UNION PLACE
Mixed Use Development

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VOLUME III

US Route 6 / Baldwin Place Road

Town of Carmel, Putnam County, New York

Lead Agency: Carmel Planning Board
Carmel Town Hall
60 McAlpin Avenue
Mahopac, New York 10541
Contact: Peggy Moore, Planning Board Secretary
(845) 628-1500

Project Sponsors: C&C Meadow Crest Holding,
Baldwin Route 6, LLC, and Baldwin Hills Realty, LLC
1699 Route 6, Suite 1
Carmel, NY 10512
Contact: Paul A. Camarda
Tel. (845) 228-1400

Prepared By: TIM MILLER ASSOCIATES, Inc.
10 North Street
Cold Spring, New York 10516
Contact: Tim Miller, AICP
Tel. (845) 265-4400

Project Engineer: Insite Engineering,
Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, NY 10512
Contact: Jeffrey Contelmo, P.E.
Tel. (845) 225-9690

Lead Agency Acceptance Date: 10/27/10

Public Hearing Date: 11/17/10

Deadline for Receipt of Public Comments: TBD

October 27, 2010

Project Consultants
for the Union Place DEIS

Environmental Planner
TIM MILLER ASSOCIATES, Inc.
10 North Street
Cold Spring, New York 10516
Contact: Tim Miller, AICP
Tel. (845) 265-4400
Fax. (845) 265-4418

Project Engineer
Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, NY 10512
Contact: Jeffrey Contelmo, P.E.
Tel. (845) 225-9690
Fax. (845) 225-9717

Water Supply Engineer
Leggette, Brashears & Graham, Inc.
4 Research Drive, Suite 301
Shelton, CT 06484
Contact: Russ Slayback, CPG, LEP
Tel. (203) 929-8555
Fax (203) 926-9140

Wastewater Engineer
O'Brien & Gere Engineers
22 Saw Mill River Road, First Floor
Hawthorne, NY 10532
Contact: Lowell A. Kachalsky, P.E.
Tel: (914) 345-1616
Fax: (914) 345-1611

Traffic Engineer
John Collins Engineers, P.C.
11 Bradhurst Avenue
Hawthorne, NY 10532
Contact: Philip Grealy, Ph.D., P.E.
Tel: (914) 347 7500
Fax: (914) 347 7266

Architect/Site Planner
Street-Works, LLC
30 Glenn Street, 4th Floor
White Plains, NY 10603
Contact: Kenneth Narva, AIA
914-949-6505
914-949-1694 Fax

Project Consultants
for the Union Place DEIS Continued

Cultural Resources Consultant
CITY / SCAPE: Cultural Resource Consultants
166 Hilliar Circle
White Plains, NY 10605
Contact: Gail Guillet
Tel: (914) 328-3032
Fax: (914) 288-9029

Geotechnical Consultant
GEODESIGN INCORPORATED
984 Southford Road
Middlebury, CT 06762
Contact: Urlich La Fosse, P.E.
Tel. (203) 758-8836
Fax. (203) 758-8842

UNION PLACE
Draft Environmental Impact Statement

Table of Contents

Volume III

Appendices

INSITE
ENGINEERING, SURVEYING &
LANDSCAPE ARCHITECTURE, P.C.

PRELIMINARY
STORMWATER POLLUTION PREVENTION PLAN

For

Union Place

U.S. Route 6 & Baldwin Place Road
Town of Carmel, New York

October 8, 2010

Applicant Information:

Camarda Realty Investments, LLC
1699 Route 6, Suite 1
Carmel, NY 10512

Note: This report in conjunction with the project plans make up the complete Stormwater Pollution Prevention Plan.

Prepared by:
Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512

CONTENTS

1.0 INTRODUCTION

1.1 Project Description

Located in the Town of Carmel, Putnam County, the proposed Union Place project is situated on a 302-acre +/- parcel along U.S. Route 6 and Baldwin Place Road, just north of the Westchester County Line. Figure 1, "Location Map", provided herein delineates the project site and surrounding locale. The total site consists of six parcels identified as Tax Map Numbers 75.19-1-1.12, 86.6-1-4, 86.10-1-2, 86.10-1-3, 86.11-1-1 and 86.14-1-7. It is proposed to develop approximately eighty acres on the western portion of the site as mixed-use development consisting of commercial, office, retail, and residential development. On the eastern portion of the property, approximately one hundred acres is proposed to be developed as Union Heights, a senior housing community. Union Place and Union Heights are proposed to be connected via local roads and walking trails.

There are no known enforcement actions, including lawsuits or administrative proceedings, commenced against the applicant, or any principle affiliate of the applicant, for any alleged violations of law related to the applicant of the site, in the five years preceding this application.

1.2 Existing Site Conditions

Generally, the shape of the project site takes the form of an inverted "L" with the long leg running north to south, and Baldwin Place Road forming the western boundary. U.S. Route 6 runs north and south along the eastern side of the project site and provides frontage to the site in two locations. The first is along the northeastern corner of the property between the Mahopac Post Office and Lupi Court, and the second is along the southeastern portion of the property between Baldwin Place Road and the William Koehler Memorial Senior Center/Senior Housing at Mahopac Hills.

Topographically the site consists of two hills separated by a valley. One hillside is located on the northeastern portion of the project site. Slopes on this hillside are generally moderate to strongly sloping with gentle slopes located near the top of the hill. It is on this hillside where the majority of the Union Heights development is proposed. A second hill is located on the southwestern portion of the property. The mixed-use portion of the Union Place project is proposed on this hillside. A valley running north to south separates the two hills and bisects the project site into an eastern and western half. Existing ground cover on the western half of the property consists of farm fields and forest, with the southern tip of the project site currently developed as a farm, and gas station. The eastern portion of the project site is currently forest. Located along the valley, between the two hillsides is a New York State Department of Environmental Conservation (NYSDEC) Freshwater Wetland.

The NYSDEC Wetland is identified as ML-11, and comprises approximately 39-acres on the project site. Freshwater Wetland ML-11 lies along a valley, between the aforementioned hillsides, and flows north and south. The majority of the wetland's watershed consists of the project site. There is a high point in the valley adjacent to the William Koehler Memorial Senior Center/Senior Housing at Mahopac Hills, which causes ML-11 to flow in two different directions. Most of the wetland flows northwest across the site, under Baldwin Place Road and Stillwater Road, and into the Muscoot River, which is in the Amawalk Reservoir Watershed. The remainder of the wetland flows south into an existing onsite water body, and then continues south into the stormwater collection system along U.S. Route 6. From there, it is conveyed to an open channel conveyance system south of Kennard Road. Ultimately the stormwater runoff reaches Lake Baldwin, which discharges to Muscoot River, and finally the Amawalk Reservoir. The eastern hillside forms the drainage divide between the Amawalk and Muscoot Reservoir watershed. The portion of the Union Heights project is located in the Muscoot Reservoir watershed consists of areas tributary to Design Points 6 & 7.

As previously mentioned the project site falls in the Amawalk and Muscoot Reservoir Watershed Basins. Both Reservoirs are located in the New York City East-of-Hudson Croton Watershed, where the Environmental Protection Agency (EPA) has established a Total Maximum Daily Load (TMDLs) for phosphorus (Amawalk Reservoir and Muscoot Reservoir) and mercury (Amawalk Reservoir only). The burden for reducing current phosphorous loading to achieve the TMDL presently lies with the Town of Carmel and its regional partners. The program for phosphorous reduction has been established in the NYSDEC document entitled *Croton Watershed Phase II Phosphorous TMDL Nonpoint Source Implementation Plan* (TMDL Implementation Plan) dated January 14, 2009. This plan clearly states that for

simplicity and ease of local government administration the plan is largely structured to use existing programs to achieve reductions. These programs include:

- Potential additional point source reductions.
- NYSDEC SPDES General Permit for Stormwater Discharges for Municipal Separate Stormwater Sewer Systems (MS4s) Permit No. GP-0-10-002.
- State and regional source control and agricultural programs.
- US EPA Filtration Avoidance Determination Program.
- Putnam County "Croton Plan".
- NYCDEP "Croton Strategy".
- NYCDEP EOH Water Quality Investment Funds, including the Putnam County Septic Repair Program.
- New York State non point source programs.
- NYSDEC – NYCDEP Coordinated Stormwater Enforcement Protocol.

The Union Place project is consistent with the TMDL Implementation Plan and applicable portions of the above-cited programs

For the project site, seven design points can be identified. Each design point represents a point on an existing collection system (i.e. catch basin, culvert crossing, etc.) and has been selected to minimize the amount of offsite area tributary to the design point. By selecting points that meet this criteria it allows for the most effective evaluation of any potential quantitative and qualitative hydrologic impacts associated with the proposed improvements. Design Points 1 through 5 are located in the Amawalk Reservoir Watershed. Within the Amawalk Watershed, approximately 1,600 west of the site, is Lake Baldwin. Design Points 3, 4, and 5 are tributary to Lake Baldwin. Two of the Design Points, Design Point 3 and 4 discharge to culverts underneath Baldwin Place Road. Runoff is then conveyed to Lake Baldwin via road side swales and the stormwater collection system for the residential development surrounding Lake Baldwin. It should be noted the peak flows and volume of runoff from these two design points are reduced in the post-development condition. Design Point 5 represents a point on an existing open channel conveyance system south of Kennard Road. Runoff is conveyed to Design Point 5 via the stormwater collection system located along US Route 6, and Baldwin Place Road. The open channel swale south of Kennard Road discharges to a wetland system upstream of Lake Baldwin. Based upon aerial photography two water bodies connected by a stream channel and a wetland make up the system. Design Points 6 and 7 are located in the Muscoot Reservoir Watershed. Table 1 has been provided below to summarizing the seven design points identified for the project site. Refer to Figure 2, the "Pre-development Drainage Map" for the location of each design point, and an illustration of their respective tributary areas.

Table 1:2.1 Summary of Design Points

	Description	Watershed	Approximate Pre-development Tributary Area (acres)	Approximate Post-development Tributary Area (acres)
DP-1	Existing culvert crossing under Baldwin Place Road.	Amawalk Reservoir	174.6	180.5
DP-2	Existing culvert crossing under Baldwin Place Road.		18.7	11.9
DP-3	Existing culvert crossing under Baldwin Place Road (Lake Baldwin Watershed).		10.6	2.4
DP-4	Existing culvert crossing under Baldwin Place Road (Lake Baldwin Watershed).		3.1	1.2
DP-5	Point on existing open channel conveyance system south of Kennard Road (Lake Baldwin Watershed).		59.8	72.1
DP-6	Existing culvert crossing at Lupi Court	Muscoot Reservoir	51.9	65.4
DP-7	Existing culvert crossing under U.S. Route 6.		23.5	11.1

The majority of the existing soils onsite consist of Woodbridge Loam, Paxton Fine Sandy Loam, and Ridgebury Loam as identified on the Nation Resource Conservation Service's (NRCS) *Soil Survey of Putnam and Westchester Counties, New York.* All three soils belong to the hydrologic group "C" indicating the soils are less infiltrative, and will in turn yield a larger amount of surface runoff. Typically, the Woodbridge and Paxton fine sandy loams are very deep, and moderately well drained. This is dissimilar from the Ridgebury soils, which are typically deep, but usually poorly drained. Pockets of Sun Loam are also present onsite, and located along the valley in the wetland areas. Sun Loam is characterized as a very deep, poorly to very poorly drained soil. Also present onsite, are small pockets of Charlton Loam (hydrologic group "B") and Leicester Loam (hydrologic group "C"). The approximate locations of the NRCS soil boundaries have been illustrated on Figure 2 and 3. The majority of the proposed improvements are located on the Woodbridge and Paxton soils comprising the two hillsides. It should be noted the band of Charlton Loam located on the eastern hillside belongs to the soil phase "E" (slopes typically between 25% to 35%). Disturbance totaling one acre or more an "E" phase soil is not eligible for coverage under the *SPDES General Permit GP-0-10-001*. Less than one acre of disturbance has been proposed on an "E" phase soil for the construction of the stormwater quality basin access drive.

1.3 Proposed Site Conditions

As noted above two distinct but integrated developments are proposed at the project site. Along the western half of the property, a mixed-use development is proposed. The mixed-use development will consist of a created Main Street surrounded by retail, residential, and professional office uses, with parking proposed along the perimeter of development. Overall, the mixed-use development will consist of 14 buildings, 8 streets, and the development of parks and walkways for pedestrian use. Approximately eighty acres of disturbance are anticipated for the mixed-use portion of the project. Access to the site will necessitate a reconfiguration of the NYS Route 118, U.S. Route 6, and the Baldwin Place Road Intersection, as well as a relocation of Baldwin Place Road. It should be noted this report is intended only to address the impacts and mitigation to stormwater from the proposed development, separate reports regarding the relocation of the proposed roadways, as well as the proposed water and sewer improvements have been prepared.

Connected to the mixed-used portion of the project is Union Heights, a proposed senior housing community consisting of approximately 300 residential units. Thirteen roads will be constructed to service the 75 buildings. Approximately one hundred acres of disturbance is anticipated for the construction of Union Heights.

All of the proposed development will be directed to a stormwater management system consisting of open and closed channel conveyance systems, and stormwater management practices designed to treat water quality as well as attenuate water quantity in accordance with local, city, and state regulations. It should also be noted, that as the site design progresses an examination of Better Site Design techniques and source controls will be employed to further enhance the proposed Stormwater Pollution Prevention Plan (SWPPP) for the project.

The same seven design points identified in the previous section will be evaluated in the post-development quantity and quality analysis (refer to Figure 3). As noted above Design Points 3, 4, and 5 are tributary to Lake Baldwin. Design Points 3 and 4 are tributary to culverts underneath Baldwin Place Road which discharge to the stormwater conveyance system for the residential neighborhood surrounding Lake Baldwin. The peak flows to each of the design points tributary to Lake Baldwin are summarized in Table 2.5-1, and have been reduced to below pre-development levels for all storm events. In addition, the volumes to the two existing culverts represented by Design Points 3 and 4 have been reduced because of a reduction in the tributary area to each of the two existing culverts. Cumulatively there will be an increase in runoff volume to Lake Baldwin, however, the peak rates of flow will be mitigated onsite to maintain pre-development levels so as not to impact the capacity of the downstream stormwater conveyance systems.

Further discussions on each analysis, as well as the stormwater management practices and techniques utilized to mitigate stormwater impacts from the proposed Union Place project, are provided below.

2.0 STORMWATER MANAGEMENT

The proposed stormwater management system for the Union Place project has been designed to meet the requirements of local, city, and state stormwater ordinances and guidelines, including but not limited to those of the NYSDEC, and the recently amended regulations of the New York City Department of Environmental Protection (NYCDEP).

Since the subject project proposes the disturbance of more than 5,000 square feet, coverage under the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit No. GP-0-10-001 is required. In order to meet the requirements set forth by this permit, the latest edition of the NYSDEC *New York State Stormwater Management Design Manual* (NYSSMDM), including Chapter 10 *Enhanced Phosphorus Removal Standards,* was referenced for the design of the proposed stormwater management system. This manual specifies four design criteria that are discussed in detail below. They are Water Quality Volume, Stream Channel Protection Volume, Overbank Flood Control, and Extreme Flood Control. The first of the requirements relates to treating water quality, while the later pertain to stormwater quantity (peak flow) attenuation.

With regard to NYCDEP requirements, Section 18-39 of the *Rules and Regulations for the Protection from Contamination, Degradation, and Pollution of the New York City Water Supply and Its Sources (Rules and Regulations)*, requires a SWPPP Approval for this project. This initial project SWPPP was developed prior to the April 4, 2010 amendment of the *Rules and* Regulations. The Union Place SWPPP generally conforms to the amended regulations in that multiple stormwater management practices have been placed in series, for subcatchments with an impervious cover greater than 20%. As the project is refined, the SWPPP will be updated to remain in compliance with the *Rules and Regulations.* In order to satisfy NYCDEP SWPPP Approval requirements, the proposed stormwater management system has also been designed in accordance with *Reducing the Impacts of Stormwater Runoff from New Development.* For further discussion on NYCDEP requirements refer to sections 2.4 and 2.5 below.

To address stormwater quantity requirements of both the NYSDEC and NYCDEP, the "HydroCAD" Stormwater Modeling System," by HydroCAD Software Solutions LLC in Tamworth, New Hampshire, was used to model and assess the peak stormwater flows for the subject project. HydroCAD is a computer aided design program for modeling the hydrology and hydraulics of stormwater runoff. It is based primarily on hydrology techniques developed by the United States Department of Agriculture, Soil Conservation Service (USDA, SCS) TR-20 method combined with standard hydraulic calculations. For details on the input data for the subcatchments and design storms, please refer to Appendix A.

The input requirements for the HydroCAD computer program are as follows:

Subcatchments (contributing watershed/sub-watersheds)

- Design storm rainfall in inches
- CN (runoff curve number) values which are based on soil type and land use/ground cover
- Tc (time of concentration) flow path information

Stormwater Basins

- Surface area at appropriate elevations
- Flood elevation
- Outlet structure information

The following is a general description of the input data used to calculate the pre- and post-development stormwater runoff values. For detailed information for each subcatchment and pond, see Appendices A & B. The precipitation values for the 2-Year and 25-Year design storms analyzed were obtained from the local Soil Conservation Service office. Precipitation values for the 1-Year, 10-Year, and 100-Year, 24-hour design storm events were obtained from the Northeast Regional Climate Center (2003 Data) as required by Chapter 10 of the NYSSMDM. The values provided for all design storms analyzed have been listed below.

Design Storm	**24-Hour Rainfall**
1-Year	3.0”
2-Year	3.5”
10-Year	5.1”
25-Year	6.0”
100-Year	8.5”

The CN (runoff curve number) values utilized in this report were referenced from the USDA, SCS publication *Urban Hydrology for Small Watersheds*.

2.1 NYSDEC Water Quality Volume, WQ_v

The subject project is located in the New York City East-of-Hudson Croton Watershed, which is listed as a phosphorus-limited watershed. Therefore, the stormwater management practices have been designed in accordance with the *Enhanced Phosphorus Removal Standards* (Chapter 10) of the NYSSMDM. As outlined in Chapter 10, the WQv, is the runoff volume produced during the 1-year 24-hour design storm. In order to treat the required WQv from the proposed development two types of practices have been provided, Micropool Extended Detention Basins (P-1), and W-4 Pocket Wetlands (W-4). It should be noted, not all stormwater management basins proposed have been designed in accordance with NYSDEC criteria. This is because the NYSDEC criteria only requires one practice to treat the WQv, while NYCDEP requirements generally require multiple practices in series to satisfy their water quality objectives. Therefore, in accordance with accepted practice when a treatment train has been provided the first practice in the series has been designed in accordance with both NYSDEC and NYCDEP criteria, while the subsequent practices have been designed to address NYCDEP requirements only. All proposed improvements at the Union Place project will receive treatment by at least one NYSDEC compliant practice as required.

Calculations for the required WQv can be found in Appendix B. Listed in Table 2.1 below is a summary of each NYSDEC compliant practice, and its satisfaction of the NYSDEC WQv requirements:

Table 2.1.1 Water Quality Volume Summary

Subcatchment	WQ_v (cf) 1-Year 24-hour design storm runoff volume (From Appendix B)	Basin Providing Treatment	NYSDEC Practice Designation	Minimum % WQv Required in Permanent Pool	Volume of Permanent Pool (cf) (From Appendix B)	% WQv Provided in Permanent Pool
1.1S	142,354	1.1P	P-1	50%	81,050	57%
1.3S	39,596	1.3P	P-1	50%	29,600	75%
1.5S	216,450	1.5P	P-1	50%	157,900	73%
1.7S	63,510	1.7P	P-1	50%	41,300	65%
2.1S	64,338	2.1P	P-1	50%	37,300	58%
5.1S	18,034	5.1P	W-4	50%	19,400	108%
5.3S	94,743	5.3P	P-1	50%	64,450	68%
5.4S	139,653	5.4P	P-1	50%	69,900	50%
5.6S	27,661	5.6P	W-4	50%	15,000	54%
5.7S	22,346	5.7P	W-4	50%	18,240	82%
6.1S	41,818	6.1P	P-1	50%	23,775	57%
6.3S	70,480	6.3P	P-1	50%	43,193	61%
6.4S	30,056	6.4P	P-1	50%	33,800	112%
6.6S	38,681	6.6P	P-1	50%	40,000	103%

As shown in the table above, a minimum of 50% of the WQv will be provided in the permanent pool. Additionally a minimum of 10% of the WQv has been provided in the forebay of basin. It is assumed that by meeting the water quality volume requirements through employment of a P-1, Micropool Extended Detention Basin, and W-4, Pocket Wetland, to treat all proposed disturbances, the water quality objectives of the NYSDEC have been met for the subject project.

2.2 NYSDEC Stream Channel Protection Volume, CP_v

The Stream Channel Protection (CP_v) criterion is intended to protect stream channels from erosion and is accomplished by the 24-hour extended detention of the center-of-mass from the one-year, 24-hour storm event. The proposed stormwater management system has been designed to meet this requirement. Refer to Appendix B for the center of mass detention times for the one-year, 24-hour storm event.

2.3 NYSDEC Overbank Flood Control, Q_p, and Extreme Flood Control, Q_f

The Overbank Flood Control (Q_p) requirement is intended to prevent an increase in the frequency and magnitude of out-of-bank flooding events generated by urban development. Overbank control requires storage to attenuate the post-development 10-year, 24-hour peak discharge to pre-development rates. The Extreme Flood Control (Q_p) requirement is intended to prevent the increased risk of flood damage from large storm events, maintain the boundaries of the pre-development 100-year flood plain, and protect the physical integrity of stormwater management practices. Extreme flood control requires storage to attenuate the post-development 100-year, 24-hour peak discharge to pre-development rates. All proposed stormwater management basins have been sized to meet both of these requirements (see Appendix B). Table 2.5 provides a comparison of existing and proposed peak flows.

2.4 NYCDEP Water Quality Requirement

This initial project SWPPP was developed prior to the April 4, 2010 amendment of the *Rules and* Regulations. The Union Place SWPPP generally conforms to the amended regulations in that multiple stormwater management practices have been placed in series, for subcatchments with an impervious cover greater than 20%. As the project is refined, the SWPPP will be updated to remain in compliance with the *Rules and Regulations*.

In order to meet NYCDEP water quality requirements a combination of Design 2 Extended Detention Basins, Design 3 Extended Detention Basins, and Design 14 – low gradient grass swales with stone check dams have been provided. These practices have been linked in various series to form "treatment trains," allowing for multiple stages of treatment of stormwater runoff. Pursuant to NYCDEP design criteria all extend detention basins have been designed to provide the 24-hours of plug flow detention time for the 1-year design storm. To further demonstrate water quality has been maintained to pre-development levels a pollutant loading analysis was preformed. The analysis, which is discussed in further detail below, demonstrates the post-development pollutant loading rates are within the range of pre-development rates based on low and high removal efficiencies for the proposed stormwater management practices.

The pollutant loading coefficient method was utilized to calculate the annual export of Biological Oxygen Demand (BOD), Total Phosphorus (TP), Total Nitrogen (TN), and Total Suspended Solids (TSS). The publication *Fundamentals of Urban Runoff Management: Technical and Institutional Issues* produced by the Terrene Institute was referenced to determine the appropriate loading rates for TSS. The New York State Department of Environmental Conservation (NYSDEC) publication *Reducing the Impacts of Stormwater Runoff from New Development* (*Impacts*) was referenced to determine appropriate loading rates for TP, TN. and BOD. The appropriate loading rates were then utilized to calculate the annual pollutant runoff values. The following table summarizes the pollutant loading rates utilized for the subject project. The following table summarizes the pollutant loading rates utilized for the subject project**.**

Table 2.4.1 Summary of Pollutant Loading Rates (lbs/acre/year)

Land Use/Ground Cover	BOD	TP	TN	TSS
Commercial	163.0	0.71	4.6	716.5
Town House	50.0	0.62	5.0	286.6
Cow Pasture	32.0	0.12	3.7	305.3
Conventional Tillage	45.0	4.20	18.6	305.3
Forest	7.0	0.10	1.8	76.5

Pollutant removal efficiencies for the various treatment practices were referenced from the publication *Reducing the Impacts of Stormwater Runoff from New Development*, prepared by the NYSDEC, and have been listed below.

Table 2.4.2 Long Term Pollutant Removal Efficiencies

Treatment Method	BOD	TP	TN	TSS
Design 2 Extended Detention Basins	40%-60%	40%-60%	20%-40%	80%-100%
Design 3 Extended Detention Basins	40%-60%	60%-80%	40%-60%	80%-100%
Design 14 Low gradient grass swale with stone checkdams	20-40%	20-40%	20%-40%	20%-40%

The following table summarizes the estimated pre-development and post-development annual pollutant loads (calculated in Appendix C) generated by the subject project in each the Amawalk and Muscoot Reservoir watersheds. The same boundaries utilized in the quantitative analysis were used in the pollutant loading calculations, and the results summarized by watershed.

Table 2.4.1 Annual Pollutant Loading Summary To Amawalk Reservoir Watershed

	Annual Loads (lb/yr)			
	BOD	**TP**	**TN**	**TSS**
Pre-Development	7,937.6	148.48	1,059.7	51,940.5
Post-Development	8,459.6 to 6,172.2	45.86 to 33.40	634.6 to 478.8	29,768.5 to 25,869.5

Table 2.4.2 Annual Pollutant Loading Summary To Muscoot Reservoir Watershed

	Annual Loads (lb/yr)			
	BOD	**TP**	**TN**	**TSS**
Pre-Development	5,107.0	24.46	228.4	25,463.7
Post-Development	5,338.2 to 5,053.5	25.98 to 23.26	256.2 to 215.3	23,081.7 to 22,423.0

Table 2.4.3 Annual Pollutant Loading Summary To Design Point 1

	Annual Loads (lb/yr)			
	BOD	**TP**	**TN**	**TSS**
Pre-Development	3,172.8	44.20	483.4	25,580.1
Post-Development	3,194.5 to 2,284.9	22.85 to 16.31	391.0 to 293.7	14,647.0 to 13,540.8

Table 2.4.4 Annual Pollutant Loading Summary To Design Point 2

	Annual Loads (lb/yr)			
	BOD	**TP**	**TN**	**TSS**
Pre-Development	503.0	39.59	189.9	3,741.5
Post-Development	956.2 to 699.4	4.24 to 3.12	43.3 to 35.8	2,257.6 to 1,115.4

Table 2.4.5 Annual Pollutant Loading Summary To Design Point 3

	Annual Loads (lb/yr)			
	BOD	**TP**	**TN**	**TSS**
Pre-Development	240.4	6.63	47.2	1,941.0
Post-Development	109.2	0.52	7.6	714.2

Table 2.4.6 Annual Pollutant Loading Summary To Design Point 4

	Annual Loads (lb/yr)			
	BOD	**TP**	**TN**	**TSS**
Pre-Development	26.7	0.31	5.9	283.0
Post-Development	33.3	0.15	1.1	151.0

Table 2.4.7 Annual Pollutant Loading Summary To Design Point 5

	Annual Loads (lb/yr)			
	BOD	**TP**	**TN**	**TSS**
Pre-Development	3,994.7	57.75	333.3	20,394.9
Post-Development	4,166.4 to 3,045.4	18.10 to 13.30	191.6 to 140.6	11,998.7 to 10,348.1

Table 2.4.8 Annual Pollutant Loading Summary To Design Point 6

	Annual Loads (lb/yr)			
	BOD	**TP**	**TN**	**TSS**
Pre-Development	3,934.6	18.57	162.9	19,089.0
Post-Development	4,214.5 to 3,929.8	21.12 to 18.40	211.0 to 170.1	17,385.8 to 16,727.1

Table 2.4.9 Annual Pollutant Loading Summary To Design Point 7

	Annual Loads (lb/yr)			
	BOD	**TP**	**TN**	**TSS**
Pre-Development	1,172.4	5.89	65.5	6,374.7
Post-Development	1,123.7	4.86	45.2	5,695.9

As seen by the above summary, the post-development pollutant loads are within the range of the pre-development pollutants of concern as required by the NYCDEP regulations in all instances.

2.5 NYCDEP Quantity Requirements

As required per the NYCDEP, the attenuation of peak flows from the 10, 25, and 100-year storms to pre-development levels is accomplished with the stormwater management basins. The following tables summarize the pre and post development peak flows expected for the proposed project.

Table 2.5 1– Pre and Post-Development Peak Flows

24-HOUR DESIGN STORM PEAK FLOWS (c.f.s.)								
	2-YEAR		10-YEAR (Overbank Flood Control)		25-YEAR		100-YEAR (Extreme Flood Control)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Design Point 1	106.23	70.09	226.05	181.68	299.78	260.71	516.03	502.99
Design Point 2	17.05	5.85	33.49	22.42	43.34	34.39	71.61	59.14
Design Point 3	8.97	3.43	19.23	7.30	25.51	9.67	43.92	16.57
Design Point 4	2.94	1.56	6.48	3.24	8.66	4.26	15.06	7.22
Design Point 5	64.20	45.12	119.76	88.32	152.56	115.37	245.12	237.64
Design Point 6	64.50	54.45	116.55	90.15	146.78	110.29	232.07	171.40
Design Point 7	20.97	13.86	40.47	24.30	52.07	30.30	85.23	47.04

As shown in the above table the peak flows discharging to the design point in the proposed condition have been mitigated to below the existing condition levels, therefore the receiving drainage systems will see a reduction in peak flows during the storm events shown above.

3.0 STORMWATER CONVEYANCE SYSTEM

The stormwater collection and conveyance systems for the project will consist of drain inlets, catch basins, HDPE pipe, and open channel swales. The systems will be sized to collect and convey at minimum the 10-year, 1-hour design storm using the Rational Method. The Rational Method is a standard method used by engineers to develop flow rates for sizing collection systems. The Rational Method calculates flows based on a one-hour design storm.

4.0 EROSION AND SEDIMENT CONTROL

Erosion and sediment control should be accomplished by four basic principles: diversion of clean water, containment of sediment, treatment of dirty water, and stabilization of disturbed areas. Diversion of clean water should be accomplished with swales. This diverted water should be safely conveyed around the construction area as necessary and discharged downstream of the disturbed areas. Sediment should be contained with the use of silt fence at the toe of disturbed slopes and excavation of the temporary sediment basin. Disturbed areas should be permanently stabilized within 14 days of final grading to limit the required length of time that the temporary facilities must be utilized. The owner will be responsible for the maintenance of the temporary erosion control facilities.

4.1 Temporary Erosion and Sediment Control Facilities

Temporary erosion and sediment control facilities should be installed and maintained as required to reduce the impacts to off-site properties. The owner will be required to provide maintenance for the temporary erosion and sediment control facilities. In general, the following temporary methods and materials should be used to control erosion and sedimentation from the project site:

- Stabilized Construction Entrance
- Silt Fence Barriers
- Storm Drain Inlet Protection
- Sediment Basins Traps with optional Dewatering Devices

A stabilized construction entrance should be installed at the entrance to the site as shown on the plan. The design drawings will include details to guide the contractor in the construction of this entrance. The intent of the stabilized construction entrance is to prevent the “tracking” of soil from the site. Dust control should be accomplished with water sprinkling trucks if required. During dry periods, sprinkler trucks should wet all exposed earth surfaces as required to prevent the transport of air-borne particles to adjoining areas.

Siltation barriers constructed of geosynthetic filter cloth should be installed at the toe of all disturbed slopes. The intent of these barriers is to contain silt and sediment at the source and inhibit its transport by stormwater runoff. The siltation barriers will also help reduce the rate of runoff by creating filters through which the stormwater must pass.

The proposed stormwater management basins will also act as temporary sediment traps with optional dewatering devices during construction of the proposed road and utilities. Most stormwater runoff from disturbed areas will be directed to the sediment traps. The traps will be sized in accordance with the publication, *New York State Standards and Specifications for Erosion and Sediment Control* (Blue Book).

In addition to the temporary sediment and erosion control measures listed above, pollution prevention measures on the site will also be accomplished by the use of a dumpster. All waste and scrap building materials on site shall be disposed of in the dumpster, with no waste being buried or improperly discarded. A portable toilet will be provided on site during construction for waste management. No construction chemicals are anticipated to be used or stored on site during and after construction.

4.2 Permanent Erosion and Sediment Control Facilities

Permanent erosion and sediment control will be accomplished by diverting stormwater runoff from steep slopes, controlling/reducing stormwater runoff velocities and volumes, and vegetative and structural surface stabilization. All of the permanent facilities are relatively maintenance free and only require periodic inspections. The owner will provide maintenance for all the permanent erosion and sediment control facilities.

The temporary sediment traps shall be cleaned of all sediment and debris, excavated to their final elevations and dimensions, and stabilized with the vegetation as indicated on the plans. Rip rap aprons will be used at the discharge end of all piped drainage systems. Runoff velocities will be reduced to levels that are non-erosive to the receiving waterbodies through use of these aprons.

Other than the buildings and paved surfaces, disturbed surfaces will be stabilized with vegetation. The vegetation will control stormwater runoff by preventing soil erosion, reducing runoff volume and velocities, and providing a filter medium. Permanent seeding should optimally be undertaken in the spring from March 21st through May 20th and in late summer from August 15th to October 15th. The stormwater basins will allow for settlement of suspended sediment that is generated by stormwater runoff from the site. These facilities provide a central collection area for sediment deposition and eventual disposal.

5.0 IMPLEMENTATION AND MAINTENANCE

5.1 Construction Phase

Details associated with the implementation and maintenance of the proposed stormwater facilities and erosion control measures during construction will be shown on the project plans. Construction phasing sequence will be provided to guide the contractor in the installation of the erosion control measures as well as the site plan features. In accordance with NYSDEC SPDES General Permit GP-0-10-001 each phase will be limited to a maximum of 5 acres of disturbance at any given time. The erosion control plan will include associated details and notes to aid the contractor in implementing the plan.

During construction, a Site Log Book, Appendix E, is required to be kept per NYSDEC SPDES General Permit GP-0-10-001. Erosion and sediment control inspections are required to be conducted as necessary under coverage of the permit (minimum once a week) and an updated logbook and a copy of the SWPPP is required to be kept on site for the duration of the construction activities. The Construction Site Log Book is an appendix taken from the *New York Standards and Specifications for Urban Erosion and Sediment Control* (Blue Book).

Initially the stormwater management basins and pocket wetlands will require regular maintenance until the permanent vegetation is established. Vegetation should be inspected every 30 days and after every major storm event until established, after which inspections should take place on a quarterly basis and after every large storm event. Damaged areas should be immediately re-seeded and re-mulched. The floor of the basin will be planted with a seed mixture that contains plants that are tolerant of occasional flooding. The seed mixtures contain several plant species that vary slightly in their needs for survival. It is expected that not all of the species will survive within each basin due to variations within each basin such as water,

nutrients, and light. During the initial year of planting, the plants may require watering to germinate and establish. Note that several seedings may be required during the first year to completely establish vegetation within the basin. After the initial year of establishment, the basin does not need to be fertilized or watered. A natural selection process will occur over the first few years, such that the species within the seed mixture most suitable to the conditions will survive.

5.2 Long Term Maintenance Plan

The owner will be responsible for the maintenance of the permanent erosion control and stormwater facilities. Each spring the paved areas should be cleaned to remove the winter's accumulation of traction sand. After this is completed, all drain inlets sumps and stormwater management basin forebays should be cleaned. All pipes should be checked for debris and blockages and cleaned as required. During the cleaning process, the drain inlets and pipes should be inspected for structural integrity and overall condition; repairs and/or replacement will be made as required.

Once the desired vegetative cover is established in the basins, only limited maintenance is required. The basins and outlet structures should be inspected after major storm events and semi-annually. During the inspections, the following should be checked:

- Evidence of clogging of outlet structure.
- Erosion of the flow path through the detention basin.
- Subsidence, erosion, cracking or tree growth on the embankment/berm.
- Condition of the emergency spillway.
- Accumulation of sediment around the outlet structure.
- Adequacy of upstream/downstream channel erosion control measures.
- Erosion of the basin bed and banks.
- Sources of erosion in the contributory drainage, which should be stabilized.

Access to the pond will be through stabilized basin accesses. The accesses are proposed to be graded to final grades and seeded and mulched in accordance with the Erosion & Sedimentation Control The graded basin accesses, and the side slopes and berms of the basins should be mowed annually to prevent the establishment of woody plants within the swales, accesses, or basin berms. The bottoms of the basins should not be mowed. During the mowing operations, debris and litter should be removed from all parts of the swales, accesses, and basins. Accumulated sediment will need to be removed from the swales and basins approximately every 10 to 20 years, or when 50 percent of their capacity has been reached.

In addition to guidelines discussed above all maintenance requirements outlined in the NYSSMDM shall be followed.

APPENDIX A

Pre-development Computer Data

Subcat Reach Pond Link

Drainage Diagram for Union Place Pre-development

Prepared by Insite Engineering, Surveying & Landscape Architecture, P.C., Printed 10/14/2010

Summary for Subcatchment 1.0S:

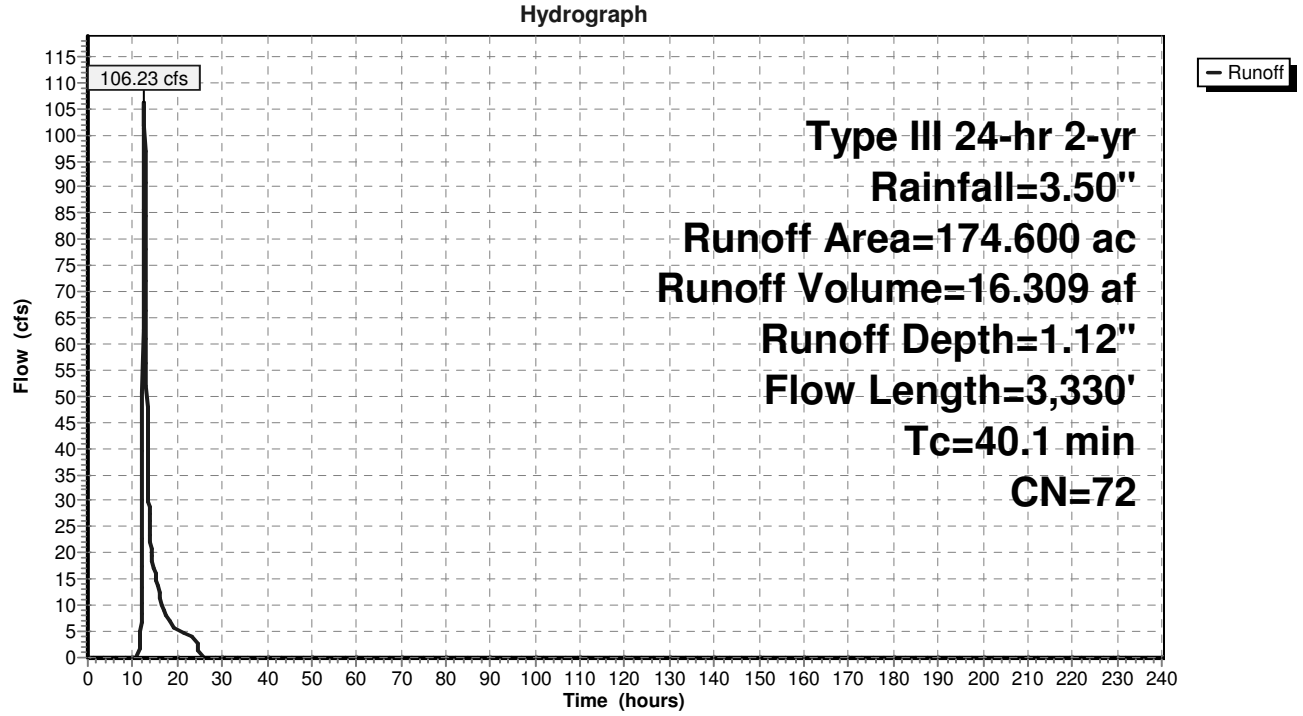
Runoff = 106.23 cfs @ 12.60 hrs, Volume= 16.309 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
4.700	94	Urban commercial, 85% imp, HSG C
3.100	87	Dirt roads, HSG C
1.600	74	>75% Grass cover, Good, HSG C
5.600	82	Row crops, SR + CR, Good, HSG C
30.200	71	Meadow, non-grazed, HSG C
14.300	77	Woods, Good, HSG D
109.000	70	Woods, Good, HSG C
6.100	60	Woods, Fair, HSG B
174.600	72	Weighted Average
170.605		Pervious Area
3.995		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	100	0.0300	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
5.6	490	0.0860	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	60	0.1300	5.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.2	290	0.1930	2.20		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	120	0.2000	3.13		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.5	1,060	0.1140	1.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	1,210	0.0590	5.77	13.27	**Channel Flow,** Area= 2.3 sf Perim= 9.1' r= 0.25' n= 0.025 Earth, clean & winding
40.1	3,330	Total			

Subcatchment 1.0S:



Summary for Subcatchment 2.0S:

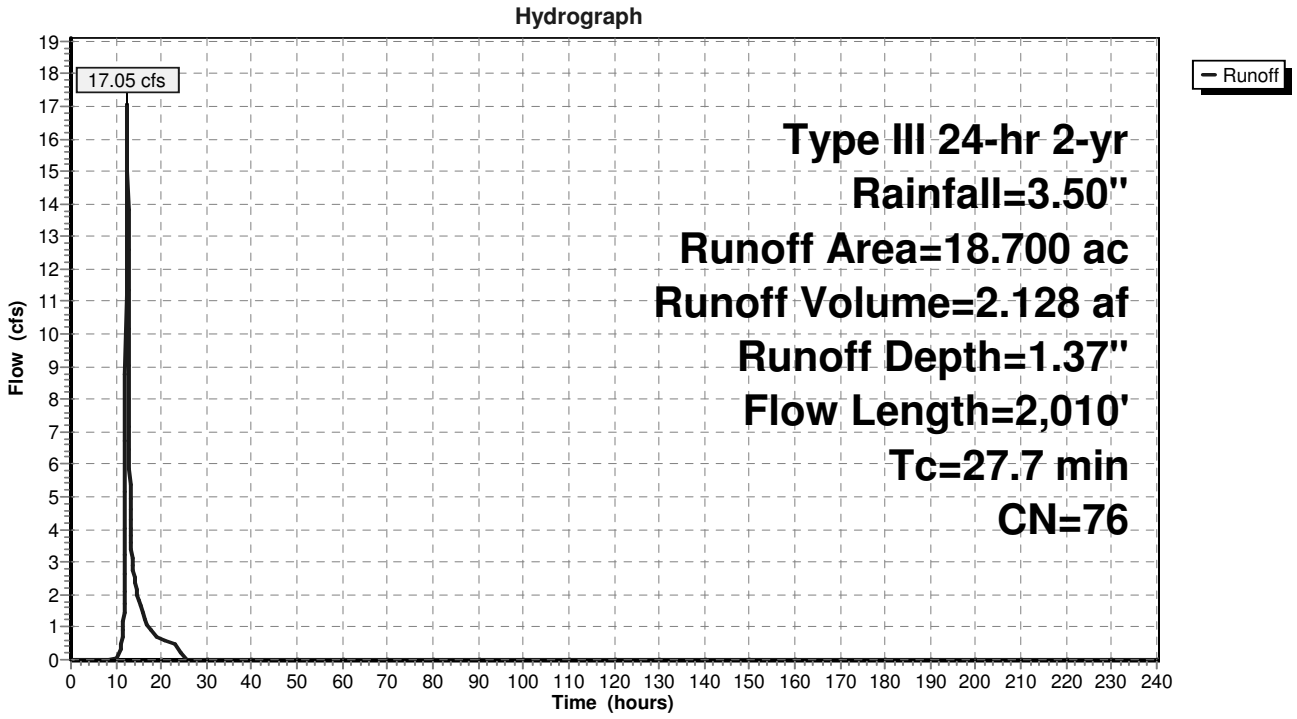
Runoff = 17.05 cfs @ 12.41 hrs, Volume= 2.128 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.100	87	Dirt roads, HSG C
9.100	82	Row crops, SR + CR, Good, HSG C
0.900	71	Meadow, non-grazed, HSG C
8.600	70	Woods, Good, HSG C
18.700	76	Weighted Average
18.700		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0300	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
11.9	1,060	0.0450	1.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	150	0.2170	2.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.1	700	0.0380	3.75	8.24	**Channel Flow,** Area= 2.2 sf Perim= 9.1' r= 0.24' n= 0.030 Earth, grassed & winding
27.7	2,010	Total			

Subcatchment 2.0S:



Summary for Subcatchment 3.0S:

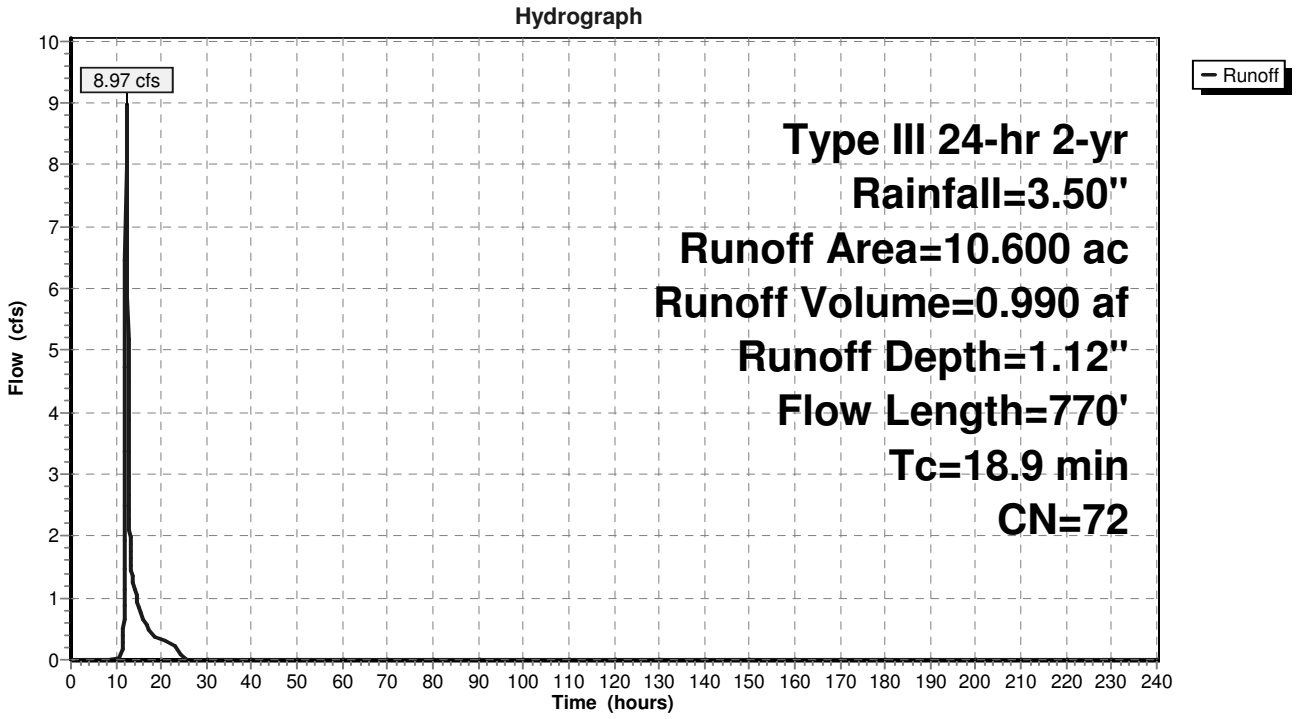
Runoff = 8.97 cfs @ 12.29 hrs, Volume= 0.990 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	87	Dirt roads, HSG C
0.100	74	>75% Grass cover, Good, HSG C
1.300	82	Row crops, SR + CR, Good, HSG C
2.800	71	Meadow, non-grazed, HSG C
6.200	70	Woods, Good, HSG C
10.600	72	Weighted Average
10.500		Pervious Area
0.100		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
4.5	550	0.0830	2.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	120	0.2830	2.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.9	770	Total			

Subcatchment 3.0S:



Summary for Subcatchment 4.0S:

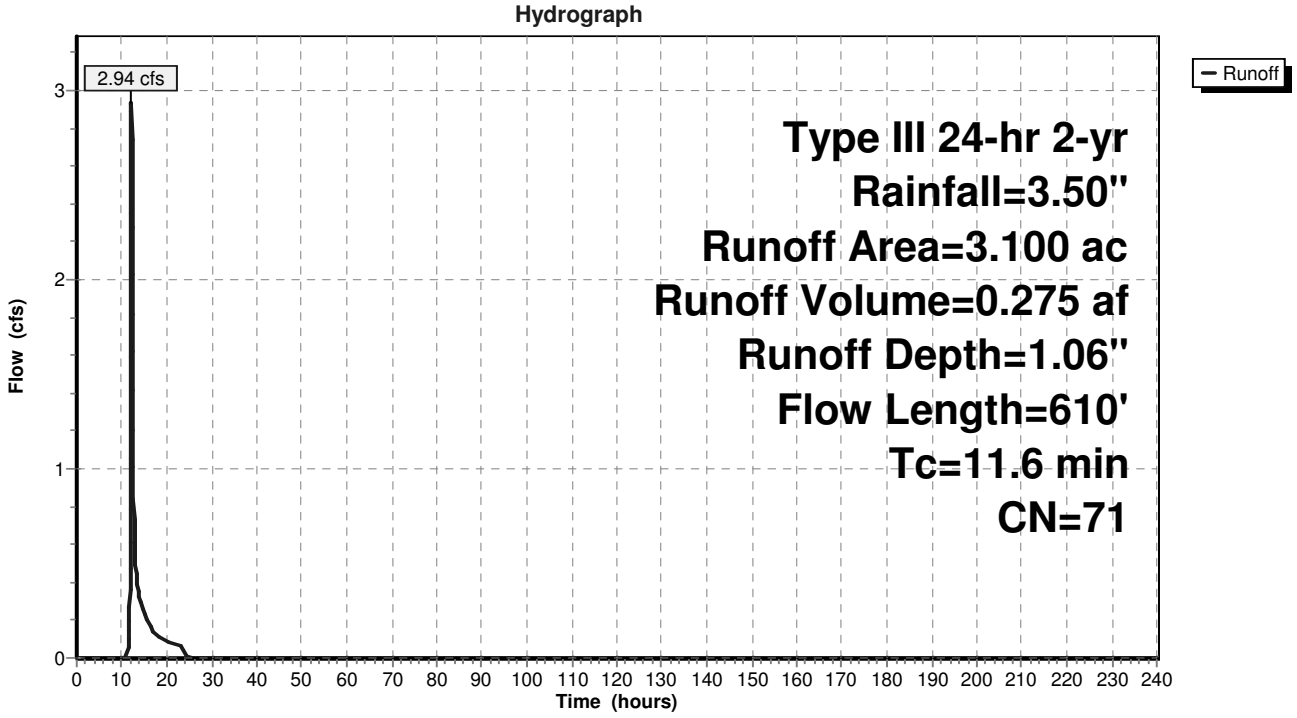
Runoff = 2.94 cfs @ 12.18 hrs, Volume= 0.275 af, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.100	87	Dirt roads, HSG C
0.200	71	Meadow, non-grazed, HSG C
2.800	70	Woods, Good, HSG C
3.100	71	Weighted Average
3.100		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	40	0.0750	1.92		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.1	470	0.1490	1.93		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.6	610	Total			

Subcatchment 4.0S:



Summary for Subcatchment 5.0S:

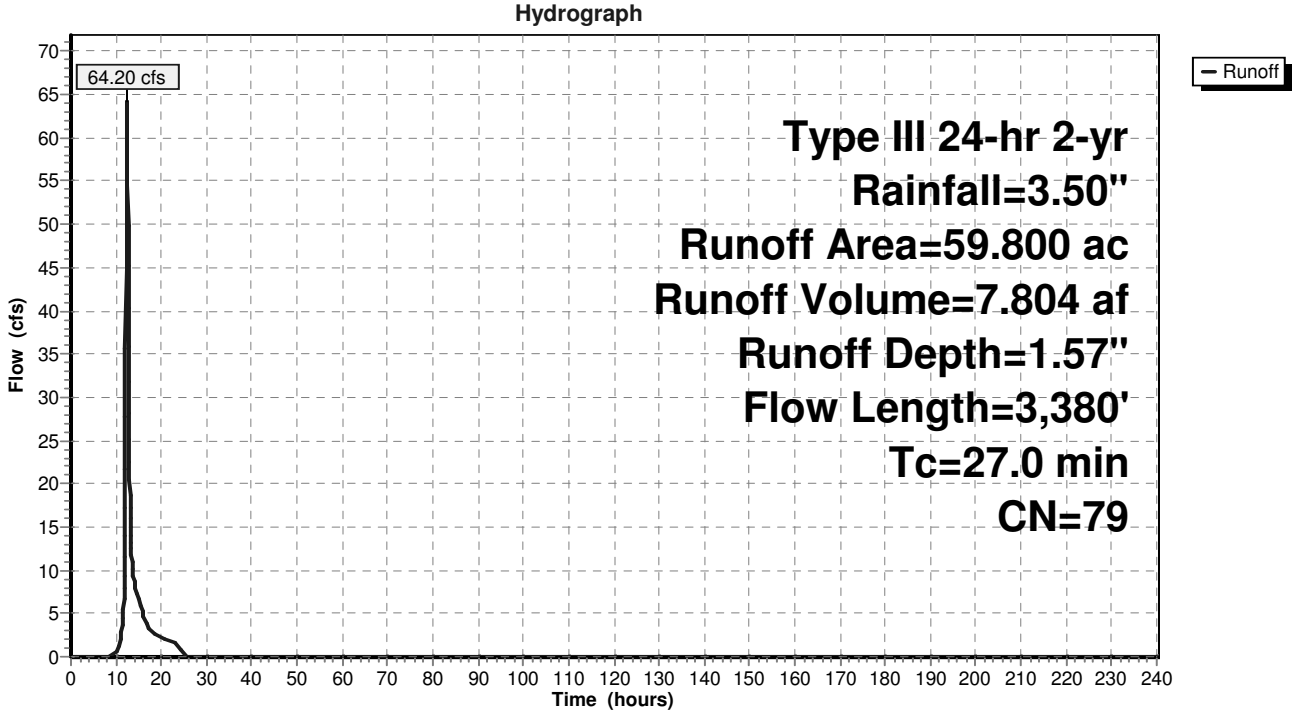
Runoff = 64.20 cfs @ 12.39 hrs, Volume= 7.804 af, Depth= 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
8.100	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
6.800	74	>75% Grass cover, Good, HSG C
9.700	82	Row crops, SR + CR, Good, HSG C
3.500	71	Meadow, non-grazed, HSG C
23.700	70	Woods, Good, HSG C
1.200	77	Woods, Good, HSG D
1.500	98	Water Surface
5.100	94	Urban commercial, 85% imp, HSG C
59.800	79	Weighted Average
45.865		Pervious Area
13.935		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0300	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
4.2	440	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.8	240	0.0833	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.4	2,600	0.0390	5.15	10.30	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=0.50' Z= 2.0 '/' Top.W=5.00' n= 0.030 Earth, grassed & winding
27.0	3,380	Total			

