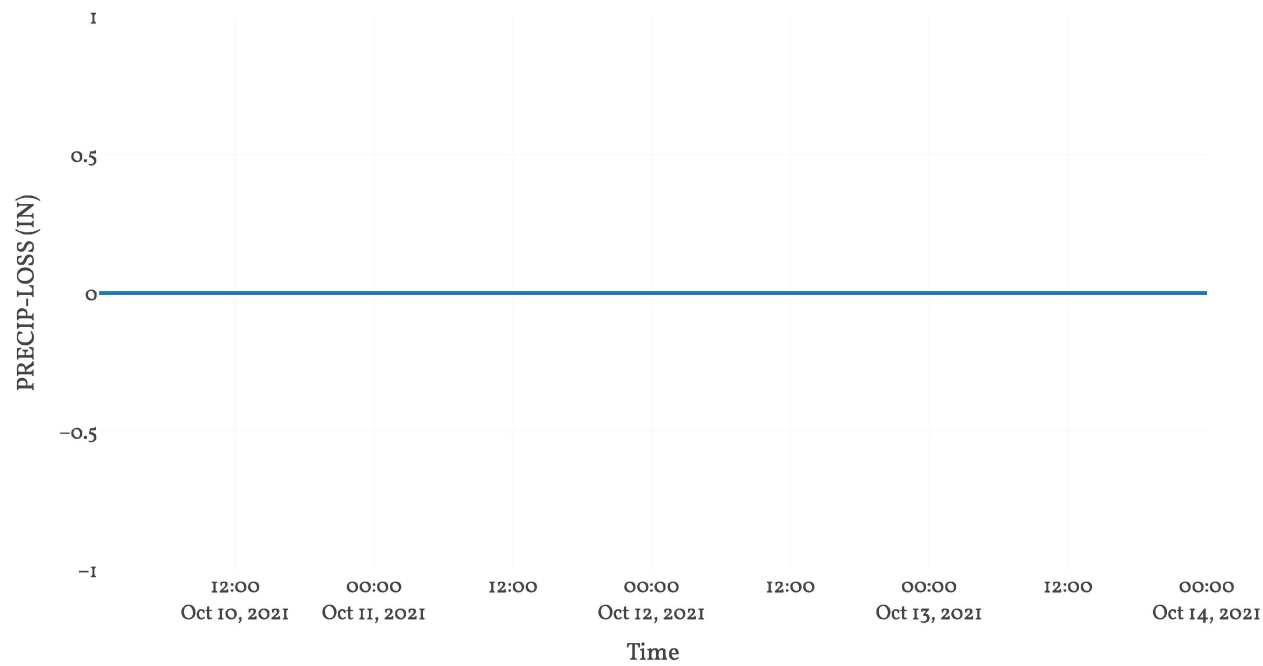
Cumulative Precipitation Loss



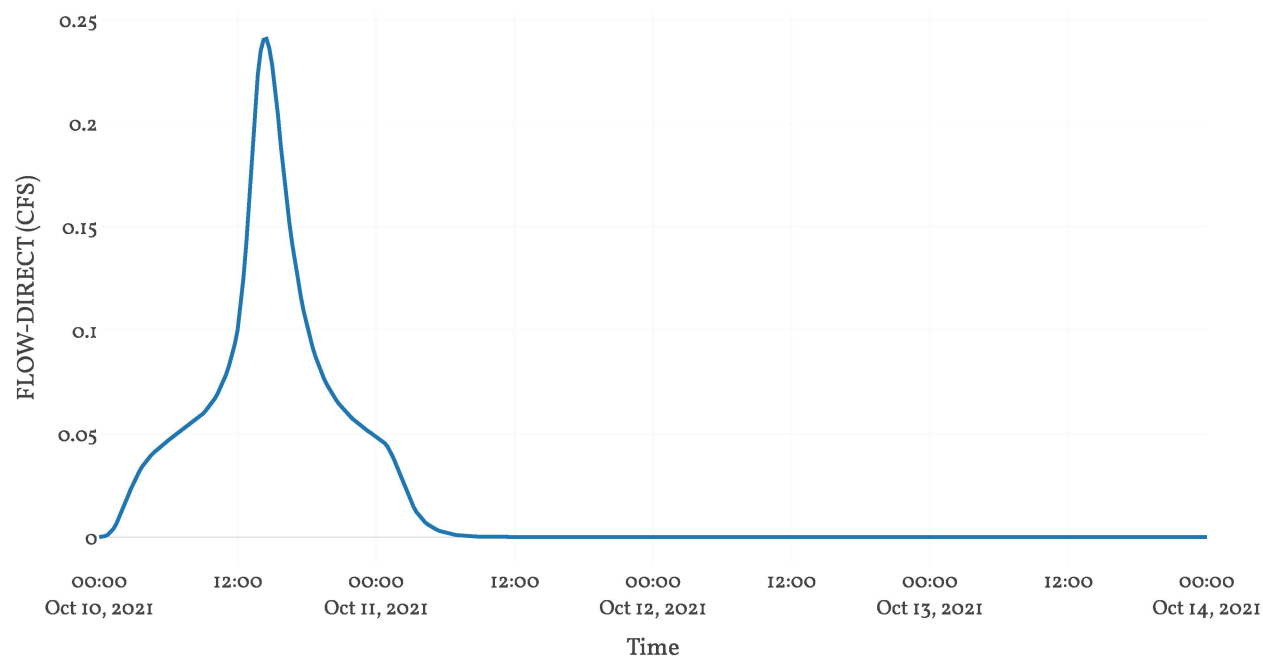
Baseflow



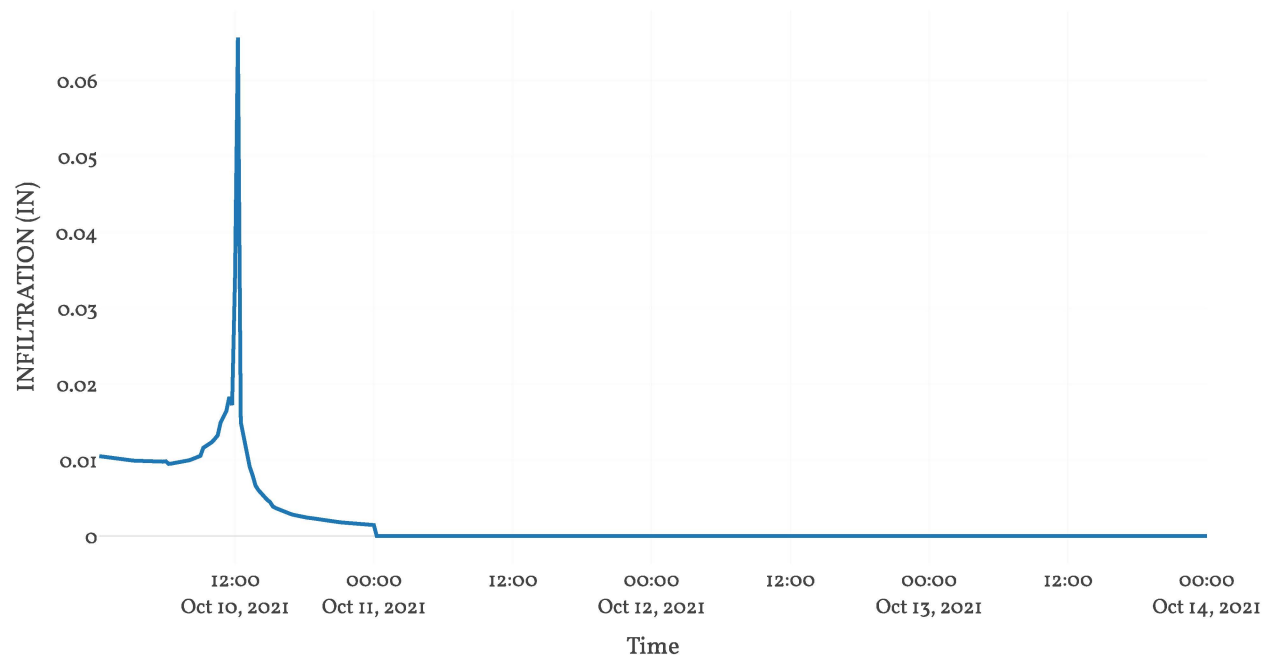
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1 - 03 Perv

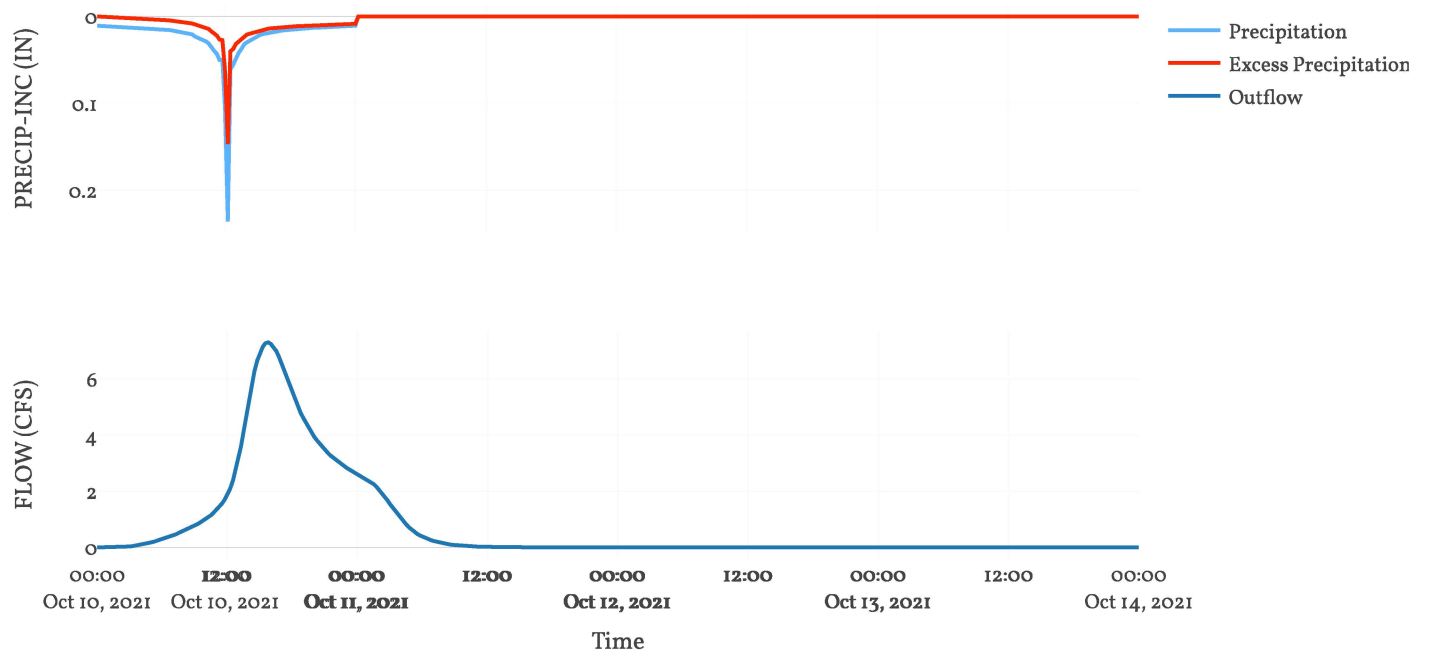
Area : 0.09  
Downstream : Junct - 3

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

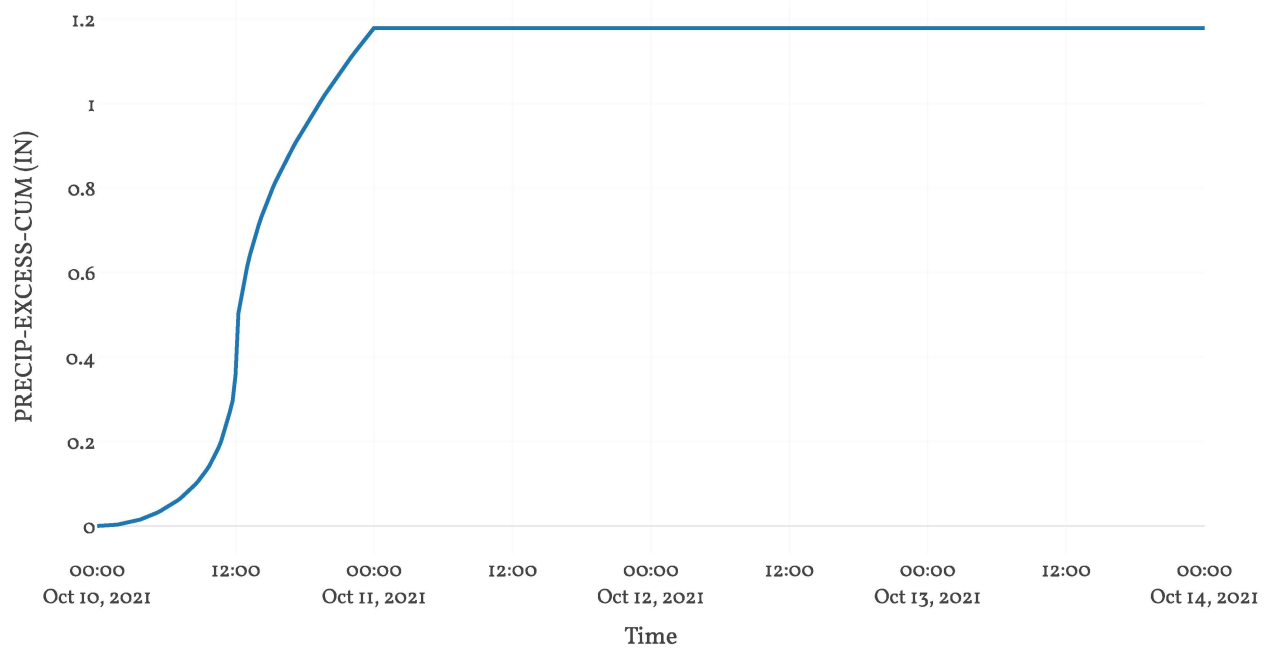
Transform: Scs	
Lag	192.84
Unitgraph Type	Standard

Results: Shed 1 - 03 Perv	
Peak Discharge (CFS)	7.32
Time of Peak Discharge	10Oct2021, 15:45
Volume (IN)	1.18
Precipitation Volume (AC - FT)	10.61
Loss Volume (AC - FT)	4.79
Excess Volume (AC - FT)	5.83
Direct Runoff Volume (AC - FT)	5.83
Baseflow Volume (AC - FT)	0

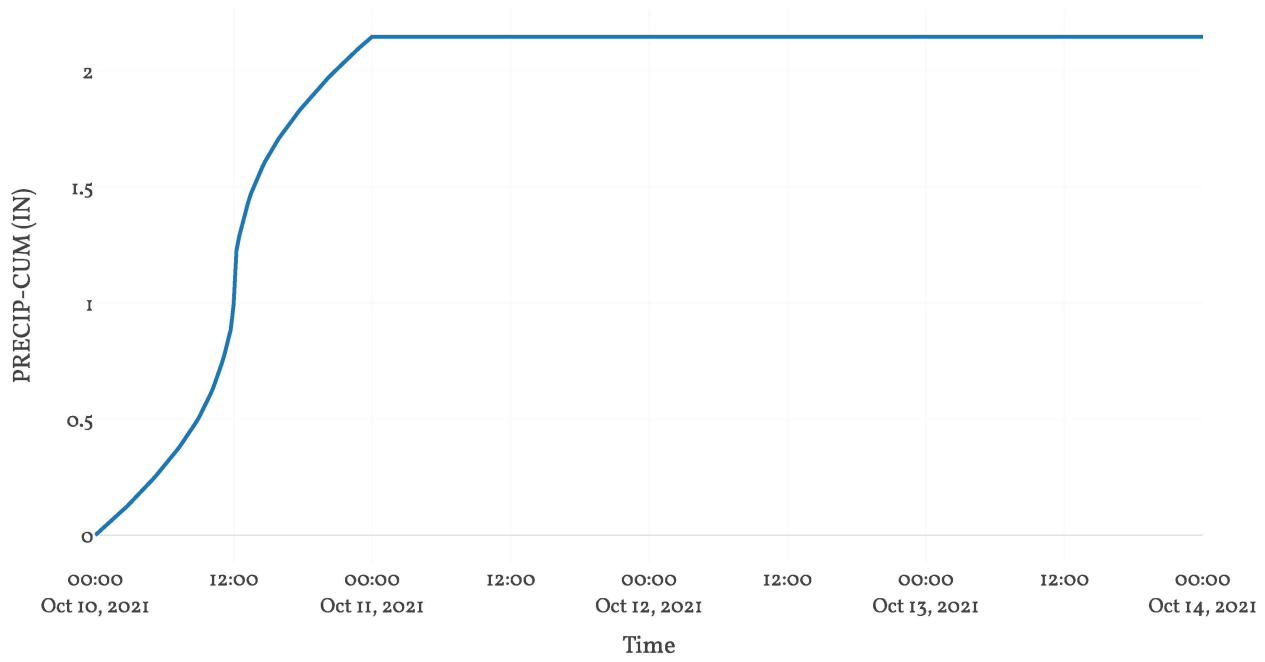
## Precipitation and Outflow



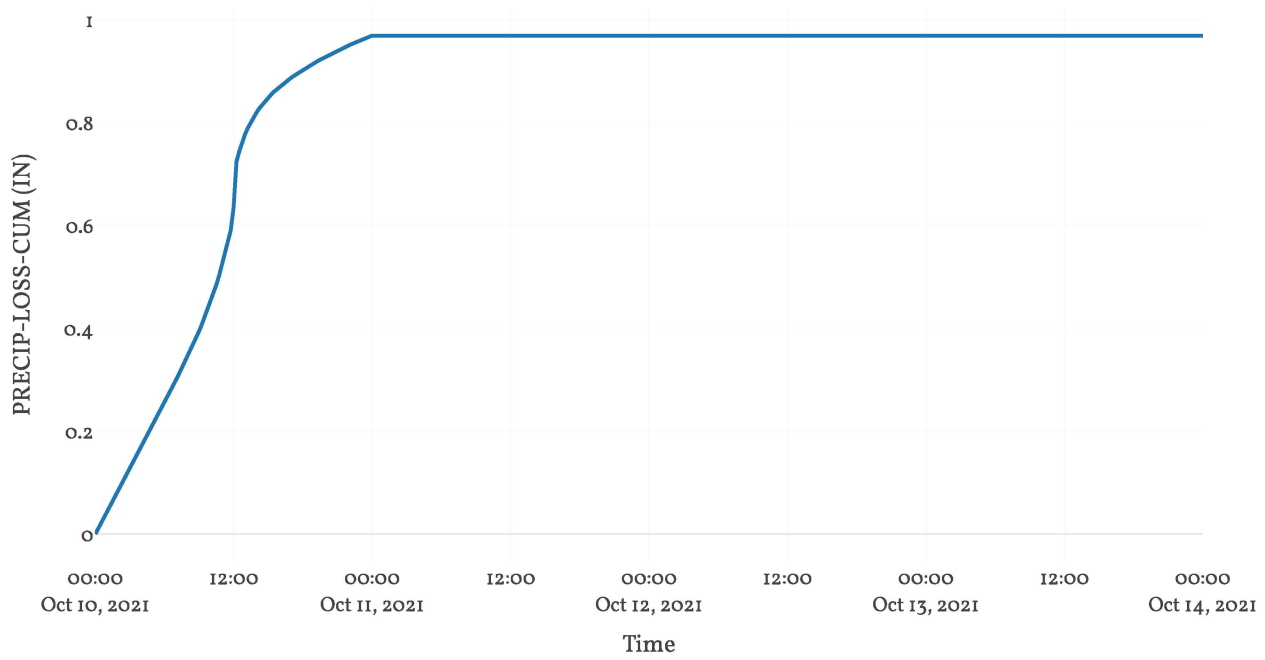
## Cumulative Excess Precipitation



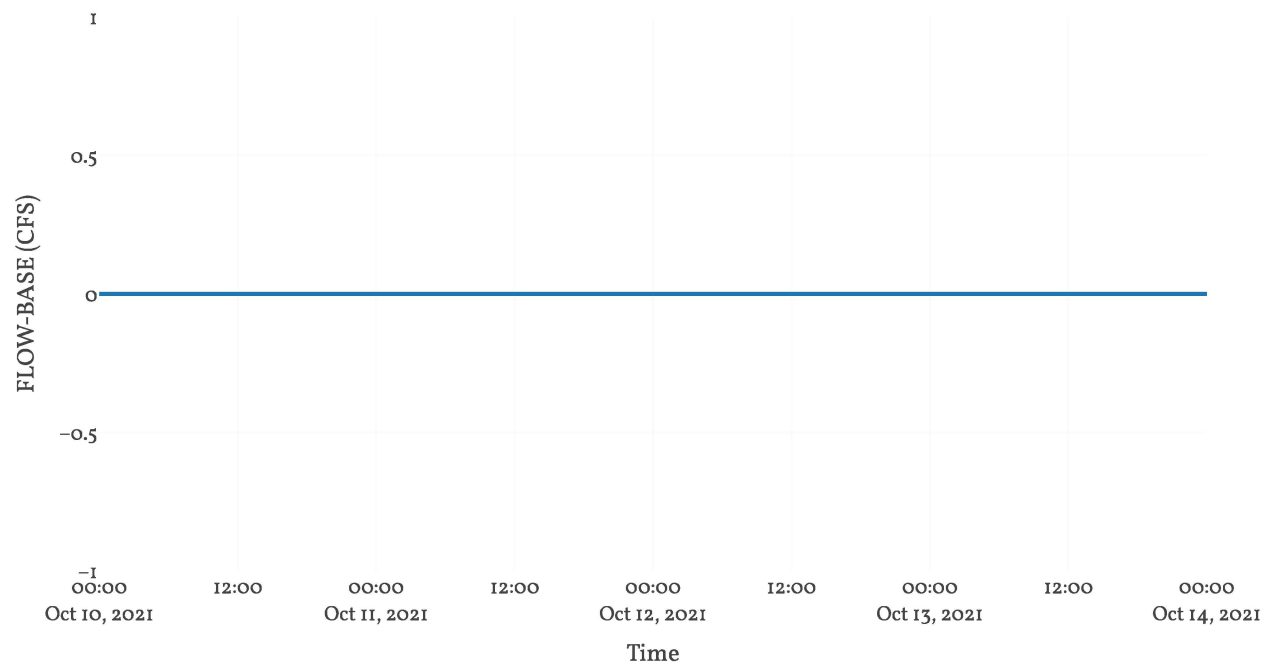
Cumulative Precipitation



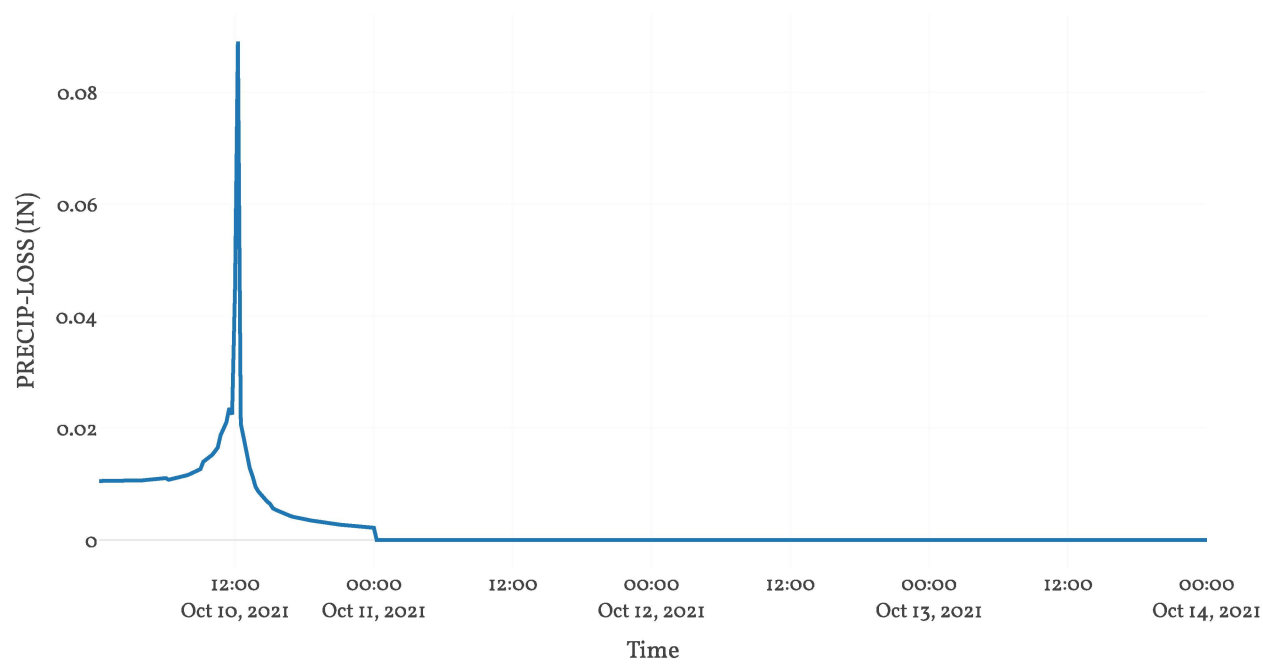
Cumulative Precipitation Loss



Baseflow

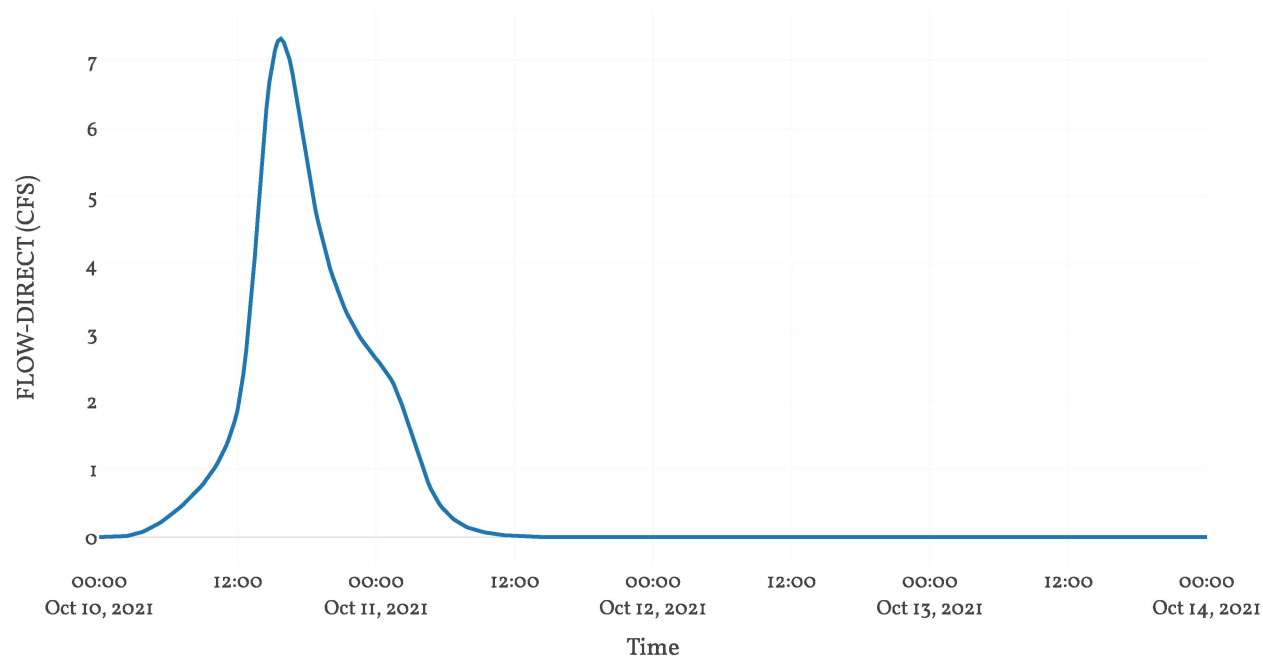


Precipitation Loss

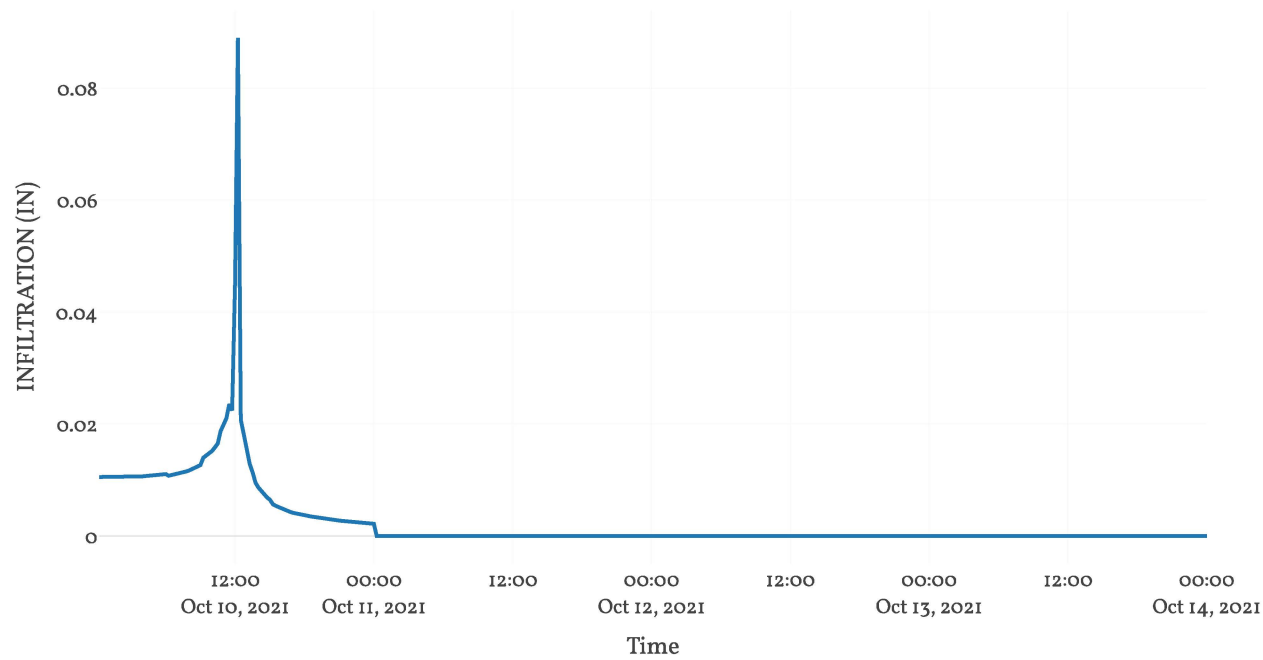




Direct Runoff



Soil Infiltration



# Subbasin: Shed 1-03 Imp

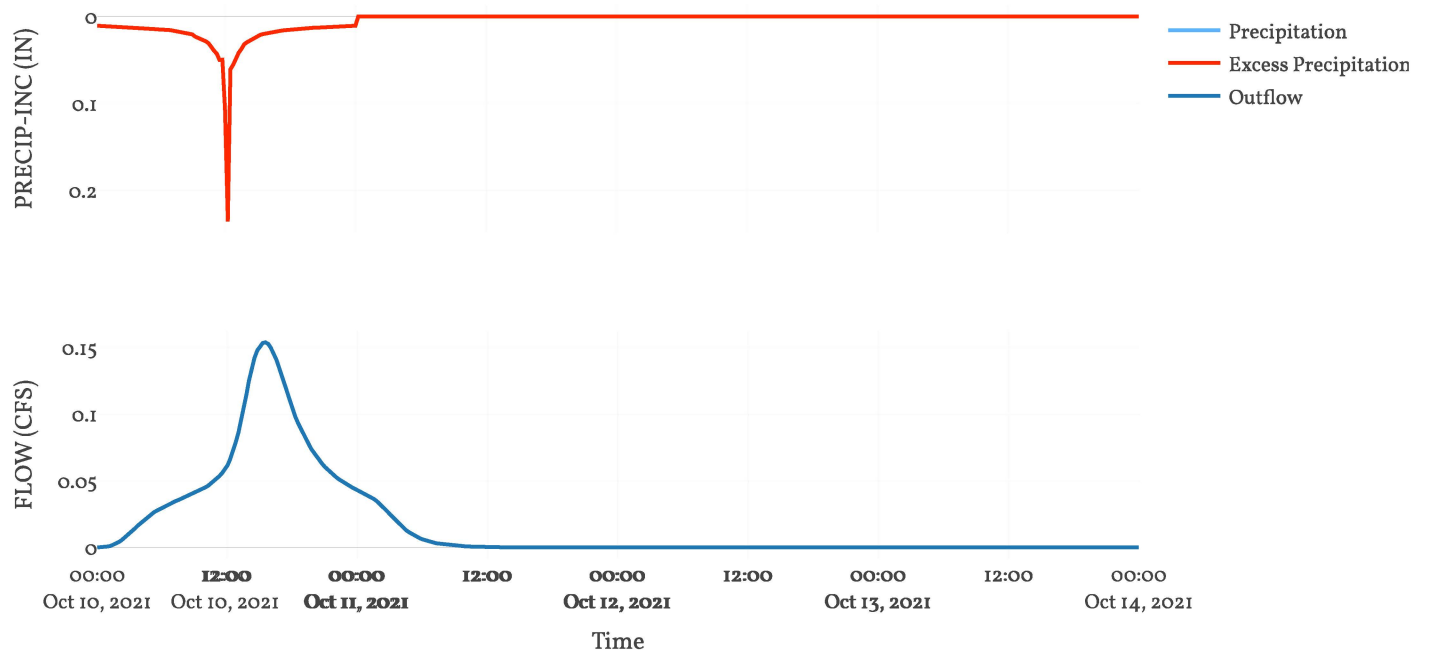
Area : 0  
Downstream : Junct - 3

Loss Rate: Scs	
Percent Impervious Area	100
Curve Number	89
Initial Abstraction	0

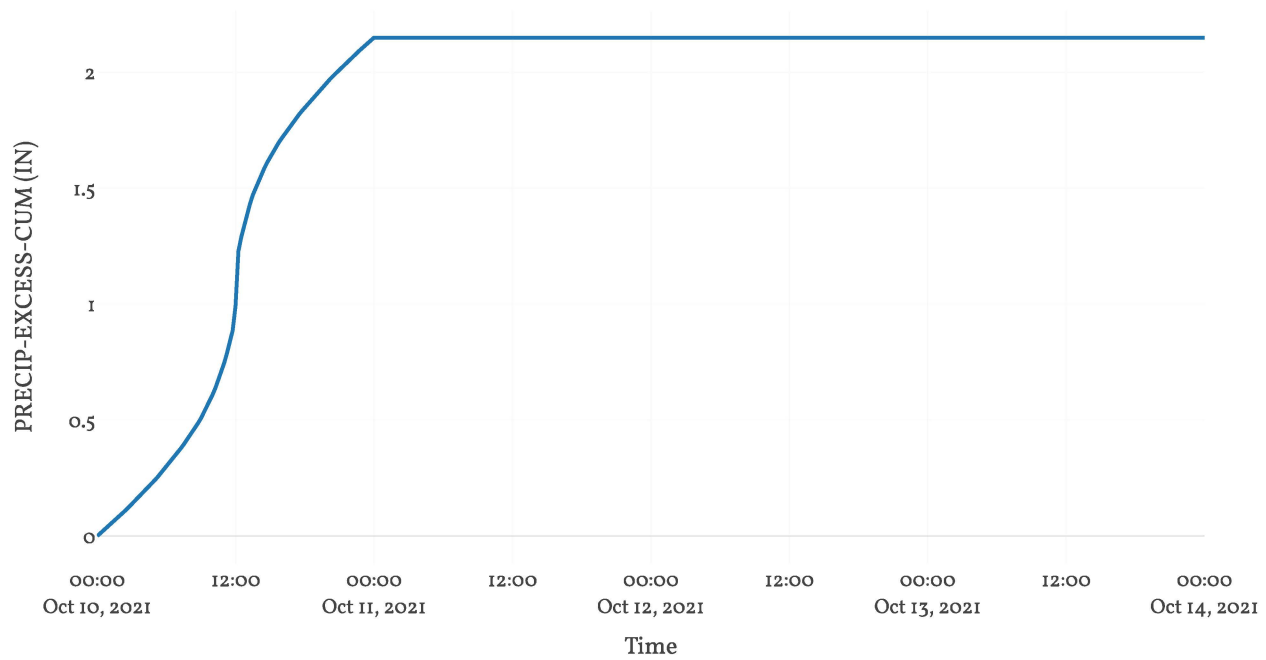
Transform: Scs	
Lag	192.85
Unitgraph Type	Standard

Results: Shed 1-03 Imp	
Peak Discharge (CFS)	0.15
Time of Peak Discharge	10Oct2021, 15:30
Volume (IN)	2.15
Precipitation Volume (AC - FT)	0.13
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.13
Direct Runoff Volume (AC - FT)	0.13
Baseflow Volume (AC - FT)	0

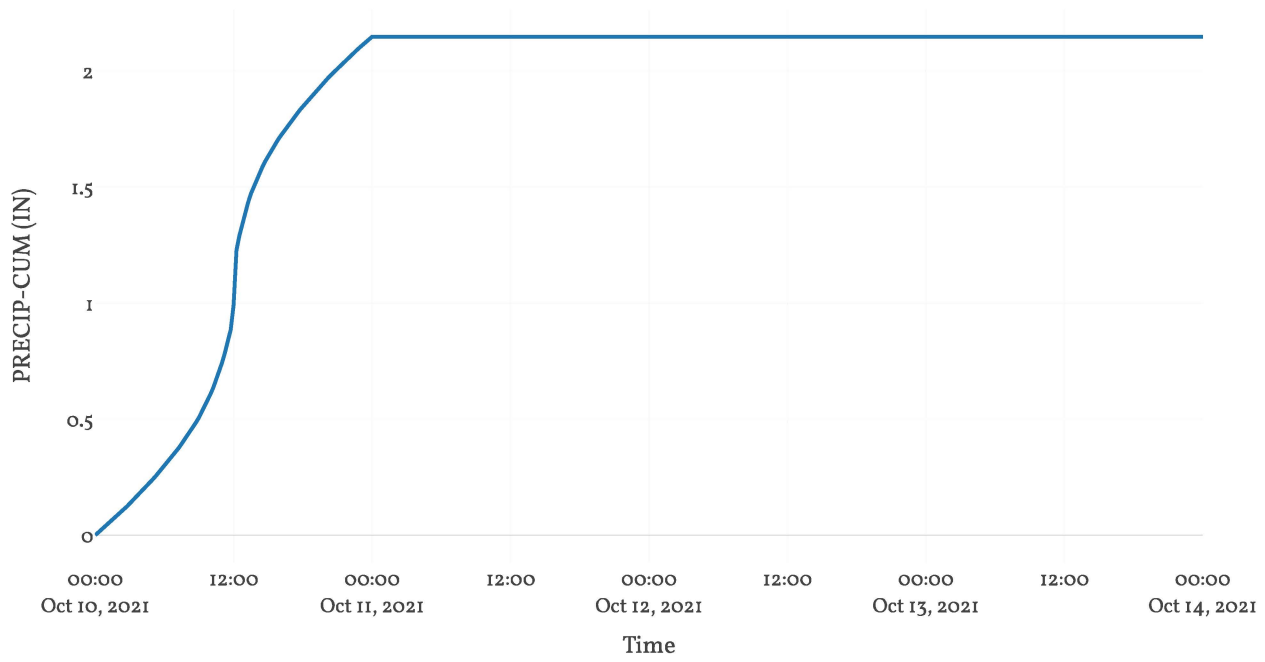
## Precipitation and Outflow



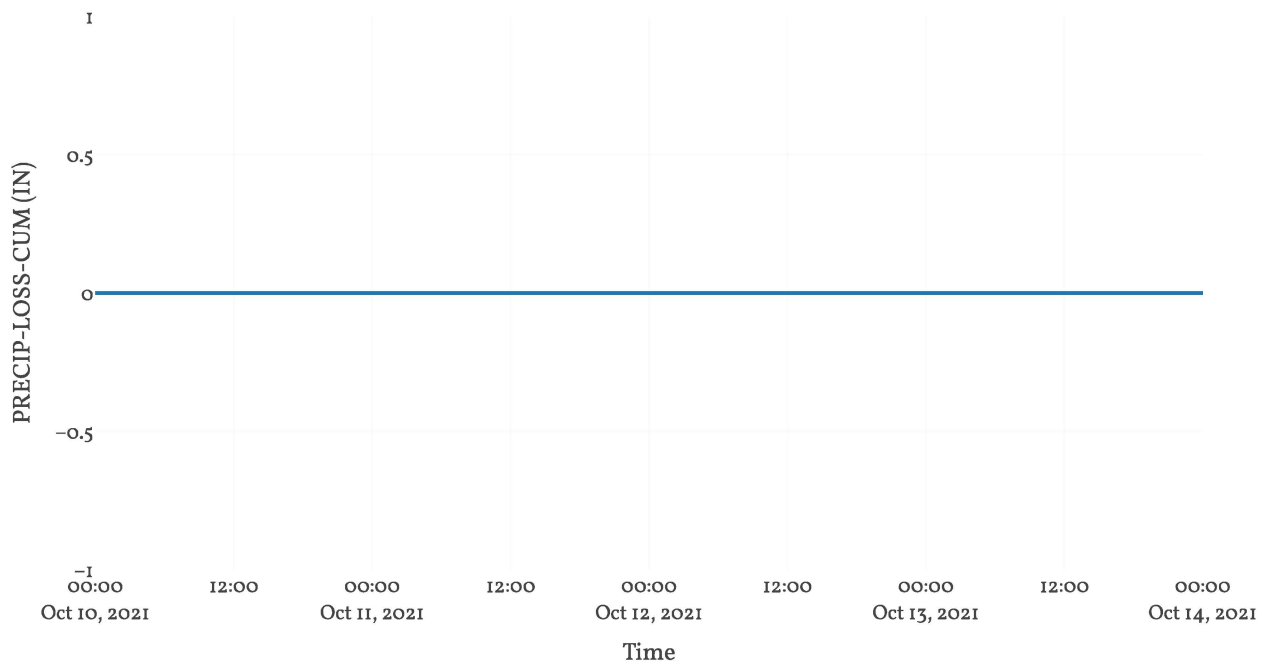
## Cumulative Excess Precipitation



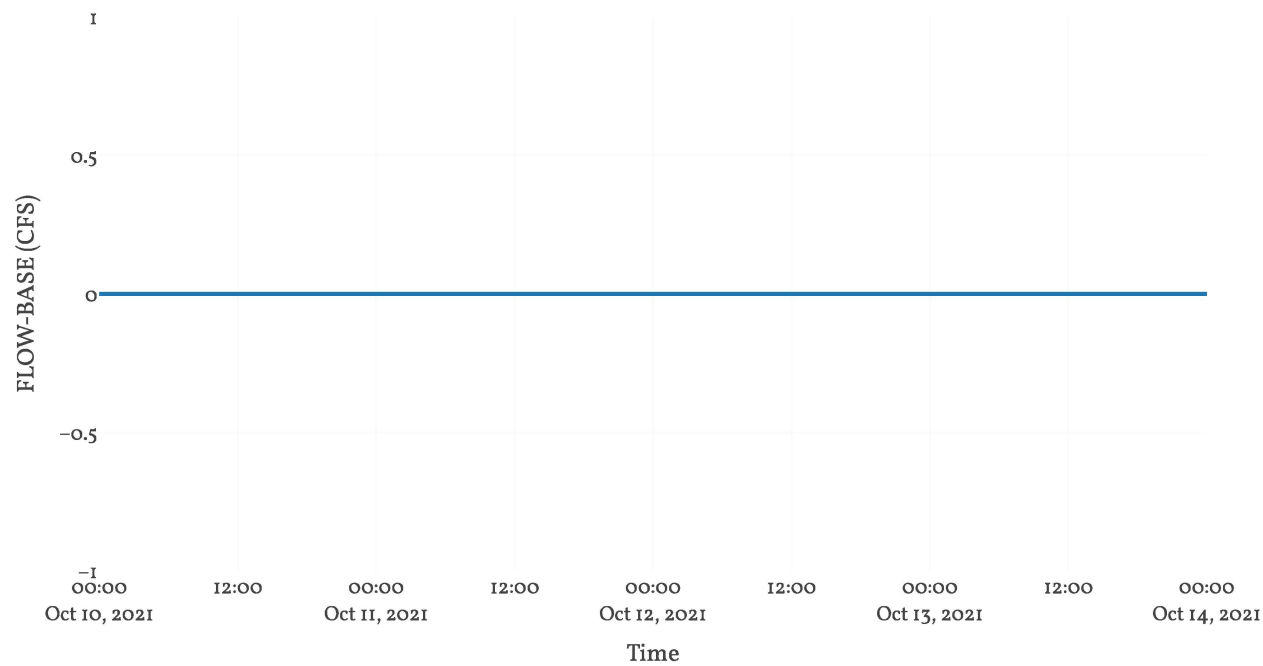
Cumulative Precipitation



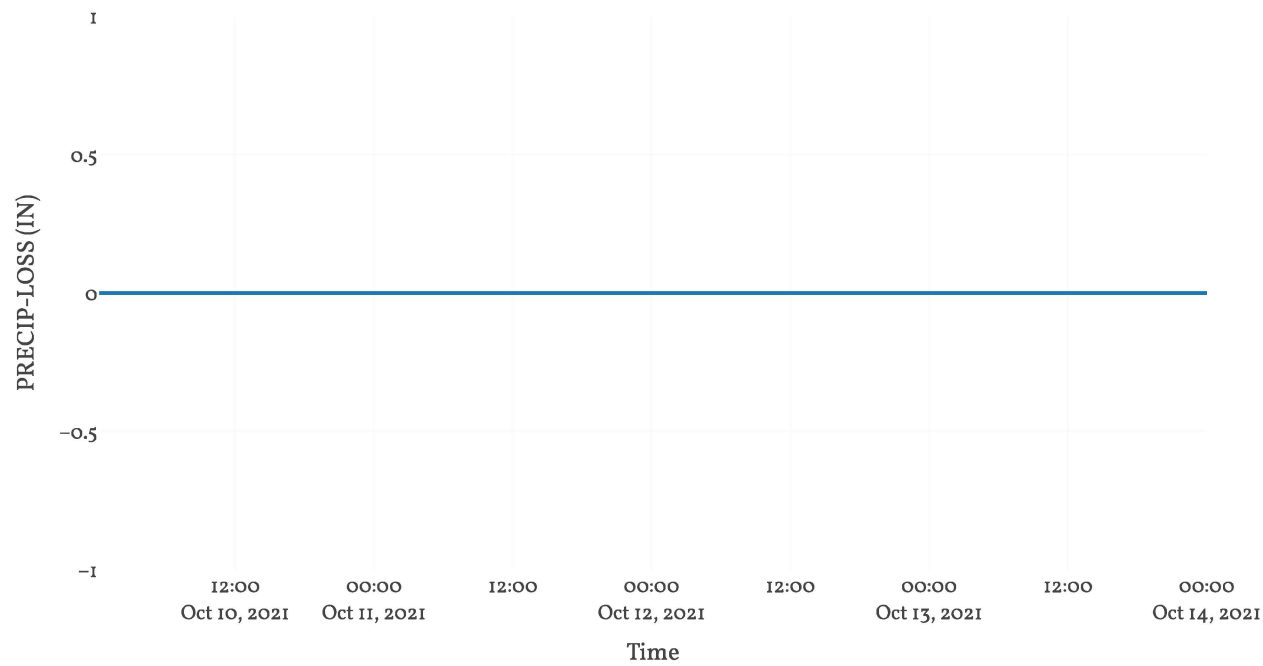
Cumulative Precipitation Loss



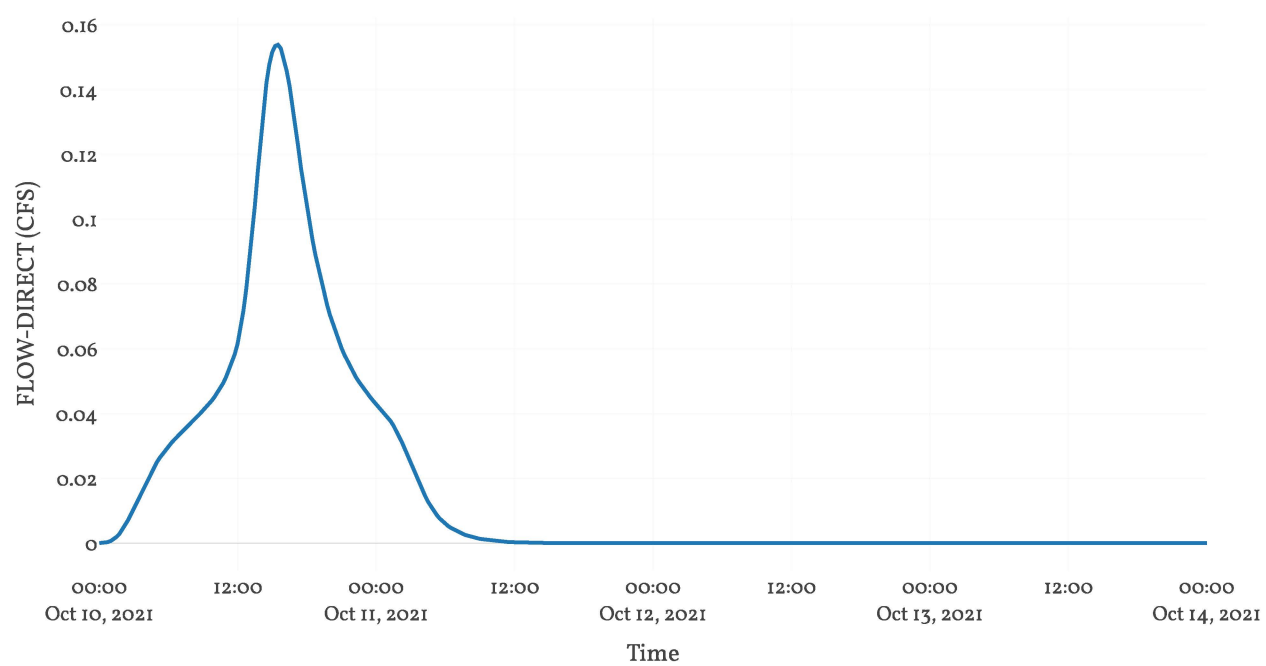
Baseflow



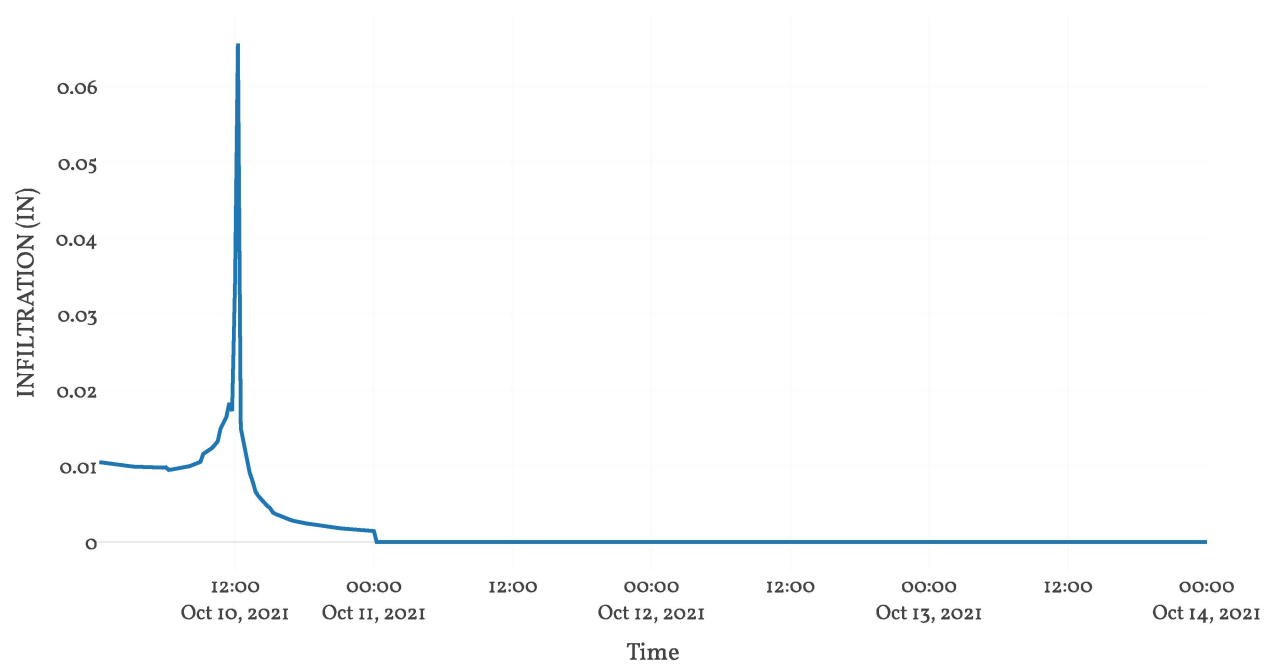
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1-04 Perv

Area : 0.11

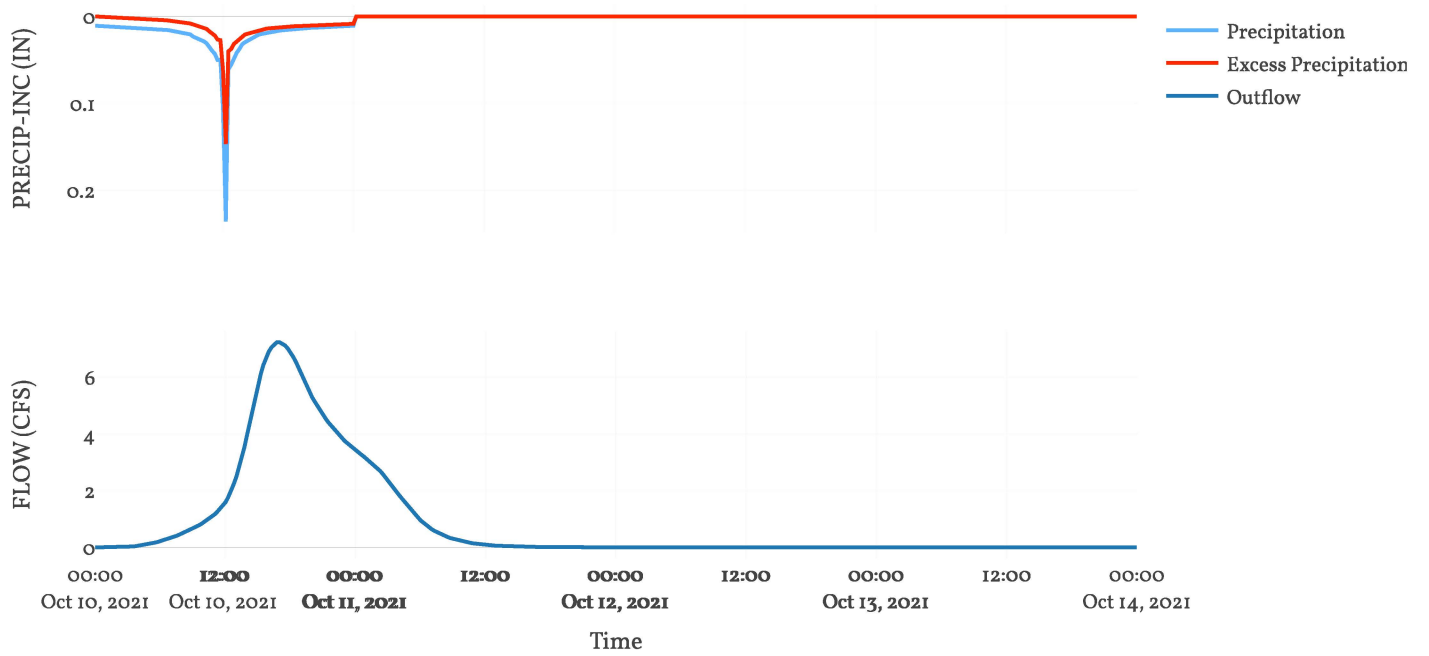
Downstream : Junct - 4

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

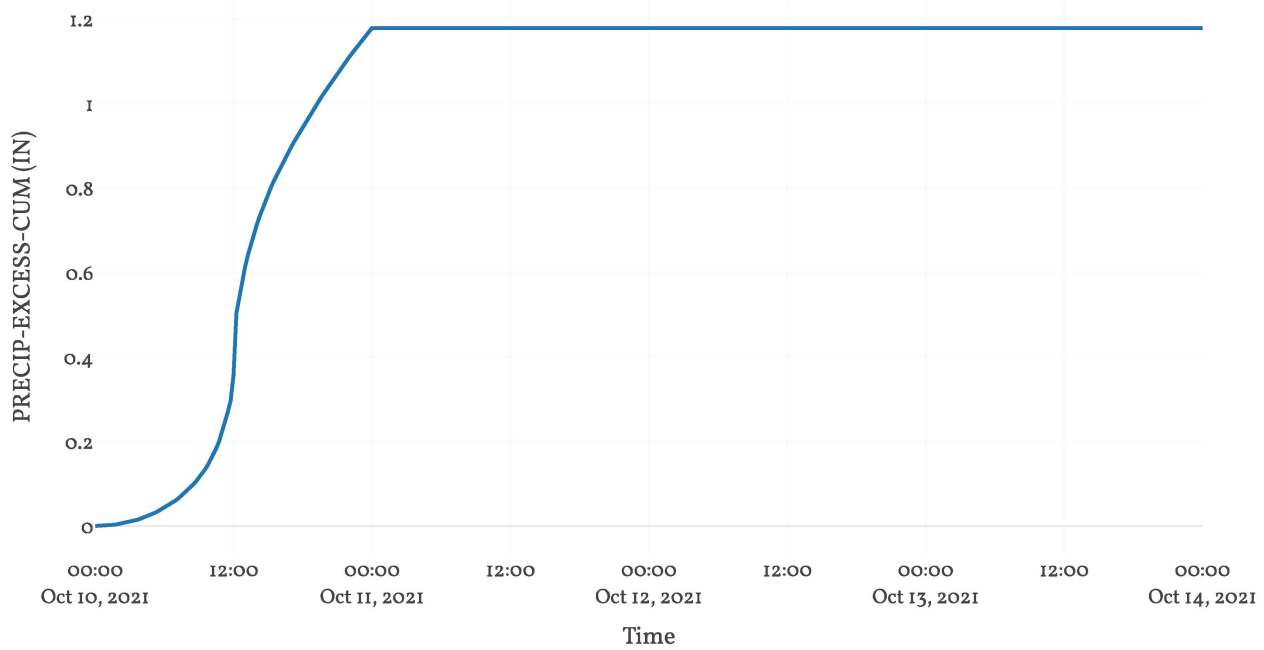
Transform: Scs	
Lag	253.4
Unitgraph Type	Standard

Results: Shed 1-04 Perv	
Peak Discharge (CFS)	7.23
Time of Peak Discharge	10Oct2021, 17:00
Volume (IN)	1.18
Precipitation Volume (AC - FT)	12.14
Loss Volume (AC - FT)	5.48
Excess Volume (AC - FT)	6.67
Direct Runoff Volume (AC - FT)	6.67
Baseflow Volume (AC - FT)	0

## Precipitation and Outflow

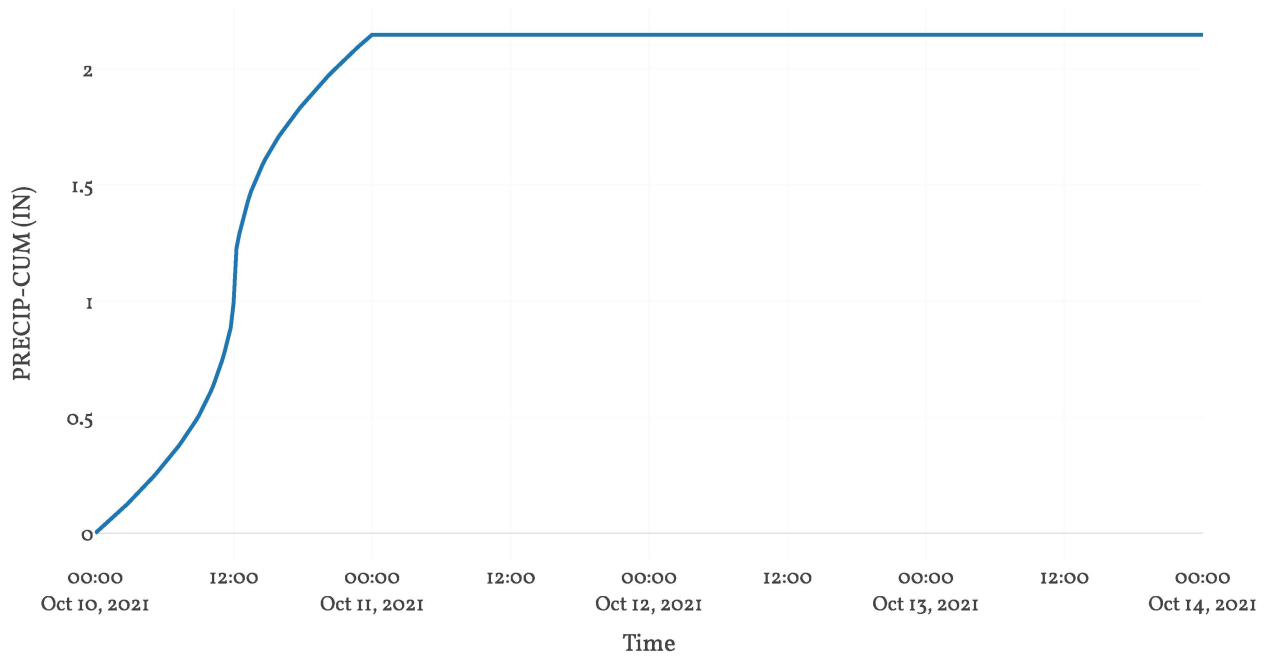


## Cumulative Excess Precipitation

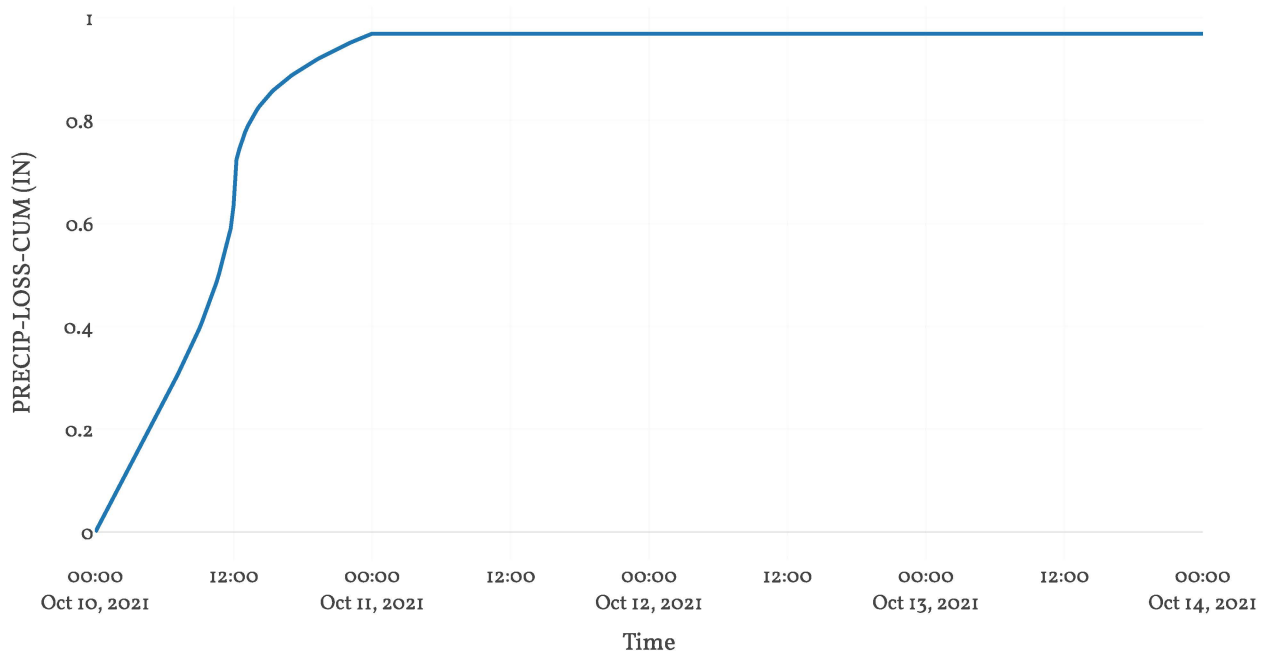




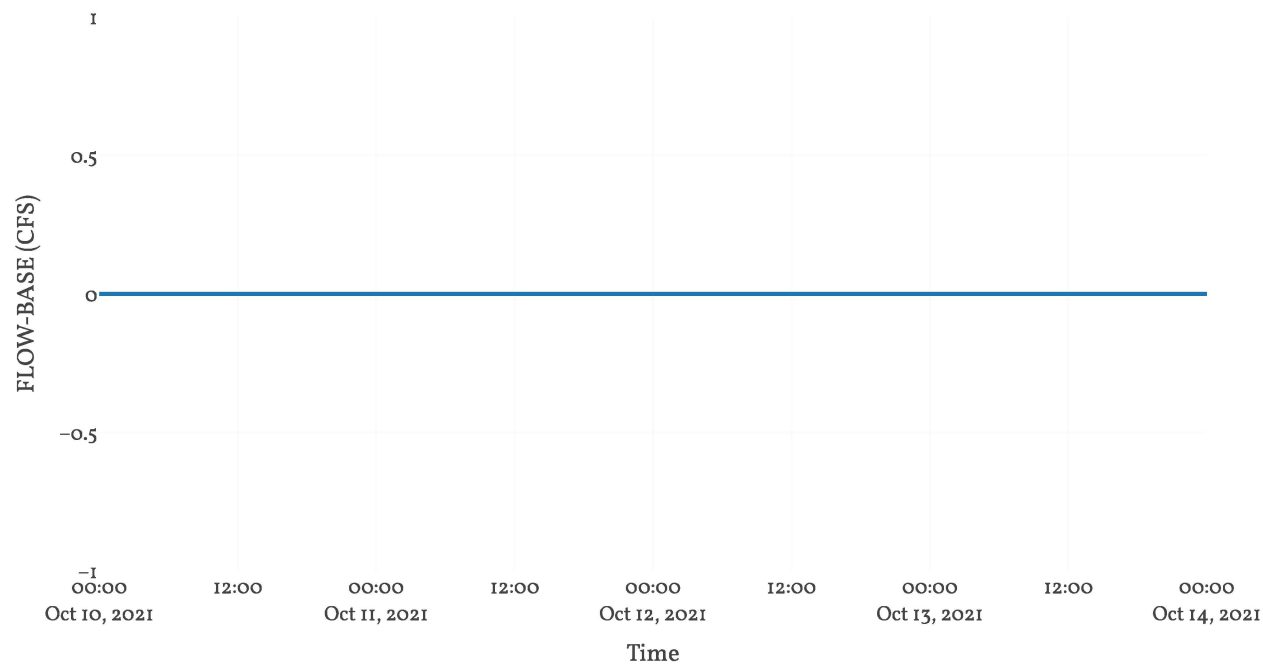
Cumulative Precipitation



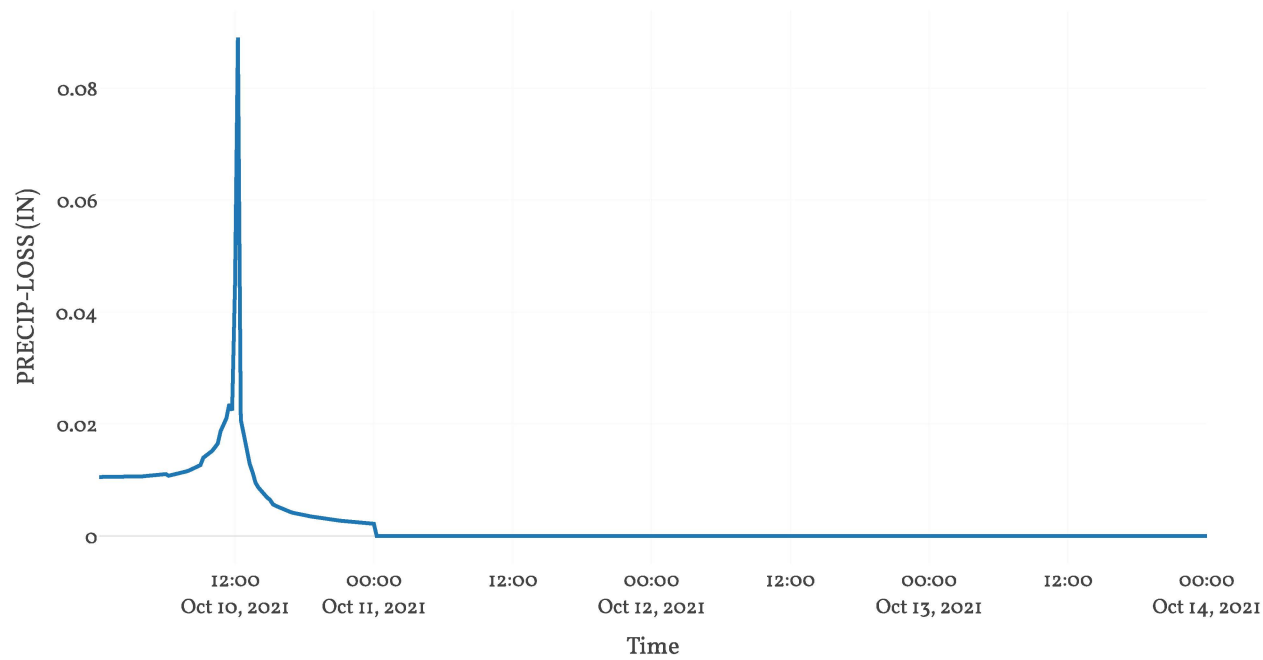
Cumulative Precipitation Loss



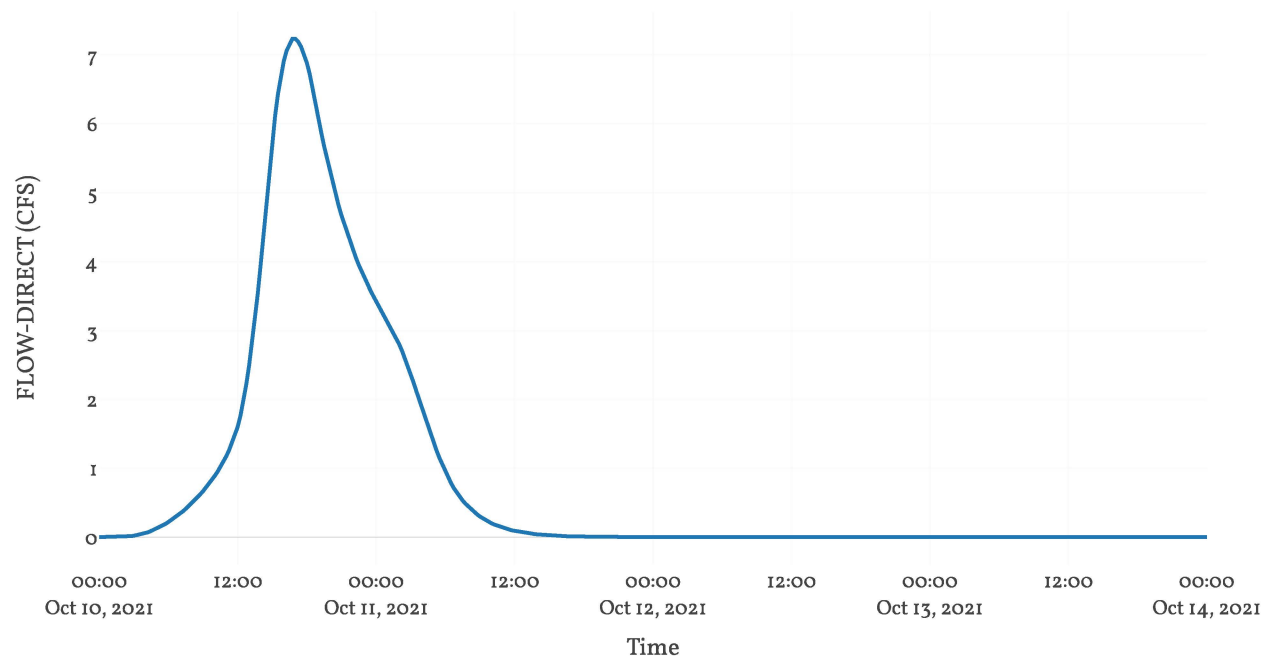
Baseflow



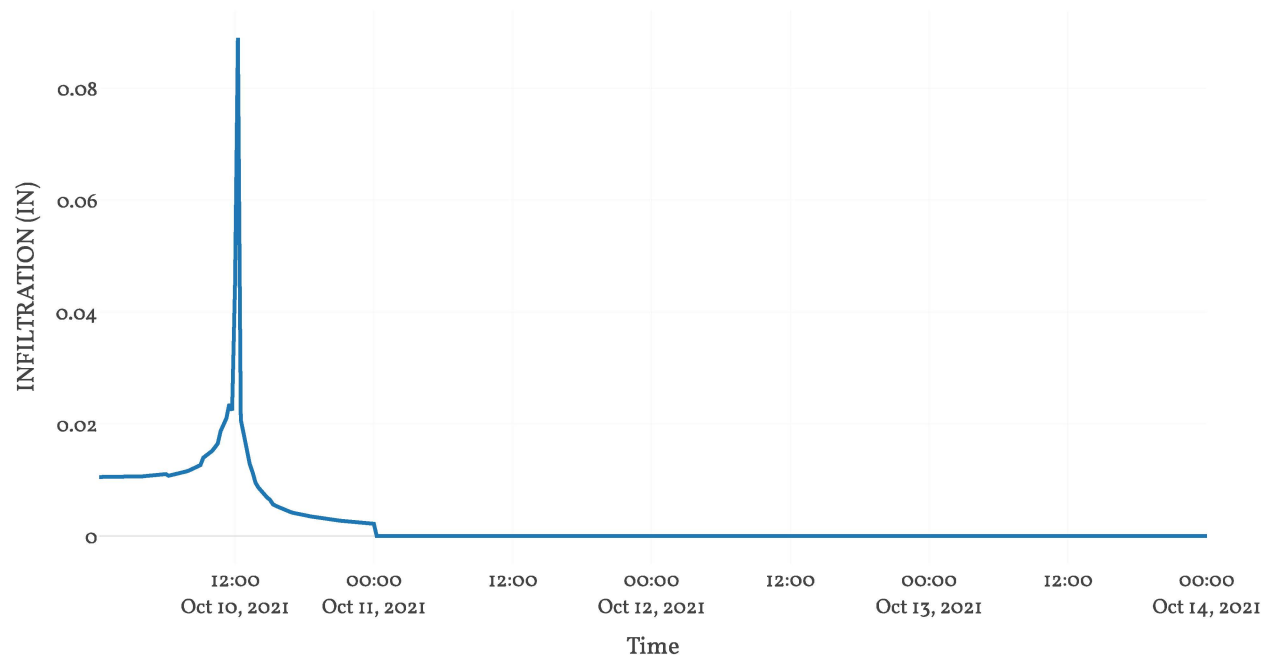
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed1-04 Imp

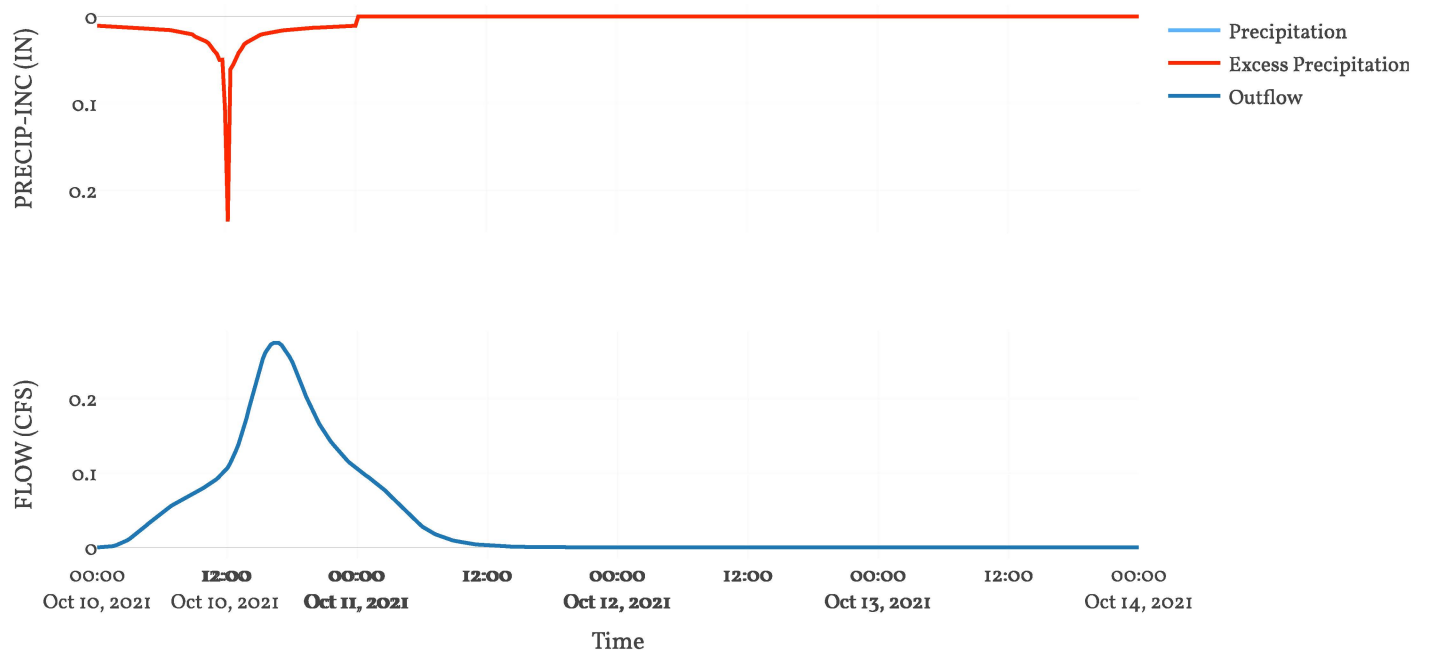
Area : 0  
Downstream : Junct - 4

Loss Rate: Scs	
Percent Impervious Area	100
Curve Number	89
Initial Abstraction	0

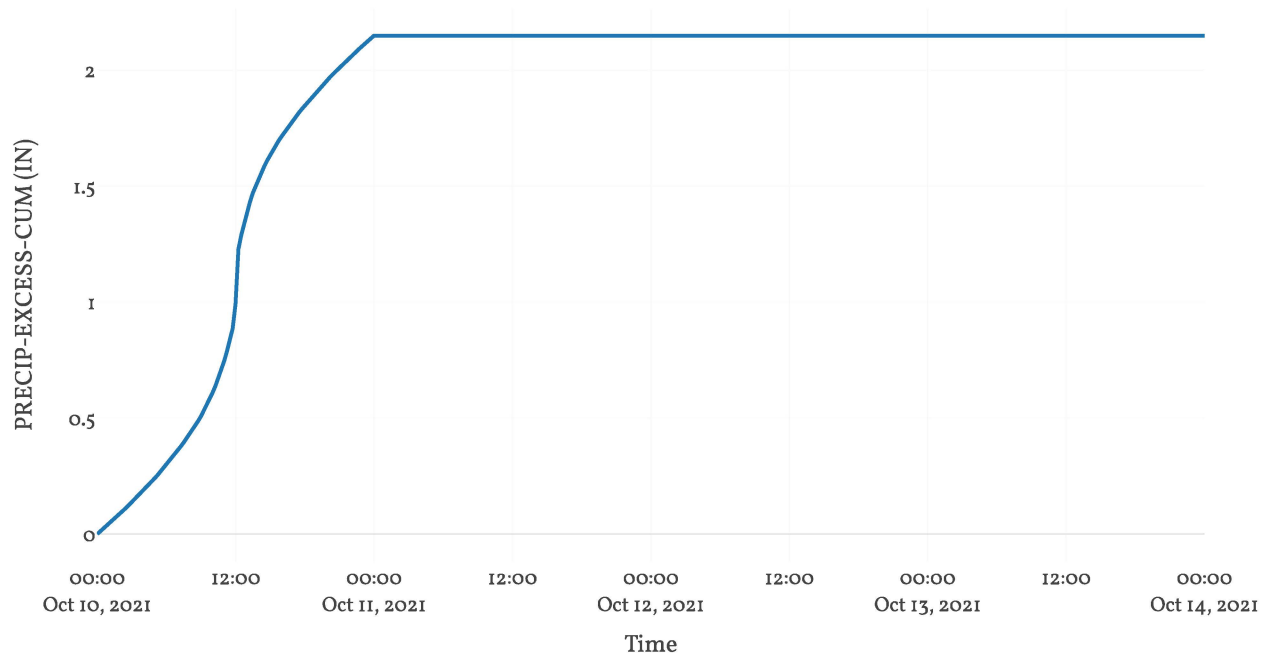
Transform: Scs	
Lag	253.4
Unitgraph Type	Standard

Results: Shed1-04 Imp	
Peak Discharge (CFS)	0.28
Time of Peak Discharge	10Oct2021, 16:30
Volume (IN)	2.15
Precipitation Volume (AC - FT)	0.27
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.27
Direct Runoff Volume (AC - FT)	0.27
Baseflow Volume (AC - FT)	0

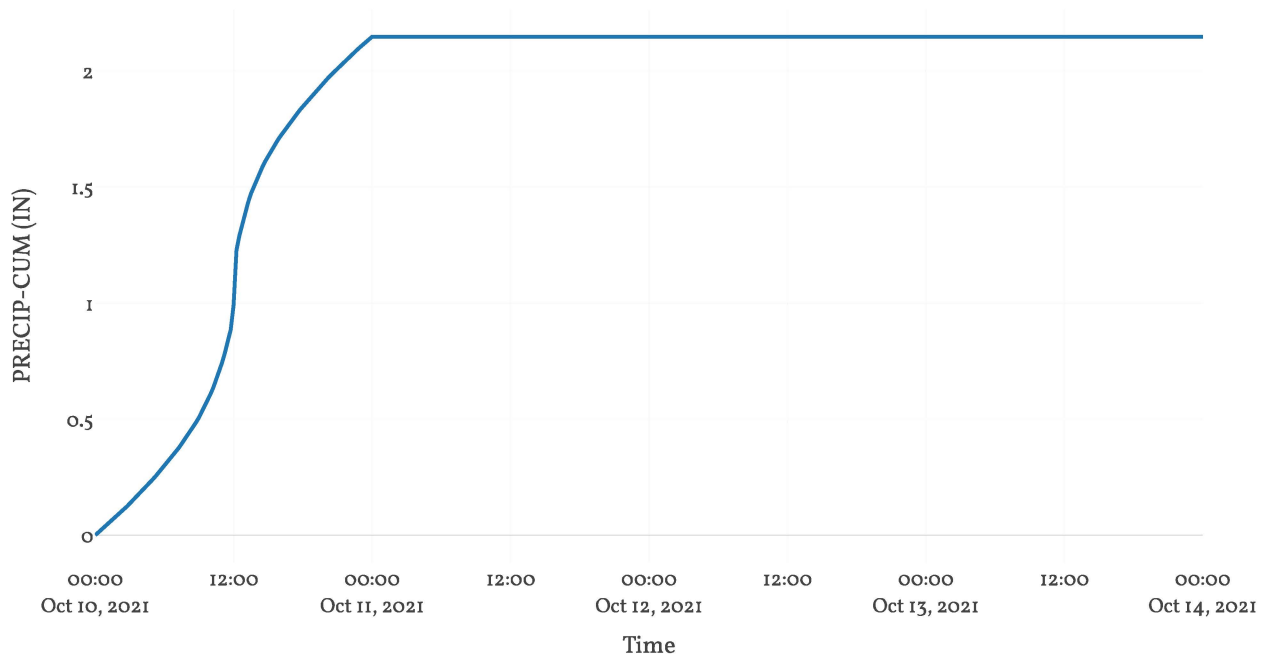
## Precipitation and Outflow



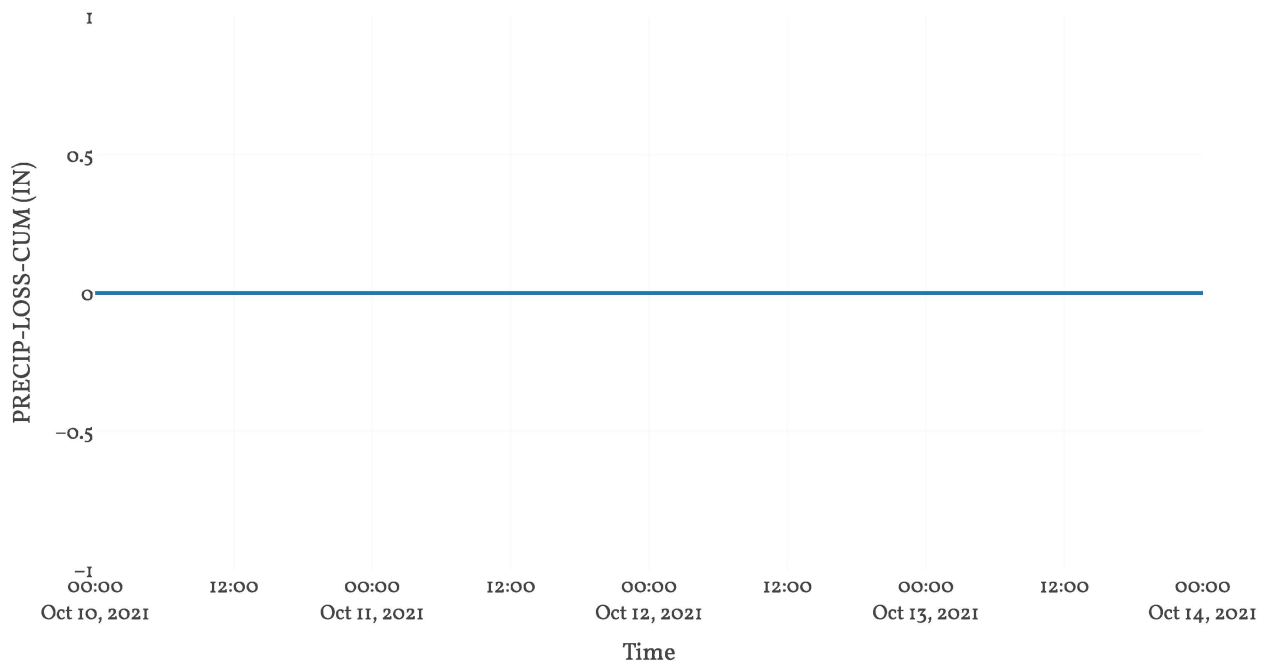
## Cumulative Excess Precipitation



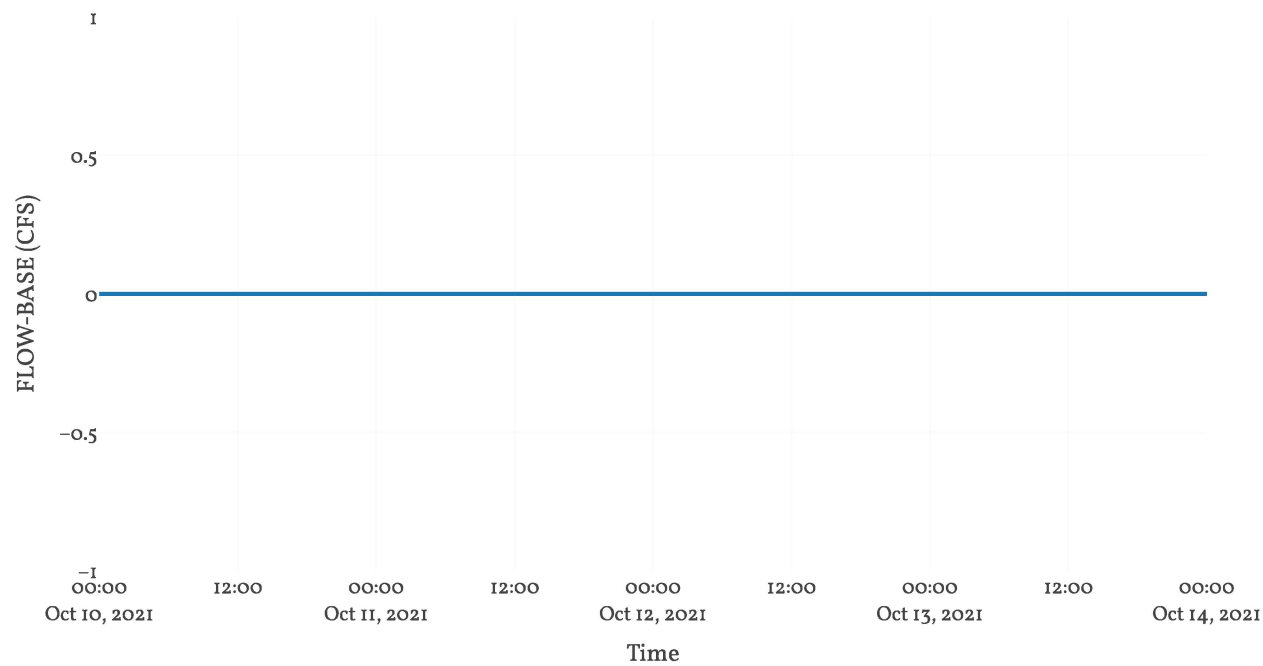
Cumulative Precipitation



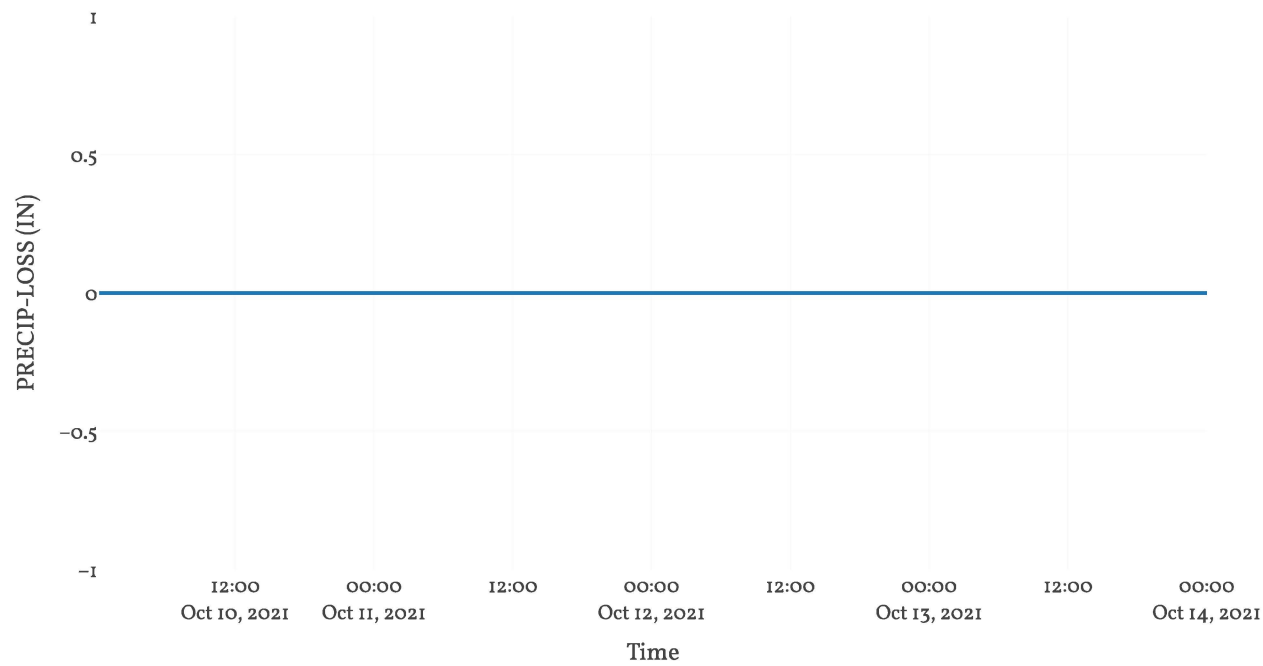
Cumulative Precipitation Loss



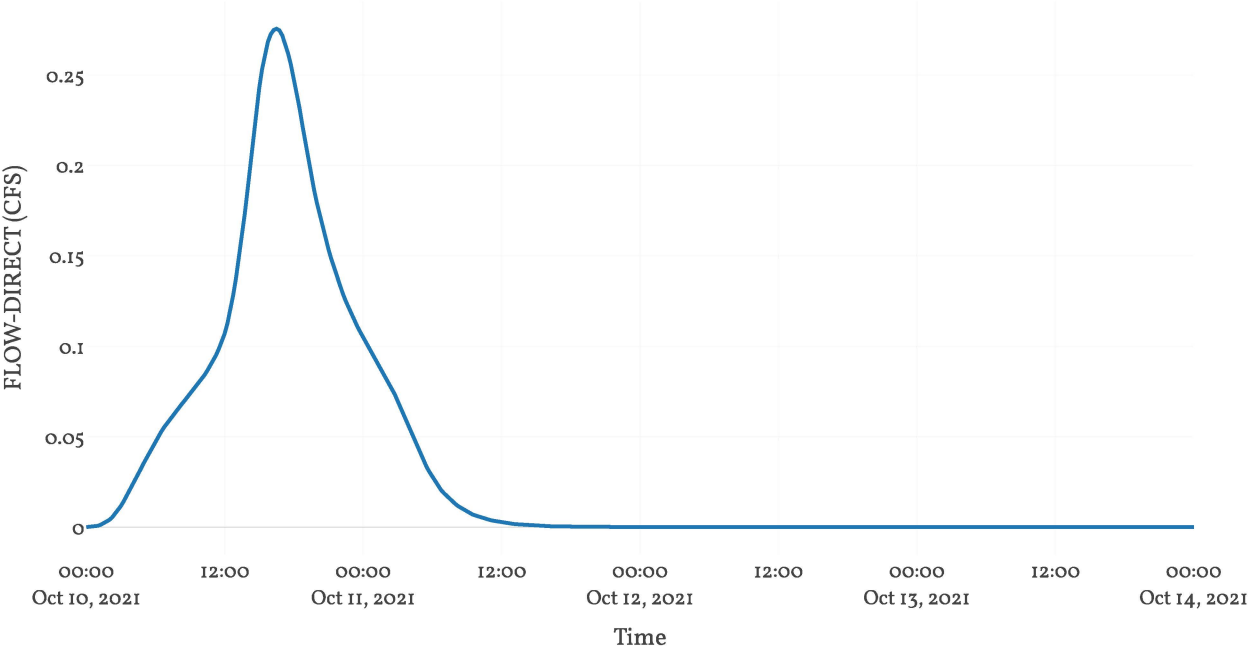
Baseflow



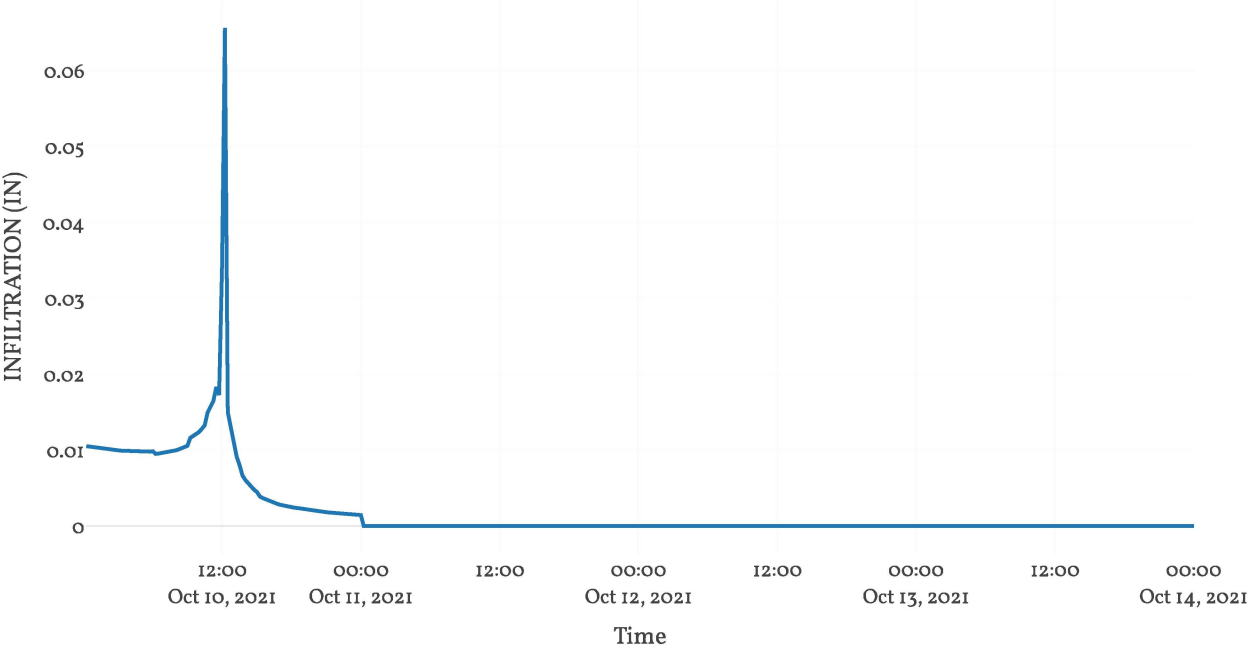
Precipitation Loss



Direct Runoff



Soil Infiltration



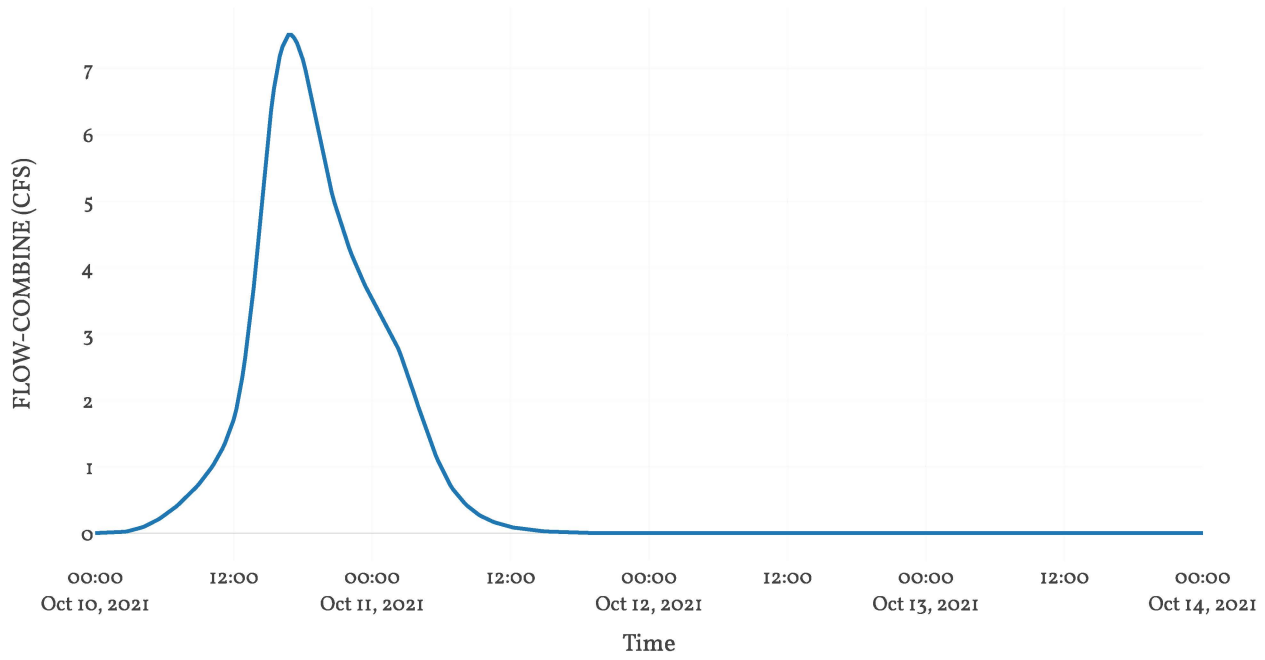


# Junction: Junct-4

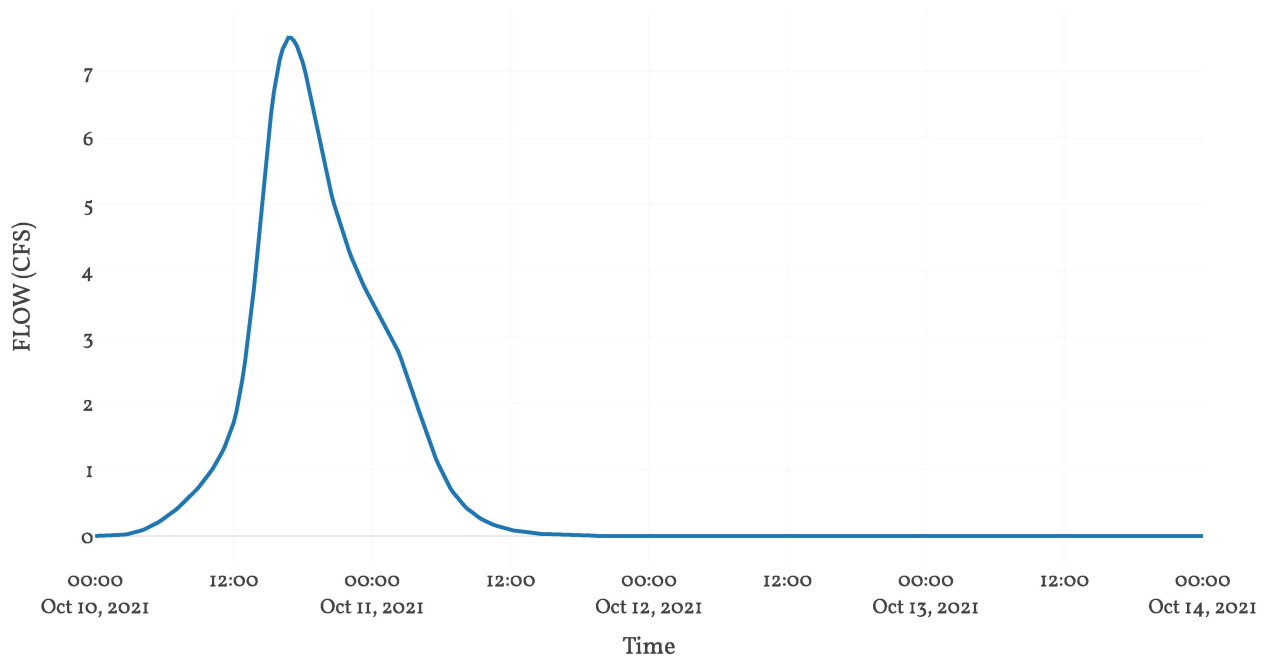
Downstream : Post Total

Results: Junct-4	
Peak Discharge (CFS)	7.51
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	1.2

Combined Inflow



Outflow

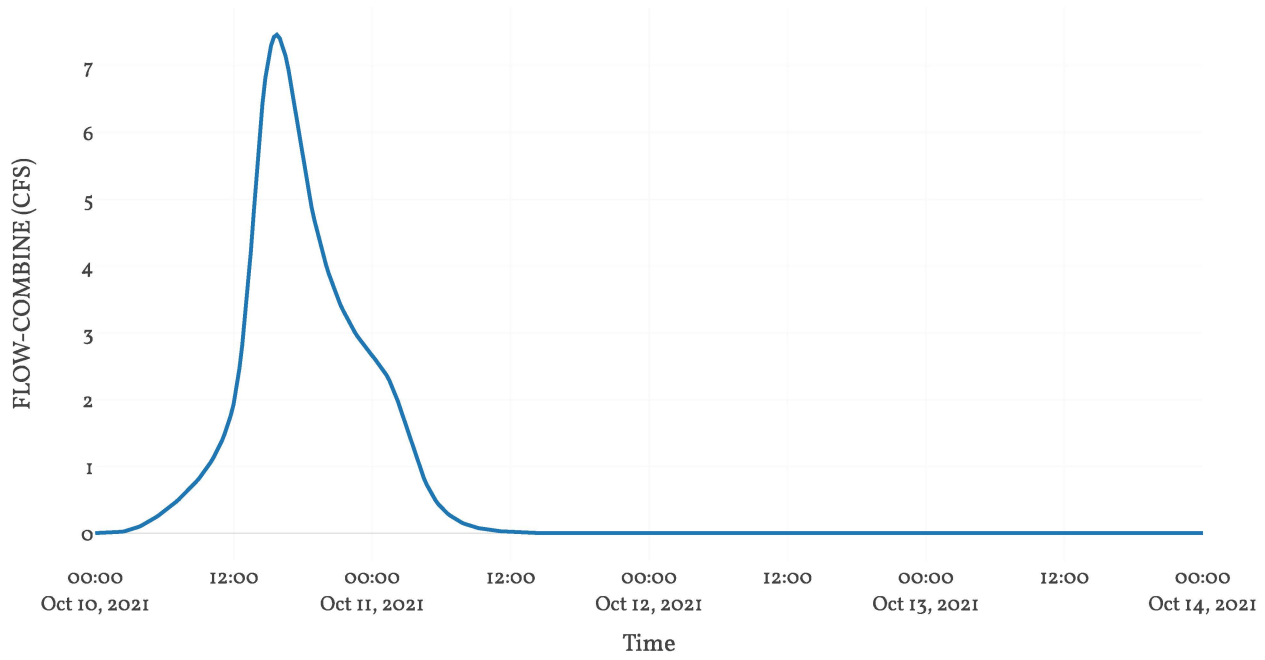


# Junction: Junct-3

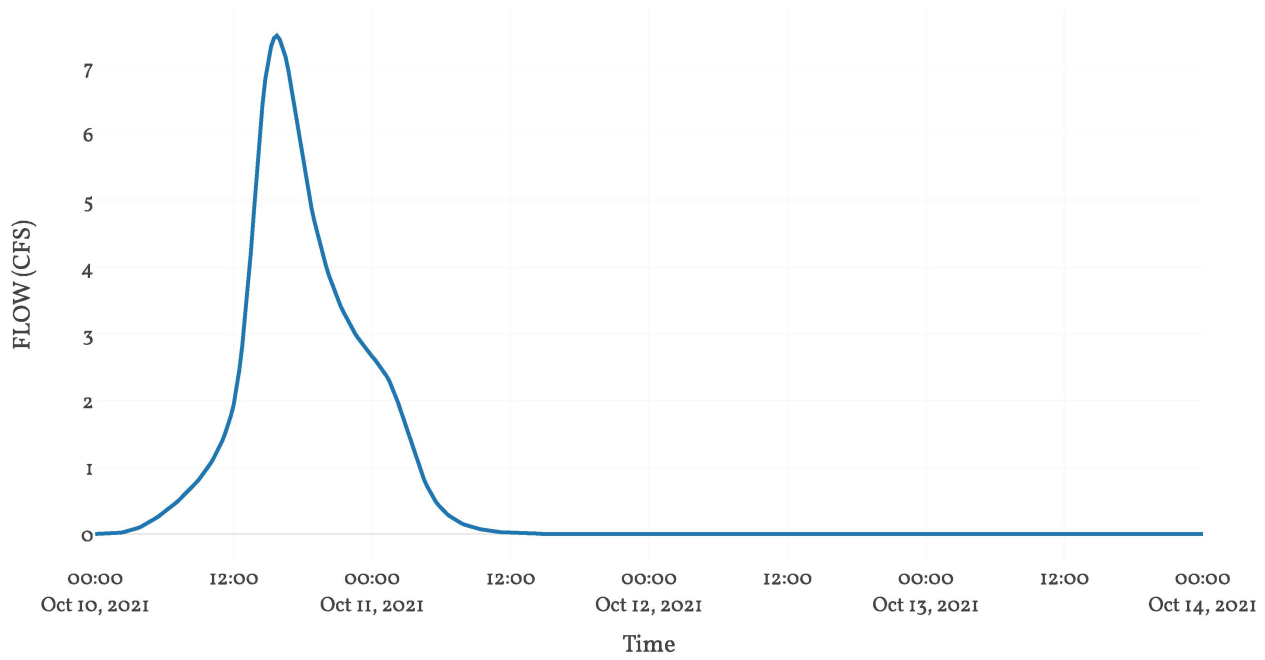
Downstream : Post Total

Results: Junct-3	
Peak Discharge (CFS)	7.47
Time of Peak Discharge	10Oct2021, 15:45
Volume (IN)	1.19

Combined Inflow



Outflow

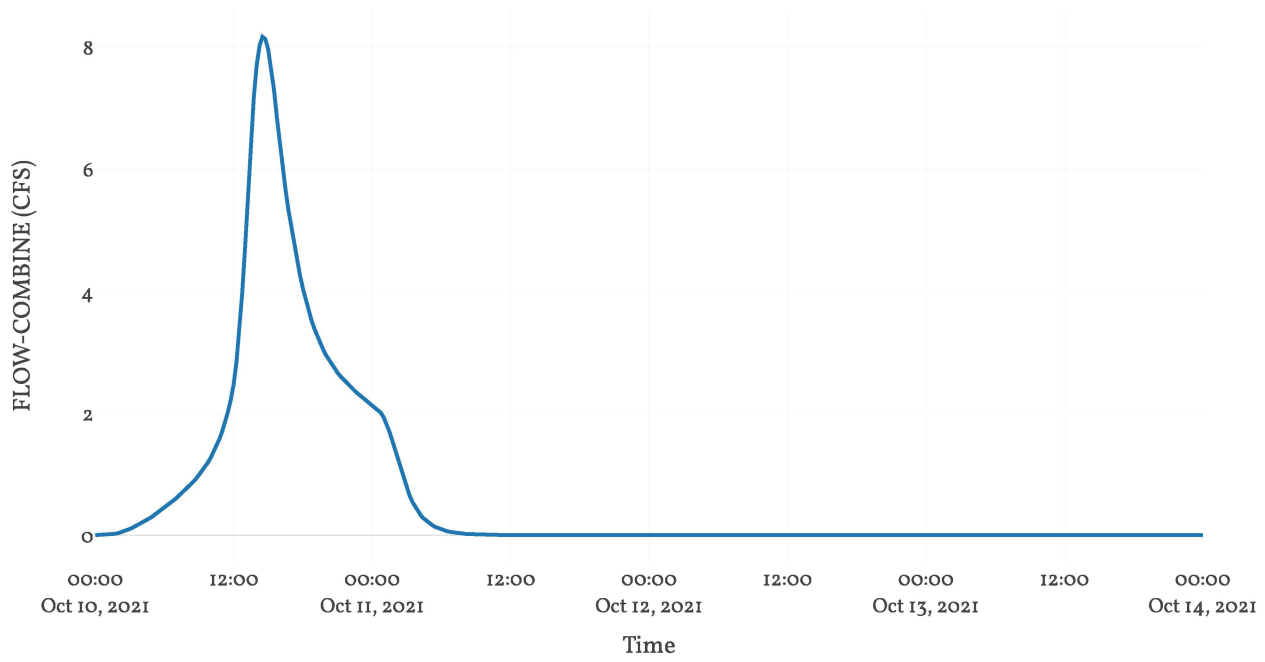


# Junction: Junct-2

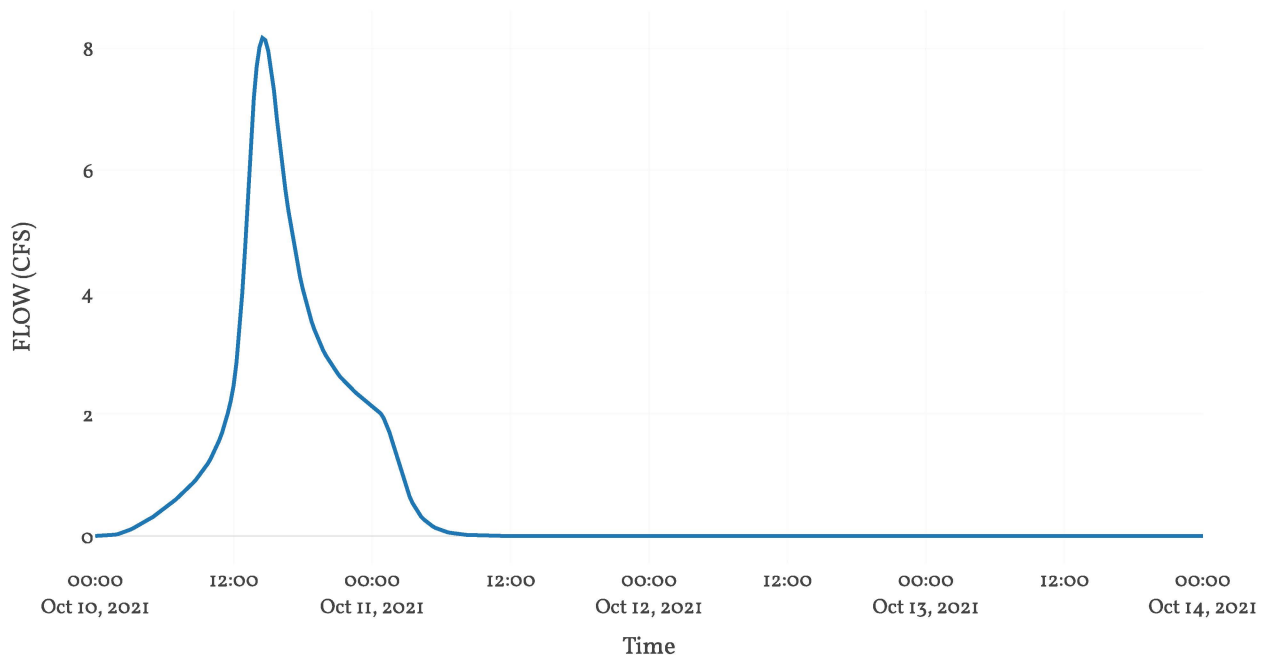
Downstream : Post Total

Results: Junct-2	
Peak Discharge (CFS)	8.17
Time of Peak Discharge	10Oct2021, 14:30
Volume (IN)	1.2

Combined Inflow



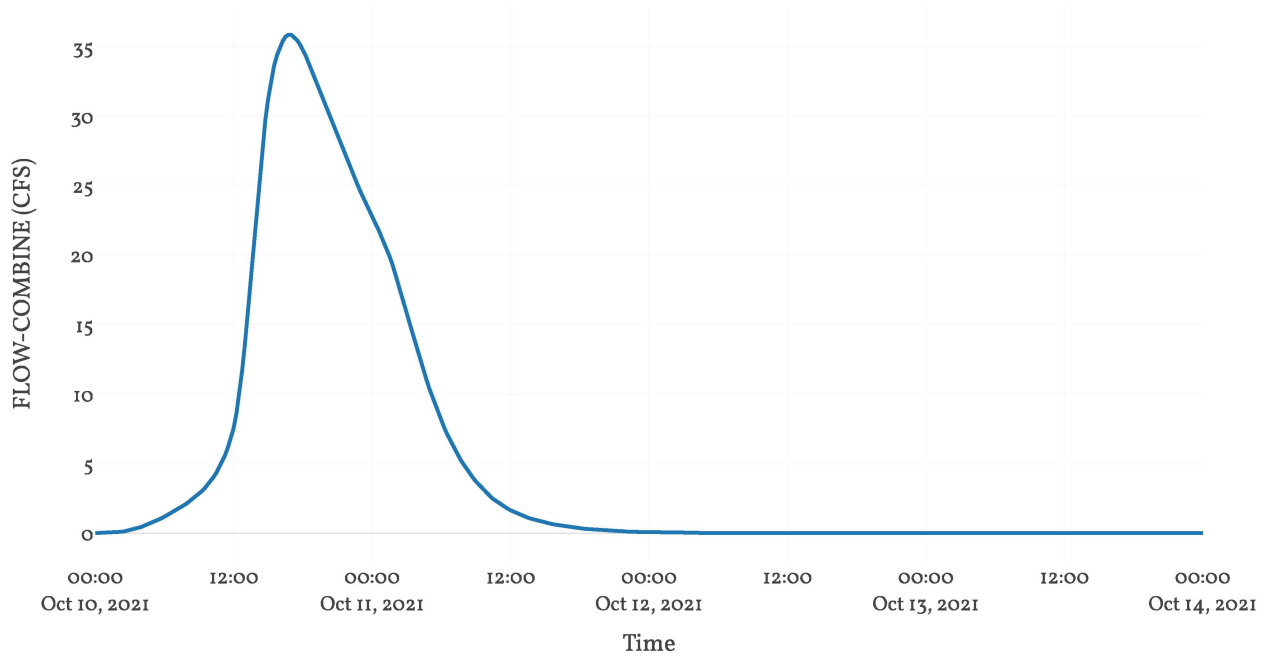
Outflow



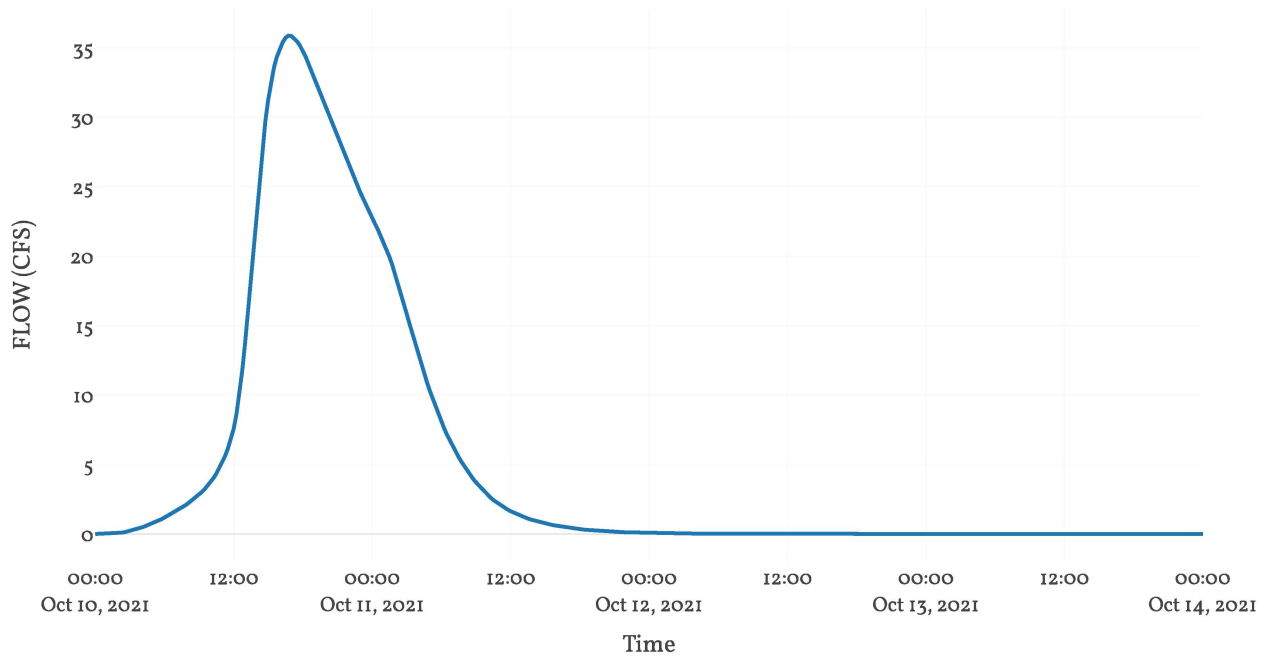
# Junction: Post Total

Results: Post Total	
Peak Discharge (CFS)	35.86
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	1.04

Combined Inflow



Outflow







**A.2-5 MAIN FACILITY AREA – POST-DEVELOPMENT 10YEAR 24HOUR**

**Project:** Oveja\_Ranch\_Post\_Development  
**Simulation Run:** 10 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 09 December 2024, 11:06

Global Parameter Summary - Subbasin

Area	
Element Name	Area
Shed I - 01 Perv	0.12
ShedI - 01 Imp	0
Shed I - 05 Perv	0.3
Shed I - 05 Imp	0.01
Shed I - 02 Perv	0.08
Shed I - 02 Imp	0
Shed I - 03 Perv	0.09
Shed I - 03 Imp	0
Shed I - 04 Perv	0.11
ShedI - 04 Imp	0
Downstream	
Element Name	Downstream
Shed I - 01 Perv	Junct 1
ShedI - 01 Imp	Junct 1
Shed I - 05 Perv	Junct - 5
Shed I - 05 Imp	Junct - 5
Shed I - 02 Perv	Junct - 2
Shed I - 02 Imp	Junct - 2
Shed I - 03 Perv	Junct - 3
Shed I - 03 Imp	Junct - 3
Shed I - 04 Perv	Junct - 4
ShedI - 04 Imp	Junct - 4

### Loss Rate: Scs

Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
Shed I - 01 Perv	0	85	Not Specified
ShedI - 01 Imp	100	93.94	Not Specified
Shed I - 05 Perv	0	85	Not Specified
Shed I - 05 Imp	100	89	Not Specified
Shed I - 02 Perv	0	85	0
Shed I - 02 Imp	100	89	0
Shed I - 03 Perv	0	85	0
Shed I - 03 Imp	100	89	0
Shed I - 04 Perv	0	85	0
ShedI - 04 Imp	100	89	0

### Transform: Scs

Element Name	Lag	Unitgraph Type
Shed I - 01 Perv	233.88	Standard
ShedI - 01 Imp	233.88	Standard
Shed I - 05 Perv	396.32	Standard
Shed I - 05 Imp	396.32	Standard
Shed I - 02 Perv	133.24	Standard
Shed I - 02 Imp	133.24	Standard
Shed I - 03 Perv	192.84	Standard
Shed I - 03 Imp	192.85	Standard
Shed I - 04 Perv	253.4	Standard
ShedI - 04 Imp	253.4	Standard

## Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Shed I - 01 Perv	0.12	13.14	10Oct2021, 16:30	1.83
ShedI - 01 Imp	0	0.61	10Oct2021, 16:15	3.29
Shed I - 05 Perv	0.3	24.48	10Oct2021, 20:00	1.83
Shed I - 05 Imp	0.01	0.94	10Oct2021, 19:00	3.29
Junct - 5	0.3	25.4	10Oct2021, 20:00	1.87
Junct I	0.12	13.75	10Oct2021, 16:30	1.87
Shed I - 02 Perv	0.08	13.71	10Oct2021, 14:30	2.14
Shed I - 02 Imp	0	0.35	10Oct2021, 14:30	3.29
Shed I - 03 Perv	0.09	12.62	10Oct2021, 15:45	2.14
Shed I - 03 Imp	0	0.22	10Oct2021, 15:30	3.29
Shed I - 04 Perv	0.11	12.54	10Oct2021, 16:45	2.14
ShedI - 04 Imp	0	0.4	10Oct2021, 16:30	3.29
Junct - 4	0.11	12.94	10Oct2021, 16:45	2.16

Junct - 3	0.09	12.84	10Oct2021, 15:45	2.15
Junct - 2	0.08	14.06	10Oct2021, 14:30	2.16
Post Total	0.71	66.5	10Oct2021, 16:45	1.98

# Subbasin: Shed 1 - 01 Perv

Area : 0.12

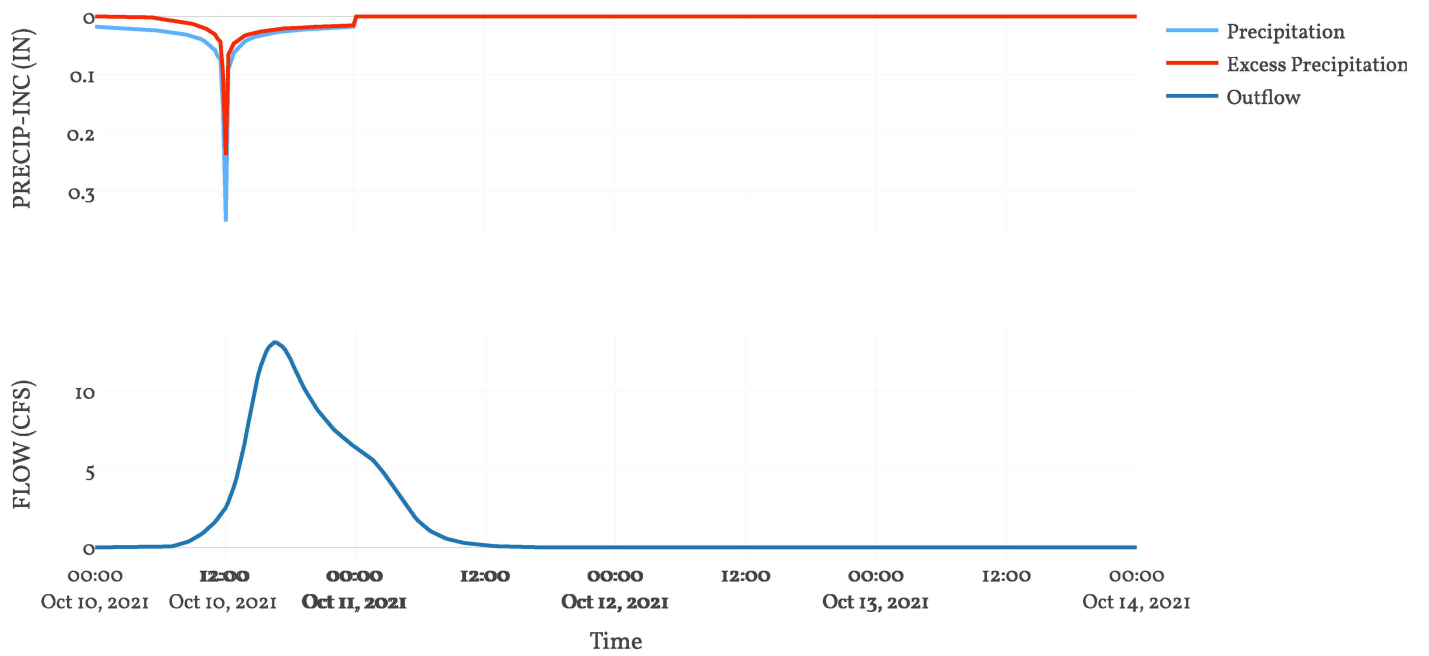
Downstream : Junct 1

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85

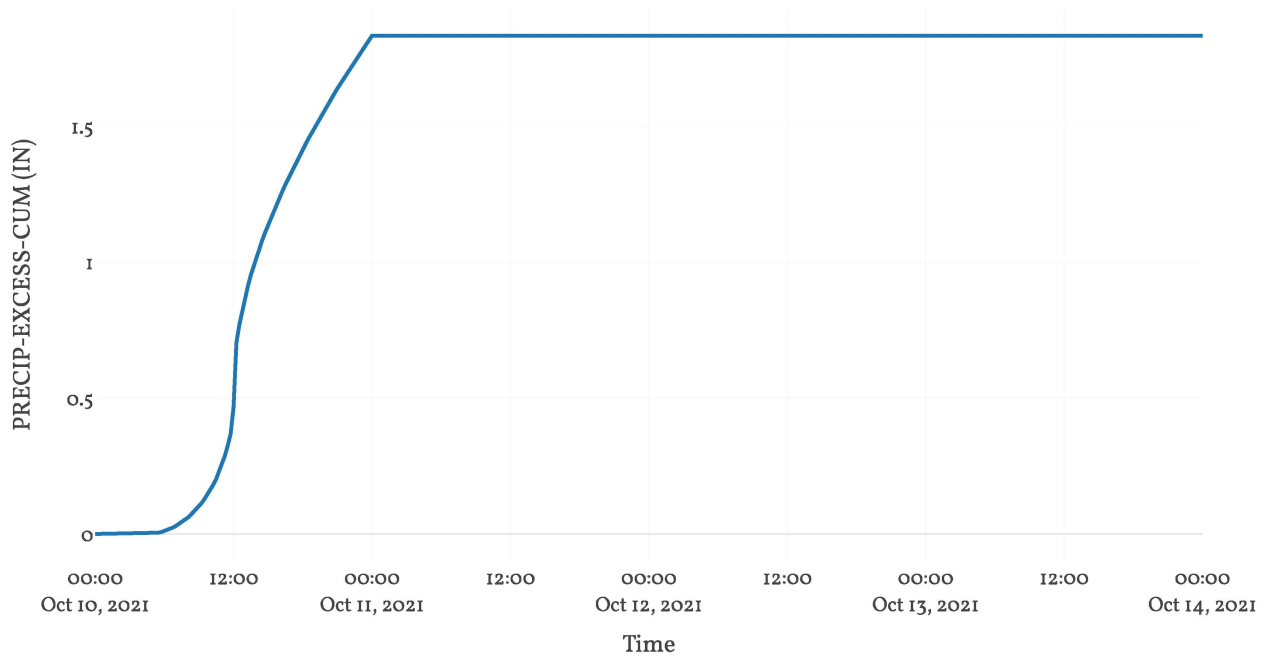
Transform: Scs	
Lag	233.88
Unitgraph Type	Standard

Results: Shed 1 - 01 Perv	
Peak Discharge (CFS)	13.14
Time of Peak Discharge	10Oct2021, 16:30
Volume (IN)	1.83
Precipitation Volume (AC - FT)	20.97
Loss Volume (AC - FT)	9.28
Excess Volume (AC - FT)	11.69
Direct Runoff Volume (AC - FT)	11.69
Baseflow Volume (AC - FT)	0

