



DRAINAGE SUMMARY
October 8, 2021

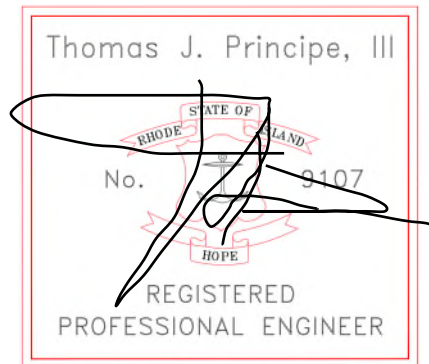
AP 57-1, LOT 110
Holley Street
South Kingstown, RI 02879

Prepared For:

Holley Street, LLC
17 Arnold St., Suite 100
Wakefield, RI 02879

Prepared By:

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27 Sakonnet Ridge Drive
Tiverton, Rhode Island



This stormwater management analysis and accompanying HydroCAD design calculations were prepared in support of the development of AP 57-1, Lot 110 at Holley Street in South Kingstown, RI.

The existing site does not contain any existing structures, but has been periodically maintained. The soil beneath the site is comprised of Wa (Walpole sandy loam - hydrologic

group D designation) and smaller areas of MU (Merrimac-Urban land complex - hydrologic group A designation) and Ur (Urban land-- hydrologic group A designation) according to the USDA Soil Survey. The area of mapped Walpole soil is not correct, based on the past development of the adjacent land areas as well as on-site soil investigation. Based on the on-site soil investigation, the hydrologic soil group utilized in the calculations is "A". Currently, stormwater flows towards the property lines between Holley Street and Oak Street, and then from north to south without any stormwater treatment, and ultimately entering into the drainage system located within Oak Street.

The proposed development will treat the new roof and driveway areas by directing surface flows to the proposed stormwater best management practices (BMPs). The exception to this is the proposed sidewalk along Holley Street within the Town of South Kingstown right-of-way, which will not receive any treatment. The proposed site will contain an infiltration basin to treat the roof runoff, and porous driveways/parking areas.

The stormwater design calculations focus on demonstrating the proposed site adequately handles the intensity from the 1, 10 and 100-year storm events while providing water quality treatment and recharge for the impervious runoff within the sub-areas and at the overall design point. The 25-year storm event was also analyzed due to the discharges into the Town's drainage system. As a result, the post-development flow rates to the design points referenced above have been reduced below the pre-development flows for the site. Again, the exception to this is the flows to Holley Street, which experiences small increases in peak flows due to the introduction of a paved sidewalk, when analyzed as a separate watershed. As a whole, the proposed stormwater treatments reduce the amount of flow off of the site into the Town's drainage system.

Below is a summary of the HydroCAD analysis comparing pre-development and post-development flow rates for the project at the project design points.

WATERSHED	1-YEAR STORM	10-YEAR STORM	25-YEAR STORM	100-YEAR STORM
PRE-HOLLEY	-0- CFS	0.02 CFS	0.07 CFS	0.26 CFS
POST-HOLLEY	-0- CFS	0.04 CFS	0.11 CFS	0.39 CFS

PRE-OAK	-0- CFS	0.20 CFS	0.75 CFS	2.80 CFS
POST-OAK	-0- CFS	0.10 CFS	0.46 CFS	1.85 CFS
HOLLEY (PRE/PO)	0 = 0	0.02 < 0.04	0.07 < 0.11	0.26 < 0.39
OAK (PRE/POST)	0 = 0	0.20 > 0.10	0.75 > 0.46	2.80 > 1.85
TOTAL SITE	0 = 0	0.22 > 0.14	0.82 > 0.57	3.06 > 2.24

While incorporating the measures described above and taking advantage of the natural slopes and contours of the site, the project is able to achieve a decrease in stormwater runoff rate and volume toward the analyzed design points as well as provide adequate water quality treatment and recharge. Thus, typical post-development impacts to downstream properties and water resource areas have been effectively mitigated.

Recharge Volume Requirement:

$$\text{ReV} = (1'')(0.60)(0.25^*)/12 = 0.0125 \text{ ac-ft} < 0.021 \text{ ac-ft provided OK}$$

Water Quality Volume Requirement:

$$\text{WQV} = (1'')(0.25^*)/12 = 0.021 \text{ ac-ft} = 0.021 \text{ ac-ft provided OK}$$

*Roof area, only. The porous pavement areas are designed to provide the required recharge and water quality treatment for the installed areas.

APPENDICES

A. RIDEM Appendix A

B. Water Quality and Recharge Calculations

- C. HydroCAD 1.2” Water Quality Volume Calculations
- D. HydroCAD 1, 10, 25, & 100-year Storm Calculations
- E. Watershed Maps

APPENDIX A: STORMWATER MANAGEMENT PLAN CHECKLIST AND LID PLANNING REPORT – STORMWATER DESIGN SUMMARY

PROJECT NAME RESIDENCES ON HOLLEY STREET	(RIDEM USE ONLY)
TOWN SOUTH KINGSTOWN	STW/WQC File #:
BRIEF PROJECT DESCRIPTION: CONSTRUCTION OF 6 DUPLEX RESIDENCES WITH ASSOCIATED DRIVEWAYS, PARKING, UTILITIES AND GRADING.	Date Received:

Stormwater Management Plan (SMP) Elements – Minimum Standards

When submitting a SMP,¹ submit **four separately bound** documents: Appendix A Checklist; Stormwater Site Planning, Analysis and Design Report with Plan Set/Drawings; Soil Erosion and Sediment Control (SESC) Plan, and Post Construction Operations and Maintenance (O&M) Plan. Please refer to [Suggestions to Promote Brevity](#).

Note: All stormwater construction projects must create a Stormwater Management Plan (SMP). However, not every element listed below is required per the [RIDEM Stormwater Rules](#) and the [RIPDES Construction General Permit \(CGP\)](#). This checklist will help identify the required elements to be submitted with an Application for Stormwater Construction Permit & Water Quality Certification.

PART 1. PROJECT AND SITE INFORMATION

PROJECT TYPE (Check all that apply)				
<input checked="" type="checkbox"/> Residential	<input type="checkbox"/> Commercial	<input type="checkbox"/> Federal	<input type="checkbox"/> Retrofit	<input type="checkbox"/> Restoration
<input type="checkbox"/> Road	<input type="checkbox"/> Utility	<input type="checkbox"/> Fill	<input type="checkbox"/> Dredge	<input type="checkbox"/> Mine
<input type="checkbox"/> Other (specify):				

SITE INFORMATION

Vicinity Map

INITIAL DISCHARGE LOCATION(S): The WQv discharges to: (You may choose more than one answer if several discharge points are associated with the project.)

<input checked="" type="checkbox"/> Groundwater	<input type="checkbox"/> Surface Water	<input checked="" type="checkbox"/> MS4
<input type="checkbox"/> GAA	<input type="checkbox"/> Isolated Wetland	<input type="checkbox"/> RIDOT
<input checked="" type="checkbox"/> GA	<input type="checkbox"/> Named Waterbody	<input type="checkbox"/> RIDOT Alteration Permit is Approved
<input type="checkbox"/> GB	<input type="checkbox"/> Unnamed Waterbody Connected to Named Waterbody	<input checked="" type="checkbox"/> Town
<input type="checkbox"/> Other (specify):		

ULTIMATE RECEIVING WATERBODY LOCATION(S): Include pertinent information that applies to both WQv and flow from larger storm events including overflows. Choose all that apply, and repeat table for each waterbody.

<input checked="" type="checkbox"/> Groundwater or Disconnected Wetland	<input type="checkbox"/> SRWP
<input checked="" type="checkbox"/> Waterbody Name: Saugatucket River	<input type="checkbox"/> Coldwater <input type="checkbox"/> Warmwater <input checked="" type="checkbox"/> Unassessed
<input type="checkbox"/> Waterbody ID: RI0010045R-05C	<input checked="" type="checkbox"/> 4 th order stream of pond 50 acres or more
<input checked="" type="checkbox"/> TMDL for: Fecal Coliform	<input type="checkbox"/> Watershed of flood prone river (e.g., Pocasset River)
<input type="checkbox"/> Contributes to a priority outfall listed in the TMDL	<input type="checkbox"/> Contributes stormwater to a public beach
<input type="checkbox"/> 303(d) list – Impairment(s) for:	<input type="checkbox"/> Contributes to shellfishing grounds

¹ Applications for a Construction General Permit that do not require any other permits from RIDEM and will disturb less than 5 acres over the entire course of the project do not need to submit a SMP. The Appendix A checklist must still be submitted.

PROJECT HISTORY		
<input type="checkbox"/> RIDEM Pre- Application Meeting	Meeting Date:	<input type="checkbox"/> Minutes Attached
<input checked="" type="checkbox"/> Municipal Master Plan Approval	Approval Date:	<input type="checkbox"/> Minutes Attached
<input type="checkbox"/> Subdivision Suitability Required	Approval #:	
<input type="checkbox"/> Previous Enforcement Action has been taken on the property	Enforcement #:	
FLOODPLAIN & FLOODWAY See Guidance Pertaining to Floodplain and Floodways		
<input type="checkbox"/> Riverine 100-year floodplain: FEMA FLOODPLAIN FIRMETTE has been reviewed and the 100-year floodplain is on site		
<input type="checkbox"/> Delineated from FEMA Maps		
NOTE: Per Rule 250-RICR-150-10-8-1.1(B)(5)(d)(3), provide volumetric floodplain compensation calculations for cut and fill/displacement calculated by qualified professional		
<input type="checkbox"/> Calculated by Professional Engineer		
<input type="checkbox"/> Calculations are provided for cut vs. fill/displacement volumes proposed within the 100-year floodplain	Amount of Fill (CY):	
	Amount of Cut (CY):	
<input type="checkbox"/> Restrictions or modifications are proposed to the flow path or velocities in a floodway		
<input type="checkbox"/> Floodplain storage capacity is impacted		
<input type="checkbox"/> Project area is not within 100-year floodplain as defined by RIDEM		

CRMC JURISDICTION
<input type="checkbox"/> CRMC Assent required
<input type="checkbox"/> Property subject to a Special Area Management Plan (SAMP). If so, specify which SAMP:
<input type="checkbox"/> Sea level rise mitigation has been designed into this project

LUHPPL IDENTIFICATION - MINIMUM STANDARD 8:		
1. OFFICE OF Land Revitalization and Sustainable Materials Management (OLRSMM)		
<input type="checkbox"/> Known or suspected releases of HAZARDOUS MATERIAL are present at the site (Hazardous Material is defined in Rule 1.4(A)(33) of 250-140-30-1 of the RIDEM Rules and Regulations for Investigation and Remediation of Hazardous Materials (the Remediation Regulations))		RIDEM CONTACT:
<input type="checkbox"/> Known or suspected releases of PETROLEUM PRODUCT are present at the site (Petroleum Product as defined in Rule 1.5(A)(84) of 250-140-25-1 of the RIDEM Rules and Regulations for Underground Storage Facilities Used for Regulated Substances and Hazardous Materials)		
<input type="checkbox"/> This site is identified on the RIDEM Environmental Resources Map as one of the following regulated facilities		SITE ID#:
<input type="checkbox"/> CERCLIS/Superfund (NPL)		
<input type="checkbox"/> State Hazardous Waste Site (SHWS)		
<input type="checkbox"/> Environmental Land Usage Restriction (ELUR)		
<input type="checkbox"/> Leaking Underground Storage Tank (LUST)		
<input type="checkbox"/> Closed Landfill		
Note: If any boxes in 1 above are checked, the applicant must contact the RIDEM OLRSM Project Manager associated with the Site to determine if subsurface infiltration of stormwater is allowable for the project. Indicate if the infiltration corresponds to "Red," "Yellow" or "Green" as described in Section 3.2.8 of the RISDISM Guidance (Subsurface Contamination Guidance). Also, note and reference approval in PART 3, Minimum Standard 2: Groundwater Recharge/Infiltration.		
2. PER MINIMUM STANDARD 8 of RICR 8.14.C.1-6 "LUHPPLS," THE SITE IS/HAS:		
<input type="checkbox"/> Industrial Site with RIPDES MSGP, except where No Exposure Certification exists. http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/status.php		
<input type="checkbox"/> Auto Fueling Facility (e.g., gas station)		
<input type="checkbox"/> Exterior Vehicles Service, Maintenance, or Equipment Cleaning Area		

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

<input type="checkbox"/>	Road Salt Storage and Loading Areas (exposed to rainwater)	
<input type="checkbox"/>	Outdoor Storage and Loading/Unloading of Hazardous Substances	
3. STORMWATER INDUSTRIAL PERMITTING		
<input type="checkbox"/>	The site is associated with existing or proposed activities that are considered Land Uses with Higher Potential Pollutant Loads (LUHPPLS) (see RICR 8.14.C)	Activities: Sector:
<input type="checkbox"/>	Construction is proposed on a site that is subject to THE MULTI-SECTOR GENERAL PERMIT (MSGP) UNDER RULE 31(B)15 OF THE RIPDES REGULATIONS.	MSGP permit #
<input type="checkbox"/>	Additional stormwater treatment is required by the MSGP Explain:	

REDEVELOPMENT STANDARD – MINIMUM STANDARD 6		
<input type="checkbox"/> Pre Construction Impervious Area		
<input type="checkbox"/>	Total Pre-Construction Impervious Area (TIA)	
<input type="checkbox"/>	Total Site Area (TSA)	
<input type="checkbox"/>	Jurisdictional Wetlands (JW)	
<input type="checkbox"/>	Conservation Land (CL)	
<input type="checkbox"/> Calculate the Site Size (defined as contiguous properties under same ownership)		
<input type="checkbox"/>	Site Size (SS) = (TSA) – (JW) – (CL)	
<input type="checkbox"/>	(TIA) / (SS) =	<input type="checkbox"/> (TIA) / (SS) >0.4?
<input type="checkbox"/> YES, Redevelopment		

PART 2. LOW IMPACT DEVELOPMENT ASSESSMENT – MINIMUM STANDARD 1
(NOT REQUIRED FOR REDEVELOPMENT OR RETROFITS)
This section may be deleted if not required.

<p>Note: A written description must be provided specifying why each method is not being used or is not applicable at the Site. Appropriate answers may include:</p> <ul style="list-style-type: none"> • Town requires ... (state the specific local requirement) • Meets Town’s dimensional requirement of ... • Not practical for site because ... • Applying for waiver/variance to achieve this (pending/approved/denied) • Applying for wavier/variance to seek relief from this (pending/approved/denied) 	
<p>A) PRESERVATION OF UNDISTURBED AREAS, BUFFERS, AND FLOODPLAINS</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Sensitive resource areas and site constraints are identified (required) <input checked="" type="checkbox"/> Local development regulations have been reviewed (required) <input checked="" type="checkbox"/> All vegetated buffers and coastal and freshwater wetlands will be protected during and after construction <input checked="" type="checkbox"/> Conservation Development or another site design technique has been incorporated to protect open space and pre-development hydrology. Note: If Conservation Development has been used, check box and skip to Subpart C <input checked="" type="checkbox"/> As much natural vegetation and pre-development hydrology as possible has been maintained 	<p>IF NOT IMPLEMENTED, EXPLAIN HERE</p>

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

<p>B) LOCATE DEVELOPMENT IN LESS SENSITIVE AREAS AND WORK WITH THE NATURAL LANDSCAPE CONDITIONS, HYDROLOGY, AND SOILS</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Development sites and building envelopes have been appropriately distanced from wetlands and waterbodies <input checked="" type="checkbox"/> Development and stormwater systems have been located in areas with greatest infiltration capacity (e.g., soil groups A and B) <input type="checkbox"/> Plans show measures to prevent soil compaction in areas designated as Qualified Pervious Areas (QPA's) <input checked="" type="checkbox"/> Development sites and building envelopes have been positioned outside of floodplains <input checked="" type="checkbox"/> Site design positions buildings, roadways and parking areas in a manner that avoids impacts to surface water features <input checked="" type="checkbox"/> Development sites and building envelopes have been located to minimize impacts to steep slopes ($\geq 15\%$) <input type="checkbox"/> Other (describe): 	
<p>C) MINIMIZE CLEARING AND GRADING</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Site clearing has been restricted to <u>minimum area needed</u> for building footprints, development activities, construction access, and safety. <input checked="" type="checkbox"/> Site has been designed to position buildings, roadways, and parking areas in a manner that minimizes grading (cut and fill quantities) <input checked="" type="checkbox"/> Protection for stands of trees and individual trees and their root zones to be preserved has been specified, and such protection extends at least to the tree canopy drip line(s) <input type="checkbox"/> Plan notes specify that public trees removed or damaged during construction shall be replaced with equivalent 	
<p>D) REDUCE IMPERVIOUS COVER</p> <ul style="list-style-type: none"> <input type="checkbox"/> Reduced roadway widths (≤ 22 feet for ADT ≤ 400; ≤ 26 feet for ADT 400 - 2,000) <input checked="" type="checkbox"/> Reduced driveway areas (length minimized via reduced ROW width (≤ 45 ft.) and/or reduced (or absolute minimum) front yard setback; width minimized to ≤ 9 ft. wide one lane; ≤ 18 ft. wide two lanes; shared driveways; pervious surface) <input type="checkbox"/> Reduced building footprint: Explain approach: <input type="checkbox"/> Reduced sidewalk area (≤ 4 ft. wide; one side of the street; unpaved path; pervious surface) <input type="checkbox"/> Reduced cul-de-sacs (radius < 45 ft; vegetated island; alternative turn-around) <input type="checkbox"/> Reduced parking lot area: Explain approach <input checked="" type="checkbox"/> Use of pervious surfaces for driveways, sidewalks, parking areas/overflow parking areas, etc. <input checked="" type="checkbox"/> Minimized impervious surfaces (project meets or is less than maximum specified by Zoning Ordinance) <input type="checkbox"/> Other (describe): 	
<p>E) DISCONNECT IMPERVIOUS AREA</p> <ul style="list-style-type: none"> <input type="checkbox"/> Impervious surfaces have been disconnected, and runoff has been diverted to QPAs to the maximum extent possible <input type="checkbox"/> Residential street edges allow side-of-the-road drainage into vegetated open swales <input type="checkbox"/> Parking lot landscaping breaks up impervious expanse AND accepts runoff <input type="checkbox"/> Other (describe): 	
<p>F) MITIGATE RUNOFF AT THE POINT OF GENERATION</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Small-scale BMPs have been designated to treat runoff as close as possible to the source 	

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

<p>G) PROVIDE LOW-MAINTENANCE NATIVE VEGETATION</p> <p><input checked="" type="checkbox"/> Low-maintenance landscaping has been proposed using native species and cultivars</p> <p><input type="checkbox"/> Plantings of native trees and shrubs in areas previously cleared of native vegetation are shown on site plan</p> <p><input checked="" type="checkbox"/> Lawn areas have been limited/minimized, and yards have been kept undisturbed to the maximum extent practicable on residential lots</p>	
<p>H) RESTORE STREAMS/WETLANDS</p> <p><input type="checkbox"/> Historic drainage patterns have been restored by removing closed drainage systems, daylighting buried streams, and/or restoring degraded stream channels and/or wetlands</p> <p><input type="checkbox"/> Removal of invasive species</p> <p><input type="checkbox"/> Other</p>	

PART 3. SUMMARY OF REMAINING STANDARDS

GROUNDWATER RECHARGE – MINIMUM STANDARD 2		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project has been designed to meet the groundwater recharge standard.
<input type="checkbox"/>	<input type="checkbox"/>	If “No,” the justification for groundwater recharge criterion waiver has been explained in the Narrative (e.g., threat of groundwater contamination or physical limitation), if applicable (see RICR 8.8.D);
<input type="checkbox"/>	<input type="checkbox"/>	Your waiver request has been explained in the Narrative, if applicable.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is this site identified as a Regulated Facility in Part 1, Minimum Standard 8: LUHPPL Identification?
<input type="checkbox"/>	<input type="checkbox"/>	If “Yes,” has approval for infiltration by the OLRSM Site Project Manager, per Part 1, Minimum Standard 8, been requested?

TABLE 2-1: Summary of Recharge (see RISDISM Section 3.3.2)					
(Add or Subtract Rows as Necessary)					
Design Point	Impervious Area Treated (sq ft)	Total Re _v Required (cu ft)	LID Stormwater Credits (see RISDISM Section 4.6.1)	Recharge Required by Remaining BMPs (cu ft)	Recharge Provided by BMPs (cu ft)
			Portion of Re _v directed to a QPA (cu ft)		
DP-1: HOLLEY ST	2,036	101.80		101.80	-0-
DP-2: OAK ST	11,076	544.50		544.50	914.76
DP-3:					
DP-4:					
TOTALS:	13,112	646.30		646.30	914.76
Notes:					
<p>1. Only BMPs listed in RISDISM Table 3-5 “List of BMPs Acceptable for Recharge” may be used to meet the recharge requirement.</p> <p>2. Recharge requirement must be satisfied for each waterbody ID.</p>					
<p><input type="checkbox"/> Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.):</p>					

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

WATER QUALITY – MINIMUM STANDARD 3		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does this project meet or exceed the required water quality volume WQv (see RICR 8.9.E-I)?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is the proposed final impervious cover greater than 20% of the disturbed area (see RICR 8.9.E-I)?
<input type="checkbox"/>	<input type="checkbox"/>	If “Yes,” either the Modified Curve Number Method or the Split Pervious/Impervious method in Hydro-CAD was used to calculate WQv; or,
<input checked="" type="checkbox"/>	<input type="checkbox"/>	If “Yes,” either TR-55 or TR-20 was used to calculate WQv; and,
<input type="checkbox"/>	<input type="checkbox"/>	If “No,” the project meets the minimum WQv of 0.2 watershed inches over the entire disturbed area.
<input type="checkbox"/>	<input type="checkbox"/>	Not Applicable
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does this project meet or exceed the ability to treat required water quality flow WQf (see RICR 8.9.I.1-3)?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does this project propose an increase of impervious cover to a receiving water body with impairments? If “Yes,” please indicate below the method that was used to address the water quality requirements of no further degradation to a low-quality water.
<input type="checkbox"/>	<input type="checkbox"/>	RICR 8.36. A Pollutant Loading Analysis is needed and has been completed.
<input type="checkbox"/>	<input type="checkbox"/>	The Water Quality Guidance Document (Water Quality Goals and Pollutant Loading Analysis Guidance for Discharges to Impaired Waters) has been followed as applicable.
<input type="checkbox"/>	<input type="checkbox"/>	BMPs are proposed that are on the approved technology list . If “Yes,” please provide all required worksheets from the manufacturer.
<input type="checkbox"/>	<input type="checkbox"/>	Additional pollutant-specific requirements and/or pollutant removal efficiencies are applicable to the site as the result of a TMDL, SAMP, or other watershed-specific requirements. If “Yes,” please describe:

TABLE 3-1: Summary of Water Quality (see RICR 8.9)					
Design Point and WB ID	Impervious area treated (sq ft)	Total WQ _v Required (cu ft)	LID Stormwater Credits (see RICR 8.18)	Water Quality Treatment Remaining (cu ft)	Water Quality Provided by BMPs (cu ft)
			WQ _v directed to a QPA (cu ft)		
DP-1: HOLLEY ST	2,036	169.67		169.67	-0-
DP-2: OAK ST	11,076	914.76		914.76	914.76
DP-3:					
DP-4:					
TOTALS:	13,112	1,084.43		1,084.43	914.76
Notes:					
1. Only BMPs listed in RICR 8.20 and 8.25 or the Approved Technologies List of BMPs is Acceptable for Water Quality treatment.					
2. For each Design Point, the Water Quality Volume Standard must be met for each Waterbody ID.					
<input checked="" type="checkbox"/> YES	This project has met the setback requirements for each BMP.				
<input type="checkbox"/> NO	If “No,” please explain:				
<input type="checkbox"/>	Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.):				

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

CONVEYANCE AND NATURAL CHANNEL PROTECTION (RICR 8.10) – MINIMUM STANDARD 4		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is this standard waived? If “Yes,” please indicate one or more of the reasons below:
		<input type="checkbox"/> The project directs discharge to a large river (i.e., 4th-order stream or larger. See RISDISM Appendix I for State-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters. <input checked="" type="checkbox"/> The project is a small facility with impervious cover of less than or equal to 1 acre. <input checked="" type="checkbox"/> The project has a post-development peak discharge rate from the facility that is less than 2 cfs for the 1-year, 24-hour Type III design storm event (prior to any attenuation). (<u>Note</u> : LID design strategies can greatly reduce the peak discharge rate).
<input type="checkbox"/>	<input type="checkbox"/>	Conveyance and natural channel protection for the site have been met. If “No,” explain why:

TABLE 4-1: Summary of Channel Protection Volumes (see RICR 8.10)					
Design Point	Receiving Water Body Name	Coldwater Fishery? (Y/N)	Total CPv Required (cu ft)	Total CPv Provided (cu ft)	Average Release Rate Modeled in the 1-yr storm (cfs)
DP-1:					
DP-2:					
DP-3:					
DP-4:					
TOTALS:					
<u>Note</u> : The Channel Protection Volume Standard must be met in each waterbody ID.					
<input type="checkbox"/> YES <input type="checkbox"/> NO	The CPv is released at roughly a uniform rate over a 24-hour duration (see examples of sizing calculations in Appendix D of the RISDISM).				
<input type="checkbox"/> YES <input type="checkbox"/> NO	Do additional design restrictions apply resulting from any discharge to cold-water fisheries; If “Yes,” please indicate restrictions and solutions below.				
<input type="checkbox"/> Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).					

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

OVERBANK FLOOD PROTECTION (RICR 8.11) AND OTHER POTENTIAL HIGH FLOWS – MINIMUM STANDARD 5		
YES	NO	
<input type="checkbox"/>	<input type="checkbox"/>	Is this standard waived? If yes, please indicate one or more of the reasons below:
		<input type="checkbox"/> The project directs discharge to a large river (i.e., 4th-order stream or larger. See Appendix I for state-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters. <input type="checkbox"/> A Downstream Analysis (see RICR 8.11.D and E) indicates that peak discharge control would not be beneficial or would exacerbate peak flows in a downstream tributary of a particular site (e.g., through coincident peaks).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the project flow to an MS4 system or subject to other stormwater requirements? If "Yes," indicate as follows:
		<input type="checkbox"/> RIDOT <input checked="" type="checkbox"/> Other (specify): Town of South Kingstown
<p>Note: The project could be approved by RIDEM but not meet RIDOT or Town standards. RIDOT's regulations indicate that post-volumes must be less than pre-volumes for the 10-yr storm at the design point entering the RIDOT system. If you have not already received approval for the discharge to an MS4, please explain below your strategy to comply with RIDEM and the MS4.</p>		
		Indicate below which model was used for your analysis. <input checked="" type="checkbox"/> TR-55 <input type="checkbox"/> TR-20 <input type="checkbox"/> HydroCAD <input type="checkbox"/> Bentley/Haestad <input type="checkbox"/> Intellisolve <input type="checkbox"/> Other (Specify):
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the drainage design demonstrate that flows from the 100-year storm event through a BMP will safely manage and convey the 100-year storm? If "No," please explain briefly below and reference where in the application further documentation can be found (i.e., name of report/document, page numbers, appendices, etc.):
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Do off-site areas contribute to the sub-watersheds and design points? If "Yes,"
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Are the areas modeled as "present condition" for both pre- and post-development analysis?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Are the off-site areas shown on the subwatershed maps?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the drainage design confirm safe passage of the 100-year flow through the site for off-site runoff?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is a Downstream Analysis required (see RICR 8.11.E.1)?
<input type="checkbox"/>	<input type="checkbox"/>	Calculate the following:
		<input type="checkbox"/> Area of disturbance within the sub-watershed (areas)
		<input type="checkbox"/> Impervious cover (%)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is a dam breach analysis required (earthen embankments over six (6) feet in height, or a capacity of 15 acre-feet or more, and contributes to a significant or high hazard dam)?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does this project meet the overbank flood protection standard?

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

Table 5-1 Hydraulic Analysis Summary

Subwatershed (Design Point)	1.2" Peak Flow (cfs) **		1-yr Peak Flow (cfs)		10-yr Peak Flow (cfs)		100-yr Peak Flow (cfs)	
	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
DP-1: HOLLEY	-0-	-0-	-0-	-0-	0.02	0.04	0.26	0.39
DP-2: OAK	-0-	-0-	-0-	-0-	0.20	0.10	2.80	1.85
DP-3:								
DP-4:								
TOTALS:	-0-	-0-	-0-	-0-	0.22	0.14	3.06	2.24

** Utilize modified curve number method or split pervious /impervious method in HydroCAD.

Note: The hydraulic analysis must demonstrate no impact to each individual subwatershed DP unless each DP discharges to the same wetland or water resource.

Indicate as follows where the pertinent calculations and/or information for the items above are provided	Name of report/document, page numbers, appendices, etc.
Existing conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, and water surface elevations showing methodologies used and supporting calculations.	
Proposed conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, water surface elevations, and routing showing the methodologies used and supporting calculations.	
Final sizing calculations for structural stormwater BMPs, including contributing drainage area, storage, and outlet configuration.	
Stage-storage, inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities).	

Table 5-2 Summary of Best Management Practices

BMP ID	DP #	BMP Type (e.g., bioretention, tree filter)	BMP Functions					Bypass Type	Horizontal Setback Criteria are met per RICR 8.21.B.10, 8.22.D.11, and 8.35.B.4		
			Pre-Treatment (Y/N/NA)	Re _v	WQ _v	CP _v (Y/N/NA)	Overbank Flood Reduction (Y/N/NA)		External (E) Internal (I) or NA	Yes/No	Technical Justification (Design Report page number)
1	OAK	INFILTRAT	N	Y	Y	NA	Y	NA	Y		
2	O/H	POROUS	N	Y	Y	NA	Y	NA	Y		
		TOTALS:									

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

Table 5.3 Summary of Soils to Evaluate Each BMP									
DP #	BMP ID	BMP Type (e.g., bioretention, tree filter)	Soils Analysis for Each BMP						
			Test Pit ID# and Ground Elevation		SHWT Elevation (ft)	Bottom of Practice Elevation* (ft)	Separation Distance Provided (ft)	Hydrologic Soil Group (A, B, C, D)	Exfiltration Rate Applied (in/hr)
			Primary	Secondary					
HOLLEY	PP	POROUS			VARIES	VARIES	4.75	A	8.27
OAK	INF	INFILTRAT			VARIES	VARIES	4	A	8.27
		TOTALS:							

* For underground infiltration systems (UICs) bottom equals bottom of stone, for surface infiltration basins bottom equals bottom of basin, for filters bottom equals interface of storage and top of filter layer

LAND USES WITH HIGHER POTENTIAL POLLUTANTS LOADS (LUHPPLs) – MINIMUM STANDARD 8			
YES	NO	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Describe any LUHPPLs identified in Part 1, Minimum Standard 8, Section 2. If not applicable, continue to Minimum Standard 9.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are these activities already covered under an MSGP? If “No,” please explain if you have applied for an MSGP or intend to do so?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	List the specific BMPs that are proposed for this project that receive stormwater from LUHPPL drainage areas. These BMP types must be listed in RISDISM Table 3-3, “Acceptable BMPs for Use at LUHPPLs.” Please list BMPs:
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Additional BMPs, or additional pretreatment BMP’s if any, that meet RIPDES MSGP requirements; Please list BMPs:
			Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).

ILLICIT DISCHARGES – MINIMUM STANDARD 9			
Illicit discharges are defined as unpermitted discharges to Waters of the State that do not consist entirely of stormwater or uncontaminated groundwater, except for certain discharges identified in the RIPDES Phase II Stormwater General Permit.			
YES	NO	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Have you checked for illicit discharges?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Have any been found and/or corrected? If “Yes,” please identify.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does your report explain preventative measures that keep non-stormwater discharges out of the Waters of the State (during and after construction)?

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

SOIL EROSION AND SEDIMENT CONTROL (SESC) – MINIMUM STANDARD 10		
YES	NO	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<p>Have you included a Soil Erosion and Sediment Control Plan Set and/or Complete Construction Plan Set?</p> <p>Have you provided a separately-bound document based upon the SESC Template? If yes, proceed to Minimum Standard 11 (the following items can be assumed to be addressed).</p> <p>If “No,” include a document with your submittal that addresses the following elements of an SESC Plan:</p>
<input checked="" type="checkbox"/>		Soil Erosion and Sediment Control Plan Project Narrative, including a description of how the fifteen (15) Performance Criteria have been met:
<input checked="" type="checkbox"/>		Provide Natural Buffers and Maintain Existing Vegetation
<input checked="" type="checkbox"/>		Minimize Area of Disturbance
<input checked="" type="checkbox"/>		Minimize the Disturbance of Steep Slopes
<input checked="" type="checkbox"/>		Preserve Topsoil
<input checked="" type="checkbox"/>		Stabilize Soils
<input checked="" type="checkbox"/>		Protect Storm Drain Inlets
<input checked="" type="checkbox"/>		Protect Storm Drain Outlets
<input checked="" type="checkbox"/>		Establish Temporary Controls for the Protection of Post-Construction Stormwater Control Measures
<input checked="" type="checkbox"/>		Establish Perimeter Controls and Sediment Barriers
<input checked="" type="checkbox"/>		Divert or Manage Run-On from Up-Gradient Areas
<input checked="" type="checkbox"/>		Properly Design Constructed Stormwater Conveyance Channels
<input checked="" type="checkbox"/>		Retain Sediment On-Site
<input checked="" type="checkbox"/>		Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows
<input checked="" type="checkbox"/>		Apply Construction Activity Pollution Prevention Control Measures
<input checked="" type="checkbox"/>		Install, Inspect, and Maintain Control Measures and Take Corrective Actions
<input checked="" type="checkbox"/>		Qualified SESC Plan Preparer’s Information and Certification
<input type="checkbox"/>		Operator’s Information and Certification; if not known at the time of application, the Operator must certify the SESC Plan upon selection and prior to initiating site activities
<input checked="" type="checkbox"/>		Description of Control Measures, such as Temporary Sediment Trapping and Conveyance Practices, including design calculations and supporting documentation, as required

STORMWATER MANAGEMENT SYSTEM OPERATION, MAINTENANCE, AND POLLUTION PREVENTION PLAN – MINIMUM STANDARDS 7 AND 9		
Operation and Maintenance Section		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Have you minimized all sources of pollutant contact with stormwater runoff, to the maximum extent practicable?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Have you provided a separately-bound Operation and Maintenance Plan for the site and for all of the BMPs, and does it address each element of RICR 8.17 and RISDISM Appendix C and E?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lawn, Garden, and Landscape Management meet the requirements of RISDISM Section G.7? If “No,” why not?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is the property owner or homeowner’s association responsible for the stormwater maintenance of all BMP’s? If “No,” you must provide a legally binding and enforceable maintenance agreement (see RISDISM Appendix E, page 26) that identifies the entity that will be responsible for maintenance of the stormwater. Indicate where this agreement can be found in your report (i.e., name of report/document, page numbers, appendices, etc.).
<input type="checkbox"/>	<input type="checkbox"/>	Do you anticipate that you will need legal agreements related to the stormwater structures? (e.g. off-site easements, deed restrictions, covenants, or ELUR per the Remediation Regulations). If “Yes,” have you obtained them? Or please explain your plan to obtain them:

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is stormwater being directed from public areas to private property? If "Yes," note the following: <u>Note:</u> This is not allowed unless a funding mechanism is in place to provide the finances for the long-term maintenance of the BMP and drainage, or a funding mechanism is demonstrated that can guarantee the long-term maintenance of a stormwater BMP by an individual homeowner.
Pollution Prevention Section		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Designated snow stockpile locations?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Trash racks to prevent floatables, trash, and debris from discharging to Waters of the State?
<input type="checkbox"/>	<input type="checkbox"/>	Asphalt-only based sealants?
<input type="checkbox"/>	<input type="checkbox"/>	Pet waste stations? (<u>Note:</u> If a receiving water has a bacterial impairment, and the project involves housing units, then this could be an important part of your pollution prevention plan).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Regular sweeping? Please describe: Porous pavement will require regular sweeping and vacuuming.
<input type="checkbox"/>	<input type="checkbox"/>	De-icing specifications, in accordance with RISDISM Appendix G. (NOTE: If the groundwater is GAA, or this area contributes to a drinking water supply, then this could be an important part of your pollution prevention plan).
<input type="checkbox"/>	<input type="checkbox"/>	A prohibition of phosphate-based fertilizers? (Note: If the site discharges to a phosphorus impaired waterbody, then this could be an important part of your pollution prevention plan).