Subcatchment 5.0S:



Summary for Subcatchment 6.0S:

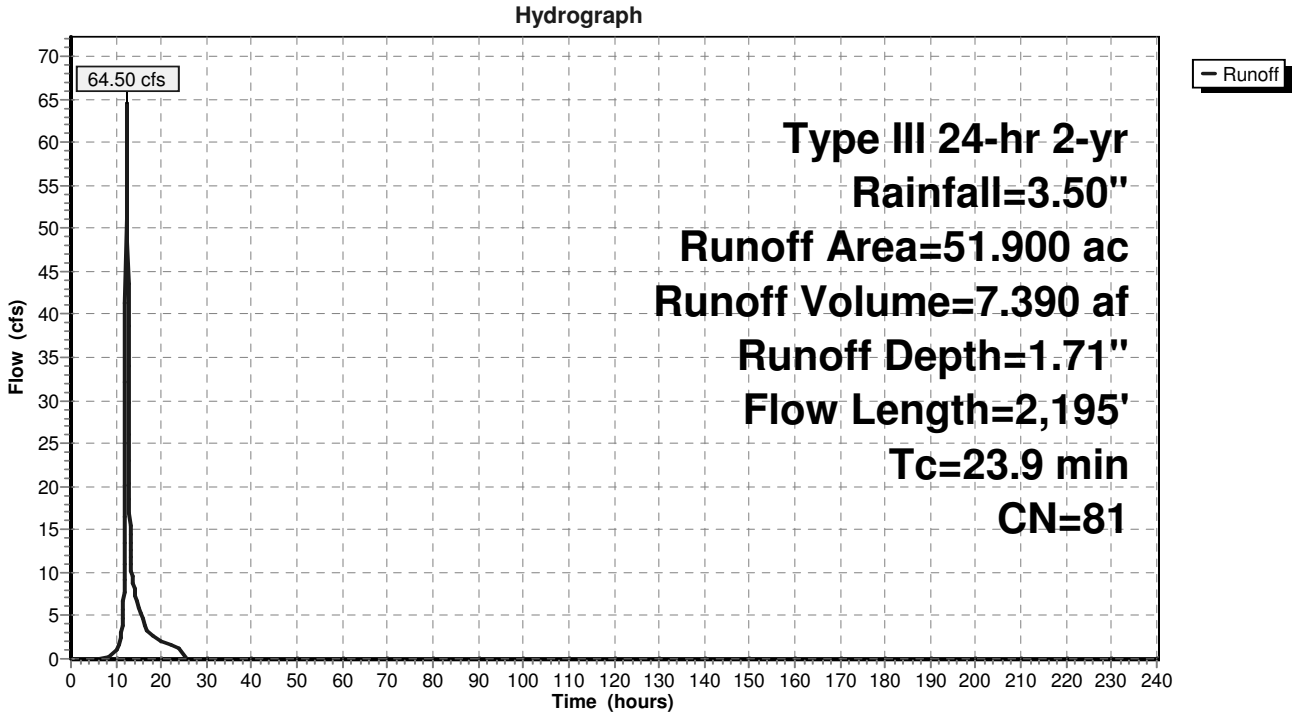
Runoff = 64.50 cfs @ 12.34 hrs, Volume= 7.390 af, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
1.400	87	Dirt roads, HSG C
0.500	74	>75% Grass cover, Good, HSG C
3.700	71	Meadow, non-grazed, HSG C
24.500	73	Woods, Fair, HSG C
16.700	94	Urban commercial, 85% imp, HSG C
5.100	83	1/4 acre lots, 38% imp, HSG C
51.900	81	Weighted Average
35.767		Pervious Area
16.133		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0700	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.9	160	0.0750	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	475	0.0990	2.20		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.6	140	0.0860	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	390	0.1050	2.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	930	0.0800	10.59	33.27	**Circular Channel (pipe),** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.025 Corrugated metal
23.9	2,195	Total			

Subcatchment 6.0S:



Summary for Subcatchment 7.0S:

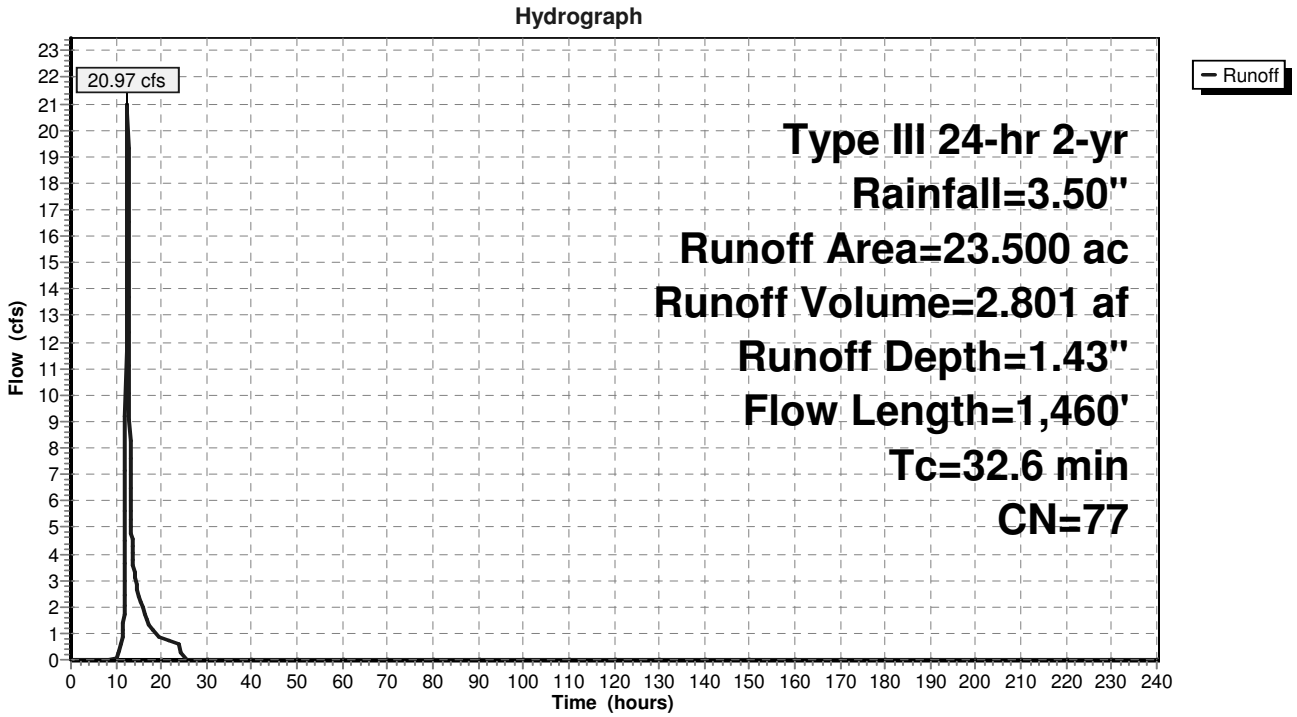
Runoff = 20.97 cfs @ 12.48 hrs, Volume= 2.801 af, Depth= 1.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.900	87	Dirt roads, HSG C
3.500	71	Meadow, non-grazed, HSG C
13.200	70	Woods, Good, HSG C
5.900	94	Urban commercial, 85% imp, HSG C
23.500	77	Weighted Average
18.485		Pervious Area
5.015		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.3	90	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.6	350	0.0630	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.2	920	0.1260	2.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
32.6	1,460	Total			

Subcatchment 7.0S:



Summary for Subcatchment 1.0S:

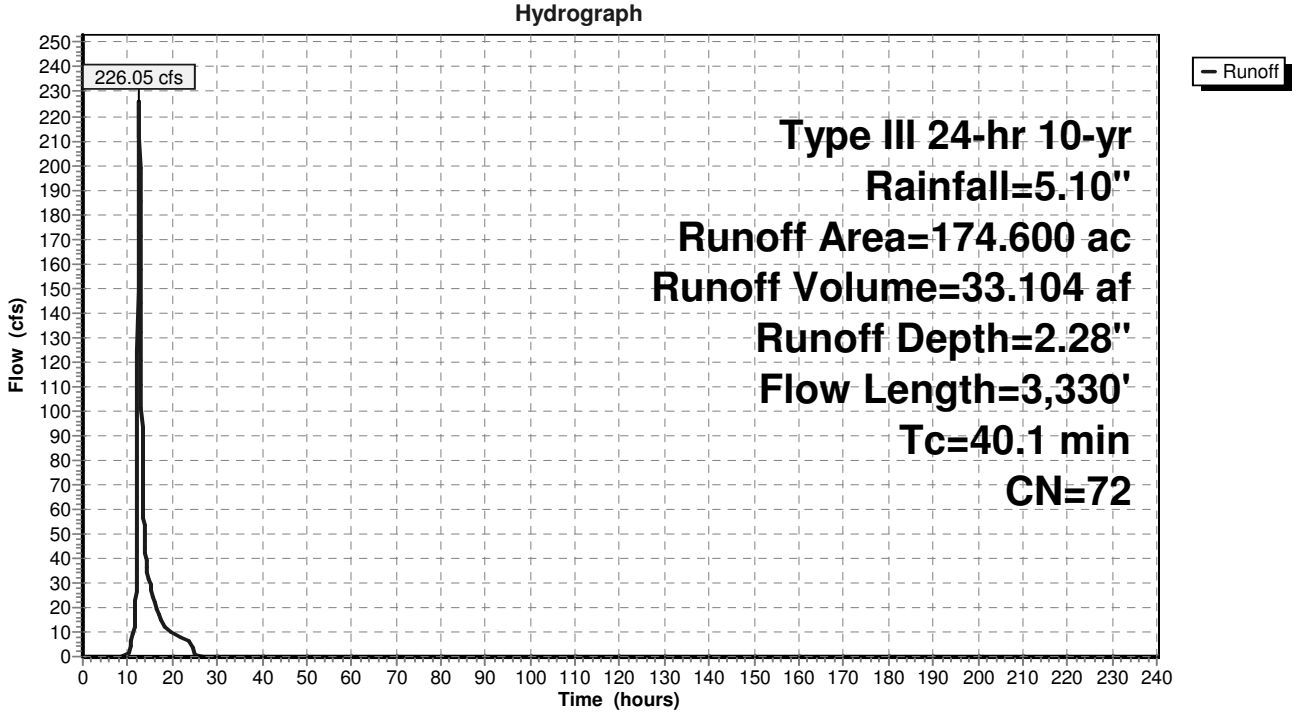
Runoff = 226.05 cfs @ 12.57 hrs, Volume= 33.104 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
4.700	94	Urban commercial, 85% imp, HSG C
3.100	87	Dirt roads, HSG C
1.600	74	>75% Grass cover, Good, HSG C
5.600	82	Row crops, SR + CR, Good, HSG C
30.200	71	Meadow, non-grazed, HSG C
14.300	77	Woods, Good, HSG D
109.000	70	Woods, Good, HSG C
6.100	60	Woods, Fair, HSG B
174.600	72	Weighted Average
170.605		Pervious Area
3.995		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	100	0.0300	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
5.6	490	0.0860	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	60	0.1300	5.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.2	290	0.1930	2.20		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	120	0.2000	3.13		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.5	1,060	0.1140	1.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	1,210	0.0590	5.77	13.27	**Channel Flow,** Area= 2.3 sf Perim= 9.1' r= 0.25' n= 0.025 Earth, clean & winding
40.1	3,330	Total			

Subcatchment 1.0S:



Summary for Subcatchment 2.0S:

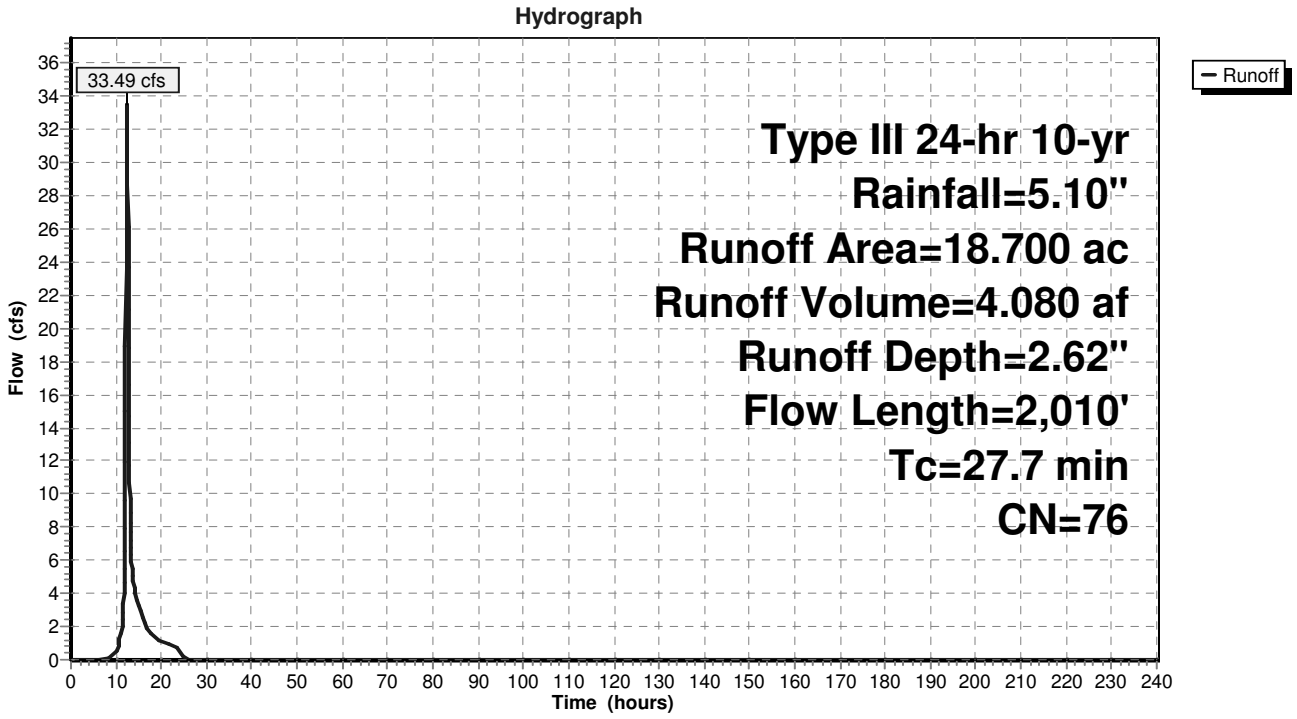
Runoff = 33.49 cfs @ 12.39 hrs, Volume= 4.080 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.100	87	Dirt roads, HSG C
9.100	82	Row crops, SR + CR, Good, HSG C
0.900	71	Meadow, non-grazed, HSG C
8.600	70	Woods, Good, HSG C
18.700	76	Weighted Average
18.700		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0300	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
11.9	1,060	0.0450	1.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	150	0.2170	2.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.1	700	0.0380	3.75	8.24	**Channel Flow,** Area= 2.2 sf Perim= 9.1' r= 0.24' n= 0.030 Earth, grassed & winding
27.7	2,010	Total			

Subcatchment 2.0S:



Summary for Subcatchment 3.0S:

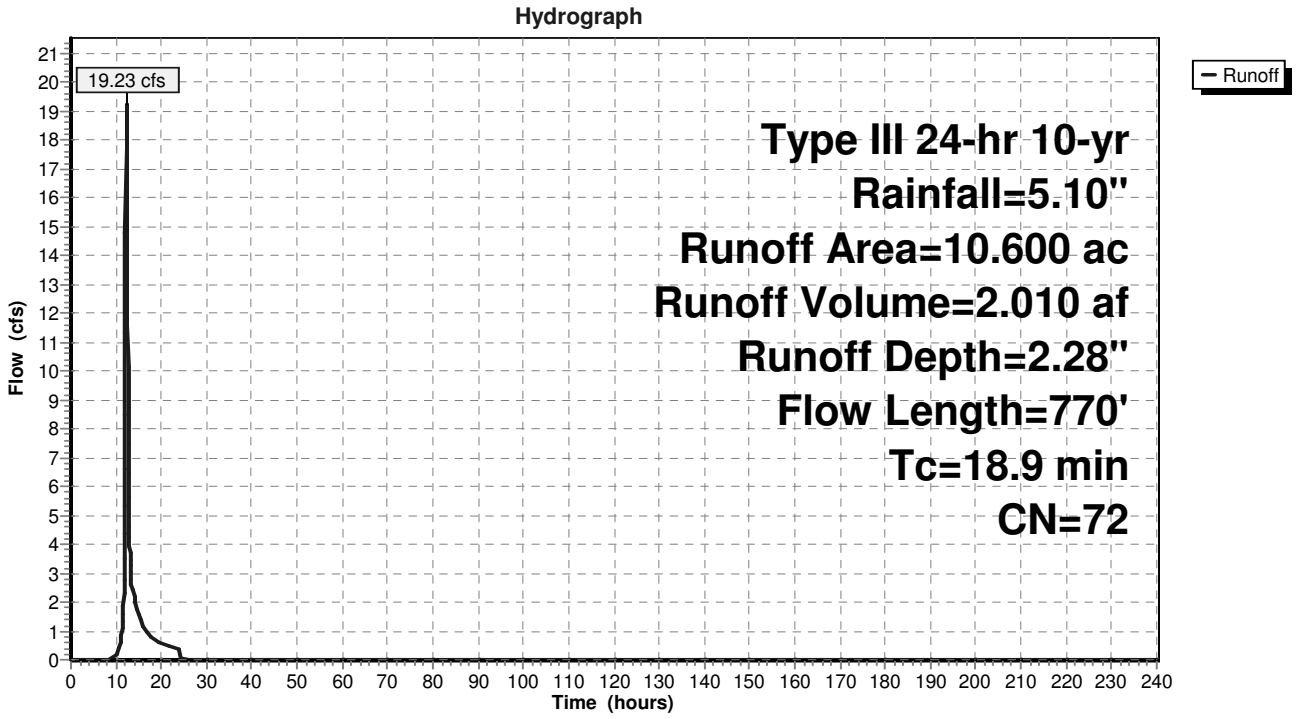
Runoff = 19.23 cfs @ 12.27 hrs, Volume= 2.010 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	87	Dirt roads, HSG C
0.100	74	>75% Grass cover, Good, HSG C
1.300	82	Row crops, SR + CR, Good, HSG C
2.800	71	Meadow, non-grazed, HSG C
6.200	70	Woods, Good, HSG C
10.600	72	Weighted Average
10.500		Pervious Area
0.100		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
4.5	550	0.0830	2.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	120	0.2830	2.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.9	770	Total			

Subcatchment 3.0S:



Summary for Subcatchment 4.0S:

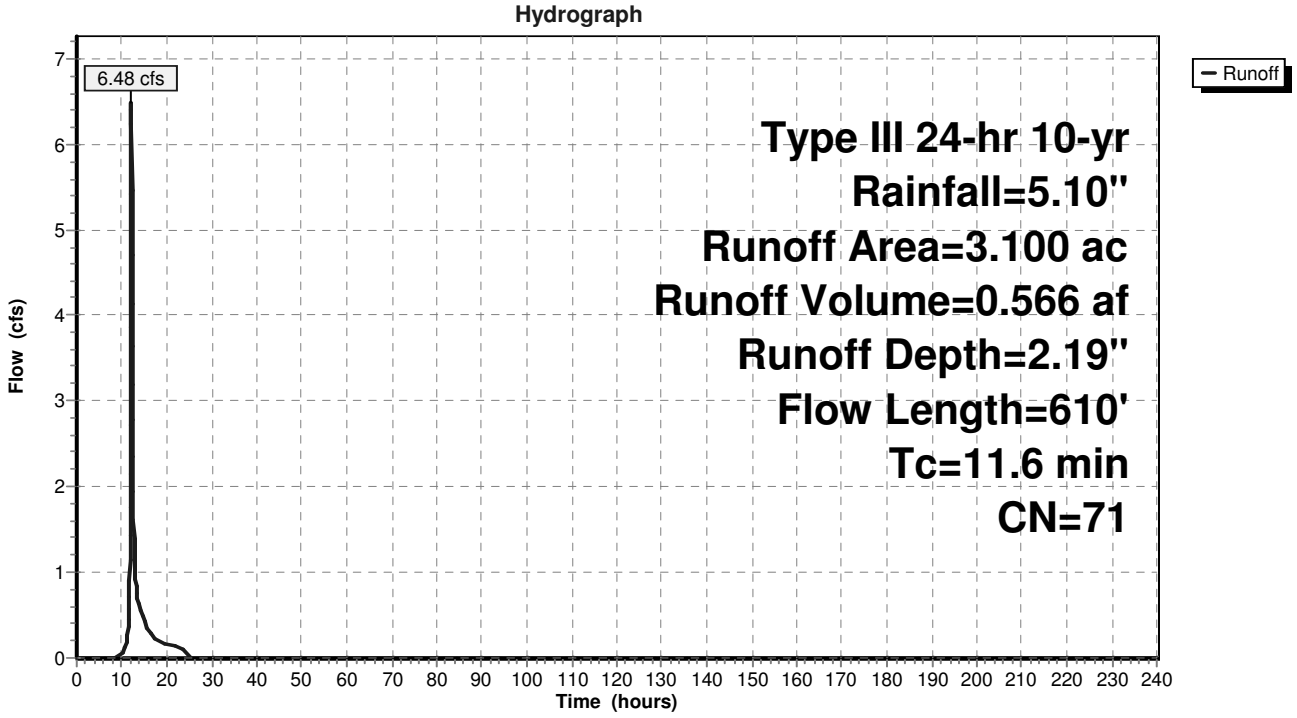
Runoff = 6.48 cfs @ 12.17 hrs, Volume= 0.566 af, Depth= 2.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.100	87	Dirt roads, HSG C
0.200	71	Meadow, non-grazed, HSG C
2.800	70	Woods, Good, HSG C
3.100	71	Weighted Average
3.100		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	40	0.0750	1.92		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.1	470	0.1490	1.93		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.6	610	Total			

Subcatchment 4.0S:



Summary for Subcatchment 5.0S:

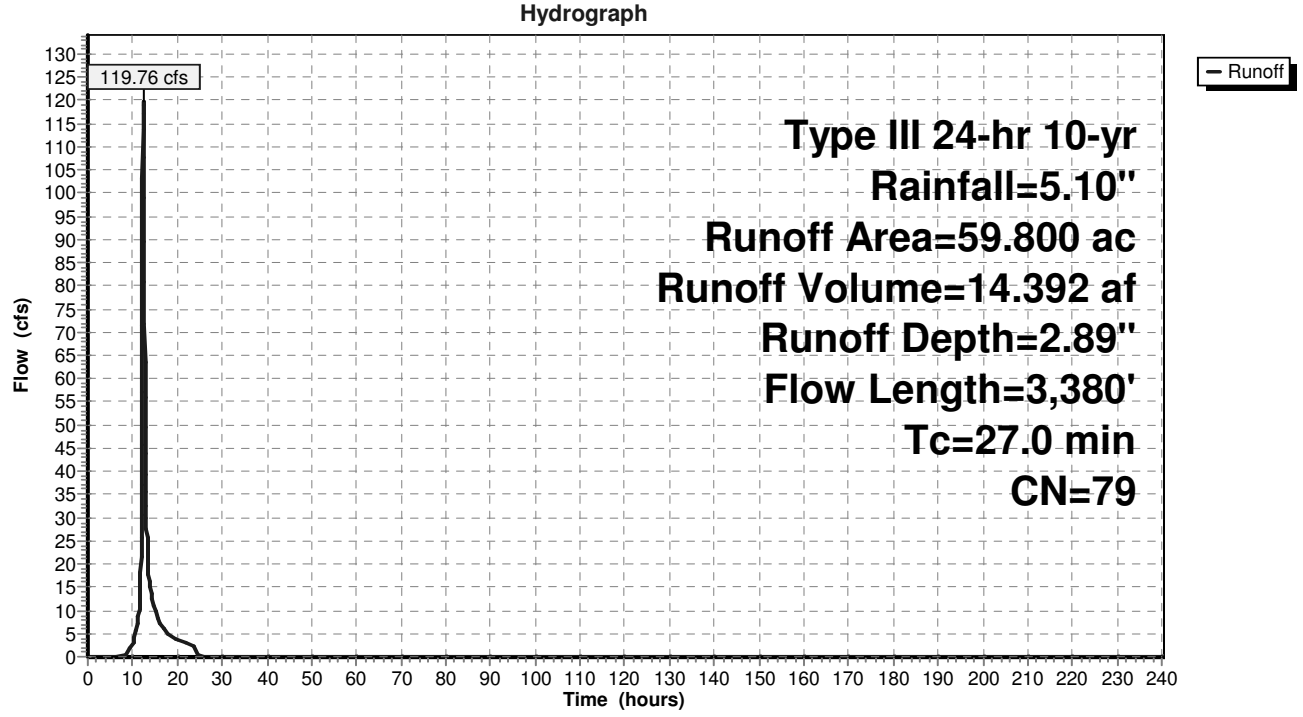
Runoff = 119.76 cfs @ 12.38 hrs, Volume= 14.392 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
8.100	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
6.800	74	>75% Grass cover, Good, HSG C
9.700	82	Row crops, SR + CR, Good, HSG C
3.500	71	Meadow, non-grazed, HSG C
23.700	70	Woods, Good, HSG C
1.200	77	Woods, Good, HSG D
1.500	98	Water Surface
5.100	94	Urban commercial, 85% imp, HSG C
59.800	79	Weighted Average
45.865		Pervious Area
13.935		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0300	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
4.2	440	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.8	240	0.0833	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.4	2,600	0.0390	5.15	10.30	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=0.50' Z= 2.0 '/' Top.W=5.00' n= 0.030 Earth, grassed & winding
27.0	3,380	Total			

Subcatchment 5.0S:



Summary for Subcatchment 6.0S:

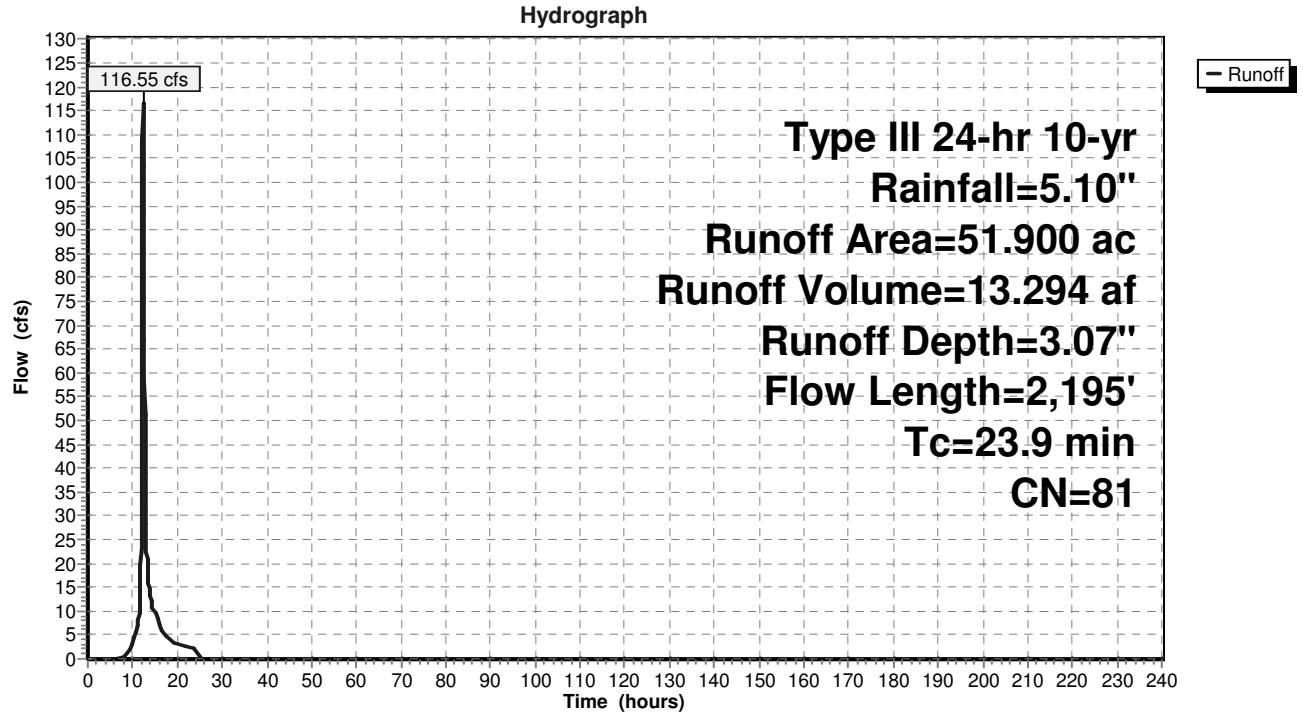
Runoff = 116.55 cfs @ 12.33 hrs, Volume= 13.294 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
1.400	87	Dirt roads, HSG C
0.500	74	>75% Grass cover, Good, HSG C
3.700	71	Meadow, non-grazed, HSG C
24.500	73	Woods, Fair, HSG C
16.700	94	Urban commercial, 85% imp, HSG C
5.100	83	1/4 acre lots, 38% imp, HSG C
51.900	81	Weighted Average
35.767		Pervious Area
16.133		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0700	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.9	160	0.0750	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	475	0.0990	2.20		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.6	140	0.0860	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	390	0.1050	2.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	930	0.0800	10.59	33.27	**Circular Channel (pipe),** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.025 Corrugated metal
23.9	2,195	Total			

Subcatchment 6.0S:



Summary for Subcatchment 7.0S:

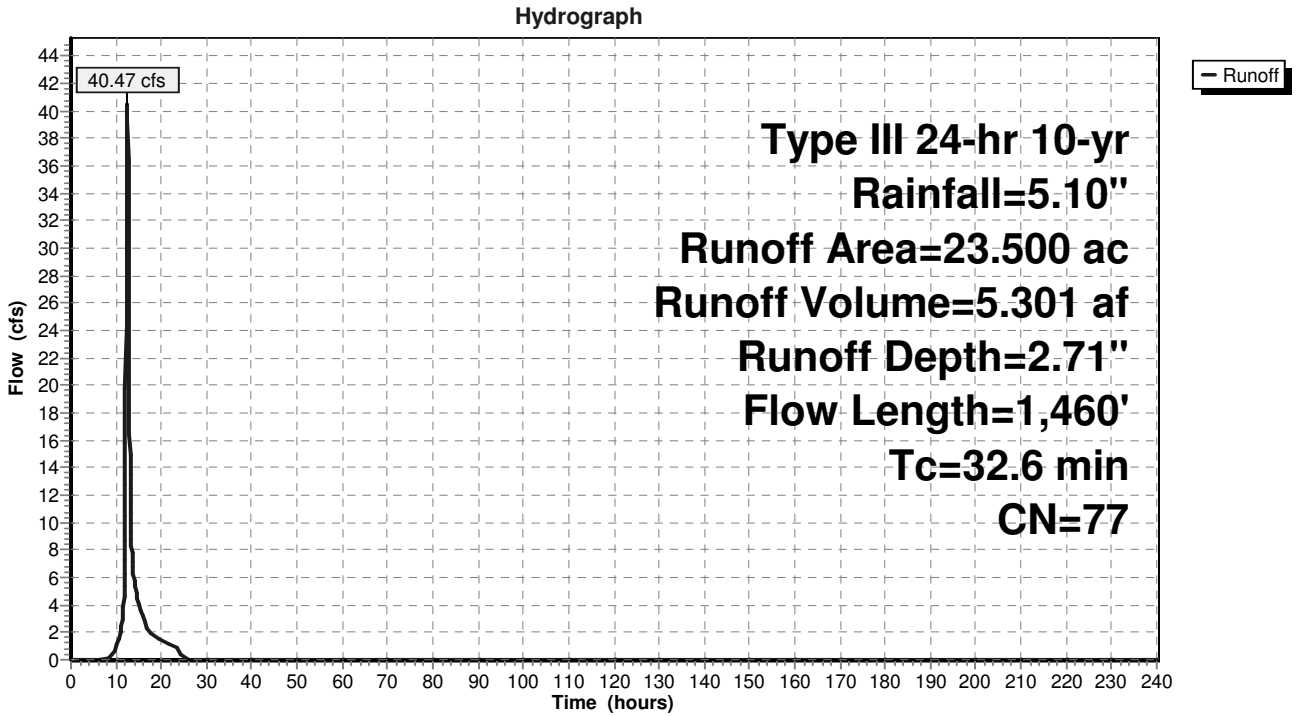
Runoff = 40.47 cfs @ 12.46 hrs, Volume= 5.301 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.900	87	Dirt roads, HSG C
3.500	71	Meadow, non-grazed, HSG C
13.200	70	Woods, Good, HSG C
5.900	94	Urban commercial, 85% imp, HSG C
23.500	77	Weighted Average
18.485		Pervious Area
5.015		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.3	90	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.6	350	0.0630	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.2	920	0.1260	2.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
32.6	1,460	Total			

Subcatchment 7.0S:



Summary for Subcatchment 1.0S:

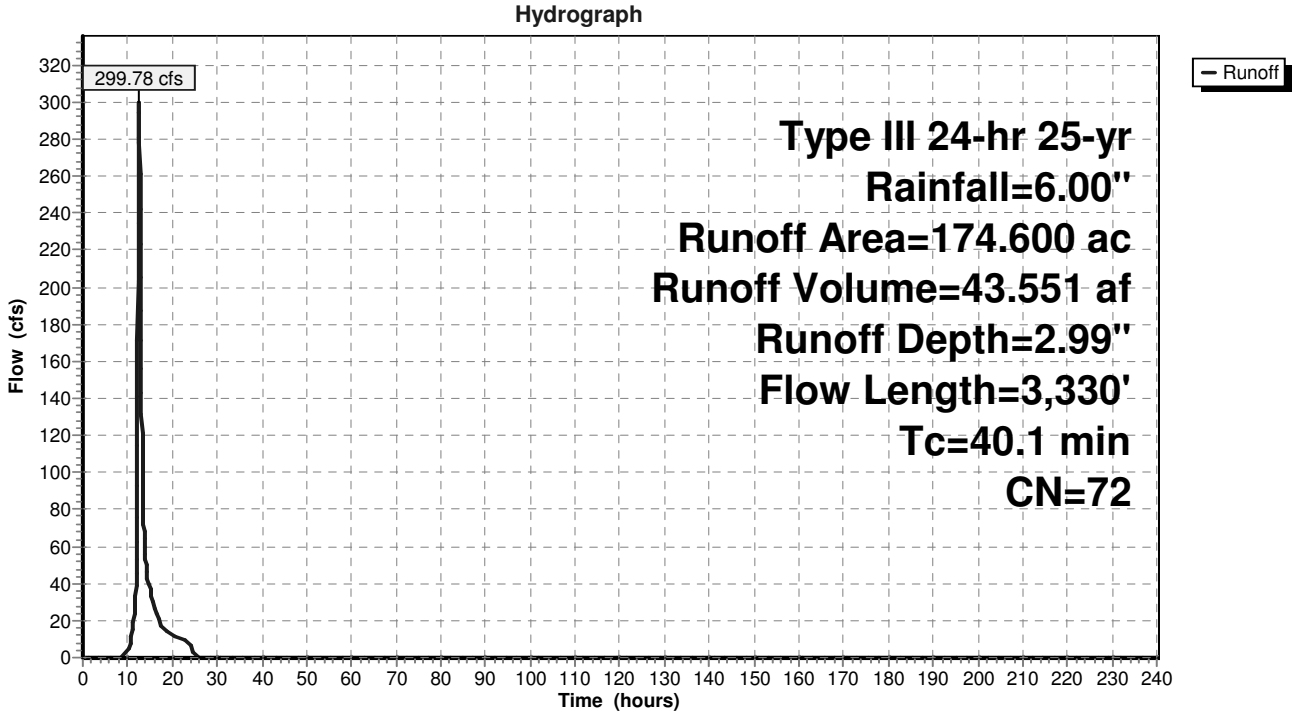
Runoff = 299.78 cfs @ 12.57 hrs, Volume= 43.551 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
4.700	94	Urban commercial, 85% imp, HSG C
3.100	87	Dirt roads, HSG C
1.600	74	>75% Grass cover, Good, HSG C
5.600	82	Row crops, SR + CR, Good, HSG C
30.200	71	Meadow, non-grazed, HSG C
14.300	77	Woods, Good, HSG D
109.000	70	Woods, Good, HSG C
6.100	60	Woods, Fair, HSG B
174.600	72	Weighted Average
170.605		Pervious Area
3.995		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	100	0.0300	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
5.6	490	0.0860	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	60	0.1300	5.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.2	290	0.1930	2.20		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	120	0.2000	3.13		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.5	1,060	0.1140	1.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	1,210	0.0590	5.77	13.27	**Channel Flow,** Area= 2.3 sf Perim= 9.1' r= 0.25' n= 0.025 Earth, clean & winding
40.1	3,330	Total			

Subcatchment 1.0S:



Summary for Subcatchment 2.0S:

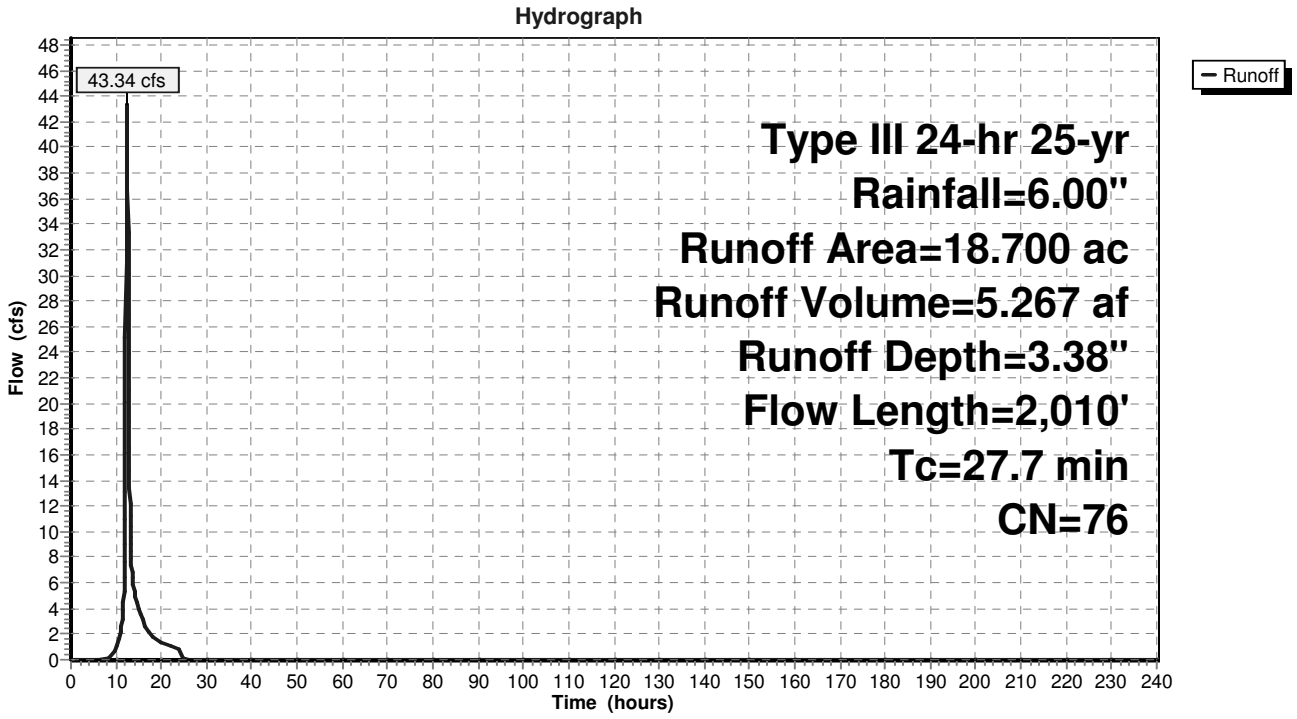
Runoff = 43.34 cfs @ 12.39 hrs, Volume= 5.267 af, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.100	87	Dirt roads, HSG C
9.100	82	Row crops, SR + CR, Good, HSG C
0.900	71	Meadow, non-grazed, HSG C
8.600	70	Woods, Good, HSG C
18.700	76	Weighted Average
18.700		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0300	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
11.9	1,060	0.0450	1.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	150	0.2170	2.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.1	700	0.0380	3.75	8.24	**Channel Flow,** Area= 2.2 sf Perim= 9.1' r= 0.24' n= 0.030 Earth, grassed & winding
27.7	2,010	Total			

Subcatchment 2.0S:



Summary for Subcatchment 3.0S:

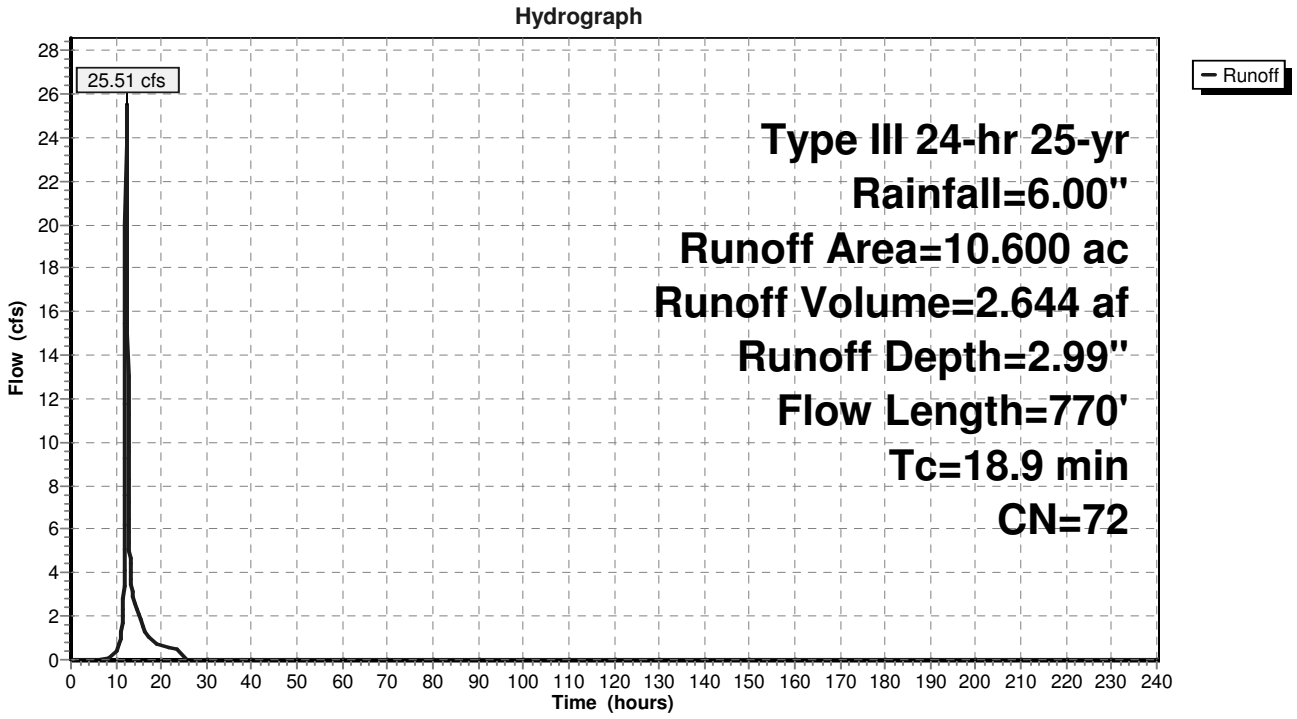
Runoff = 25.51 cfs @ 12.27 hrs, Volume= 2.644 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	87	Dirt roads, HSG C
0.100	74	>75% Grass cover, Good, HSG C
1.300	82	Row crops, SR + CR, Good, HSG C
2.800	71	Meadow, non-grazed, HSG C
6.200	70	Woods, Good, HSG C
10.600	72	Weighted Average
10.500		Pervious Area
0.100		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
4.5	550	0.0830	2.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	120	0.2830	2.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.9	770	Total			

Subcatchment 3.0S:



Summary for Subcatchment 4.0S:

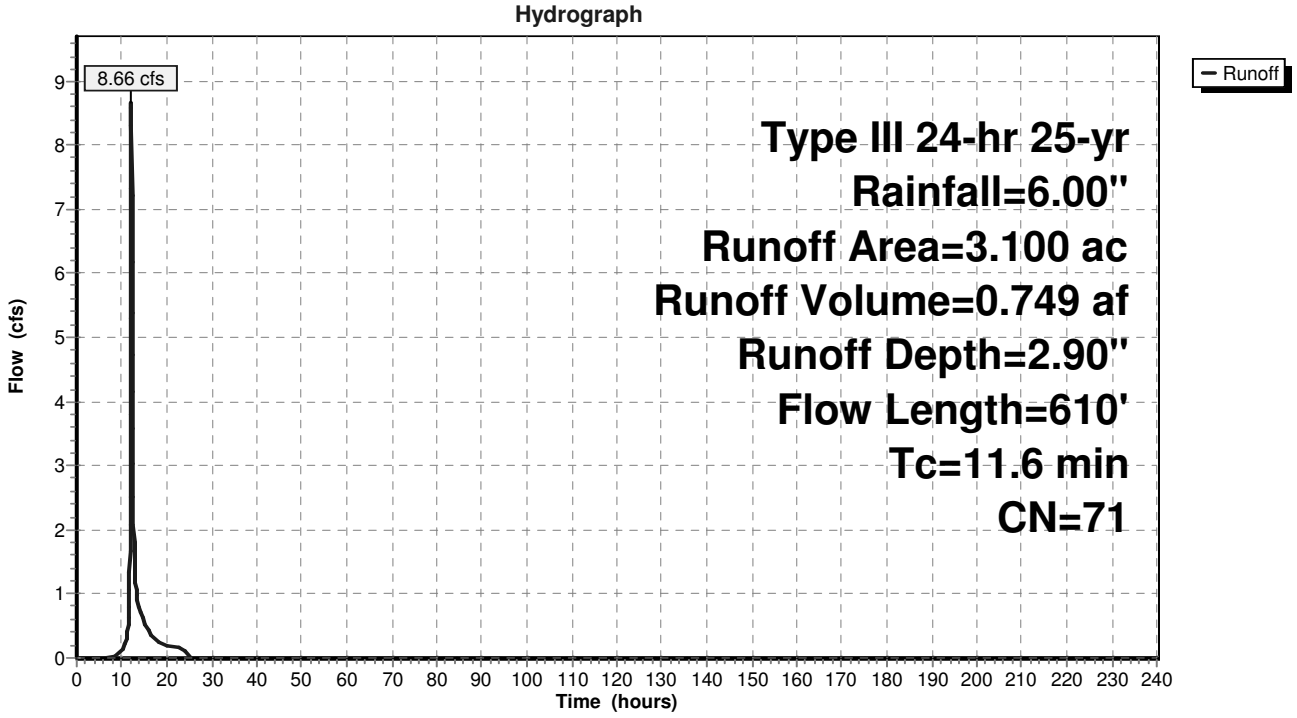
Runoff = 8.66 cfs @ 12.17 hrs, Volume= 0.749 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.100	87	Dirt roads, HSG C
0.200	71	Meadow, non-grazed, HSG C
2.800	70	Woods, Good, HSG C
3.100	71	Weighted Average
3.100		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	40	0.0750	1.92		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.1	470	0.1490	1.93		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.6	610	Total			

Subcatchment 4.0S:



Summary for Subcatchment 5.0S:

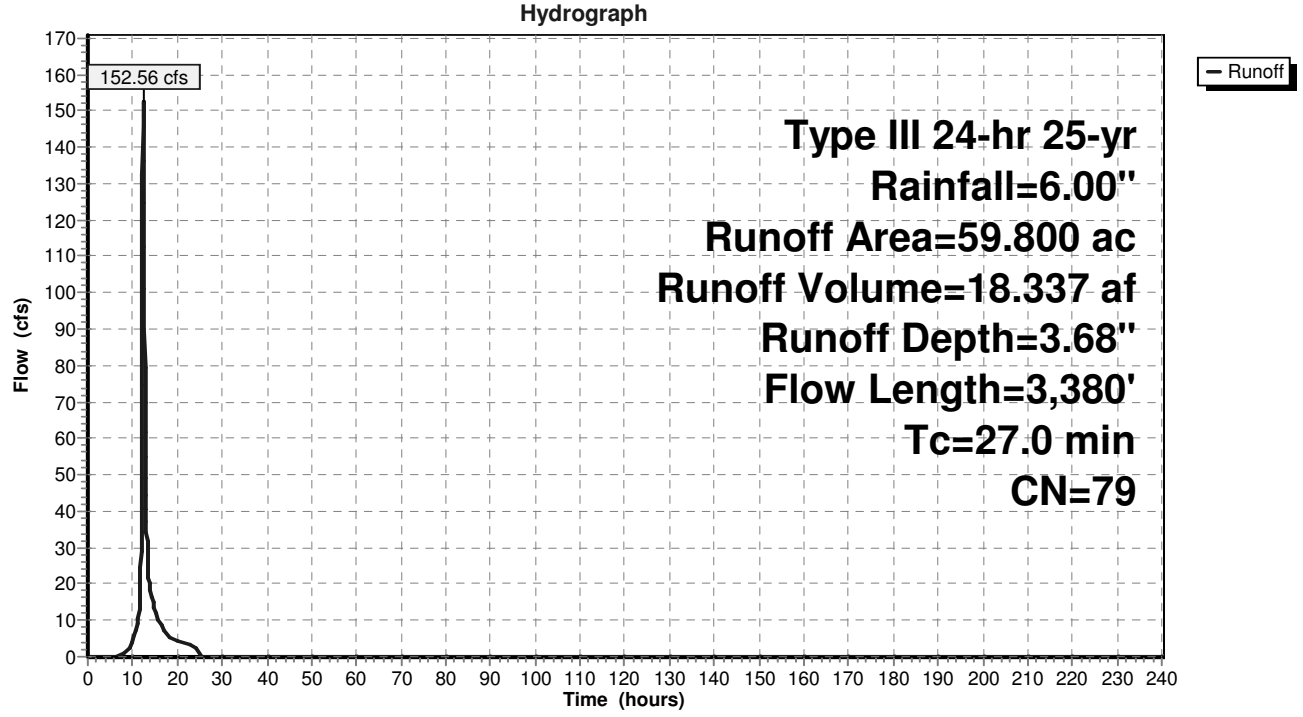
Runoff = 152.56 cfs @ 12.37 hrs, Volume= 18.337 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
8.100	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
6.800	74	>75% Grass cover, Good, HSG C
9.700	82	Row crops, SR + CR, Good, HSG C
3.500	71	Meadow, non-grazed, HSG C
23.700	70	Woods, Good, HSG C
1.200	77	Woods, Good, HSG D
1.500	98	Water Surface
5.100	94	Urban commercial, 85% imp, HSG C
59.800	79	Weighted Average
45.865		Pervious Area
13.935		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0300	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
4.2	440	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.8	240	0.0833	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.4	2,600	0.0390	5.15	10.30	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=0.50' Z= 2.0 '/' Top.W=5.00' n= 0.030 Earth, grassed & winding
27.0	3,380	Total			

Subcatchment 5.0S:



Summary for Subcatchment 6.0S:

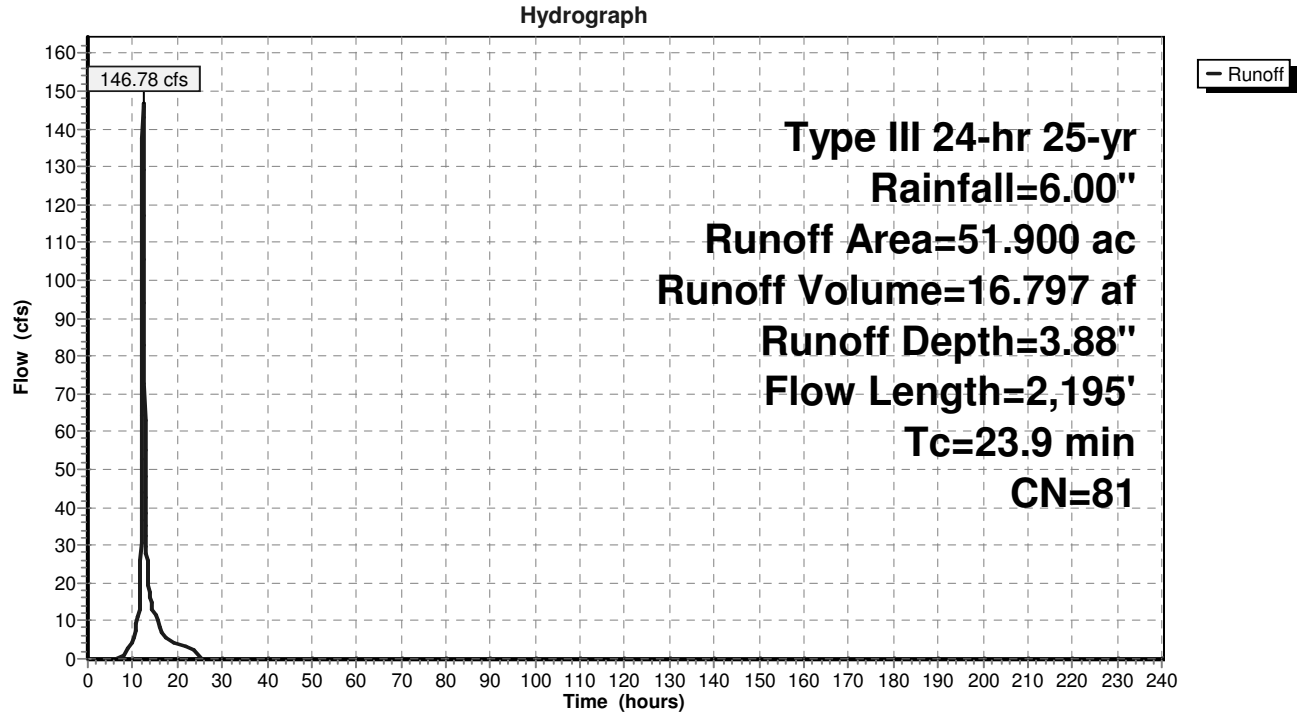
Runoff = 146.78 cfs @ 12.33 hrs, Volume= 16.797 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
1.400	87	Dirt roads, HSG C
0.500	74	>75% Grass cover, Good, HSG C
3.700	71	Meadow, non-grazed, HSG C
24.500	73	Woods, Fair, HSG C
16.700	94	Urban commercial, 85% imp, HSG C
5.100	83	1/4 acre lots, 38% imp, HSG C
51.900	81	Weighted Average
35.767		Pervious Area
16.133		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0700	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.9	160	0.0750	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	475	0.0990	2.20		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.6	140	0.0860	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	390	0.1050	2.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	930	0.0800	10.59	33.27	**Circular Channel (pipe),** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.025 Corrugated metal
23.9	2,195	Total			

Subcatchment 6.0S:



Summary for Subcatchment 7.0S:

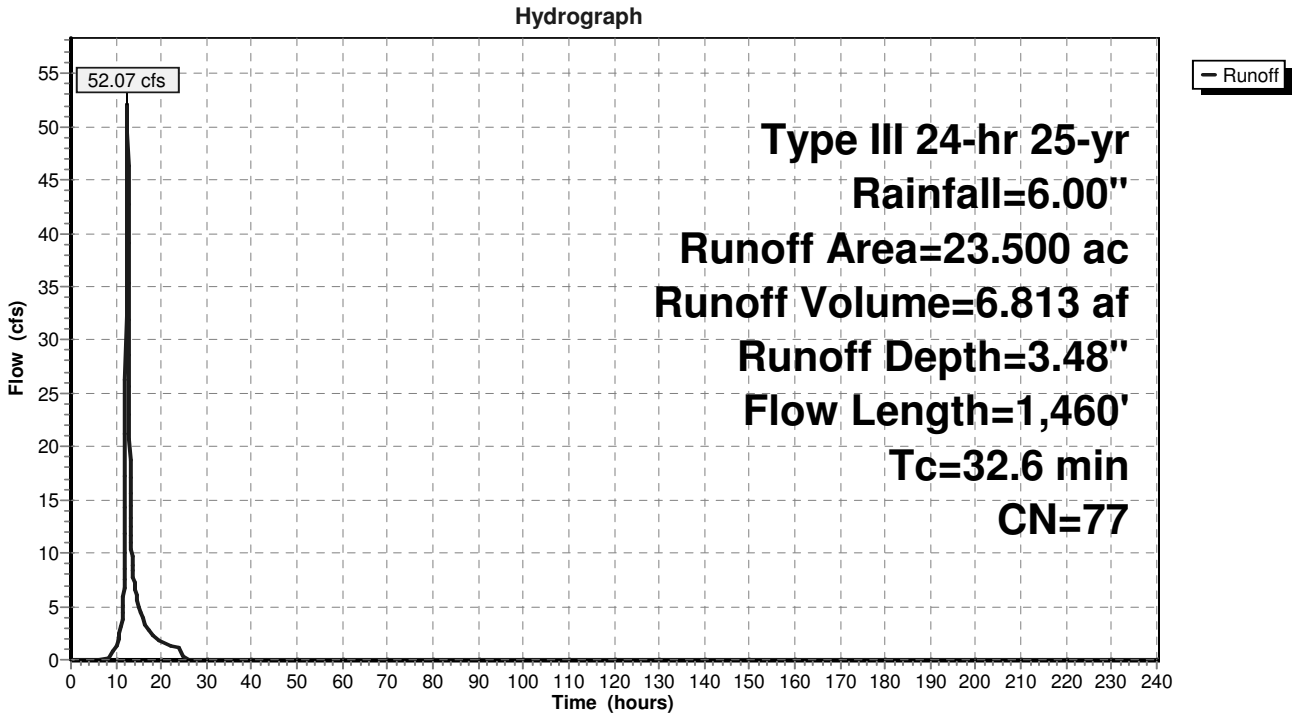
Runoff = 52.07 cfs @ 12.45 hrs, Volume= 6.813 af, Depth= 3.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.900	87	Dirt roads, HSG C
3.500	71	Meadow, non-grazed, HSG C
13.200	70	Woods, Good, HSG C
5.900	94	Urban commercial, 85% imp, HSG C
23.500	77	Weighted Average
18.485		Pervious Area
5.015		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.3	90	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.6	350	0.0630	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.2	920	0.1260	2.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
32.6	1,460	Total			

Subcatchment 7.0S:



Summary for Subcatchment 1.0S:

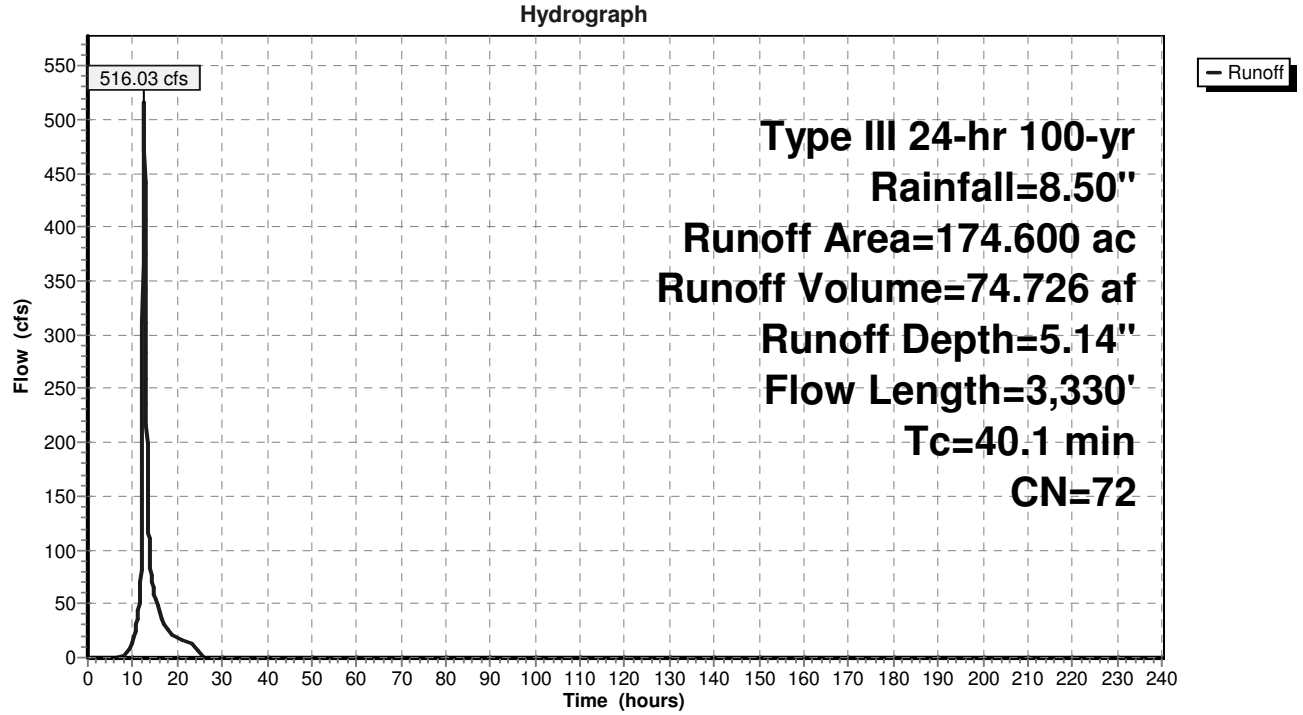
Runoff = 516.03 cfs @ 12.55 hrs, Volume= 74.726 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
4.700	94	Urban commercial, 85% imp, HSG C
3.100	87	Dirt roads, HSG C
1.600	74	>75% Grass cover, Good, HSG C
5.600	82	Row crops, SR + CR, Good, HSG C
30.200	71	Meadow, non-grazed, HSG C
14.300	77	Woods, Good, HSG D
109.000	70	Woods, Good, HSG C
6.100	60	Woods, Fair, HSG B
174.600	72	Weighted Average
170.605		Pervious Area
3.995		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	100	0.0300	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
5.6	490	0.0860	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	60	0.1300	5.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.2	290	0.1930	2.20		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	120	0.2000	3.13		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.5	1,060	0.1140	1.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	1,210	0.0590	5.77	13.27	**Channel Flow,** Area= 2.3 sf Perim= 9.1' r= 0.25' n= 0.025 Earth, clean & winding
40.1	3,330	Total			

Subcatchment 1.0S:



Summary for Subcatchment 2.0S:

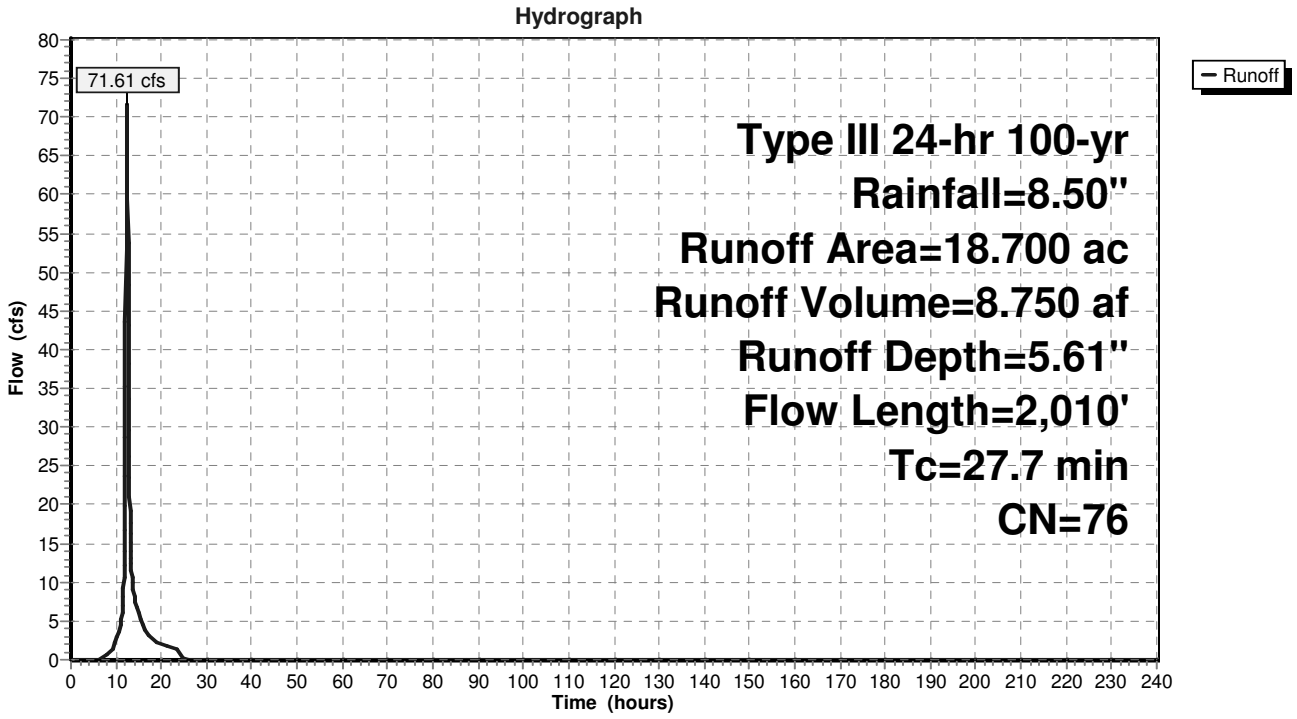
Runoff = 71.61 cfs @ 12.38 hrs, Volume= 8.750 af, Depth= 5.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.100	87	Dirt roads, HSG C
9.100	82	Row crops, SR + CR, Good, HSG C
0.900	71	Meadow, non-grazed, HSG C
8.600	70	Woods, Good, HSG C
18.700	76	Weighted Average
18.700		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0300	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
11.9	1,060	0.0450	1.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	150	0.2170	2.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.1	700	0.0380	3.75	8.24	**Channel Flow,** Area= 2.2 sf Perim= 9.1' r= 0.24' n= 0.030 Earth, grassed & winding
27.7	2,010	Total			

Subcatchment 2.0S:



Summary for Subcatchment 3.0S:

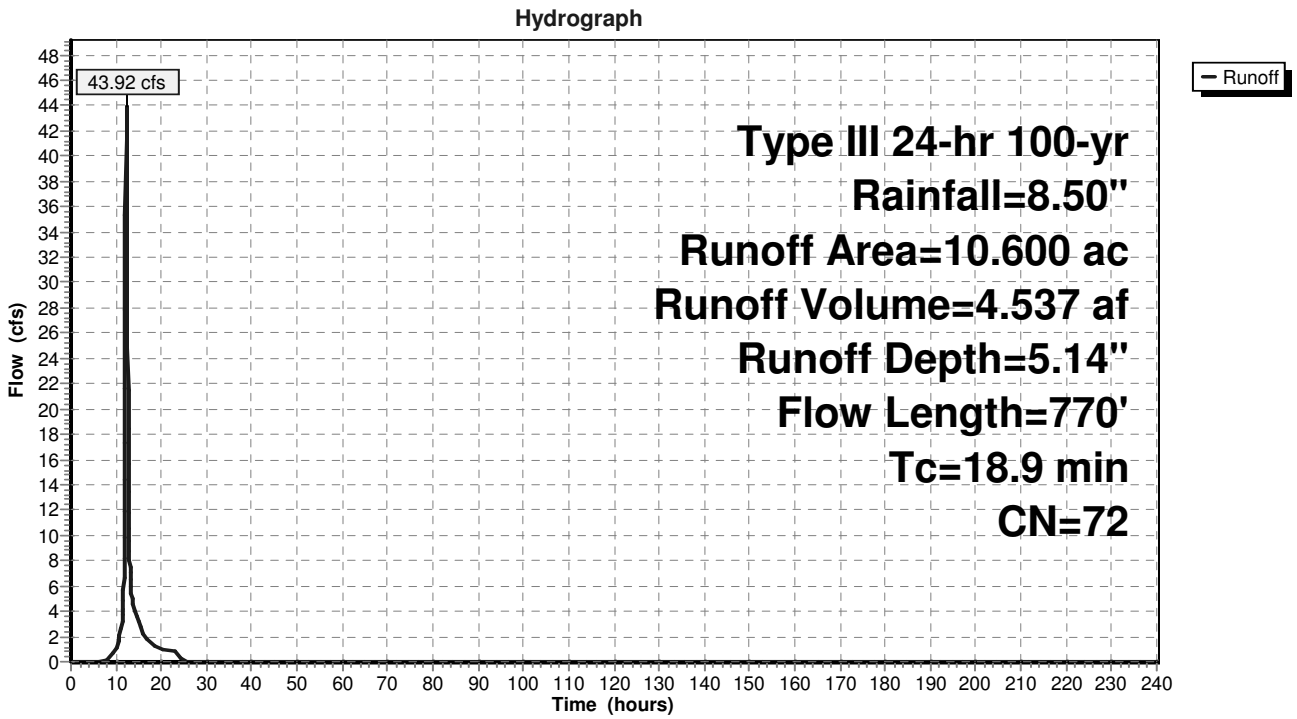
Runoff = 43.92 cfs @ 12.26 hrs, Volume= 4.537 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	87	Dirt roads, HSG C
0.100	74	>75% Grass cover, Good, HSG C
1.300	82	Row crops, SR + CR, Good, HSG C
2.800	71	Meadow, non-grazed, HSG C
6.200	70	Woods, Good, HSG C
10.600	72	Weighted Average
10.500		Pervious Area
0.100		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
4.5	550	0.0830	2.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	120	0.2830	2.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.9	770	Total			

Subcatchment 3.0S:



Summary for Subcatchment 4.0S:

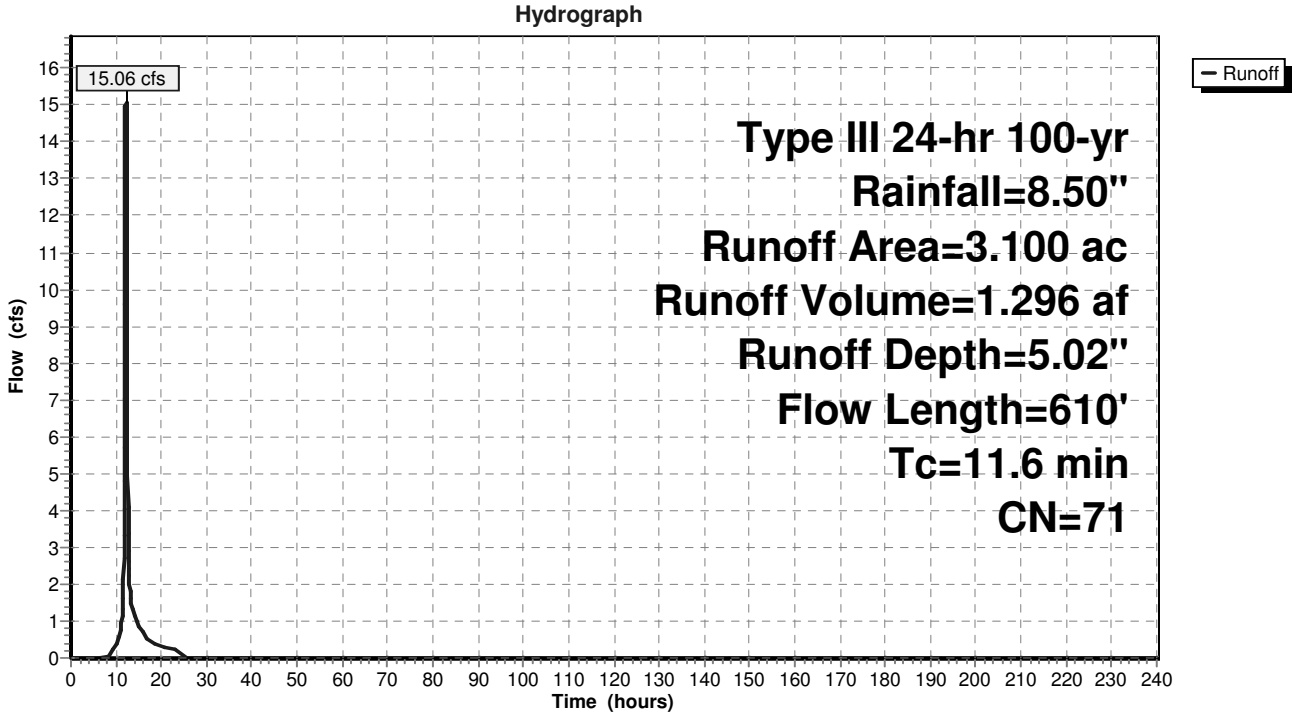
Runoff = 15.06 cfs @ 12.16 hrs, Volume= 1.296 af, Depth= 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.100	87	Dirt roads, HSG C
0.200	71	Meadow, non-grazed, HSG C
2.800	70	Woods, Good, HSG C
3.100	71	Weighted Average
3.100		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	40	0.0750	1.92		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.1	470	0.1490	1.93		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.6	610	Total			

Subcatchment 4.0S:



Summary for Subcatchment 5.0S:

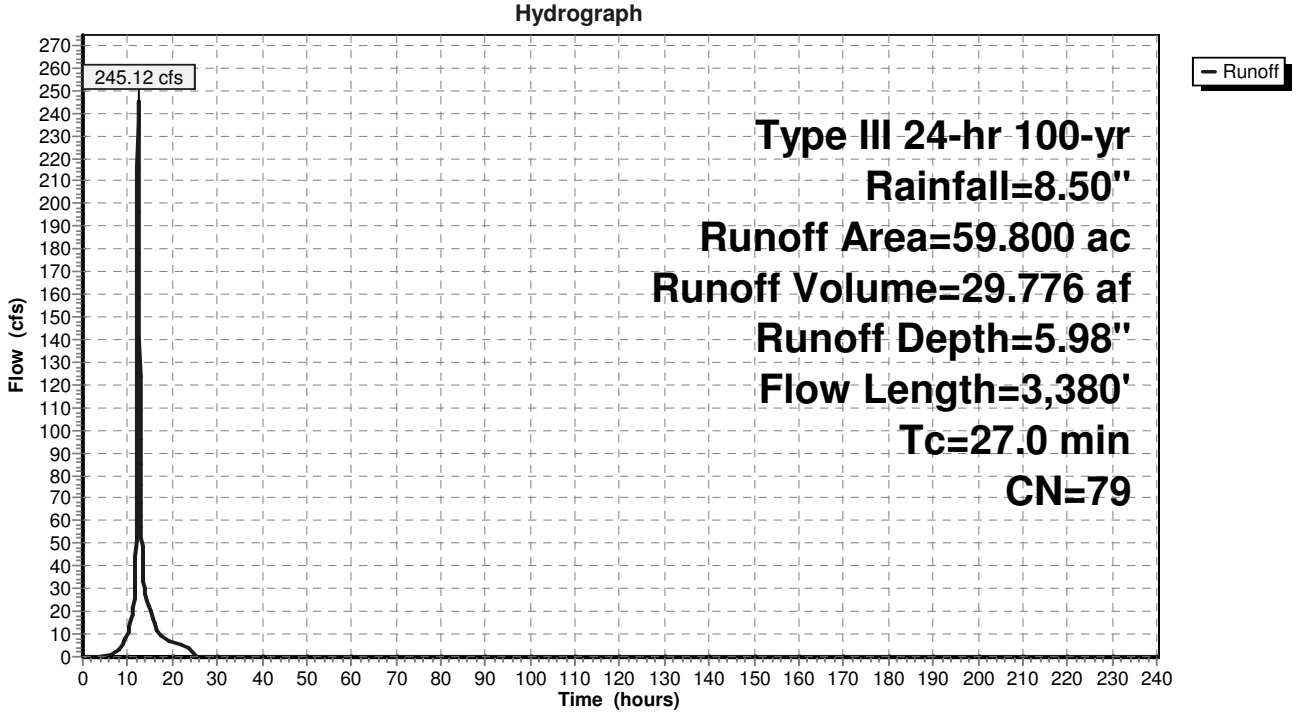
Runoff = 245.12 cfs @ 12.37 hrs, Volume= 29.776 af, Depth= 5.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
8.100	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
6.800	74	>75% Grass cover, Good, HSG C
9.700	82	Row crops, SR + CR, Good, HSG C
3.500	71	Meadow, non-grazed, HSG C
23.700	70	Woods, Good, HSG C
1.200	77	Woods, Good, HSG D
1.500	98	Water Surface
5.100	94	Urban commercial, 85% imp, HSG C
59.800	79	Weighted Average
45.865		Pervious Area
13.935		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0300	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
4.2	440	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.8	240	0.0833	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.4	2,600	0.0390	5.15	10.30	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=0.50' Z= 2.0 '/' Top.W=5.00' n= 0.030 Earth, grassed & winding
27.0	3,380	Total			

Subcatchment 5.0S:



Summary for Subcatchment 6.0S:

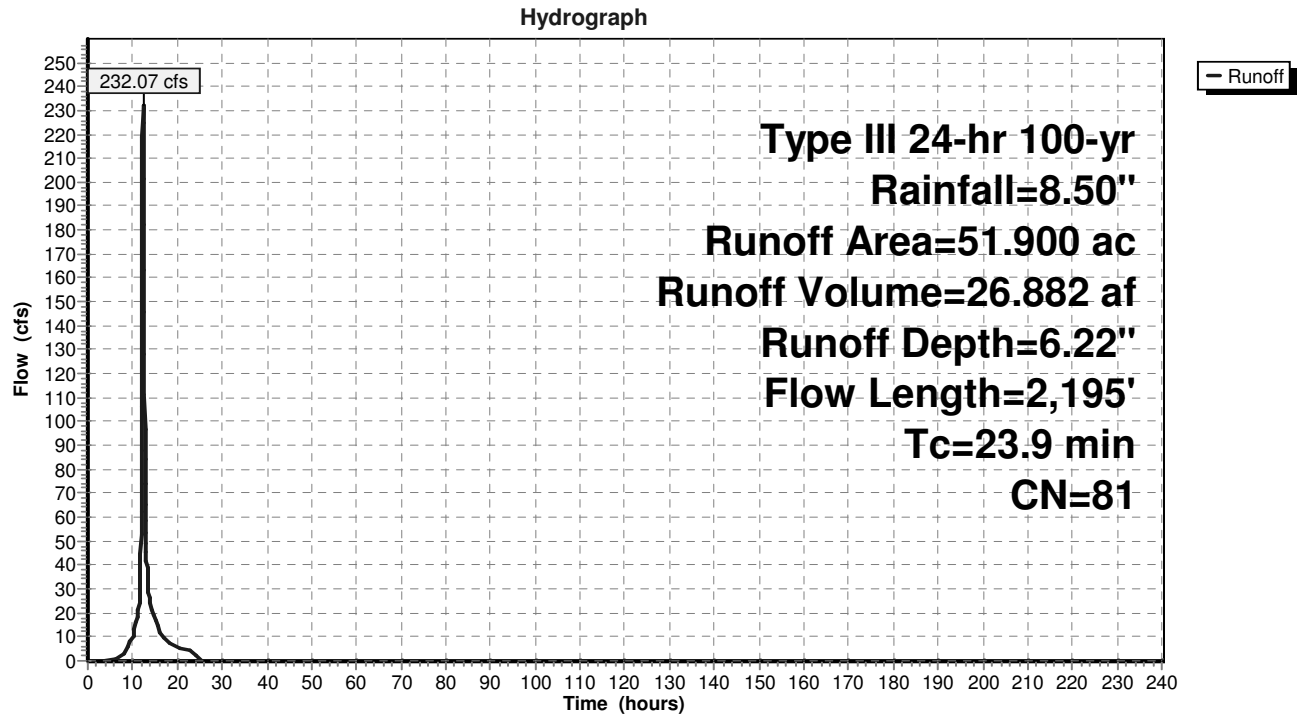
Runoff = 232.07 cfs @ 12.32 hrs, Volume= 26.882 af, Depth= 6.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
1.400	87	Dirt roads, HSG C
0.500	74	>75% Grass cover, Good, HSG C
3.700	71	Meadow, non-grazed, HSG C
24.500	73	Woods, Fair, HSG C
16.700	94	Urban commercial, 85% imp, HSG C
5.100	83	1/4 acre lots, 38% imp, HSG C
51.900	81	Weighted Average
35.767		Pervious Area
16.133		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0700	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.9	160	0.0750	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	475	0.0990	2.20		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.6	140	0.0860	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	390	0.1050	2.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	930	0.0800	10.59	33.27	**Circular Channel (pipe),** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.025 Corrugated metal
23.9	2,195	Total			

Subcatchment 6.0S:



Summary for Subcatchment 7.0S:

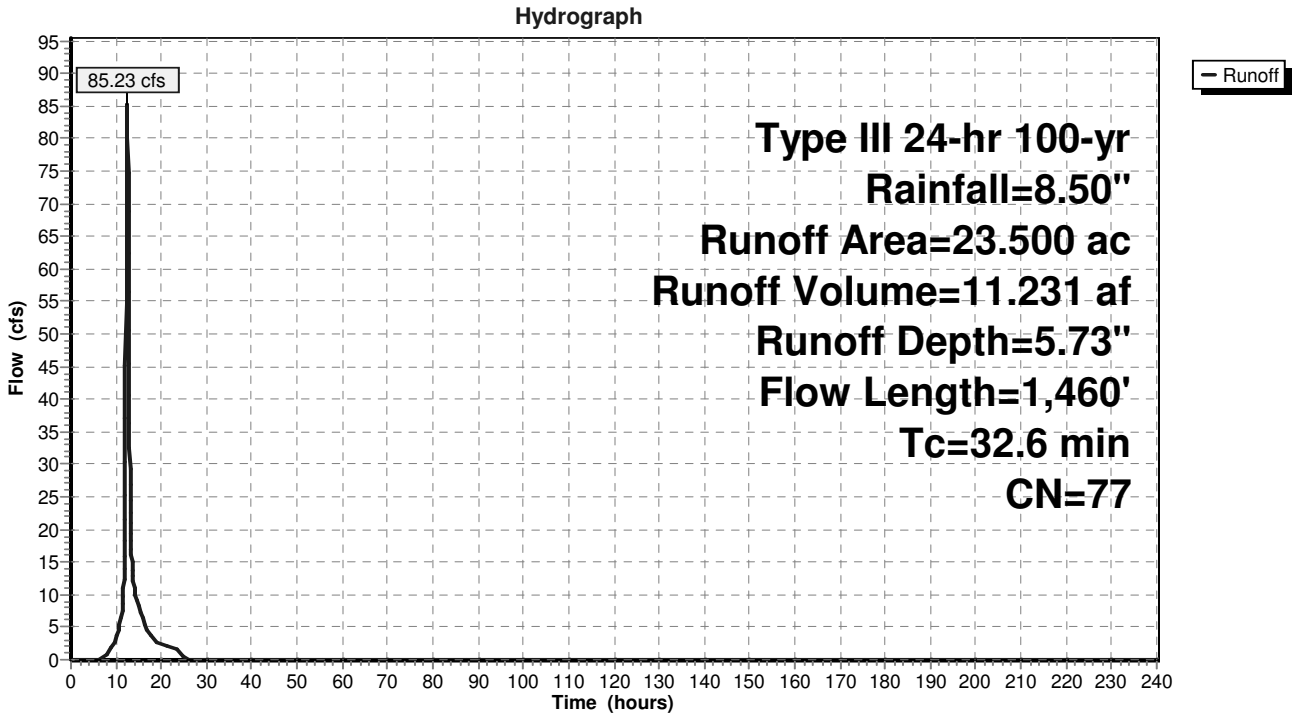
Runoff = 85.23 cfs @ 12.44 hrs, Volume= 11.231 af, Depth= 5.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-240.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.900	87	Dirt roads, HSG C
3.500	71	Meadow, non-grazed, HSG C
13.200	70	Woods, Good, HSG C
5.900	94	Urban commercial, 85% imp, HSG C
23.500	77	Weighted Average
18.485		Pervious Area
5.015		Impervious Area

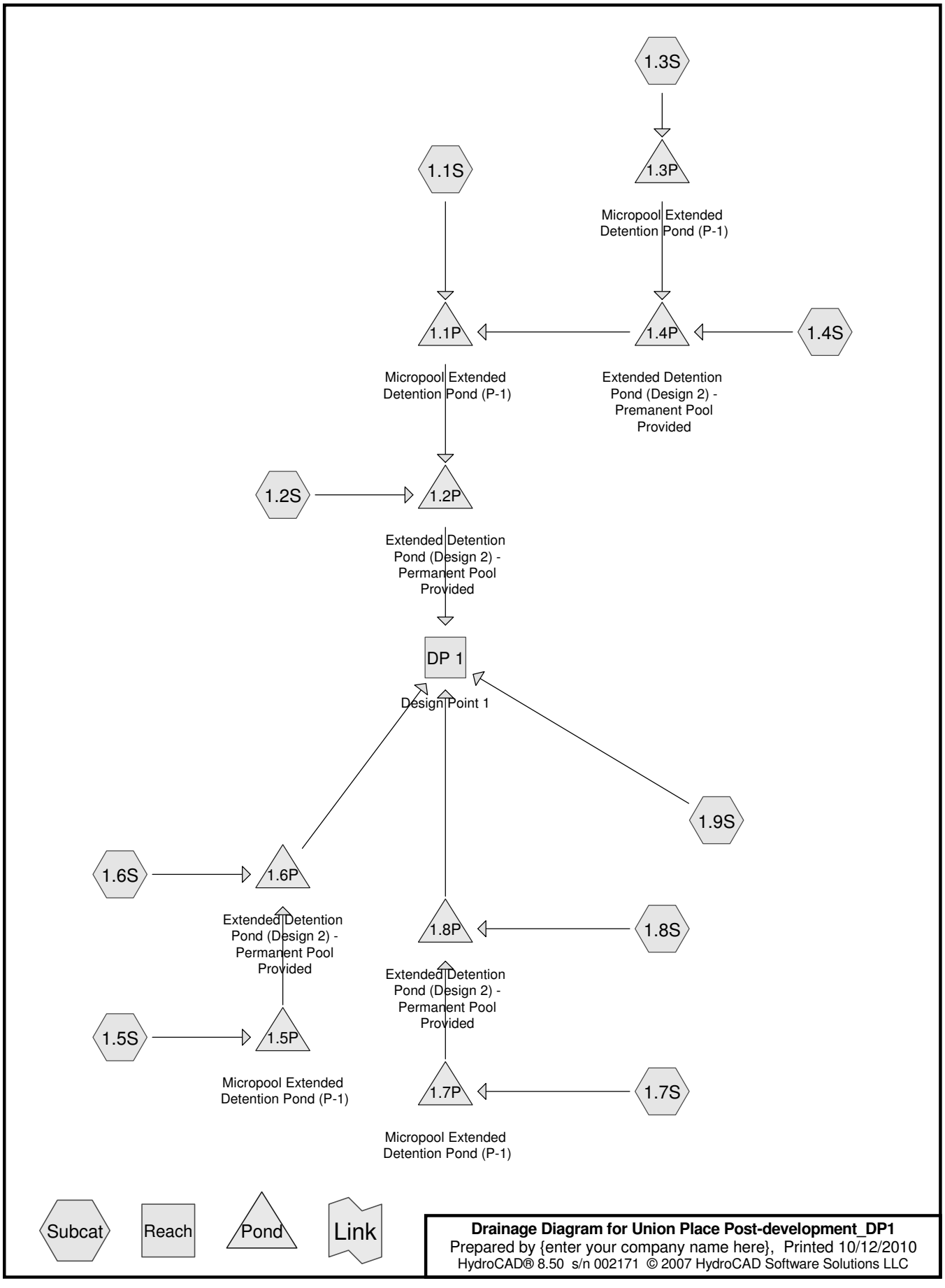
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.3	90	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.6	350	0.0630	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.2	920	0.1260	2.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
32.6	1,460	Total			

Subcatchment 7.0S:



APPENDIX B

Post-development Computer Data



Drainage Diagram for Union Place Post-development_DP1

Prepared by {enter your company name here}, Printed 10/12/2010

Summary for Subcatchment 1.1S:

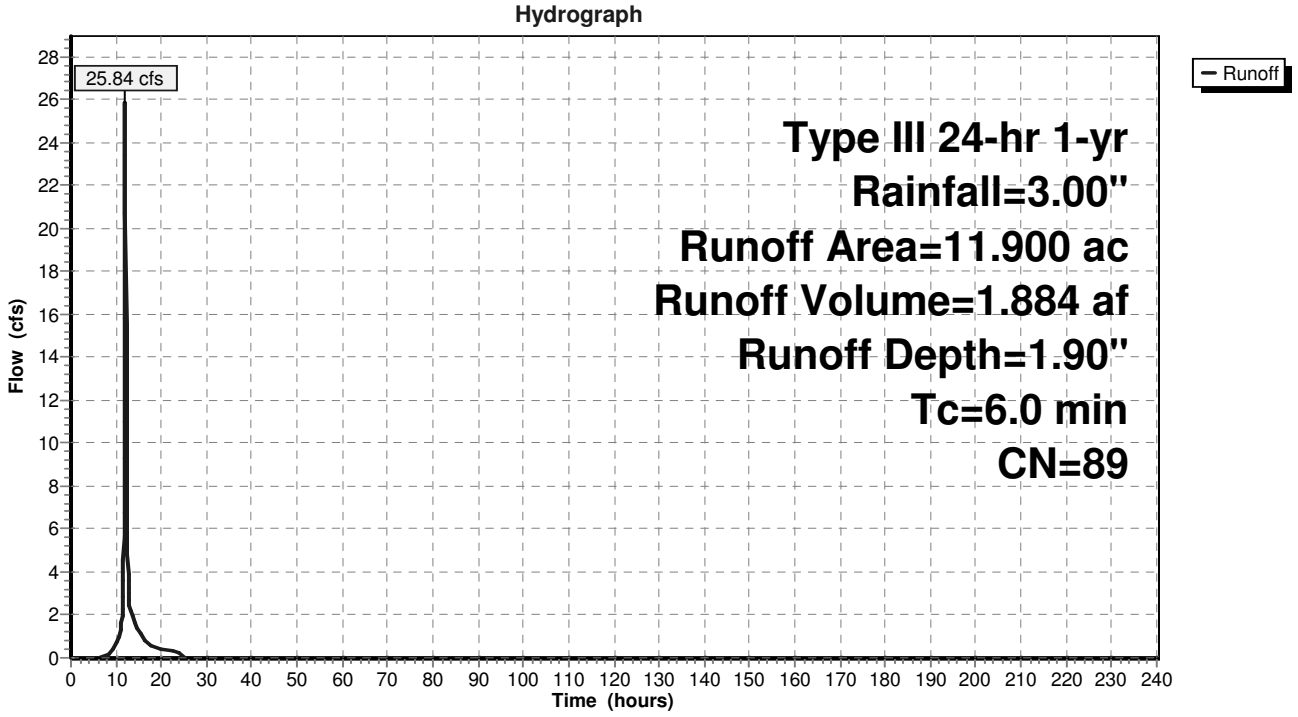
Runoff = 25.84 cfs @ 12.09 hrs, Volume= 1.884 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

	Area (ac)	CN	Description
	7.900	98	Paved parking & roofs
	1.600	74	>75% Grass cover, Good, HSG C
	1.000	71	Meadow, non-grazed, HSG C
	0.500	98	Water Surface
*	0.900	56	Pervious Pavement
	11.900	89	Weighted Average
	3.500		Pervious Area
	8.400		Impervious Area

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

Subcatchment 1.1S:



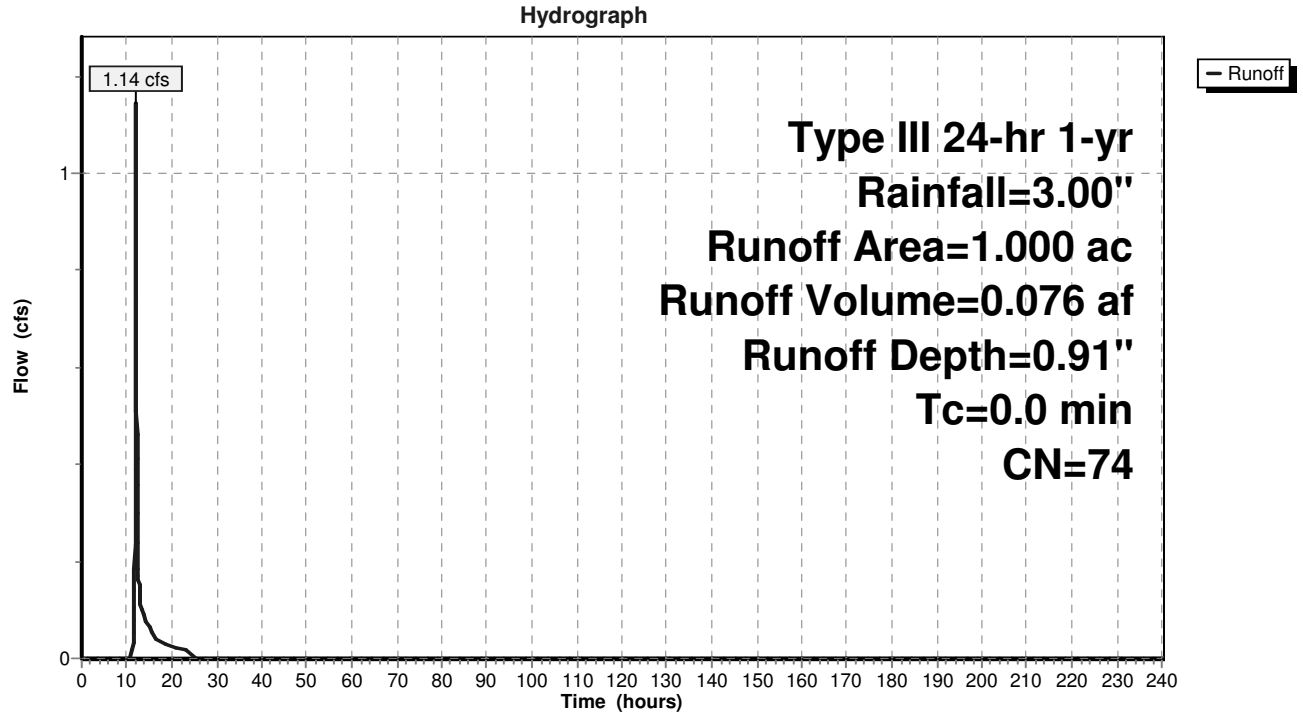
Summary for Subcatchment 1.2S:

Runoff = 1.14 cfs @ 12.01 hrs, Volume= 0.076 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.100	98	Water Surface
0.900	71	Meadow, non-grazed, HSG C
1.000	74	Weighted Average
0.900		Pervious Area
0.100		Impervious Area

Subcatchment 1.2S:



Summary for Subcatchment 1.3S:

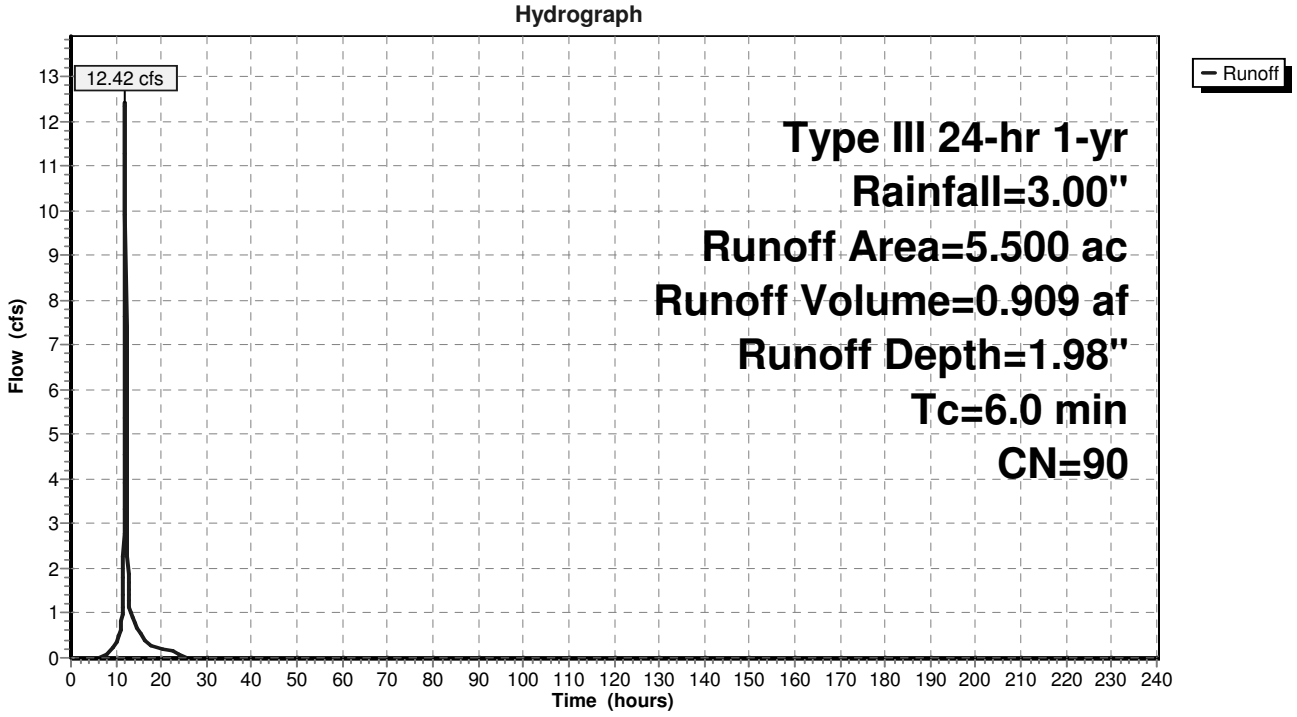
Runoff = 12.42 cfs @ 12.09 hrs, Volume= 0.909 af, Depth= 1.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

	Area (ac)	CN	Description
	3.900	98	Paved parking & roofs
	0.200	74	>75% Grass cover, Good, HSG C
	0.900	71	Meadow, non-grazed, HSG C
	0.200	98	Water Surface
*	0.300	56	Pervious Pavement
	5.500	90	Weighted Average
	1.400		Pervious Area
	4.100		Impervious Area

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

Subcatchment 1.3S:



Summary for Subcatchment 1.4S:

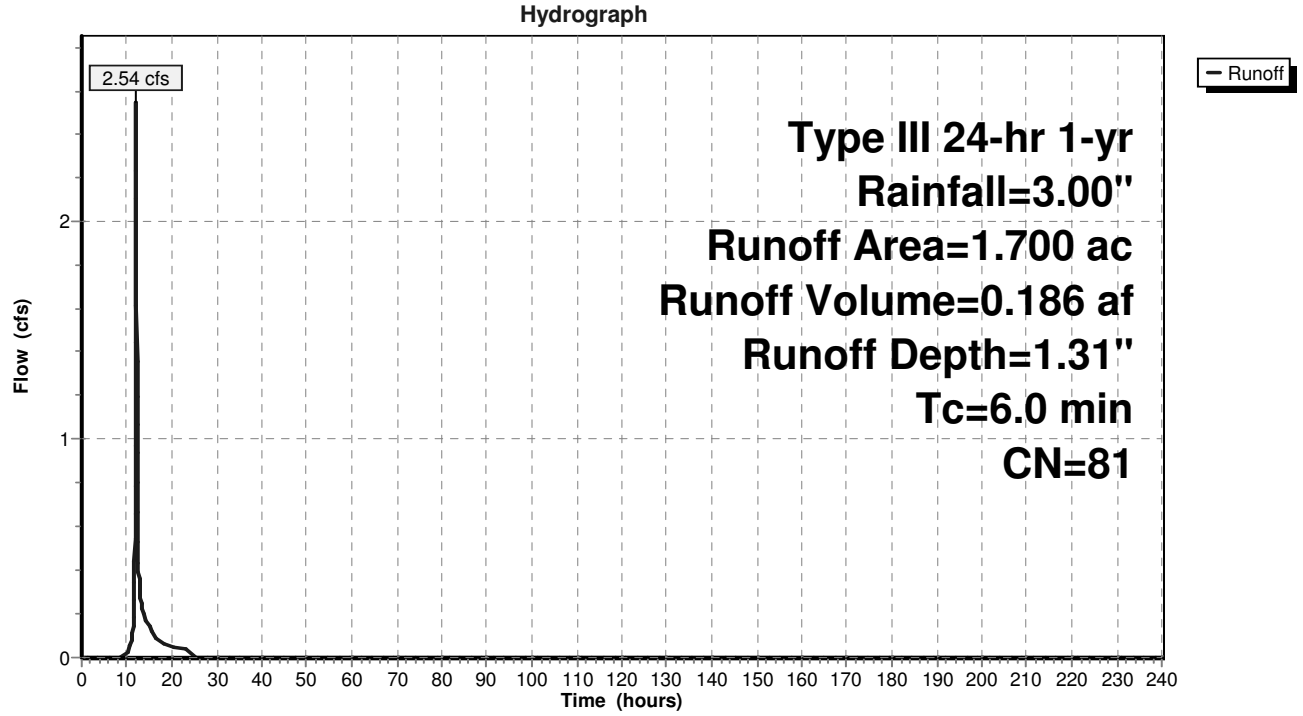
Runoff = 2.54 cfs @ 12.10 hrs, Volume= 0.186 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.900	74	>75% Grass cover, Good, HSG C
0.300	71	Meadow, non-grazed, HSG C
0.400	98	Water Surface
1.700	81	Weighted Average
1.200		Pervious Area
0.500		Impervious Area

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

Subcatchment 1.4S:



Summary for Subcatchment 1.5S:

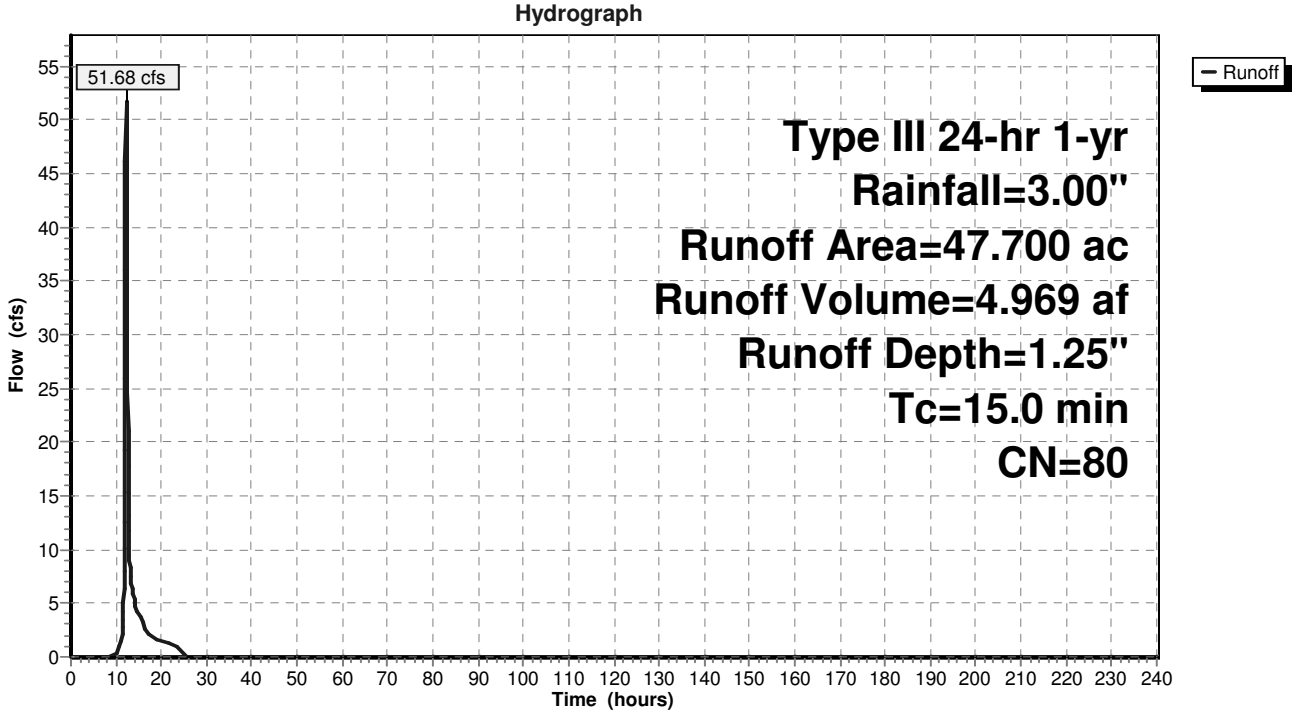
Runoff = 51.68 cfs @ 12.22 hrs, Volume= 4.969 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
12.200	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
10.500	74	>75% Grass cover, Good, HSG C
9.700	71	Meadow, non-grazed, HSG C
12.700	70	Woods, Good, HSG C
0.700	98	Water Surface
1.700	94	Urban commercial, 85% imp, HSG C
47.700	80	Weighted Average
33.355		Pervious Area
14.345		Impervious Area

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

Subcatchment 1.5S:



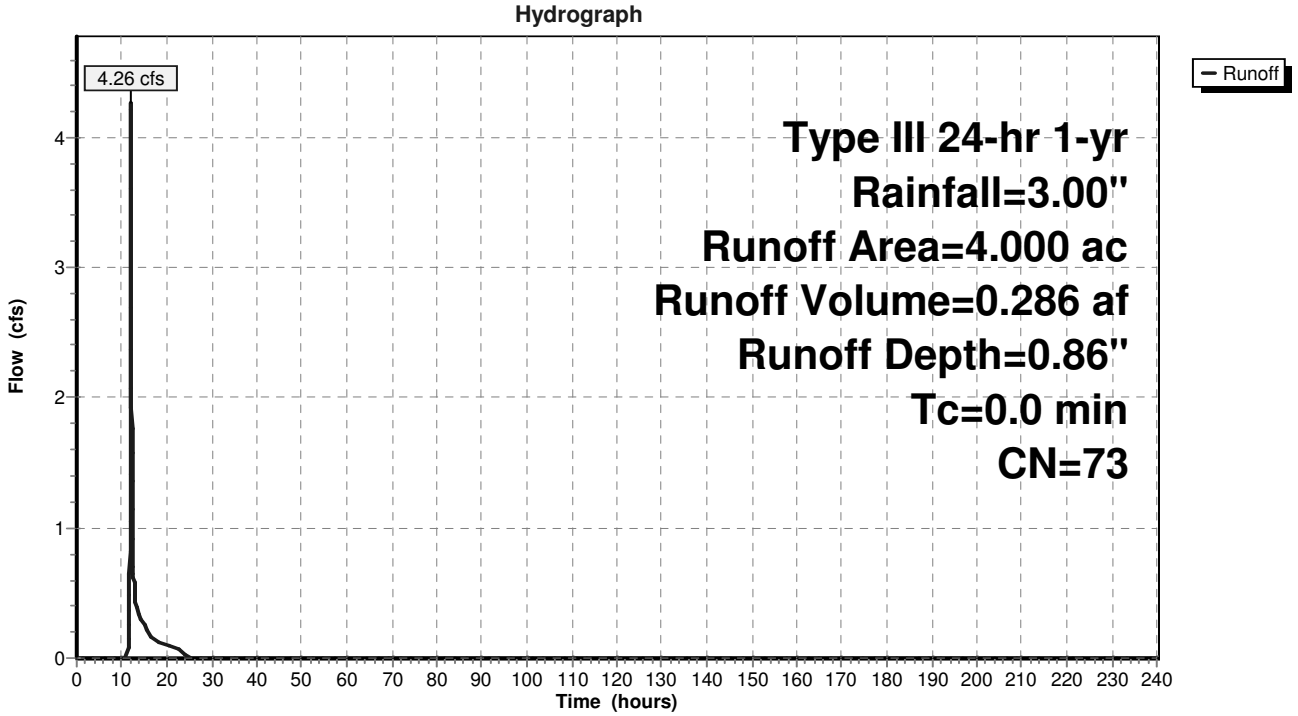
Summary for Subcatchment 1.6S:

Runoff = 4.26 cfs @ 12.01 hrs, Volume= 0.286 af, Depth= 0.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
3.200	71	Meadow, non-grazed, HSG C
0.500	73	Woods, Fair, HSG C
0.300	98	Water Surface
4.000	73	Weighted Average
3.700		Pervious Area
0.300		Impervious Area

Subcatchment 1.6S:



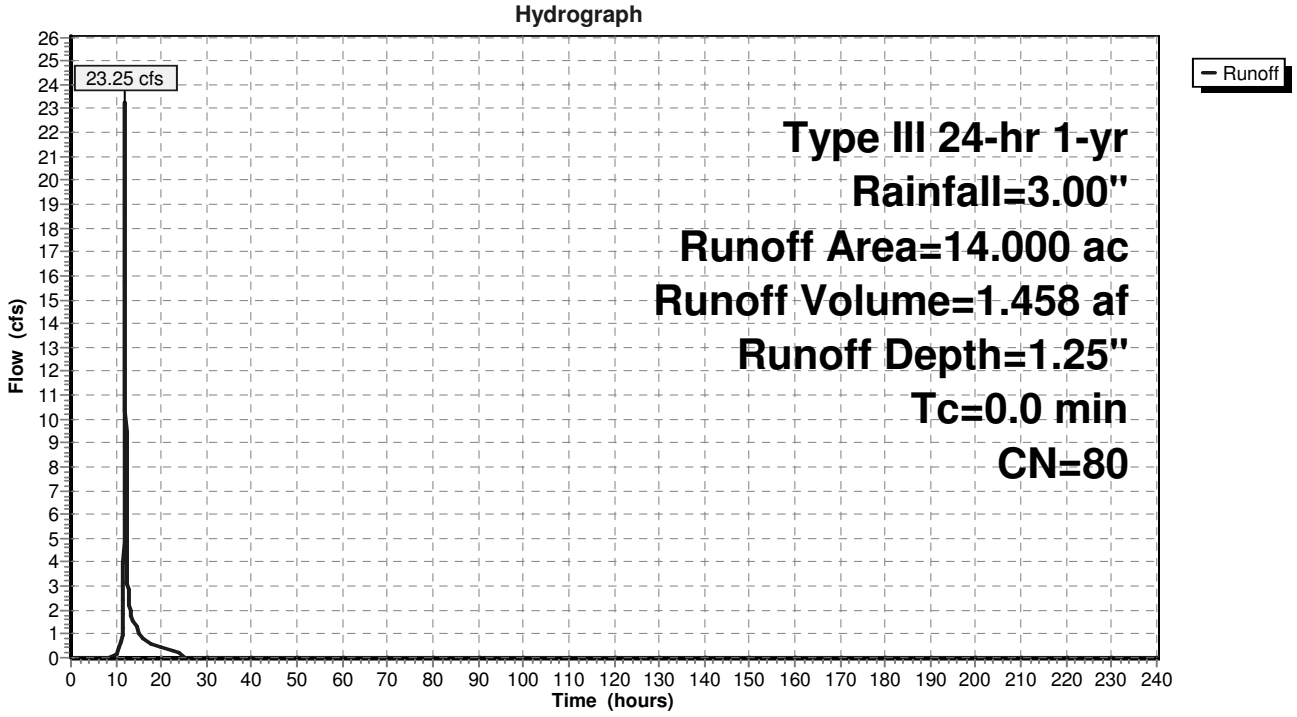
Summary for Subcatchment 1.7S:

Runoff = 23.25 cfs @ 12.01 hrs, Volume= 1.458 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
3.700	98	Paved parking & roofs
2.900	74	>75% Grass cover, Good, HSG C
3.100	71	Meadow, non-grazed, HSG C
3.900	73	Woods, Fair, HSG C
0.400	98	Water Surface
14.000	80	Weighted Average
9.900		Pervious Area
4.100		Impervious Area

Subcatchment 1.7S:



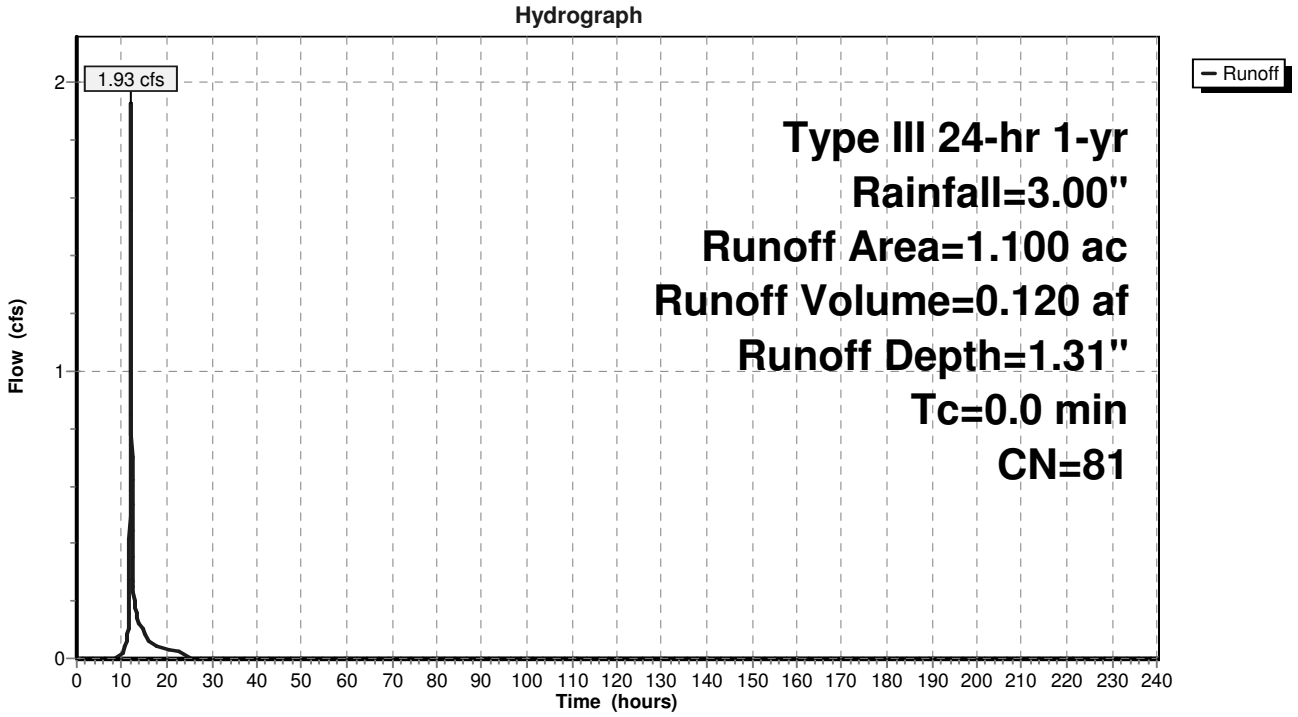
Summary for Subcatchment 1.8S:

Runoff = 1.93 cfs @ 12.01 hrs, Volume= 0.120 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.700	71	Meadow, non-grazed, HSG C
0.400	98	Water Surface
1.100	81	Weighted Average
0.700		Pervious Area
0.400		Impervious Area

Subcatchment 1.8S:



Summary for Subcatchment 1.9S:

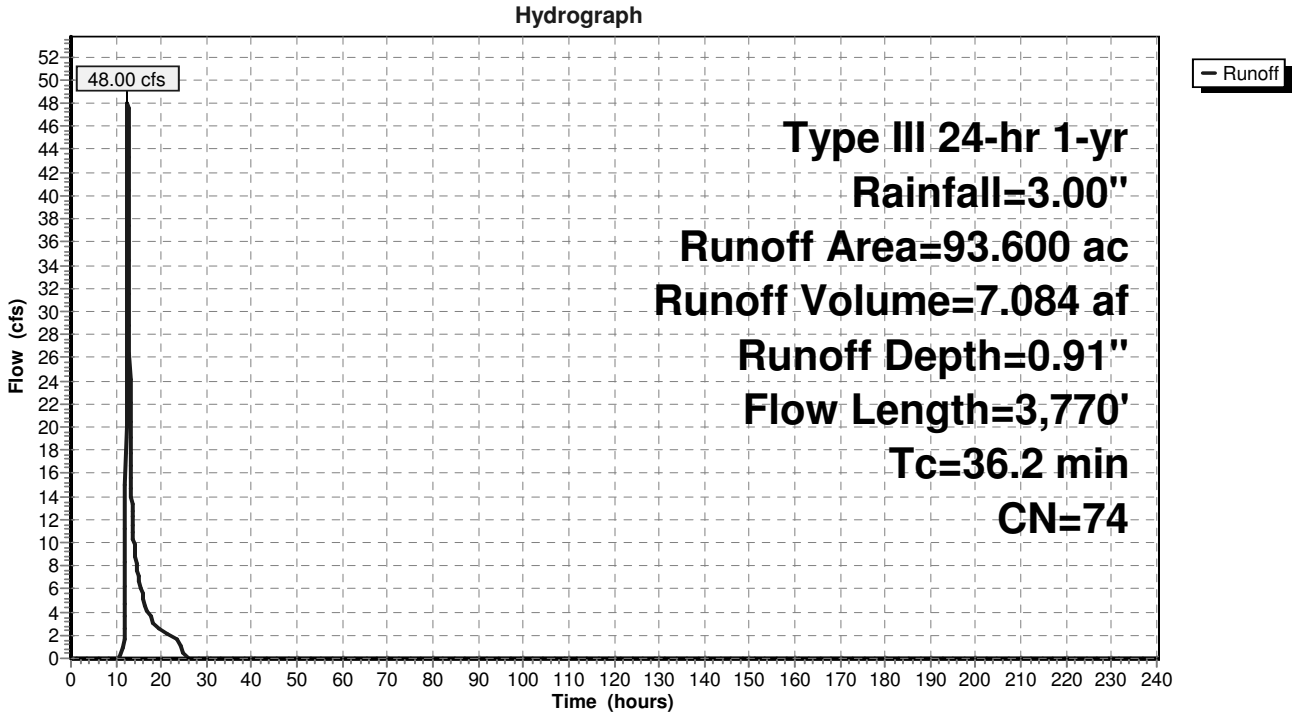
Runoff = 48.00 cfs @ 12.55 hrs, Volume= 7.084 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
1.500	87	Dirt roads, HSG C
0.500	74	>75% Grass cover, Good, HSG C
13.900	71	Meadow, non-grazed, HSG C
1.500	60	Woods, Fair, HSG B
63.300	73	Woods, Fair, HSG C
9.900	79	Woods, Fair, HSG D
3.000	94	Urban commercial, 85% imp, HSG C
93.600	74	Weighted Average
91.050		Pervious Area
2.550		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0500	0.29		**Sheet Flow,** Range n= 0.130 P2= 3.50"
9.9	1,643	0.1560	2.76		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.7	668	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.8	1,359	0.0220	2.58	1.37	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=0.25' Z= 0.5 '/' Top.W=2.25' n= 0.030 Earth, grassed & winding
36.2	3,770	Total			

Subcatchment 1.9S:

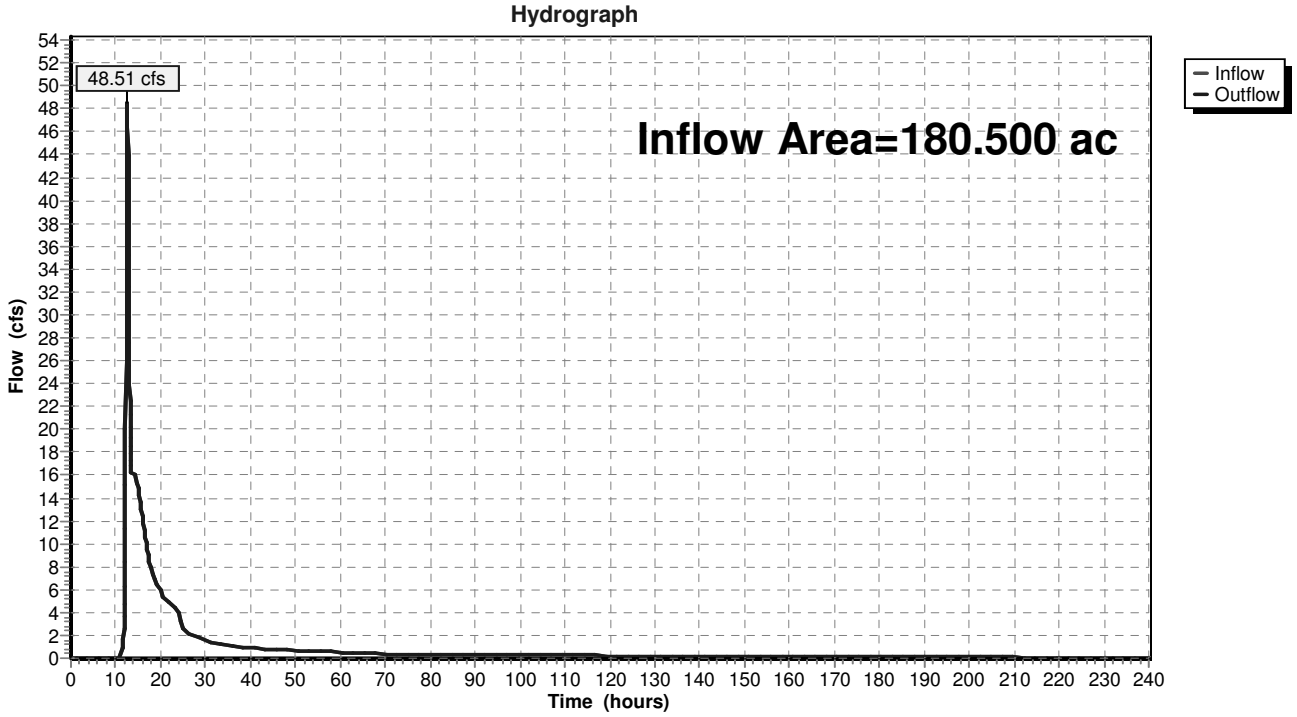


Summary for Reach DP 1: Design Point 1

Inflow Area = 180.500 ac, 19.28% Impervious, Inflow Depth > 1.14" for 1-yr event
Inflow = 48.51 cfs @ 12.55 hrs, Volume= 17.175 af
Outflow = 48.51 cfs @ 12.55 hrs, Volume= 17.175 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 1: Design Point 1



Summary for Pond 1.1P: Micropool Extended Detention Pond (P-1)

Inflow Area = 19.100 ac, 68.06% Impervious, Inflow Depth = 2.05" for 1-yr event
Inflow = 25.96 cfs @ 12.09 hrs, Volume= 3.268 af
Outflow = 5.07 cfs @ 12.55 hrs, Volume= 3.250 af, Atten= 80%, Lag= 27.7 min
Primary = 5.07 cfs @ 12.55 hrs, Volume= 3.250 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 613.00' Surf.Area= 19,800 sf Storage= 81,050 cf
Peak Elev= 614.98' @ 12.55 hrs Surf.Area= 24,289 sf Storage= 124,419 cf (43,369 cf above start)
Flood Elev= 617.00' Surf.Area= 29,400 sf Storage= 178,700 cf (97,650 cf above start)

Plug-Flow detention time= 6,372.2 min calculated for 1.390 af (43% of inflow)
Center-of-Mass det. time= 1,726.8 min (3,700.7 - 1,973.9)

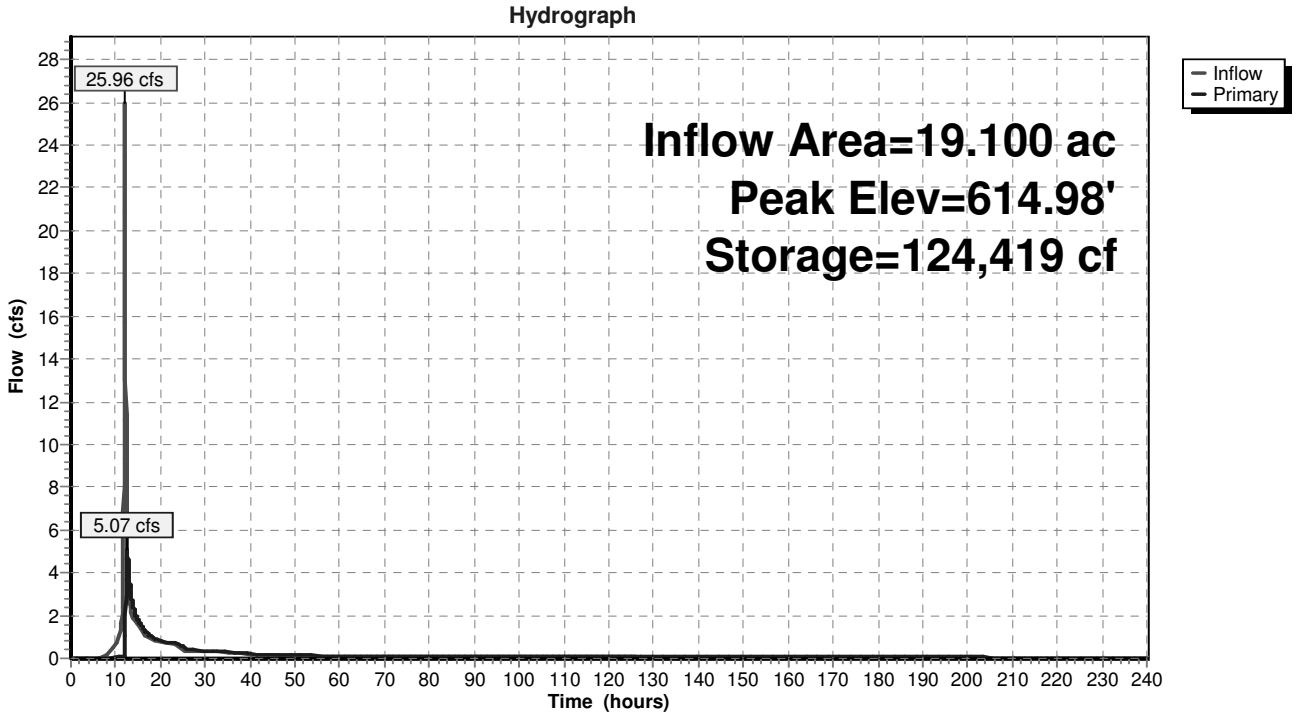
Volume	Invert	Avail.Storage	Storage Description
#1	605.00'	209,400 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
605.00	5,000	0	0
606.00	6,000	5,500	5,500
608.00	8,100	14,100	19,600
610.00	10,400	18,500	38,100
612.00	15,100	25,500	63,600
613.00	19,800	17,450	81,050
614.00	21,900	20,850	101,900
616.00	26,800	48,700	150,600
618.00	32,000	58,800	209,400

Device	Routing	Invert	Outlet Devices
#1	Primary	613.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	614.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.02 cfs @ 12.55 hrs HW=614.97' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.14 cfs @ 6.62 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 4.88 cfs @ 2.05 fps)

Pond 1.1P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 20.100 ac, 65.17% Impervious, Inflow Depth > 1.99" for 1-yr event
Inflow = 5.24 cfs @ 12.55 hrs, Volume= 3.326 af
Outflow = 0.63 cfs @ 24.33 hrs, Volume= 3.321 af, Atten= 88%, Lag= 706.7 min
Primary = 0.63 cfs @ 24.33 hrs, Volume= 3.321 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 600.00' Surf.Area= 6,300 sf Storage= 9,700 cf
Peak Elev= 603.99' @ 24.33 hrs Surf.Area= 14,588 sf Storage= 50,918 cf (41,218 cf above start)
Flood Elev= 609.00' Surf.Area= 27,250 sf Storage= 154,575 cf (144,875 cf above start)

Plug-Flow detention time= 1,524.8 min calculated for 3.098 af (93% of inflow)
Center-of-Mass det. time= 619.6 min (4,255.7 - 3,636.1)

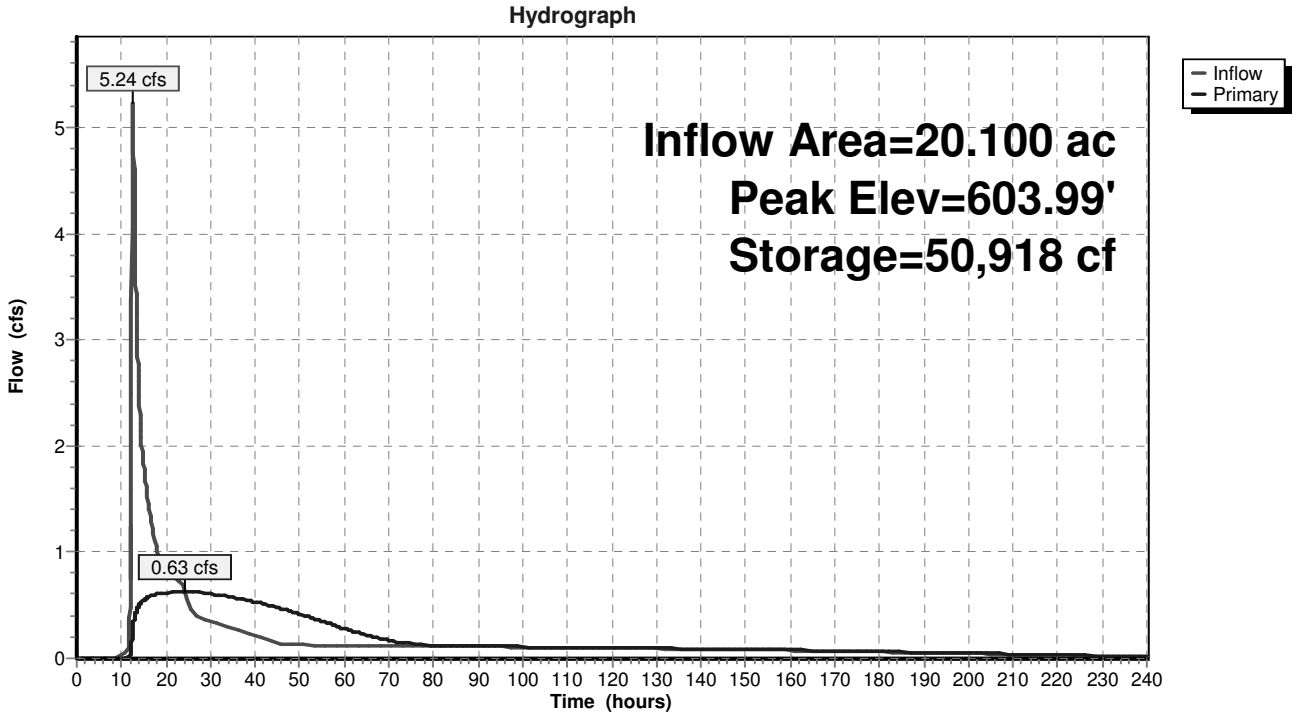
Volume	Invert	Avail.Storage	Storage Description
#1	596.00'	183,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
596.00	600	0	0
598.00	1,400	2,000	2,000
600.00	6,300	7,700	9,700
602.00	10,200	16,500	26,200
604.00	14,600	24,800	51,000
606.00	19,300	33,900	84,900
608.00	24,500	43,800	128,700
610.00	30,000	54,500	183,200

Device	Routing	Invert	Outlet Devices
#1	Primary	600.00'	**3.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	607.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.63 cfs @ 24.33 hrs HW=603.99' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.63 cfs @ 9.45 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 1.3P: Micropool Extended Detention Pond (P-1)

Inflow Area = 5.500 ac, 74.55% Impervious, Inflow Depth = 1.98" for 1-yr event
Inflow = 12.42 cfs @ 12.09 hrs, Volume= 0.909 af
Outflow = 0.59 cfs @ 14.89 hrs, Volume= 1.199 af, Atten= 95%, Lag= 167.9 min
Primary = 0.59 cfs @ 14.89 hrs, Volume= 1.199 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 664.00' Surf.Area= 14,500 sf Storage= 29,600 cf
Peak Elev= 665.53' @ 14.89 hrs Surf.Area= 17,634 sf Storage= 54,167 cf (24,567 cf above start)
Flood Elev= 667.00' Surf.Area= 20,550 sf Storage= 82,275 cf (52,675 cf above start)

Plug-Flow detention time= 5,274.2 min calculated for 0.519 af (57% of inflow)
Center-of-Mass det. time= 2,495.0 min (3,304.4 - 809.4)

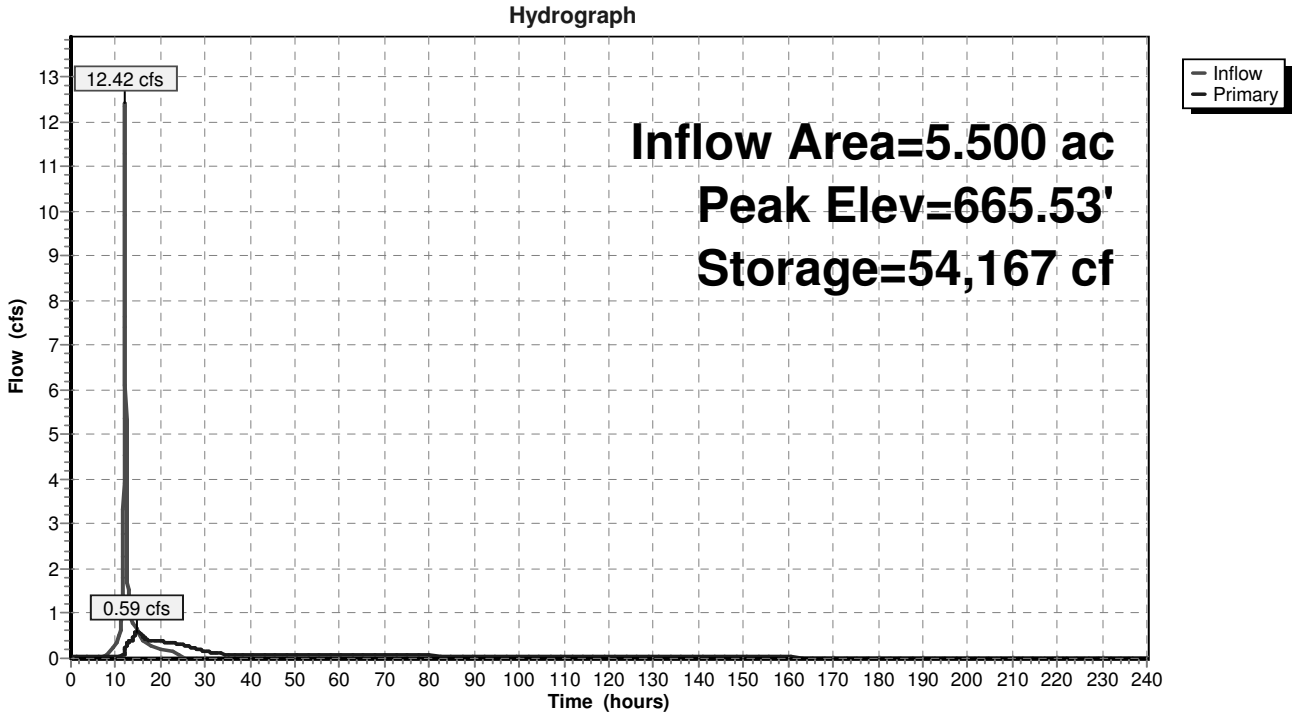
Volume	Invert	Avail.Storage	Storage Description
#1	659.00'	103,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
659.00	1,500	0	0
660.00	2,000	1,750	1,750
662.00	5,200	7,200	8,950
663.00	10,800	8,000	16,950
664.00	14,500	12,650	29,600
666.00	18,600	33,100	62,700
668.00	22,500	41,100	103,800

Device	Routing	Invert	Outlet Devices
#1	Primary	663.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	665.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	664.75'	**4.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.53 cfs @ 14.89 hrs HW=665.53' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.56 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 0.11 cfs @ 0.48 fps)
- **3=Orifice/Grate** (Orifice Controls 0.33 cfs @ 3.77 fps)

Pond 1.3P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.4P: Extended Detention Pond (Design 2) - Premanent Pool Provided

Inflow Area = 7.200 ac, 63.89% Impervious, Inflow Depth > 2.31" for 1-yr event
Inflow = 2.62 cfs @ 12.10 hrs, Volume= 1.385 af
Outflow = 0.37 cfs @ 23.65 hrs, Volume= 1.384 af, Atten= 86%, Lag= 693.2 min
Primary = 0.37 cfs @ 23.65 hrs, Volume= 1.384 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 657.00' Surf.Area= 12,850 sf Storage= 36,525 cf
Peak Elev= 657.93' @ 23.65 hrs Surf.Area= 15,502 sf Storage= 49,714 cf (13,189 cf above start)
Flood Elev= 661.00' Surf.Area= 28,250 sf Storage= 116,475 cf (79,950 cf above start)

Plug-Flow detention time= 5,623.3 min calculated for 0.545 af (39% of inflow)
Center-of-Mass det. time= 580.1 min (3,553.7 - 2,973.6)

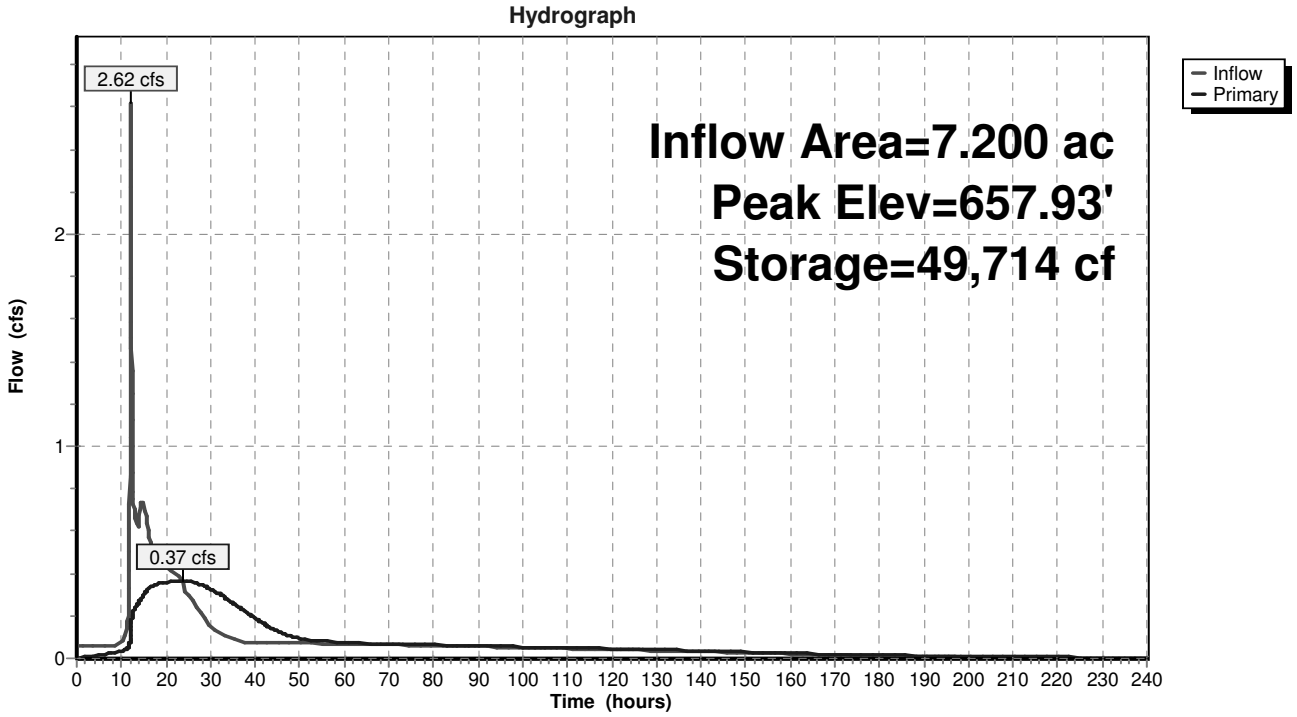
Volume	Invert	Avail.Storage	Storage Description
#1	650.00'	146,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
650.00	500	0	0
652.00	1,100	1,600	1,600
654.00	6,200	7,300	8,900
656.00	10,000	16,200	25,100
658.00	15,700	25,700	50,800
660.00	23,900	39,600	90,400
662.00	32,600	56,500	146,900

Device	Routing	Invert	Outlet Devices
#1	Primary	657.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	659.25'	**2.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.37 cfs @ 23.65 hrs HW=657.93' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.37 cfs @ 4.21 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1.4P: Extended Detention Pond (Design 2) - Premanent Pool Provided



Summary for Pond 1.5P: Micropool Extended Detention Pond (P-1)

Inflow Area = 47.700 ac, 30.07% Impervious, Inflow Depth = 1.25" for 1-yr event
Inflow = 51.68 cfs @ 12.22 hrs, Volume= 4.969 af
Outflow = 14.30 cfs @ 12.72 hrs, Volume= 4.946 af, Atten= 72%, Lag= 30.3 min
Primary = 14.30 cfs @ 12.72 hrs, Volume= 4.946 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 656.00' Surf.Area= 38,400 sf Storage= 157,900 cf
Peak Elev= 658.04' @ 12.72 hrs Surf.Area= 48,603 sf Storage= 246,877 cf (88,977 cf above start)
Flood Elev= 661.00' Surf.Area= 61,600 sf Storage= 404,050 cf (246,150 cf above start)

Plug-Flow detention time= 4,254.4 min calculated for 1.321 af (27% of inflow)
Center-of-Mass det. time= 1,144.3 min (1,998.8 - 854.5)

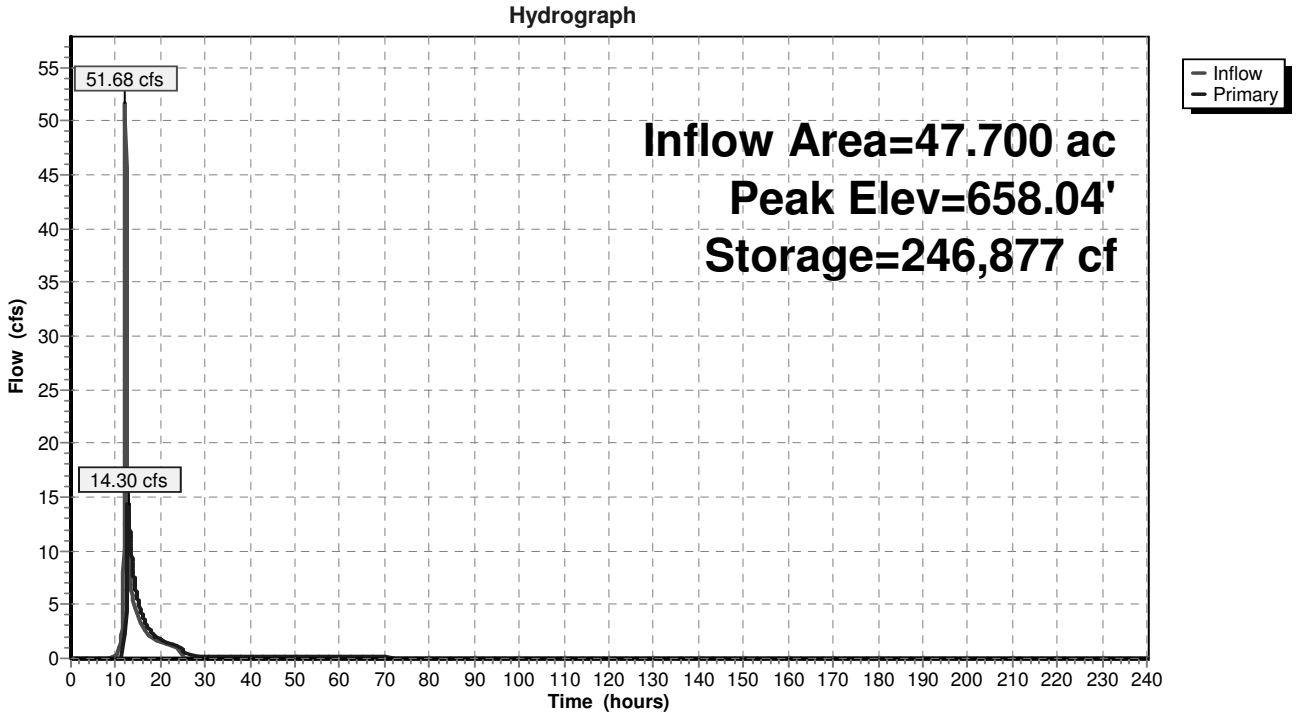
Volume	Invert	Avail.Storage	Storage Description
#1	648.00'	469,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
648.00	10,500	0	0
650.00	14,200	24,700	24,700
652.00	18,100	32,300	57,000
654.00	22,200	40,300	97,300
656.00	38,400	60,600	157,900
658.00	48,500	86,900	244,800
660.00	53,300	101,800	346,600
662.00	69,900	123,200	469,800

Device	Routing	Invert	Outlet Devices
#1	Primary	656.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	657.00'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	658.75'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=14.27 cfs @ 12.72 hrs HW=658.04' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.15 cfs @ 6.74 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 14.12 cfs @ 3.39 fps)
- **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.5P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.6P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 51.700 ac, 28.33% Impervious, Inflow Depth > 1.21" for 1-yr event
Inflow = 14.87 cfs @ 12.72 hrs, Volume= 5.232 af
Outflow = 5.93 cfs @ 14.84 hrs, Volume= 5.194 af, Atten= 60%, Lag= 127.6 min
Primary = 5.93 cfs @ 14.84 hrs, Volume= 5.194 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 627.00' Surf.Area= 30,860 sf Storage= 131,598 cf
Peak Elev= 629.16' @ 14.84 hrs Surf.Area= 36,875 sf Storage= 204,822 cf (73,224 cf above start)
Flood Elev= 633.00' Surf.Area= 48,641 sf Storage= 368,223 cf (236,625 cf above start)

Plug-Flow detention time= 4,621.0 min calculated for 2.173 af (42% of inflow)
Center-of-Mass det. time= 960.0 min (2,896.8 - 1,936.8)

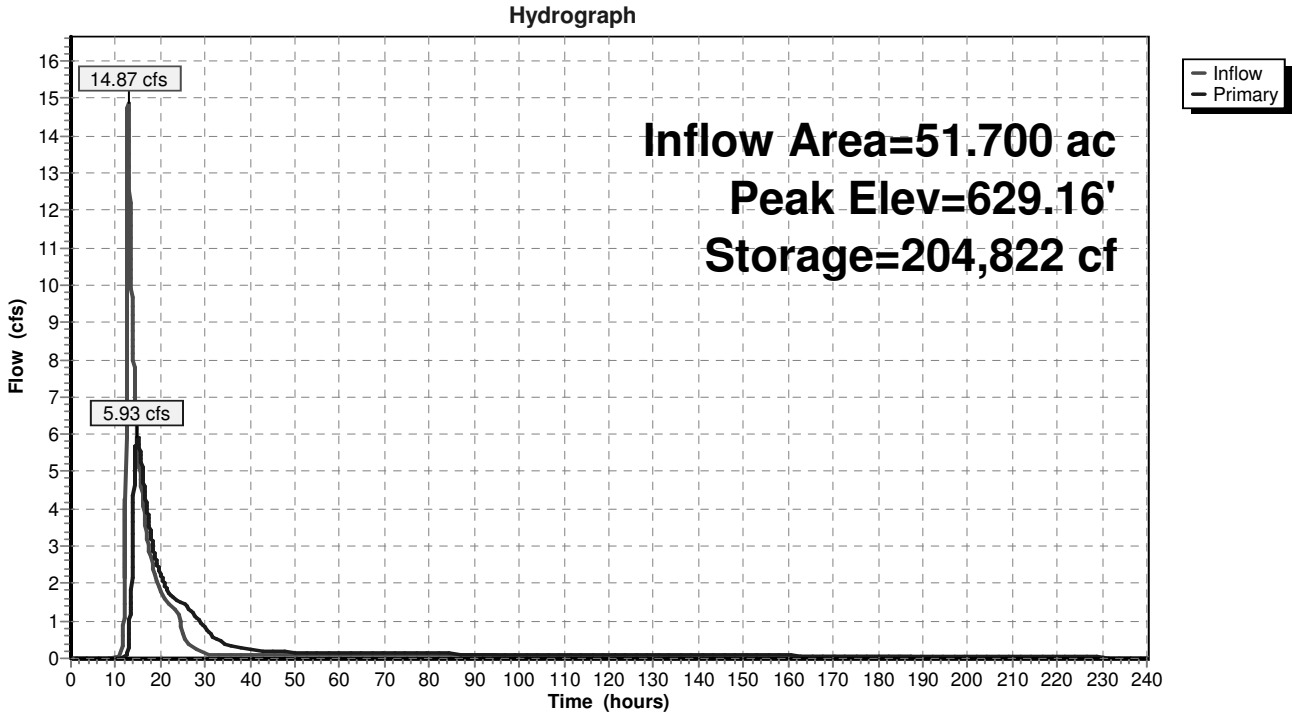
Volume	Invert	Avail.Storage	Storage Description
#1	621.00'	418,508 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
621.00	14,753	0	0
622.00	16,761	15,757	15,757
624.00	21,116	37,877	53,634
627.00	30,860	77,964	131,598
628.00	33,557	32,209	163,807
630.00	39,254	72,811	236,618
632.00	45,354	84,608	321,226
634.00	51,928	97,282	418,508

Device	Routing	Invert	Outlet Devices
#1	Primary	627.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	627.75'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	628.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.90 cfs @ 14.84 hrs HW=629.16' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.24 cfs @ 6.91 fps)
- **2=Orifice/Grate** (Orifice Controls 1.75 cfs @ 5.01 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 3.91 cfs @ 1.89 fps)

Pond 1.6P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 1.7P: Micropool Extended Detention Pond (P-1)

Inflow Area = 14.000 ac, 29.29% Impervious, Inflow Depth = 1.25" for 1-yr event
Inflow = 23.25 cfs @ 12.01 hrs, Volume= 1.458 af
Outflow = 6.03 cfs @ 12.37 hrs, Volume= 1.457 af, Atten= 74%, Lag= 22.0 min
Primary = 6.03 cfs @ 12.37 hrs, Volume= 1.457 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 664.00' Surf.Area= 16,200 sf Storage= 41,300 cf
Peak Elev= 665.30' @ 12.37 hrs Surf.Area= 21,605 sf Storage= 65,917 cf (24,617 cf above start)
Flood Elev= 667.00' Surf.Area= 28,800 sf Storage= 108,650 cf (67,350 cf above start)

Plug-Flow detention time= 3,345.0 min calculated for 0.509 af (35% of inflow)
Center-of-Mass det. time= 1,137.9 min (1,978.5 - 840.6)

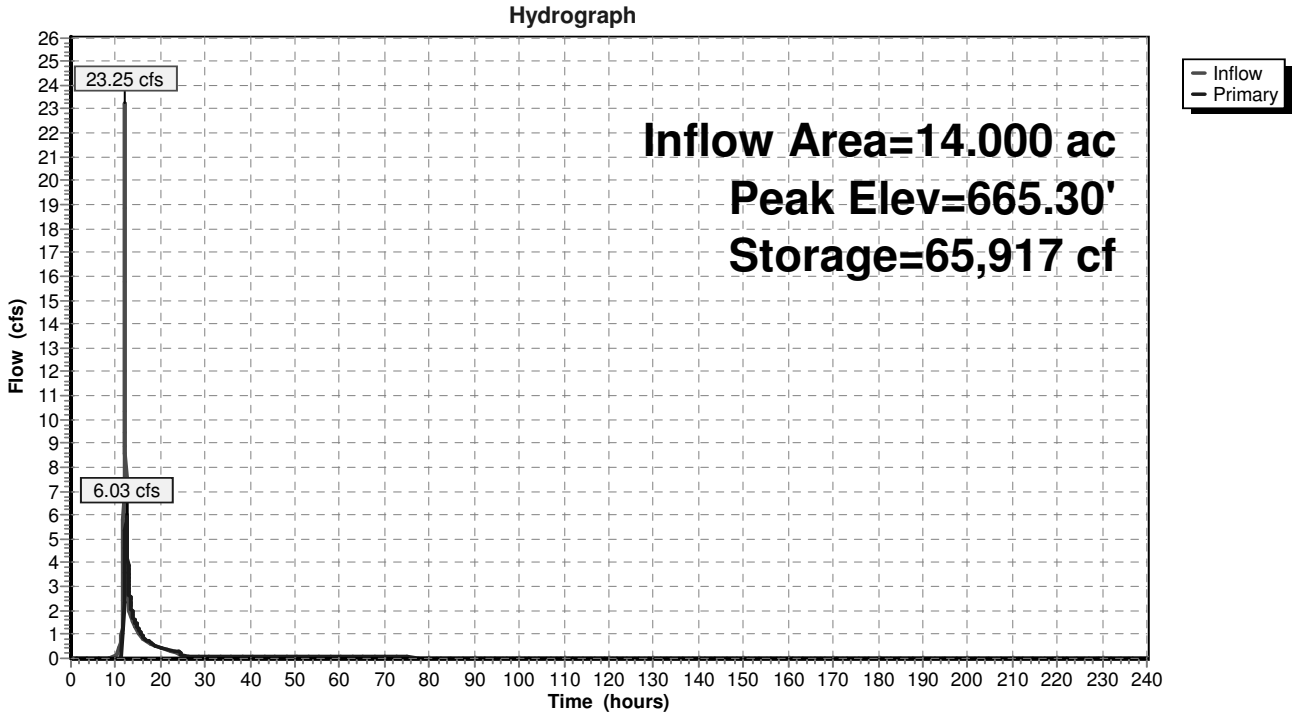
Volume	Invert	Avail.Storage	Storage Description
#1	658.00'	139,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
658.00	3,100	0	0
660.00	4,500	7,600	7,600
662.00	6,500	11,000	18,600
664.00	16,200	22,700	41,300
666.00	24,500	40,700	82,000
668.00	33,100	57,600	139,600

Device	Routing	Invert	Outlet Devices
#1	Primary	664.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	664.90'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=6.00 cfs @ 12.37 hrs HW=665.30' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.07 cfs @ 5.36 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 5.94 cfs @ 1.85 fps)

Pond 1.7P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.8P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 15.100 ac, 29.80% Impervious, Inflow Depth = 1.25" for 1-yr event
Inflow = 6.54 cfs @ 12.35 hrs, Volume= 1.578 af
Outflow = 1.83 cfs @ 14.01 hrs, Volume= 1.576 af, Atten= 72%, Lag= 99.3 min
Primary = 1.83 cfs @ 14.01 hrs, Volume= 1.576 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 644.00' Surf.Area= 16,900 sf Storage= 54,400 cf
Peak Elev= 645.17' @ 14.01 hrs Surf.Area= 20,069 sf Storage= 76,095 cf (21,695 cf above start)
Flood Elev= 647.00' Surf.Area= 25,150 sf Storage= 117,325 cf (62,925 cf above start)

Plug-Flow detention time= 6,514.0 min calculated for 0.327 af (21% of inflow)
Center-of-Mass det. time= 951.5 min (2,842.8 - 1,891.4)

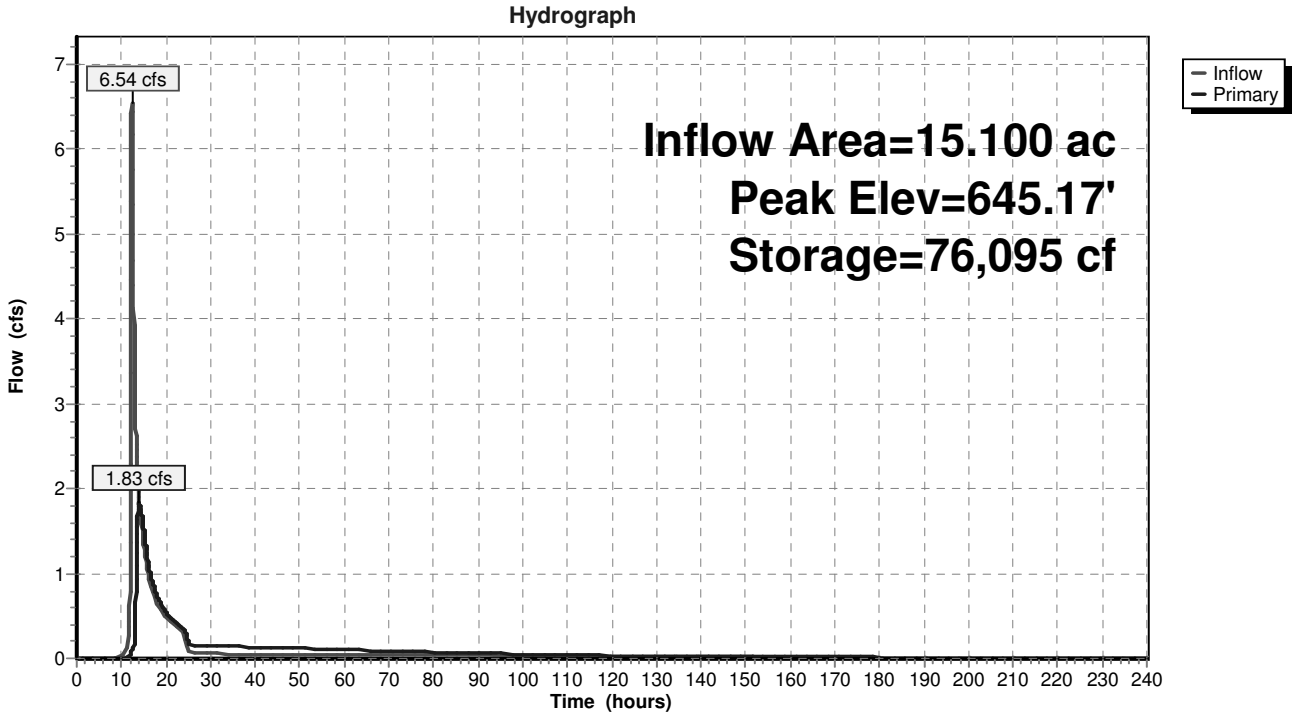
Volume	Invert	Avail.Storage	Storage Description
#1	638.00'	143,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
638.00	5,100	0	0
640.00	7,000	12,100	12,100
642.00	9,200	16,200	28,300
644.00	16,900	26,100	54,400
646.00	22,300	39,200	93,600
648.00	28,000	50,300	143,900

Device	Routing	Invert	Outlet Devices
#1	Primary	644.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	645.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.79 cfs @ 14.01 hrs HW=645.17' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.17 cfs @ 4.98 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.62 cfs @ 1.17 fps)

Pond 1.8P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Subcatchment 1.1S:

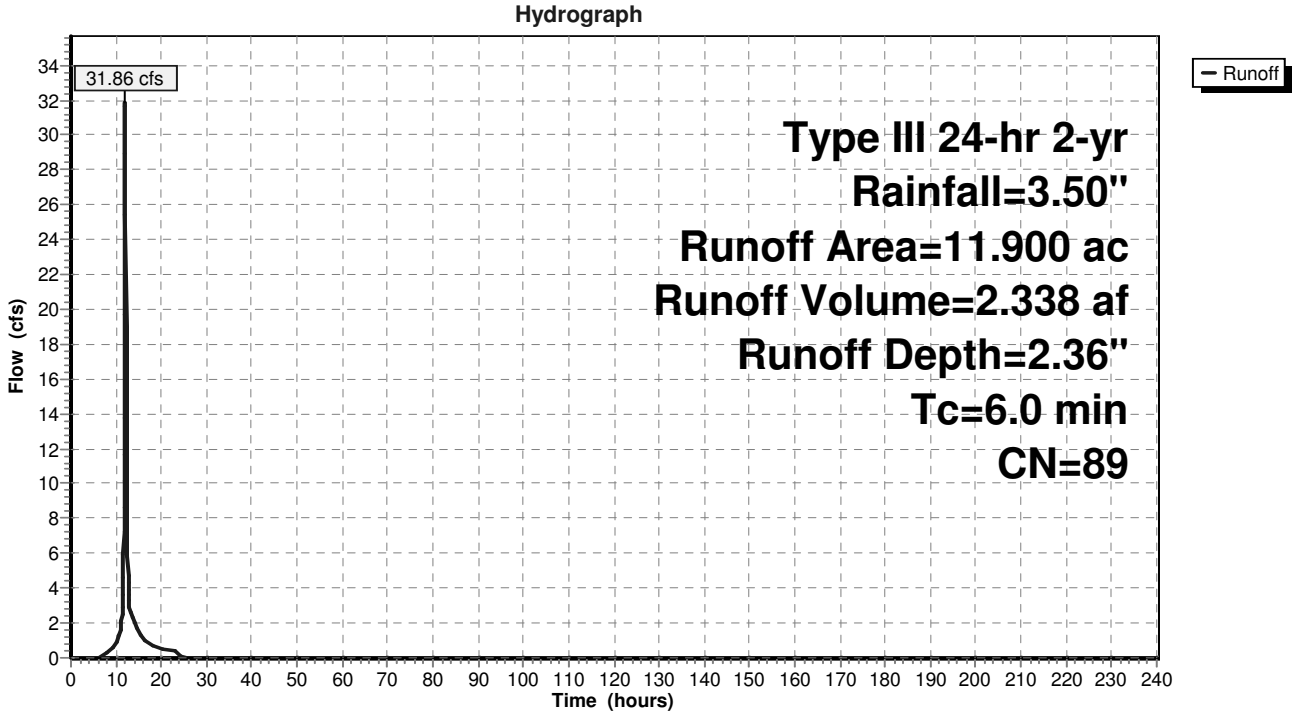
Runoff = 31.86 cfs @ 12.09 hrs, Volume= 2.338 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

	Area (ac)	CN	Description
	7.900	98	Paved parking & roofs
	1.600	74	>75% Grass cover, Good, HSG C
	1.000	71	Meadow, non-grazed, HSG C
	0.500	98	Water Surface
*	0.900	56	Pervious Pavement
	11.900	89	Weighted Average
	3.500		Pervious Area
	8.400		Impervious Area

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

Subcatchment 1.1S:



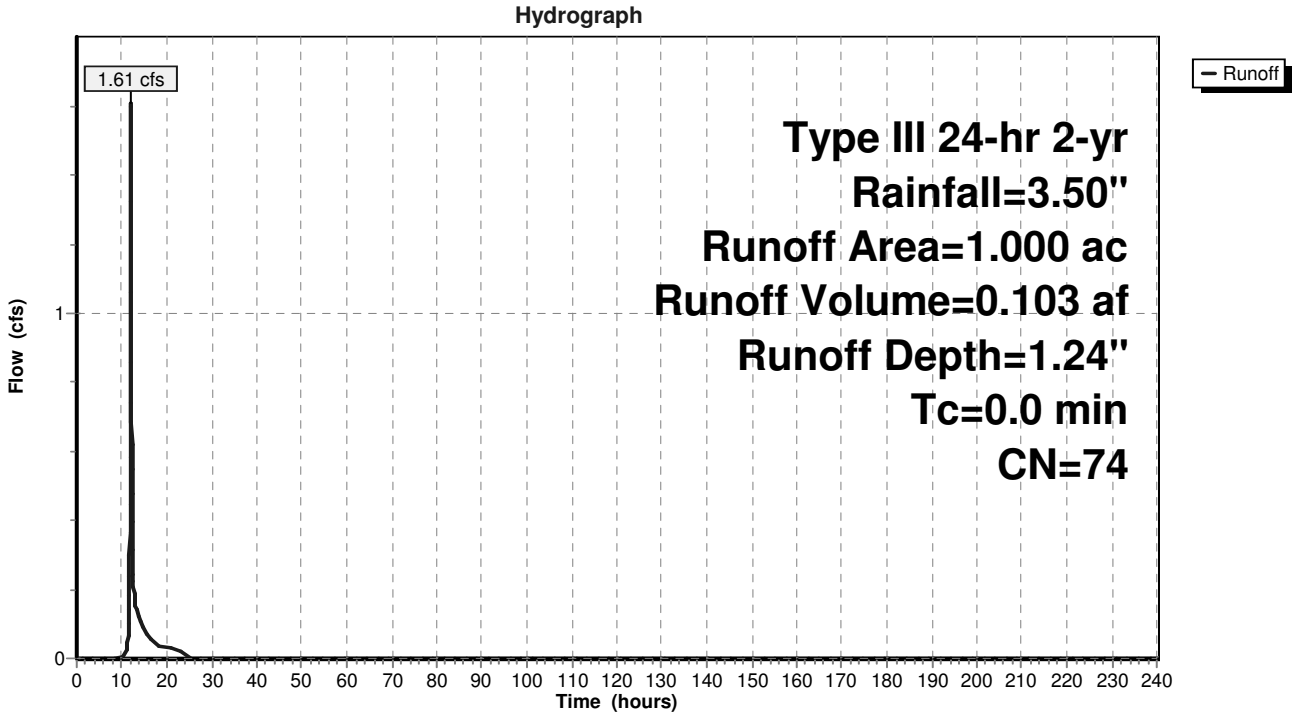
Summary for Subcatchment 1.2S:

Runoff = 1.61 cfs @ 12.01 hrs, Volume= 0.103 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.100	98	Water Surface
0.900	71	Meadow, non-grazed, HSG C
1.000	74	Weighted Average
0.900		Pervious Area
0.100		Impervious Area

Subcatchment 1.2S:



Summary for Subcatchment 1.3S:

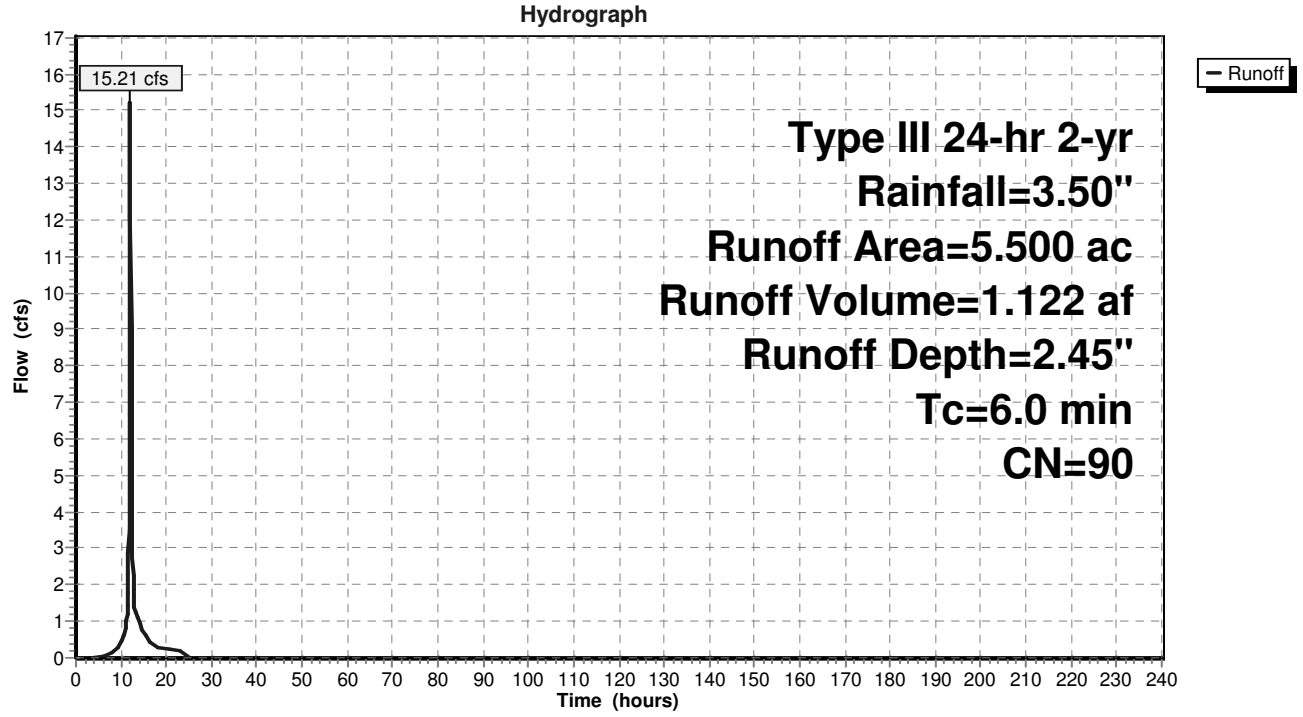
Runoff = 15.21 cfs @ 12.09 hrs, Volume= 1.122 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

	Area (ac)	CN	Description
	3.900	98	Paved parking & roofs
	0.200	74	>75% Grass cover, Good, HSG C
	0.900	71	Meadow, non-grazed, HSG C
	0.200	98	Water Surface
*	0.300	56	Pervious Pavement
	5.500	90	Weighted Average
	1.400		Pervious Area
	4.100		Impervious Area

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

Subcatchment 1.3S:



Summary for Subcatchment 1.4S:

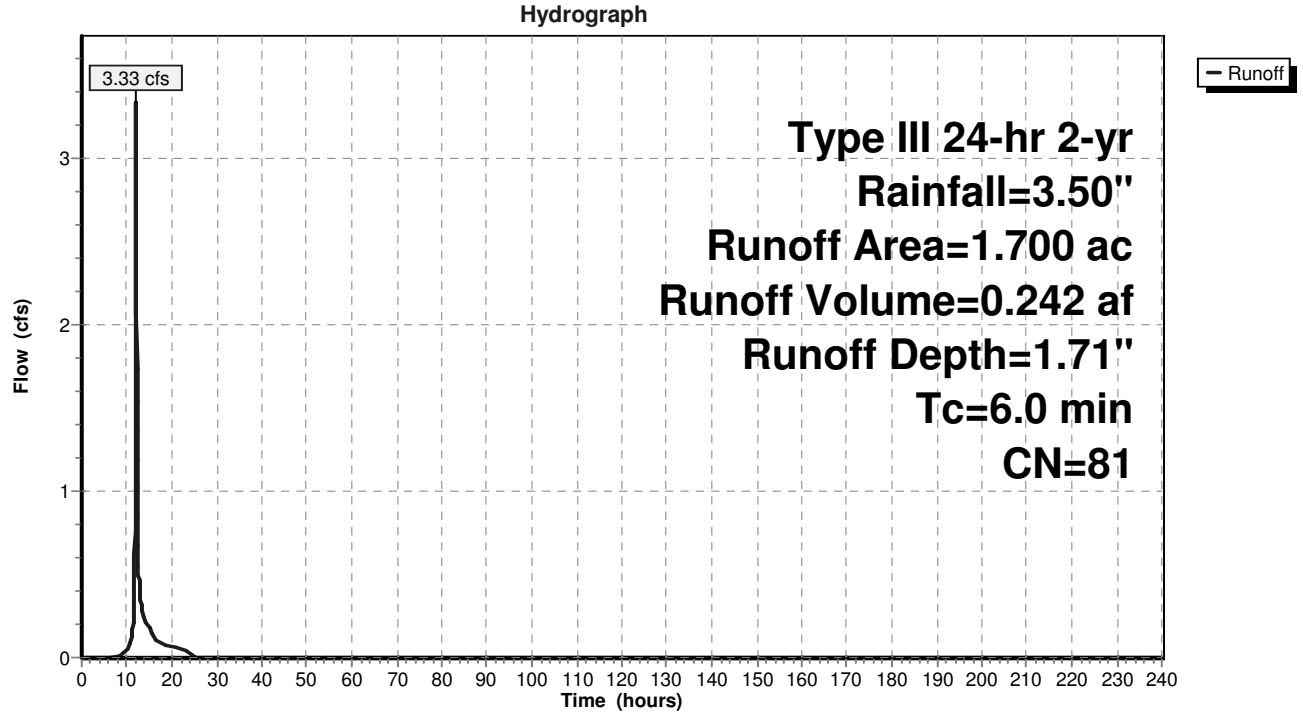
Runoff = 3.33 cfs @ 12.09 hrs, Volume= 0.242 af, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.900	74	>75% Grass cover, Good, HSG C
0.300	71	Meadow, non-grazed, HSG C
0.400	98	Water Surface
1.700	81	Weighted Average
1.200		Pervious Area
0.500		Impervious Area

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

Subcatchment 1.4S:



Summary for Subcatchment 1.5S:

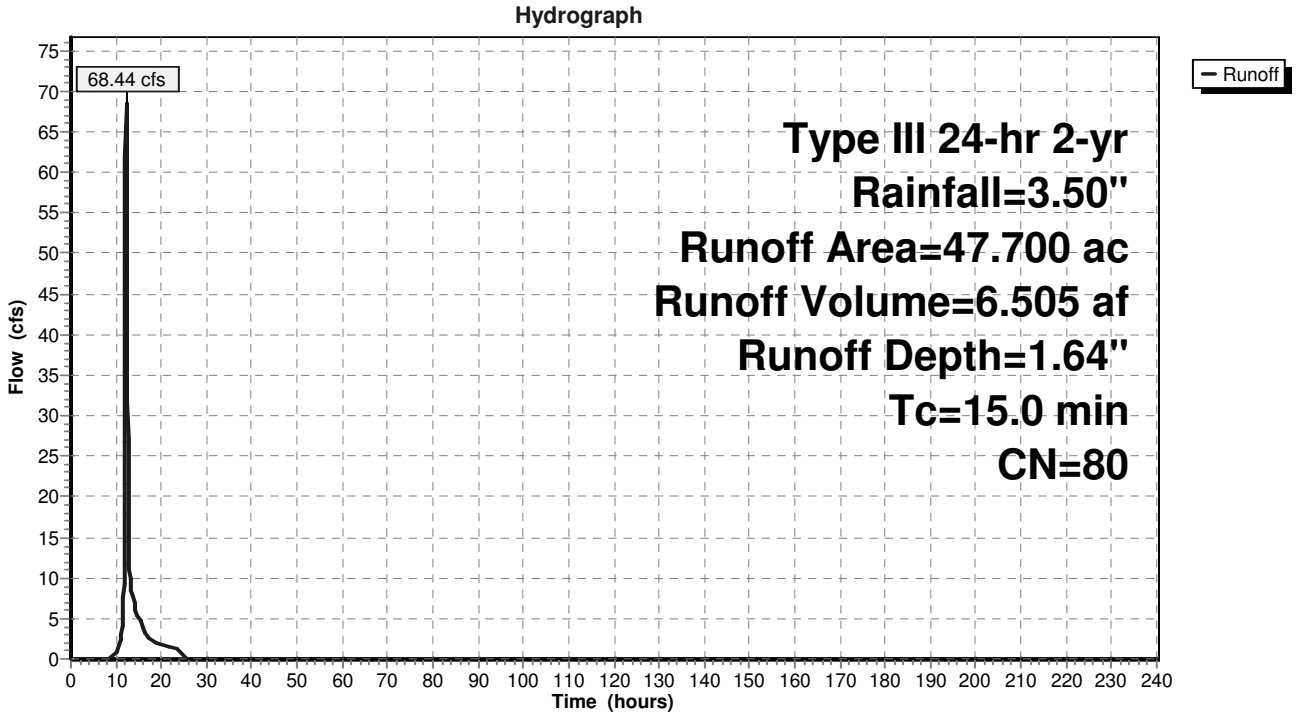
Runoff = 68.44 cfs @ 12.21 hrs, Volume= 6.505 af, Depth= 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
12.200	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
10.500	74	>75% Grass cover, Good, HSG C
9.700	71	Meadow, non-grazed, HSG C
12.700	70	Woods, Good, HSG C
0.700	98	Water Surface
1.700	94	Urban commercial, 85% imp, HSG C
47.700	80	Weighted Average
33.355		Pervious Area
14.345		Impervious Area

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

Subcatchment 1.5S:



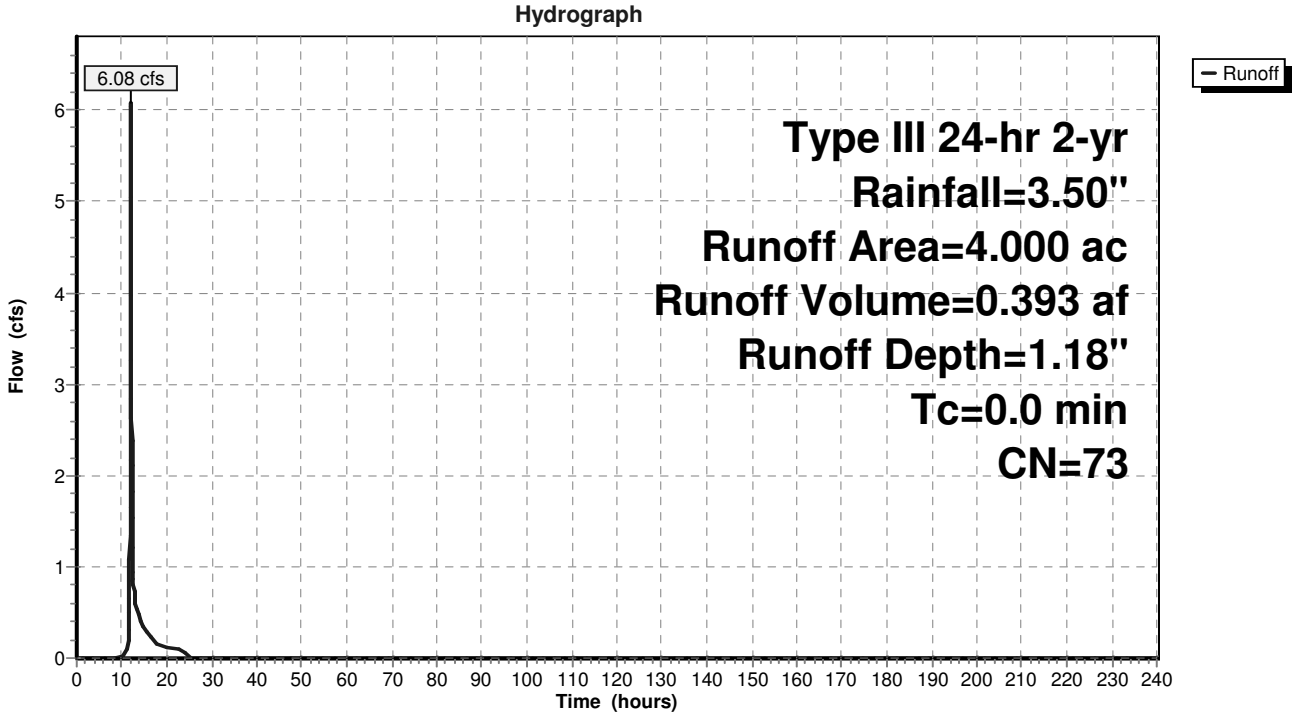
Summary for Subcatchment 1.6S:

Runoff = 6.08 cfs @ 12.01 hrs, Volume= 0.393 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
3.200	71	Meadow, non-grazed, HSG C
0.500	73	Woods, Fair, HSG C
0.300	98	Water Surface
4.000	73	Weighted Average
3.700		Pervious Area
0.300		Impervious Area

Subcatchment 1.6S:



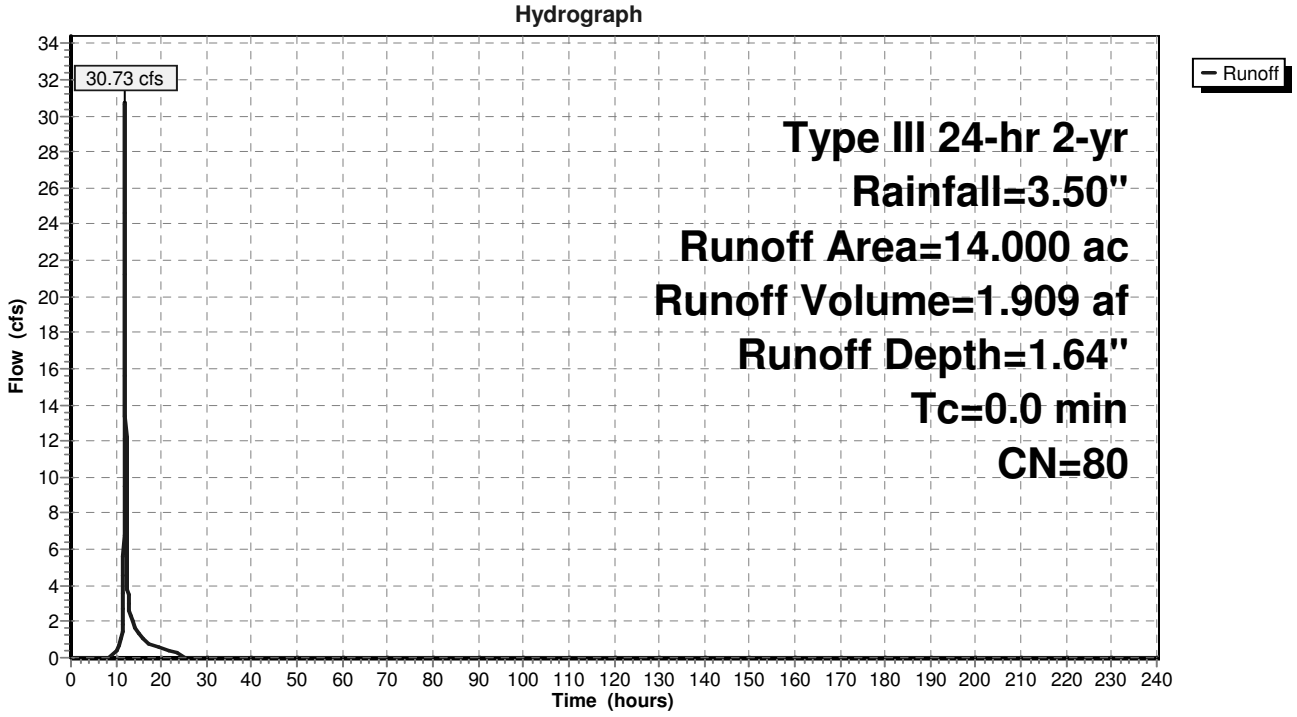
Summary for Subcatchment 1.7S:

Runoff = 30.73 cfs @ 12.01 hrs, Volume= 1.909 af, Depth= 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
3.700	98	Paved parking & roofs
2.900	74	>75% Grass cover, Good, HSG C
3.100	71	Meadow, non-grazed, HSG C
3.900	73	Woods, Fair, HSG C
0.400	98	Water Surface
14.000	80	Weighted Average
9.900		Pervious Area
4.100		Impervious Area

Subcatchment 1.7S:



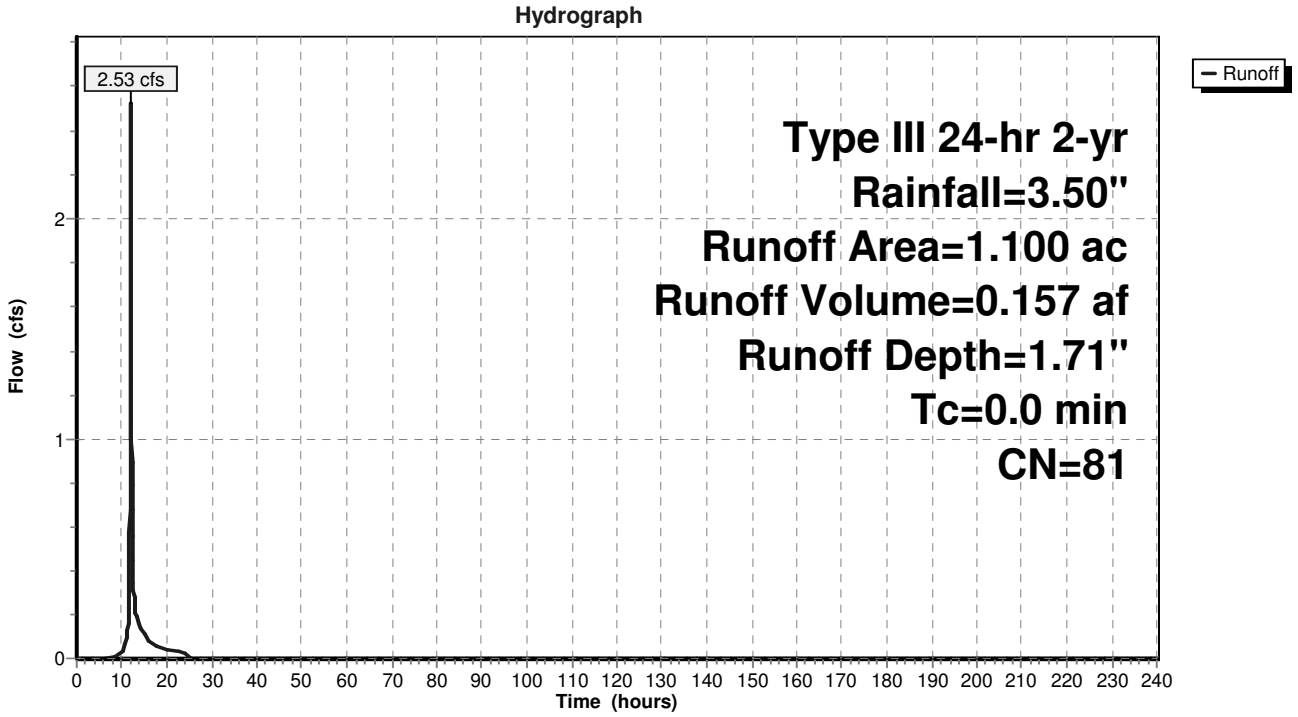
Summary for Subcatchment 1.8S:

Runoff = 2.53 cfs @ 12.01 hrs, Volume= 0.157 af, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.700	71	Meadow, non-grazed, HSG C
0.400	98	Water Surface
1.100	81	Weighted Average
0.700		Pervious Area
0.400		Impervious Area

Subcatchment 1.8S:



Summary for Subcatchment 1.9S:

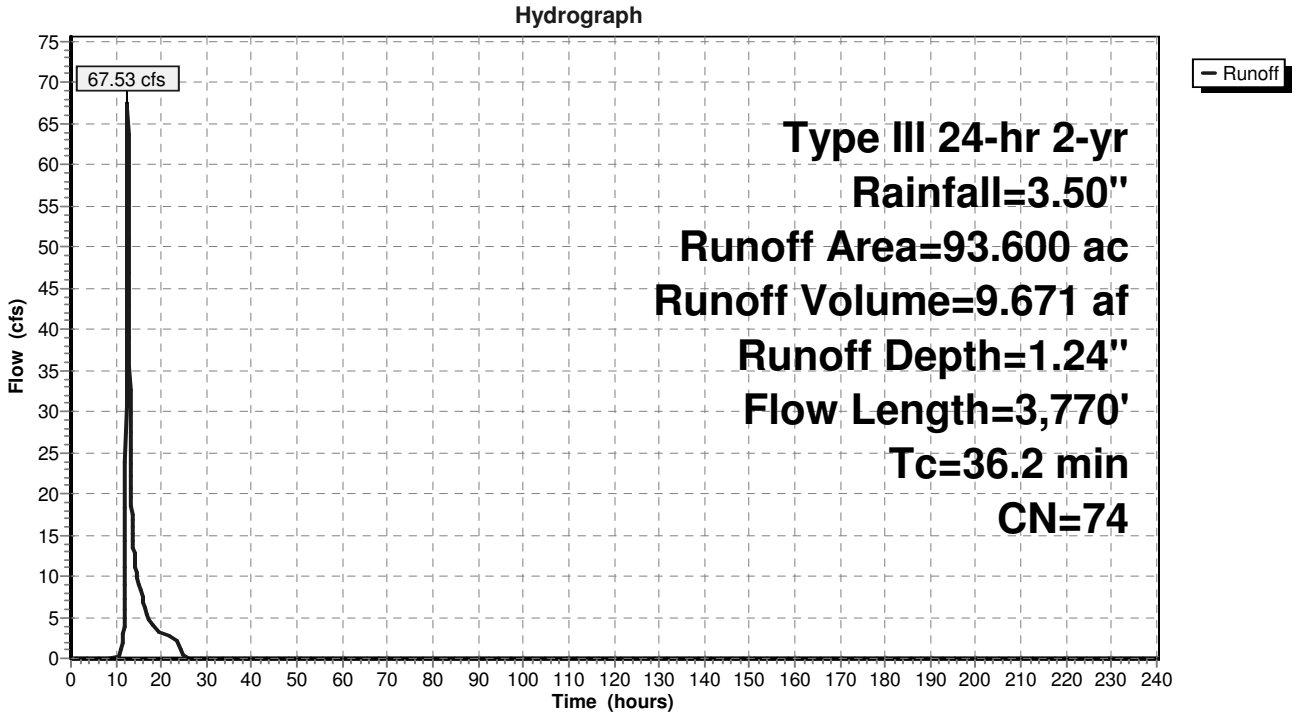
Runoff = 67.53 cfs @ 12.54 hrs, Volume= 9.671 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
1.500	87	Dirt roads, HSG C
0.500	74	>75% Grass cover, Good, HSG C
13.900	71	Meadow, non-grazed, HSG C
1.500	60	Woods, Fair, HSG B
63.300	73	Woods, Fair, HSG C
9.900	79	Woods, Fair, HSG D
3.000	94	Urban commercial, 85% imp, HSG C
93.600	74	Weighted Average
91.050		Pervious Area
2.550		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0500	0.29		**Sheet Flow,** Range n= 0.130 P2= 3.50"
9.9	1,643	0.1560	2.76		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.7	668	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.8	1,359	0.0220	2.58	1.37	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=0.25' Z= 0.5 '/' Top.W=2.25' n= 0.030 Earth, grassed & winding
36.2	3,770	Total			

Subcatchment 1.9S:

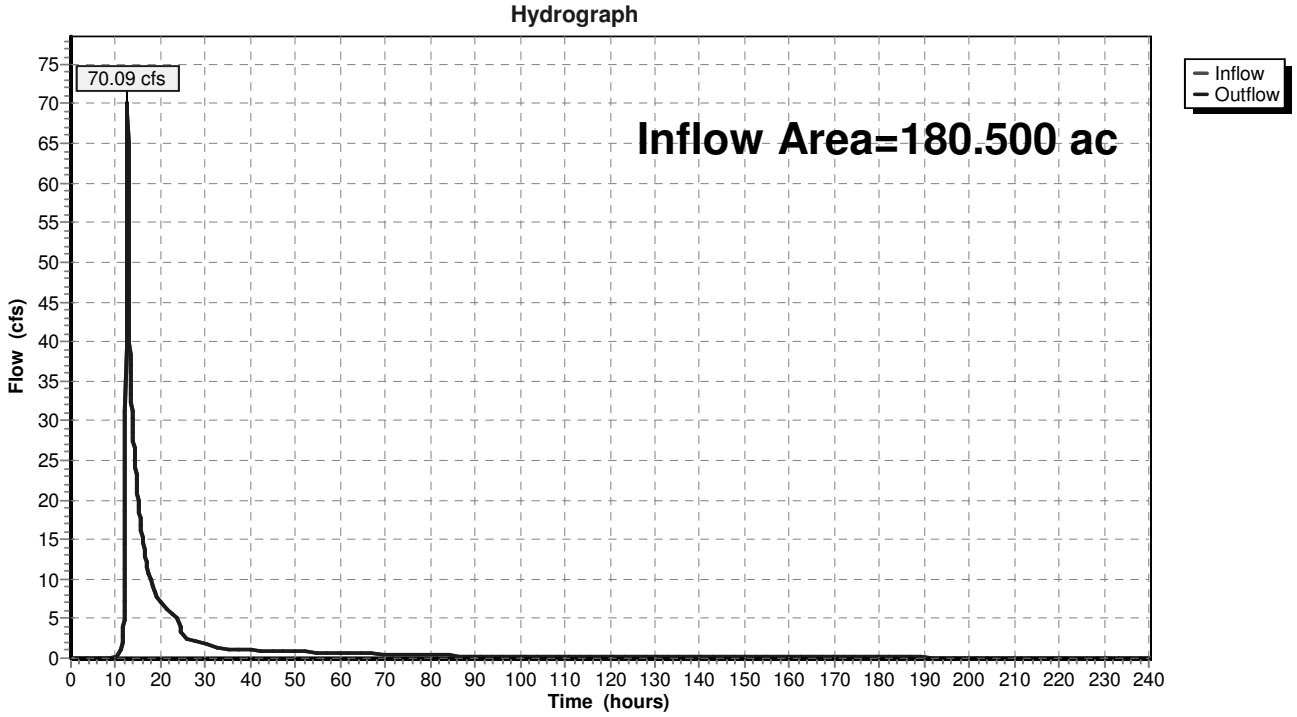


Summary for Reach DP 1: Design Point 1

Inflow Area = 180.500 ac, 19.28% Impervious, Inflow Depth > 1.51" for 2-yr event
Inflow = 70.09 cfs @ 12.57 hrs, Volume= 22.642 af
Outflow = 70.09 cfs @ 12.57 hrs, Volume= 22.642 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 1: Design Point 1



Summary for Pond 1.1P: Micropool Extended Detention Pond (P-1)

Inflow Area = 19.100 ac, 68.06% Impervious, Inflow Depth = 2.51" for 2-yr event
Inflow = 32.02 cfs @ 12.09 hrs, Volume= 3.990 af
Outflow = 9.69 cfs @ 12.43 hrs, Volume= 3.972 af, Atten= 70%, Lag= 20.5 min
Primary = 9.69 cfs @ 12.43 hrs, Volume= 3.972 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 613.00' Surf.Area= 19,800 sf Storage= 81,050 cf
Peak Elev= 615.21' @ 12.43 hrs Surf.Area= 24,854 sf Storage= 130,090 cf (49,040 cf above start)
Flood Elev= 617.00' Surf.Area= 29,400 sf Storage= 178,700 cf (97,650 cf above start)

Plug-Flow detention time= 4,627.0 min calculated for 2.111 af (53% of inflow)
Center-of-Mass det. time= 1,452.0 min (3,285.0 - 1,832.9)

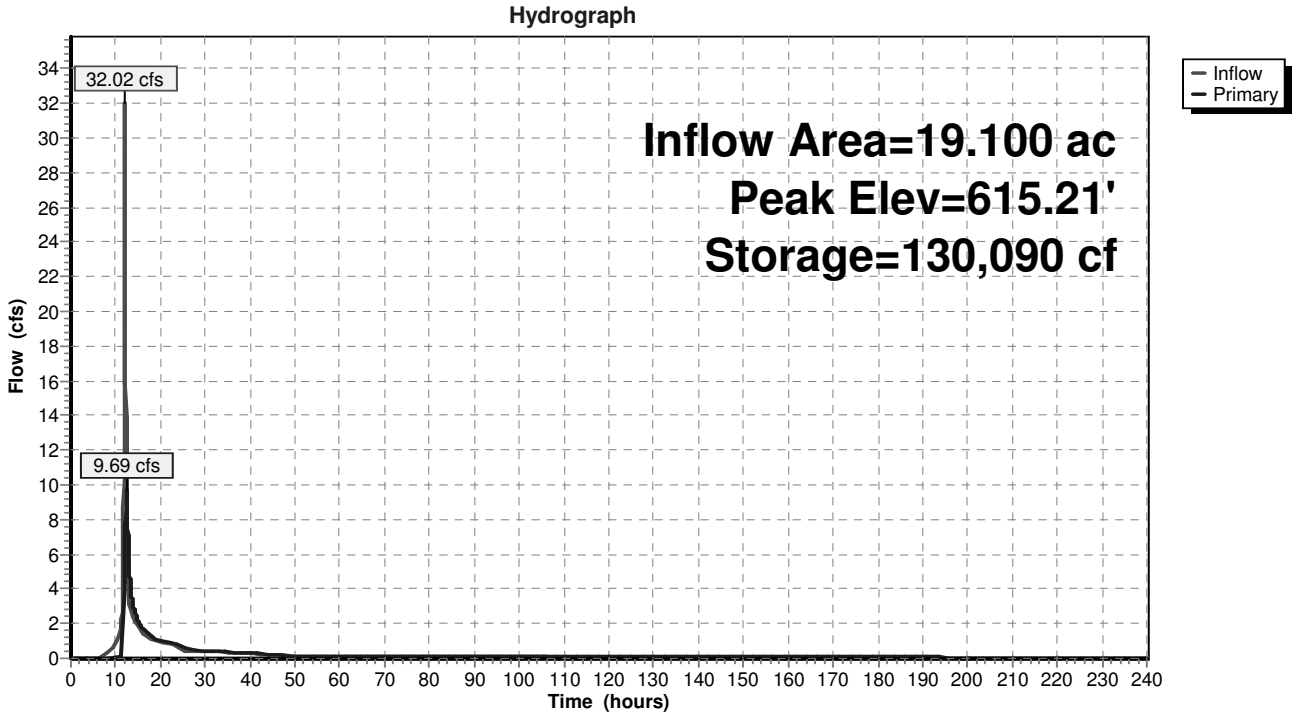
Volume	Invert	Avail.Storage	Storage Description
#1	605.00'	209,400 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
605.00	5,000	0	0
606.00	6,000	5,500	5,500
608.00	8,100	14,100	19,600
610.00	10,400	18,500	38,100
612.00	15,100	25,500	63,600
613.00	19,800	17,450	81,050
614.00	21,900	20,850	101,900
616.00	26,800	48,700	150,600
618.00	32,000	58,800	209,400

Device	Routing	Invert	Outlet Devices
#1	Primary	613.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	614.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=9.60 cfs @ 12.43 hrs HW=615.20' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.15 cfs @ 7.01 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 9.45 cfs @ 2.68 fps)

Pond 1.1P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 20.100 ac, 65.17% Impervious, Inflow Depth > 2.43" for 2-yr event
Inflow = 10.05 cfs @ 12.42 hrs, Volume= 4.075 af
Outflow = 0.73 cfs @ 24.29 hrs, Volume= 4.070 af, Atten= 93%, Lag= 712.4 min
Primary = 0.73 cfs @ 24.29 hrs, Volume= 4.070 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 600.00' Surf.Area= 6,300 sf Storage= 9,700 cf
Peak Elev= 605.27' @ 24.29 hrs Surf.Area= 17,589 sf Storage= 71,468 cf (61,768 cf above start)
Flood Elev= 609.00' Surf.Area= 27,250 sf Storage= 154,575 cf (144,875 cf above start)

Plug-Flow detention time= 1,576.9 min calculated for 3.847 af (94% of inflow)
Center-of-Mass det. time= 827.7 min (4,051.0 - 3,223.3)

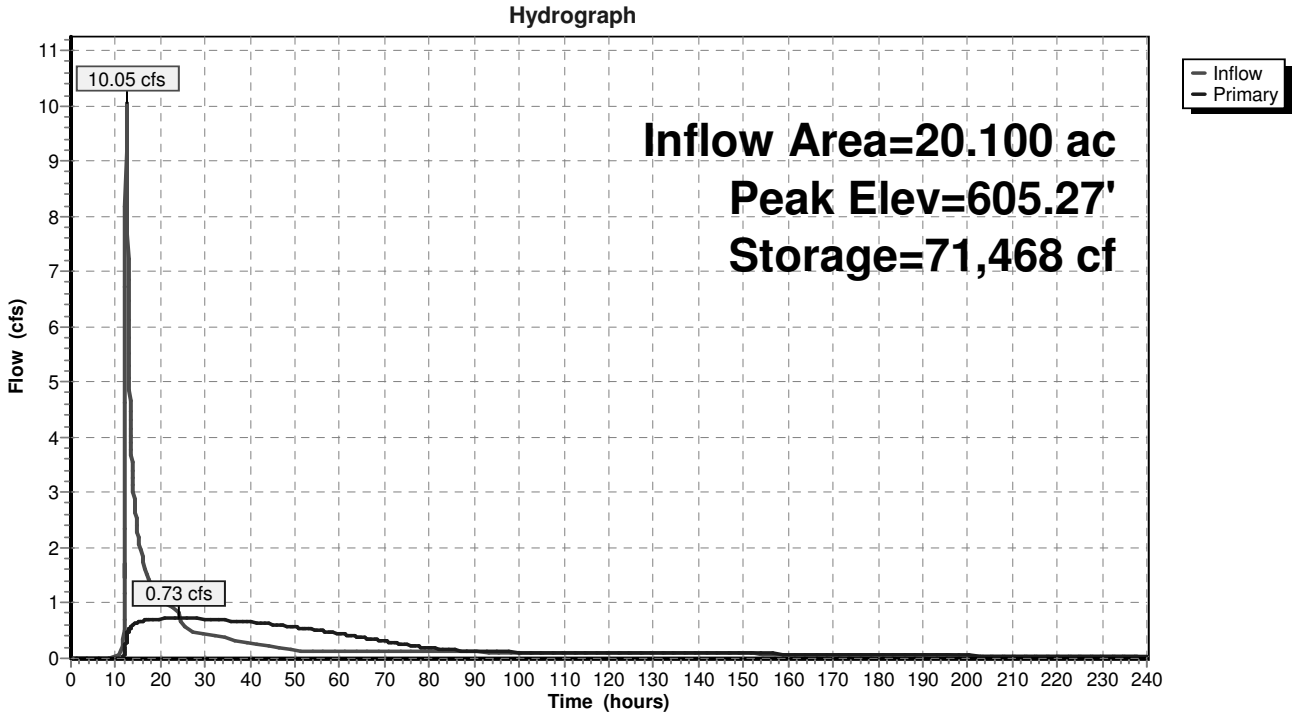
Volume	Invert	Avail.Storage	Storage Description
#1	596.00'	183,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
596.00	600	0	0
598.00	1,400	2,000	2,000
600.00	6,300	7,700	9,700
602.00	10,200	16,500	26,200
604.00	14,600	24,800	51,000
606.00	19,300	33,900	84,900
608.00	24,500	43,800	128,700
610.00	30,000	54,500	183,200

Device	Routing	Invert	Outlet Devices
#1	Primary	600.00'	**3.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	607.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.73 cfs @ 24.29 hrs HW=605.27' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.73 cfs @ 10.90 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 1.3P: Micropool Extended Detention Pond (P-1)

Inflow Area = 5.500 ac, 74.55% Impervious, Inflow Depth = 2.45" for 2-yr event
Inflow = 15.21 cfs @ 12.09 hrs, Volume= 1.122 af
Outflow = 1.62 cfs @ 12.87 hrs, Volume= 1.411 af, Atten= 89%, Lag= 47.0 min
Primary = 1.62 cfs @ 12.87 hrs, Volume= 1.411 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 664.00' Surf.Area= 14,500 sf Storage= 29,600 cf
Peak Elev= 665.64' @ 12.87 hrs Surf.Area= 17,855 sf Storage= 56,079 cf (26,479 cf above start)
Flood Elev= 667.00' Surf.Area= 20,550 sf Storage= 82,275 cf (52,675 cf above start)

Plug-Flow detention time= 4,119.7 min calculated for 0.732 af (65% of inflow)
Center-of-Mass det. time= 2,159.5 min (2,963.0 - 803.5)

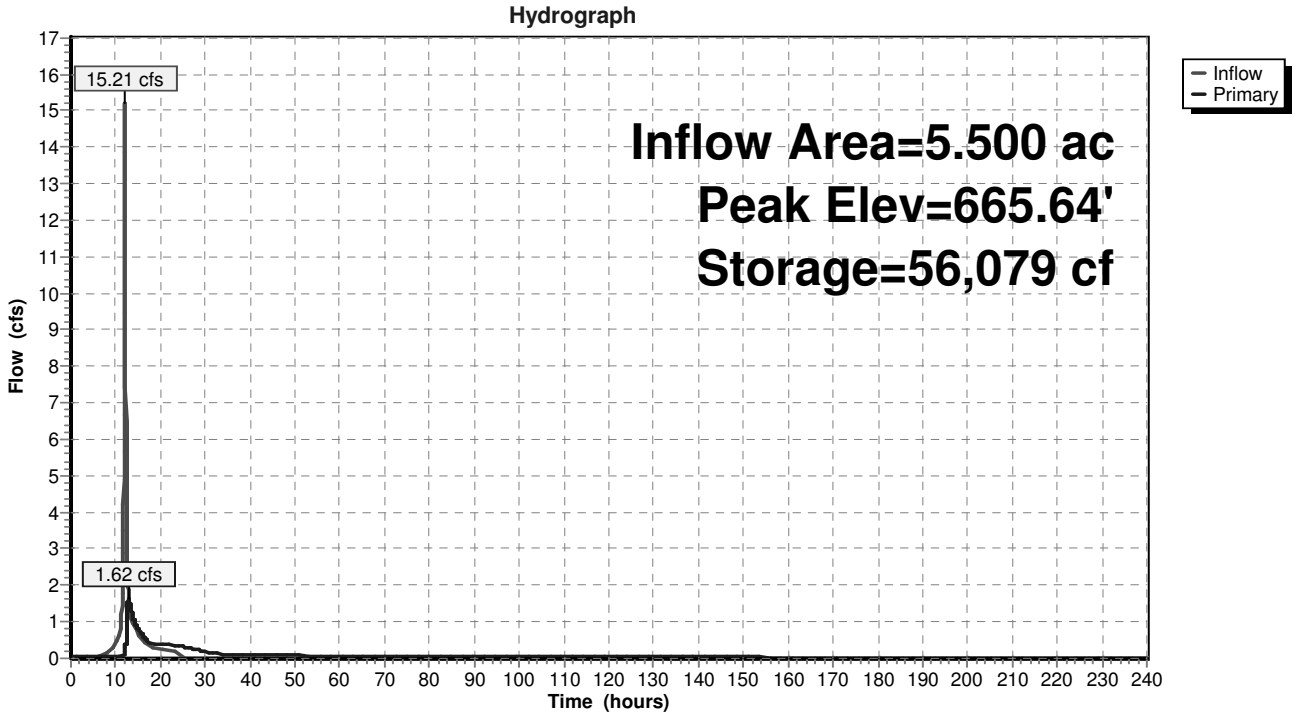
Volume	Invert	Avail.Storage	Storage Description
#1	659.00'	103,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
659.00	1,500	0	0
660.00	2,000	1,750	1,750
662.00	5,200	7,200	8,950
663.00	10,800	8,000	16,950
664.00	14,500	12,650	29,600
666.00	18,600	33,100	62,700
668.00	22,500	41,100	103,800

Device	Routing	Invert	Outlet Devices
#1	Primary	663.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	665.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	664.75'	**4.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.58 cfs @ 12.87 hrs HW=665.64' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.73 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 1.13 cfs @ 1.04 fps)
- **3=Orifice/Grate** (Orifice Controls 0.36 cfs @ 4.09 fps)

Pond 1.3P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.4P: Extended Detention Pond (Design 2) - Premanent Pool Provided

Inflow Area = 7.200 ac, 63.89% Impervious, Inflow Depth > 2.76" for 2-yr event
Inflow = 3.53 cfs @ 12.10 hrs, Volume= 1.653 af
Outflow = 0.46 cfs @ 19.90 hrs, Volume= 1.652 af, Atten= 87%, Lag= 468.1 min
Primary = 0.46 cfs @ 19.90 hrs, Volume= 1.652 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 657.00' Surf.Area= 12,850 sf Storage= 36,525 cf
Peak Elev= 658.35' @ 19.90 hrs Surf.Area= 17,155 sf Storage= 56,628 cf (20,103 cf above start)
Flood Elev= 661.00' Surf.Area= 28,250 sf Storage= 116,475 cf (79,950 cf above start)

Plug-Flow detention time= 4,354.6 min calculated for 0.814 af (49% of inflow)
Center-of-Mass det. time= 632.2 min (3,283.6 - 2,651.5)

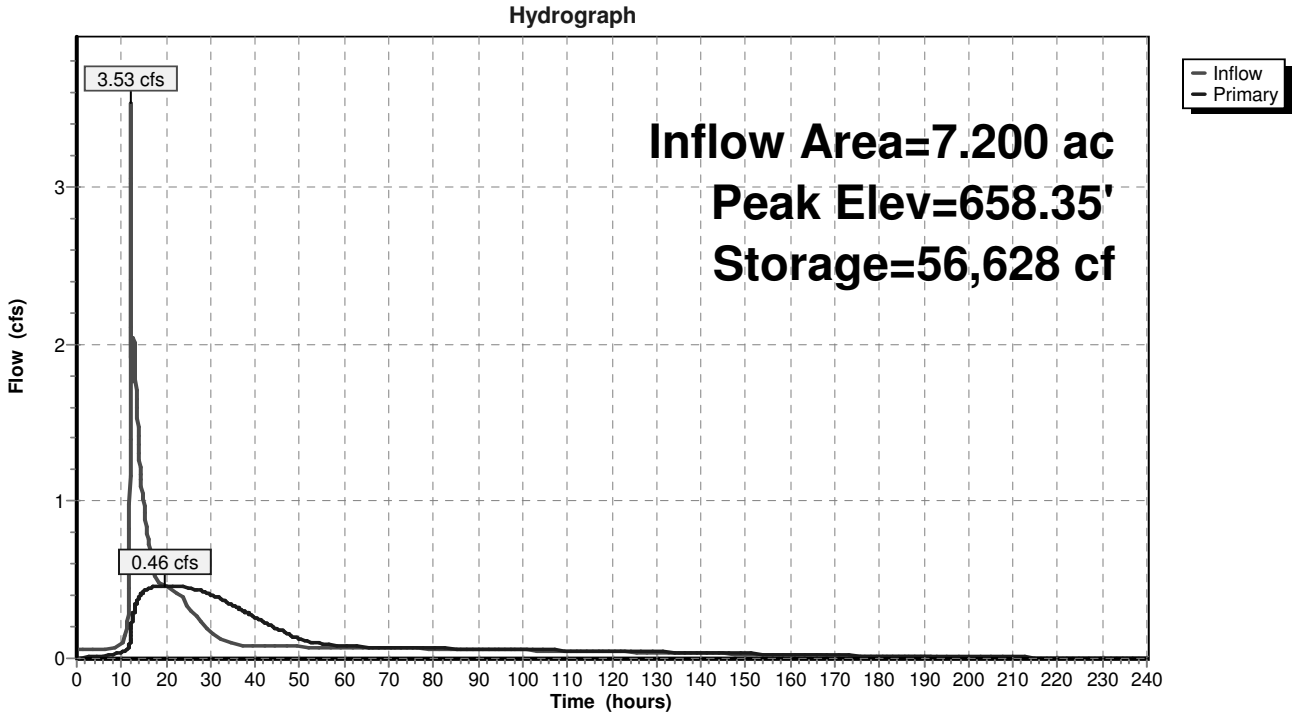
Volume	Invert	Avail.Storage	Storage Description
#1	650.00'	146,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
650.00	500	0	0
652.00	1,100	1,600	1,600
654.00	6,200	7,300	8,900
656.00	10,000	16,200	25,100
658.00	15,700	25,700	50,800
660.00	23,900	39,600	90,400
662.00	32,600	56,500	146,900

Device	Routing	Invert	Outlet Devices
#1	Primary	657.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	659.25'	**2.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.46 cfs @ 19.90 hrs HW=658.35' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.46 cfs @ 5.25 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1.4P: Extended Detention Pond (Design 2) - Premanent Pool Provided



Summary for Pond 1.5P: Micropool Extended Detention Pond (P-1)

Inflow Area = 47.700 ac, 30.07% Impervious, Inflow Depth = 1.64" for 2-yr event
Inflow = 68.44 cfs @ 12.21 hrs, Volume= 6.505 af
Outflow = 24.09 cfs @ 12.63 hrs, Volume= 6.482 af, Atten= 65%, Lag= 25.3 min
Primary = 24.09 cfs @ 12.63 hrs, Volume= 6.482 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 656.00' Surf.Area= 38,400 sf Storage= 157,900 cf
Peak Elev= 658.48' @ 12.63 hrs Surf.Area= 49,653 sf Storage= 268,377 cf (110,477 cf above start)
Flood Elev= 661.00' Surf.Area= 61,600 sf Storage= 404,050 cf (246,150 cf above start)

Plug-Flow detention time= 2,182.9 min calculated for 2.856 af (44% of inflow)
Center-of-Mass det. time= 889.5 min (1,736.1 - 846.6)