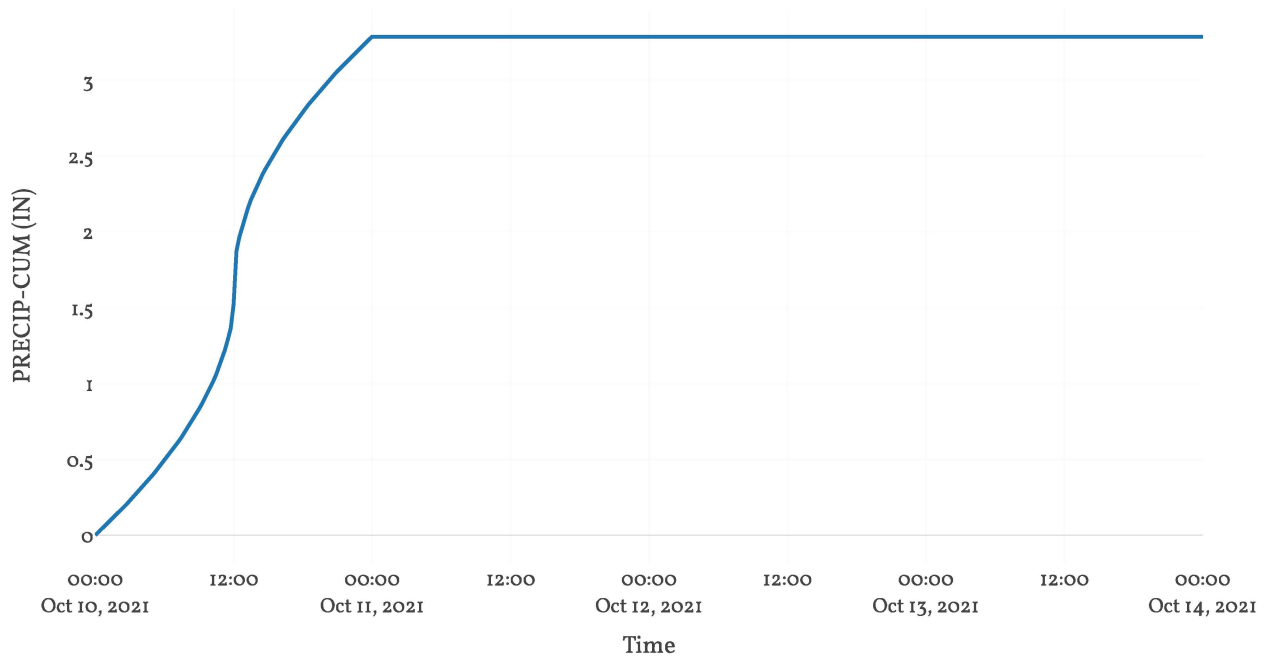
## Precipitation and Outflow



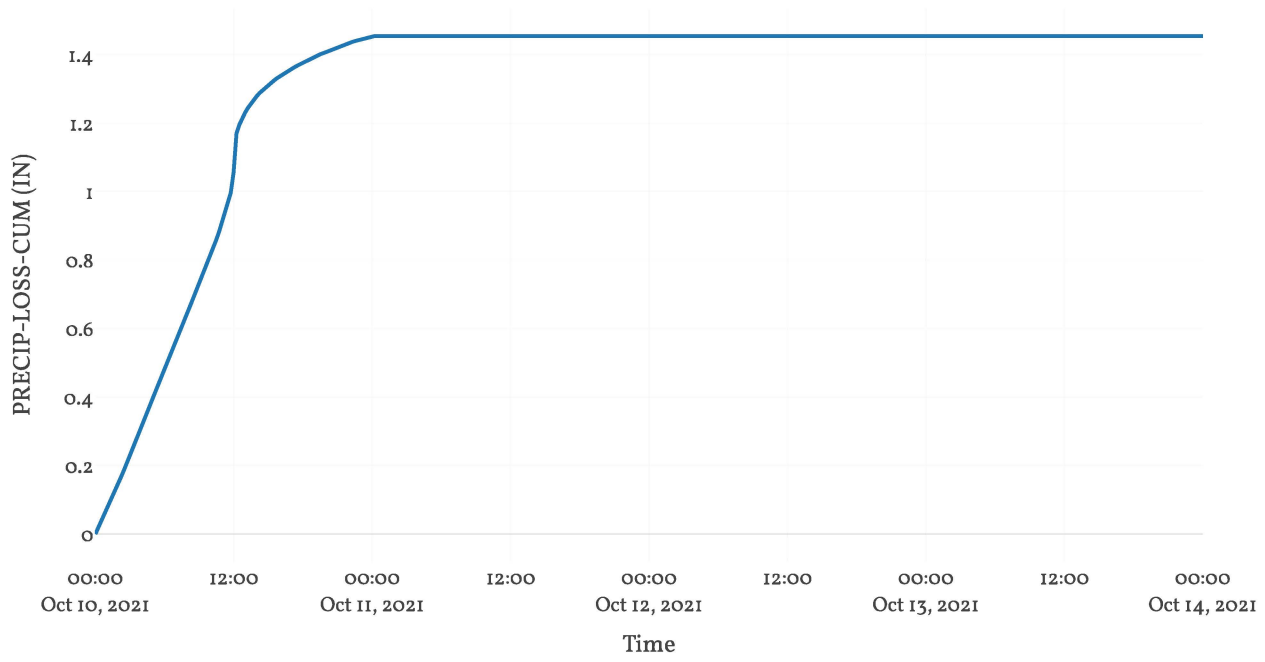
## Cumulative Excess Precipitation



Cumulative Precipitation

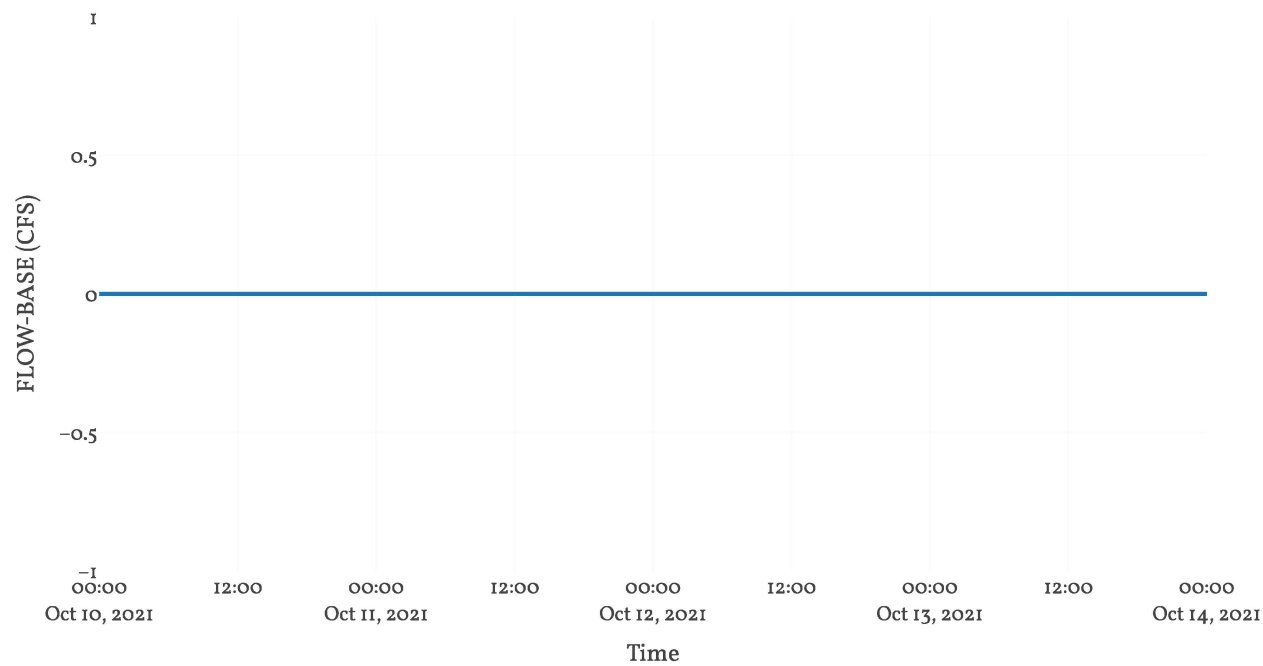


Cumulative Precipitation Loss

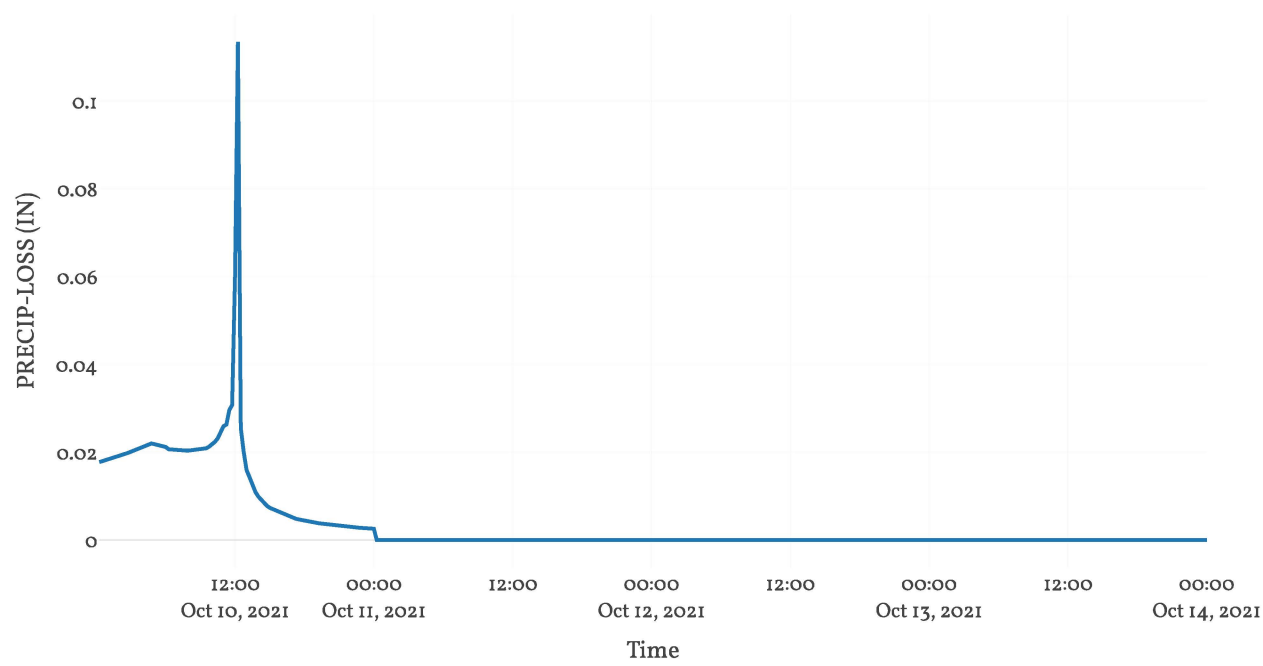




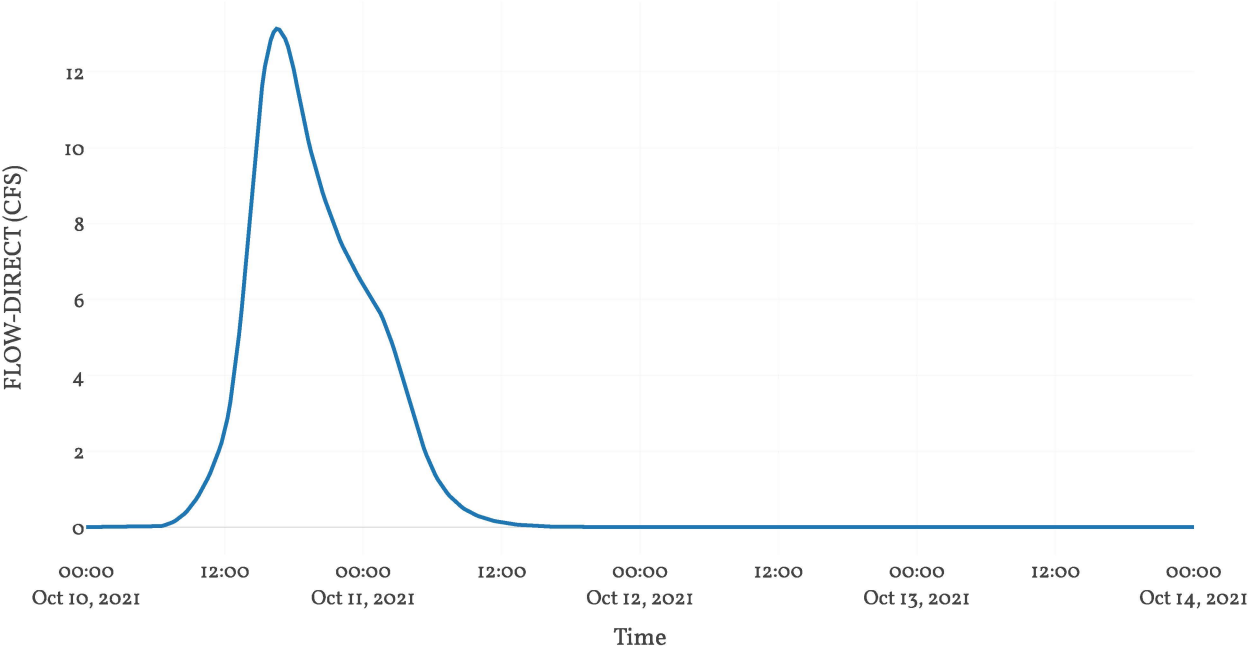
Baseflow



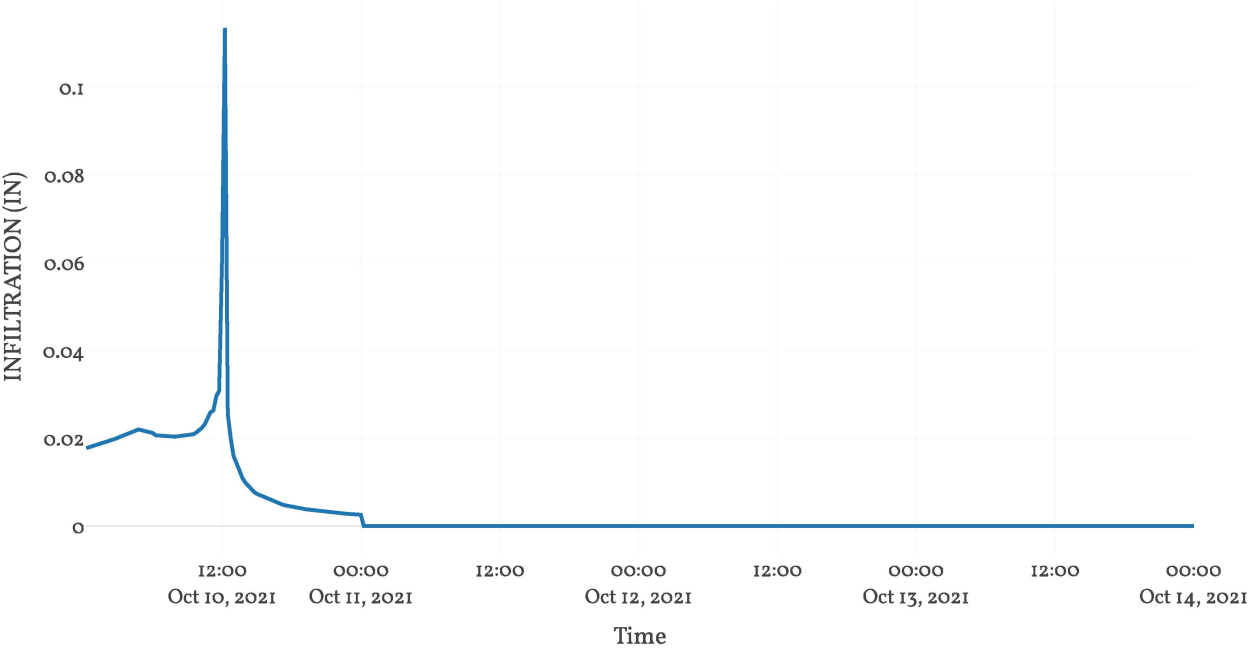
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed1 - 01 Imp

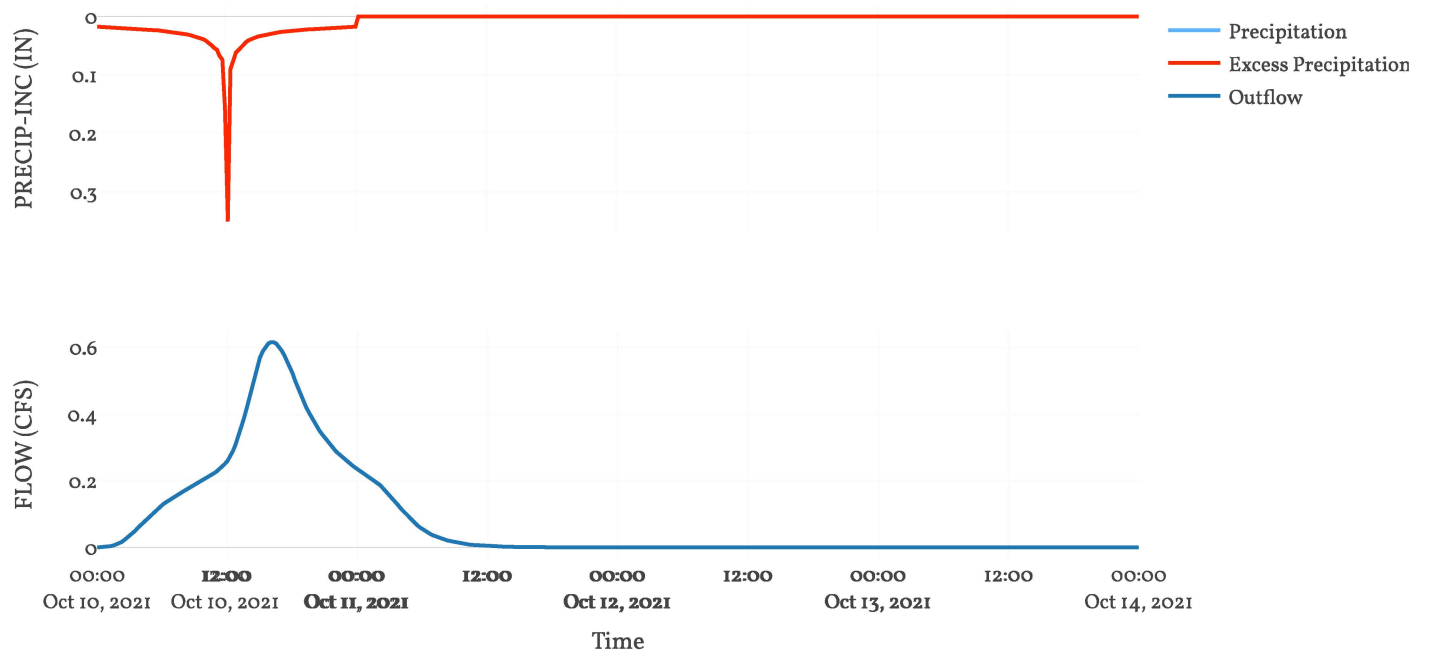
Area : 0  
Downstream : Junct 1

Loss Rate: SCS	
Percent Impervious Area	100
Curve Number	93.94

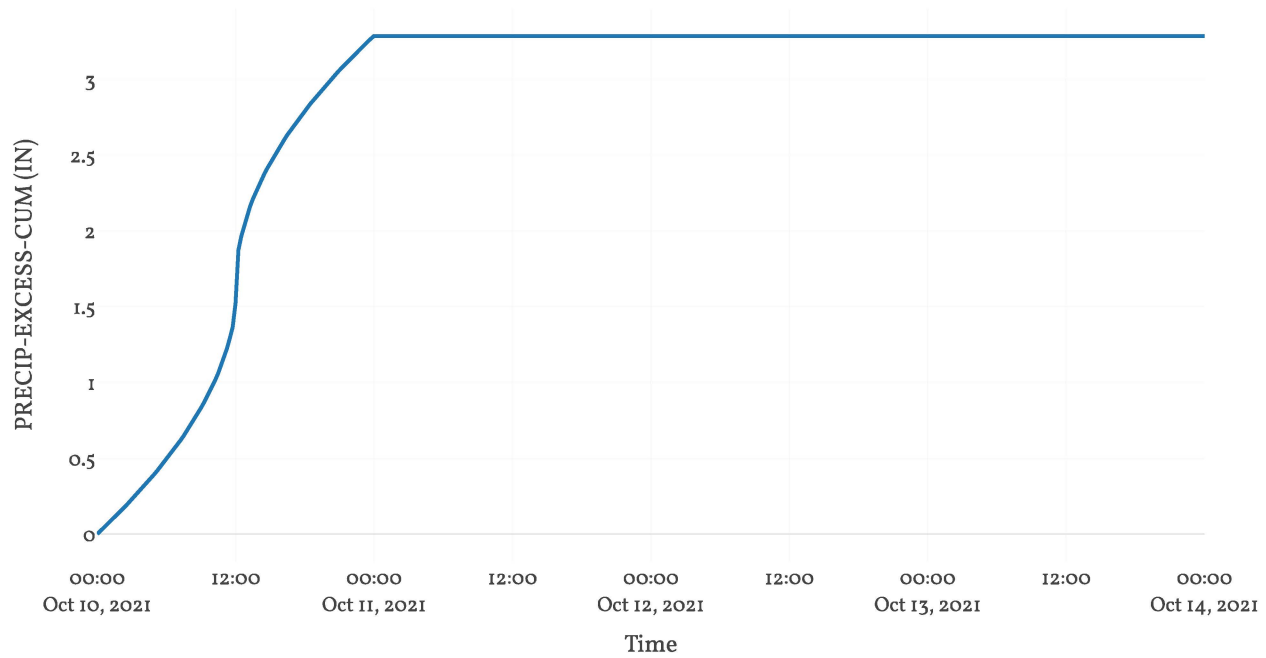
Transform: SCS	
Lag	233.88
Unitgraph Type	Standard

Results: Shed1 - 01 Imp	
Peak Discharge (CFS)	0.61
Time of Peak Discharge	10Oct2021, 16:15
Volume (IN)	3.29
Precipitation Volume (AC - FT)	0.62
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.62
Direct Runoff Volume (AC - FT)	0.62
Baseflow Volume (AC - FT)	0

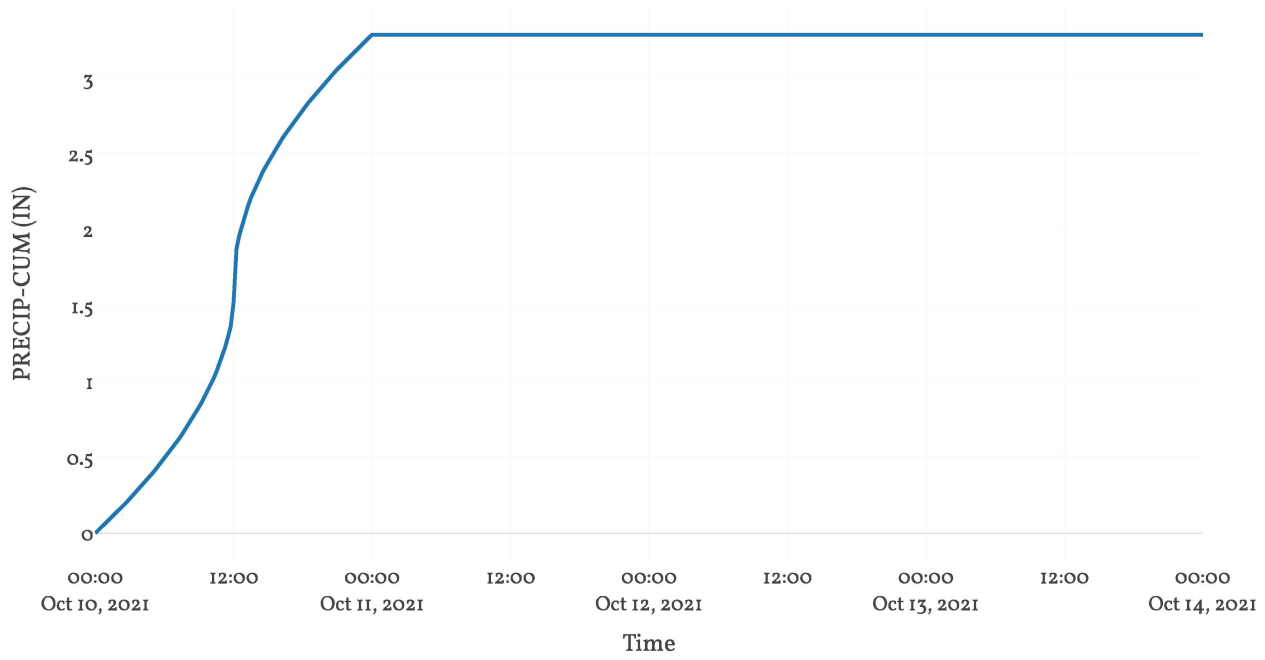
## Precipitation and Outflow



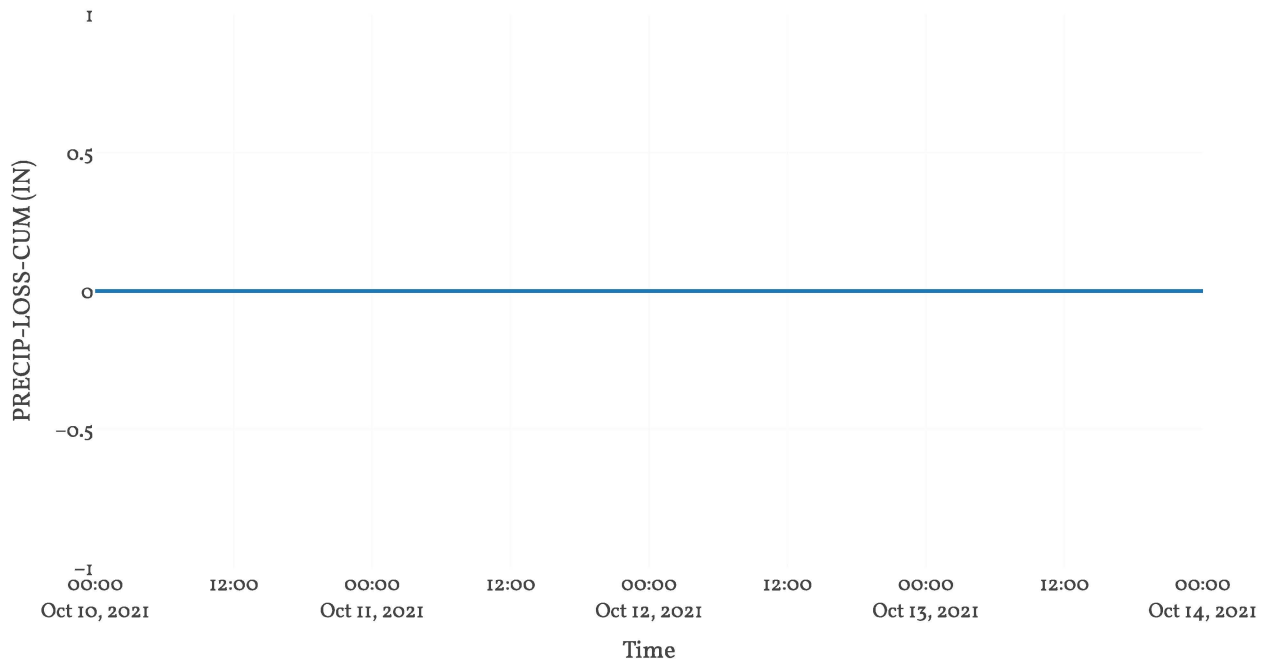
## Cumulative Excess Precipitation



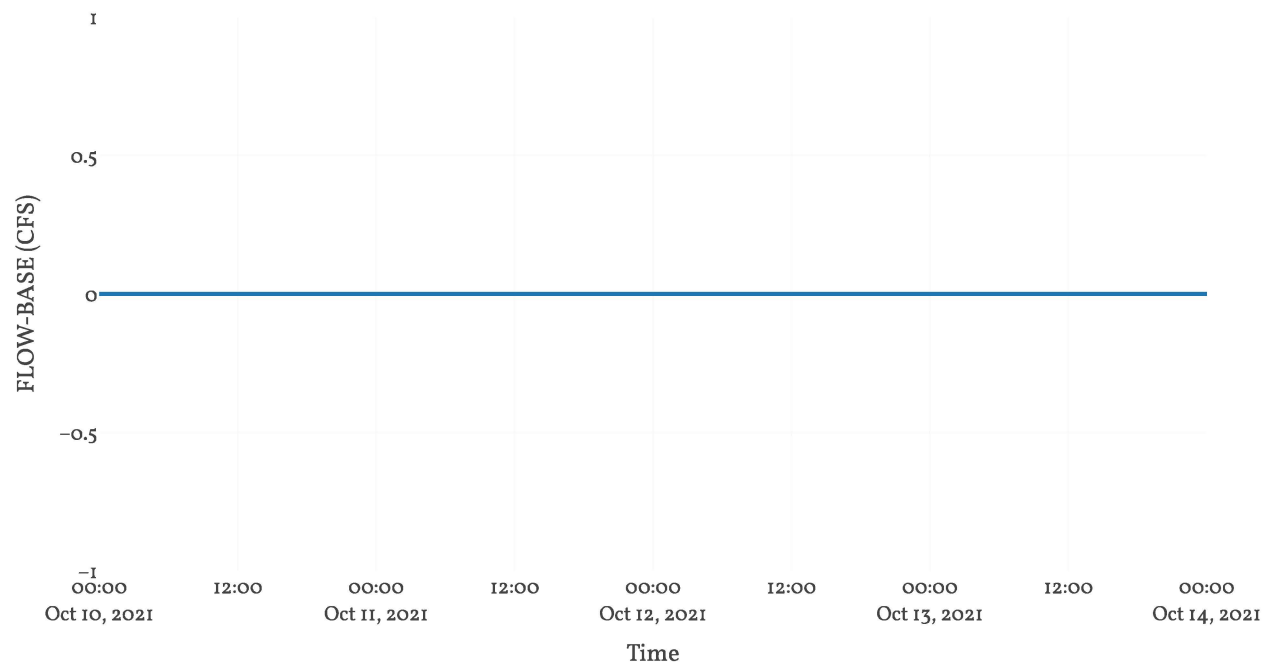
Cumulative Precipitation



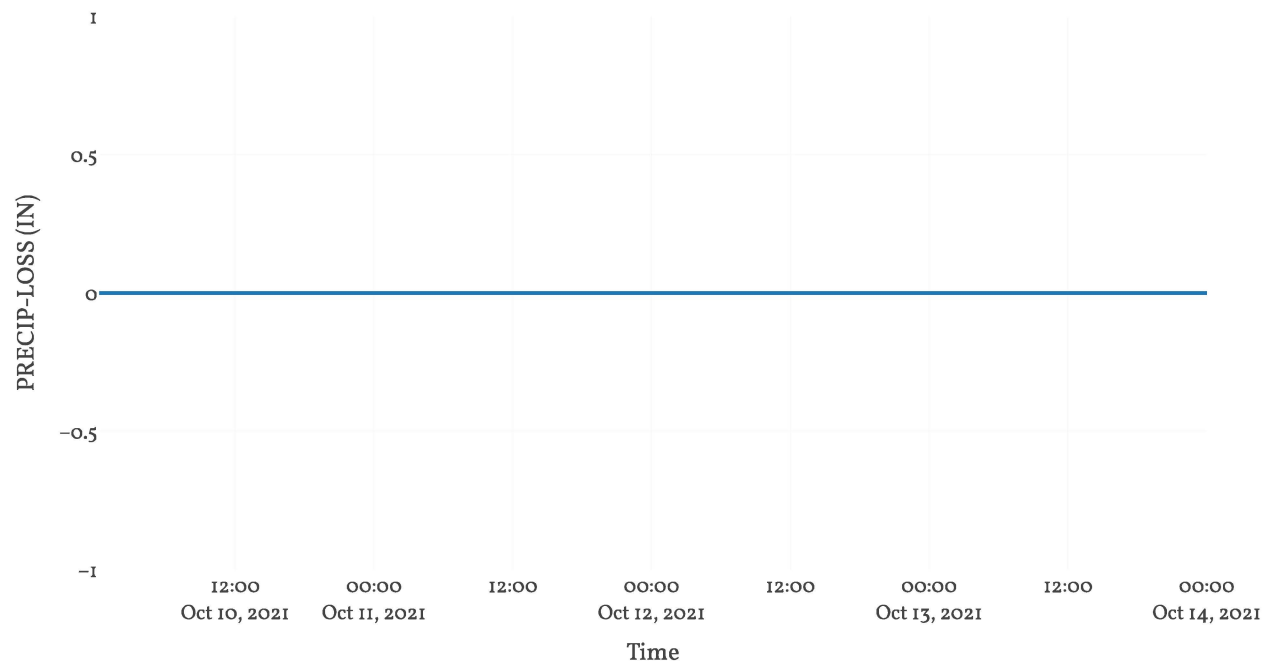
Cumulative Precipitation Loss



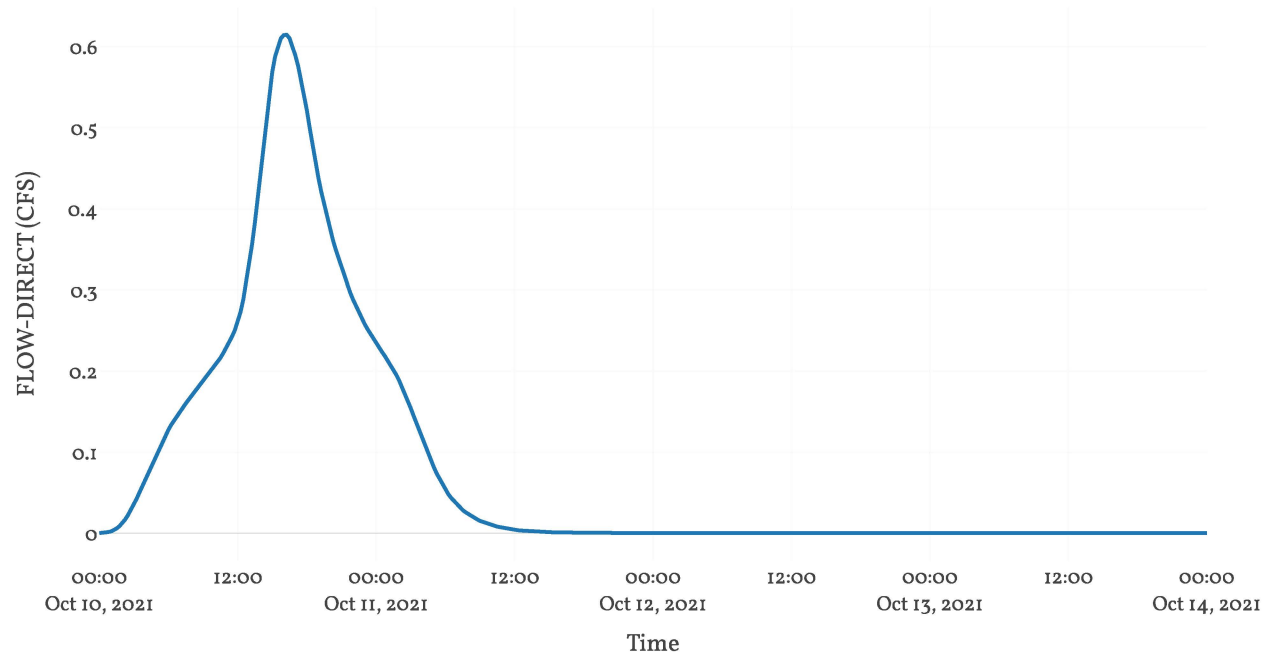
Baseflow



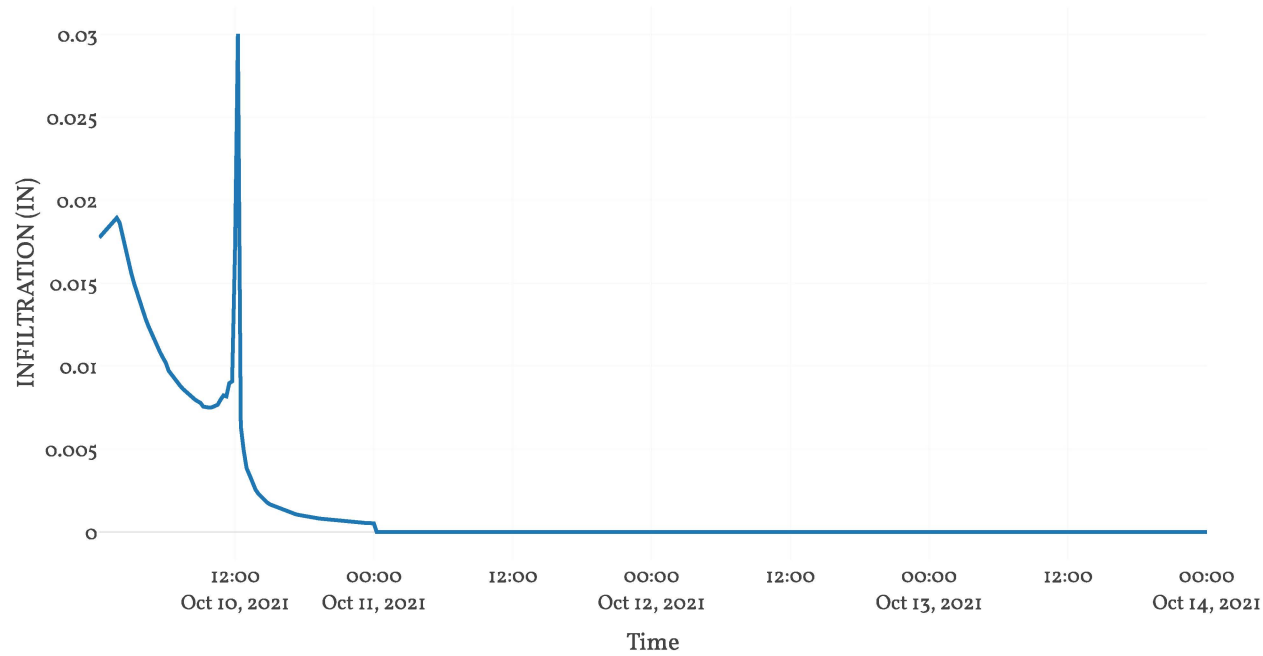
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1 - 05 Perv

Area : 0.3

Downstream : Junct - 5

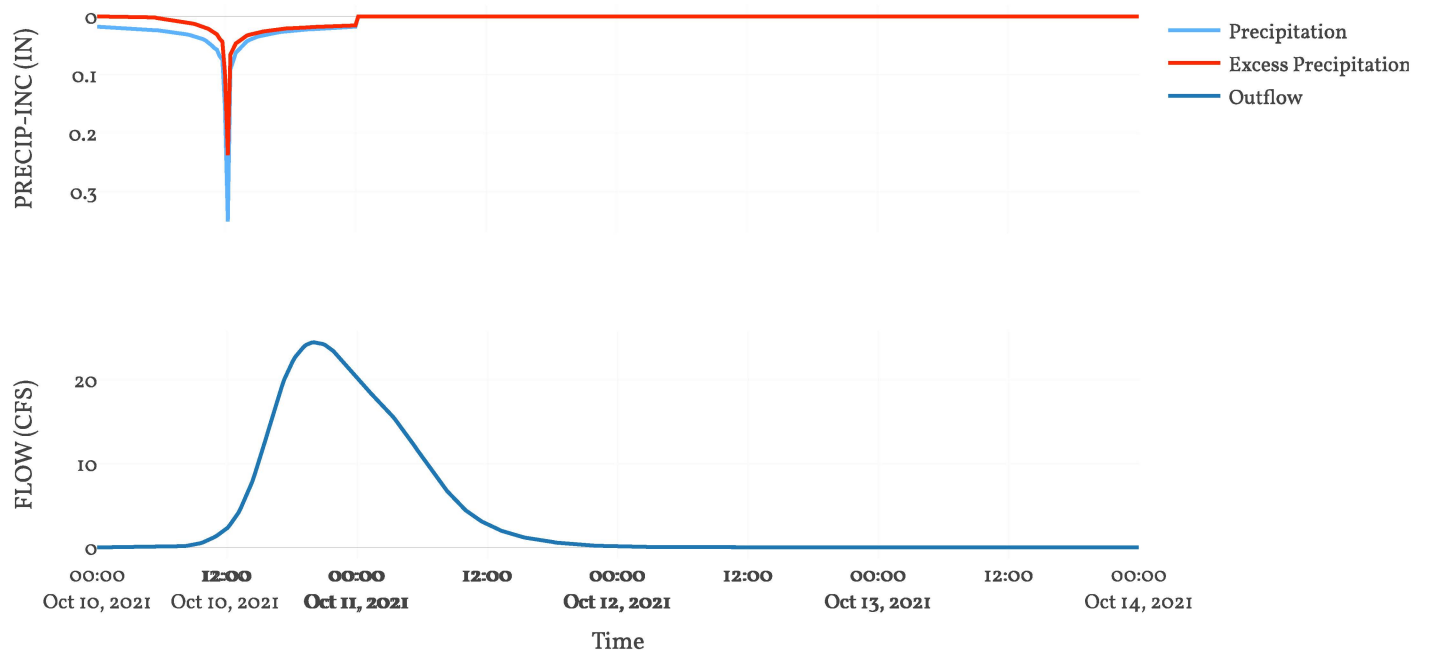
Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85

Transform: Scs	
Lag	396.32
Unitgraph Type	Standard

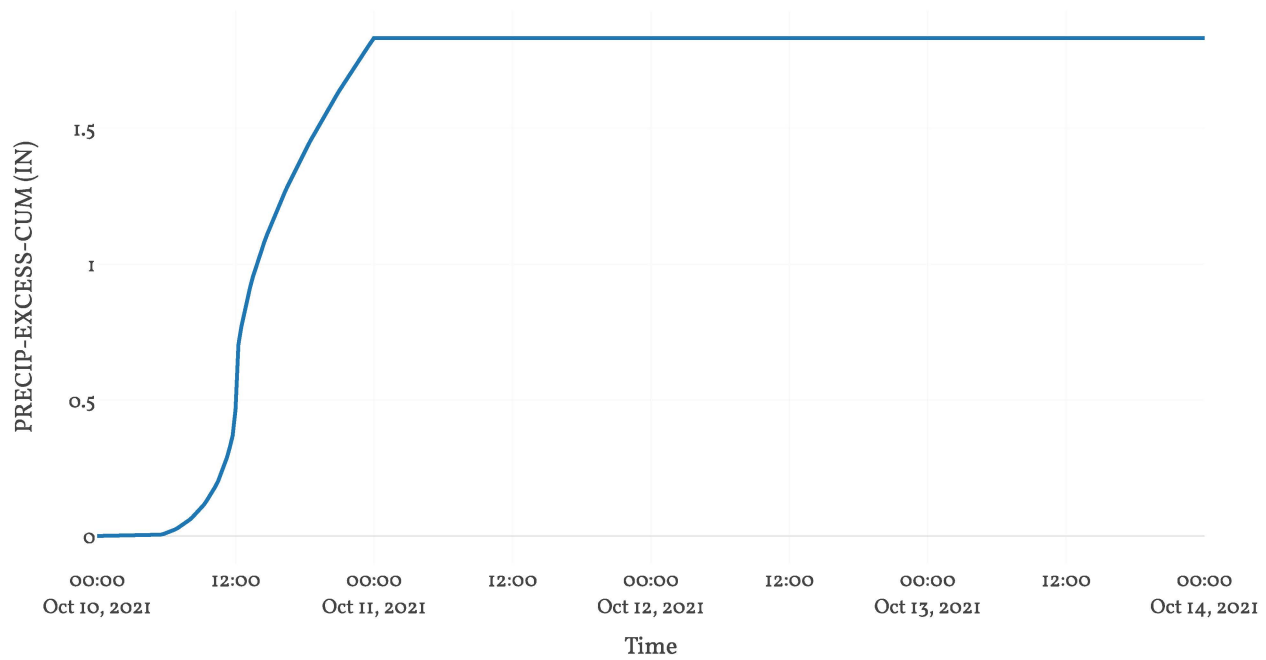
Results: Shed 1 - 05 Perv	
Peak Discharge (CFS)	24.48
Time of Peak Discharge	10Oct2021, 20:00
Volume (IN)	1.83
Precipitation Volume (AC - FT)	52.11
Loss Volume (AC - FT)	23.07
Excess Volume (AC - FT)	29.05
Direct Runoff Volume (AC - FT)	29.05
Baseflow Volume (AC - FT)	0



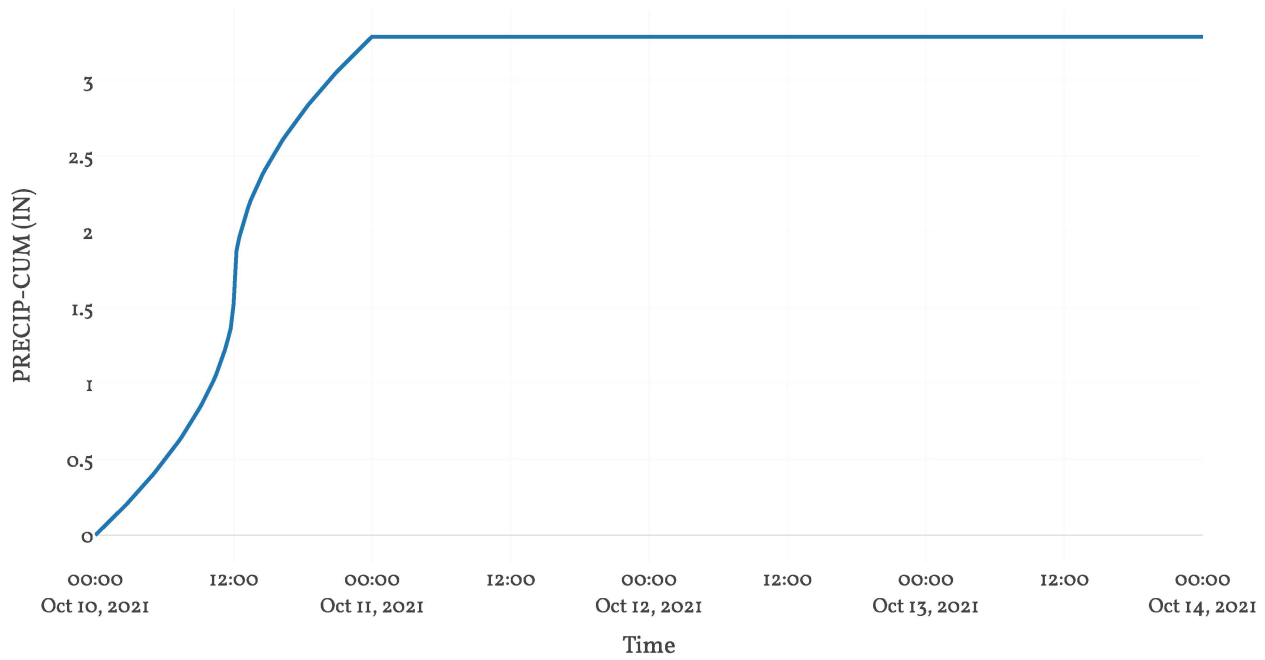
## Precipitation and Outflow



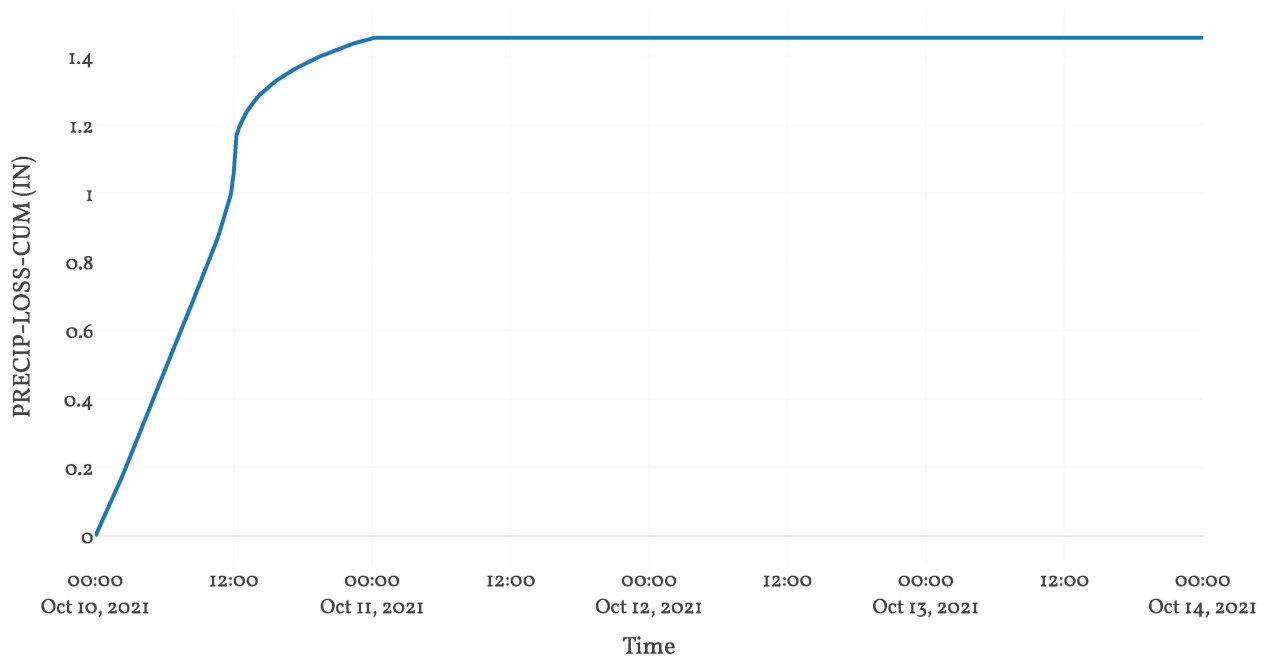
## Cumulative Excess Precipitation



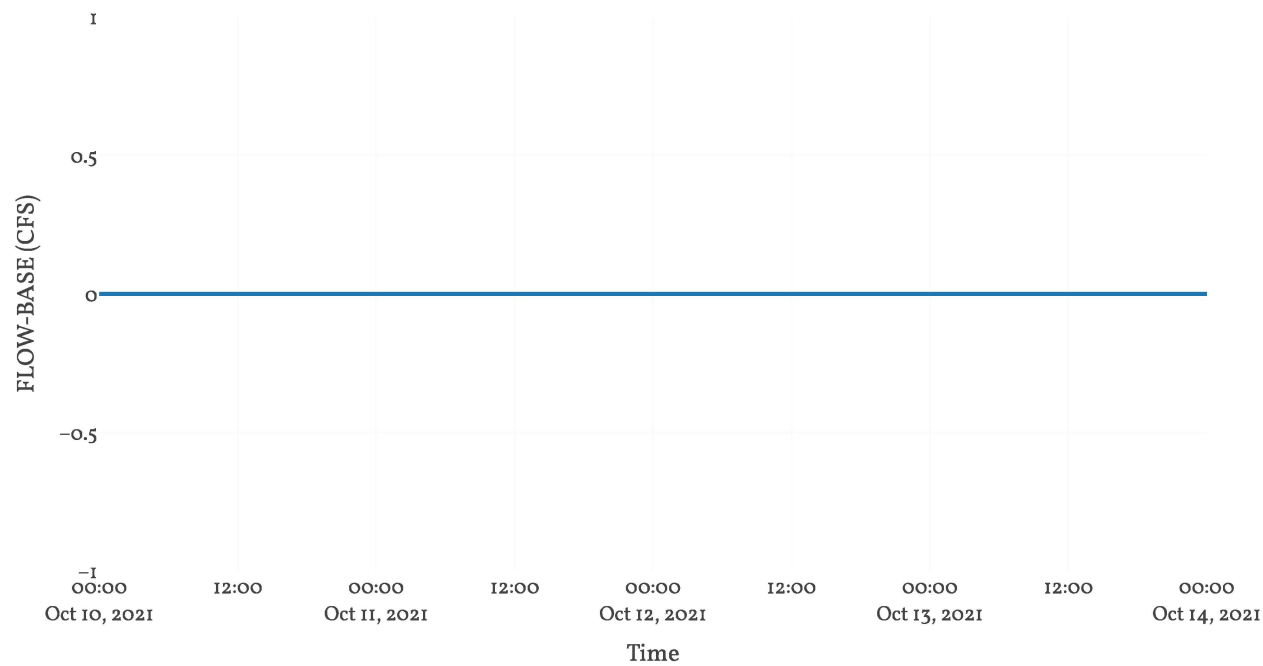
Cumulative Precipitation



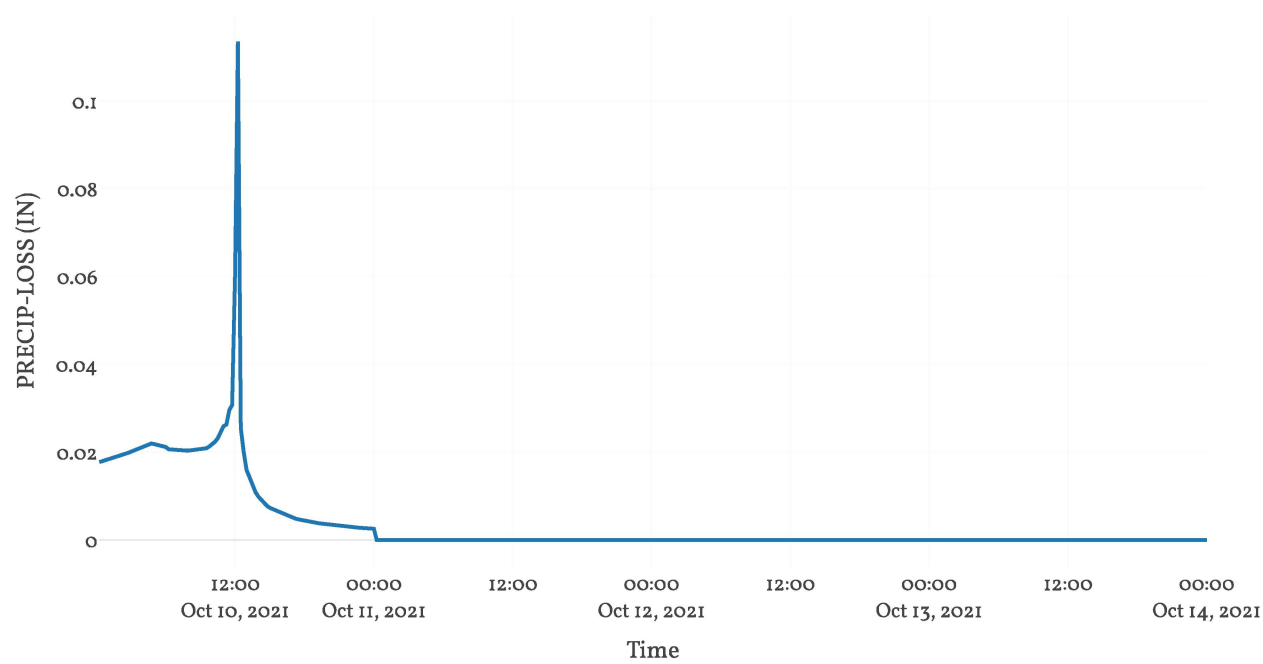
Cumulative Precipitation Loss



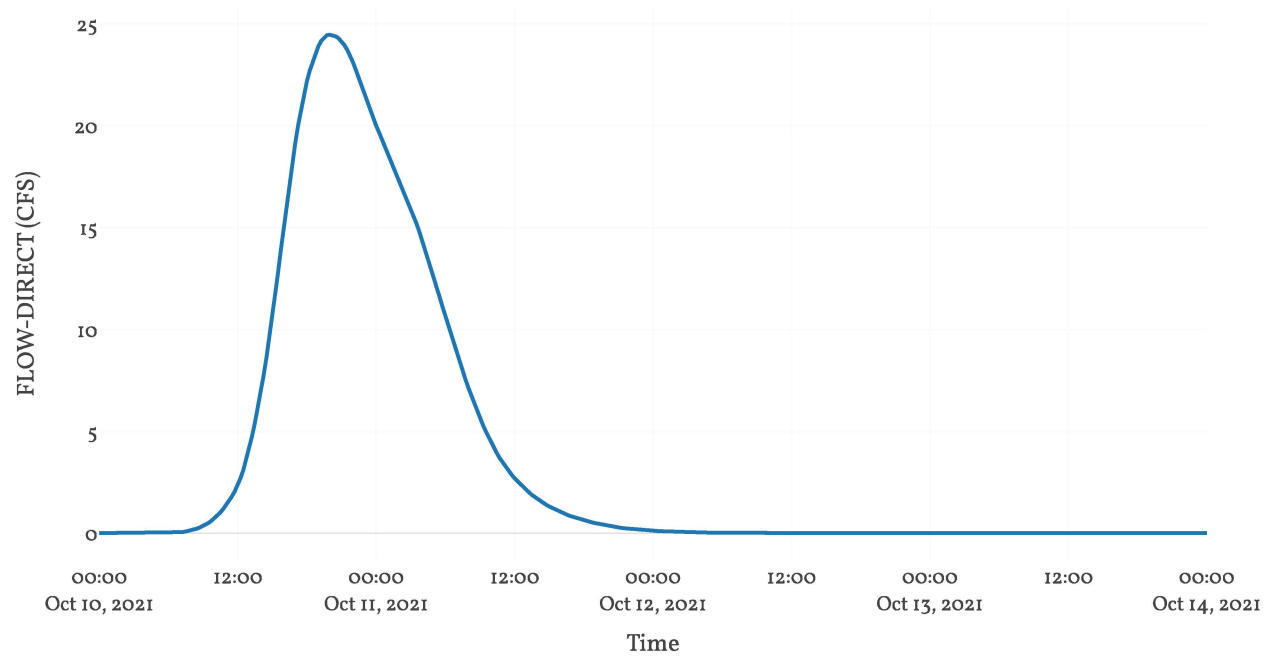
Baseflow



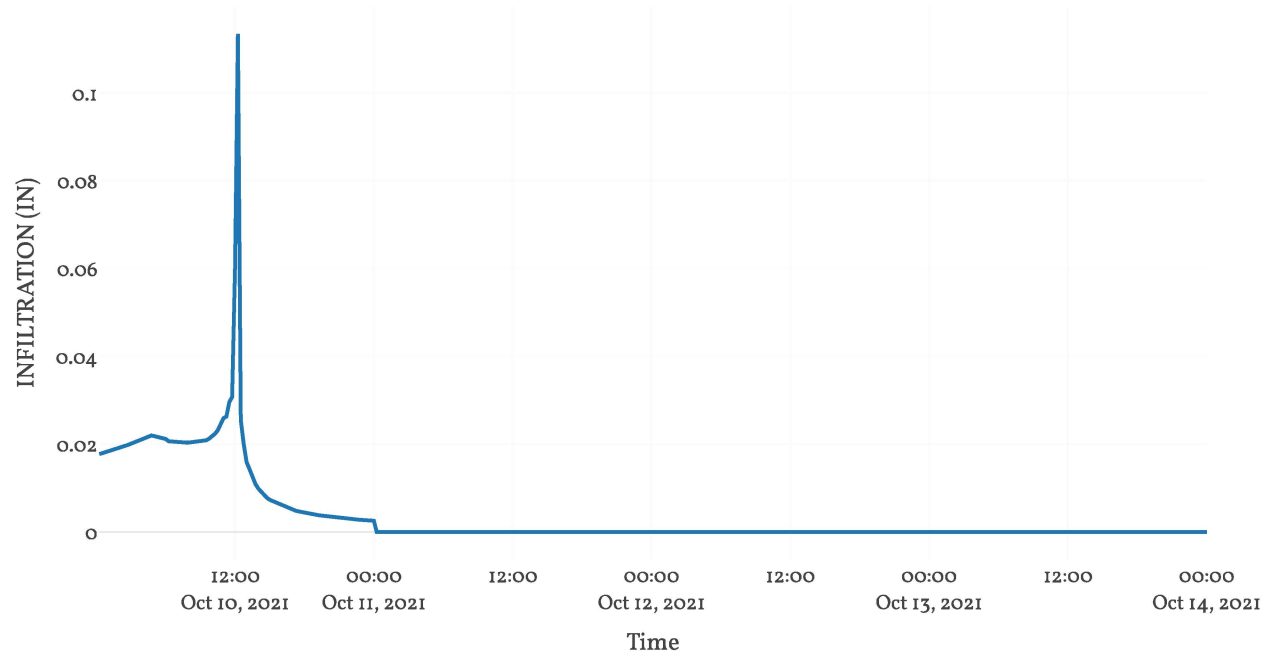
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1 - 05 Imp

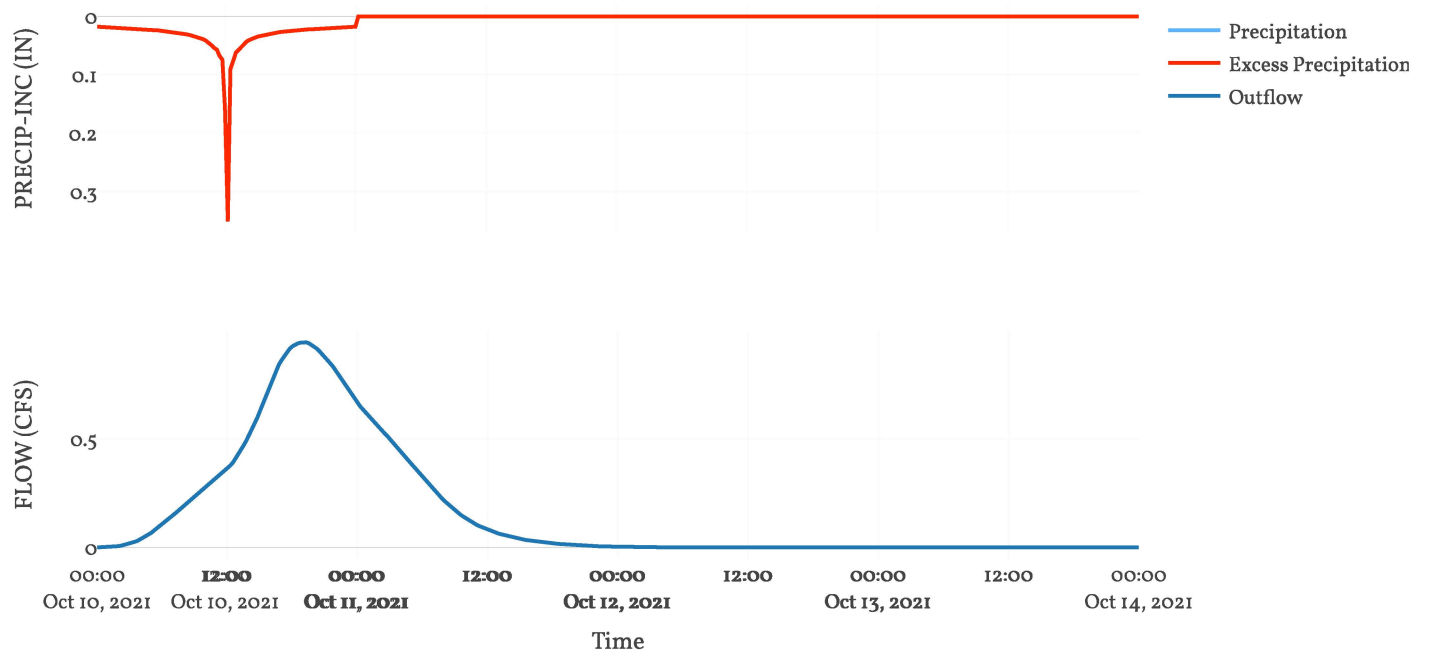
Area : 0.01  
Downstream : Junct - 5

Loss Rate: Scs	
Percent Impervious Area	100
Curve Number	89

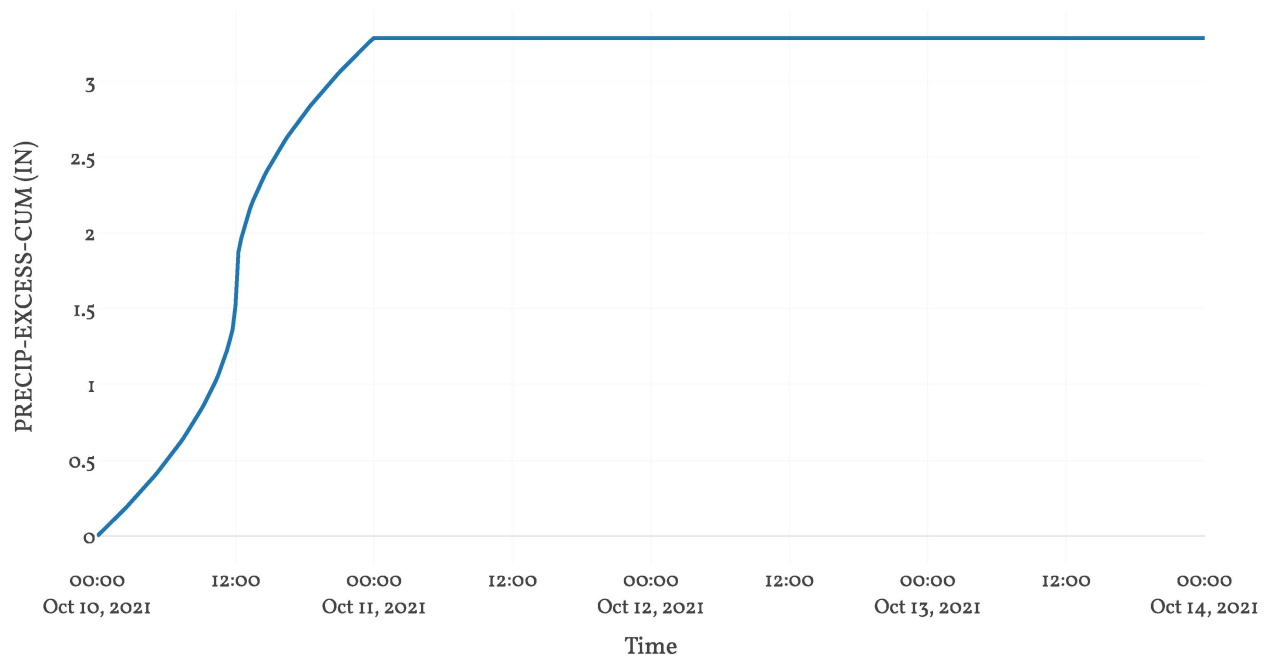
Transform: Scs	
Lag	396.32
Unitgraph Type	Standard

Results: Shed 1 - 05 Imp	
Peak Discharge (CFS)	0.94
Time of Peak Discharge	10Oct2021, 19:00
Volume (IN)	3.29
Precipitation Volume (AC - FT)	1.23
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	1.23
Direct Runoff Volume (AC - FT)	1.23
Baseflow Volume (AC - FT)	0

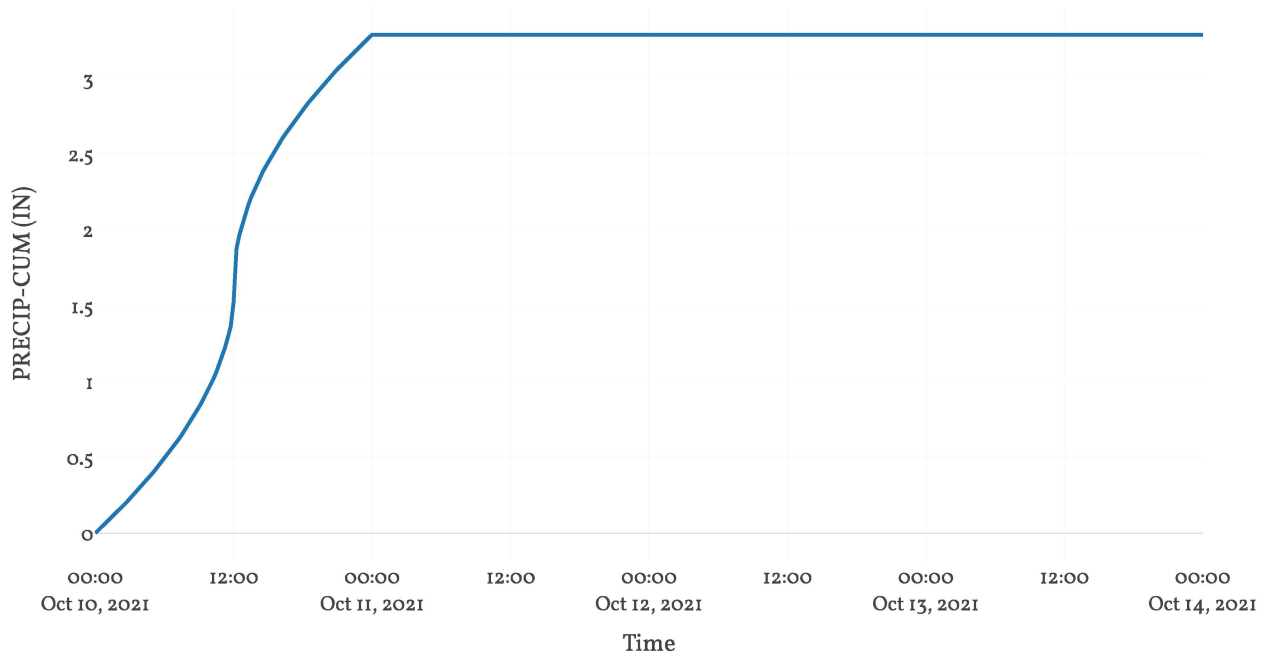
## Precipitation and Outflow



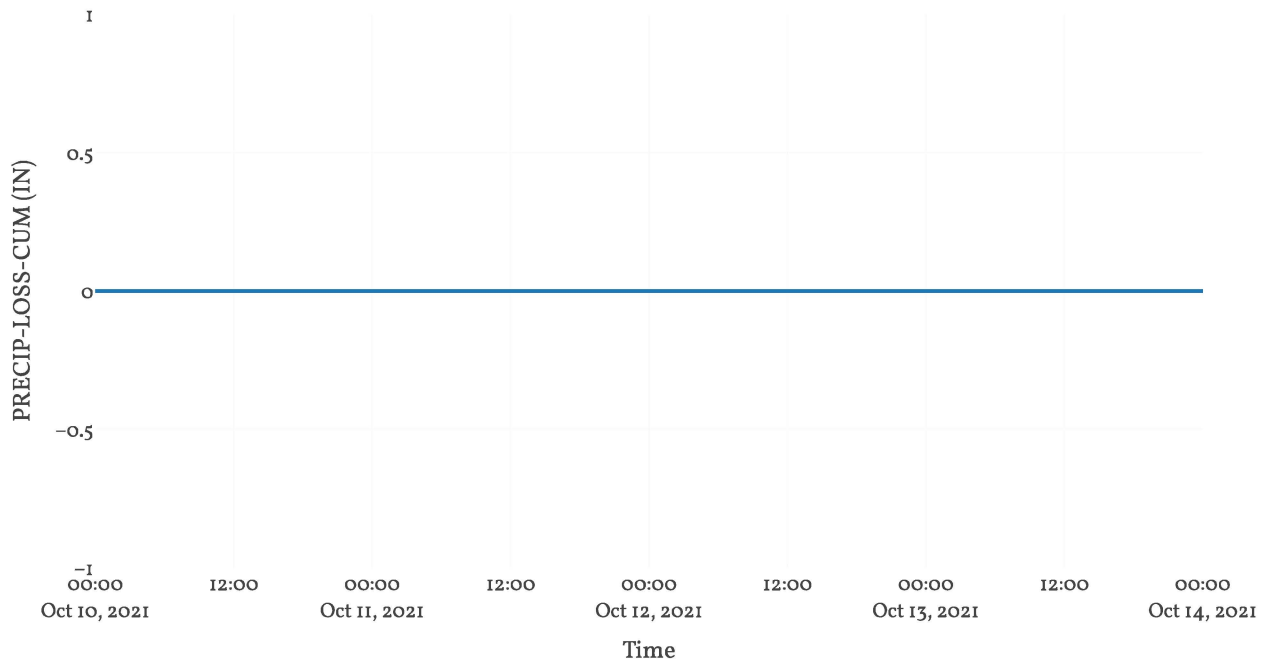
## Cumulative Excess Precipitation



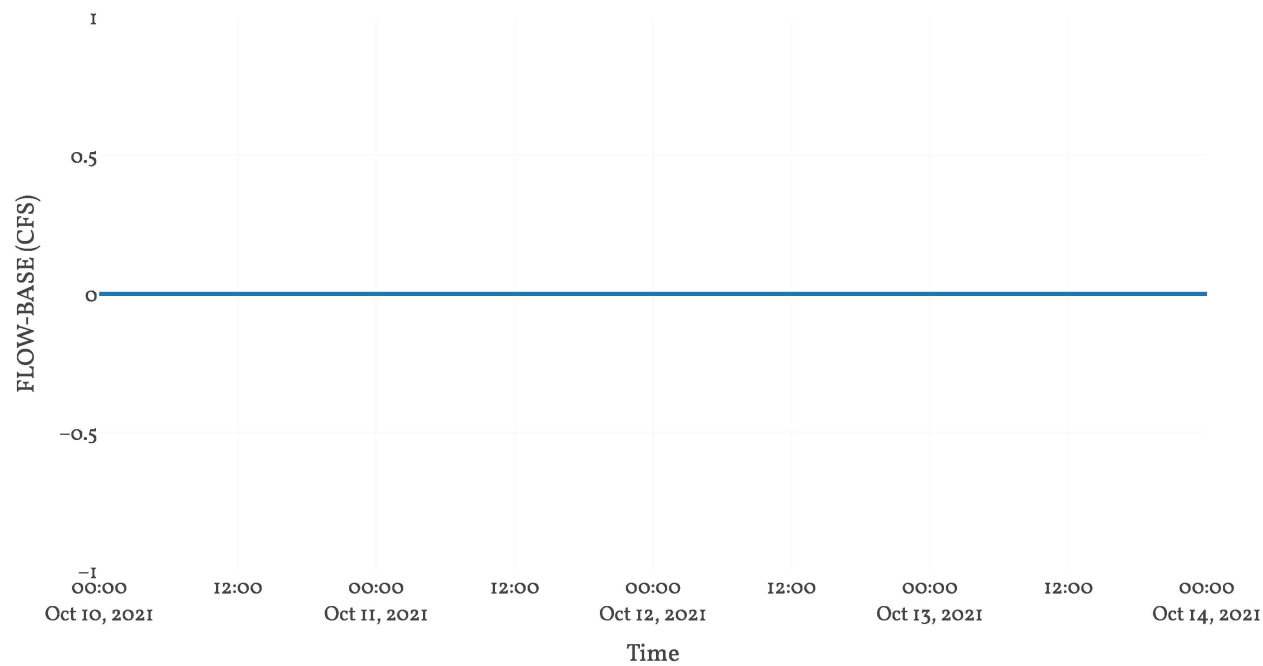
Cumulative Precipitation



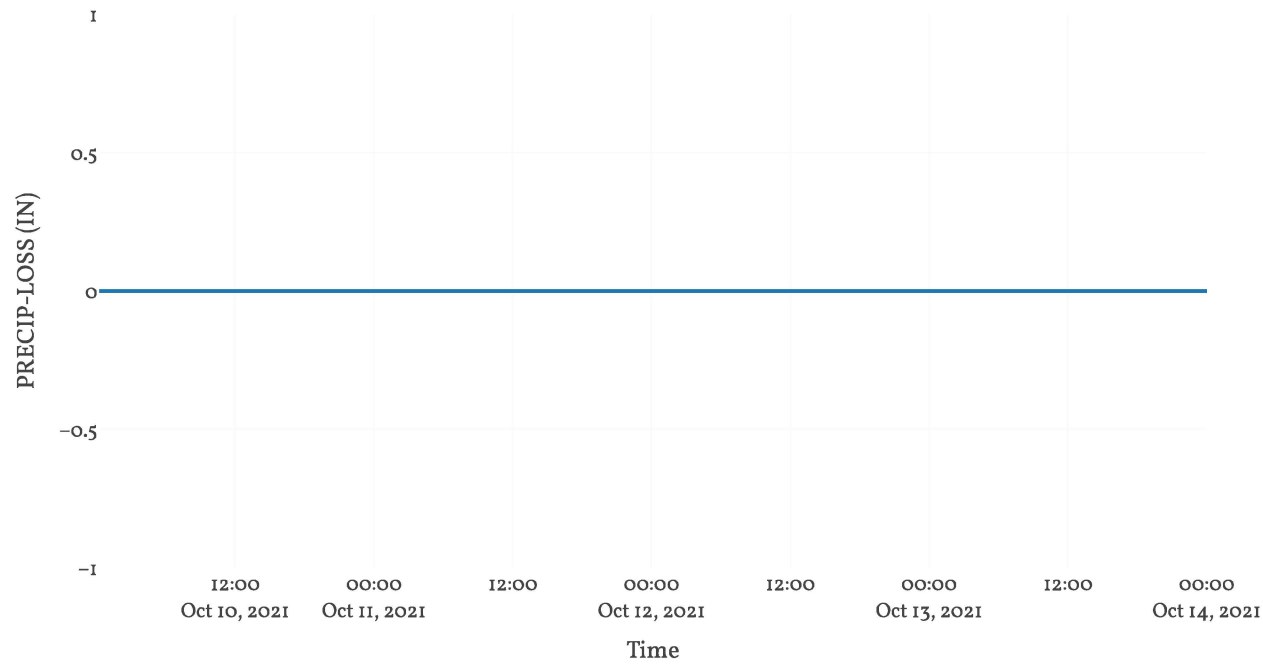
Cumulative Precipitation Loss



Baseflow

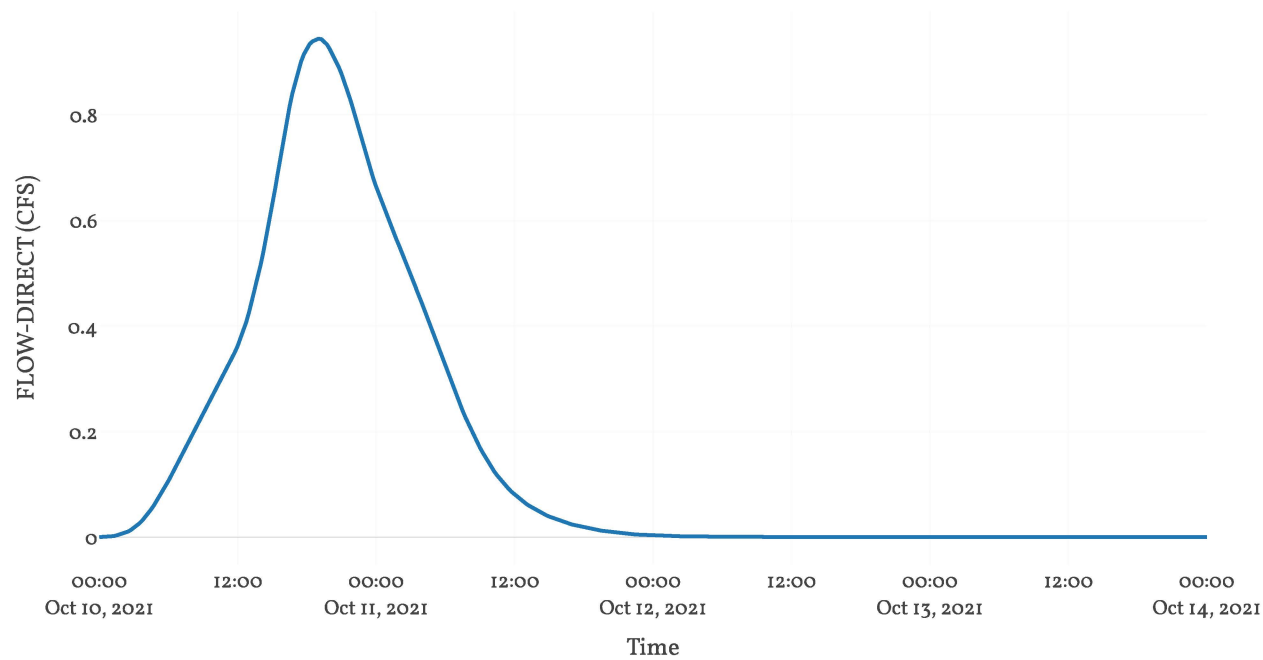


Precipitation Loss

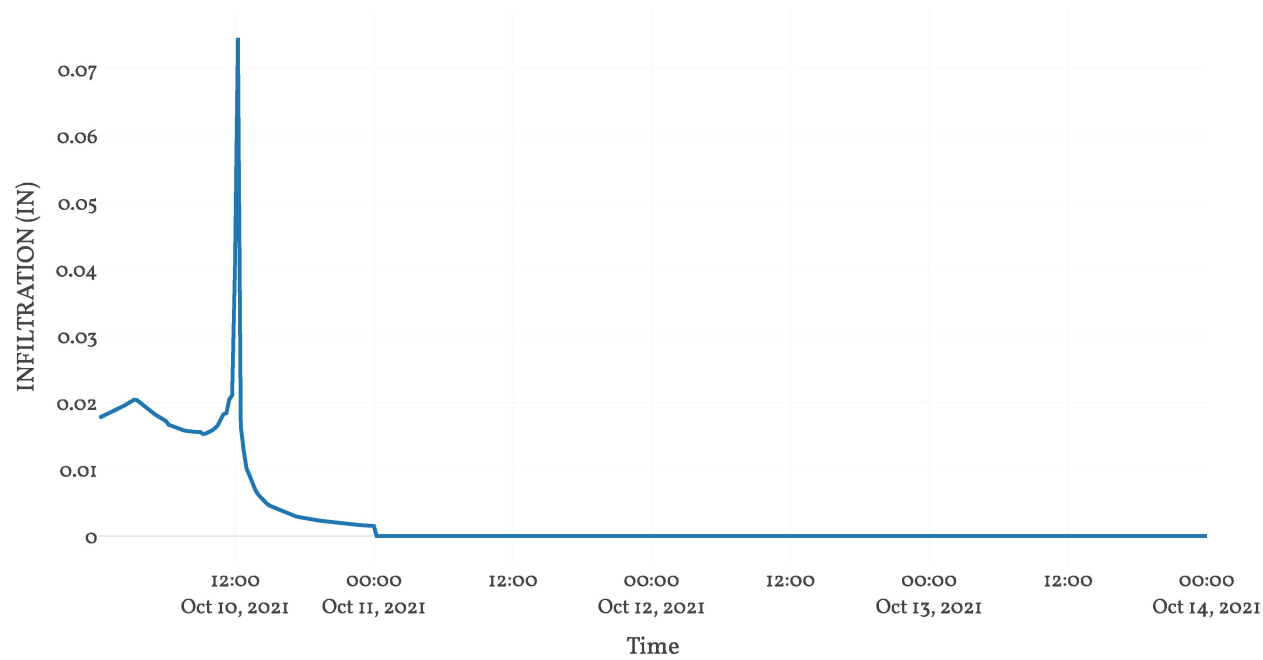




Direct Runoff



Soil Infiltration

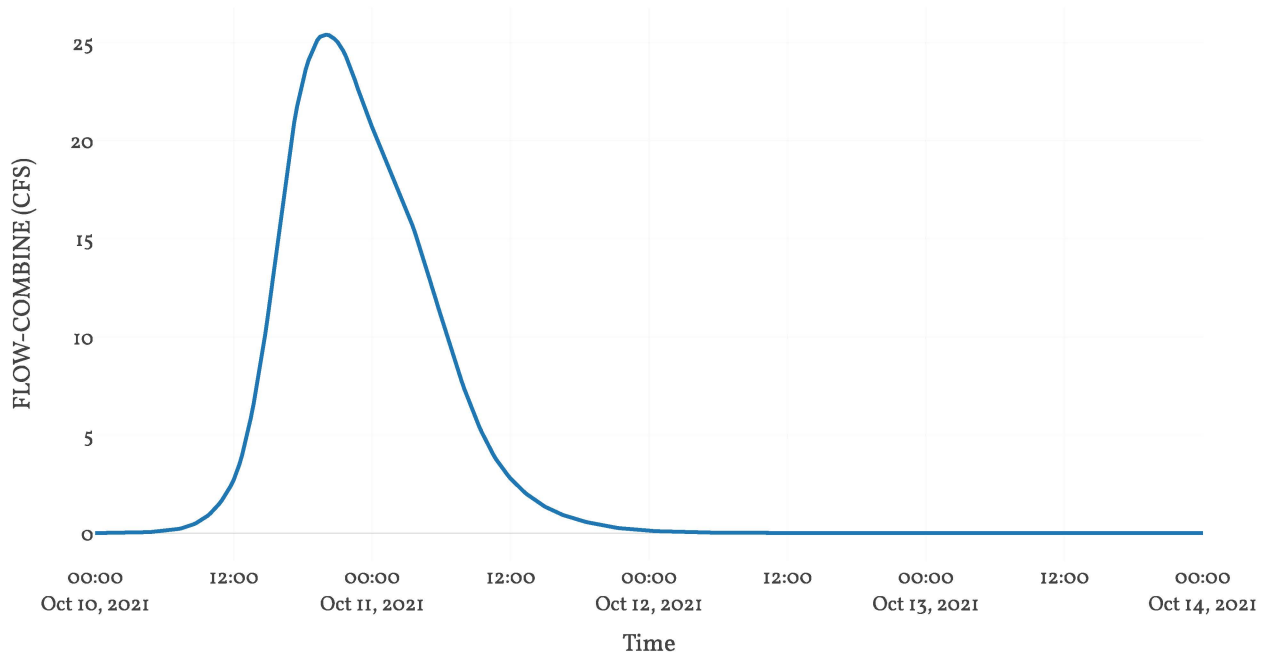


# Junction: Junct-5

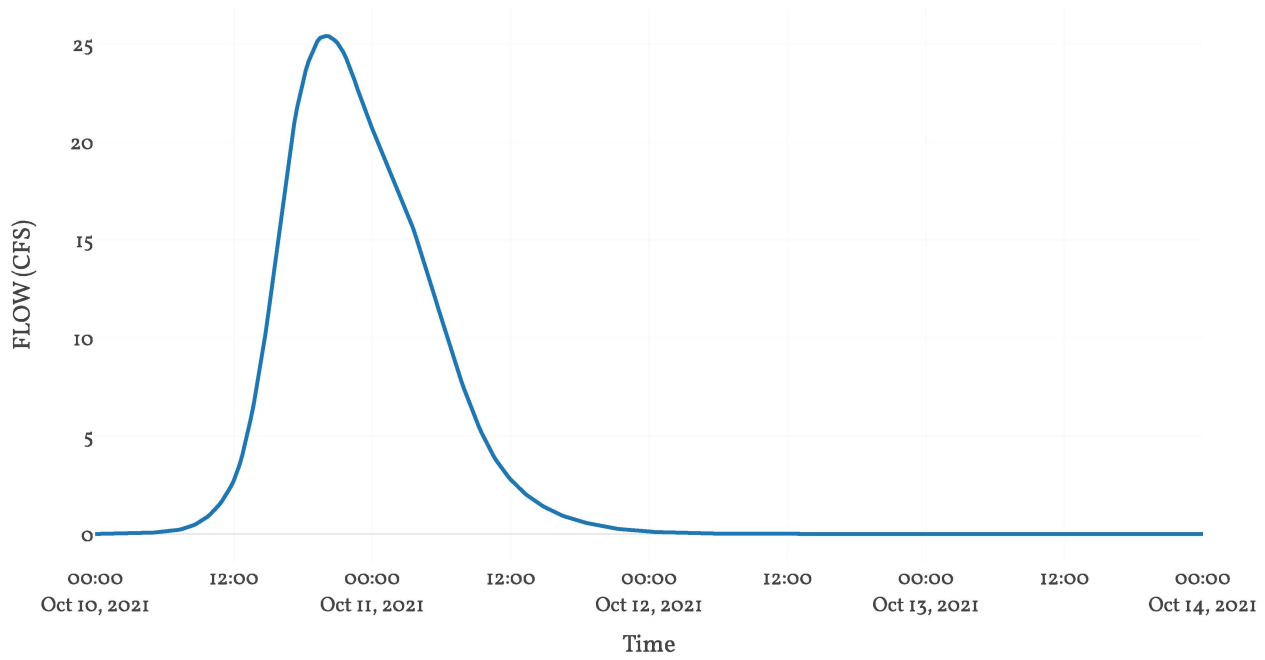
Downstream : Post Total

Results: Junct-5	
Peak Discharge (CFS)	25.4
Time of Peak Discharge	10Oct2021, 20:00
Volume (IN)	1.87

Combined Inflow



Outflow

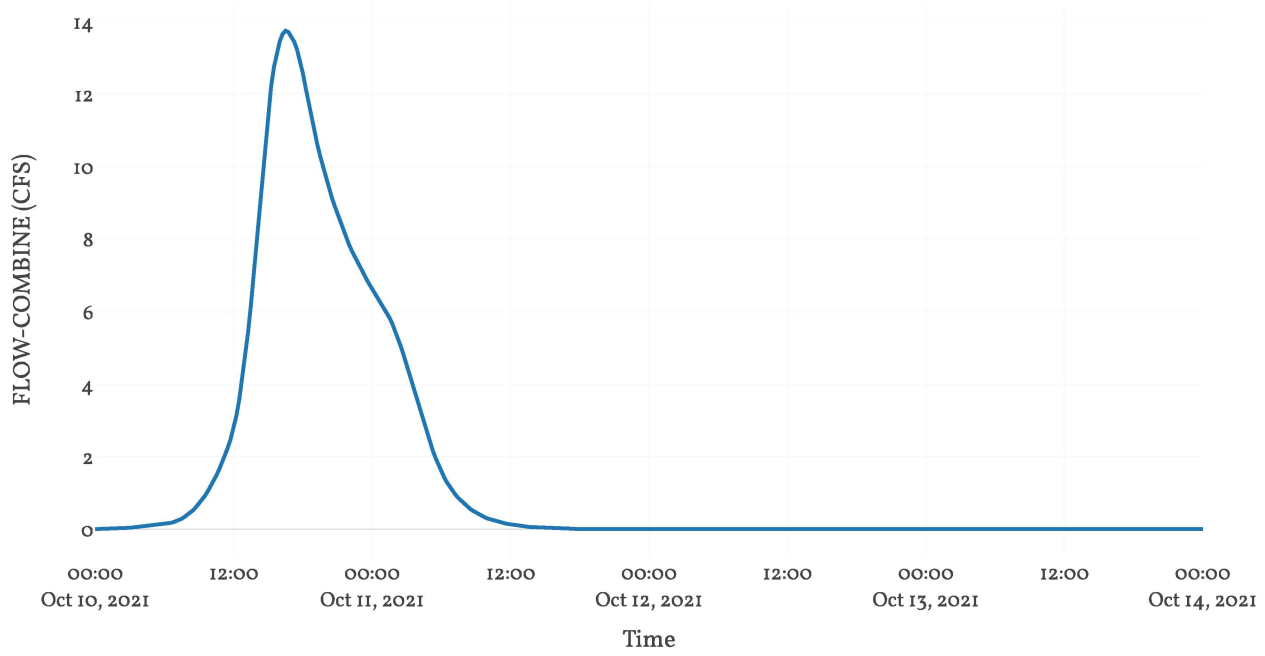


# Junction: Junct 1

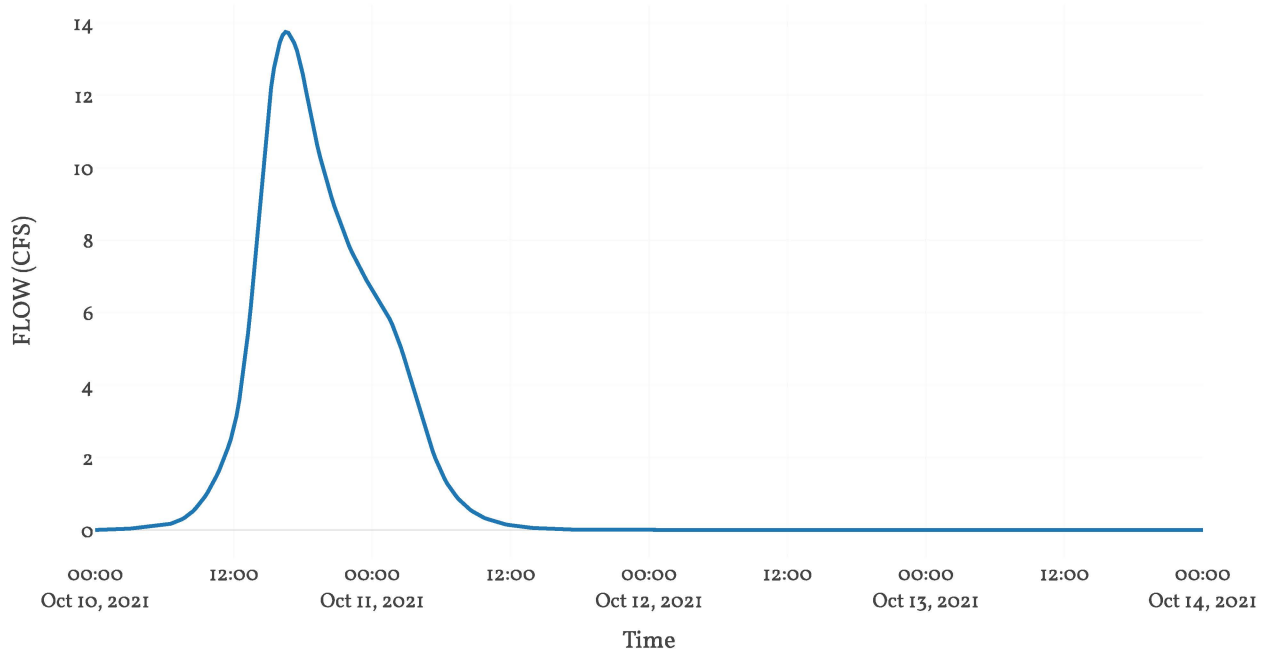
Downstream : Post Total

Results: Junct 1	
Peak Discharge (CFS)	13.75
Time of Peak Discharge	10Oct2021, 16:30
Volume (IN)	1.87

Combined Inflow



Outflow



# Subbasin: Shed 1 - 02 Perv

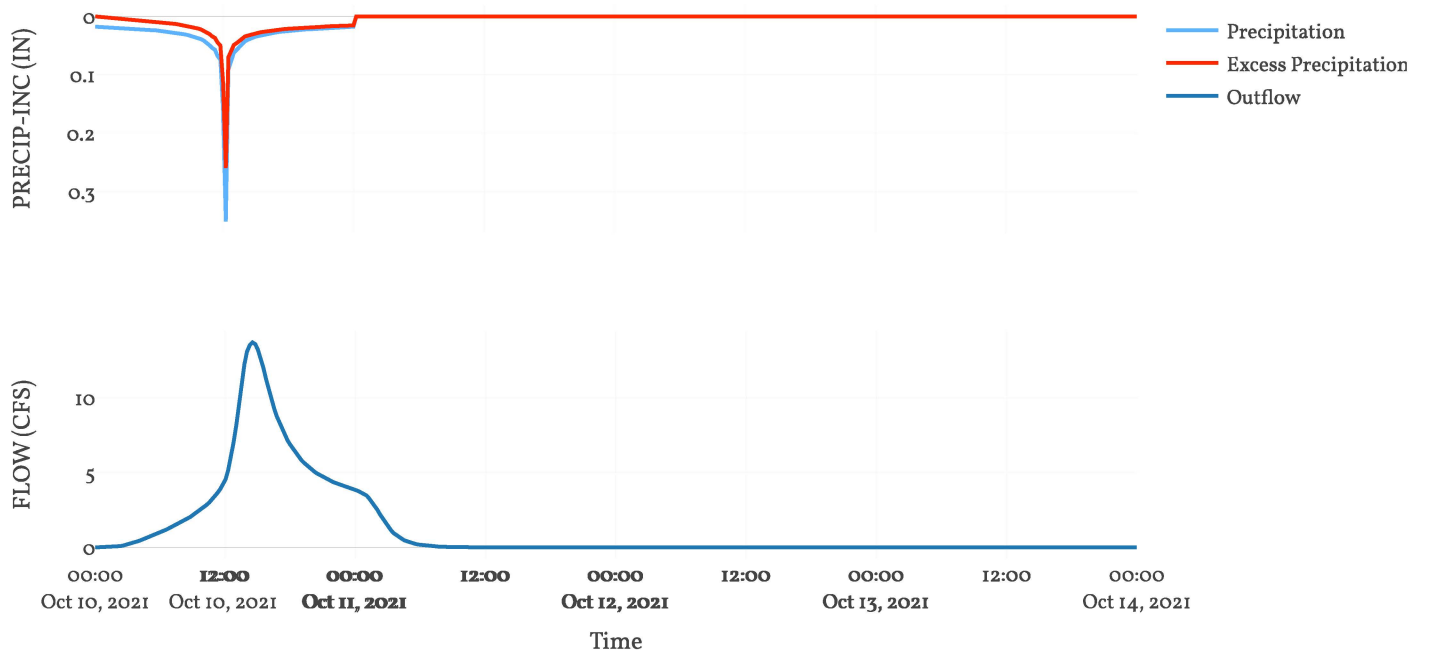
Area : 0.08  
Downstream : Junct - 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

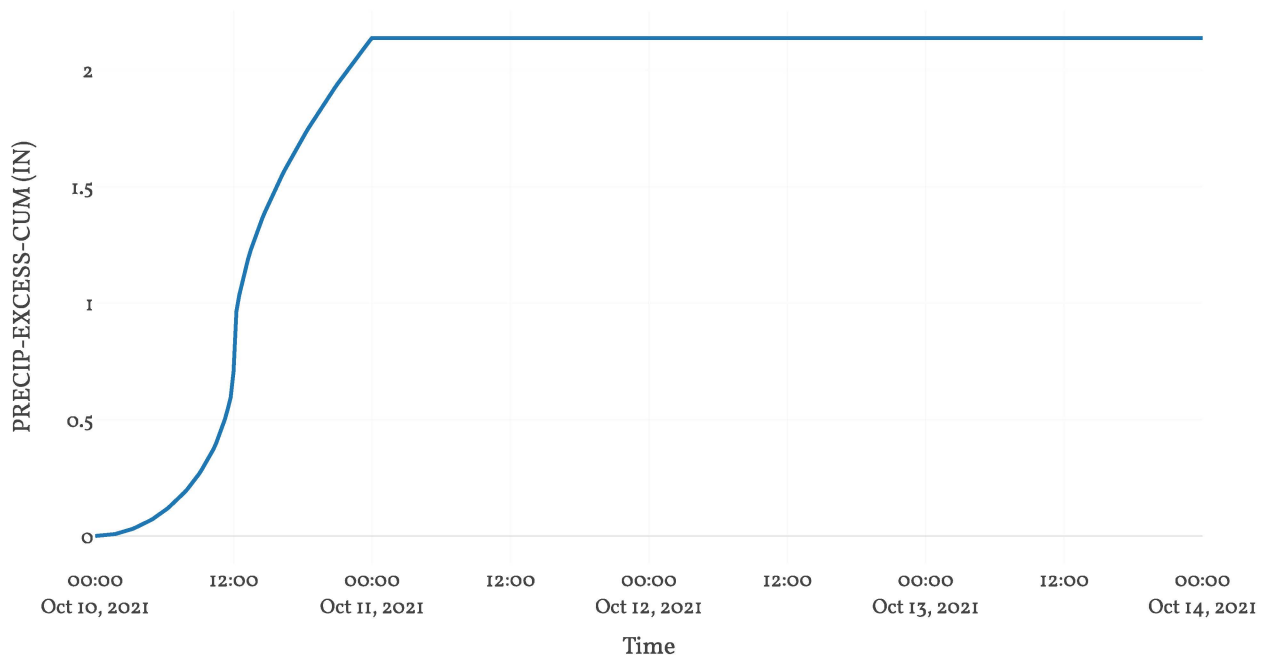
Transform: Scs	
Lag	133.24
Unitgraph Type	Standard

Results: Shed 1 - 02 Perv	
Peak Discharge (CFS)	13.71
Time of Peak Discharge	10Oct2021, 14:30
Volume (IN)	2.14
Precipitation Volume (AC - FT)	14.62
Loss Volume (AC - FT)	5.11
Excess Volume (AC - FT)	9.51
Direct Runoff Volume (AC - FT)	9.51
Baseflow Volume (AC - FT)	0

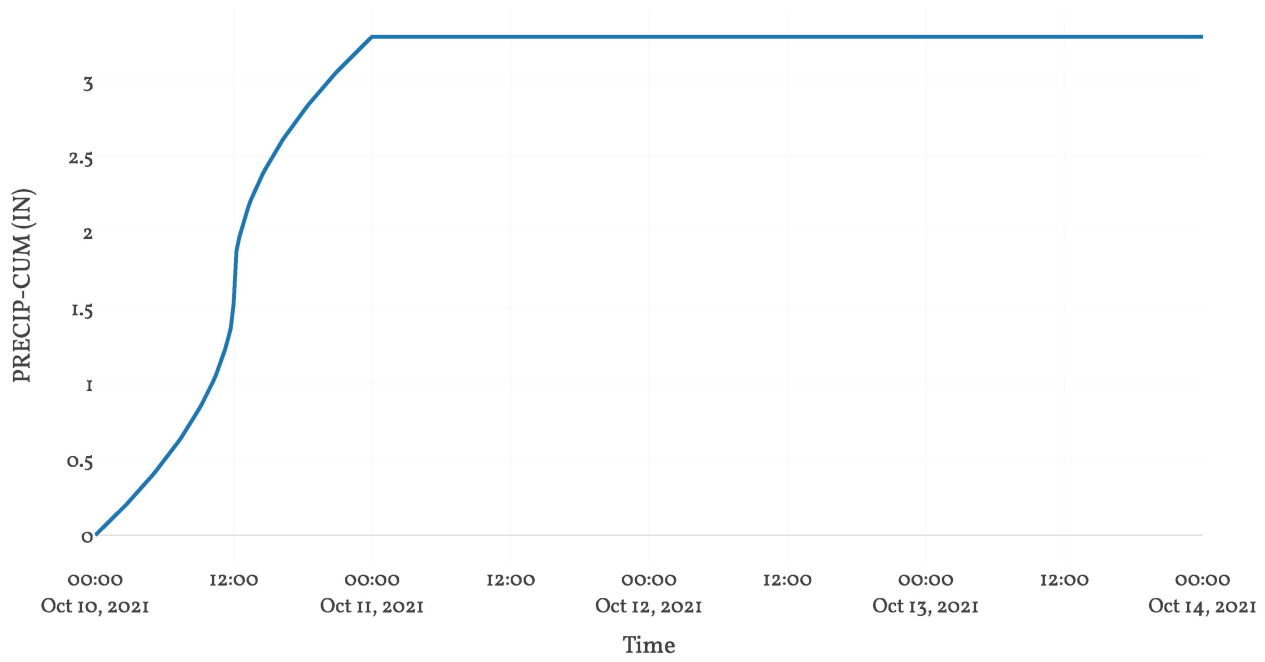
## Precipitation and Outflow



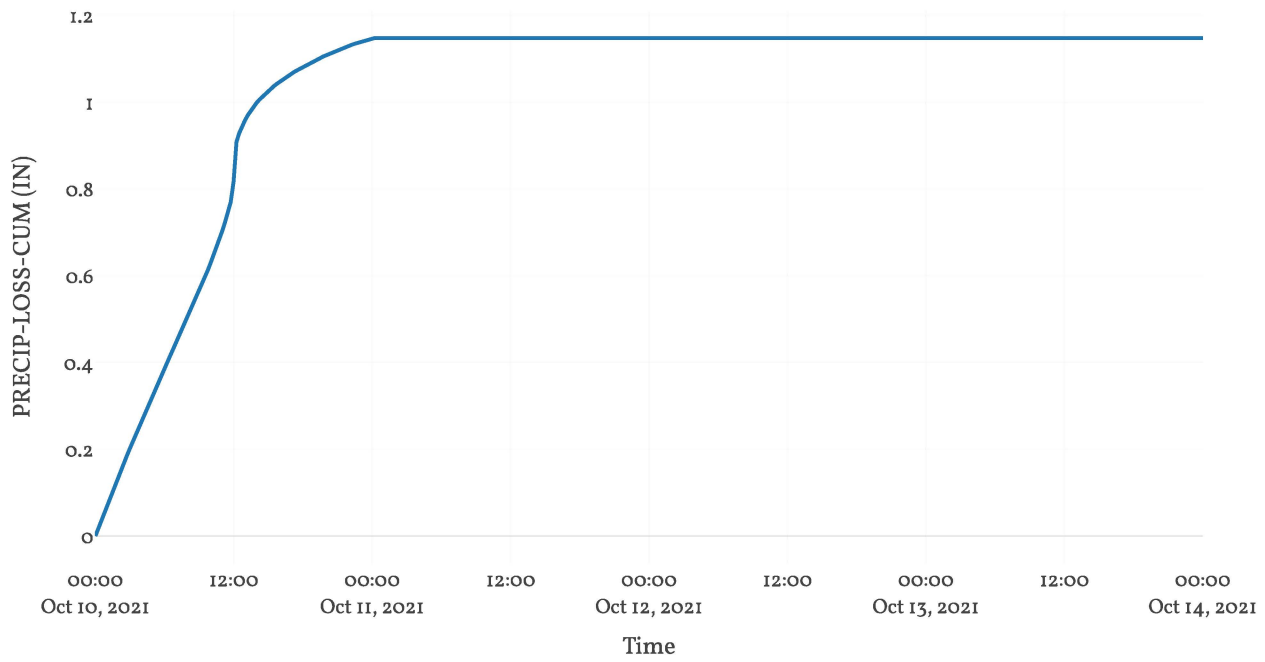
## Cumulative Excess Precipitation



Cumulative Precipitation

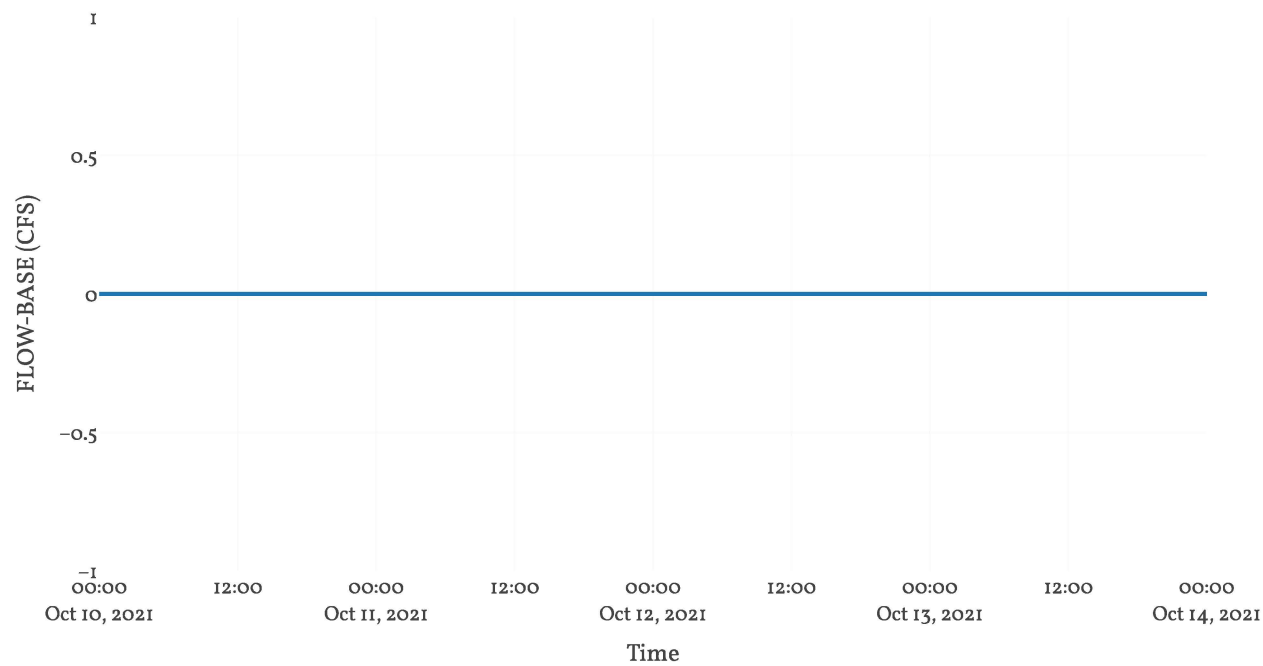


Cumulative Precipitation Loss

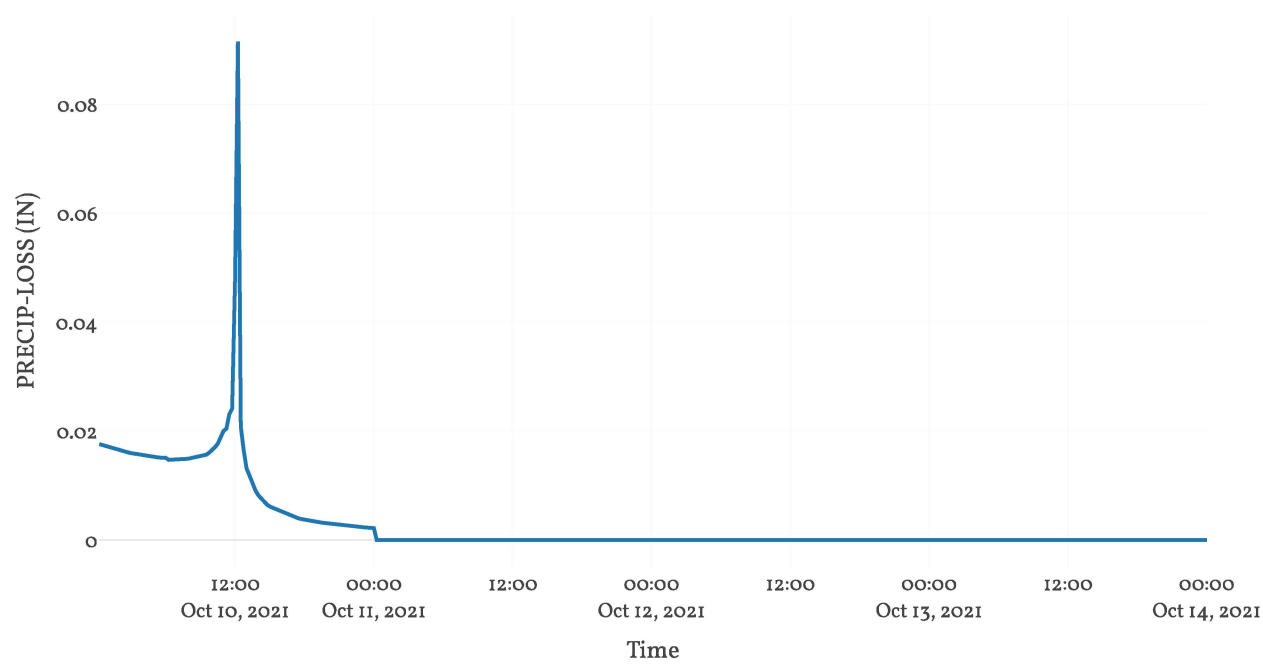




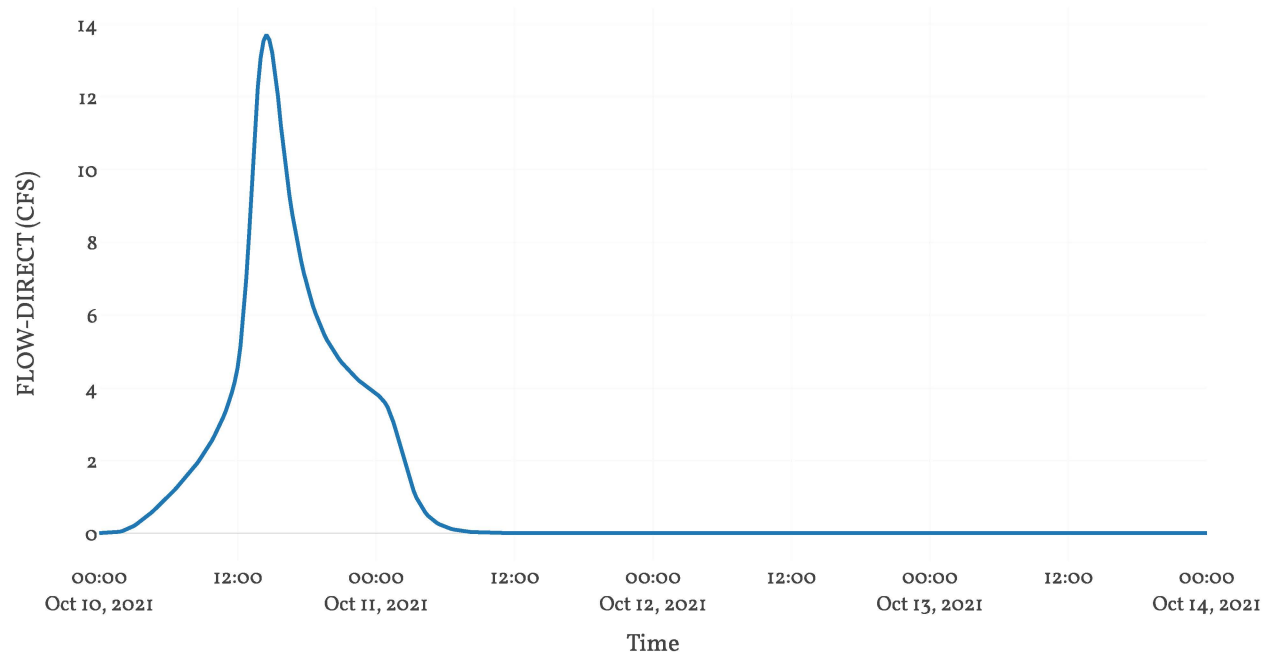
Baseflow



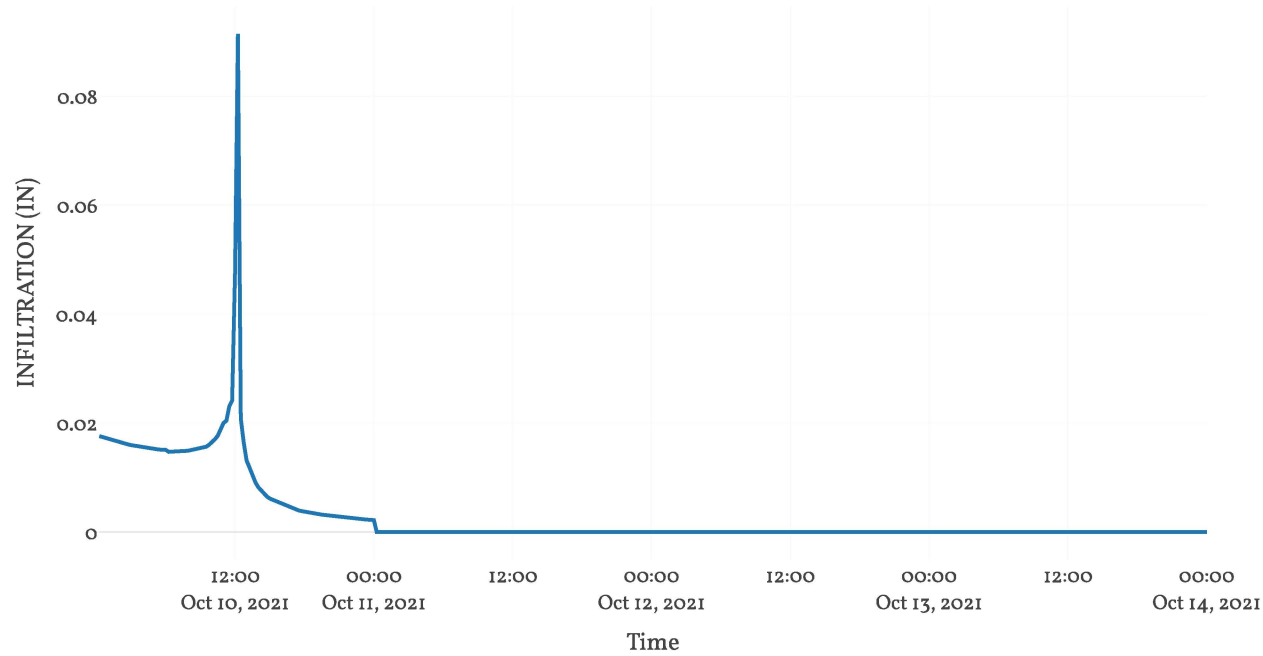
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1 - 02 Imp

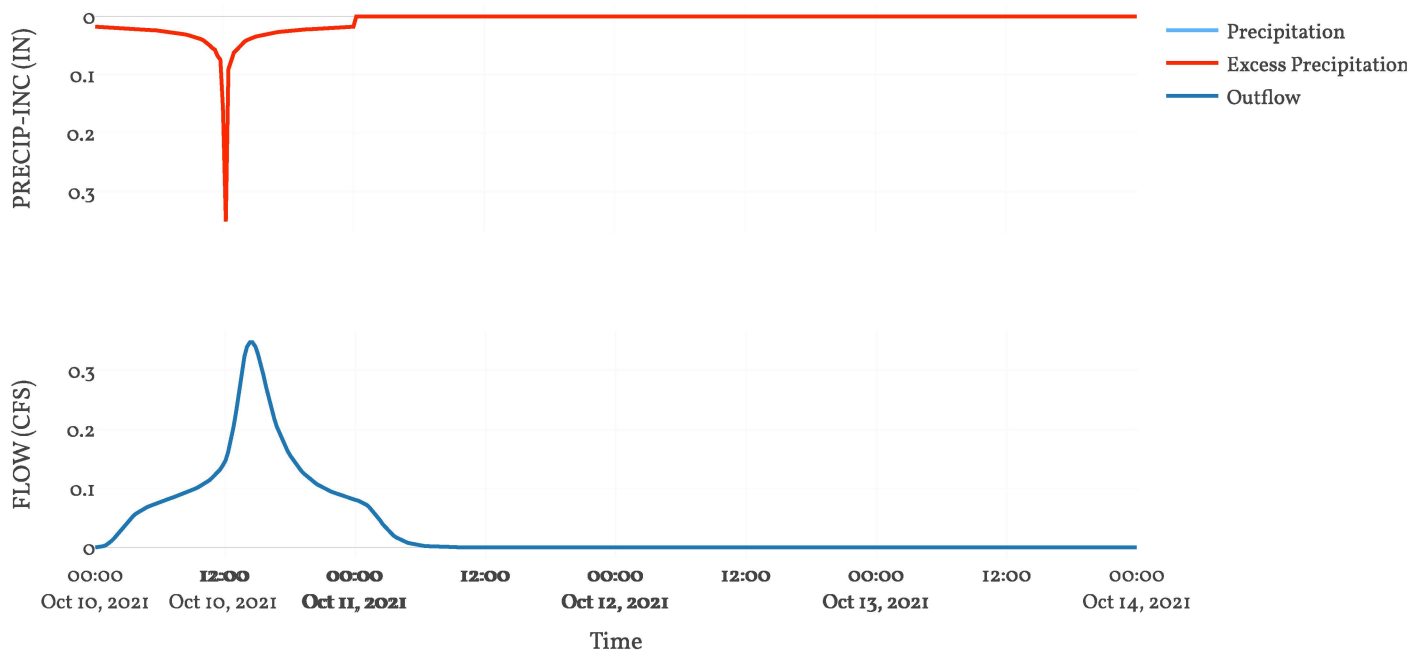
Area : 0  
Downstream : Junct - 2

Loss Rate: Scs	
Percent Impervious Area	100
Curve Number	89
Initial Abstraction	0

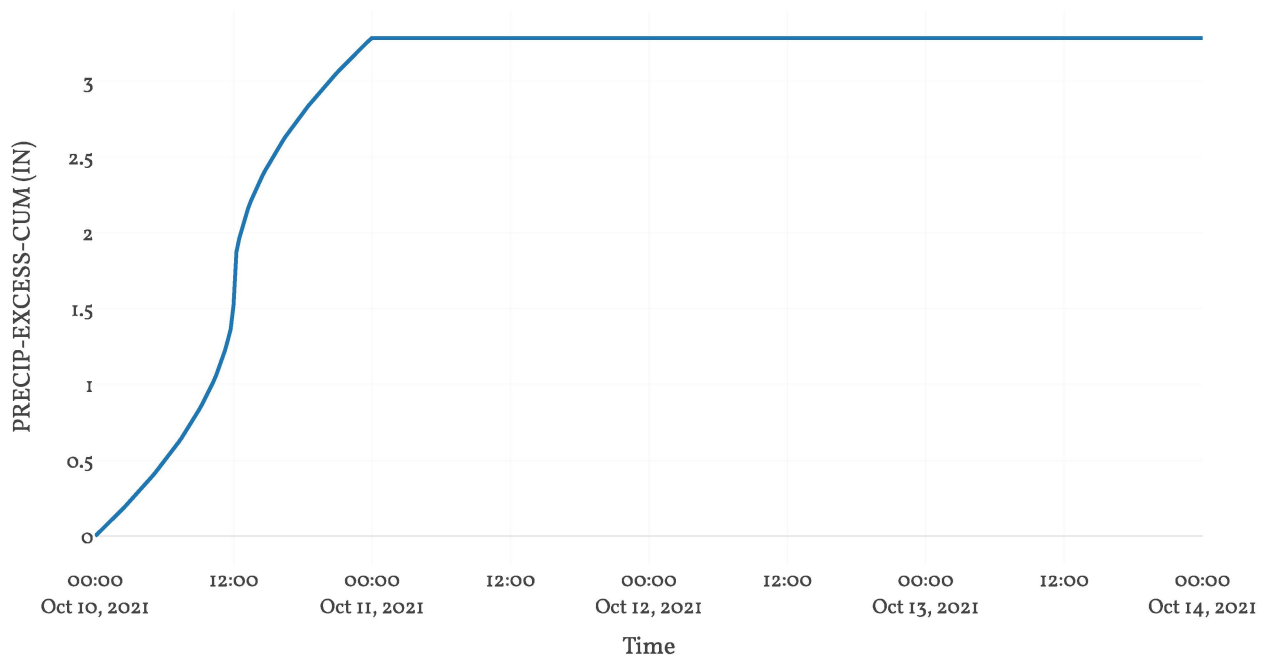
Transform: Scs	
Lag	133.24
Unitgraph Type	Standard

Results: Shed 1 - 02 Imp	
Peak Discharge (CFS)	0.35
Time of Peak Discharge	10Oct2021, 14:30
Volume (IN)	3.29
Precipitation Volume (AC - FT)	0.27
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.27
Direct Runoff Volume (AC - FT)	0.27
Baseflow Volume (AC - FT)	0

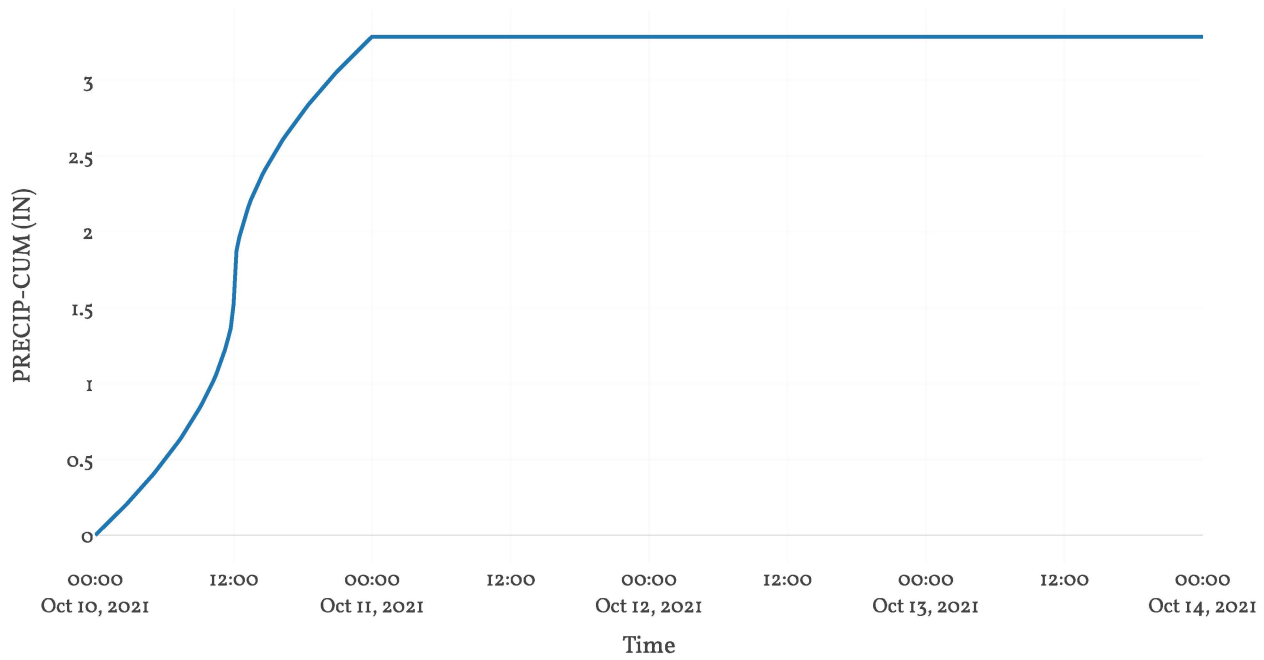
## Precipitation and Outflow



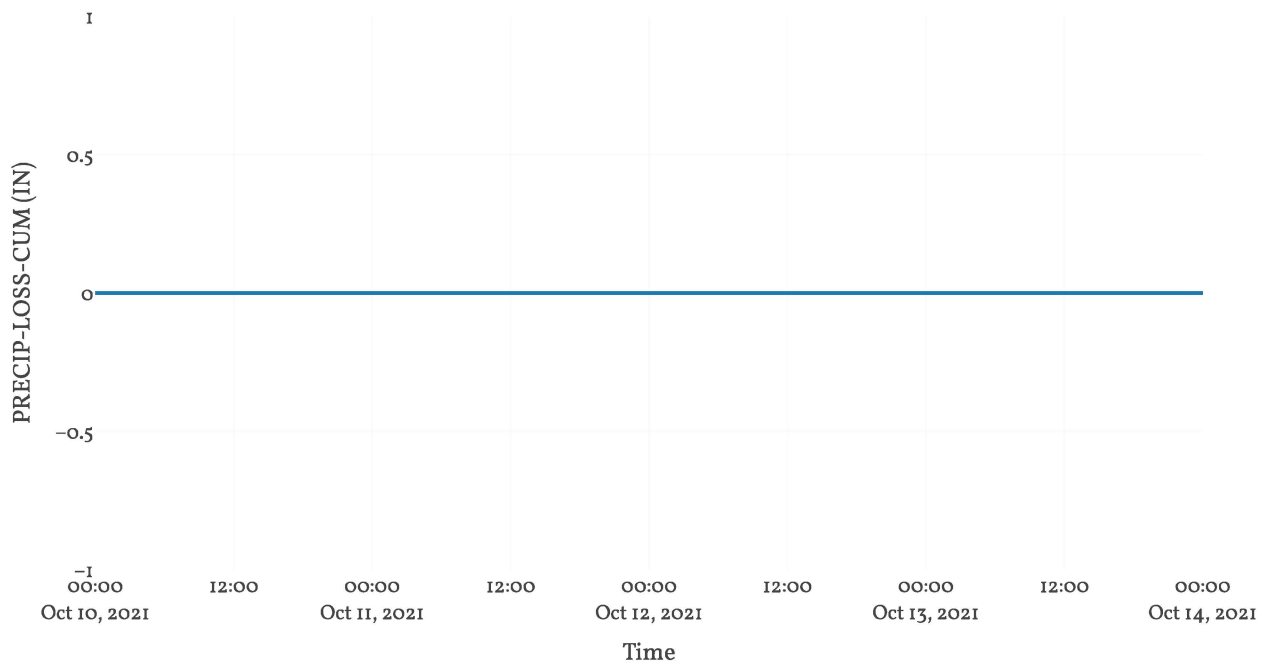
## Cumulative Excess Precipitation



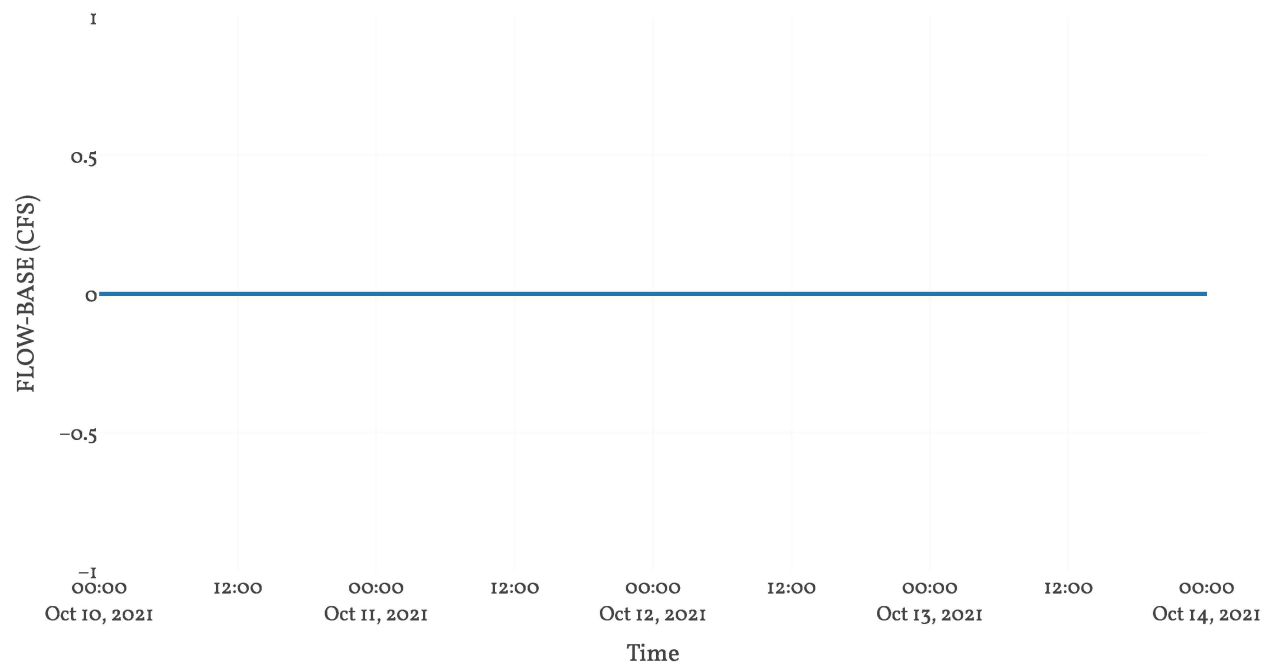
Cumulative Precipitation



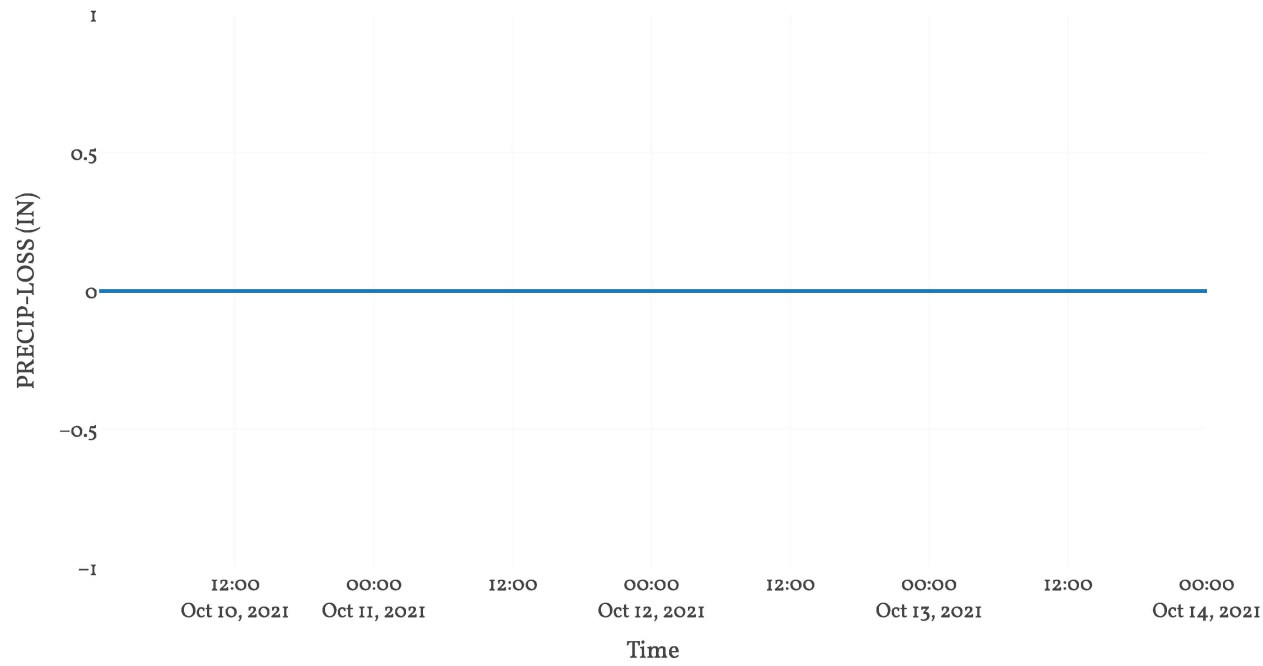
Cumulative Precipitation Loss



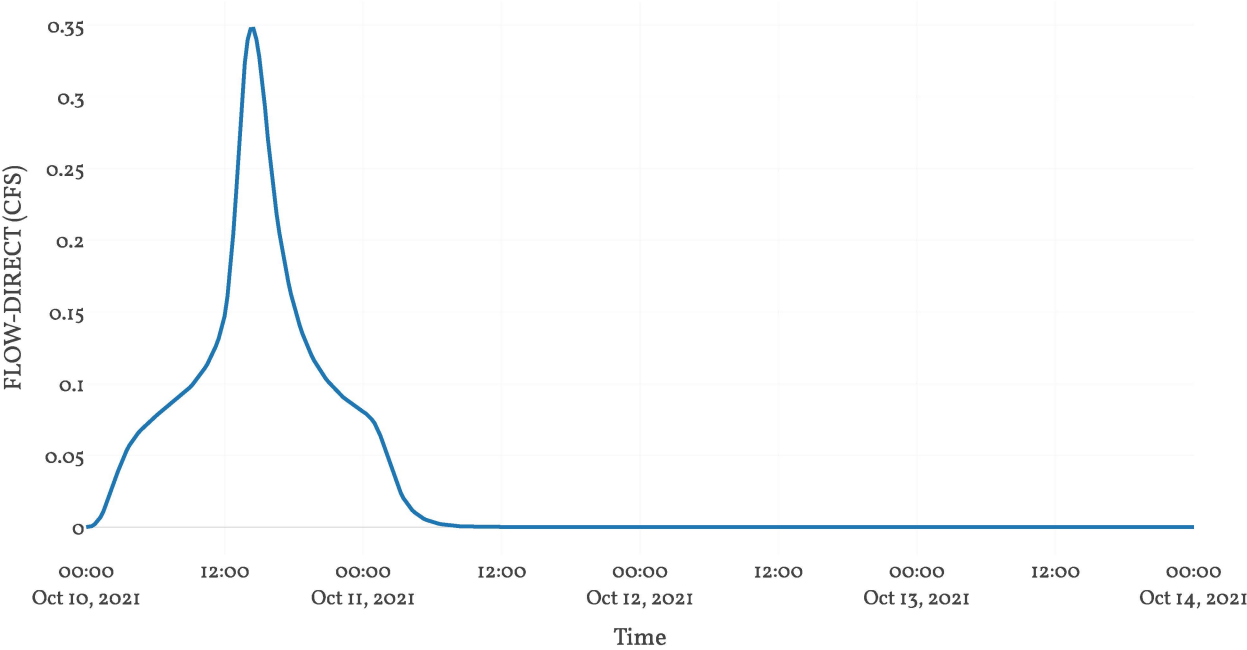
Baseflow



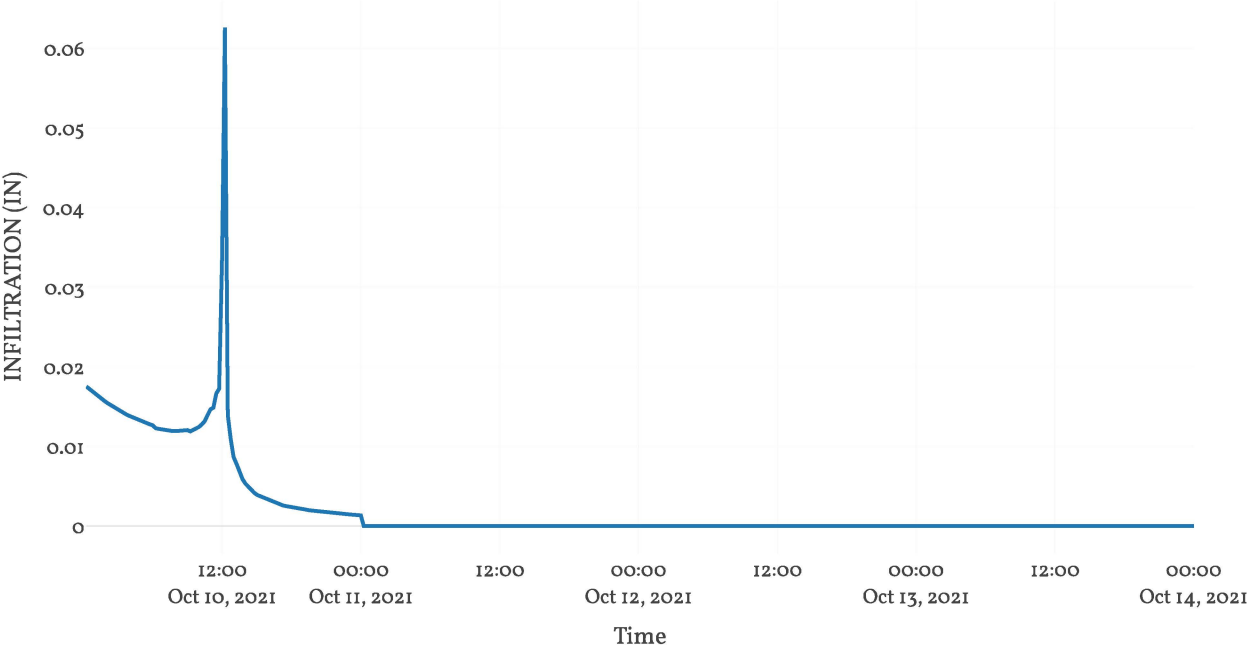
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1 - 03 Perv