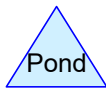
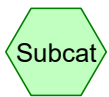
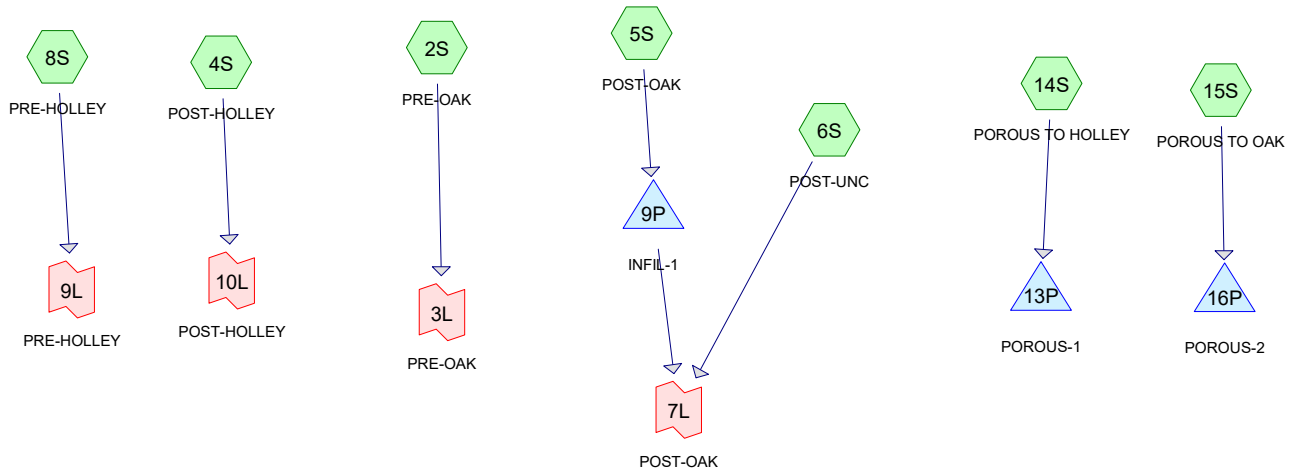
PART 4. SUBWATERSHED MAPPING AND SITE-PLAN DETAILS

Existing and Proposed Subwatershed Mapping (REQUIRED)		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing and proposed drainage area delineations
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Locations of all streams and drainage swales
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Drainage flow paths, mapped according to the DEM <i>Guidance for Preparation of Drainage Area Maps</i> (included in RISDISM Appendix K)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Complete drainage area boundaries; include off-site areas in both mapping and analyses, as applicable
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Mapped seasonal high-water-table test pit locations
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Mapped locations of the site-specific borings and/or test pits and soils information from the test pits at the locations of the BMPs
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Mapped locations of the BMPs, with the BMPs consistently identified on the Site Construction Plans
<input type="checkbox"/>	<input type="checkbox"/>	Mapped bedrock outcrops adjacent to any infiltration BMP
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Soils were logged by a:
	<input type="checkbox"/>	DEM-licensed Class IV soil evaluator Name:
	<input checked="" type="checkbox"/>	RI-registered P.E. Name:

Subwatershed and Impervious Area Summary				
Subwatershed (area to each design point)	First Receiving Water ID or MS4	Area Disturbed (units)	Existing Impervious (units)	Proposed Impervious (units)
DP-1: HOLLEY	TOWN OF SK	14,485	-0-	2,036 SF
DP-2: OAK	TOWN OF SK	32,280	-0-	11,076 SF
DP-3:				
DP-4:				
TOTALS:		46,765	-0-	13,112

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

Site Construction Plans (Indicate that the following applicable specifications are provided)		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing and proposed plans (scale not greater than 1" = 40') with North arrow
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing and proposed site topography (with 1 or 2-foot contours); 10-foot contours accepted for off-site areas
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Boundaries of existing predominant vegetation and proposed limits of clearing
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Site Location clarification
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Location and field-verified boundaries of resource protection areas such as: <ul style="list-style-type: none"> ▶ freshwater and coastal wetlands, including lakes and ponds ▶ coastal shoreline features Perennial and intermittent streams, in addition to Areas Subject to Storm Flowage (ASSFs)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	All required setbacks (e.g., buffers, water-supply wells, septic systems)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Representative cross-section and profile drawings, and notes and details of structural stormwater management practices and conveyances (i.e., storm drains, open channels, swales, etc.), which include: <ul style="list-style-type: none"> ▶ Location and size of the stormwater treatment practices (type of practice, depth, area). Stormwater treatment practices (BMPs) must have labels that correspond to RISDISM Table 5-2; ▶ Design water surface elevations (applicable storms); ▶ Structural details of outlet structures, embankments, spillways, stilling basins, grade-control structures, conveyance channels, etc.; ▶ Existing and proposed structural elevations (e.g., inverts of pipes, manholes, etc.); ▶ Location of floodplain and, if applicable, floodway limits and relationship of site to upstream and downstream properties or drainage that could be affected by work in the floodplain; ▶ Planting plans for structural stormwater BMPs, including species, size, planting methods, and maintenance requirements of proposed planting
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report and corresponding water tables
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mapping of any OLRSM-approv ed remedial actions/systems (including ELURs)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Location of existing and proposed roads, buildings, and other structures including limits of disturbance; <ul style="list-style-type: none"> ▶ Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements; ▶ Location of existing and proposed conveyance systems, such as grass channels, swales, and storm drains, and location(s) of final discharge point(s) (wetland, waterbody, etc.); ▶ Cross sections of roadways, with edge details such as curbs and sidewalks; ▶ Location and dimensions of channel modifications, such as bridge or culvert crossings
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Locations, cross sections, and profiles of all stream or wetland crossings and their method of stabilization



Routing Diagram for Holley Street MFD
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Holley Street MFD

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.975	39	>75% Grass cover, Good, HSG A (2S, 4S, 5S, 6S)
0.254	98	Roofs, HSG A (5S)
0.754	98	Unconnected pavement, HSG A (2S, 4S, 6S, 14S, 15S)
0.911	30	Woods, Good, HSG A (2S, 6S)
1.186	43	Woods/grass comb., Fair, HSG A (2S, 8S)
6.081	48	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
6.081	HSG A	2S, 4S, 5S, 6S, 8S, 14S, 15S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
6.081		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
2.975	0.000	0.000	0.000	0.000	2.975	>75% Grass cover, Good	2S, 4S, 5S, 6S
0.254	0.000	0.000	0.000	0.000	0.254	Roofs	5S
0.754	0.000	0.000	0.000	0.000	0.754	Unconnected pavement	2S, 4S, 6S, 14S, 15S
0.911	0.000	0.000	0.000	0.000	0.911	Woods, Good	2S, 6S
1.186	0.000	0.000	0.000	0.000	1.186	Woods/grass comb., Fair	2S, 8S
6.081	0.000	0.000	0.000	0.000	6.081	TOTAL AREA	

Holley Street MFD

Type III 24-hr WQV Rainfall=1.20"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. U1 as Pervious
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: PRE-OAK Runoff Area=121,316 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=715' Tc=23.3 min CN=44/0 Runoff=0.00 cfs 0.000 af

Subcatchment 4S: POST-HOLLEY Runoff Area=11,977 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=68' Slope=0.0090 '/' Tc=14.1 min CN=49/0 Runoff=0.00 cfs 0.000 af

Subcatchment 5S: POST-OAK Runoff Area=26,084 sf 42.46% Impervious Runoff Depth=0.42"
Flow Length=54' Slope=0.0090 '/' Tc=11.8 min CN=39/98 Runoff=0.23 cfs 0.021 af

Subcatchment 6S: POST-UNC Runoff Area=88,901 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=702' Tc=24.1 min CN=44/0 Runoff=0.00 cfs 0.000 af

Subcatchment 8S: PRE-HOLLEY Runoff Area=8,030 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=72' Slope=0.0170 '/' Tc=11.5 min CN=43/0 Runoff=0.00 cfs 0.000 af

Subcatchment 14S: POROUS TO HOLLEY Runoff Area=2,402 sf 0.00% Impervious Runoff Depth=0.99"
Tc=6.0 min CN=98/0 Runoff=0.06 cfs 0.005 af

Subcatchment 15S: POROUS TO OAK Runoff Area=6,196 sf 0.00% Impervious Runoff Depth=0.99"
Tc=6.0 min CN=98/0 Runoff=0.15 cfs 0.012 af

Pond 9P: INFIL-1 Peak Elev=33.52' Storage=19 cf Inflow=0.23 cfs 0.021 af
Discarded=0.22 cfs 0.021 af Primary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.021 af

Pond 13P: POROUS-1 Peak Elev=0.00' Storage=1 cf Inflow=0.06 cfs 0.005 af
Outflow=0.06 cfs 0.005 af

Pond 16P: POROUS-2 Peak Elev=0.00' Storage=4 cf Inflow=0.15 cfs 0.012 af
Outflow=0.15 cfs 0.012 af

Link 3L: PRE-OAK Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link 7L: POST-OAK Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link 9L: PRE-HOLLEY Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link 10L: POST-HOLLEY Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Total Runoff Area = 6.081 ac Runoff Volume = 0.037 af Average Runoff Depth = 0.07"
95.82% Pervious = 5.827 ac 4.18% Impervious = 0.254 ac

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Type III 24-hr WQV Rainfall=1.20"

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Summary for Subcatchment 2S: PRE-OAK

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

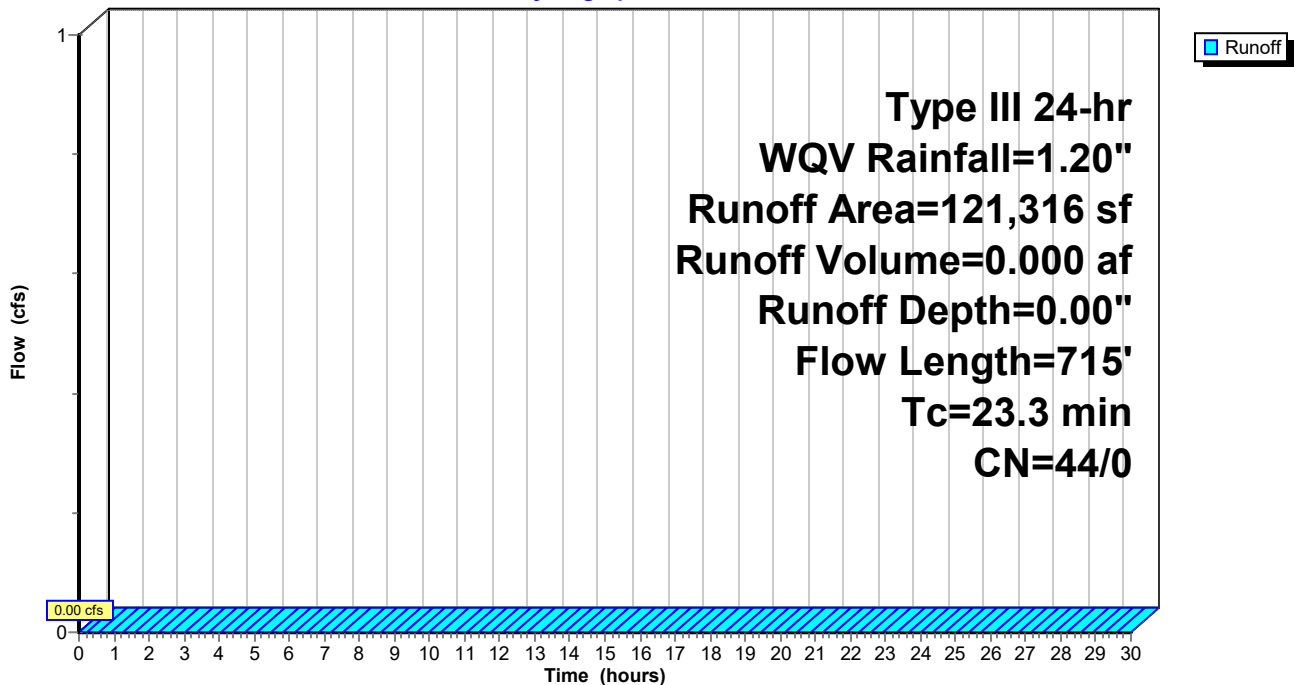
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-30.00 hrs, dt= 0.05 h
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
11,110	98	Unconnected pavement, HSG A
46,099	39	>75% Grass cover, Good, HSG A
20,456	30	Woods, Good, HSG A
43,651	43	Woods/grass comb., Fair, HSG A
121,316	44	Weighted Average
121,316	44	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	117	0.0340	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"
9.5	442	0.0240	0.77		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.0	156	0.0280	2.69		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
23.3	715	Total			

Subcatchment 2S: PRE-OAK

Hydrograph



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Summary for Subcatchment 4S: POST-HOLLEY

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

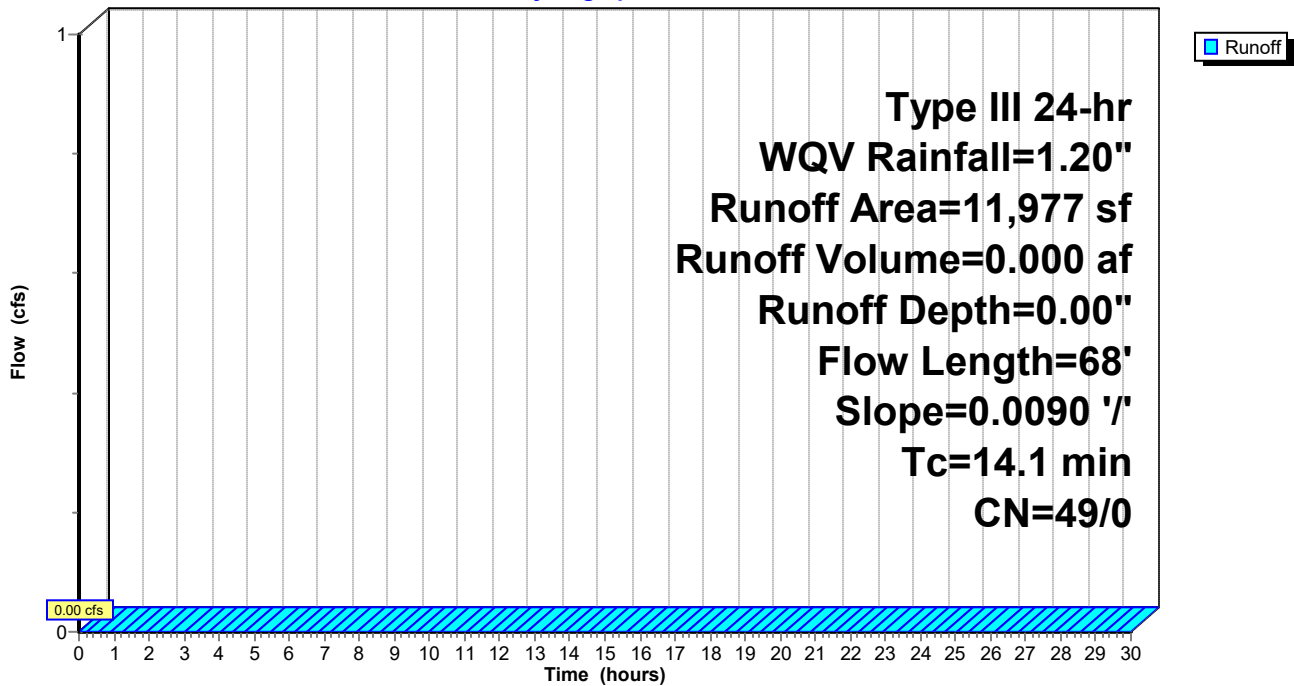
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-30.00 hrs, dt= 0.05 h
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
9,941	39	>75% Grass cover, Good, HSG A
2,036	98	Unconnected pavement, HSG A
11,977	49	Weighted Average
11,977	49	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	68	0.0090	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 4S: POST-HOLLEY

Hydrograph



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Summary for Subcatchment 5S: POST-OAK

Runoff = 0.23 cfs @ 12.16 hrs, Volume= 0.021 af, Depth= 0.42"

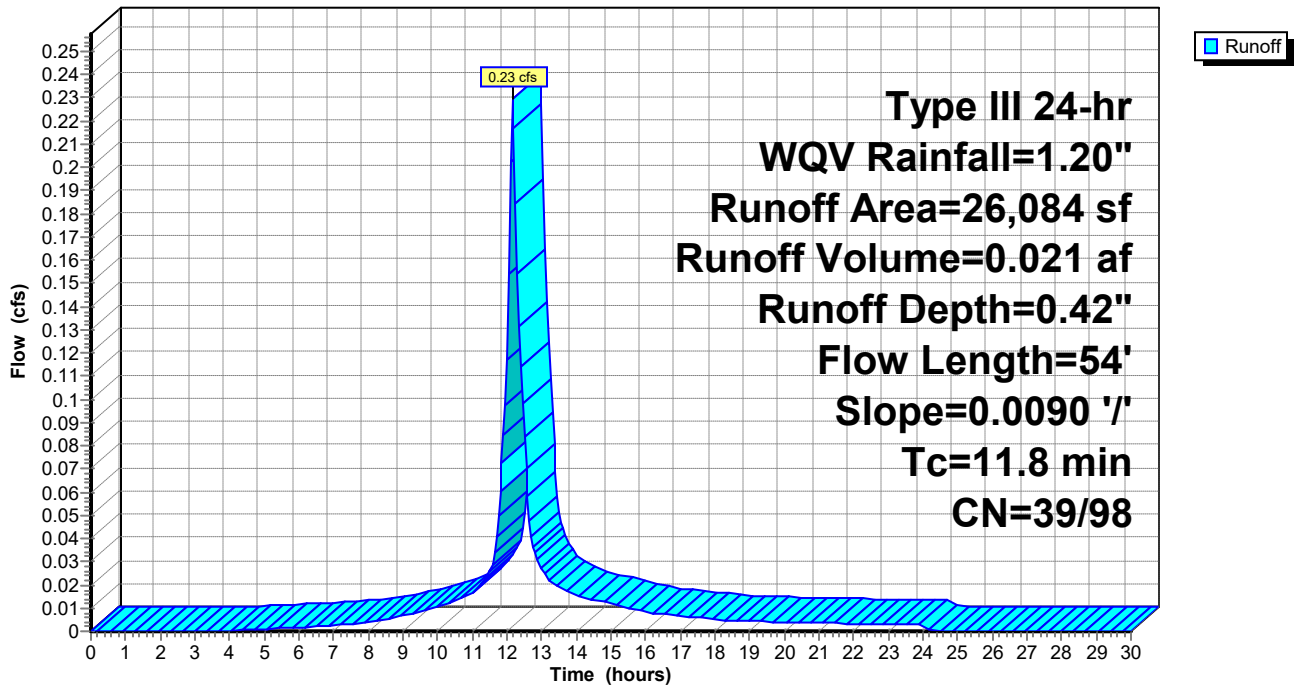
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-30.00 hrs, dt= 0.05 h
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
11,076	98	Roofs, HSG A
15,008	39	>75% Grass cover, Good, HSG A
26,084	64	Weighted Average
15,008	39	57.54% Pervious Area
11,076	98	42.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	54	0.0090	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 5S: POST-OAK

Hydrograph



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Type III 24-hr WQV Rainfall=1.20"

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Summary for Subcatchment 6S: POST-UNC

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

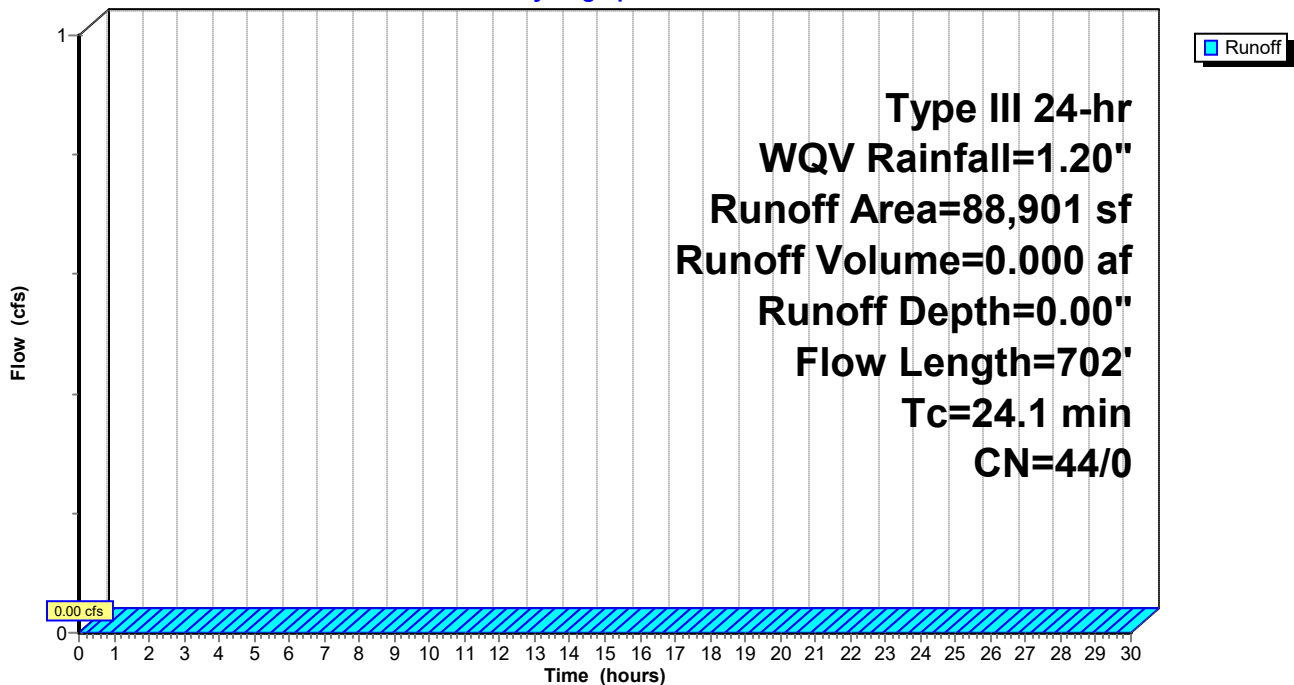
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-30.00 hrs, dt= 0.05 h
 Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
58,561	39	>75% Grass cover, Good, HSG A
11,110	98	Unconnected pavement, HSG A
19,230	30	Woods, Good, HSG A
88,901	44	Weighted Average
88,901	44	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	117	0.0340	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"
9.5	442	0.0240	0.77		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.8	143	0.0070	1.35		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
24.1	702	Total			

Subcatchment 6S: POST-UNC

Hydrograph



Holley Street MFD

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Type III 24-hr WQV Rainfall=1.20"

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Summary for Subcatchment 8S: PRE-HOLLEY

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

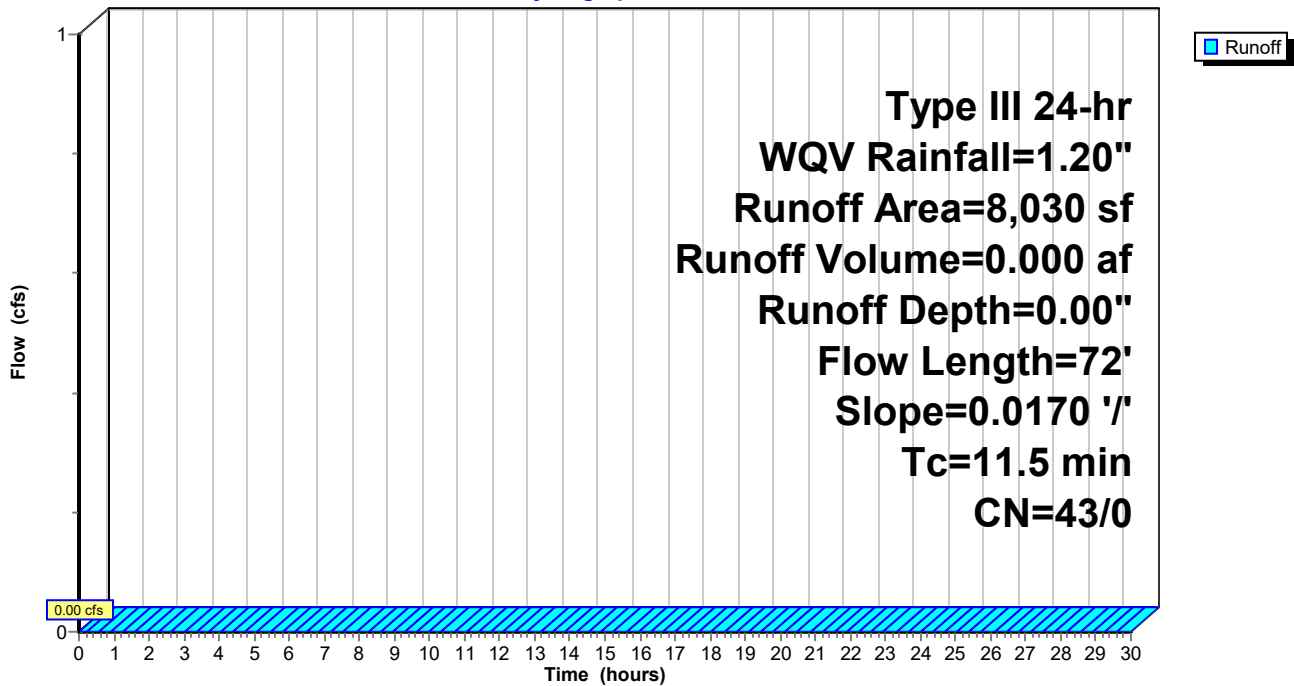
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-30.00 hrs, dt= 0.05 h
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
8,030	43	Woods/grass comb., Fair, HSG A
8,030	43	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	72	0.0170	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 8S: PRE-HOLLEY

Hydrograph



Holley Street MFD

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Type III 24-hr WQV Rainfall=1.20"

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Summary for Subcatchment 14S: POROUS TO HOLLEY

Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth= 0.99"

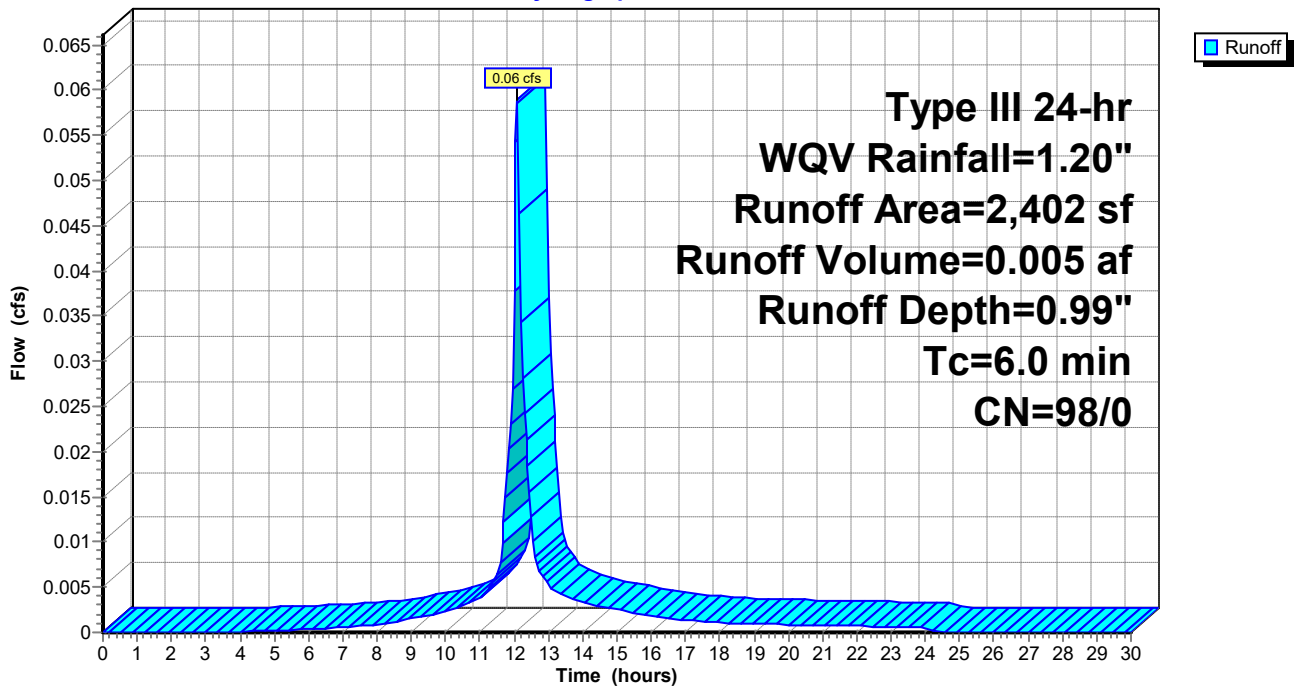
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-30.00 hrs, dt= 0.05 h
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
2,402	98	Unconnected pavement, HSG A
2,402	98	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 14S: POROUS TO HOLLEY

Hydrograph



Holley Street MFD

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Type III 24-hr WQV Rainfall=1.20"

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Summary for Subcatchment 15S: POROUS TO OAK

Runoff = 0.15 cfs @ 12.09 hrs, Volume= 0.012 af, Depth= 0.99"

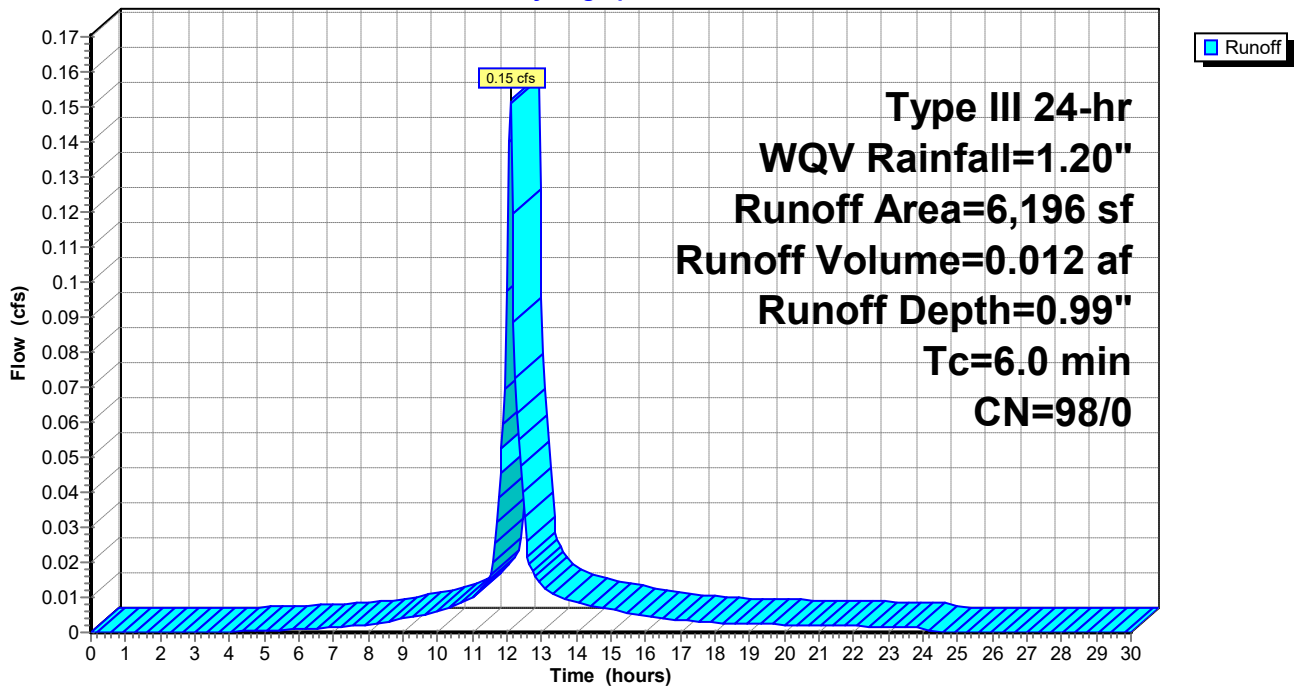
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-30.00 hrs, dt= 0.05 h
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
6,196	98	Unconnected pavement, HSG A
6,196	98	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 15S: POROUS TO OAK

Hydrograph



Holley Street MFD

Type III 24-hr WQV Rainfall=1.20"

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Summary for Pond 9P: INFIL-1

Inflow Area = 0.599 ac, 42.46% Impervious, Inflow Depth = 0.42" for WQV event
 Inflow = 0.23 cfs @ 12.16 hrs, Volume= 0.021 af
 Outflow = 0.22 cfs @ 12.18 hrs, Volume= 0.021 af, Atten= 6%, Lag= 1.3 min
 Discarded = 0.22 cfs @ 12.18 hrs, Volume= 0.021 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.52' @ 12.19 hrs Surf.Area= 1,125 sf Storage= 19 cf

Plug-Flow detention time= 1.3 min calculated for 0.021 af (100% of inflow)
 Center-of-Mass det. time= 1.3 min (788.7 - 787.4)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	3,941 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	1,081	0	0
34.00	2,392	868	868
35.00	3,753	3,073	3,941

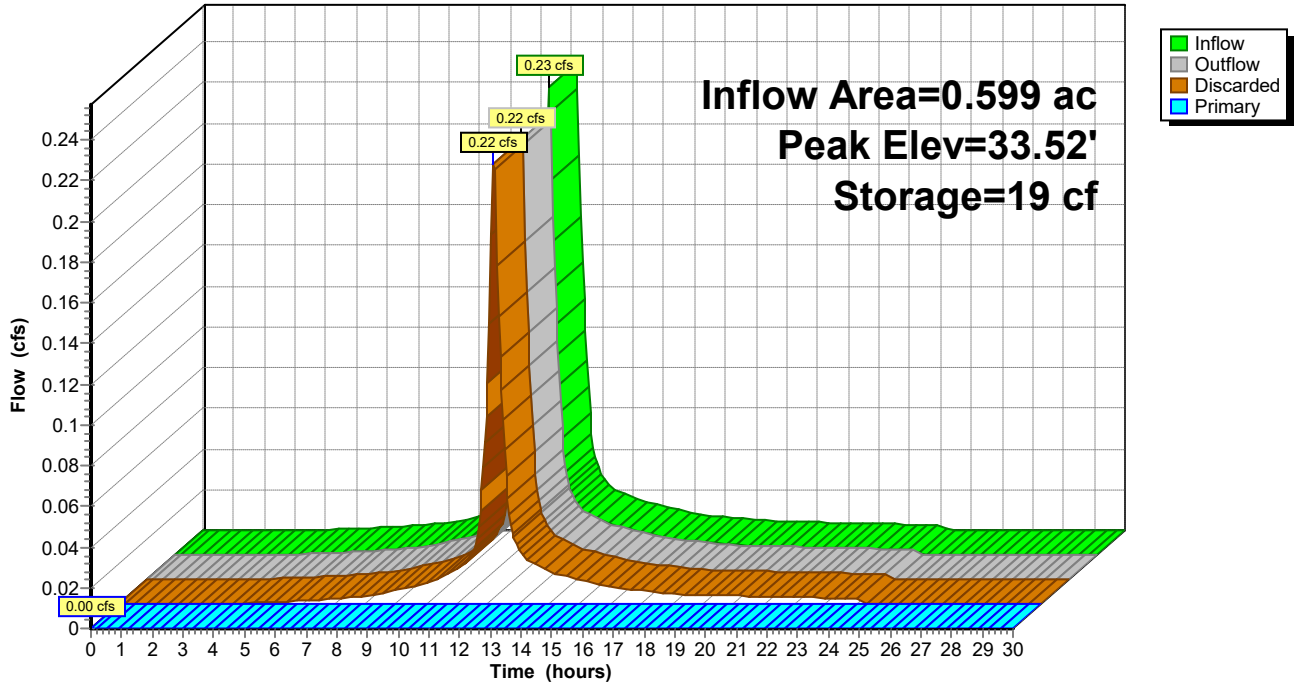
Device	Routing	Invert	Outlet Devices
#1	Discarded	33.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	34.75'	5.0' long x 3.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
			2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.22 cfs @ 12.18 hrs HW=33.52' (Free Discharge)
 ↑1=**Exfiltration** (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.50' (Free Discharge)
 ↑2=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9P: INFIL-1

Hydrograph



Holley Street MFD

Type III 24-hr WQV Rainfall=1.20"

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Summary for Pond 13P: POROUS-1

Inflow Area = 0.055 ac, 0.00% Impervious, Inflow Depth = 0.99" for WQV event
 Inflow = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af
 Outflow = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.00' @ 12.10 hrs Surf.Area= 2,402 sf Storage= 1 cf

Plug-Flow detention time= 0.4 min calculated for 0.005 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (782.4 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,124 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,810 cf Overall x 40.0% Voids

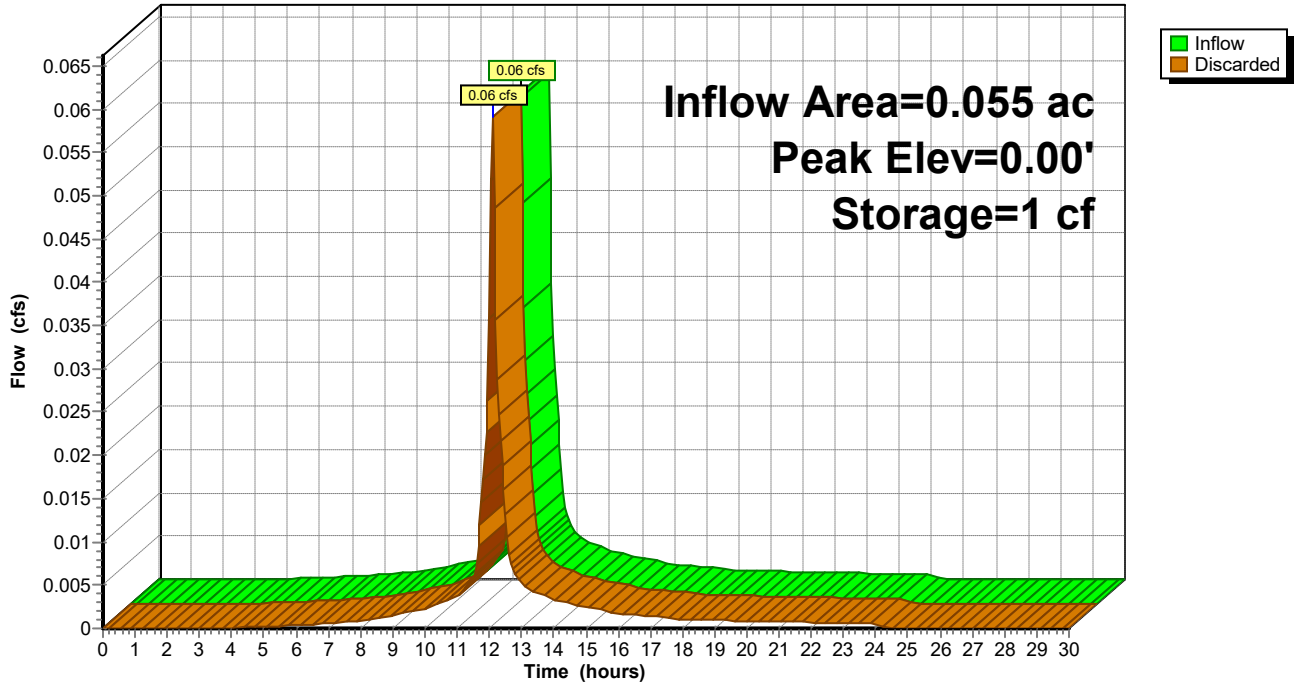
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	2,402	0	0
1.17	2,402	2,810	2,810