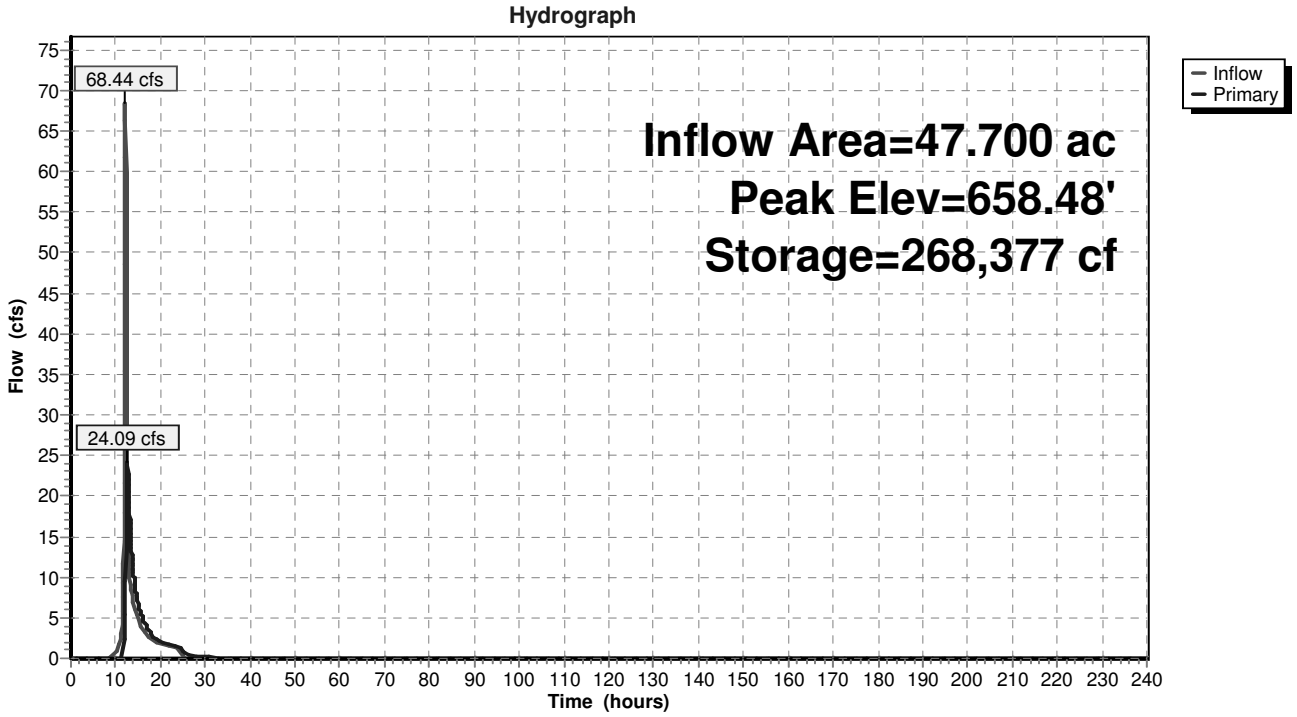
Volume	Invert	Avail.Storage	Storage Description
#1	648.00'	469,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
648.00	10,500	0	0
650.00	14,200	24,700	24,700
652.00	18,100	32,300	57,000
654.00	22,200	40,300	97,300
656.00	38,400	60,600	157,900
658.00	48,500	86,900	244,800
660.00	53,300	101,800	346,600
662.00	69,900	123,200	469,800

Device	Routing	Invert	Outlet Devices
#1	Primary	656.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	657.00'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	658.75'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=24.05 cfs @ 12.63 hrs HW=658.48' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.16 cfs @ 7.45 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 23.89 cfs @ 4.04 fps)
- **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.5P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.6P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 51.700 ac, 28.33% Impervious, Inflow Depth > 1.60" for 2-yr event
Inflow = 24.91 cfs @ 12.63 hrs, Volume= 6.875 af
Outflow = 12.05 cfs @ 13.81 hrs, Volume= 6.837 af, Atten= 52%, Lag= 71.0 min
Primary = 12.05 cfs @ 13.81 hrs, Volume= 6.837 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 627.00' Surf.Area= 30,860 sf Storage= 131,598 cf
Peak Elev= 629.47' @ 13.81 hrs Surf.Area= 37,743 sf Storage= 216,199 cf (84,601 cf above start)
Flood Elev= 633.00' Surf.Area= 48,641 sf Storage= 368,223 cf (236,625 cf above start)

Plug-Flow detention time= 2,842.1 min calculated for 3.815 af (55% of inflow)
Center-of-Mass det. time= 747.4 min (2,433.0 - 1,685.7)

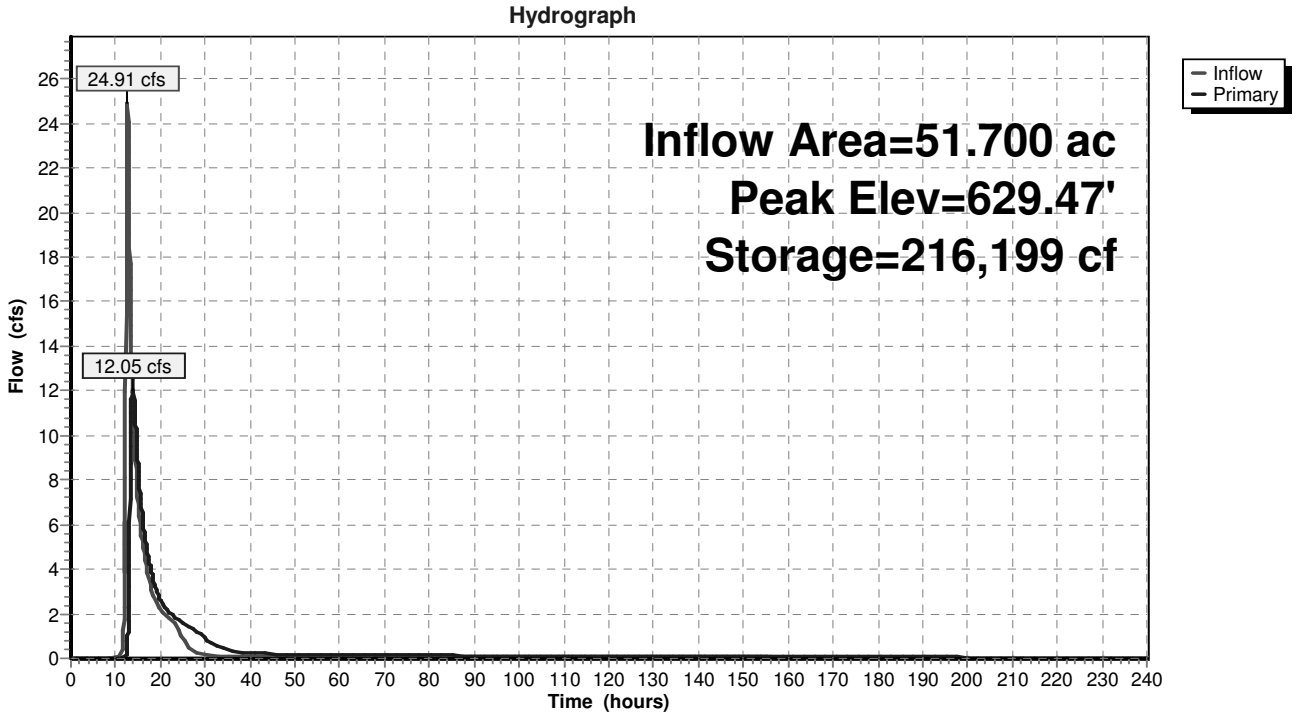
Volume	Invert	Avail.Storage	Storage Description
#1	621.00'	418,508 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
621.00	14,753	0	0
622.00	16,761	15,757	15,757
624.00	21,116	37,877	53,634
627.00	30,860	77,964	131,598
628.00	33,557	32,209	163,807
630.00	39,254	72,811	236,618
632.00	45,354	84,608	321,226
634.00	51,928	97,282	418,508

Device	Routing	Invert	Outlet Devices
#1	Primary	627.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	627.75'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	628.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=12.03 cfs @ 13.81 hrs HW=629.47' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.25 cfs @ 7.41 fps)
- **2=Orifice/Grate** (Orifice Controls 1.98 cfs @ 5.67 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 9.80 cfs @ 2.72 fps)

Pond 1.6P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 1.7P: Micropool Extended Detention Pond (P-1)

Inflow Area = 14.000 ac, 29.29% Impervious, Inflow Depth = 1.64" for 2-yr event
Inflow = 30.73 cfs @ 12.01 hrs, Volume= 1.909 af
Outflow = 11.01 cfs @ 12.25 hrs, Volume= 1.908 af, Atten= 64%, Lag= 14.7 min
Primary = 11.01 cfs @ 12.25 hrs, Volume= 1.908 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 664.00' Surf.Area= 16,200 sf Storage= 41,300 cf
Peak Elev= 665.48' @ 12.25 hrs Surf.Area= 22,353 sf Storage= 69,879 cf (28,579 cf above start)
Flood Elev= 667.00' Surf.Area= 28,800 sf Storage= 108,650 cf (67,350 cf above start)

Plug-Flow detention time= 1,926.6 min calculated for 0.960 af (50% of inflow)
Center-of-Mass det. time= 878.7 min (1,711.4 - 832.7)

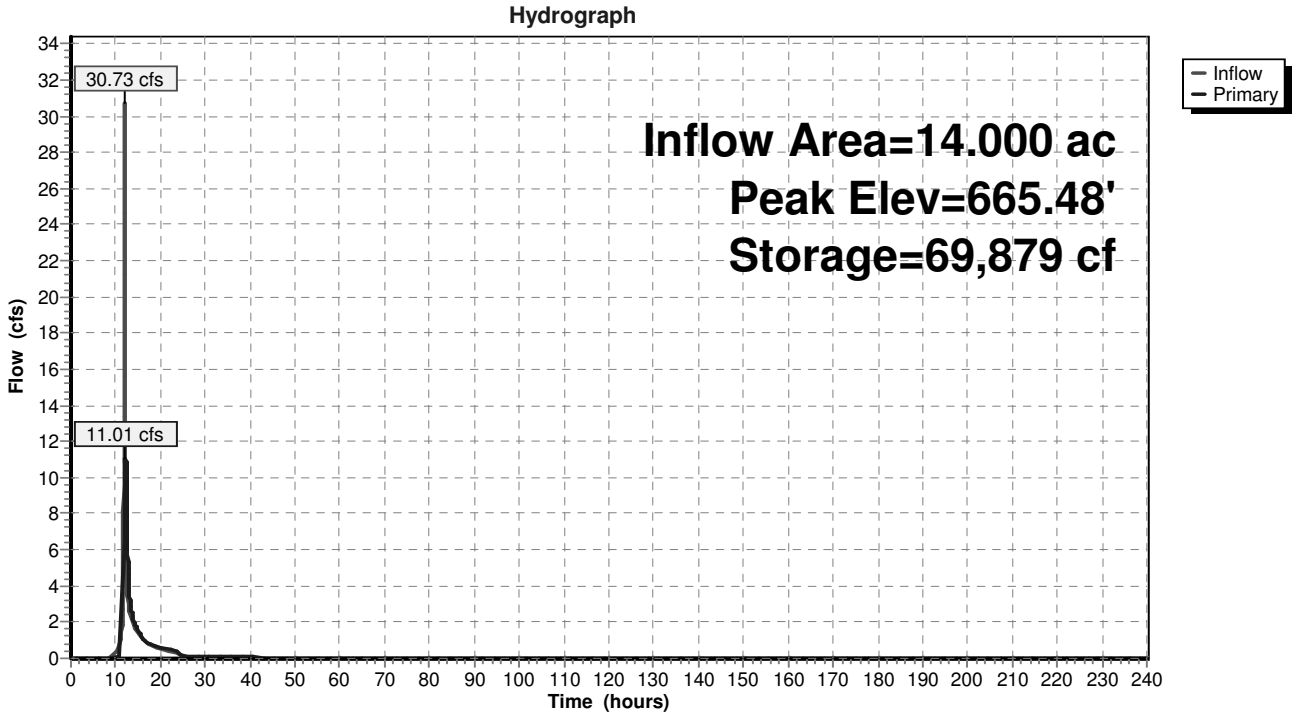
Volume	Invert	Avail.Storage	Storage Description
#1	658.00'	139,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
658.00	3,100	0	0
660.00	4,500	7,600	7,600
662.00	6,500	11,000	18,600
664.00	16,200	22,700	41,300
666.00	24,500	40,700	82,000
668.00	33,100	57,600	139,600

Device	Routing	Invert	Outlet Devices
#1	Primary	664.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	664.90'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=10.97 cfs @ 12.25 hrs HW=665.48' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.07 cfs @ 5.74 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 10.90 cfs @ 2.34 fps)

Pond 1.7P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.8P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 15.100 ac, 29.80% Impervious, Inflow Depth = 1.64" for 2-yr event
Inflow = 11.91 cfs @ 12.23 hrs, Volume= 2.065 af
Outflow = 4.39 cfs @ 12.94 hrs, Volume= 2.063 af, Atten= 63%, Lag= 42.3 min
Primary = 4.39 cfs @ 12.94 hrs, Volume= 2.063 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 644.00' Surf.Area= 16,900 sf Storage= 54,400 cf
Peak Elev= 645.32' @ 12.94 hrs Surf.Area= 20,466 sf Storage= 79,078 cf (24,678 cf above start)
Flood Elev= 647.00' Surf.Area= 25,150 sf Storage= 117,325 cf (62,925 cf above start)

Plug-Flow detention time= 3,810.7 min calculated for 0.814 af (39% of inflow)
Center-of-Mass det. time= 739.3 min (2,383.8 - 1,644.5)

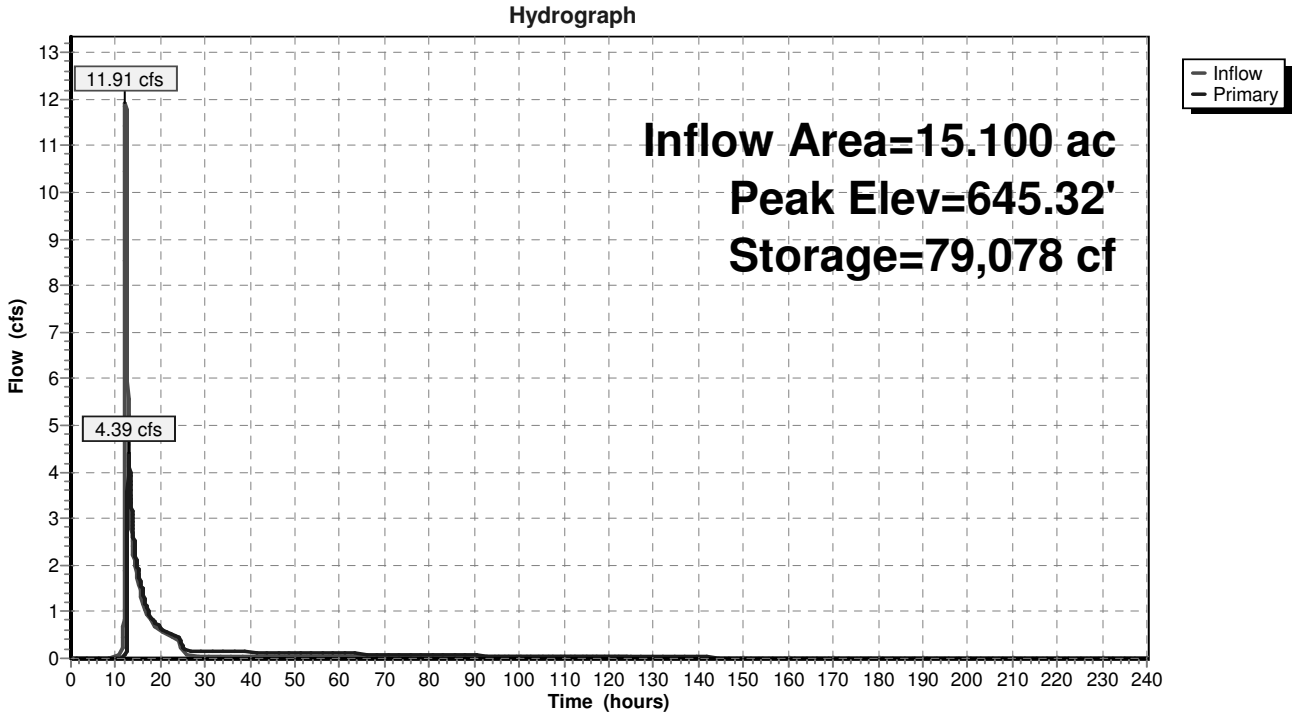
Volume	Invert	Avail.Storage	Storage Description
#1	638.00'	143,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
638.00	5,100	0	0
640.00	7,000	12,100	12,100
642.00	9,200	16,200	28,300
644.00	16,900	26,100	54,400
646.00	22,300	39,200	93,600
648.00	28,000	50,300	143,900

Device	Routing	Invert	Outlet Devices
#1	Primary	644.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	645.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.35 cfs @ 12.94 hrs HW=645.32' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.18 cfs @ 5.31 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 4.17 cfs @ 1.63 fps)

Pond 1.8P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Subcatchment 1.1S:

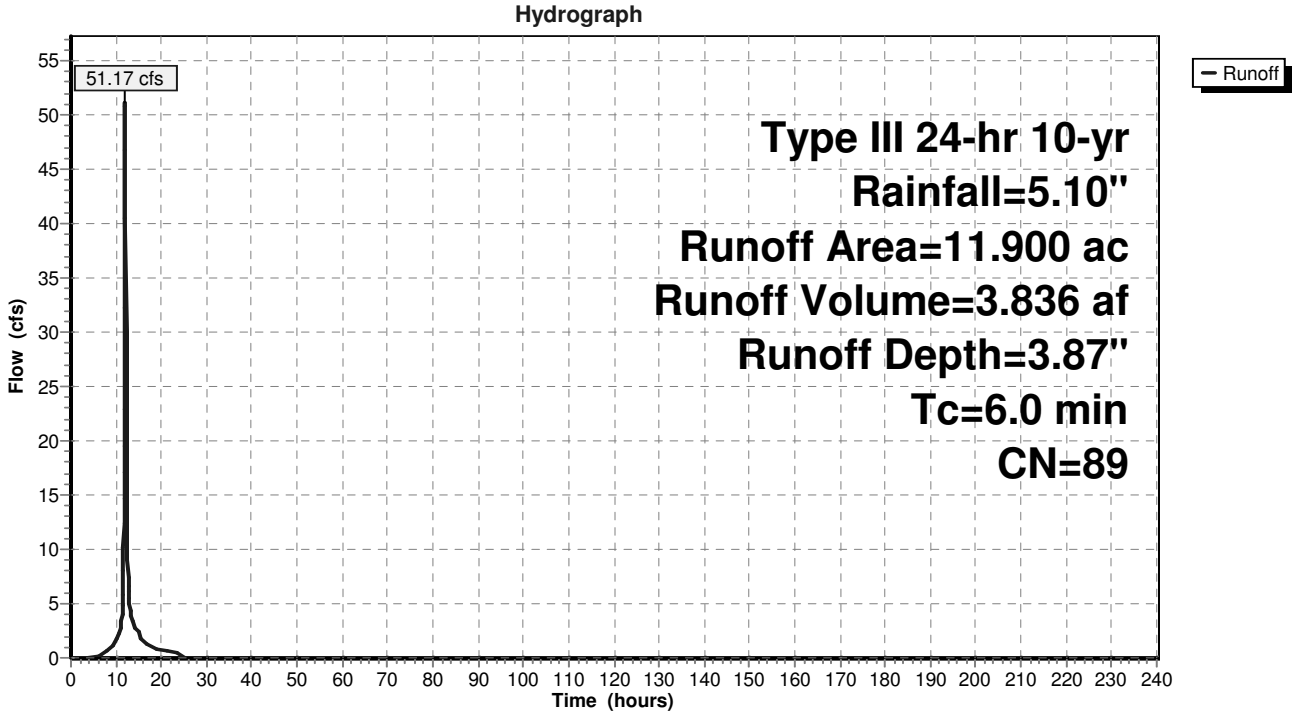
Runoff = 51.17 cfs @ 12.09 hrs, Volume= 3.836 af, Depth= 3.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

	Area (ac)	CN	Description
	7.900	98	Paved parking & roofs
	1.600	74	>75% Grass cover, Good, HSG C
	1.000	71	Meadow, non-grazed, HSG C
	0.500	98	Water Surface
*	0.900	56	Pervious Pavement
	11.900	89	Weighted Average
	3.500		Pervious Area
	8.400		Impervious Area

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

Subcatchment 1.1S:



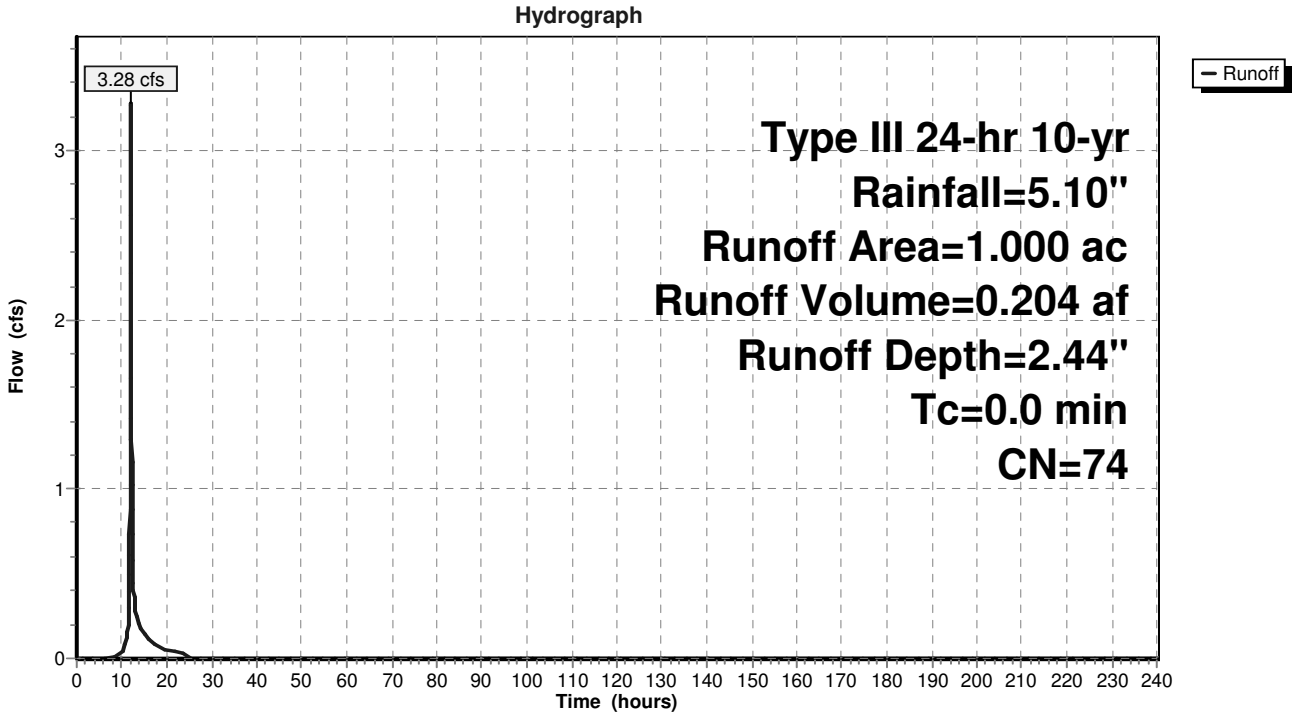
Summary for Subcatchment 1.2S:

Runoff = 3.28 cfs @ 12.01 hrs, Volume= 0.204 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.100	98	Water Surface
0.900	71	Meadow, non-grazed, HSG C
1.000	74	Weighted Average
0.900		Pervious Area
0.100		Impervious Area

Subcatchment 1.2S:



Summary for Subcatchment 1.3S:

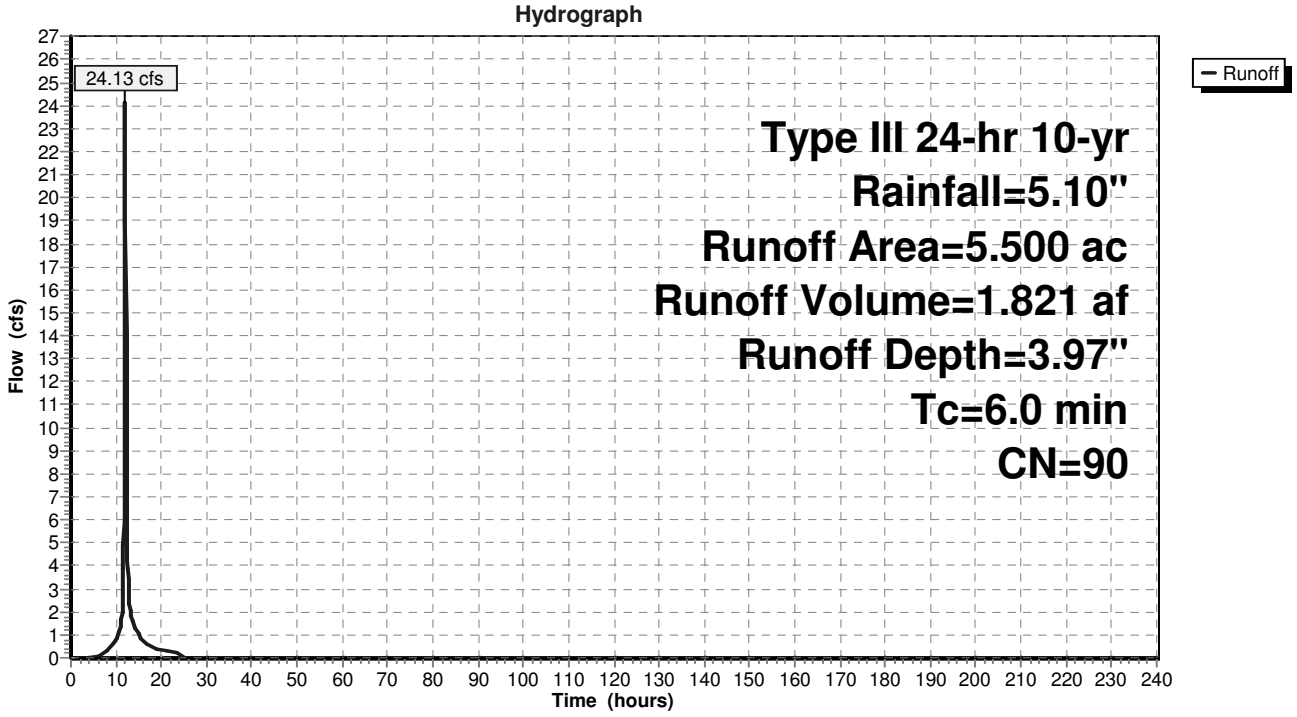
Runoff = 24.13 cfs @ 12.09 hrs, Volume= 1.821 af, Depth= 3.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

	Area (ac)	CN	Description
	3.900	98	Paved parking & roofs
	0.200	74	>75% Grass cover, Good, HSG C
	0.900	71	Meadow, non-grazed, HSG C
	0.200	98	Water Surface
*	0.300	56	Pervious Pavement
	5.500	90	Weighted Average
	1.400		Pervious Area
	4.100		Impervious Area

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

Subcatchment 1.3S:



Summary for Subcatchment 1.4S:

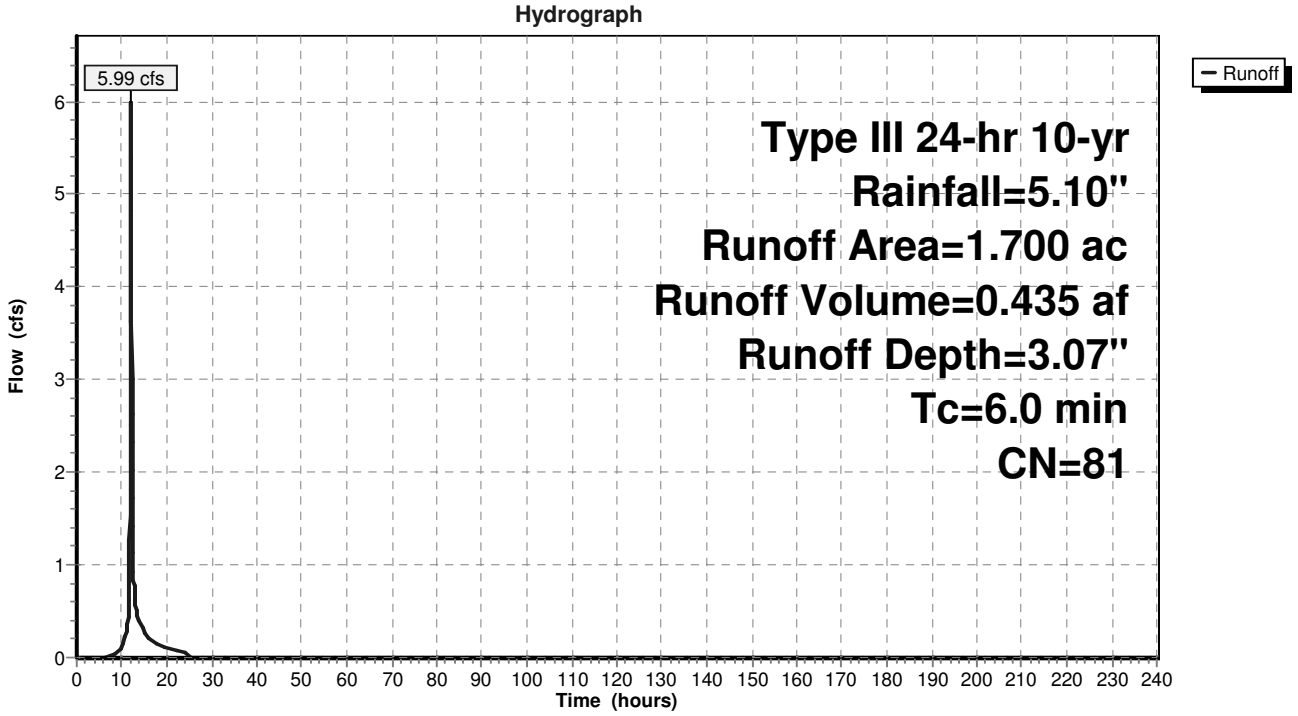
Runoff = 5.99 cfs @ 12.09 hrs, Volume= 0.435 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.900	74	>75% Grass cover, Good, HSG C
0.300	71	Meadow, non-grazed, HSG C
0.400	98	Water Surface
1.700	81	Weighted Average
1.200		Pervious Area
0.500		Impervious Area

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

Subcatchment 1.4S:



Summary for Subcatchment 1.5S:

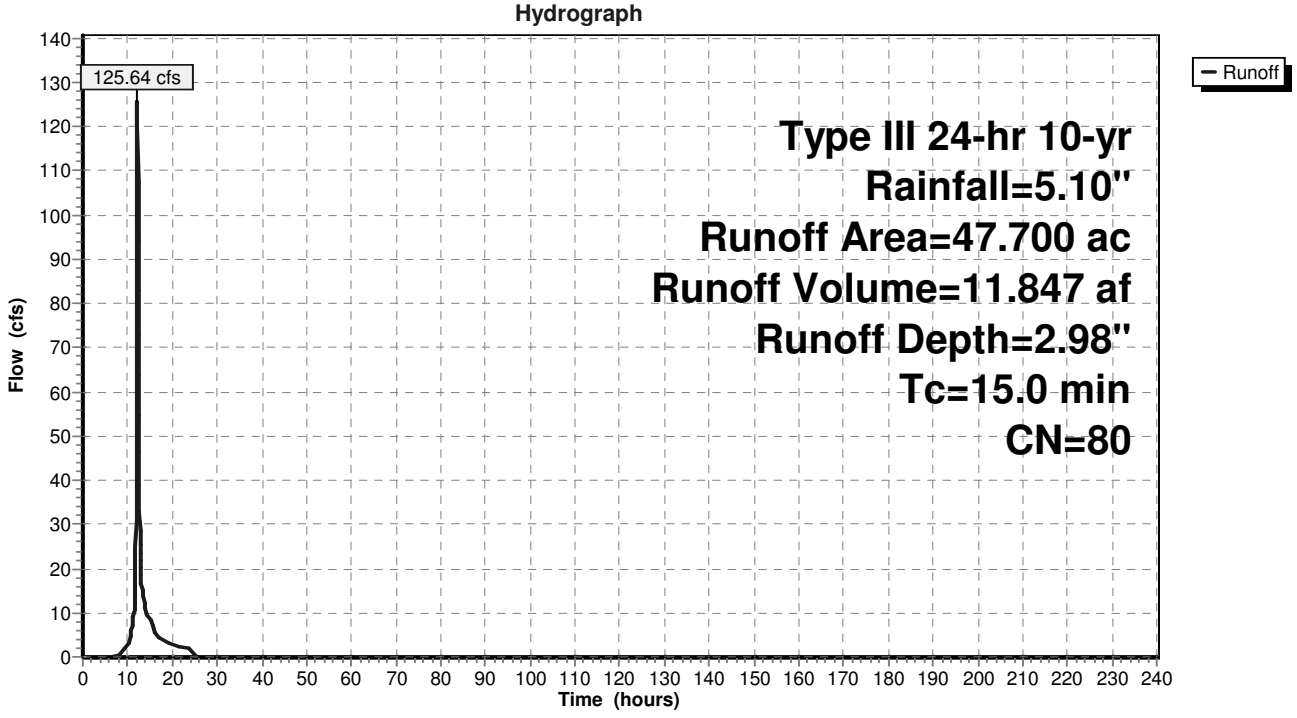
Runoff = 125.64 cfs @ 12.21 hrs, Volume= 11.847 af, Depth= 2.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
12.200	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
10.500	74	>75% Grass cover, Good, HSG C
9.700	71	Meadow, non-grazed, HSG C
12.700	70	Woods, Good, HSG C
0.700	98	Water Surface
1.700	94	Urban commercial, 85% imp, HSG C
47.700	80	Weighted Average
33.355		Pervious Area
14.345		Impervious Area

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

Subcatchment 1.5S:



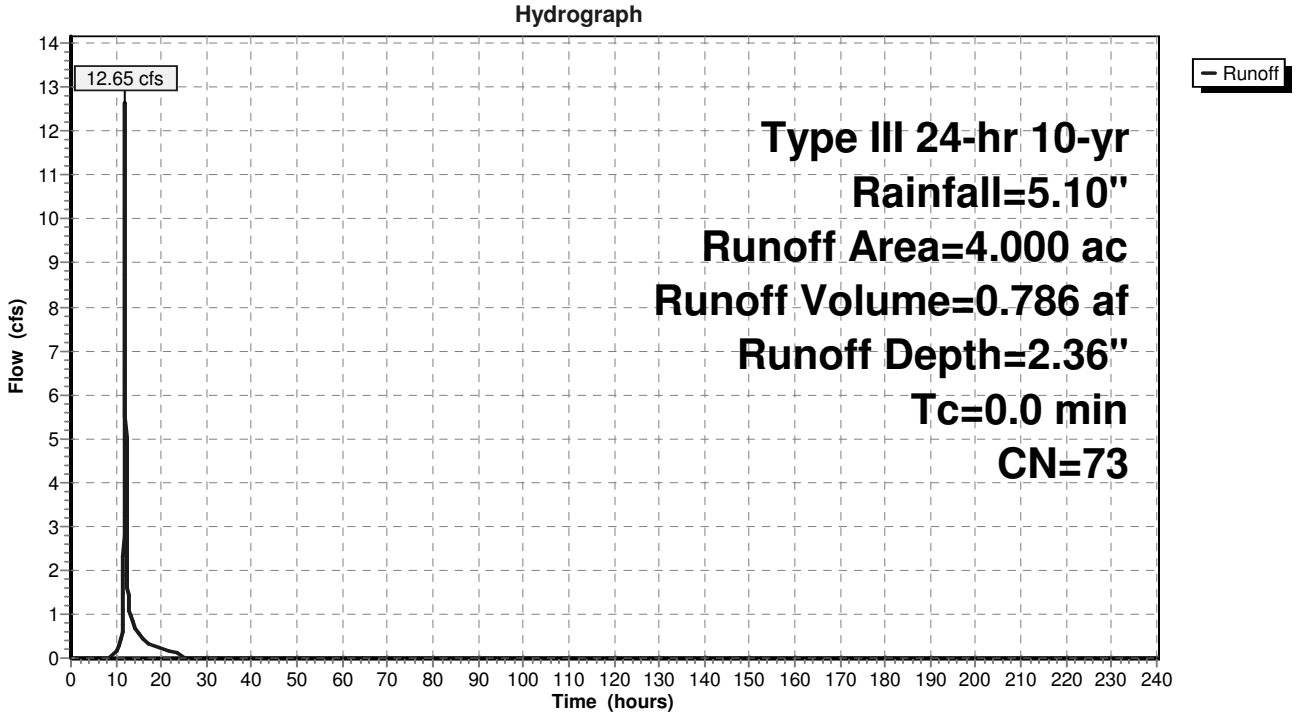
Summary for Subcatchment 1.6S:

Runoff = 12.65 cfs @ 12.01 hrs, Volume= 0.786 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
3.200	71	Meadow, non-grazed, HSG C
0.500	73	Woods, Fair, HSG C
0.300	98	Water Surface
4.000	73	Weighted Average
3.700		Pervious Area
0.300		Impervious Area

Subcatchment 1.6S:



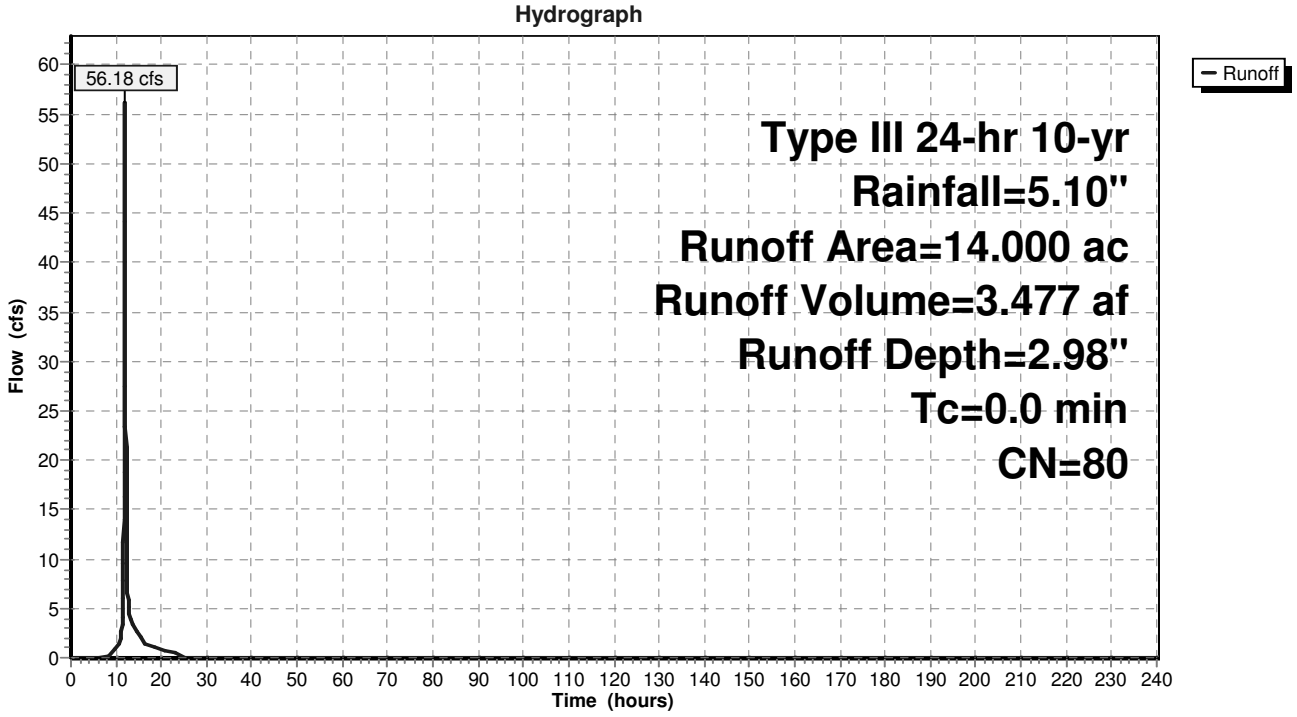
Summary for Subcatchment 1.7S:

Runoff = 56.18 cfs @ 12.00 hrs, Volume= 3.477 af, Depth= 2.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
3.700	98	Paved parking & roofs
2.900	74	>75% Grass cover, Good, HSG C
3.100	71	Meadow, non-grazed, HSG C
3.900	73	Woods, Fair, HSG C
0.400	98	Water Surface
14.000	80	Weighted Average
9.900		Pervious Area
4.100		Impervious Area

Subcatchment 1.7S:



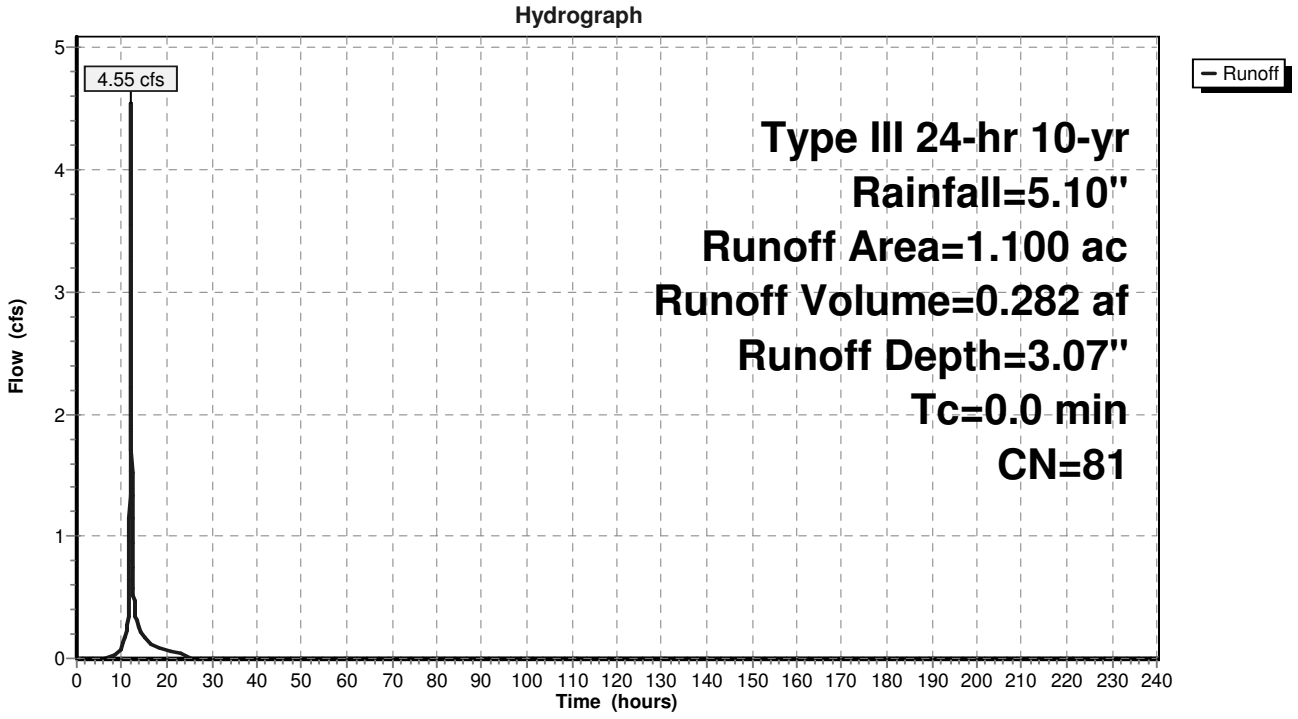
Summary for Subcatchment 1.8S:

Runoff = 4.55 cfs @ 12.00 hrs, Volume= 0.282 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.700	71	Meadow, non-grazed, HSG C
0.400	98	Water Surface
1.100	81	Weighted Average
0.700		Pervious Area
0.400		Impervious Area

Subcatchment 1.8S:



Summary for Subcatchment 1.9S:

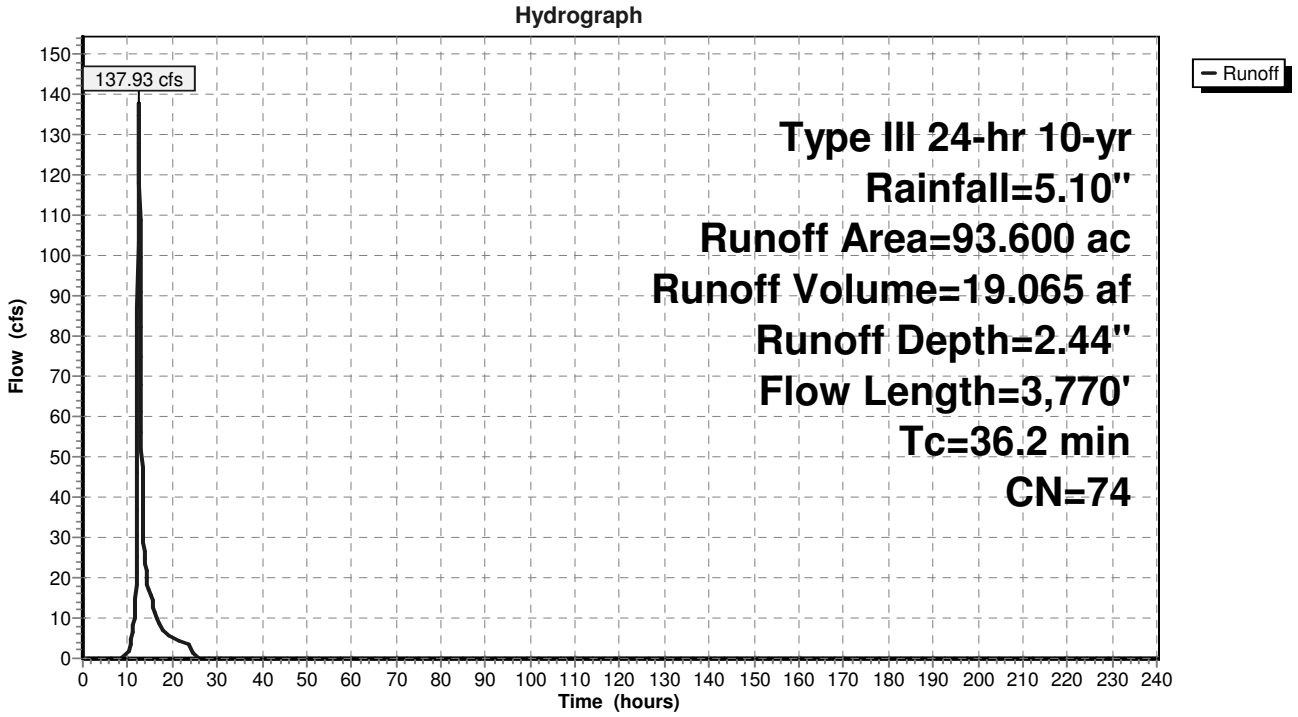
Runoff = 137.93 cfs @ 12.51 hrs, Volume= 19.065 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
1.500	87	Dirt roads, HSG C
0.500	74	>75% Grass cover, Good, HSG C
13.900	71	Meadow, non-grazed, HSG C
1.500	60	Woods, Fair, HSG B
63.300	73	Woods, Fair, HSG C
9.900	79	Woods, Fair, HSG D
3.000	94	Urban commercial, 85% imp, HSG C
93.600	74	Weighted Average
91.050		Pervious Area
2.550		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0500	0.29		**Sheet Flow,** Range n= 0.130 P2= 3.50"
9.9	1,643	0.1560	2.76		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.7	668	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.8	1,359	0.0220	2.58	1.37	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=0.25' Z= 0.5 '/' Top.W=2.25' n= 0.030 Earth, grassed & winding
36.2	3,770	Total			

Subcatchment 1.9S:

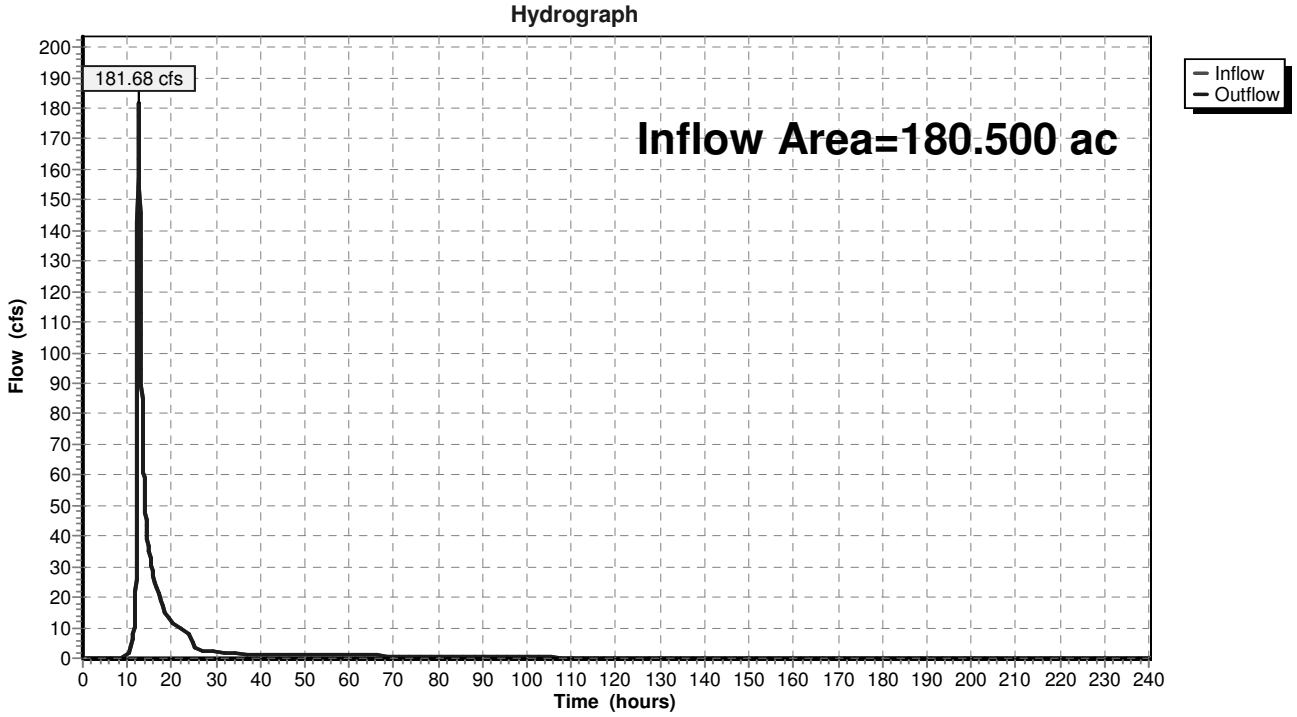


Summary for Reach DP 1: Design Point 1

Inflow Area = 180.500 ac, 19.28% Impervious, Inflow Depth = 2.79" for 10-yr event
Inflow = 181.68 cfs @ 12.57 hrs, Volume= 41.953 af
Outflow = 181.68 cfs @ 12.57 hrs, Volume= 41.953 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 1: Design Point 1



Summary for Pond 1.1P: Micropool Extended Detention Pond (P-1)

Inflow Area = 19.100 ac, 68.06% Impervious, Inflow Depth = 4.01" for 10-yr event
Inflow = 51.44 cfs @ 12.09 hrs, Volume= 6.380 af
Outflow = 26.20 cfs @ 12.24 hrs, Volume= 6.361 af, Atten= 49%, Lag= 9.4 min
Primary = 26.20 cfs @ 12.24 hrs, Volume= 6.361 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 613.00' Surf.Area= 19,800 sf Storage= 81,050 cf
Peak Elev= 615.85' @ 12.24 hrs Surf.Area= 26,429 sf Storage= 146,575 cf (65,525 cf above start)
Flood Elev= 617.00' Surf.Area= 29,400 sf Storage= 178,700 cf (97,650 cf above start)

Plug-Flow detention time= 2,462.9 min calculated for 4.500 af (71% of inflow)
Center-of-Mass det. time= 963.7 min (2,537.1 - 1,573.4)

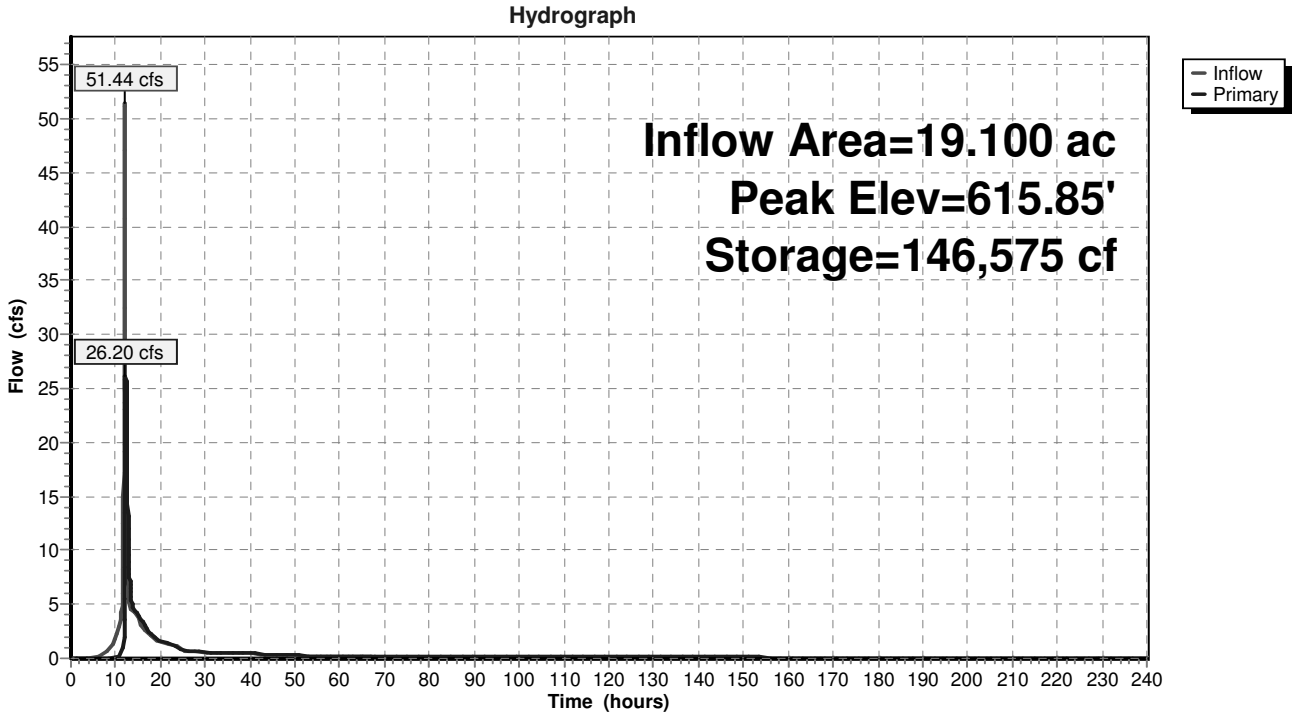
Volume	Invert	Avail.Storage	Storage Description
#1	605.00'	209,400 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
605.00	5,000	0	0
606.00	6,000	5,500	5,500
608.00	8,100	14,100	19,600
610.00	10,400	18,500	38,100
612.00	15,100	25,500	63,600
613.00	19,800	17,450	81,050
614.00	21,900	20,850	101,900
616.00	26,800	48,700	150,600
618.00	32,000	58,800	209,400