Area : 0.09

Downstream : Junct - 3

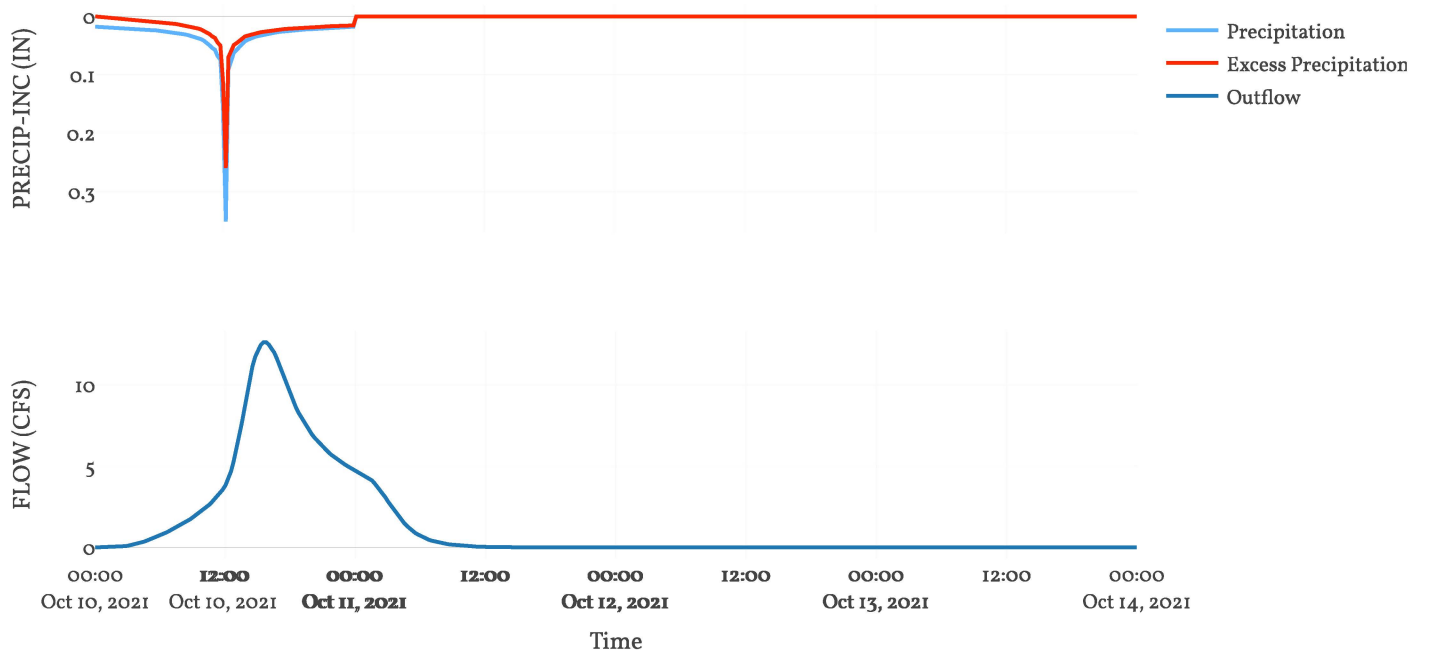
Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

Transform: Scs	
Lag	192.84
Unitgraph Type	Standard

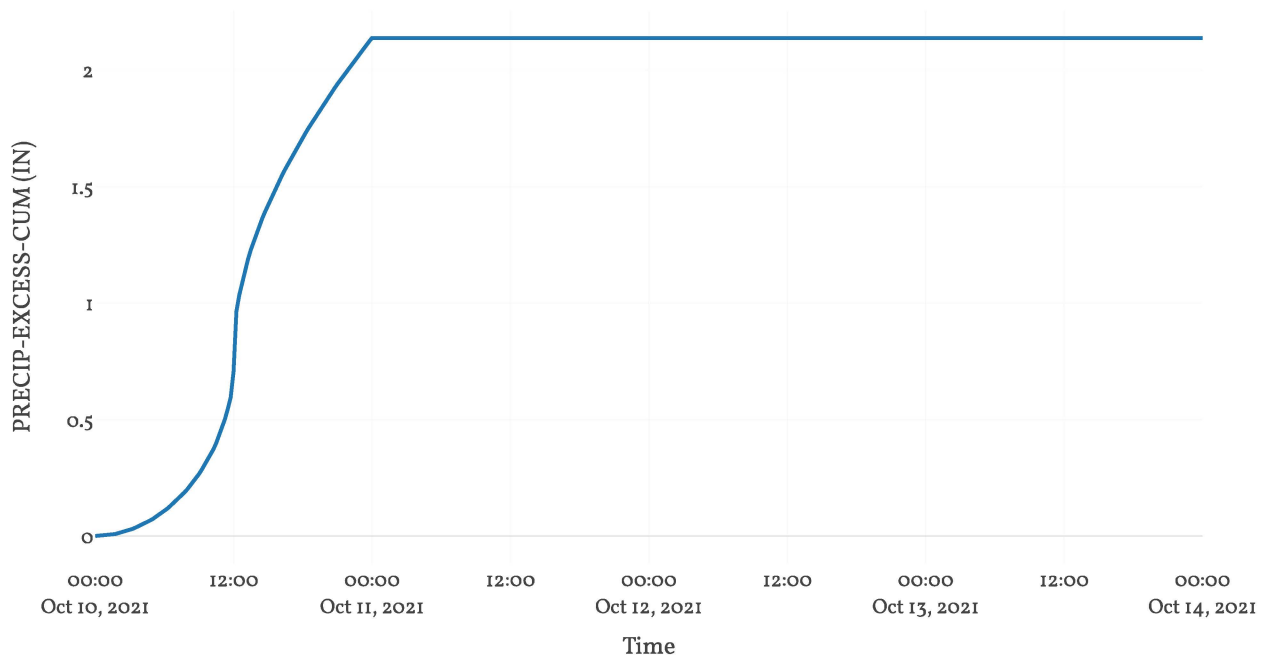
Results: Shed 1 - 03 Perv	
Peak Discharge (CFS)	12.62
Time of Peak Discharge	10Oct2021, 15:45
Volume (IN)	2.14
Precipitation Volume (AC - FT)	16.24
Loss Volume (AC - FT)	5.67
Excess Volume (AC - FT)	10.57
Direct Runoff Volume (AC - FT)	10.57
Baseflow Volume (AC - FT)	0



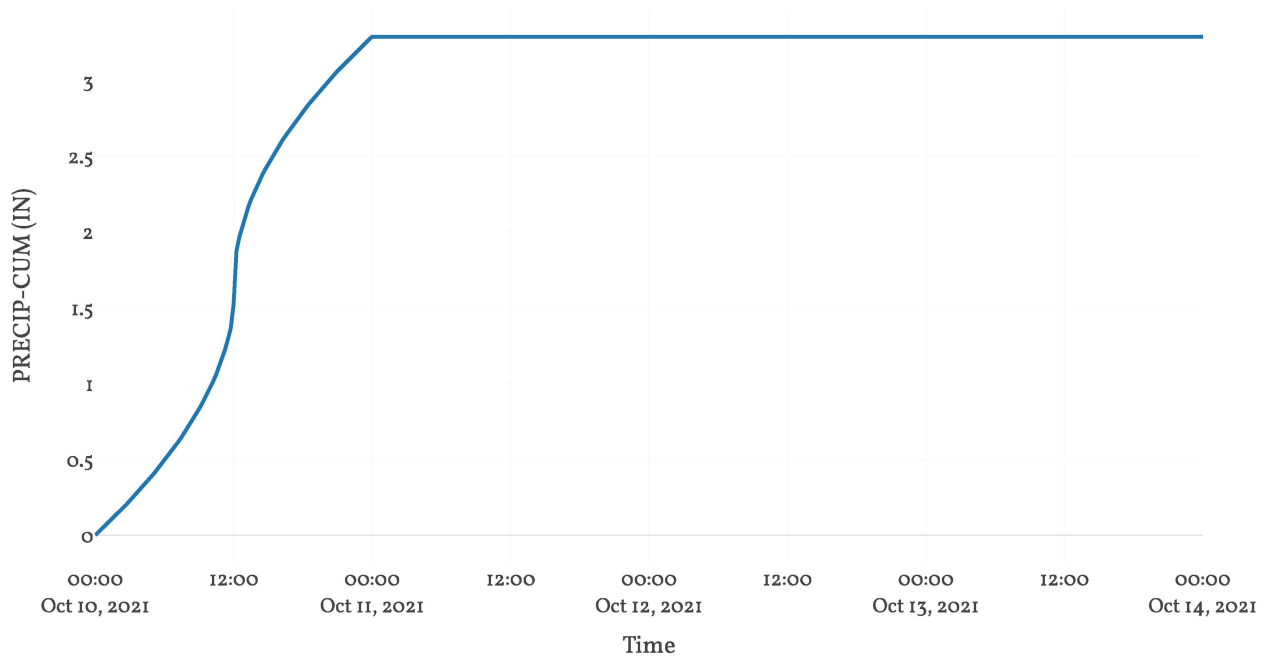
## Precipitation and Outflow



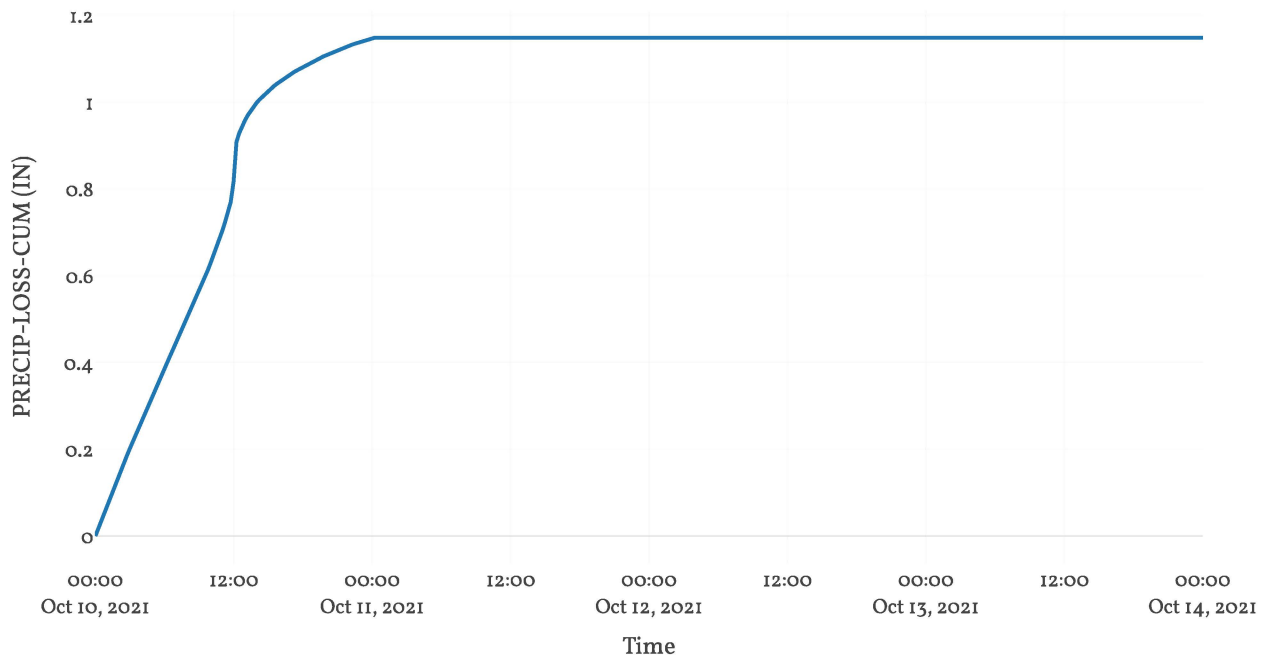
## Cumulative Excess Precipitation



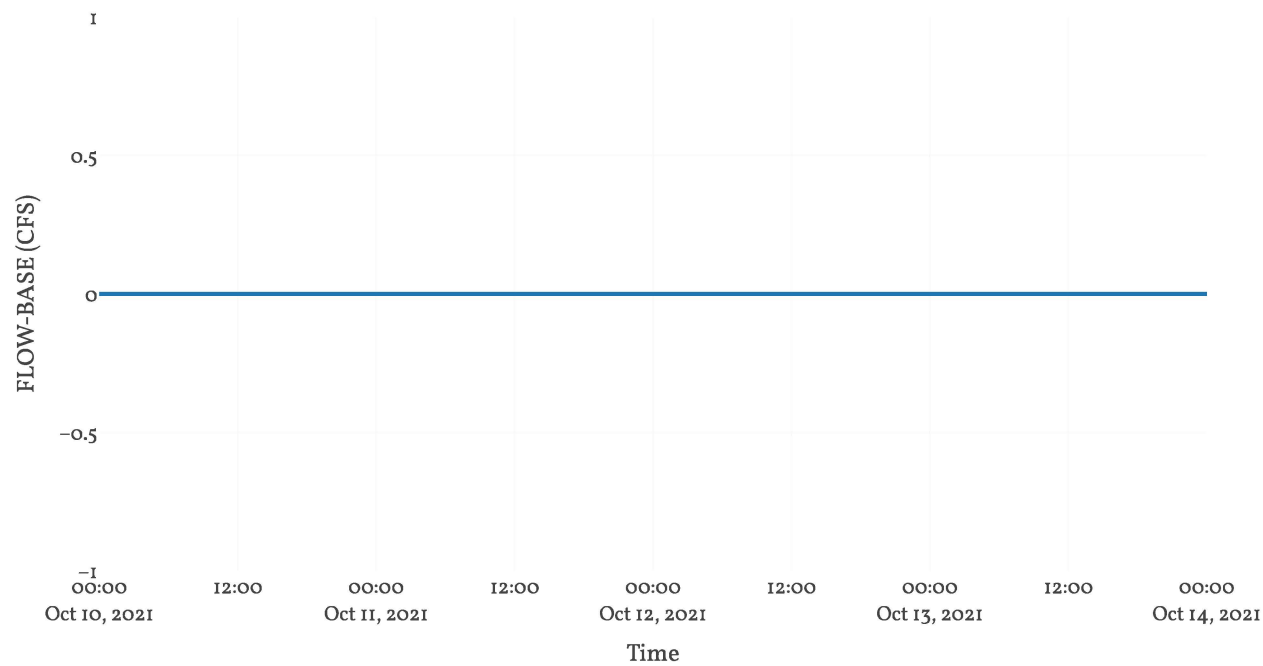
Cumulative Precipitation



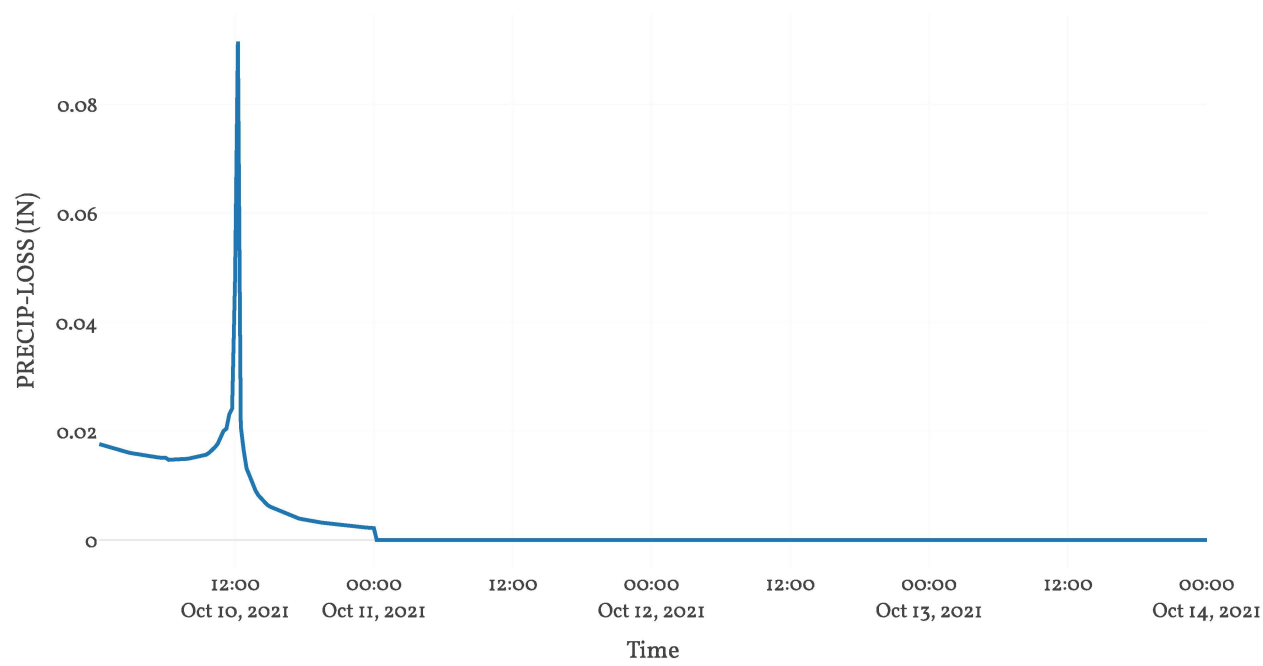
Cumulative Precipitation Loss



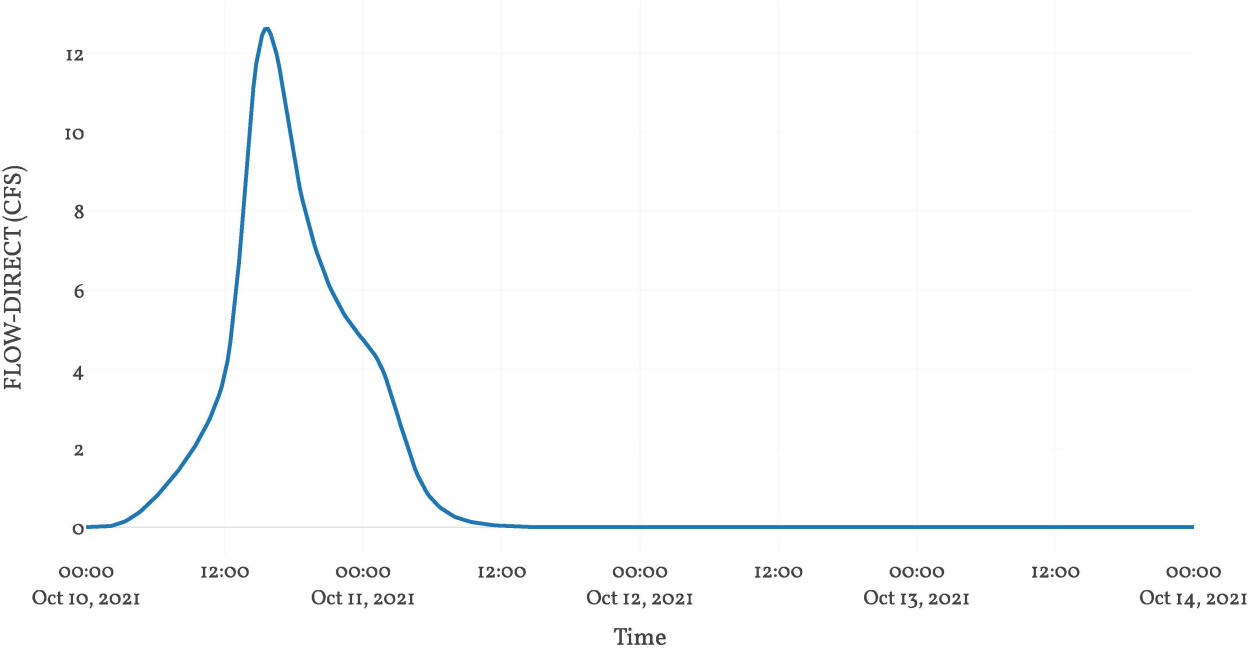
Baseflow



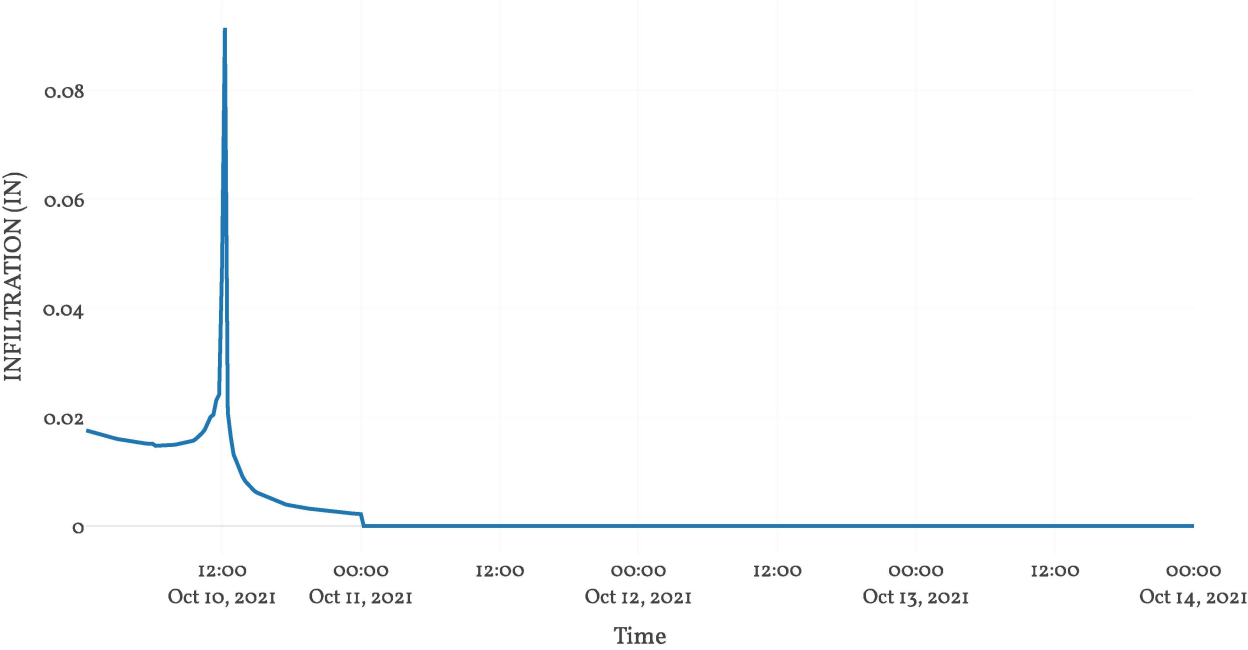
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1-03 Imp

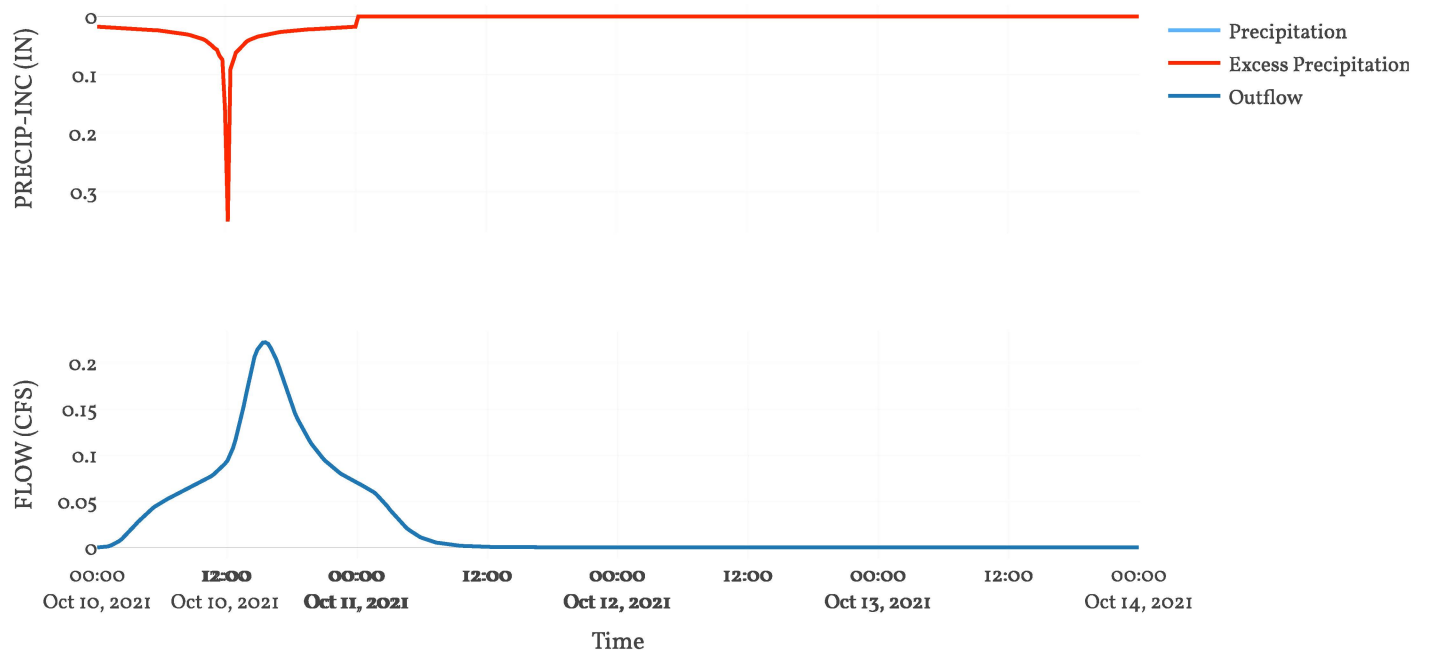
Area : 0  
Downstream : Junct - 3

Loss Rate: Scs	
Percent Impervious Area	100
Curve Number	89
Initial Abstraction	0

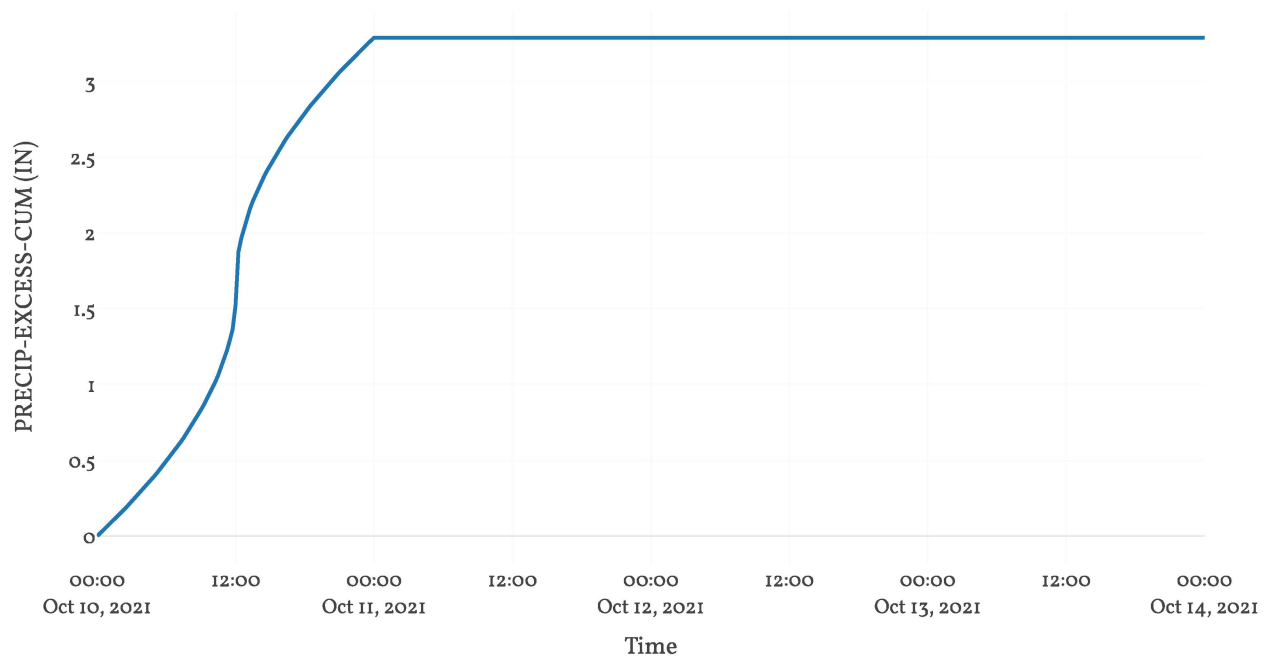
Transform: Scs	
Lag	192.85
Unitgraph Type	Standard

Results: Shed 1-03 Imp	
Peak Discharge (CFS)	0.22
Time of Peak Discharge	10Oct2021, 15:30
Volume (IN)	3.29
Precipitation Volume (AC - FT)	0.2
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.2
Direct Runoff Volume (AC - FT)	0.2
Baseflow Volume (AC - FT)	0

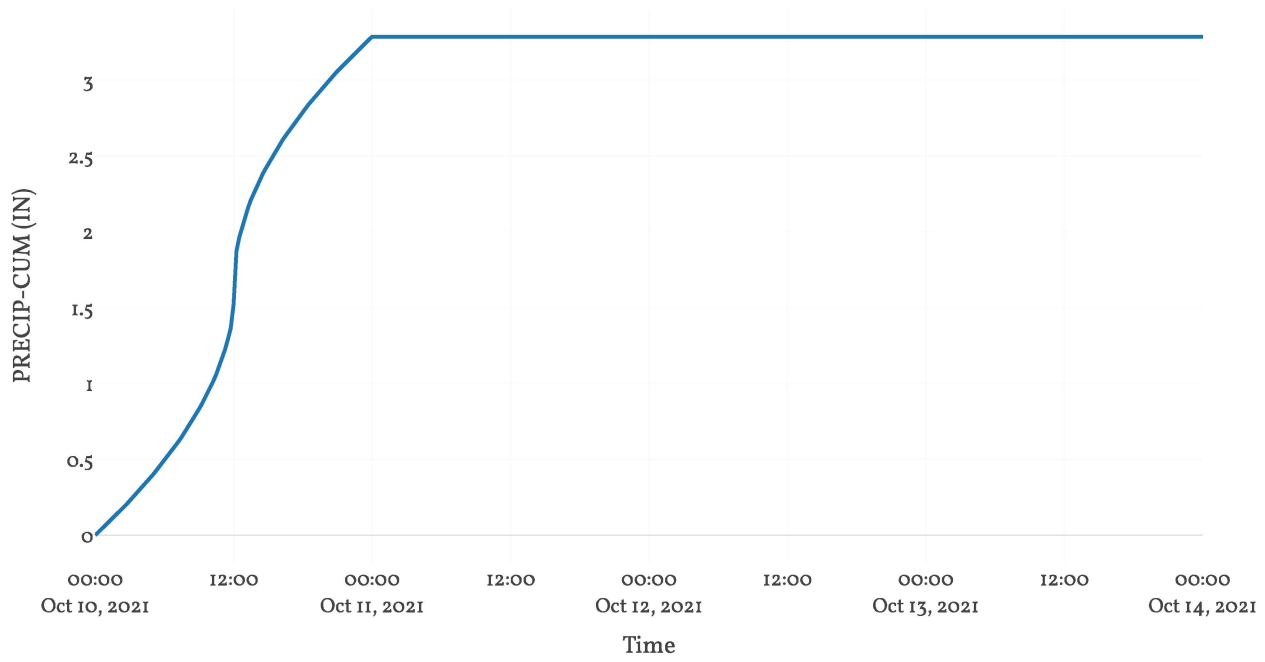
## Precipitation and Outflow



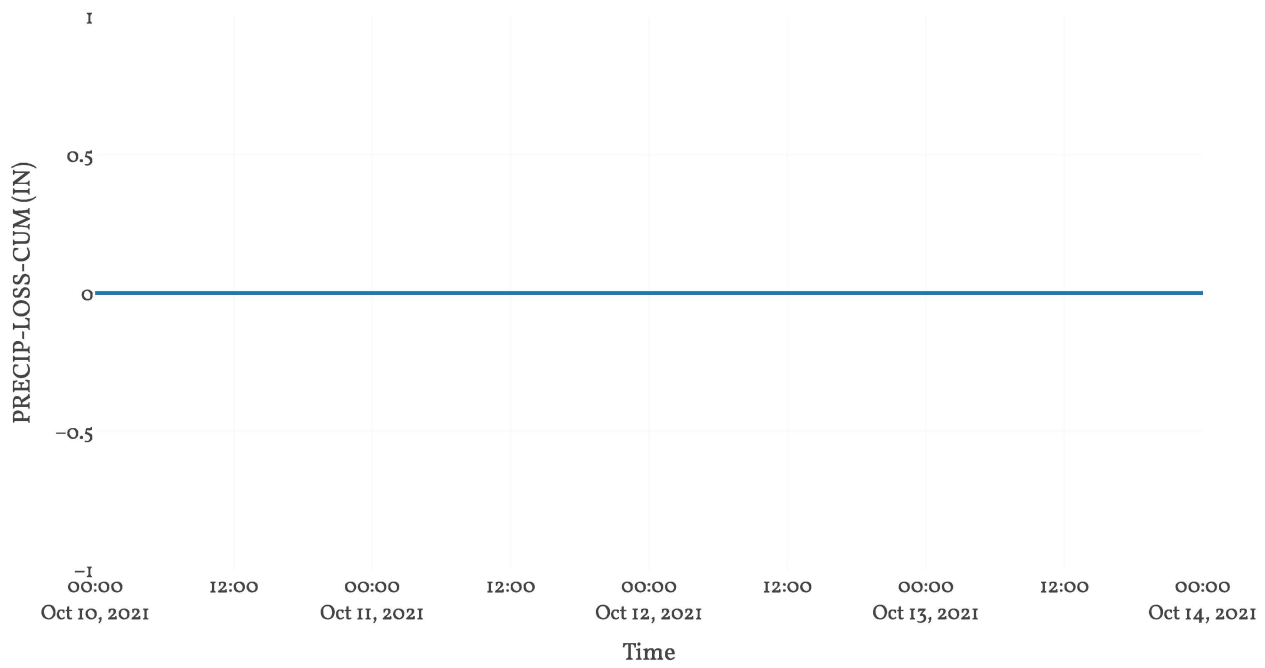
## Cumulative Excess Precipitation



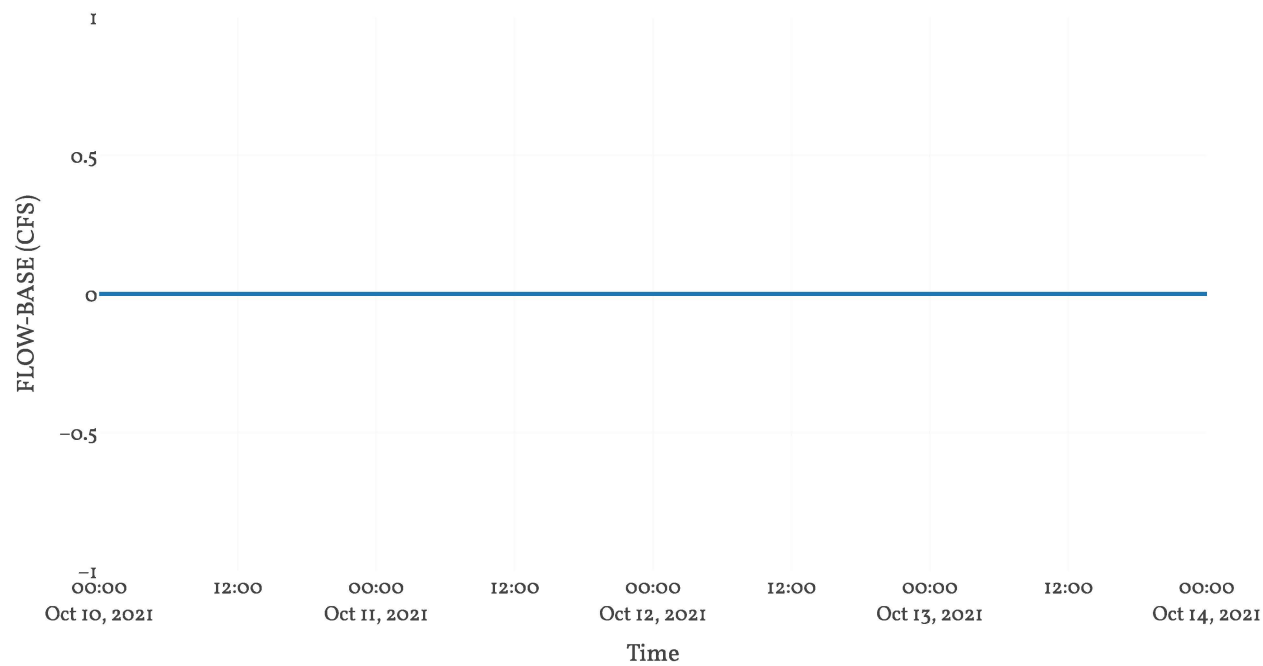
Cumulative Precipitation



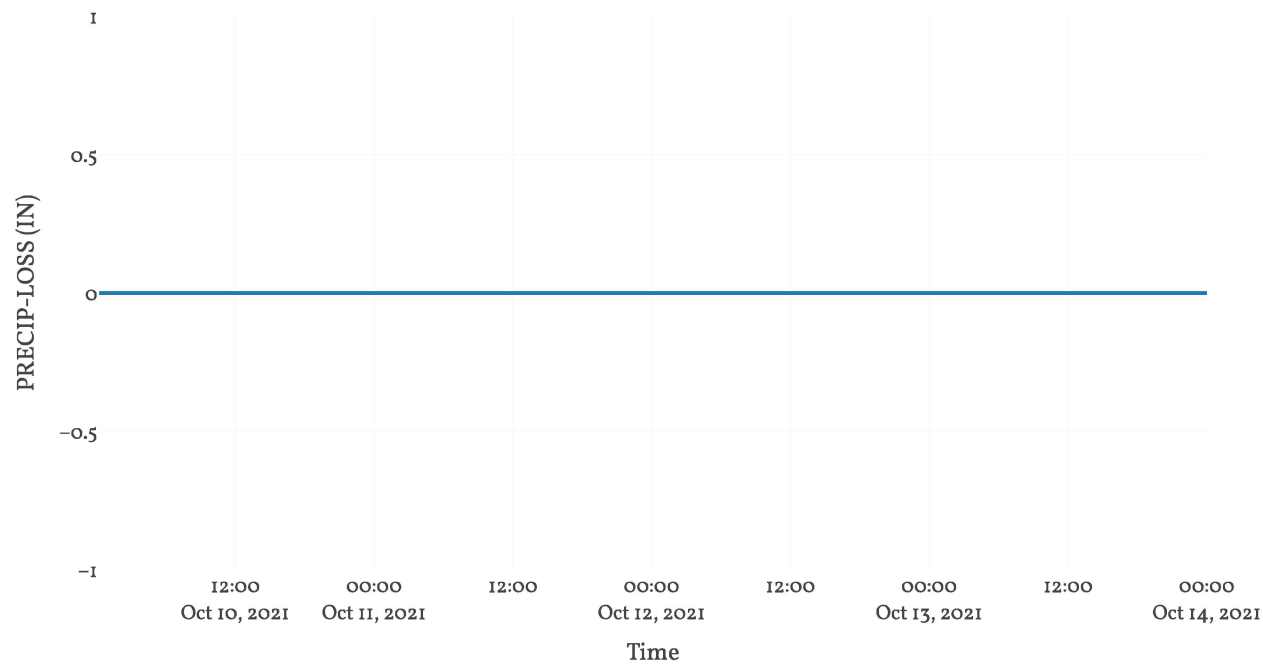
Cumulative Precipitation Loss



Baseflow

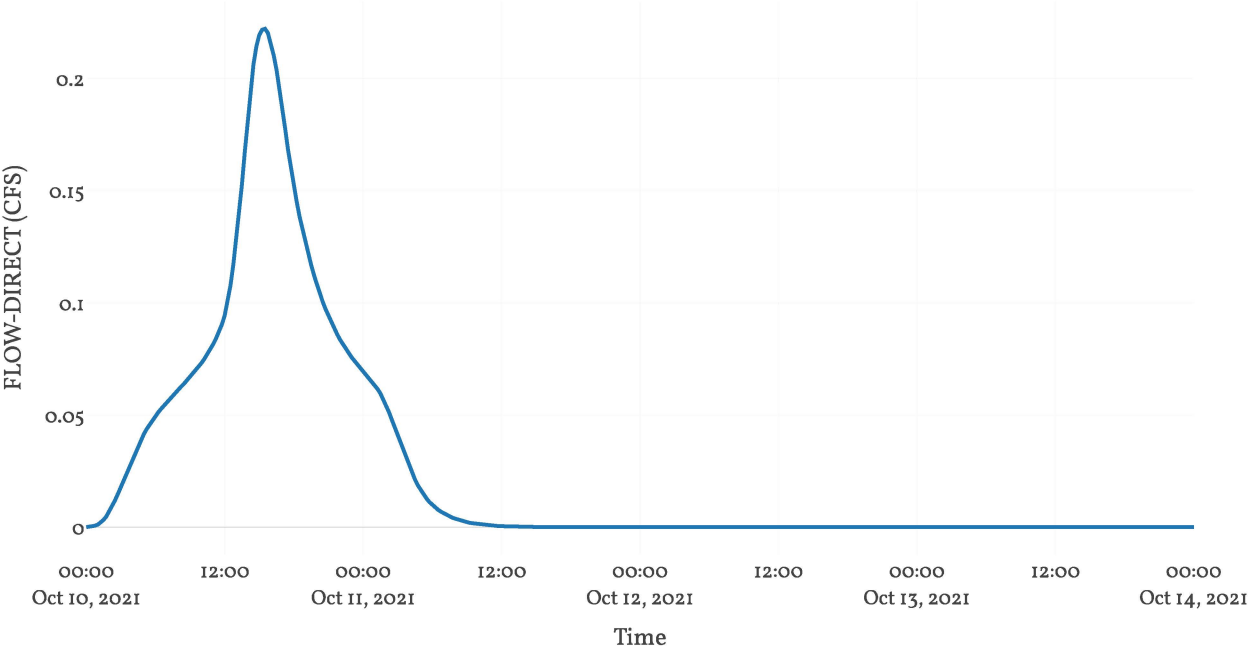


Precipitation Loss

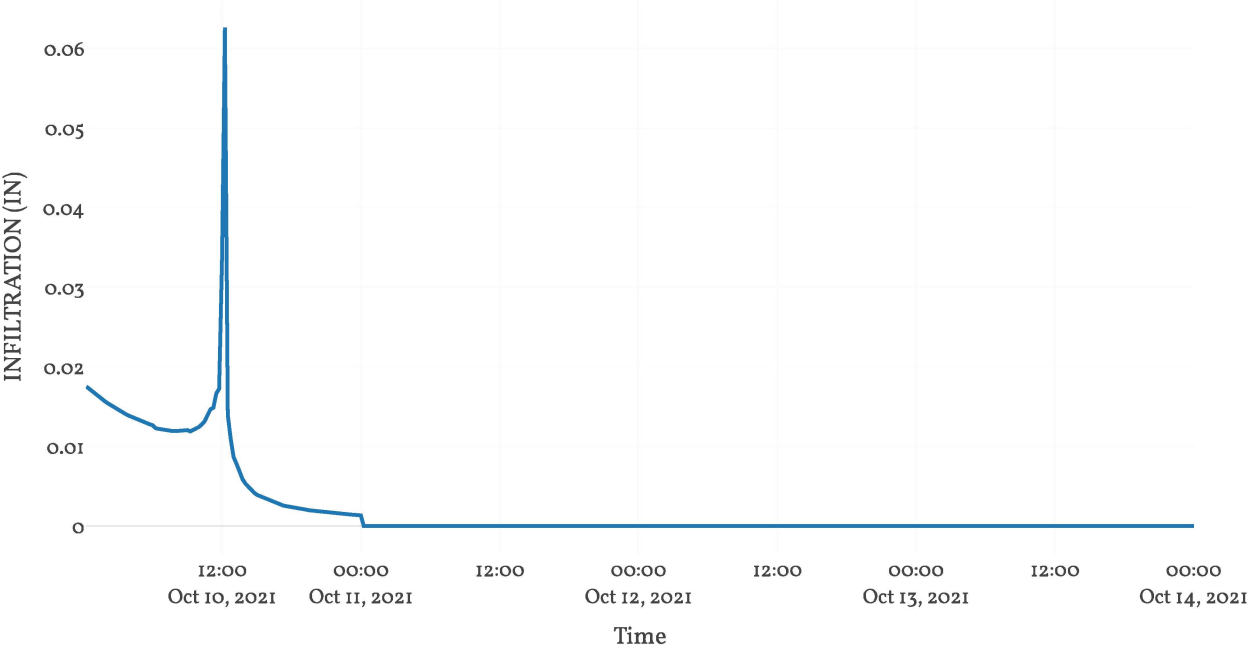




Direct Runoff



Soil Infiltration



# Subbasin: Shed 1-04 Perv

Area : 0.11

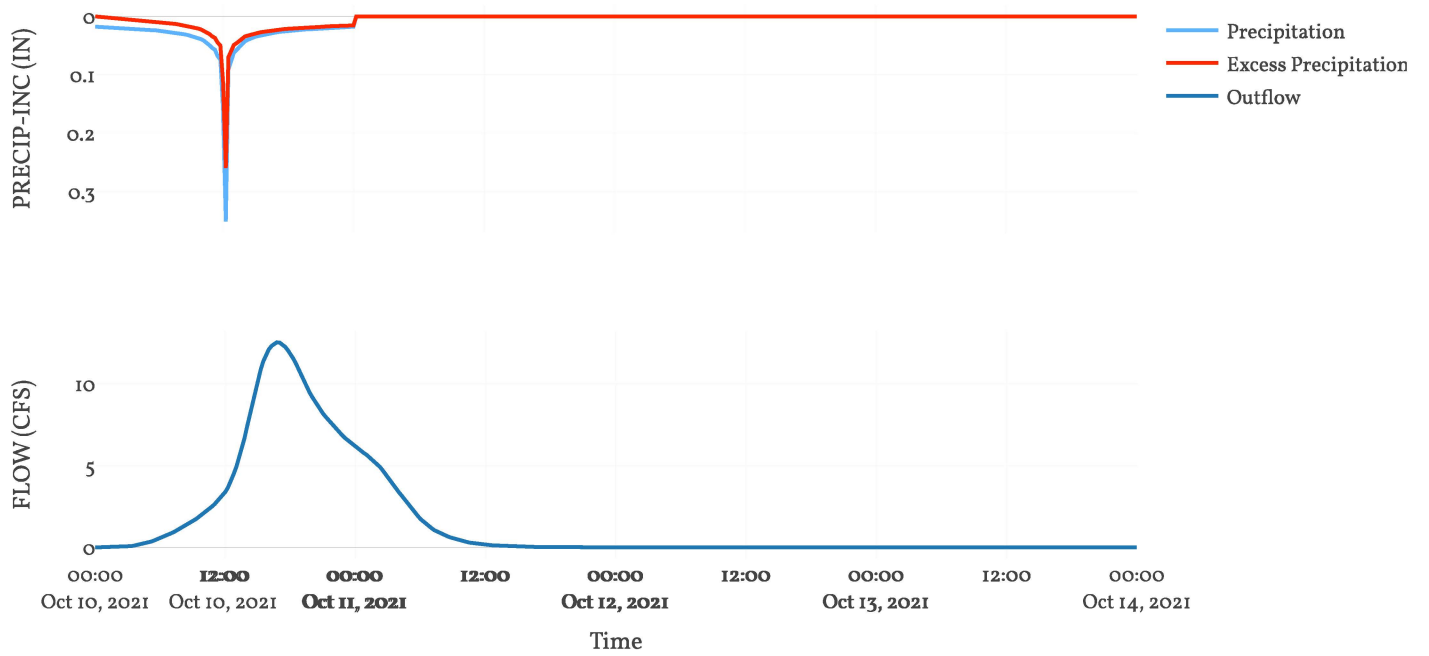
Downstream : Junct - 4

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

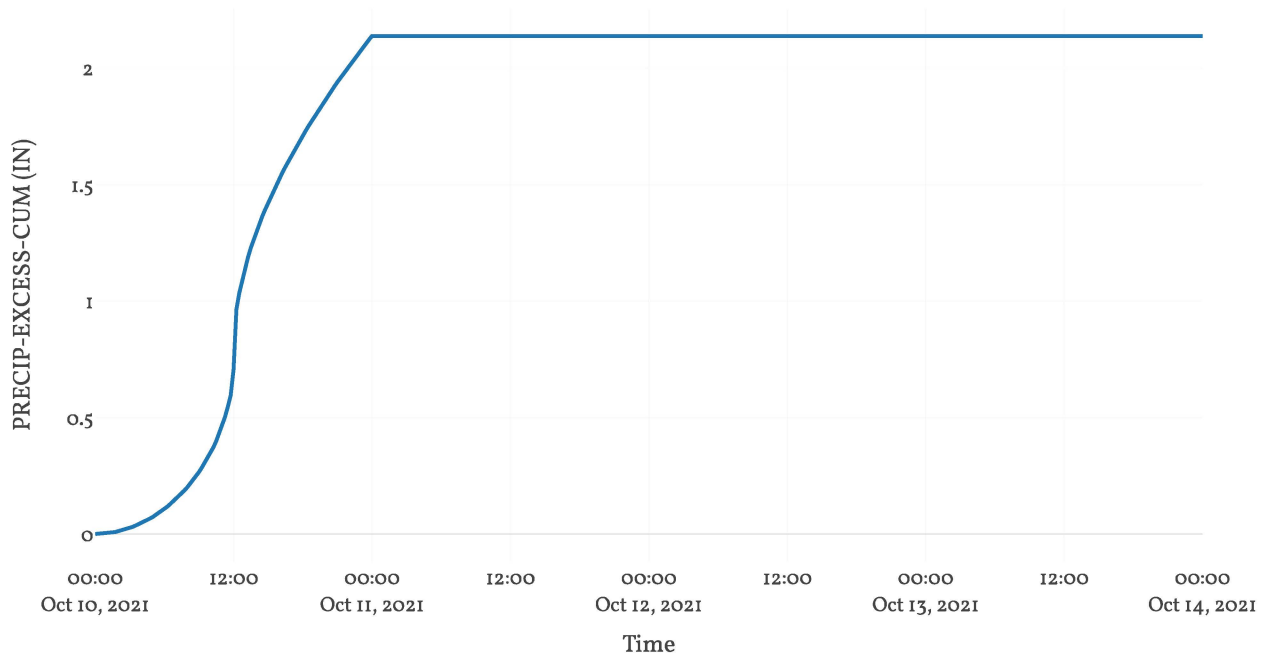
Transform: Scs	
Lag	253.4
Unitgraph Type	Standard

Results: Shed 1-04 Perv	
Peak Discharge (CFS)	12.54
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	2.14
Precipitation Volume (AC - FT)	18.58
Loss Volume (AC - FT)	6.49
Excess Volume (AC - FT)	12.09
Direct Runoff Volume (AC - FT)	12.09
Baseflow Volume (AC - FT)	0

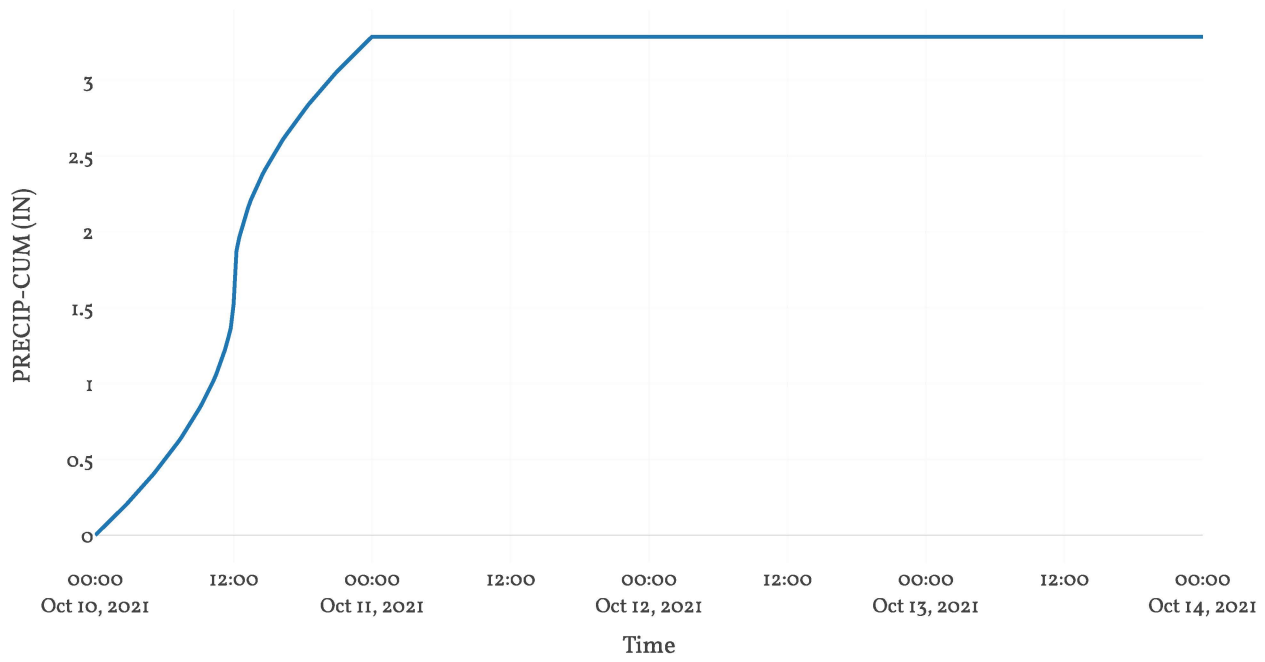
## Precipitation and Outflow



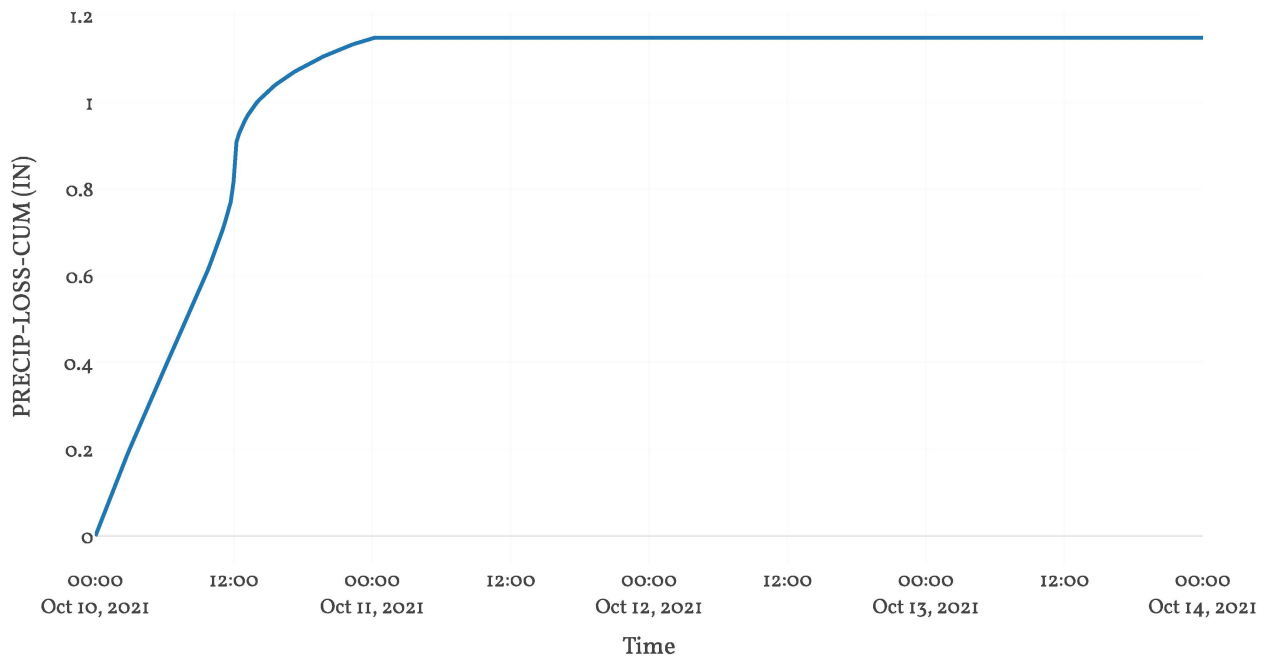
## Cumulative Excess Precipitation



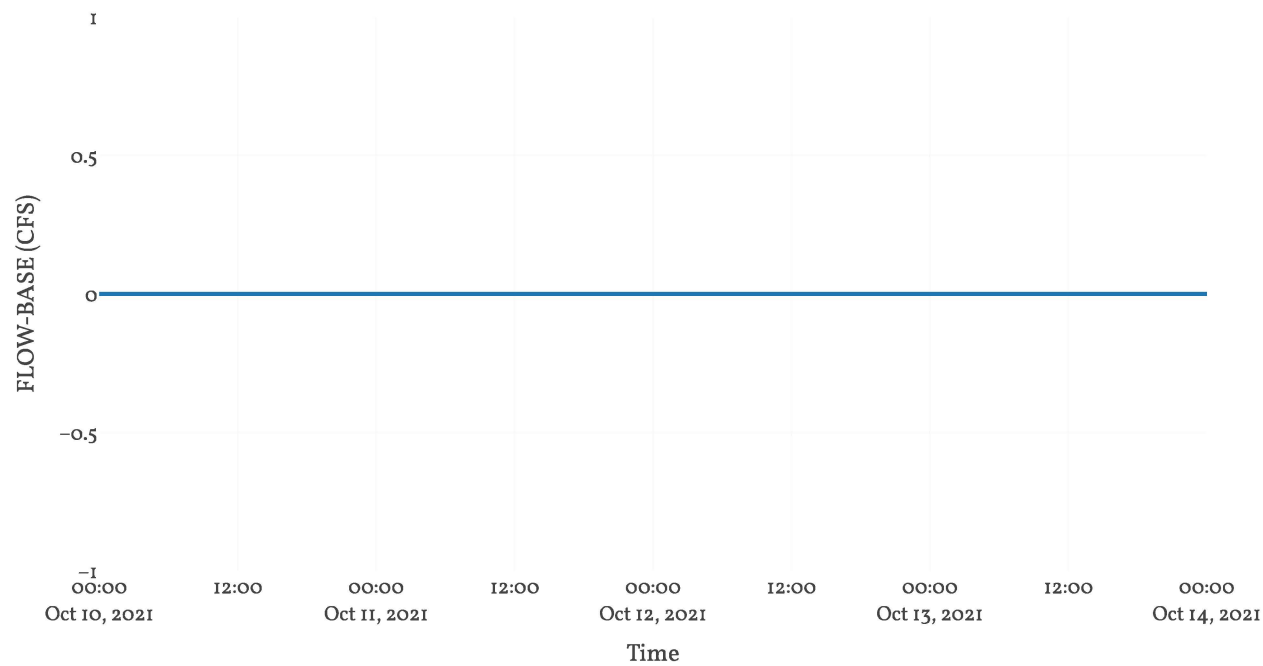
Cumulative Precipitation



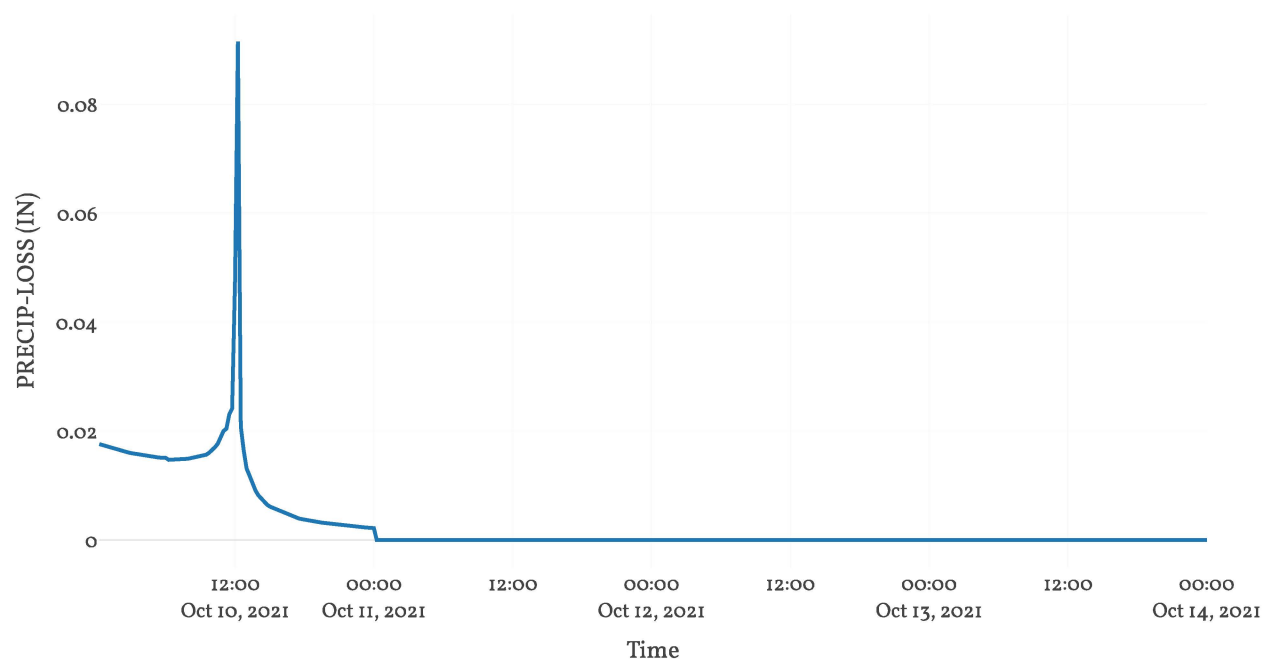
Cumulative Precipitation Loss



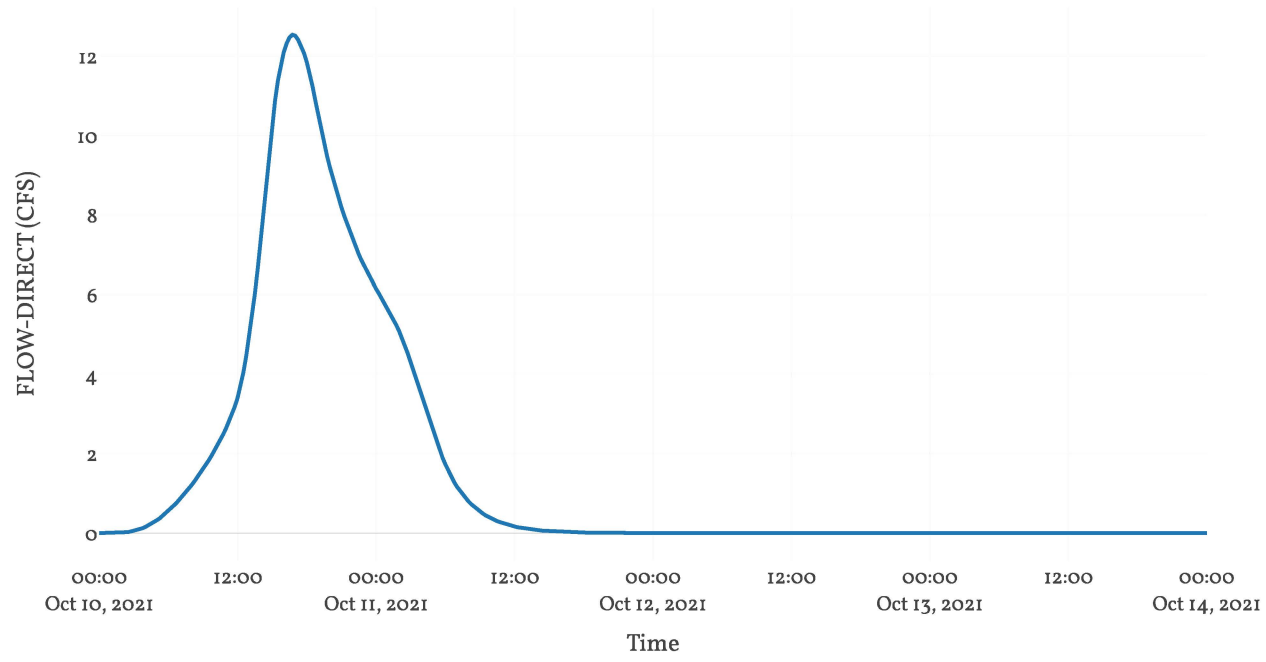
Baseflow



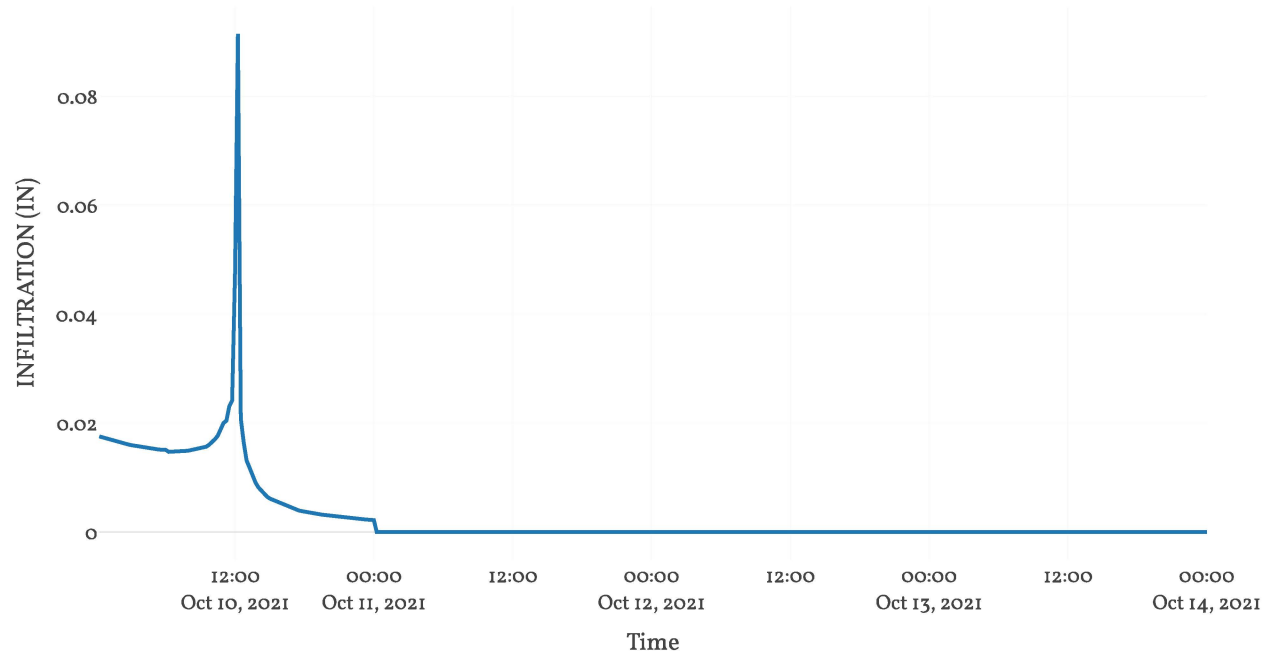
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed1-04 Imp

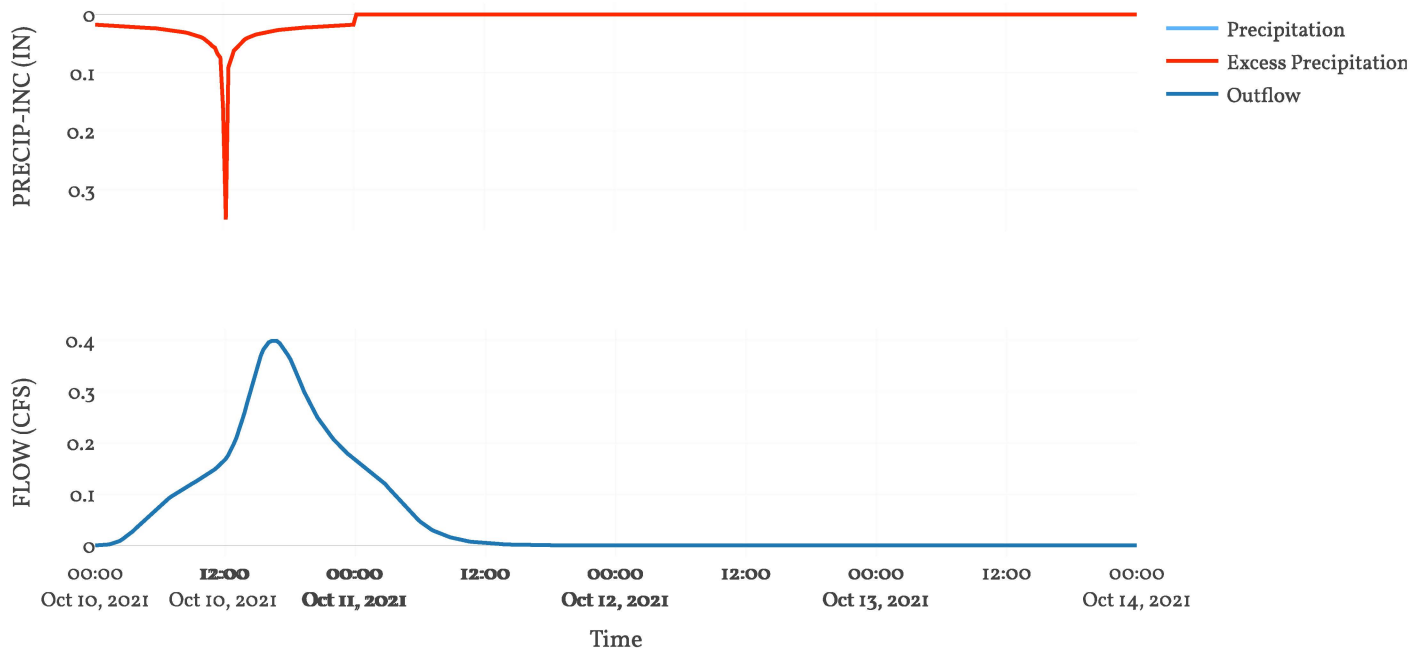
Area : 0  
Downstream : Junct - 4

Loss Rate: Scs	
Percent Impervious Area	100
Curve Number	89
Initial Abstraction	0

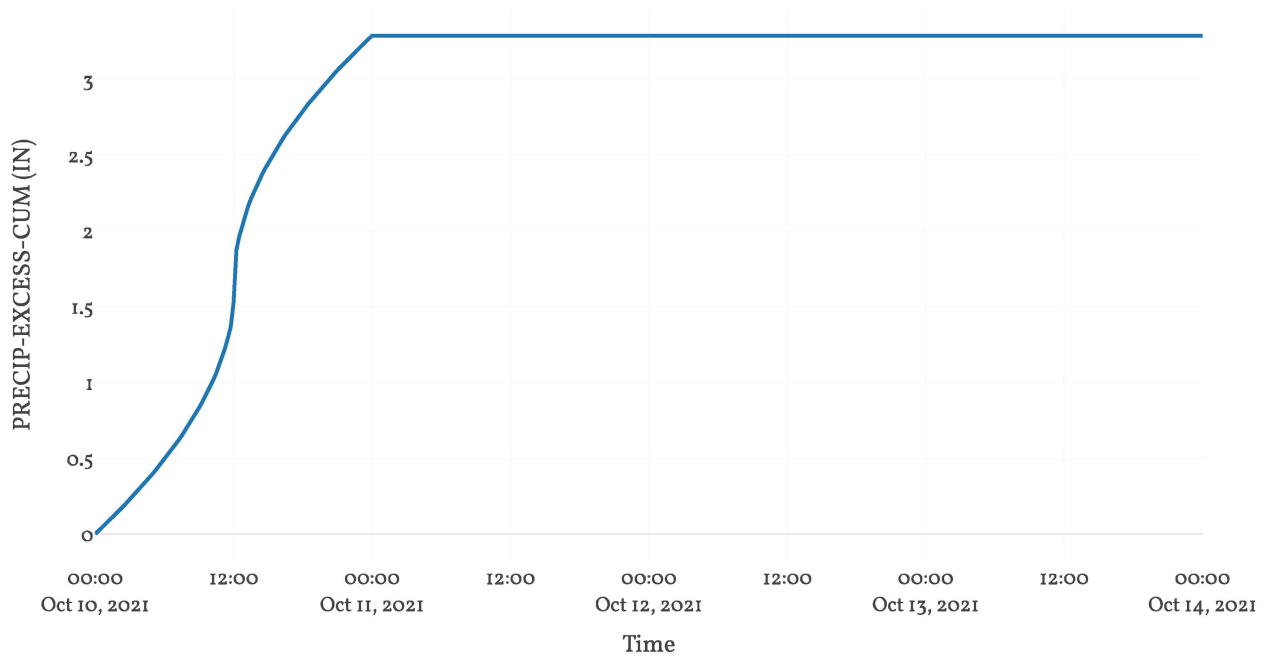
Transform: Scs	
Lag	253.4
Unitgraph Type	Standard

Results: Shed1-04 Imp	
Peak Discharge (CFS)	0.4
Time of Peak Discharge	10Oct2021, 16:30
Volume (IN)	3.29
Precipitation Volume (AC - FT)	0.42
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.42
Direct Runoff Volume (AC - FT)	0.42
Baseflow Volume (AC - FT)	0

## Precipitation and Outflow

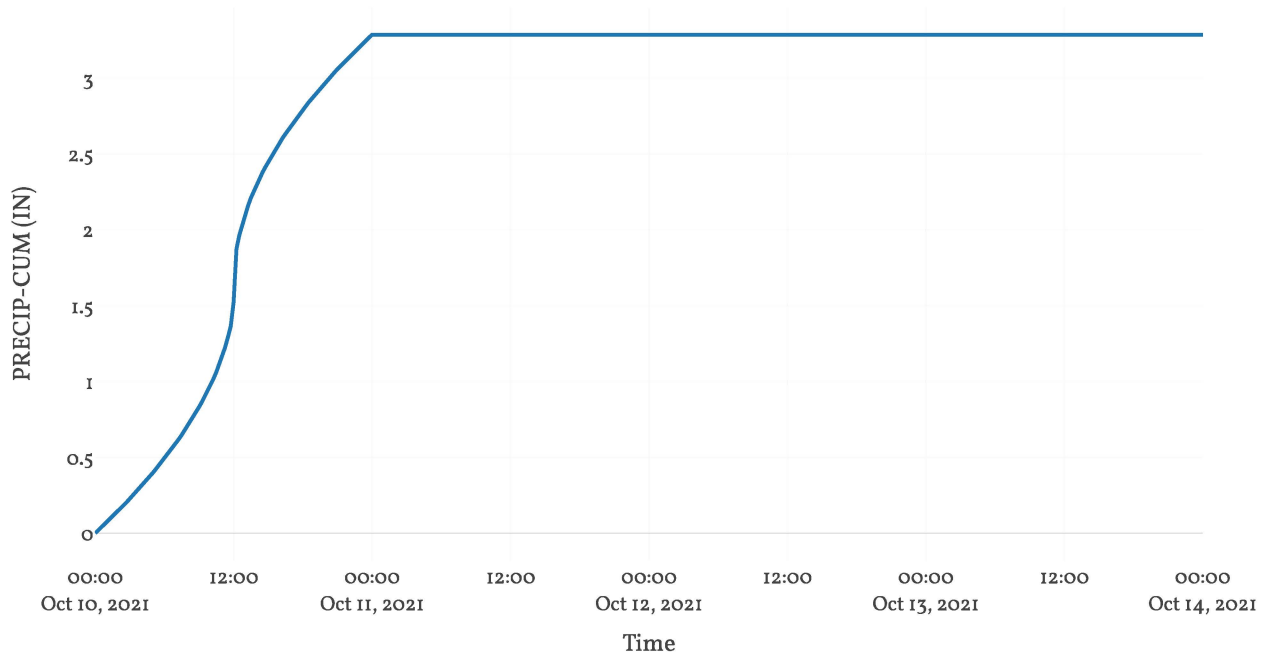


## Cumulative Excess Precipitation

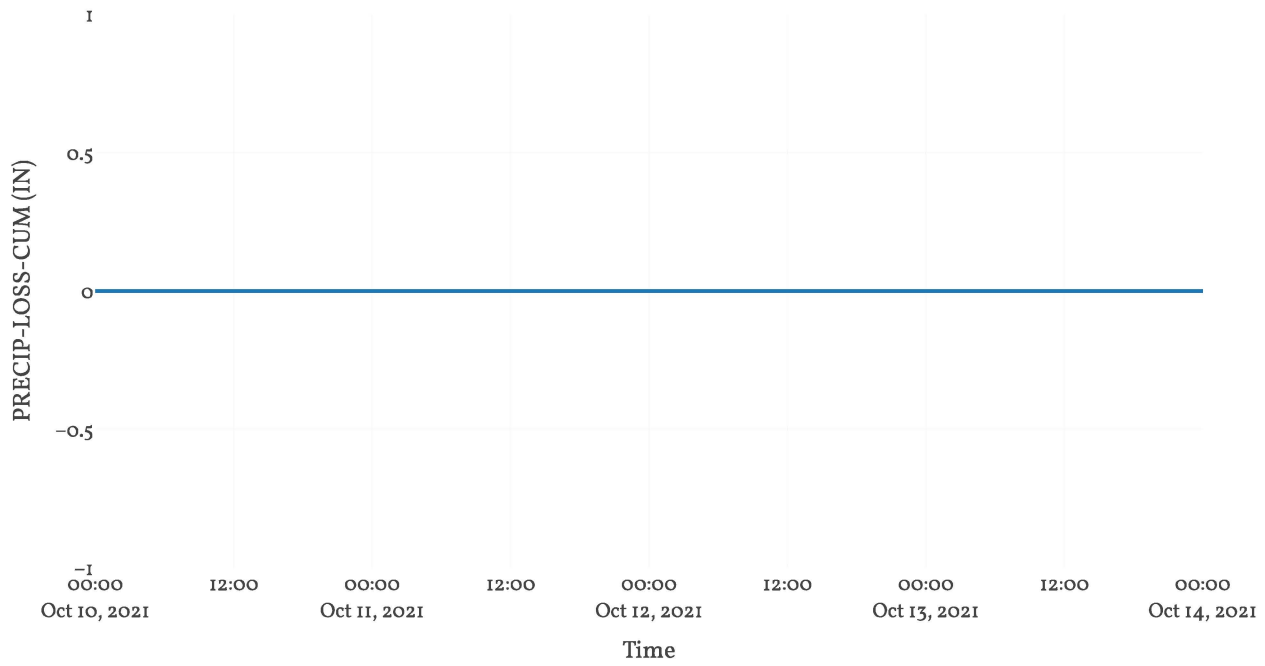




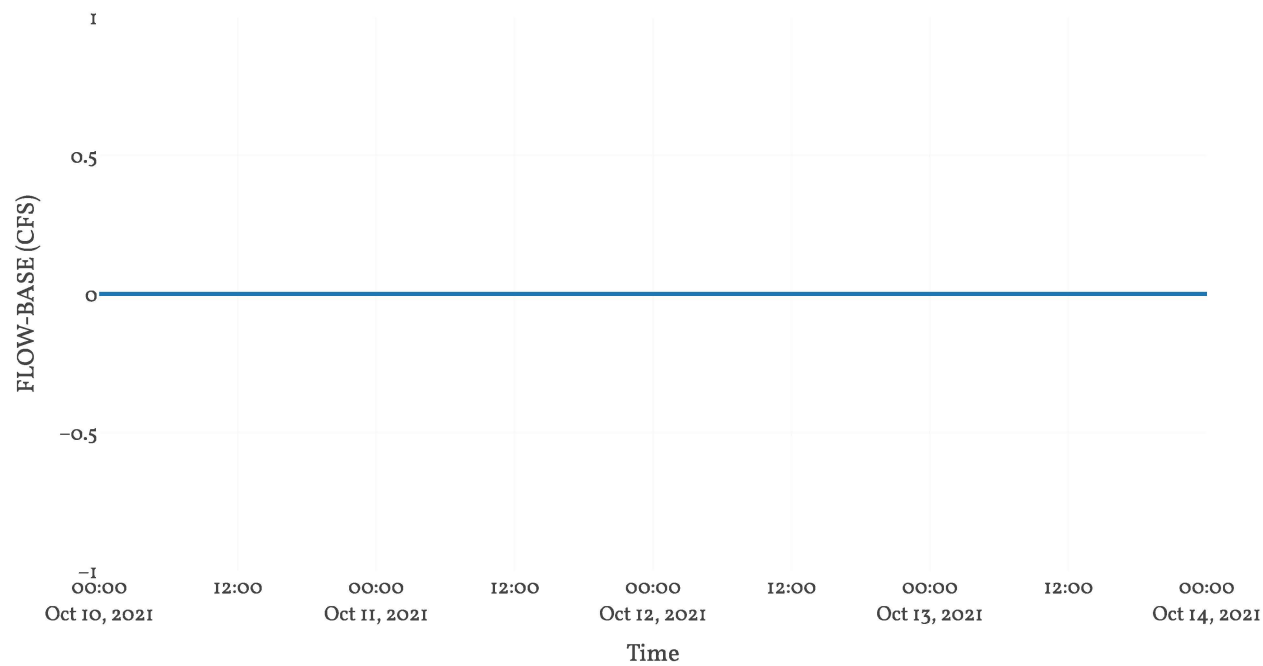
Cumulative Precipitation



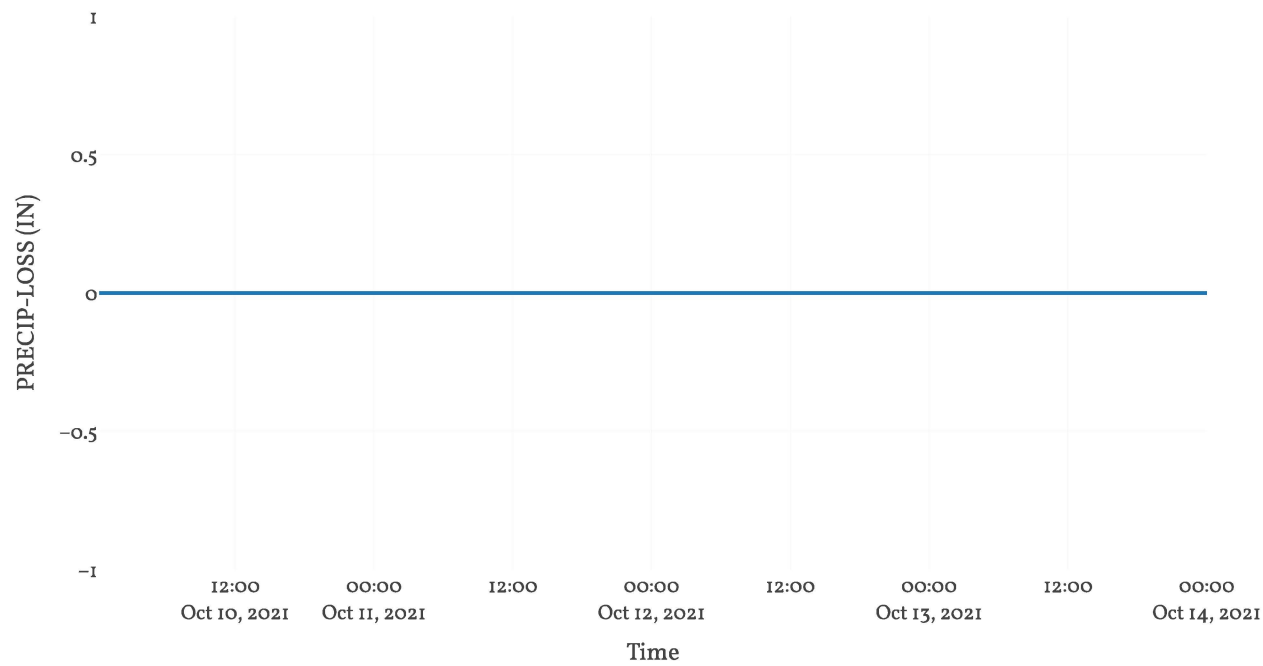
Cumulative Precipitation Loss



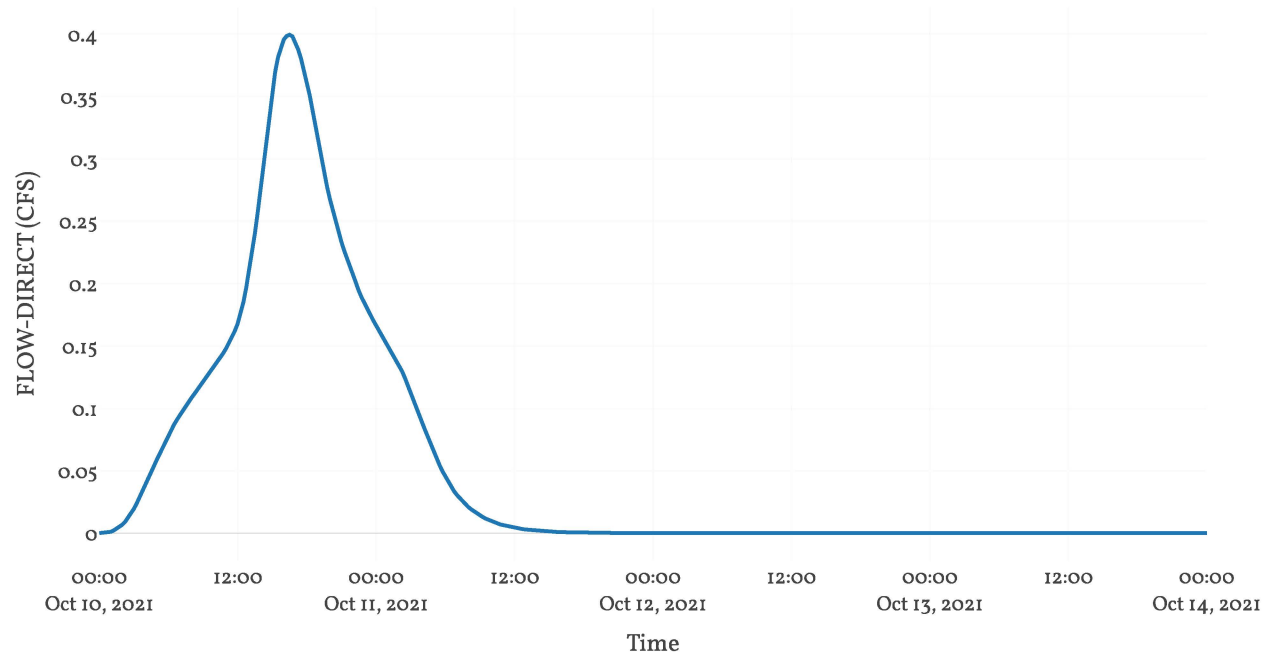
Baseflow



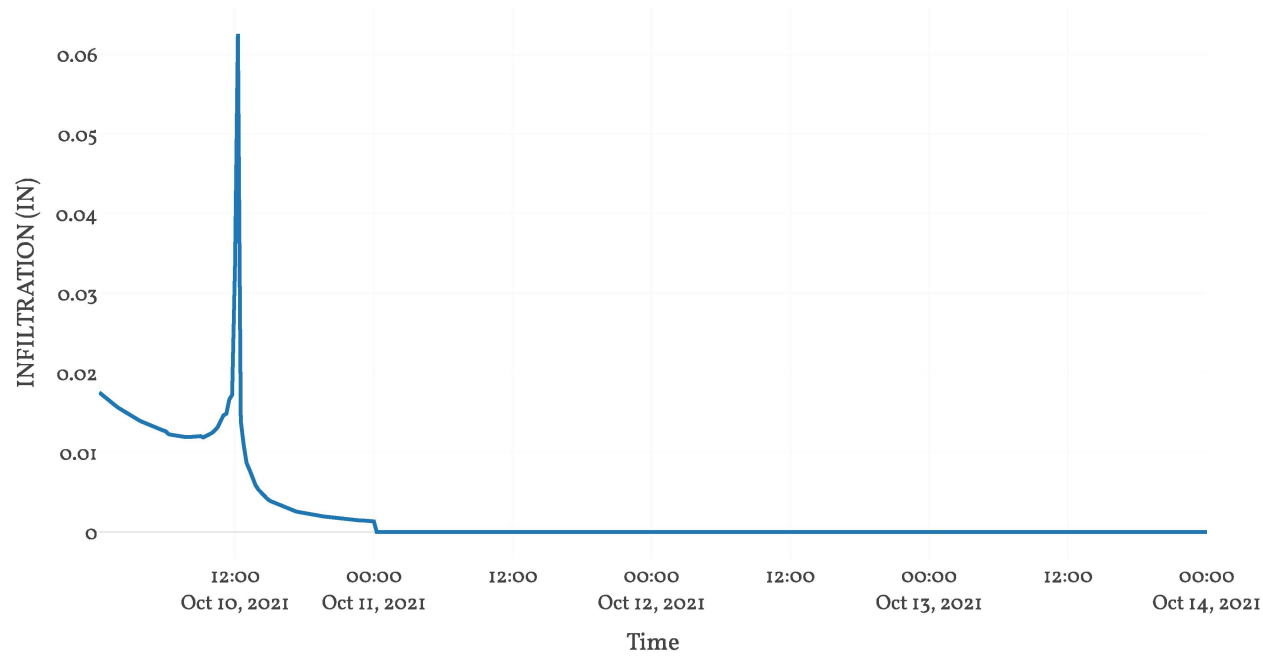
Precipitation Loss



Direct Runoff



Soil Infiltration

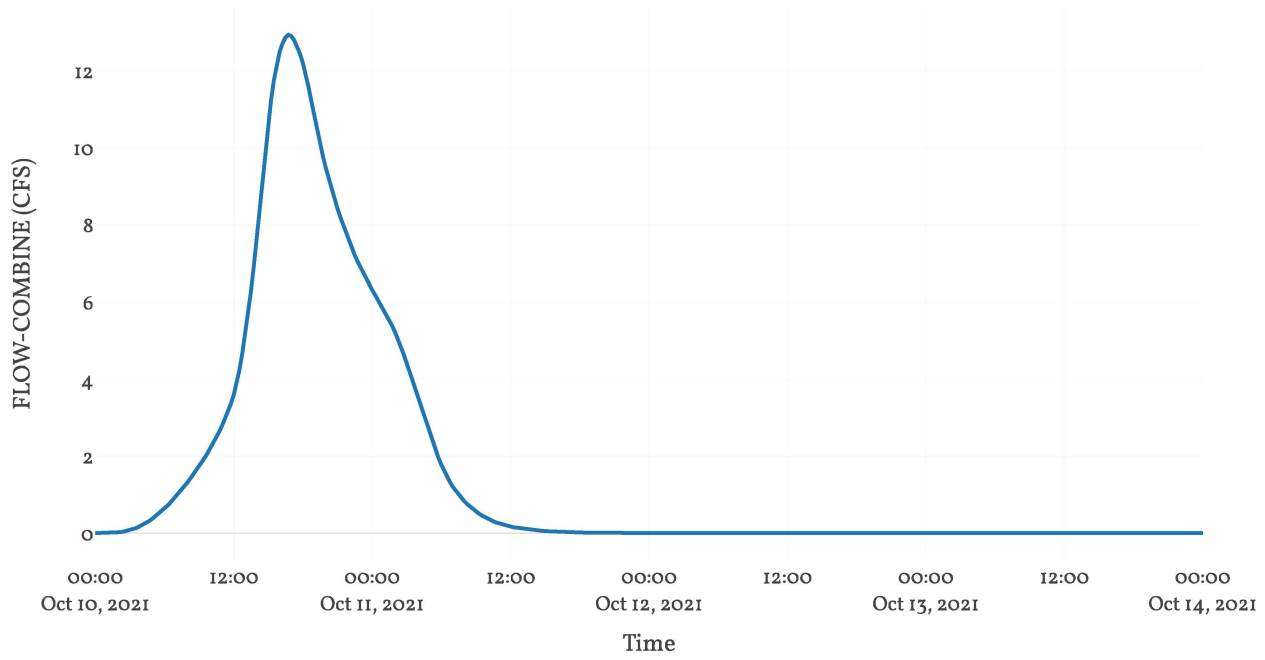


# Junction: Junct-4

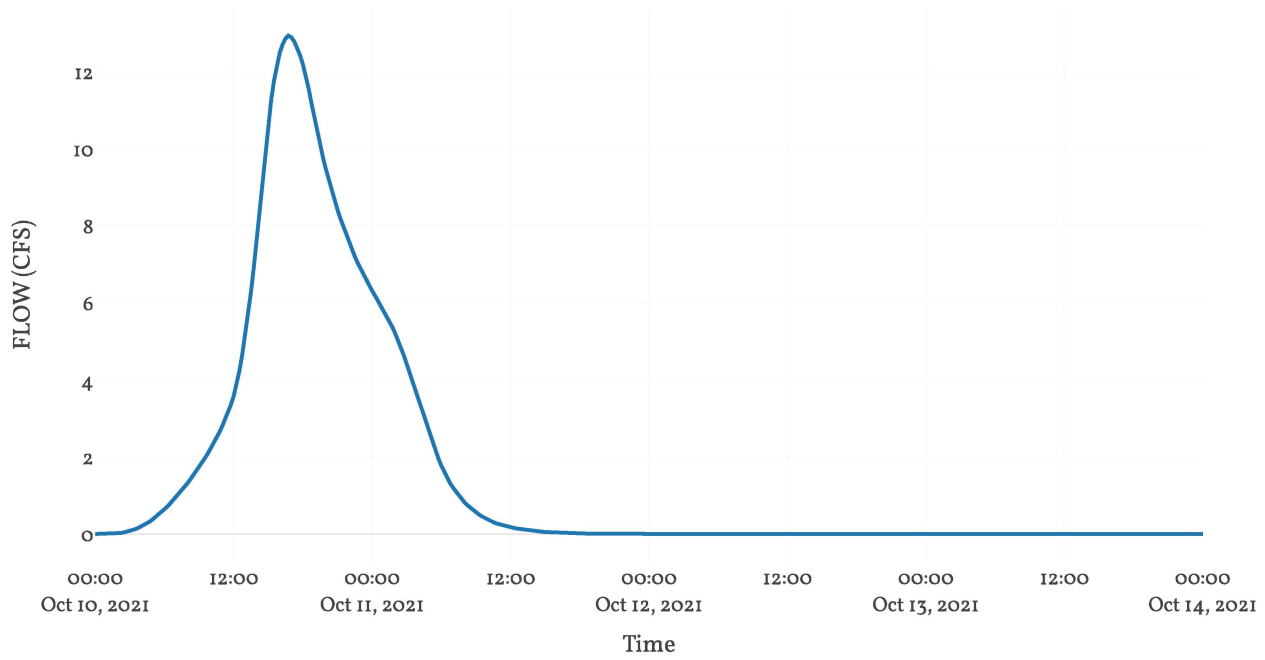
Downstream : Post Total

Results: Junct-4	
Peak Discharge (CFS)	12.94
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	2.16

Combined Inflow



Outflow

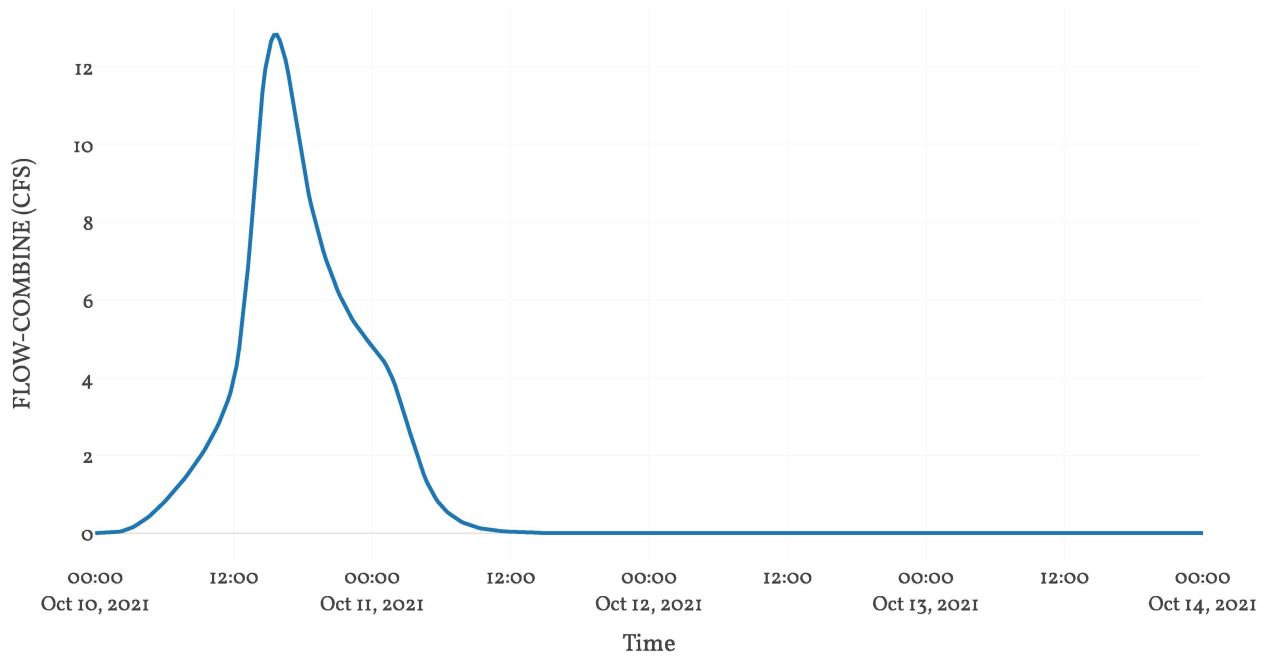


# Junction: Junct-3

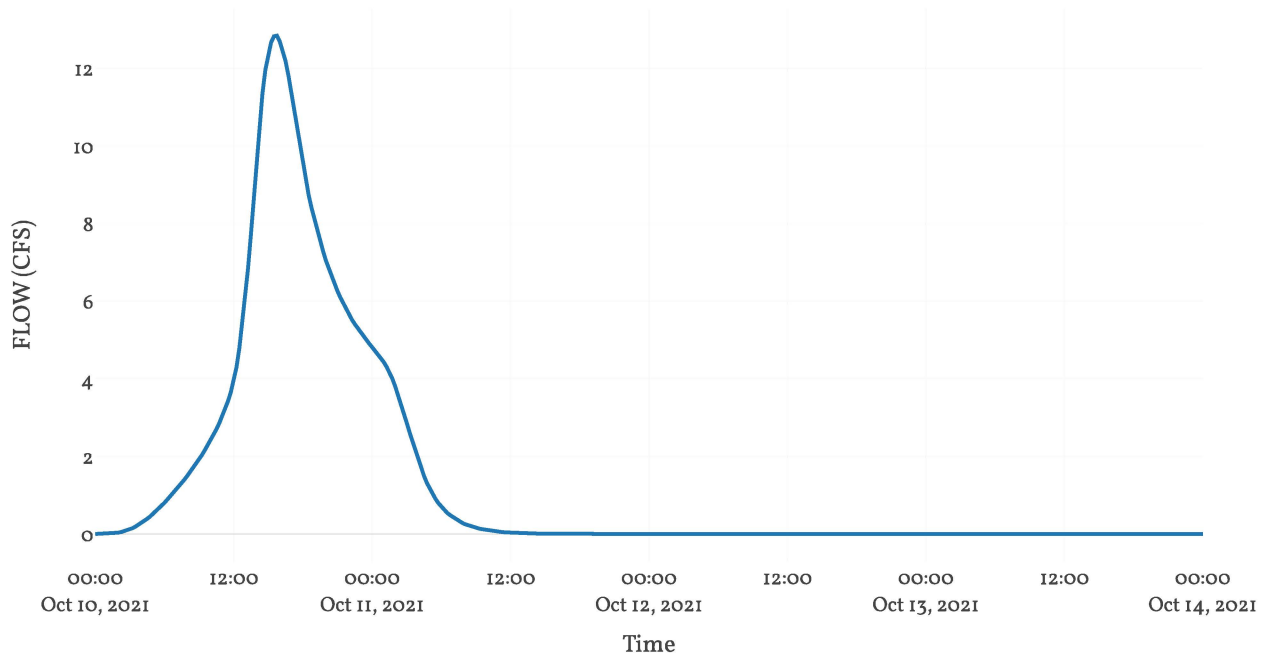
Downstream : Post Total

Results: Junct-3	
Peak Discharge (CFS)	12.84
Time of Peak Discharge	10Oct2021, 15:45
Volume (IN)	2.15

Combined Inflow



Outflow



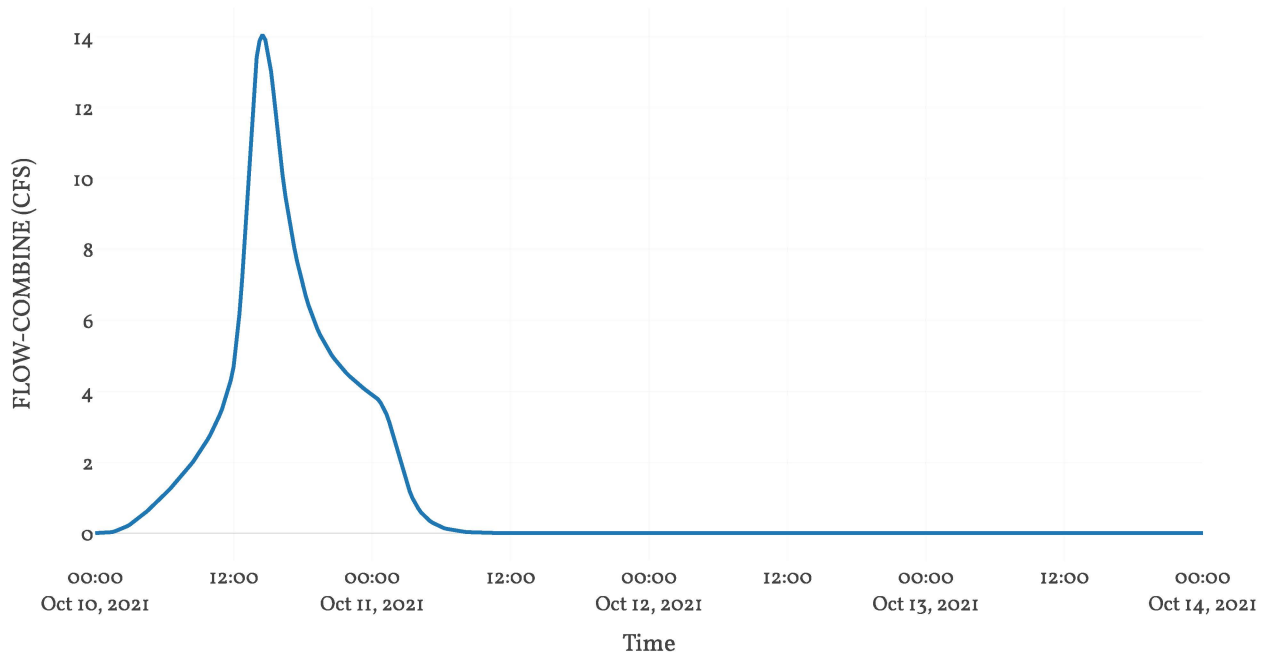
# Junction: Junct-2

Downstream : Post Total

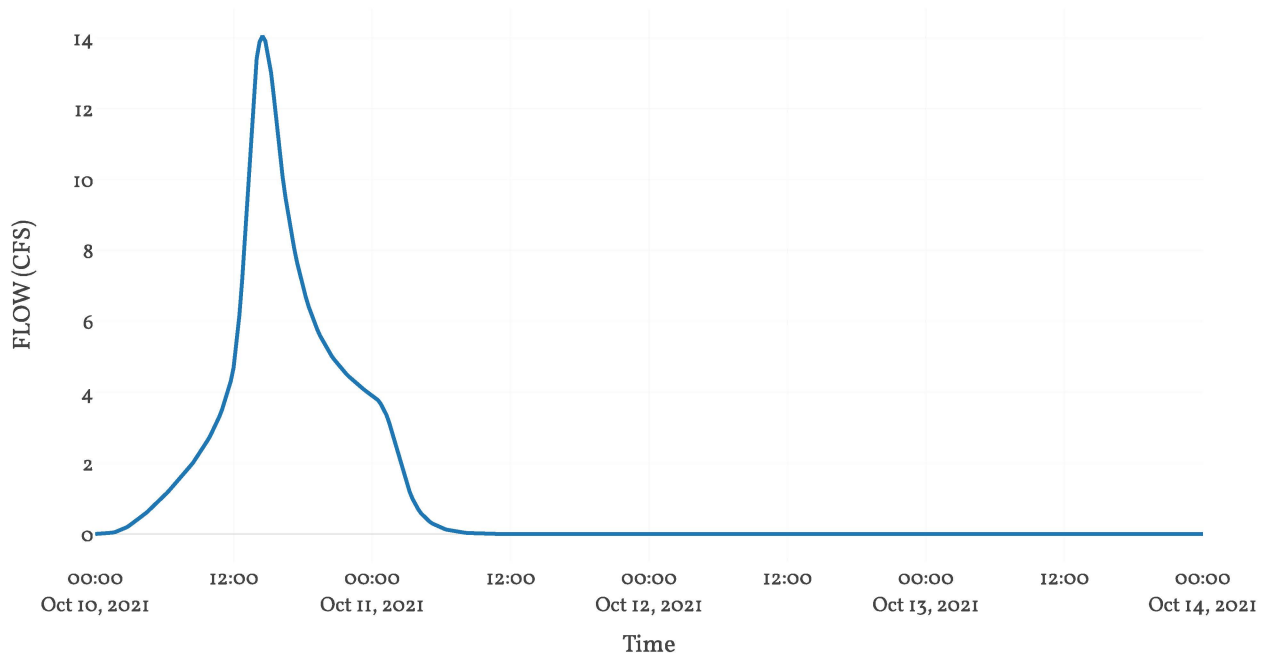
Results: Junct-2	
Peak Discharge (CFS)	14.06
Time of Peak Discharge	10Oct2021, 14:30
Volume (IN)	2.16



Combined Inflow



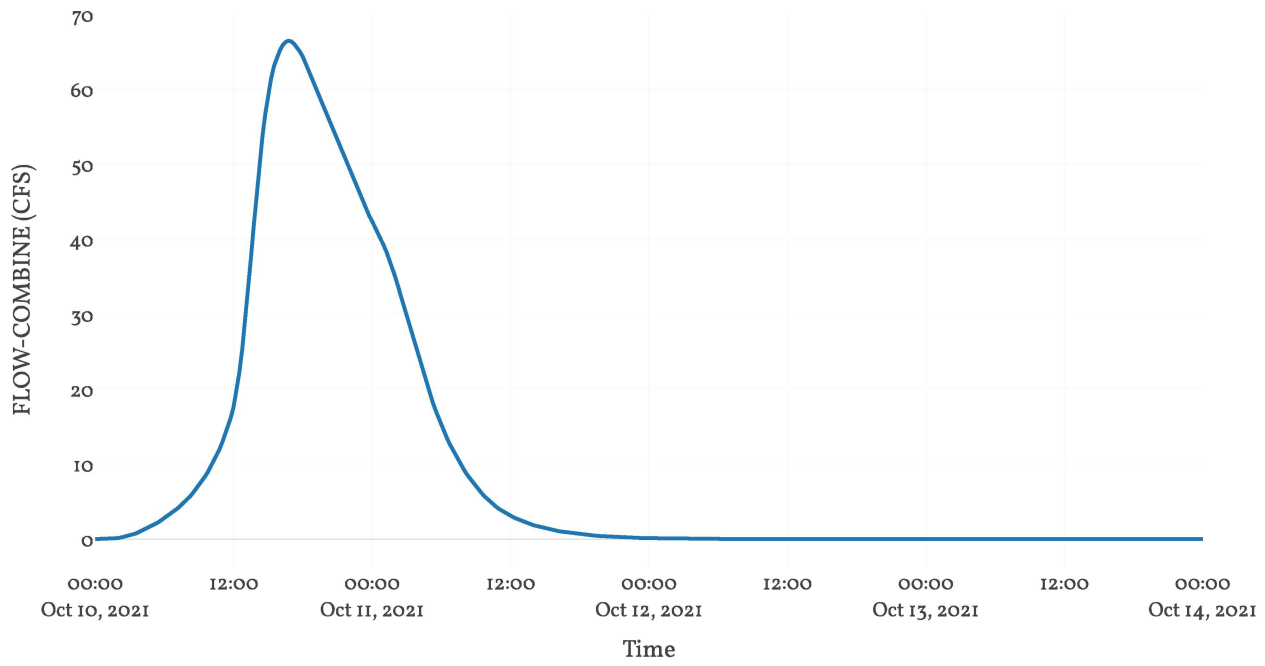
Outflow



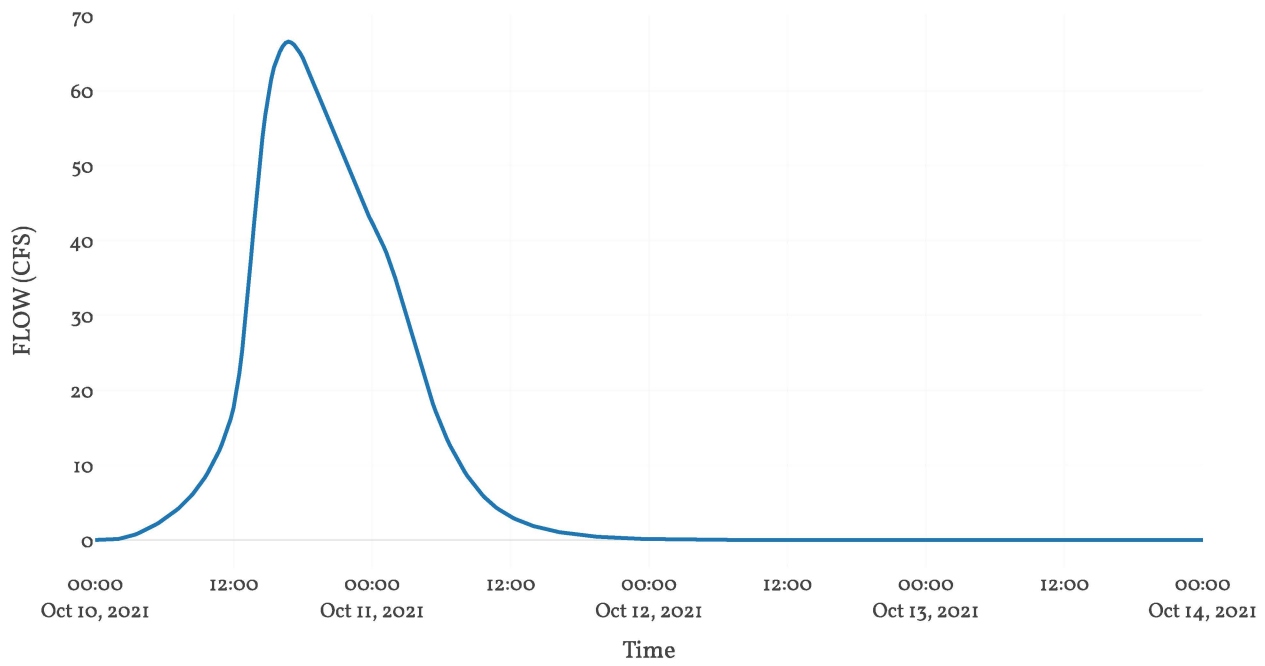
# Junction: Post Total

Results: Post Total	
Peak Discharge (CFS)	66.5
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	1.98

Combined Inflow



Outflow





**A.2-6 MAIN FACILITY AREA – POST-DEVELOPMENT 100YEAR 24HOUR**

**Project:** Oveja\_Ranch\_Post\_Development  
**Simulation Run:** 100 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 09 December 2024, 11:06

Global Parameter Summary - Subbasin

Area	
Element Name	Area
Shed I - 01 Perv	0.12
ShedI - 01 Imp	0
Shed I - 05 Perv	0.3
Shed I - 05 Imp	0.01
Shed I - 02 Perv	0.08
Shed I - 02 Imp	0
Shed I - 03 Perv	0.09
Shed I - 03 Imp	0
Shed I - 04 Perv	0.11
ShedI - 04 Imp	0

Downstream	
Element Name	Downstream
Shed I - 01 Perv	Junct 1
ShedI - 01 Imp	Junct 1
Shed I - 05 Perv	Junct - 5
Shed I - 05 Imp	Junct - 5
Shed I - 02 Perv	Junct - 2
Shed I - 02 Imp	Junct - 2
Shed I - 03 Perv	Junct - 3
Shed I - 03 Imp	Junct - 3
Shed I - 04 Perv	Junct - 4
ShedI - 04 Imp	Junct - 4

### Loss Rate: Scs

Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
Shed I - 01 Perv	0	85	Not Specified
ShedI - 01 Imp	100	93.94	Not Specified
Shed I - 05 Perv	0	85	Not Specified
Shed I - 05 Imp	100	89	Not Specified
Shed I - 02 Perv	0	85	0
Shed I - 02 Imp	100	89	0
Shed I - 03 Perv	0	85	0
Shed I - 03 Imp	100	89	0
Shed I - 04 Perv	0	85	0
ShedI - 04 Imp	100	89	0

### Transform: Scs

Element Name	Lag	Unitgraph Type
Shed I - 01 Perv	233.88	Standard
ShedI - 01 Imp	233.88	Standard
Shed I - 05 Perv	396.32	Standard
Shed I - 05 Imp	396.32	Standard
Shed I - 02 Perv	133.24	Standard
Shed I - 02 Imp	133.24	Standard
Shed I - 03 Perv	192.84	Standard
Shed I - 03 Imp	192.85	Standard
Shed I - 04 Perv	253.4	Standard
ShedI - 04 Imp	253.4	Standard

## Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Shed I - 01 Perv	0.12	24.67	10Oct2021, 16:30	3.46
ShedI - 01 Imp	0	0.95	10Oct2021, 16:15	5.1
Shed I - 05 Perv	0.3	45.78	10Oct2021, 19:30	3.46
Shed I - 05 Imp	0.01	1.45	10Oct2021, 19:00	5.1
Junct - 5	0.3	47.23	10Oct2021, 19:30	3.49
Junct I	0.12	25.61	10Oct2021, 16:30	3.5
Shed I - 02 Perv	0.08	24.46	10Oct2021, 14:30	3.78
Shed I - 02 Imp	0	0.54	10Oct2021, 14:15	5.1
Shed I - 03 Perv	0.09	22.35	10Oct2021, 15:30	3.78
Shed I - 03 Imp	0	0.34	10Oct2021, 15:30	5.1
Shed I - 04 Perv	0.11	22.1	10Oct2021, 16:45	3.78
ShedI - 04 Imp	0	0.62	10Oct2021, 16:30	5.1
Junct - 4	0.11	22.71	10Oct2021, 16:45	3.81

Junct - 3	0.09	22.69	10Oct2021, 15:30	3.8
Junct - 2	0.08	25.01	10Oct2021, 14:30	3.81
Post Total	0.71	121.43	10Oct2021, 16:30	3.62



Subbasin: Shed 1 - 01 Perv

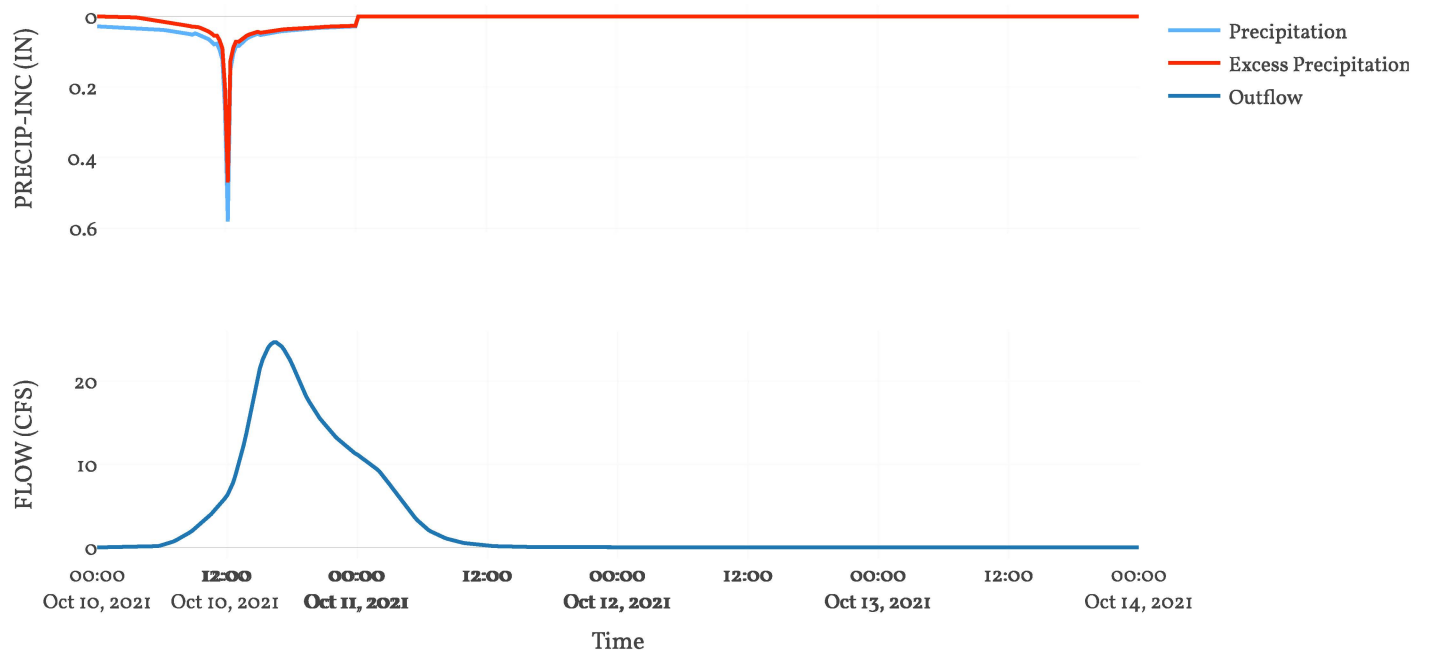
Area : 0.12  
Downstream : Junct 1

Loss Rate: SCS	
Percent Impervious Area	0
Curve Number	85

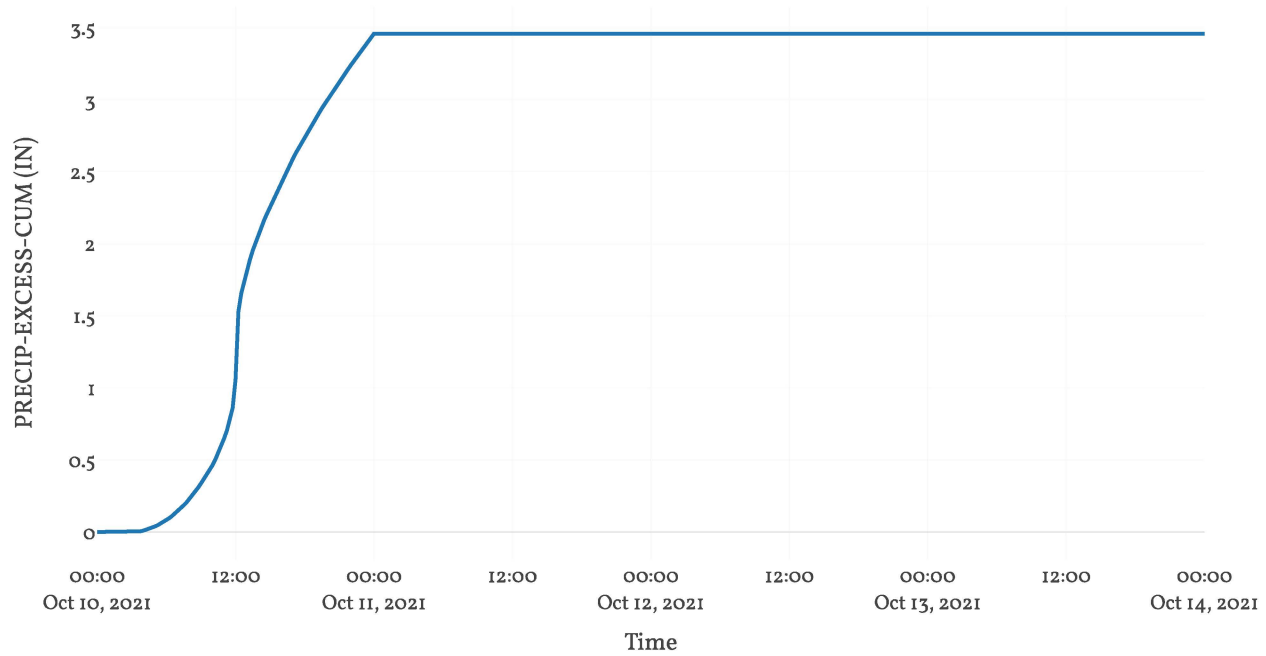
Transform: SCS	
Lag	233.88
Unitgraph Type	Standard

Results: Shed 1 - 01 Perv	
Peak Discharge (CFS)	24.67
Time of Peak Discharge	10Oct2021, 16:30
Volume (IN)	3.46
Precipitation Volume (AC - FT)	32.51
Loss Volume (AC - FT)	10.46
Excess Volume (AC - FT)	22.05
Direct Runoff Volume (AC - FT)	22.05
Baseflow Volume (AC - FT)	0