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.46 cfs @ 12.10 hrs HW=0.00' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.46 cfs)

Pond 13P: POROUS-1

Hydrograph



Holley Street MFD

Type III 24-hr WQV Rainfall=1.20"

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Summary for Pond 16P: POROUS-2

Inflow Area = 0.142 ac, 0.00% Impervious, Inflow Depth = 0.99" for WQV event
 Inflow = 0.15 cfs @ 12.09 hrs, Volume= 0.012 af
 Outflow = 0.15 cfs @ 12.10 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.15 cfs @ 12.10 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.00' @ 12.10 hrs Surf.Area= 6,196 sf Storage= 4 cf

Plug-Flow detention time= 0.4 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (782.4 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 7,249 cf Overall x 40.0% Voids

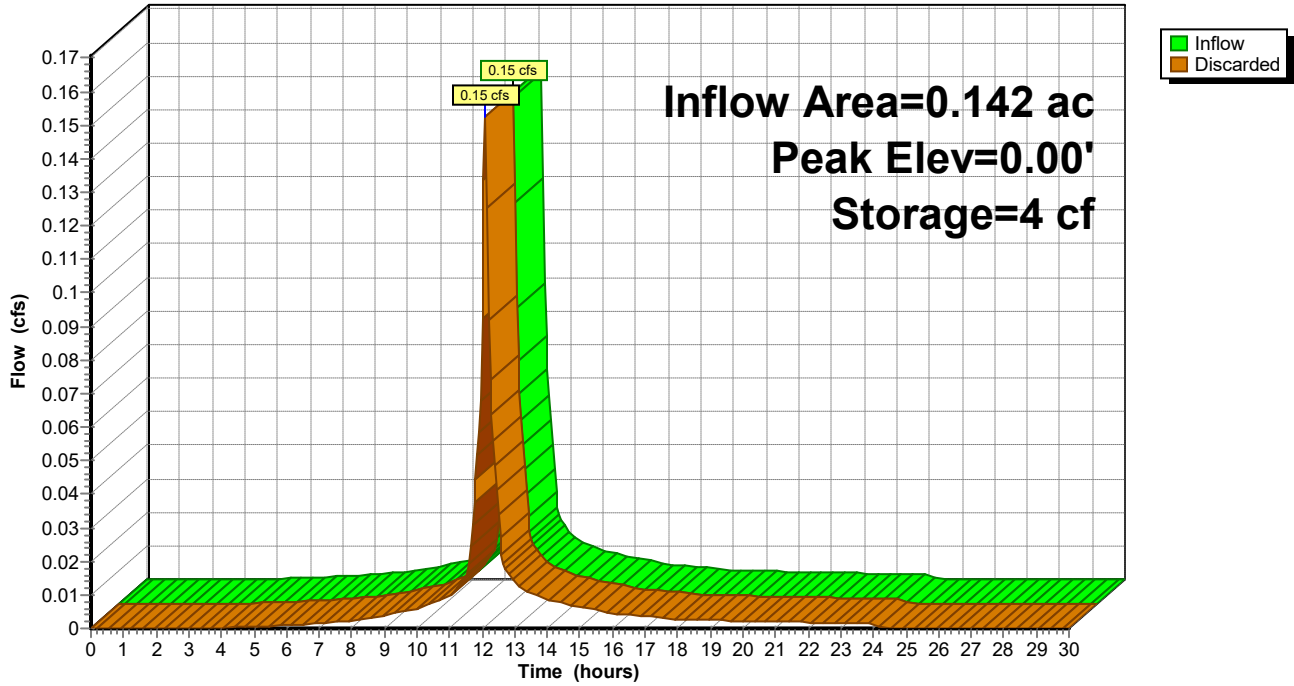
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	6,196	0	0
1.17	6,196	7,249	7,249

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=1.19 cfs @ 12.10 hrs HW=0.00' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 1.19 cfs)

Pond 16P: POROUS-2

Hydrograph



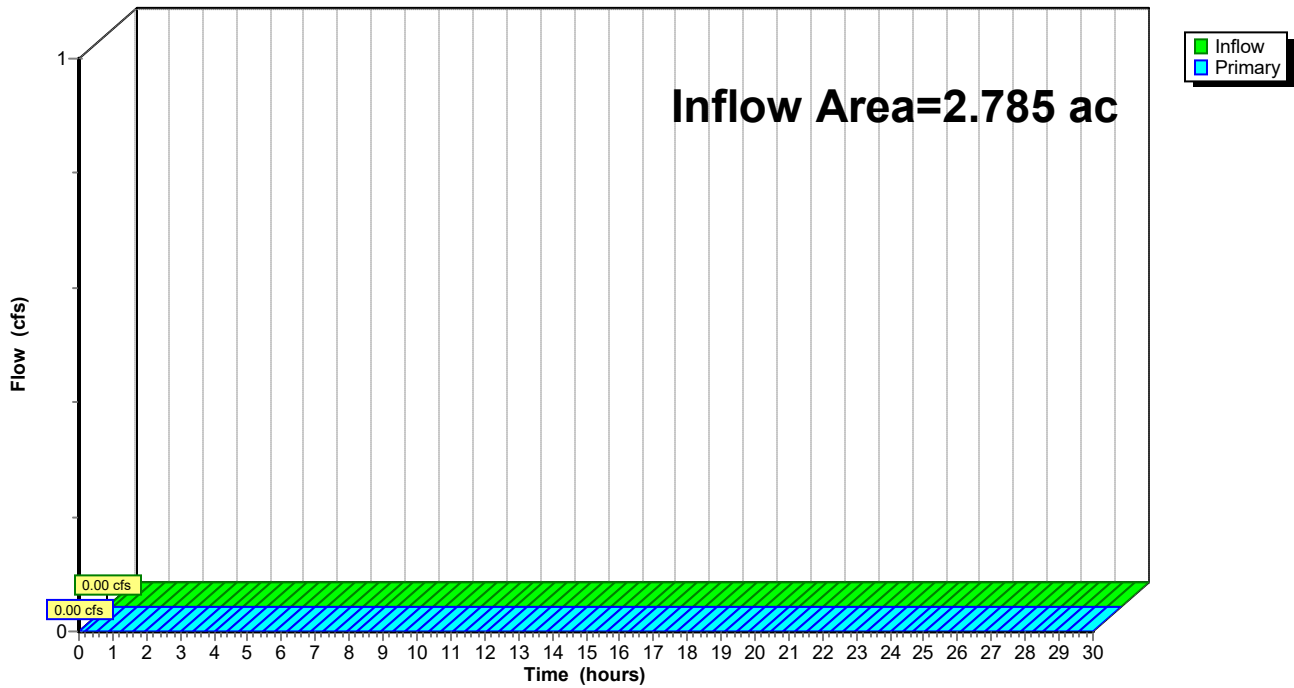
Summary for Link 3L: PRE-OAK

Inflow Area = 2.785 ac, 0.00% Impervious, Inflow Depth = 0.00" for WQV event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: PRE-OAK

Hydrograph



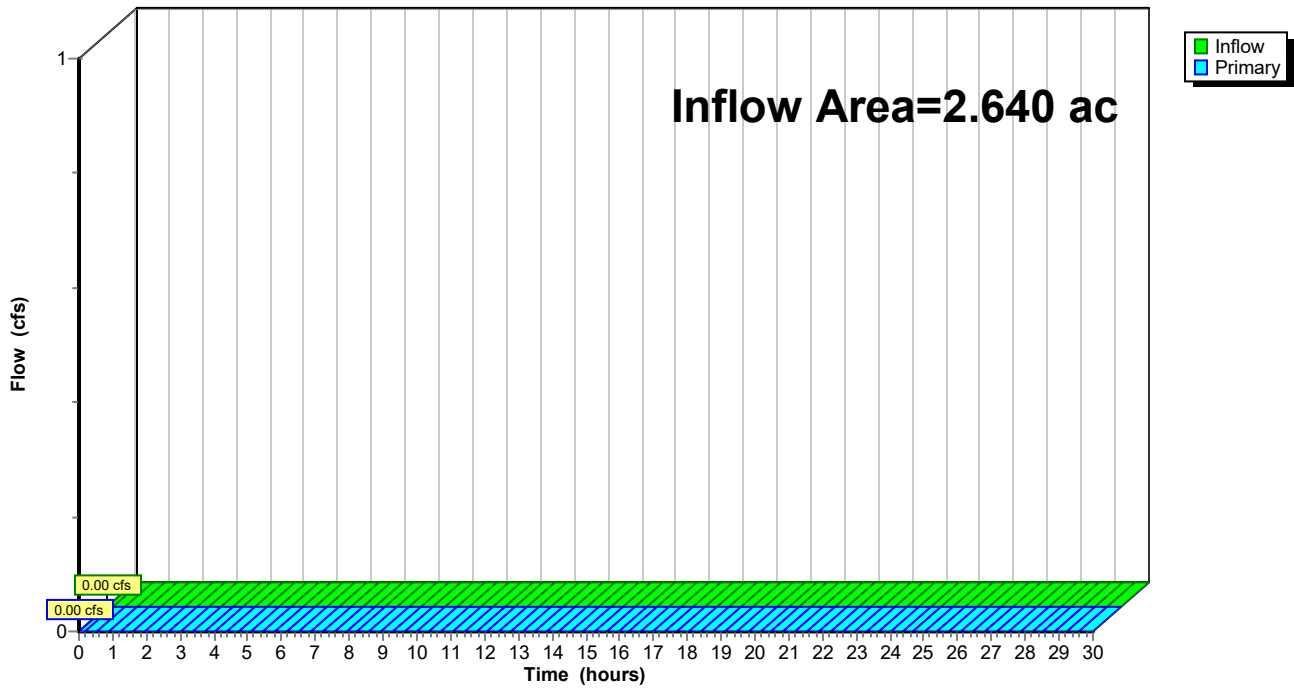
Summary for Link 7L: POST-OAK

Inflow Area = 2.640 ac, 9.63% Impervious, Inflow Depth = 0.00" for WQV event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7L: POST-OAK

Hydrograph



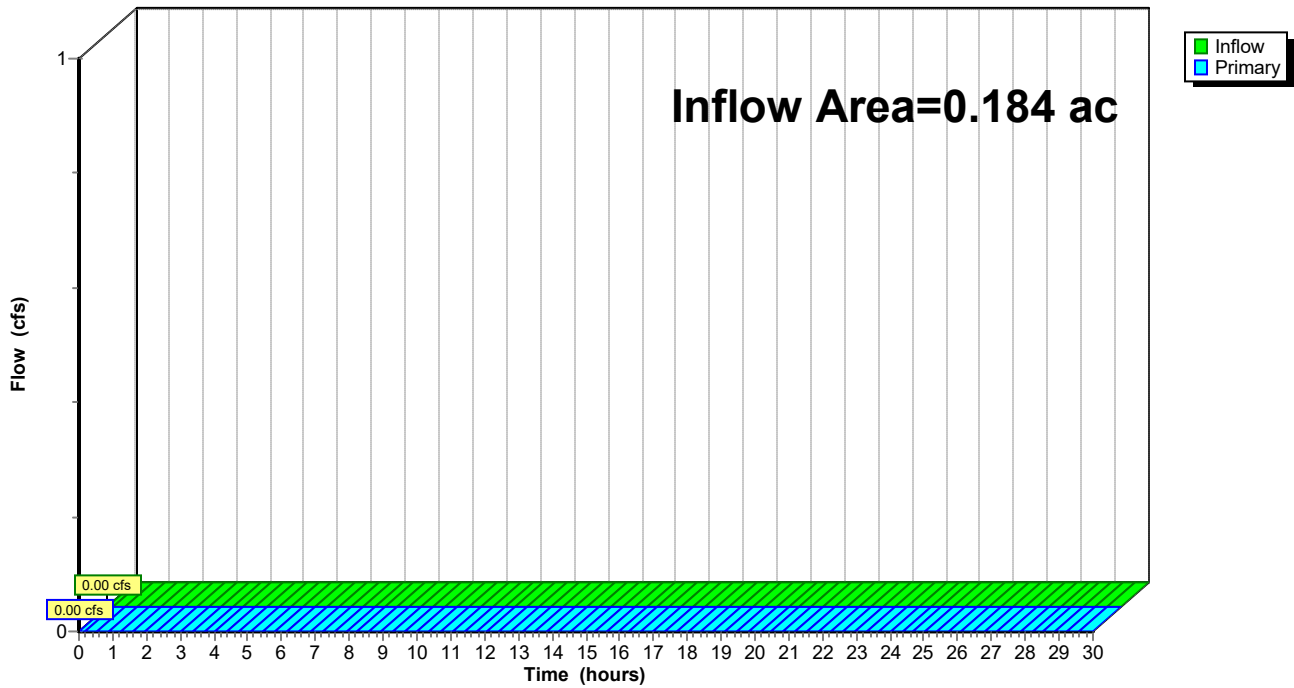
Summary for Link 9L: PRE-HOLLEY

Inflow Area = 0.184 ac, 0.00% Impervious, Inflow Depth = 0.00" for WQV event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9L: PRE-HOLLEY

Hydrograph



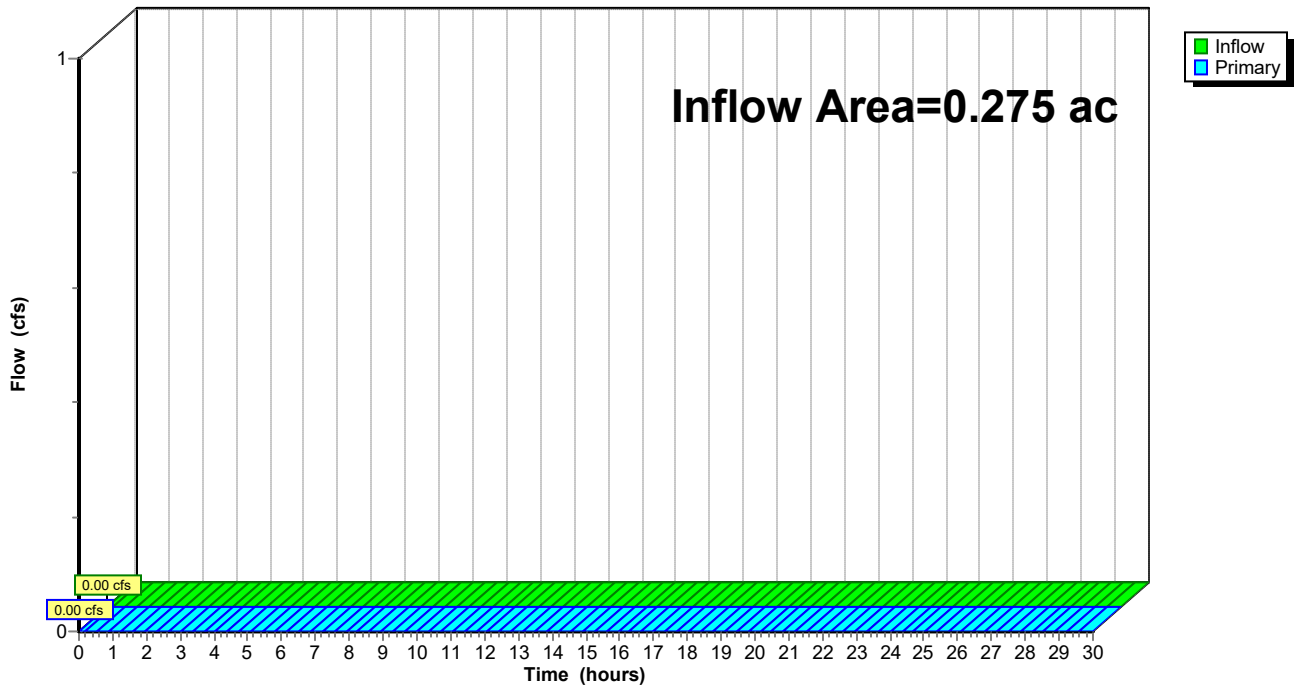
Summary for Link 10L: POST-HOLLEY

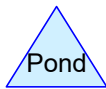
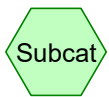
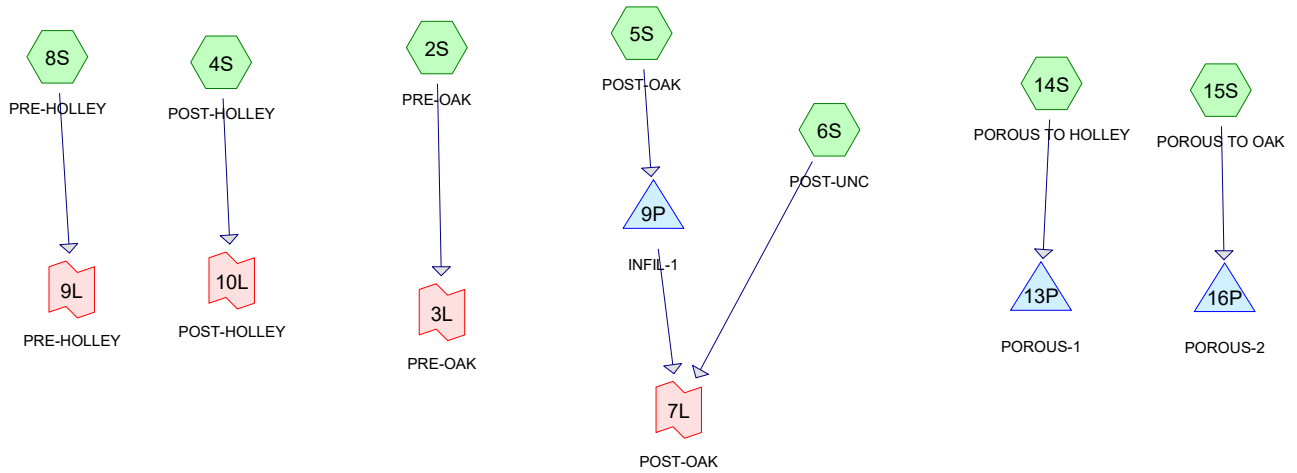
Inflow Area = 0.275 ac, 0.00% Impervious, Inflow Depth = 0.00" for WQV event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10L: POST-HOLLEY

Hydrograph





Routing Diagram for Holley Street MFD
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Holley Street MFD

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.975	39	>75% Grass cover, Good, HSG A (2S, 4S, 5S, 6S)
0.254	98	Roofs, HSG A (5S)
0.754	98	Unconnected pavement, HSG A (2S, 4S, 6S, 14S, 15S)
0.911	30	Woods, Good, HSG A (2S, 6S)
1.186	43	Woods/grass comb., Fair, HSG A (2S, 8S)
6.081	48	TOTAL AREA

Holley Street MFD

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
6.081	HSG A	2S, 4S, 5S, 6S, 8S, 14S, 15S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
6.081		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
2.975	0.000	0.000	0.000	0.000	2.975	>75% Grass cover, Good	2S, 4S, 5S, 6S
0.254	0.000	0.000	0.000	0.000	0.254	Roofs	5S
0.754	0.000	0.000	0.000	0.000	0.754	Unconnected pavement	2S, 4S, 6S, 14S, 15S
0.911	0.000	0.000	0.000	0.000	0.911	Woods, Good	2S, 6S
1.186	0.000	0.000	0.000	0.000	1.186	Woods/grass comb., Fair	2S, 8S
6.081	0.000	0.000	0.000	0.000	6.081	TOTAL AREA	

Holley Street MFD

Type III 24-hr 1-yr Rainfall=2.80"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: PRE-OAK Runoff Area=121,316 sf 9.16% Impervious Runoff Depth=0.00"
Flow Length=715' Tc=23.3 min UI Adjusted CN=42 Runoff=0.00 cfs 0.000 af

Subcatchment 4S: POST-HOLLEY Runoff Area=11,977 sf 17.00% Impervious Runoff Depth=0.00"
Flow Length=68' Slope=0.0090 '/' Tc=14.1 min UI Adjusted CN=44 Runoff=0.00 cfs 0.000 af

Subcatchment 5S: POST-OAK Runoff Area=26,084 sf 42.46% Impervious Runoff Depth=0.38"
Flow Length=54' Slope=0.0090 '/' Tc=11.8 min CN=64 Runoff=0.14 cfs 0.019 af

Subcatchment 6S: POST-UNC Runoff Area=88,901 sf 12.50% Impervious Runoff Depth=0.00"
Flow Length=702' Tc=24.1 min UI Adjusted CN=41 Runoff=0.00 cfs 0.000 af

Subcatchment 8S: PRE-HOLLEY Runoff Area=8,030 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=72' Slope=0.0170 '/' Tc=11.5 min CN=43 Runoff=0.00 cfs 0.000 af

Subcatchment 14S: POROUS TO HOLLEY Runoff Area=2,402 sf 100.00% Impervious Runoff Depth=2.57"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment 15S: POROUS TO OAK Runoff Area=6,196 sf 100.00% Impervious Runoff Depth=2.57"
Tc=6.0 min CN=98 Runoff=0.38 cfs 0.030 af

Pond 9P: INFIL-1 Peak Elev=33.51' Storage=10 cf Inflow=0.14 cfs 0.019 af
Discarded=0.14 cfs 0.019 af Primary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.019 af

Pond 13P: POROUS-1 Peak Elev=0.00' Storage=4 cf Inflow=0.15 cfs 0.012 af
Outflow=0.15 cfs 0.012 af

Pond 16P: POROUS-2 Peak Elev=0.00' Storage=9 cf Inflow=0.38 cfs 0.030 af
Outflow=0.38 cfs 0.030 af

Link 3L: PRE-OAK Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link 7L: POST-OAK Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link 9L: PRE-HOLLEY Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link 10L: POST-HOLLEY Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Total Runoff Area = 6.081 ac Runoff Volume = 0.062 af Average Runoff Depth = 0.12"
83.42% Pervious = 5.073 ac 16.58% Impervious = 1.008 ac

Holley Street MFD

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Type III 24-hr 1-yr Rainfall=2.80"

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Summary for Subcatchment 5S: POST-OAK

Runoff = 0.14 cfs @ 12.24 hrs, Volume= 0.019 af, Depth= 0.38"

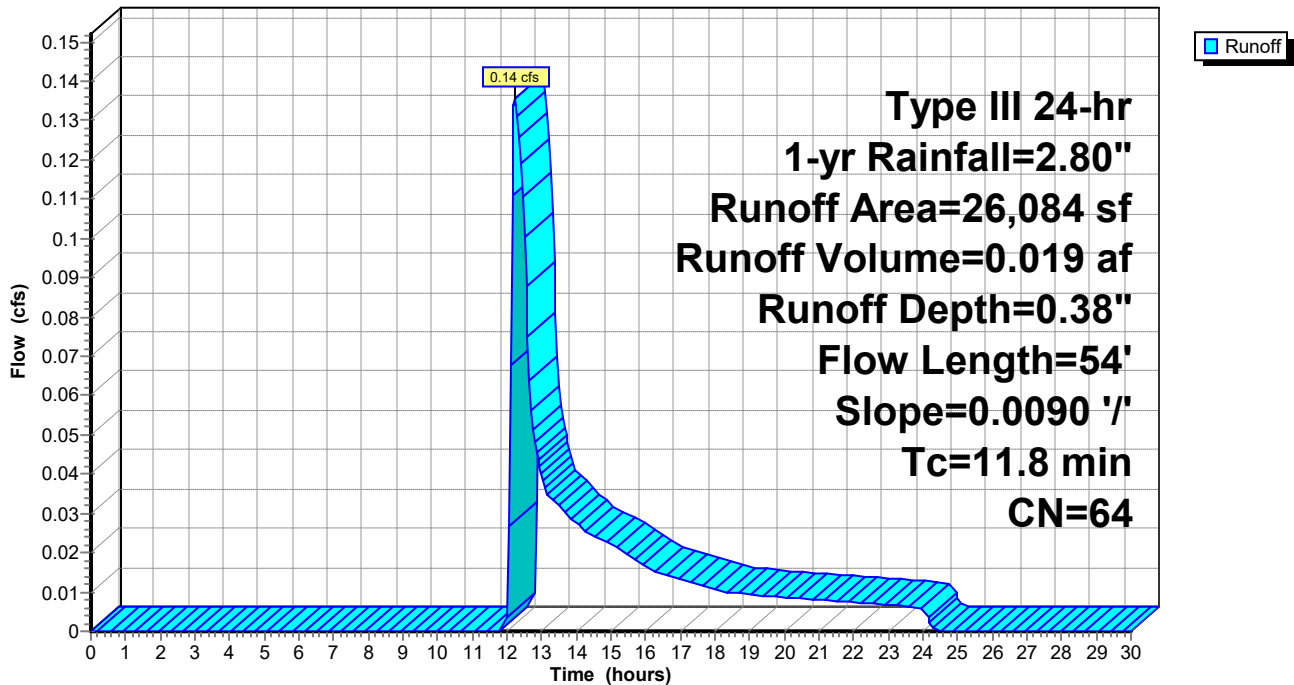
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-yr Rainfall=2.80"

Area (sf)	CN	Description
11,076	98	Roofs, HSG A
15,008	39	>75% Grass cover, Good, HSG A
26,084	64	Weighted Average
15,008	39	57.54% Pervious Area
11,076	98	42.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	54	0.0090	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 5S: POST-OAK

Hydrograph



Holley Street MFD

Type III 24-hr 1-yr Rainfall=2.80"

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Summary for Subcatchment 6S: POST-UNC

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

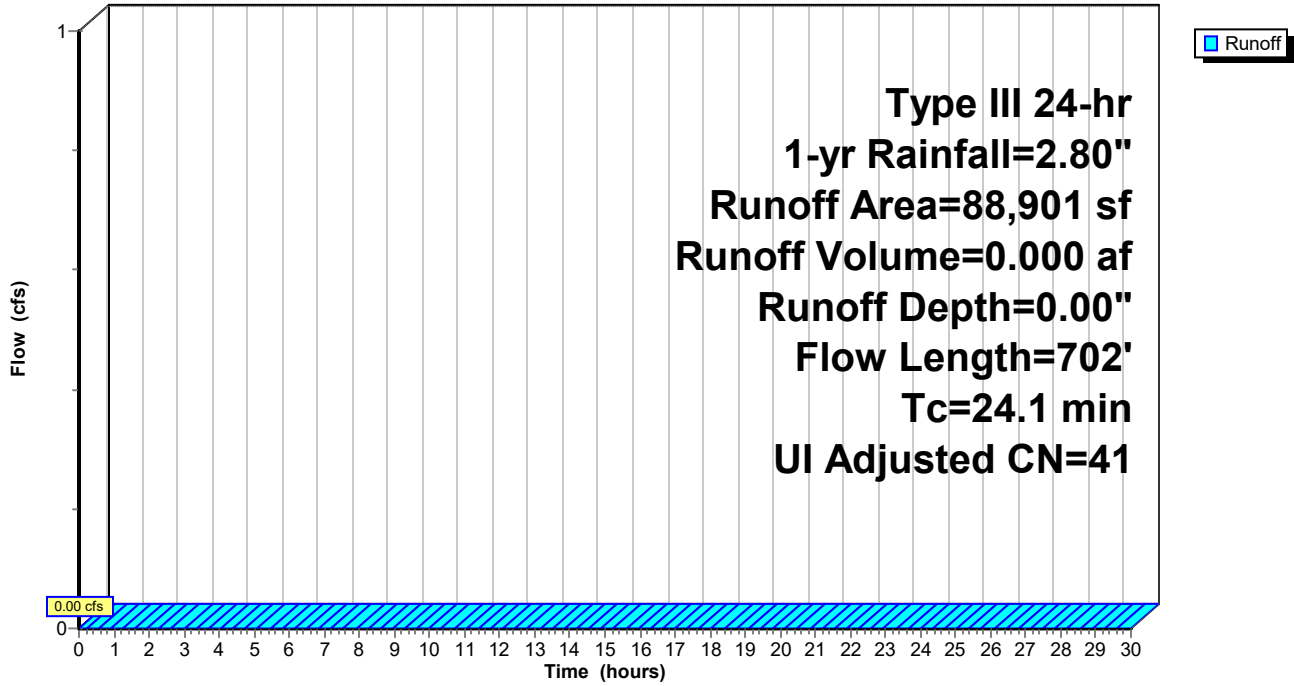
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-yr Rainfall=2.80"

Area (sf)	CN	Adj	Description
58,561	39		>75% Grass cover, Good, HSG A
11,110	98		Unconnected pavement, HSG A
19,230	30		Woods, Good, HSG A
88,901	44	41	Weighted Average, UI Adjusted
77,791	37	37	87.50% Pervious Area
11,110	98	98	12.50% Impervious Area
11,110			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	117	0.0340	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"
9.5	442	0.0240	0.77		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.8	143	0.0070	1.35		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
24.1	702	Total			

Subcatchment 6S: POST-UNC

Hydrograph



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Type III 24-hr 1-yr Rainfall=2.80"

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Summary for Subcatchment 14S: POROUS TO HOLLEY

Runoff = 0.15 cfs @ 12.09 hrs, Volume= 0.012 af, Depth= 2.57"

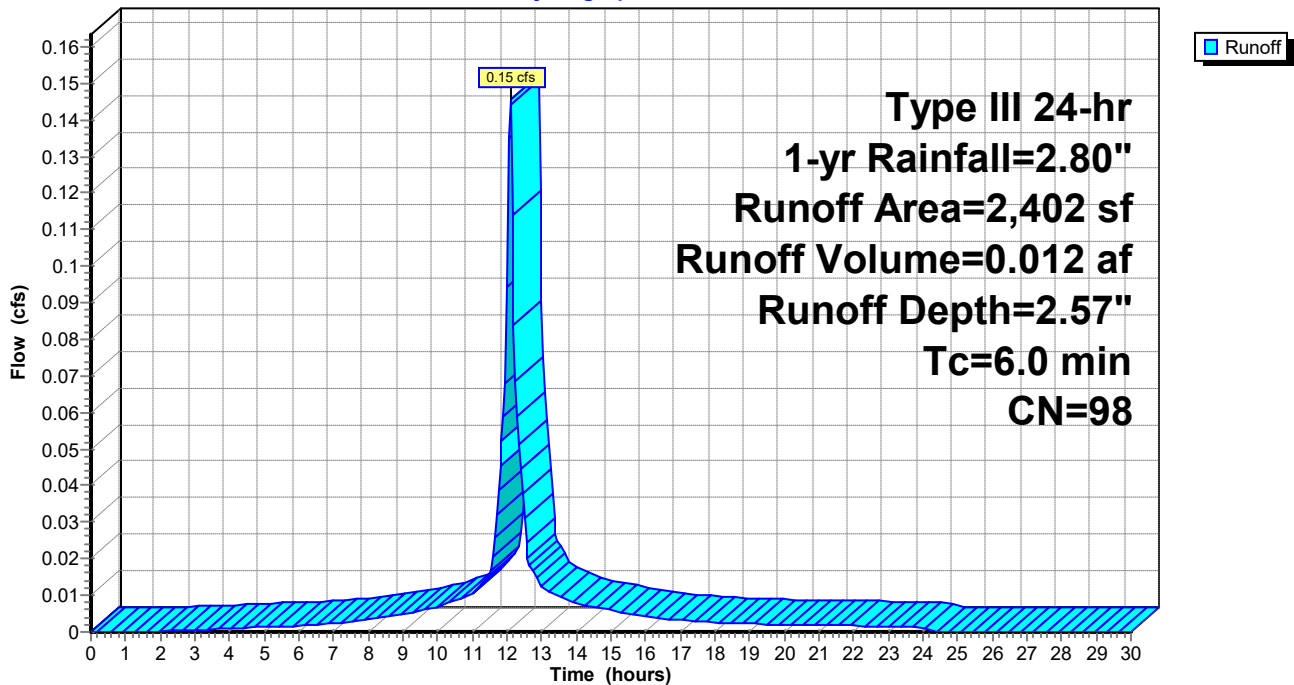
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-yr Rainfall=2.80"

Area (sf)	CN	Description
2,402	98	Unconnected pavement, HSG A
2,402	98	100.00% Impervious Area
2,402		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 14S: POROUS TO HOLLEY

Hydrograph



Holley Street MFD

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Type III 24-hr 1-yr Rainfall=2.80"

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Summary for Subcatchment 15S: POROUS TO OAK

Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.030 af, Depth= 2.57"

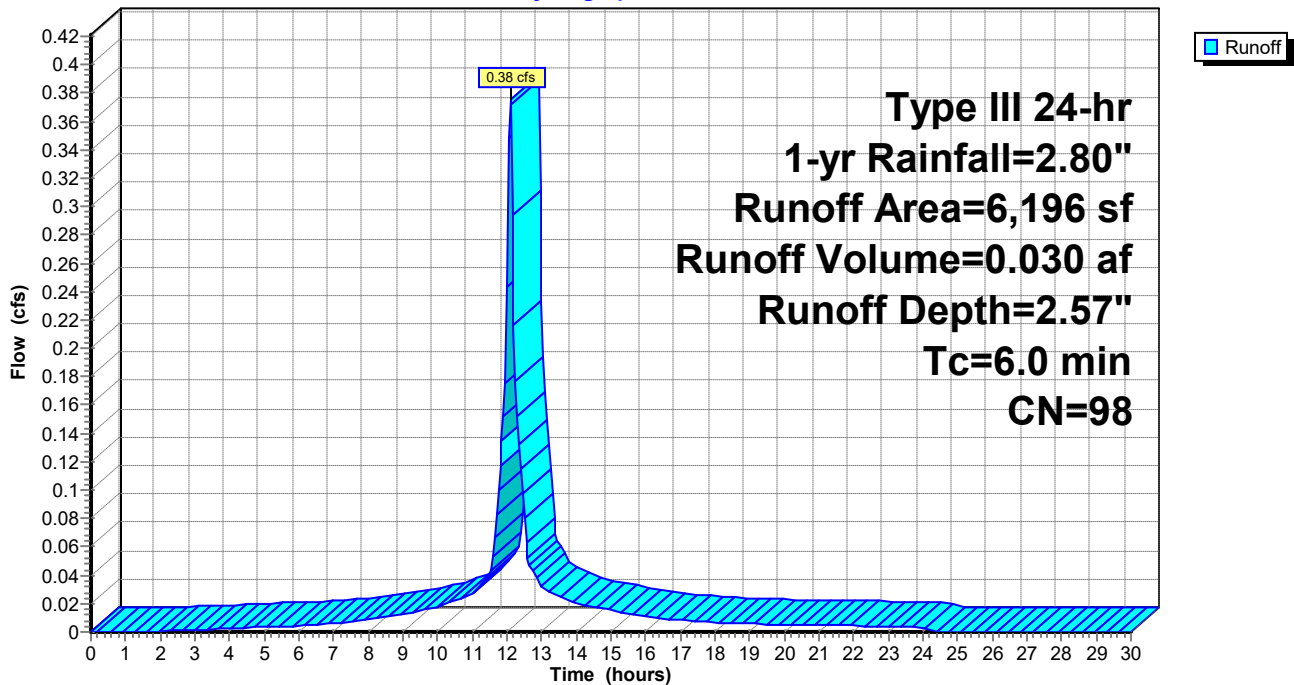
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (sf)	CN	Description
6,196	98	Unconnected pavement, HSG A
6,196	98	100.00% Impervious Area
6,196		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 15S: POROUS TO OAK

Hydrograph



Holley Street MFD

Type III 24-hr 1-yr Rainfall=2.80"

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Summary for Pond 9P: INFIL-1

Inflow Area = 0.599 ac, 42.46% Impervious, Inflow Depth = 0.38" for 1-yr event
 Inflow = 0.14 cfs @ 12.24 hrs, Volume= 0.019 af
 Outflow = 0.14 cfs @ 12.27 hrs, Volume= 0.019 af, Atten= 0%, Lag= 1.6 min
 Discarded = 0.14 cfs @ 12.27 hrs, Volume= 0.019 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.51' @ 12.27 hrs Surf.Area= 1,106 sf Storage= 10 cf

Plug-Flow detention time= 1.3 min calculated for 0.019 af (100% of inflow)
 Center-of-Mass det. time= 1.3 min (922.1 - 920.9)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	3,941 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	1,081	0	0
34.00	2,392	868	868
35.00	3,753	3,073	3,941