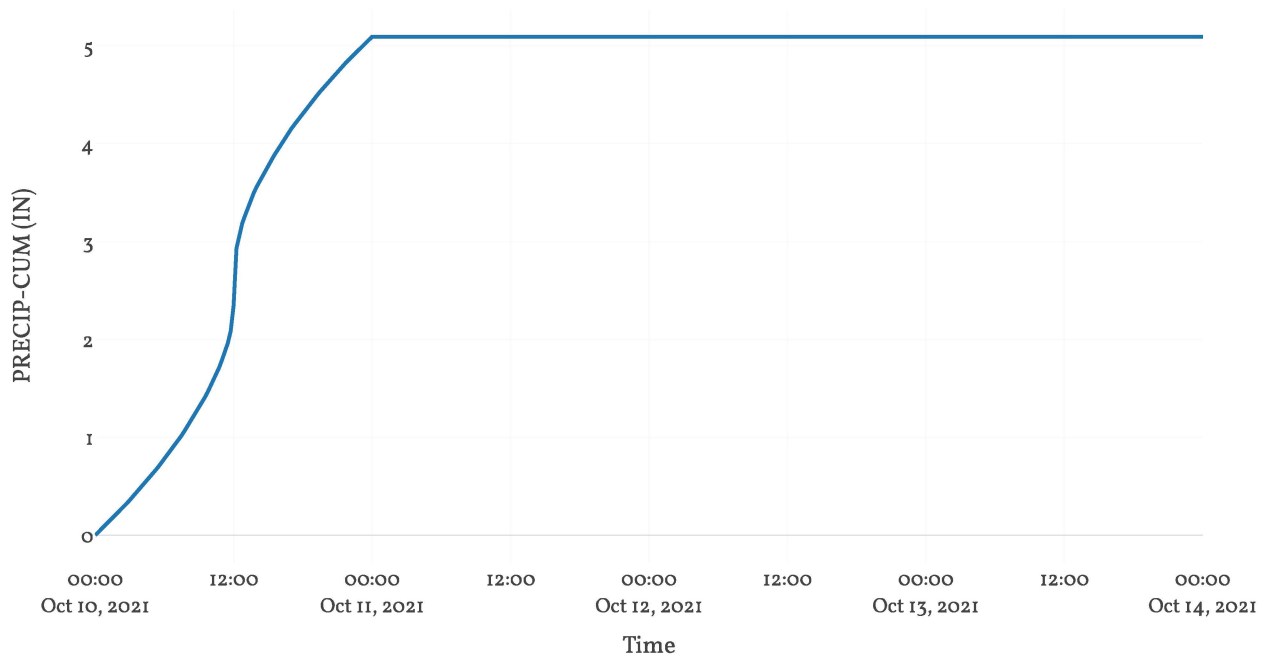
## Precipitation and Outflow



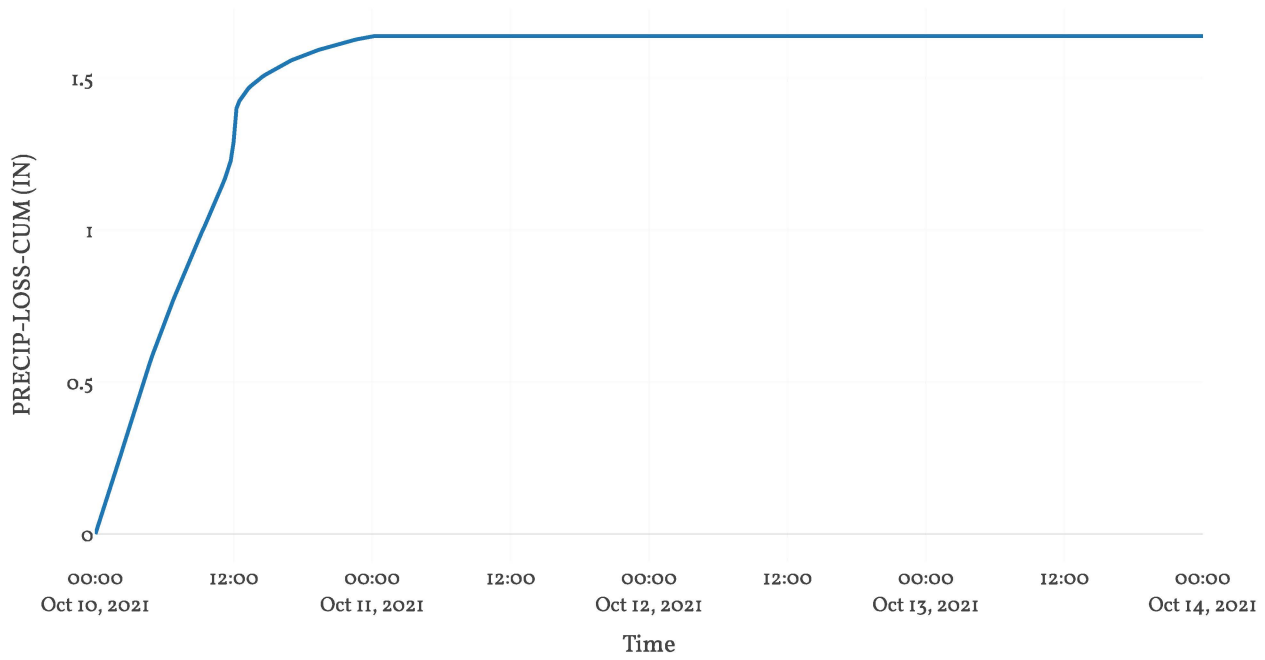
## Cumulative Excess Precipitation



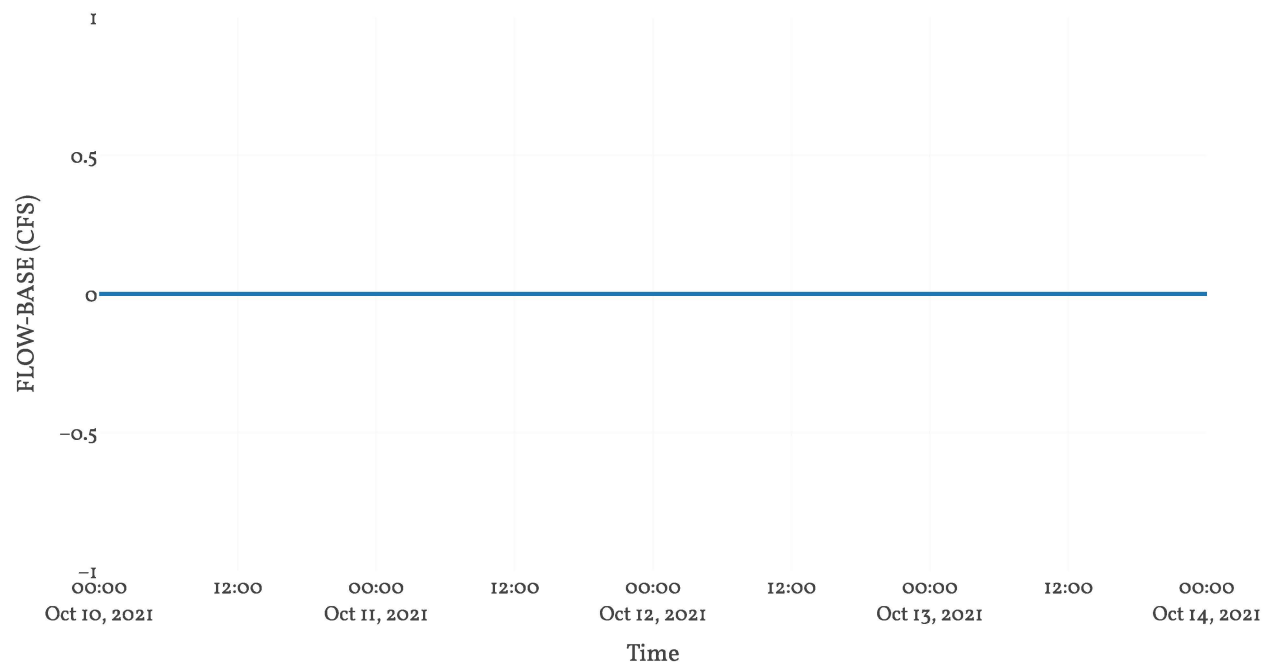
Cumulative Precipitation



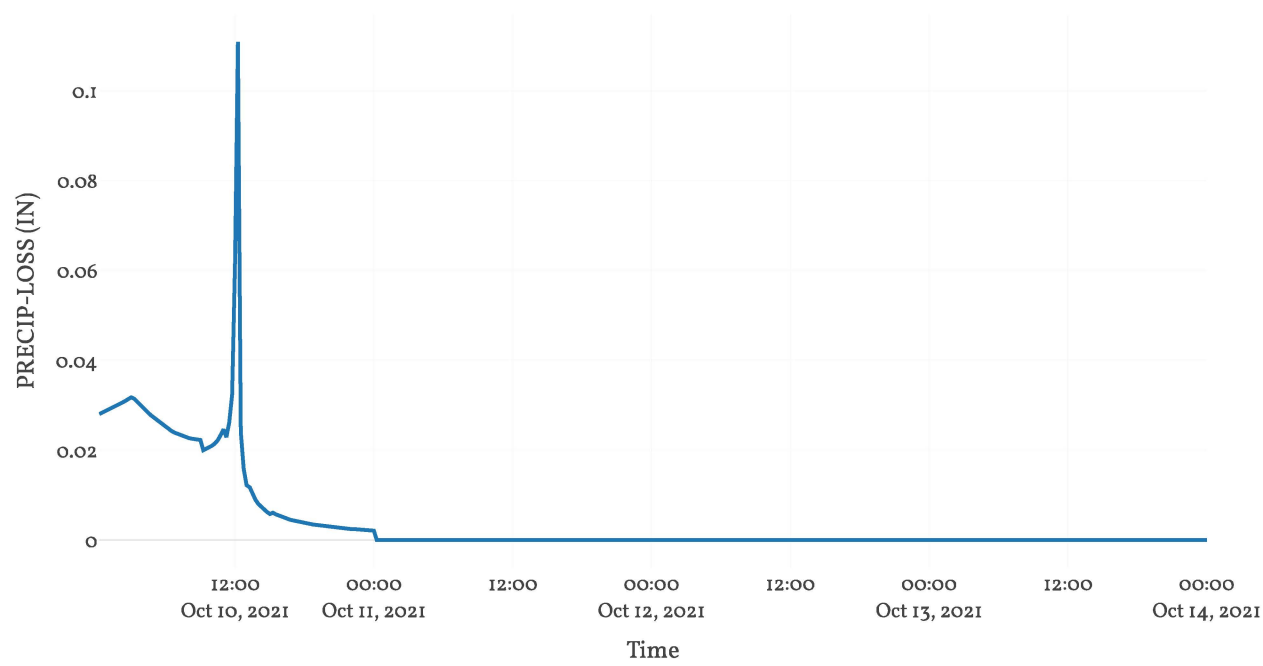
Cumulative Precipitation Loss



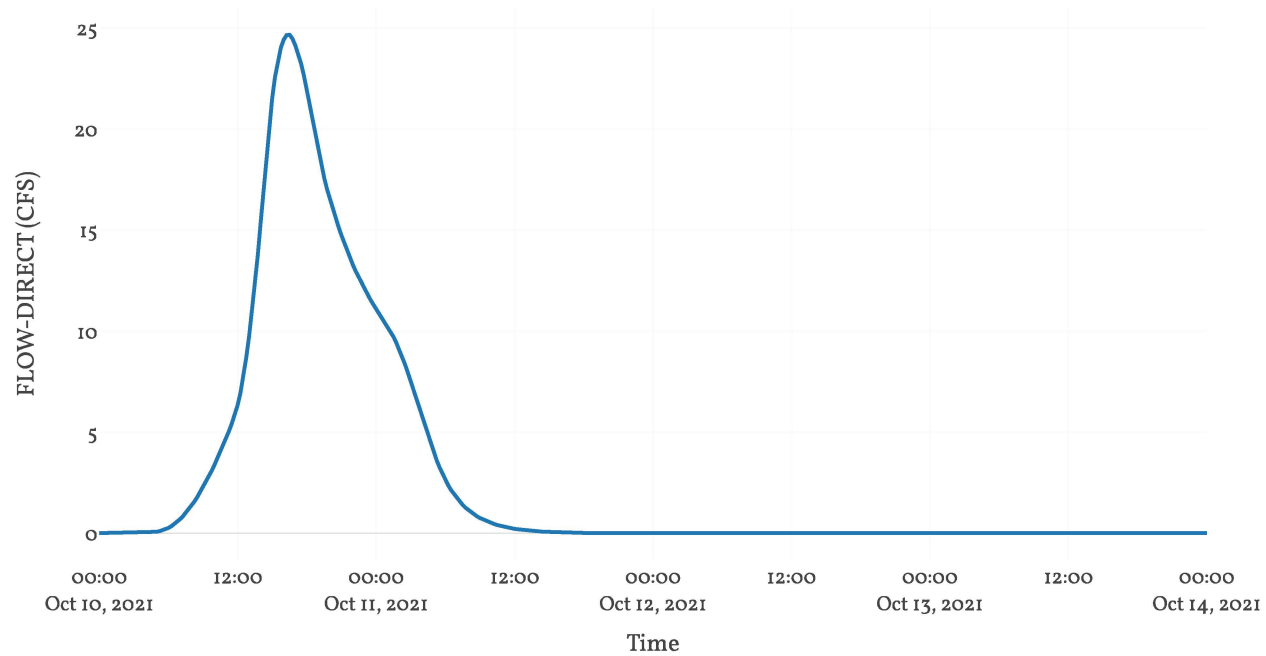
Baseflow



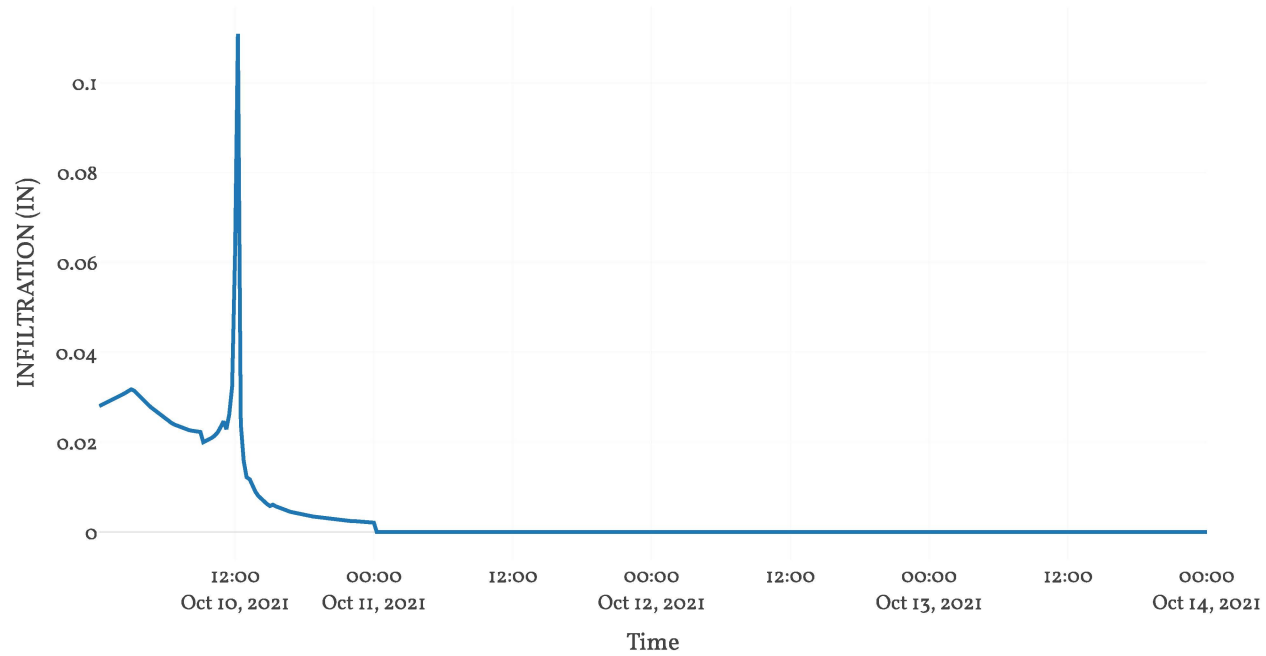
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed1 - 01 Imp

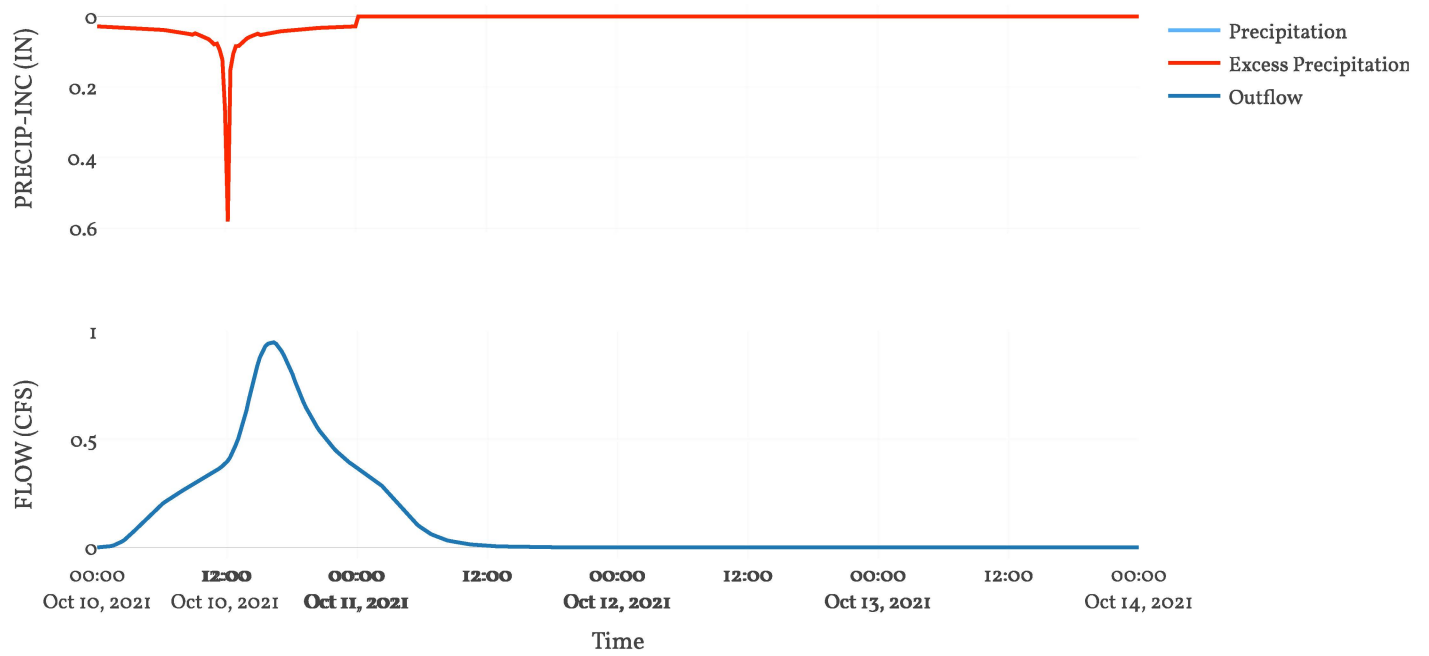
Area : 0  
Downstream : Junct 1

Loss Rate: SCS	
Percent Impervious Area	100
Curve Number	93.94

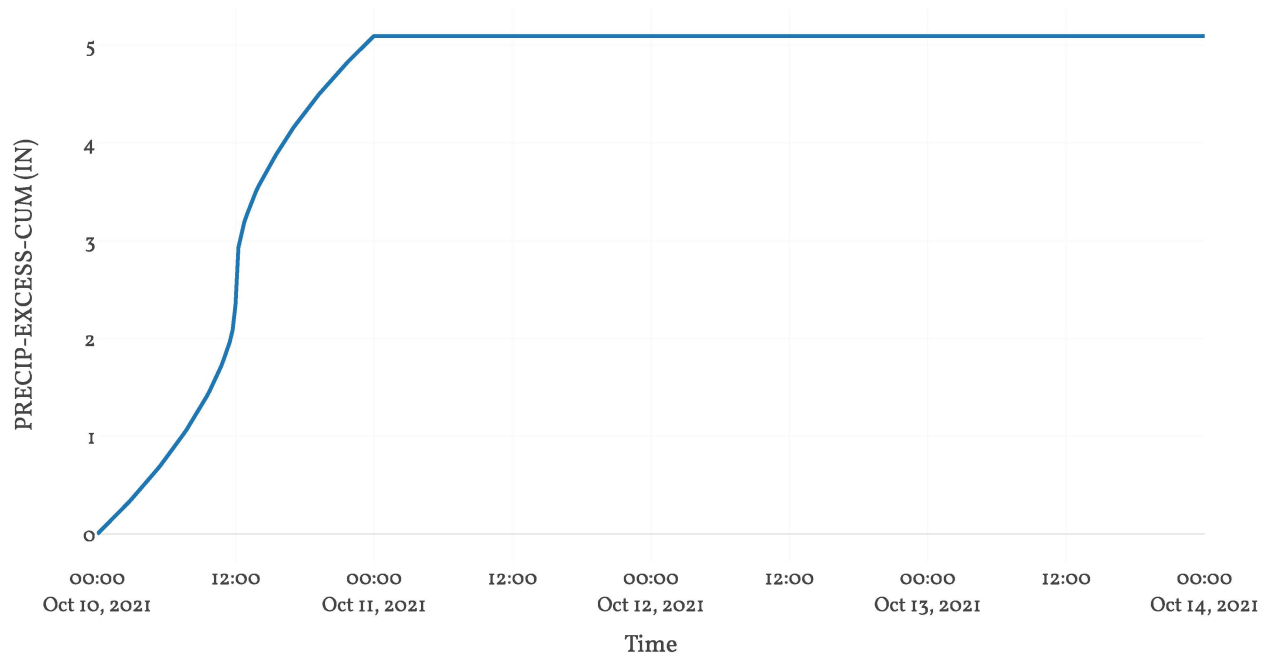
Transform: SCS	
Lag	233.88
Unitgraph Type	Standard

Results: Shed1 - 01 Imp	
Peak Discharge (CFS)	0.95
Time of Peak Discharge	10Oct2021, 16:15
Volume (IN)	5.1
Precipitation Volume (AC - FT)	0.95
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.95
Direct Runoff Volume (AC - FT)	0.95
Baseflow Volume (AC - FT)	0

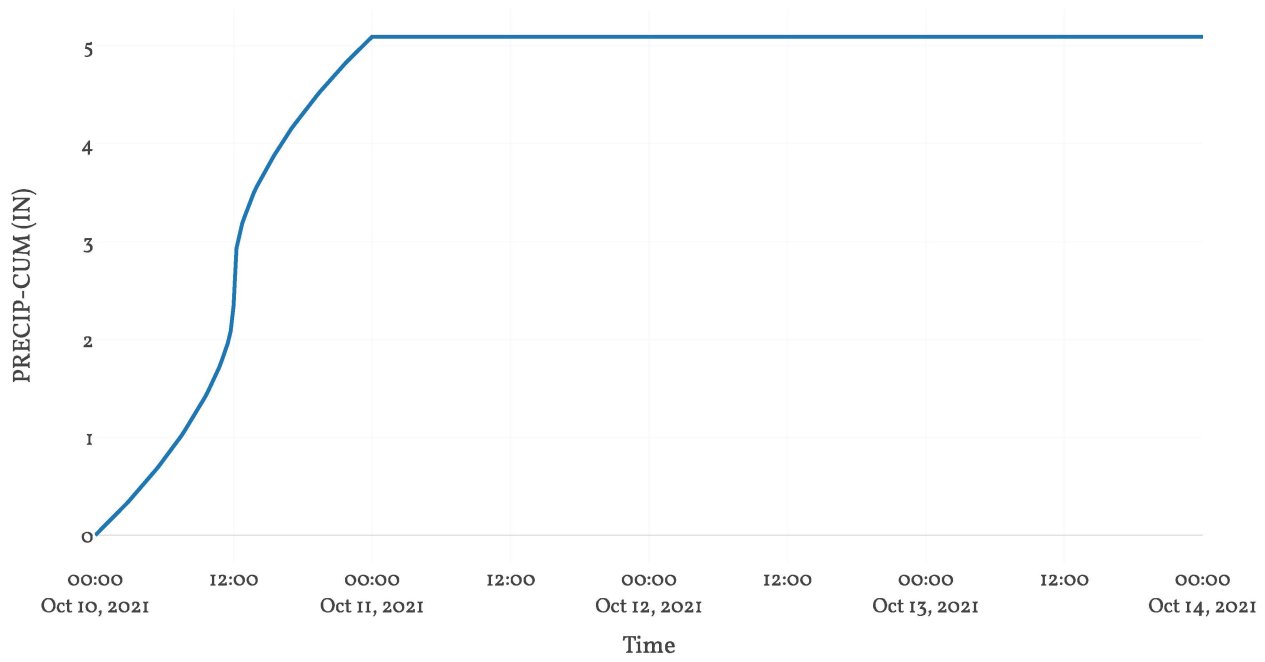
## Precipitation and Outflow



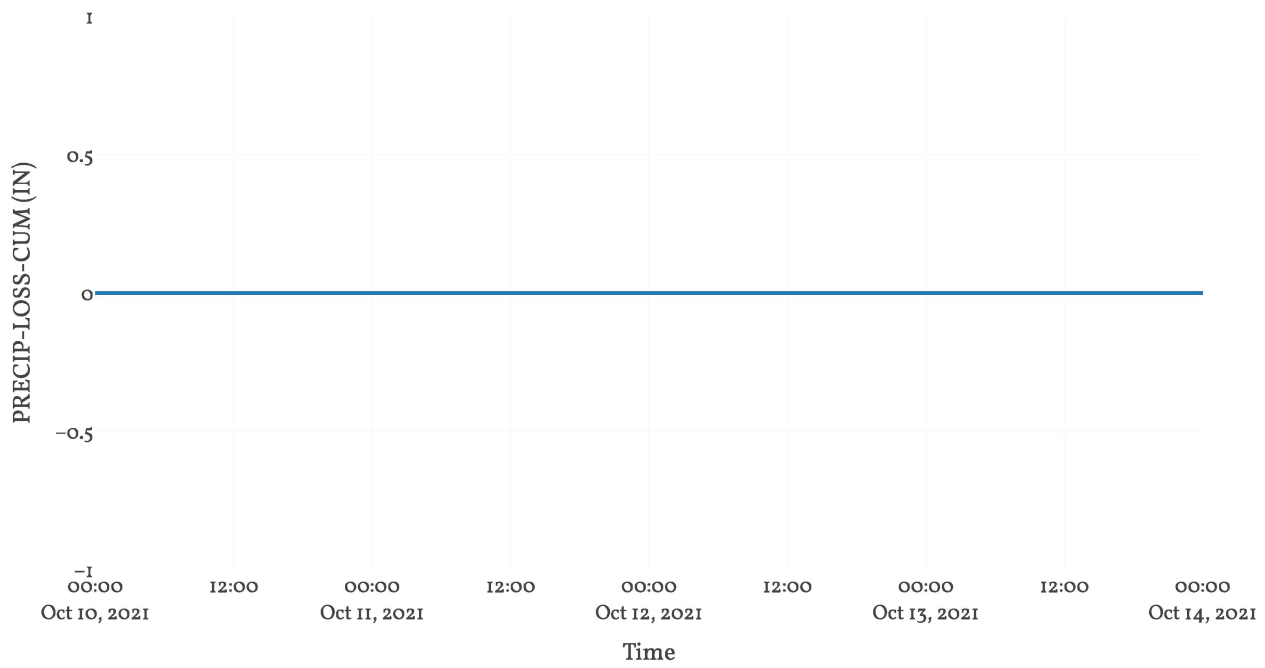
## Cumulative Excess Precipitation



Cumulative Precipitation

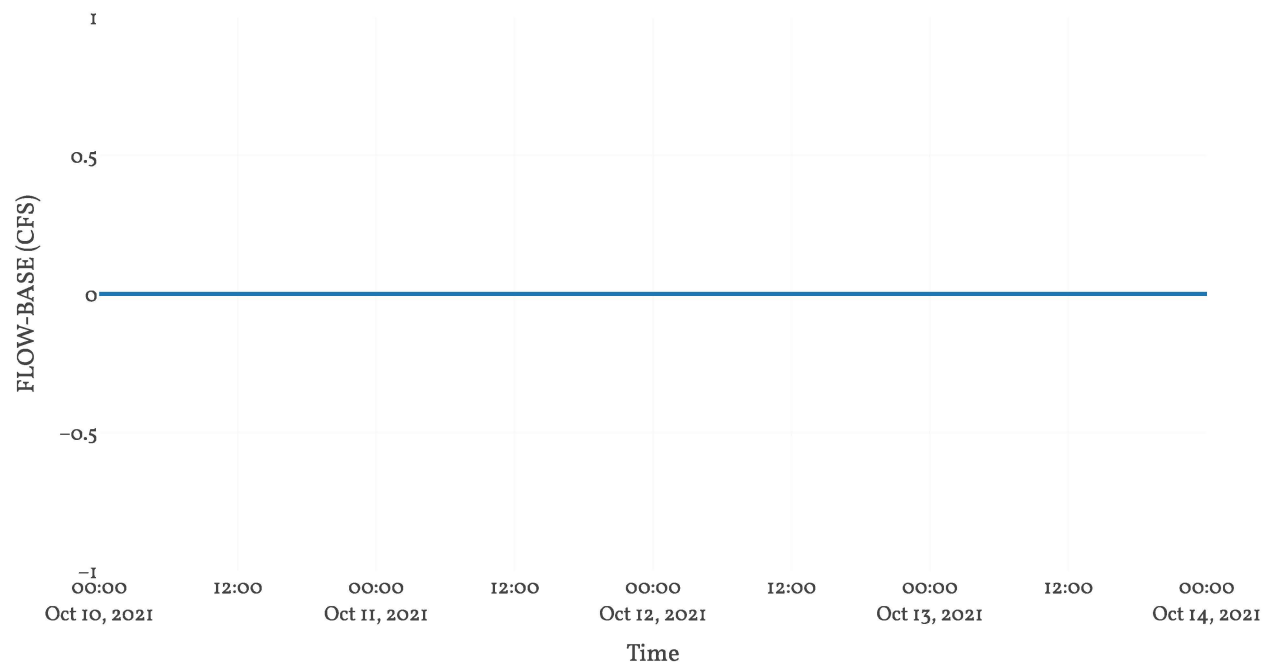


Cumulative Precipitation Loss

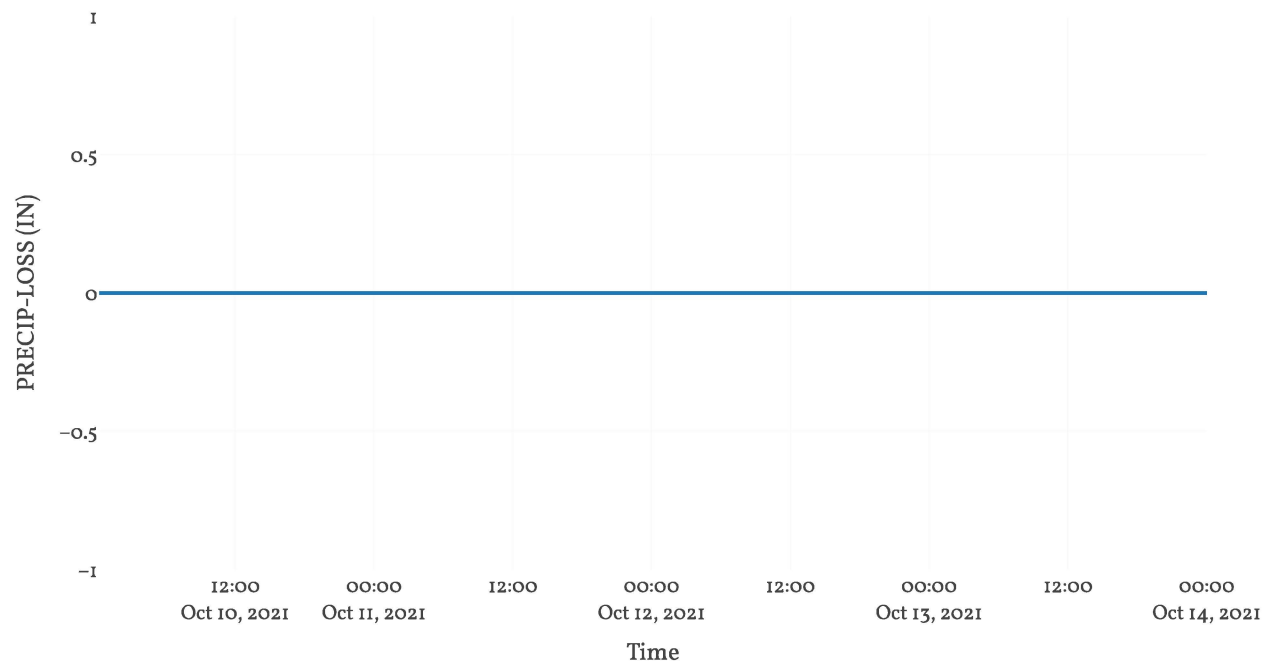




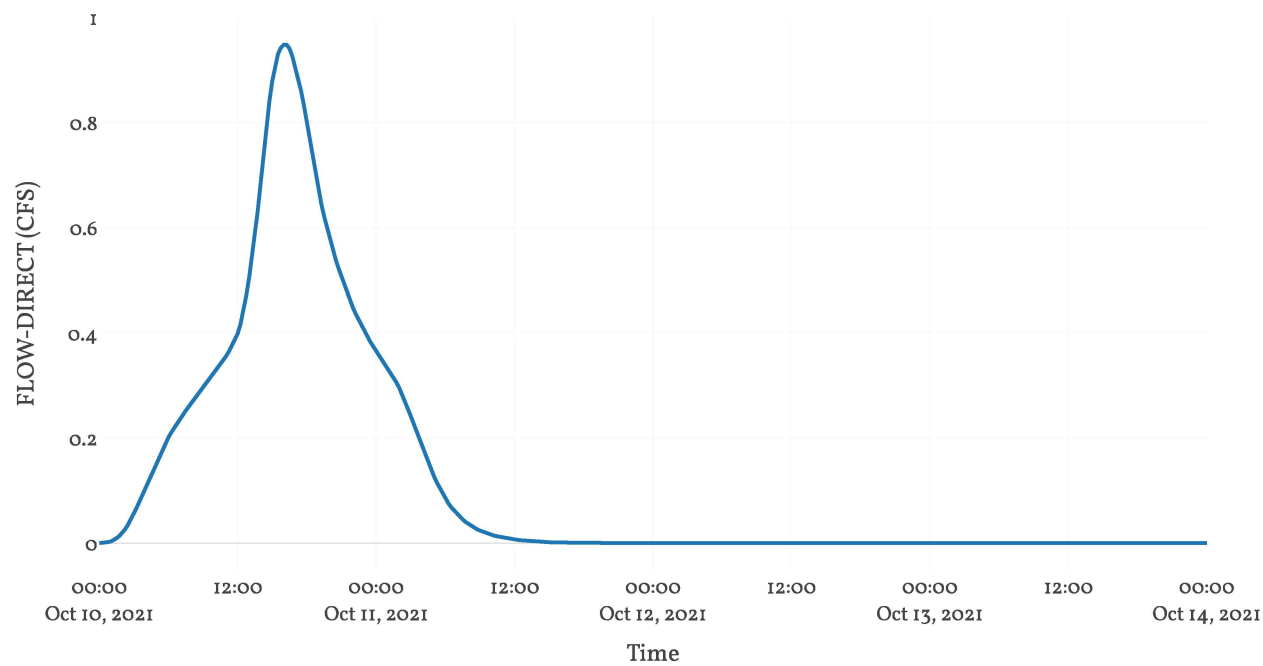
Baseflow



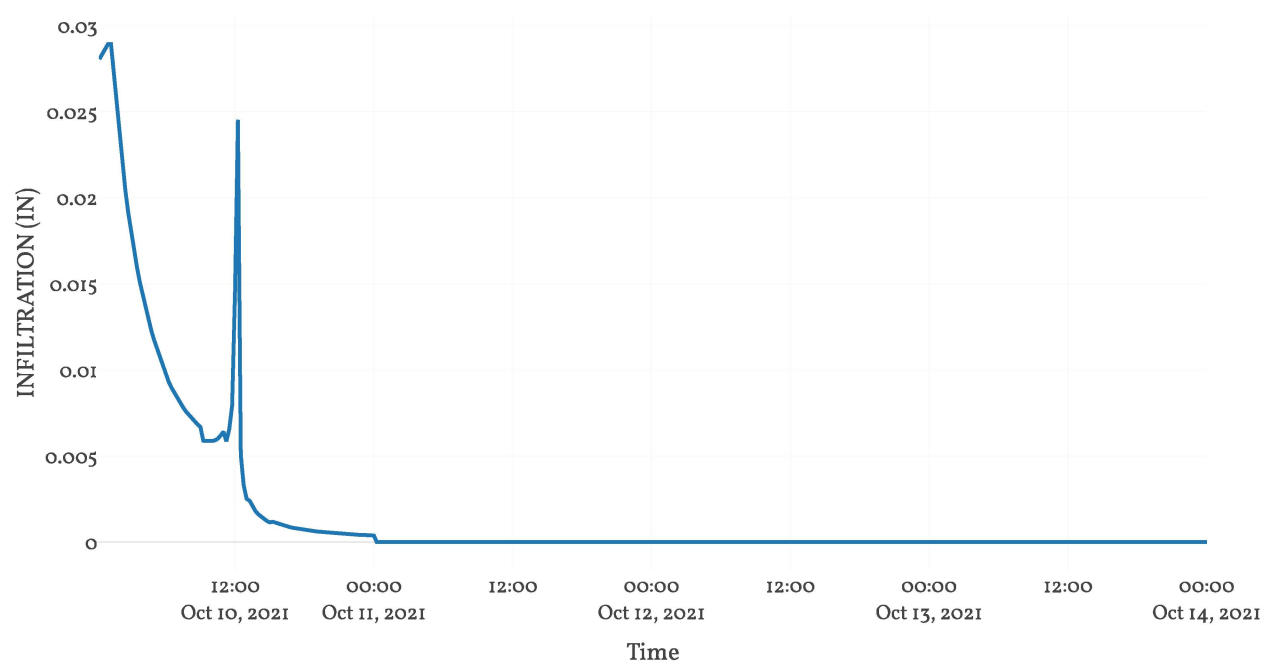
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1 - 05 Perv

Area : 0.3

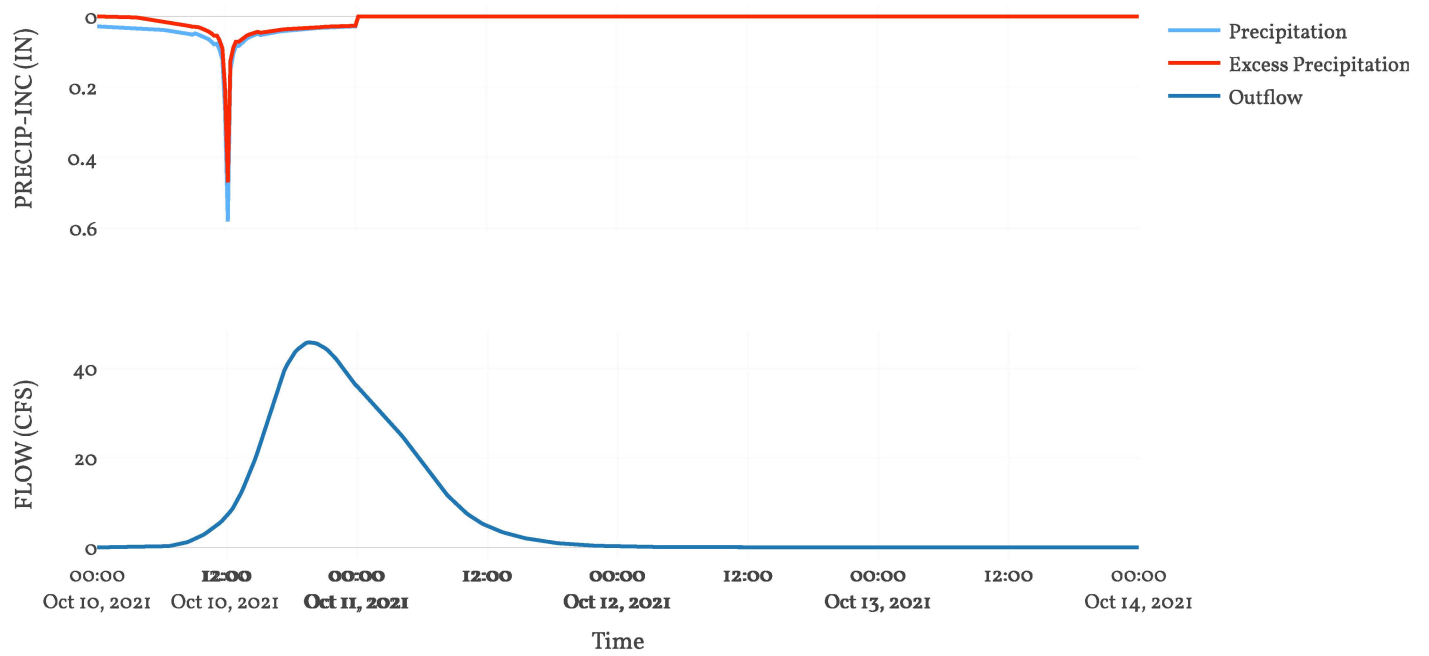
Downstream : Junct - 5

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85

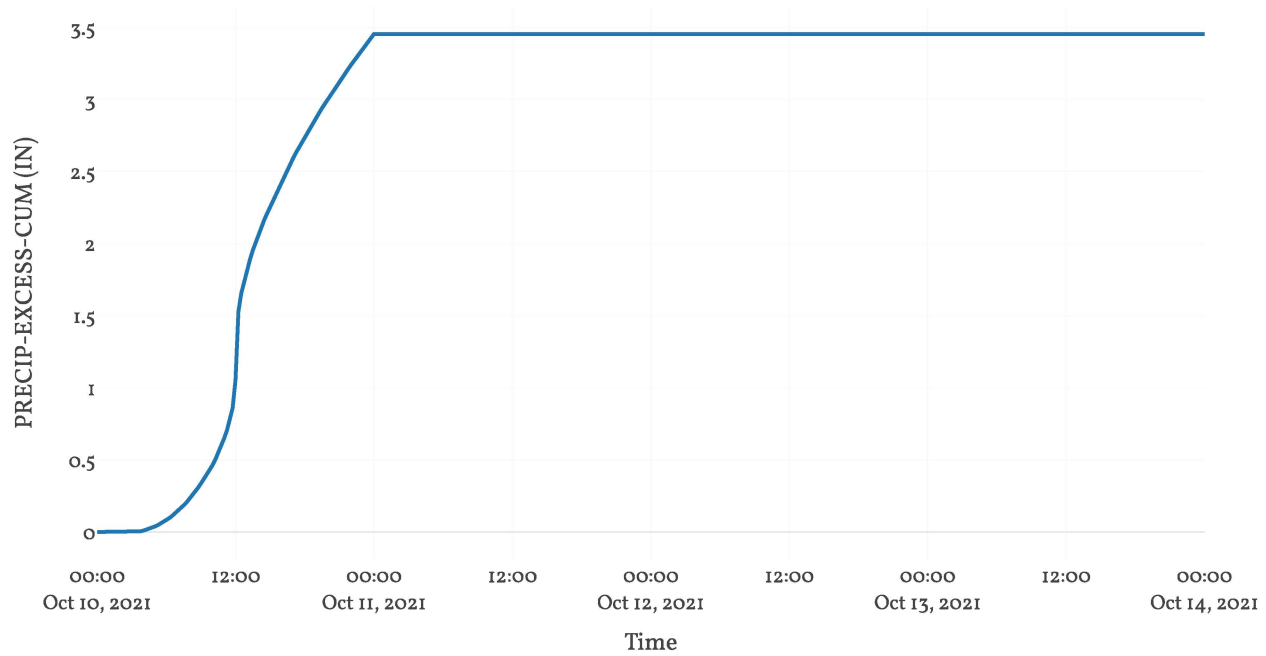
Transform: Scs	
Lag	396.32
Unitgraph Type	Standard

Results: Shed 1 - 05 Perv	
Peak Discharge (CFS)	45.78
Time of Peak Discharge	10Oct2021, 19:30
Volume (IN)	3.46
Precipitation Volume (AC - FT)	80.78
Loss Volume (AC - FT)	25.99
Excess Volume (AC - FT)	54.79
Direct Runoff Volume (AC - FT)	54.79
Baseflow Volume (AC - FT)	0

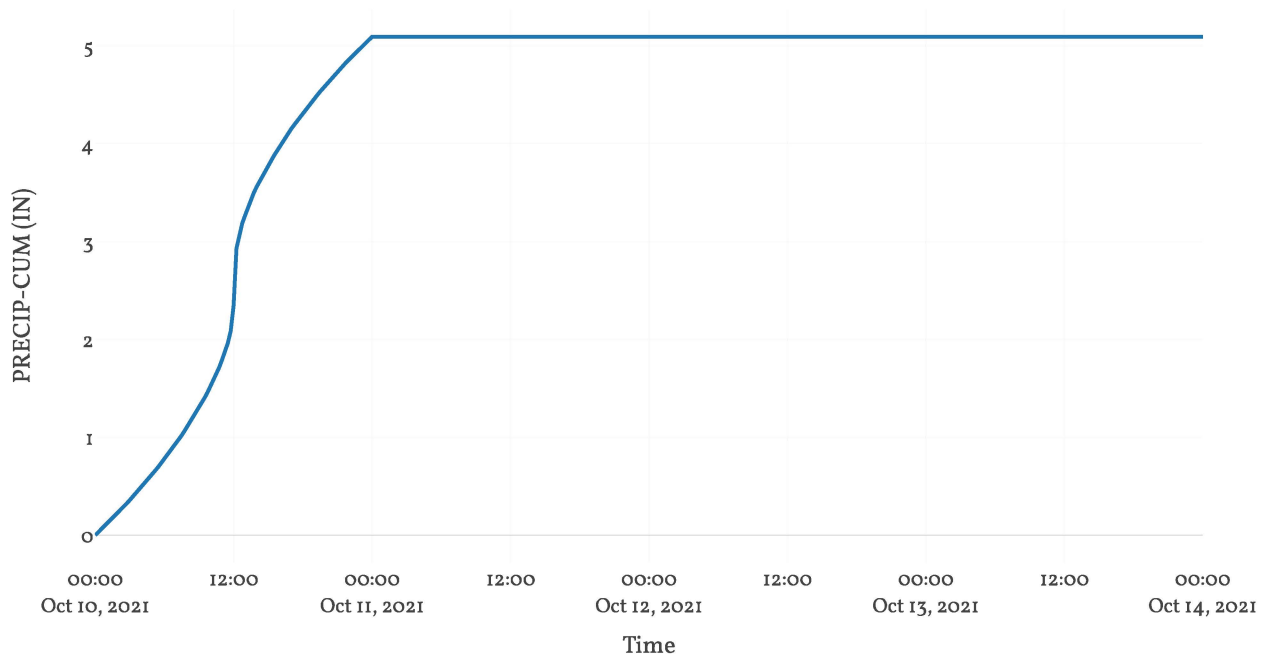
## Precipitation and Outflow



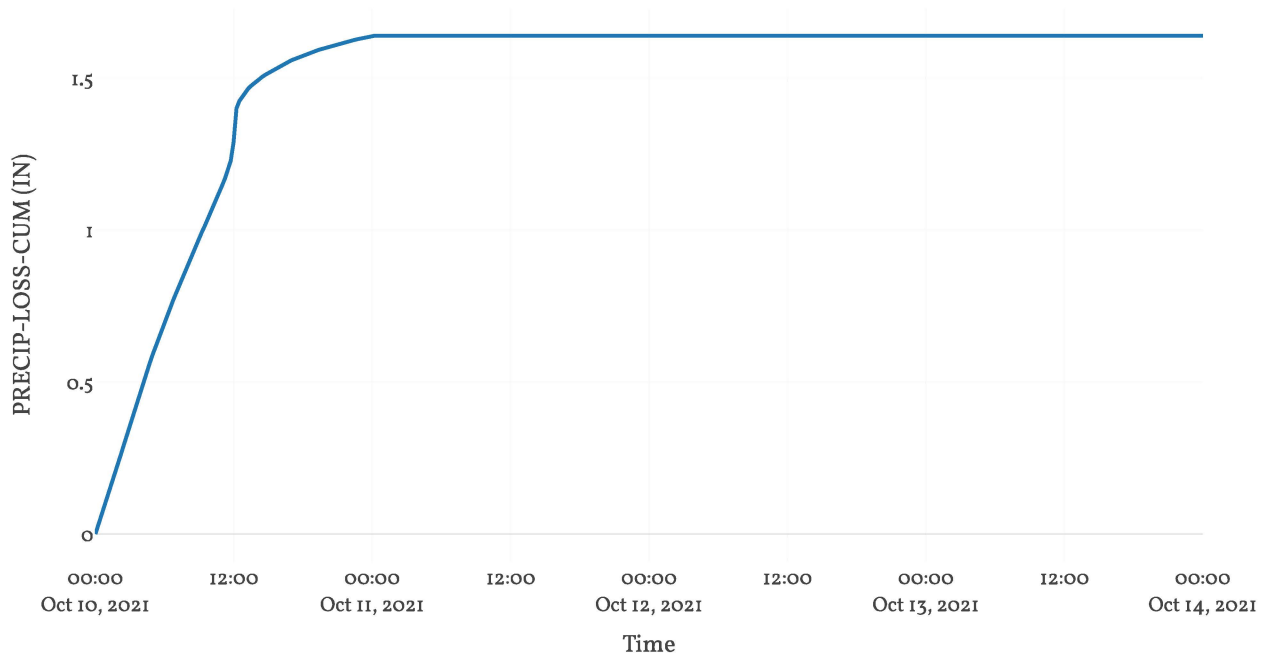
## Cumulative Excess Precipitation



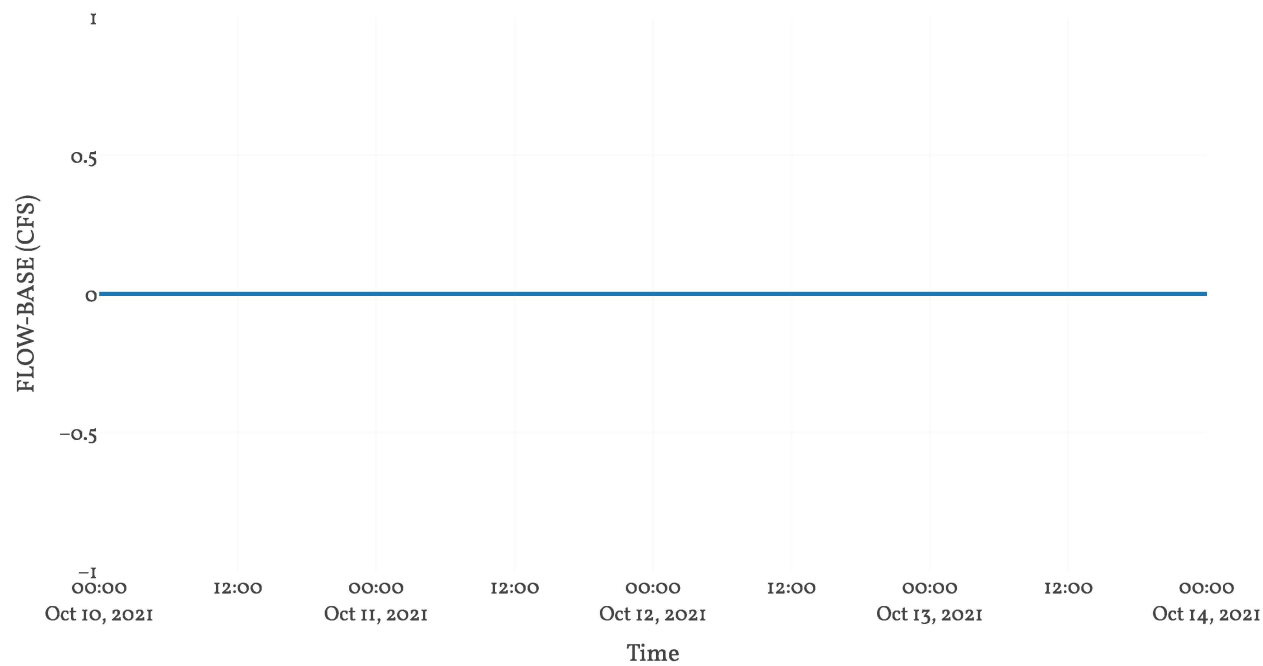
Cumulative Precipitation



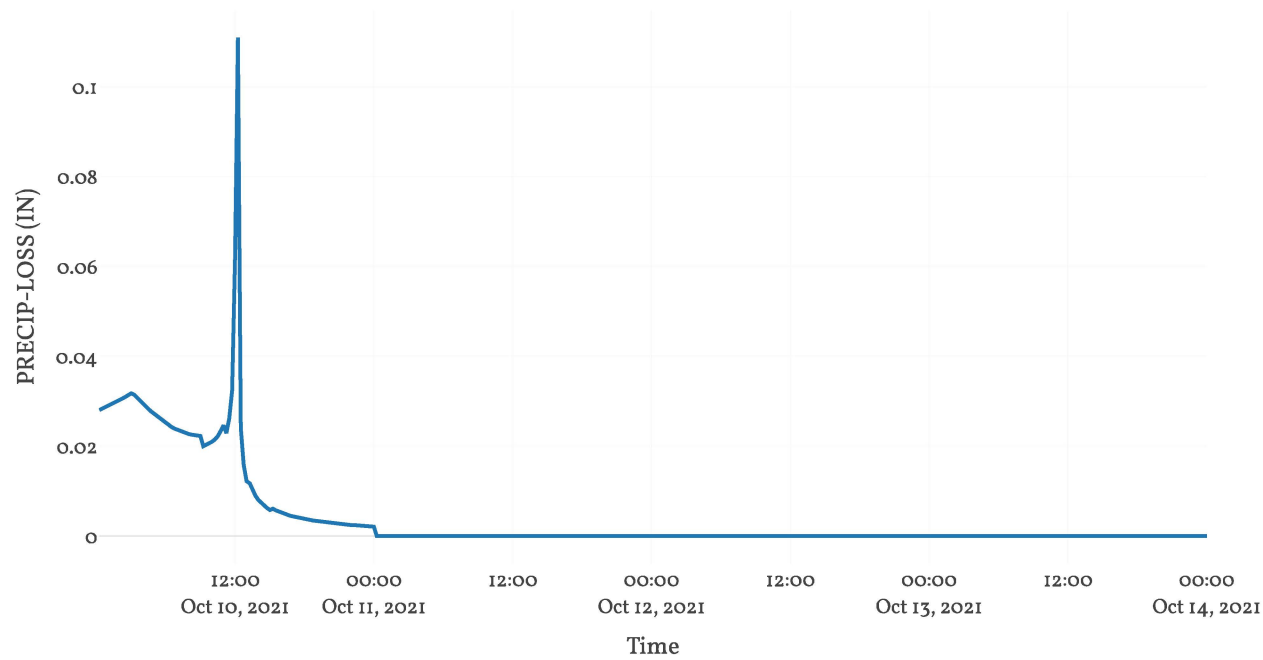
Cumulative Precipitation Loss



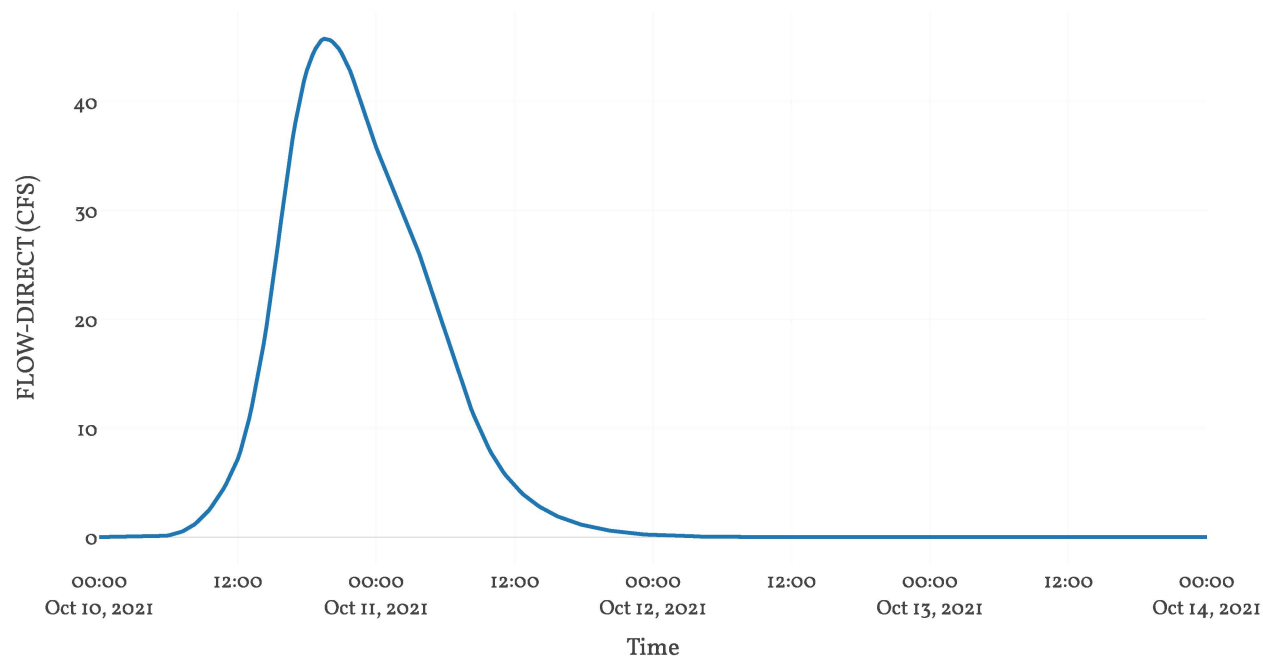
Baseflow



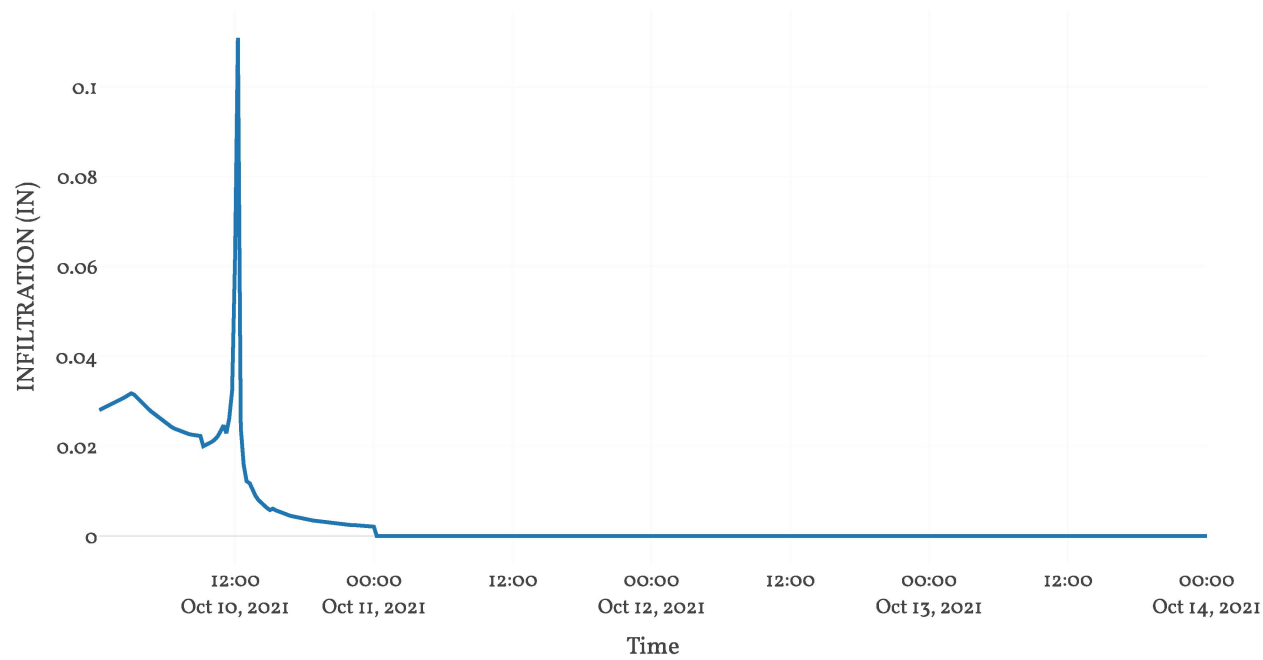
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1 - 05 Imp

Area : 0.01

Downstream : Junct - 5

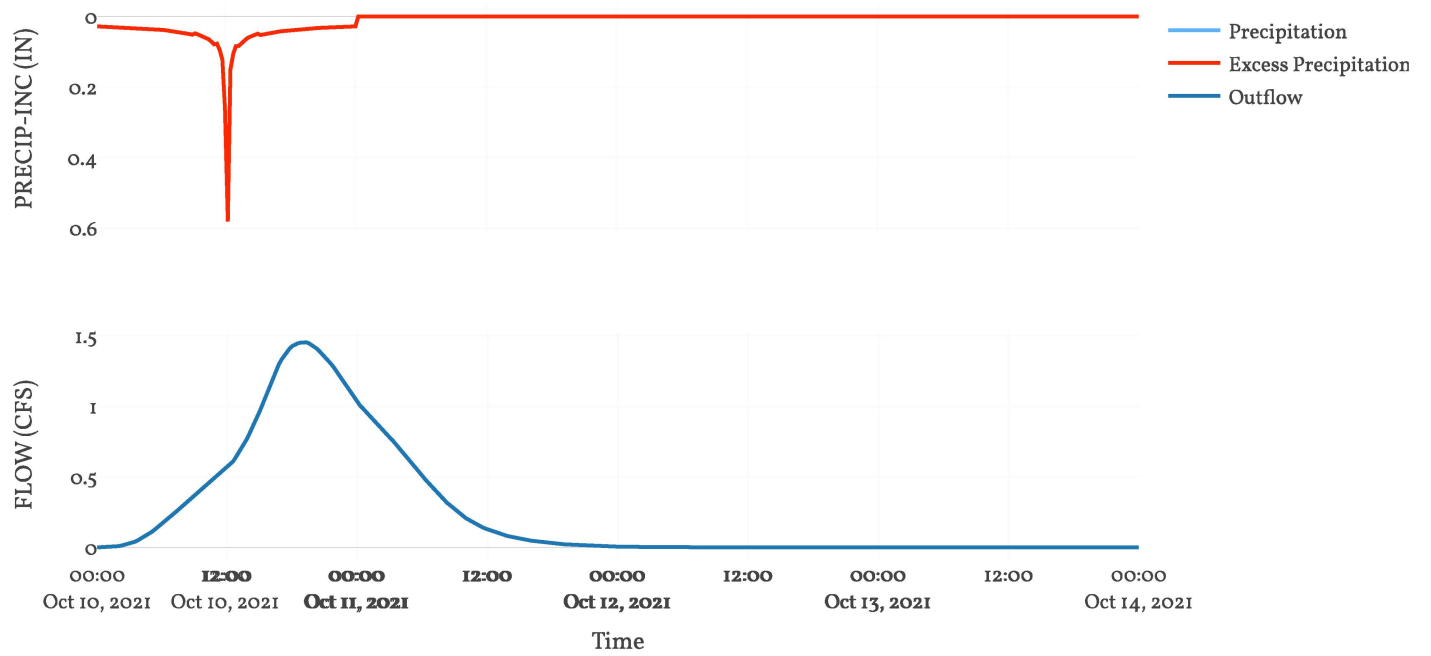
Loss Rate: SCS	
Percent Impervious Area	100
Curve Number	89

Transform: SCS	
Lag	396.32
Unitgraph Type	Standard

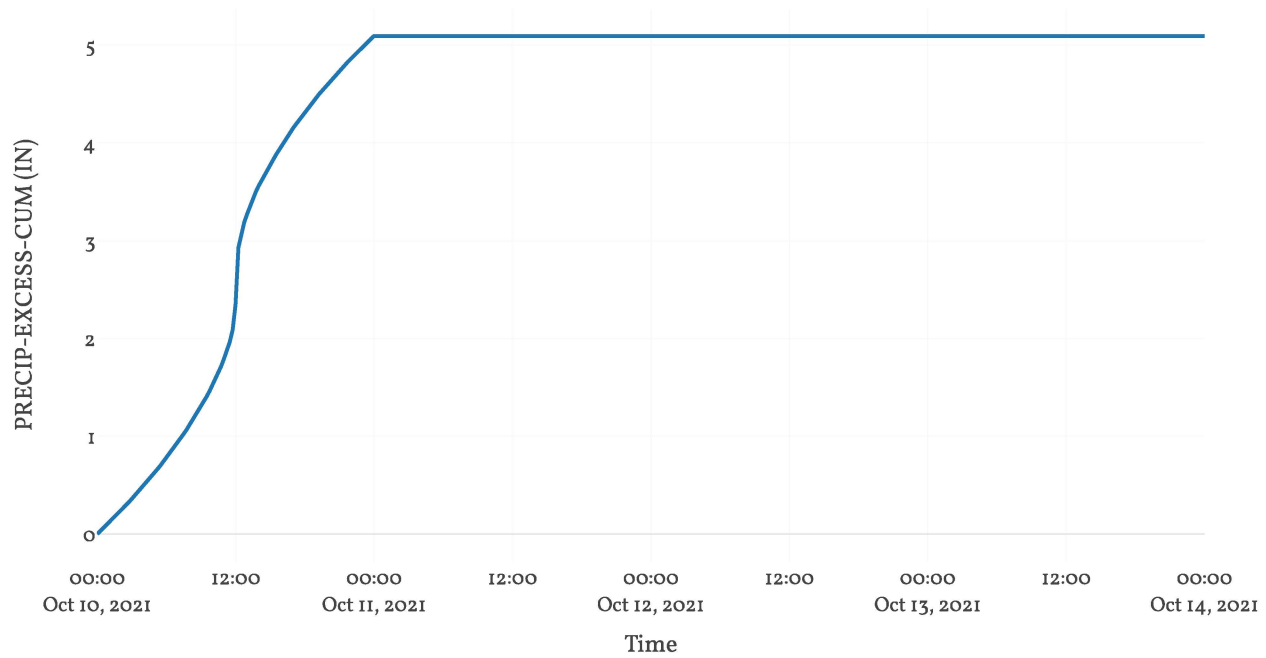
Results: Shed 1 - 05 Imp	
Peak Discharge (CFS)	1.45
Time of Peak Discharge	10Oct2021, 19:00
Volume (IN)	5.1
Precipitation Volume (AC - FT)	1.91
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	1.91
Direct Runoff Volume (AC - FT)	1.91
Baseflow Volume (AC - FT)	0



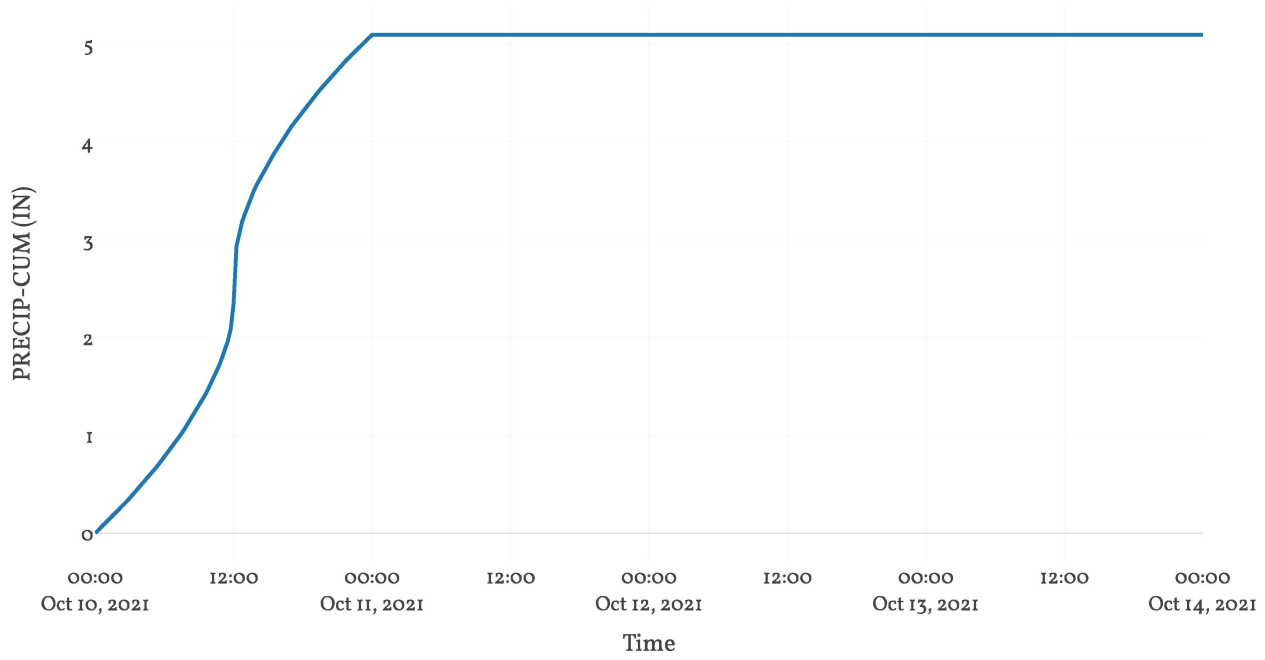
## Precipitation and Outflow



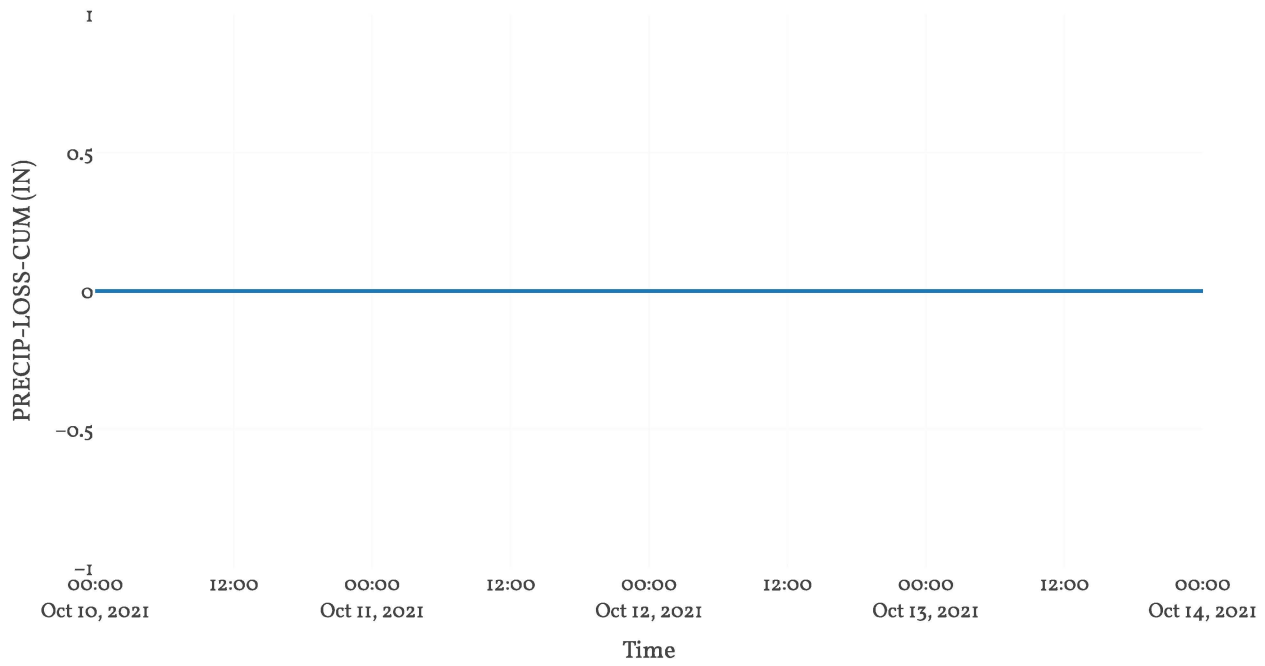
## Cumulative Excess Precipitation



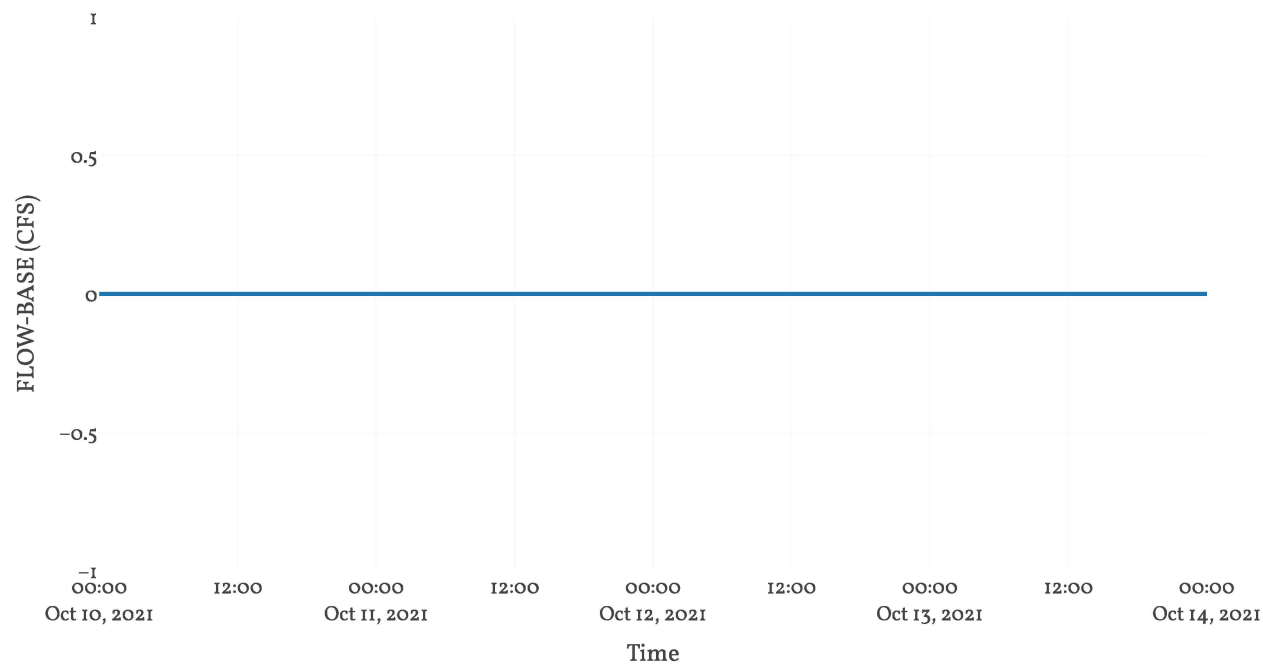
Cumulative Precipitation



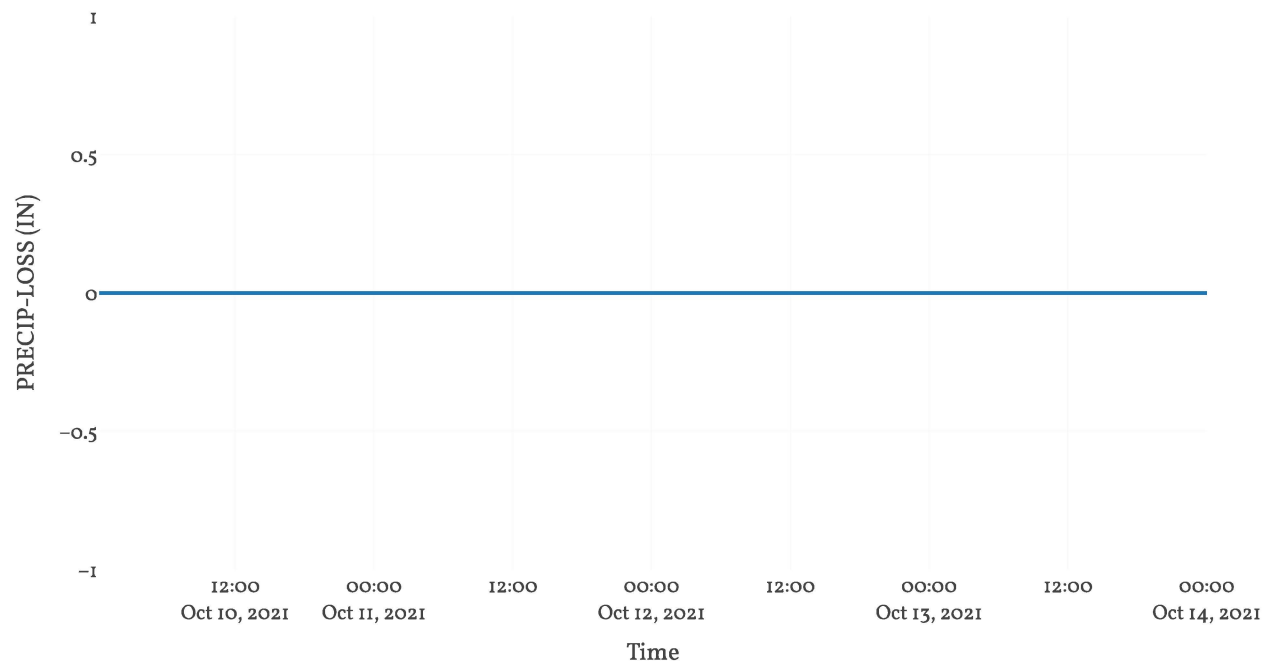
Cumulative Precipitation Loss



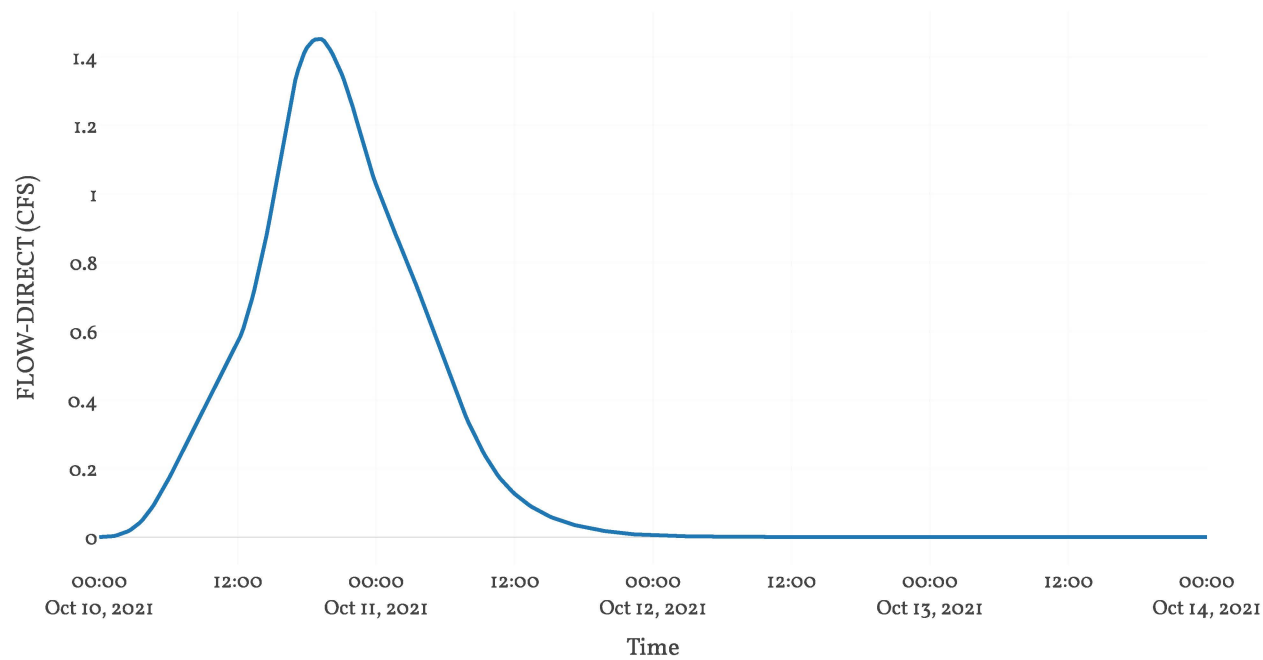
Baseflow



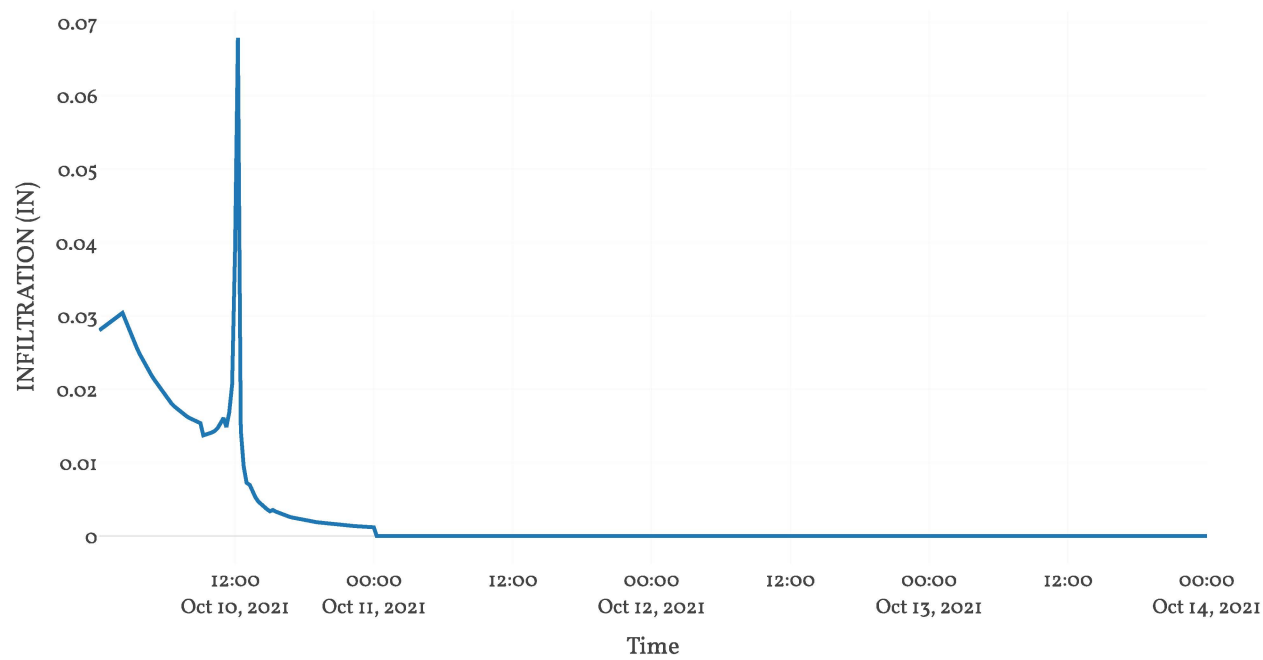
Precipitation Loss



Direct Runoff



Soil Infiltration

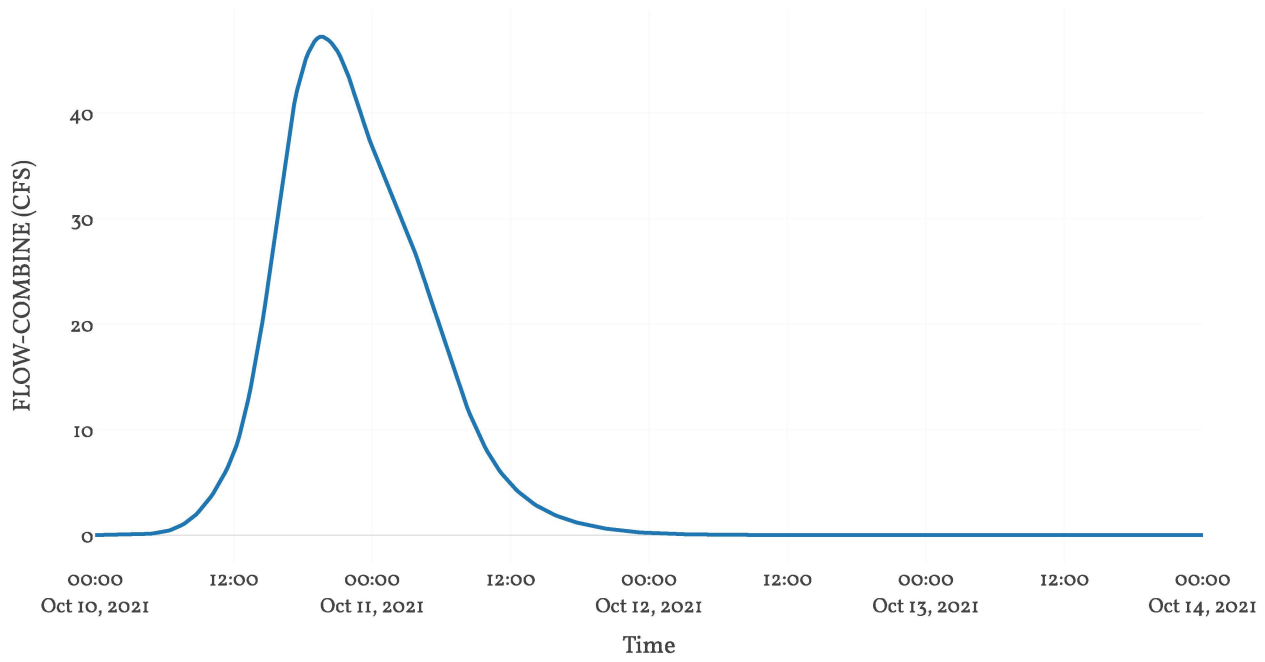


# Junction: Junct-5

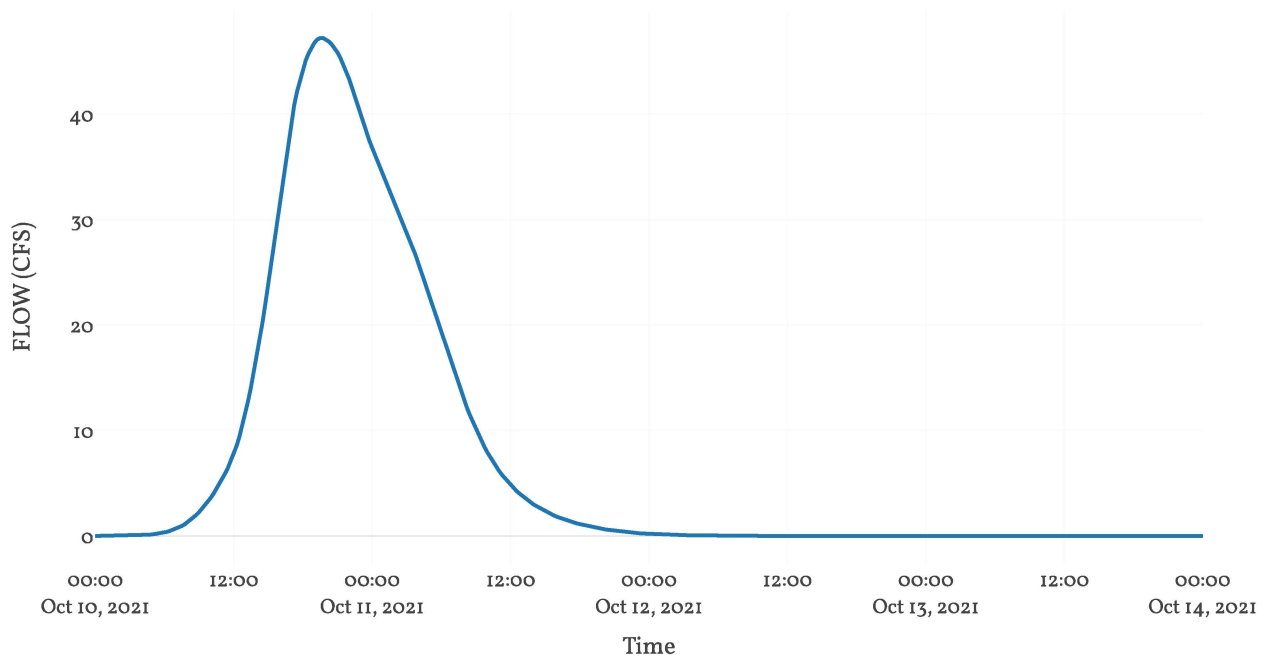
Downstream : Post Total

Results: Junct-5	
Peak Discharge (CFS)	47.23
Time of Peak Discharge	10Oct2021, 19:30
Volume (IN)	3.49

Combined Inflow



Outflow

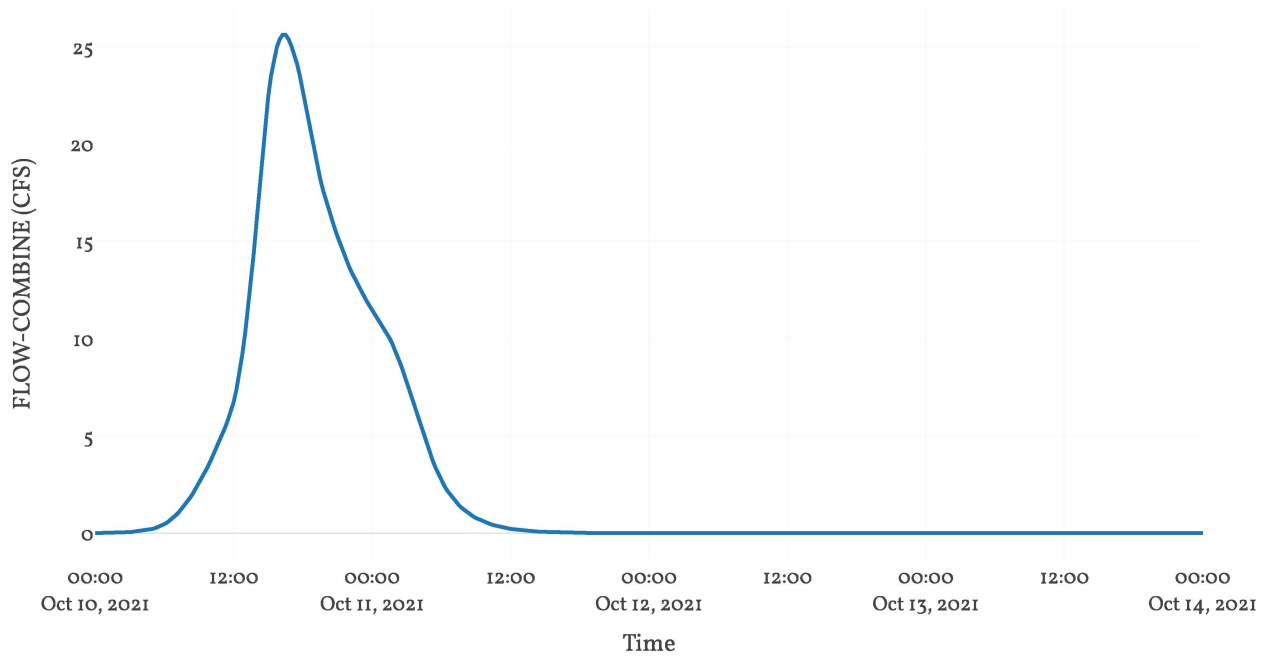


# Junction: Junct I

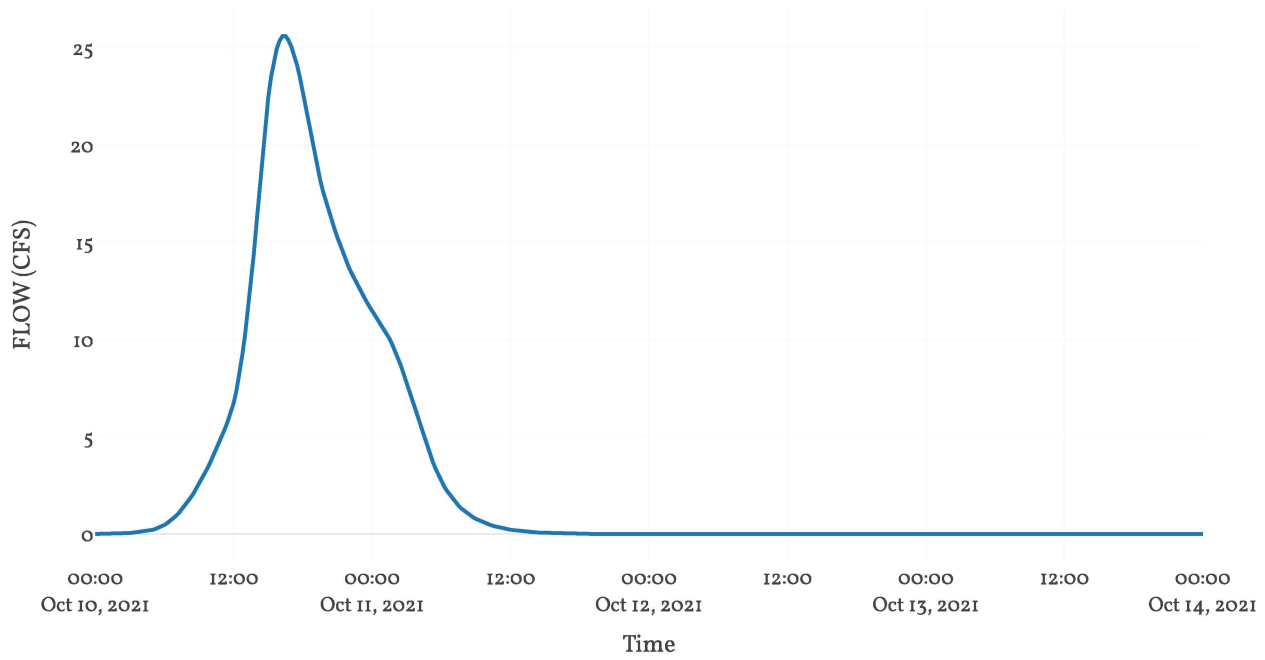
Downstream : Post Total

Results: Junct I	
Peak Discharge (CFS)	25.61
Time of Peak Discharge	10Oct2021, 16:30
Volume (IN)	3.5

Combined Inflow



Outflow





# Subbasin: Shed 1 - 02 Perv

Area : 0.08

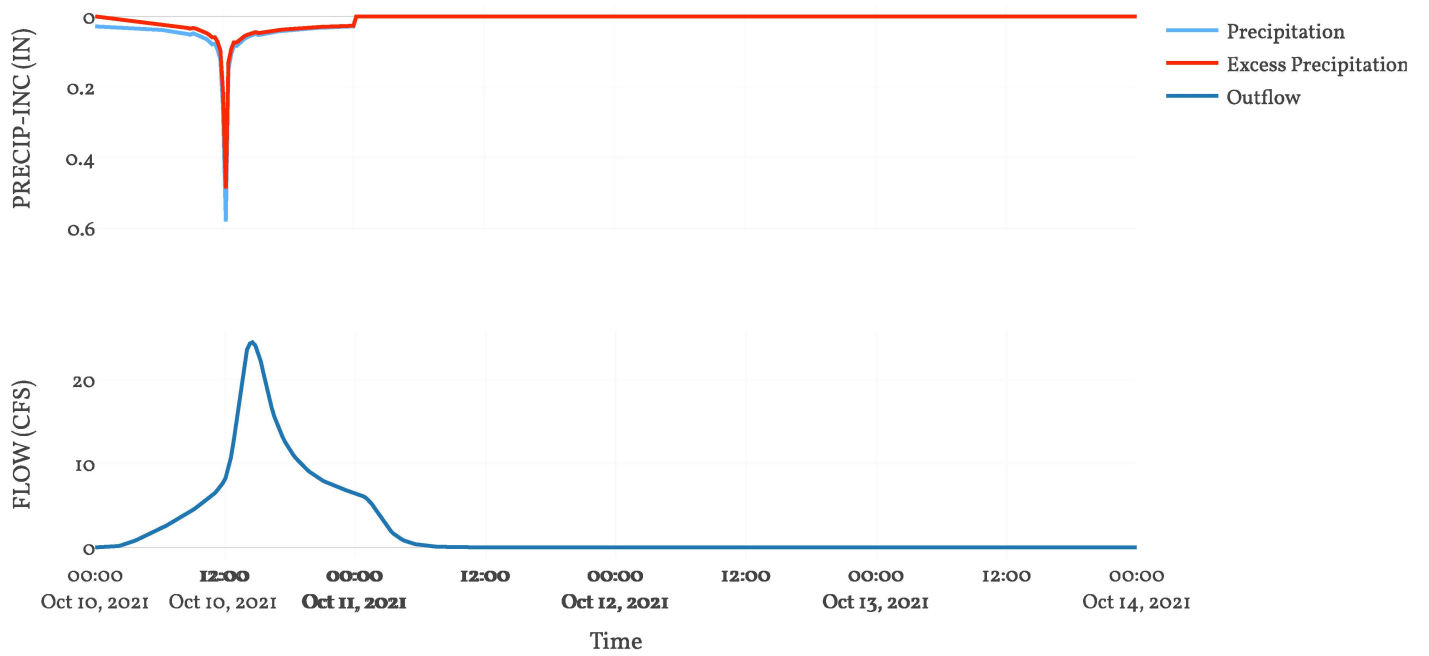
Downstream : Junct - 2

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

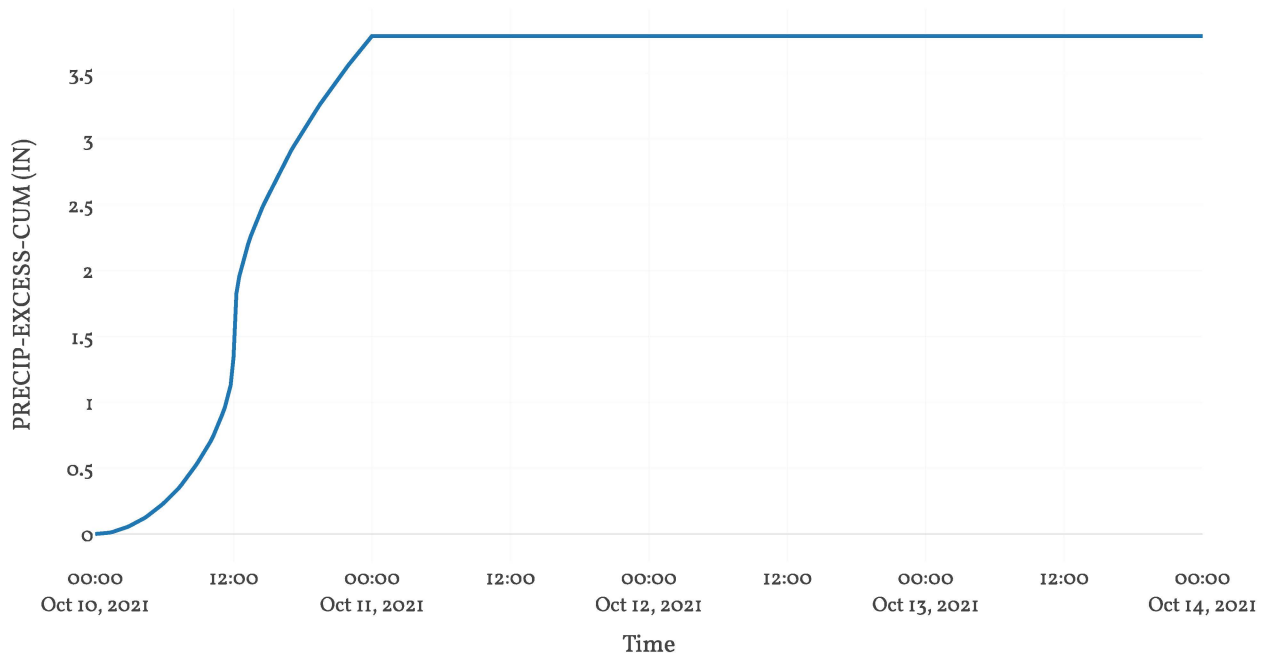
Transform: Scs	
Lag	133.24
Unitgraph Type	Standard

Results: Shed 1 - 02 Perv	
Peak Discharge (CFS)	24.46
Time of Peak Discharge	10Oct2021, 14:30
Volume (IN)	3.78
Precipitation Volume (AC - FT)	22.66
Loss Volume (AC - FT)	5.83
Excess Volume (AC - FT)	16.83
Direct Runoff Volume (AC - FT)	16.83
Baseflow Volume (AC - FT)	0

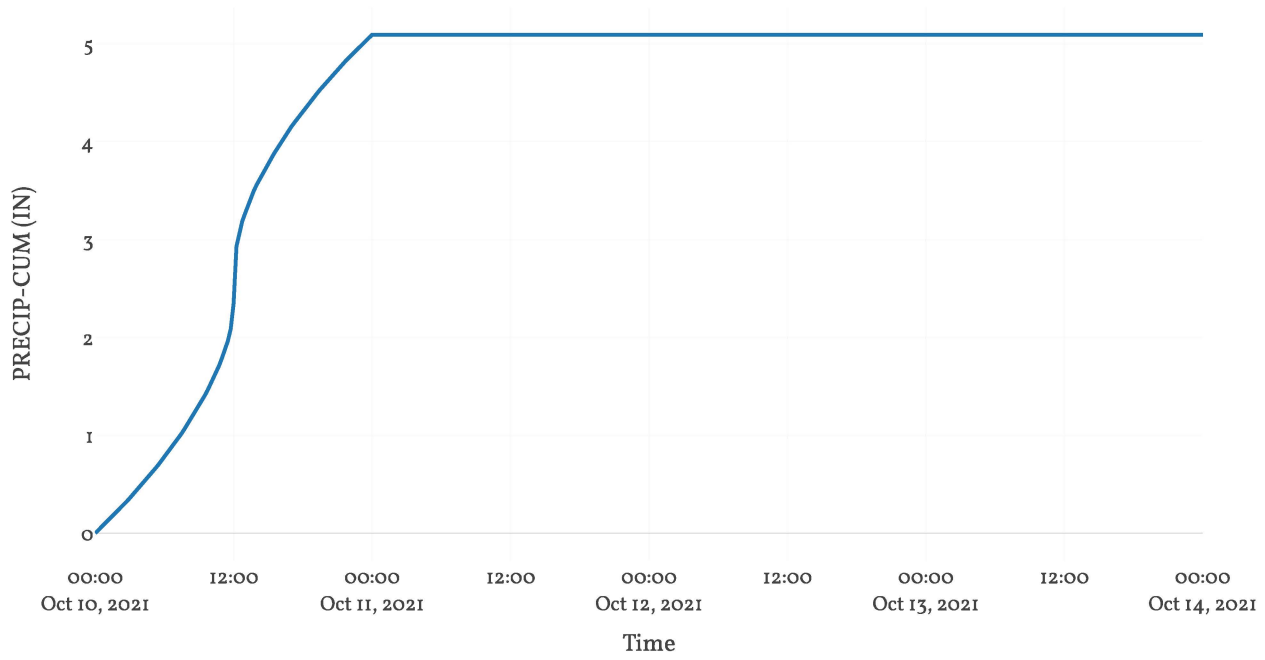
## Precipitation and Outflow



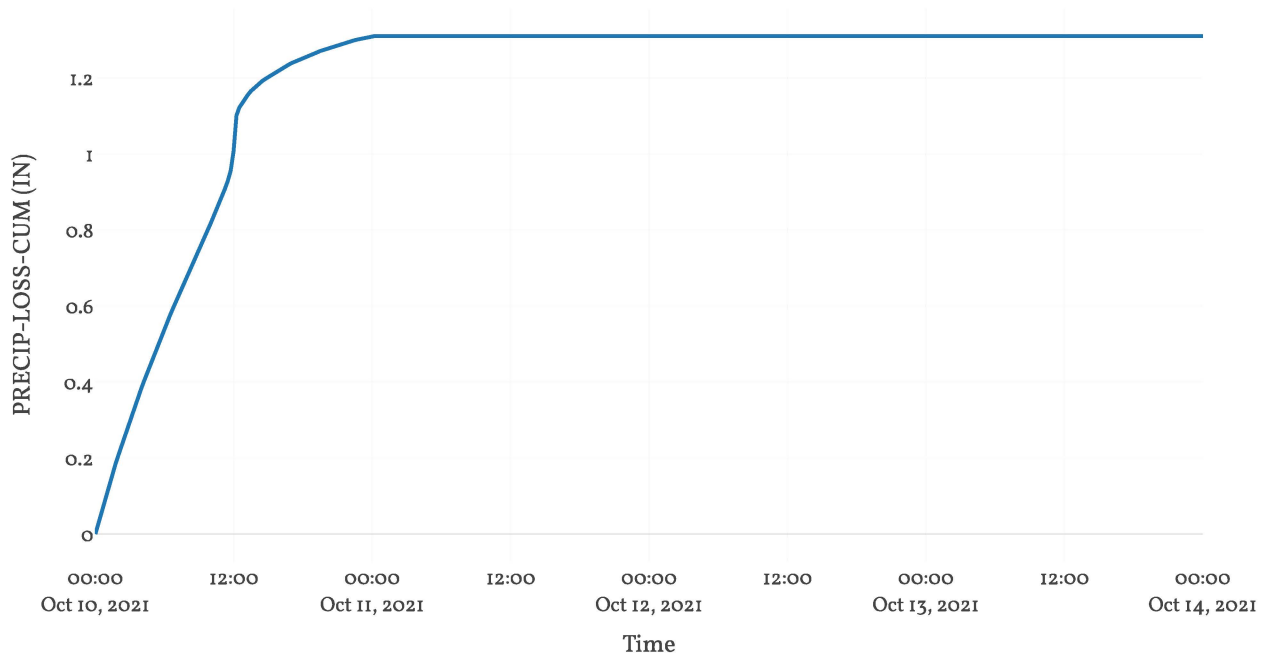
## Cumulative Excess Precipitation



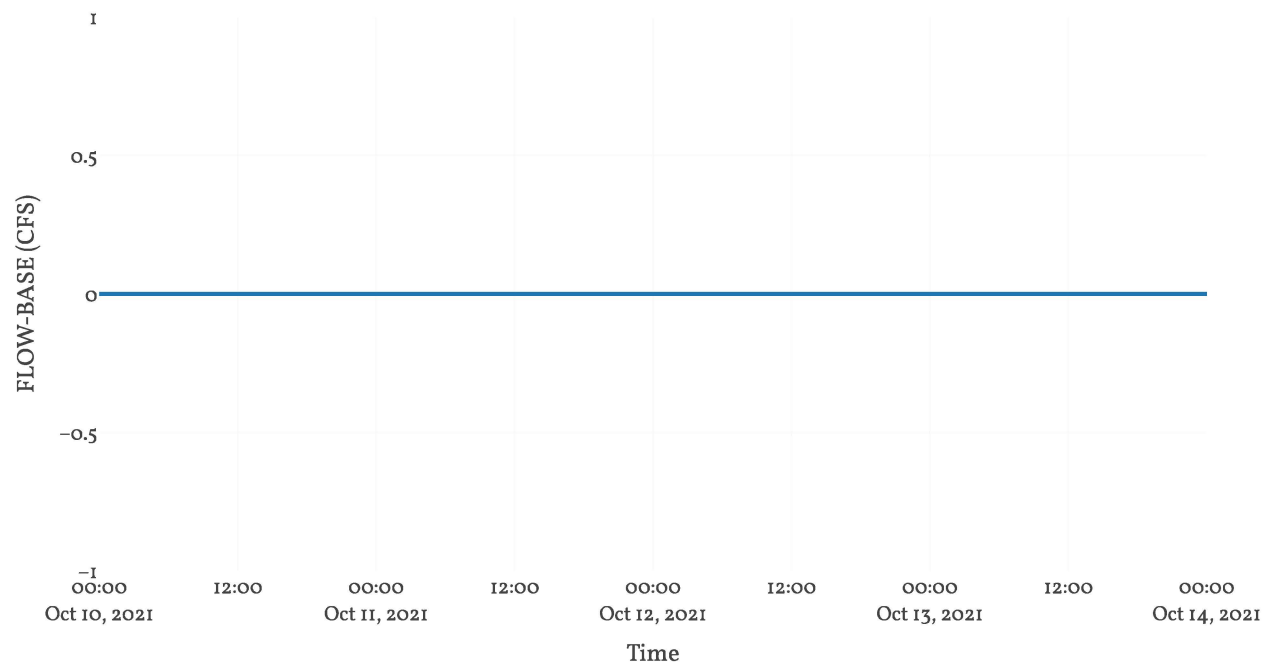
Cumulative Precipitation



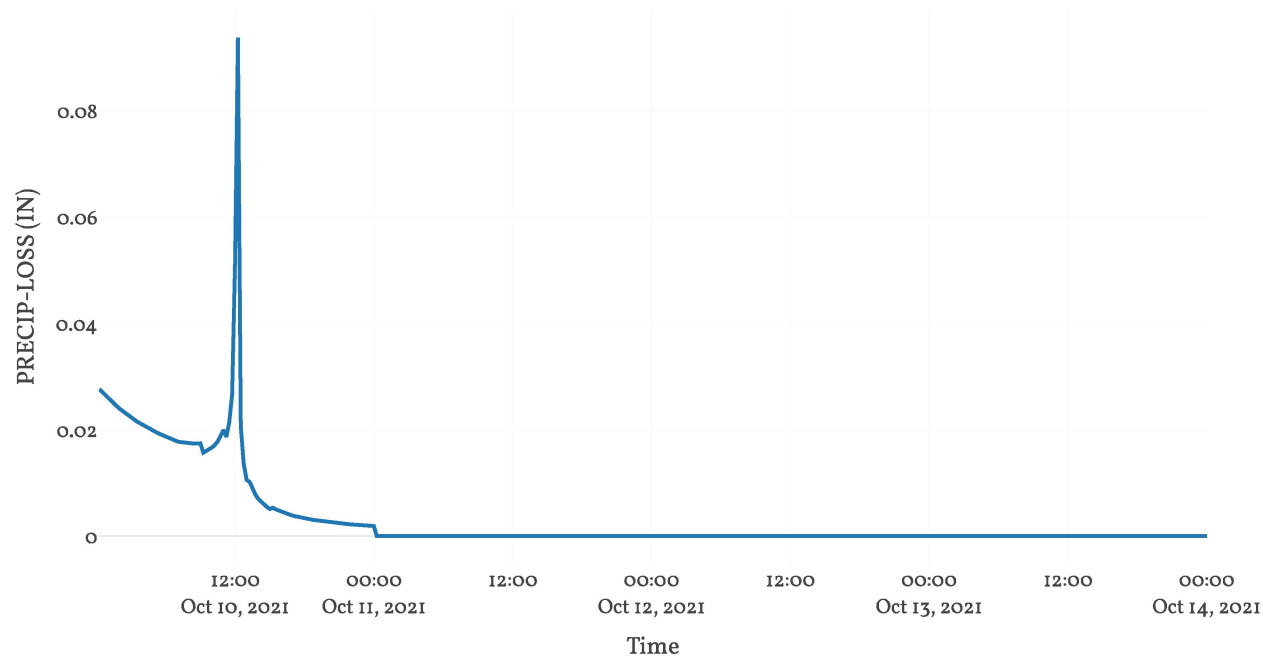
Cumulative Precipitation Loss



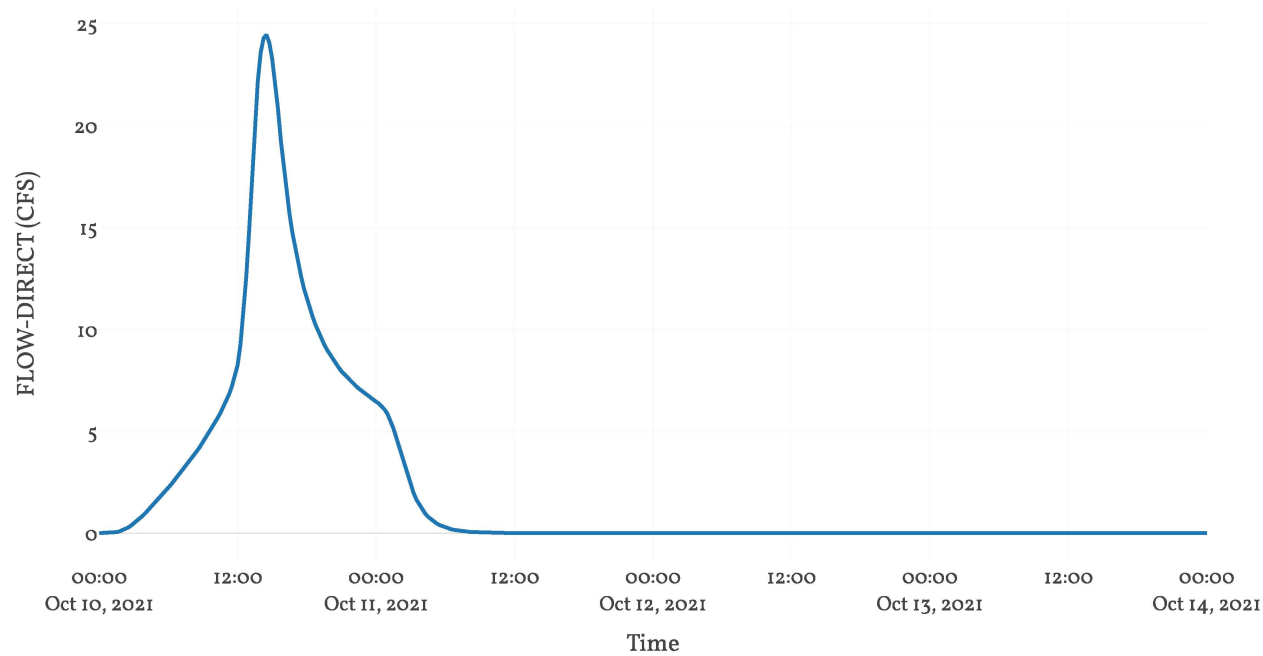
Baseflow



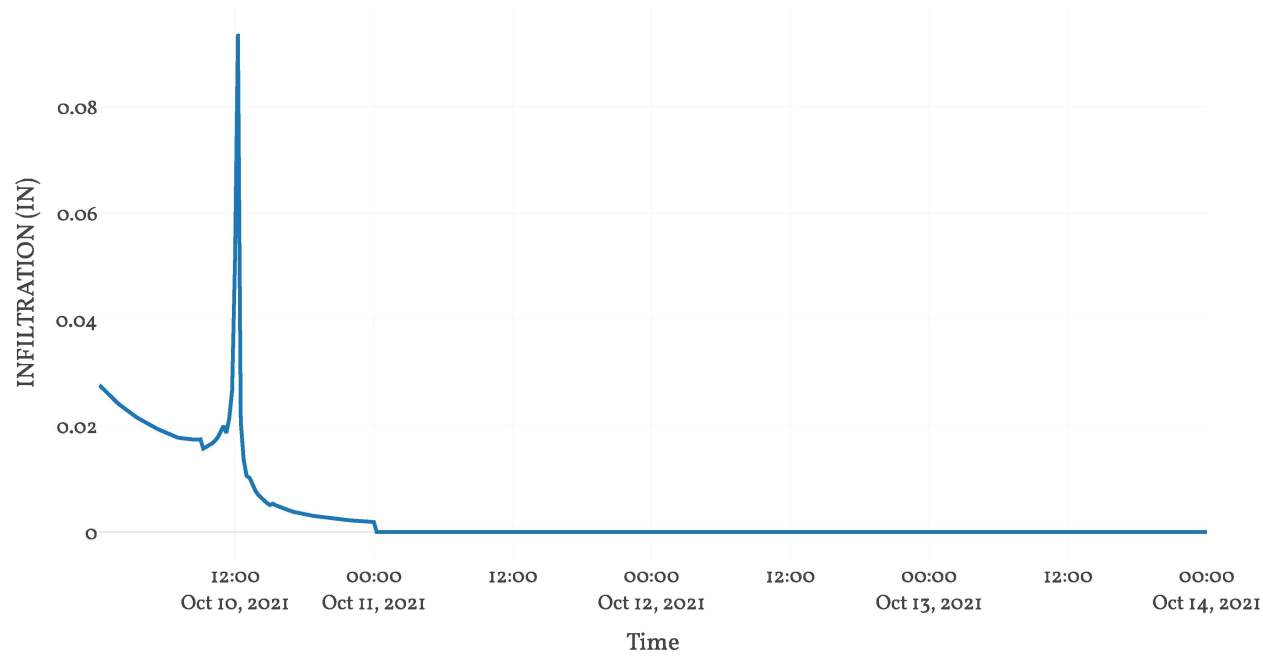
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1 - 02 Imp

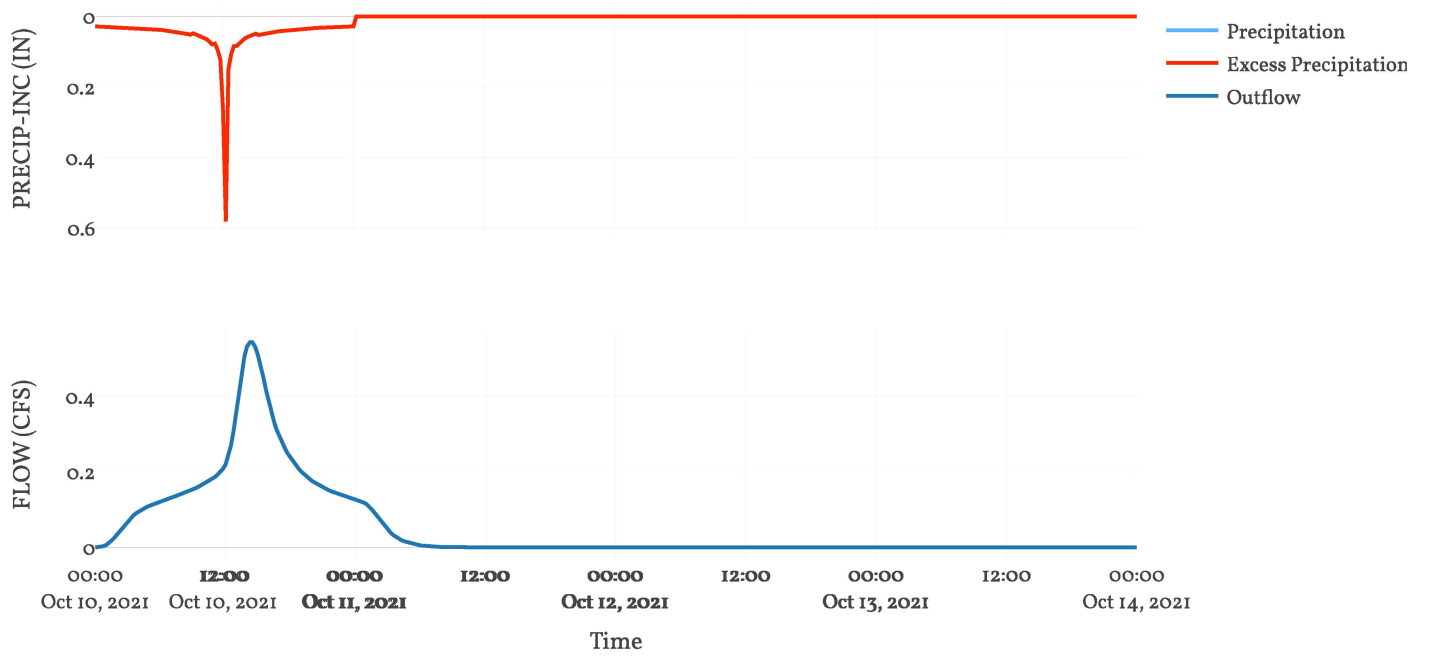
Area : 0  
Downstream : Junct - 2

Loss Rate: Scs	
Percent Impervious Area	100
Curve Number	89
Initial Abstraction	0

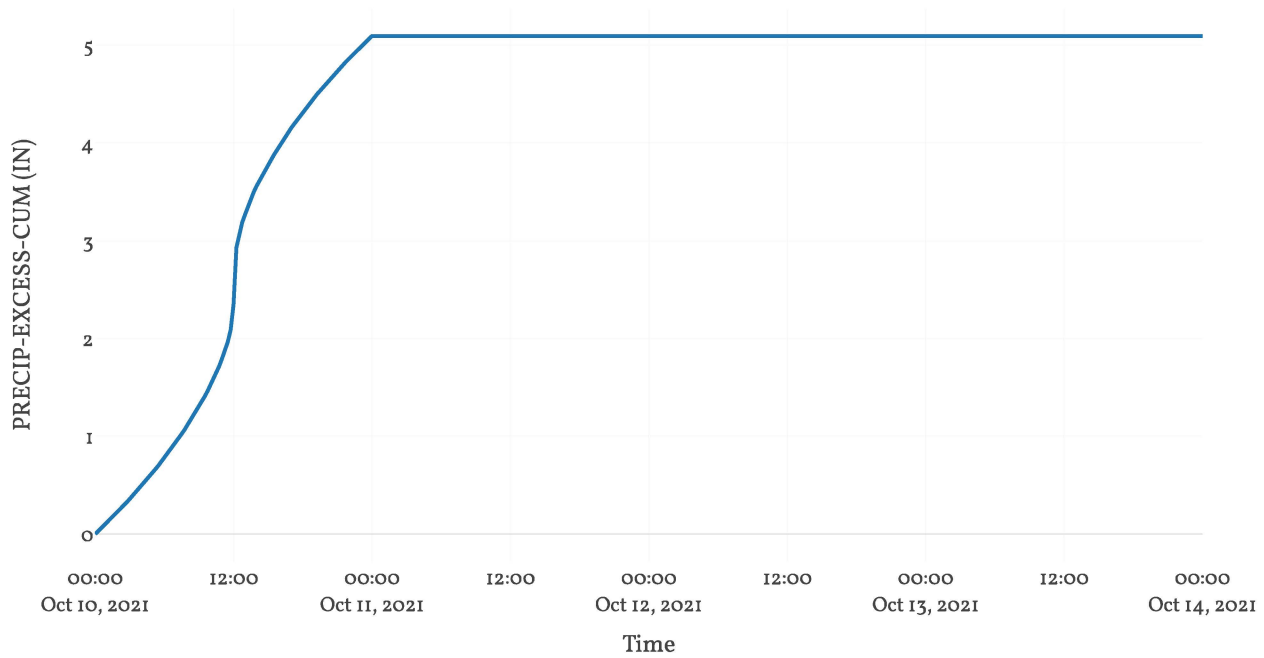
Transform: Scs	
Lag	133.24
Unitgraph Type	Standard

Results: Shed 1 - 02 Imp	
Peak Discharge (CFS)	0.54
Time of Peak Discharge	10Oct2021, 14:15
Volume (IN)	5.1
Precipitation Volume (AC - FT)	0.41
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.41
Direct Runoff Volume (AC - FT)	0.41
Baseflow Volume (AC - FT)	0

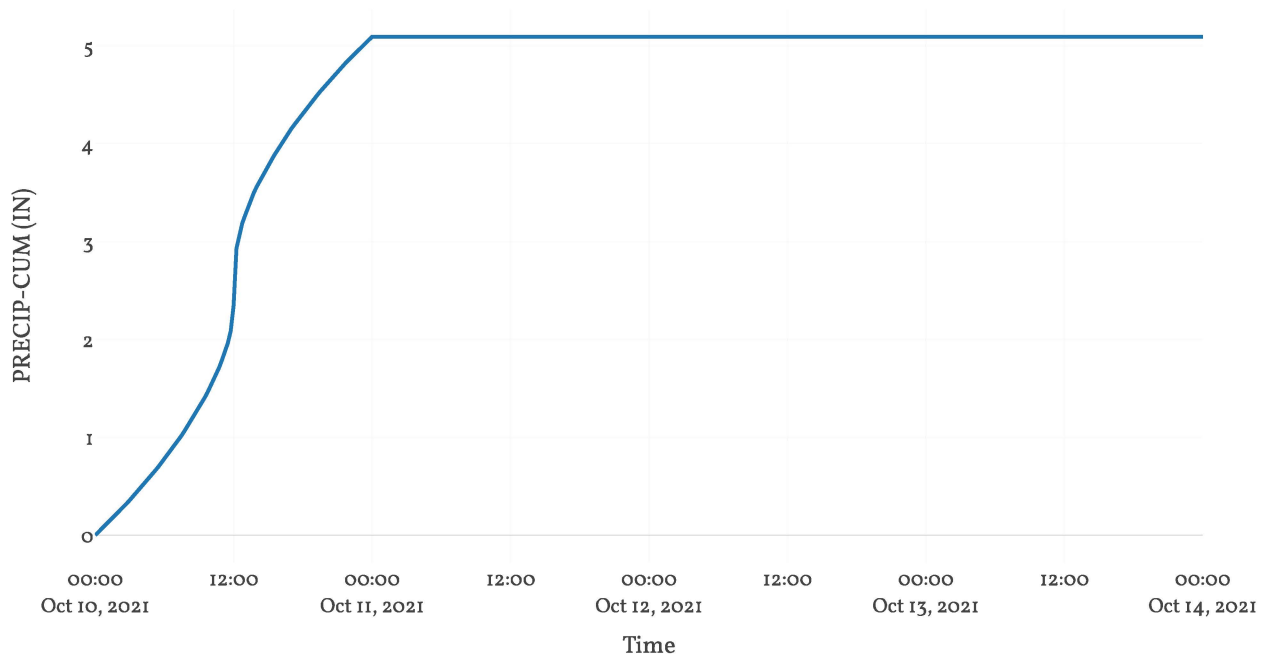
## Precipitation and Outflow



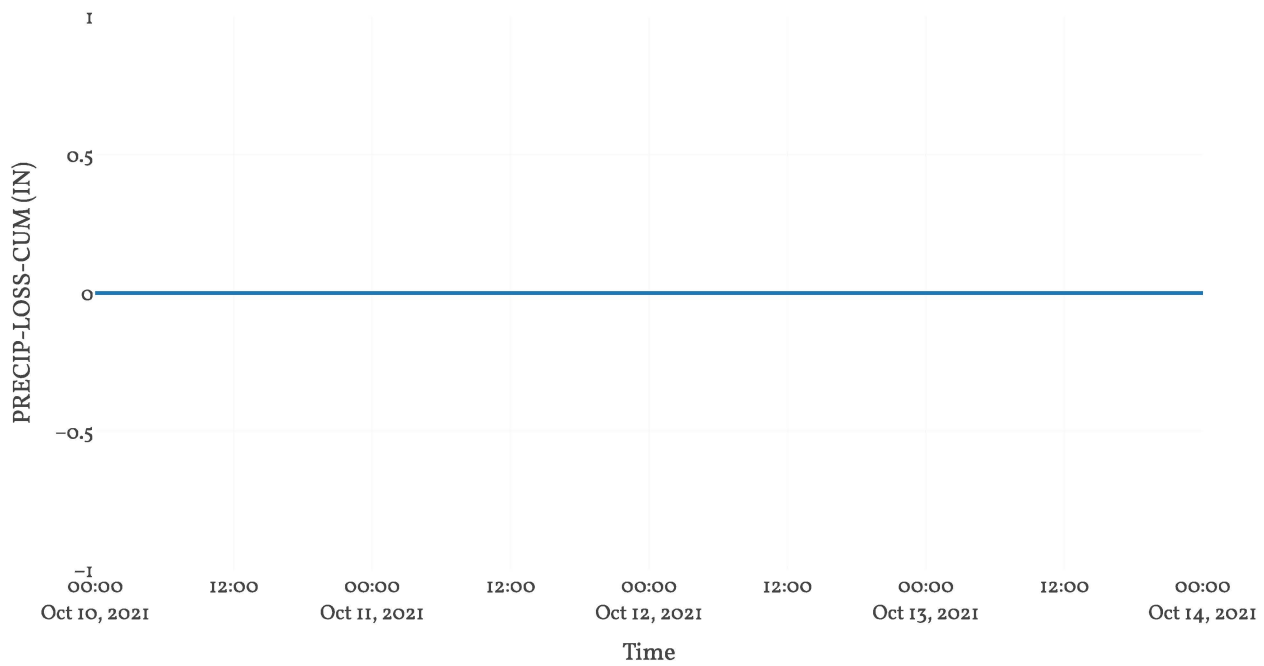
## Cumulative Excess Precipitation



Cumulative Precipitation

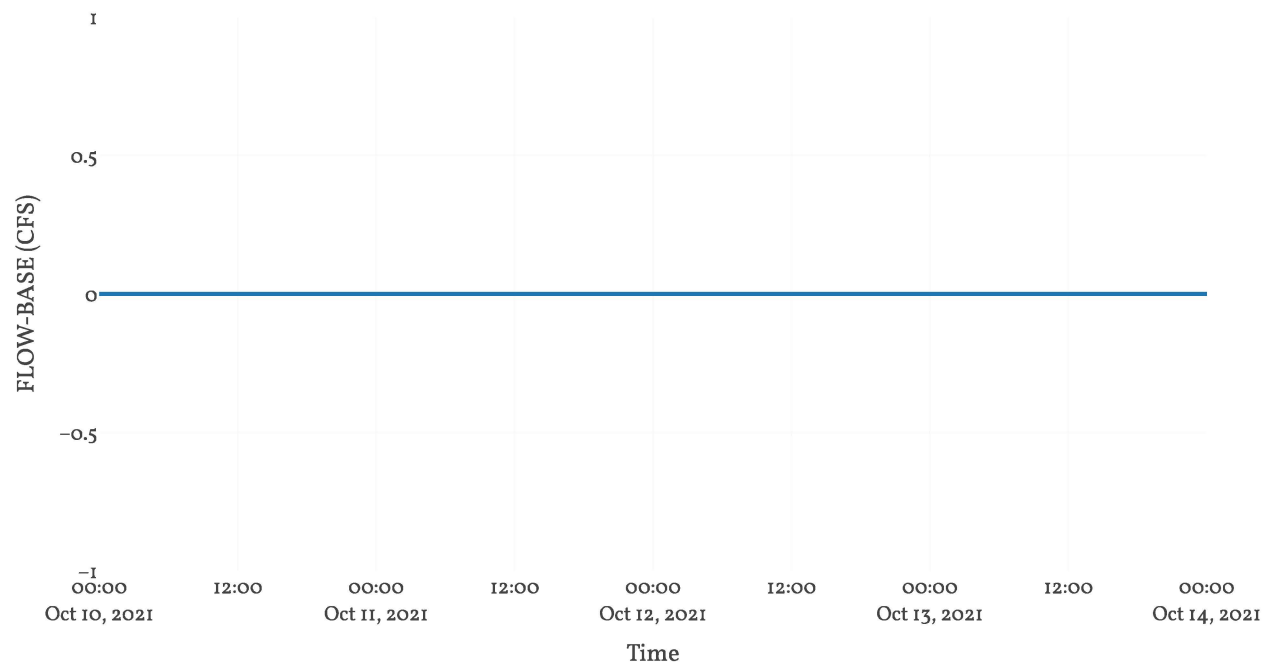


Cumulative Precipitation Loss

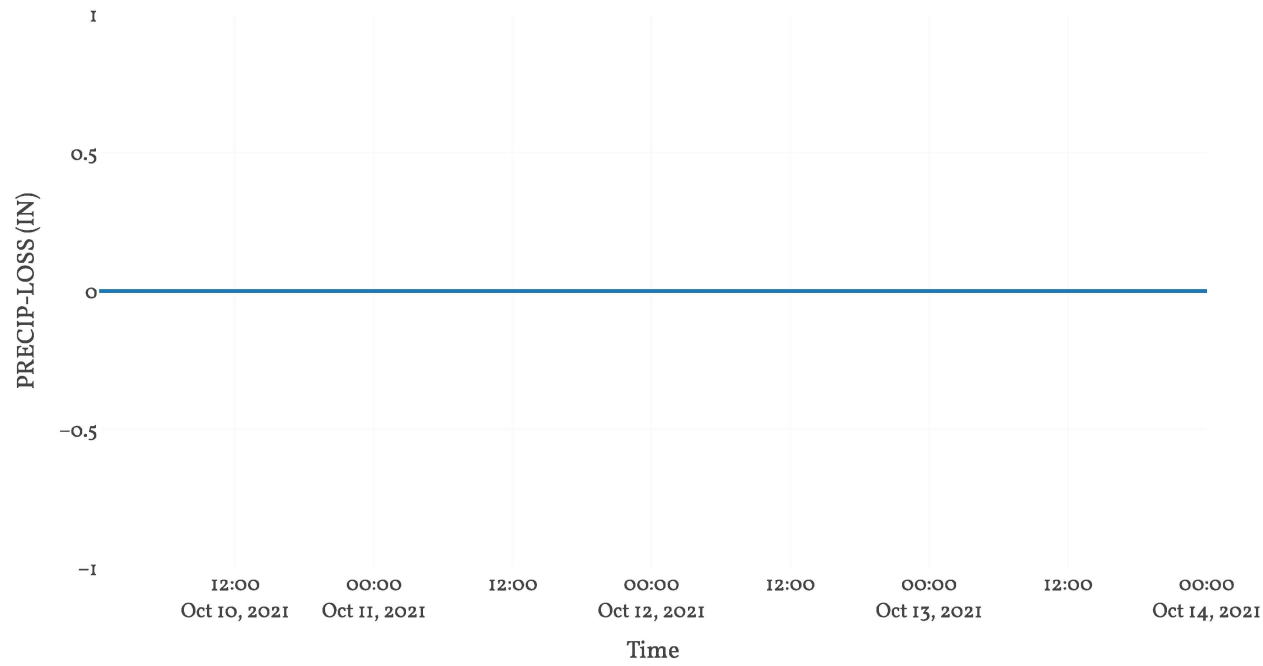




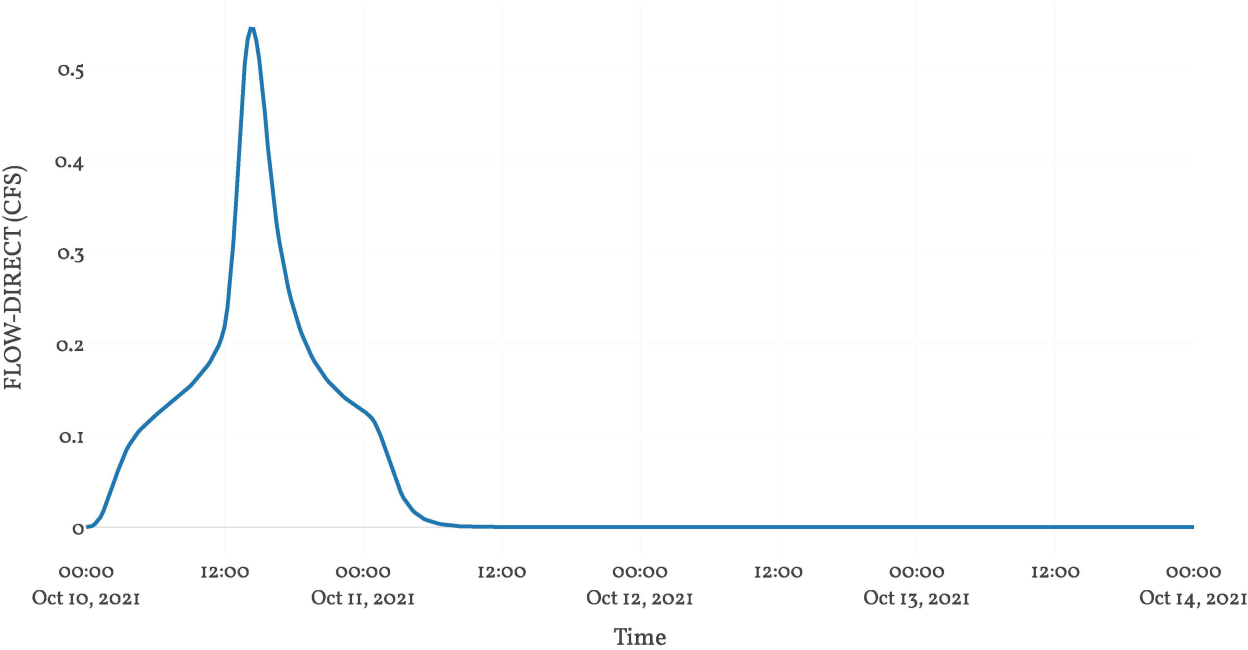
Baseflow



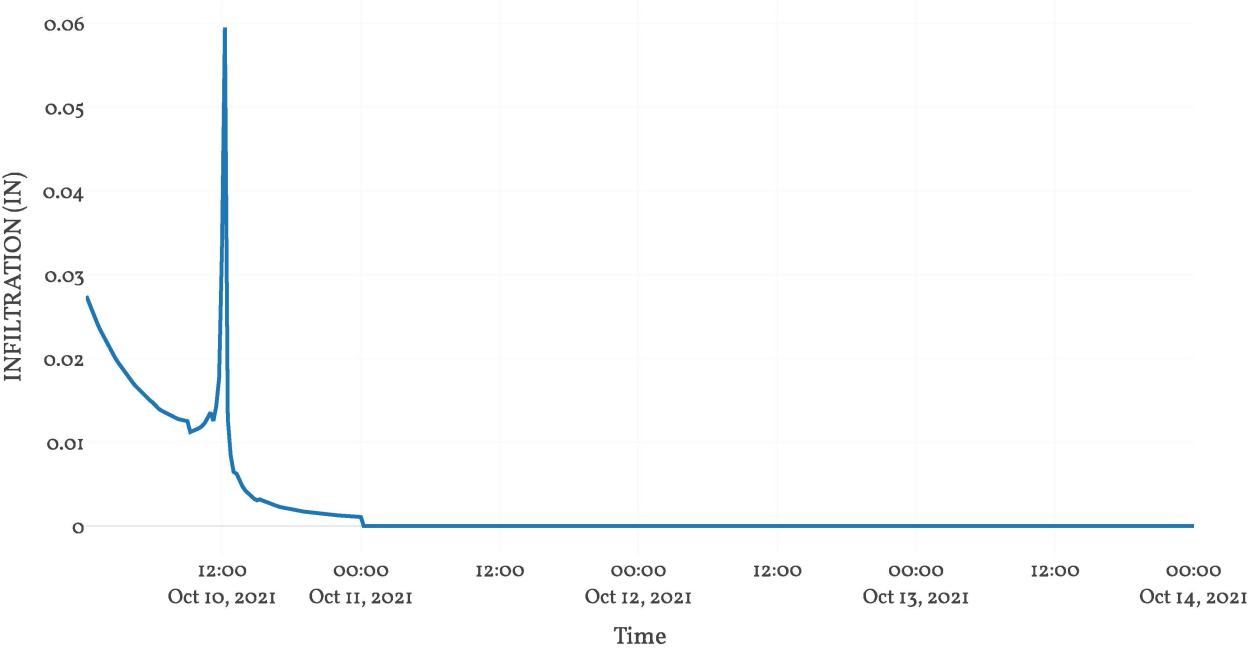
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1 - 03 Perv

Area : 0.09

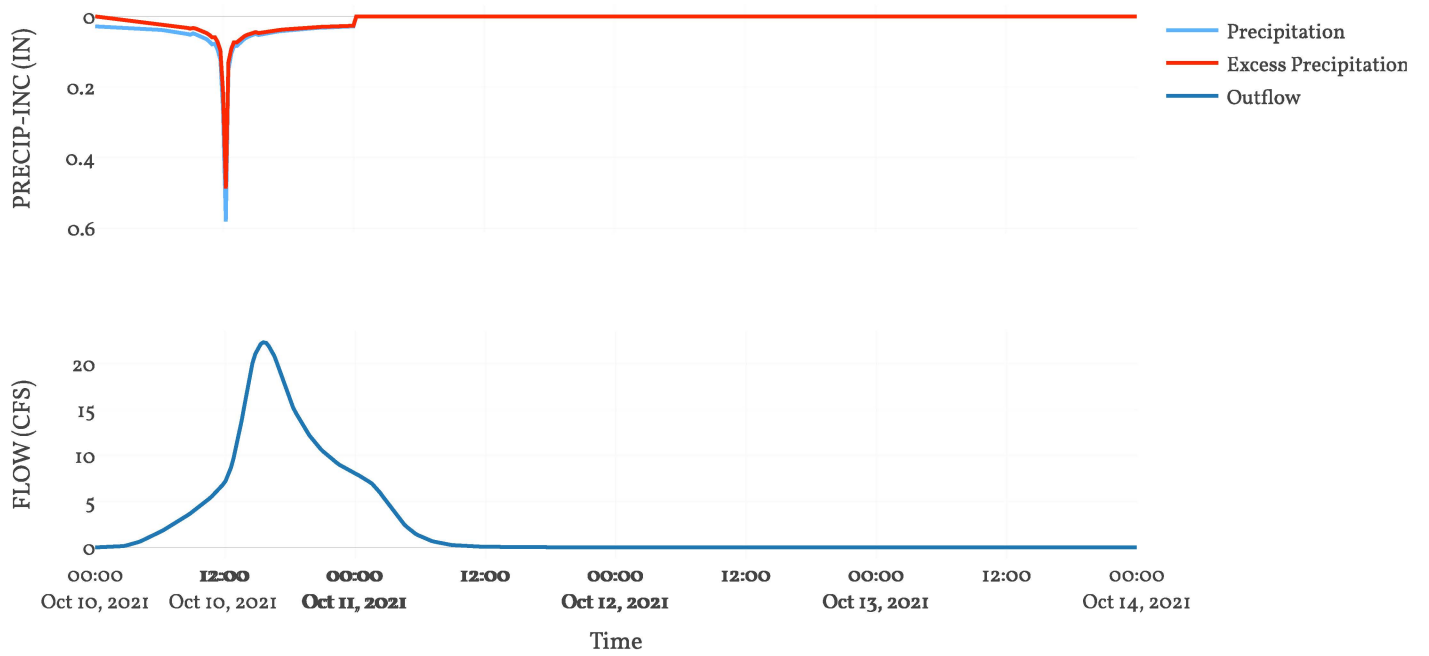
Downstream : Junct - 3

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

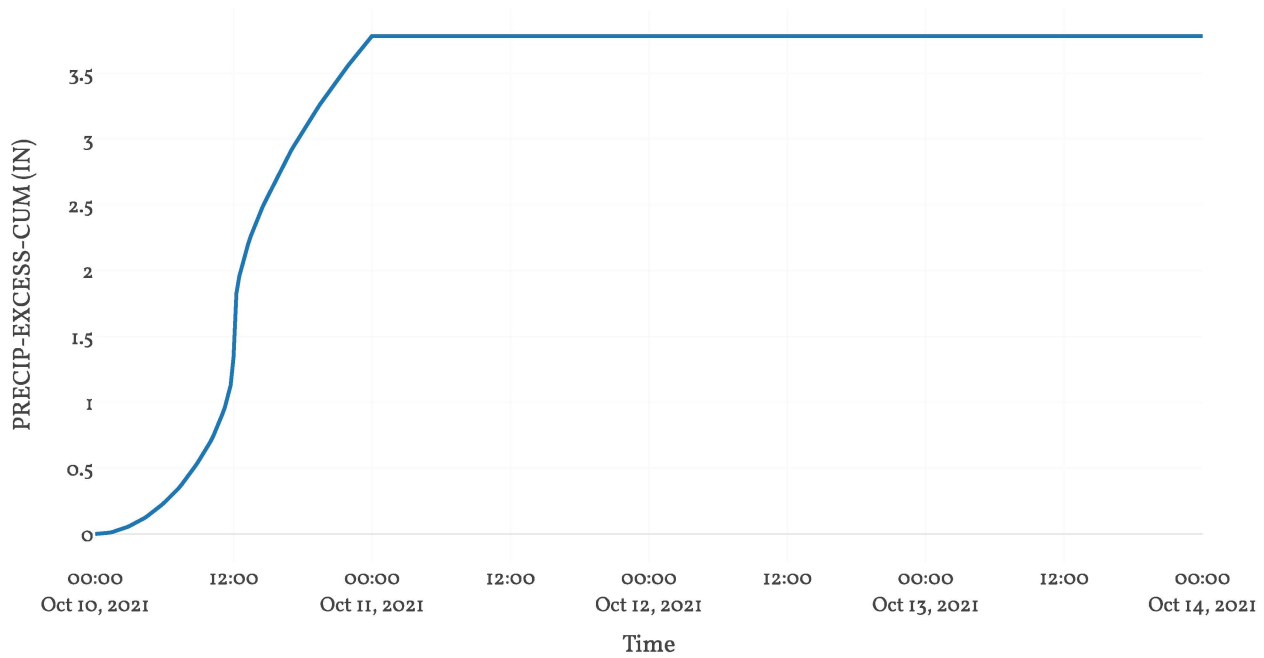
Transform: Scs	
Lag	192.84
Unitgraph Type	Standard

Results: Shed 1 - 03 Perv	
Peak Discharge (CFS)	22.35
Time of Peak Discharge	10Oct2021, 15:30
Volume (IN)	3.78
Precipitation Volume (AC - FT)	25.18
Loss Volume (AC - FT)	6.48
Excess Volume (AC - FT)	18.7
Direct Runoff Volume (AC - FT)	18.7
Baseflow Volume (AC - FT)	0

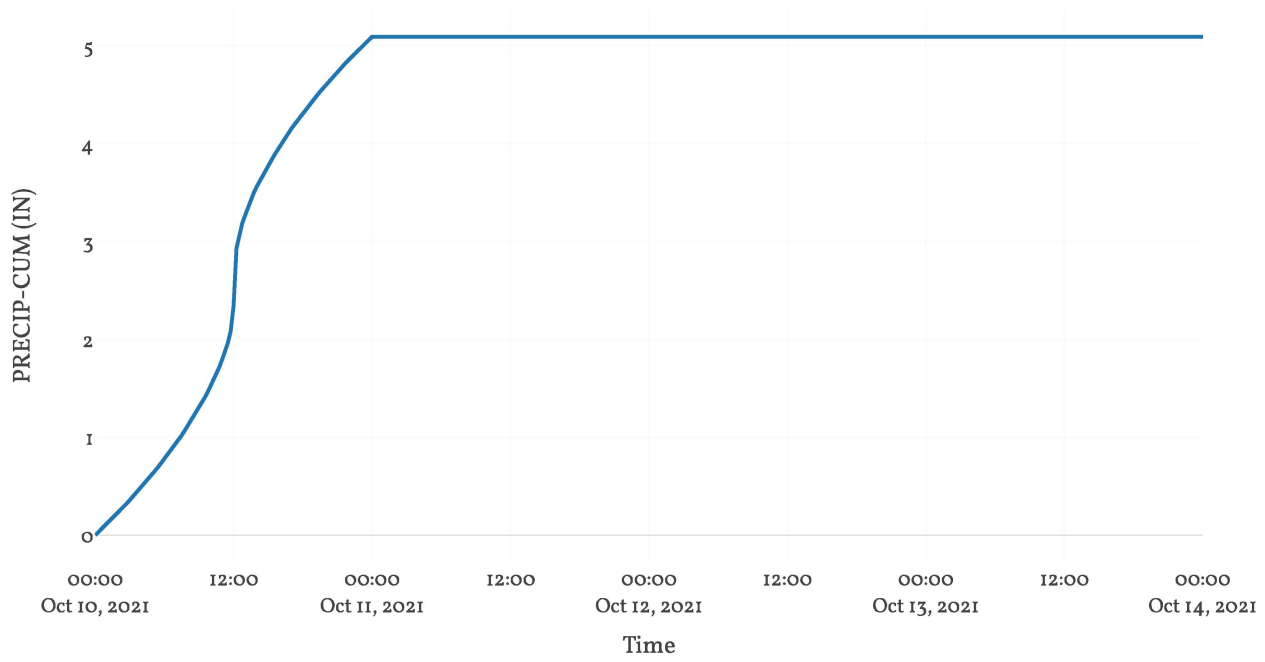
## Precipitation and Outflow



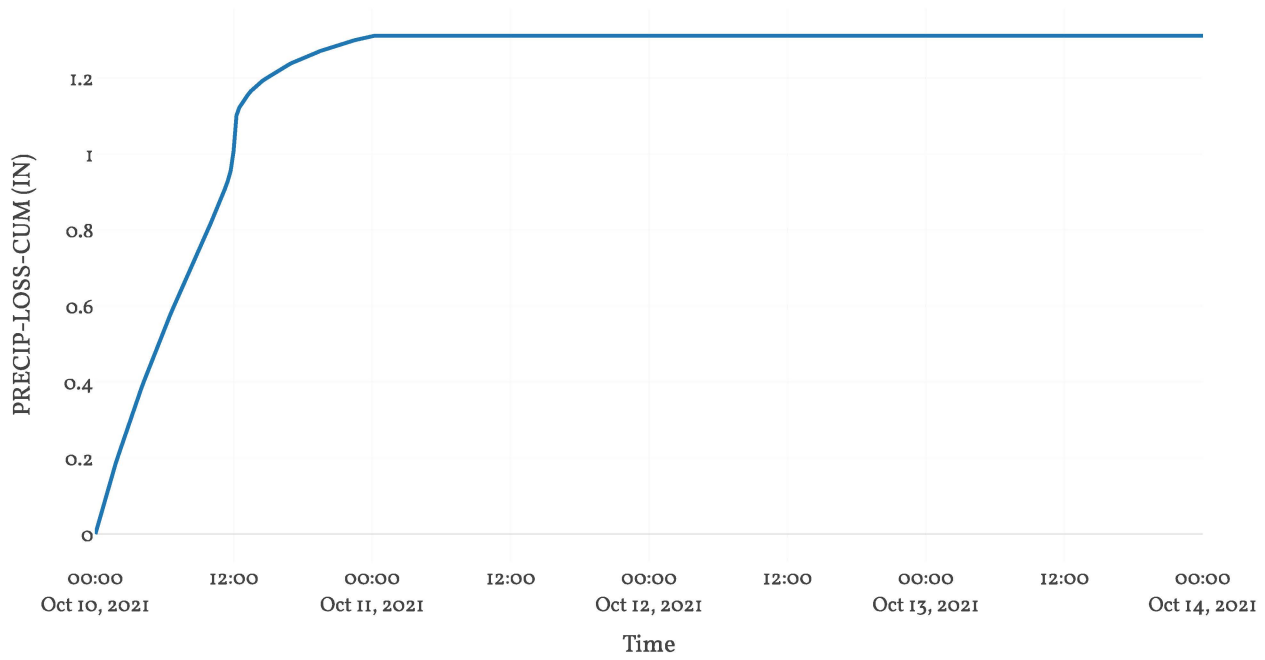
## Cumulative Excess Precipitation



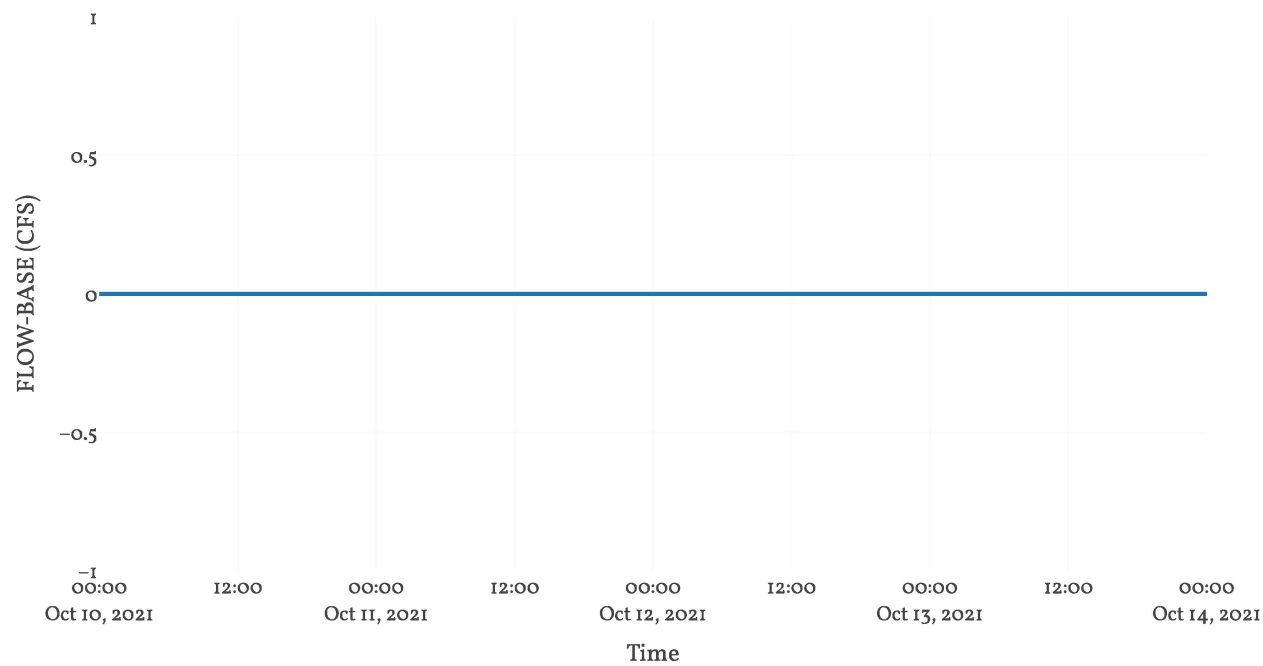
Cumulative Precipitation



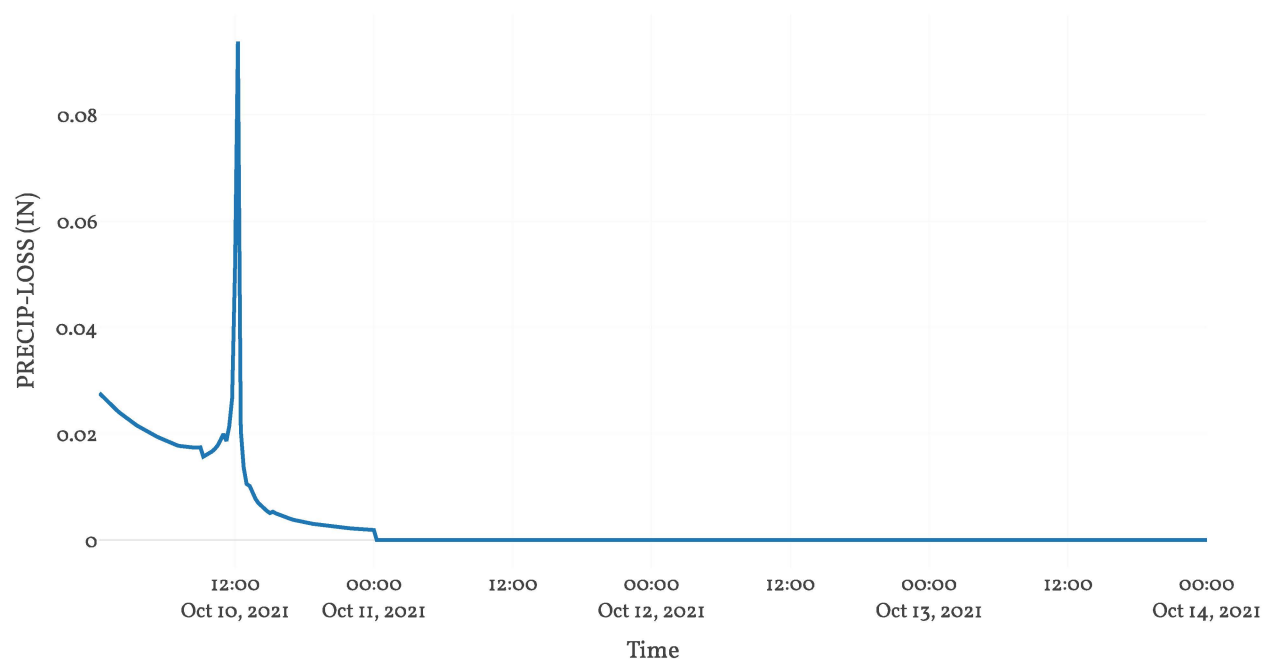
Cumulative Precipitation Loss



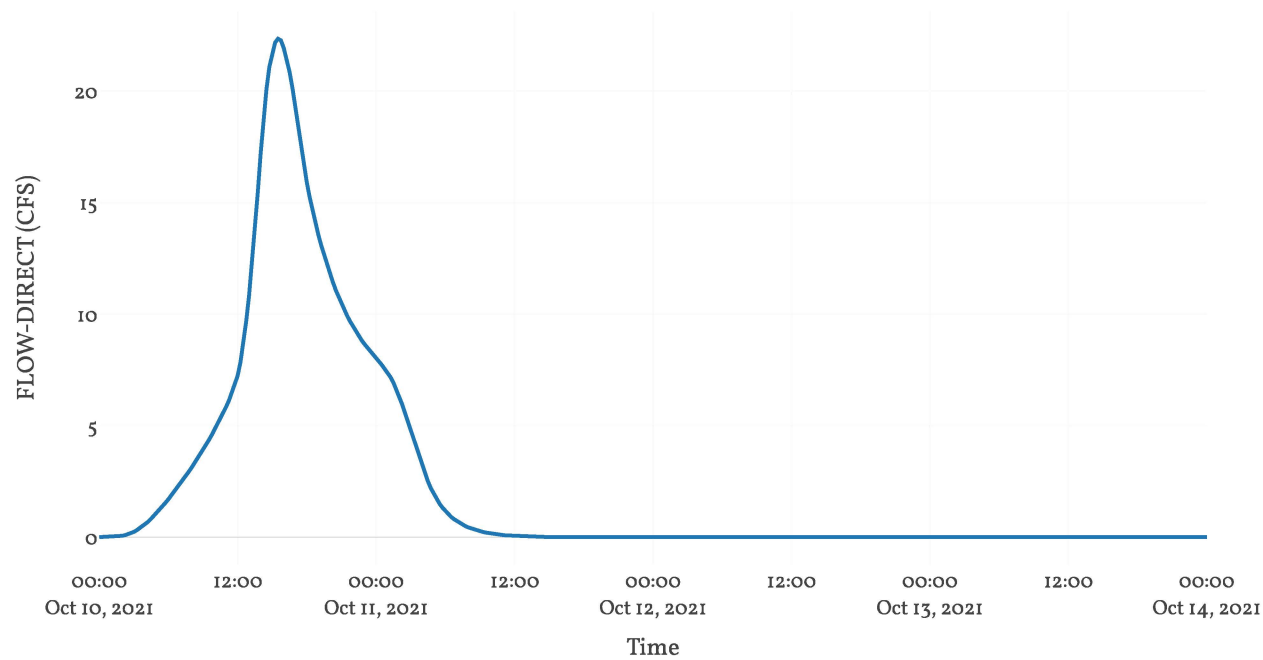
Baseflow



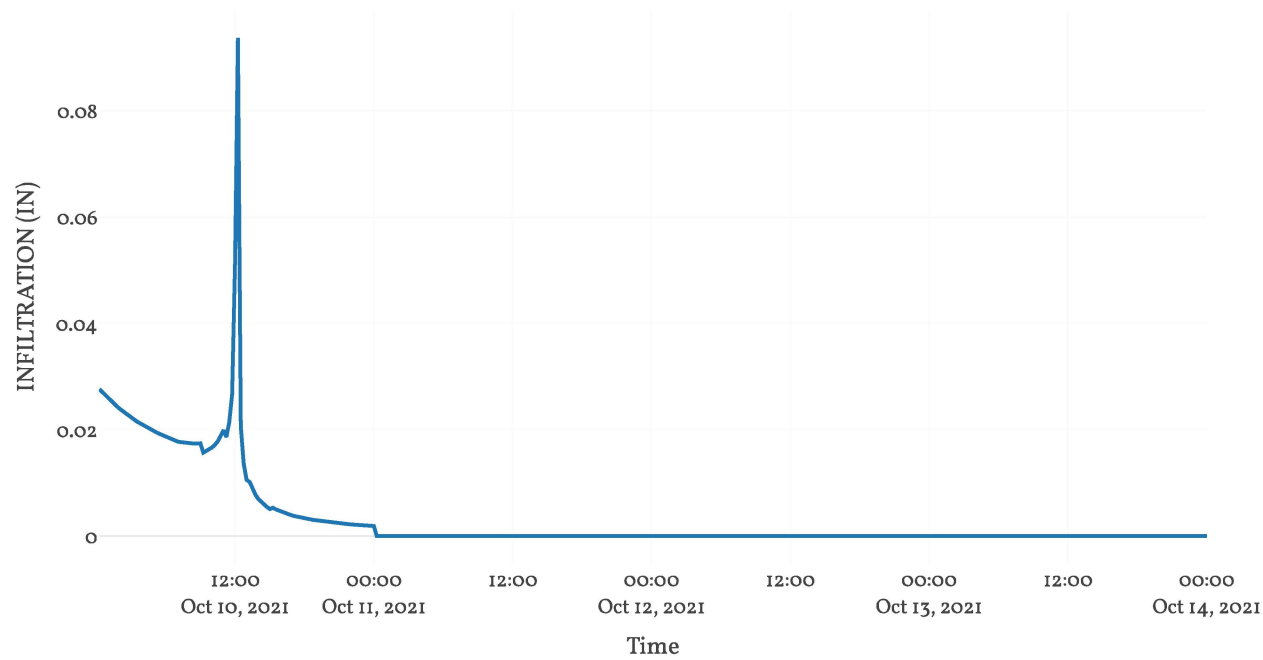
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1-03 Imp

Area : 0  
Downstream : Junct - 3

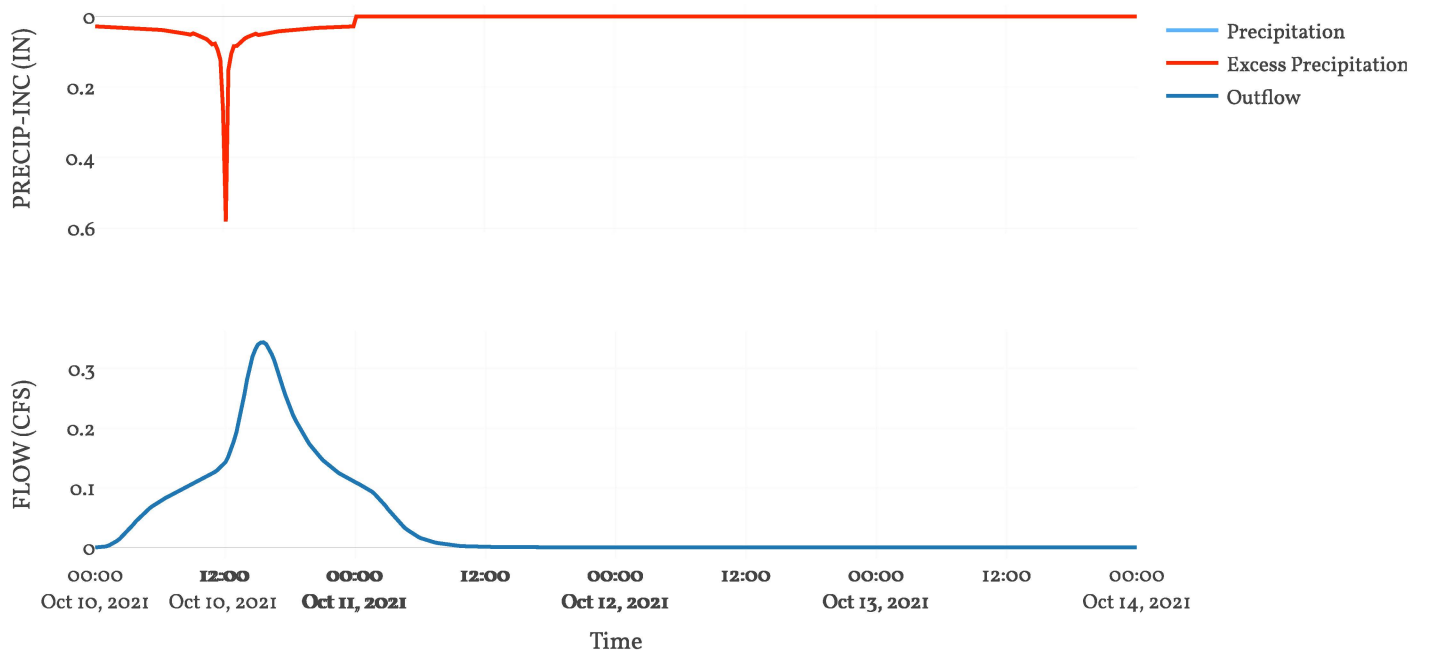
Loss Rate: Scs	
Percent Impervious Area	100
Curve Number	89
Initial Abstraction	0

Transform: Scs	
Lag	192.85
Unitgraph Type	Standard

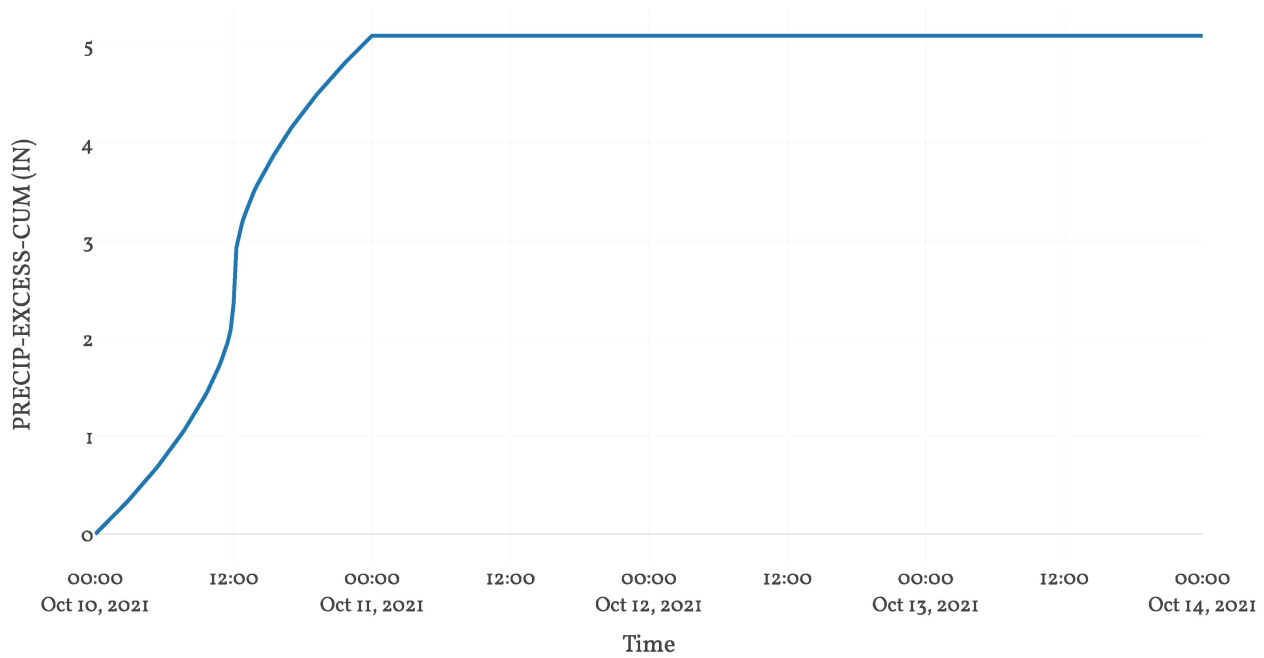
Results: Shed 1-03 Imp	
Peak Discharge (CFS)	0.34
Time of Peak Discharge	10Oct2021, 15:30
Volume (IN)	5.1
Precipitation Volume (AC - FT)	0.31
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.31
Direct Runoff Volume (AC - FT)	0.31
Baseflow Volume (AC - FT)	0



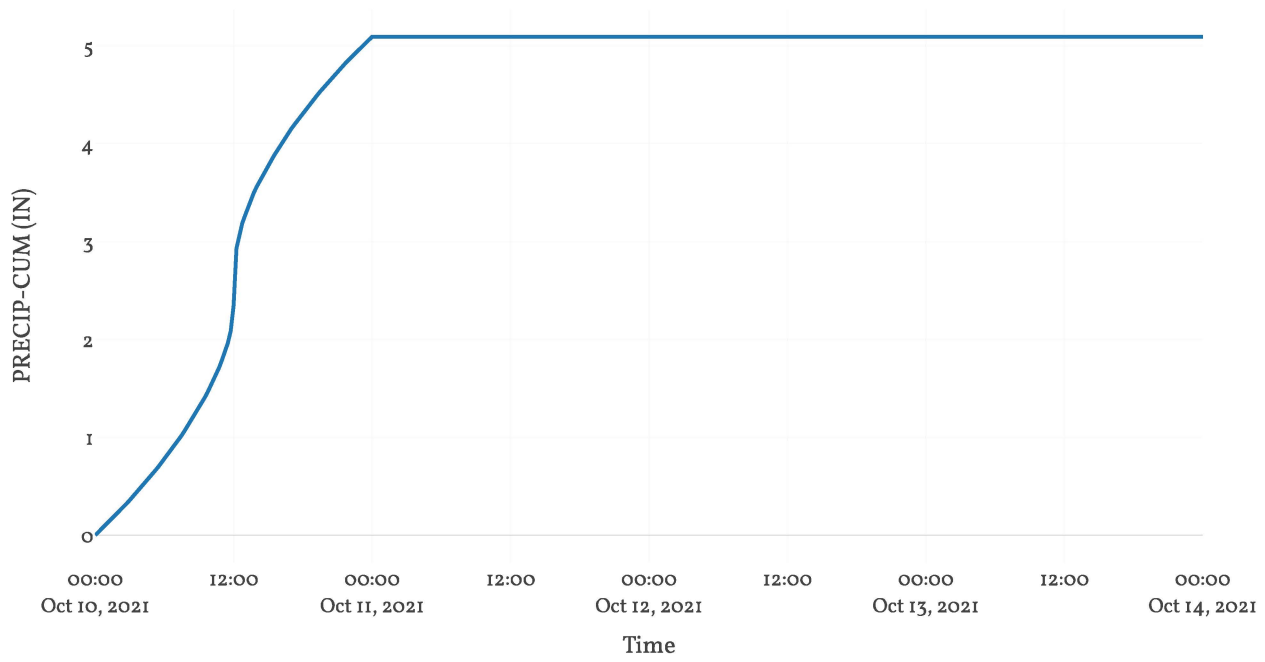
## Precipitation and Outflow



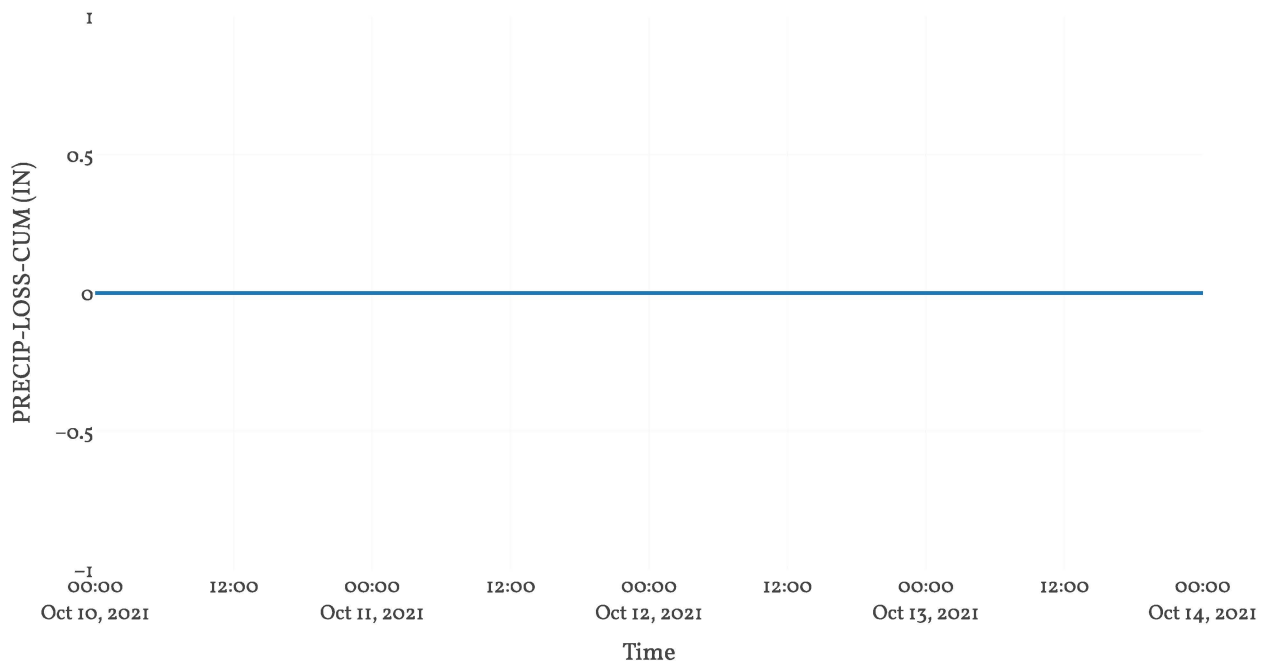
## Cumulative Excess Precipitation



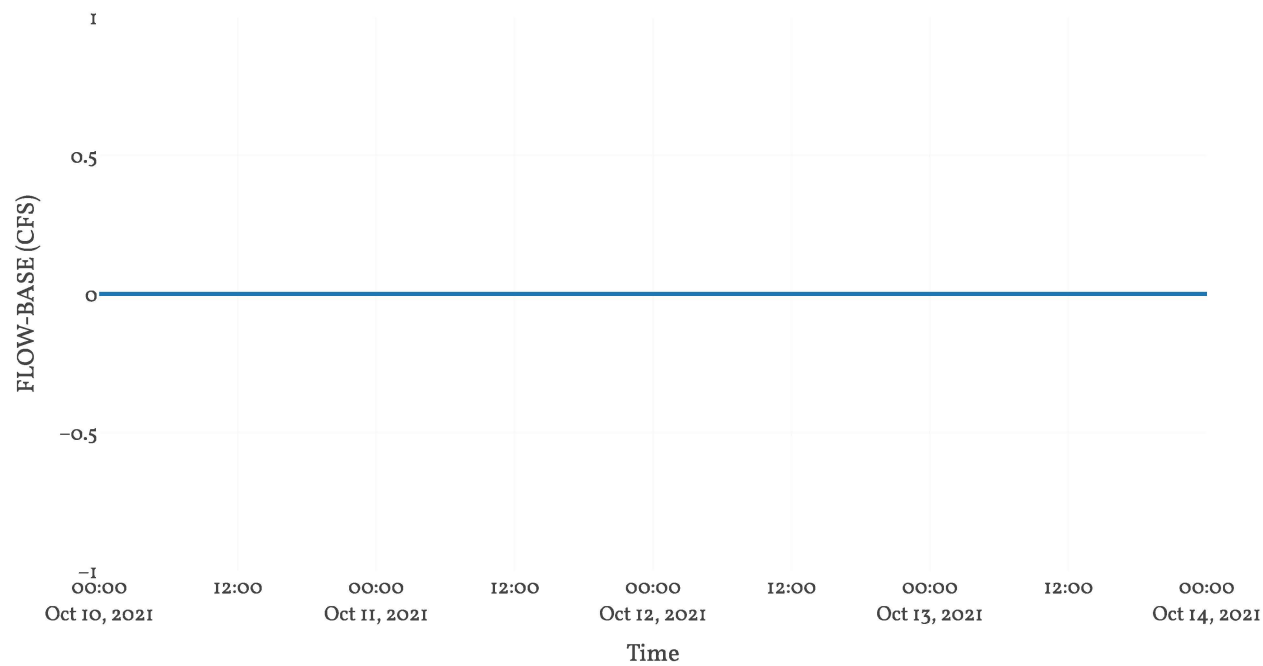
Cumulative Precipitation



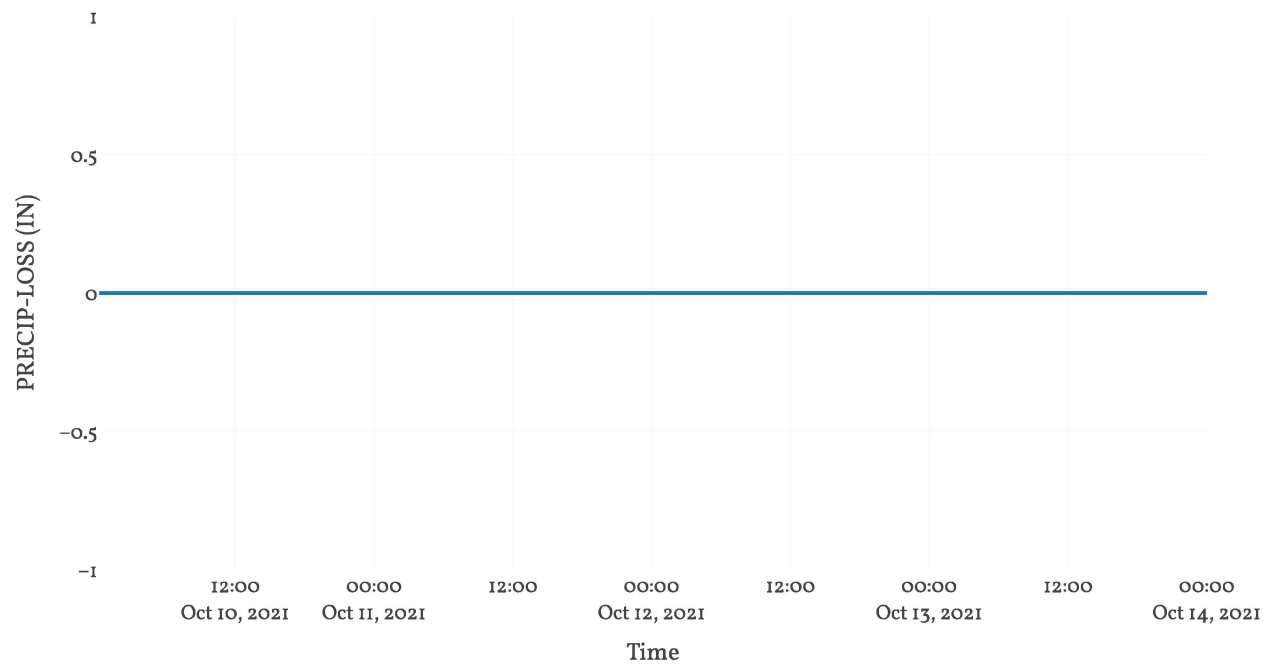
Cumulative Precipitation Loss



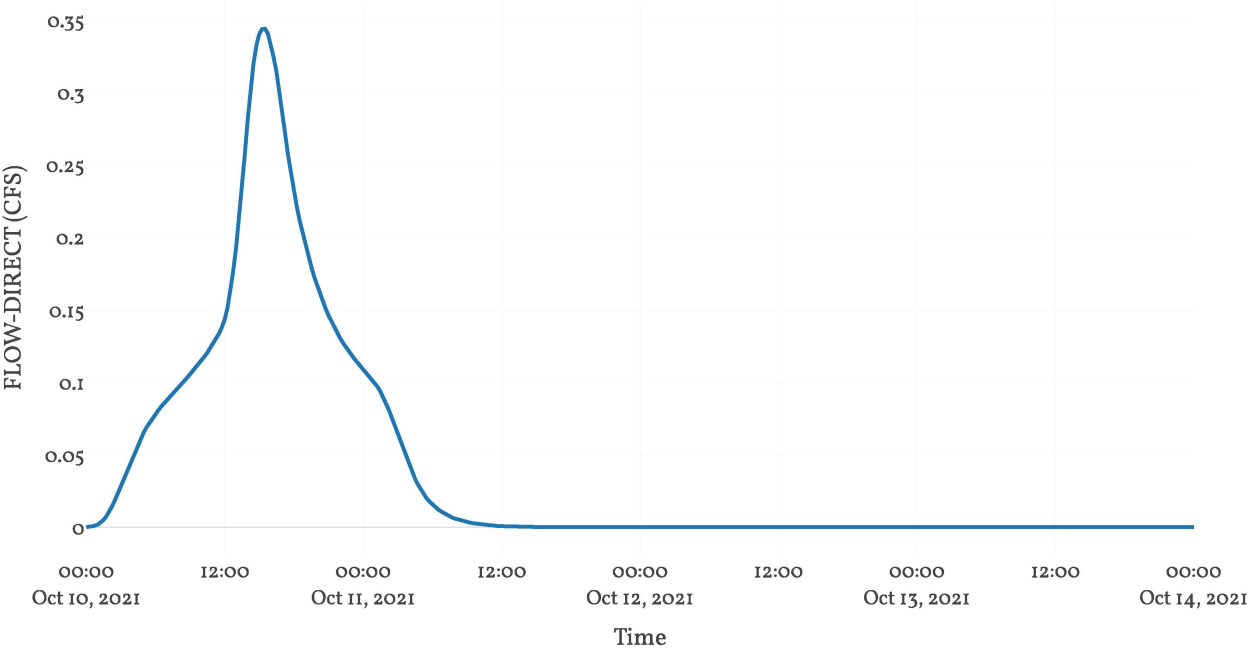
Baseflow



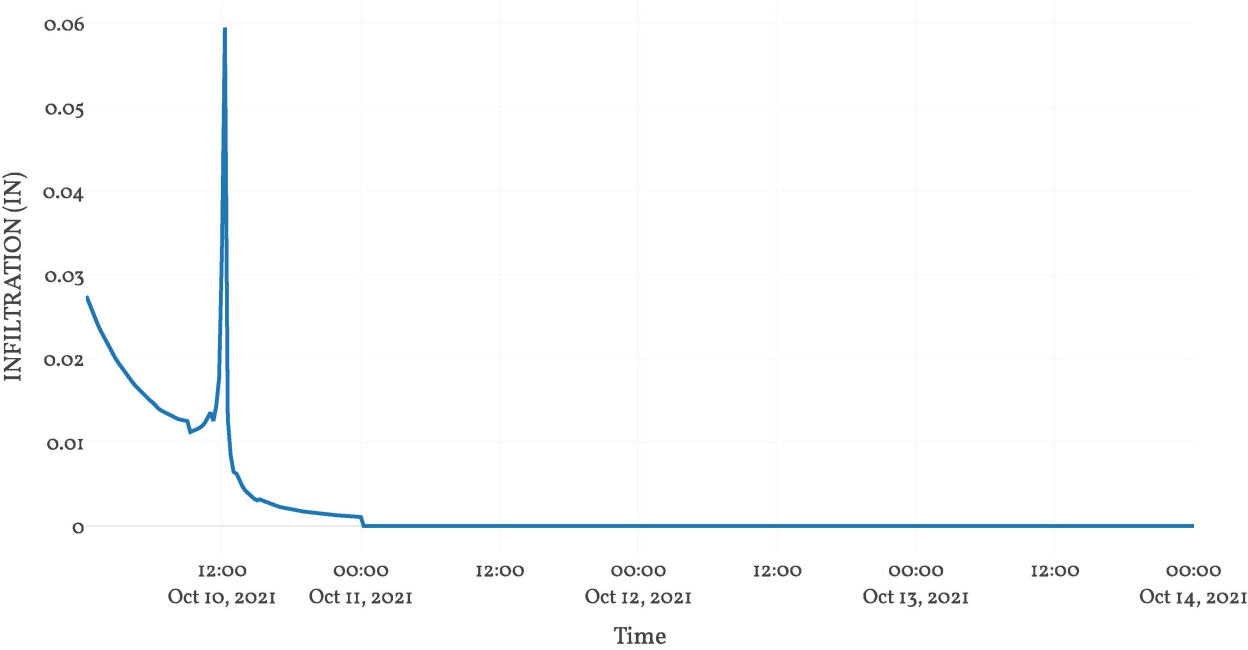
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: Shed 1-04 Perv

Area : 0.11

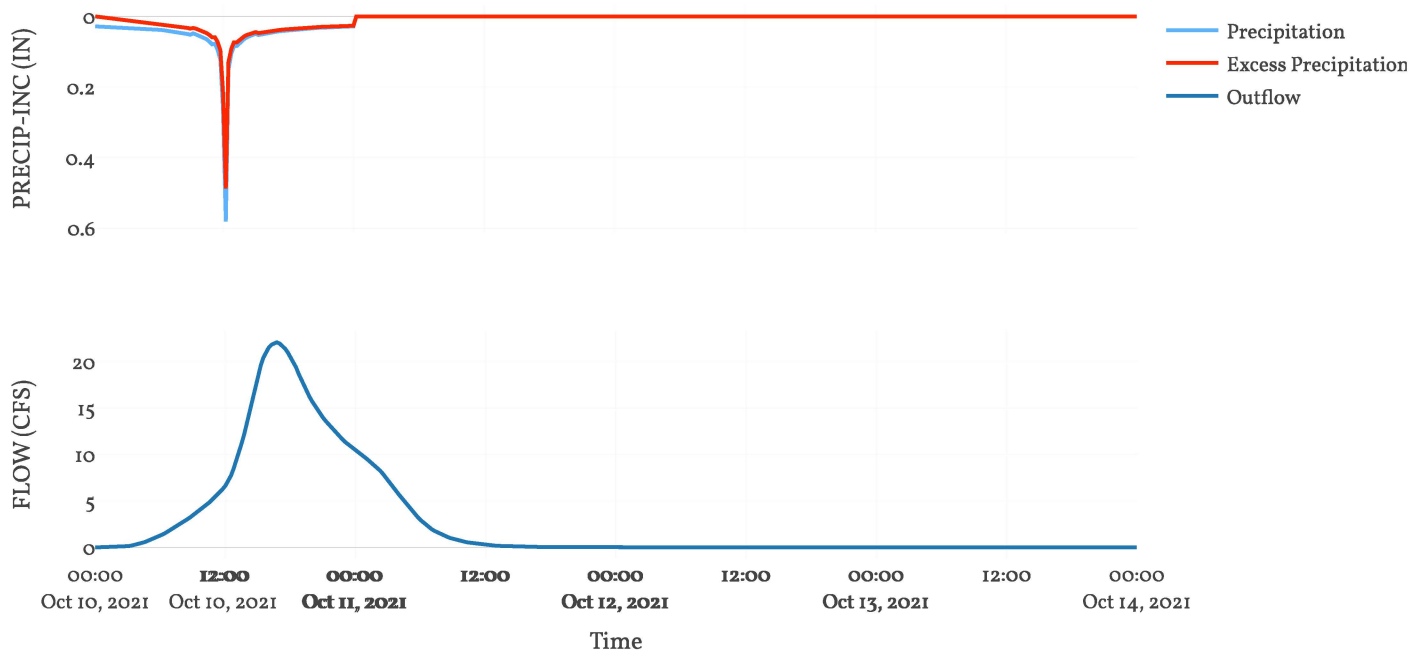
Downstream : Junct - 4

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

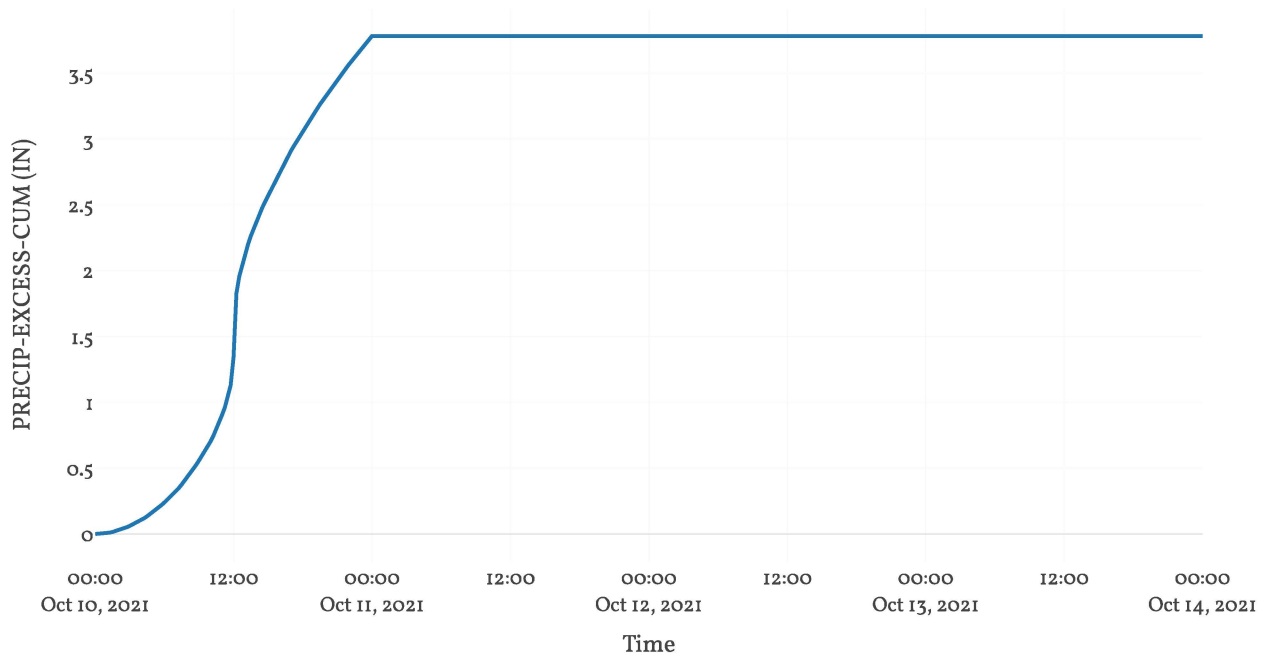
Transform: Scs	
Lag	253.4
Unitgraph Type	Standard

Results: Shed 1-04 Perv	
Peak Discharge (CFS)	22.1
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	3.78
Precipitation Volume (AC - FT)	28.8
Loss Volume (AC - FT)	7.41
Excess Volume (AC - FT)	21.39
Direct Runoff Volume (AC - FT)	21.39
Baseflow Volume (AC - FT)	0

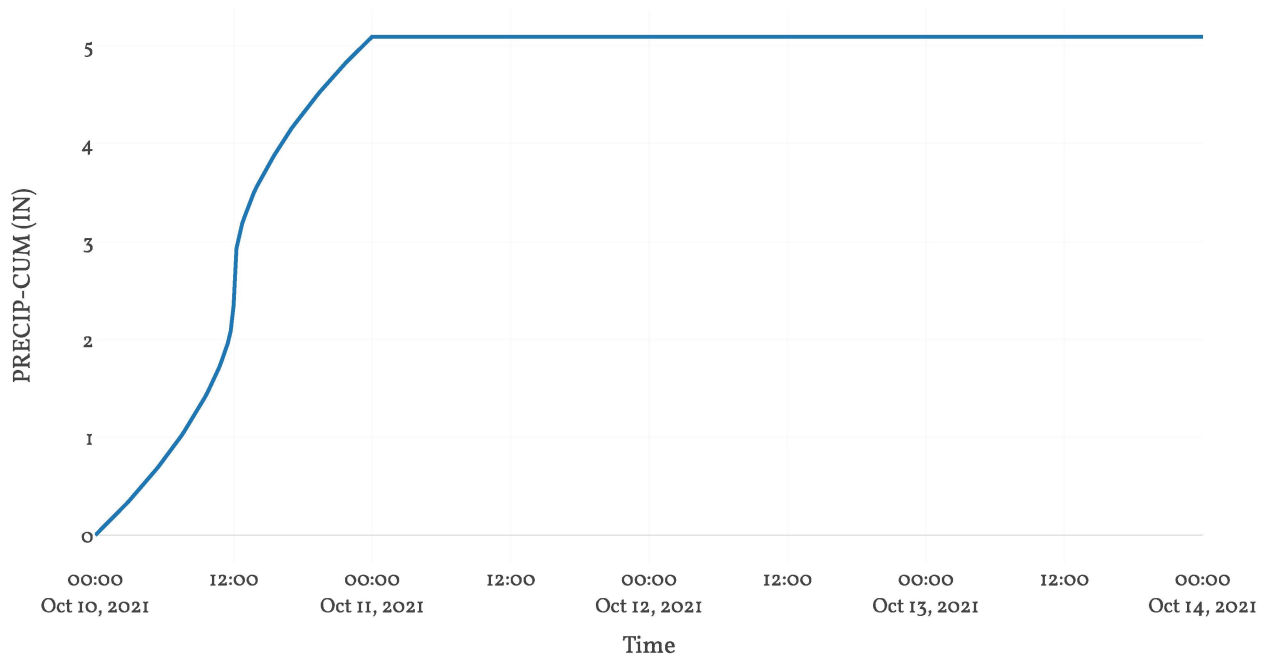
## Precipitation and Outflow



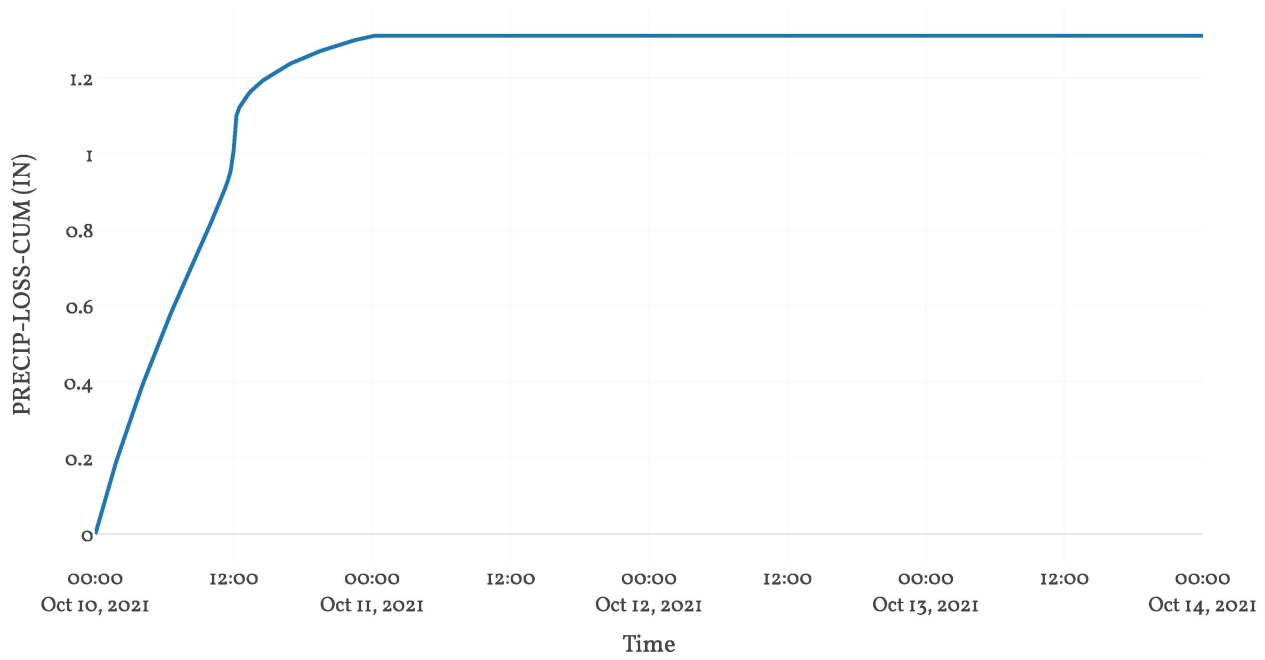
## Cumulative Excess Precipitation



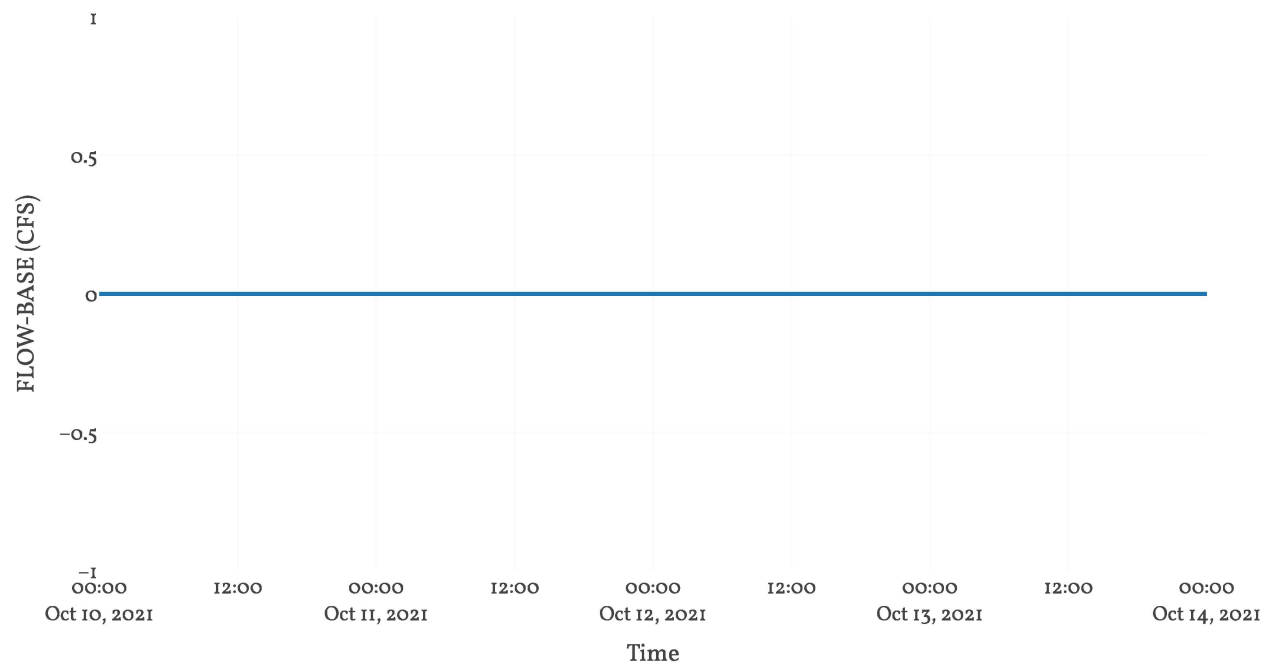
Cumulative Precipitation



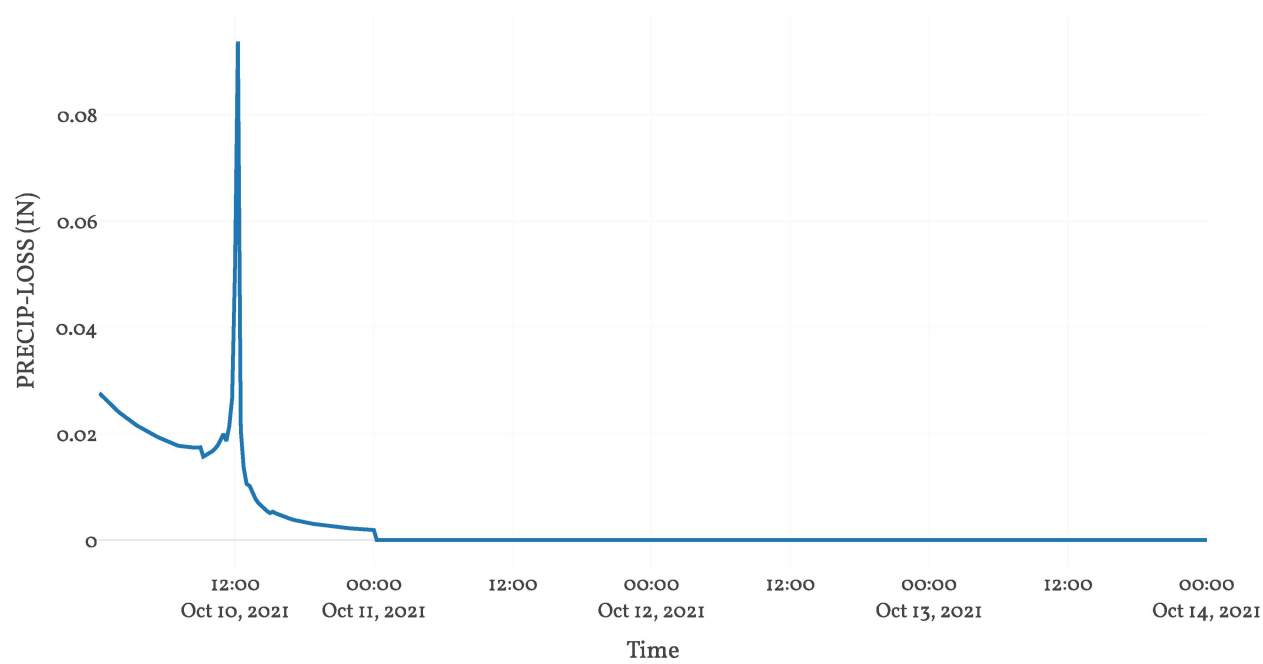
Cumulative Precipitation Loss



Baseflow

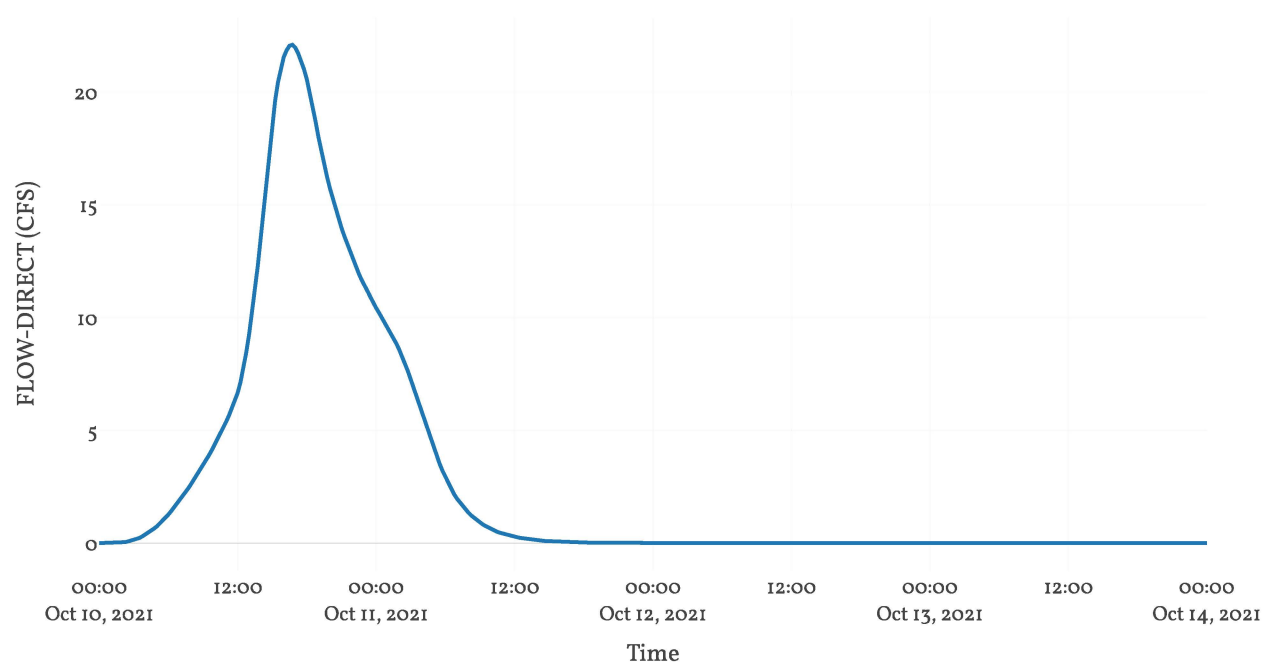


Precipitation Loss

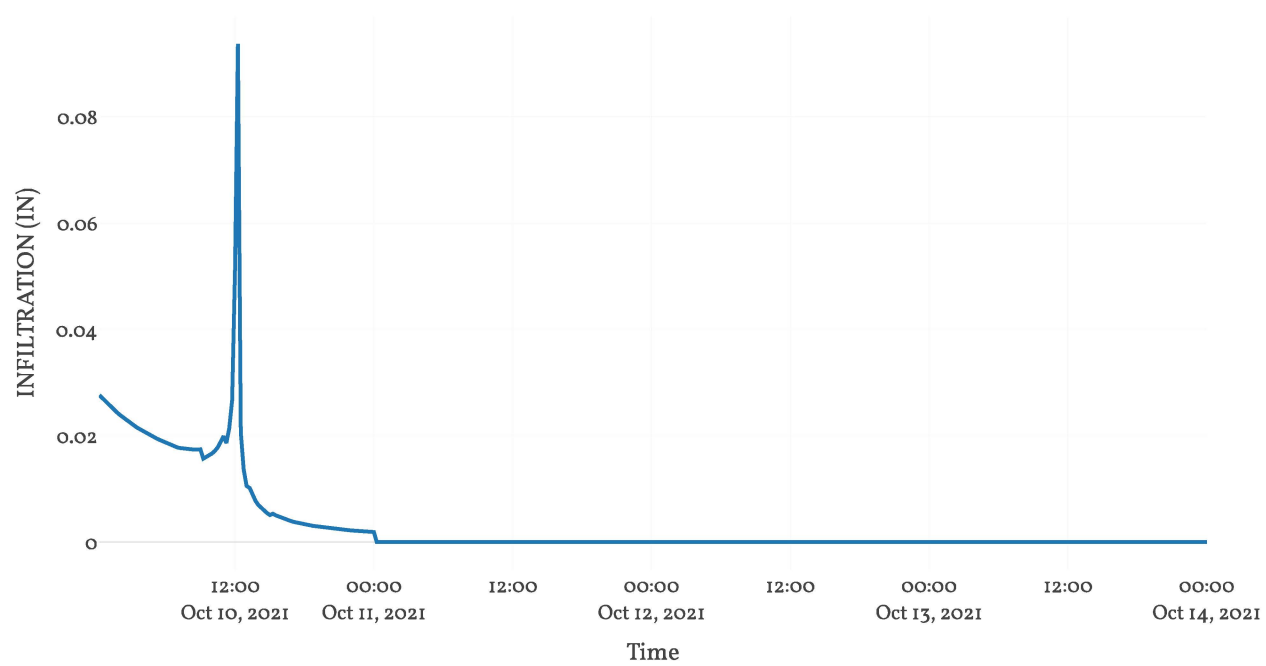




Direct Runoff



Soil Infiltration



# Subbasin: Shed1-04 Imp

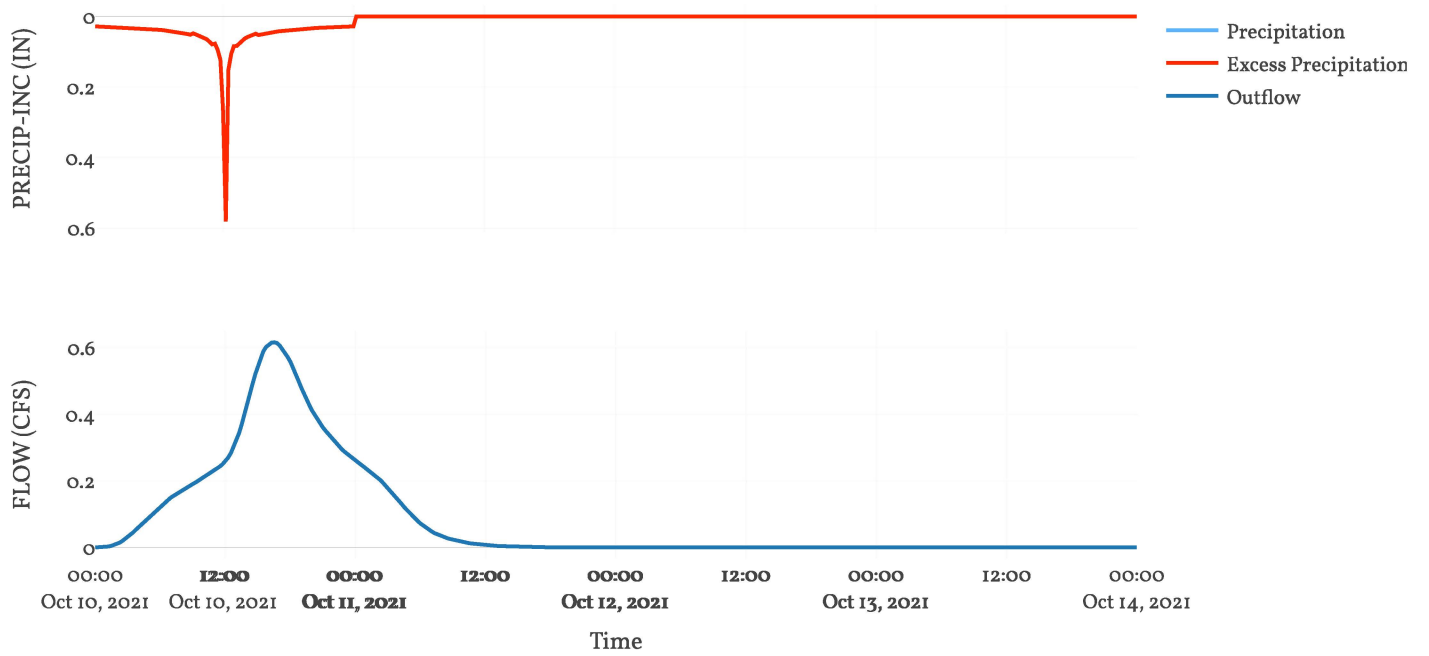
Area : 0  
Downstream : Junct - 4

Loss Rate: Scs	
Percent Impervious Area	100
Curve Number	89
Initial Abstraction	0

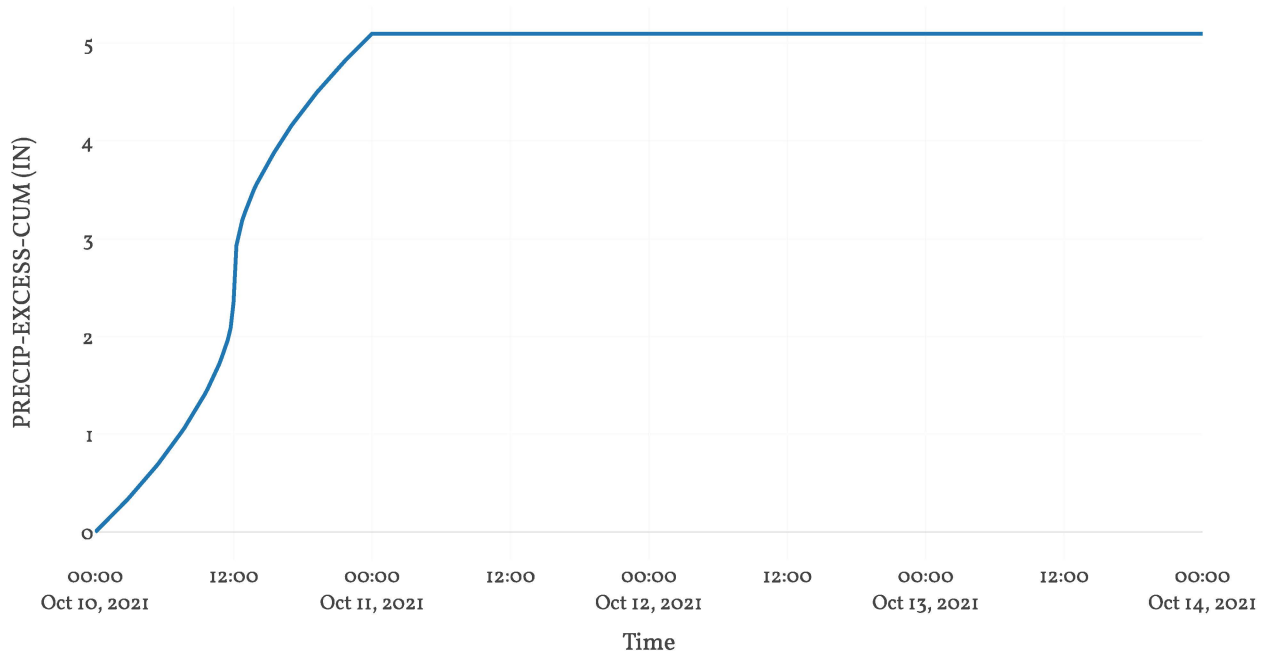
Transform: Scs	
Lag	253.4
Unitgraph Type	Standard

Results: Shed1-04 Imp	
Peak Discharge (CFS)	0.62
Time of Peak Discharge	10Oct2021, 16:30
Volume (IN)	5.1
Precipitation Volume (AC - FT)	0.64
Loss Volume (AC - FT)	0
Excess Volume (AC - FT)	0.64
Direct Runoff Volume (AC - FT)	0.64
Baseflow Volume (AC - FT)	0

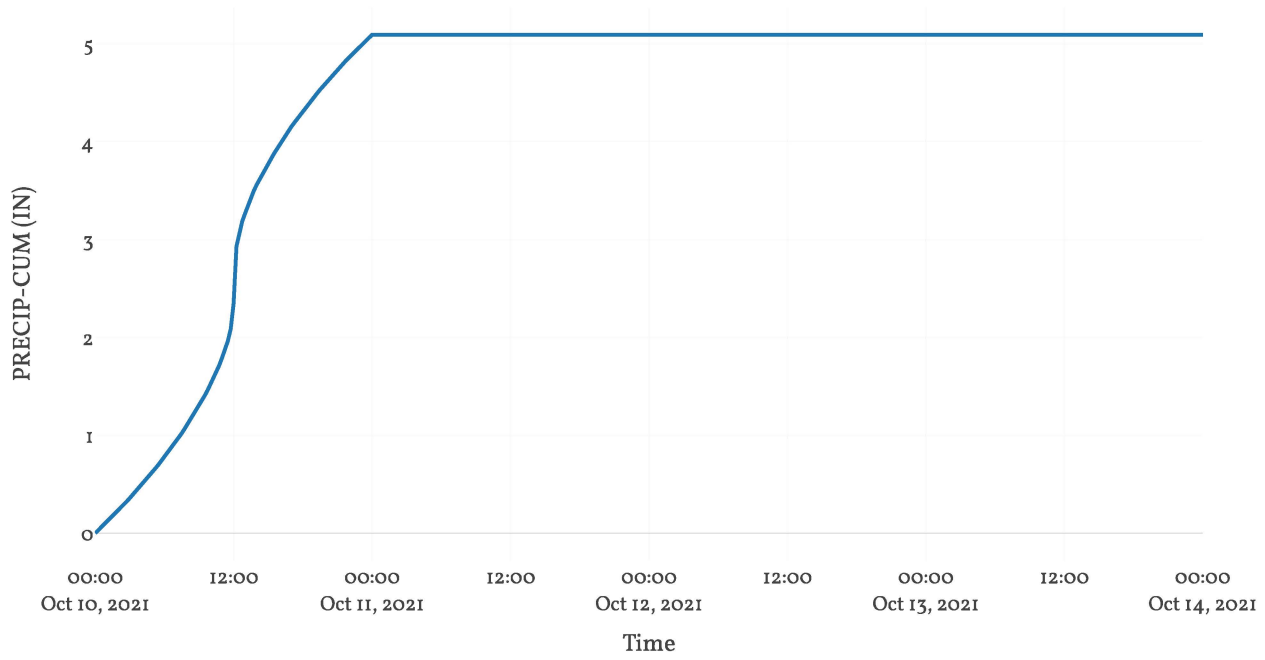
## Precipitation and Outflow



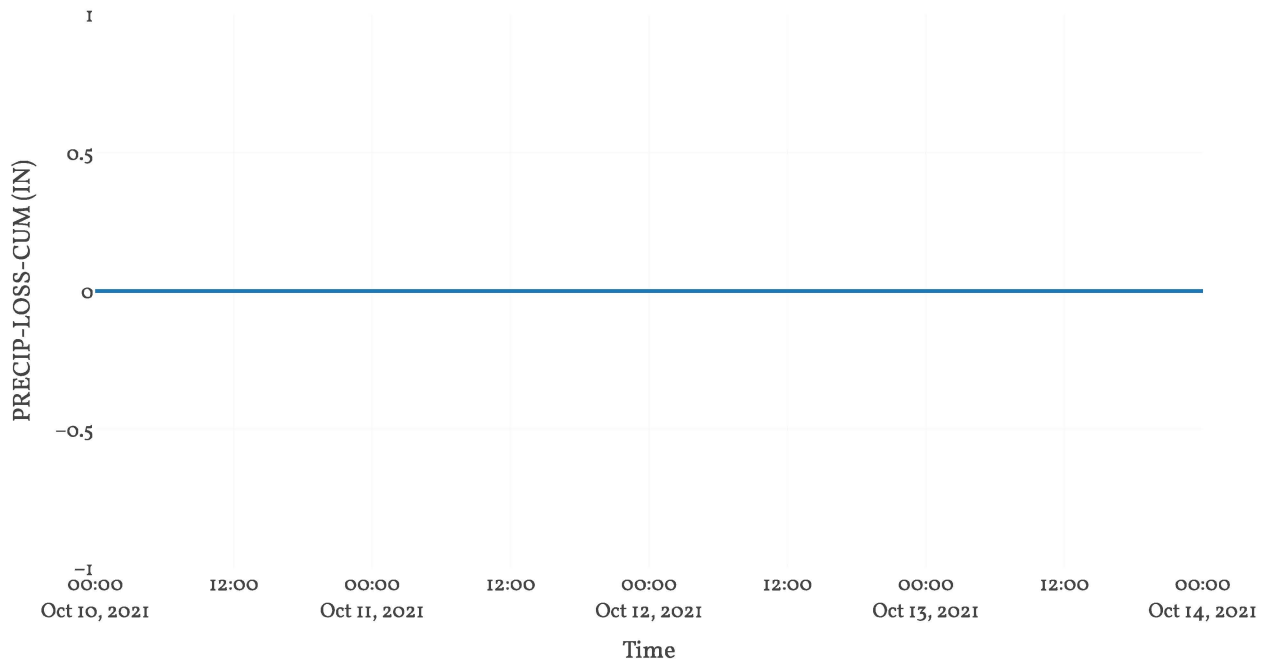
## Cumulative Excess Precipitation



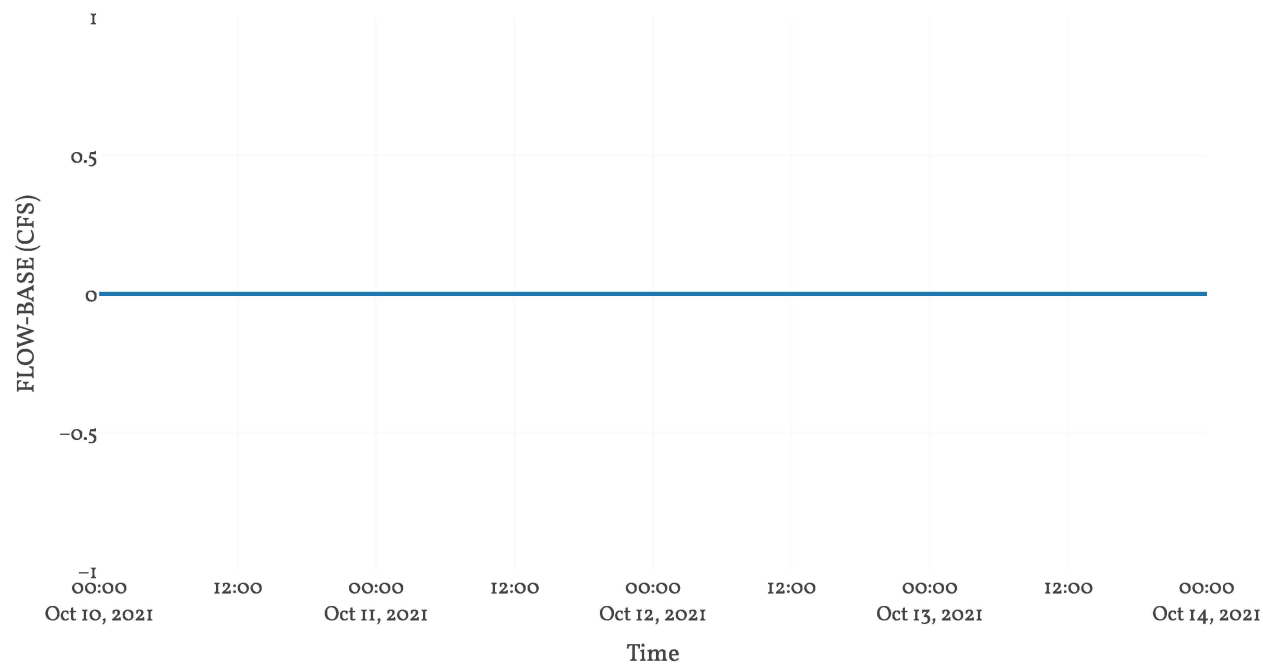
Cumulative Precipitation



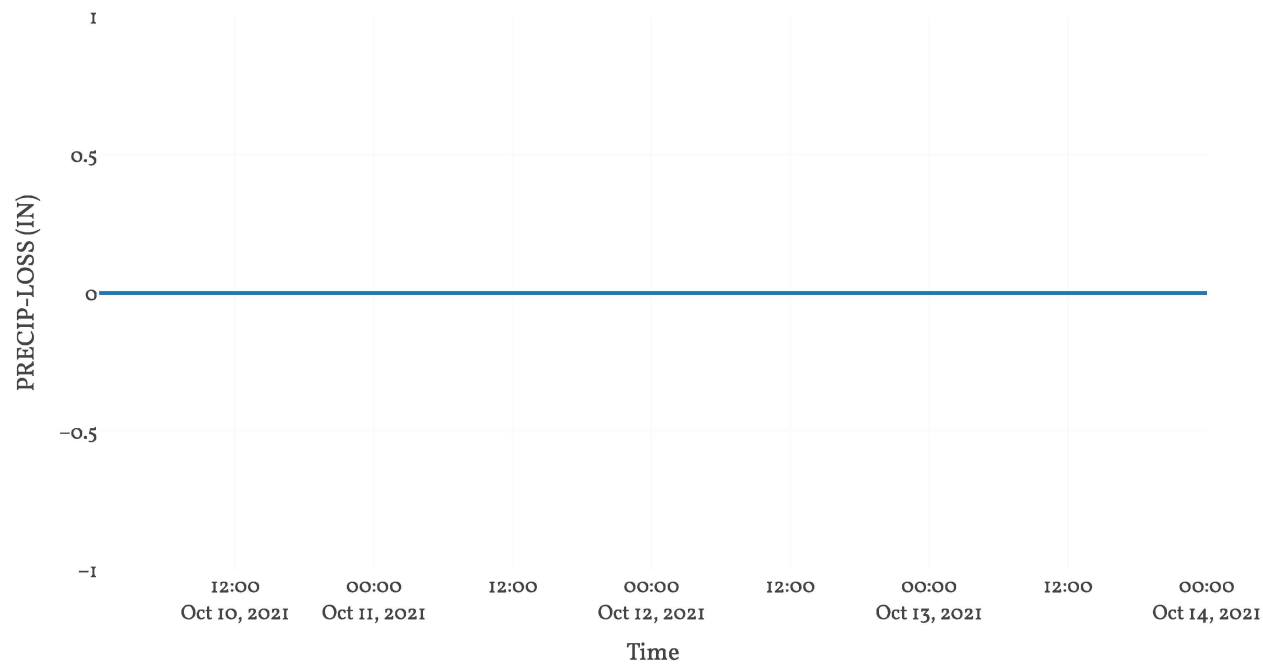
Cumulative Precipitation Loss



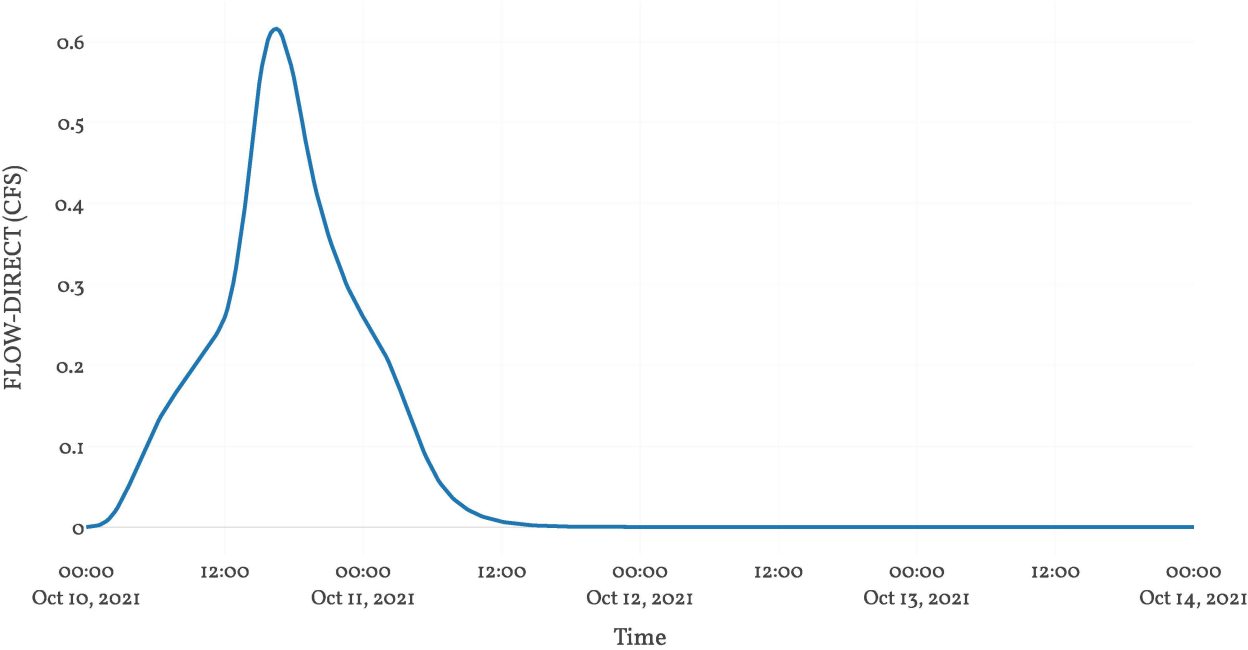
Baseflow



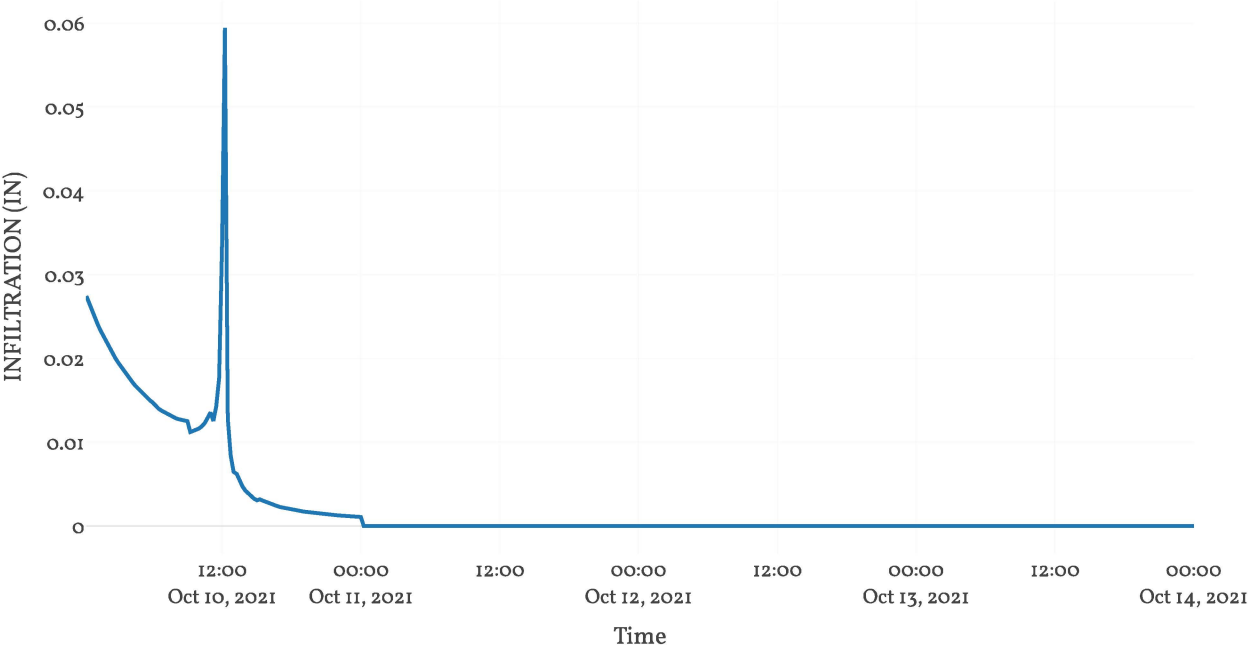
Precipitation Loss



Direct Runoff



Soil Infiltration

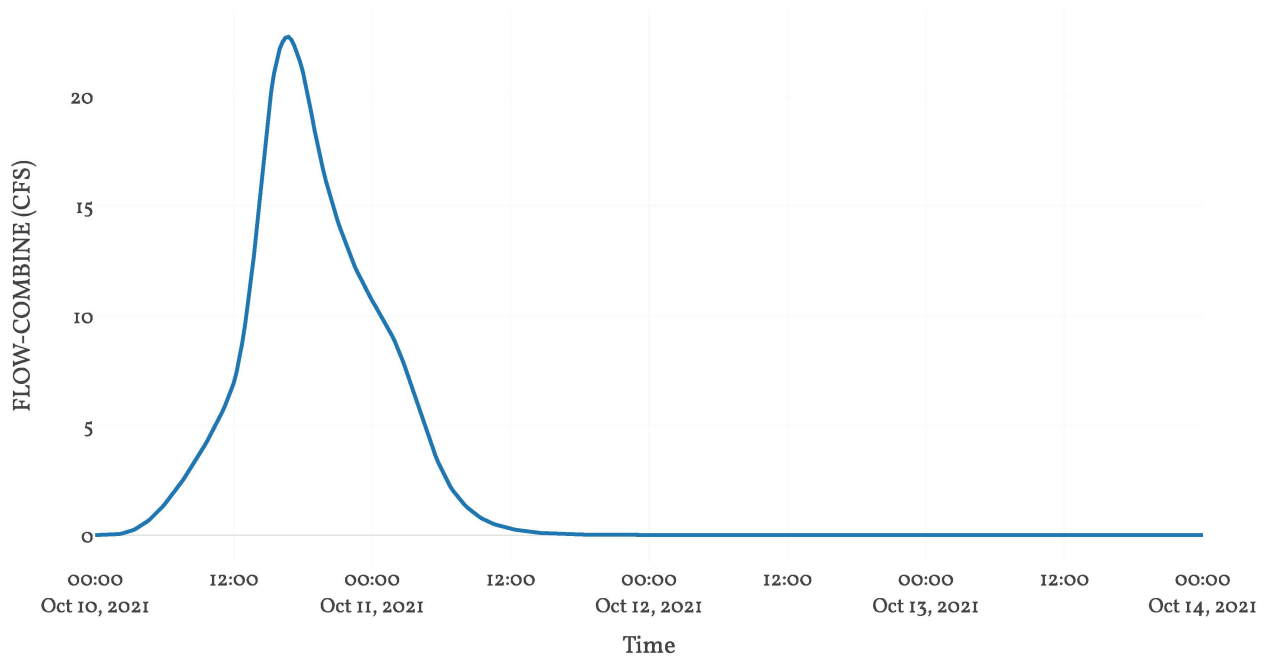


# Junction: Junct-4

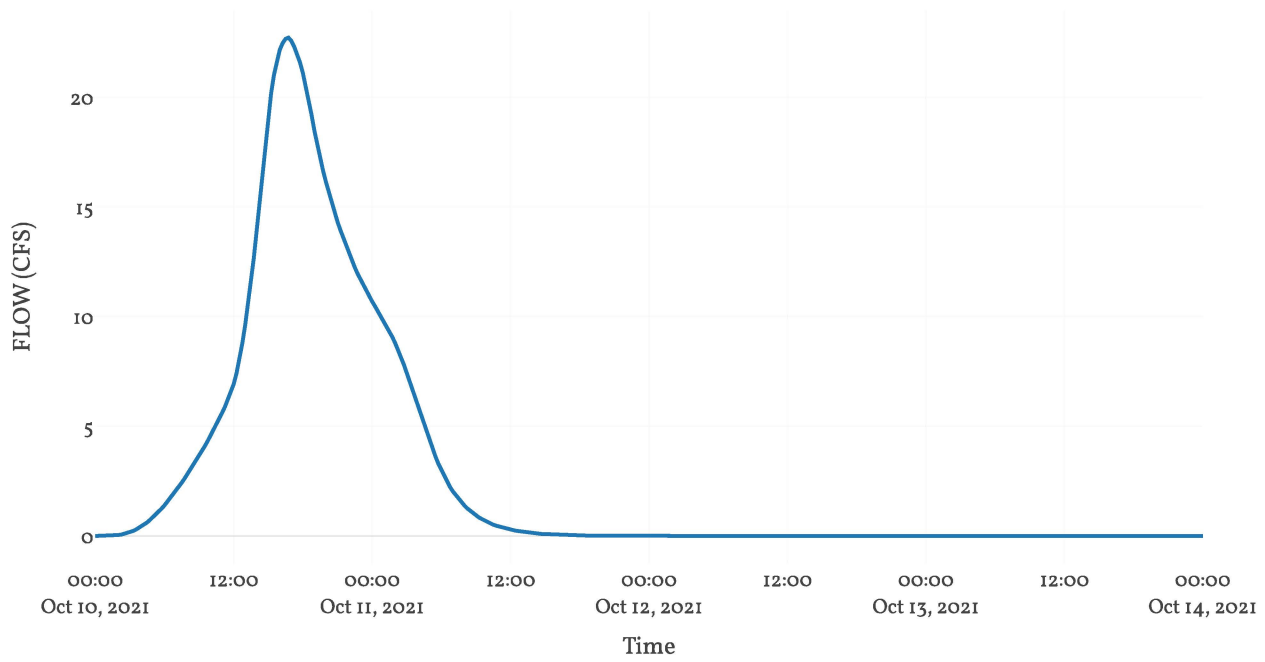
Downstream : Post Total

Results: Junct-4	
Peak Discharge (CFS)	22.71
Time of Peak Discharge	10Oct2021, 16:45
Volume (IN)	3.81

Combined Inflow



Outflow



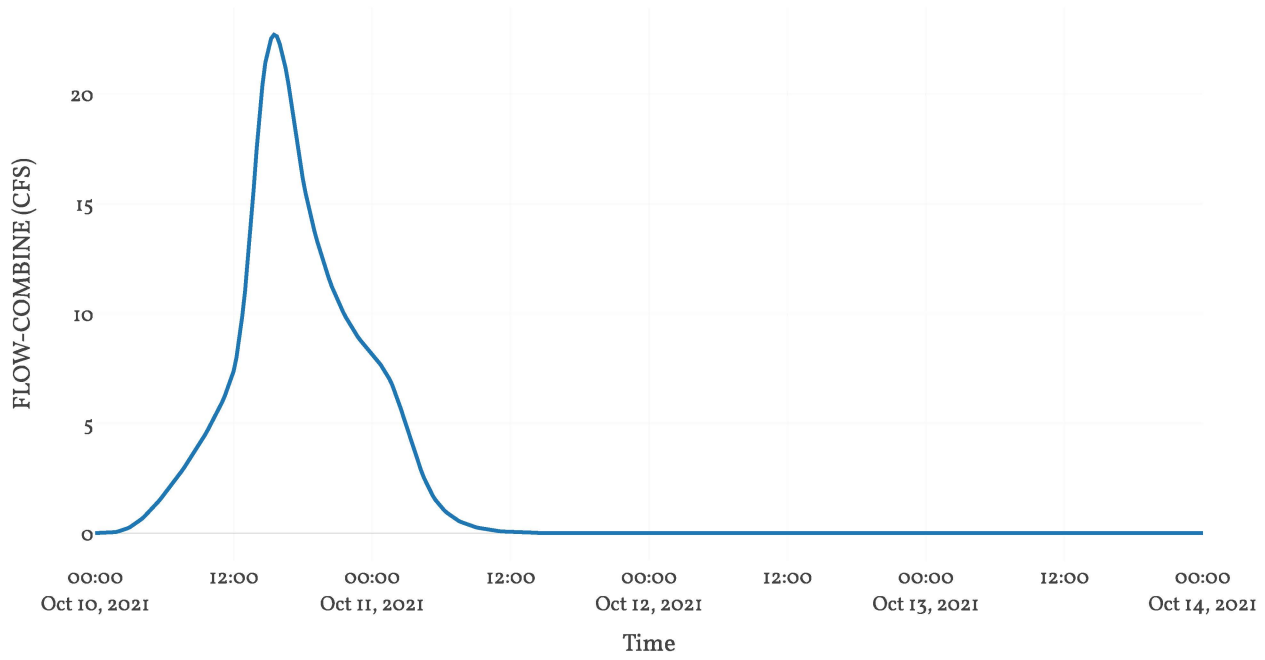


# Junction: Junct-3

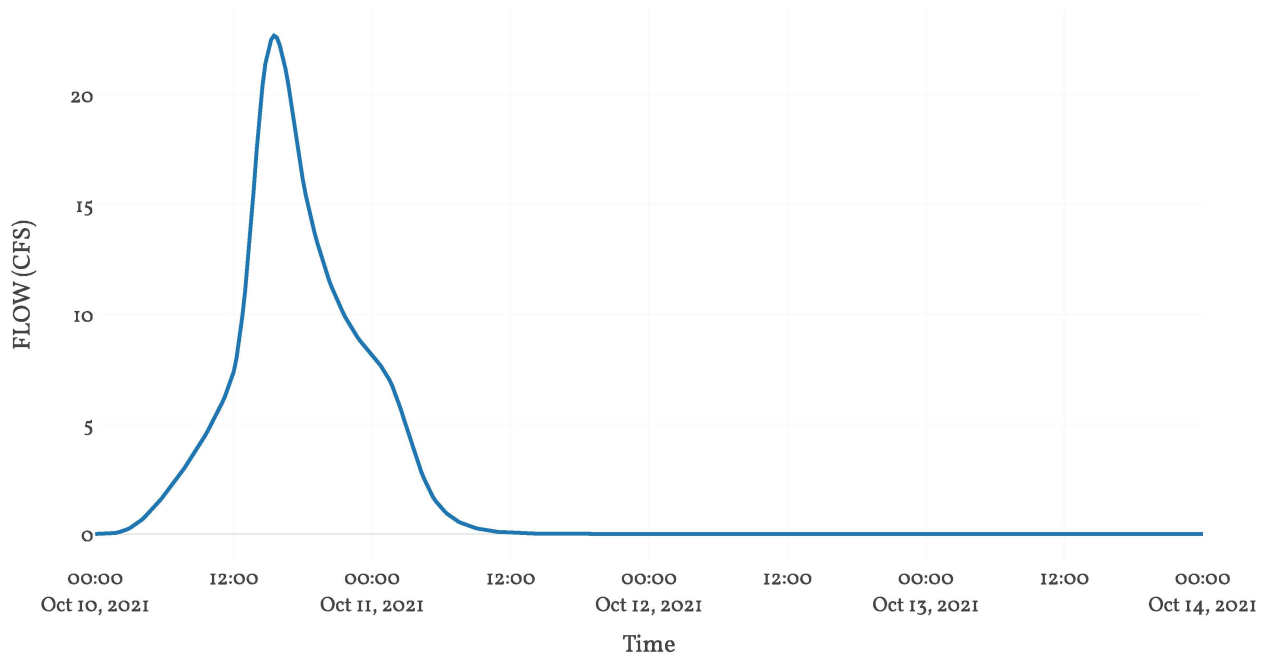
Downstream : Post Total

Results: Junct-3	
Peak Discharge (CFS)	22.69
Time of Peak Discharge	10Oct2021, 15:30
Volume (IN)	3.8

Combined Inflow



Outflow

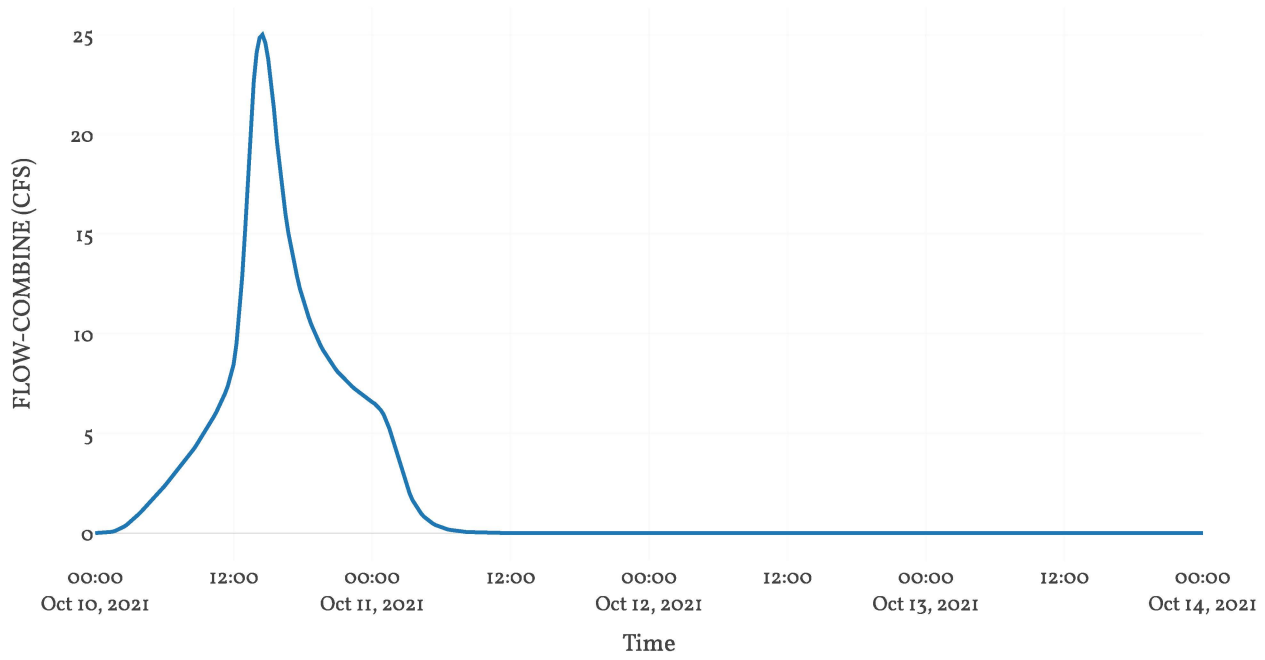


# Junction: Junct-2

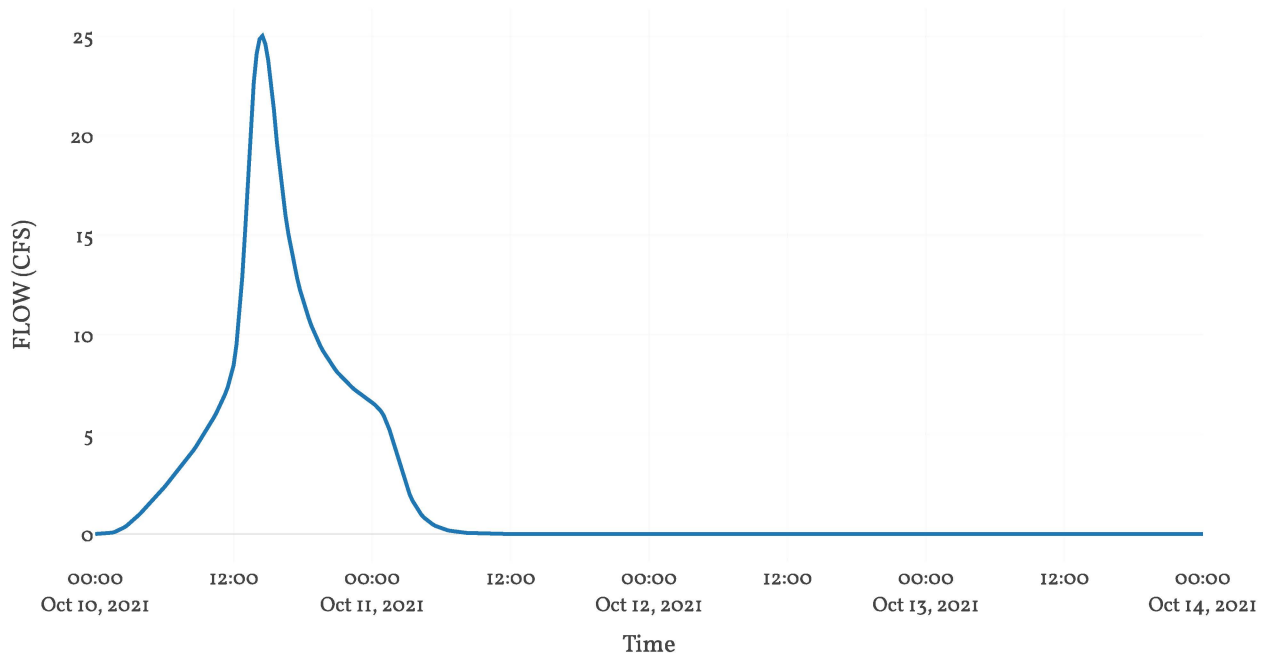
Downstream : Post Total

Results: Junct-2	
Peak Discharge (CFS)	25.01
Time of Peak Discharge	10Oct2021, 14:30
Volume (IN)	3.81

Combined Inflow



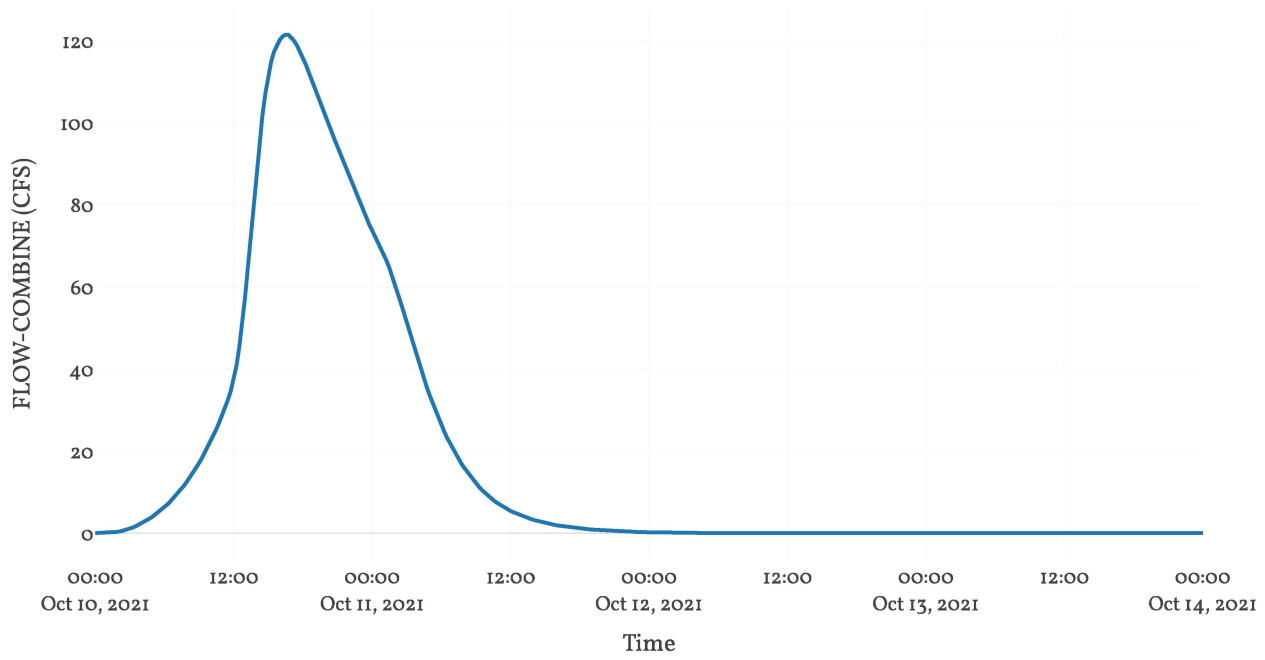
Outflow



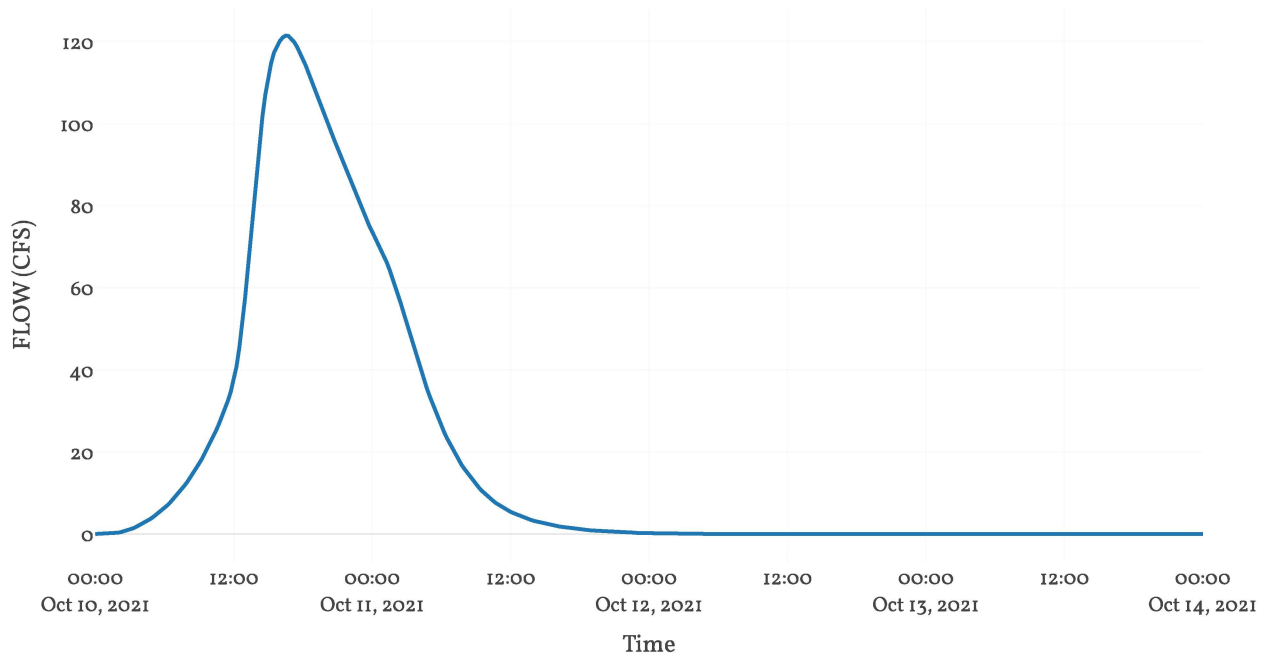
# Junction: Post Total

Results: Post Total	
Peak Discharge (CFS)	121.43
Time of Peak Discharge	10Oct2021, 16:30
Volume (IN)	3.62

Combined Inflow



Outflow





**A.2-7 ADDITIONAL NORTH AREA – PRE-DEVELOPMENT 2YEAR 24HOUR**



**Project:** Oveja\_Watershed\_2\_01  
**Simulation Run:** 2 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 08 December 2024, 03:46

Global Parameter Summary - Subbasin

Area	
Element Name	Area
Watershed 2 - 01	0.12

Downstream	
Element Name	Downstream
Watershed 2 - 01	Pre - Total

Loss Rate: SCS			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
Watershed 2 - 01	0	85	0

Transform: SCS		
Element Name	Lag	Unitgraph Type
Watershed 2 - 01	320	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Watershed 2 - 01	0.12	7.51	10Oct2021, 18:15	1.18
Pre - Total	0.12	7.51	10Oct2021, 18:15	1.18

Subbasin: Watershed 2-01

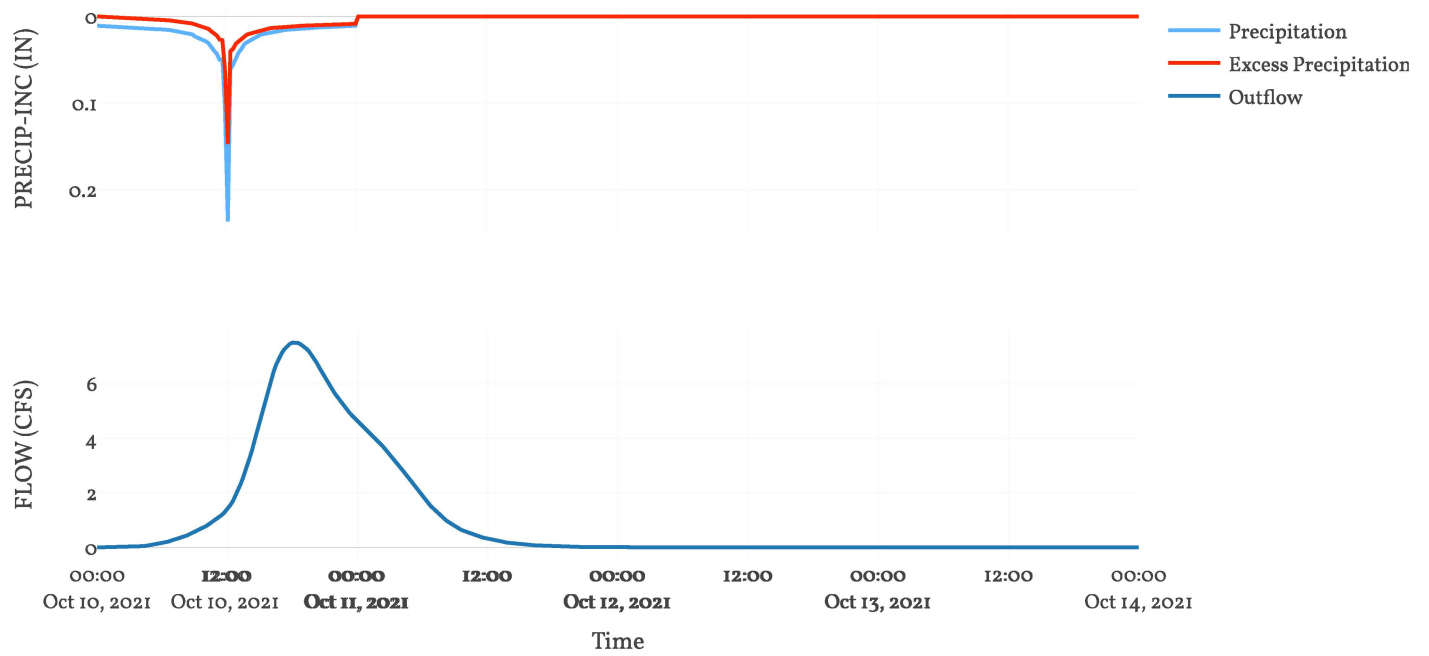
Area : 0.12  
Downstream : Pre - Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

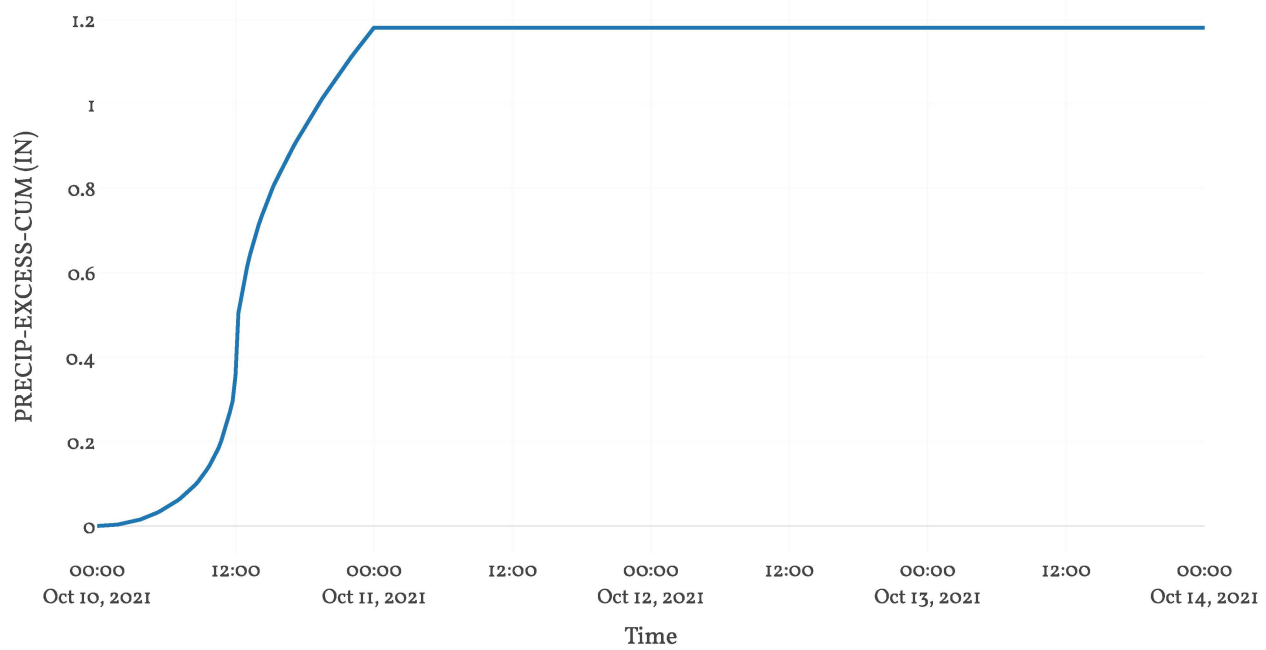
Transform: Scs	
Lag	320
Unitgraph Type	Standard

Results: Watershed 2-01	
Peak Discharge (CFS)	7.51
Time of Peak Discharge	10Oct2021, 18:15
Volume (IN)	1.18
Precipitation Volume (AC - FT)	14.31
Loss Volume (AC - FT)	6.45
Excess Volume (AC - FT)	7.86
Direct Runoff Volume (AC - FT)	7.86
Baseflow Volume (AC - FT)	0

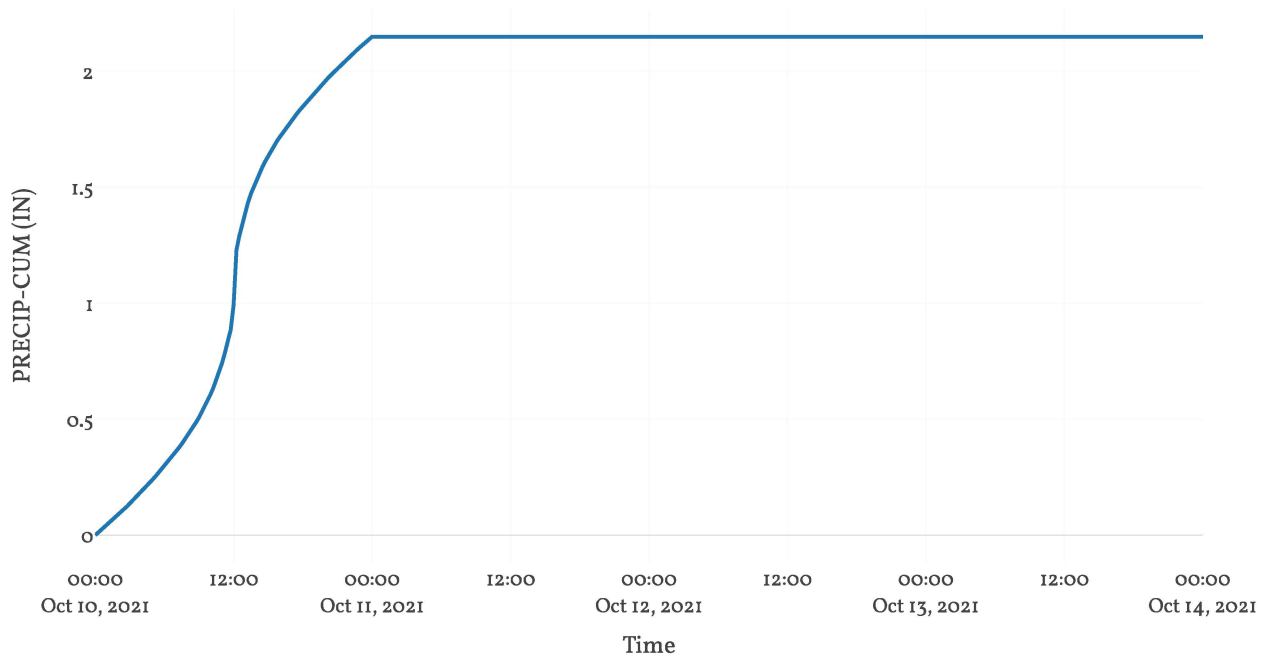
## Precipitation and Outflow



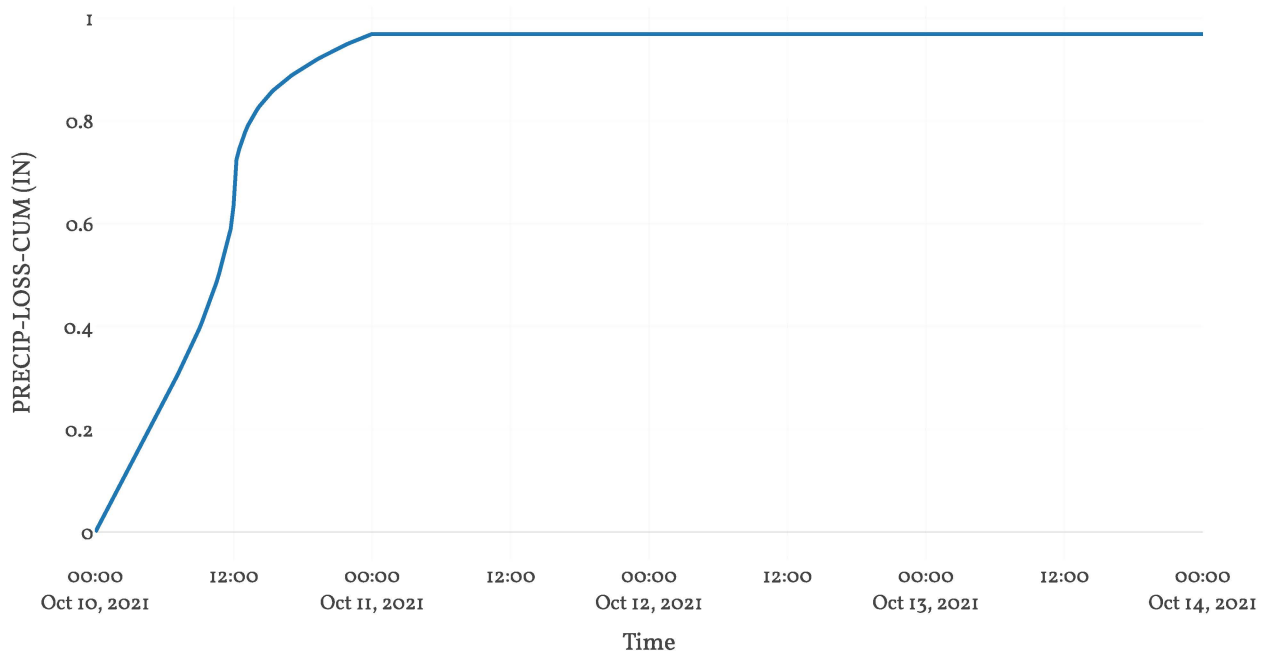
## Cumulative Excess Precipitation



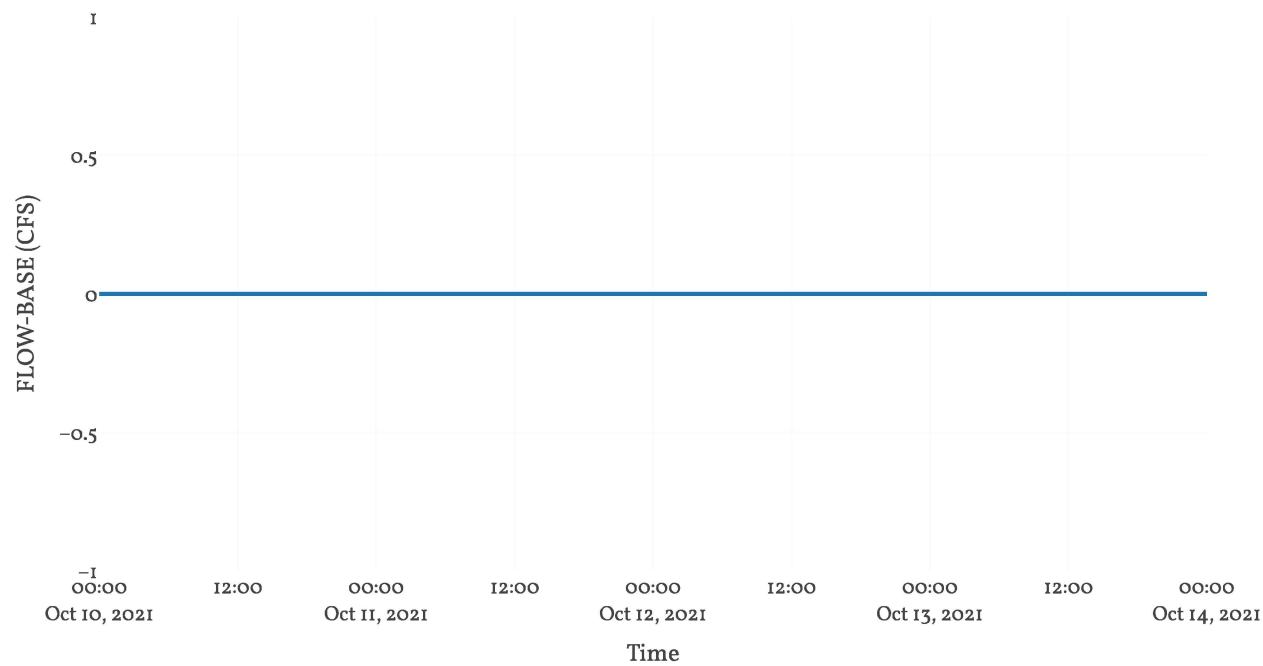
Cumulative Precipitation



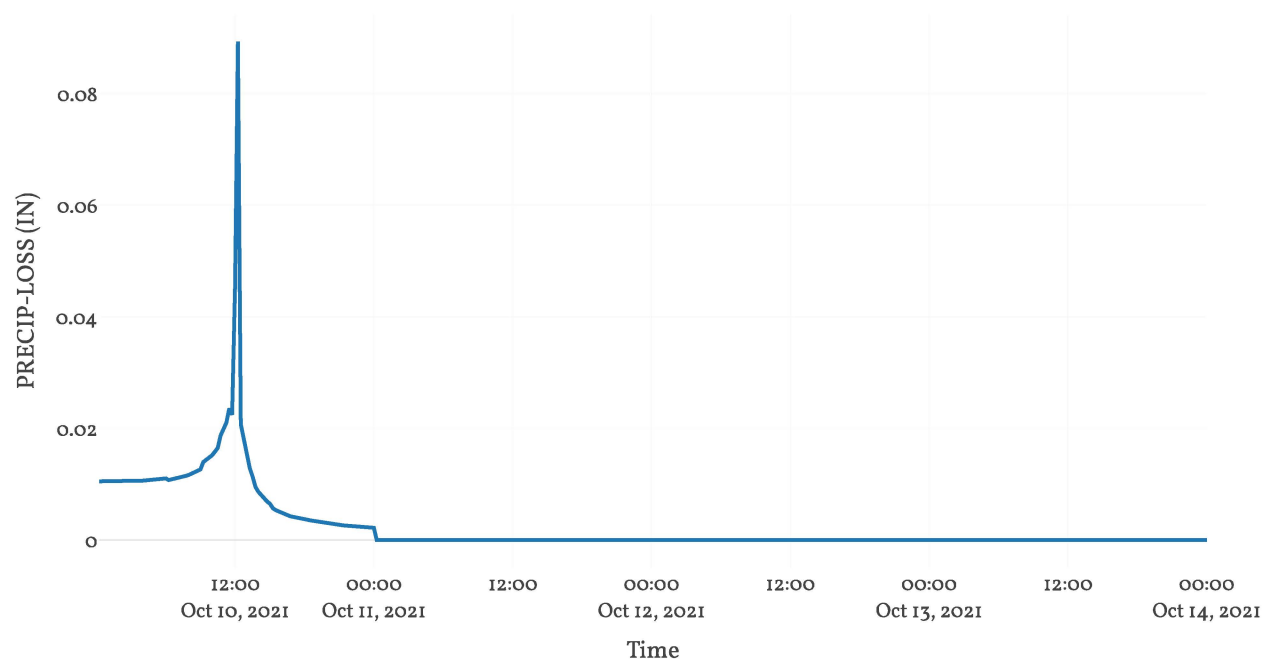
Cumulative Precipitation Loss



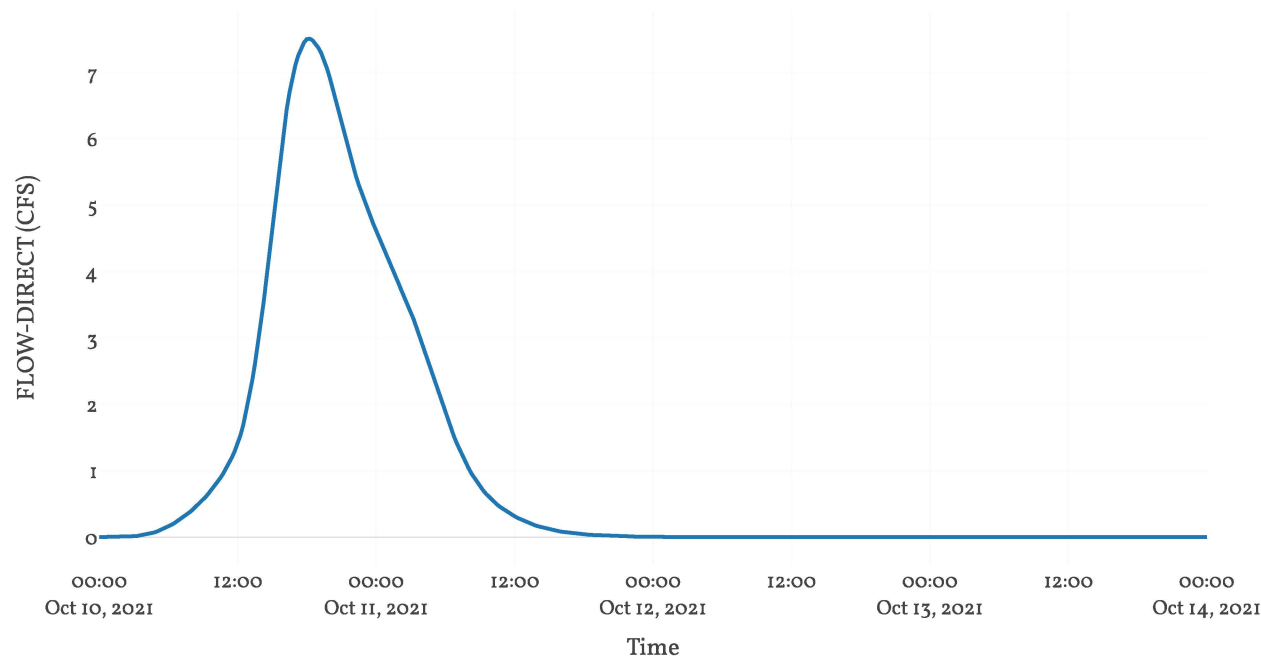
Baseflow



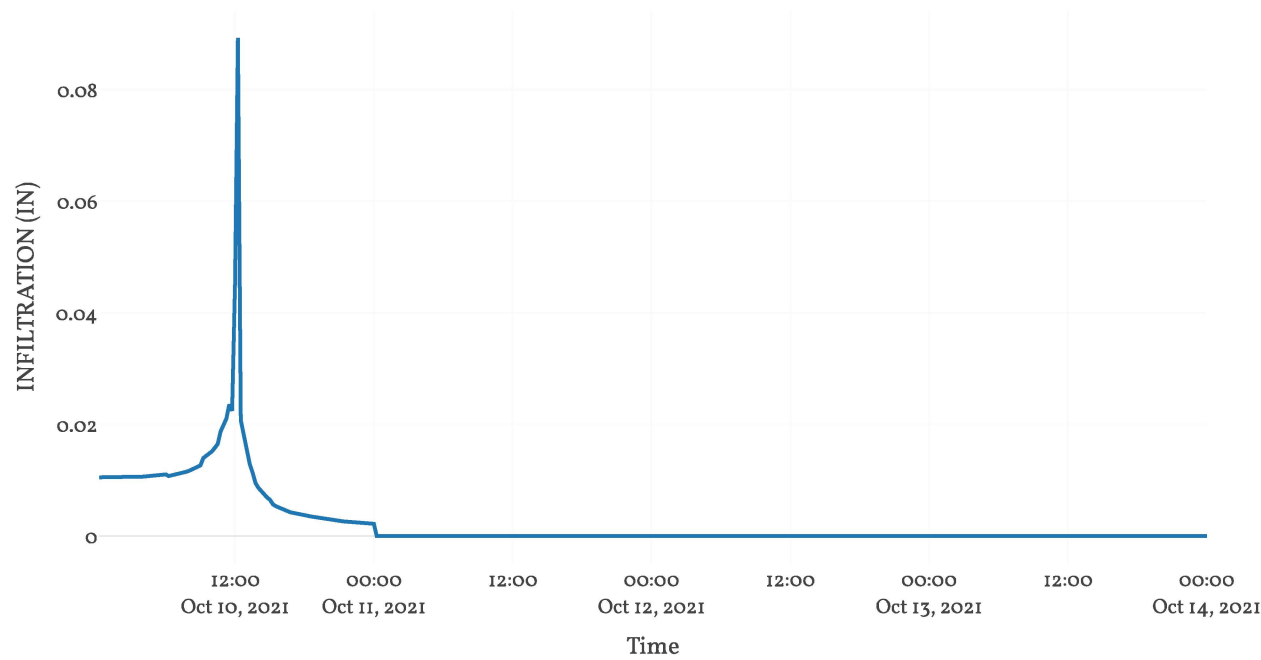
Precipitation Loss



Direct Runoff



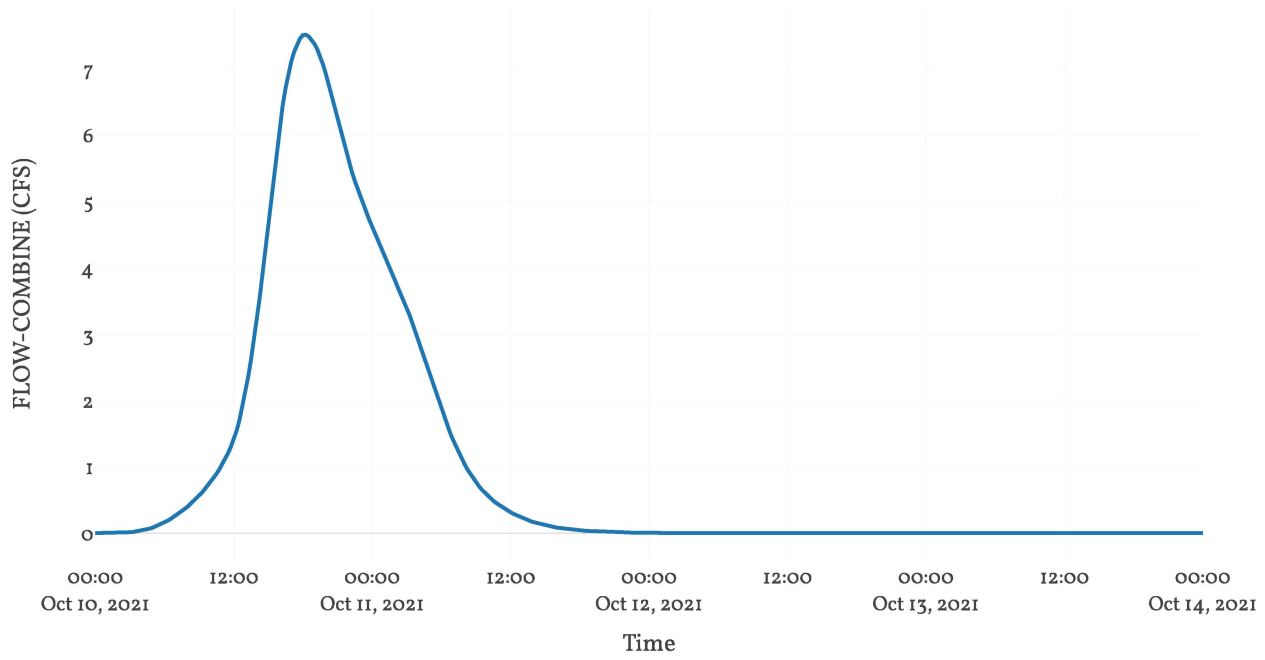
Soil Infiltration



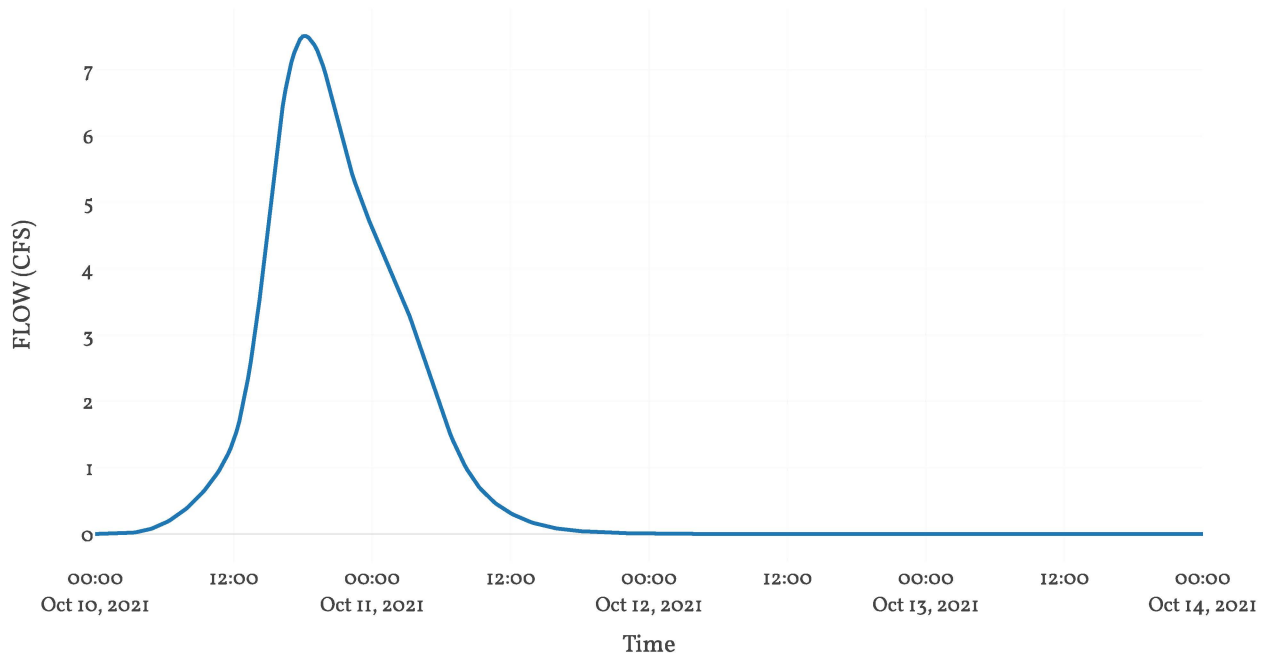
Junction: Pre-Total

Results: Pre-Total	
Peak Discharge (CFS)	7.51
Time of Peak Discharge	10Oct2021, 18:15
Volume (IN)	1.18