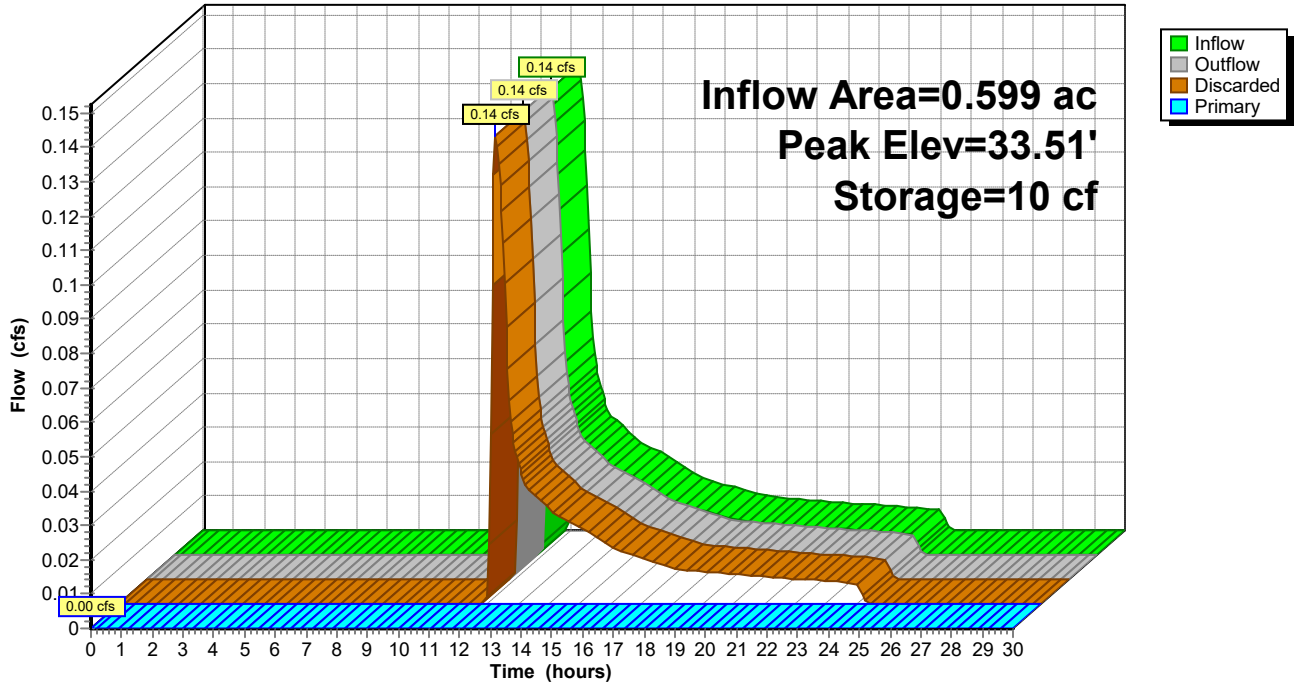
Device	Routing	Invert	Outlet Devices
#1	Discarded	33.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	34.75'	5.0' long x 3.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50			
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68			
2.72 2.81 2.92 2.97 3.07 3.32			

Discarded OutFlow Max=0.21 cfs @ 12.27 hrs HW=33.51' (Free Discharge)
 ↑1=**Exfiltration** (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.50' (Free Discharge)
 ↑2=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9P: INFIL-1

Hydrograph



Holley Street MFD

Type III 24-hr 1-yr Rainfall=2.80"

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Summary for Pond 13P: POROUS-1

Inflow Area = 0.055 ac, 100.00% Impervious, Inflow Depth = 2.57" for 1-yr event
 Inflow = 0.15 cfs @ 12.09 hrs, Volume= 0.012 af
 Outflow = 0.15 cfs @ 12.09 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.15 cfs @ 12.09 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.00' @ 12.09 hrs Surf.Area= 2,402 sf Storage= 4 cf

Plug-Flow detention time= 0.4 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (759.7 - 759.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,124 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,810 cf Overall x 40.0% Voids

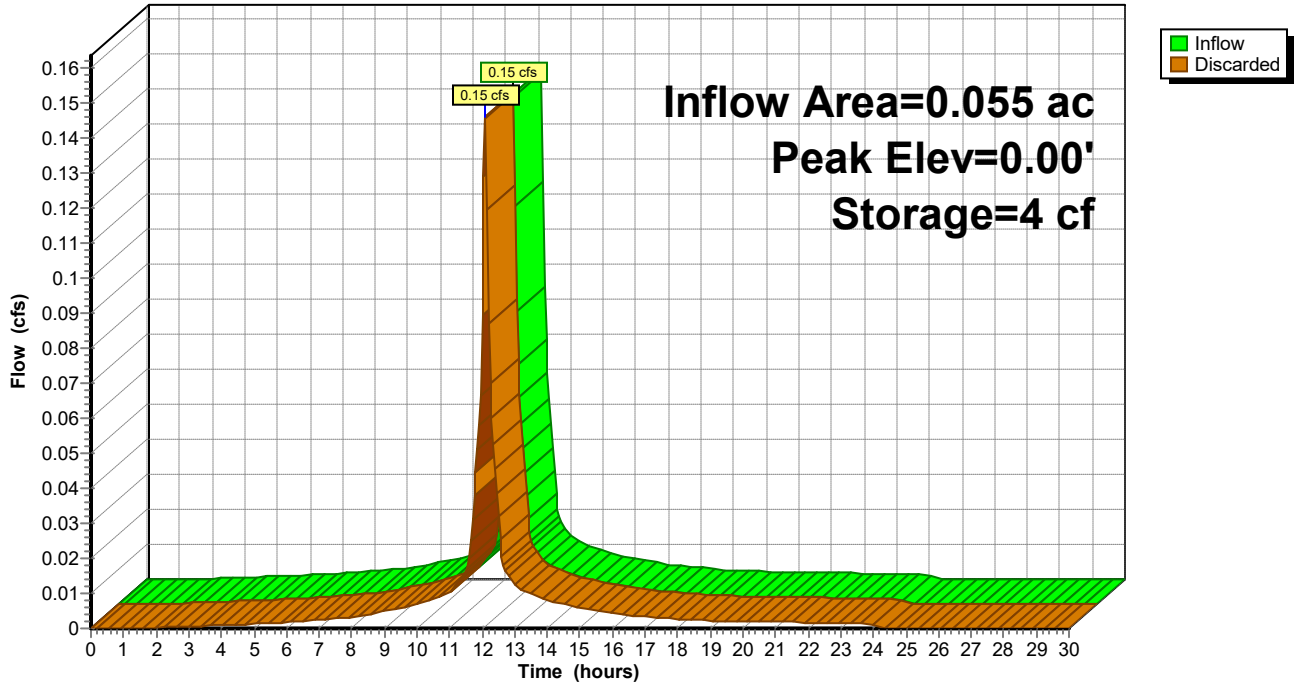
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	2,402	0	0
1.17	2,402	2,810	2,810

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.46 cfs @ 12.09 hrs HW=0.00' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.46 cfs)

Pond 13P: POROUS-1

Hydrograph



Holley Street MFD

Type III 24-hr 1-yr Rainfall=2.80"

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Summary for Pond 16P: POROUS-2

Inflow Area = 0.142 ac, 100.00% Impervious, Inflow Depth = 2.57" for 1-yr event
 Inflow = 0.38 cfs @ 12.09 hrs, Volume= 0.030 af
 Outflow = 0.38 cfs @ 12.09 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.38 cfs @ 12.09 hrs, Volume= 0.030 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.00' @ 12.09 hrs Surf.Area= 6,196 sf Storage= 9 cf

Plug-Flow detention time= 0.4 min calculated for 0.030 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (759.7 - 759.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 7,249 cf Overall x 40.0% Voids

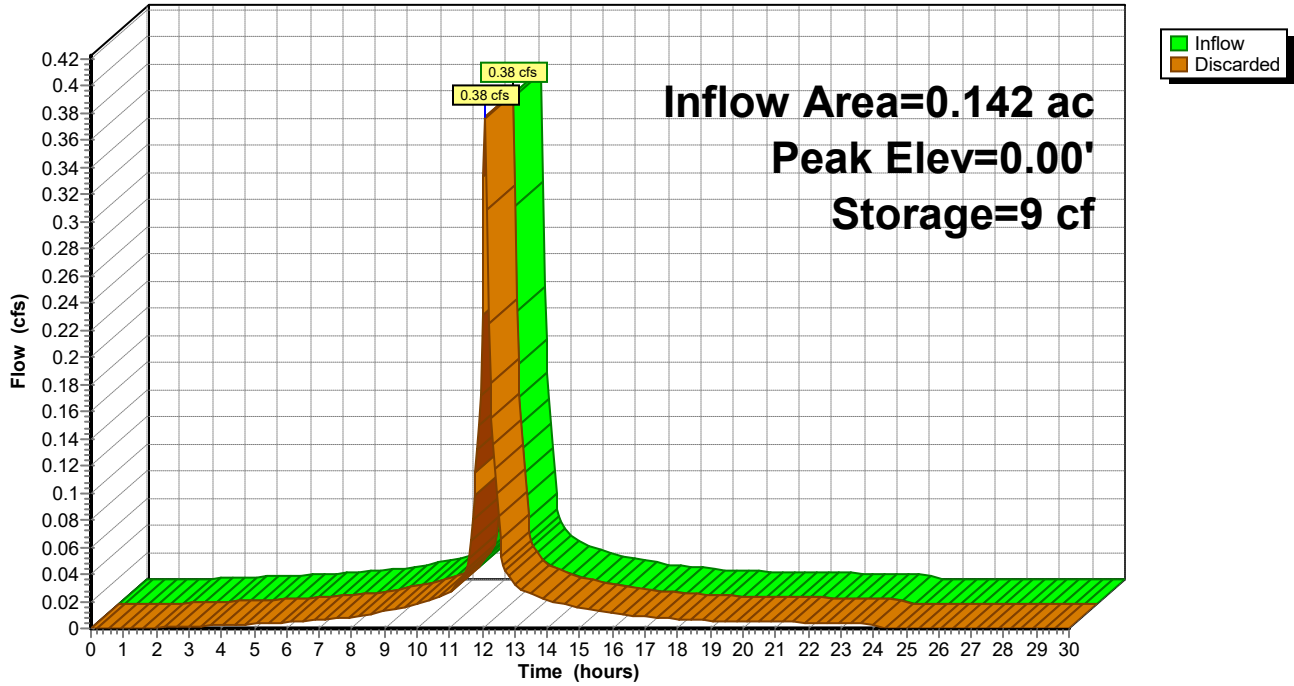
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	6,196	0	0
1.17	6,196	7,249	7,249

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=1.19 cfs @ 12.09 hrs HW=0.00' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 1.19 cfs)

Pond 16P: POROUS-2

Hydrograph



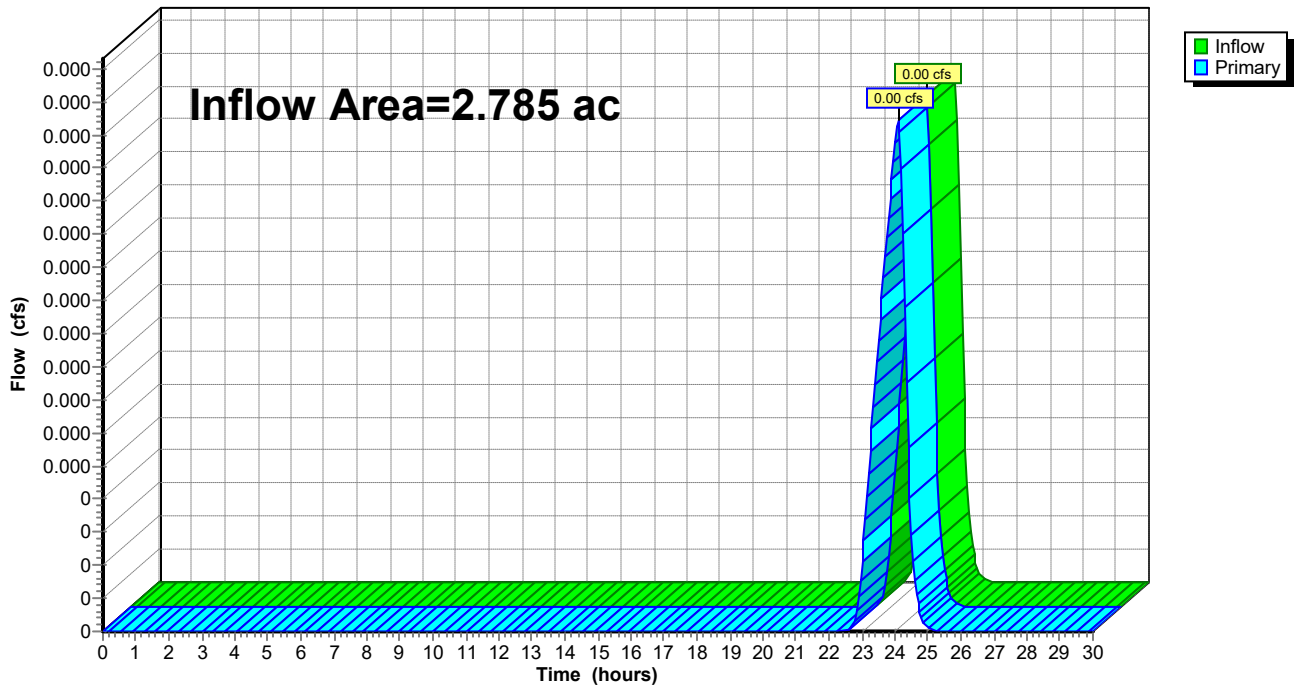
Summary for Link 3L: PRE-OAK

Inflow Area = 2.785 ac, 9.16% Impervious, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 24.09 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 24.09 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: PRE-OAK

Hydrograph



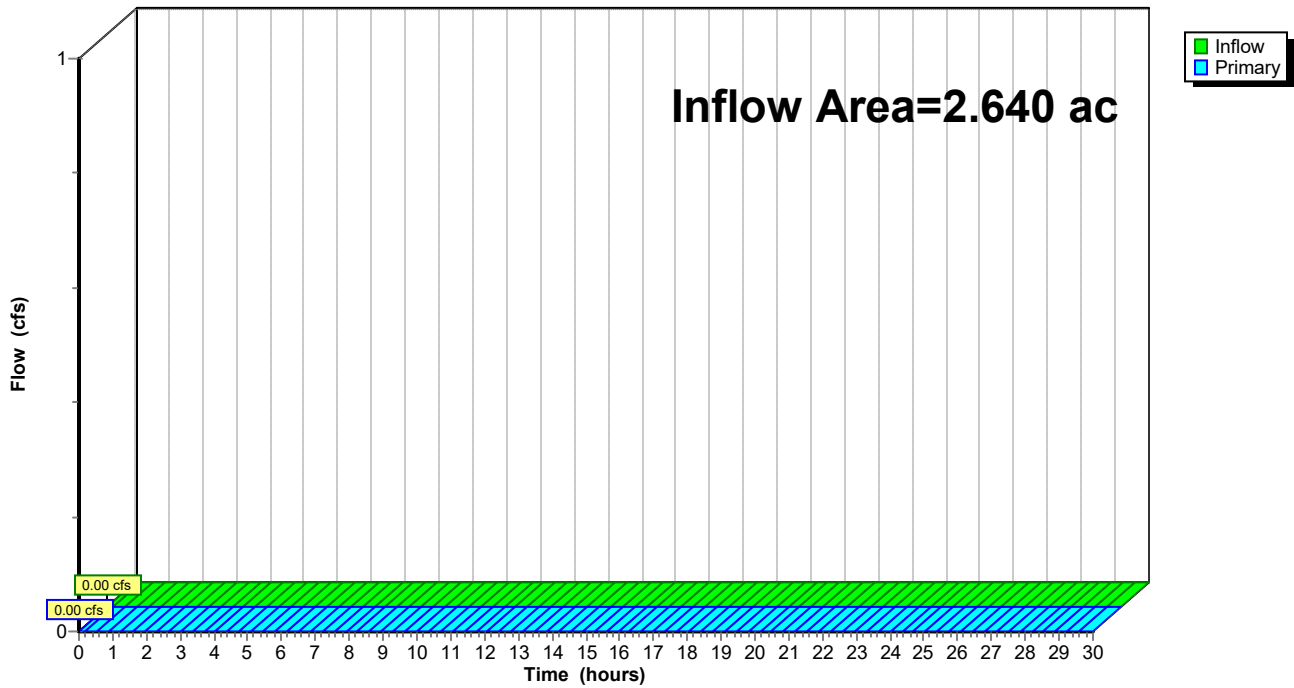
Summary for Link 7L: POST-OAK

Inflow Area = 2.640 ac, 19.29% Impervious, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7L: POST-OAK

Hydrograph



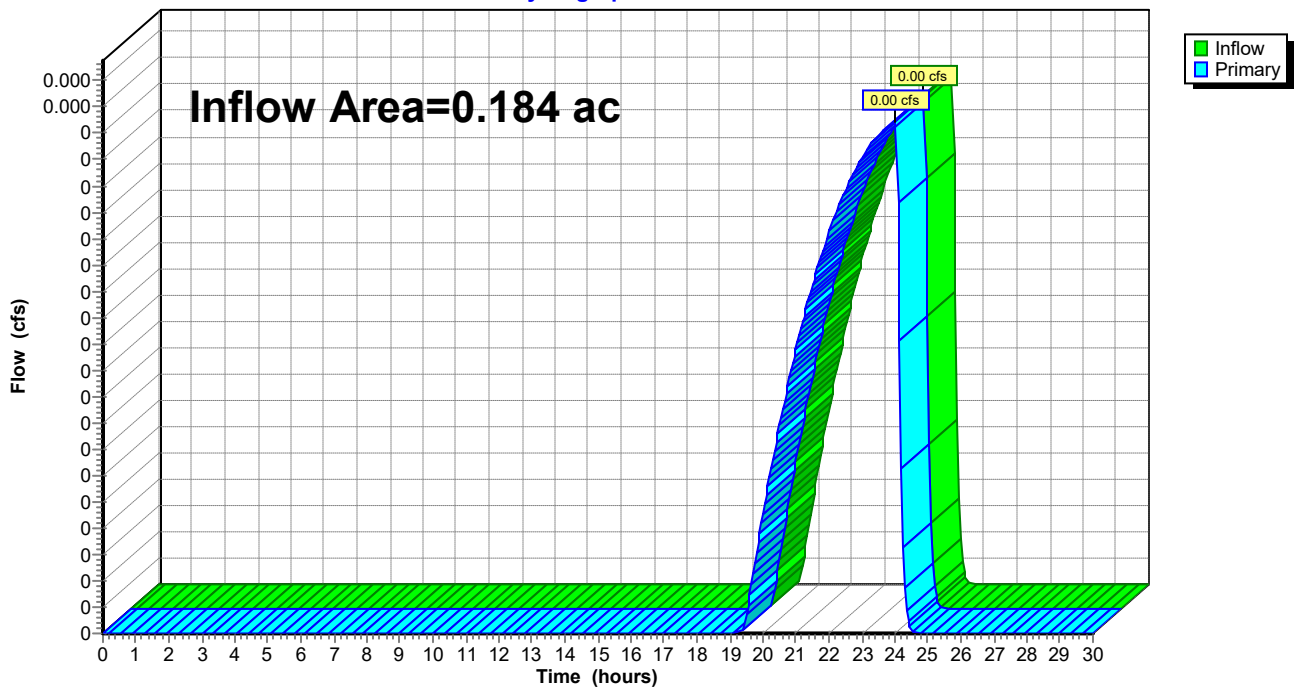
Summary for Link 9L: PRE-HOLLEY

Inflow Area = 0.184 ac, 0.00% Impervious, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9L: PRE-HOLLEY

Hydrograph



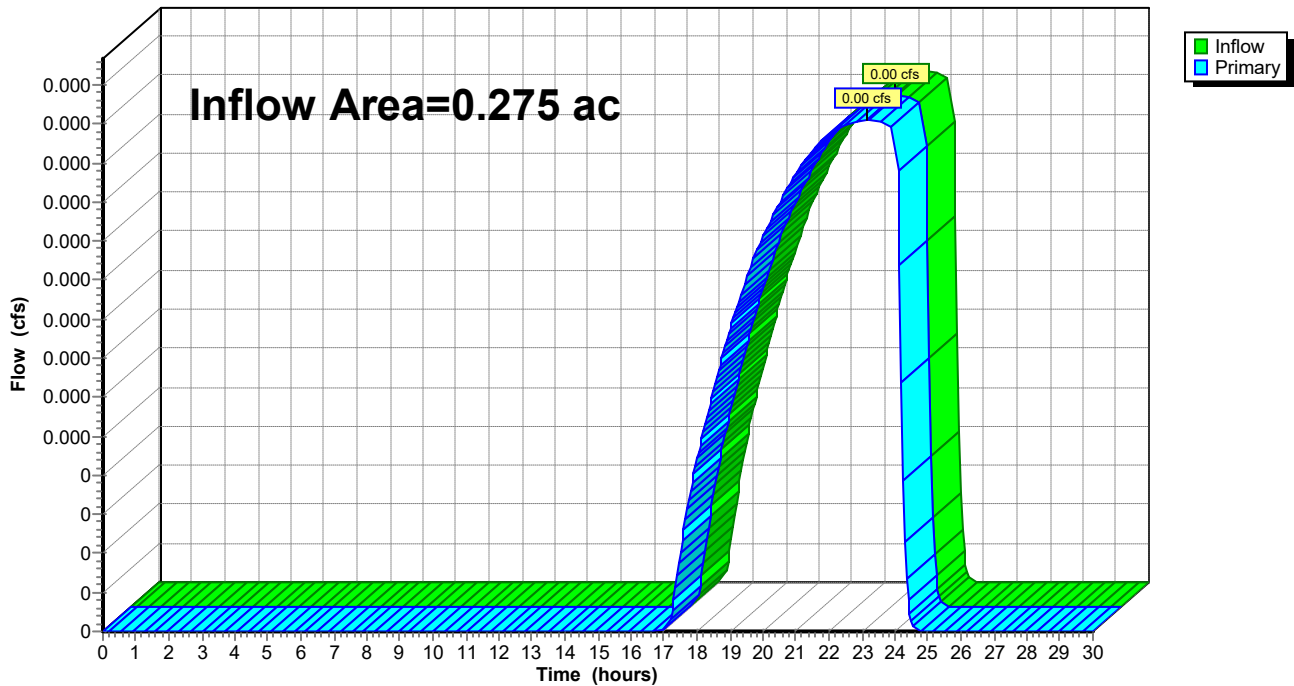
Summary for Link 10L: POST-HOLLEY

Inflow Area = 0.275 ac, 17.00% Impervious, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 23.14 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 23.14 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10L: POST-HOLLEY

Hydrograph



Holley Street MFD

Type III 24-hr 10-yr Rainfall=4.90"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: PRE-OAK Runoff Area=121,316 sf 9.16% Impervious Runoff Depth=0.29"
Flow Length=715' Tc=23.3 min UI Adjusted CN=42 Runoff=0.20 cfs 0.067 af

Subcatchment 4S: POST-HOLLEY Runoff Area=11,977 sf 17.00% Impervious Runoff Depth=0.37"
Flow Length=68' Slope=0.0090 '/' Tc=14.1 min UI Adjusted CN=44 Runoff=0.04 cfs 0.008 af

Subcatchment 5S: POST-OAK Runoff Area=26,084 sf 42.46% Impervious Runoff Depth=1.52"
Flow Length=54' Slope=0.0090 '/' Tc=11.8 min CN=64 Runoff=0.81 cfs 0.076 af

Subcatchment 6S: POST-UNC Runoff Area=88,901 sf 12.50% Impervious Runoff Depth=0.25"
Flow Length=702' Tc=24.1 min UI Adjusted CN=41 Runoff=0.10 cfs 0.042 af

Subcatchment 8S: PRE-HOLLEY Runoff Area=8,030 sf 0.00% Impervious Runoff Depth=0.33"
Flow Length=72' Slope=0.0170 '/' Tc=11.5 min CN=43 Runoff=0.02 cfs 0.005 af

Subcatchment 14S: POROUS TO HOLLEY Runoff Area=2,402 sf 100.00% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

Subcatchment 15S: POROUS TO OAK Runoff Area=6,196 sf 100.00% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=98 Runoff=0.67 cfs 0.055 af

Pond 9P: INFIL-1 Peak Elev=33.84' Storage=515 cf Inflow=0.81 cfs 0.076 af
Discarded=0.38 cfs 0.076 af Primary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.076 af

Pond 13P: POROUS-1 Peak Elev=0.01' Storage=6 cf Inflow=0.26 cfs 0.021 af
Outflow=0.26 cfs 0.021 af

Pond 16P: POROUS-2 Peak Elev=0.01' Storage=16 cf Inflow=0.67 cfs 0.055 af
Outflow=0.67 cfs 0.055 af

Link 3L: PRE-OAK Inflow=0.20 cfs 0.067 af
Primary=0.20 cfs 0.067 af

Link 7L: POST-OAK Inflow=0.10 cfs 0.042 af
Primary=0.10 cfs 0.042 af

Link 9L: PRE-HOLLEY Inflow=0.02 cfs 0.005 af
Primary=0.02 cfs 0.005 af

Link 10L: POST-HOLLEY Inflow=0.04 cfs 0.008 af
Primary=0.04 cfs 0.008 af

Total Runoff Area = 6.081 ac Runoff Volume = 0.275 af Average Runoff Depth = 0.54"
83.42% Pervious = 5.073 ac 16.58% Impervious = 1.008 ac

Holley Street MFD

Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 2S: PRE-OAK

Runoff = 0.20 cfs @ 12.66 hrs, Volume= 0.067 af, Depth= 0.29"

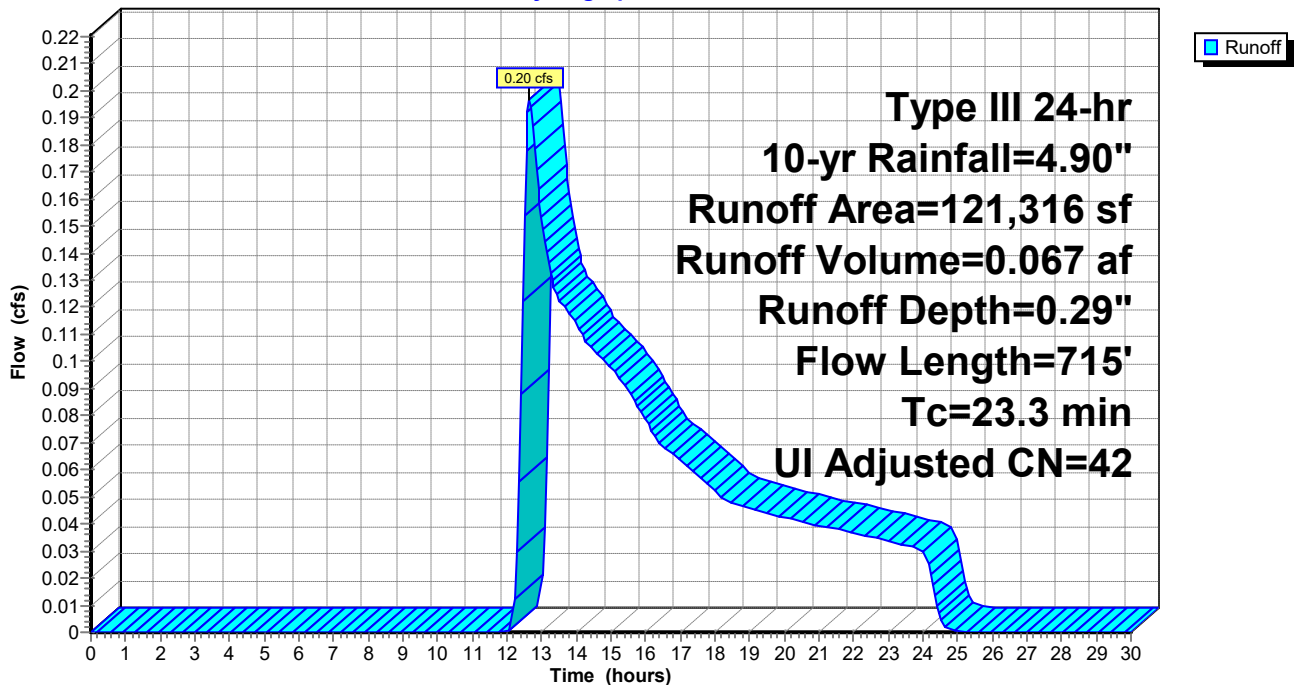
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Adj	Description
11,110	98		Unconnected pavement, HSG A
46,099	39		>75% Grass cover, Good, HSG A
20,456	30		Woods, Good, HSG A
43,651	43		Woods/grass comb., Fair, HSG A
121,316	44	42	Weighted Average, UI Adjusted
110,206	39	39	90.84% Pervious Area
11,110	98	98	9.16% Impervious Area
11,110			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	117	0.0340	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"
9.5	442	0.0240	0.77		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.0	156	0.0280	2.69		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
23.3	715	Total			

Subcatchment 2S: PRE-OAK

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 4S: POST-HOLLEY

Runoff = 0.04 cfs @ 12.47 hrs, Volume= 0.008 af, Depth= 0.37"

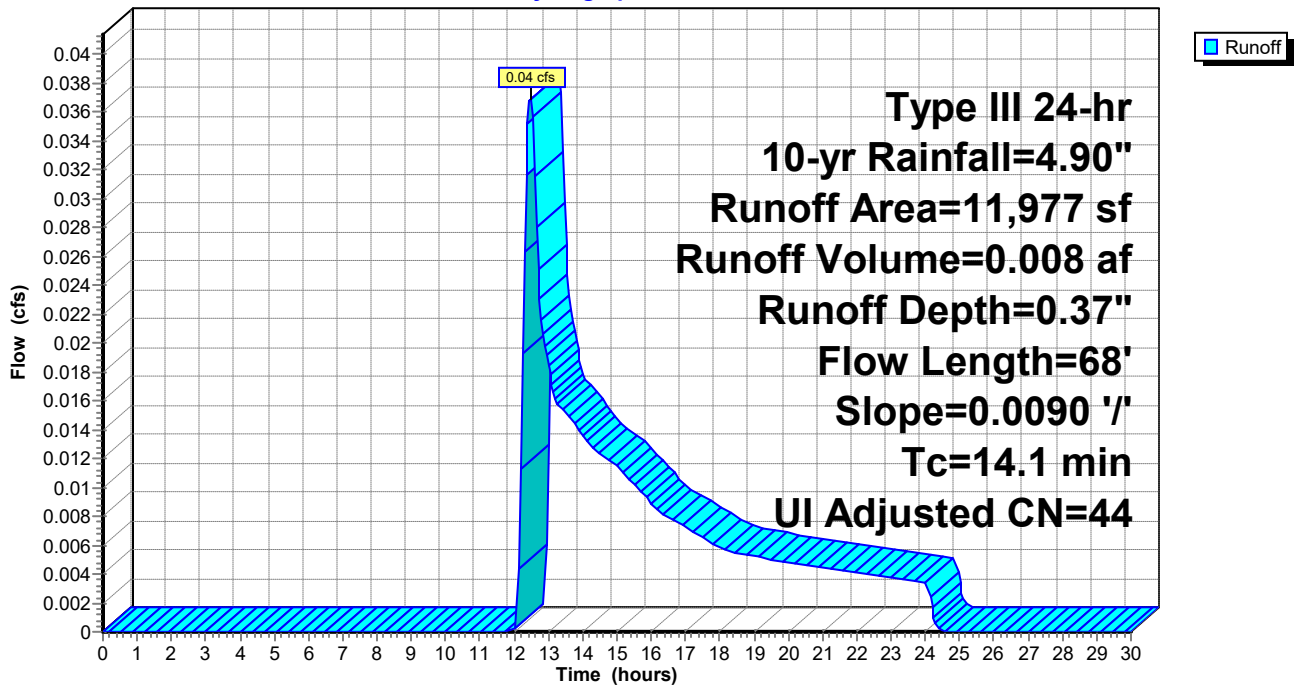
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Adj	Description
9,941	39		>75% Grass cover, Good, HSG A
2,036	98		Unconnected pavement, HSG A
11,977	49	44	Weighted Average, UI Adjusted
9,941	39	39	83.00% Pervious Area
2,036	98	98	17.00% Impervious Area
2,036			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	68	0.0090	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 4S: POST-HOLLEY

Hydrograph



Holley Street MFD

Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 5S: POST-OAK

Runoff = 0.81 cfs @ 12.18 hrs, Volume= 0.076 af, Depth= 1.52"

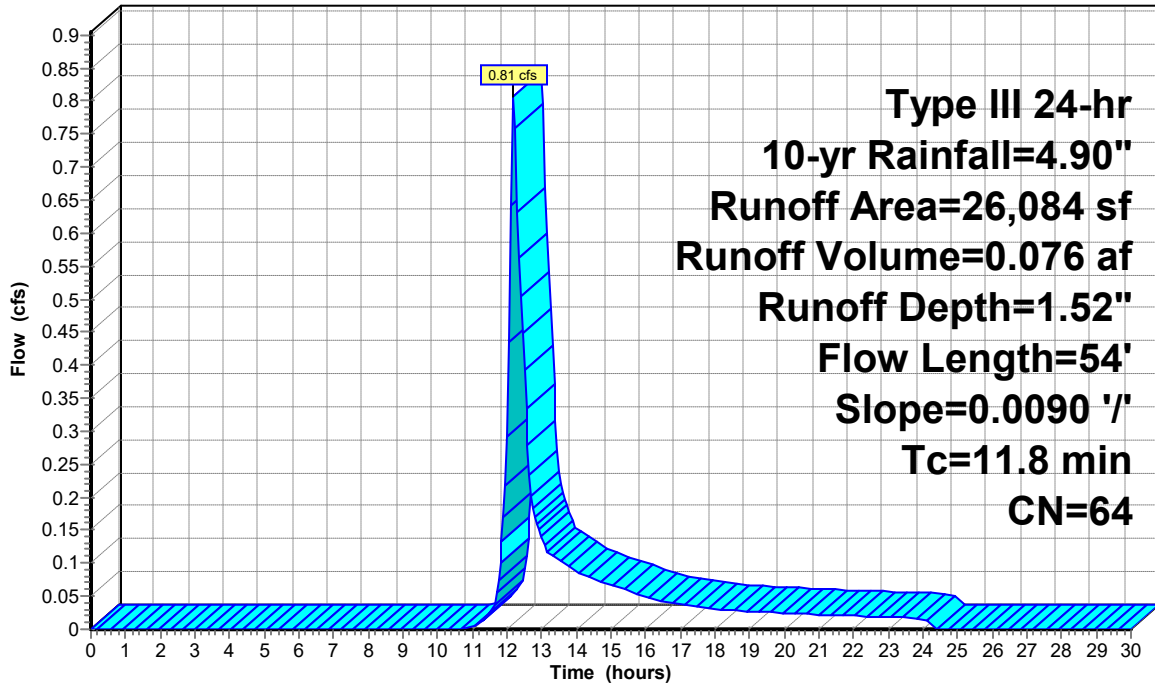
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
11,076	98	Roofs, HSG A
15,008	39	>75% Grass cover, Good, HSG A
26,084	64	Weighted Average
15,008	39	57.54% Pervious Area
11,076	98	42.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	54	0.0090	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 5S: POST-OAK

Hydrograph



Runoff

Holley Street MFD

Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 6S: POST-UNC

Runoff = 0.10 cfs @ 12.71 hrs, Volume= 0.042 af, Depth= 0.25"

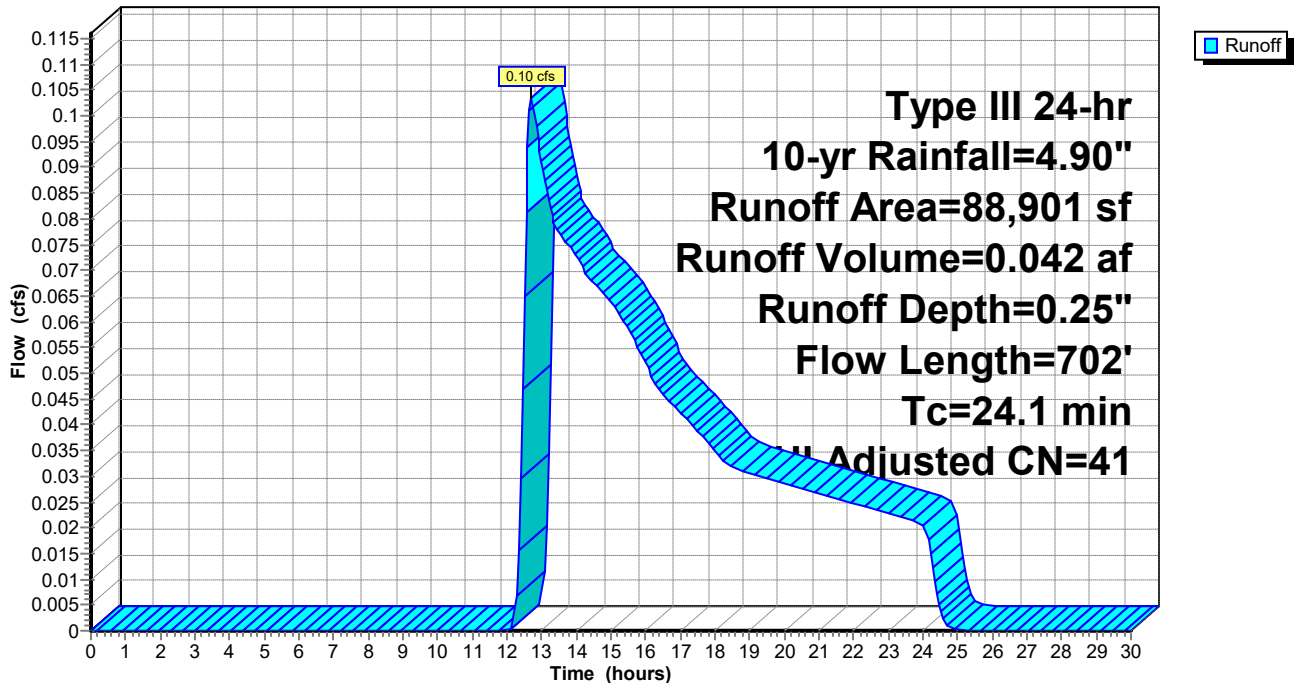
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Adj	Description
58,561	39		>75% Grass cover, Good, HSG A
11,110	98		Unconnected pavement, HSG A
19,230	30		Woods, Good, HSG A
88,901	44	41	Weighted Average, UI Adjusted
77,791	37	37	87.50% Pervious Area
11,110	98	98	12.50% Impervious Area
11,110			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	117	0.0340	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"
9.5	442	0.0240	0.77		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.8	143	0.0070	1.35		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
24.1	702	Total			

Subcatchment 6S: POST-UNC

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 8S: PRE-HOLLEY

Runoff = 0.02 cfs @ 12.45 hrs, Volume= 0.005 af, Depth= 0.33"