Combined Inflow



Outflow







**A.2-8 ADDITIONAL NORTH AREA – PRE-DEVELOPMENT 10YEAR 24HOUR**

**Project:** Oveja\_Watershed\_2\_01  
**Simulation Run:** 10 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 08 December 2024, 03:46

Global Parameter Summary - Subbasin

Area	
Element Name	Area
Watershed 2 - 01	0.12

Downstream	
Element Name	Downstream
Watershed 2 - 01	Pre - Total

Loss Rate: SCS			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
Watershed 2 - 01	0	85	0

Transform: SCS		
Element Name	Lag	Unitgraph Type
Watershed 2 - 01	320	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Watershed 2 - 01	0.12	13.07	10Oct2021, 18:00	2.14
Pre - Total	0.12	13.07	10Oct2021, 18:00	2.14

# Subbasin: Watershed 2-01

Area : 0.12

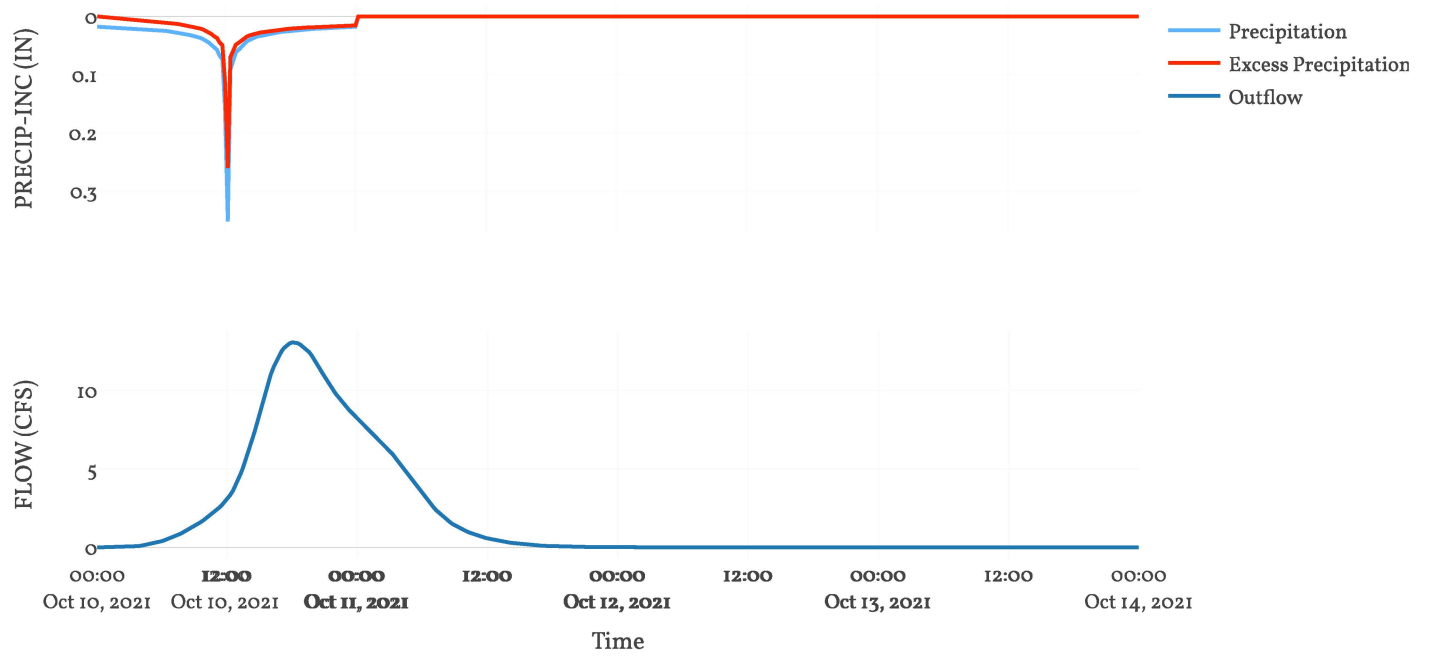
Downstream : Pre - Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

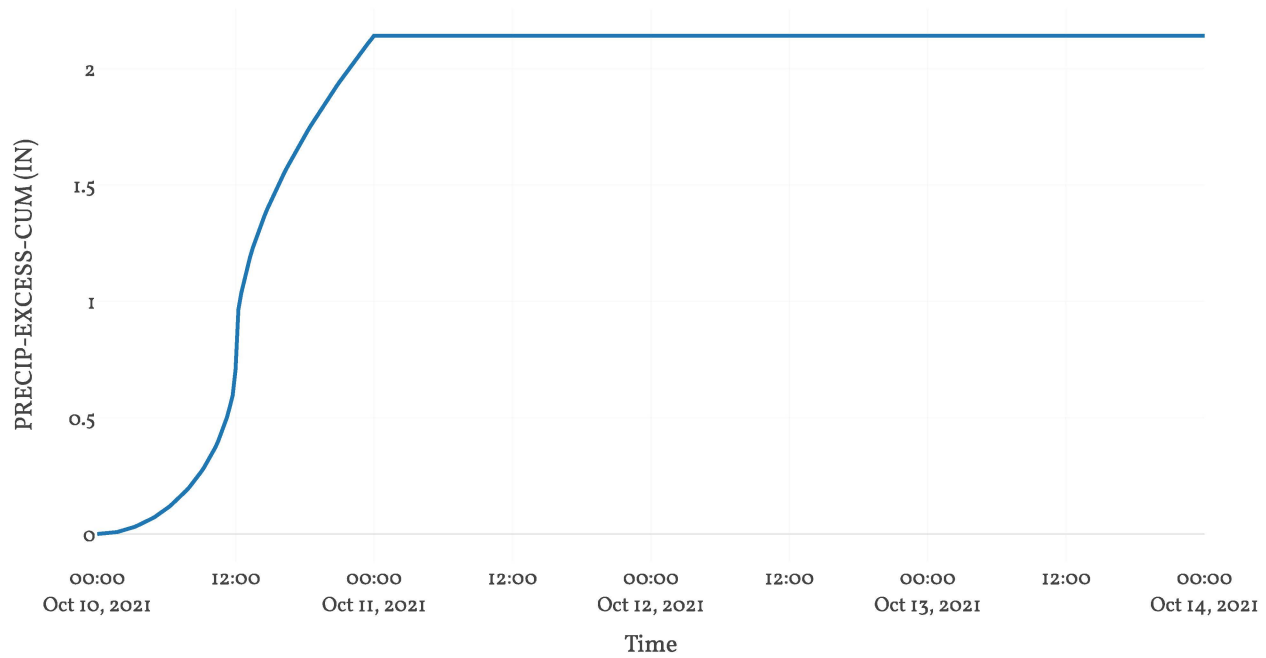
Transform: Scs	
Lag	320
Unitgraph Type	Standard

Results: Watershed 2-01	
Peak Discharge (CFS)	13.07
Time of Peak Discharge	10Oct2021, 18:00
Volume (IN)	2.14
Precipitation Volume (AC - FT)	21.9
Loss Volume (AC - FT)	7.65
Excess Volume (AC - FT)	14.26
Direct Runoff Volume (AC - FT)	14.26
Baseflow Volume (AC - FT)	0

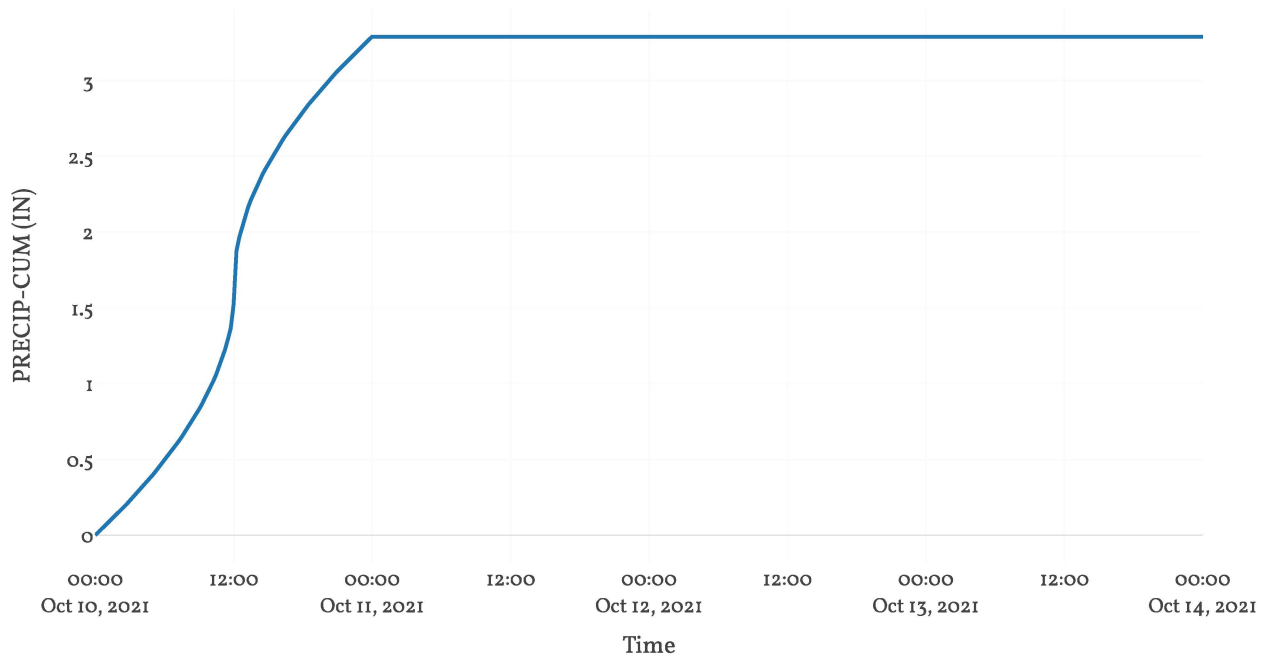
## Precipitation and Outflow



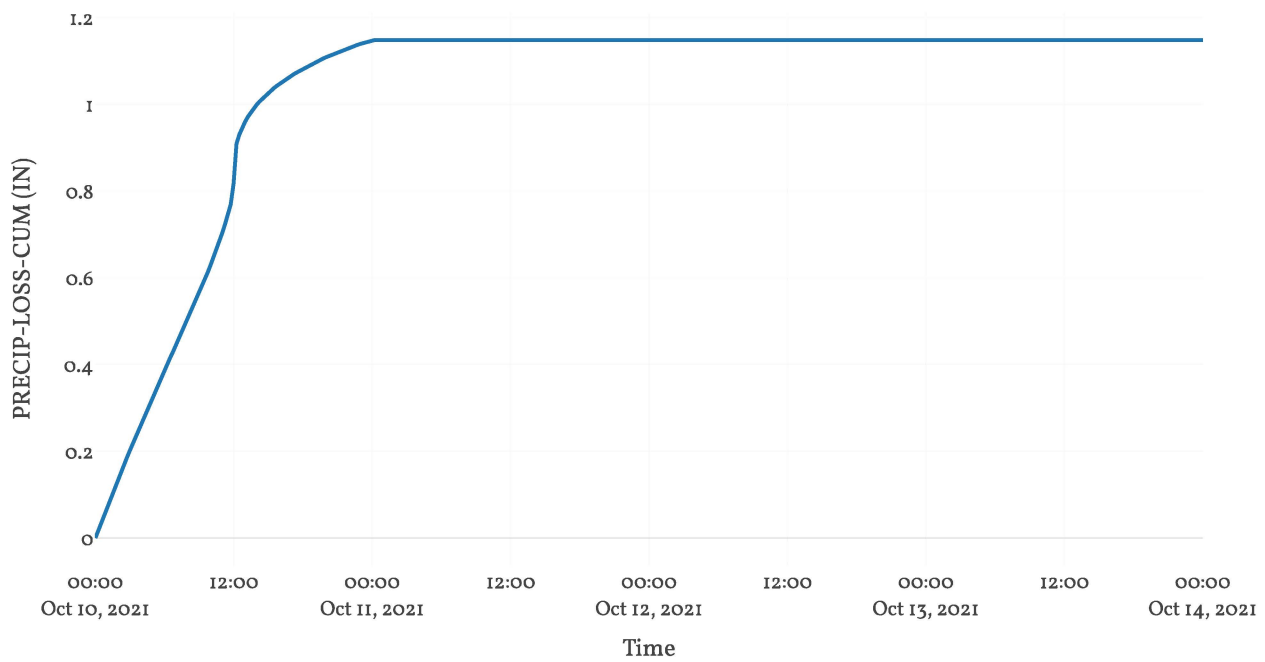
## Cumulative Excess Precipitation



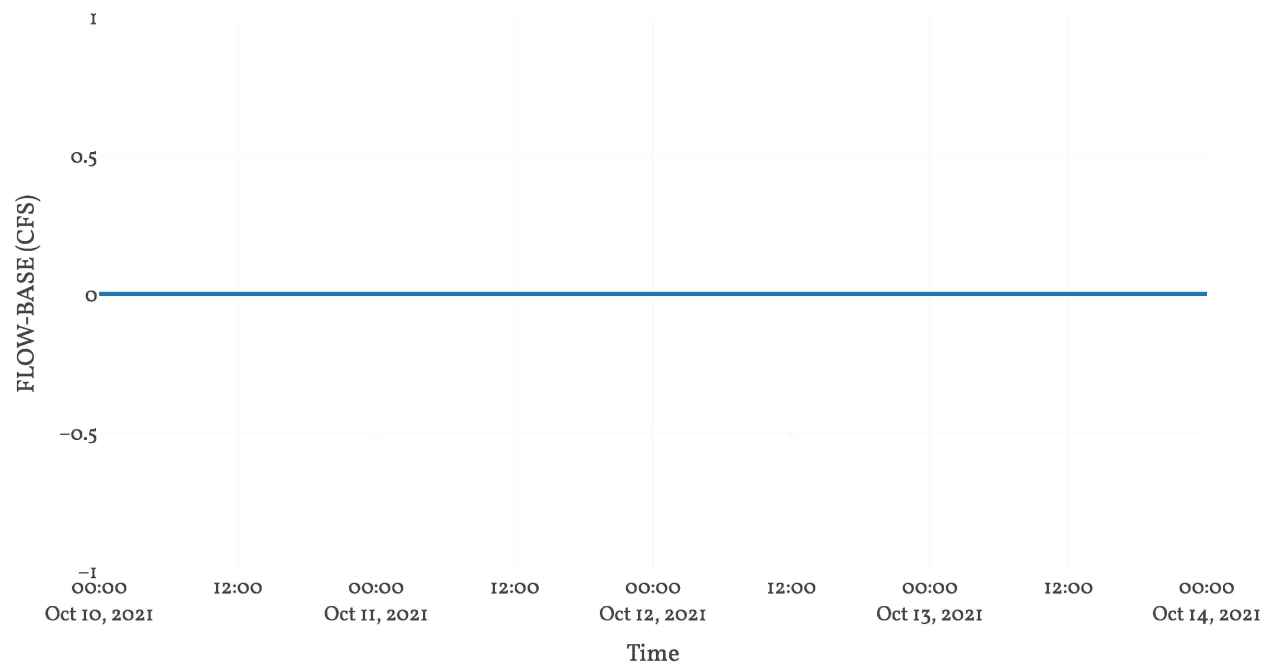
Cumulative Precipitation



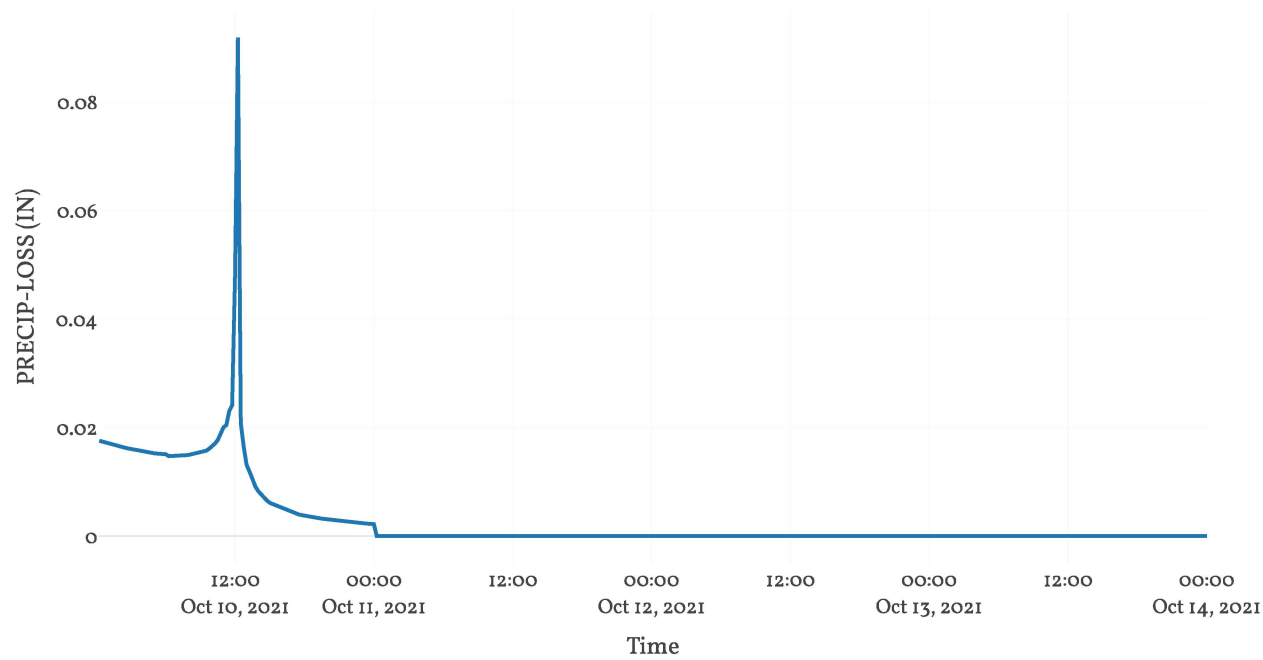
Cumulative Precipitation Loss



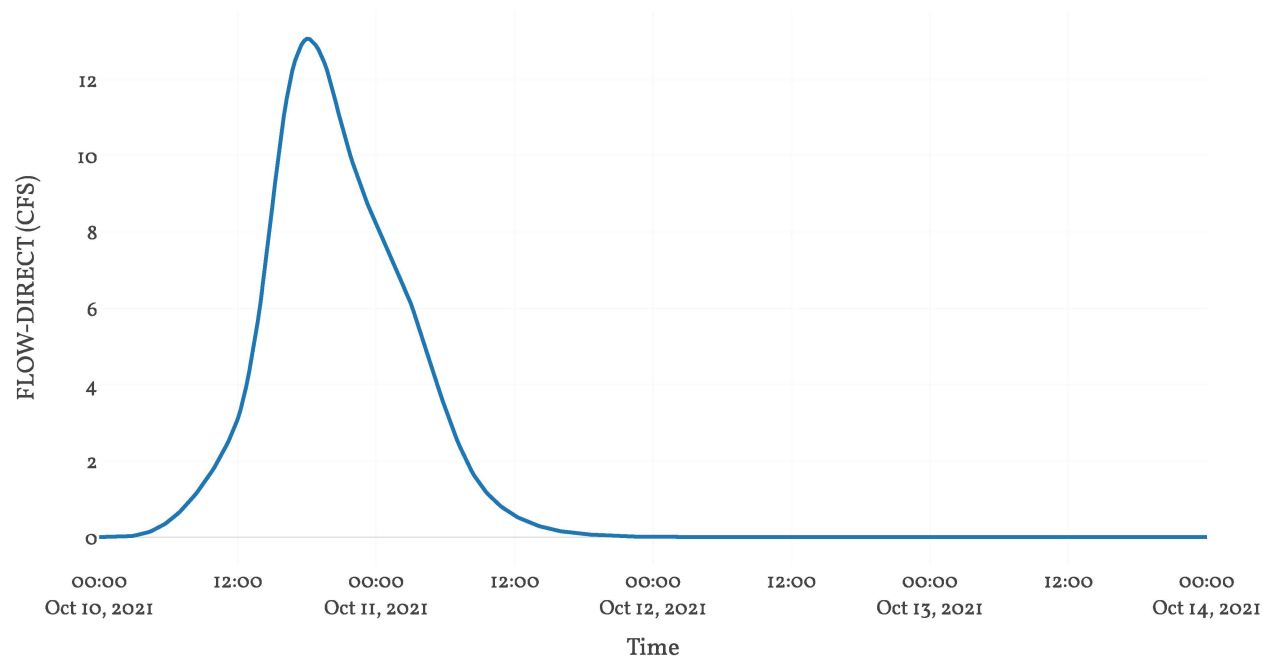
Baseflow



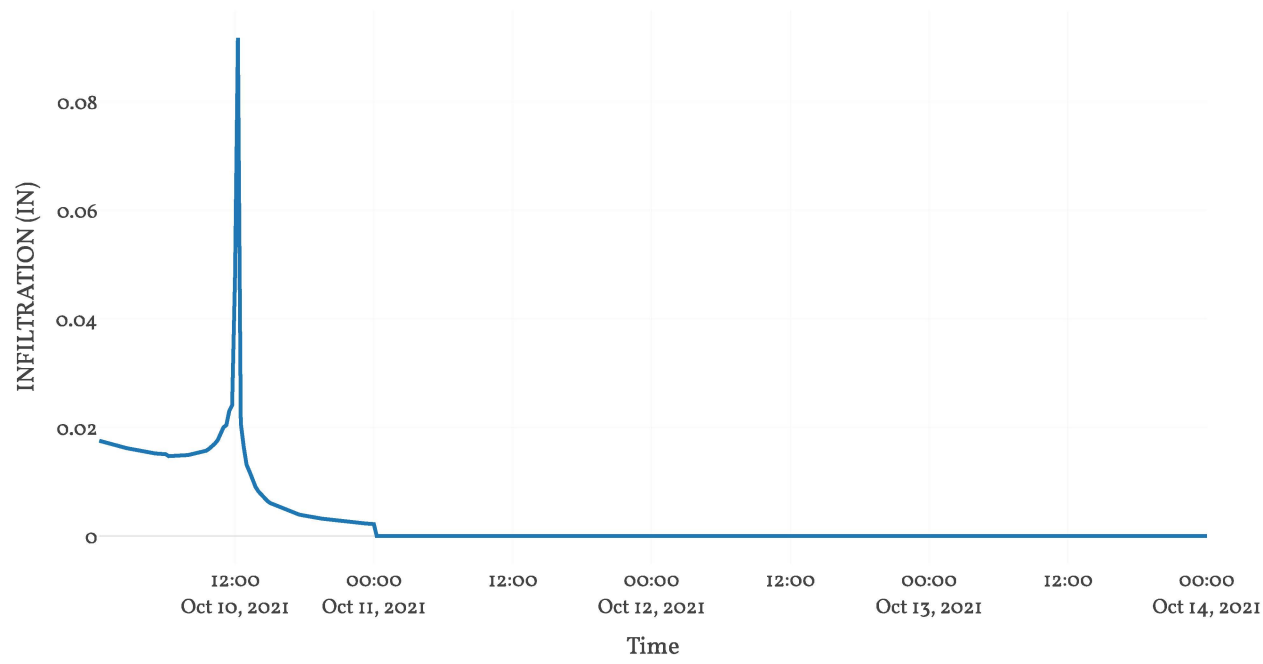
Precipitation Loss



Direct Runoff



Soil Infiltration

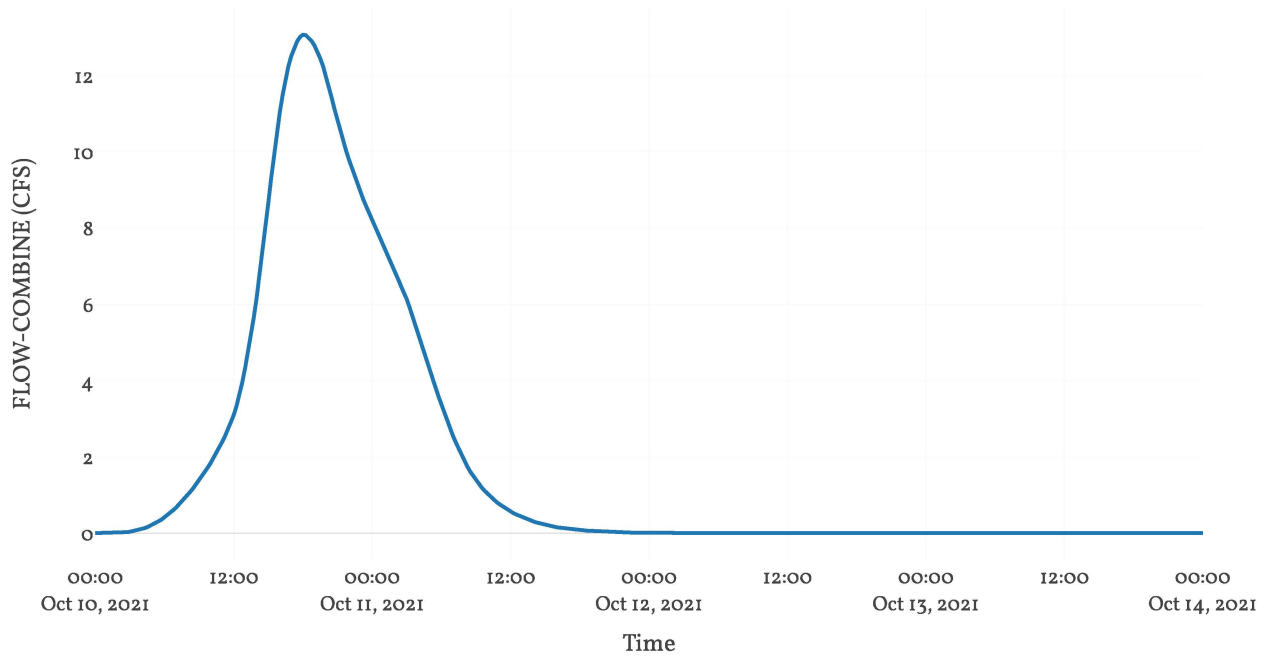




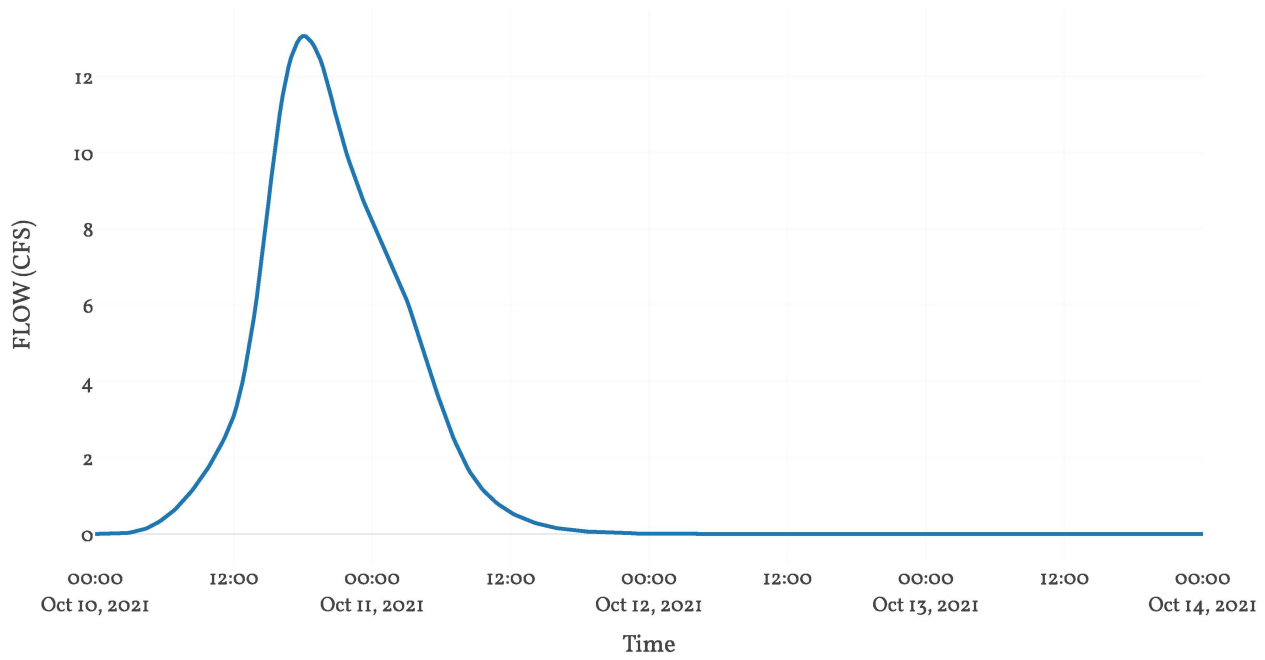
Junction: Pre-Total

Results: Pre-Total	
Peak Discharge (CFS)	13.07
Time of Peak Discharge	10Oct2021, 18:00
Volume (IN)	2.14

Combined Inflow



Outflow





#### **A.2-9 ADDITIONAL NORTH AREA – PRE-DEVELOPMENT 100YEAR 24HOUR**

**Project:** Oveja\_Watershed\_2\_01  
**Simulation Run:** 100 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 08 December 2024, 03:46

Global Parameter Summary - Subbasin

Area	
Element Name	Area
Watershed 2 - 01	0.12

Downstream	
Element Name	Downstream
Watershed 2 - 01	Pre - Total

Loss Rate: SCS			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
Watershed 2 - 01	0	85	0

Transform: SCS		
Element Name	Lag	Unitgraph Type
Watershed 2 - 01	320	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Watershed 2 - 01	0.12	23	10Oct2021, 18:00	3.79
Pre - Total	0.12	23	10Oct2021, 18:00	3.79

# Subbasin: Watershed 2-01

Area : 0.12

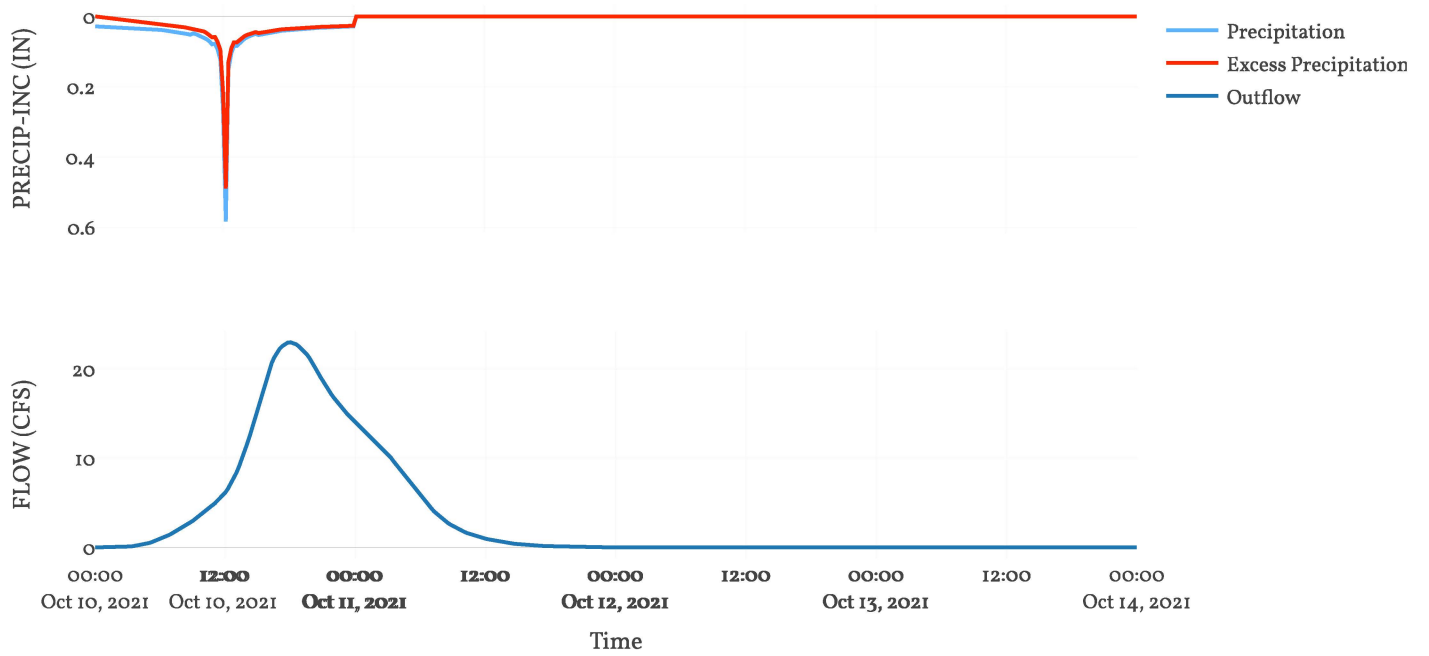
Downstream : Pre - Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

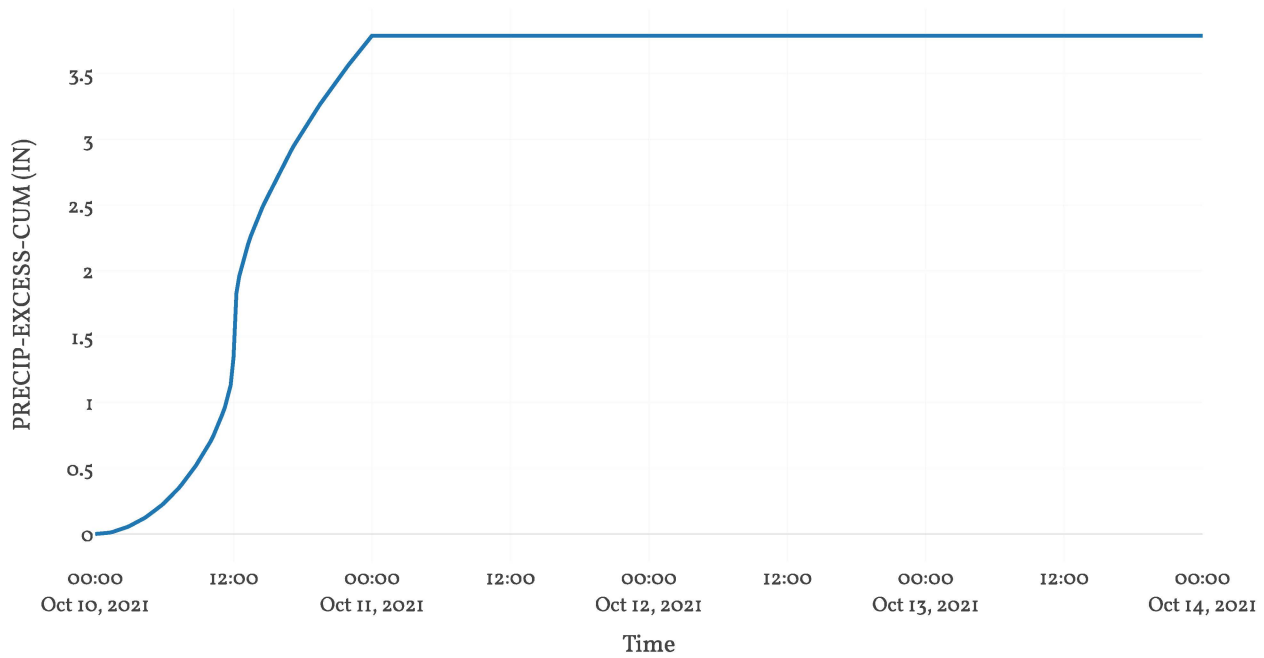
Transform: Scs	
Lag	320
Unitgraph Type	Standard

Results: Watershed 2-01	
Peak Discharge (CFS)	23
Time of Peak Discharge	10Oct2021, 18:00
Volume (IN)	3.79
Precipitation Volume (AC - FT)	33.95
Loss Volume (AC - FT)	8.73
Excess Volume (AC - FT)	25.22
Direct Runoff Volume (AC - FT)	25.22
Baseflow Volume (AC - FT)	0

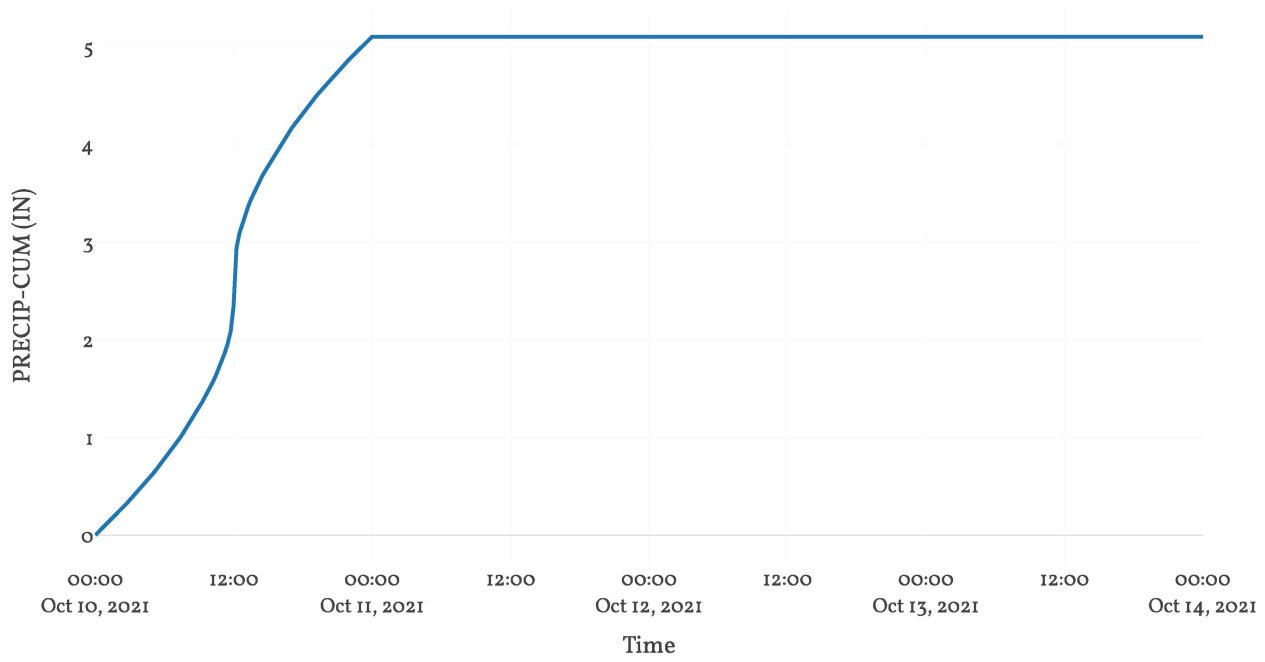
## Precipitation and Outflow



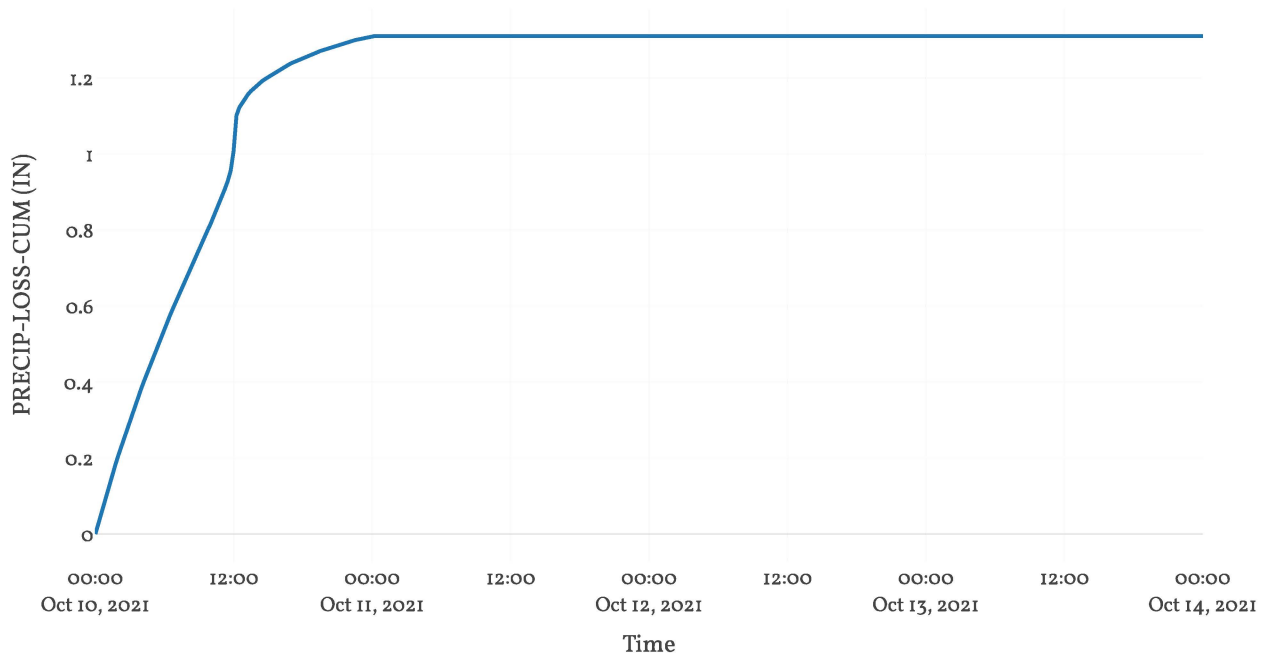
## Cumulative Excess Precipitation



Cumulative Precipitation

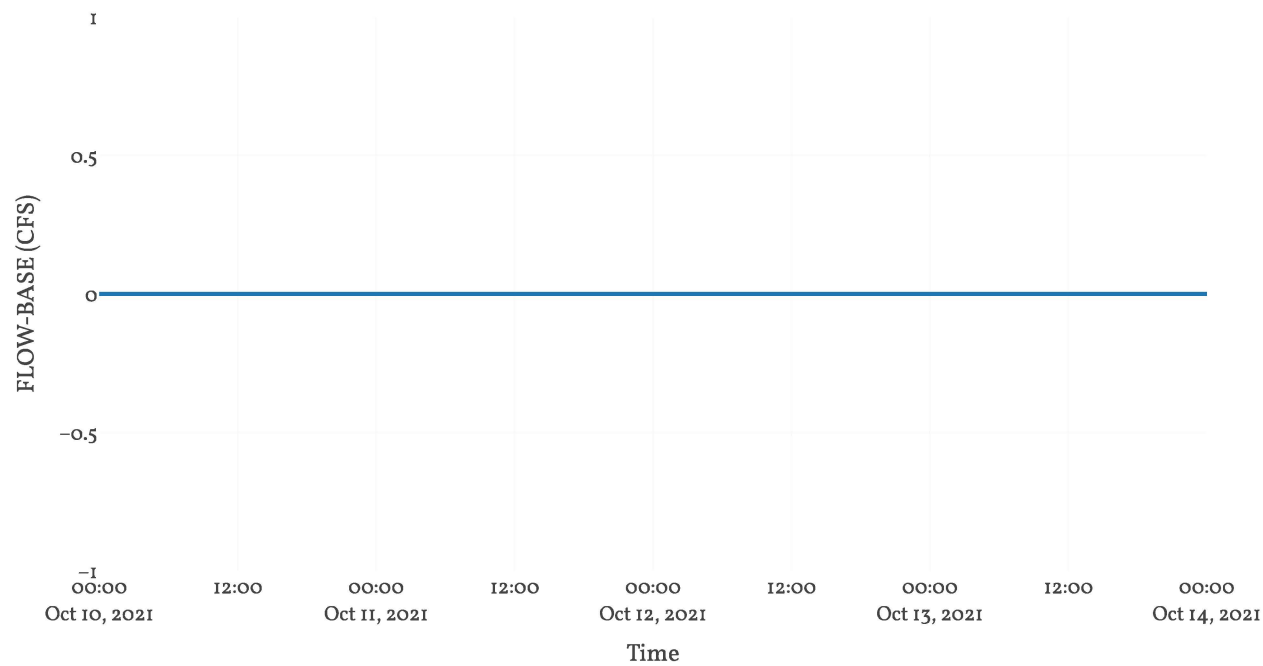


Cumulative Precipitation Loss

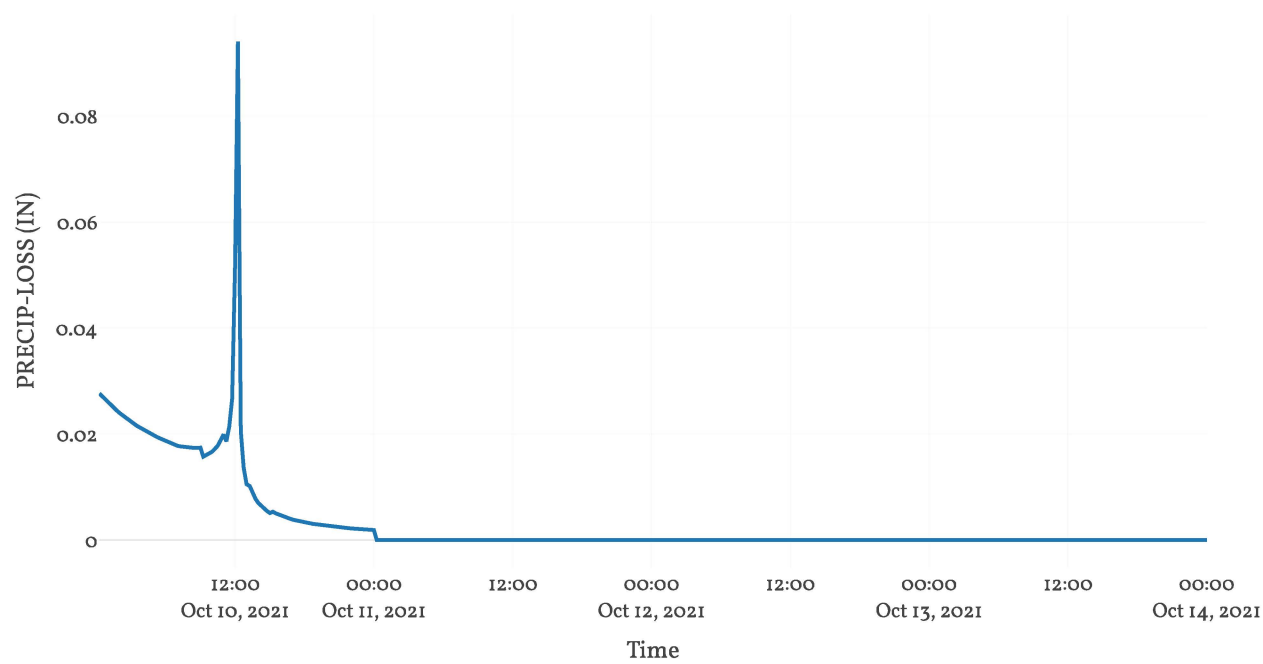




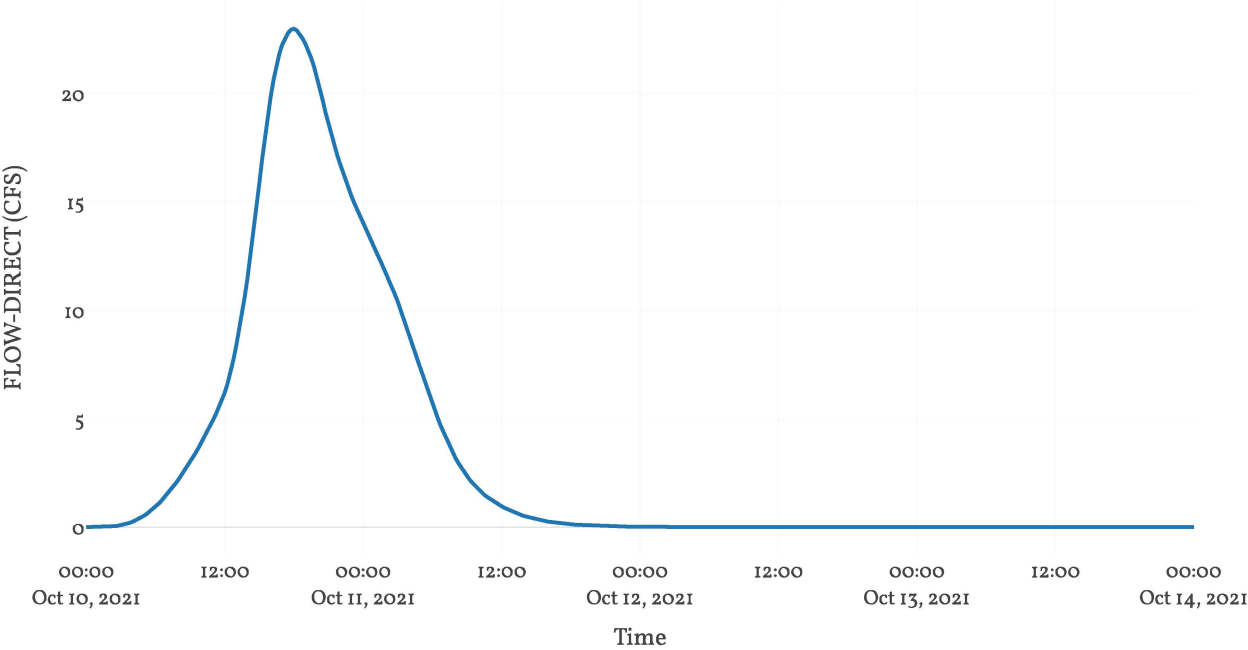
Baseflow



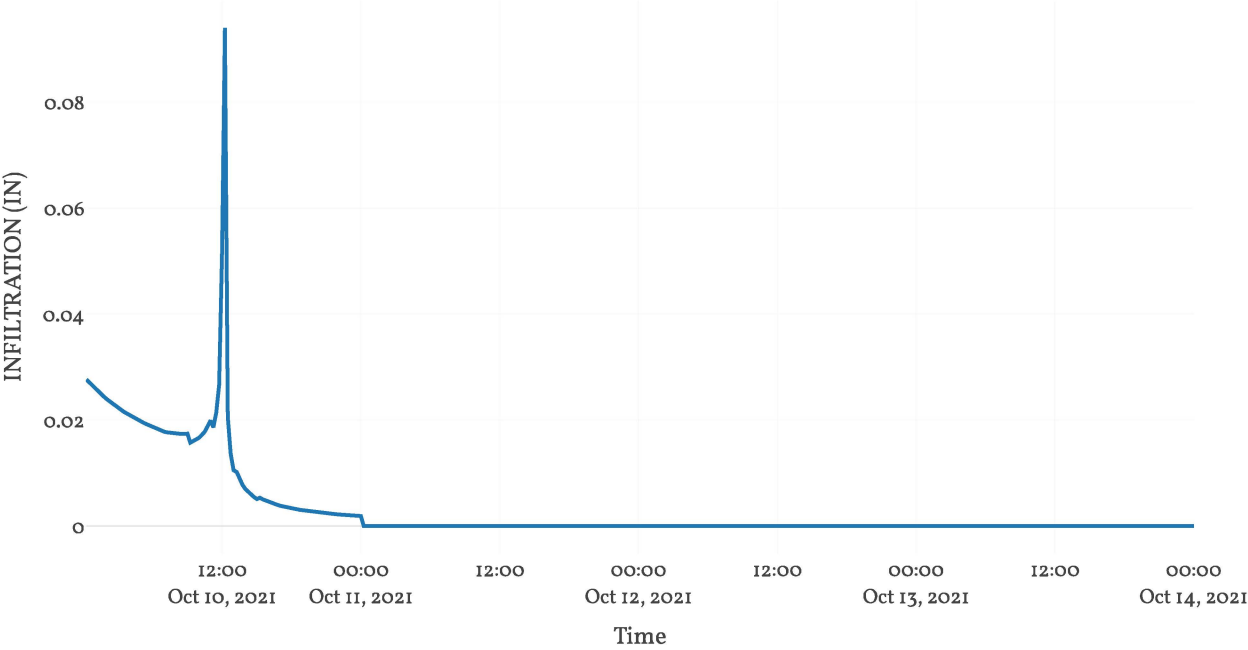
Precipitation Loss



Direct Runoff



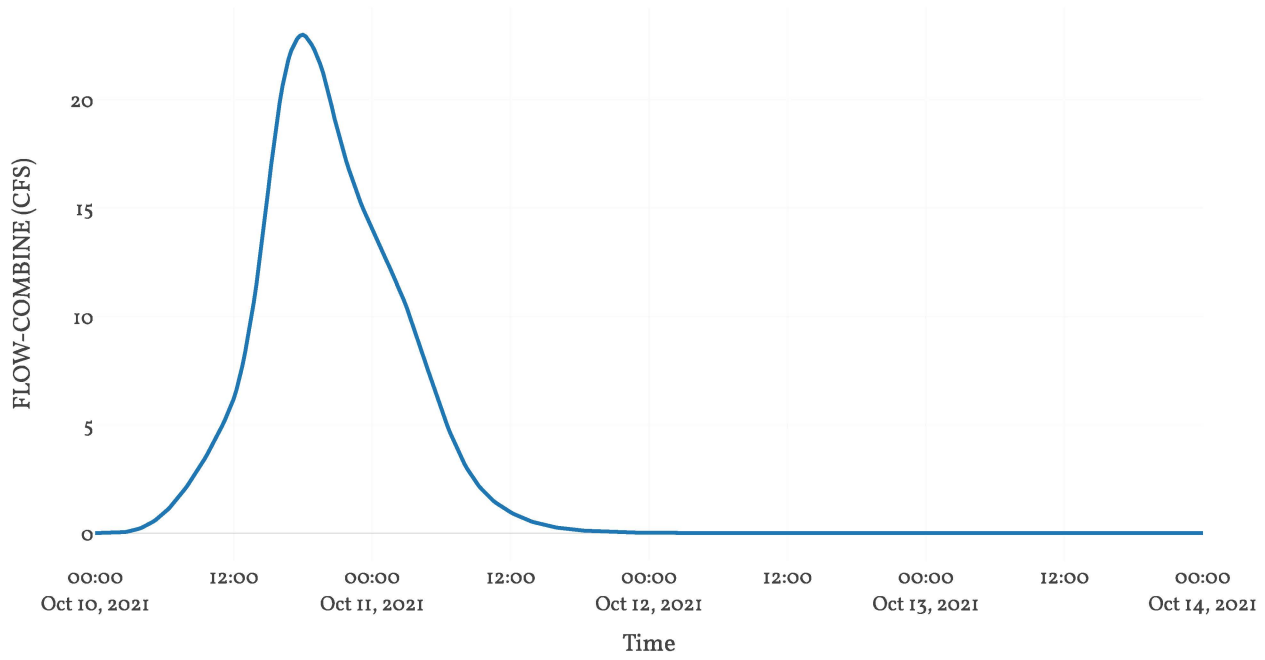
Soil Infiltration



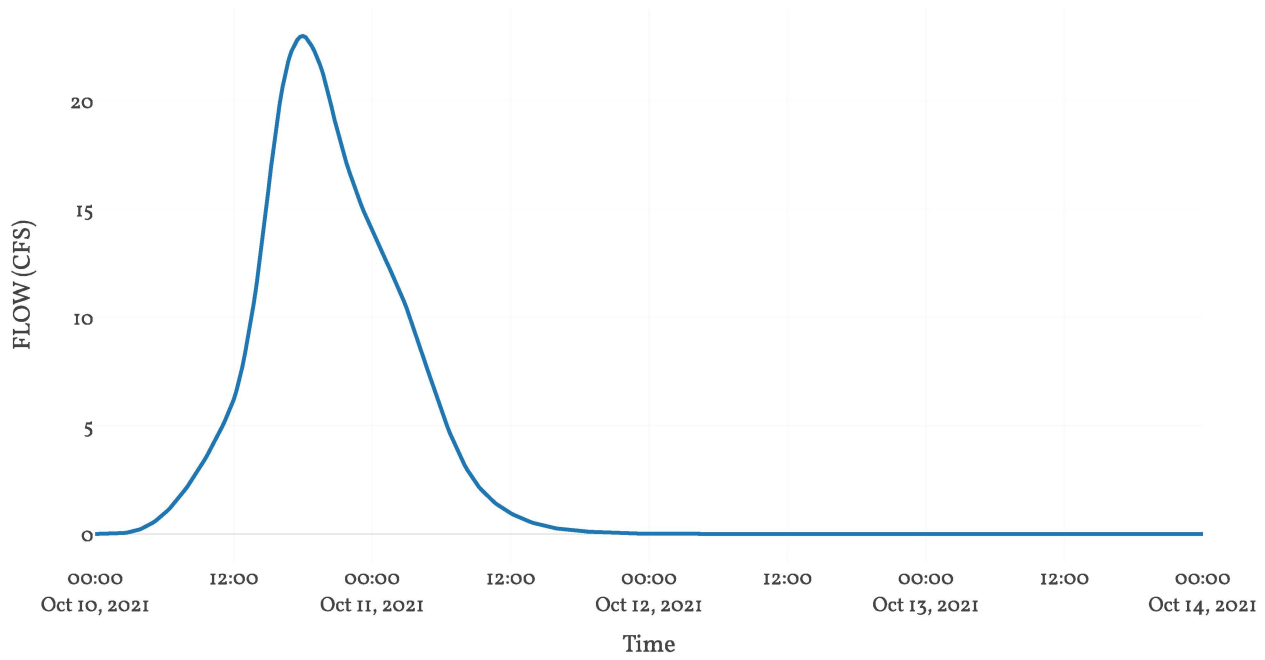
Junction: Pre-Total

Results: Pre-Total	
Peak Discharge (CFS)	23
Time of Peak Discharge	10Oct2021, 18:00
Volume (IN)	3.79

Combined Inflow



Outflow





**A.2-10 ADDITIONAL NORTH AREA – POST-DEVELOPMENT 2YEAR 24HOUR**

**Project:** Watershed\_2\_OI\_Post\_Develop  
**Simulation Run:** 2 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 09 December 2024, 00:14

Global Parameter Summary - Subbasin

Area	
Element Name	Area
WaterShed 2 - OI Perv	0.12
WaterShed 2 - OI Imp	0

Downstream	
Element Name	Downstream
WaterShed 2 - OI Perv	Post Total
WaterShed 2 - OI Imp	Post Total

Loss Rate: Scs			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
WaterShed 2 - OI Perv	0	85	0
WaterShed 2 - OI Imp	80	89	0

Transform: Scs		
Element Name	Lag	Unitgraph Type
WaterShed 2 - OI Perv	320.54	Standard
WaterShed 2 - OI Imp	320.54	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WaterShed 2 - OI Perv	0.12	7.28	10Oct2021, 18:15	1.18
WaterShed 2 - OI Imp	0	0.36	10Oct2021, 17:45	1.99
Post Total	0.12	7.63	10Oct2021, 18:15	1.2

Subbasin: WaterShed 2-01 Perv

Area : 0.12  
Downstream : Post Total

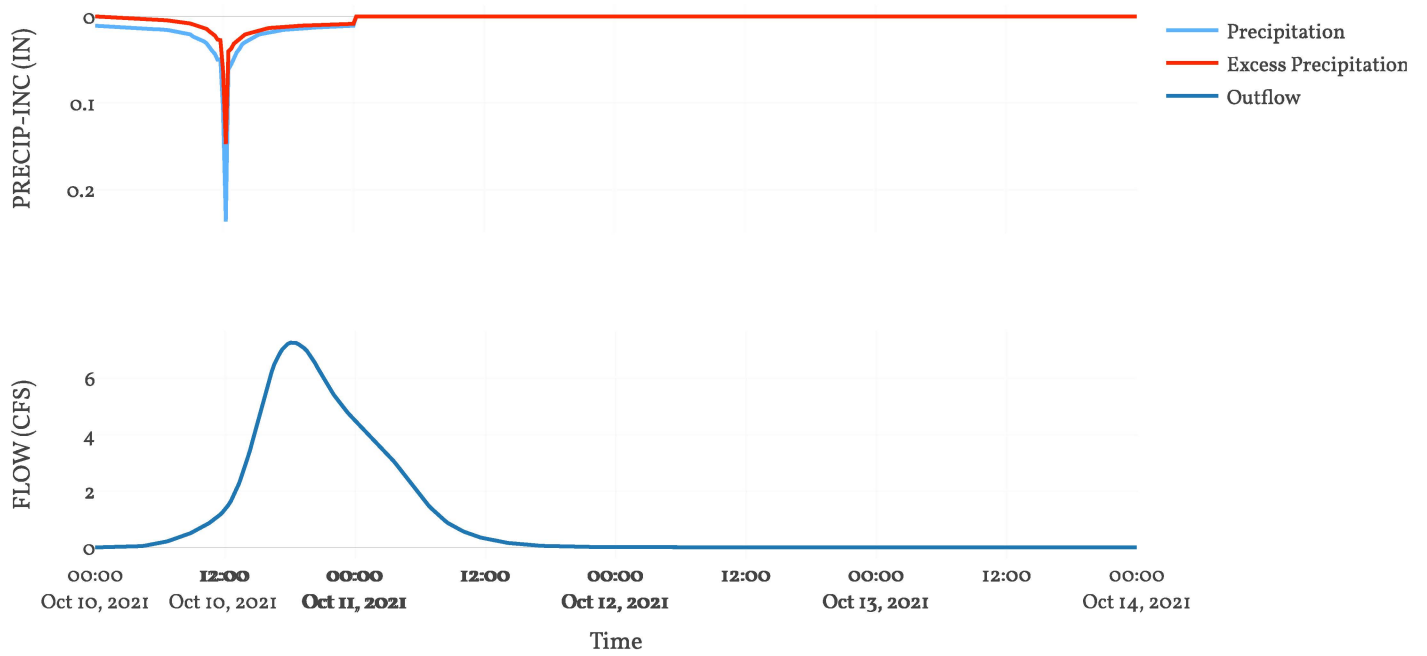
Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

Transform: Scs	
Lag	320.54
Unitgraph Type	Standard

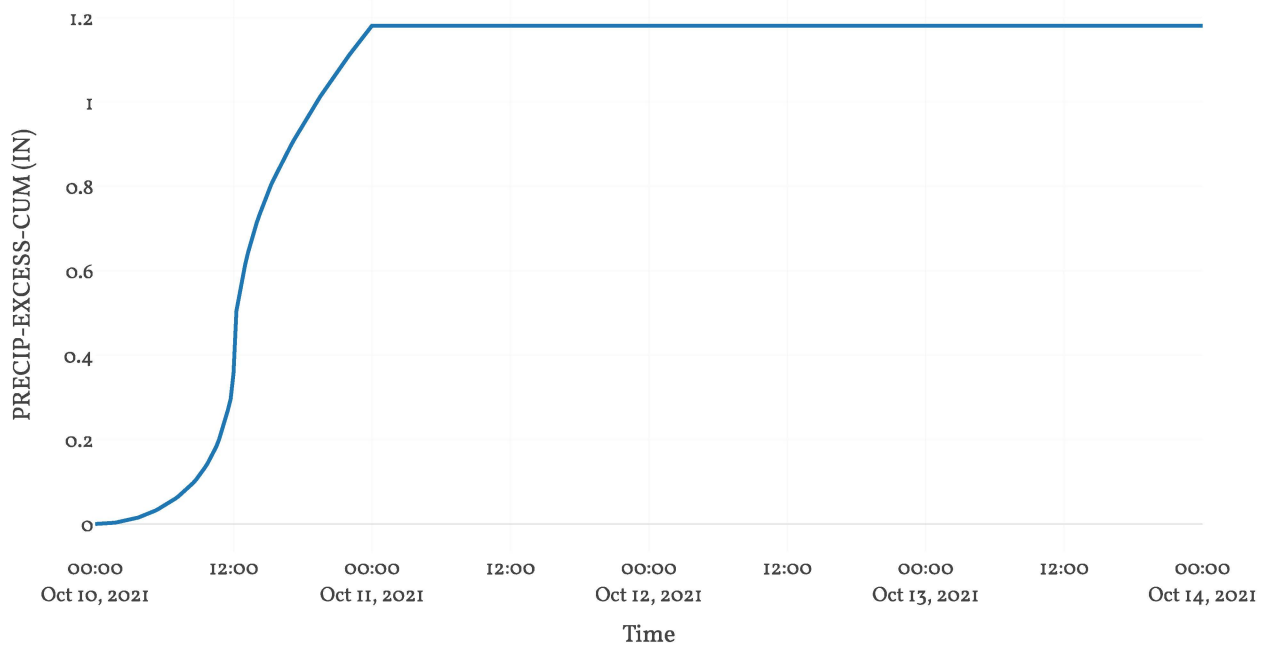
Results: WaterShed 2-01 Perv	
Peak Discharge (CFS)	7.28
Time of Peak Discharge	10Oct2021, 18:15
Volume (IN)	1.18
Precipitation Volume (AC - FT)	13.89
Loss Volume (AC - FT)	6.26
Excess Volume (AC - FT)	7.63
Direct Runoff Volume (AC - FT)	7.63
Baseflow Volume (AC - FT)	0



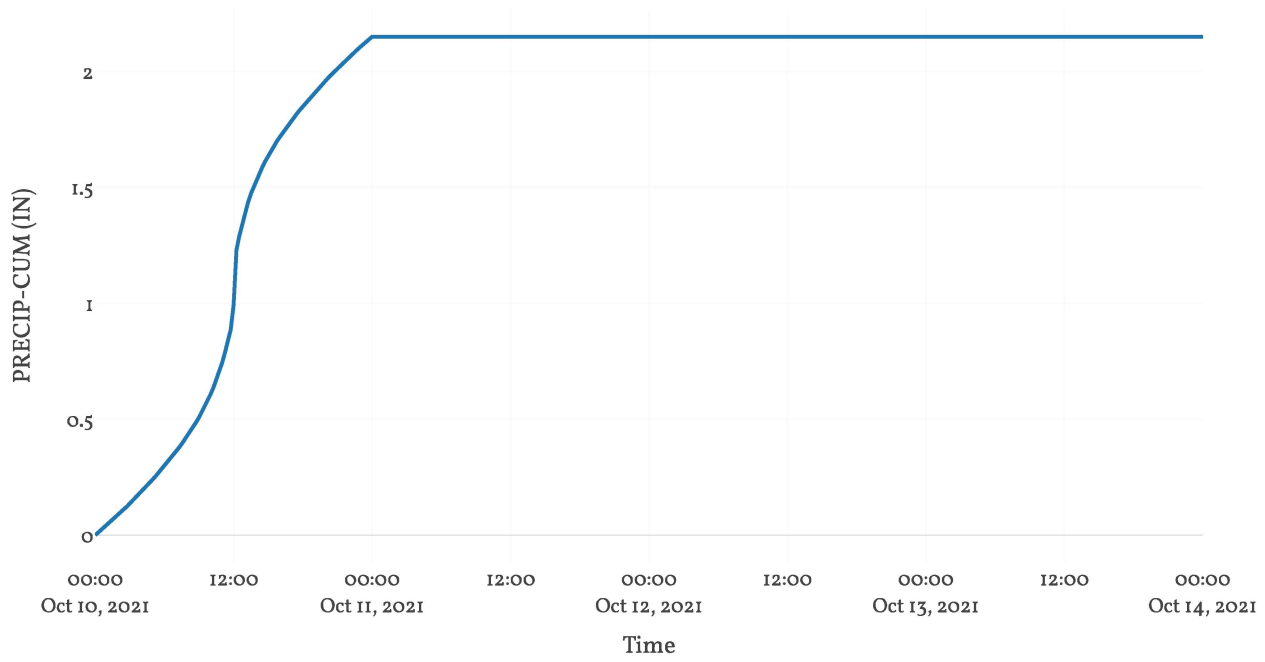
## Precipitation and Outflow



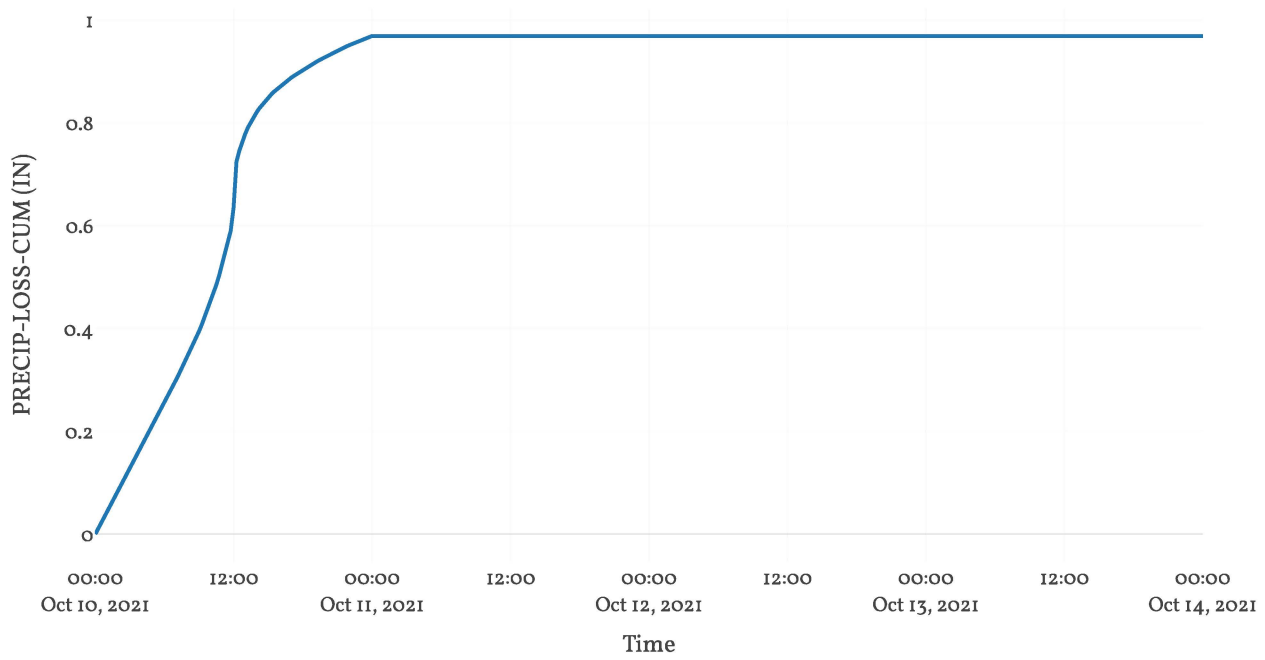
## Cumulative Excess Precipitation



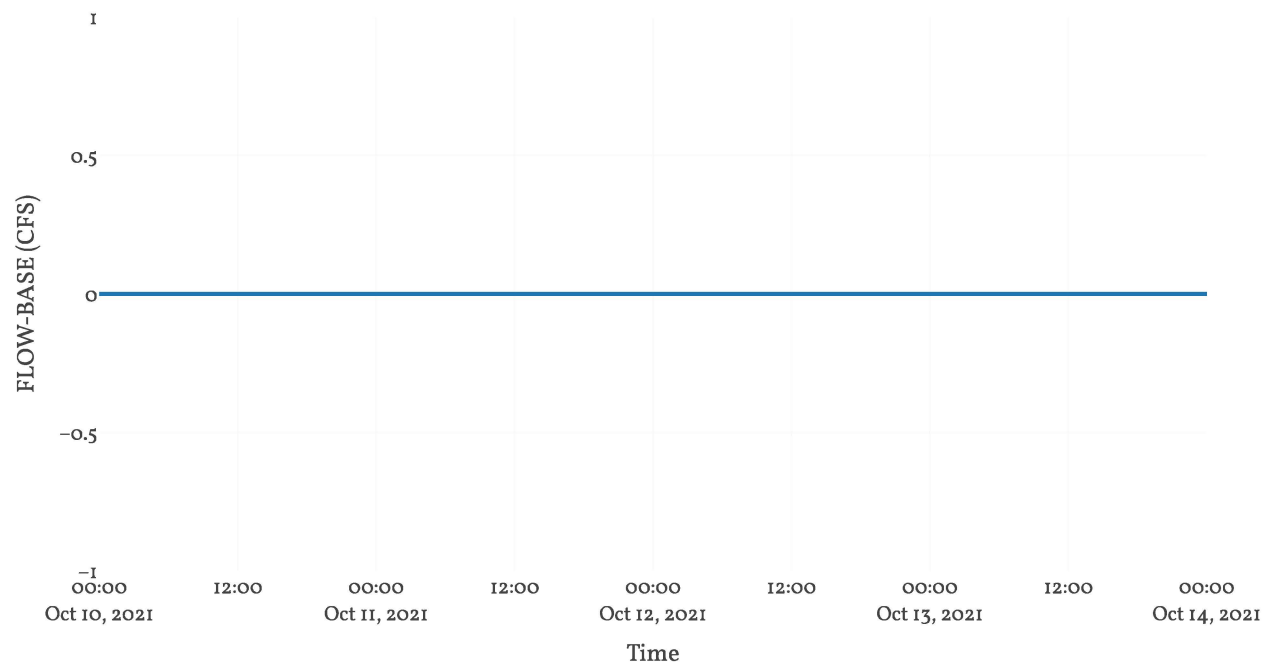
Cumulative Precipitation



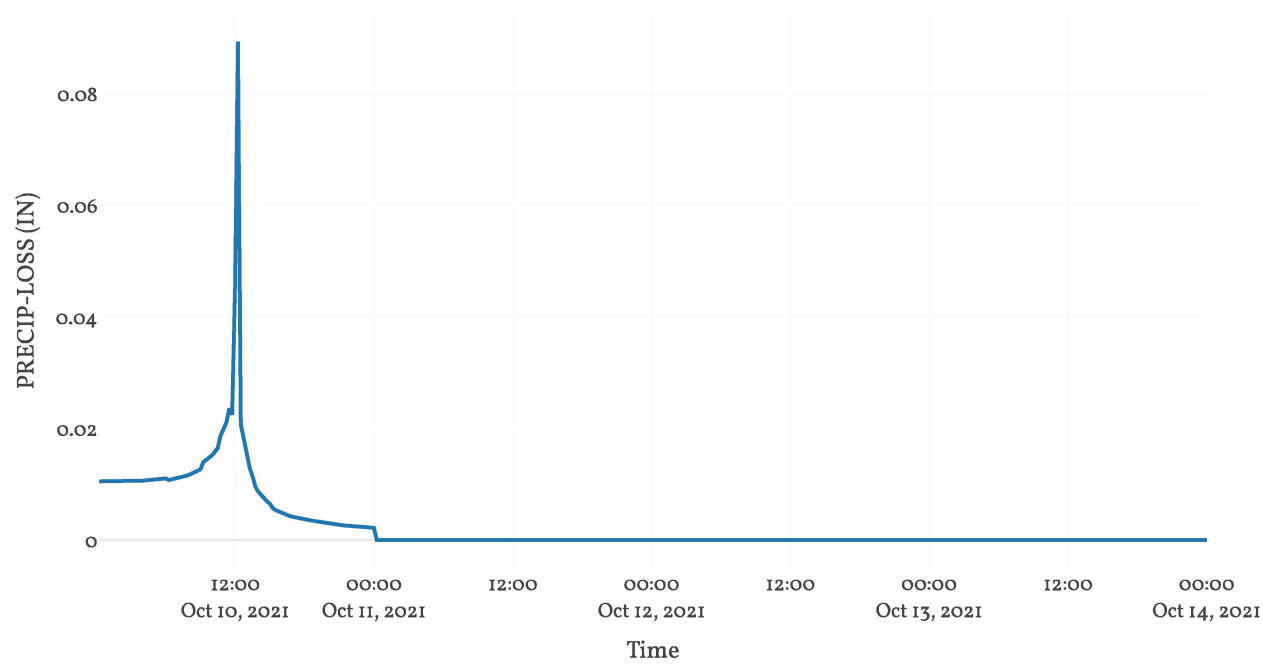
Cumulative Precipitation Loss



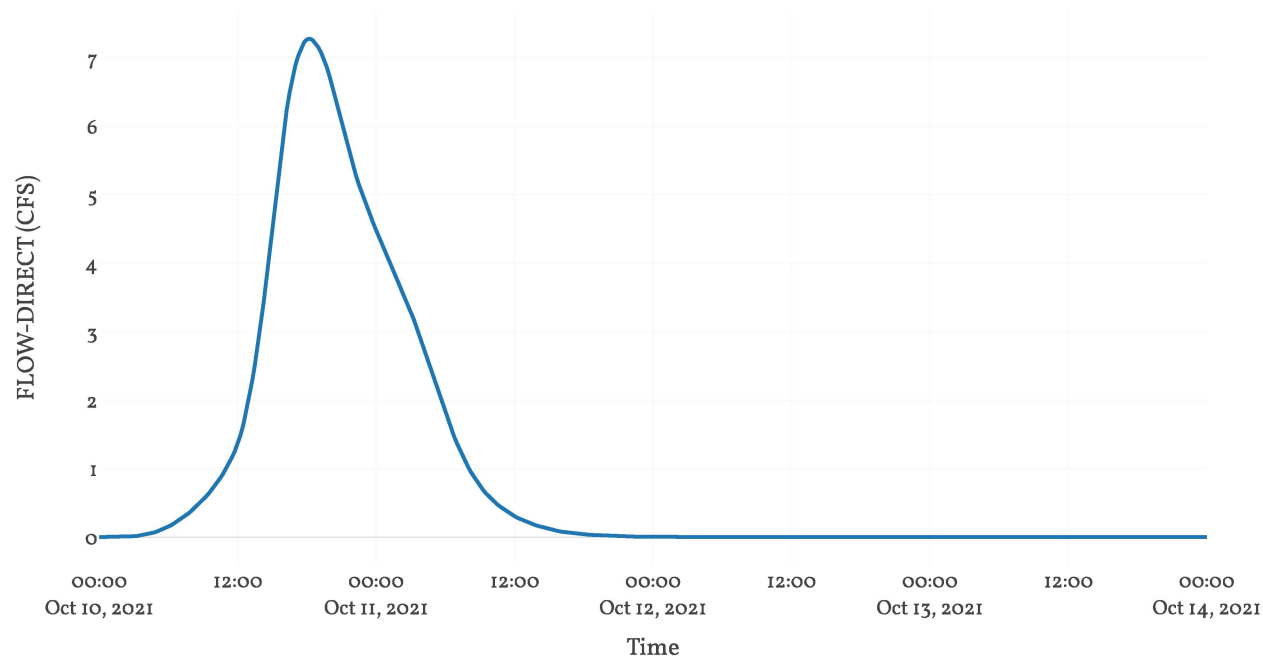
Baseflow



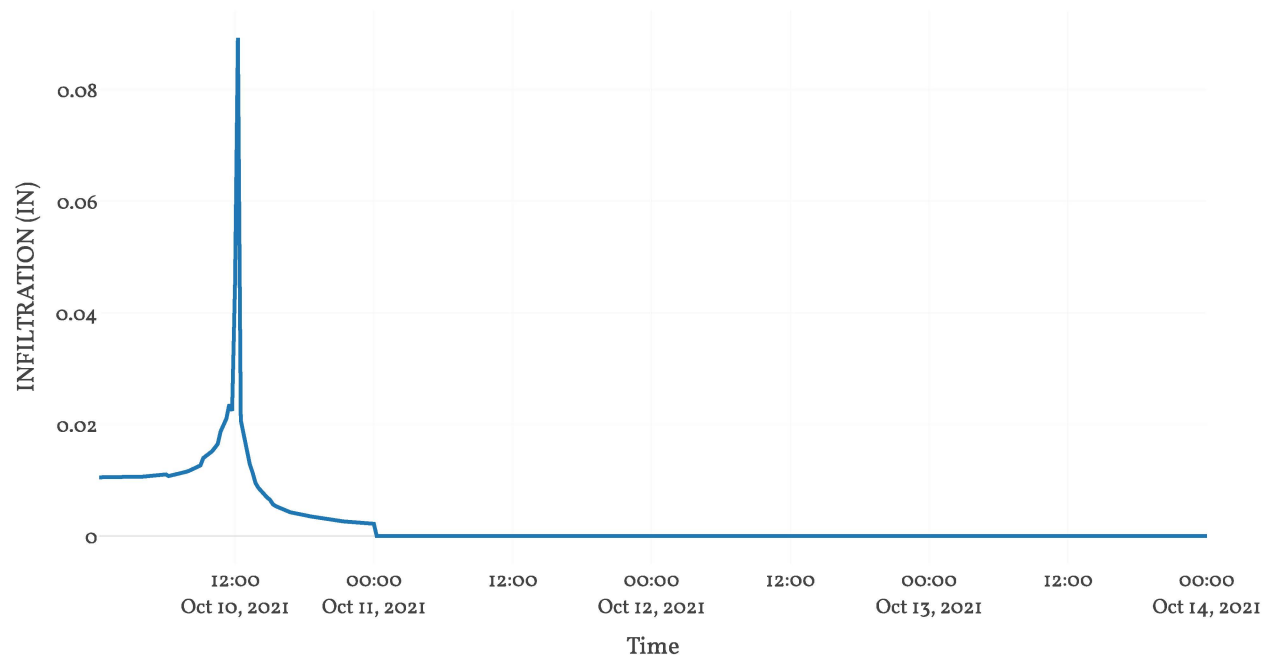
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: WaterShed 2-01 Imp

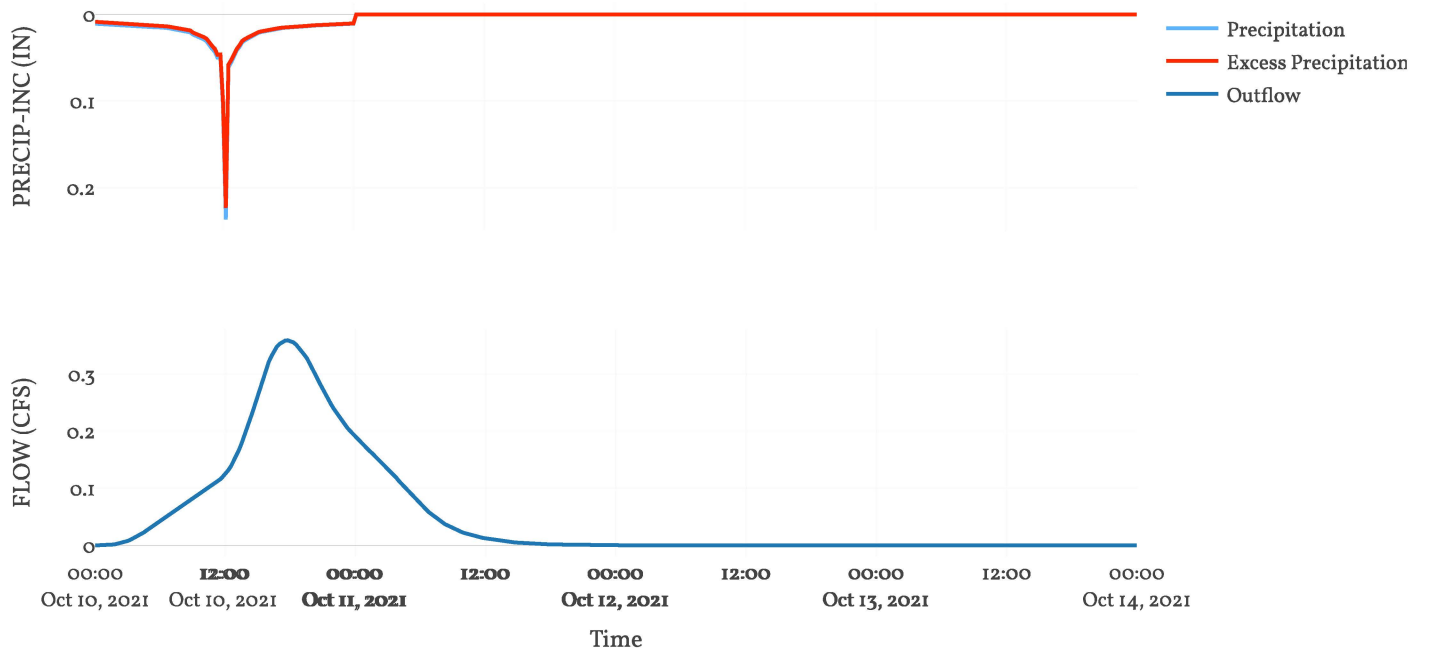
Area : 0  
Downstream : Post Total

Loss Rate: Scs	
Percent Impervious Area	80
Curve Number	89
Initial Abstraction	0

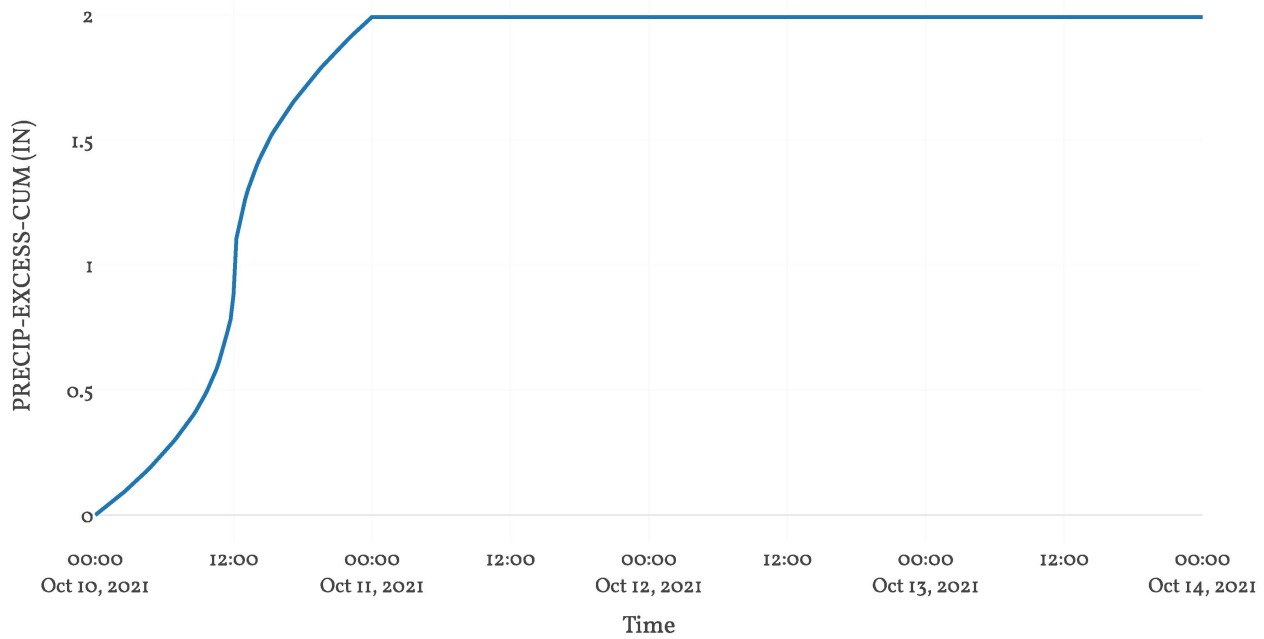
Transform: Scs	
Lag	320.54
Unitgraph Type	Standard

Results: WaterShed 2-01 Imp	
Peak Discharge (CFS)	0.36
Time of Peak Discharge	10Oct2021, 17:45
Volume (IN)	1.99
Precipitation Volume (AC - FT)	0.43
Loss Volume (AC - FT)	0.03
Excess Volume (AC - FT)	0.4
Direct Runoff Volume (AC - FT)	0.4
Baseflow Volume (AC - FT)	0

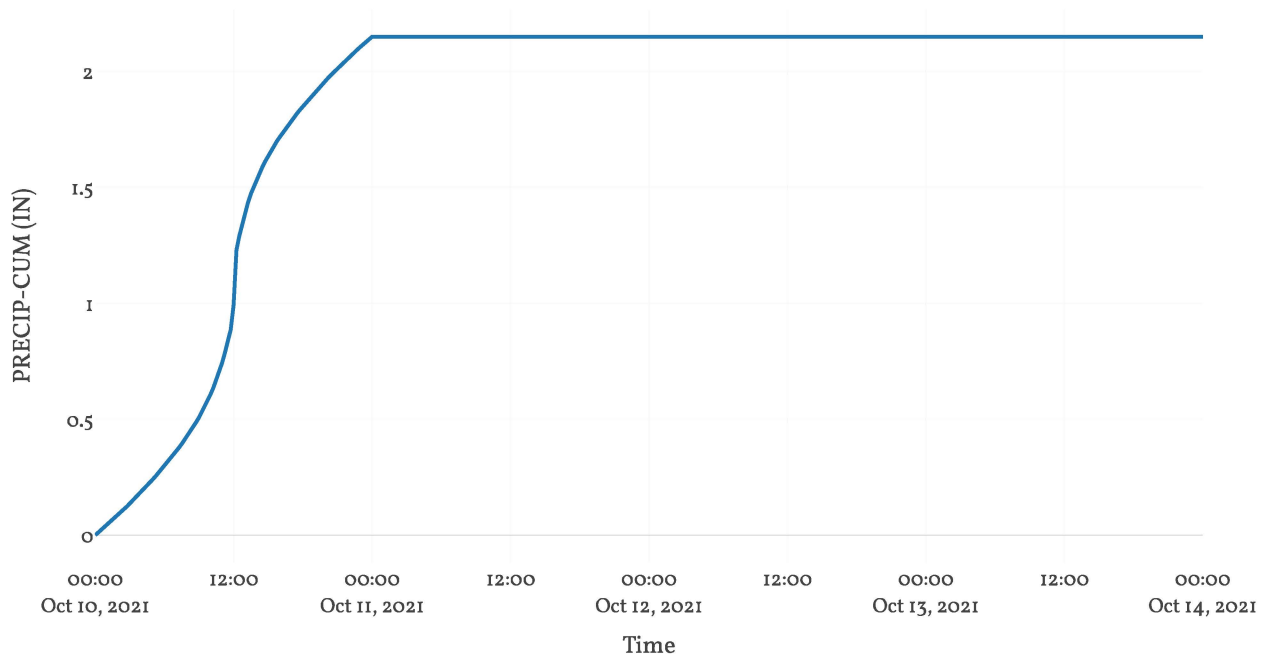
## Precipitation and Outflow



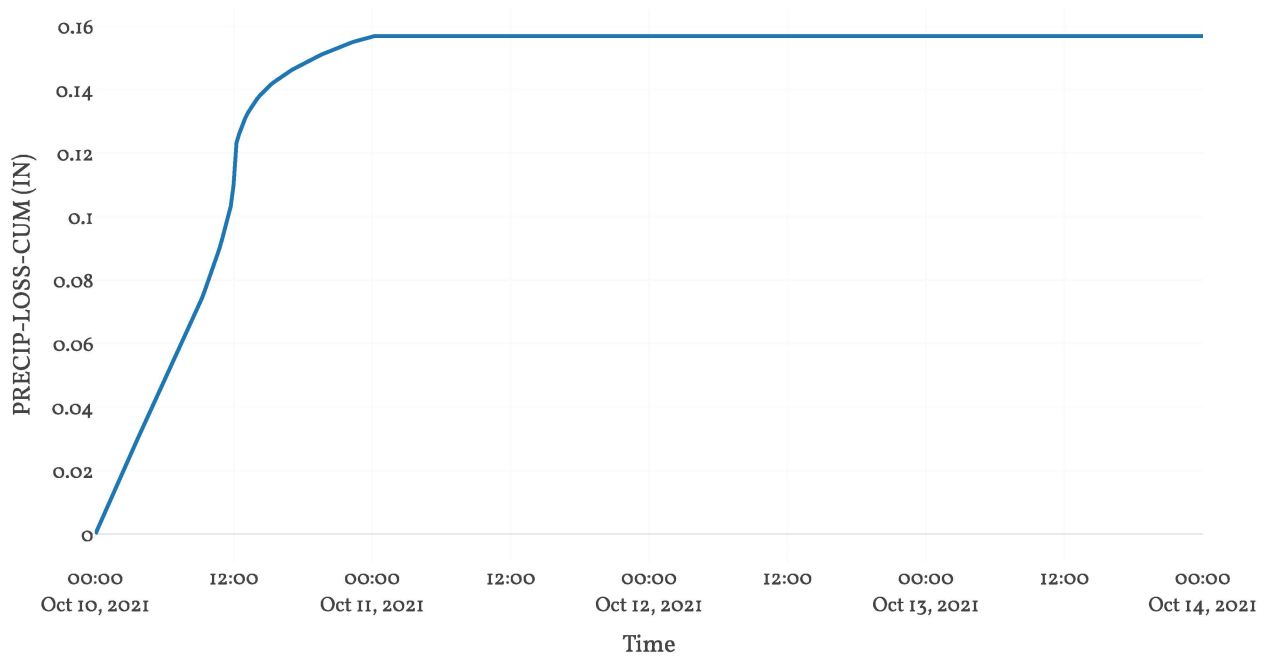
## Cumulative Excess Precipitation



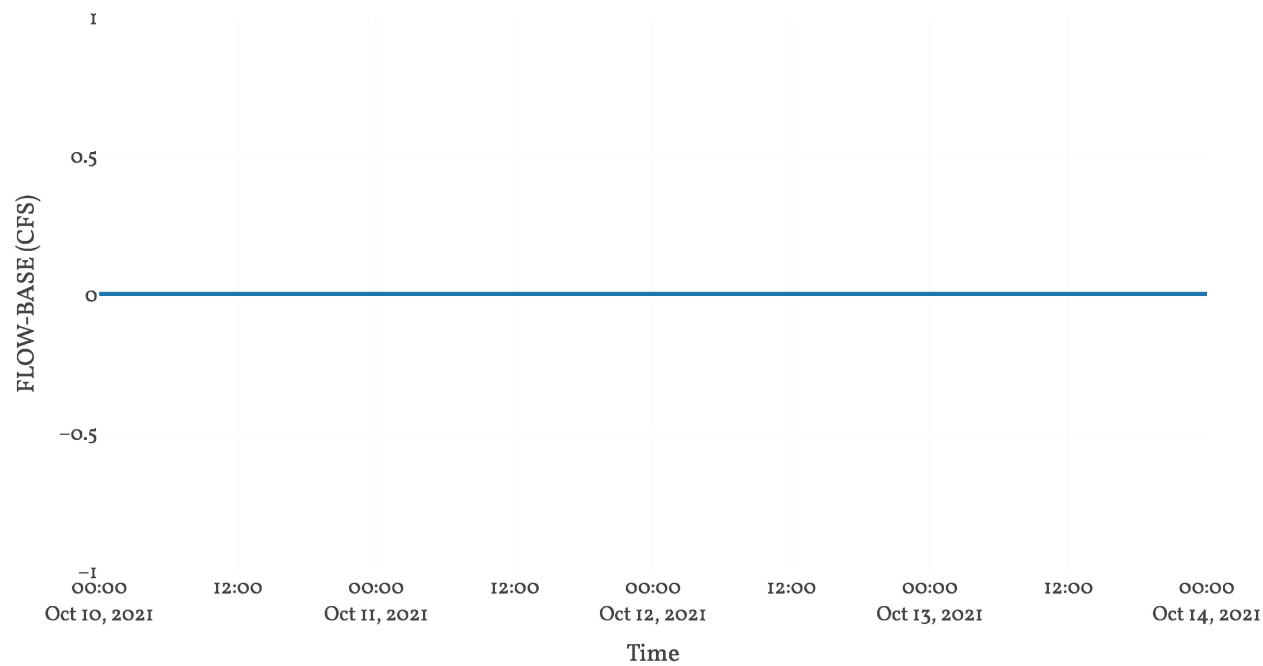
Cumulative Precipitation



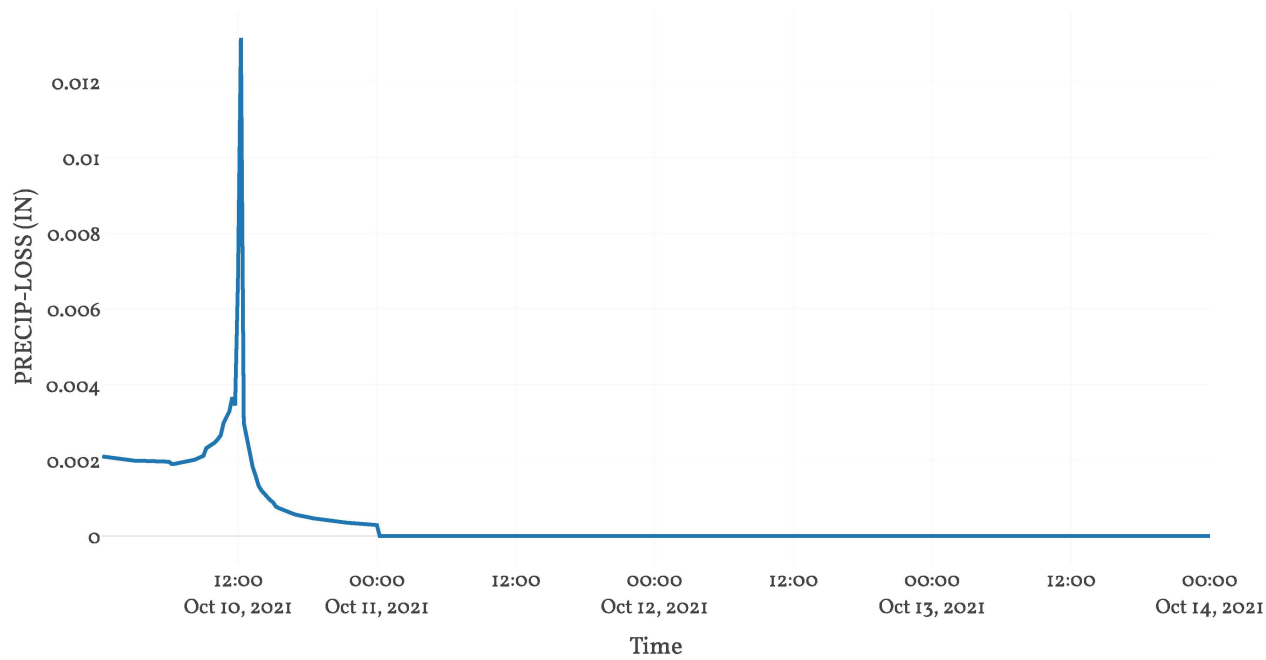
Cumulative Precipitation Loss



Baseflow

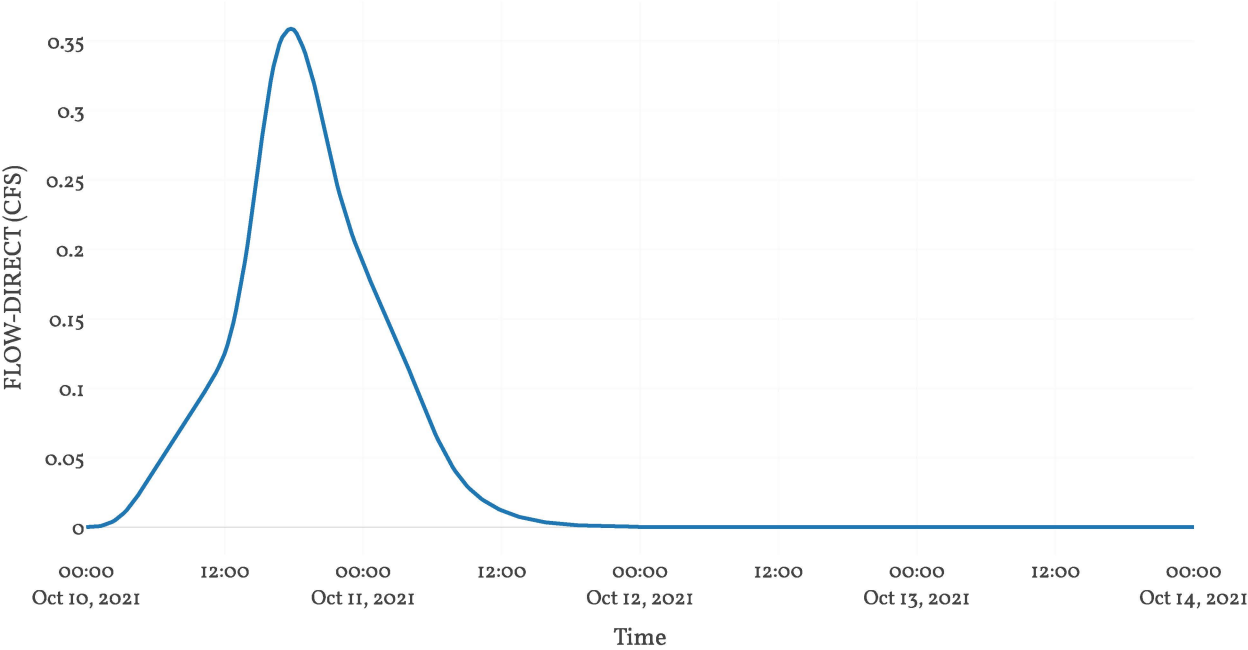


Precipitation Loss

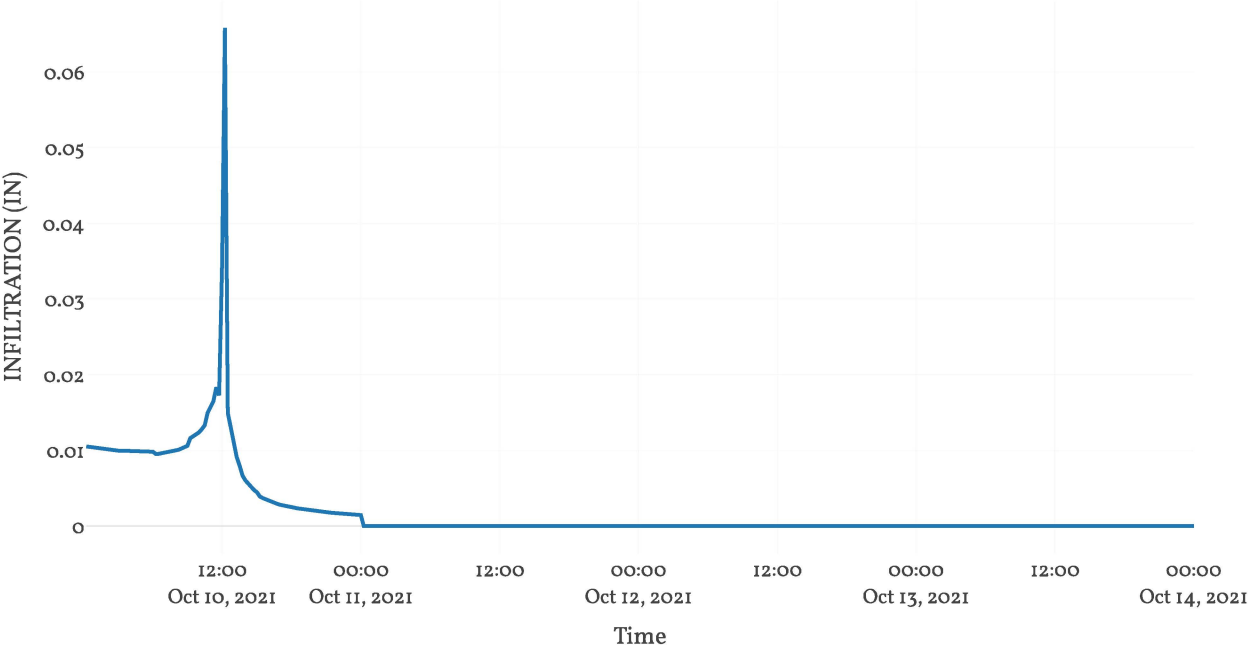




Direct Runoff



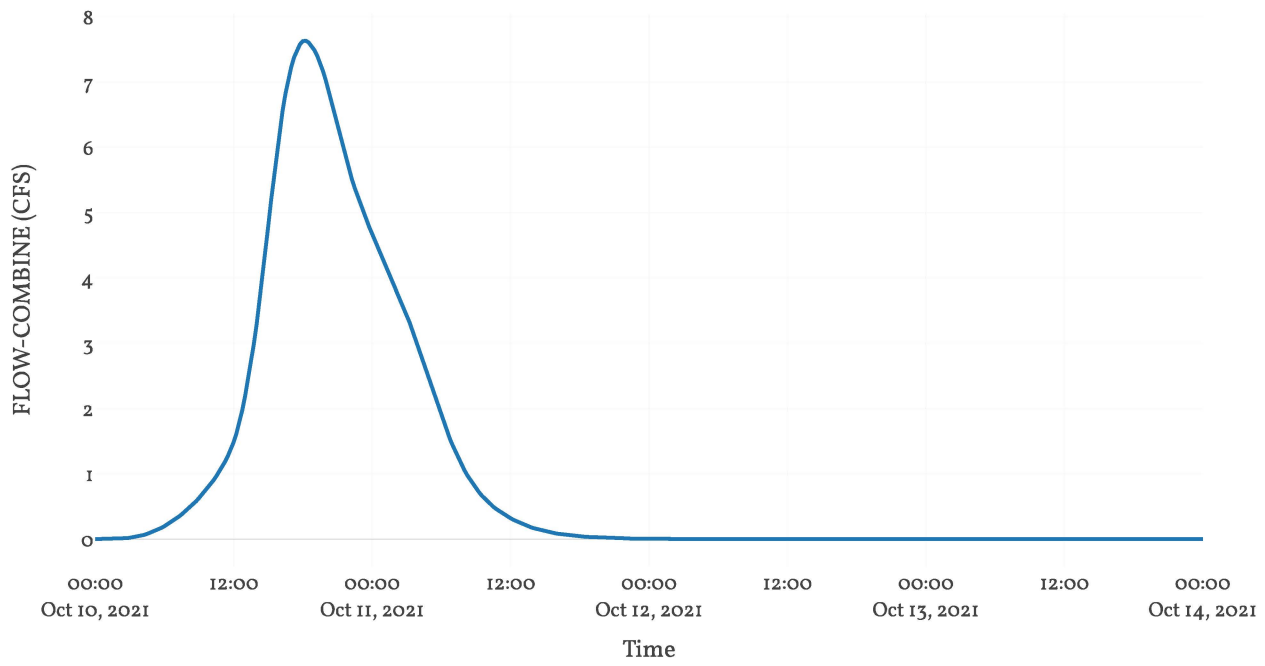
Soil Infiltration



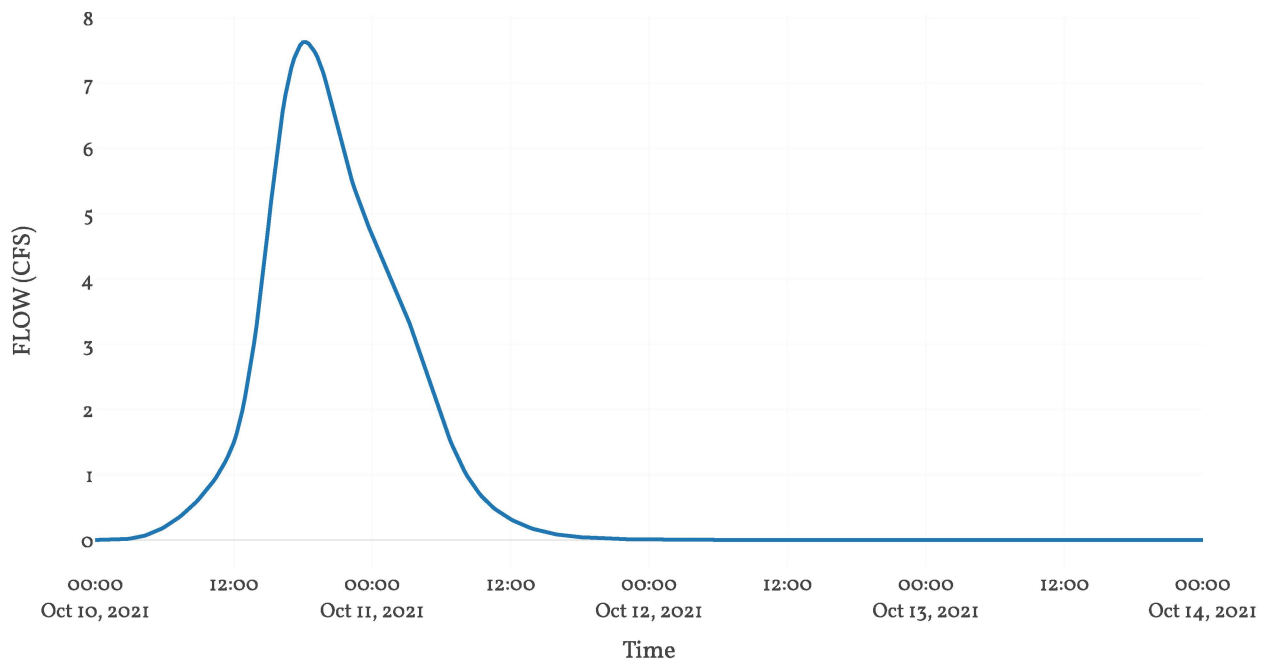
# Junction: Post Total

Results: Post Total	
Peak Discharge (CFS)	7.63
Time of Peak Discharge	10Oct2021, 18:15
Volume (IN)	1.2

Combined Inflow



Outflow





**A.2-11 ADDITIONAL NORTH AREA – POST-DEVELOPMENT 10YEAR 24HOUR**

**Project:** Watershed\_2\_OI\_Post\_Develop  
**Simulation Run:** 10year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 09 December 2024, 00:14

Global Parameter Summary - Subbasin

Area	
Element Name	Area
WaterShed 2 - OI Perv	0.12
WaterShed 2 - OI Imp	0

Downstream	
Element Name	Downstream
WaterShed 2 - OI Perv	Post Total
WaterShed 2 - OI Imp	Post Total

Loss Rate: Scs			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
WaterShed 2 - OI Perv	0	85	0
WaterShed 2 - OI Imp	80	89	0

Transform: Scs		
Element Name	Lag	Unitgraph Type
WaterShed 2 - OI Perv	320.54	Standard
WaterShed 2 - OI Imp	320.54	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WaterShed 2 - OI Perv	0.12	12.67	10Oct2021, 18:00	2.14
WaterShed 2 - OI Imp	0	0.53	10Oct2021, 17:45	3.11
Post Total	0.12	13.2	10Oct2021, 18:00	2.17

# Subbasin: WaterShed 2-01 Perv

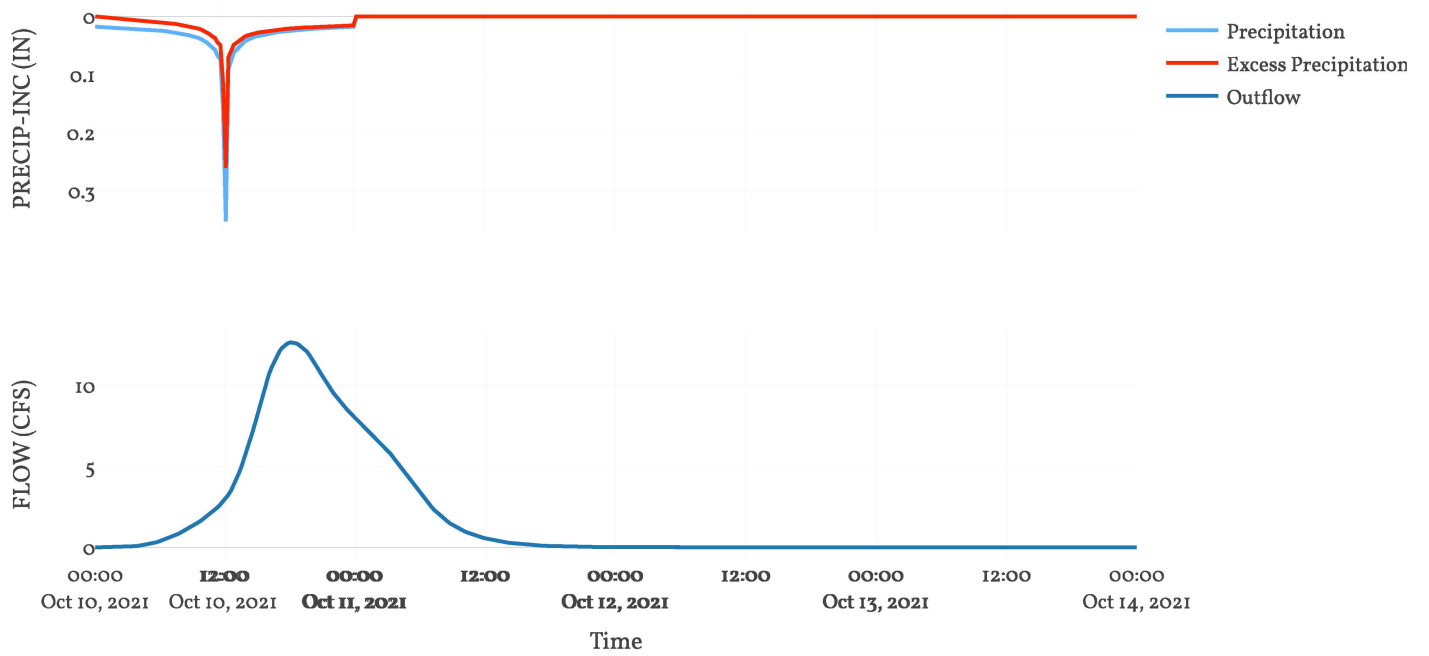
Area : 0.12  
Downstream : Post Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

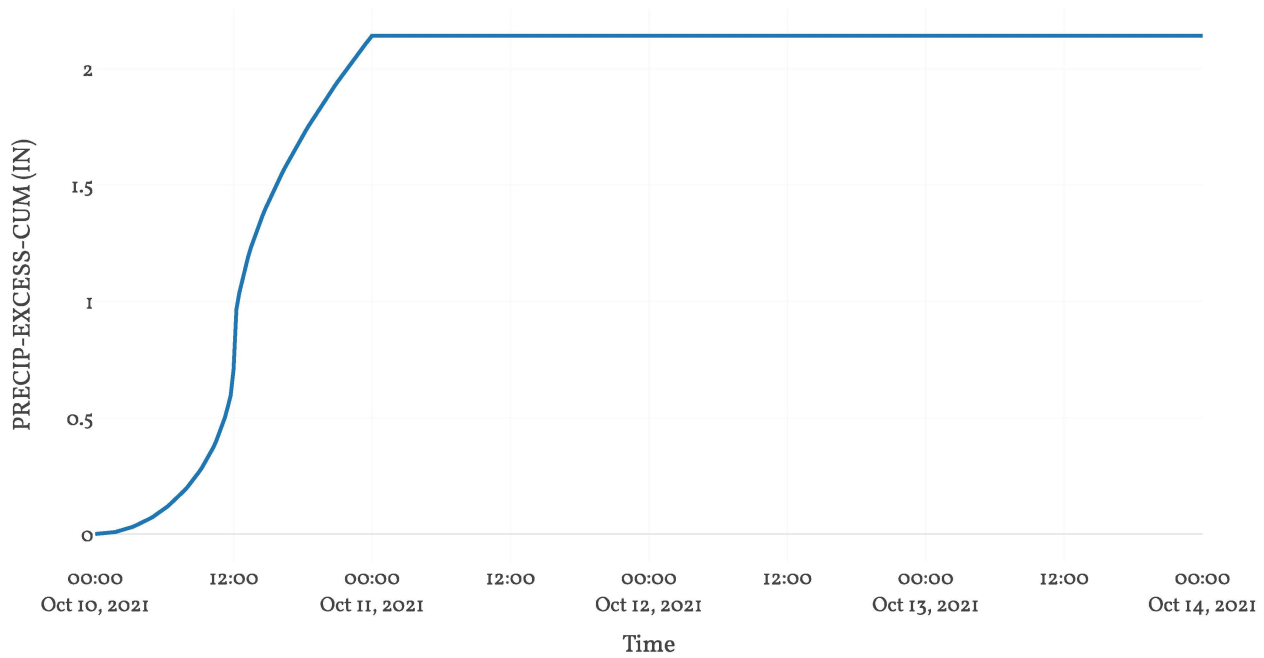
Transform: Scs	
Lag	320.54
Unitgraph Type	Standard

Results: WaterShed 2-01 Perv	
Peak Discharge (CFS)	12.67
Time of Peak Discharge	10Oct2021, 18:00
Volume (IN)	2.14
Precipitation Volume (AC - FT)	21.25
Loss Volume (AC - FT)	7.42
Excess Volume (AC - FT)	13.83
Direct Runoff Volume (AC - FT)	13.83
Baseflow Volume (AC - FT)	0

## Precipitation and Outflow

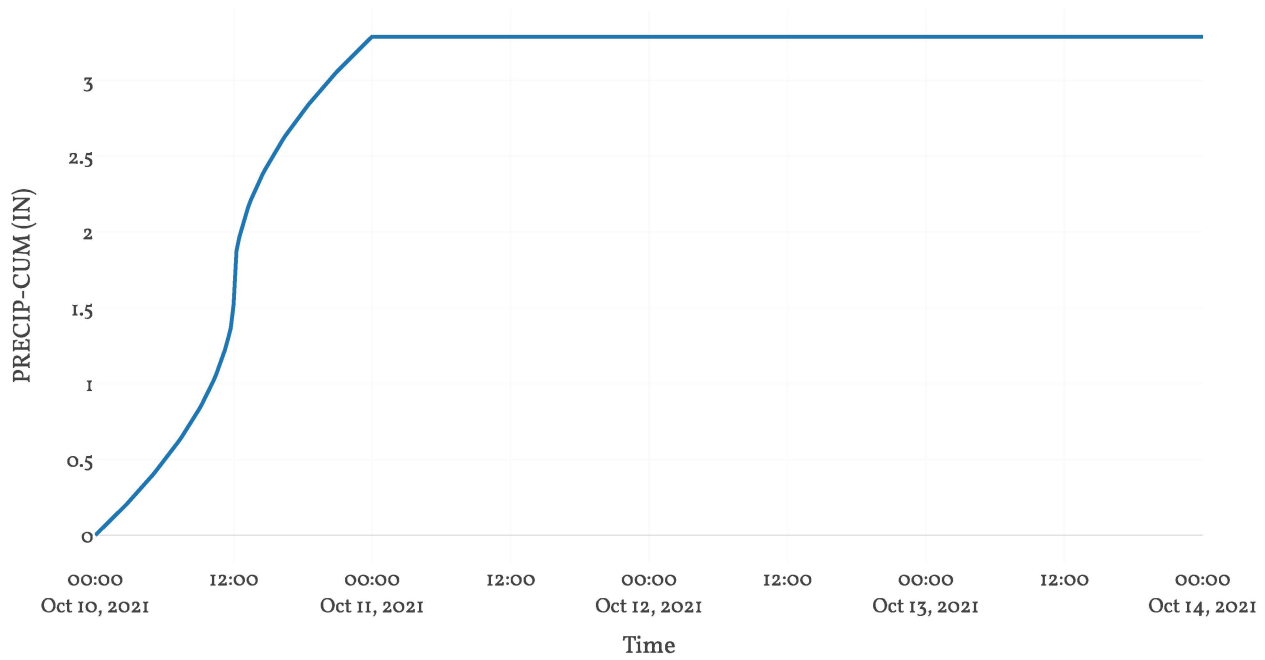


## Cumulative Excess Precipitation

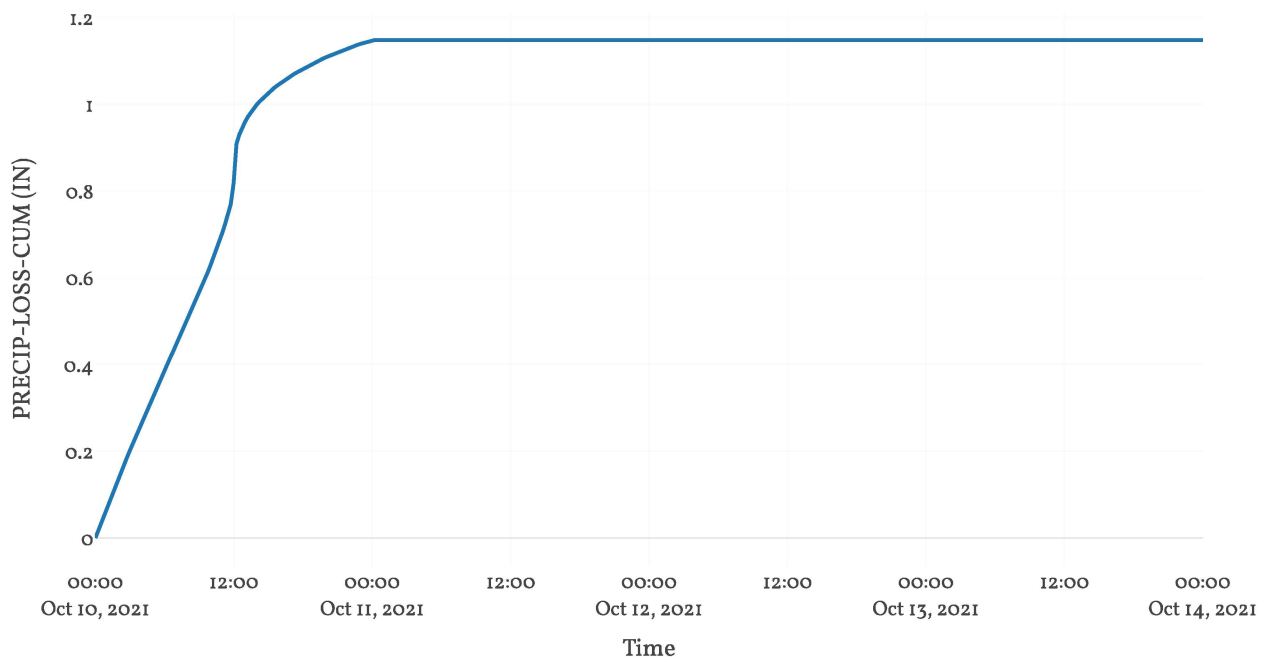




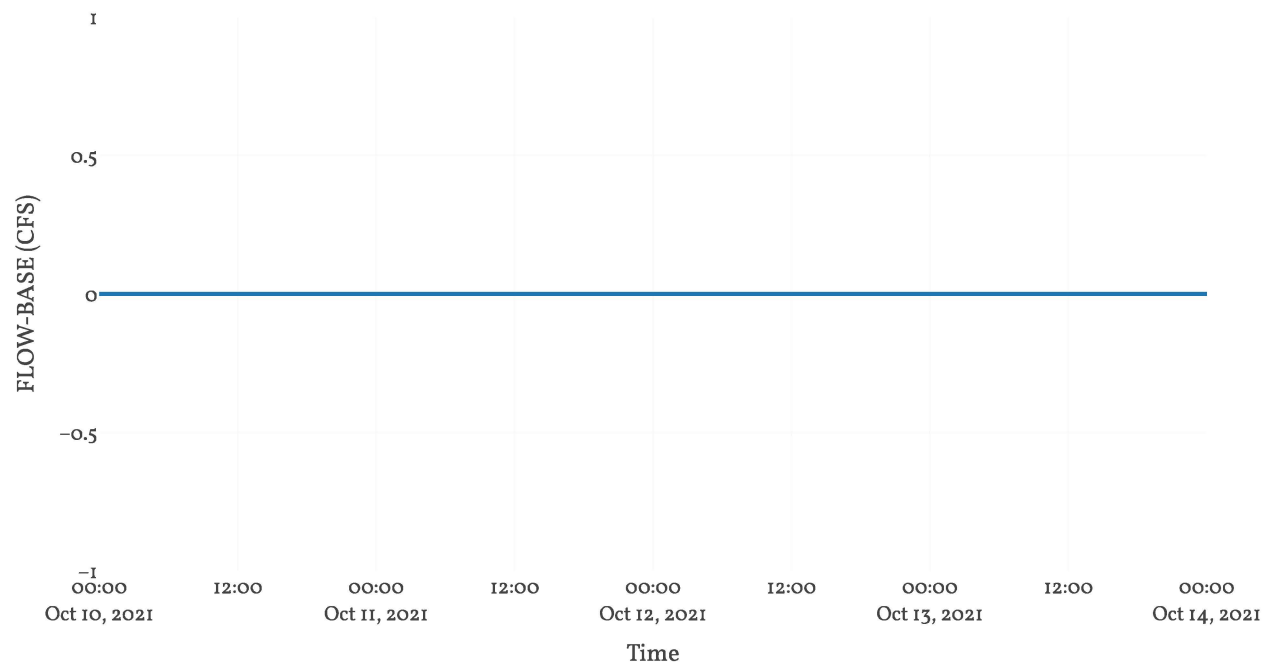
Cumulative Precipitation



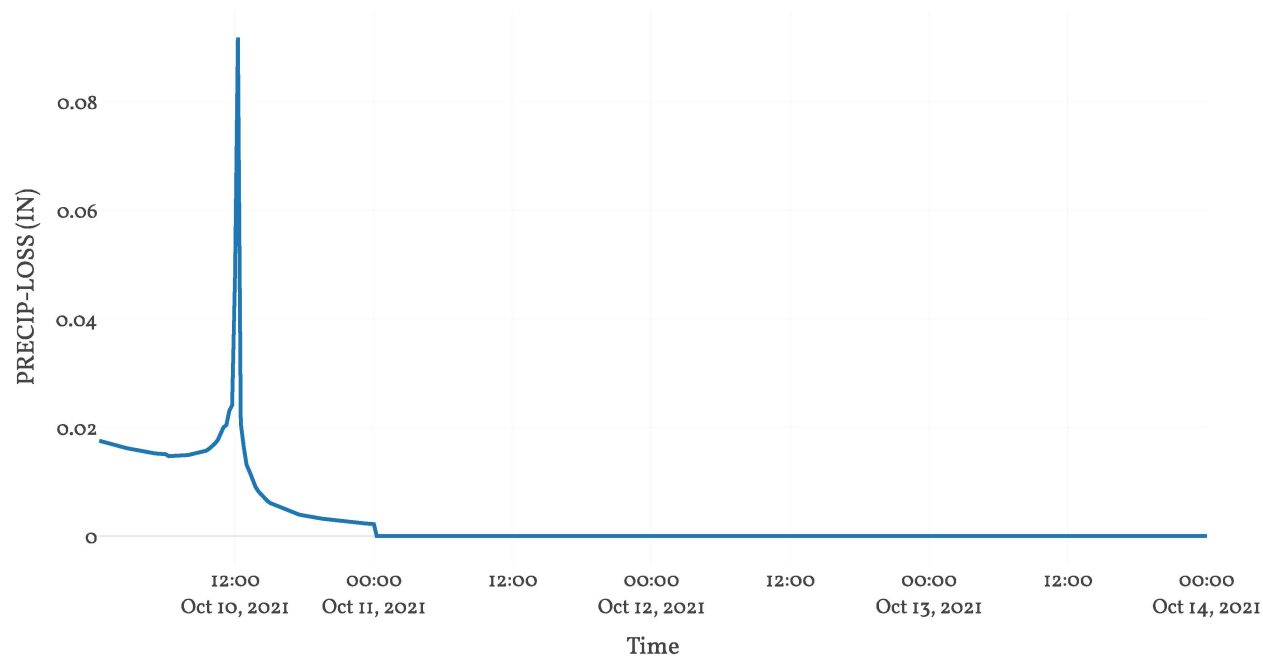
Cumulative Precipitation Loss



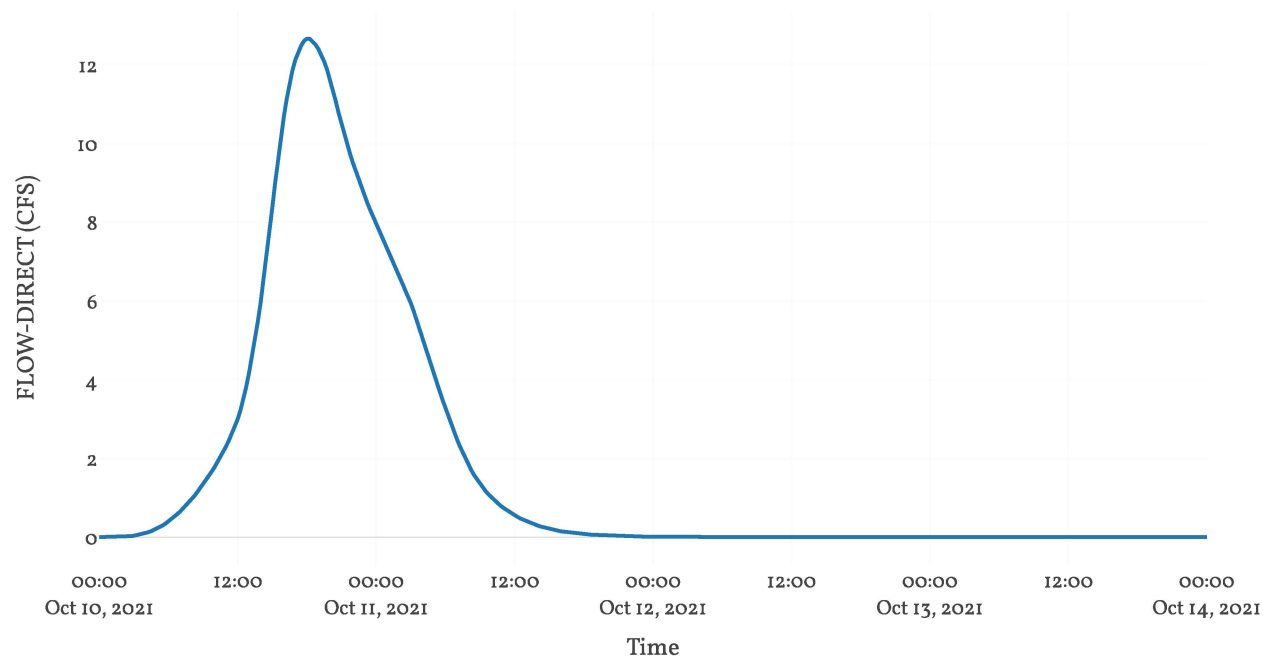
Baseflow



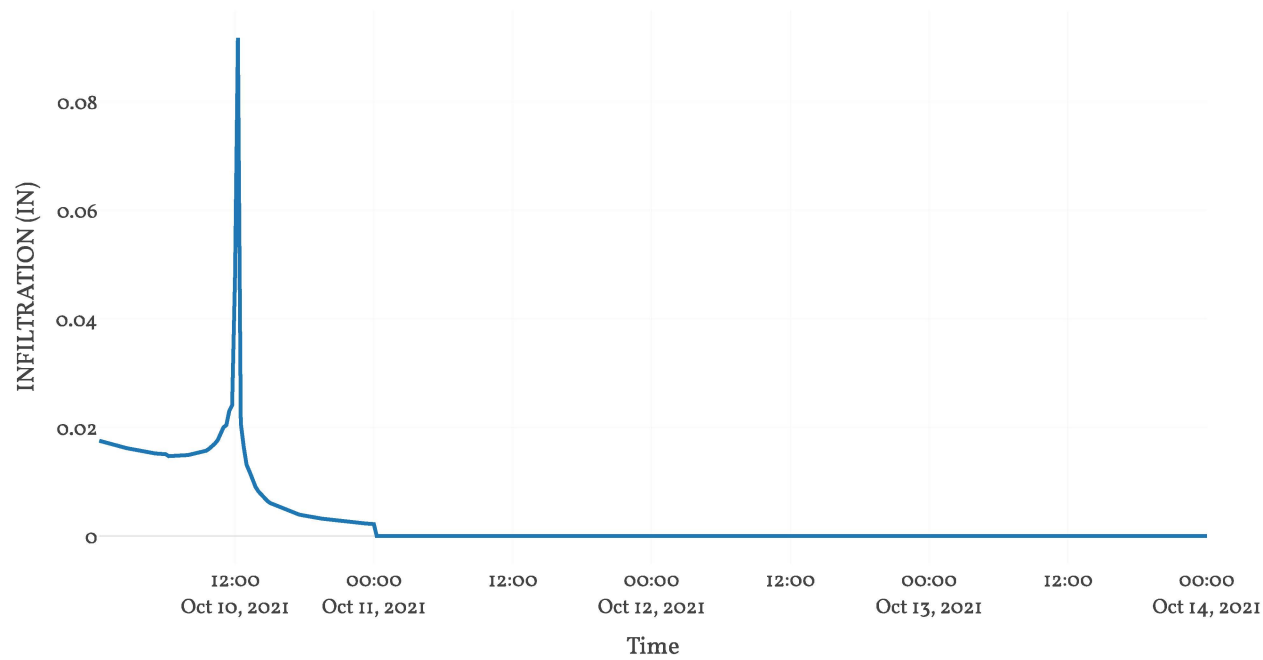
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: WaterShed 2-01 Imp

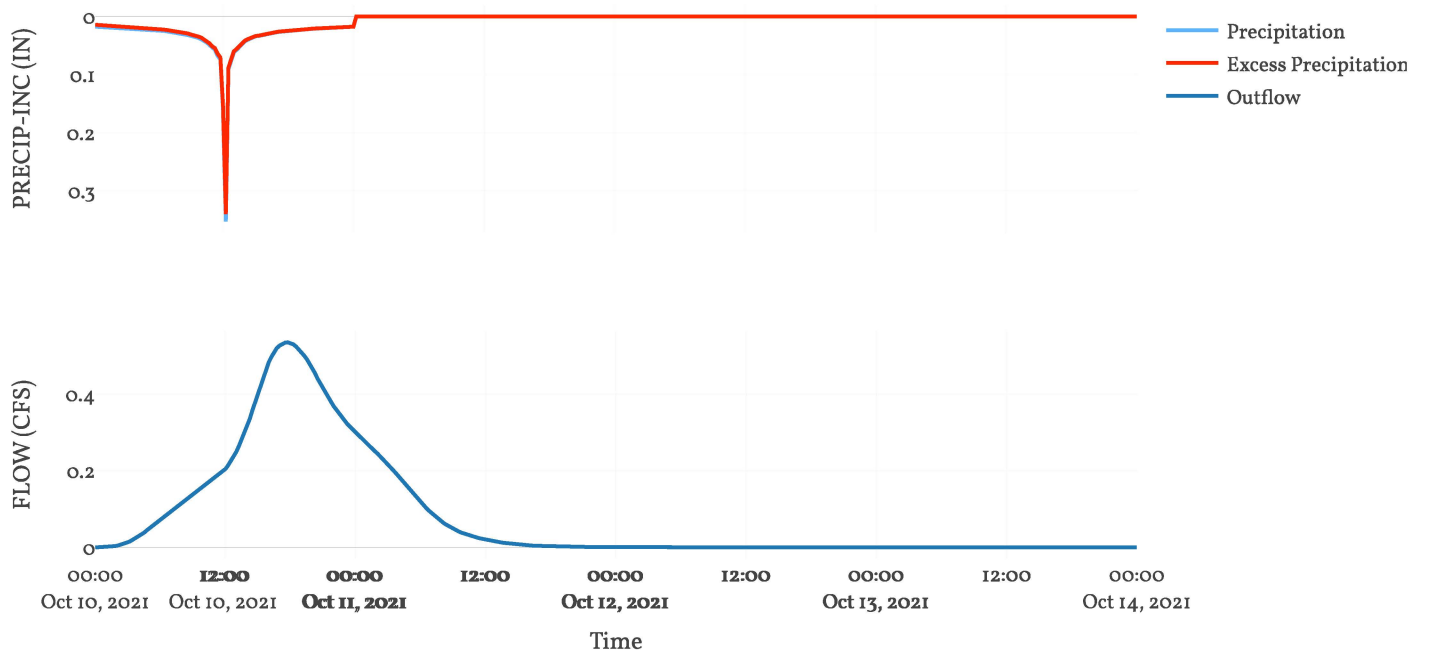
Area : 0  
Downstream : Post Total

Loss Rate: Scs	
Percent Impervious Area	80
Curve Number	89
Initial Abstraction	0

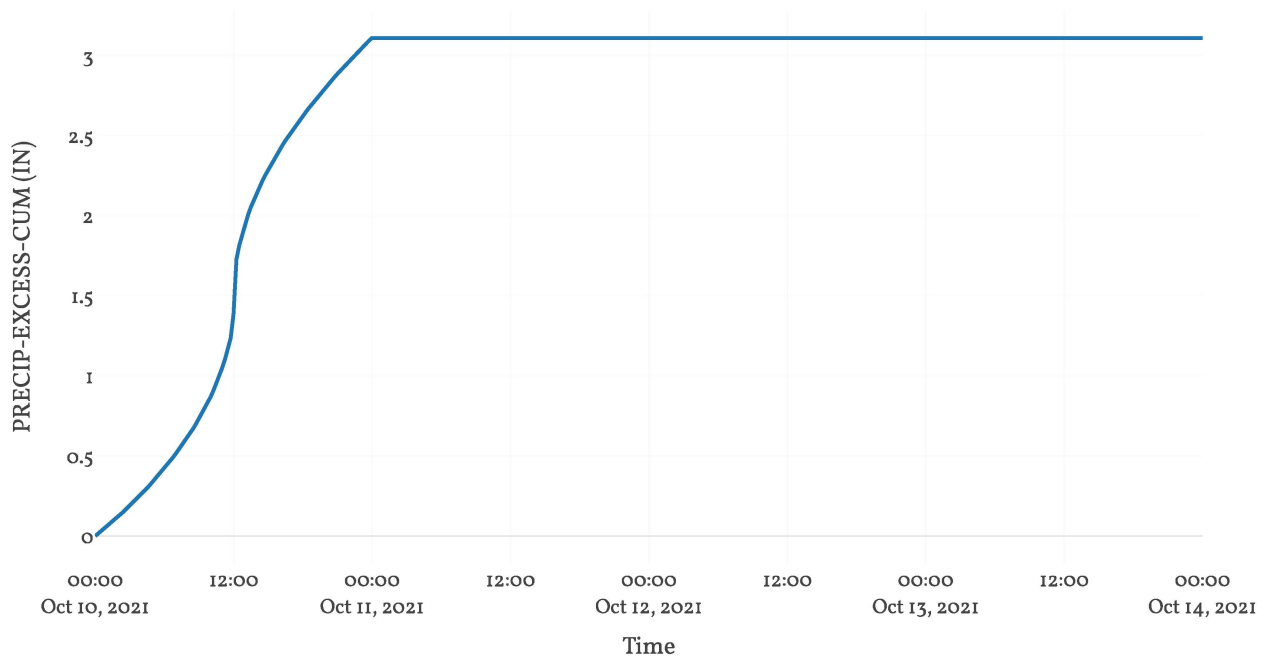
Transform: Scs	
Lag	320.54
Unitgraph Type	Standard

Results: WaterShed 2-01 Imp	
Peak Discharge (CFS)	0.53
Time of Peak Discharge	10Oct2021, 17:45
Volume (IN)	3.11
Precipitation Volume (AC - FT)	0.65
Loss Volume (AC - FT)	0.04
Excess Volume (AC - FT)	0.62
Direct Runoff Volume (AC - FT)	0.62
Baseflow Volume (AC - FT)	0

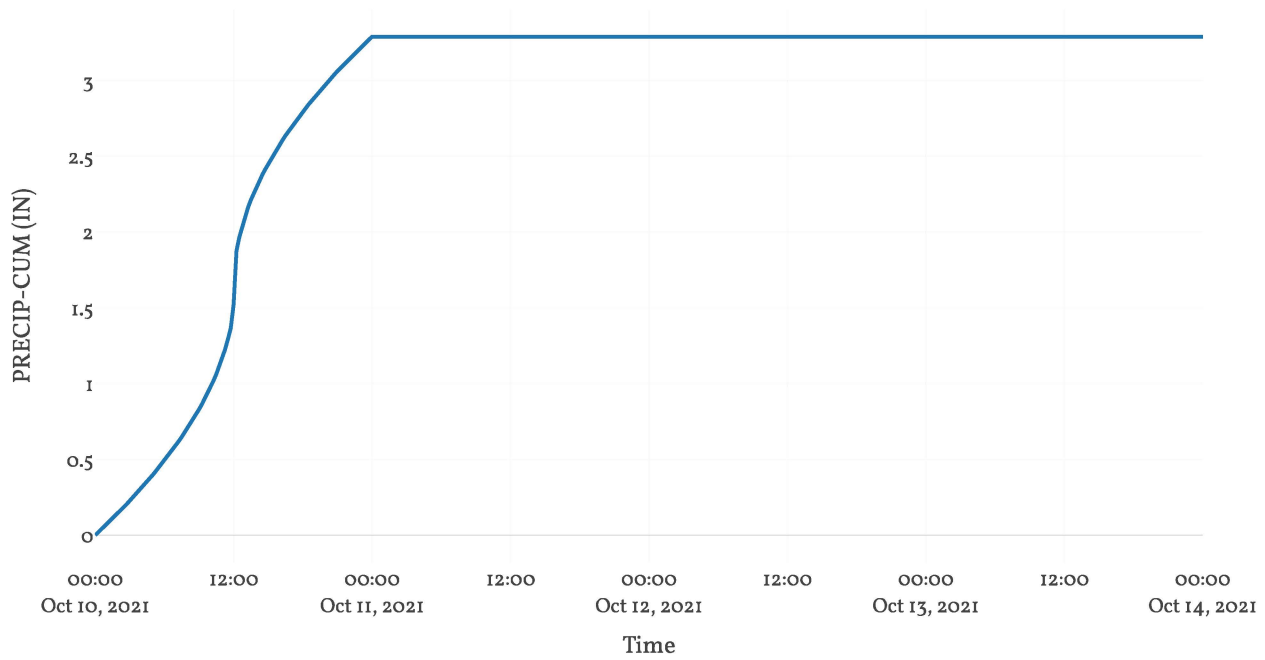
## Precipitation and Outflow



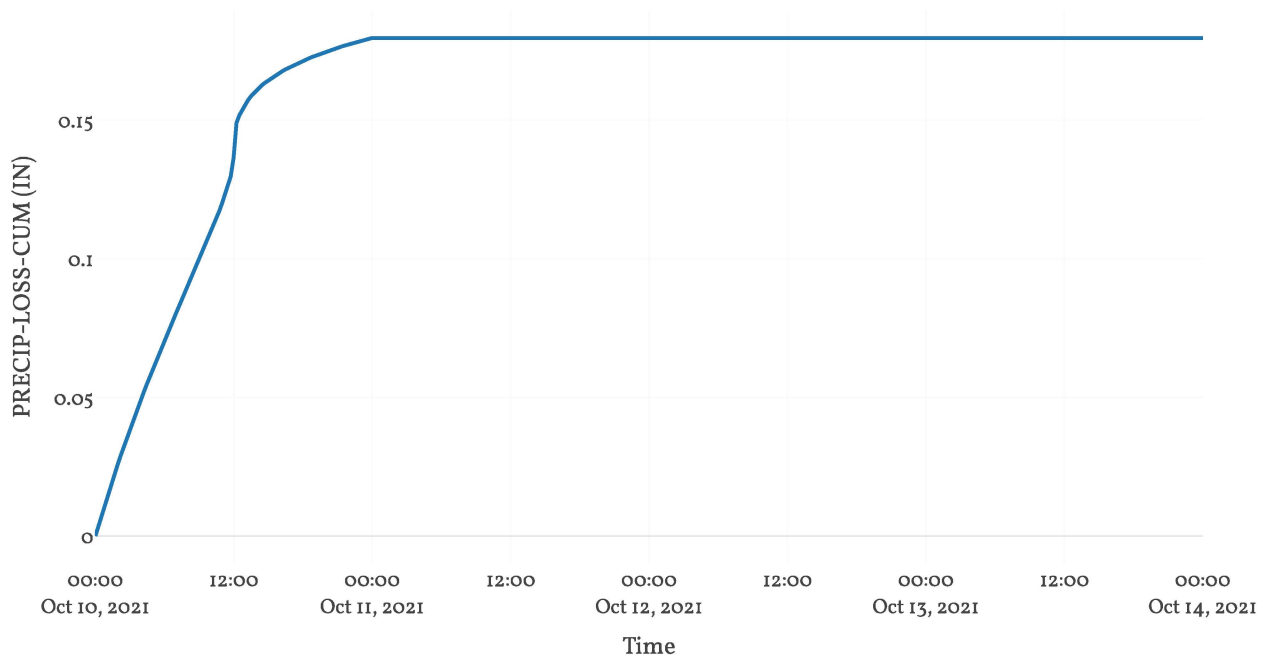
## Cumulative Excess Precipitation



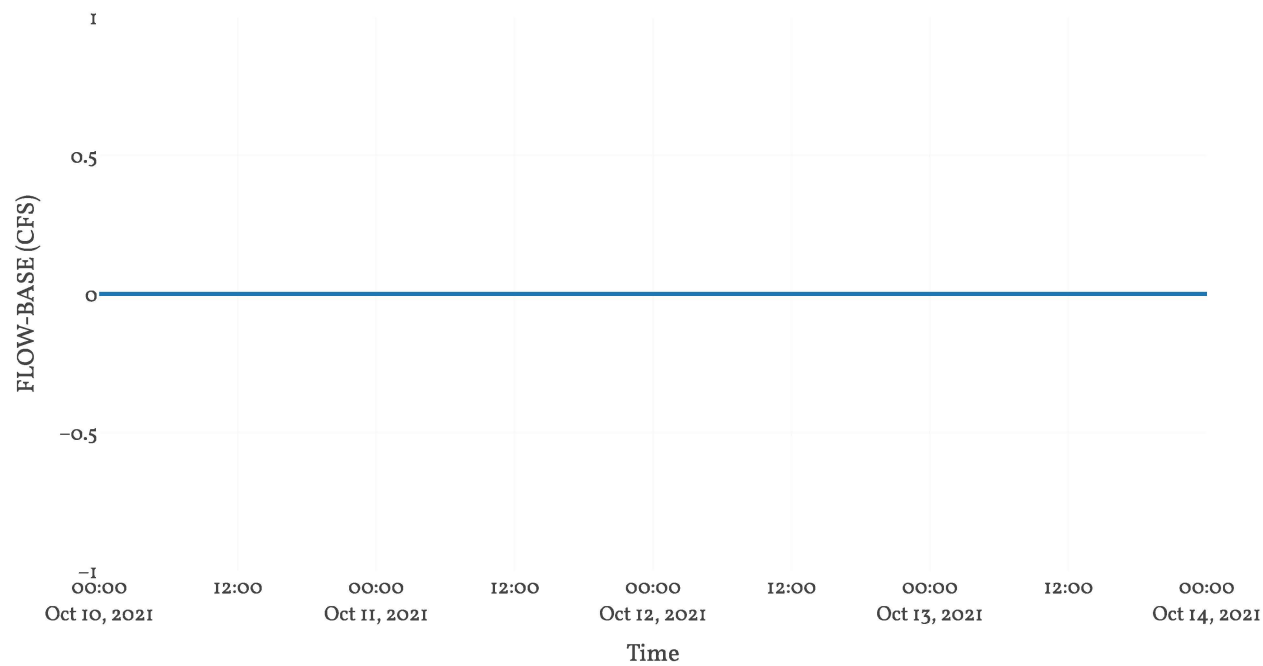
Cumulative Precipitation



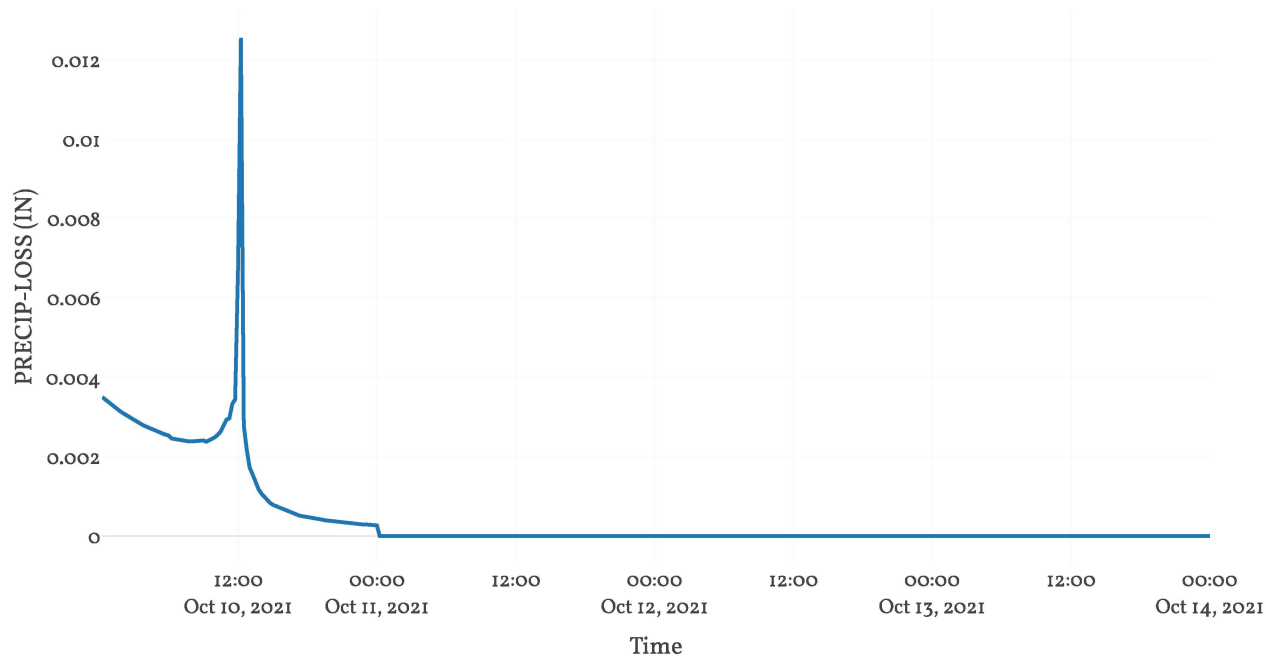
Cumulative Precipitation Loss



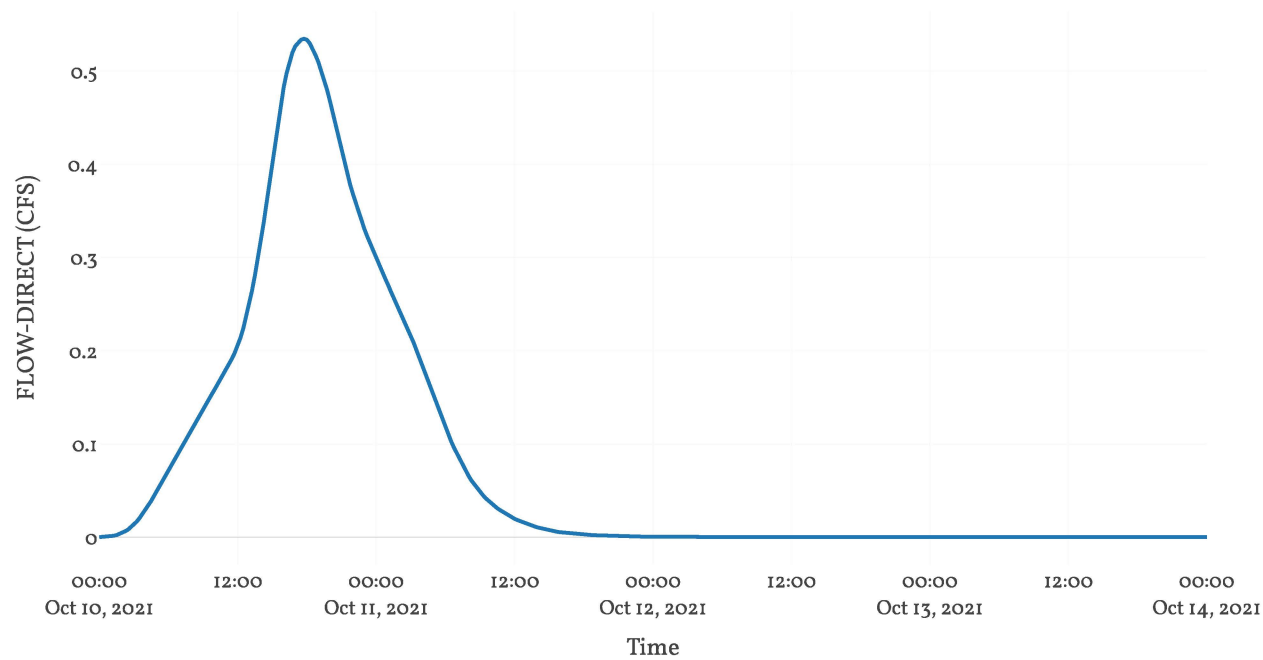
Baseflow



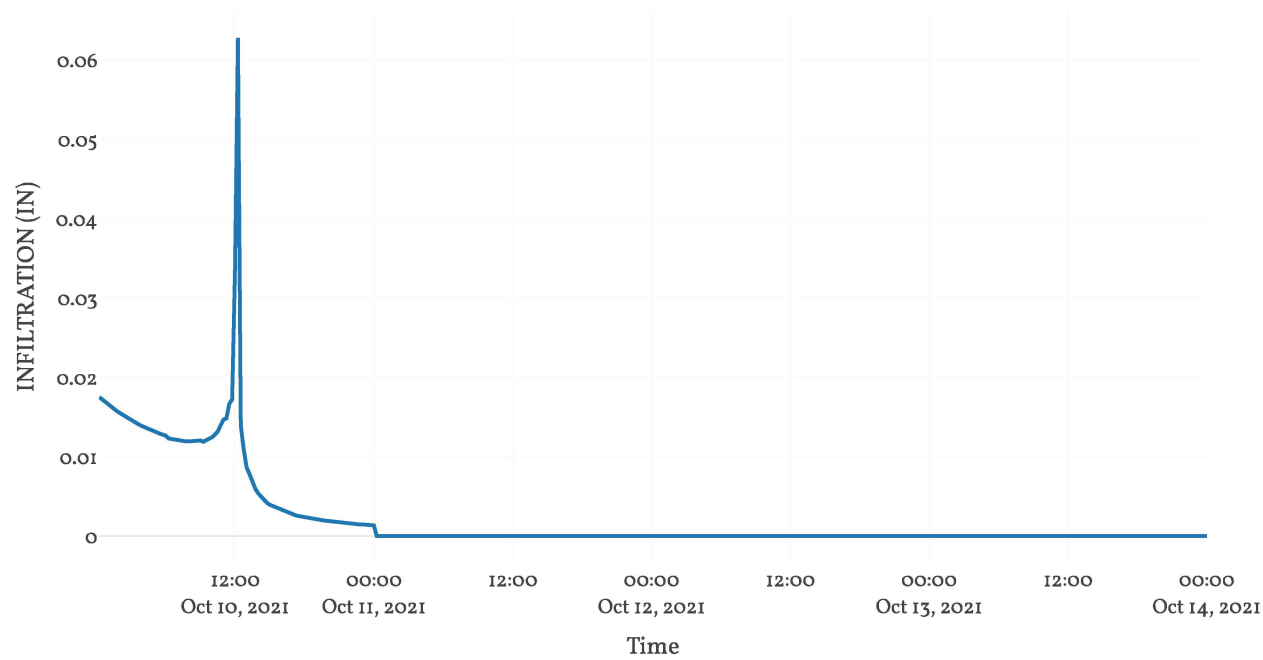
Precipitation Loss



Direct Runoff



Soil Infiltration

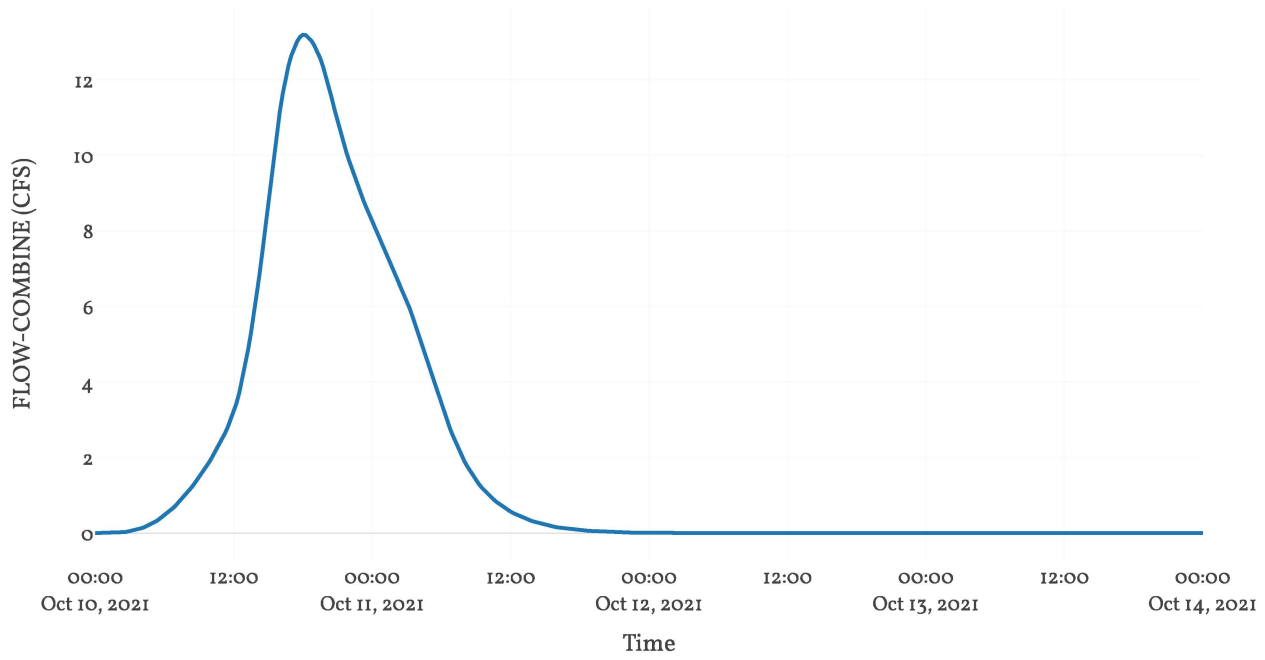




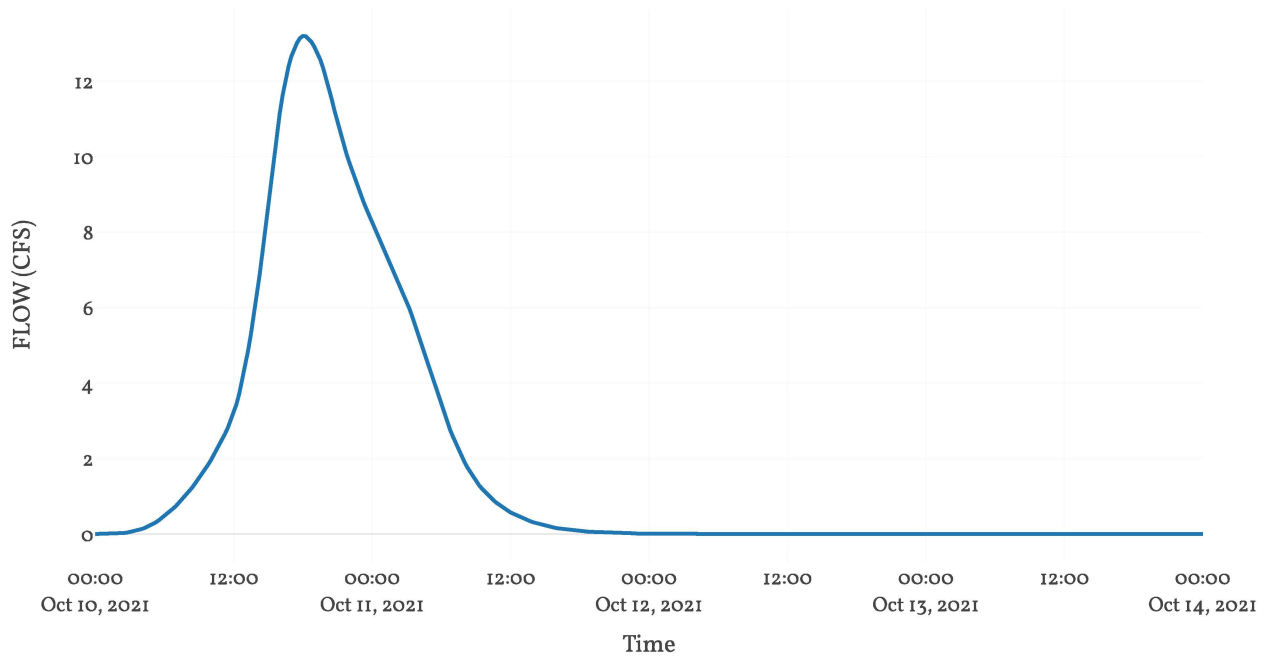
# Junction: Post Total

Results: Post Total	
Peak Discharge (CFS)	13.2
Time of Peak Discharge	10Oct2021, 18:00
Volume (IN)	2.17

Combined Inflow



Outflow





**A.2-12 ADDITIONAL NORTH AREA – POST-DEVELOPMENT 100YEAR 24HOUR**

**Project:** Watershed\_2\_OI\_Post\_Develop  
**Simulation Run:** 100 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 09 December 2024, 00:14

Global Parameter Summary - Subbasin

Area	
Element Name	Area
WaterShed 2 - OI Perv	0.12
WaterShed 2 - OI Imp	0

Downstream	
Element Name	Downstream
WaterShed 2 - OI Perv	Post Total
WaterShed 2 - OI Imp	Post Total

Loss Rate: Scs			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
WaterShed 2 - OI Perv	0	85	0
WaterShed 2 - OI Imp	80	89	0

Transform: Scs		
Element Name	Lag	Unitgraph Type
WaterShed 2 - OI Perv	320.54	Standard
WaterShed 2 - OI Imp	320.54	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
WaterShed 2 - OI Perv	0.12	22.3	10Oct2021, 18:00	3.79
WaterShed 2 - OI Imp	0	0.84	10Oct2021, 17:45	4.9
Post Total	0.12	23.13	10Oct2021, 18:00	3.82

# Subbasin: WaterShed 2-01 Perv

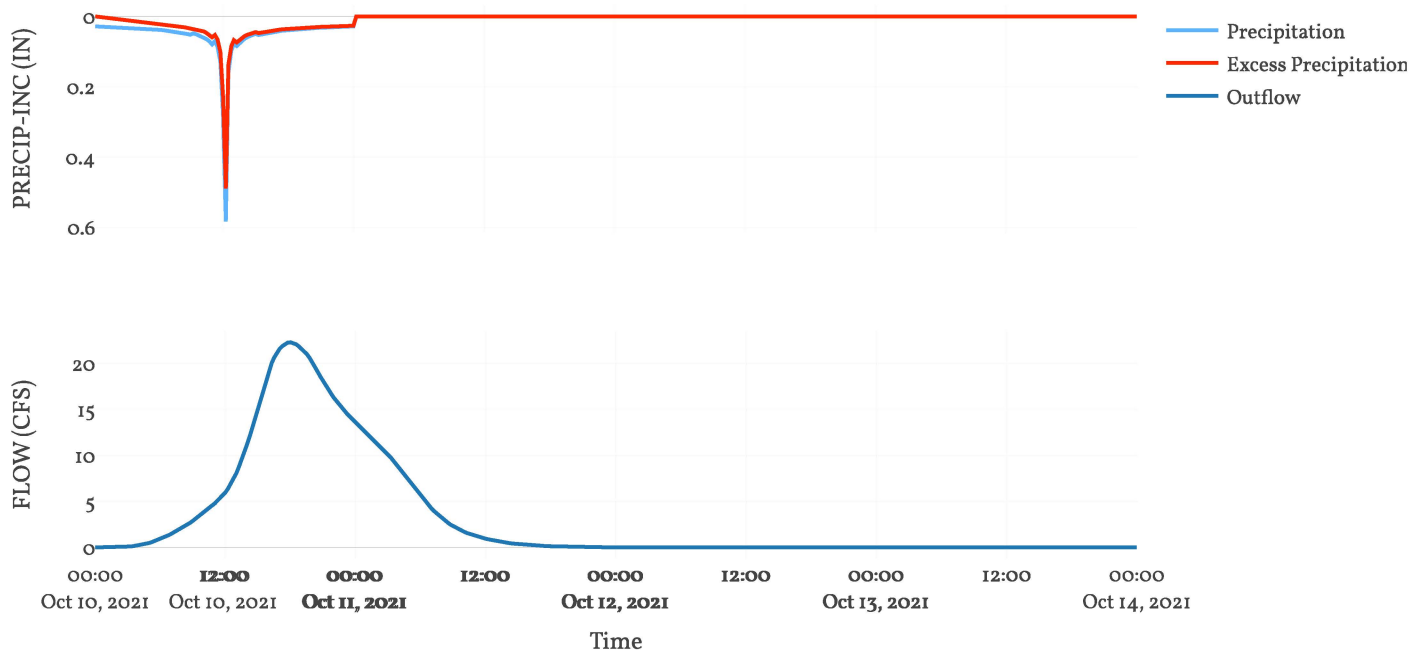
Area : 0.12  
Downstream : Post Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

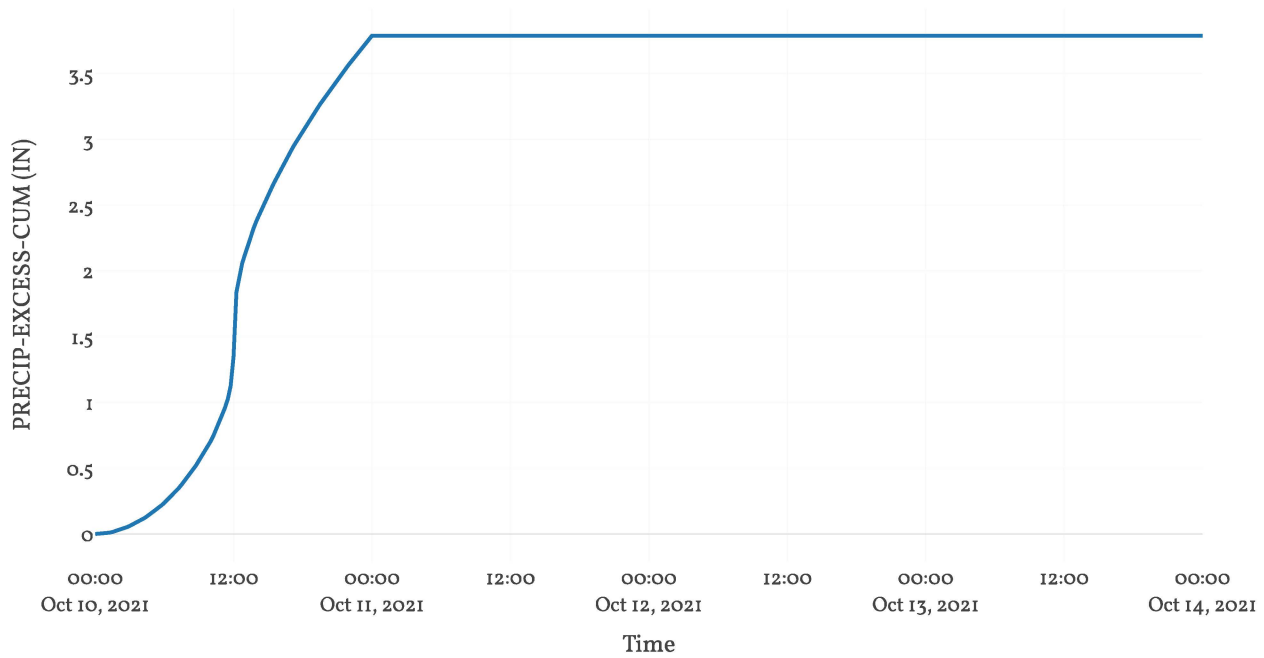
Transform: Scs	
Lag	320.54
Unitgraph Type	Standard

Results: WaterShed 2-01 Perv	
Peak Discharge (CFS)	22.3
Time of Peak Discharge	10Oct2021, 18:00
Volume (IN)	3.79
Precipitation Volume (AC - FT)	32.94
Loss Volume (AC - FT)	8.47
Excess Volume (AC - FT)	24.47
Direct Runoff Volume (AC - FT)	24.47
Baseflow Volume (AC - FT)	0

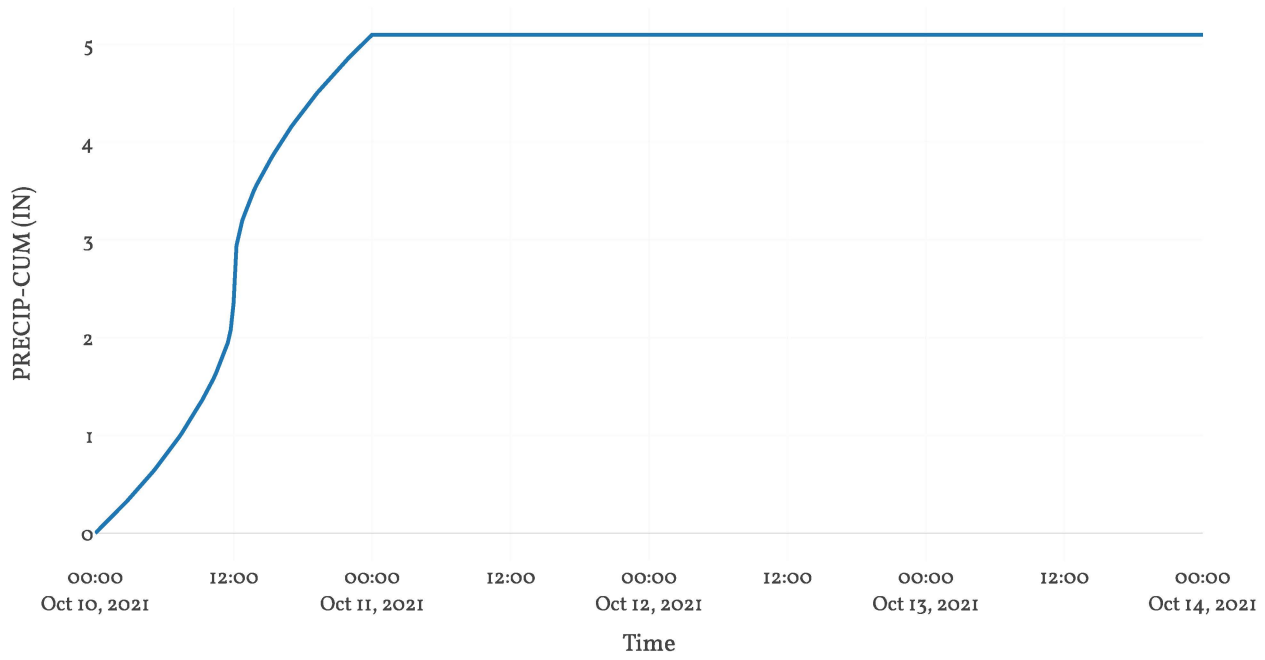
## Precipitation and Outflow



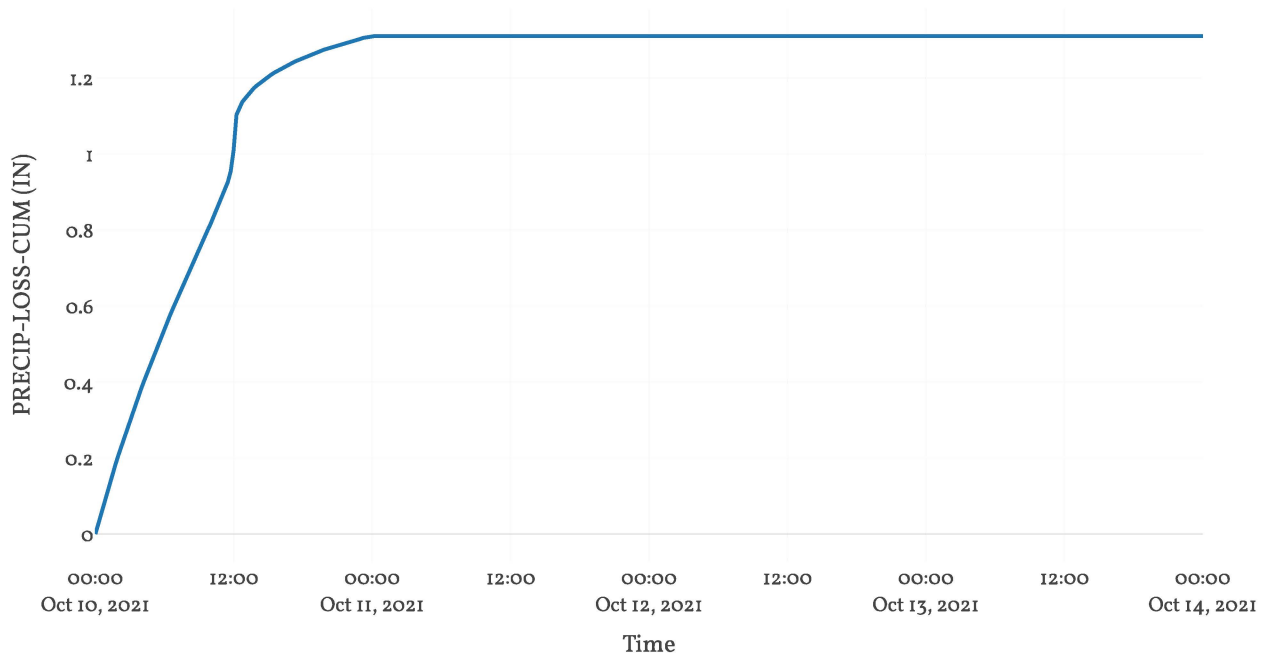
## Cumulative Excess Precipitation



Cumulative Precipitation

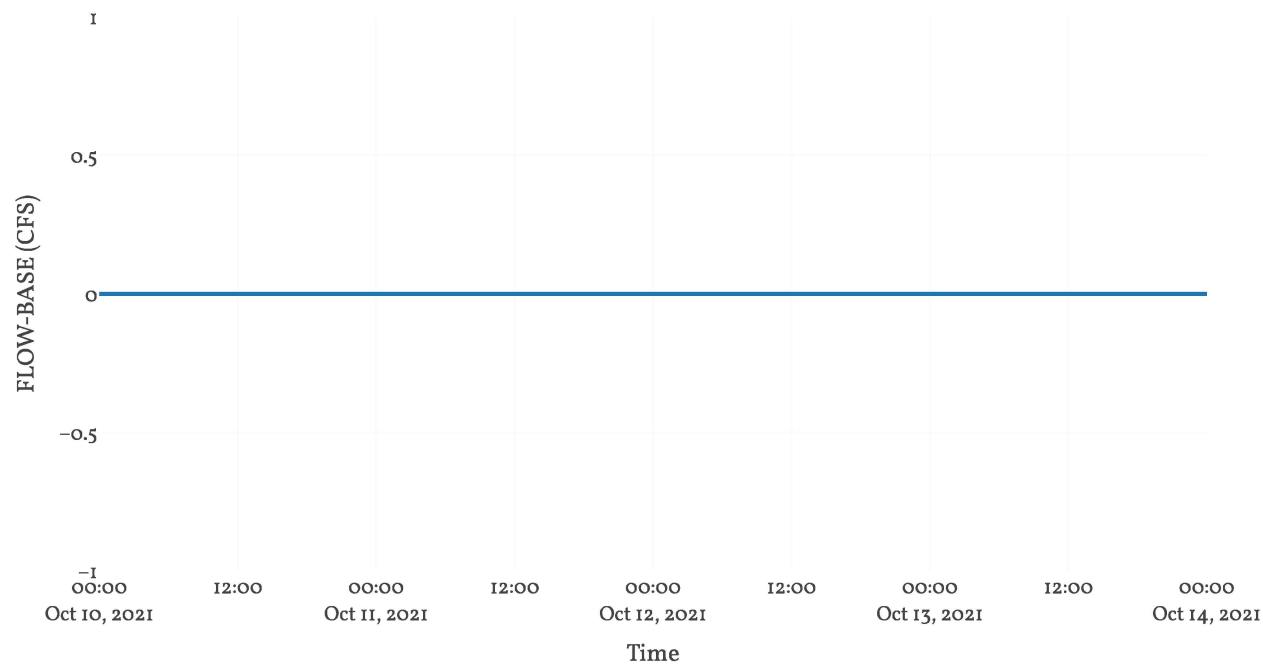


Cumulative Precipitation Loss

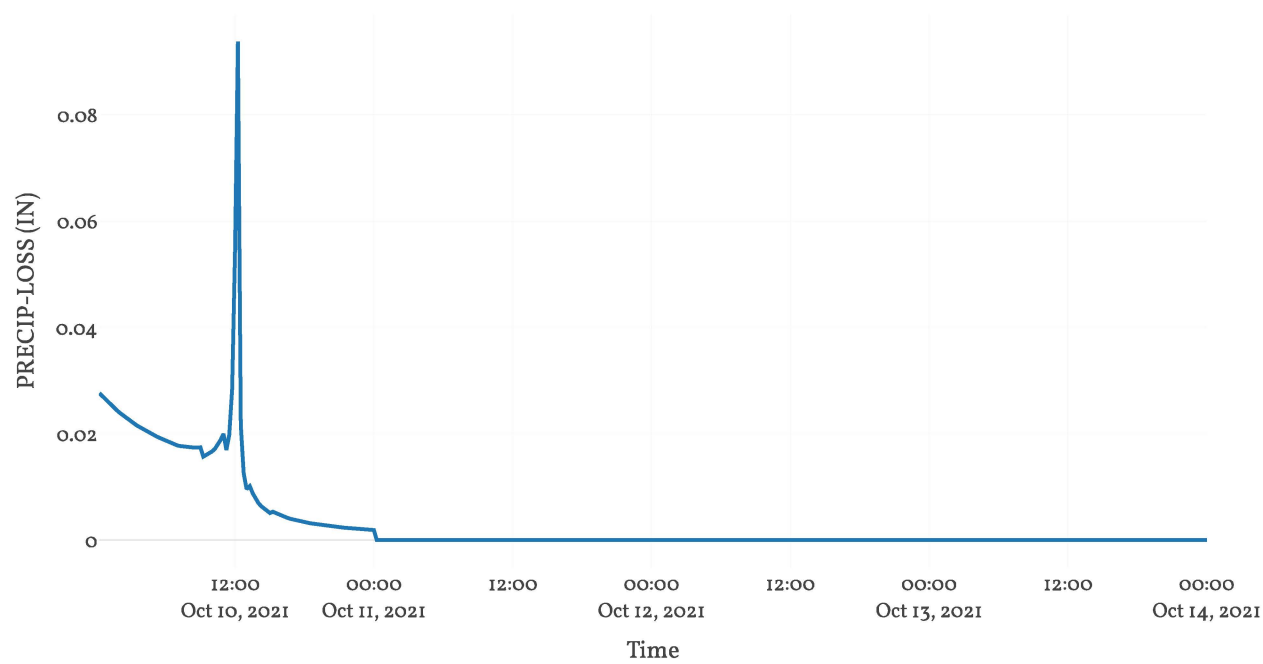




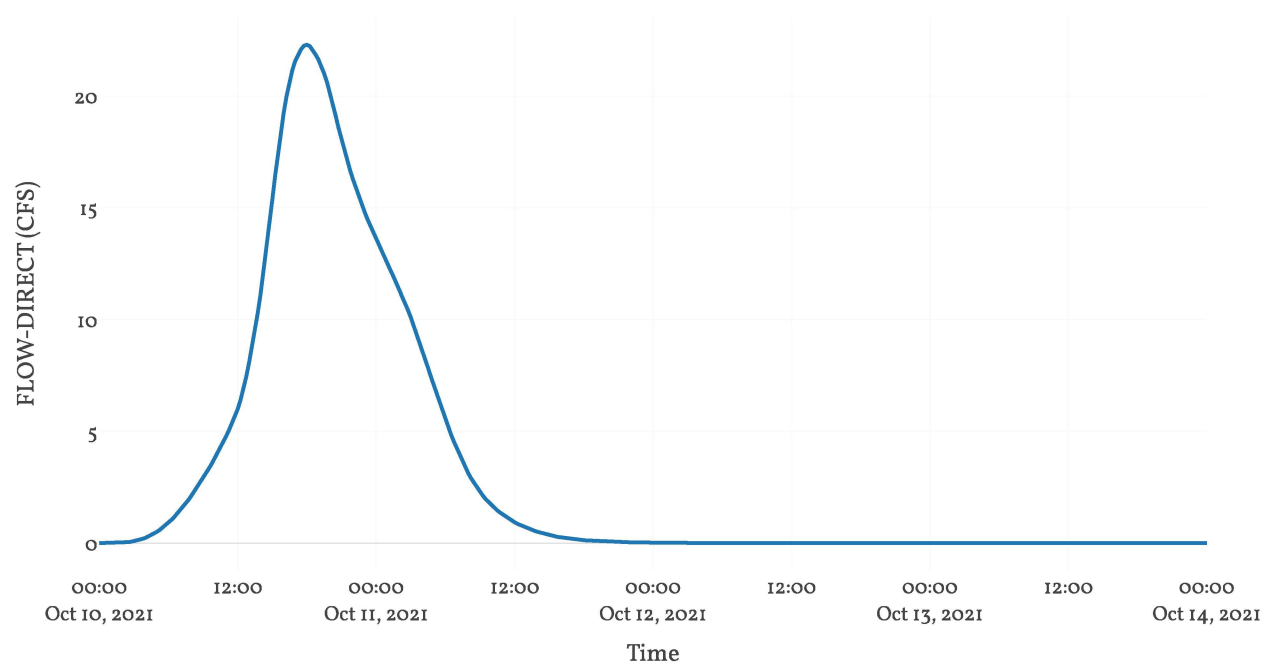
Baseflow



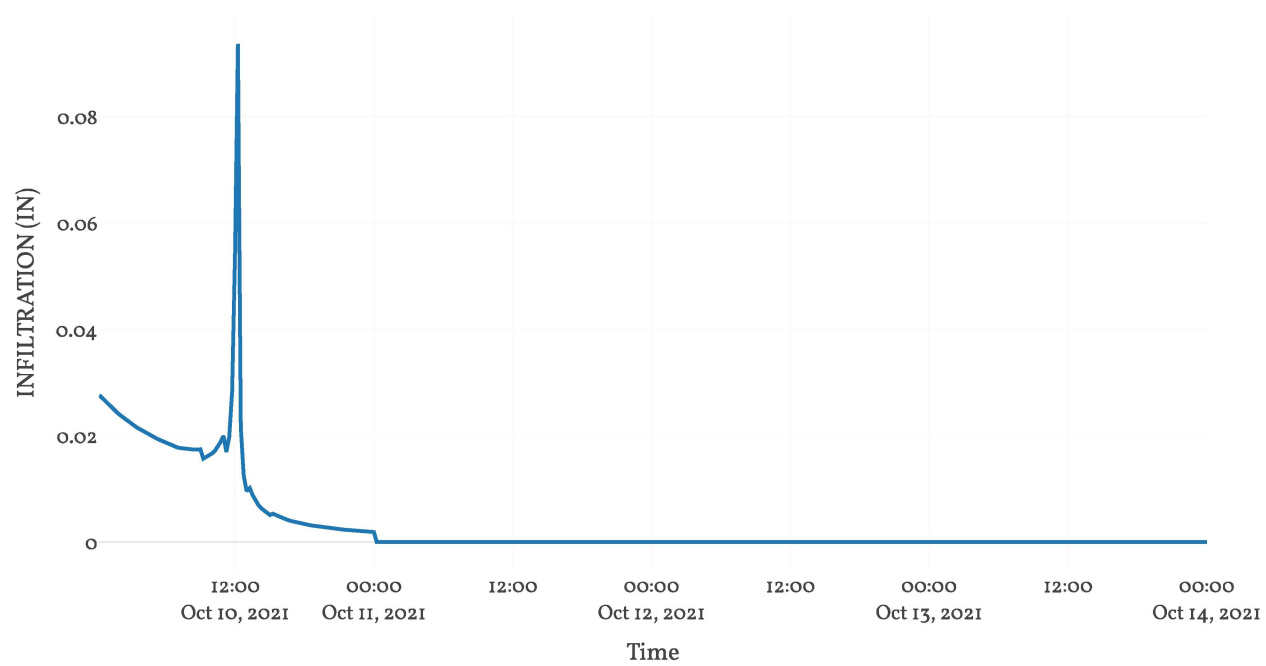
Precipitation Loss



Direct Runoff



Soil Infiltration



# Subbasin: WaterShed 2-01 Imp

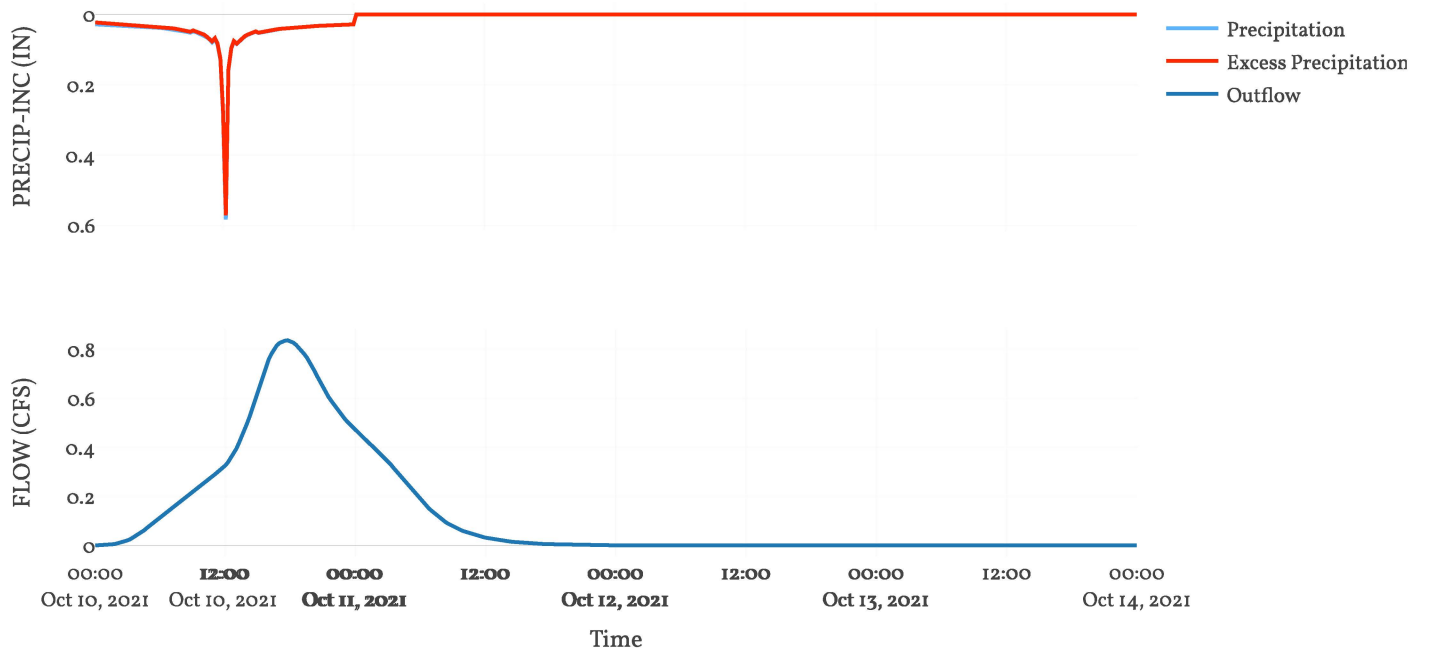
Area : 0  
Downstream : Post Total

Loss Rate: Scs	
Percent Impervious Area	80
Curve Number	89
Initial Abstraction	0

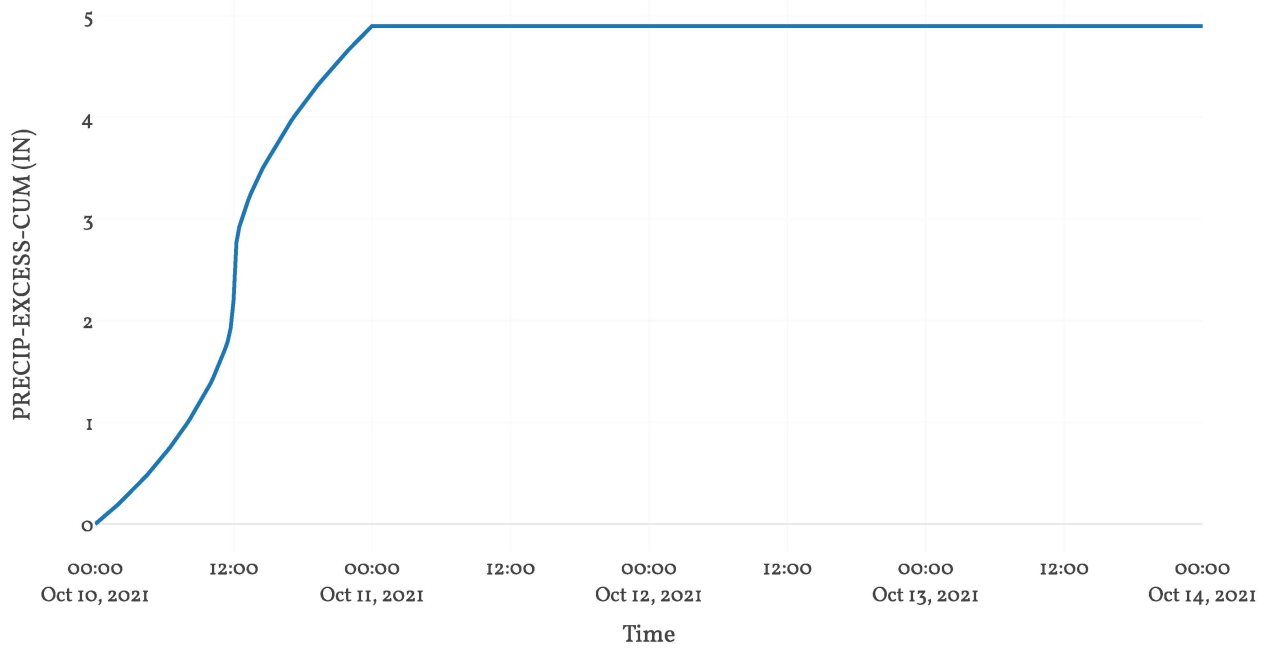
Transform: Scs	
Lag	320.54
Unitgraph Type	Standard

Results: WaterShed 2-01 Imp	
Peak Discharge (CFS)	0.84
Time of Peak Discharge	10Oct2021, 17:45
Volume (IN)	4.9
Precipitation Volume (AC - FT)	1.01
Loss Volume (AC - FT)	0.04
Excess Volume (AC - FT)	0.97
Direct Runoff Volume (AC - FT)	0.97
Baseflow Volume (AC - FT)	0

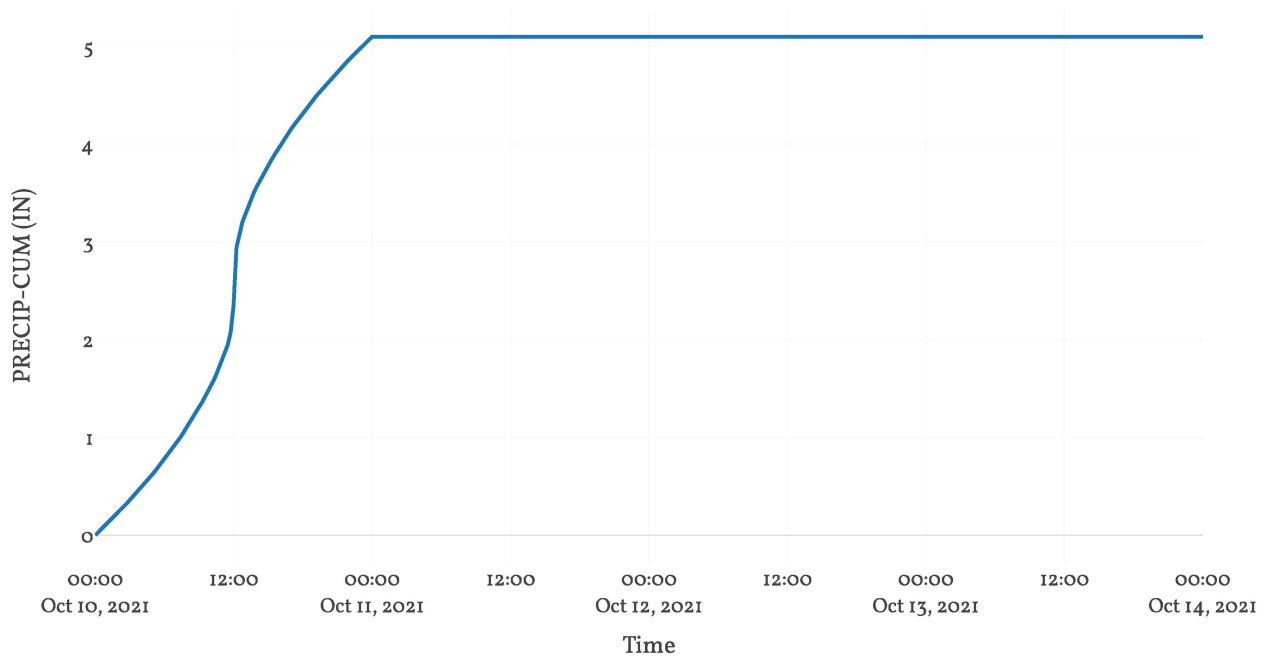
## Precipitation and Outflow



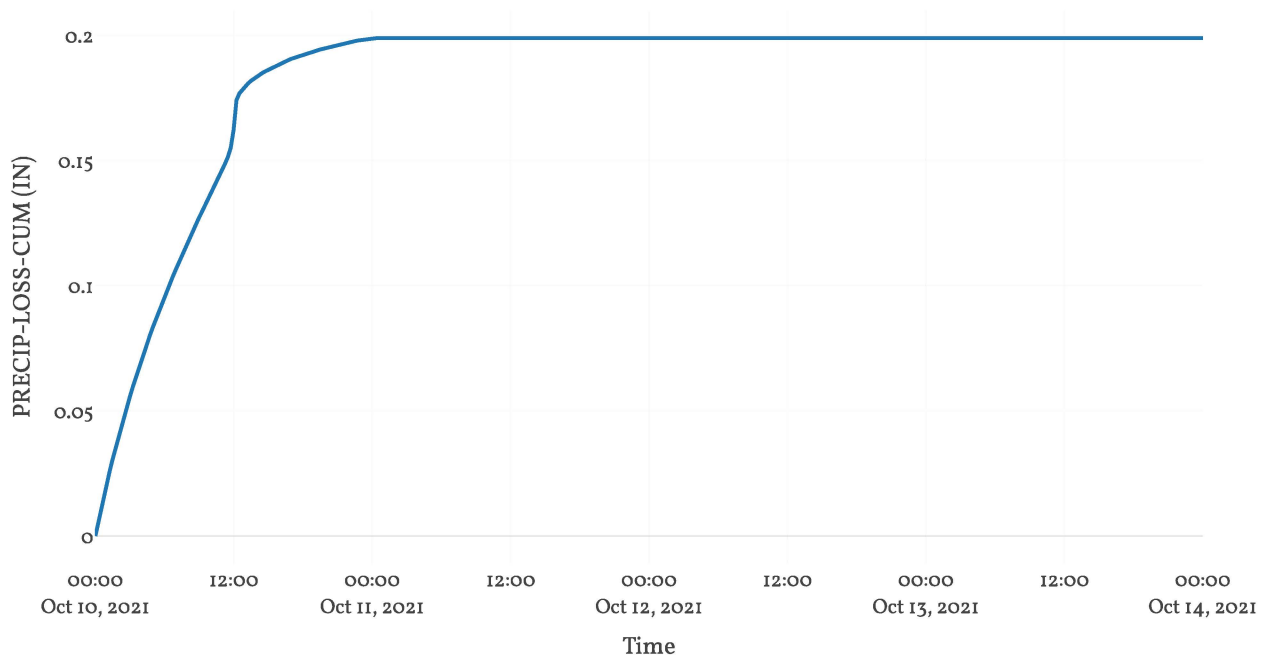
## Cumulative Excess Precipitation



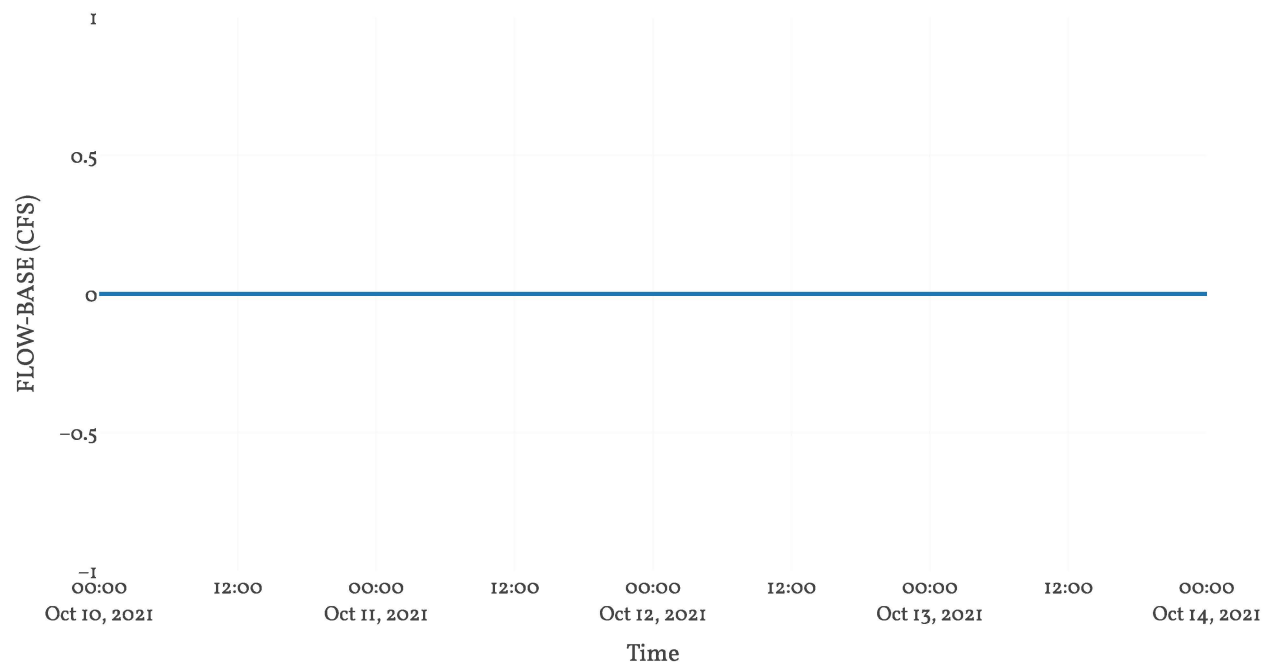
Cumulative Precipitation



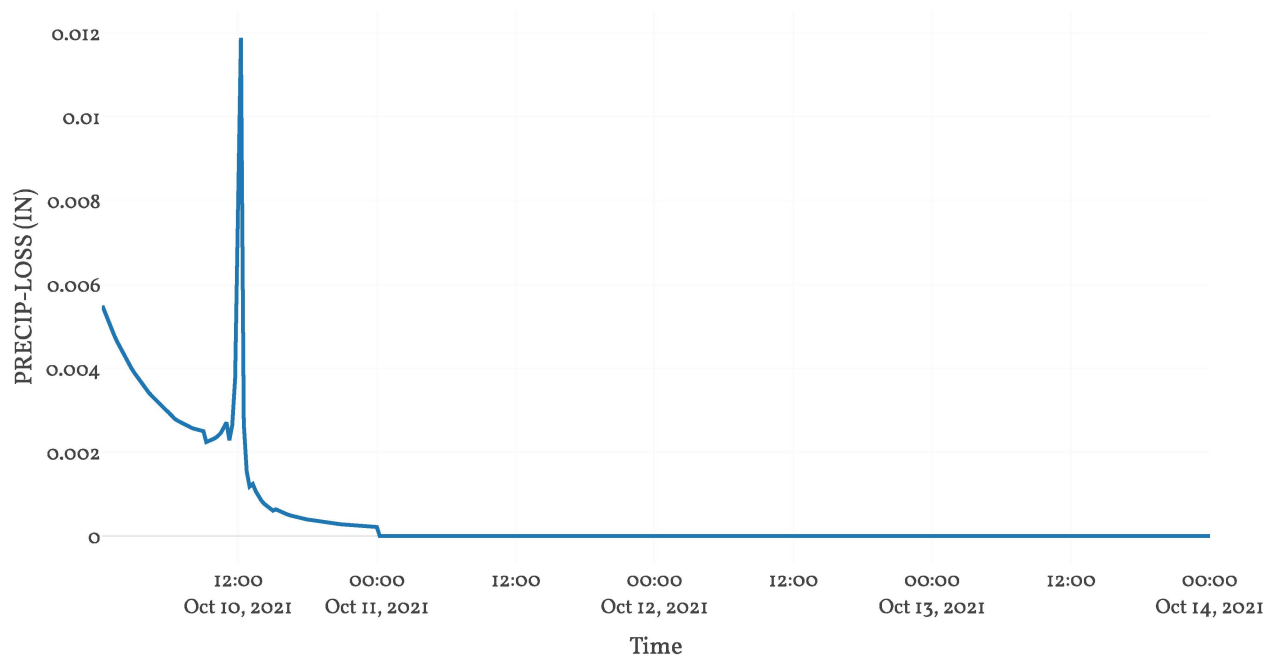
Cumulative Precipitation Loss



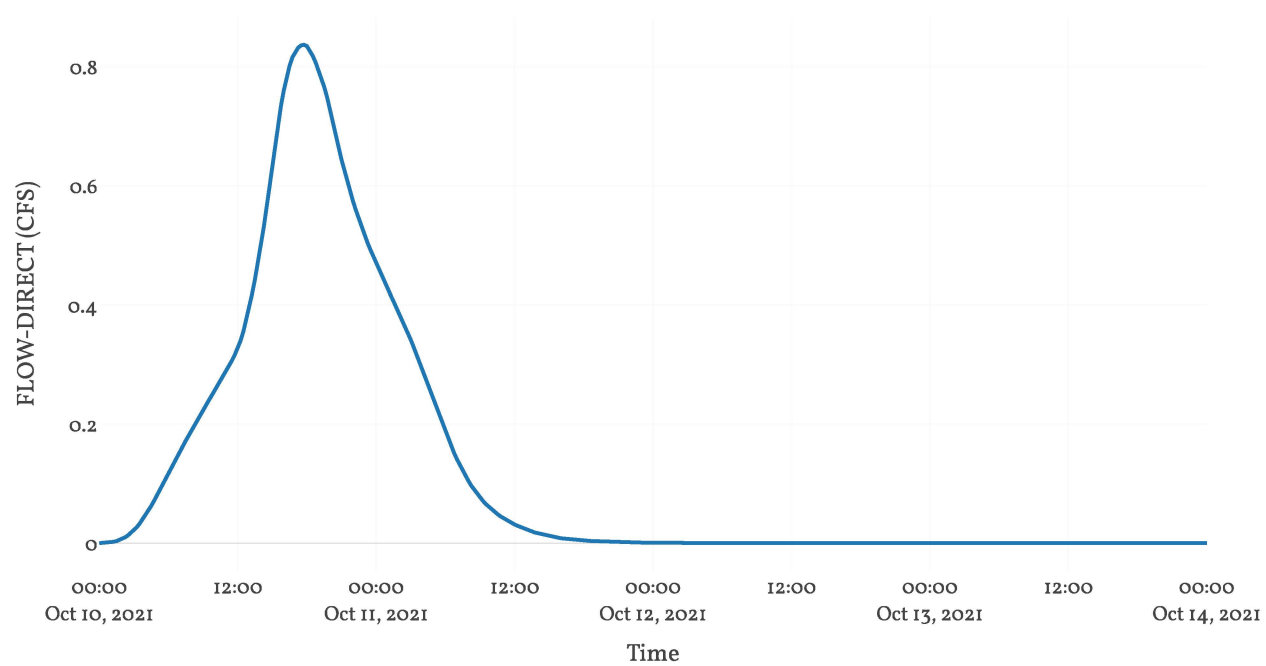
Baseflow



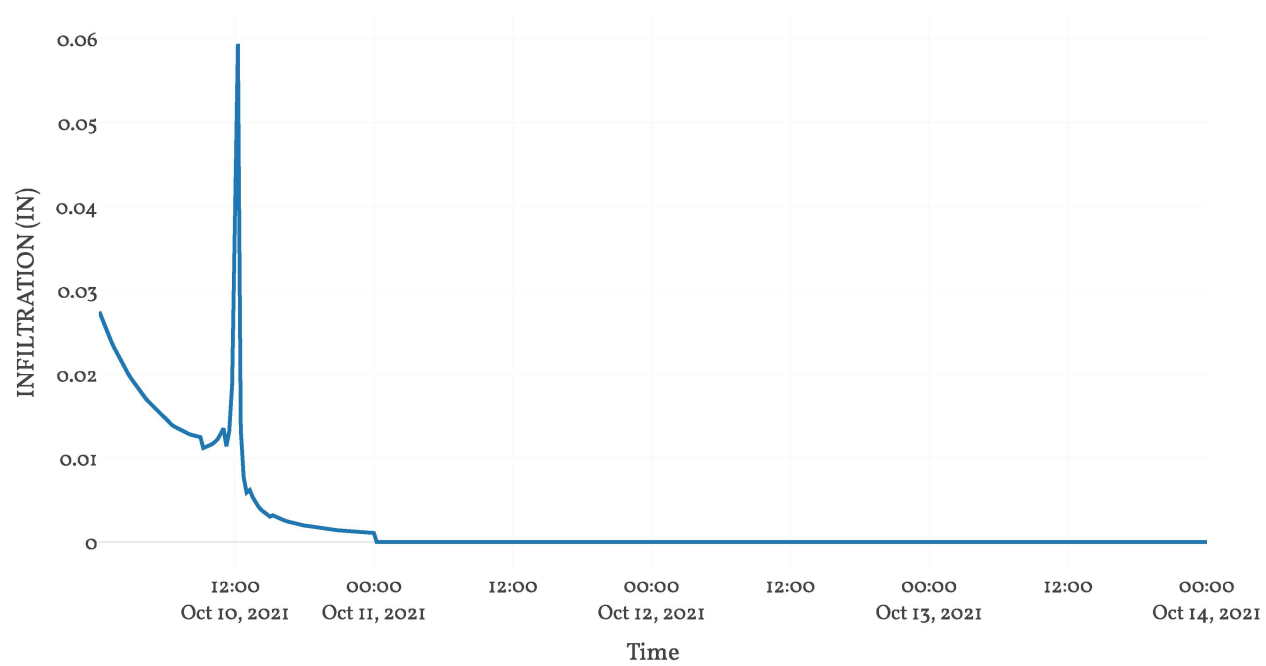
Precipitation Loss



Direct Runoff



Soil Infiltration

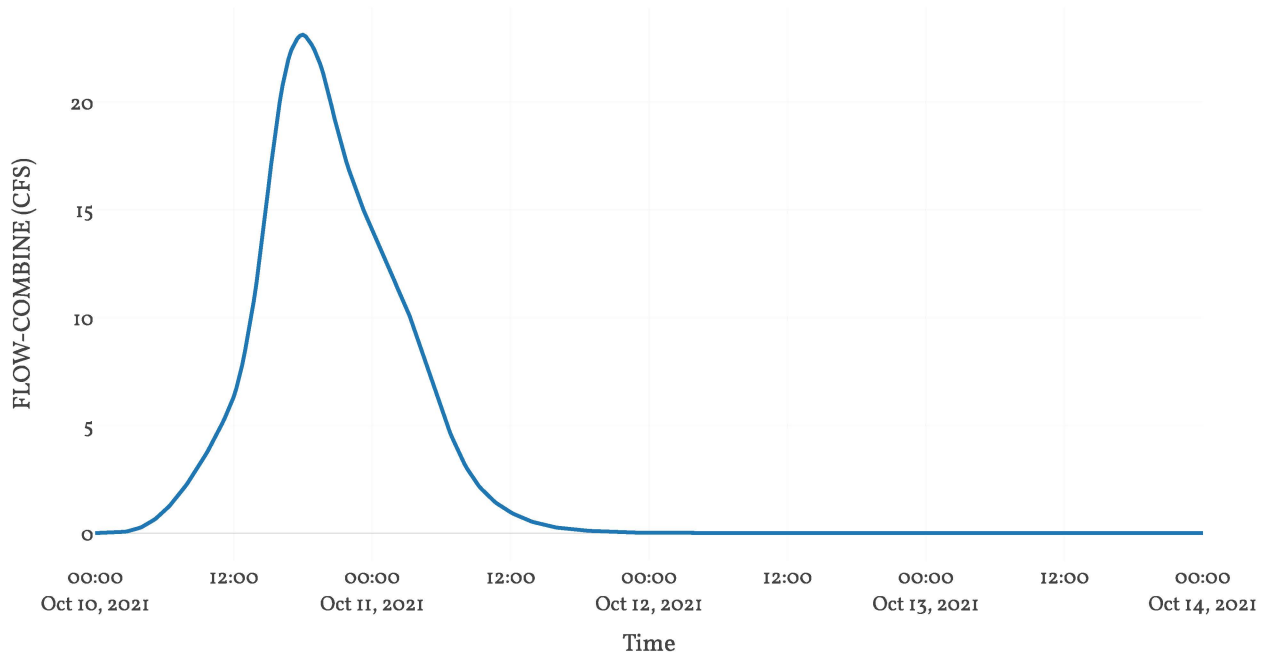


# Junction: Post Total

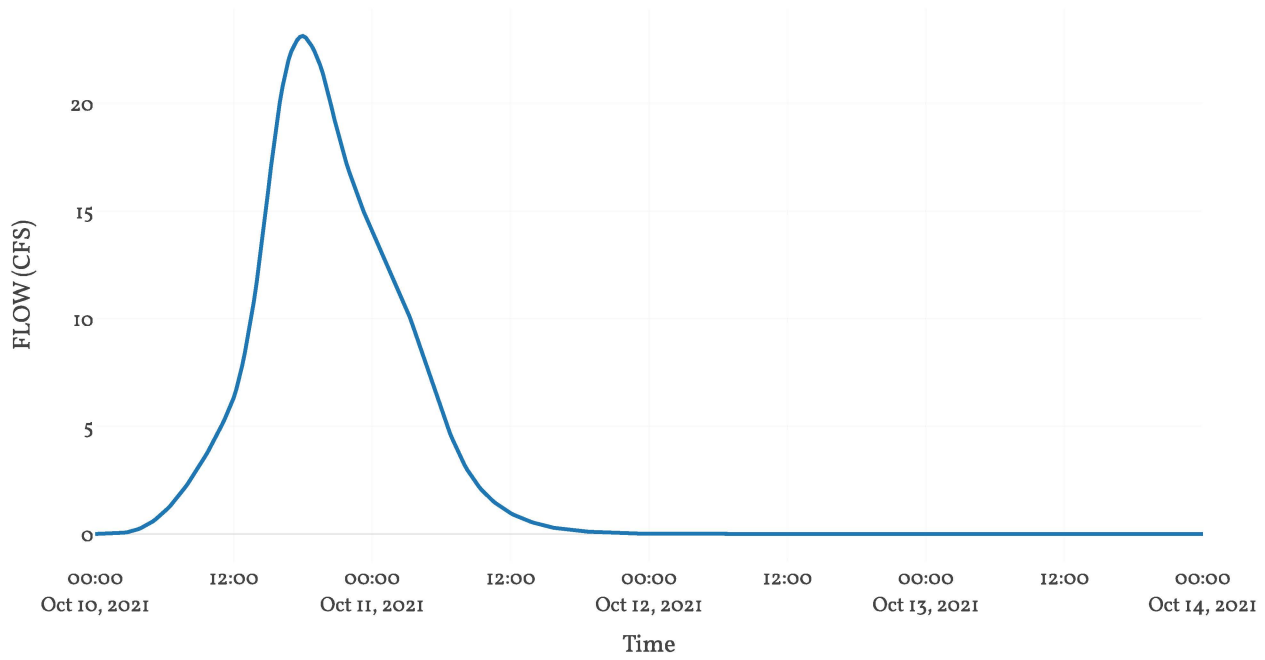
Results: Post Total	
Peak Discharge (CFS)	23.13
Time of Peak Discharge	10Oct2021, 18:00
Volume (IN)	3.82



Combined Inflow



Outflow





**A.2-13 SUBSTATION BESS AREA – PRE-DEVELOPMENT 2YEAR 24HOUR**

**Project:** Oveja\_Sub\_BESS\_3\_01  
**Simulation Run:** 2 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 09 December 2024, 11:31

Global Parameter Summary - Subbasin

Area	
Element Name	Area
Watershed 3 - 01	0.02

Downstream	
Element Name	Downstream
Watershed 3 - 01	Pre - Total

Loss Rate: SCS			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
Watershed 3 - 01	0	85	0

Transform: SCS		
Element Name	Lag	Unitgraph Type
Watershed 3 - 01	320	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Watershed 3 - 01	0.02	1.26	10Oct2021, 18:15	1.18
Pre - Total	0.02	1.26	10Oct2021, 18:15	1.18

# Subbasin: Watershed 3-01

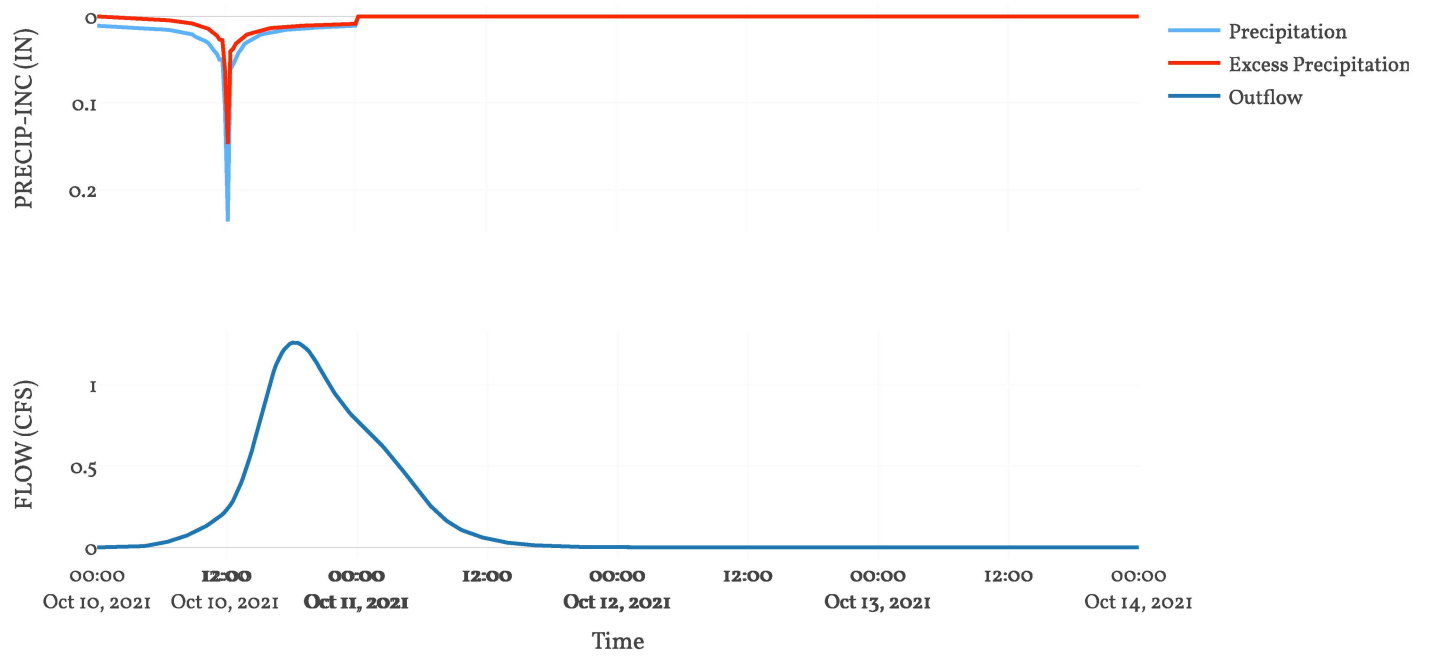
Area : 0.02  
Downstream : Pre - Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

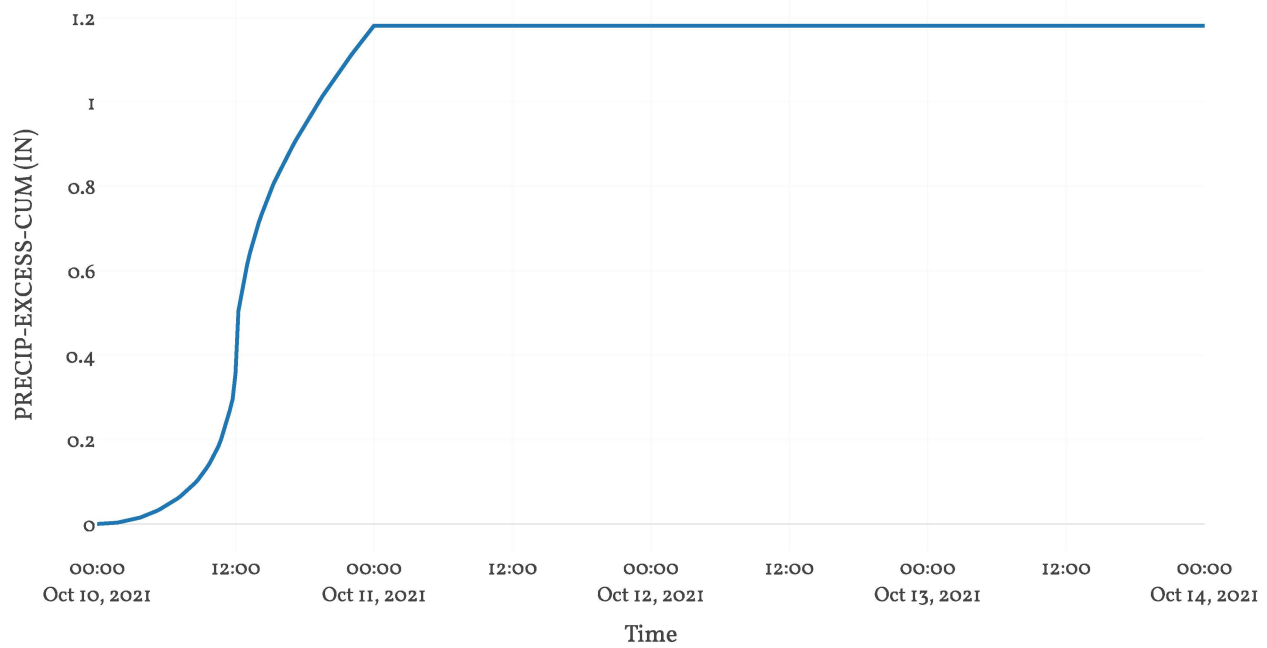
Transform: Scs	
Lag	320
Unitgraph Type	Standard

Results: Watershed 3-01	
Peak Discharge (CFS)	1.26
Time of Peak Discharge	10Oct2021, 18:15
Volume (IN)	1.18
Precipitation Volume (AC - FT)	2.4
Loss Volume (AC - FT)	1.08
Excess Volume (AC - FT)	1.32
Direct Runoff Volume (AC - FT)	1.32
Baseflow Volume (AC - FT)	0

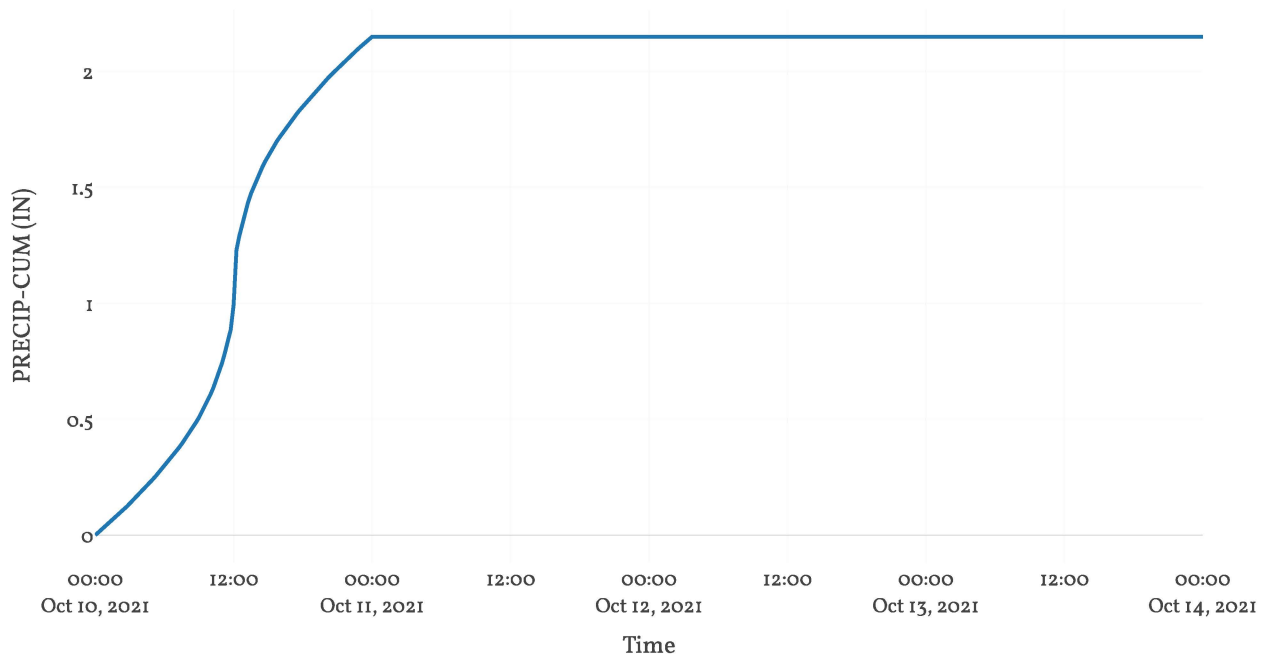
## Precipitation and Outflow



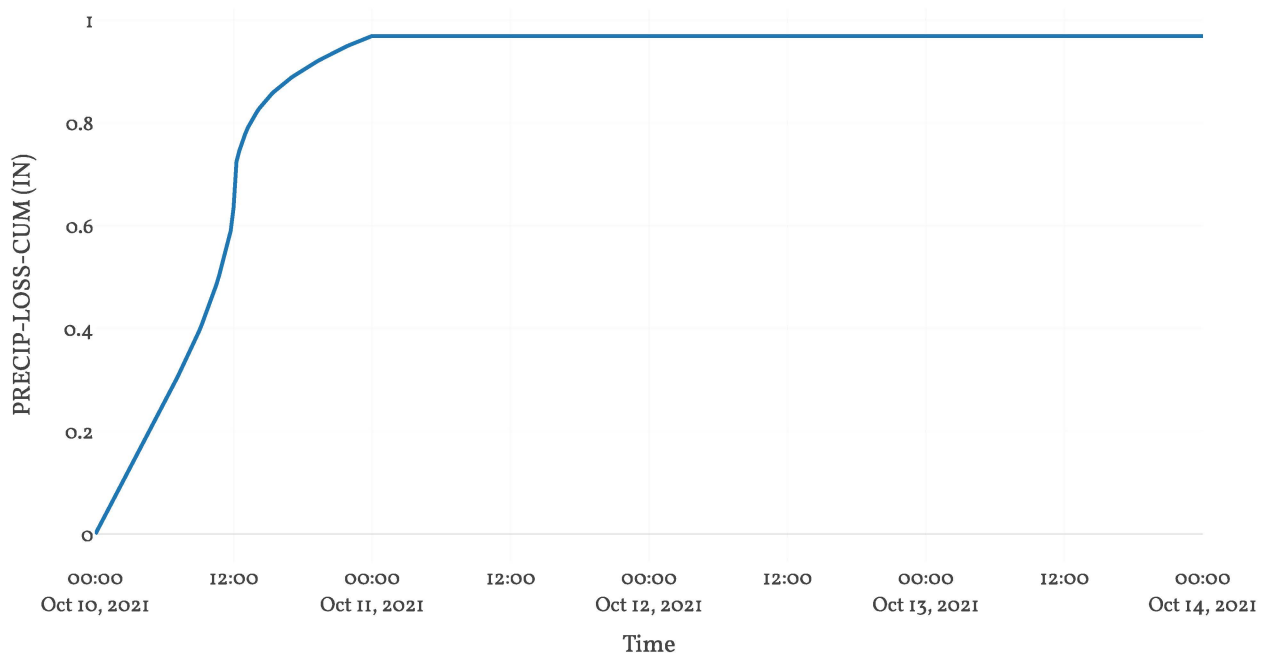
## Cumulative Excess Precipitation



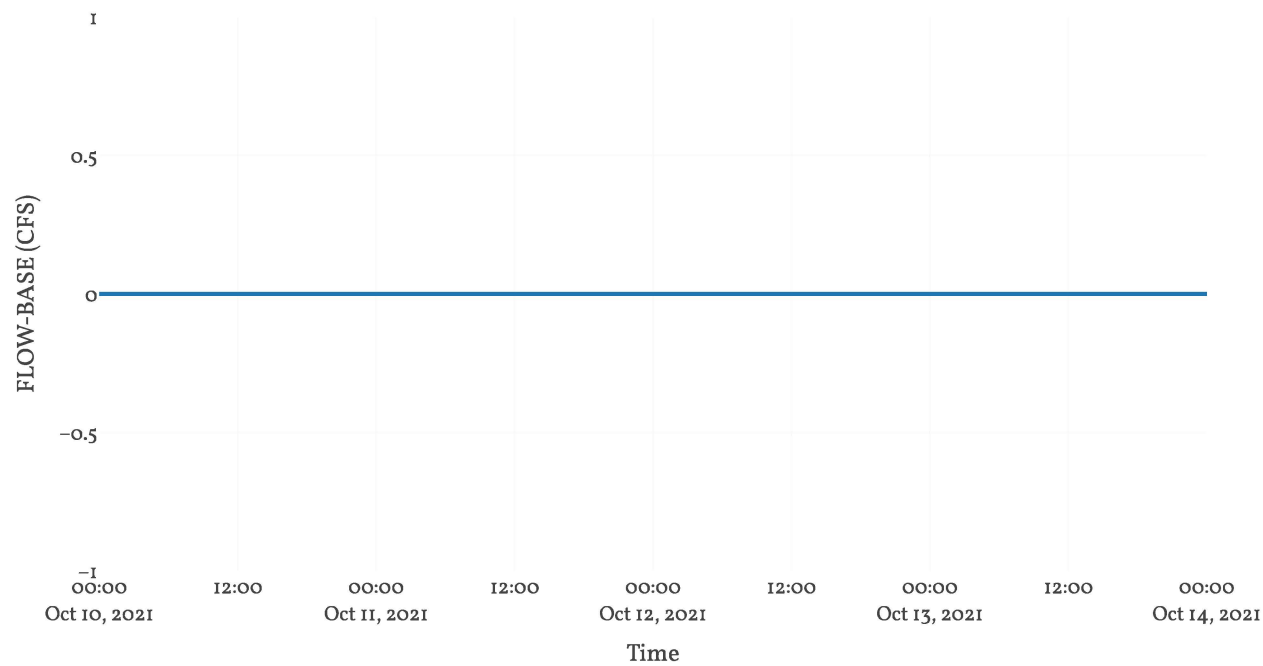
Cumulative Precipitation



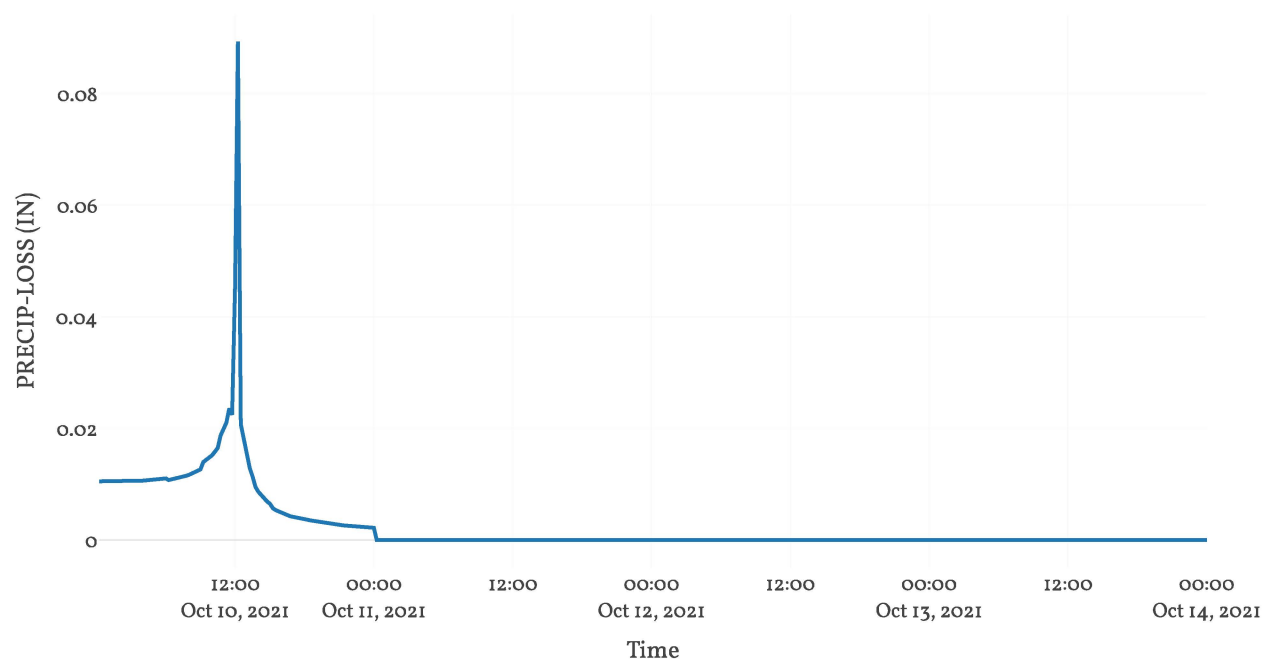
Cumulative Precipitation Loss



Baseflow

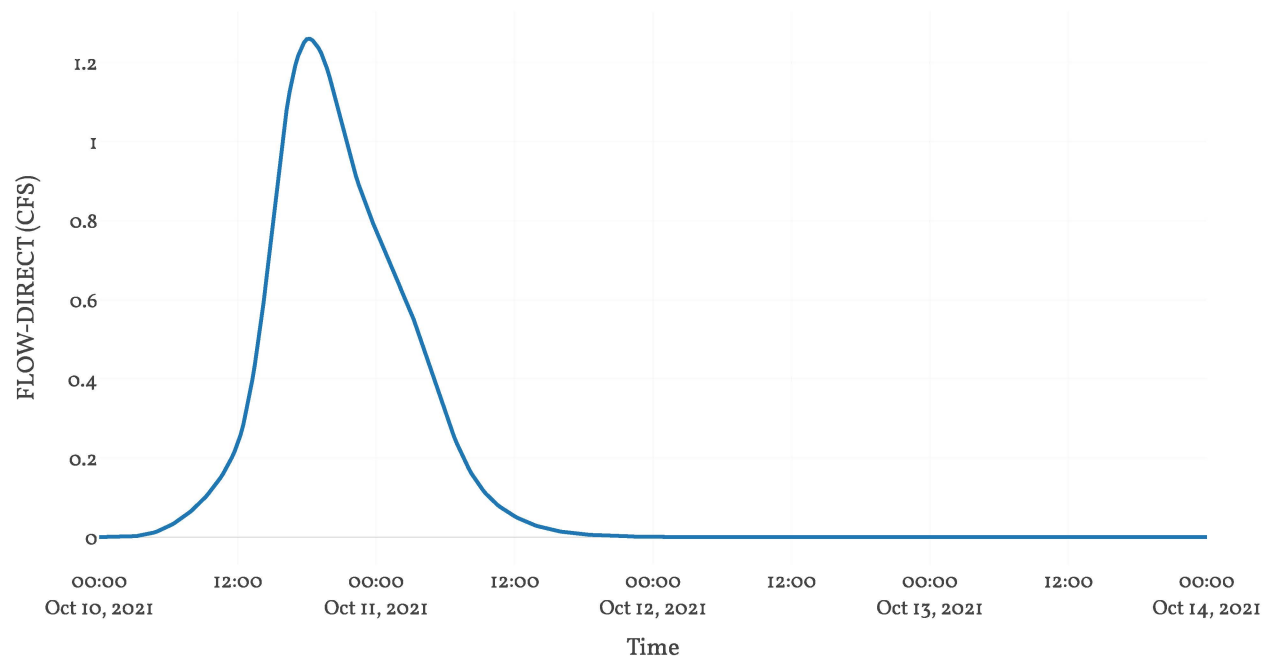


Precipitation Loss

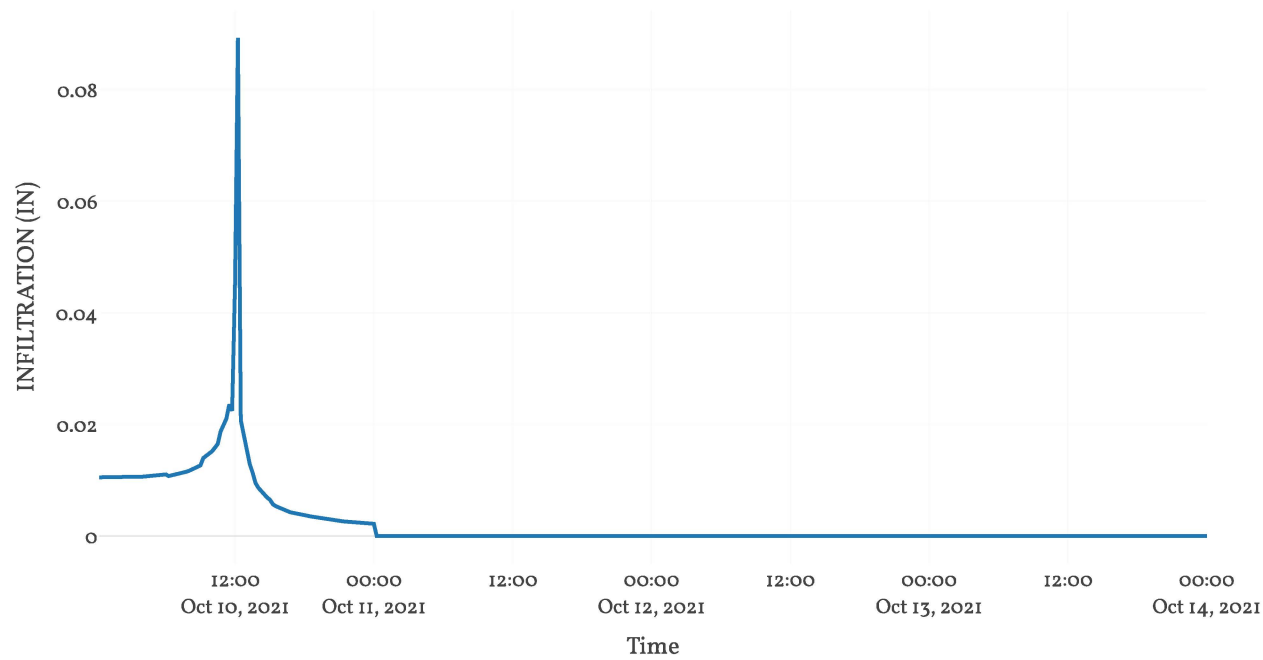




Direct Runoff



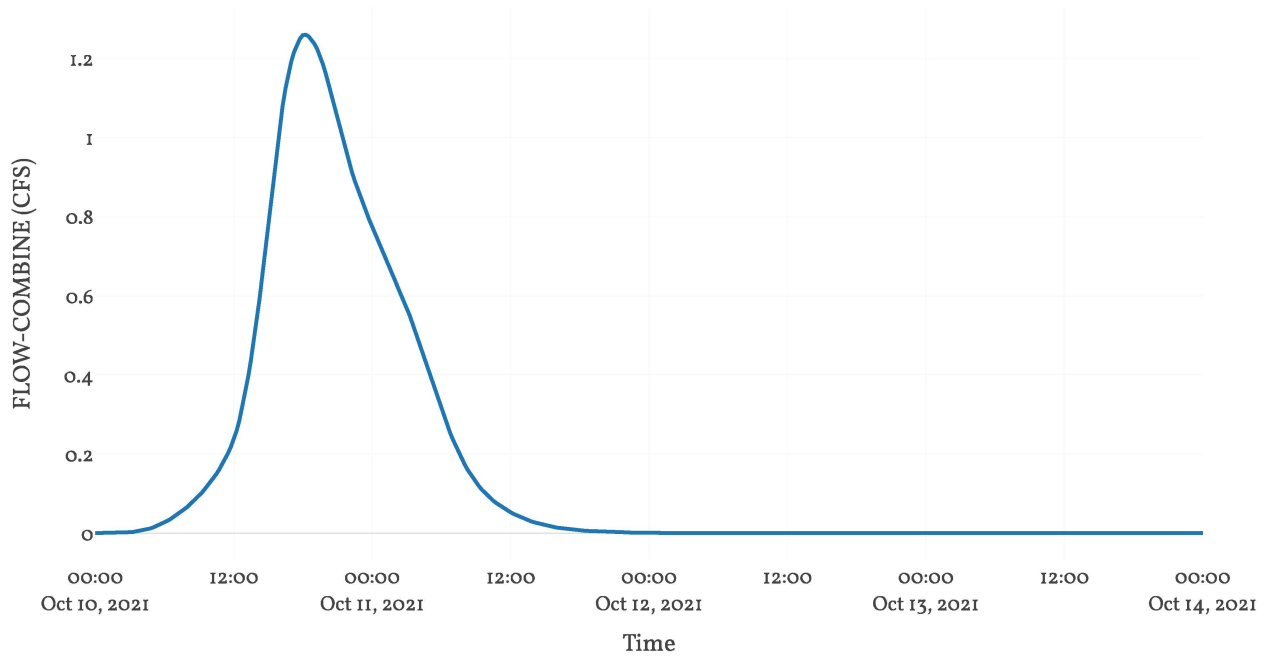
Soil Infiltration



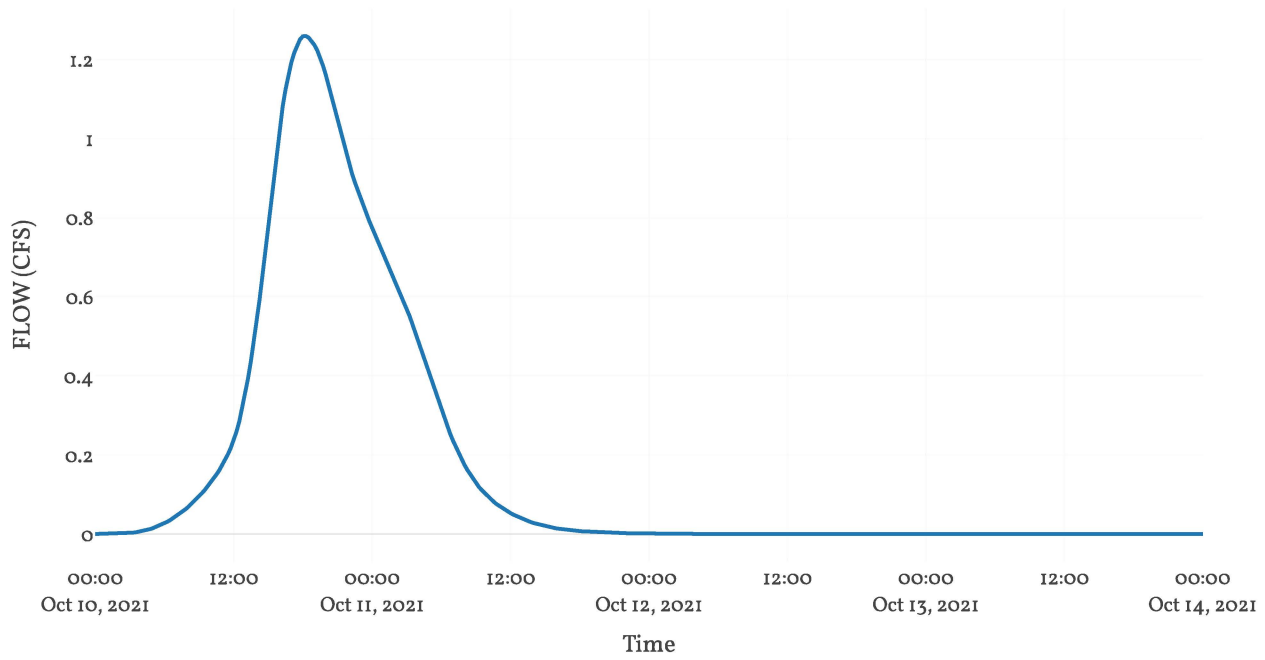
Junction: Pre-Total

Results: Pre-Total	
Peak Discharge (CFS)	1.26
Time of Peak Discharge	10Oct2021, 18:15
Volume (IN)	1.18

Combined Inflow



Outflow





**A.2-14 SUBSTATION BESS AREA – PRE-DEVELOPMENT 10YEAR 24HOUR**

**Project:** Oveja\_Sub\_BESS\_3\_01  
**Simulation Run:** 10 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 09 December 2024, 11:31

Global Parameter Summary - Subbasin

Area	
Element Name	Area
Watershed 3 - 01	0.02

Downstream	
Element Name	Downstream
Watershed 3 - 01	Pre - Total

Loss Rate: SCS			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
Watershed 3 - 01	0	85	0

Transform: SCS		
Element Name	Lag	Unitgraph Type
Watershed 3 - 01	320	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Watershed 3 - 01	0.02	2.19	10Oct2021, 18:00	2.14
Pre - Total	0.02	2.19	10Oct2021, 18:00	2.14

# Subbasin: Watershed 3-01

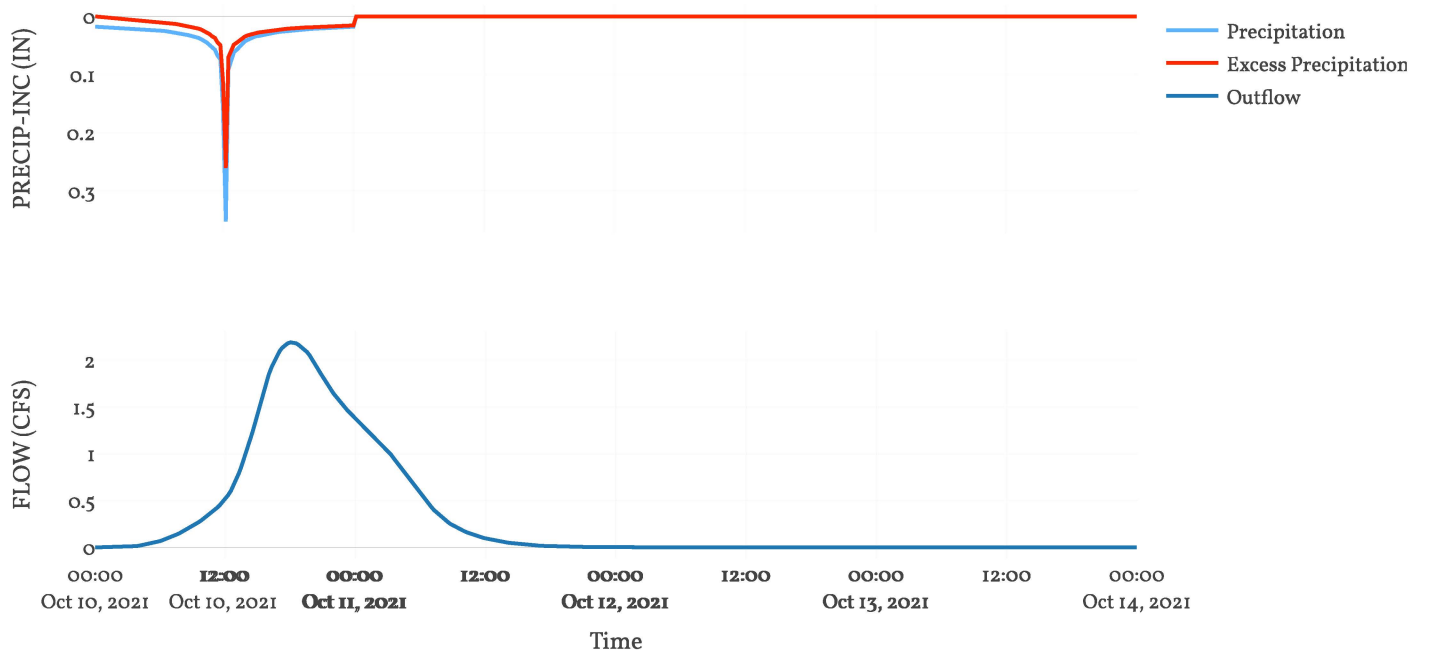
Area : 0.02  
Downstream : Pre - Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

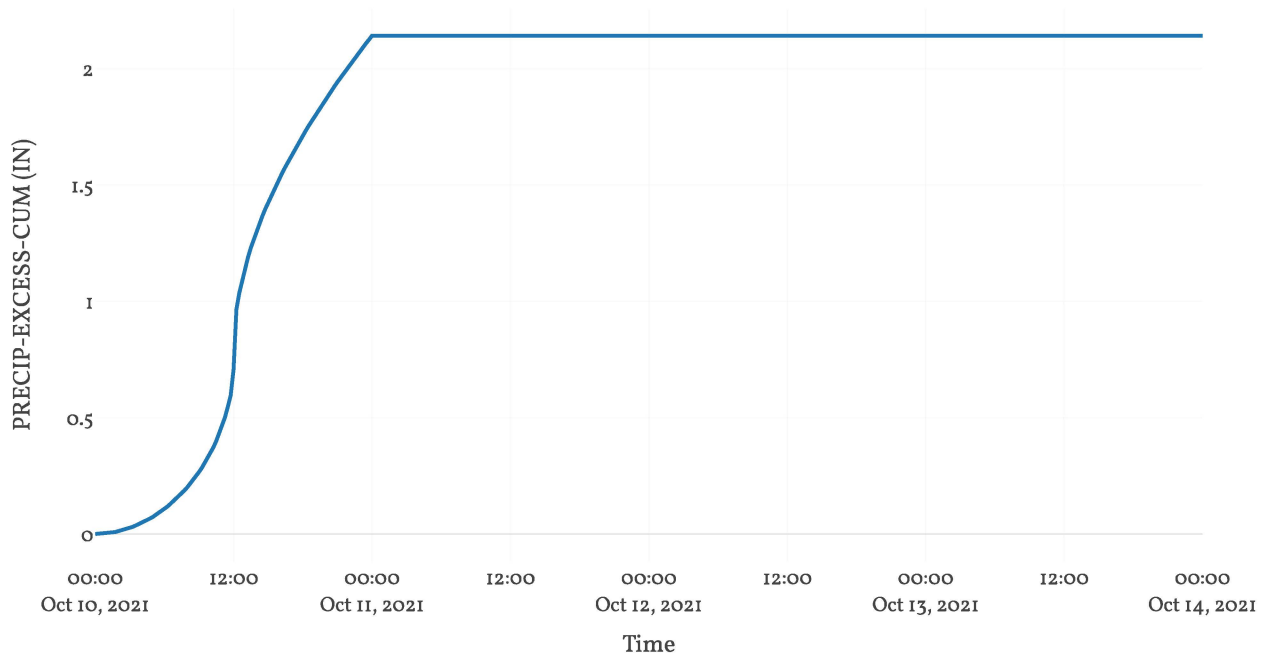
Transform: Scs	
Lag	320
Unitgraph Type	Standard

Results: Watershed 3-01	
Peak Discharge (CFS)	2.19
Time of Peak Discharge	10Oct2021, 18:00
Volume (IN)	2.14
Precipitation Volume (AC - FT)	3.67
Loss Volume (AC - FT)	1.28
Excess Volume (AC - FT)	2.39
Direct Runoff Volume (AC - FT)	2.39
Baseflow Volume (AC - FT)	0