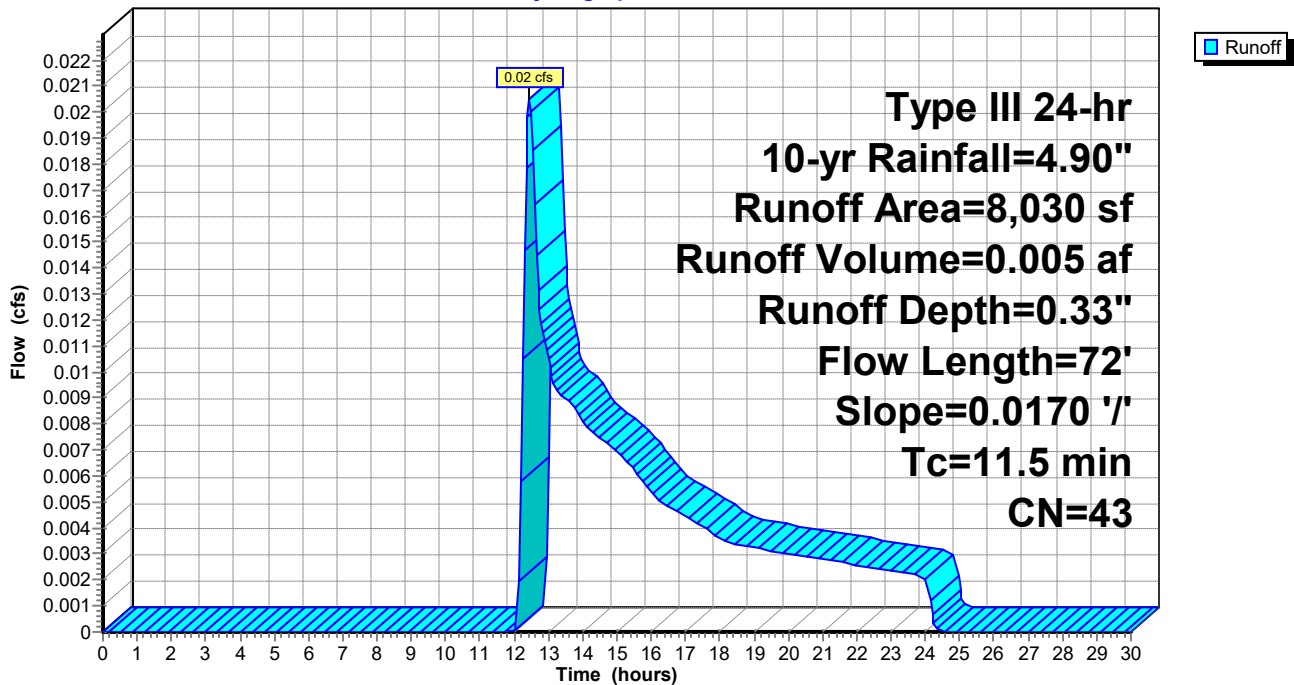
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
8,030	43	Woods/grass comb., Fair, HSG A
8,030	43	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	72	0.0170	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 8S: PRE-HOLLEY

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 14S: POROUS TO HOLLEY

Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth= 4.66"

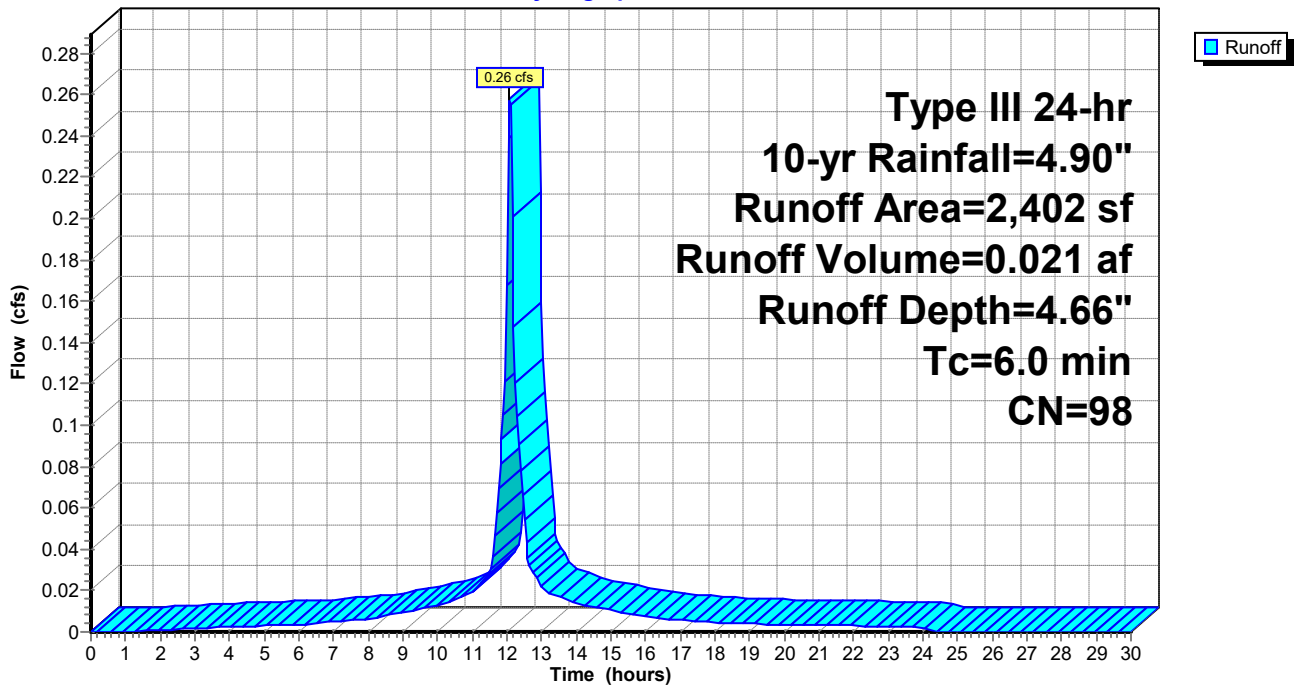
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
2,402	98	Unconnected pavement, HSG A
2,402	98	100.00% Impervious Area
2,402		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 14S: POROUS TO HOLLEY

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 15S: POROUS TO OAK

Runoff = 0.67 cfs @ 12.09 hrs, Volume= 0.055 af, Depth= 4.66"

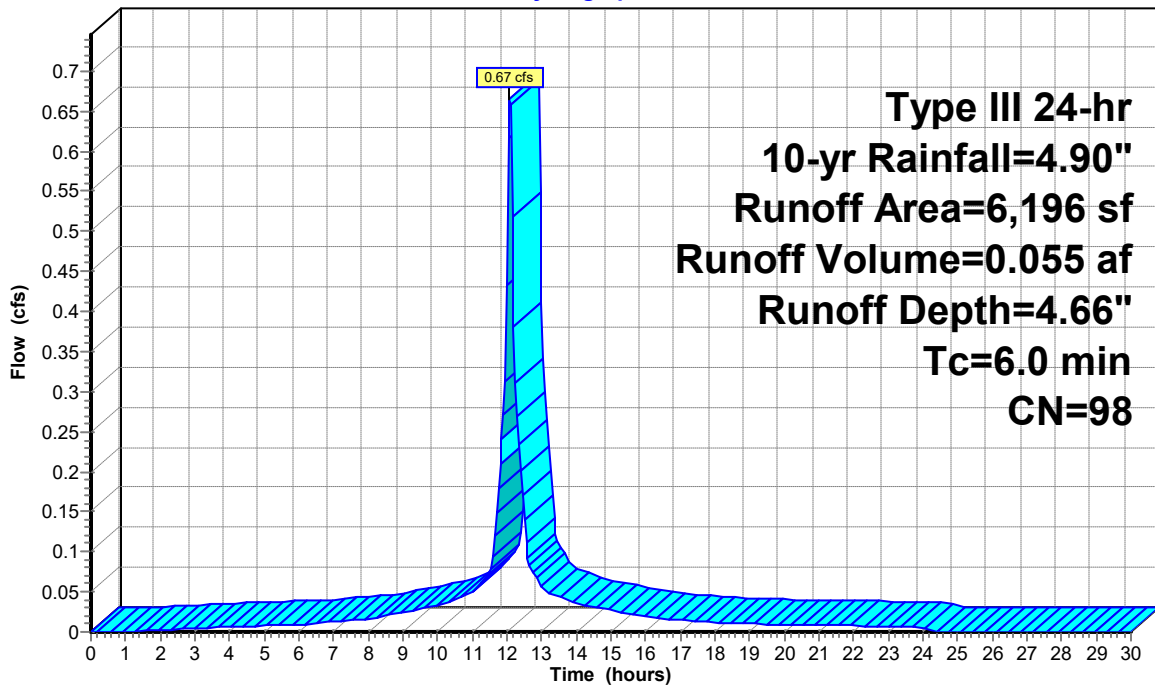
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
6,196	98	Unconnected pavement, HSG A
6,196	98	100.00% Impervious Area
6,196		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 15S: POROUS TO OAK

Hydrograph



**Type III 24-hr
 10-yr Rainfall=4.90"
 Runoff Area=6,196 sf
 Runoff Volume=0.055 af
 Runoff Depth=4.66"
 Tc=6.0 min
 CN=98**

Holley Street MFD

Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Pond 9P: INFIL-1

Inflow Area = 0.599 ac, 42.46% Impervious, Inflow Depth = 1.52" for 10-yr event
 Inflow = 0.81 cfs @ 12.18 hrs, Volume= 0.076 af
 Outflow = 0.38 cfs @ 12.51 hrs, Volume= 0.076 af, Atten= 53%, Lag= 20.1 min
 Discarded = 0.38 cfs @ 12.51 hrs, Volume= 0.076 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.84' @ 12.51 hrs Surf.Area= 1,967 sf Storage= 515 cf

Plug-Flow detention time= 8.4 min calculated for 0.076 af (100% of inflow)
 Center-of-Mass det. time= 8.4 min (878.7 - 870.3)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	3,941 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	1,081	0	0
34.00	2,392	868	868
35.00	3,753	3,073	3,941

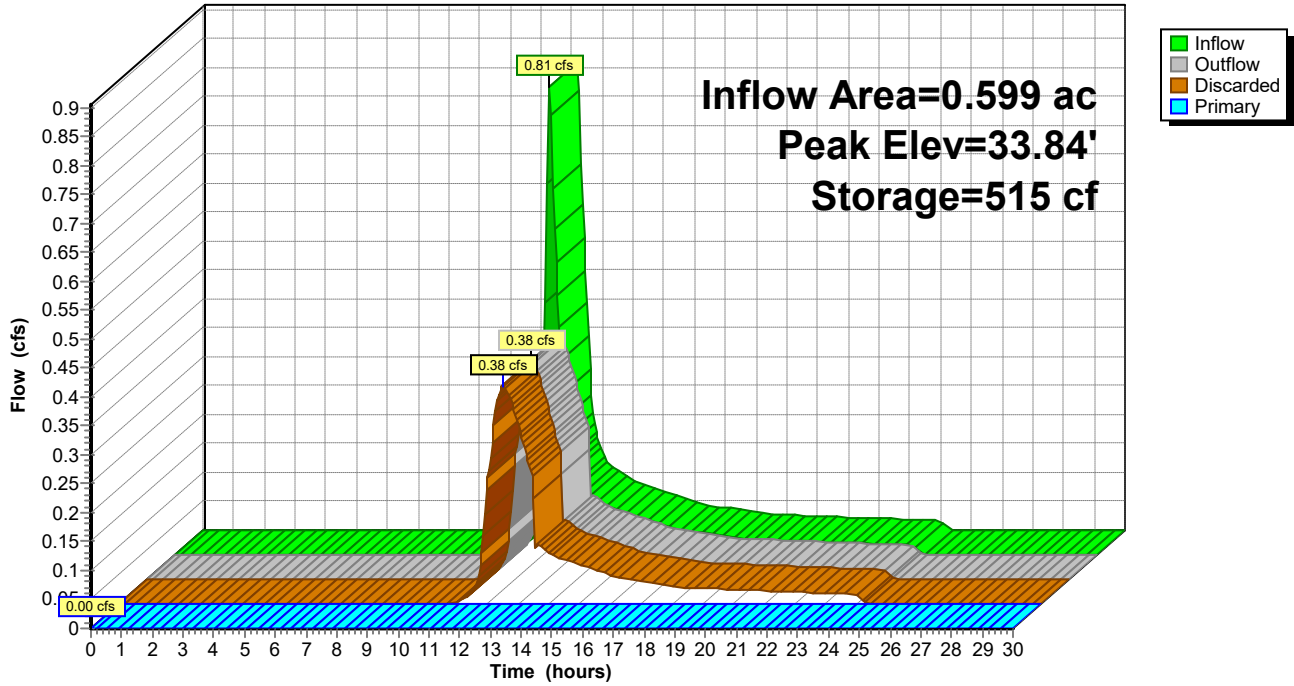
Device	Routing	Invert	Outlet Devices
#1	Discarded	33.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	34.75'	5.0' long x 3.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50			
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68			
2.72 2.81 2.92 2.97 3.07 3.32			

Discarded OutFlow Max=0.38 cfs @ 12.51 hrs HW=33.84' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.38 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.50' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9P: INFIL-1

Hydrograph



Holley Street MFD

Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Pond 13P: POROUS-1

Inflow Area = 0.055 ac, 100.00% Impervious, Inflow Depth = 4.66" for 10-yr event
 Inflow = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af
 Outflow = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.01' @ 12.09 hrs Surf.Area= 2,402 sf Storage= 6 cf

Plug-Flow detention time= 0.4 min calculated for 0.021 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (748.8 - 748.4)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,124 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,810 cf Overall x 40.0% Voids

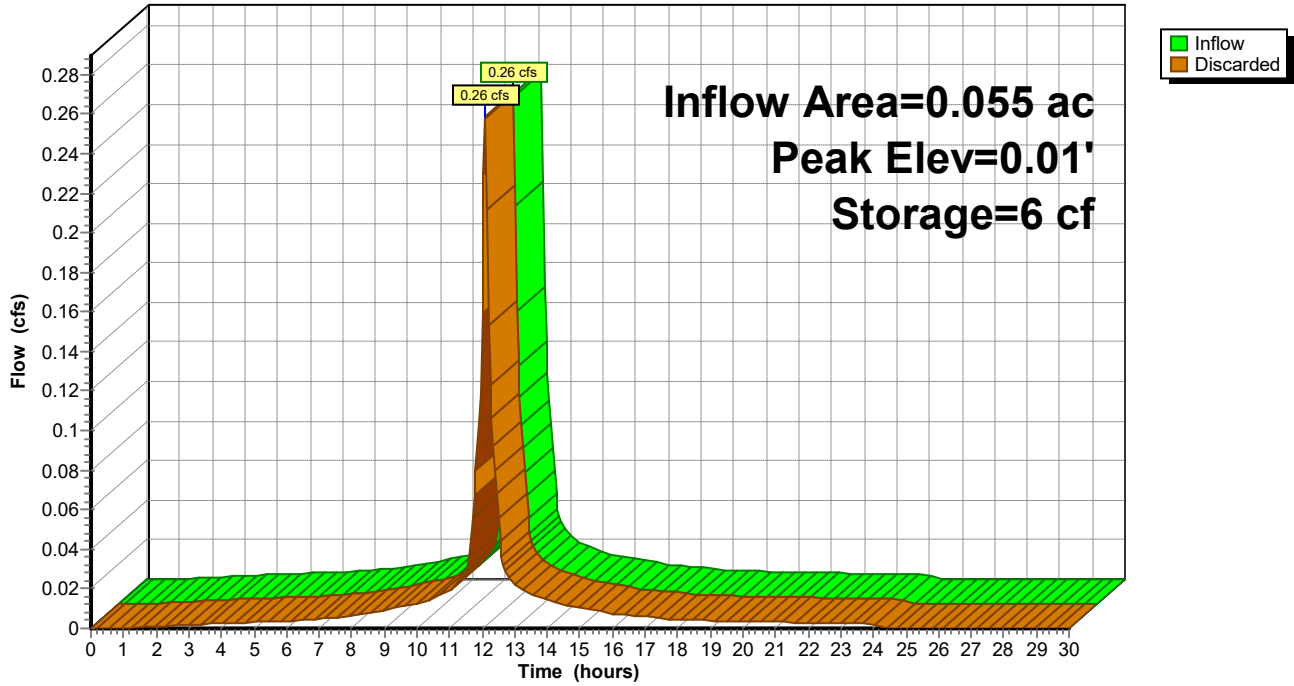
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	2,402	0	0
1.17	2,402	2,810	2,810

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.46 cfs @ 12.09 hrs HW=0.01' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.46 cfs)

Pond 13P: POROUS-1

Hydrograph



Holley Street MFD

Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Pond 16P: POROUS-2

Inflow Area = 0.142 ac, 100.00% Impervious, Inflow Depth = 4.66" for 10-yr event
 Inflow = 0.67 cfs @ 12.09 hrs, Volume= 0.055 af
 Outflow = 0.67 cfs @ 12.09 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.67 cfs @ 12.09 hrs, Volume= 0.055 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.01' @ 12.09 hrs Surf.Area= 6,196 sf Storage= 16 cf

Plug-Flow detention time= 0.4 min calculated for 0.055 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (748.8 - 748.4)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 7,249 cf Overall x 40.0% Voids

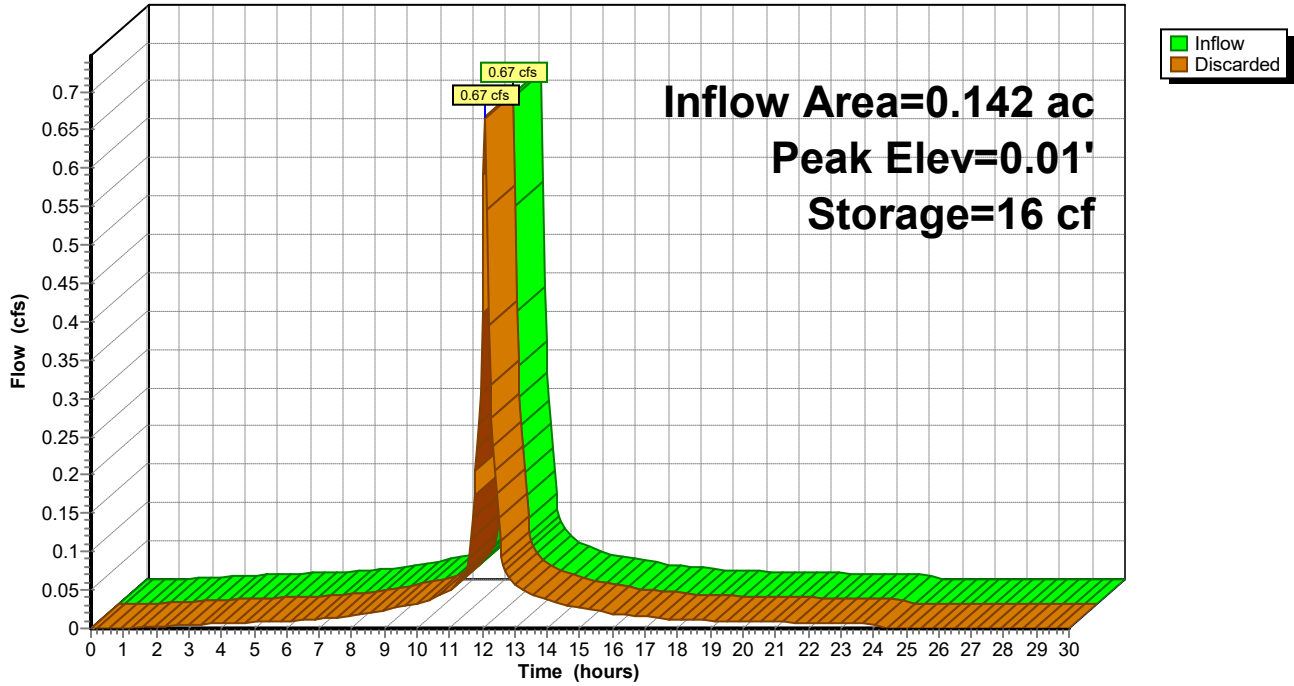
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	6,196	0	0
1.17	6,196	7,249	7,249

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=1.19 cfs @ 12.09 hrs HW=0.01' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 1.19 cfs)

Pond 16P: POROUS-2

Hydrograph



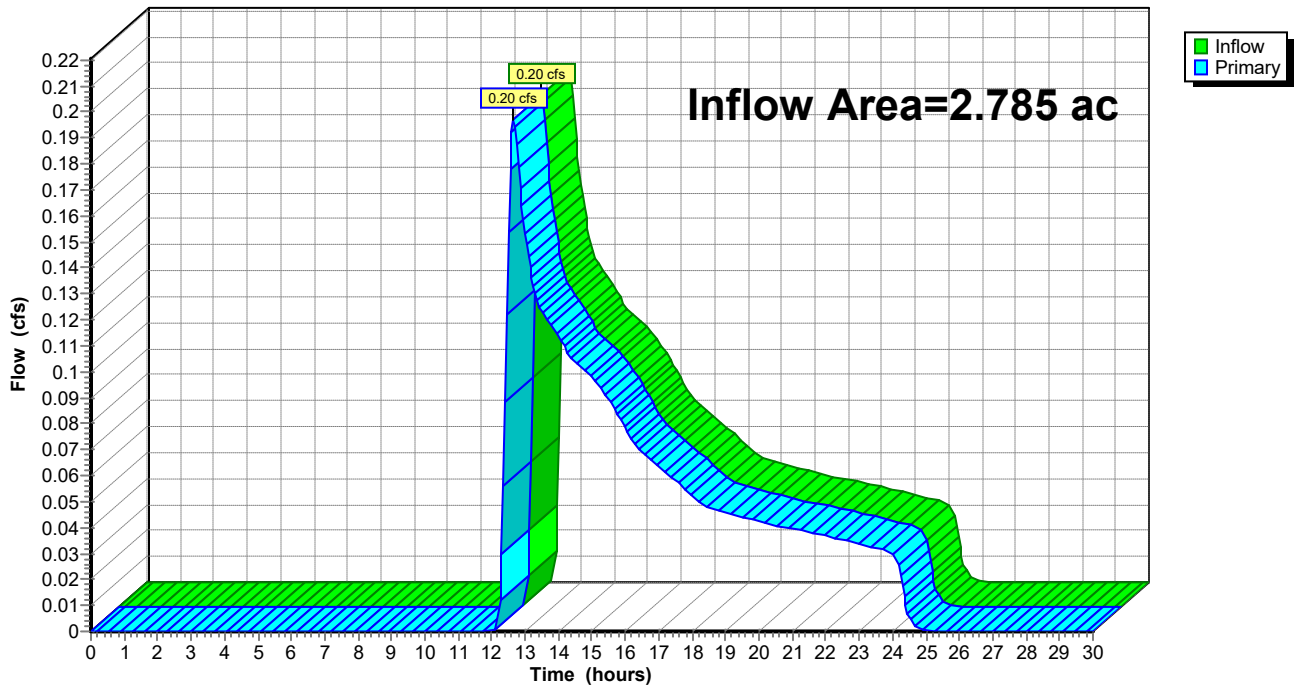
Summary for Link 3L: PRE-OAK

Inflow Area = 2.785 ac, 9.16% Impervious, Inflow Depth = 0.29" for 10-yr event
Inflow = 0.20 cfs @ 12.66 hrs, Volume= 0.067 af
Primary = 0.20 cfs @ 12.66 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: PRE-OAK

Hydrograph



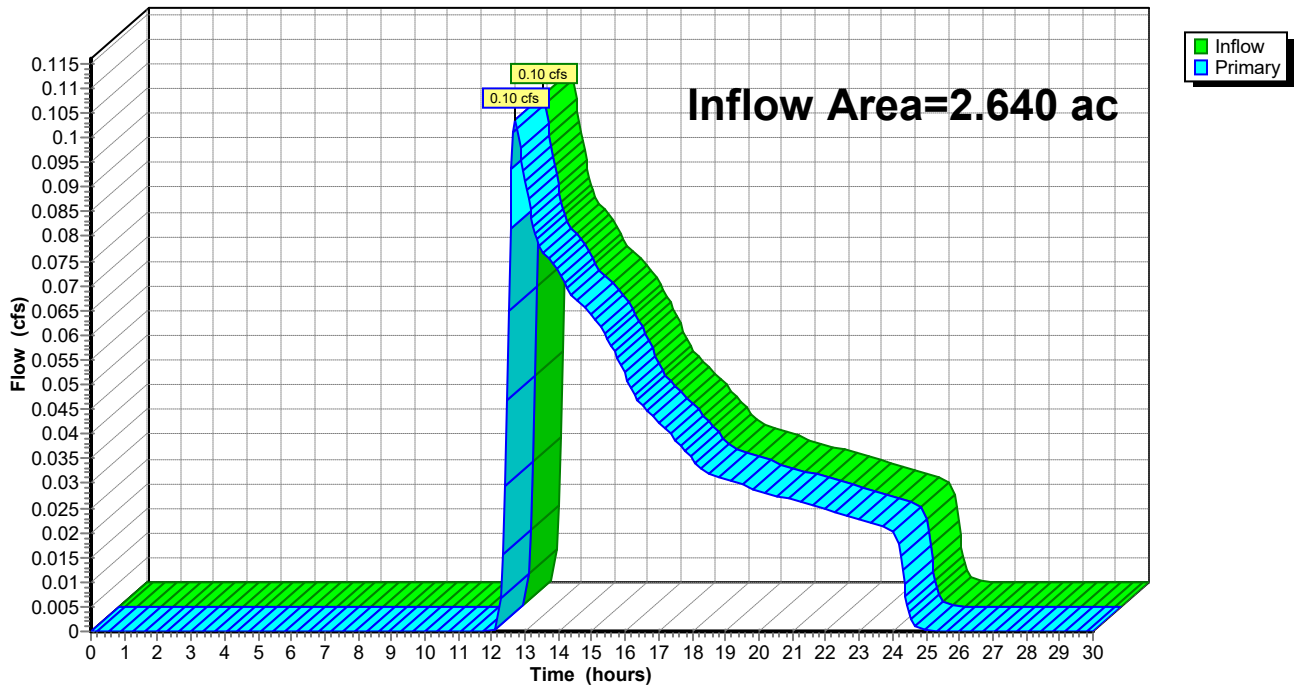
Summary for Link 7L: POST-OAK

Inflow Area = 2.640 ac, 19.29% Impervious, Inflow Depth = 0.19" for 10-yr event
Inflow = 0.10 cfs @ 12.71 hrs, Volume= 0.042 af
Primary = 0.10 cfs @ 12.71 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7L: POST-OAK

Hydrograph



Holley Street MFD

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Type III 24-hr 10-yr Rainfall=4.90"

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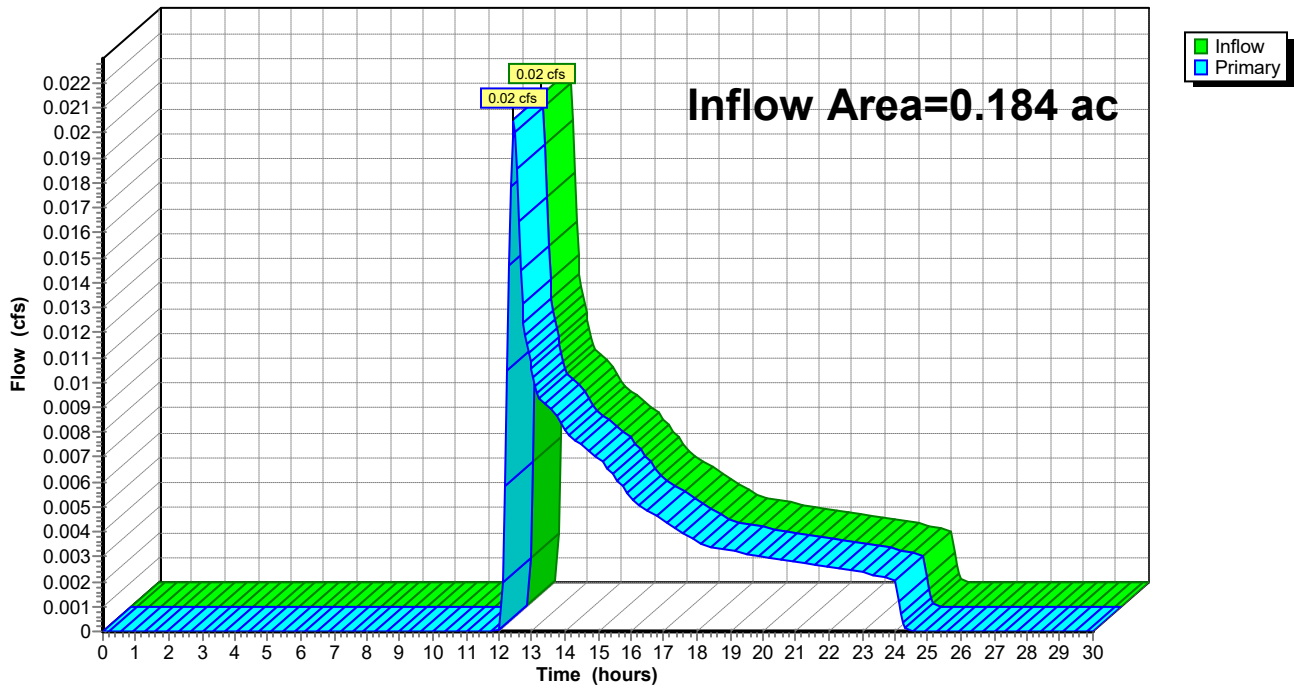
Summary for Link 9L: PRE-HOLLEY

Inflow Area = 0.184 ac, 0.00% Impervious, Inflow Depth = 0.33" for 10-yr event
Inflow = 0.02 cfs @ 12.45 hrs, Volume= 0.005 af
Primary = 0.02 cfs @ 12.45 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9L: PRE-HOLLEY

Hydrograph



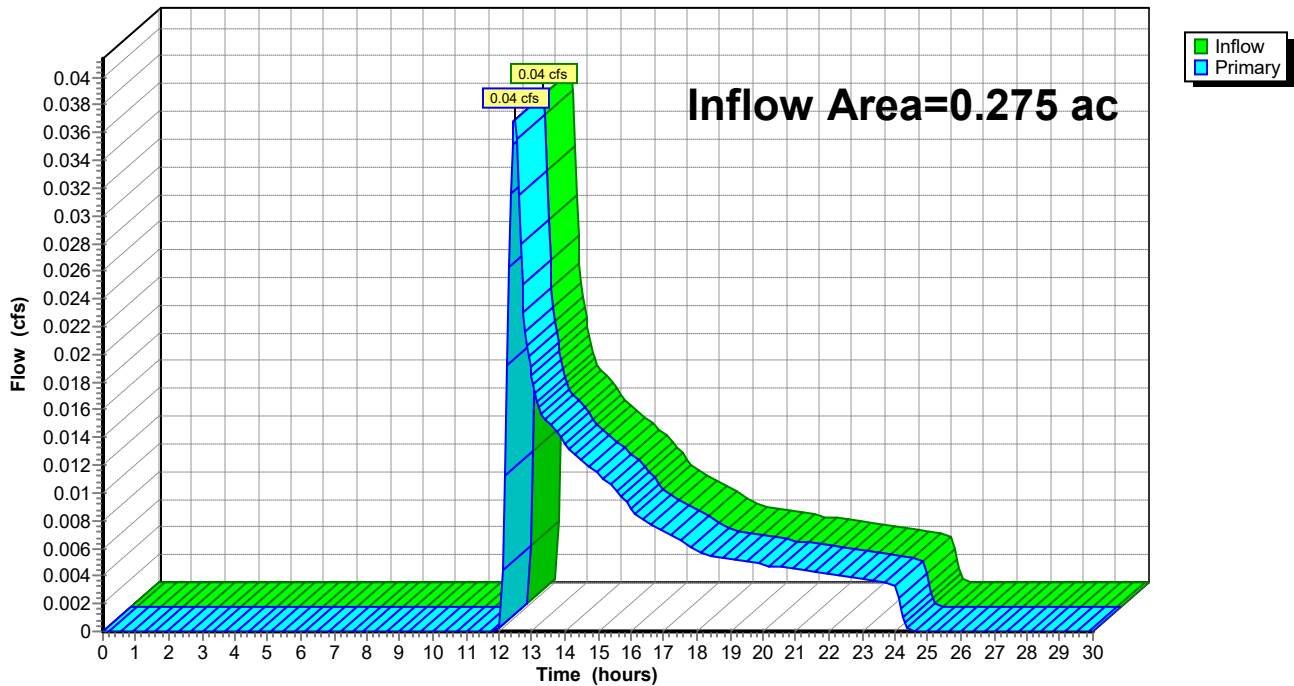
Summary for Link 10L: POST-HOLLEY

Inflow Area = 0.275 ac, 17.00% Impervious, Inflow Depth = 0.37" for 10-yr event
Inflow = 0.04 cfs @ 12.47 hrs, Volume= 0.008 af
Primary = 0.04 cfs @ 12.47 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10L: POST-HOLLEY

Hydrograph



Holley Street MFD

Type III 24-hr 25-yr Rainfall=6.10"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: PRE-OAK Runoff Area=121,316 sf 9.16% Impervious Runoff Depth=0.65"
Flow Length=715' Tc=23.3 min UI Adjusted CN=42 Runoff=0.75 cfs 0.151 af

Subcatchment 4S: POST-HOLLEY Runoff Area=11,977 sf 17.00% Impervious Runoff Depth=0.78"
Flow Length=68' Slope=0.0090 '/' Tc=14.1 min UI Adjusted CN=44 Runoff=0.11 cfs 0.018 af

Subcatchment 5S: POST-OAK Runoff Area=26,084 sf 42.46% Impervious Runoff Depth=2.33"
Flow Length=54' Slope=0.0090 '/' Tc=11.8 min CN=64 Runoff=1.31 cfs 0.117 af

Subcatchment 6S: POST-UNC Runoff Area=88,901 sf 12.50% Impervious Runoff Depth=0.59"
Flow Length=702' Tc=24.1 min UI Adjusted CN=41 Runoff=0.46 cfs 0.100 af

Subcatchment 8S: PRE-HOLLEY Runoff Area=8,030 sf 0.00% Impervious Runoff Depth=0.71"
Flow Length=72' Slope=0.0170 '/' Tc=11.5 min CN=43 Runoff=0.07 cfs 0.011 af

Subcatchment 14S: POROUS TO HOLLEY Runoff Area=2,402 sf 100.00% Impervious Runoff Depth=5.86"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.027 af

Subcatchment 15S: POROUS TO OAK Runoff Area=6,196 sf 100.00% Impervious Runoff Depth=5.86"
Tc=6.0 min CN=98 Runoff=0.83 cfs 0.069 af

Pond 9P: INFIL-1 Peak Elev=34.08' Storage=1,073 cf Inflow=1.31 cfs 0.117 af
Discarded=0.48 cfs 0.117 af Primary=0.00 cfs 0.000 af Outflow=0.48 cfs 0.117 af

Pond 13P: POROUS-1 Peak Elev=0.01' Storage=8 cf Inflow=0.32 cfs 0.027 af
Outflow=0.32 cfs 0.027 af

Pond 16P: POROUS-2 Peak Elev=0.01' Storage=20 cf Inflow=0.83 cfs 0.069 af
Outflow=0.83 cfs 0.069 af

Link 3L: PRE-OAK Inflow=0.75 cfs 0.151 af
Primary=0.75 cfs 0.151 af

Link 7L: POST-OAK Inflow=0.46 cfs 0.100 af
Primary=0.46 cfs 0.100 af

Link 9L: PRE-HOLLEY Inflow=0.07 cfs 0.011 af
Primary=0.07 cfs 0.011 af

Link 10L: POST-HOLLEY Inflow=0.11 cfs 0.018 af
Primary=0.11 cfs 0.018 af

Total Runoff Area = 6.081 ac Runoff Volume = 0.493 af Average Runoff Depth = 0.97"
83.42% Pervious = 5.073 ac 16.58% Impervious = 1.008 ac

Holley Street MFD

Type III 24-hr 25-yr Rainfall=6.10"

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Summary for Subcatchment 2S: PRE-OAK

Runoff = 0.75 cfs @ 12.52 hrs, Volume= 0.151 af, Depth= 0.65"

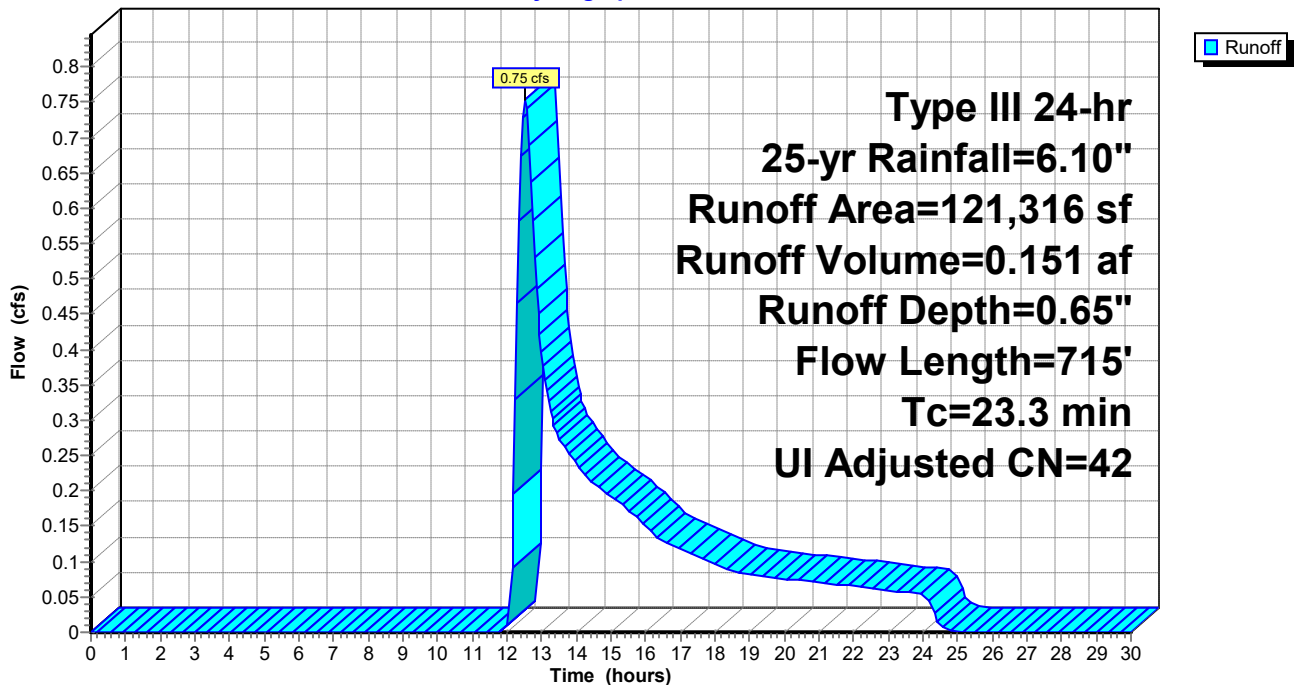
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.10"