## Precipitation and Outflow

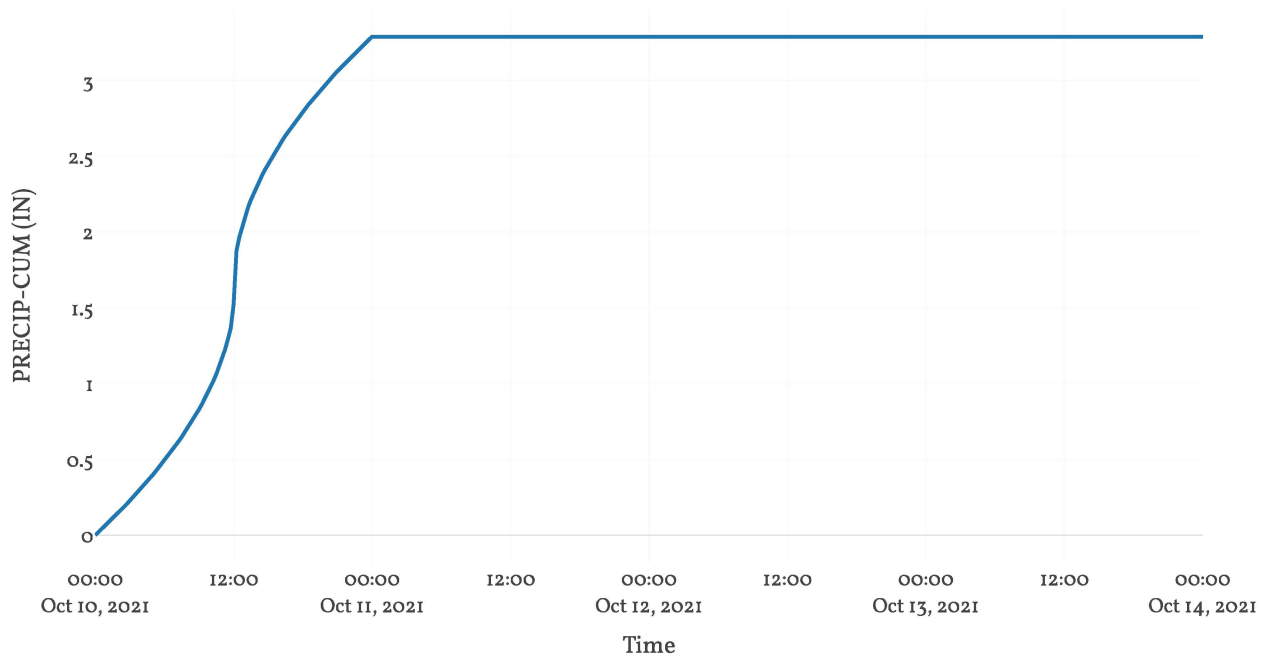


## Cumulative Excess Precipitation

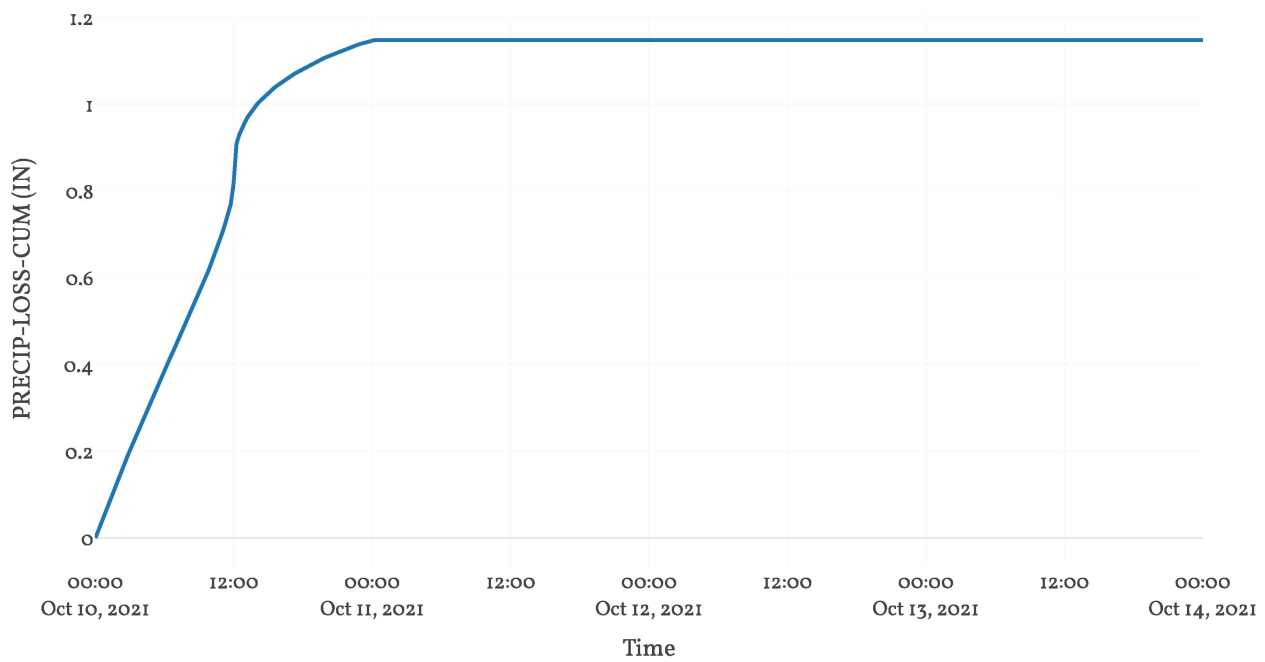




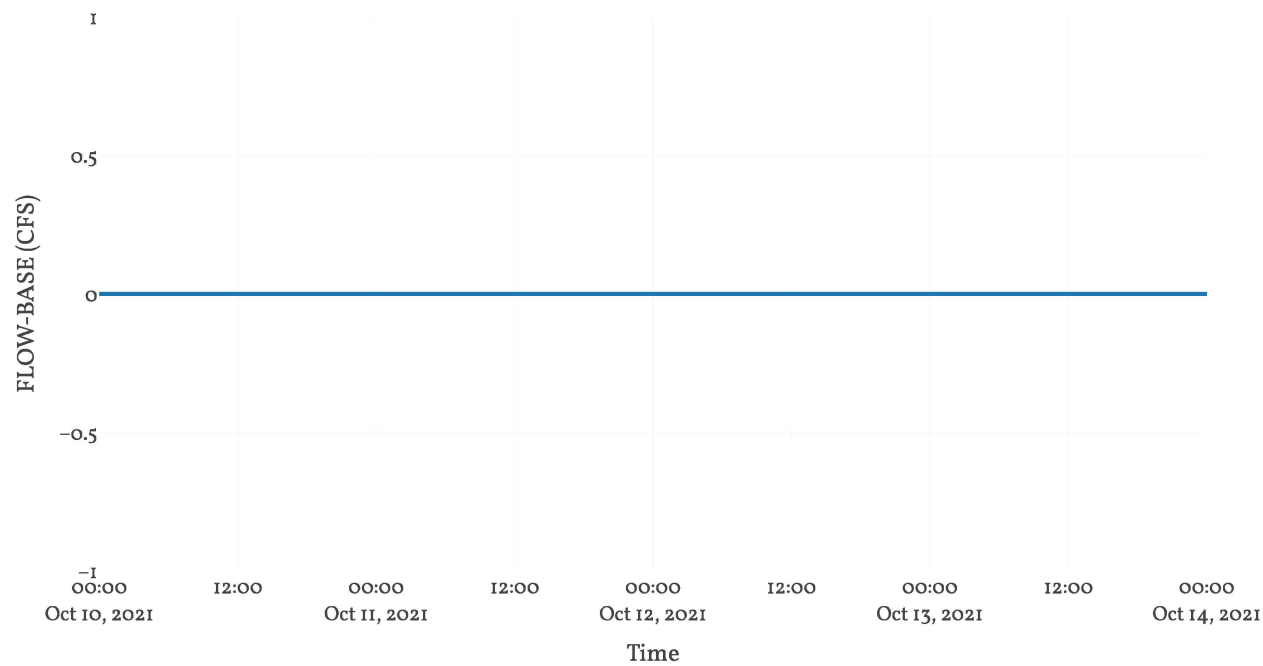
Cumulative Precipitation



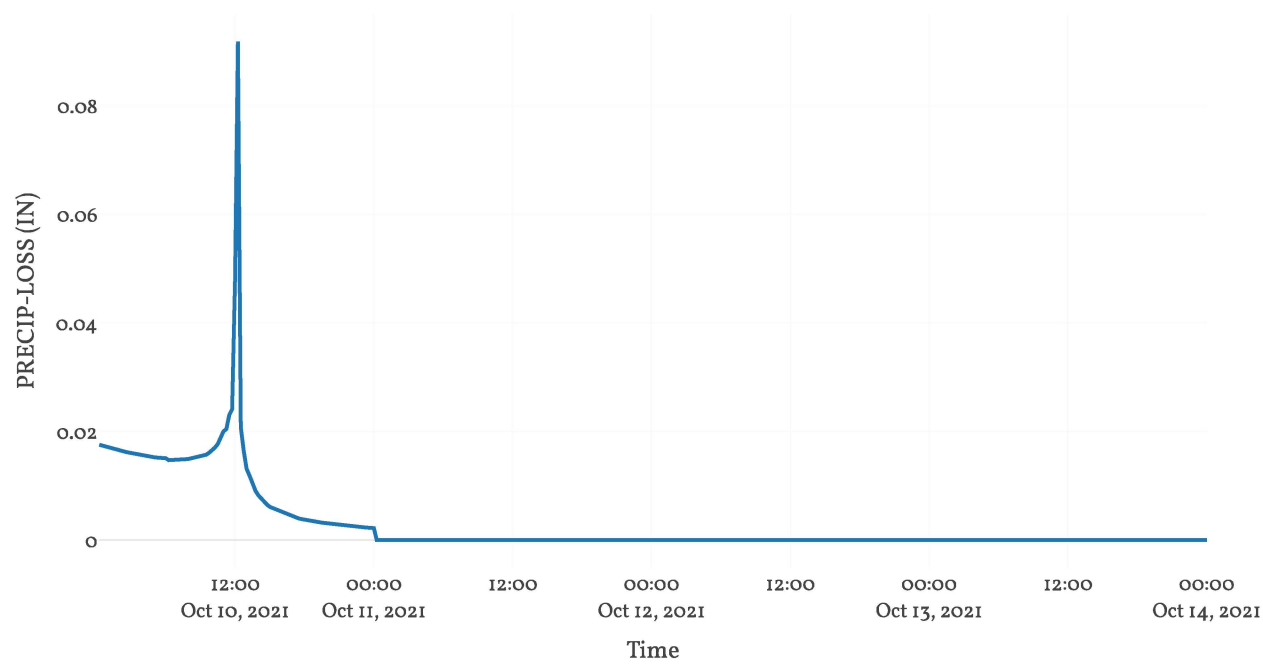
Cumulative Precipitation Loss



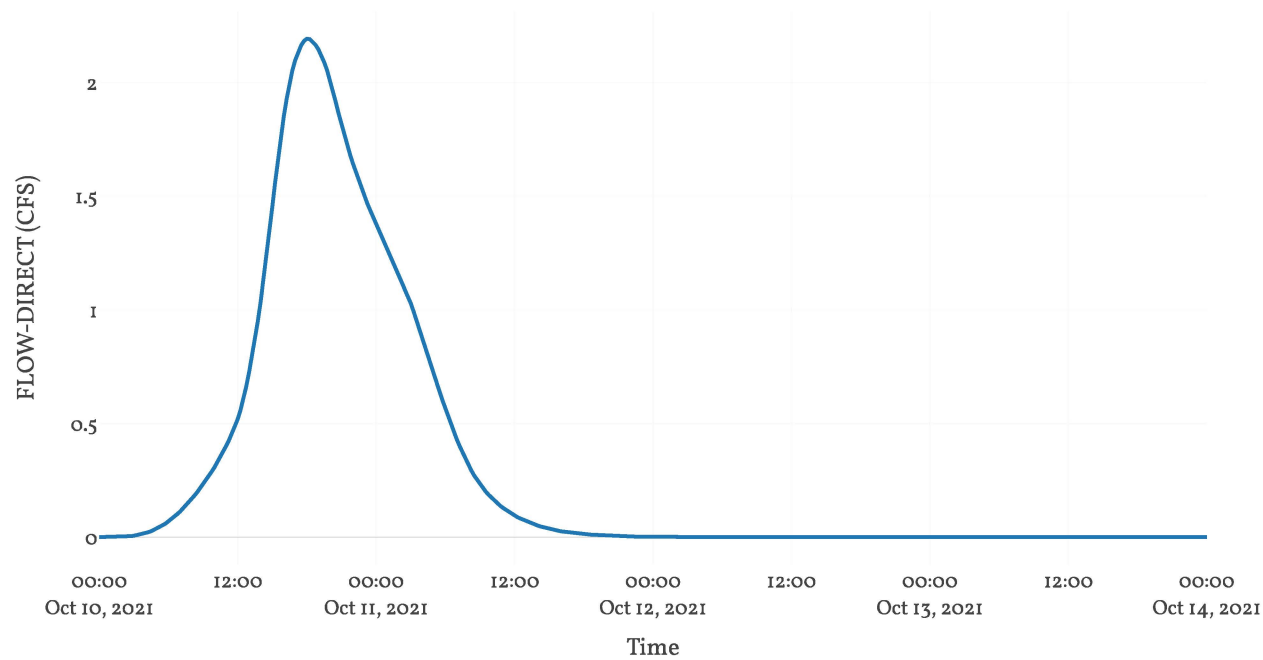
Baseflow



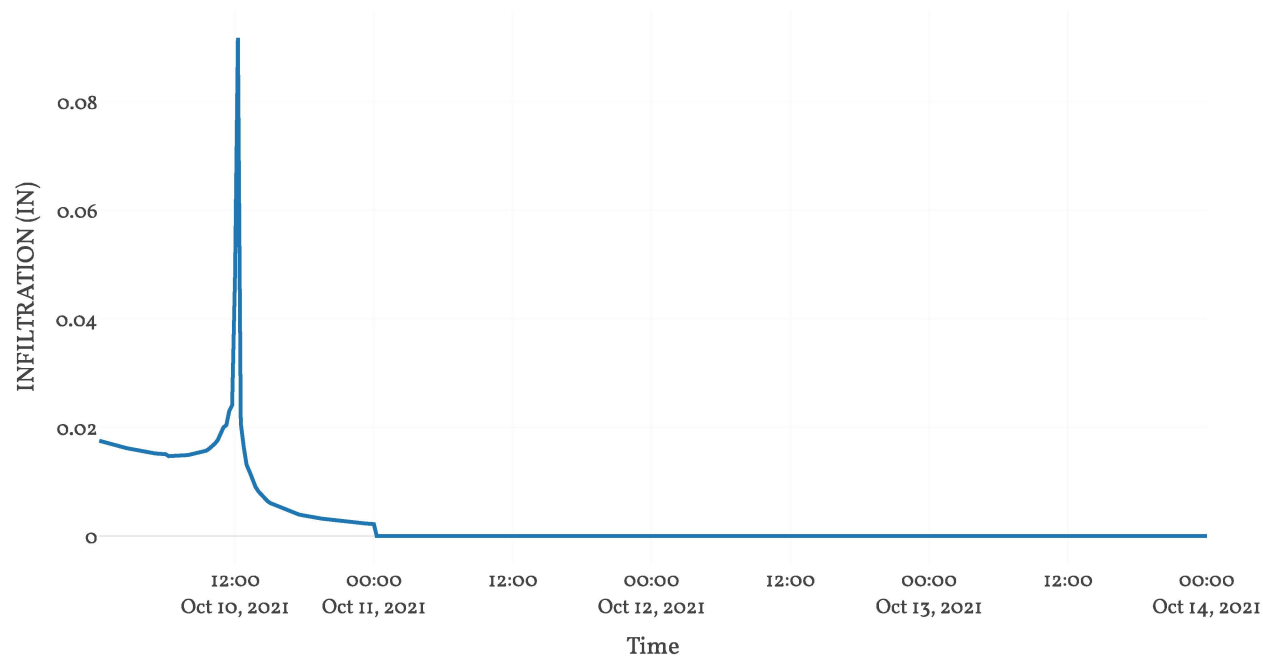
Precipitation Loss



Direct Runoff



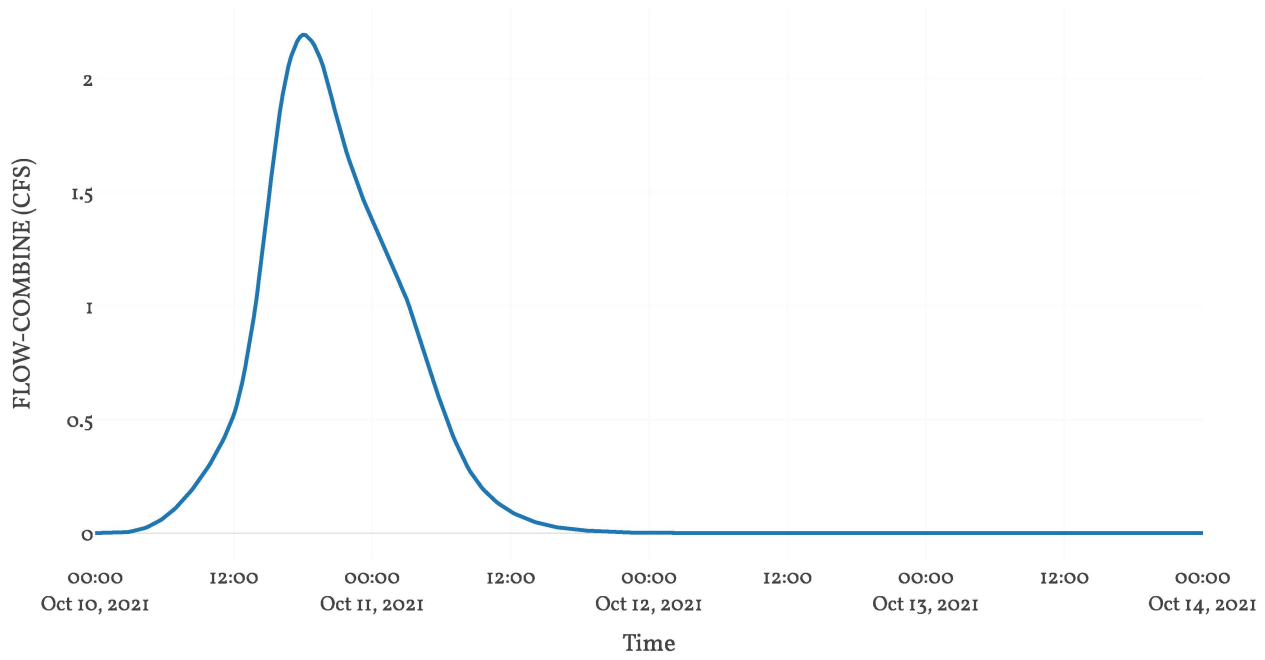
Soil Infiltration



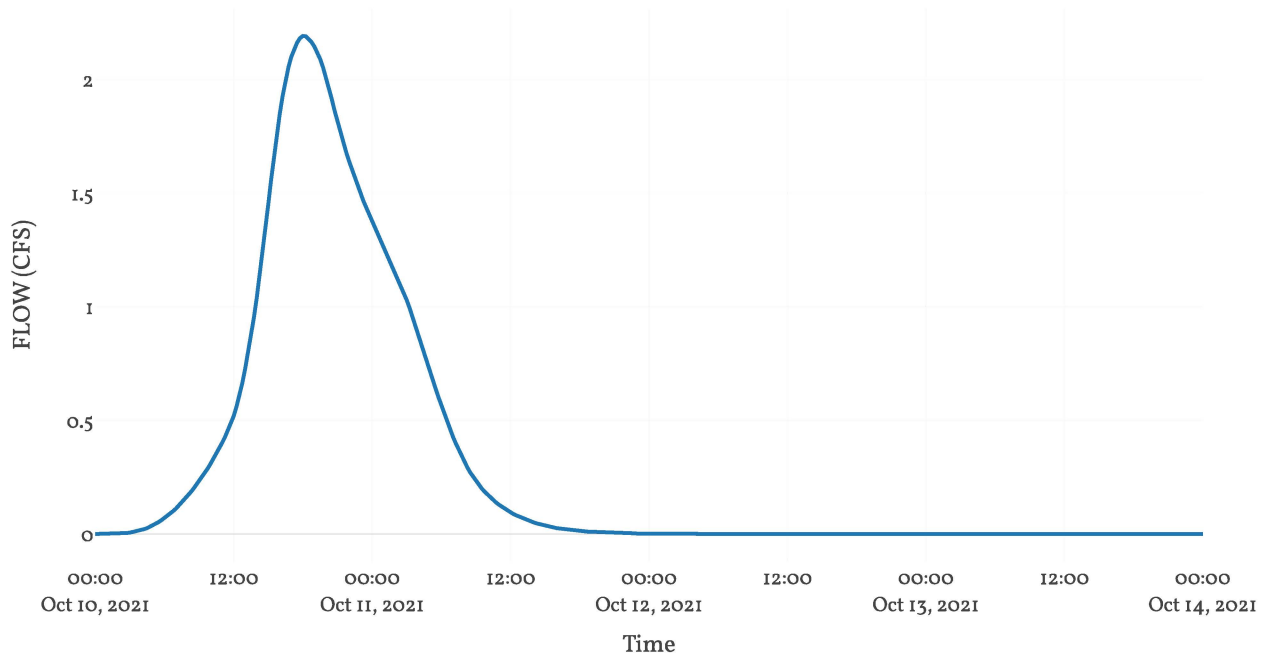
Junction: Pre-Total

Results: Pre-Total	
Peak Discharge (CFS)	2.19
Time of Peak Discharge	10Oct2021, 18:00
Volume (IN)	2.14

Combined Inflow



Outflow





**A.2-15 SUBSTATION BESS AREA – PRE-DEVELOPMENT 100YEAR 24HOUR**

**Project:** Oveja\_Sub\_BESS\_3\_01  
**Simulation Run:** 100 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 09 December 2024, 11:31

Global Parameter Summary - Subbasin

Area	
Element Name	Area
Watershed 3 - 01	0.02

Downstream	
Element Name	Downstream
Watershed 3 - 01	Pre - Total

Loss Rate: SCS			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
Watershed 3 - 01	0	85	0

Transform: SCS		
Element Name	Lag	Unitgraph Type
Watershed 3 - 01	320	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Watershed 3 - 01	0.02	3.86	10Oct2021, 18:00	3.79
Pre - Total	0.02	3.86	10Oct2021, 18:00	3.79



# Subbasin: Watershed 3-01

Area : 0.02

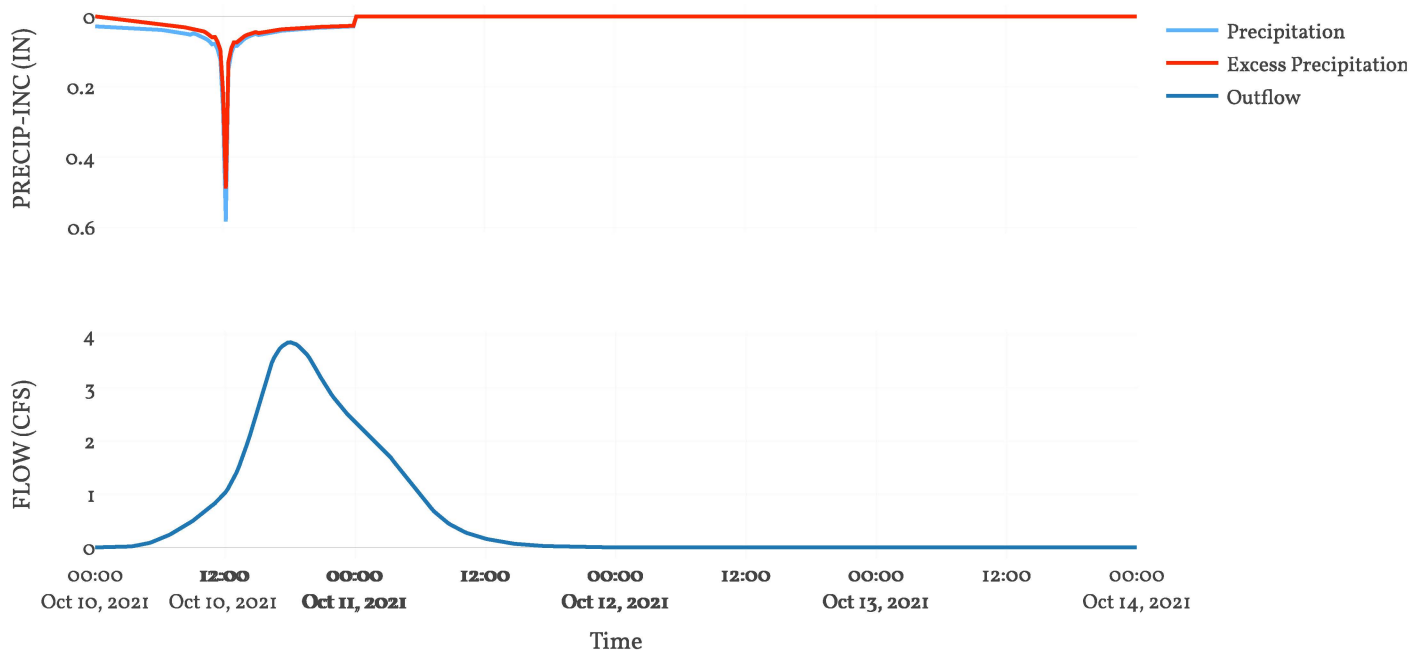
Downstream : Pre - Total

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	85
Initial Abstraction	0

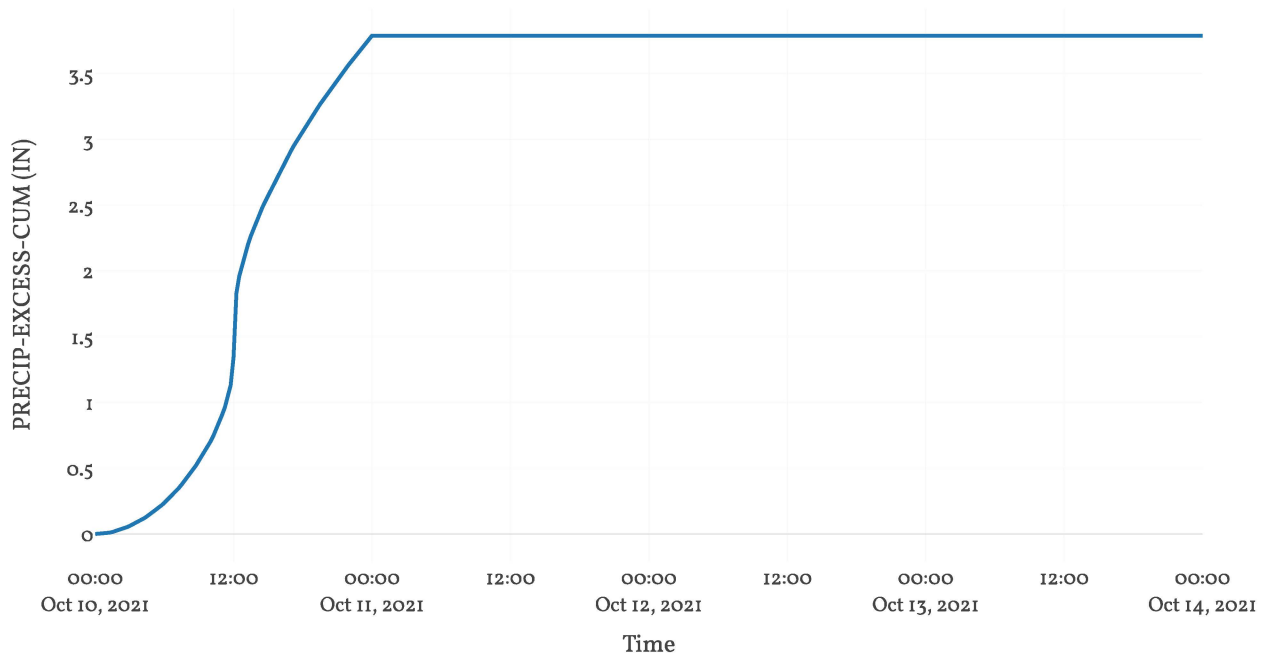
Transform: Scs	
Lag	320
Unitgraph Type	Standard

Results: Watershed 3-01	
Peak Discharge (CFS)	3.86
Time of Peak Discharge	10Oct2021, 18:00
Volume (IN)	3.79
Precipitation Volume (AC - FT)	5.69
Loss Volume (AC - FT)	1.46
Excess Volume (AC - FT)	4.23
Direct Runoff Volume (AC - FT)	4.23
Baseflow Volume (AC - FT)	0

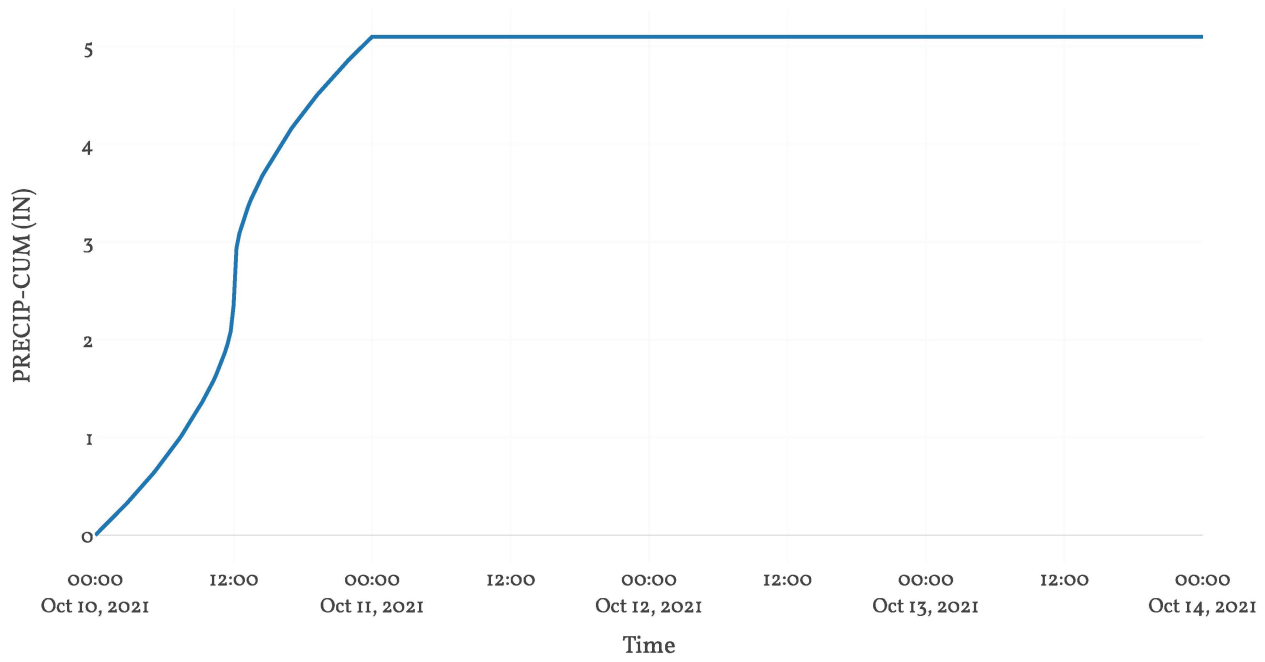
## Precipitation and Outflow



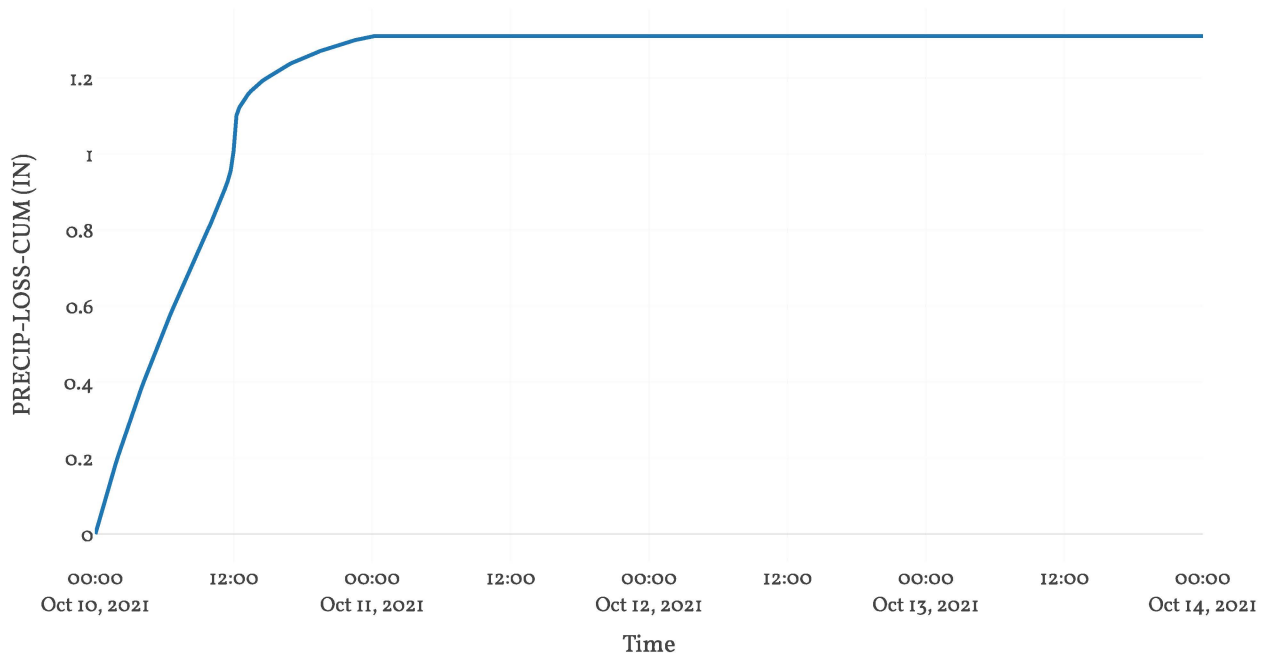
## Cumulative Excess Precipitation



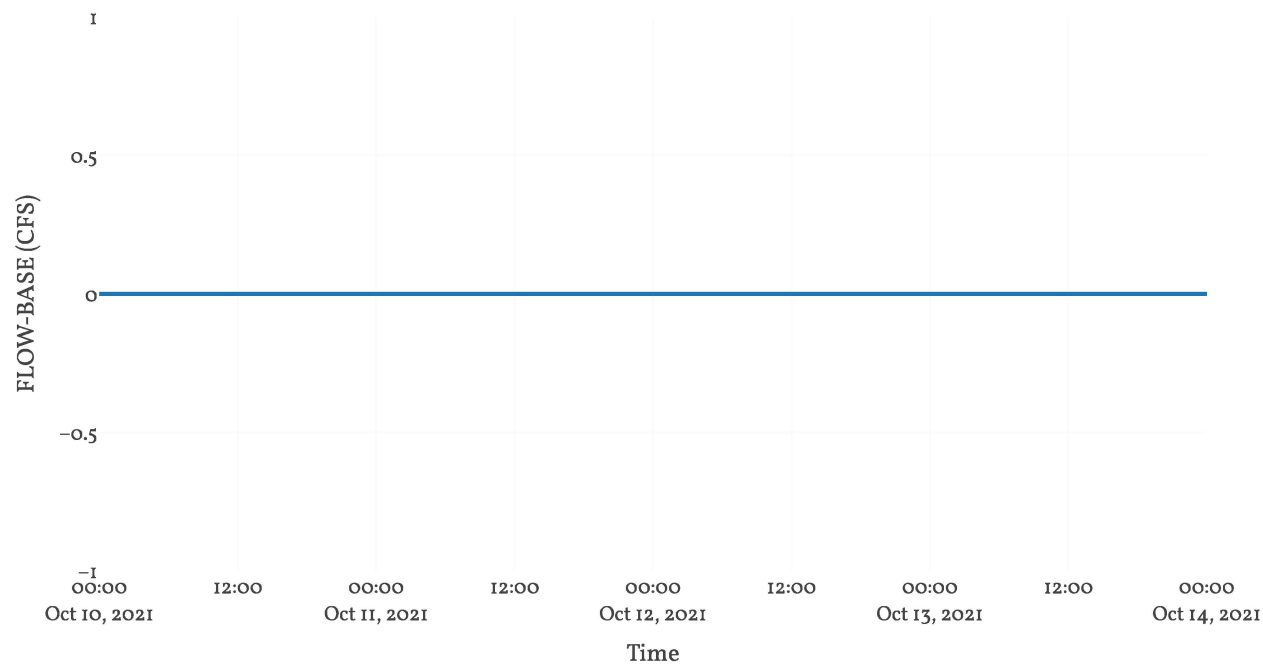
Cumulative Precipitation



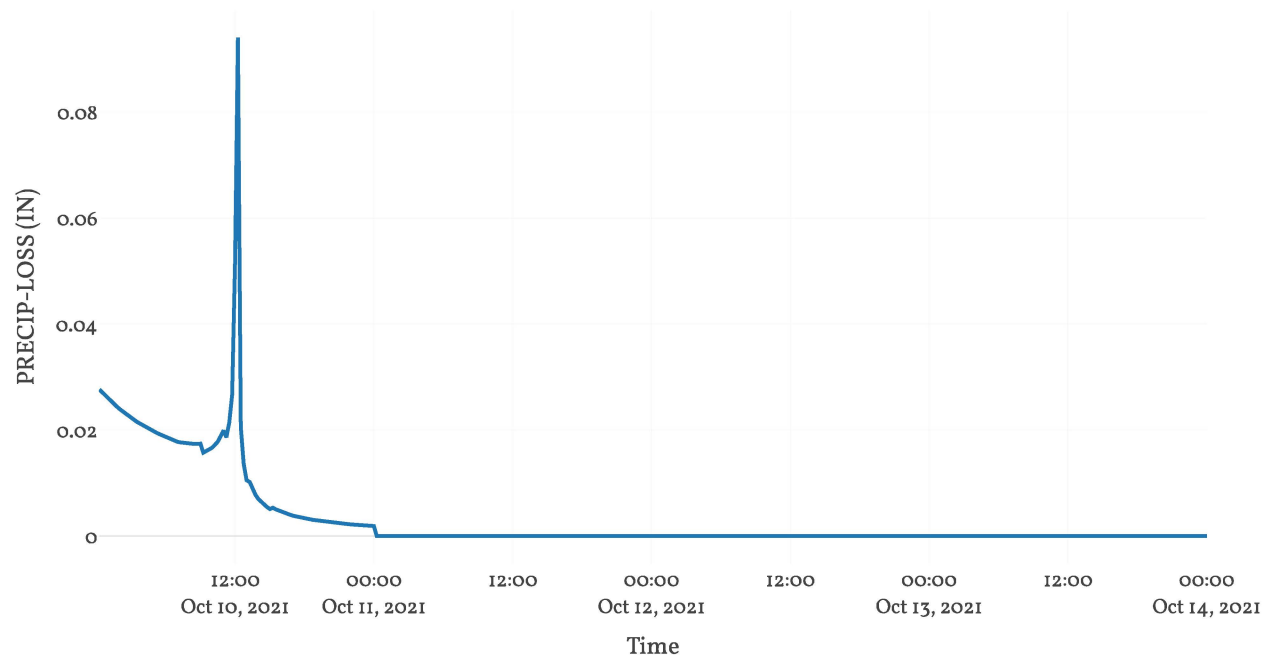
Cumulative Precipitation Loss



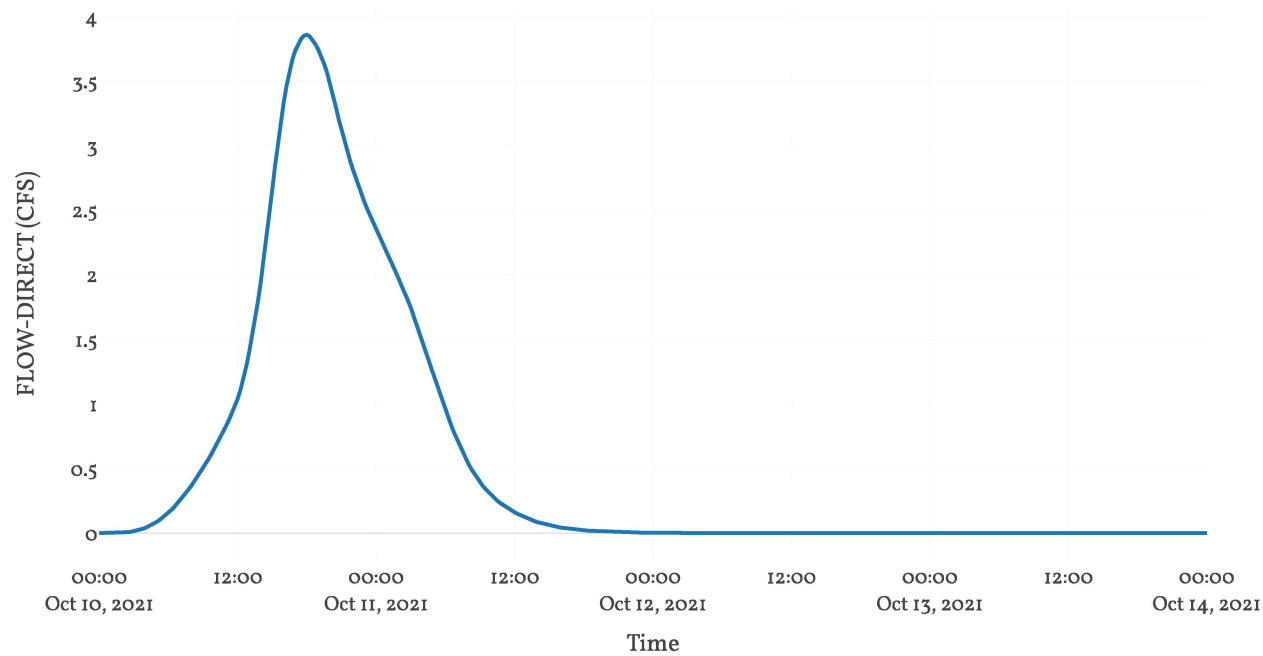
Baseflow



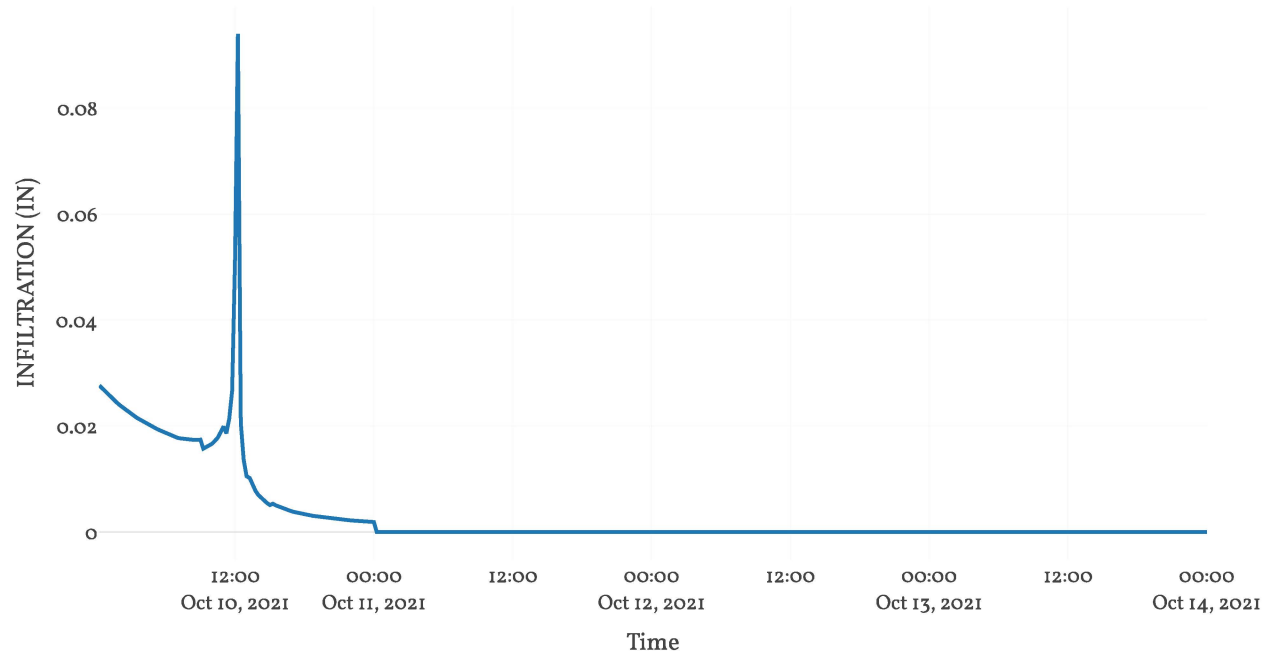
Precipitation Loss



Direct Runoff



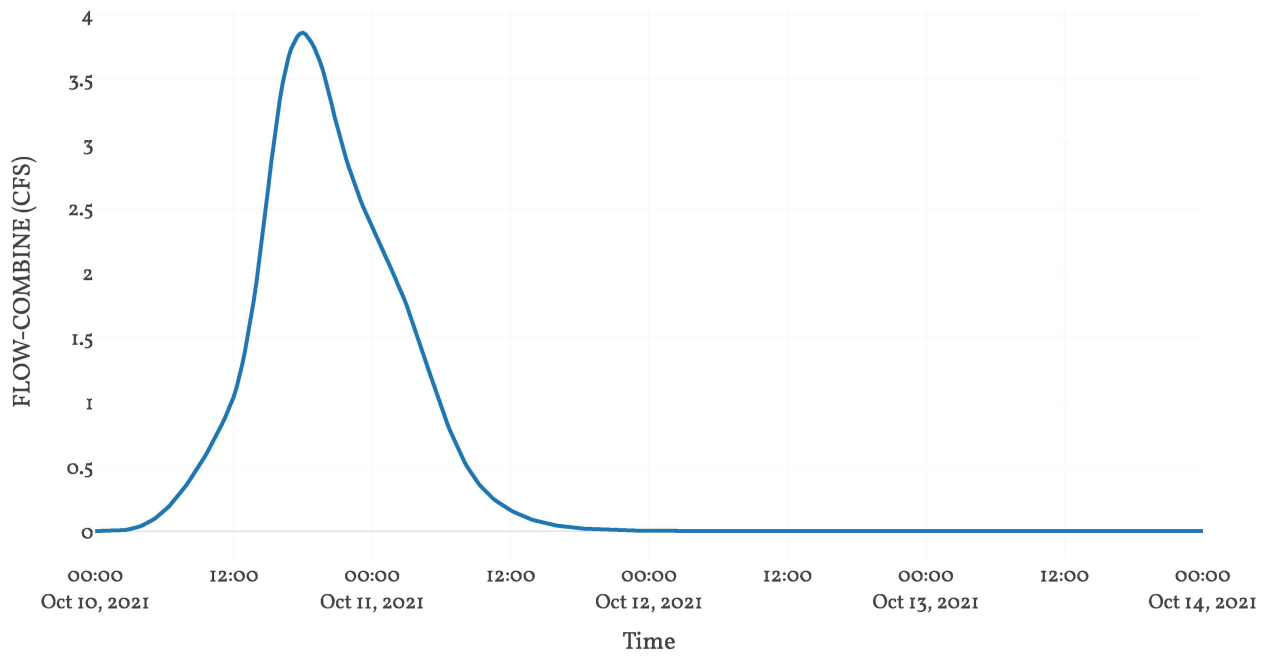
Soil Infiltration



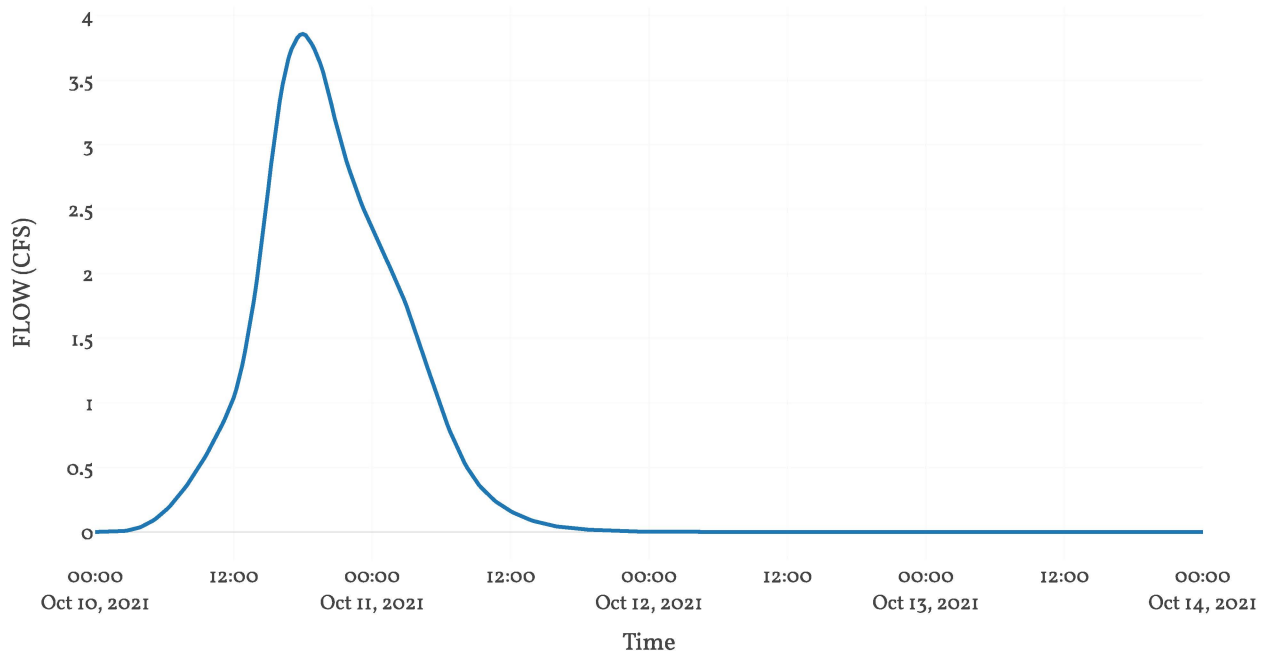
Junction: Pre-Total

Results: Pre-Total	
Peak Discharge (CFS)	3.86
Time of Peak Discharge	10Oct2021, 18:00
Volume (IN)	3.79

Combined Inflow



Outflow







**A.2-16 SUBSTATION BESS AREA – POST-DEVELOPMENT 2YEAR 24HOUR**

**Project:** Oveja\_Sub\_BESS\_3\_01\_Post  
**Simulation Run:** 2 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 09 December 2024, 11:40

Global Parameter Summary - Subbasin

Area	
Element Name	Area
Watershed 3 - 01	0.02

Downstream	
Element Name	Downstream
Watershed 3 - 01	Post - Total

Loss Rate: SCS			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
Watershed 3 - 01	75	98	0

Transform: SCS		
Element Name	Lag	Unitgraph Type
Watershed 3 - 01	320	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Watershed 3 - 01	0.02	2.14	10Oct2021, 17:45	2.1
Post - Total	0.02	2.14	10Oct2021, 17:45	2.1

# Subbasin: Watershed 3-01

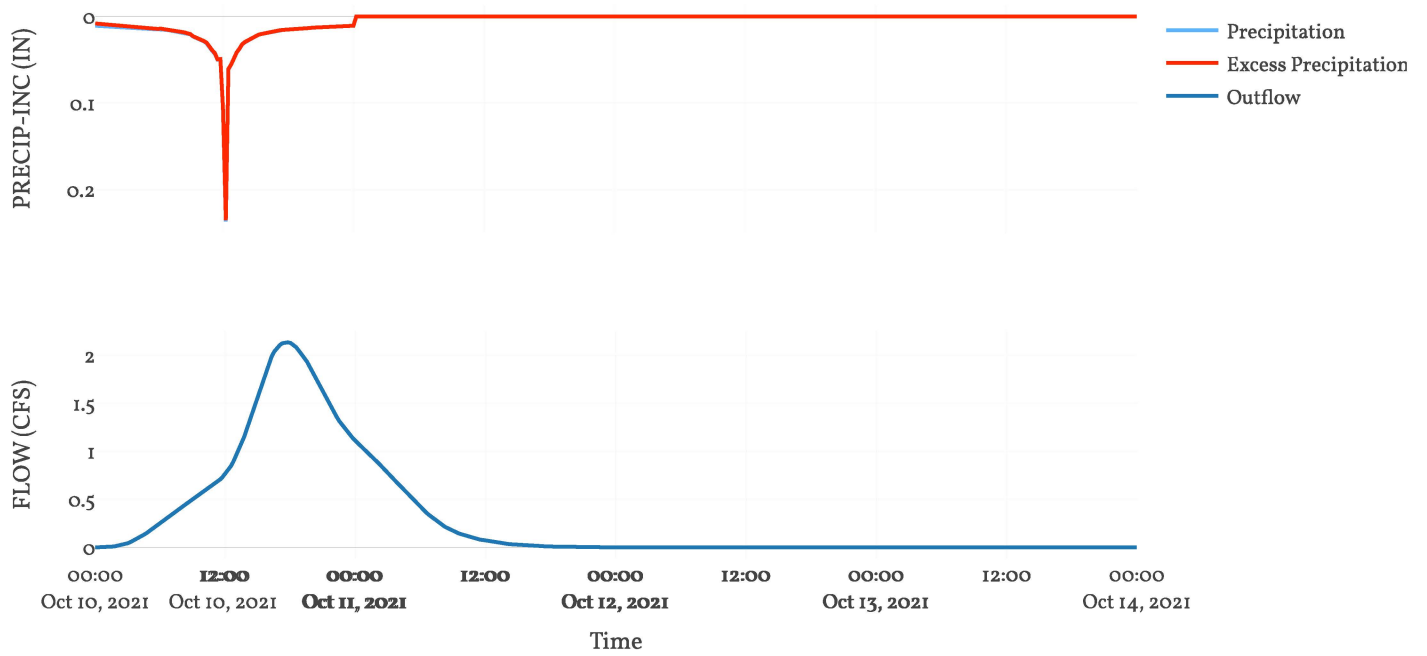
Area : 0.02  
Downstream : Post - Total

Loss Rate: Scs	
Percent Impervious Area	75
Curve Number	98
Initial Abstraction	0

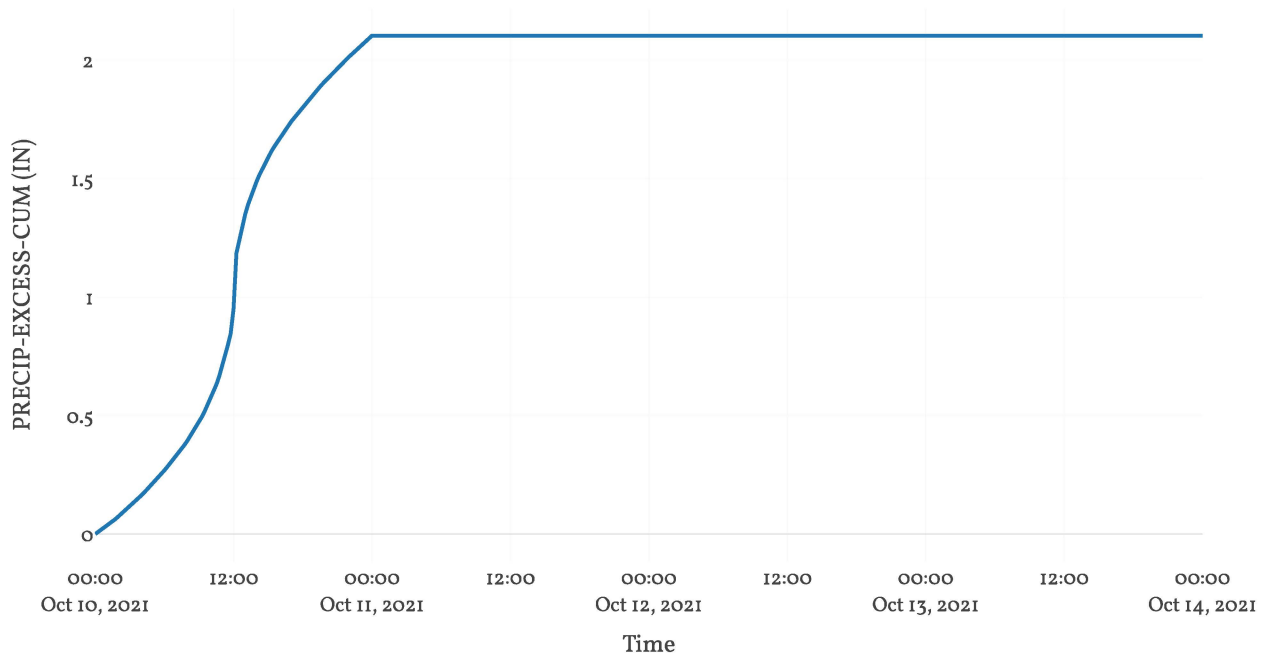
Transform: Scs	
Lag	320
Unitgraph Type	Standard

Results: Watershed 3-01	
Peak Discharge (CFS)	2.14
Time of Peak Discharge	10Oct2021, 17:45
Volume (IN)	2.1
Precipitation Volume (AC - FT)	2.4
Loss Volume (AC - FT)	0.05
Excess Volume (AC - FT)	2.35
Direct Runoff Volume (AC - FT)	2.35
Baseflow Volume (AC - FT)	0

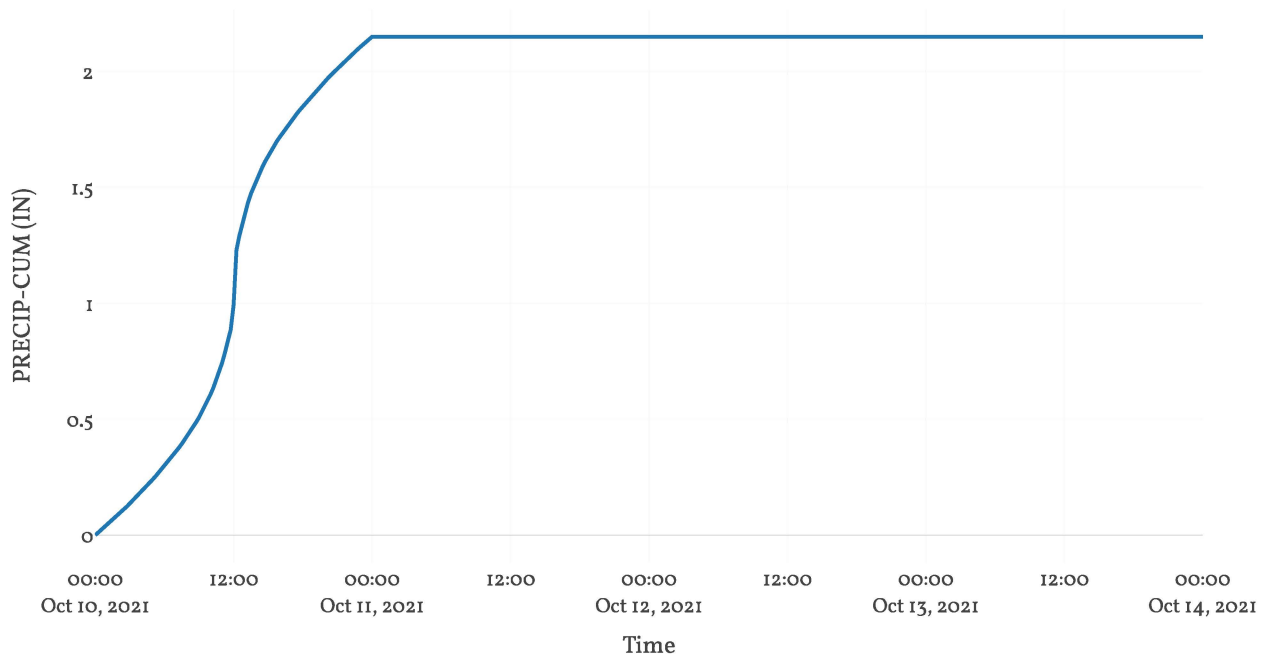
## Precipitation and Outflow



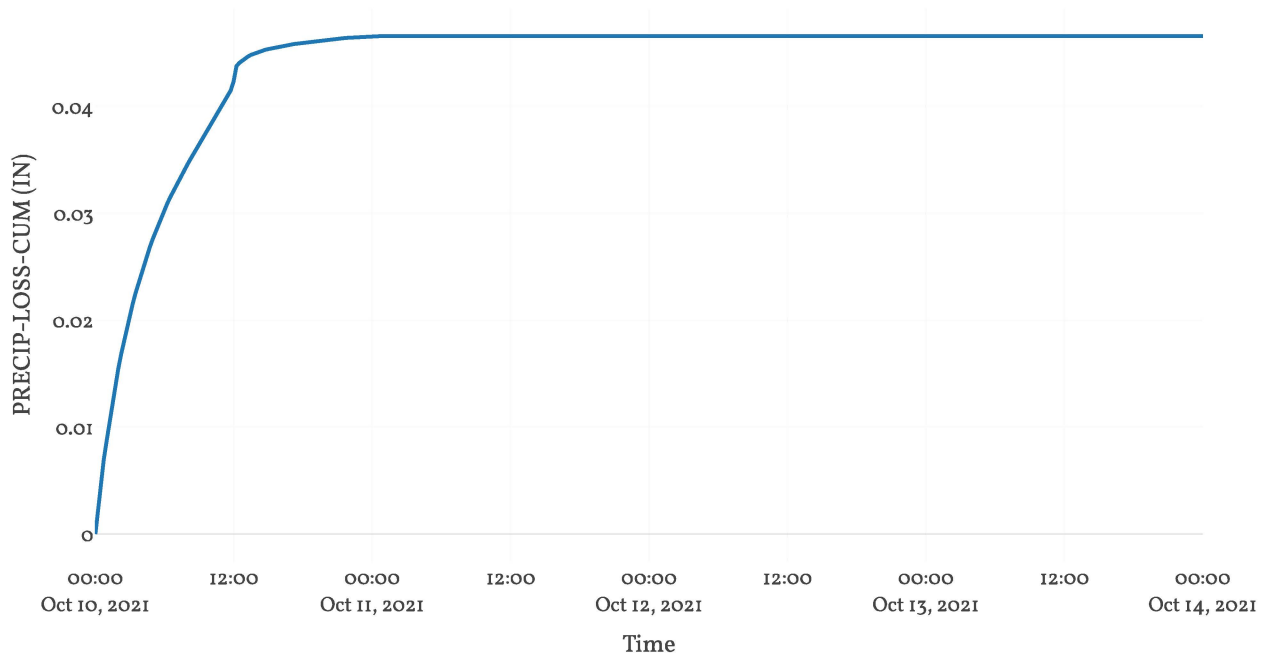
## Cumulative Excess Precipitation



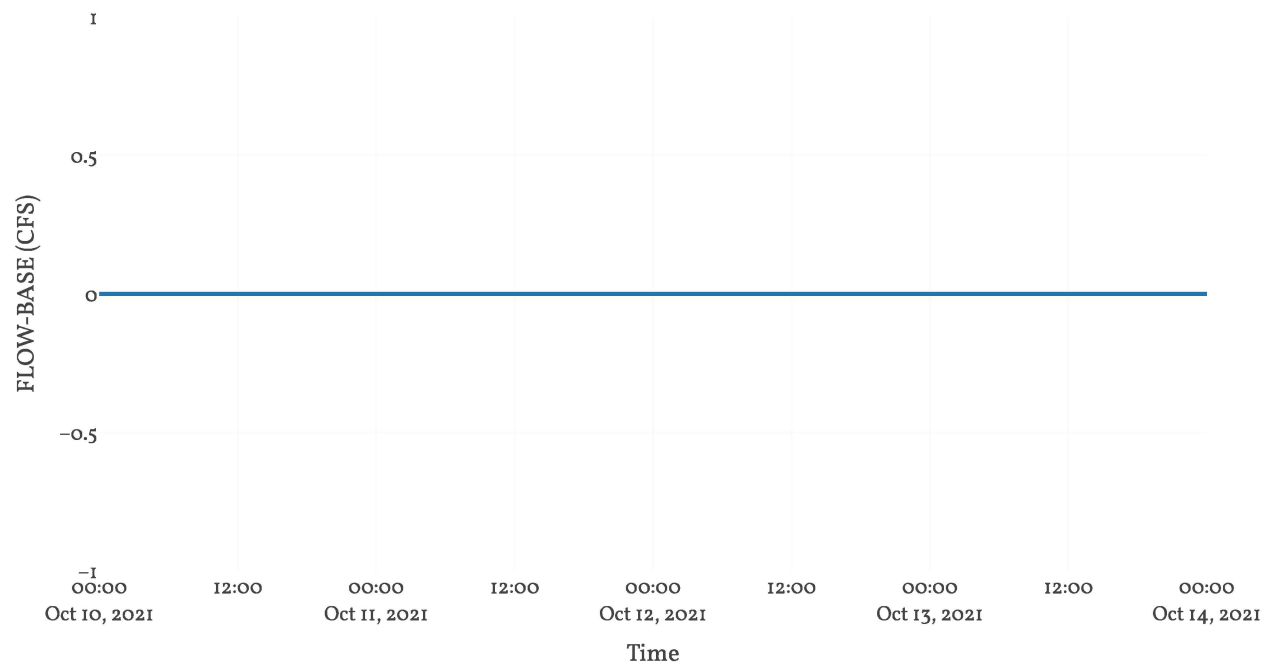
Cumulative Precipitation



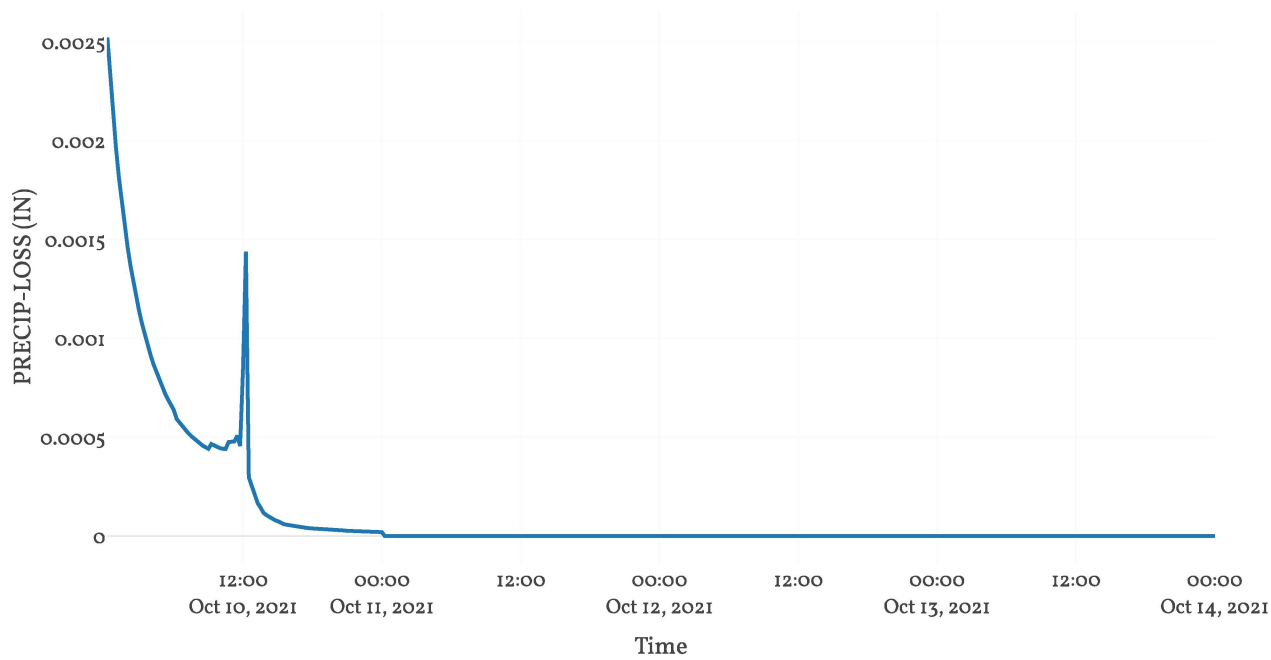
Cumulative Precipitation Loss



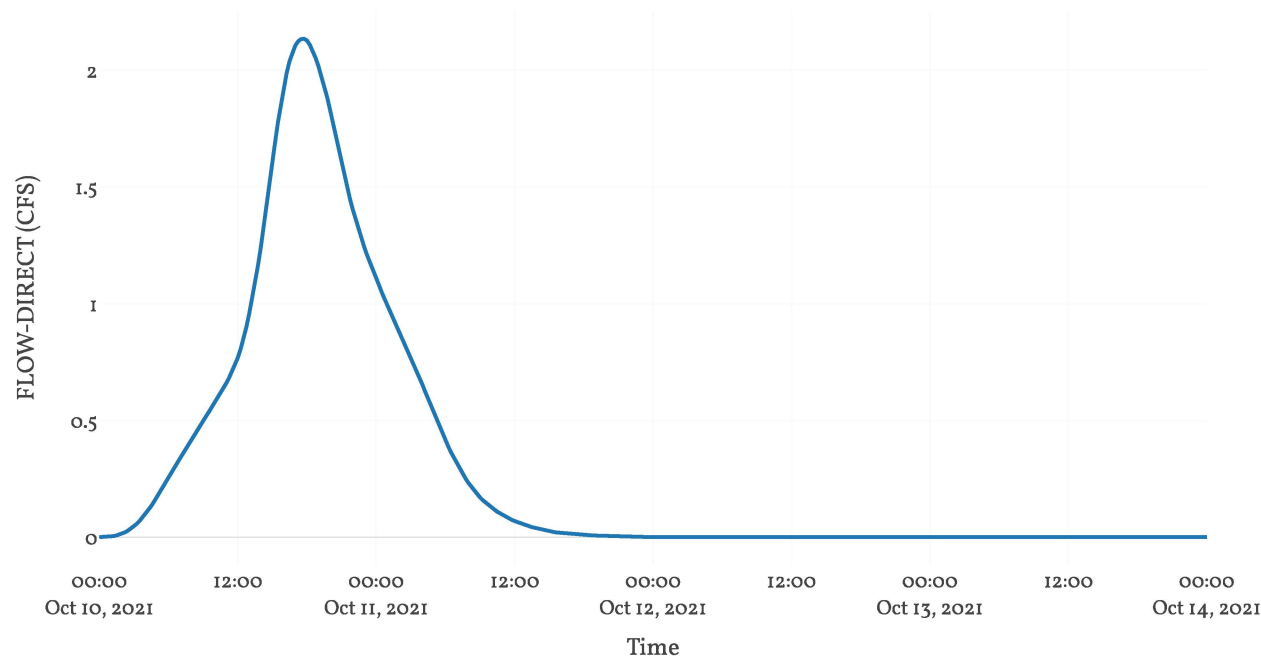
Baseflow



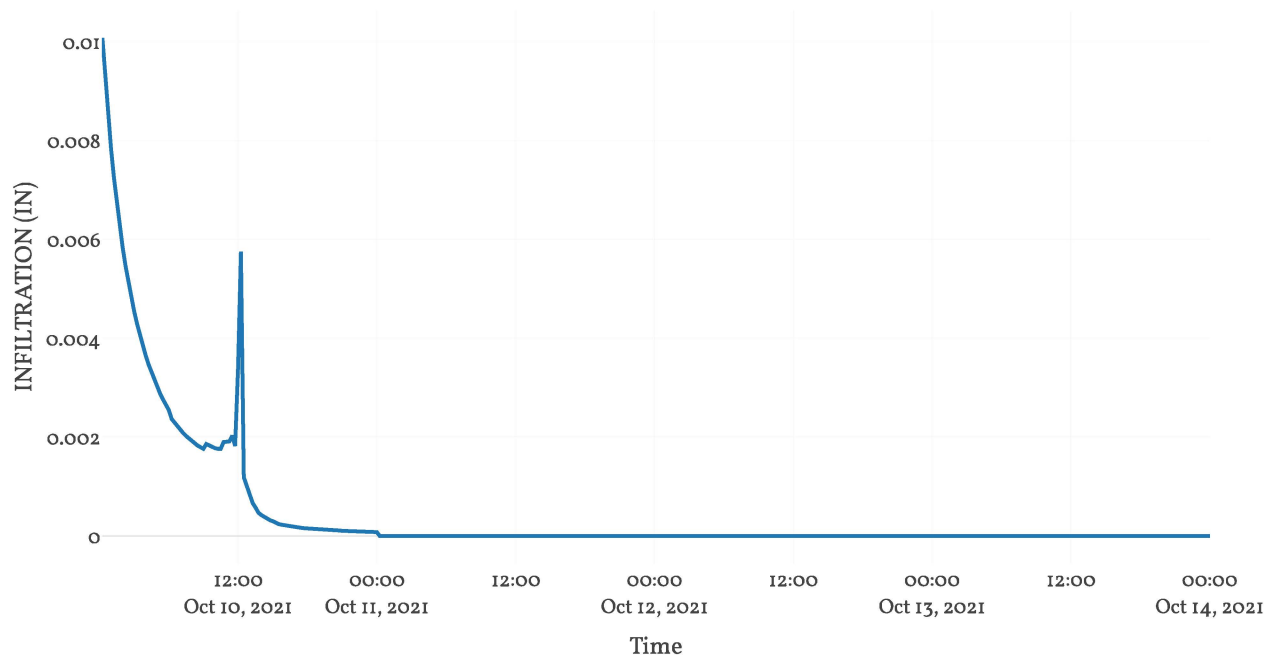
Precipitation Loss



Direct Runoff



Soil Infiltration

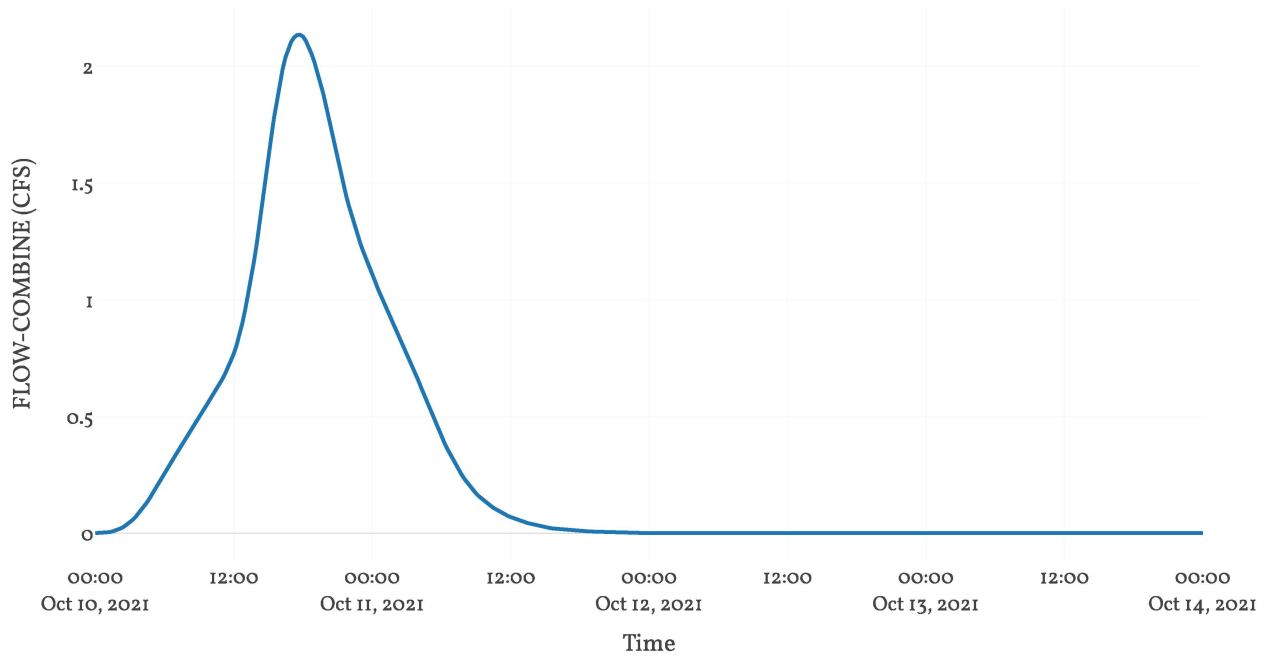


# Junction: Post-Total

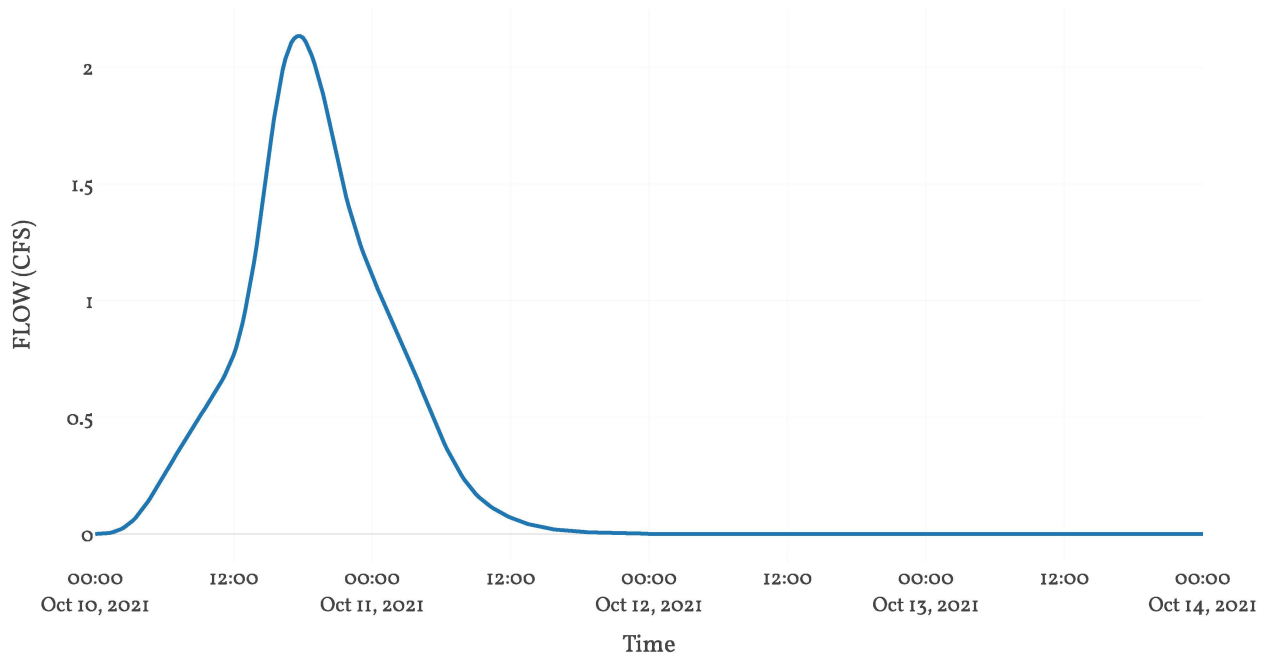
Results: Post-Total	
Peak Discharge (CFS)	2.14
Time of Peak Discharge	10Oct2021, 17:45
Volume (IN)	2.1



Combined Inflow



Outflow





**A.2-17 SUBSTATION BESS AREA – POST-DEVELOPMENT 10YEAR 24HOUR**

**Project:** Oveja\_Sub\_BEES\_3\_01\_Post  
**Simulation Run:** 10 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 09 December 2024, 11:40

Global Parameter Summary - Subbasin

Area	
Element Name	Area
Watershed 3 - 01	0.02

Downstream	
Element Name	Downstream
Watershed 3 - 01	Post - Total

Loss Rate: SCS			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
Watershed 3 - 01	75	98	0

Transform: SCS		
Element Name	Lag	Unitgraph Type
Watershed 3 - 01	320	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Watershed 3 - 01	0.02	3.13	10Oct2021, 17:45	3.24
Post - Total	0.02	3.13	10Oct2021, 17:45	3.24

# Subbasin: Watershed 3-01

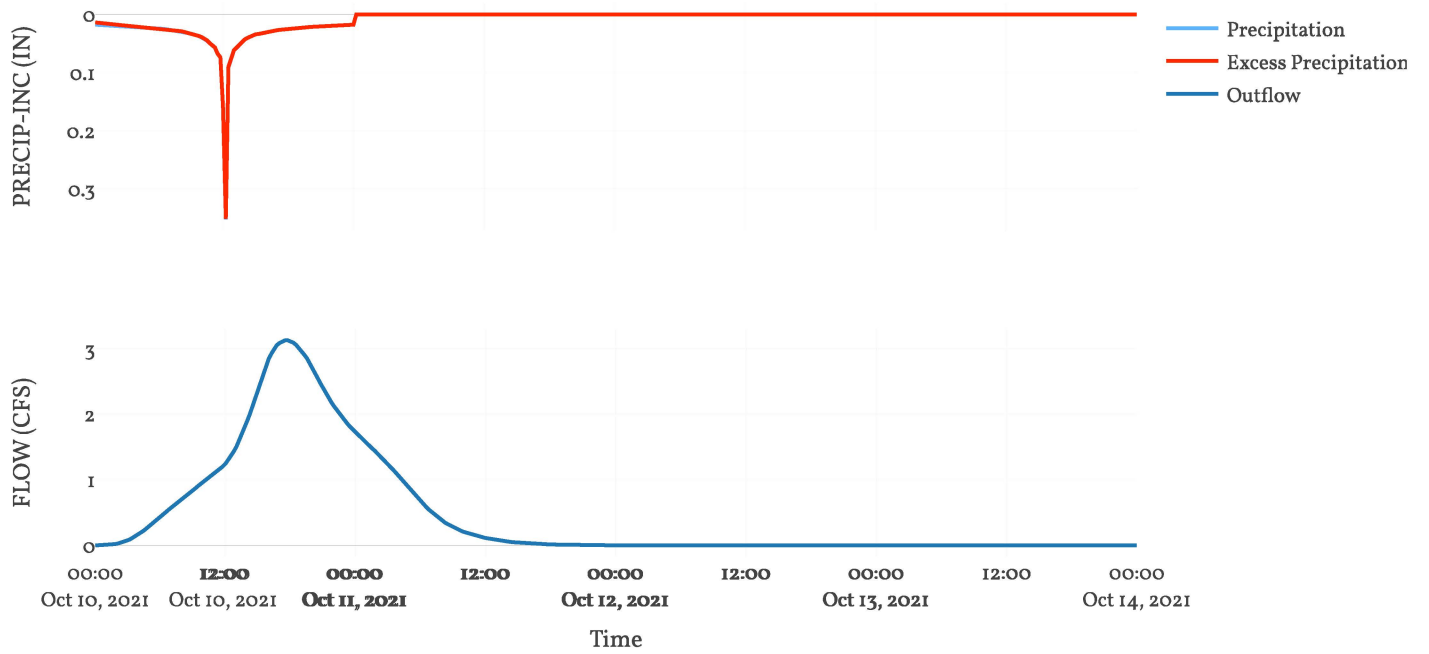
Area : 0.02  
Downstream : Post - Total

Loss Rate: Scs	
Percent Impervious Area	75
Curve Number	98
Initial Abstraction	0

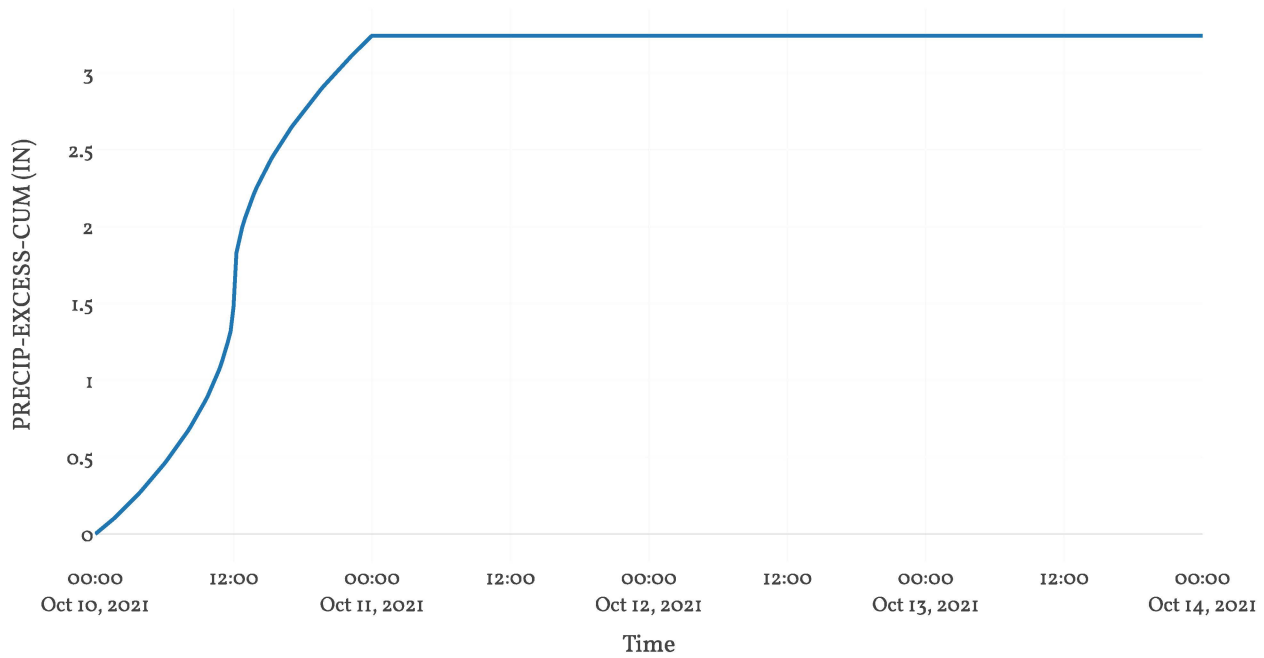
Transform: Scs	
Lag	320
Unitgraph Type	Standard

Results: Watershed 3-01	
Peak Discharge (CFS)	3.13
Time of Peak Discharge	10Oct2021, 17:45
Volume (IN)	3.24
Precipitation Volume (AC - FT)	3.67
Loss Volume (AC - FT)	0.05
Excess Volume (AC - FT)	3.62
Direct Runoff Volume (AC - FT)	3.62
Baseflow Volume (AC - FT)	0

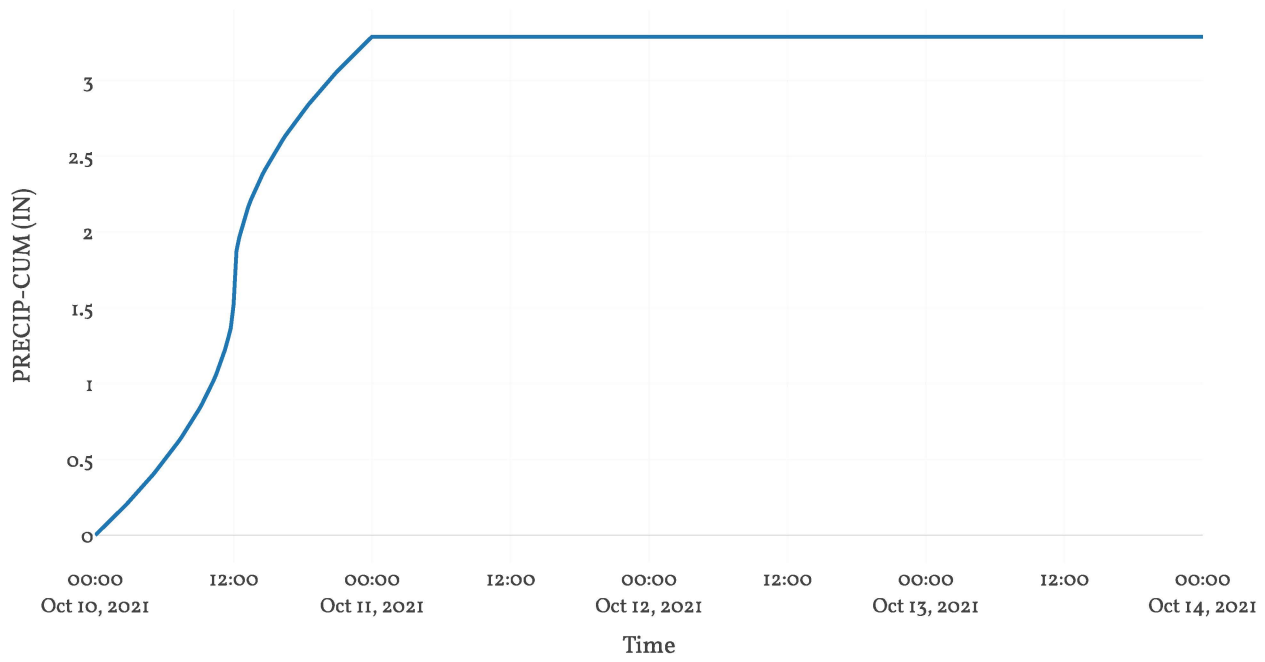
## Precipitation and Outflow



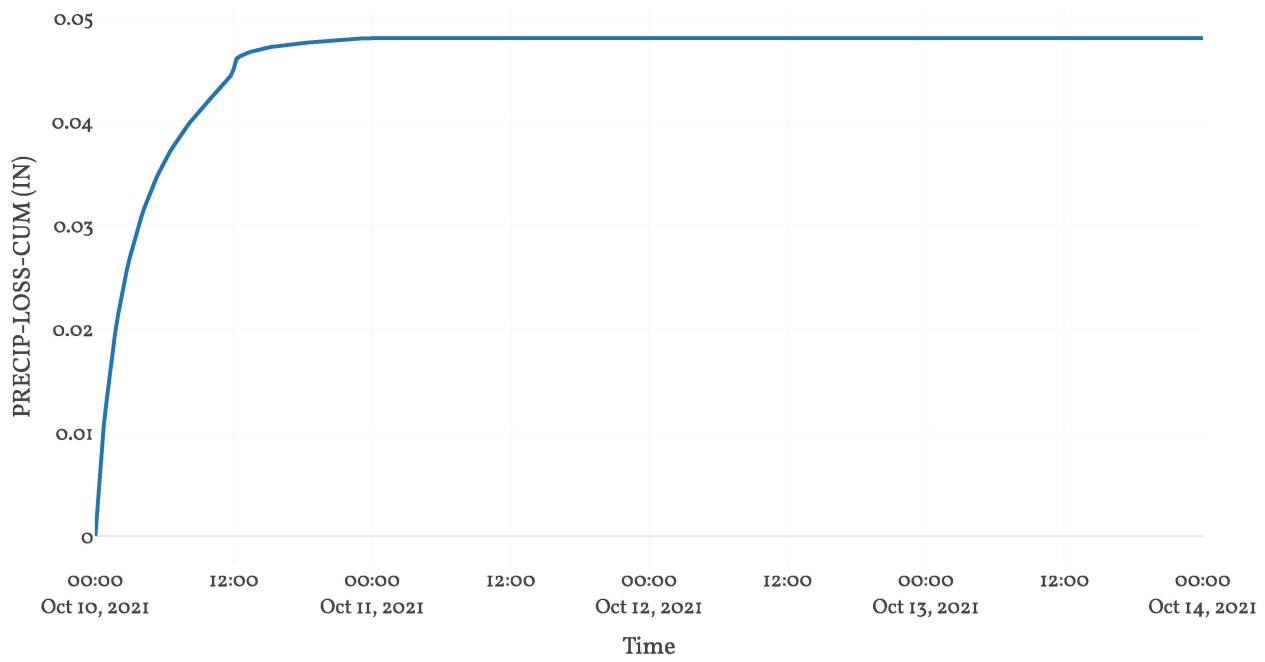
## Cumulative Excess Precipitation



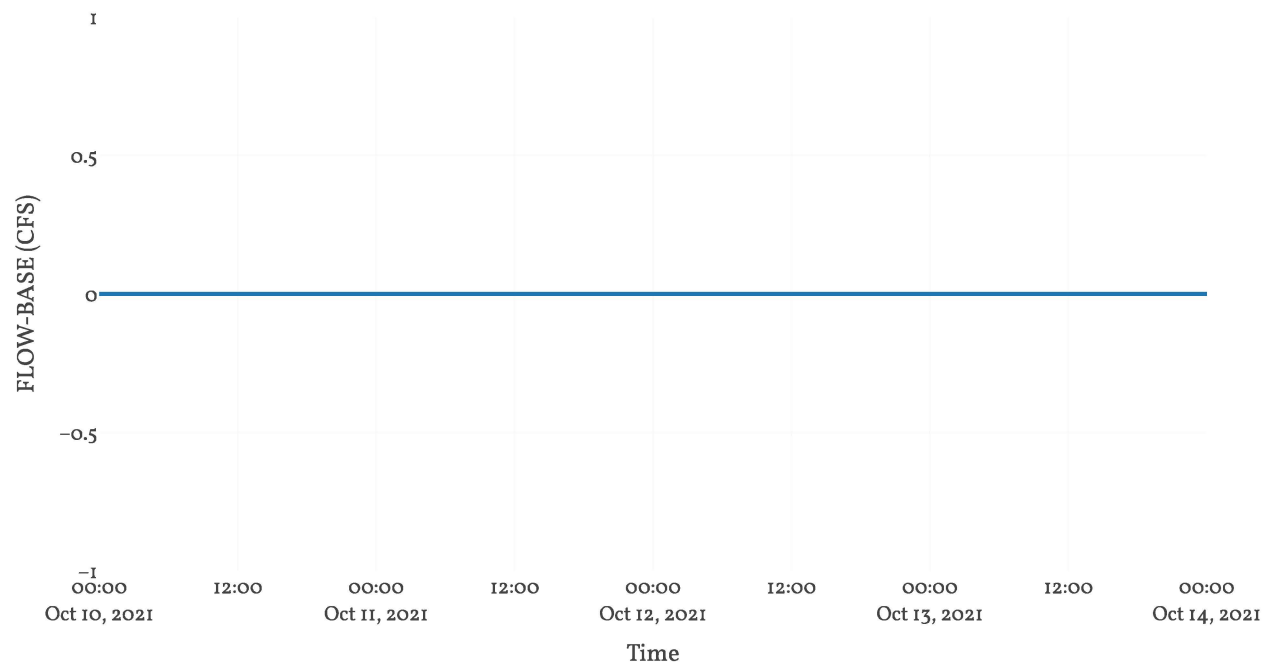
Cumulative Precipitation



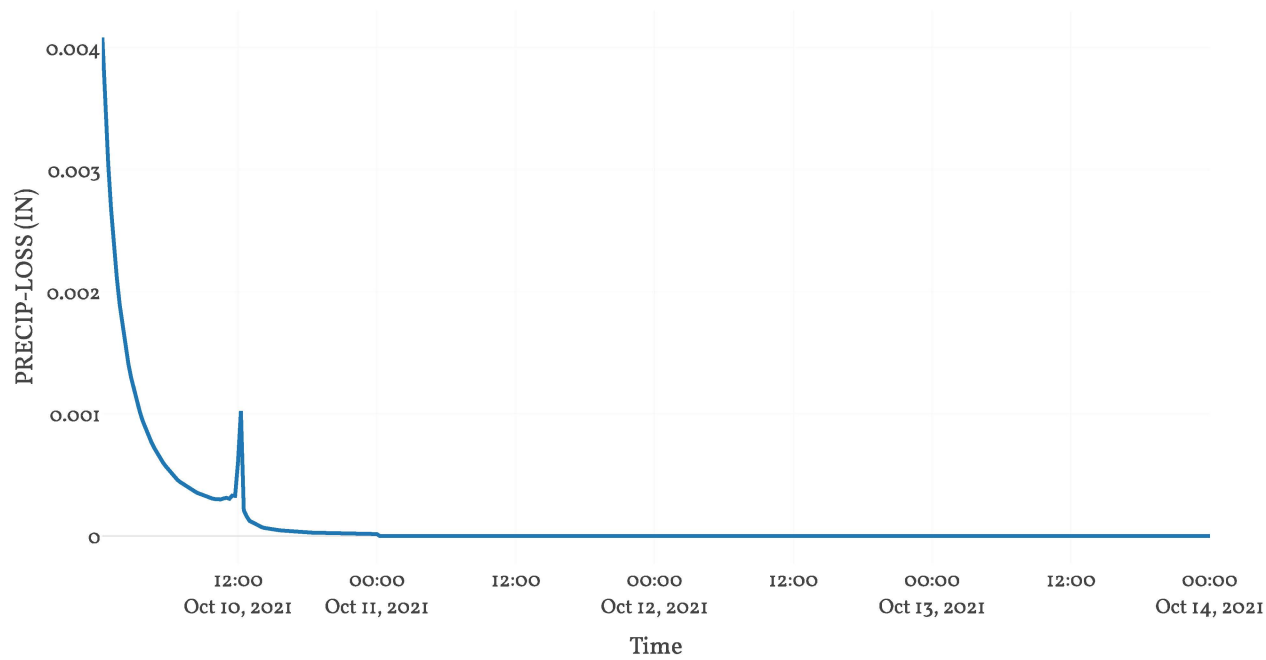
Cumulative Precipitation Loss



Baseflow

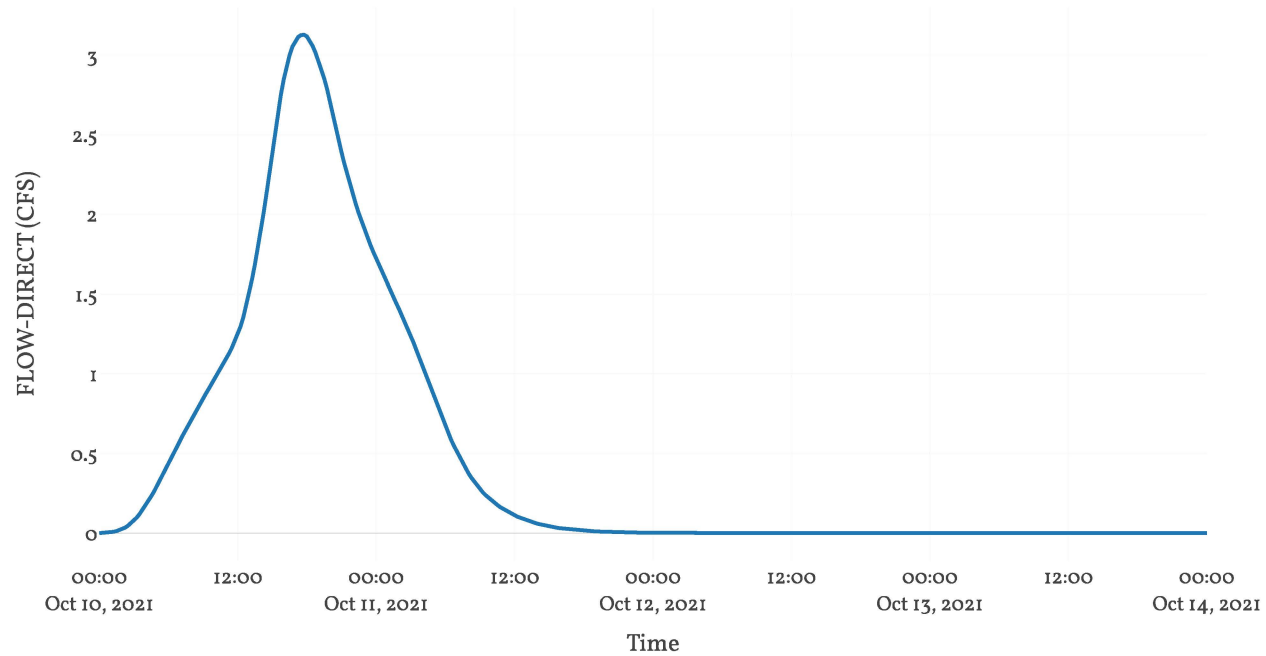


Precipitation Loss

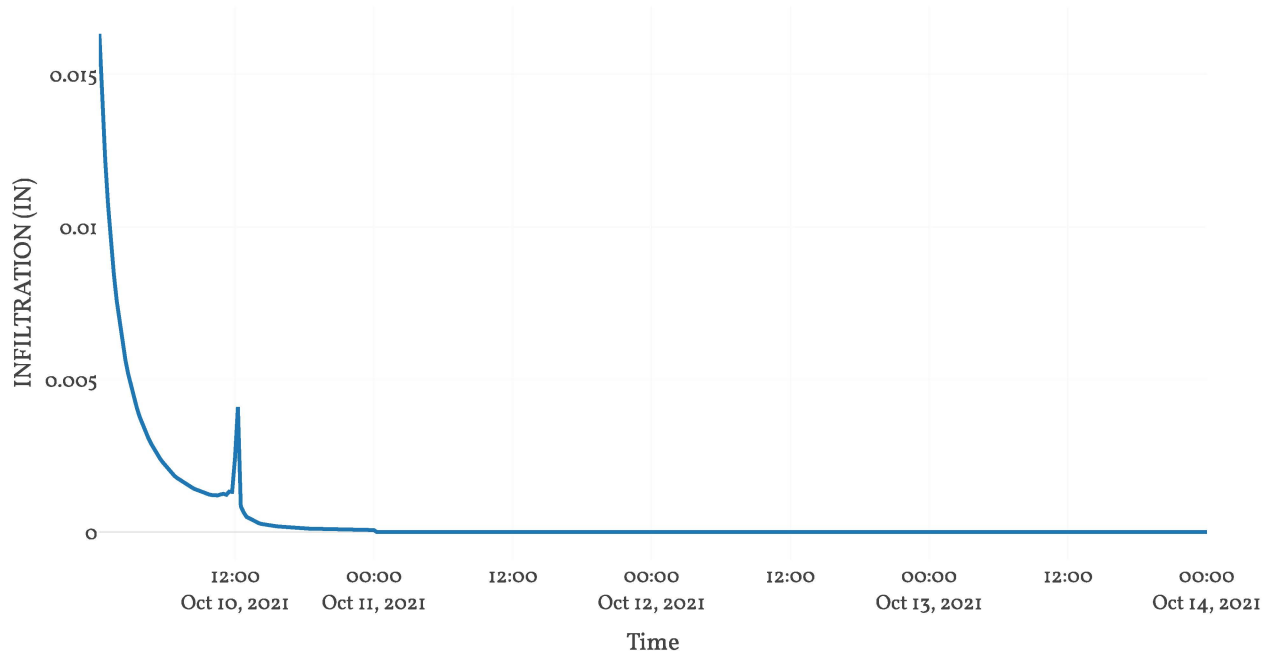




Direct Runoff



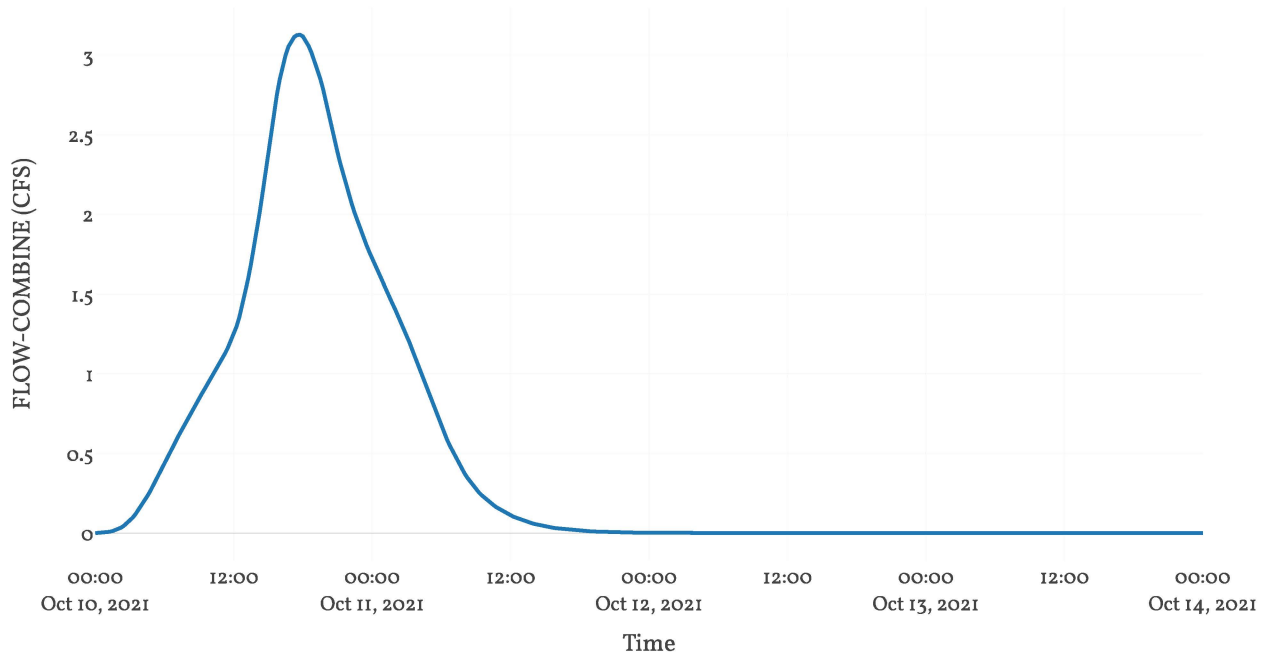
Soil Infiltration



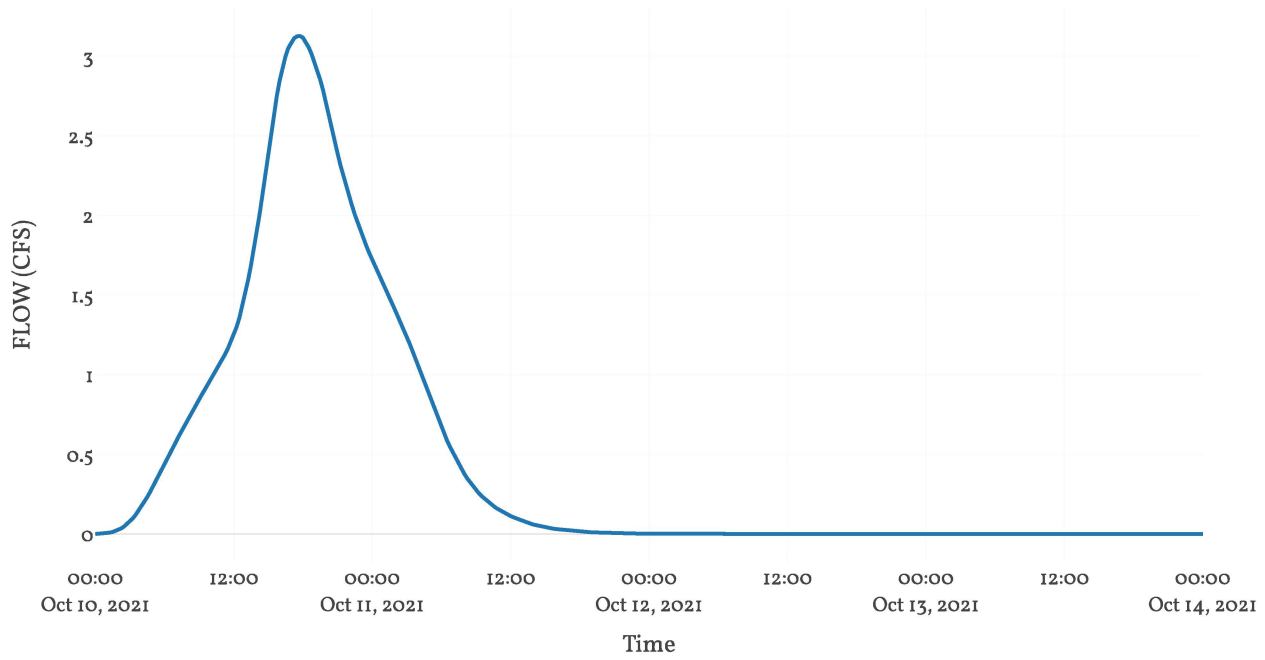
Junction: Post-Total

Results: Post-Total	
Peak Discharge (CFS)	3.13
Time of Peak Discharge	10Oct2021, 17:45
Volume (IN)	3.24

Combined Inflow



Outflow





**A.2-18 SUBSTATION BESS AREA – POST-DEVELOPMENT 100YEAR 24HOUR**

**Project:** Oveja\_Sub\_BEES\_3\_01\_Post  
**Simulation Run:** 100 year 24 hr  
**Simulation Start:** 9 October 2021, 24:00  
**Simulation End:** 13 October 2021, 24:00

**HMS Version:** 4.6  
**Executed:** 09 December 2024, 11:45

Global Parameter Summary - Subbasin

Area	
Element Name	Area
Watershed 3 - 01	0.02

Downstream	
Element Name	Downstream
Watershed 3 - 01	Post - Total

Loss Rate: SCS			
Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
Watershed 3 - 01	75	98	0

Transform: SCS		
Element Name	Lag	Unitgraph Type
Watershed 3 - 01	320	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Watershed 3 - 01	0.02	4.83	10Oct2021, 17:45	5.05
Post - Total	0.02	4.83	10Oct2021, 17:45	5.05

# Subbasin: Watershed 3-01

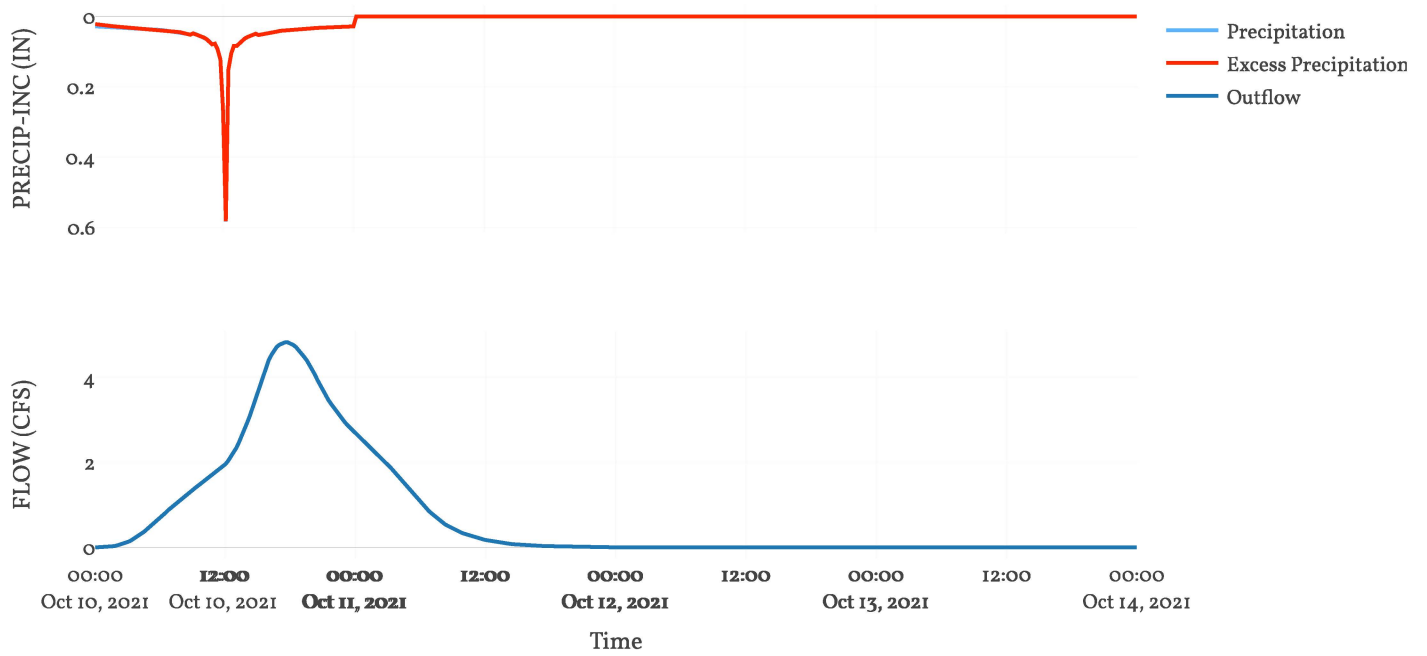
Area : 0.02  
Downstream : Post - Total

Loss Rate: Scs	
Percent Impervious Area	75
Curve Number	98
Initial Abstraction	0

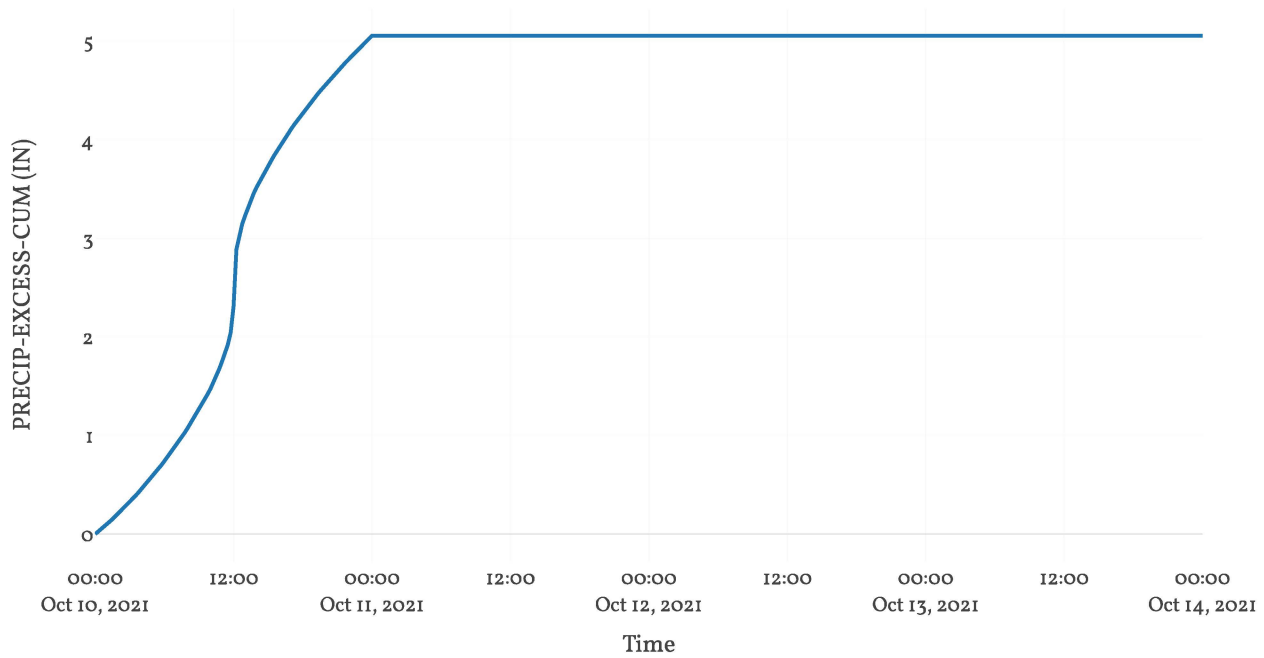
Transform: Scs	
Lag	320
Unitgraph Type	Standard

Results: Watershed 3-01	
Peak Discharge (CFS)	4.83
Time of Peak Discharge	10Oct2021, 17:45
Volume (IN)	5.05
Precipitation Volume (AC - FT)	5.69
Loss Volume (AC - FT)	0.05
Excess Volume (AC - FT)	5.64
Direct Runoff Volume (AC - FT)	5.64
Baseflow Volume (AC - FT)	0

## Precipitation and Outflow

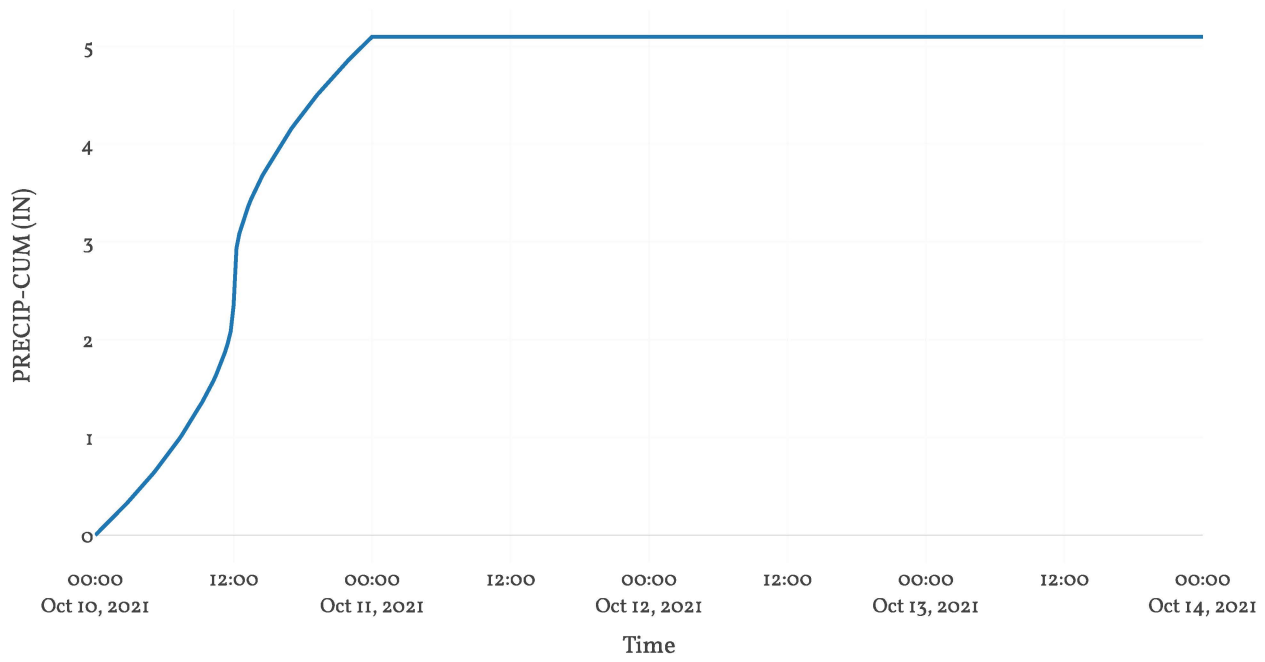


## Cumulative Excess Precipitation

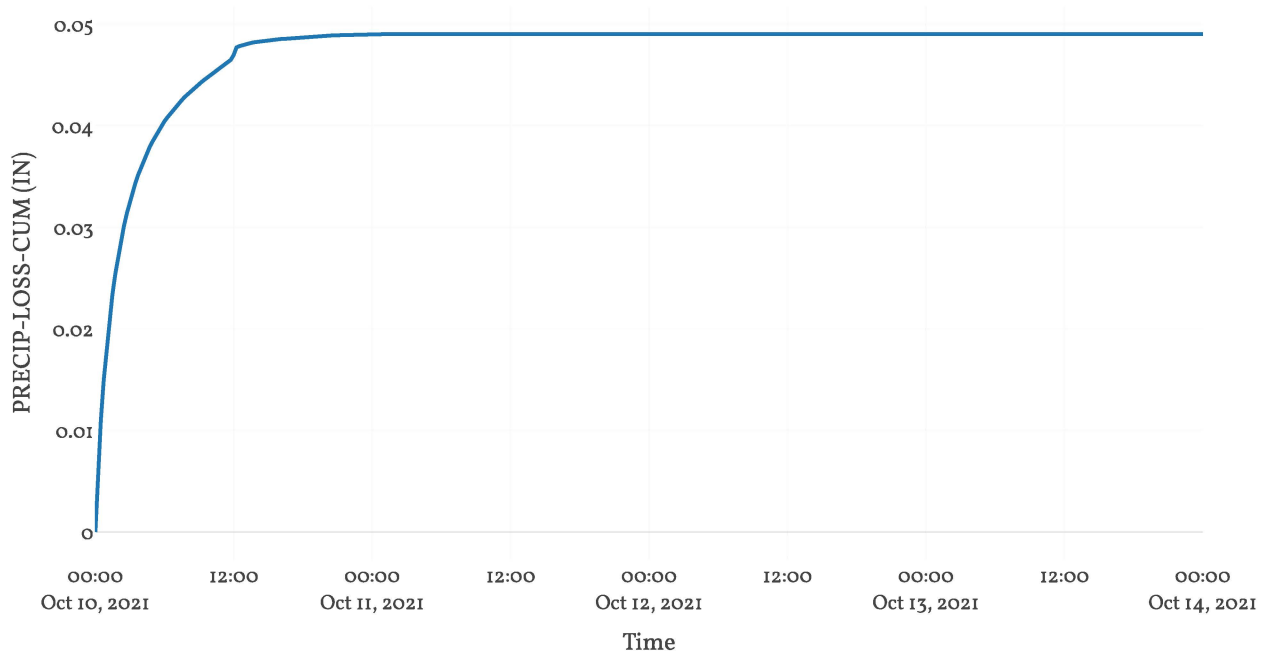




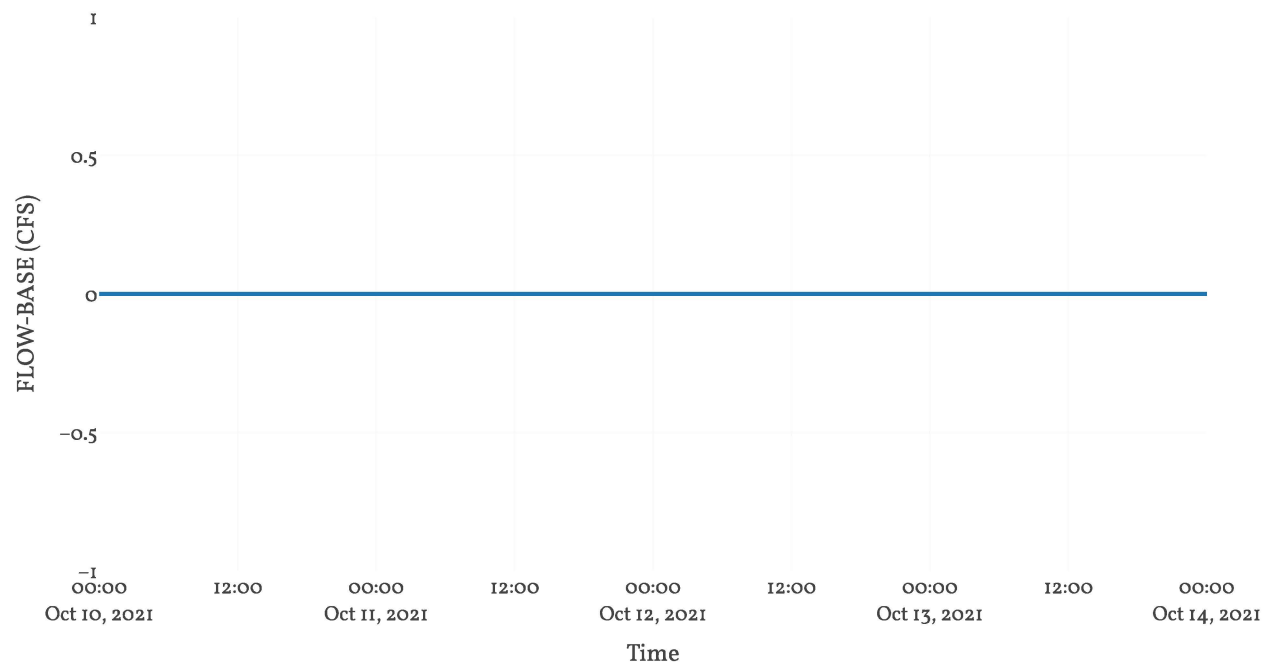
Cumulative Precipitation



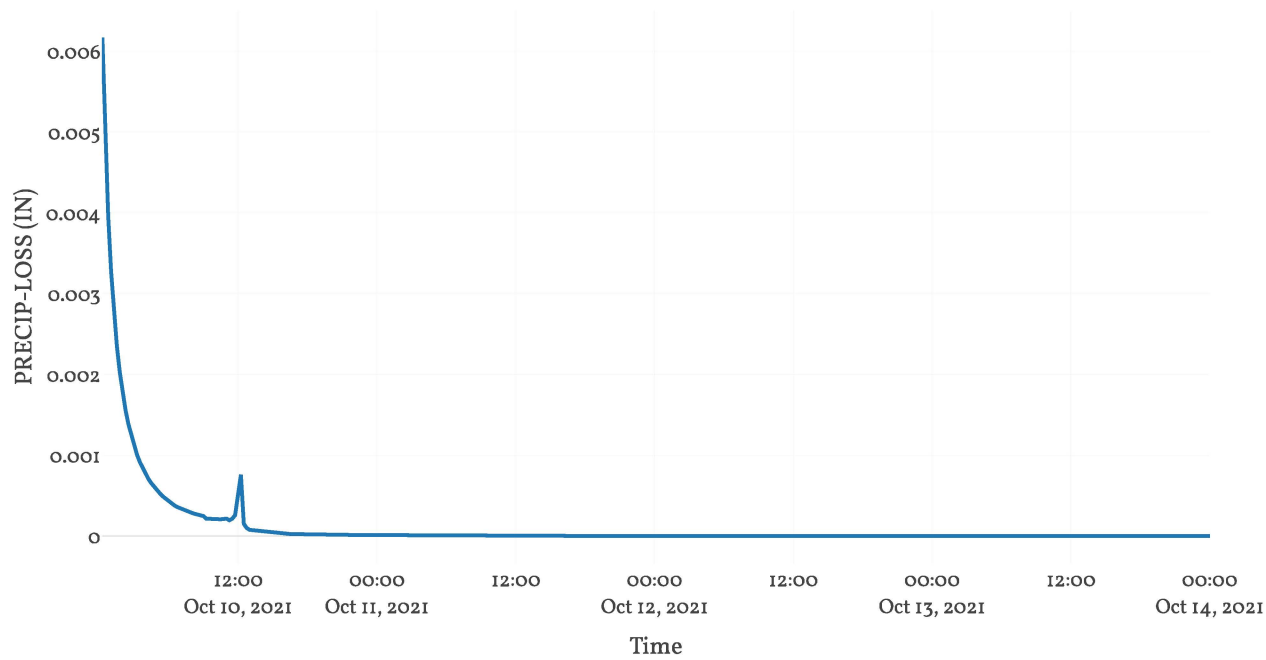
Cumulative Precipitation Loss



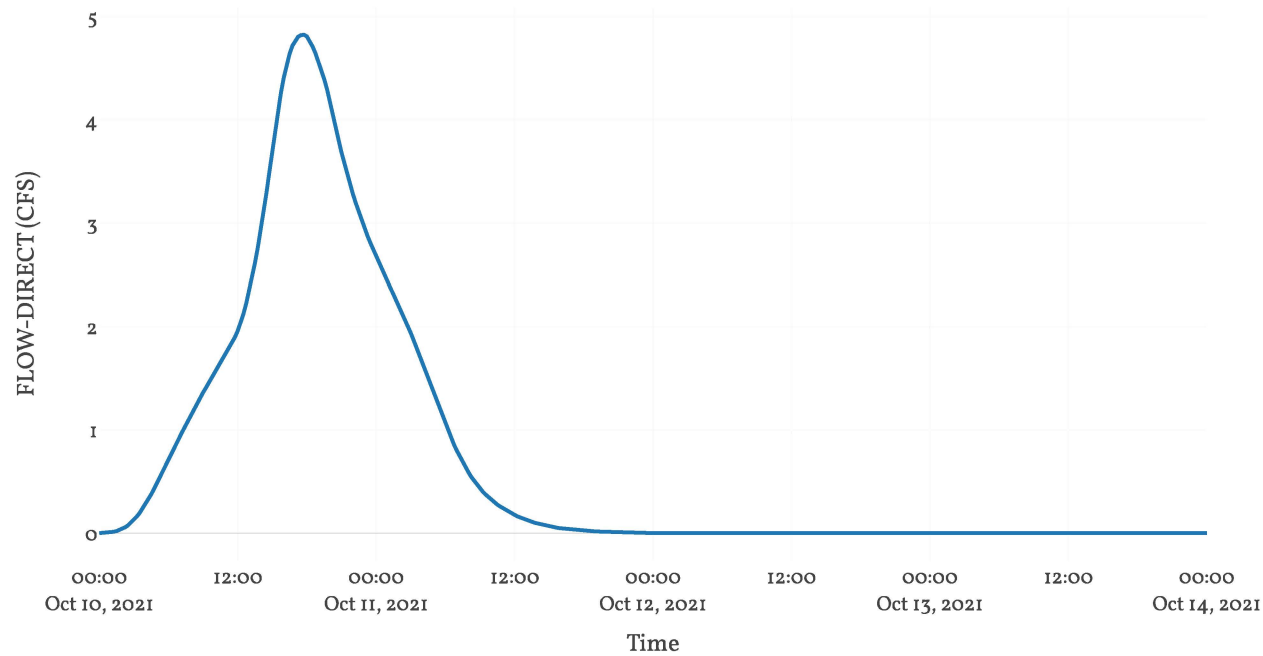
Baseflow



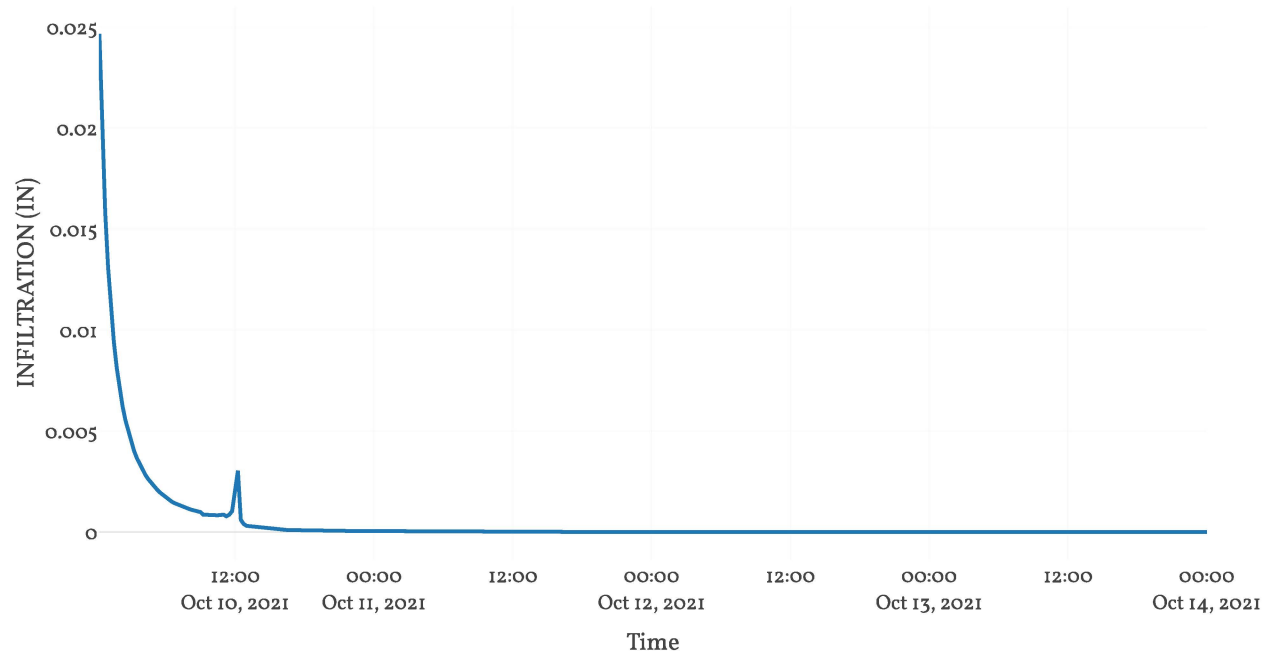
Precipitation Loss



Direct Runoff



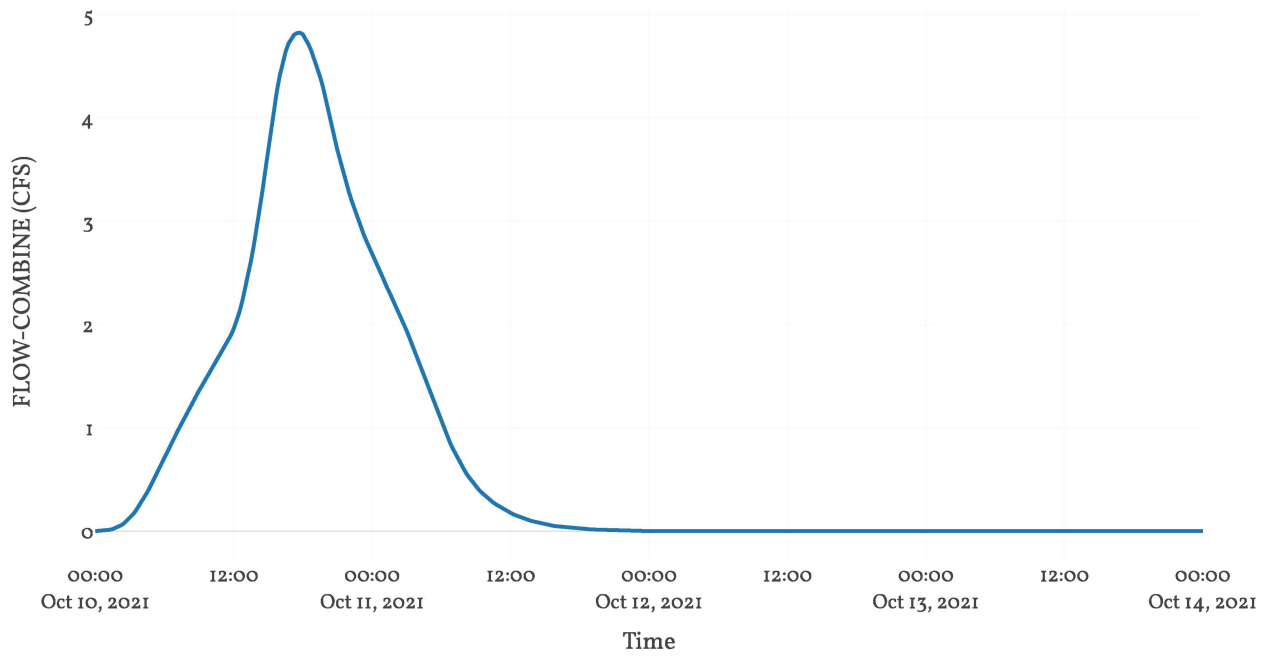
Soil Infiltration



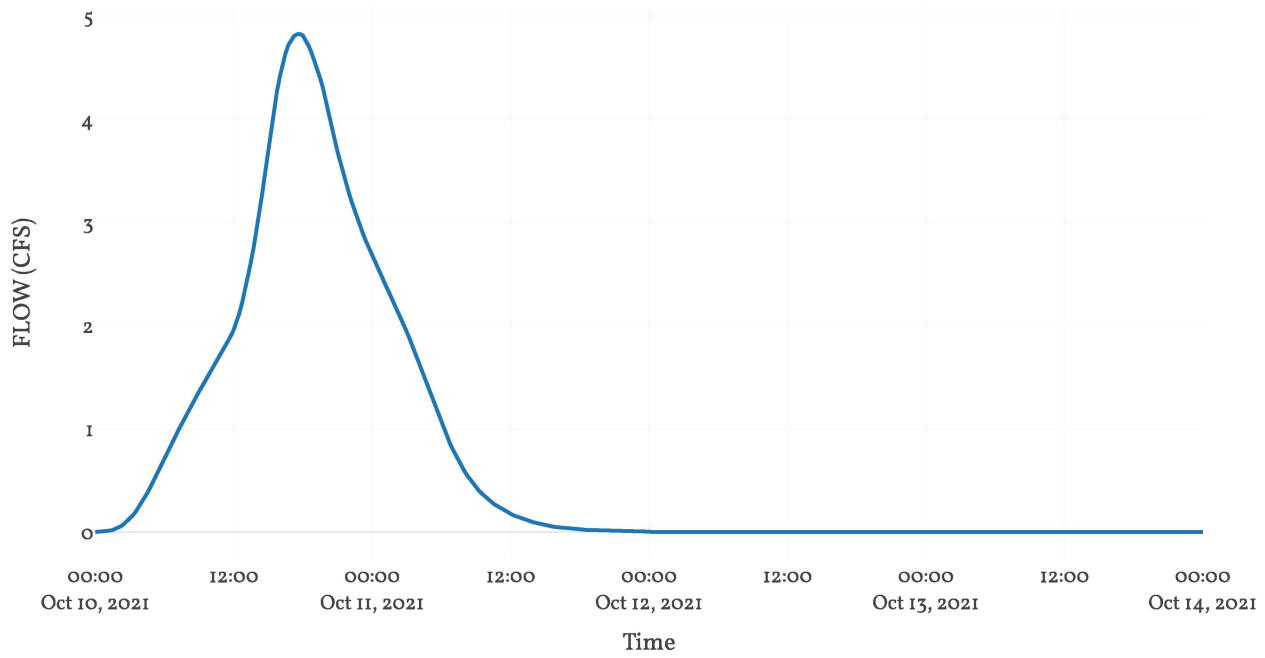
# Junction: Post-Total

Results: Post-Total	
Peak Discharge (CFS)	4.83
Time of Peak Discharge	10Oct2021, 17:45
Volume (IN)	5.05

Combined Inflow



Outflow





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