Area (sf)	CN	Adj	Description
11,110	98		Unconnected pavement, HSG A
46,099	39		>75% Grass cover, Good, HSG A
20,456	30		Woods, Good, HSG A
43,651	43		Woods/grass comb., Fair, HSG A
121,316	44	42	Weighted Average, UI Adjusted
110,206	39	39	90.84% Pervious Area
11,110	98	98	9.16% Impervious Area
11,110			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	117	0.0340	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"
9.5	442	0.0240	0.77		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.0	156	0.0280	2.69		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
23.3	715	Total			

Subcatchment 2S: PRE-OAK

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.10"

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Summary for Subcatchment 4S: POST-HOLLEY

Runoff = 0.11 cfs @ 12.31 hrs, Volume= 0.018 af, Depth= 0.78"

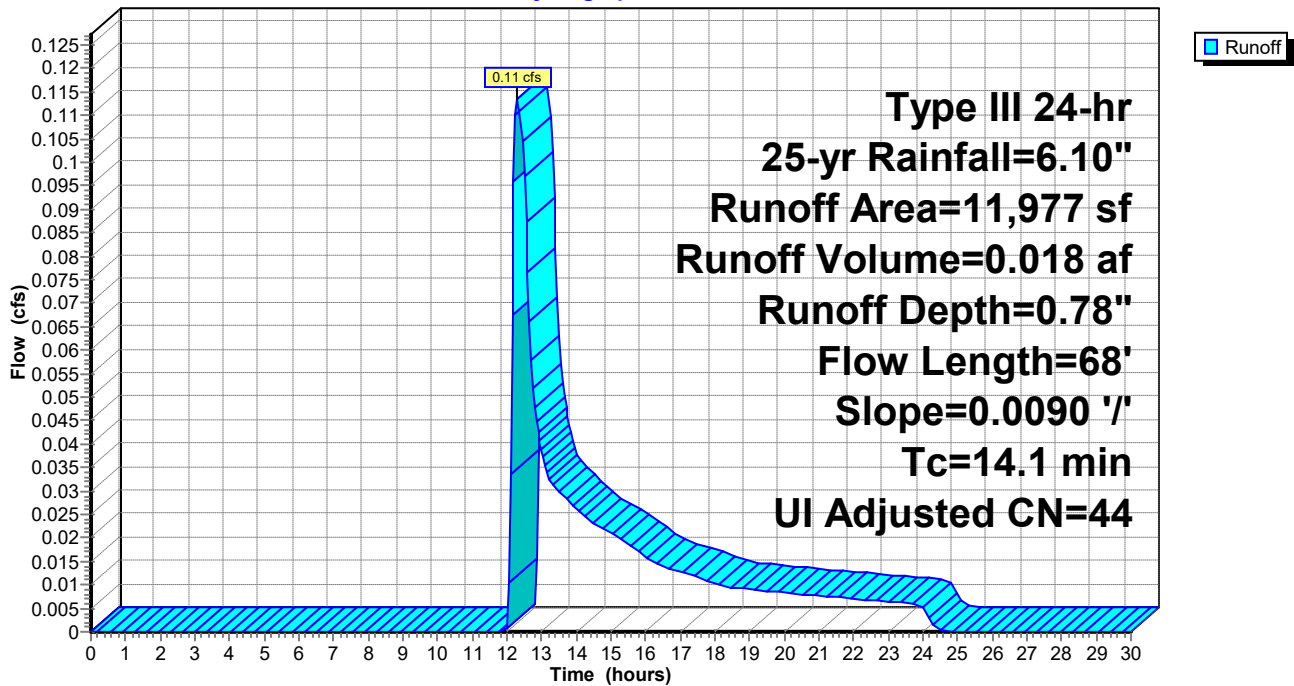
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.10"

Area (sf)	CN	Adj	Description
9,941	39		>75% Grass cover, Good, HSG A
2,036	98		Unconnected pavement, HSG A
11,977	49	44	Weighted Average, UI Adjusted
9,941	39	39	83.00% Pervious Area
2,036	98	98	17.00% Impervious Area
2,036			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	68	0.0090	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 4S: POST-HOLLEY

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.10"

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Summary for Subcatchment 5S: POST-OAK

Runoff = 1.31 cfs @ 12.17 hrs, Volume= 0.117 af, Depth= 2.33"

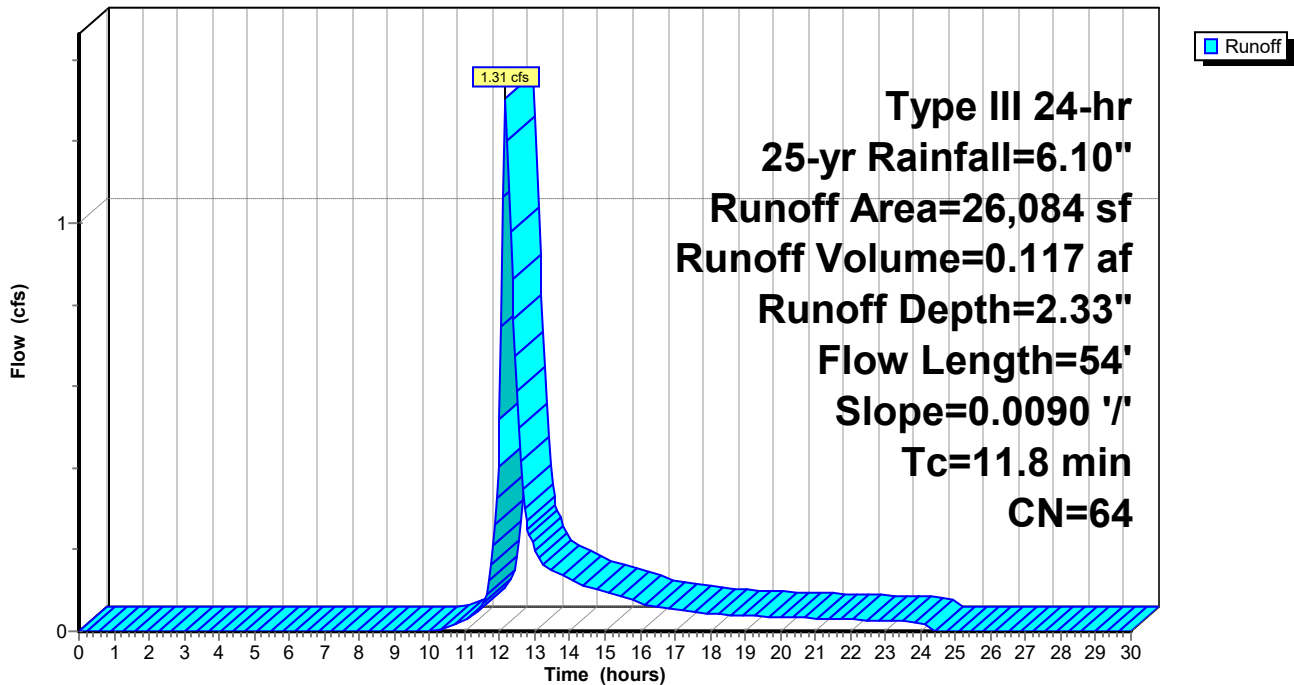
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.10"

Area (sf)	CN	Description
11,076	98	Roofs, HSG A
15,008	39	>75% Grass cover, Good, HSG A
26,084	64	Weighted Average
15,008	39	57.54% Pervious Area
11,076	98	42.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	54	0.0090	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 5S: POST-OAK

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.10"

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Summary for Subcatchment 6S: POST-UNC

Runoff = 0.46 cfs @ 12.56 hrs, Volume= 0.100 af, Depth= 0.59"

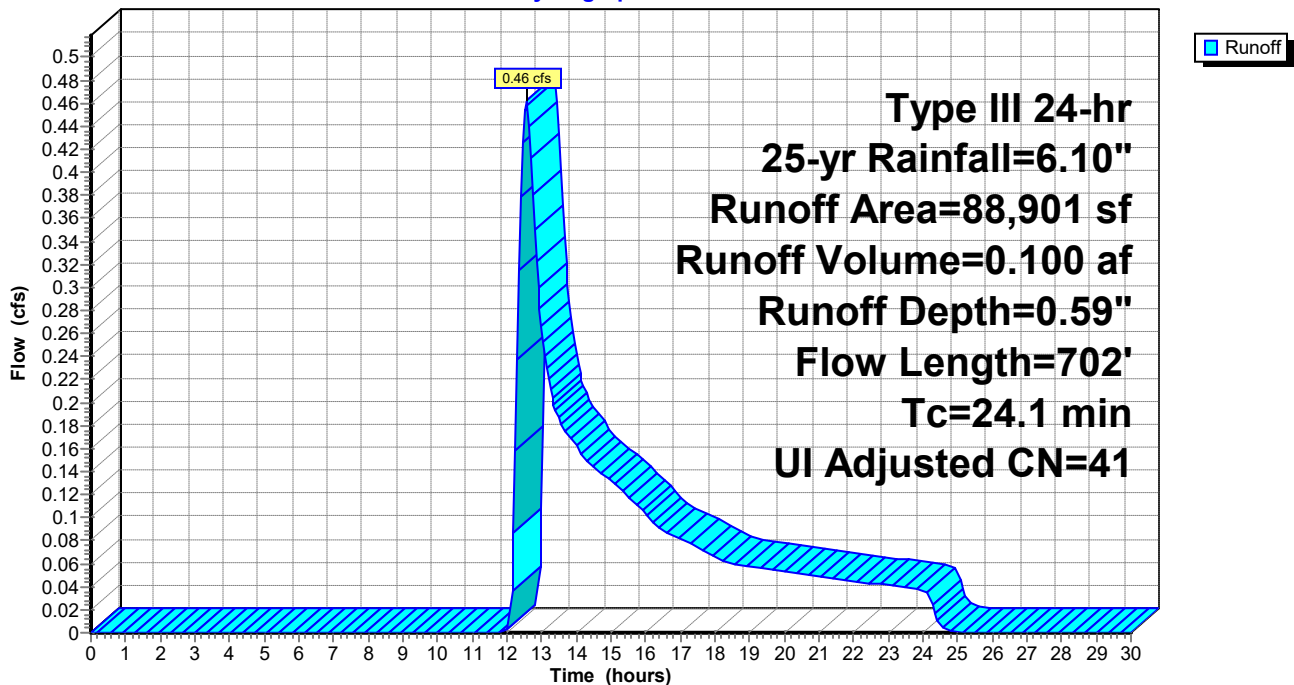
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.10"

Area (sf)	CN	Adj	Description
58,561	39		>75% Grass cover, Good, HSG A
11,110	98		Unconnected pavement, HSG A
19,230	30		Woods, Good, HSG A
88,901	44	41	Weighted Average, UI Adjusted
77,791	37	37	87.50% Pervious Area
11,110	98	98	12.50% Impervious Area
11,110			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	117	0.0340	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"
9.5	442	0.0240	0.77		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.8	143	0.0070	1.35		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
24.1	702	Total			

Subcatchment 6S: POST-UNC

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.10"

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Summary for Subcatchment 8S: PRE-HOLLEY

Runoff = 0.07 cfs @ 12.28 hrs, Volume= 0.011 af, Depth= 0.71"

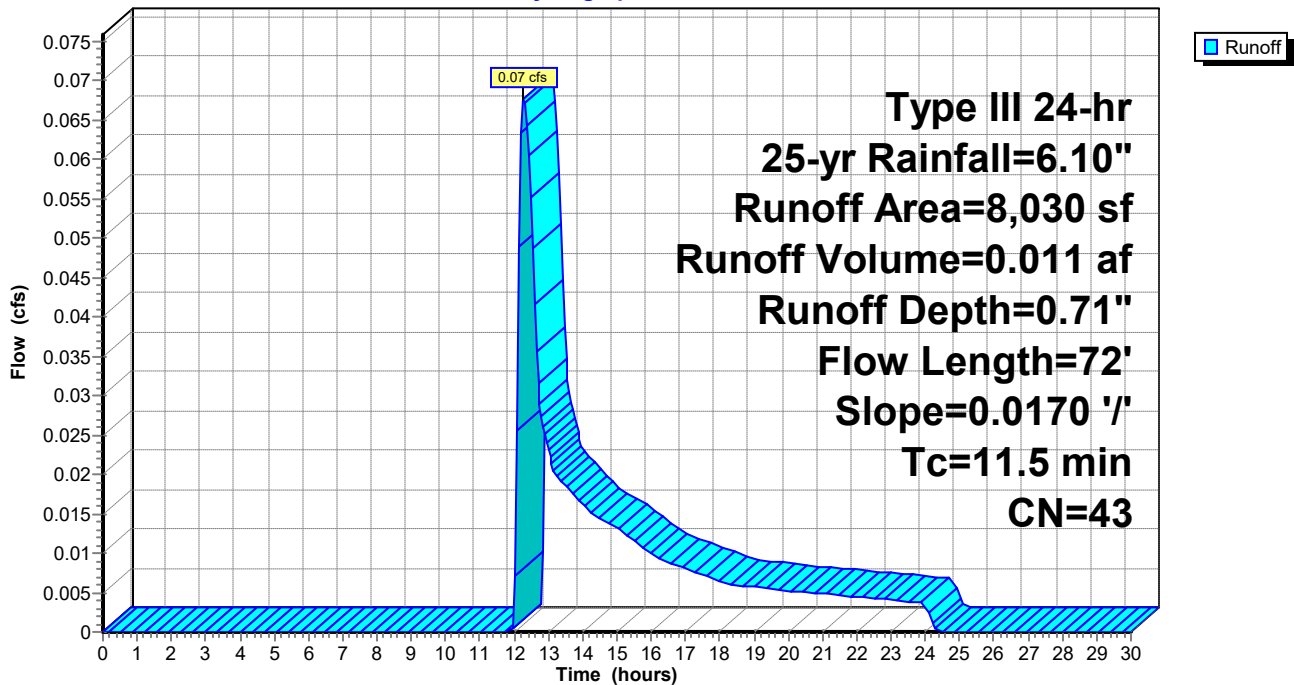
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.10"

Area (sf)	CN	Description
8,030	43	Woods/grass comb., Fair, HSG A
8,030	43	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	72	0.0170	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 8S: PRE-HOLLEY

Hydrograph



Holley Street MFD

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Type III 24-hr 25-yr Rainfall=6.10"

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Summary for Subcatchment 14S: POROUS TO HOLLEY

Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.027 af, Depth= 5.86"

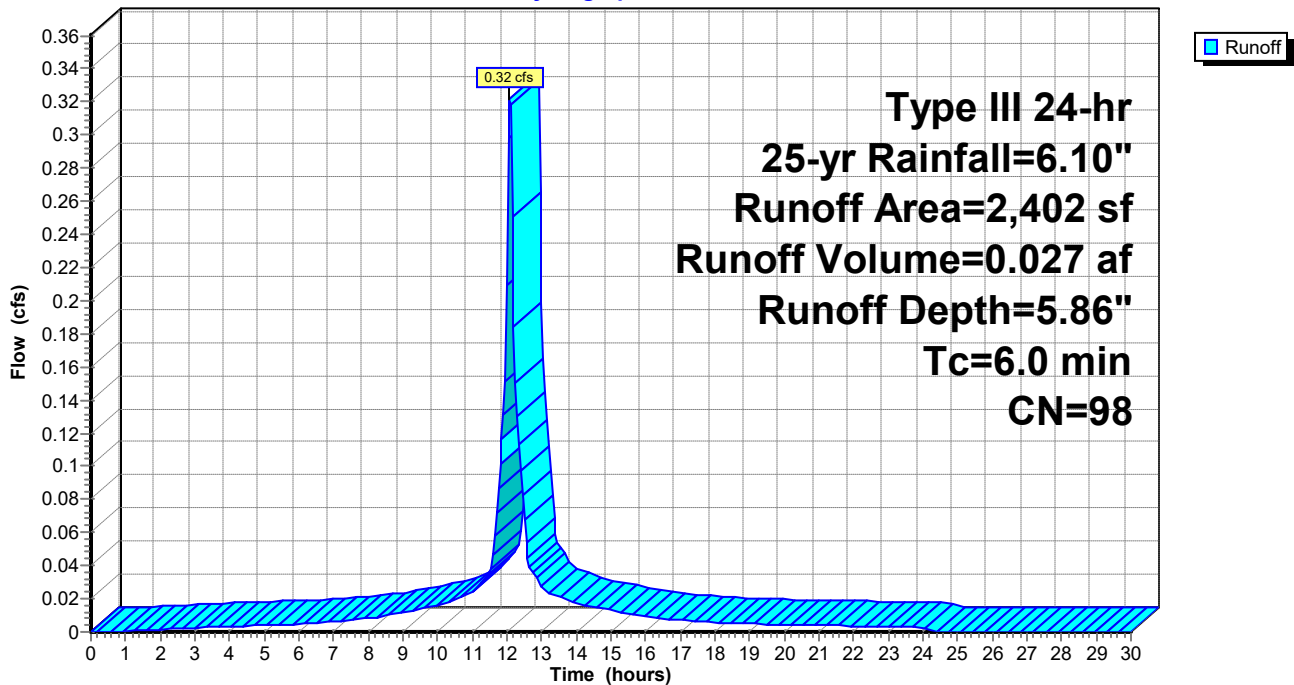
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-yr Rainfall=6.10"

Area (sf)	CN	Description
2,402	98	Unconnected pavement, HSG A
2,402	98	100.00% Impervious Area
2,402		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 14S: POROUS TO HOLLEY

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.10"

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Summary for Subcatchment 15S: POROUS TO OAK

Runoff = 0.83 cfs @ 12.09 hrs, Volume= 0.069 af, Depth= 5.86"

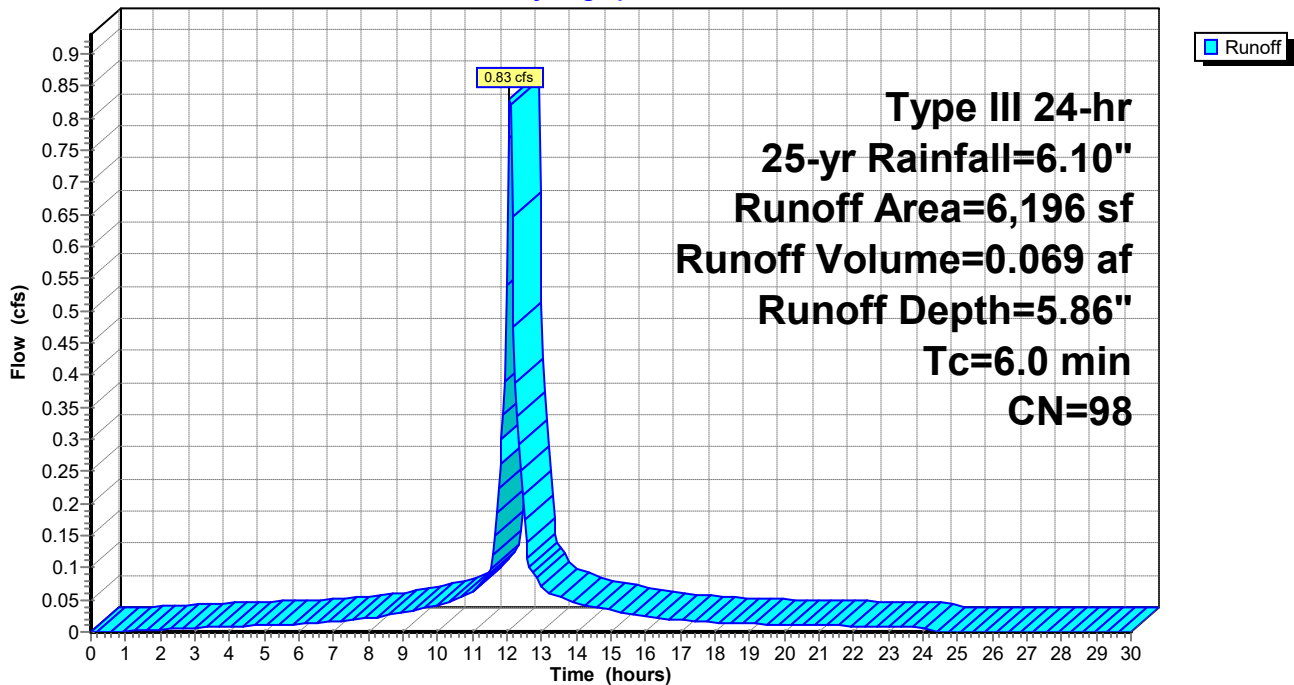
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.10"

Area (sf)	CN	Description
6,196	98	Unconnected pavement, HSG A
6,196	98	100.00% Impervious Area
6,196		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 15S: POROUS TO OAK

Hydrograph



Holley Street MFD

Type III 24-hr 25-yr Rainfall=6.10"

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Summary for Pond 9P: INFIL-1

Inflow Area = 0.599 ac, 42.46% Impervious, Inflow Depth = 2.33" for 25-yr event
 Inflow = 1.31 cfs @ 12.17 hrs, Volume= 0.117 af
 Outflow = 0.48 cfs @ 12.56 hrs, Volume= 0.117 af, Atten= 63%, Lag= 23.4 min
 Discarded = 0.48 cfs @ 12.56 hrs, Volume= 0.117 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.08' @ 12.56 hrs Surf.Area= 2,506 sf Storage= 1,073 cf

Plug-Flow detention time= 15.2 min calculated for 0.116 af (100% of inflow)
 Center-of-Mass det. time= 15.1 min (872.2 - 857.1)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	3,941 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	1,081	0	0
34.00	2,392	868	868
35.00	3,753	3,073	3,941

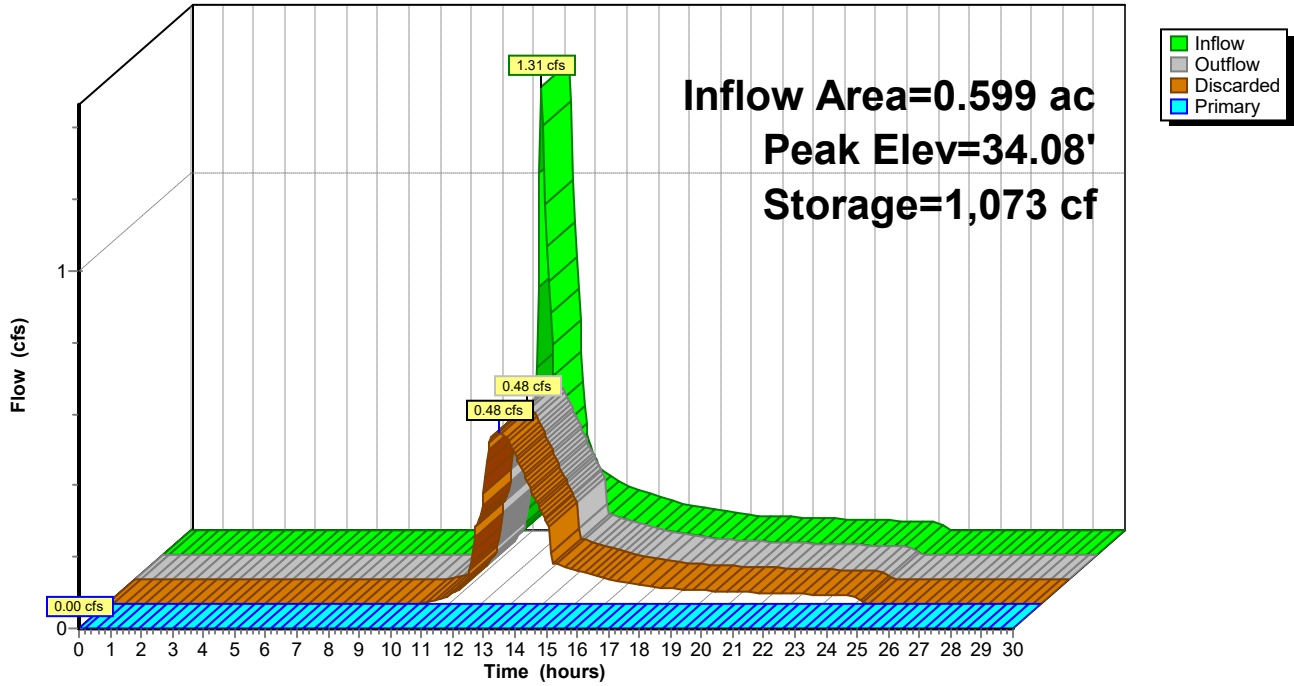
Device	Routing	Invert	Outlet Devices
#1	Discarded	33.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	34.75'	5.0' long x 3.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50			
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68			
2.72 2.81 2.92 2.97 3.07 3.32			

Discarded OutFlow Max=0.48 cfs @ 12.56 hrs HW=34.08' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.48 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.50' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9P: INFIL-1

Hydrograph



Holley Street MFD

Type III 24-hr 25-yr Rainfall=6.10"

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Summary for Pond 13P: POROUS-1

Inflow Area = 0.055 ac, 100.00% Impervious, Inflow Depth = 5.86" for 25-yr event
 Inflow = 0.32 cfs @ 12.09 hrs, Volume= 0.027 af
 Outflow = 0.32 cfs @ 12.09 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.32 cfs @ 12.09 hrs, Volume= 0.027 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.01' @ 12.09 hrs Surf.Area= 2,402 sf Storage= 8 cf

Plug-Flow detention time= 0.4 min calculated for 0.027 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (745.3 - 744.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,124 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,810 cf Overall x 40.0% Voids

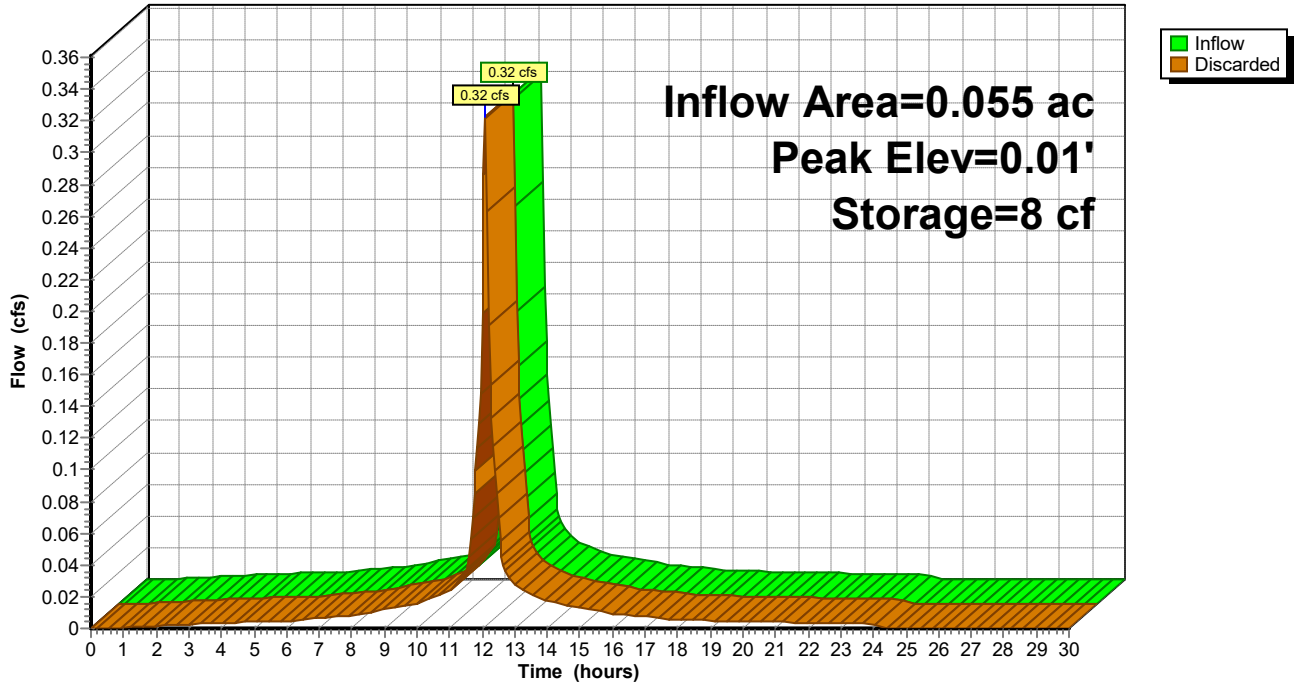
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	2,402	0	0
1.17	2,402	2,810	2,810

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.46 cfs @ 12.09 hrs HW=0.01' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.46 cfs)

Pond 13P: POROUS-1

Hydrograph



Holley Street MFD

Type III 24-hr 25-yr Rainfall=6.10"

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Summary for Pond 16P: POROUS-2

Inflow Area = 0.142 ac, 100.00% Impervious, Inflow Depth = 5.86" for 25-yr event
 Inflow = 0.83 cfs @ 12.09 hrs, Volume= 0.069 af
 Outflow = 0.83 cfs @ 12.09 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.83 cfs @ 12.09 hrs, Volume= 0.069 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.01' @ 12.09 hrs Surf.Area= 6,196 sf Storage= 20 cf

Plug-Flow detention time= 0.4 min calculated for 0.069 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (745.3 - 744.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 7,249 cf Overall x 40.0% Voids

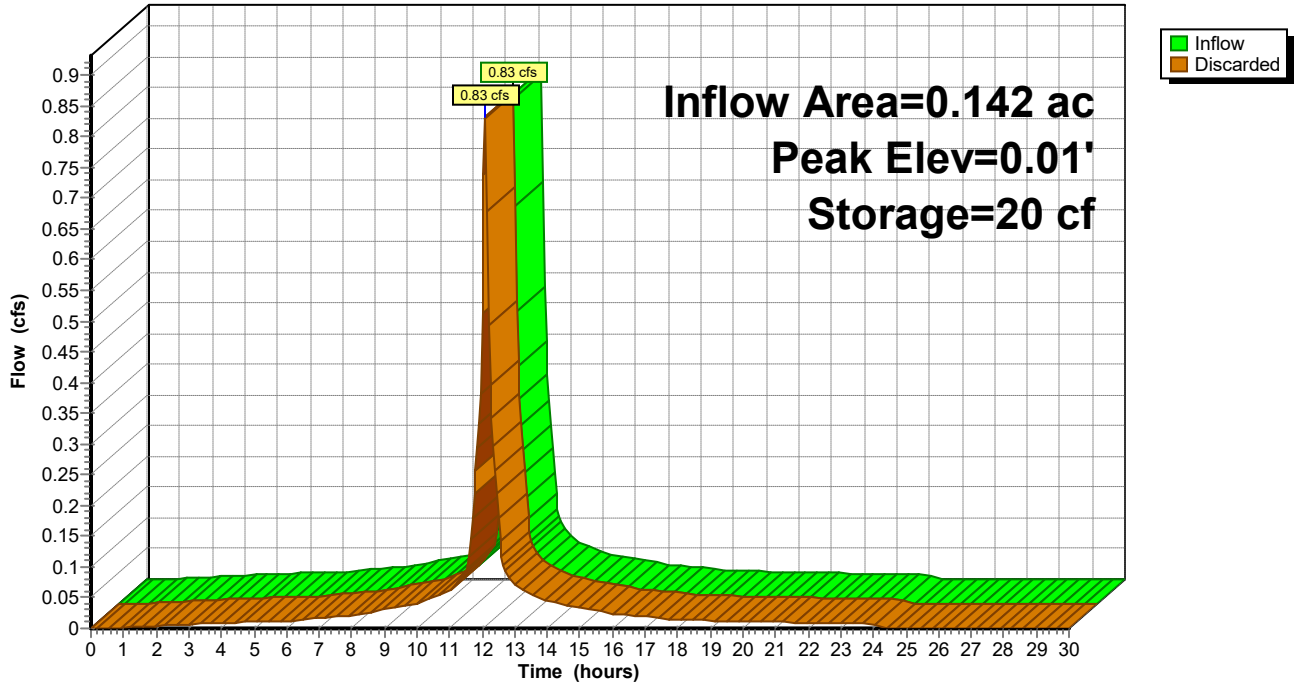
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	6,196	0	0
1.17	6,196	7,249	7,249

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=1.19 cfs @ 12.09 hrs HW=0.01' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 1.19 cfs)

Pond 16P: POROUS-2

Hydrograph



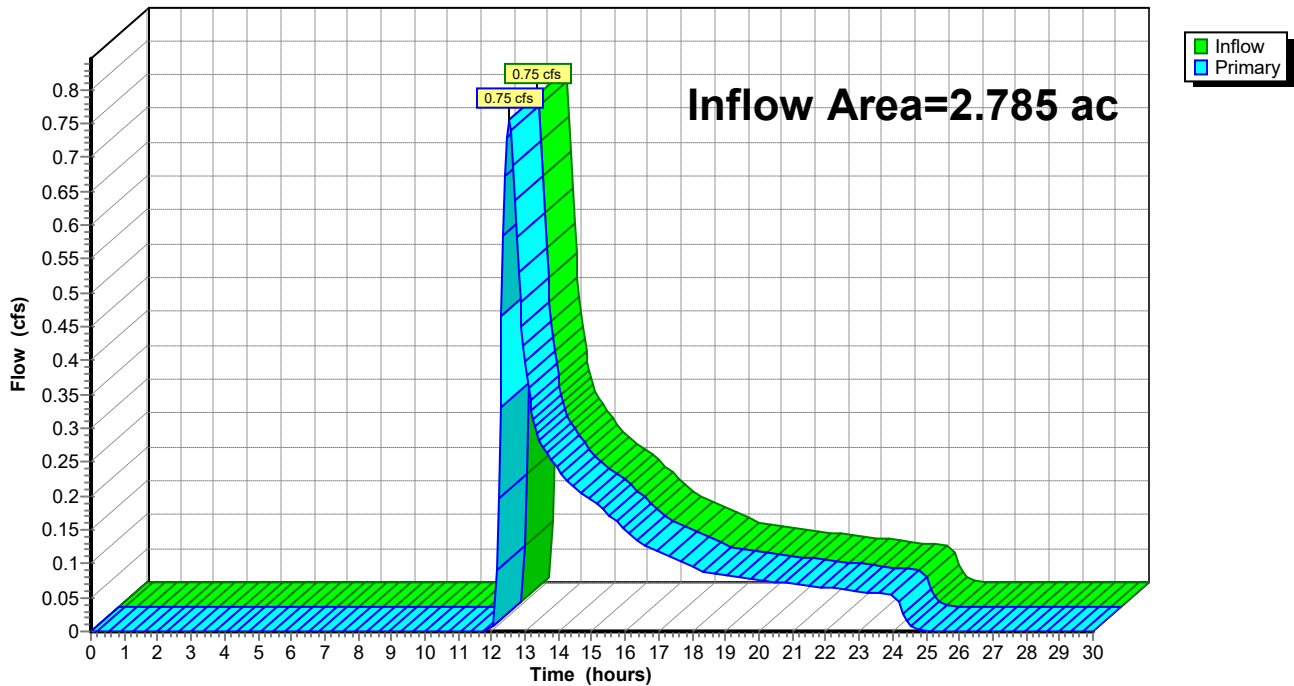
Summary for Link 3L: PRE-OAK

Inflow Area = 2.785 ac, 9.16% Impervious, Inflow Depth = 0.65" for 25-yr event
Inflow = 0.75 cfs @ 12.52 hrs, Volume= 0.151 af
Primary = 0.75 cfs @ 12.52 hrs, Volume= 0.151 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: PRE-OAK

Hydrograph



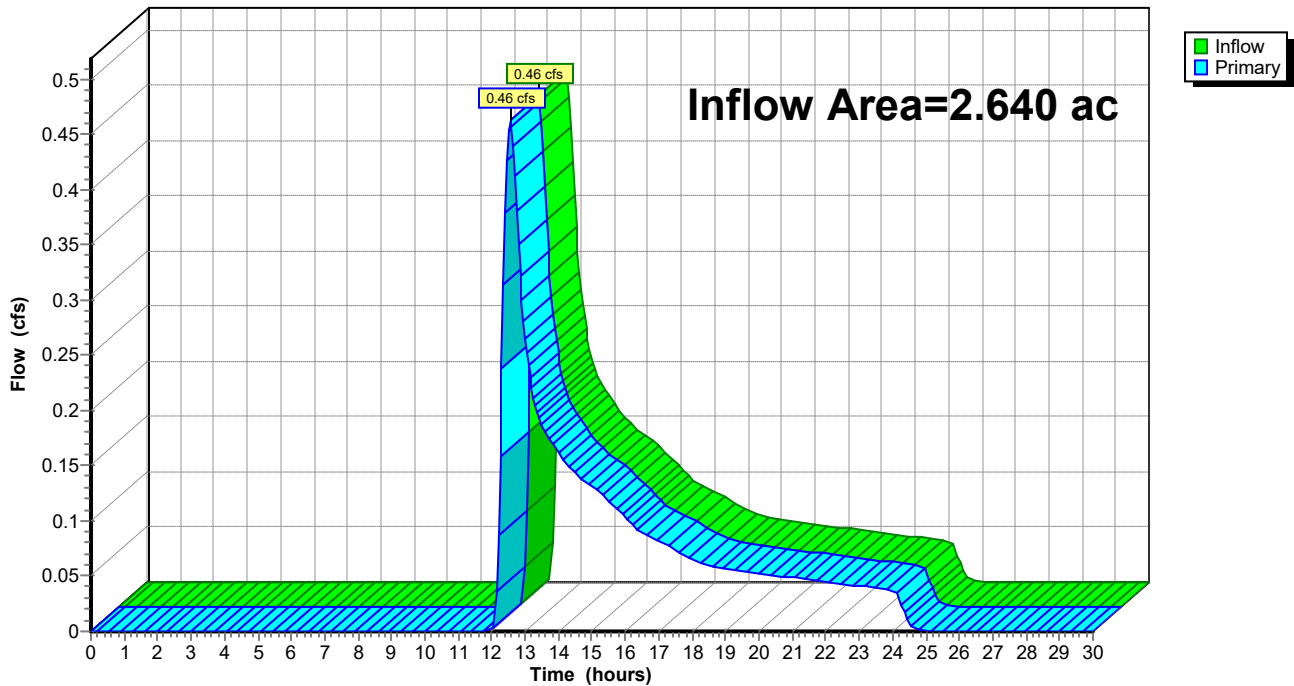
Summary for Link 7L: POST-OAK

Inflow Area = 2.640 ac, 19.29% Impervious, Inflow Depth = 0.46" for 25-yr event
Inflow = 0.46 cfs @ 12.56 hrs, Volume= 0.100 af
Primary = 0.46 cfs @ 12.56 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7L: POST-OAK

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.10"

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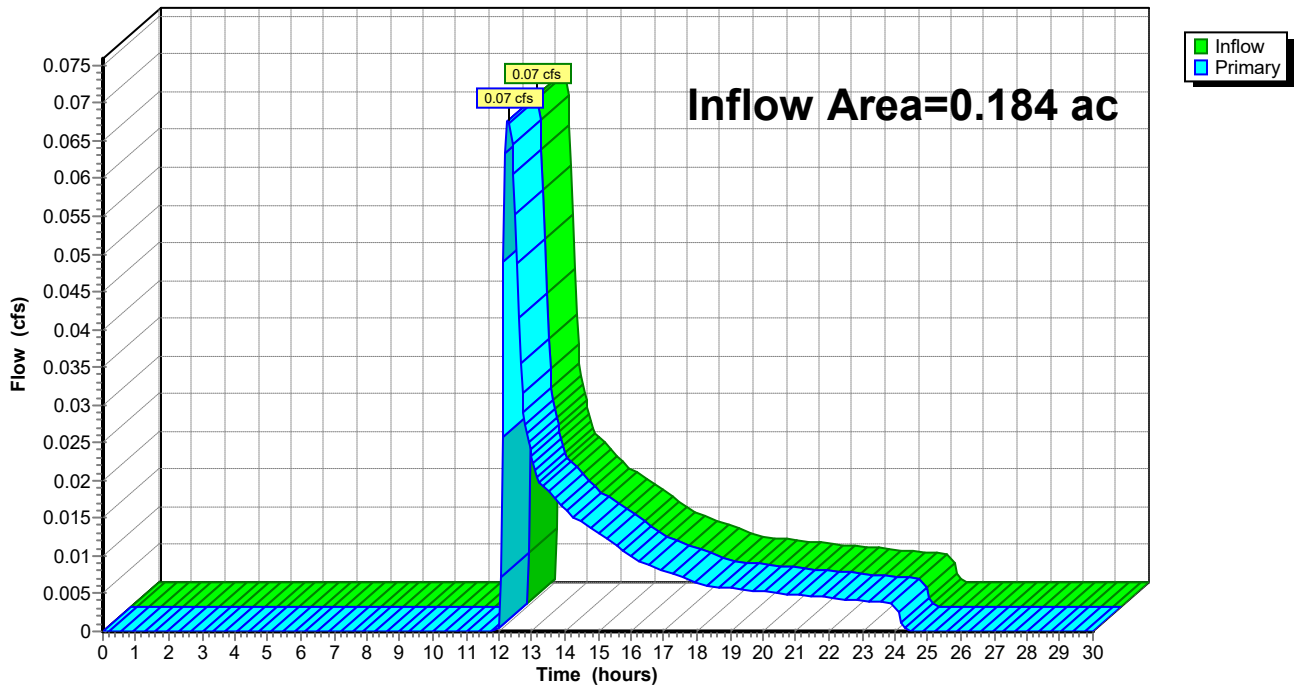
Summary for Link 9L: PRE-HOLLEY

Inflow Area = 0.184 ac, 0.00% Impervious, Inflow Depth = 0.71" for 25-yr event
Inflow = 0.07 cfs @ 12.28 hrs, Volume= 0.011 af
Primary = 0.07 cfs @ 12.28 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9L: PRE-HOLLEY

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.10"

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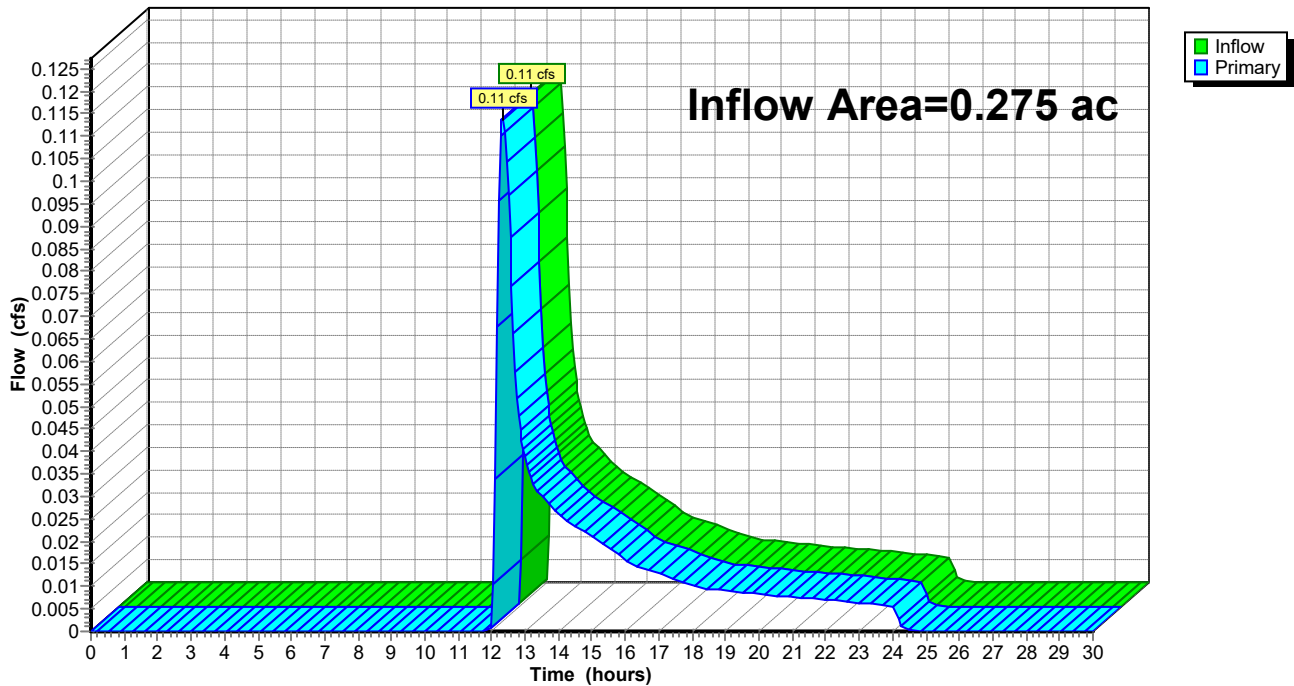
Summary for Link 10L: POST-HOLLEY

Inflow Area = 0.275 ac, 17.00% Impervious, Inflow Depth = 0.78" for 25-yr event
Inflow = 0.11 cfs @ 12.31 hrs, Volume= 0.018 af
Primary = 0.11 cfs @ 12.31 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10L: POST-HOLLEY

Hydrograph



Holley Street MFD

Type III 24-hr 100-yr Rainfall=8.50"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: PRE-OAK Runoff Area=121,316 sf 9.16% Impervious Runoff Depth=1.68"
Flow Length=715' Tc=23.3 min UI Adjusted CN=42 Runoff=2.80 cfs 0.391 af

Subcatchment 4S: POST-HOLLEY Runoff Area=11,977 sf 17.00% Impervious Runoff Depth=1.90"
Flow Length=68' Slope=0.0090 '/' Tc=14.1 min UI Adjusted CN=44 Runoff=0.39 cfs 0.043 af

Subcatchment 5S: POST-OAK Runoff Area=26,084 sf 42.46% Impervious Runoff Depth=4.18"
Flow Length=54' Slope=0.0090 '/' Tc=11.8 min CN=64 Runoff=2.40 cfs 0.209 af

Subcatchment 6S: POST-UNC Runoff Area=88,901 sf 12.50% Impervious Runoff Depth=1.58"
Flow Length=702' Tc=24.1 min UI Adjusted CN=41 Runoff=1.85 cfs 0.269 af

Subcatchment 8S: PRE-HOLLEY Runoff Area=8,030 sf 0.00% Impervious Runoff Depth=1.79"
Flow Length=72' Slope=0.0170 '/' Tc=11.5 min CN=43 Runoff=0.26 cfs 0.028 af

Subcatchment 14S: POROUS TO HOLLEY Runoff Area=2,402 sf 100.00% Impervious Runoff Depth=8.26"
Tc=6.0 min CN=98 Runoff=0.45 cfs 0.038 af

Subcatchment 15S: POROUS TO OAK Runoff Area=6,196 sf 100.00% Impervious Runoff Depth=8.26"
Tc=6.0 min CN=98 Runoff=1.16 cfs 0.098 af

Pond 9P: INFIL-1 Peak Elev=34.62' Storage=2,600 cf Inflow=2.40 cfs 0.209 af
Discarded=0.62 cfs 0.209 af Primary=0.00 cfs 0.000 af Outflow=0.62 cfs 0.209 af

Pond 13P: POROUS-1 Peak Elev=0.01' Storage=11 cf Inflow=0.45 cfs 0.038 af
Outflow=0.45 cfs 0.038 af

Pond 16P: POROUS-2 Peak Elev=0.01' Storage=28 cf Inflow=1.16 cfs 0.098 af
Outflow=1.16 cfs 0.098 af

Link 3L: PRE-OAK Inflow=2.80 cfs 0.391 af
Primary=2.80 cfs 0.391 af

Link 7L: POST-OAK Inflow=1.85 cfs 0.269 af
Primary=1.85 cfs 0.269 af

Link 9L: PRE-HOLLEY Inflow=0.26 cfs 0.028 af
Primary=0.26 cfs 0.028 af

Link 10L: POST-HOLLEY Inflow=0.39 cfs 0.043 af
Primary=0.39 cfs 0.043 af

Total Runoff Area = 6.081 ac Runoff Volume = 1.075 af Average Runoff Depth = 2.12"
83.42% Pervious = 5.073 ac 16.58% Impervious = 1.008 ac

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Type III 24-hr 100-yr Rainfall=8.50"

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Summary for Subcatchment 2S: PRE-OAK

Runoff = 2.80 cfs @ 12.40 hrs, Volume= 0.391 af, Depth= 1.68"

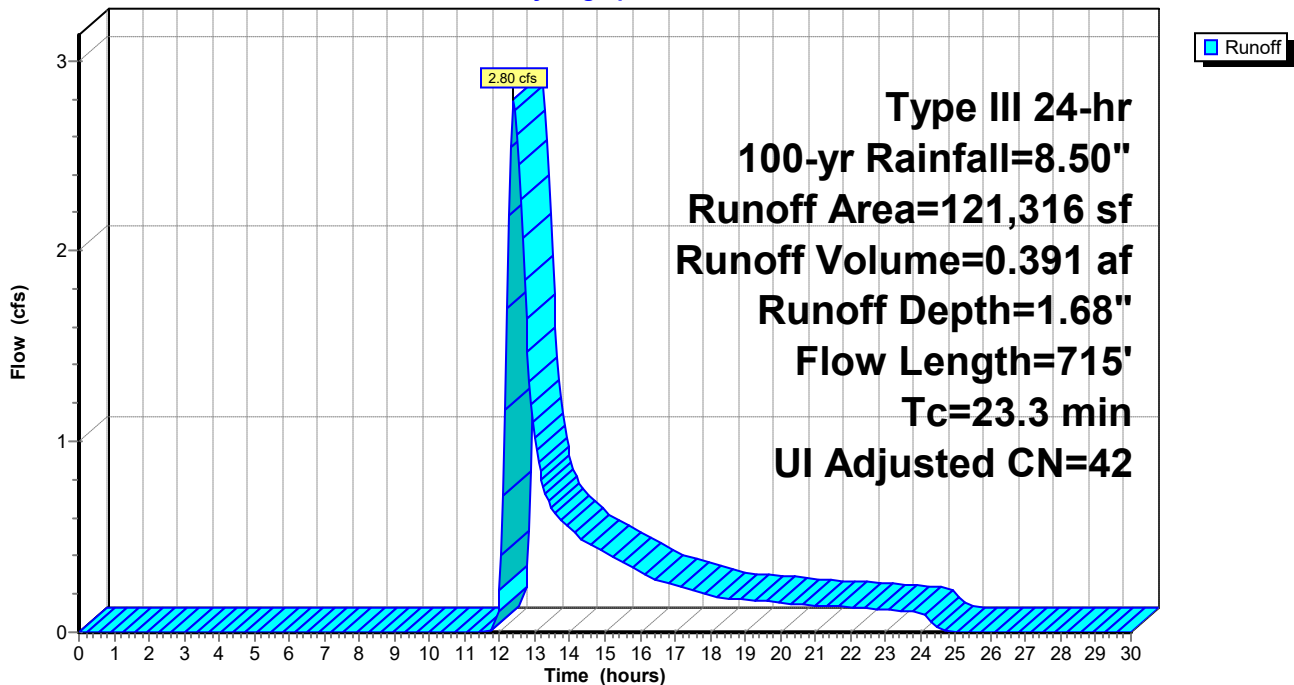
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (sf)	CN	Adj	Description
11,110	98		Unconnected pavement, HSG A
46,099	39		>75% Grass cover, Good, HSG A
20,456	30		Woods, Good, HSG A
43,651	43		Woods/grass comb., Fair, HSG A
121,316	44	42	Weighted Average, UI Adjusted
110,206	39	39	90.84% Pervious Area
11,110	98	98	9.16% Impervious Area
11,110			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	117	0.0340	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"
9.5	442	0.0240	0.77		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.0	156	0.0280	2.69		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
23.3	715	Total			

Subcatchment 2S: PRE-OAK

Hydrograph



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Type III 24-hr 100-yr Rainfall=8.50"

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Summary for Subcatchment 4S: POST-HOLLEY

Runoff = 0.39 cfs @ 12.23 hrs, Volume= 0.043 af, Depth= 1.90"

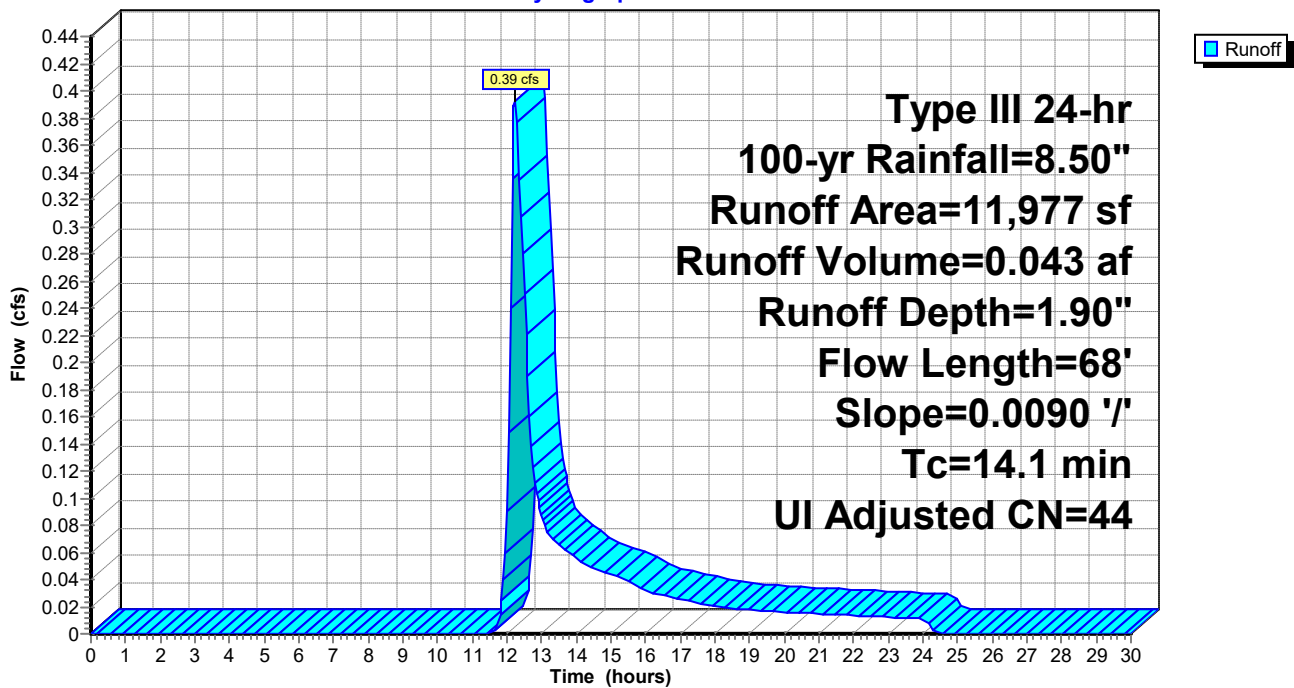
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (sf)	CN	Adj	Description
9,941	39		>75% Grass cover, Good, HSG A
2,036	98		Unconnected pavement, HSG A
11,977	49	44	Weighted Average, UI Adjusted
9,941	39	39	83.00% Pervious Area
2,036	98	98	17.00% Impervious Area
2,036			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	68	0.0090	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 4S: POST-HOLLEY

Hydrograph



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Type III 24-hr 100-yr Rainfall=8.50"

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Summary for Subcatchment 5S: POST-OAK

Runoff = 2.40 cfs @ 12.17 hrs, Volume= 0.209 af, Depth= 4.18"

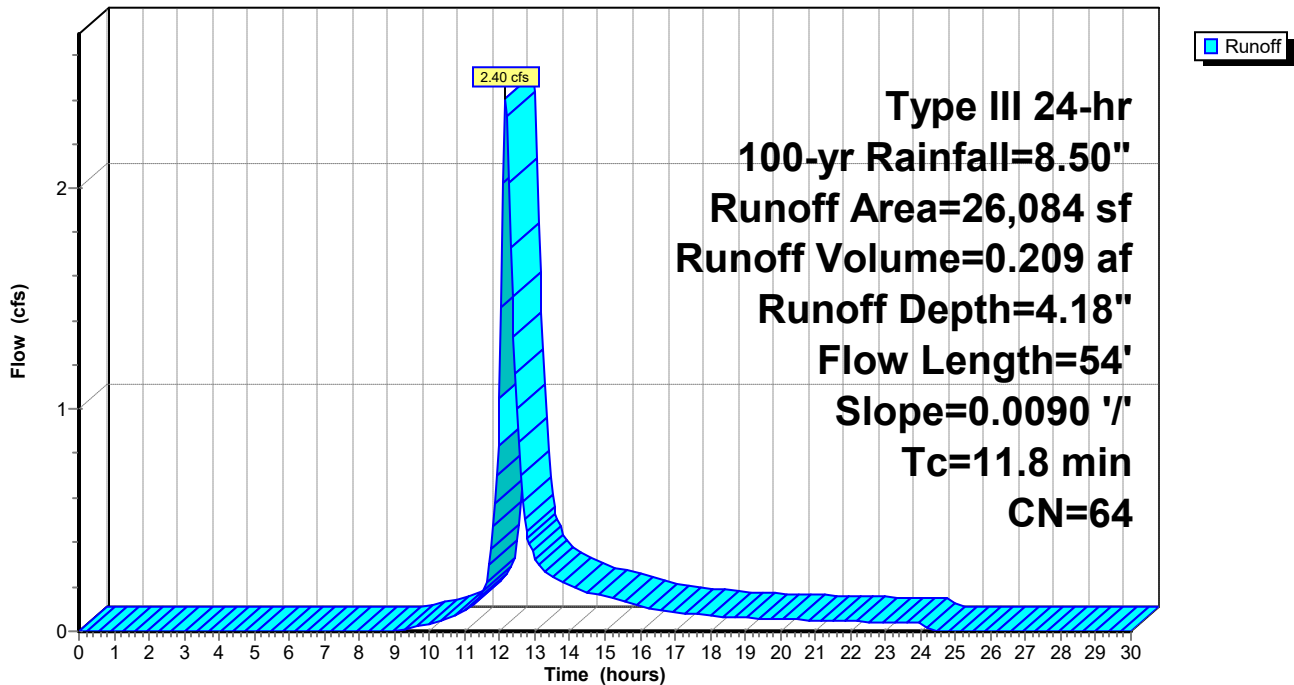
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (sf)	CN	Description
11,076	98	Roofs, HSG A
15,008	39	>75% Grass cover, Good, HSG A
26,084	64	Weighted Average
15,008	39	57.54% Pervious Area
11,076	98	42.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	54	0.0090	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 5S: POST-OAK

Hydrograph



Holley Street MFD

Type III 24-hr 100-yr Rainfall=8.50"

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Summary for Subcatchment 6S: POST-UNC

Runoff = 1.85 cfs @ 12.42 hrs, Volume= 0.269 af, Depth= 1.58"

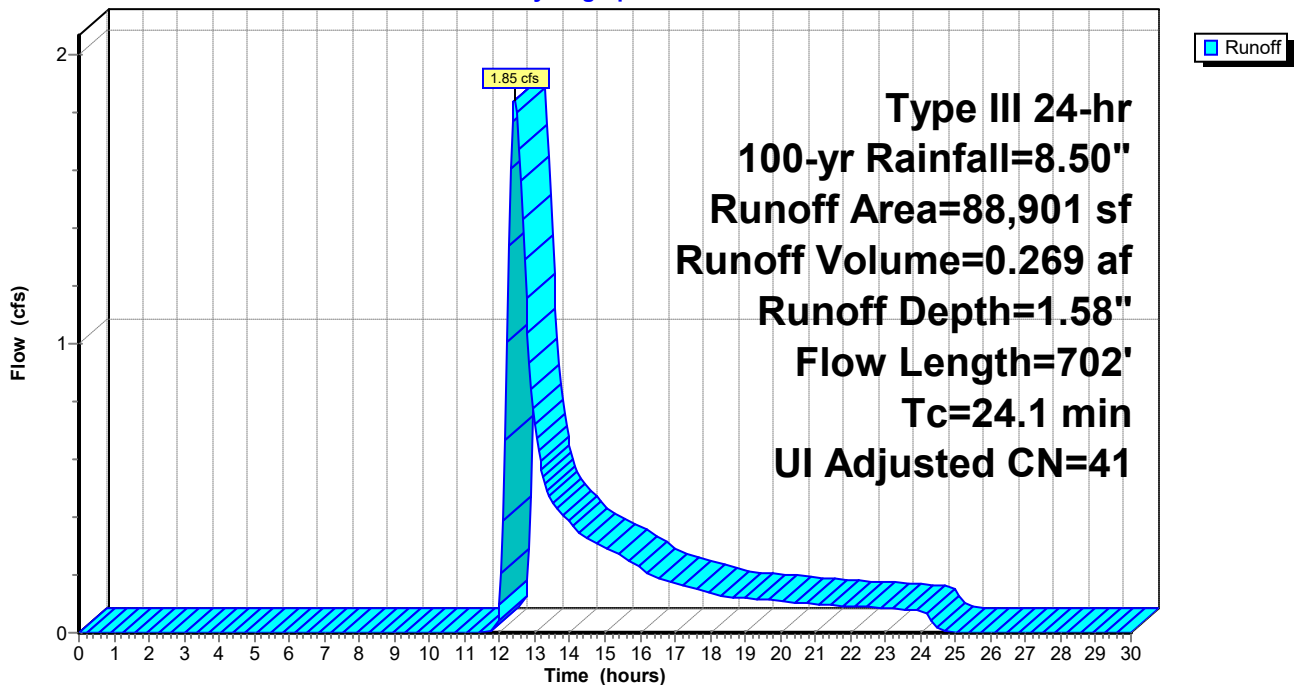
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (sf)	CN	Adj	Description
58,561	39		>75% Grass cover, Good, HSG A
11,110	98		Unconnected pavement, HSG A
19,230	30		Woods, Good, HSG A
88,901	44	41	Weighted Average, UI Adjusted
77,791	37	37	87.50% Pervious Area
11,110	98	98	12.50% Impervious Area
11,110			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	117	0.0340	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"
9.5	442	0.0240	0.77		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.8	143	0.0070	1.35		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
24.1	702	Total			

Subcatchment 6S: POST-UNC

Hydrograph



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Type III 24-hr 100-yr Rainfall=8.50"

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Summary for Subcatchment 8S: PRE-HOLLEY

Runoff = 0.26 cfs @ 12.19 hrs, Volume= 0.028 af, Depth= 1.79"

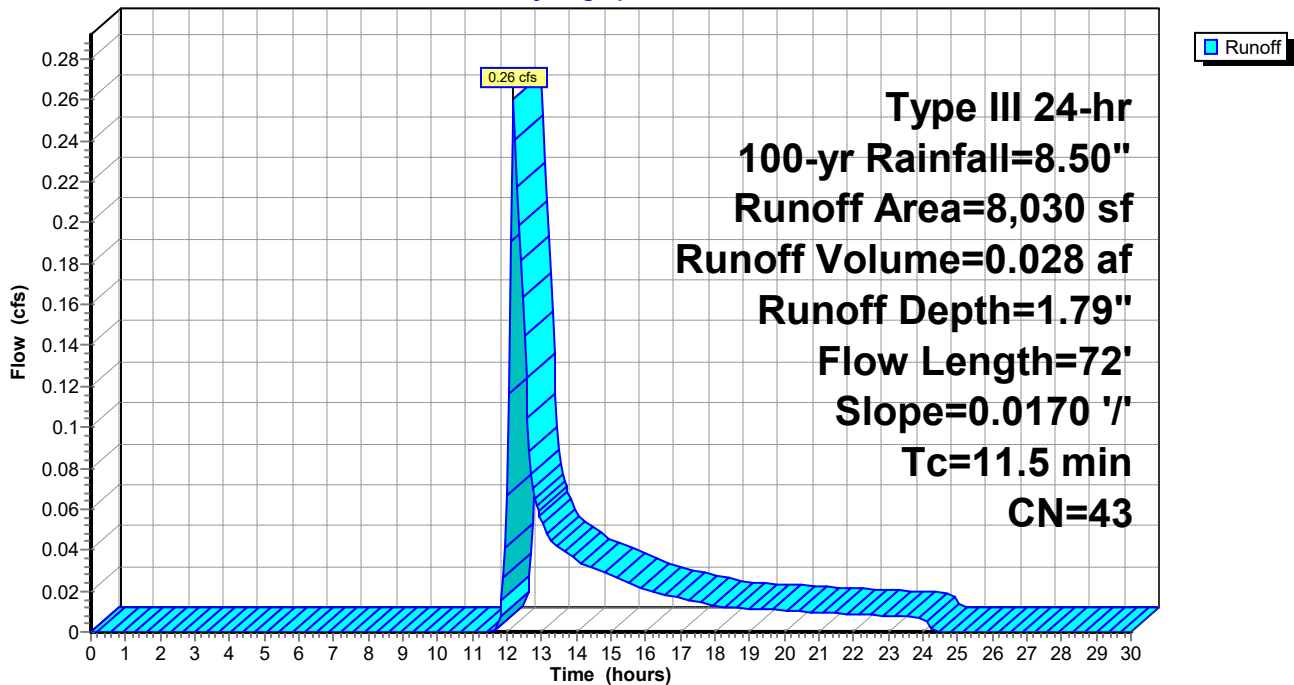
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (sf)	CN	Description
8,030	43	Woods/grass comb., Fair, HSG A
8,030	43	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	72	0.0170	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.33"

Subcatchment 8S: PRE-HOLLEY

Hydrograph



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Type III 24-hr 100-yr Rainfall=8.50"

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Summary for Subcatchment 14S: POROUS TO HOLLEY

Runoff = 0.45 cfs @ 12.09 hrs, Volume= 0.038 af, Depth= 8.26"

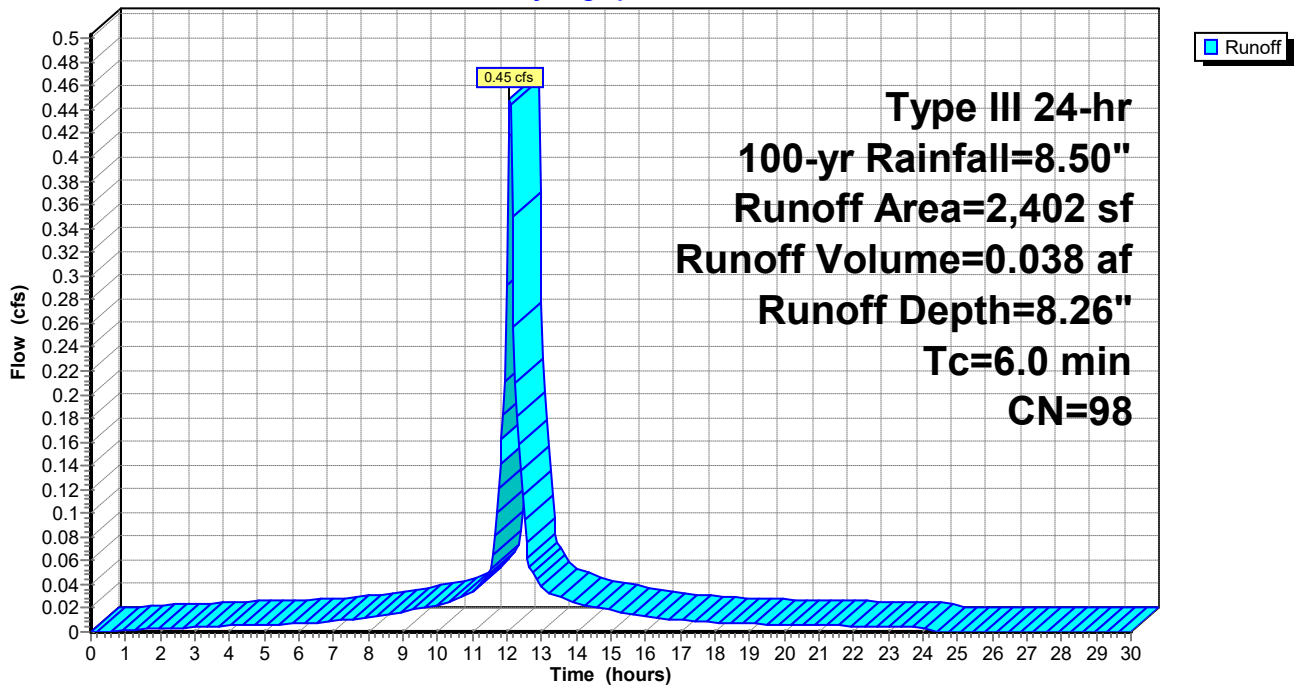
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (sf)	CN	Description
2,402	98	Unconnected pavement, HSG A
2,402	98	100.00% Impervious Area
2,402		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 14S: POROUS TO HOLLEY

Hydrograph



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Type III 24-hr 100-yr Rainfall=8.50"

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Summary for Subcatchment 15S: POROUS TO OAK

Runoff = 1.16 cfs @ 12.09 hrs, Volume= 0.098 af, Depth= 8.26"

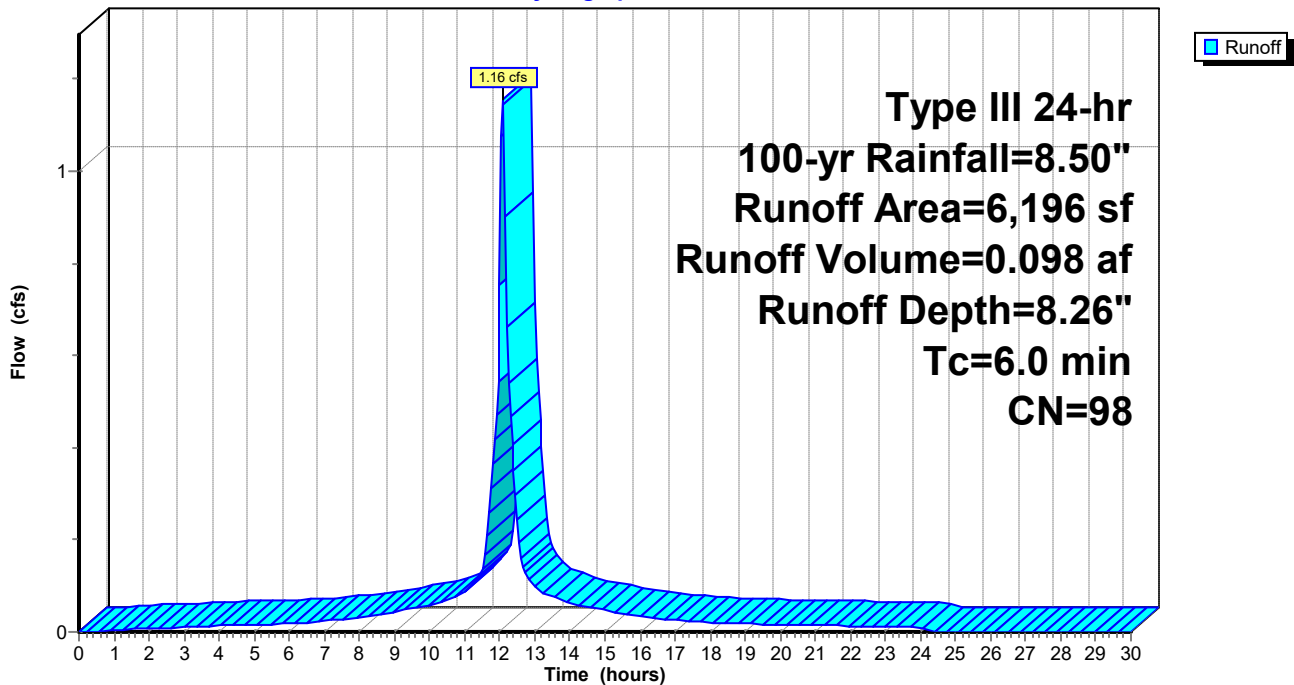
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (sf)	CN	Description
6,196	98	Unconnected pavement, HSG A
6,196	98	100.00% Impervious Area
6,196		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 15S: POROUS TO OAK

Hydrograph



Holley Street MFD

Type III 24-hr 100-yr Rainfall=8.50"

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Summary for Pond 9P: INFIL-1

Inflow Area = 0.599 ac, 42.46% Impervious, Inflow Depth = 4.18" for 100-yr event
 Inflow = 2.40 cfs @ 12.17 hrs, Volume= 0.209 af
 Outflow = 0.62 cfs @ 12.64 hrs, Volume= 0.209 af, Atten= 74%, Lag= 28.2 min
 Discarded = 0.62 cfs @ 12.64 hrs, Volume= 0.209 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.62' @ 12.64 hrs Surf.Area= 3,230 sf Storage= 2,600 cf

Plug-Flow detention time= 32.5 min calculated for 0.208 af (100% of inflow)
 Center-of-Mass det. time= 32.4 min (872.3 - 839.9)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	3,941 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	1,081	0	0
34.00	2,392	868	868
35.00	3,753	3,073	3,941

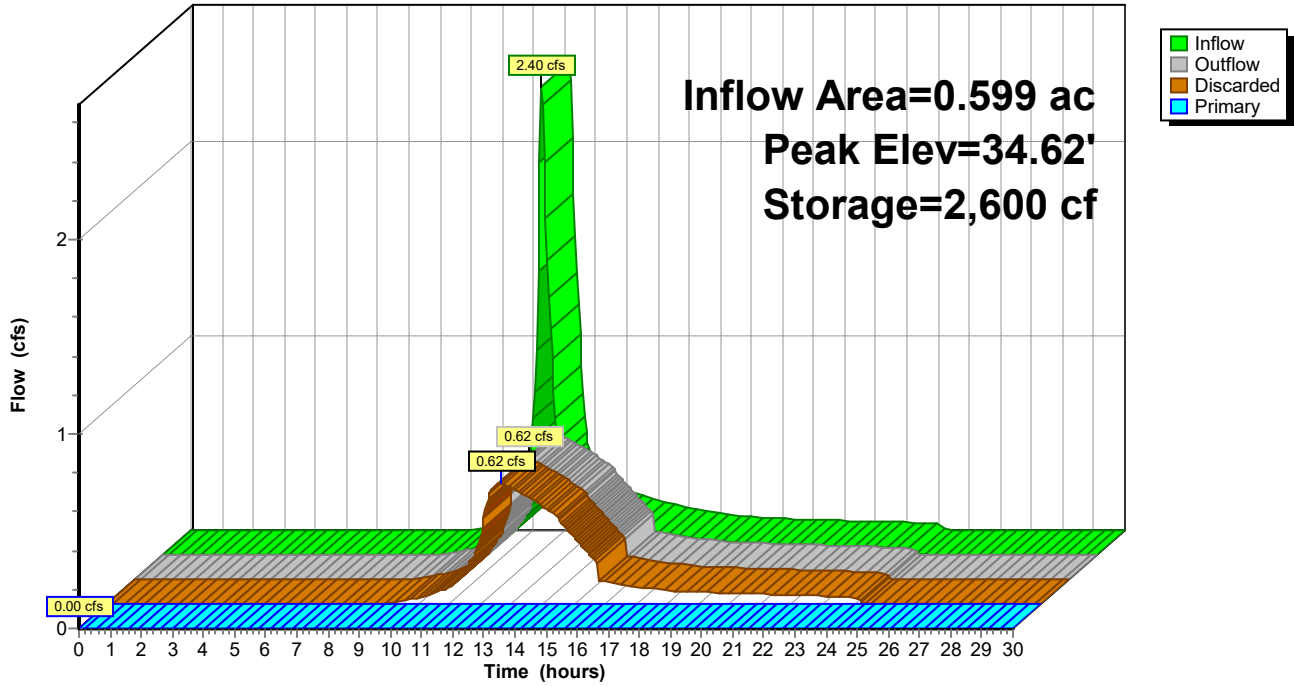
Device	Routing	Invert	Outlet Devices
#1	Discarded	33.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	34.75'	5.0' long x 3.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
			2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.62 cfs @ 12.64 hrs HW=34.62' (Free Discharge)
 ↑1=**Exfiltration** (Exfiltration Controls 0.62 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.50' (Free Discharge)
 ↑2=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9P: INFIL-1

Hydrograph



Holley Street MFD

Type III 24-hr 100-yr Rainfall=8.50"

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Summary for Pond 13P: POROUS-1

Inflow Area = 0.055 ac, 100.00% Impervious, Inflow Depth = 8.26" for 100-yr event
 Inflow = 0.45 cfs @ 12.09 hrs, Volume= 0.038 af
 Outflow = 0.45 cfs @ 12.09 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.45 cfs @ 12.09 hrs, Volume= 0.038 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.01' @ 12.09 hrs Surf.Area= 2,402 sf Storage= 11 cf

Plug-Flow detention time= 0.4 min calculated for 0.038 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (740.9 - 740.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,124 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,810 cf Overall x 40.0% Voids

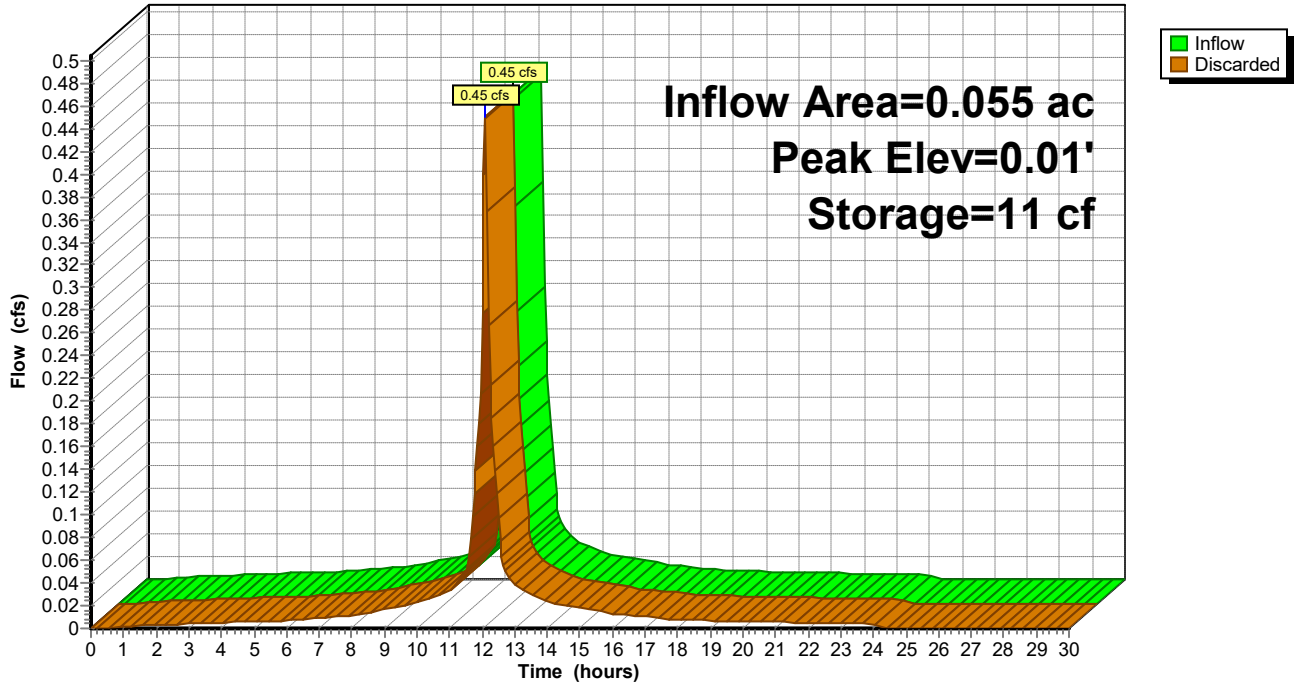
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	2,402	0	0
1.17	2,402	2,810	2,810

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.46 cfs @ 12.09 hrs HW=0.01' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.46 cfs)

Pond 13P: POROUS-1

Hydrograph



Holley Street MFD

Type III 24-hr 100-yr Rainfall=8.50"

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Summary for Pond 16P: POROUS-2

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.142 ac, 100.00% Impervious, Inflow Depth = 8.26" for 100-yr event
 Inflow = 1.16 cfs @ 12.09 hrs, Volume= 0.098 af
 Outflow = 1.16 cfs @ 12.09 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.5 min
 Discarded = 1.16 cfs @ 12.09 hrs, Volume= 0.098 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.01' @ 12.09 hrs Surf.Area= 6,196 sf Storage= 28 cf

Plug-Flow detention time= 0.4 min calculated for 0.098 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (740.9 - 740.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 7,249 cf Overall x 40.0% Voids

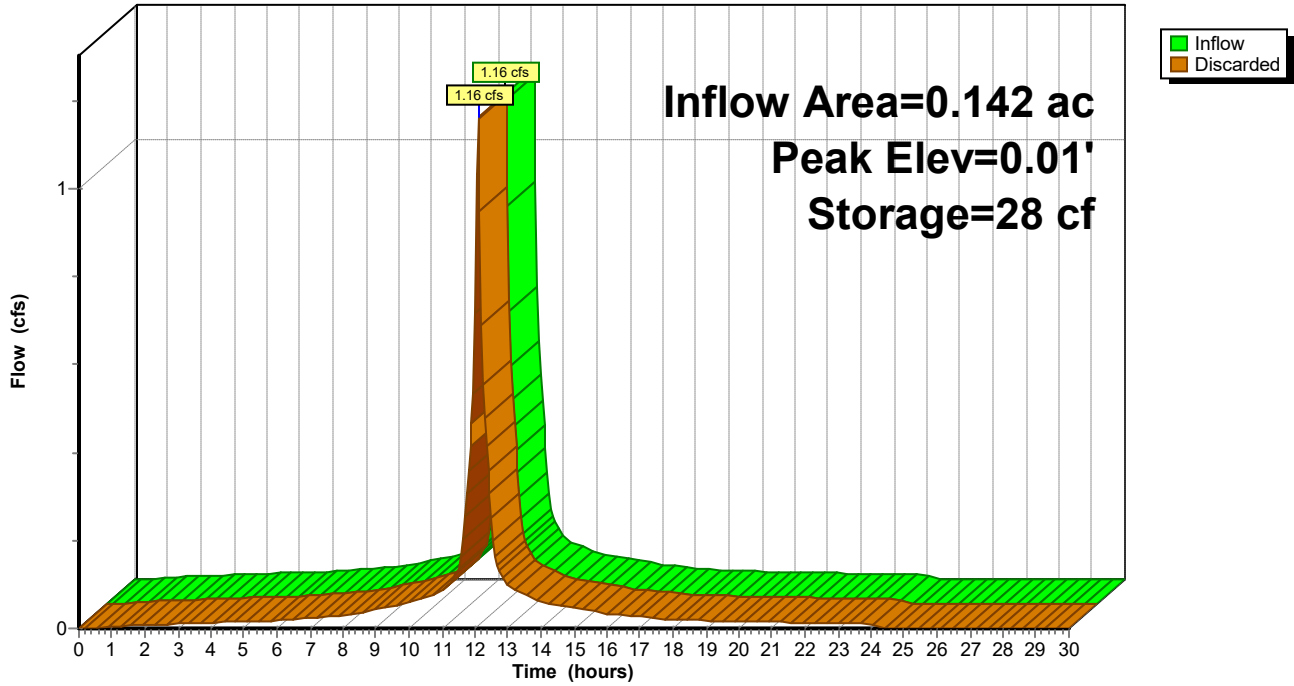
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	6,196	0	0
1.17	6,196	7,249	7,249

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=1.19 cfs @ 12.09 hrs HW=0.01' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 1.19 cfs)

Pond 16P: POROUS-2

Hydrograph



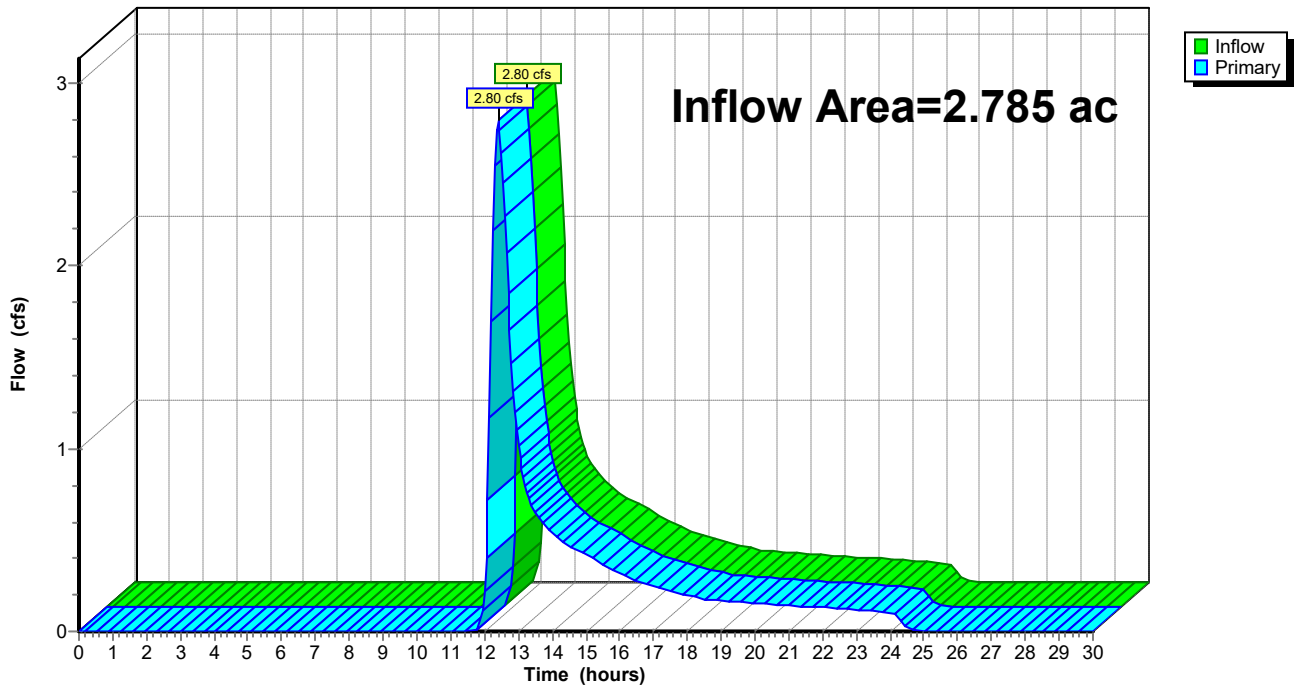
Summary for Link 3L: PRE-OAK

Inflow Area = 2.785 ac, 9.16% Impervious, Inflow Depth = 1.68" for 100-yr event
Inflow = 2.80 cfs @ 12.40 hrs, Volume= 0.391 af
Primary = 2.80 cfs @ 12.40 hrs, Volume= 0.391 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: PRE-OAK

Hydrograph



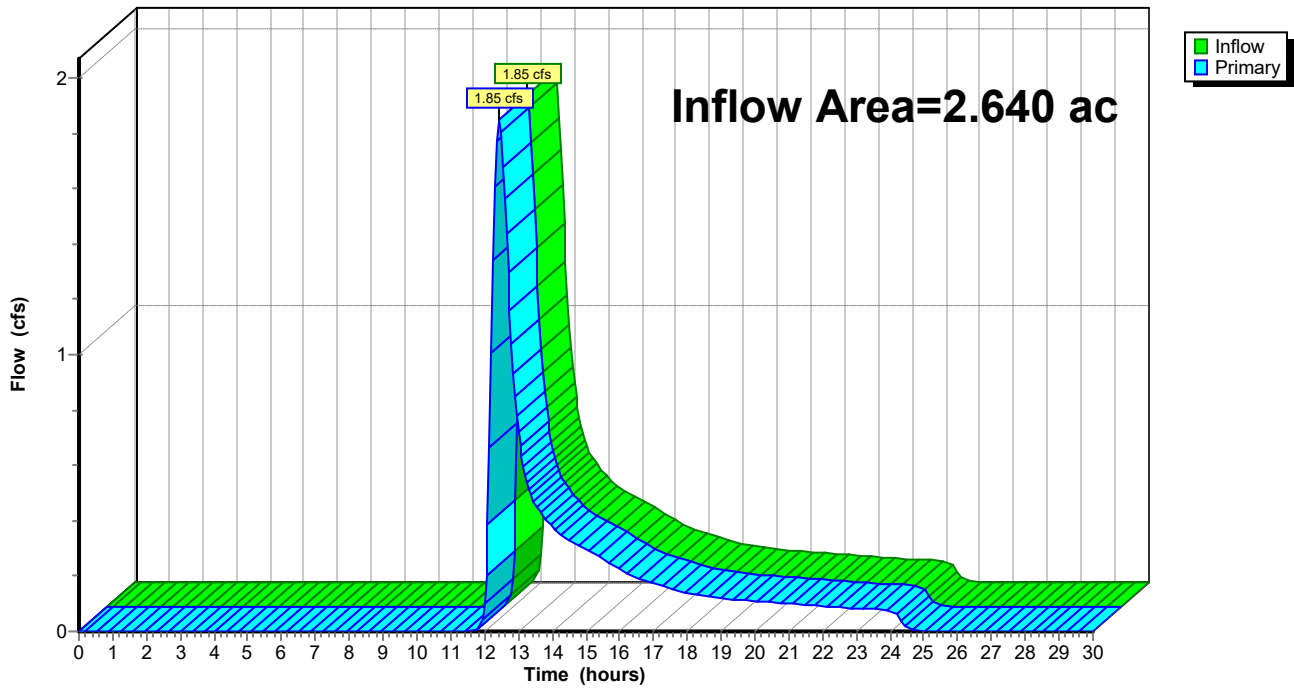
Summary for Link 7L: POST-OAK

Inflow Area = 2.640 ac, 19.29% Impervious, Inflow Depth = 1.22" for 100-yr event
Inflow = 1.85 cfs @ 12.42 hrs, Volume= 0.269 af
Primary = 1.85 cfs @ 12.42 hrs, Volume= 0.269 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7L: POST-OAK

Hydrograph



Holley Street MFD

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08247 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.50"

Printed 7/2/2021

Page 76

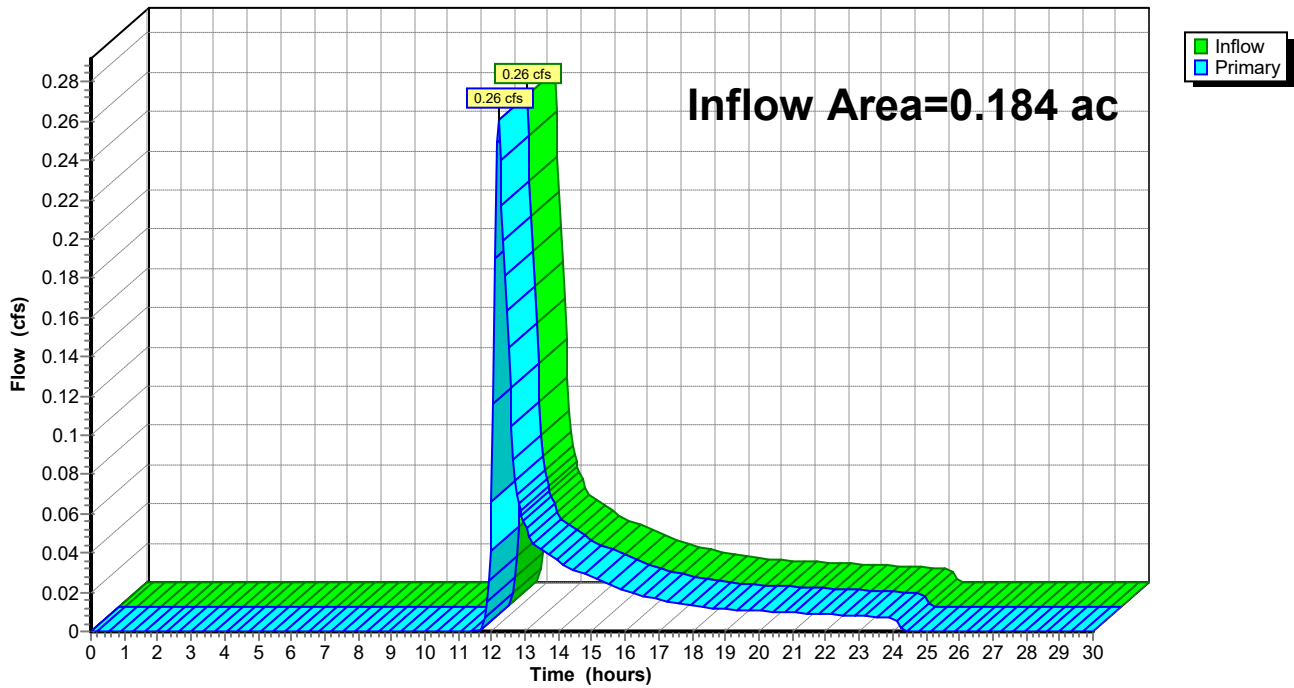
Summary for Link 9L: PRE-HOLLEY

Inflow Area = 0.184 ac, 0.00% Impervious, Inflow Depth = 1.79" for 100-yr event
Inflow = 0.26 cfs @ 12.19 hrs, Volume= 0.028 af
Primary = 0.26 cfs @ 12.19 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9L: PRE-HOLLEY

Hydrograph



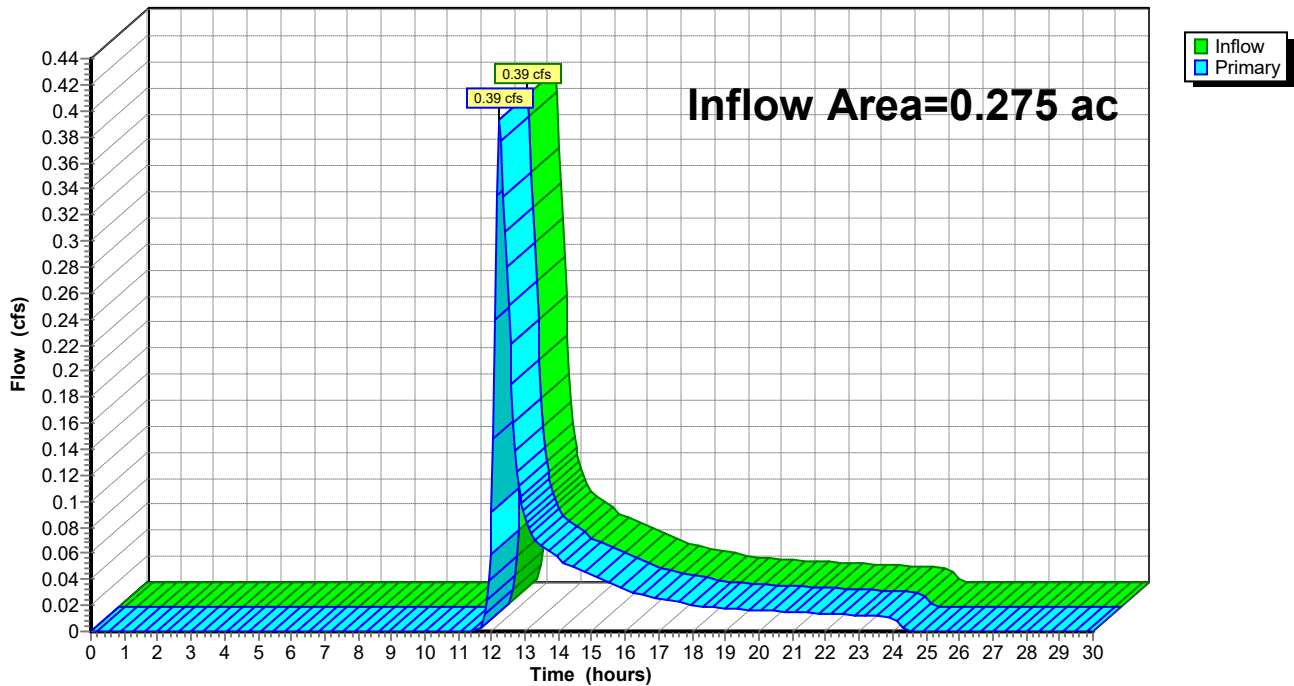
Summary for Link 10L: POST-HOLLEY

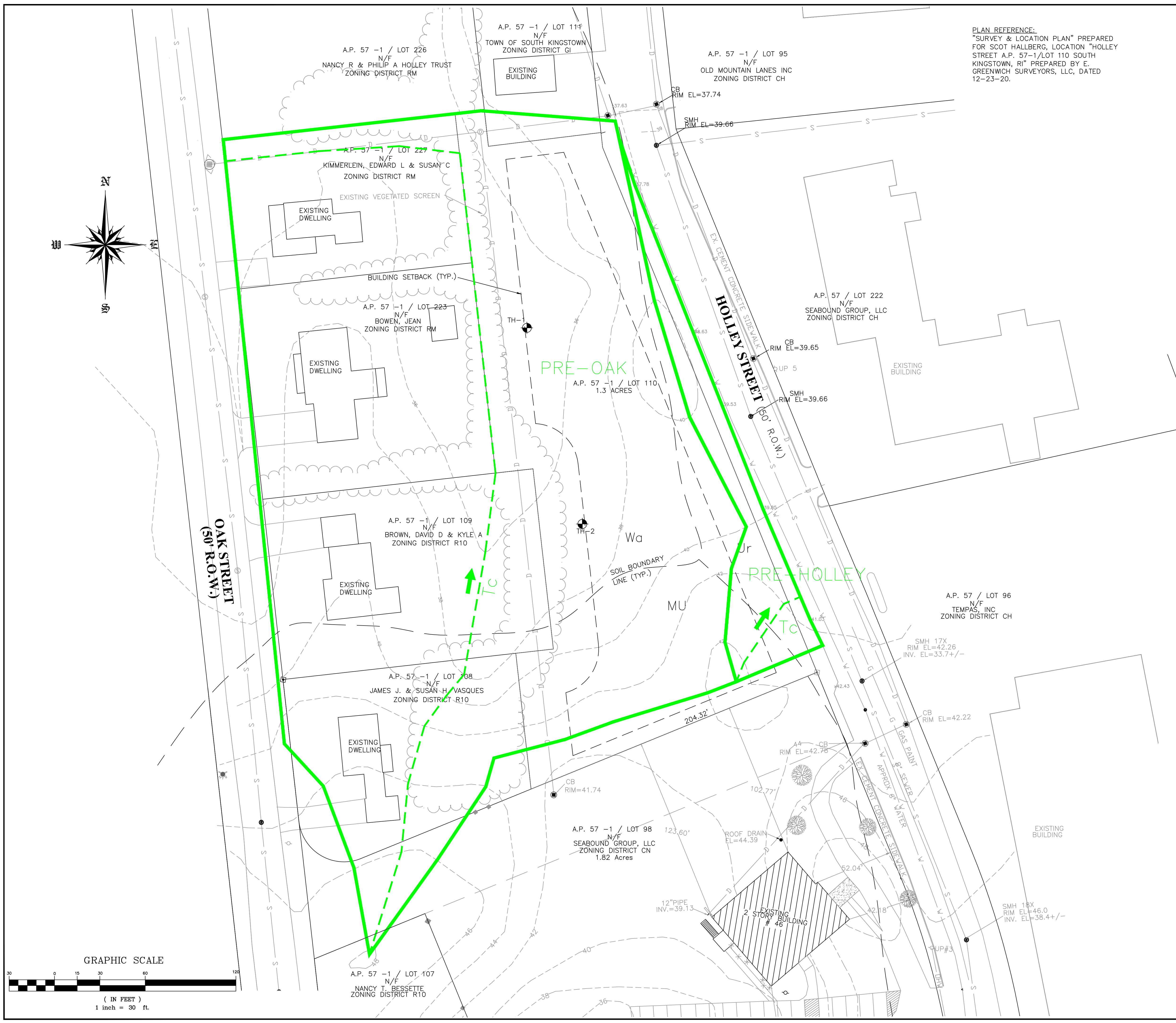
Inflow Area = 0.275 ac, 17.00% Impervious, Inflow Depth = 1.90" for 100-yr event
Inflow = 0.39 cfs @ 12.23 hrs, Volume= 0.043 af
Primary = 0.39 cfs @ 12.23 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10L: POST-HOLLEY

Hydrograph





PLAN REFERENCE:
 "SURVEY & LOCATION PLAN" PREPARED FOR SCOT HALLBERG, LOCATION "HOLLEY STREET A.P. 57-1/LOT 110 SOUTH KINGSTOWN, RI" PREPARED BY E. GREENWICH SURVEYORS, LLC, DATED 12-23-20.

- PROJECT NOTES:**
- DEED REFERENCE: BOOK 983 PAGE 350.
 - THERE ARE NO FRESHWATER WETLANDS ON THE SUBJECT PARCEL.
 - THIS PROPERTY FALLS WITHIN AN AREA OF MINIMAL FLOOD HAZARD - ZONE X AS MAPPED BY FIRM #44009C0203K DATED 4/3/2020.
 - THE PROPERTY IS CURRENTLY A VACANT LOT WITH SOME BRUSH AND LAWN VEGETATION. THERE ARE NO AGRICULTURAL USAGES OR SOILS OF STATEWIDE IMPORTANCE ON OR ADJACENT TO THIS PROPERTY.
 - THERE ARE NO HISTORIC CEMETERIES PRESENT ON THE SUBJECT PROPERTY AND/OR UNIQUE HISTORIC FEATURES.
 - THE PROPERTY IS NOT LOCATED IN A RIDEM NATURAL HERITAGE AREA AND THERE ARE NO UNIQUE NATURAL FEATURES PRESENT ON THE SITE.
 - THE SUBJECT PARCEL IS NOT LOCATED WITHIN ANY SPECIAL AREA MANAGEMENT PLAN OR CONTAIN ANY COASTAL FEATURES ON OR ADJACENT TO THE AFOREMENTIONED PARCEL, PER THE RI CRMC.
 - THE SUBJECT PARCEL IS NOT LOCATED WITHIN THE TOWN OF SOUTH KINGSTOWN GROUNDWATER PROTECTION OVERLAY DISTRICT.
 - THE SUBJECT PARCEL IS LOCATED WITHIN THE INDIAN RUN BROOK TMDL WATERSHED.
 - THE SUBJECT PARCEL IS NOT LOCATED WITHIN AN OWTS CRITICAL RESOURCE AREA AS DEFINED BY RIDEM.
 - THE SUBJECT PARCEL IS NOT LOCATED WITHIN A DRINKING WATER SUPPLY WATERSHED AS DEFINED BY RIDEM.
 - THE DEVELOPMENT PARCEL IS NOT LISTED ON THE NATIONAL REGISTER OF HISTORIC PLACES.
 - EXISTING SITE SOILS BASED ON THE USDA SOIL SURVEY INCLUDE MERRIMAC-URBAN LAND COMPLEX 0-8% SLOPES (MU), URBAN LAND (Ur) AND WALPOLE SAND LOAM, 0-3% SLOPES (Wa).
 - WALPOLE SAND LOAM IS CONSIDERED TO BE PRIME FARMLAND OF STATEWIDE IMPORTANCE.
 - THE SUBJECT PROPERTY IS SUBJECT TO ANY EASEMENTS, RIGHTS-OF-WAY, RESTRICTIONS, RESERVATIONS OR OTHER LIMITATIONS WHICH MAY BE REVEALED BY A FULL EXAMINATION OF THE TITLE.

LEGEND

PERIMETER LINE	—————
ABUTTER LINE	—————
FENCE	-X-X-X-X-
CONTOUR LINE	- - - - - 122 - - - - -
SURVEY BOUND	• • • • •
UTILITY POLE	⊕
LIGHT POLE	⊙
OVERHEAD WIRE	— OHW —
CATCH BASIN	⊠
DRAIN MANHOLE	⊙
DRAINLINE	— D — D —
WATERLINE	— W — W —
SEWER MANHOLE	⊙
SEWERLINE	— S — S —
GAS LINE	— G — G —
TREE	⊙
ZONING BOUNDARY LINE	—————
SOILS BOUNDARY LINE	—————

ZONING CRITERIA

ZONE CN

FRONT YARD - 25'
SIDE YARD - 10'
REAR YARD - 30'
MIN. LOT FRONTAGE/WIDTH - 100'
MIN. PARCEL SIZE -
15,000 SF (1ST 2 UNITS)
5,000 SF (EA. ADDITIONAL UNIT)
MAX. LOT BLD. COVERAGE - 30%

OWNER:
 HOLLEY STREET, LLC
 17 ARNOLD ST., SUITE 100 WAKEFIELD, RI 02879

APPLICANT:
 SCOT HALLBERG
 17 ARNOLD ST., SUITE 100 WAKEFIELD, RI 02879

STREET INDEX:
 HOLLEY STREET (PUBLIC)
 OAK STREET (PUBLIC)

PRE-DEVELOPMENT WATERSHED MAP

Thomas J. Principe, III
 No. 9107
 REGISTERED PROFESSIONAL ENGINEER

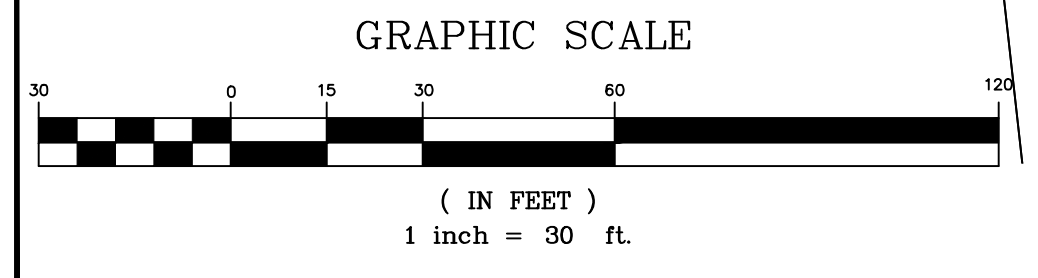
PRINCIPE COMPANY, INC.
 ENGINEERING DIVISION
 PO BOX 298
 TIVERTON, RI 02878
 401.816.5385
 PRINCIPEENGINEERING.COM

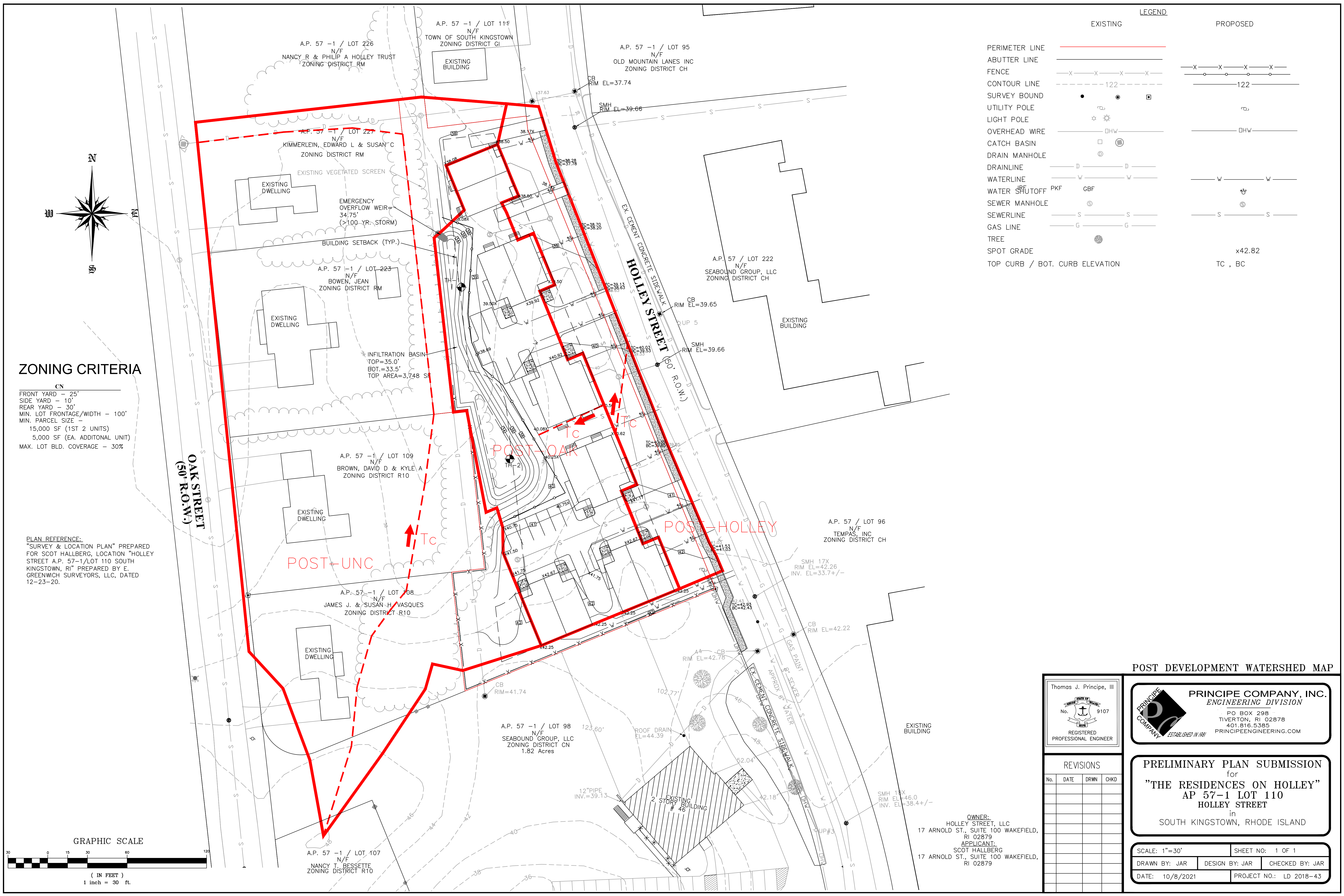
REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
 for
"THE RESIDENCES ON HOLLEY"
 AP 57-1 LOT 110
 HOLLEY STREET
 in
 SOUTH KINGSTOWN, RHODE ISLAND

SCALE: 1"=30'	SHEET NO: 1 OF 1
DRAWN BY: JAR	DESIGN BY: JAR
DATE: 10/8/2021	CHECKED BY: TJP
PROJECT NO.: LP 2018-43	





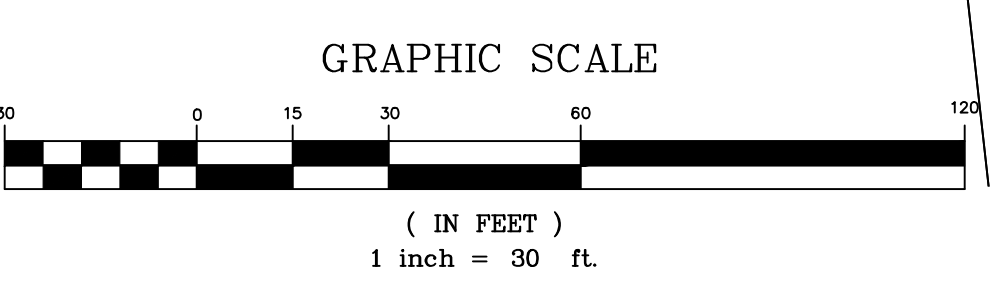
LEGEND

	EXISTING	PROPOSED
PERIMETER LINE	—	—
ABUTTER LINE	—	—
FENCE	-X-X-X-X-	-X-X-X-X-
CONTOUR LINE	- - - - 122 - - - -	- - - - 122 - - - -
SURVEY BOUND	•	•
UTILITY POLE	⊙	⊙
LIGHT POLE	⊙	⊙
OVERHEAD WIRE	- OHW -	- OHW -
CATCH BASIN	⊠	⊠
DRAIN MANHOLE	⊙	⊙
DRAINLINE	- D -	- D -
WATERLINE	- W -	- W -
WATER SHUTOFF	PKF	GBF
SEWER MANHOLE	⊙	⊙
SEWERLINE	- S -	- S -
GAS LINE	- G -	- G -
TREE	⊙	⊙
SPOT GRADE		x42.82
TOP CURB / BOT. CURB ELEVATION		TC, BC

ZONING CRITERIA

CN
 FRONT YARD - 25'
 SIDE YARD - 10'
 REAR YARD - 30'
 MIN. LOT FRONTAGE/WIDTH - 100'
 MIN. PARCEL SIZE -
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POST DEVELOPMENT WATERSHED MAP

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