Device	Routing	Invert	Outlet Devices
#1	Primary	613.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	614.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=26.14 cfs @ 12.24 hrs HW=615.85' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.17 cfs @ 8.01 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 25.96 cfs @ 3.85 fps)

Pond 1.1P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 20.100 ac, 65.17% Impervious, Inflow Depth > 3.92" for 10-yr event
Inflow = 27.39 cfs @ 12.24 hrs, Volume= 6.565 af
Outflow = 3.07 cfs @ 16.49 hrs, Volume= 6.560 af, Atten= 89%, Lag= 255.2 min
Primary = 3.07 cfs @ 16.49 hrs, Volume= 6.560 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 600.00' Surf.Area= 6,300 sf Storage= 9,700 cf
Peak Elev= 607.70' @ 16.49 hrs Surf.Area= 23,732 sf Storage= 121,580 cf (111,880 cf above start)
Flood Elev= 609.00' Surf.Area= 27,250 sf Storage= 154,575 cf (144,875 cf above start)

Plug-Flow detention time= 1,609.5 min calculated for 6.336 af (97% of inflow)
Center-of-Mass det. time= 1,135.5 min (3,619.7 - 2,484.1)

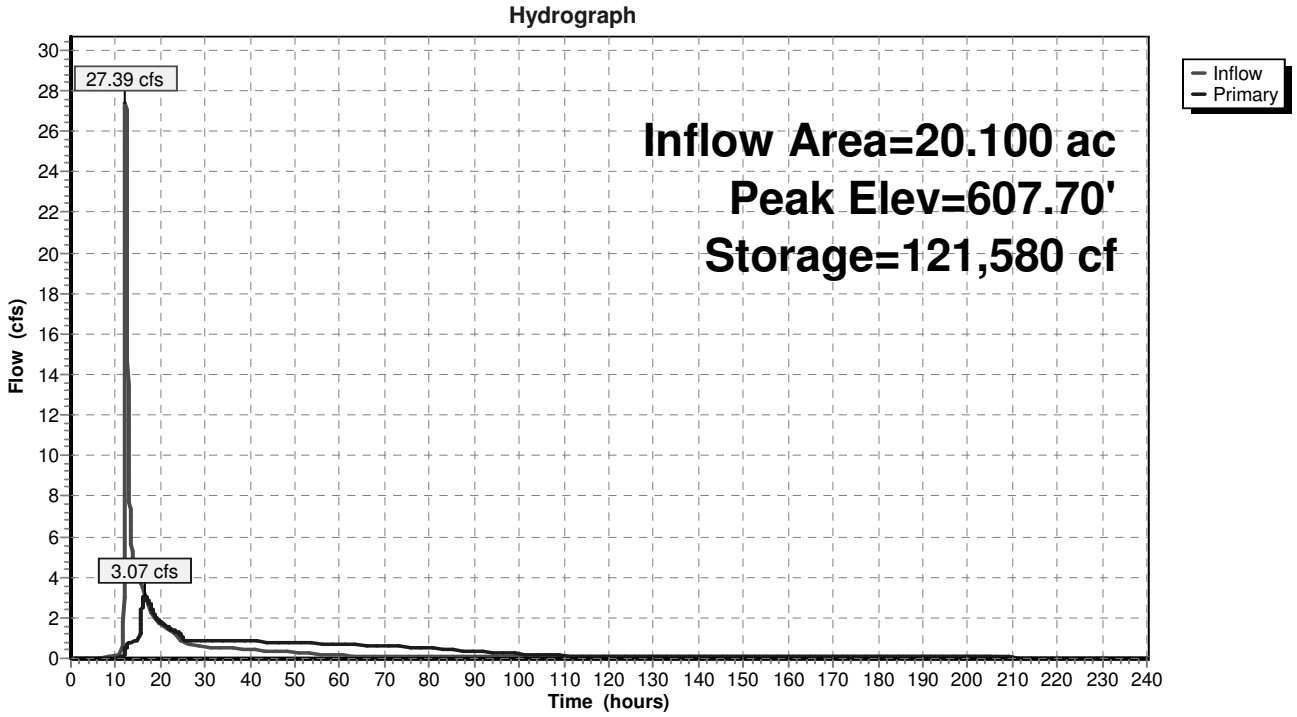
Volume	Invert	Avail.Storage	Storage Description
#1	596.00'	183,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
596.00	600	0	0
598.00	1,400	2,000	2,000
600.00	6,300	7,700	9,700
602.00	10,200	16,500	26,200
604.00	14,600	24,800	51,000
606.00	19,300	33,900	84,900
608.00	24,500	43,800	128,700
610.00	30,000	54,500	183,200

Device	Routing	Invert	Outlet Devices
#1	Primary	600.00'	**3.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	607.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.96 cfs @ 16.49 hrs HW=607.70' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.88 cfs @ 13.24 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 2.08 cfs @ 1.27 fps)

Pond 1.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 1.3P: Micropool Extended Detention Pond (P-1)

Inflow Area = 5.500 ac, 74.55% Impervious, Inflow Depth = 3.97" for 10-yr event
Inflow = 24.13 cfs @ 12.09 hrs, Volume= 1.821 af
Outflow = 10.41 cfs @ 12.29 hrs, Volume= 2.110 af, Atten= 57%, Lag= 12.2 min
Primary = 10.41 cfs @ 12.29 hrs, Volume= 2.110 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 664.00' Surf.Area= 14,500 sf Storage= 29,600 cf
Peak Elev= 666.05' @ 12.29 hrs Surf.Area= 18,691 sf Storage= 63,572 cf (33,972 cf above start)
Flood Elev= 667.00' Surf.Area= 20,550 sf Storage= 82,275 cf (52,675 cf above start)

Plug-Flow detention time= 2,330.7 min calculated for 1.431 af (79% of inflow)
Center-of-Mass det. time= 1,504.8 min (2,294.9 - 790.1)

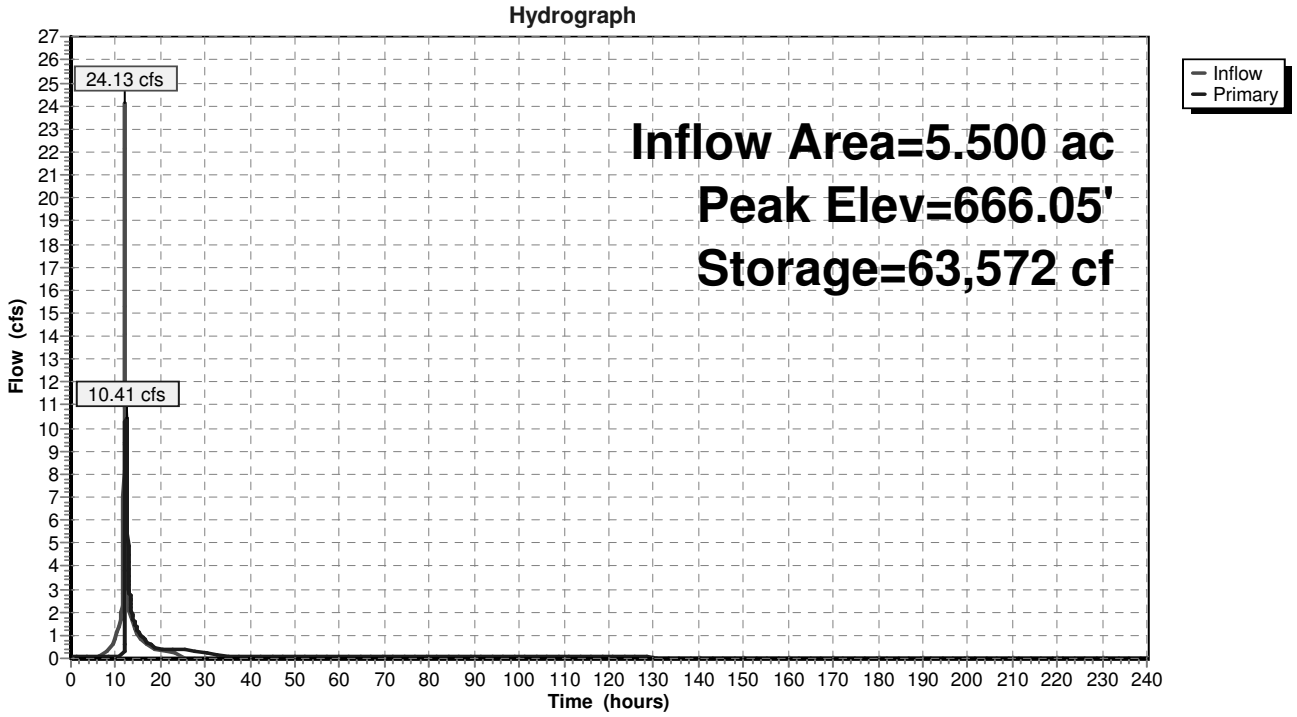
Volume	Invert	Avail.Storage	Storage Description
#1	659.00'	103,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
659.00	1,500	0	0
660.00	2,000	1,750	1,750
662.00	5,200	7,200	8,950
663.00	10,800	8,000	16,950
664.00	14,500	12,650	29,600
666.00	18,600	33,100	62,700
668.00	22,500	41,100	103,800

Device	Routing	Invert	Outlet Devices
#1	Primary	663.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	665.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	664.75'	**4.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=10.35 cfs @ 12.29 hrs HW=666.05' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.10 cfs @ 8.32 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 9.80 cfs @ 2.24 fps)
- **3=Orifice/Grate** (Orifice Controls 0.45 cfs @ 5.12 fps)

Pond 1.3P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.4P: Extended Detention Pond (Design 2) - Premanent Pool Provided

Inflow Area = 7.200 ac, 63.89% Impervious, Inflow Depth = 4.24" for 10-yr event
Inflow = 13.28 cfs @ 12.25 hrs, Volume= 2.546 af
Outflow = 1.52 cfs @ 14.90 hrs, Volume= 2.544 af, Atten= 89%, Lag= 159.1 min
Primary = 1.52 cfs @ 14.90 hrs, Volume= 2.544 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 657.00' Surf.Area= 12,850 sf Storage= 36,525 cf
Peak Elev= 659.50' @ 14.90 hrs Surf.Area= 21,840 sf Storage= 78,911 cf (42,386 cf above start)
Flood Elev= 661.00' Surf.Area= 28,250 sf Storage= 116,475 cf (79,950 cf above start)

Plug-Flow detention time= 2,763.3 min calculated for 1.706 af (67% of inflow)
Center-of-Mass det. time= 706.3 min (2,748.6 - 2,042.2)

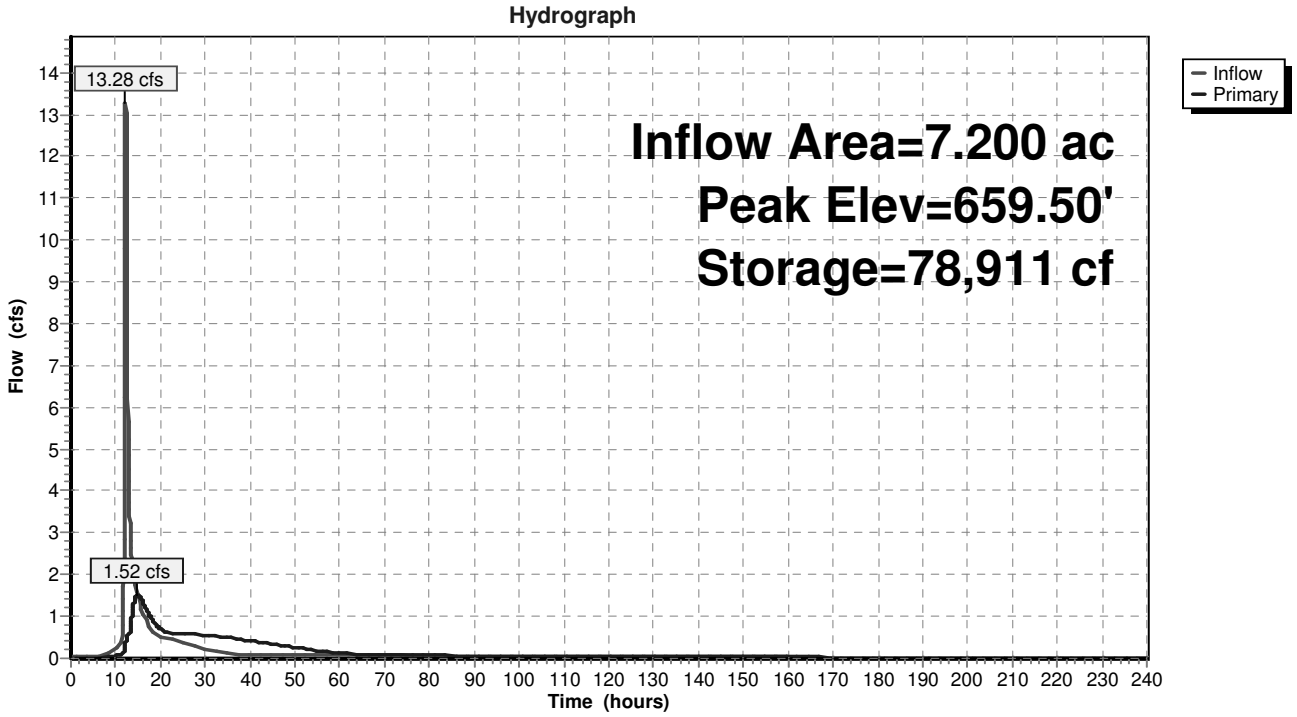
Volume	Invert	Avail.Storage	Storage Description
#1	650.00'	146,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
650.00	500	0	0
652.00	1,100	1,600	1,600
654.00	6,200	7,300	8,900
656.00	10,000	16,200	25,100
658.00	15,700	25,700	50,800
660.00	23,900	39,600	90,400
662.00	32,600	56,500	146,900

Device	Routing	Invert	Outlet Devices
#1	Primary	657.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	659.25'	**2.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.51 cfs @ 14.90 hrs HW=659.50' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.64 cfs @ 7.35 fps)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.87 cfs @ 1.41 fps)

Pond 1.4P: Extended Detention Pond (Design 2) - Premanent Pool Provided



Summary for Pond 1.5P: Micropool Extended Detention Pond (P-1)

Inflow Area = 47.700 ac, 30.07% Impervious, Inflow Depth = 2.98" for 10-yr event
Inflow = 125.64 cfs @ 12.21 hrs, Volume= 11.847 af
Outflow = 69.12 cfs @ 12.47 hrs, Volume= 11.824 af, Atten= 45%, Lag= 15.8 min
Primary = 69.12 cfs @ 12.47 hrs, Volume= 11.824 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 656.00' Surf.Area= 38,400 sf Storage= 157,900 cf
Peak Elev= 659.66' @ 12.47 hrs Surf.Area= 52,474 sf Storage= 328,391 cf (170,491 cf above start)
Flood Elev= 661.00' Surf.Area= 61,600 sf Storage= 404,050 cf (246,150 cf above start)

Plug-Flow detention time= 872.7 min calculated for 8.199 af (69% of inflow)
Center-of-Mass det. time= 513.0 min (1,342.3 - 829.3)

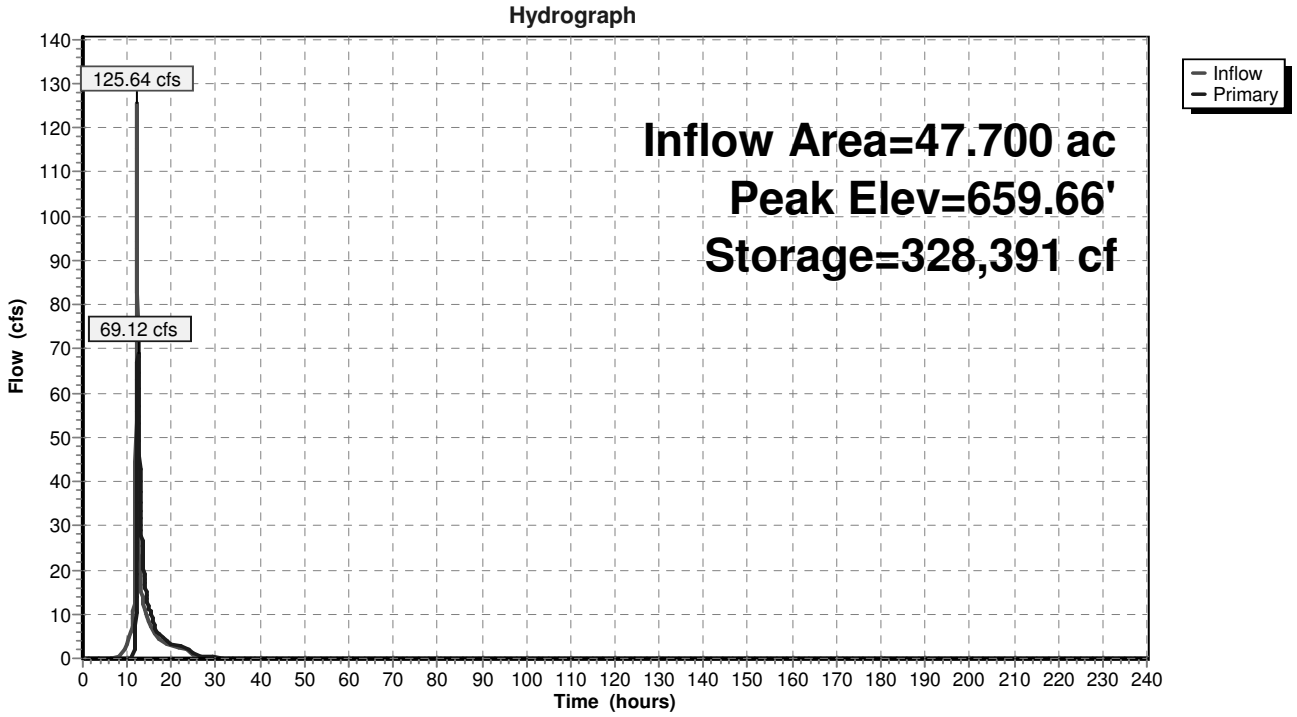
Volume	Invert	Avail.Storage	Storage Description
#1	648.00'	469,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
648.00	10,500	0	0
650.00	14,200	24,700	24,700
652.00	18,100	32,300	57,000
654.00	22,200	40,300	97,300
656.00	38,400	60,600	157,900
658.00	48,500	86,900	244,800
660.00	53,300	101,800	346,600
662.00	69,900	123,200	469,800

Device	Routing	Invert	Outlet Devices
#1	Primary	656.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	657.00'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	658.75'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=68.86 cfs @ 12.47 hrs HW=659.65' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.20 cfs @ 9.10 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 57.33 cfs @ 5.41 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 11.33 cfs @ 3.14 fps)

Pond 1.5P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.6P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 51.700 ac, 28.33% Impervious, Inflow Depth = 2.93" for 10-yr event
Inflow = 71.22 cfs @ 12.46 hrs, Volume= 12.610 af
Outflow = 43.57 cfs @ 12.91 hrs, Volume= 12.572 af, Atten= 39%, Lag= 27.1 min
Primary = 43.57 cfs @ 12.91 hrs, Volume= 12.572 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 627.00' Surf.Area= 30,860 sf Storage= 131,598 cf
Peak Elev= 630.57' @ 12.91 hrs Surf.Area= 40,978 sf Storage= 259,294 cf (127,696 cf above start)
Flood Elev= 633.00' Surf.Area= 48,641 sf Storage= 368,223 cf (236,625 cf above start)

Plug-Flow detention time= 1,227.9 min calculated for 9.551 af (76% of inflow)
Center-of-Mass det. time= 427.1 min (1,737.6 - 1,310.6)

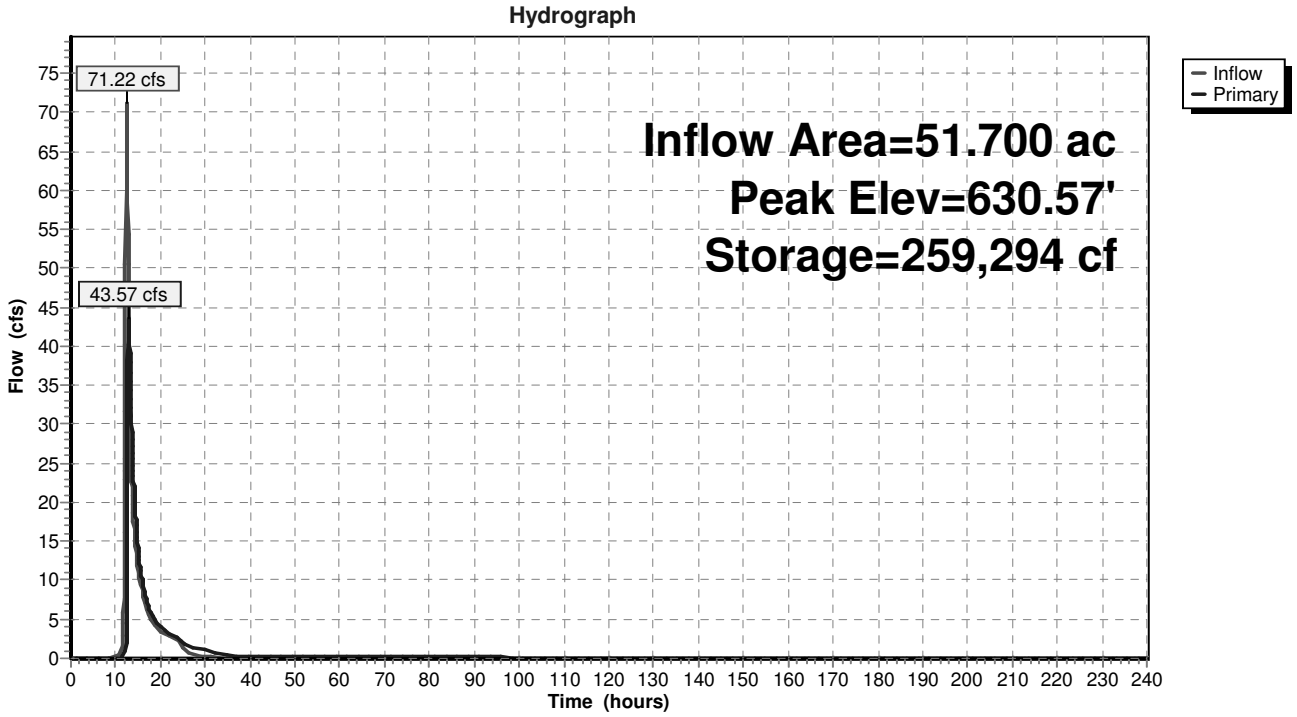
Volume	Invert	Avail.Storage	Storage Description
#1	621.00'	418,508 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
621.00	14,753	0	0
622.00	16,761	15,757	15,757
624.00	21,116	37,877	53,634
627.00	30,860	77,964	131,598
628.00	33,557	32,209	163,807
630.00	39,254	72,811	236,618
632.00	45,354	84,608	321,226
634.00	51,928	97,282	418,508

Device	Routing	Invert	Outlet Devices
#1	Primary	627.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	627.75'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	628.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=43.52 cfs @ 12.91 hrs HW=630.56' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.31 cfs @ 8.96 fps)
- **2=Orifice/Grate** (Orifice Controls 2.65 cfs @ 7.58 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 40.57 cfs @ 4.47 fps)

Pond 1.6P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 1.7P: Micropool Extended Detention Pond (P-1)

Inflow Area = 14.000 ac, 29.29% Impervious, Inflow Depth = 2.98" for 10-yr event
Inflow = 56.18 cfs @ 12.00 hrs, Volume= 3.477 af
Outflow = 32.05 cfs @ 12.10 hrs, Volume= 3.476 af, Atten= 43%, Lag= 5.6 min
Primary = 32.05 cfs @ 12.10 hrs, Volume= 3.476 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 664.00' Surf.Area= 16,200 sf Storage= 41,300 cf
Peak Elev= 666.03' @ 12.10 hrs Surf.Area= 24,633 sf Storage= 82,763 cf (41,463 cf above start)
Flood Elev= 667.00' Surf.Area= 28,800 sf Storage= 108,650 cf (67,350 cf above start)

Plug-Flow detention time= 808.7 min calculated for 2.528 af (73% of inflow)
Center-of-Mass det. time= 498.8 min (1,314.1 - 815.4)

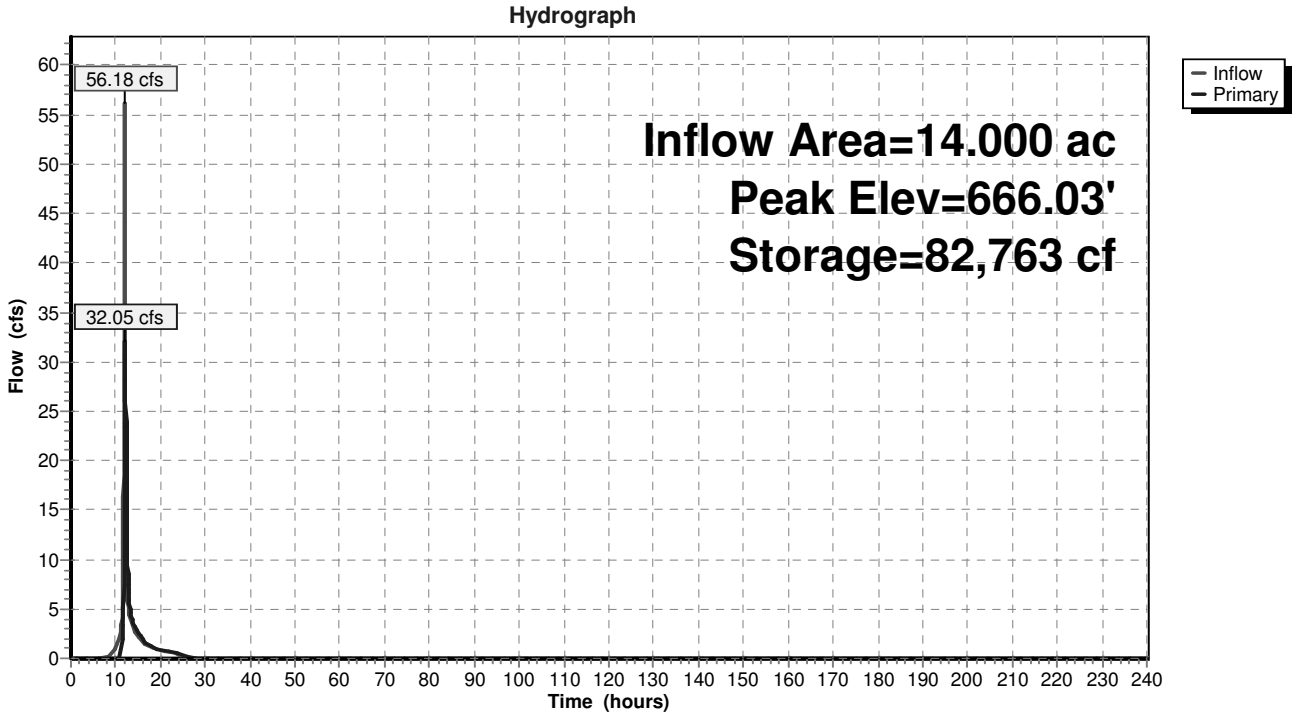
Volume	Invert	Avail.Storage	Storage Description
#1	658.00'	139,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
658.00	3,100	0	0
660.00	4,500	7,600	7,600
662.00	6,500	11,000	18,600
664.00	16,200	22,700	41,300
666.00	24,500	40,700	82,000
668.00	33,100	57,600	139,600

Device	Routing	Invert	Outlet Devices
#1	Primary	664.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	664.90'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=31.94 cfs @ 12.10 hrs HW=666.03' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.08 cfs @ 6.75 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 31.86 cfs @ 3.53 fps)

Pond 1.7P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.8P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 15.100 ac, 29.80% Impervious, Inflow Depth = 2.99" for 10-yr event
Inflow = 34.51 cfs @ 12.08 hrs, Volume= 3.758 af
Outflow = 22.15 cfs @ 12.37 hrs, Volume= 3.756 af, Atten= 36%, Lag= 17.6 min
Primary = 22.15 cfs @ 12.37 hrs, Volume= 3.756 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 644.00' Surf.Area= 16,900 sf Storage= 54,400 cf
Peak Elev= 645.88' @ 12.37 hrs Surf.Area= 21,981 sf Storage= 90,984 cf (36,584 cf above start)
Flood Elev= 647.00' Surf.Area= 25,150 sf Storage= 117,325 cf (62,925 cf above start)

Plug-Flow detention time= 1,402.5 min calculated for 2.507 af (67% of inflow)
Center-of-Mass det. time= 419.9 min (1,696.4 - 1,276.5)

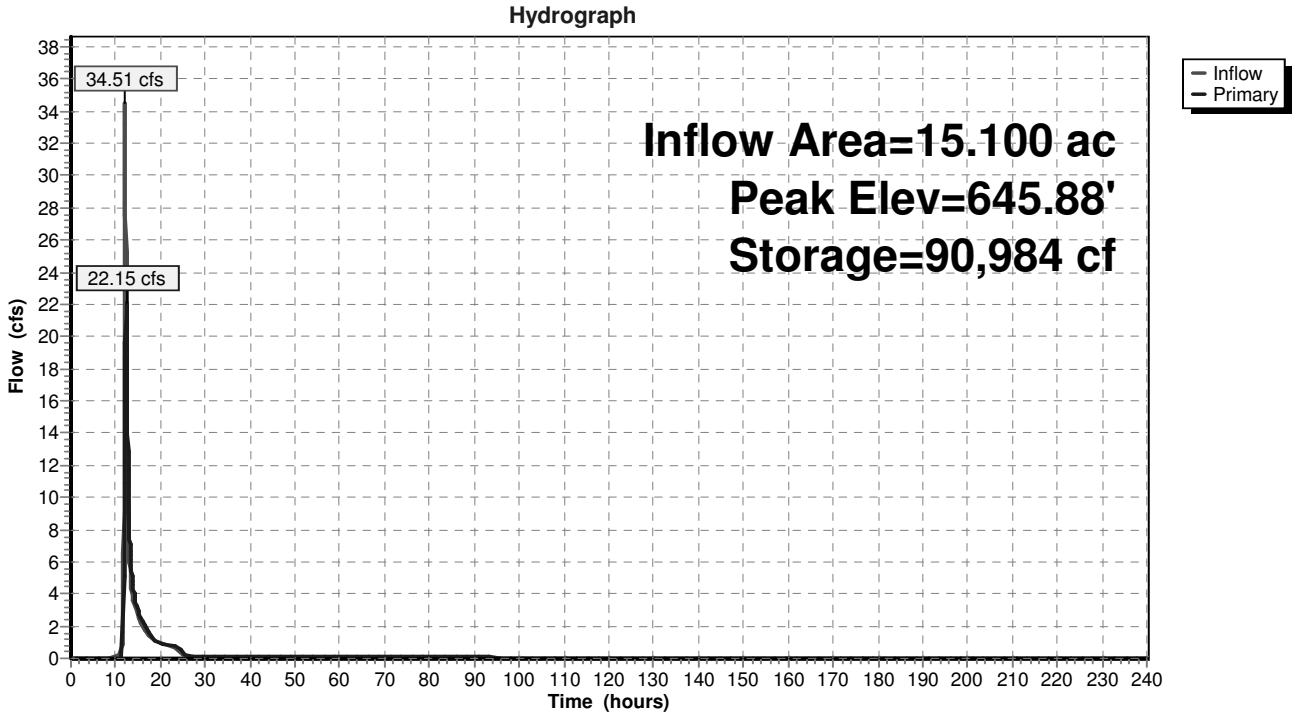
Volume	Invert	Avail.Storage	Storage Description
#1	638.00'	143,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
638.00	5,100	0	0
640.00	7,000	12,100	12,100
642.00	9,200	16,200	28,300
644.00	16,900	26,100	54,400
646.00	22,300	39,200	93,600
648.00	28,000	50,300	143,900

Device	Routing	Invert	Outlet Devices
#1	Primary	644.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	645.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=22.04 cfs @ 12.37 hrs HW=645.88' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.22 cfs @ 6.42 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 21.82 cfs @ 3.10 fps)

Pond 1.8P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Subcatchment 1.1S:

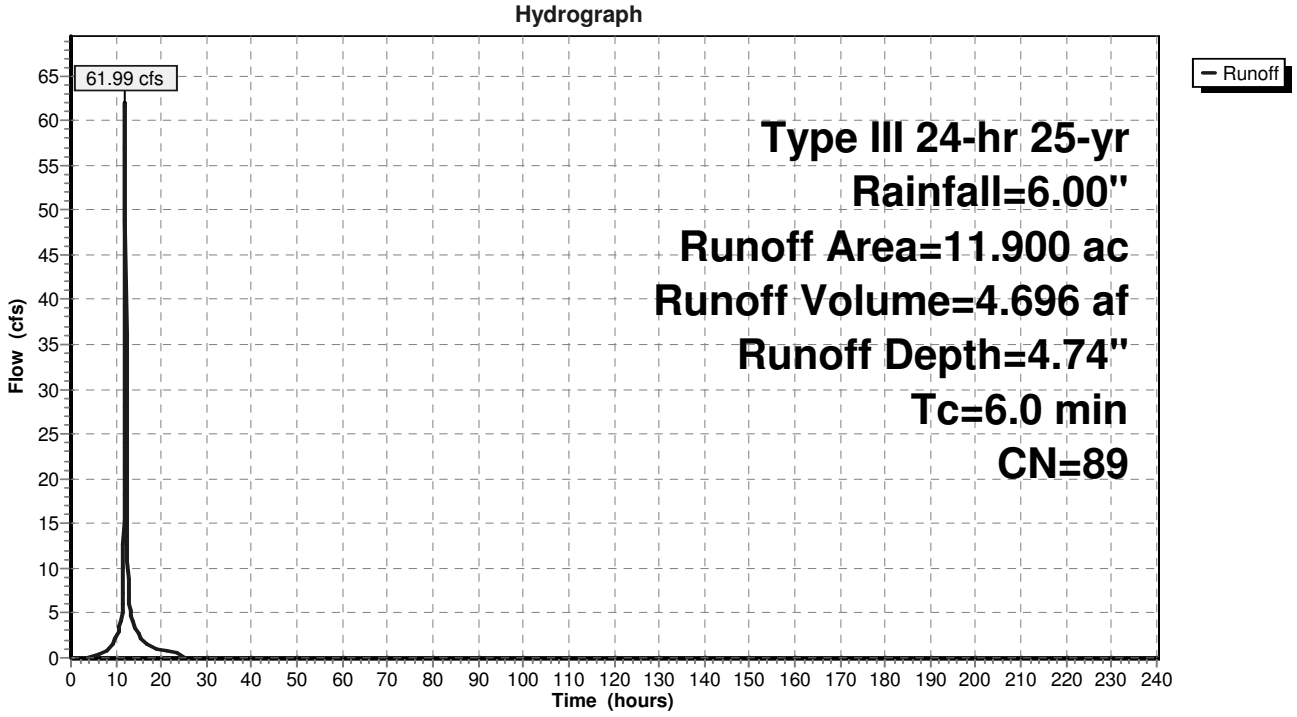
Runoff = 61.99 cfs @ 12.09 hrs, Volume= 4.696 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

	Area (ac)	CN	Description
	7.900	98	Paved parking & roofs
	1.600	74	>75% Grass cover, Good, HSG C
	1.000	71	Meadow, non-grazed, HSG C
	0.500	98	Water Surface
*	0.900	56	Pervious Pavement
	11.900	89	Weighted Average
	3.500		Pervious Area
	8.400		Impervious Area

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

Subcatchment 1.1S:



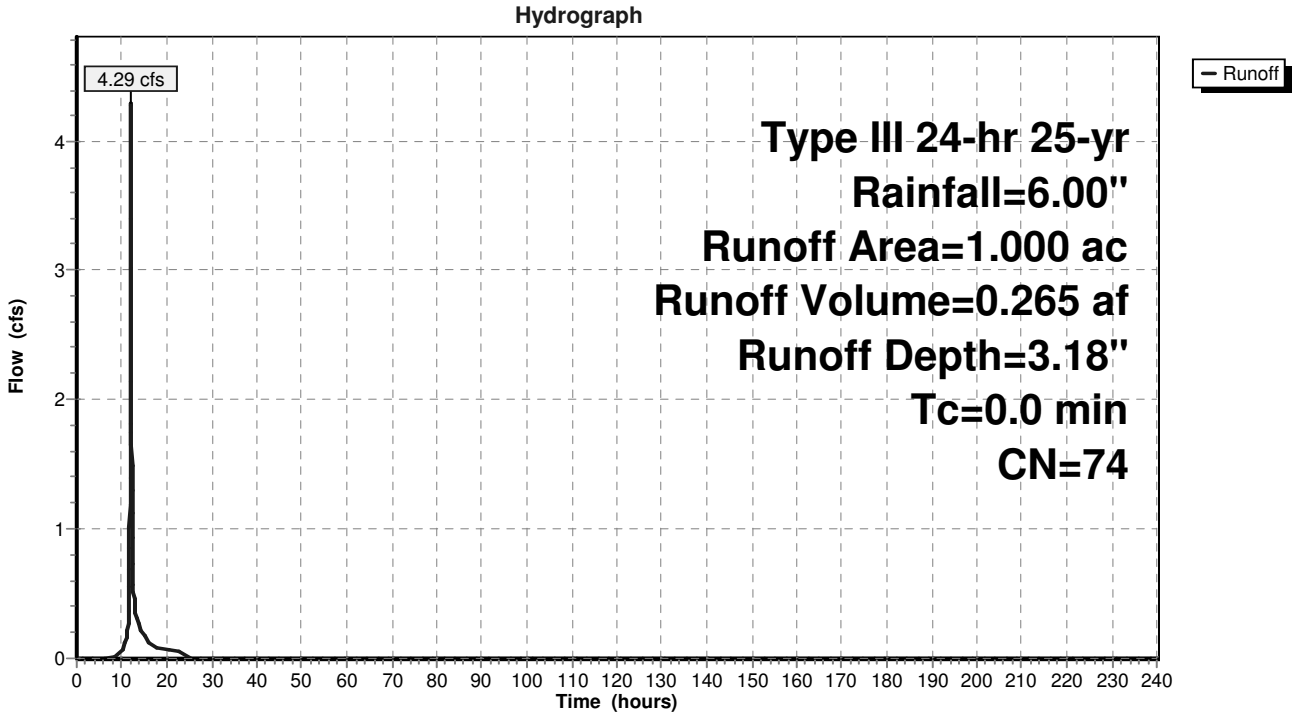
Summary for Subcatchment 1.2S:

Runoff = 4.29 cfs @ 12.00 hrs, Volume= 0.265 af, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.100	98	Water Surface
0.900	71	Meadow, non-grazed, HSG C
1.000	74	Weighted Average
0.900		Pervious Area
0.100		Impervious Area

Subcatchment 1.2S:



Summary for Subcatchment 1.3S:

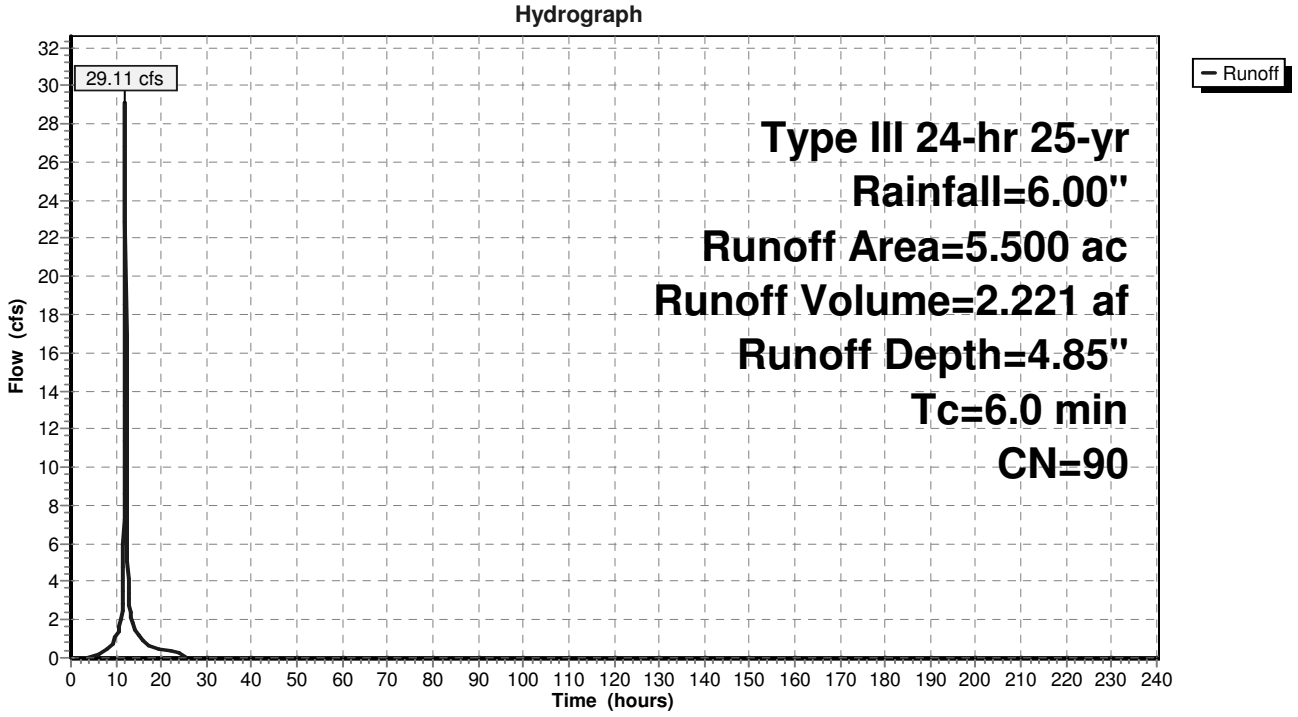
Runoff = 29.11 cfs @ 12.09 hrs, Volume= 2.221 af, Depth= 4.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

	Area (ac)	CN	Description
	3.900	98	Paved parking & roofs
	0.200	74	>75% Grass cover, Good, HSG C
	0.900	71	Meadow, non-grazed, HSG C
	0.200	98	Water Surface
*	0.300	56	Pervious Pavement
	5.500	90	Weighted Average
	1.400		Pervious Area
	4.100		Impervious Area

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

Subcatchment 1.3S:



Summary for Subcatchment 1.4S:

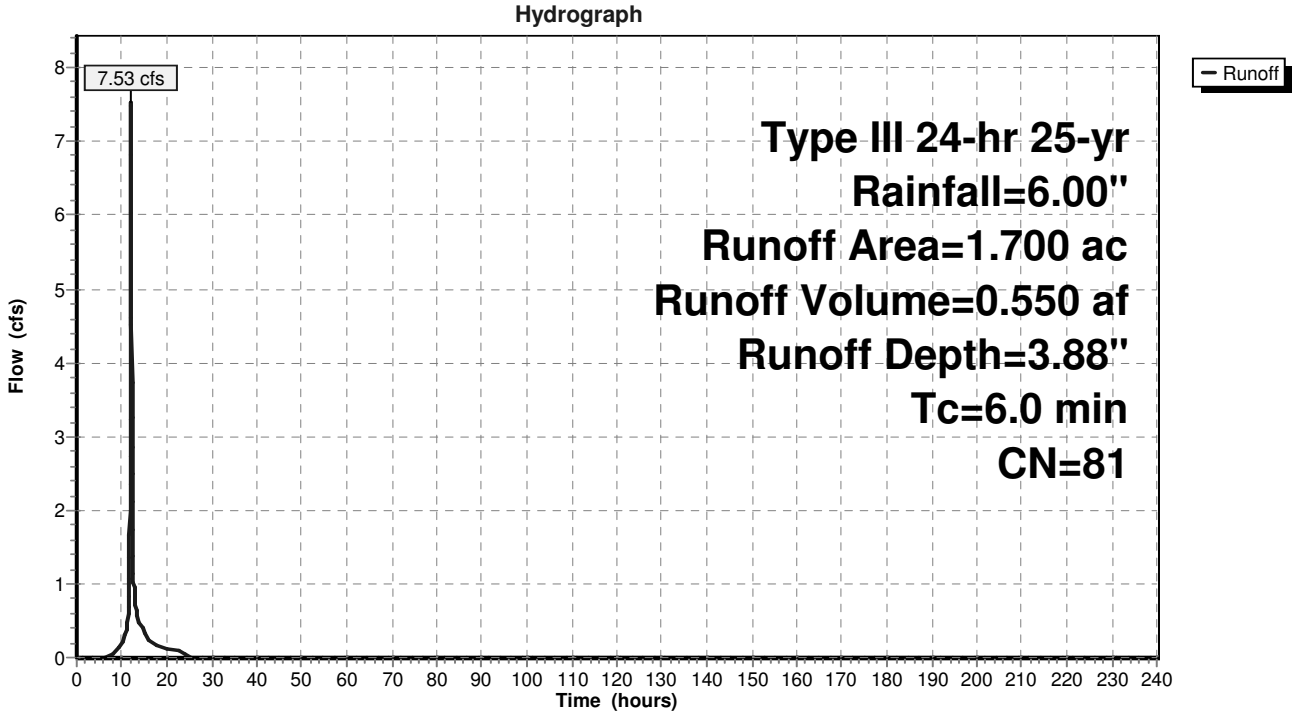
Runoff = 7.53 cfs @ 12.09 hrs, Volume= 0.550 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.900	74	>75% Grass cover, Good, HSG C
0.300	71	Meadow, non-grazed, HSG C
0.400	98	Water Surface
1.700	81	Weighted Average
1.200		Pervious Area
0.500		Impervious Area

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

Subcatchment 1.4S:



Summary for Subcatchment 1.5S:

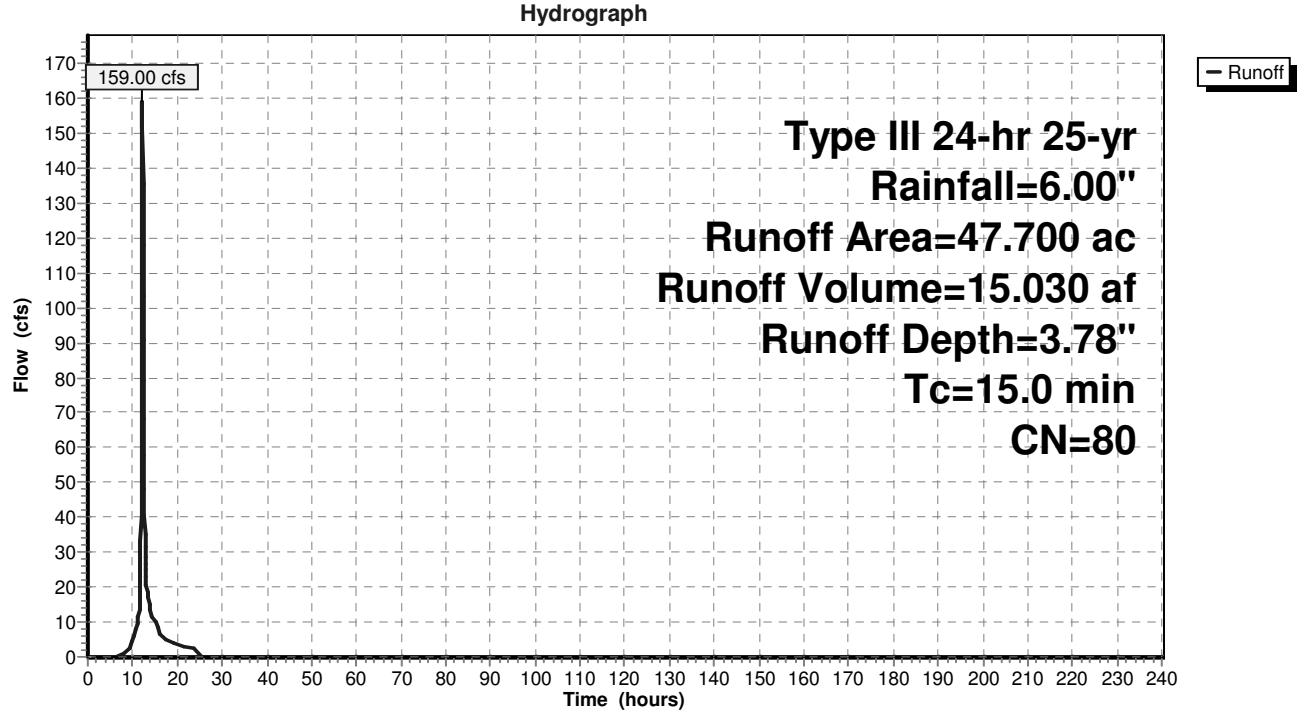
Runoff = 159.00 cfs @ 12.21 hrs, Volume= 15.030 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
12.200	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
10.500	74	>75% Grass cover, Good, HSG C
9.700	71	Meadow, non-grazed, HSG C
12.700	70	Woods, Good, HSG C
0.700	98	Water Surface
1.700	94	Urban commercial, 85% imp, HSG C
47.700	80	Weighted Average
33.355		Pervious Area
14.345		Impervious Area

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

Subcatchment 1.5S:



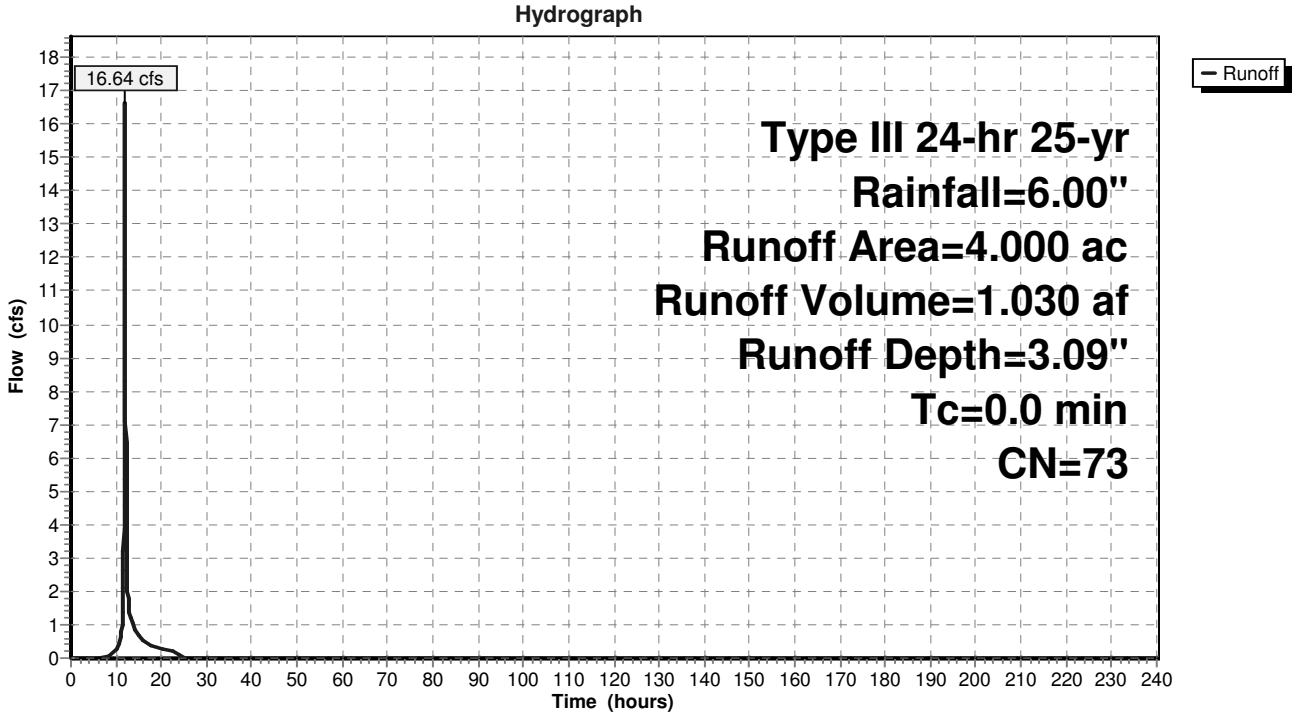
Summary for Subcatchment 1.6S:

Runoff = 16.64 cfs @ 12.00 hrs, Volume= 1.030 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
3.200	71	Meadow, non-grazed, HSG C
0.500	73	Woods, Fair, HSG C
0.300	98	Water Surface
4.000	73	Weighted Average
3.700		Pervious Area
0.300		Impervious Area

Subcatchment 1.6S:



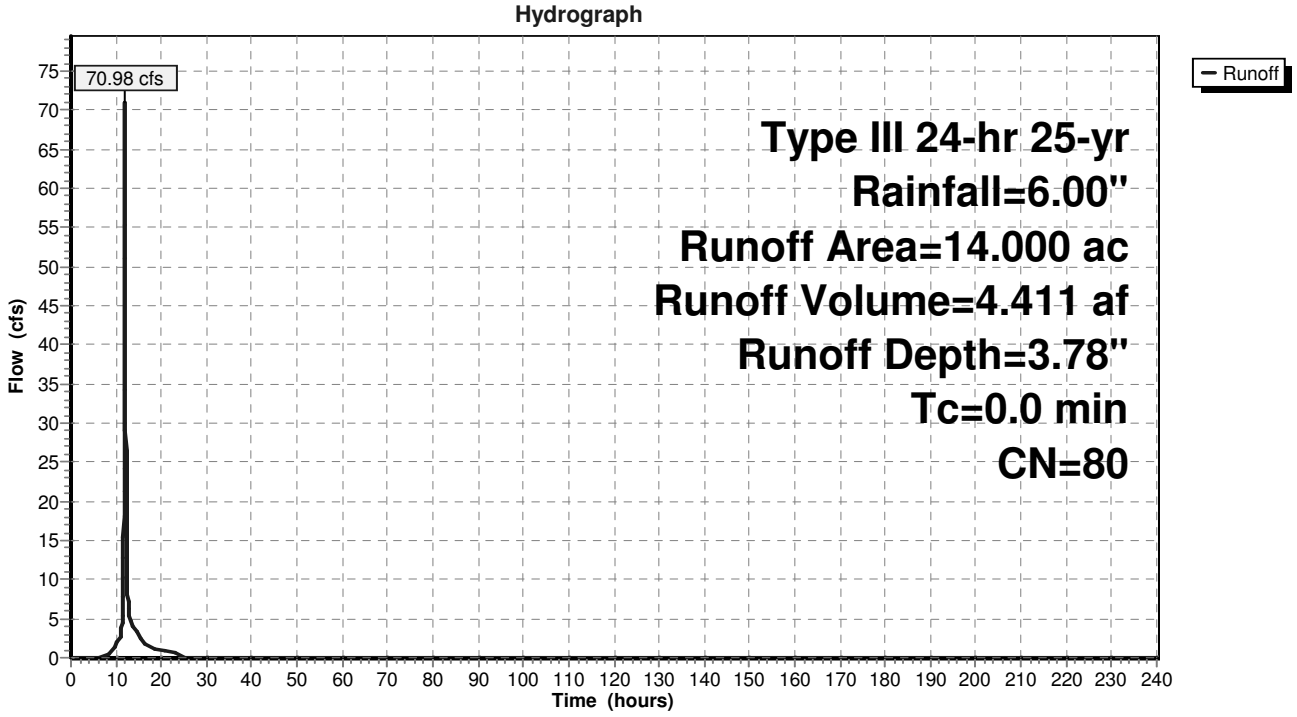
Summary for Subcatchment 1.7S:

Runoff = 70.98 cfs @ 12.00 hrs, Volume= 4.411 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
3.700	98	Paved parking & roofs
2.900	74	>75% Grass cover, Good, HSG C
3.100	71	Meadow, non-grazed, HSG C
3.900	73	Woods, Fair, HSG C
0.400	98	Water Surface
14.000	80	Weighted Average
9.900		Pervious Area
4.100		Impervious Area

Subcatchment 1.7S:



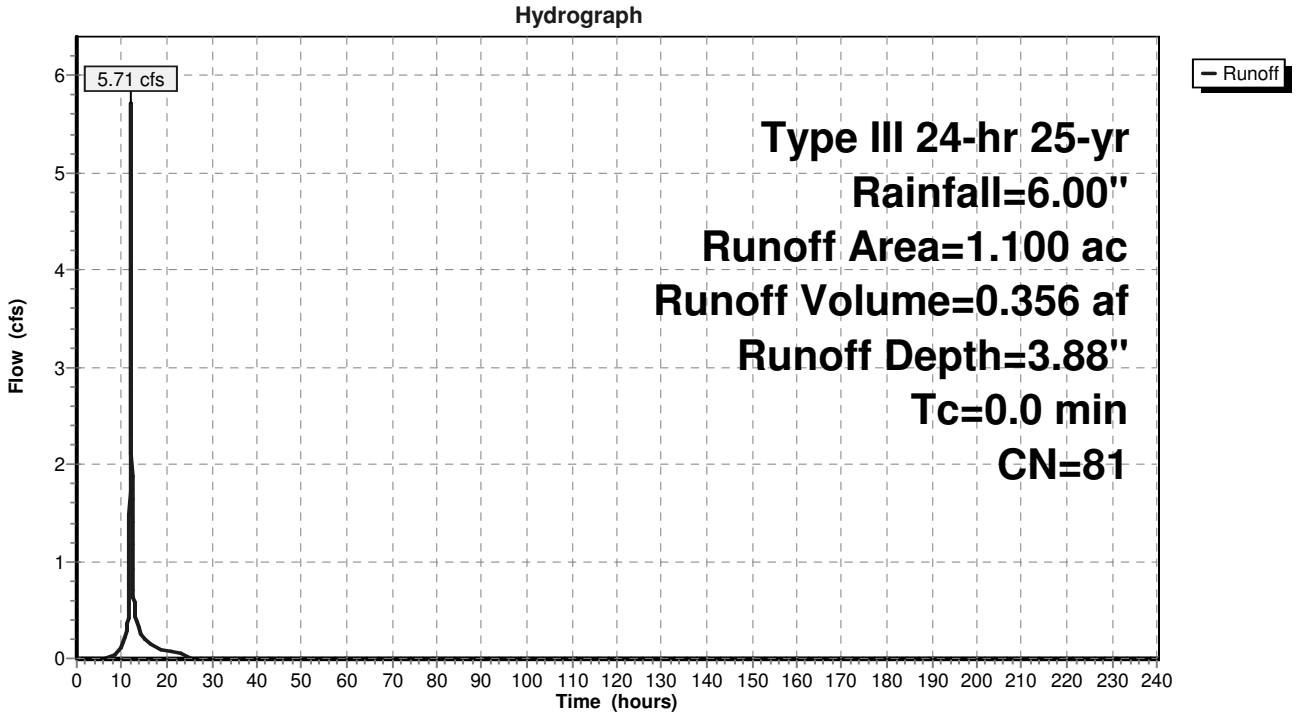
Summary for Subcatchment 1.8S:

Runoff = 5.71 cfs @ 12.00 hrs, Volume= 0.356 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.700	71	Meadow, non-grazed, HSG C
0.400	98	Water Surface
1.100	81	Weighted Average
0.700		Pervious Area
0.400		Impervious Area

Subcatchment 1.8S:



Summary for Subcatchment 1.9S:

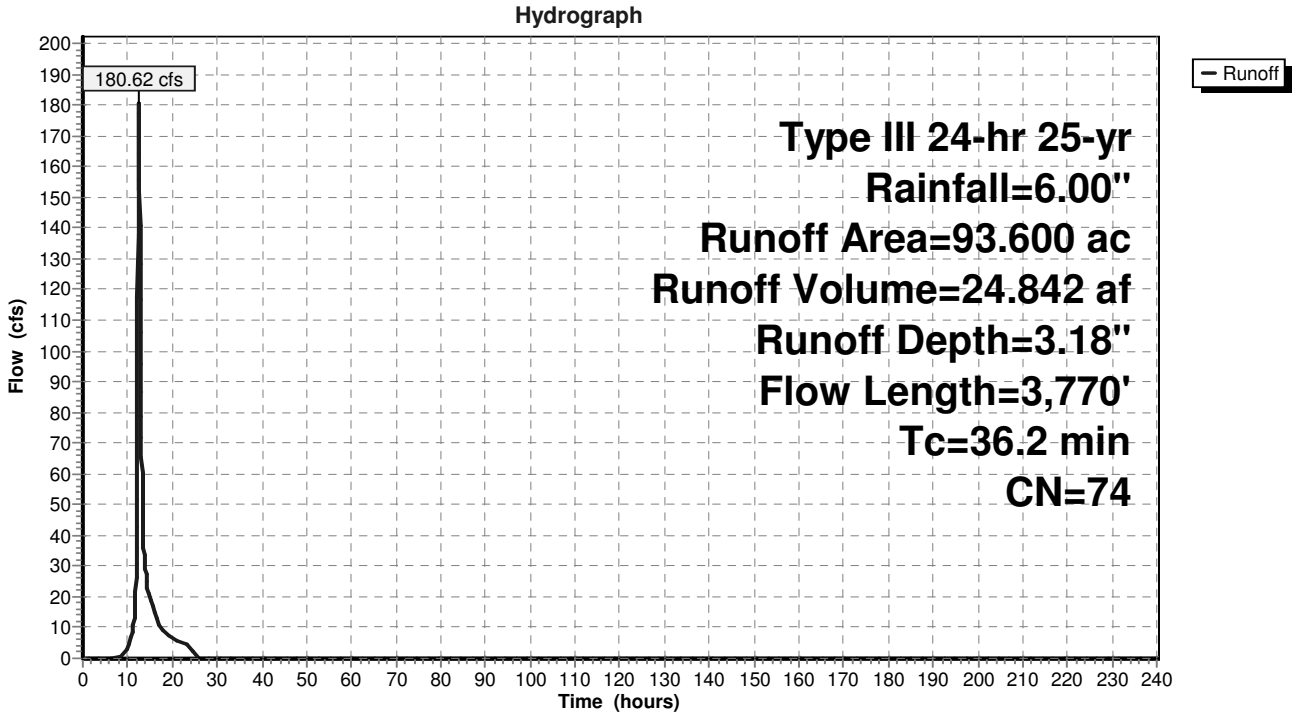
Runoff = 180.62 cfs @ 12.51 hrs, Volume= 24.842 af, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
1.500	87	Dirt roads, HSG C
0.500	74	>75% Grass cover, Good, HSG C
13.900	71	Meadow, non-grazed, HSG C
1.500	60	Woods, Fair, HSG B
63.300	73	Woods, Fair, HSG C
9.900	79	Woods, Fair, HSG D
3.000	94	Urban commercial, 85% imp, HSG C
93.600	74	Weighted Average
91.050		Pervious Area
2.550		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0500	0.29		**Sheet Flow,** Range n= 0.130 P2= 3.50"
9.9	1,643	0.1560	2.76		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.7	668	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.8	1,359	0.0220	2.58	1.37	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=0.25' Z= 0.5 '/' Top.W=2.25' n= 0.030 Earth, grassed & winding
36.2	3,770	Total			

Subcatchment 1.9S:

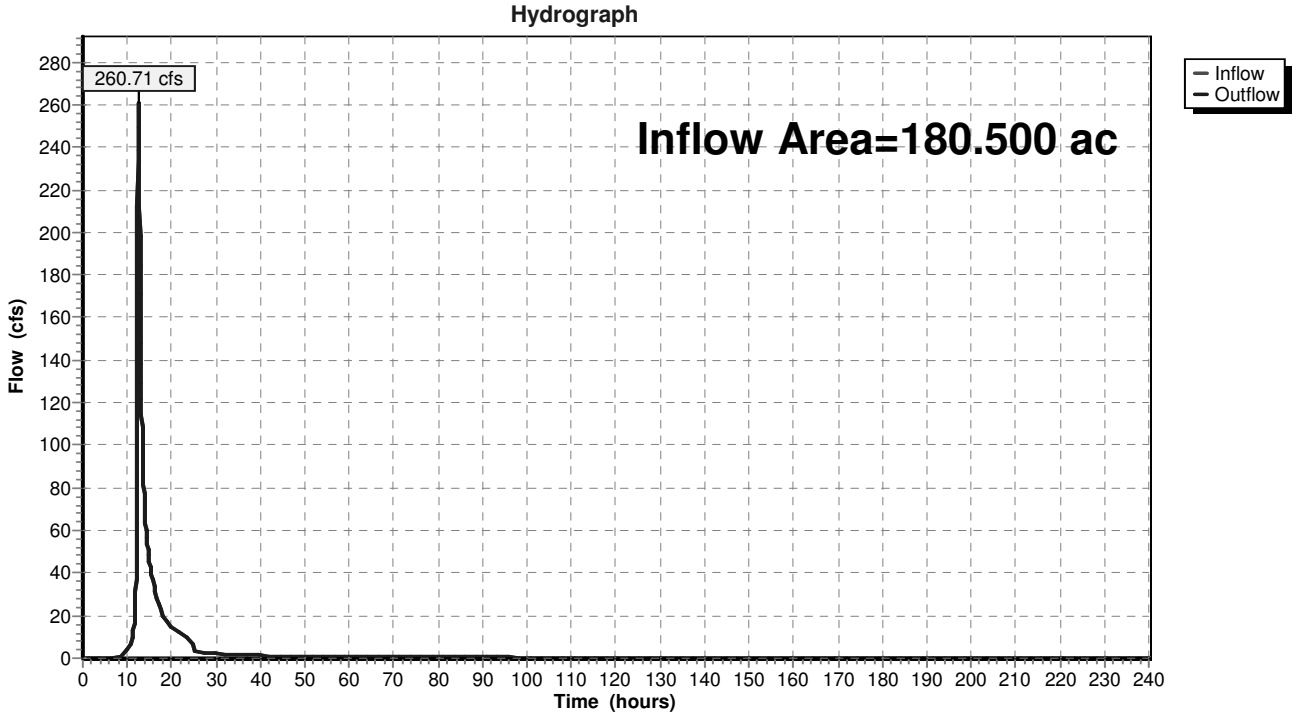


Summary for Reach DP 1: Design Point 1

Inflow Area = 180.500 ac, 19.28% Impervious, Inflow Depth = 3.56" for 25-yr event
Inflow = 260.71 cfs @ 12.55 hrs, Volume= 53.602 af
Outflow = 260.71 cfs @ 12.55 hrs, Volume= 53.602 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 1: Design Point 1



Summary for Pond 1.1P: Micropool Extended Detention Pond (P-1)

Inflow Area = 19.100 ac, 68.06% Impervious, Inflow Depth = 4.87" for 25-yr event
Inflow = 62.33 cfs @ 12.09 hrs, Volume= 7.755 af
Outflow = 35.04 cfs @ 12.22 hrs, Volume= 7.736 af, Atten= 44%, Lag= 7.8 min
Primary = 35.04 cfs @ 12.22 hrs, Volume= 7.736 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 613.00' Surf.Area= 19,800 sf Storage= 81,050 cf
Peak Elev= 616.14' @ 12.22 hrs Surf.Area= 27,162 sf Storage= 154,353 cf (73,303 cf above start)
Flood Elev= 617.00' Surf.Area= 29,400 sf Storage= 178,700 cf (97,650 cf above start)

Plug-Flow detention time= 1,918.8 min calculated for 5.876 af (76% of inflow)
Center-of-Mass det. time= 802.7 min (2,249.5 - 1,446.8)

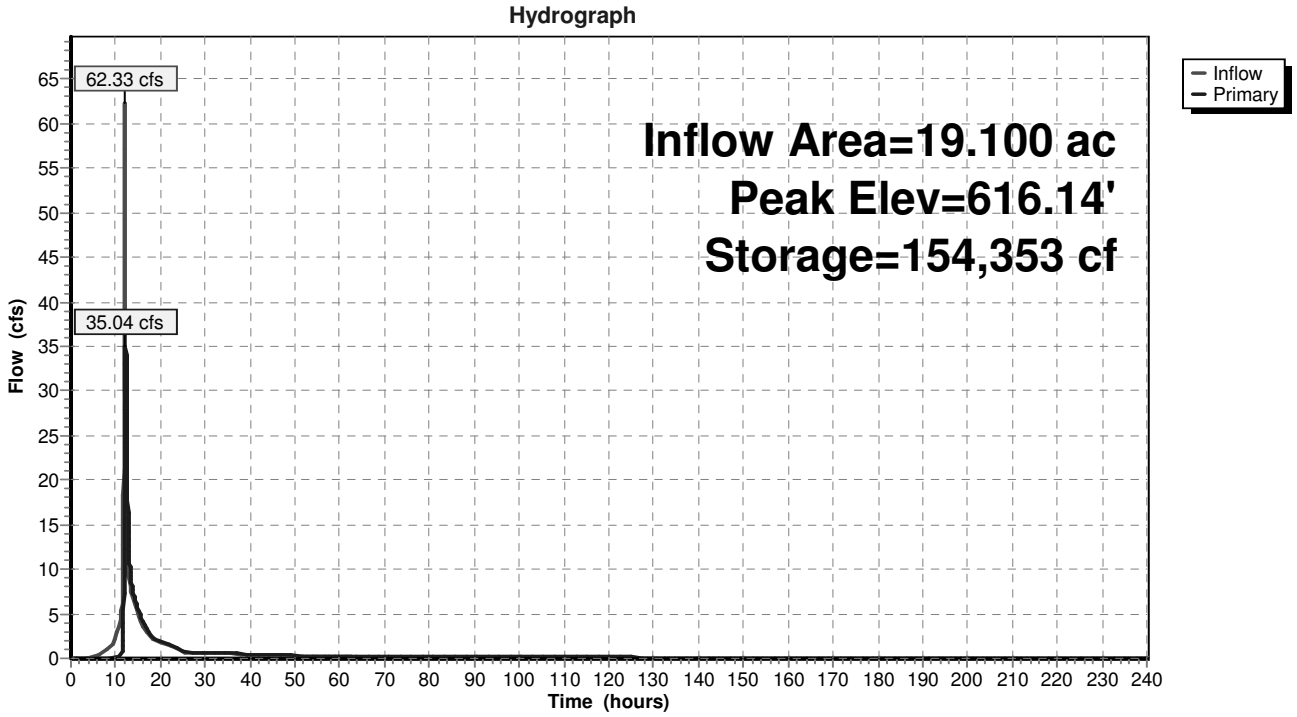
Volume	Invert	Avail.Storage	Storage Description
#1	605.00'	209,400 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
605.00	5,000	0	0
606.00	6,000	5,500	5,500
608.00	8,100	14,100	19,600
610.00	10,400	18,500	38,100
612.00	15,100	25,500	63,600
613.00	19,800	17,450	81,050
614.00	21,900	20,850	101,900
616.00	26,800	48,700	150,600
618.00	32,000	58,800	209,400

Device	Routing	Invert	Outlet Devices
#1	Primary	613.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	614.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=34.76 cfs @ 12.22 hrs HW=616.13' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.18 cfs @ 8.41 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 34.58 cfs @ 4.24 fps)

Pond 1.1P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 20.100 ac, 65.17% Impervious, Inflow Depth > 4.78" for 25-yr event
Inflow = 36.64 cfs @ 12.21 hrs, Volume= 8.002 af
Outflow = 7.46 cfs @ 14.06 hrs, Volume= 7.997 af, Atten= 80%, Lag= 110.7 min
Primary = 7.46 cfs @ 14.06 hrs, Volume= 7.997 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 600.00' Surf.Area= 6,300 sf Storage= 9,700 cf
Peak Elev= 607.93' @ 14.06 hrs Surf.Area= 24,306 sf Storage= 126,879 cf (117,179 cf above start)
Flood Elev= 609.00' Surf.Area= 27,250 sf Storage= 154,575 cf (144,875 cf above start)

Plug-Flow detention time= 1,338.7 min calculated for 7.774 af (97% of inflow)
Center-of-Mass det. time= 954.6 min (3,156.8 - 2,202.2)

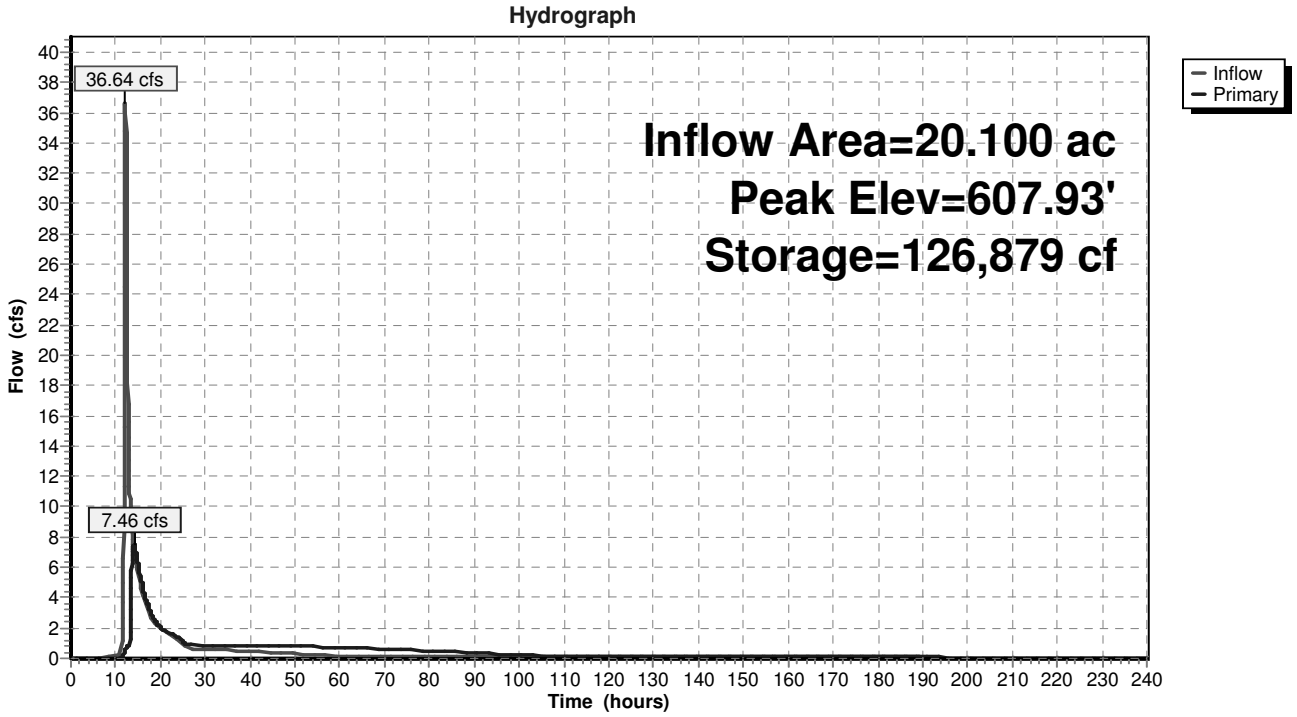
Volume	Invert	Avail.Storage	Storage Description
#1	596.00'	183,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
596.00	600	0	0
598.00	1,400	2,000	2,000
600.00	6,300	7,700	9,700
602.00	10,200	16,500	26,200
604.00	14,600	24,800	51,000
606.00	19,300	33,900	84,900
608.00	24,500	43,800	128,700
610.00	30,000	54,500	183,200

Device	Routing	Invert	Outlet Devices
#1	Primary	600.00'	**3.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	607.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=7.42 cfs @ 14.06 hrs HW=607.93' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.90 cfs @ 13.43 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 6.52 cfs @ 1.92 fps)

Pond 1.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 1.3P: Micropool Extended Detention Pond (P-1)

Inflow Area = 5.500 ac, 74.55% Impervious, Inflow Depth = 4.85" for 25-yr event
Inflow = 29.11 cfs @ 12.09 hrs, Volume= 2.221 af
Outflow = 17.01 cfs @ 12.21 hrs, Volume= 2.510 af, Atten= 42%, Lag= 7.4 min
Primary = 17.01 cfs @ 12.21 hrs, Volume= 2.510 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 664.00' Surf.Area= 14,500 sf Storage= 29,600 cf
Peak Elev= 666.24' @ 12.21 hrs Surf.Area= 19,063 sf Storage= 67,174 cf (37,574 cf above start)
Flood Elev= 667.00' Surf.Area= 20,550 sf Storage= 82,275 cf (52,675 cf above start)

Plug-Flow detention time= 1,860.4 min calculated for 1.830 af (82% of inflow)
Center-of-Mass det. time= 1,286.0 min (2,070.7 - 784.7)

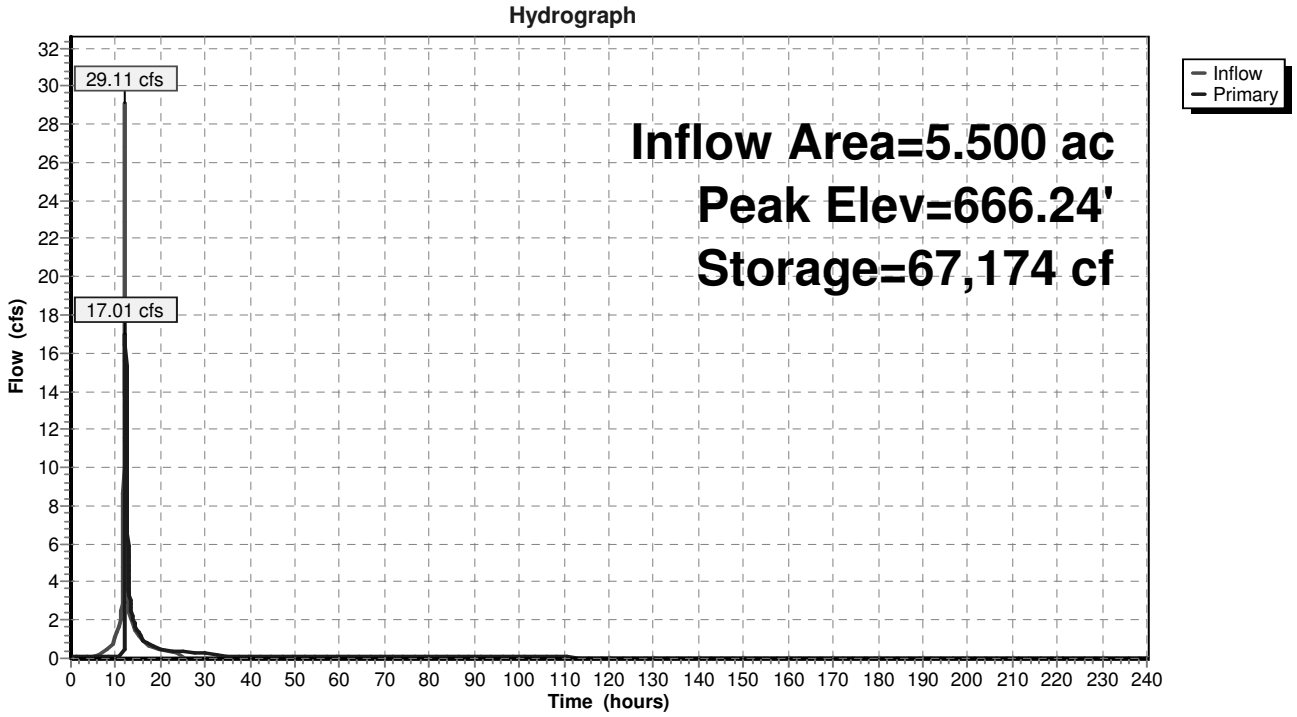
Volume	Invert	Avail.Storage	Storage Description
#1	659.00'	103,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
659.00	1,500	0	0
660.00	2,000	1,750	1,750
662.00	5,200	7,200	8,950
663.00	10,800	8,000	16,950
664.00	14,500	12,650	29,600
666.00	18,600	33,100	62,700
668.00	22,500	41,100	103,800

Device	Routing	Invert	Outlet Devices
#1	Primary	663.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	665.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	664.75'	**4.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=16.80 cfs @ 12.21 hrs HW=666.23' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.11 cfs @ 8.57 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 16.21 cfs @ 2.76 fps)
- **3=Orifice/Grate** (Orifice Controls 0.48 cfs @ 5.53 fps)

Pond 1.3P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.4P: Extended Detention Pond (Design 2) - Premanent Pool Provided

Inflow Area = 7.200 ac, 63.89% Impervious, Inflow Depth = 5.10" for 25-yr event
Inflow = 21.90 cfs @ 12.17 hrs, Volume= 3.060 af
Outflow = 3.36 cfs @ 13.36 hrs, Volume= 3.059 af, Atten= 85%, Lag= 71.2 min
Primary = 3.36 cfs @ 13.36 hrs, Volume= 3.059 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 657.00' Surf.Area= 12,850 sf Storage= 36,525 cf
Peak Elev= 659.75' @ 13.36 hrs Surf.Area= 22,881 sf Storage= 84,588 cf (48,063 cf above start)
Flood Elev= 661.00' Surf.Area= 28,250 sf Storage= 116,475 cf (79,950 cf above start)

Plug-Flow detention time= 2,229.3 min calculated for 2.220 af (73% of inflow)
Center-of-Mass det. time= 613.4 min (2,457.8 - 1,844.4)

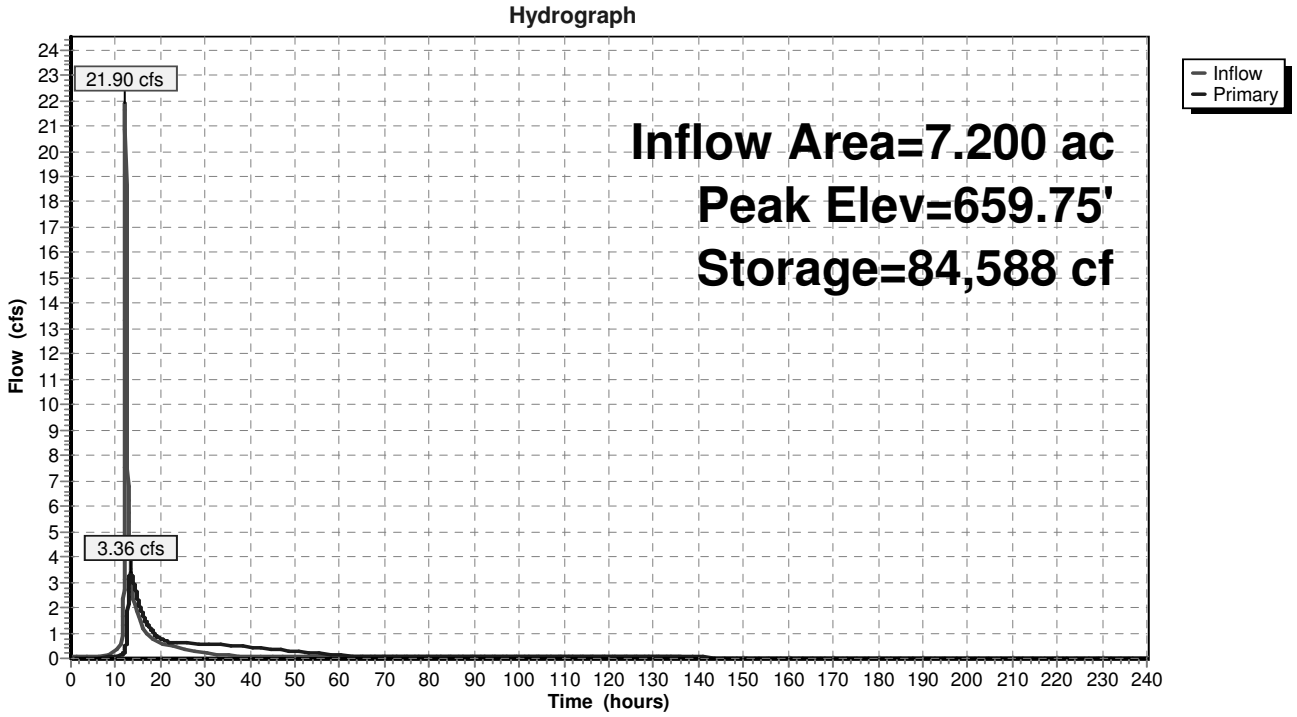
Volume	Invert	Avail.Storage	Storage Description
#1	650.00'	146,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
650.00	500	0	0
652.00	1,100	1,600	1,600
654.00	6,200	7,300	8,900
656.00	10,000	16,200	25,100
658.00	15,700	25,700	50,800
660.00	23,900	39,600	90,400
662.00	32,600	56,500	146,900

Device	Routing	Invert	Outlet Devices
#1	Primary	657.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	659.25'	**2.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.34 cfs @ 13.36 hrs HW=659.75' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.68 cfs @ 7.74 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 2.66 cfs @ 2.13 fps)

Pond 1.4P: Extended Detention Pond (Design 2) - Premanent Pool Provided



Summary for Pond 1.5P: Micropool Extended Detention Pond (P-1)

Inflow Area = 47.700 ac, 30.07% Impervious, Inflow Depth = 3.78" for 25-yr event
Inflow = 159.00 cfs @ 12.21 hrs, Volume= 15.030 af
Outflow = 97.20 cfs @ 12.43 hrs, Volume= 15.007 af, Atten= 39%, Lag= 13.2 min
Primary = 97.20 cfs @ 12.43 hrs, Volume= 15.007 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 656.00' Surf.Area= 38,400 sf Storage= 157,900 cf
Peak Elev= 660.16' @ 12.43 hrs Surf.Area= 54,648 sf Storage= 355,364 cf (197,464 cf above start)
Flood Elev= 661.00' Surf.Area= 61,600 sf Storage= 404,050 cf (246,150 cf above start)

Plug-Flow detention time= 656.5 min calculated for 11.381 af (76% of inflow)
Center-of-Mass det. time= 414.4 min (1,236.9 - 822.5)

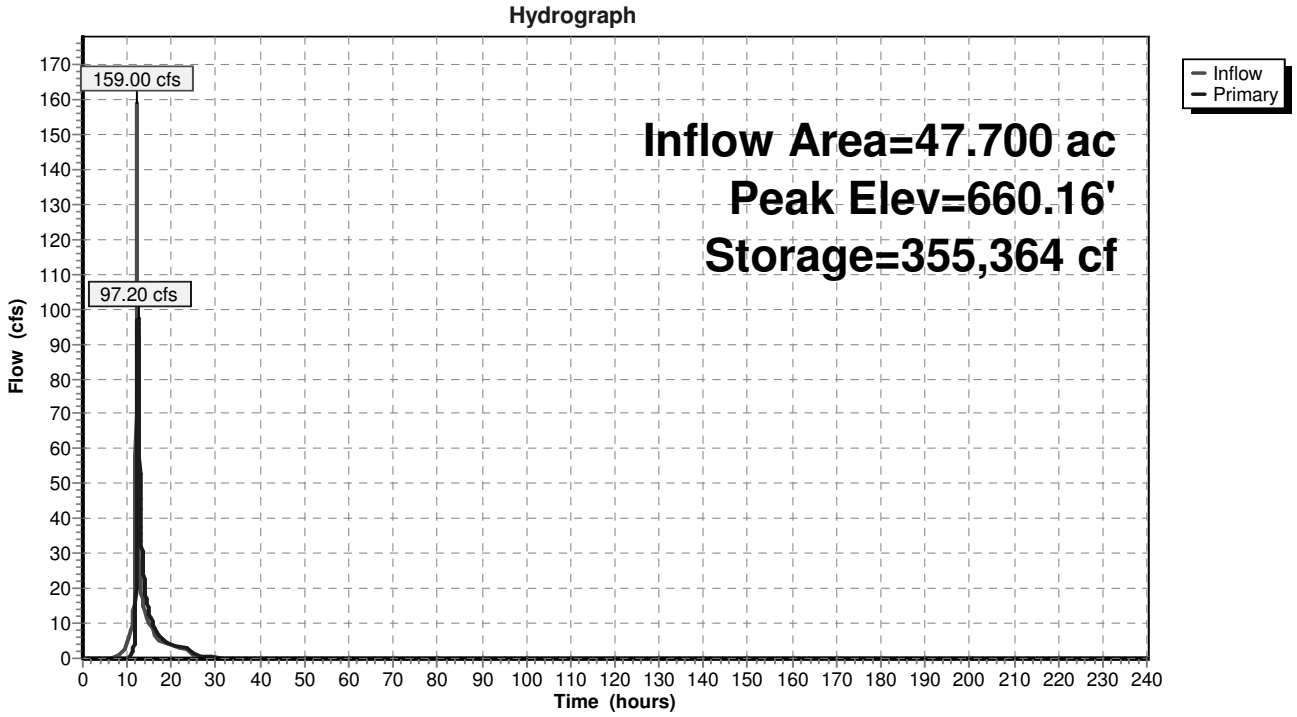
Volume	Invert	Avail.Storage	Storage Description
#1	648.00'	469,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
648.00	10,500	0	0
650.00	14,200	24,700	24,700
652.00	18,100	32,300	57,000
654.00	22,200	40,300	97,300
656.00	38,400	60,600	157,900
658.00	48,500	86,900	244,800
660.00	53,300	101,800	346,600
662.00	69,900	123,200	469,800

Device	Routing	Invert	Outlet Devices
#1	Primary	656.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	657.00'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	658.75'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=96.91 cfs @ 12.43 hrs HW=660.16' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.21 cfs @ 9.72 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 74.52 cfs @ 5.90 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 22.18 cfs @ 3.94 fps)

Pond 1.5P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.6P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 51.700 ac, 28.33% Impervious, Inflow Depth = 3.72" for 25-yr event
Inflow = 100.64 cfs @ 12.41 hrs, Volume= 16.037 af
Outflow = 68.44 cfs @ 12.77 hrs, Volume= 15.998 af, Atten= 32%, Lag= 21.2 min
Primary = 68.44 cfs @ 12.77 hrs, Volume= 15.998 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 627.00' Surf.Area= 30,860 sf Storage= 131,598 cf
Peak Elev= 631.24' @ 12.77 hrs Surf.Area= 43,027 sf Storage= 287,511 cf (155,913 cf above start)
Flood Elev= 633.00' Surf.Area= 48,641 sf Storage= 368,223 cf (236,625 cf above start)

Plug-Flow detention time= 924.0 min calculated for 12.977 af (81% of inflow)
Center-of-Mass det. time= 343.2 min (1,553.7 - 1,210.5)

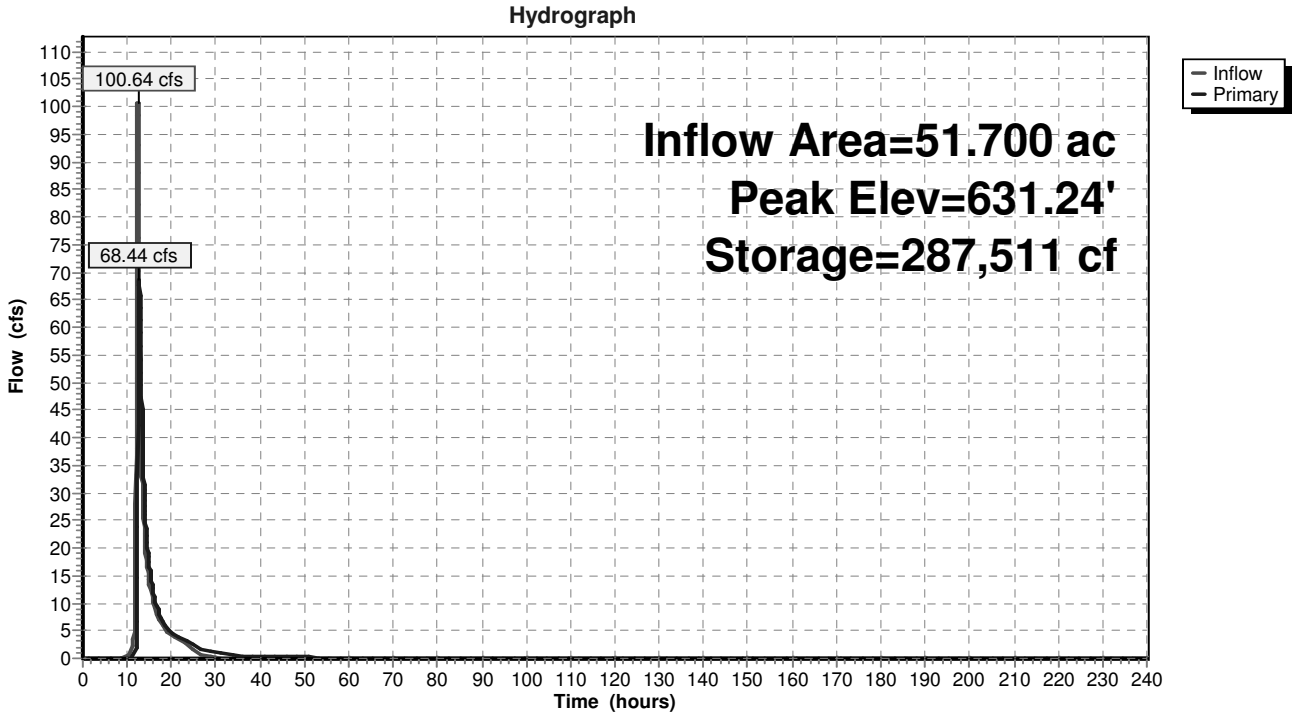
Volume	Invert	Avail.Storage	Storage Description
#1	621.00'	418,508 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
621.00	14,753	0	0
622.00	16,761	15,757	15,757
624.00	21,116	37,877	53,634
627.00	30,860	77,964	131,598
628.00	33,557	32,209	163,807
630.00	39,254	72,811	236,618
632.00	45,354	84,608	321,226
634.00	51,928	97,282	418,508

Device	Routing	Invert	Outlet Devices
#1	Primary	627.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	627.75'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	628.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=68.31 cfs @ 12.77 hrs HW=631.23' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.33 cfs @ 9.79 fps)
- **2=Orifice/Grate** (Orifice Controls 2.98 cfs @ 8.55 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 65.00 cfs @ 5.23 fps)

Pond 1.6P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 1.7P: Micropool Extended Detention Pond (P-1)

Inflow Area = 14.000 ac, 29.29% Impervious, Inflow Depth = 3.78" for 25-yr event
Inflow = 70.98 cfs @ 12.00 hrs, Volume= 4.411 af
Outflow = 42.48 cfs @ 12.09 hrs, Volume= 4.411 af, Atten= 40%, Lag= 5.1 min
Primary = 42.48 cfs @ 12.09 hrs, Volume= 4.411 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 664.00' Surf.Area= 16,200 sf Storage= 41,300 cf
Peak Elev= 666.27' @ 12.09 hrs Surf.Area= 25,641 sf Storage= 88,651 cf (47,351 cf above start)
Flood Elev= 667.00' Surf.Area= 28,800 sf Storage= 108,650 cf (67,350 cf above start)

Plug-Flow detention time= 612.5 min calculated for 3.462 af (78% of inflow)
Center-of-Mass det. time= 400.2 min (1,208.7 - 808.6)

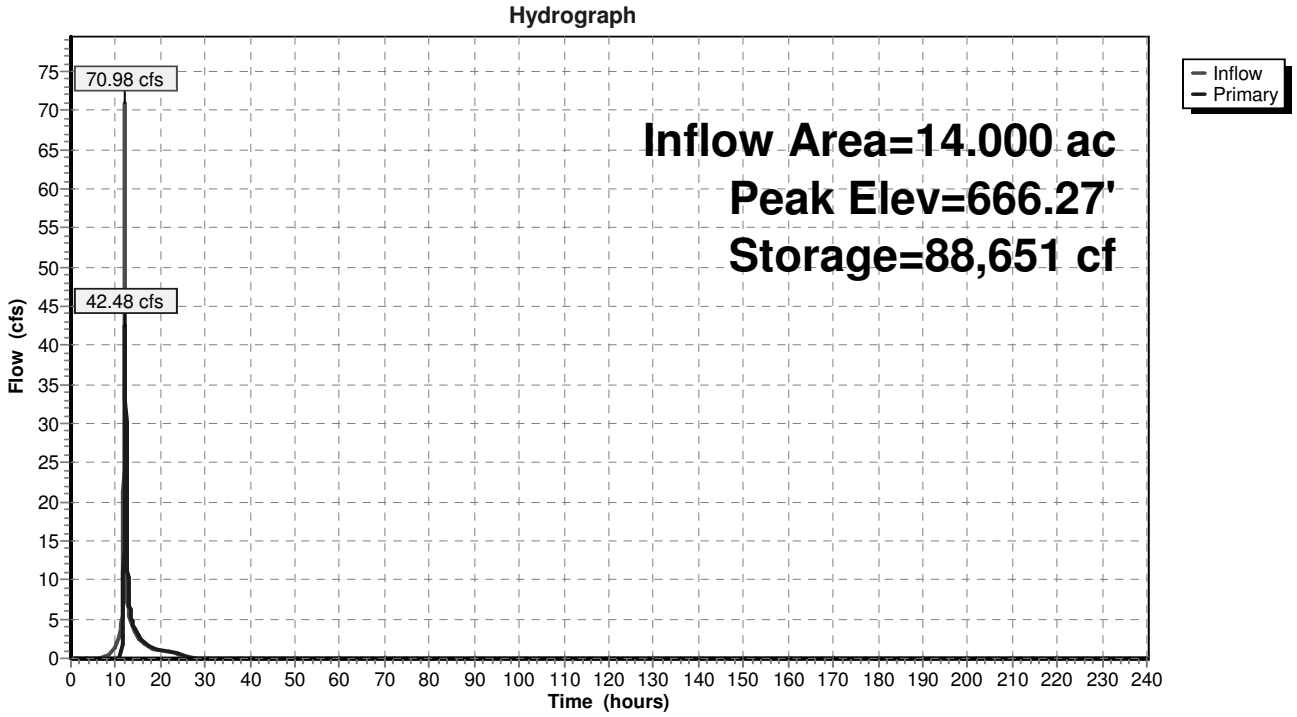
Volume	Invert	Avail.Storage	Storage Description
#1	658.00'	139,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
658.00	3,100	0	0
660.00	4,500	7,600	7,600
662.00	6,500	11,000	18,600
664.00	16,200	22,700	41,300
666.00	24,500	40,700	82,000
668.00	33,100	57,600	139,600

Device	Routing	Invert	Outlet Devices
#1	Primary	664.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	664.90'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=42.08 cfs @ 12.09 hrs HW=666.26' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.13 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 41.99 cfs @ 3.87 fps)

Pond 1.7P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.8P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 15.100 ac, 29.80% Impervious, Inflow Depth = 3.79" for 25-yr event
Inflow = 46.46 cfs @ 12.07 hrs, Volume= 4.767 af
Outflow = 33.15 cfs @ 12.28 hrs, Volume= 4.765 af, Atten= 29%, Lag= 12.7 min
Primary = 33.15 cfs @ 12.28 hrs, Volume= 4.765 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 644.00' Surf.Area= 16,900 sf Storage= 54,400 cf
Peak Elev= 646.15' @ 12.28 hrs Surf.Area= 22,737 sf Storage= 97,052 cf (42,652 cf above start)
Flood Elev= 647.00' Surf.Area= 25,150 sf Storage= 117,325 cf (62,925 cf above start)

Plug-Flow detention time= 1,025.1 min calculated for 3.516 af (74% of inflow)
Center-of-Mass det. time= 336.1 min (1,514.8 - 1,178.7)

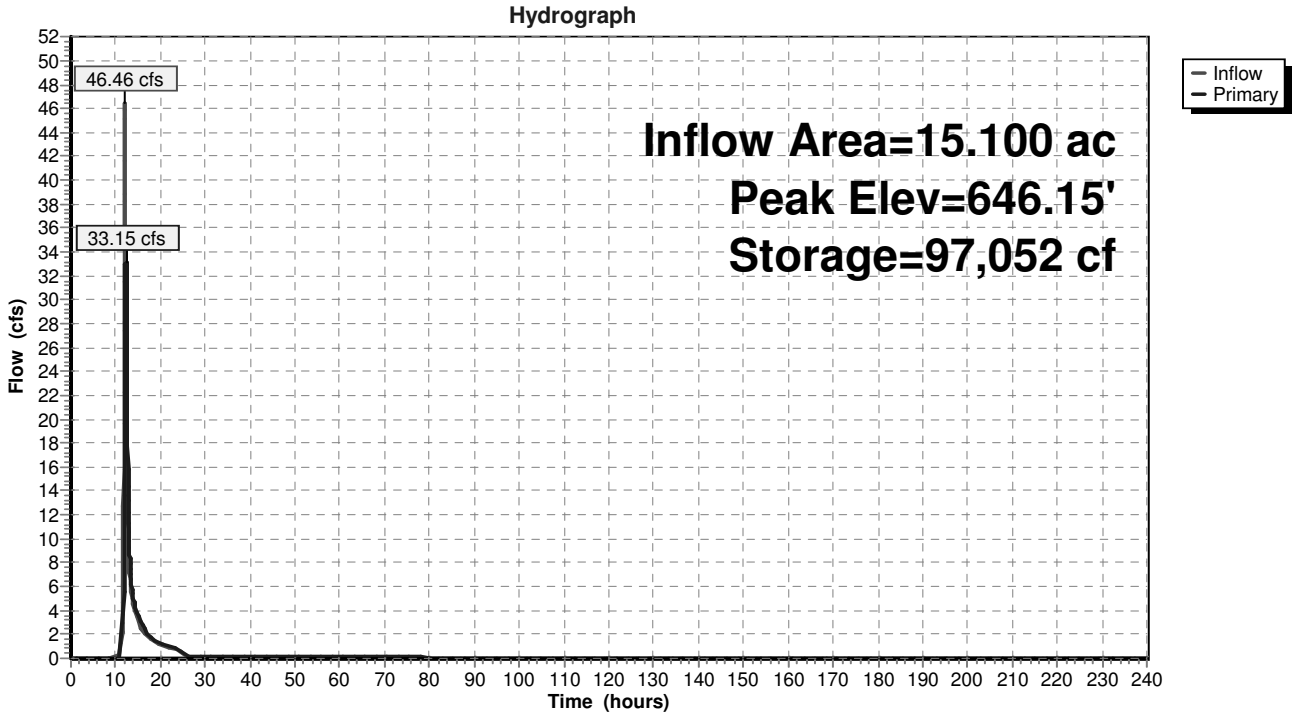
Volume	Invert	Avail.Storage	Storage Description
#1	638.00'	143,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
638.00	5,100	0	0
640.00	7,000	12,100	12,100
642.00	9,200	16,200	28,300
644.00	16,900	26,100	54,400
646.00	22,300	39,200	93,600
648.00	28,000	50,300	143,900

Device	Routing	Invert	Outlet Devices
#1	Primary	644.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	645.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=33.02 cfs @ 12.28 hrs HW=646.15' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.23 cfs @ 6.89 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 32.78 cfs @ 3.56 fps)

Pond 1.8P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Subcatchment 1.1S:

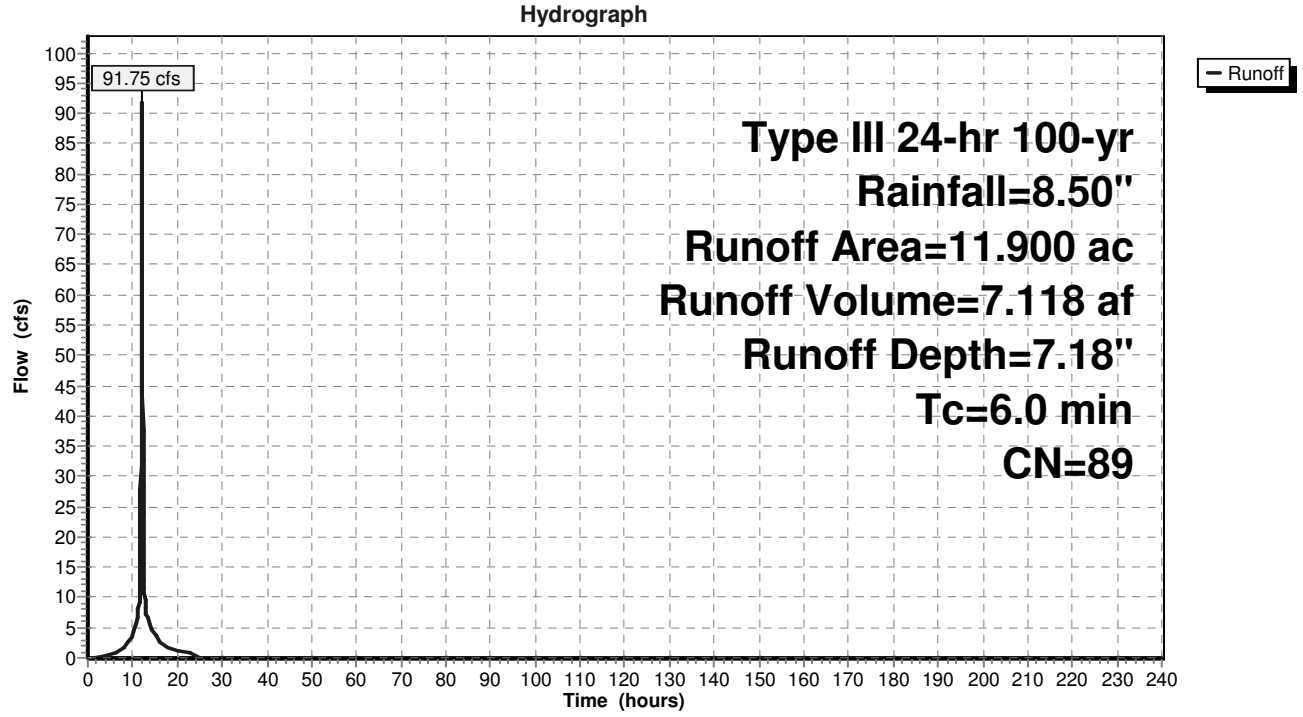
Runoff = 91.75 cfs @ 12.09 hrs, Volume= 7.118 af, Depth= 7.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

	Area (ac)	CN	Description
	7.900	98	Paved parking & roofs
	1.600	74	>75% Grass cover, Good, HSG C
	1.000	71	Meadow, non-grazed, HSG C
	0.500	98	Water Surface
*	0.900	56	Pervious Pavement
	11.900	89	Weighted Average
	3.500		Pervious Area
	8.400		Impervious Area

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

Subcatchment 1.1S:



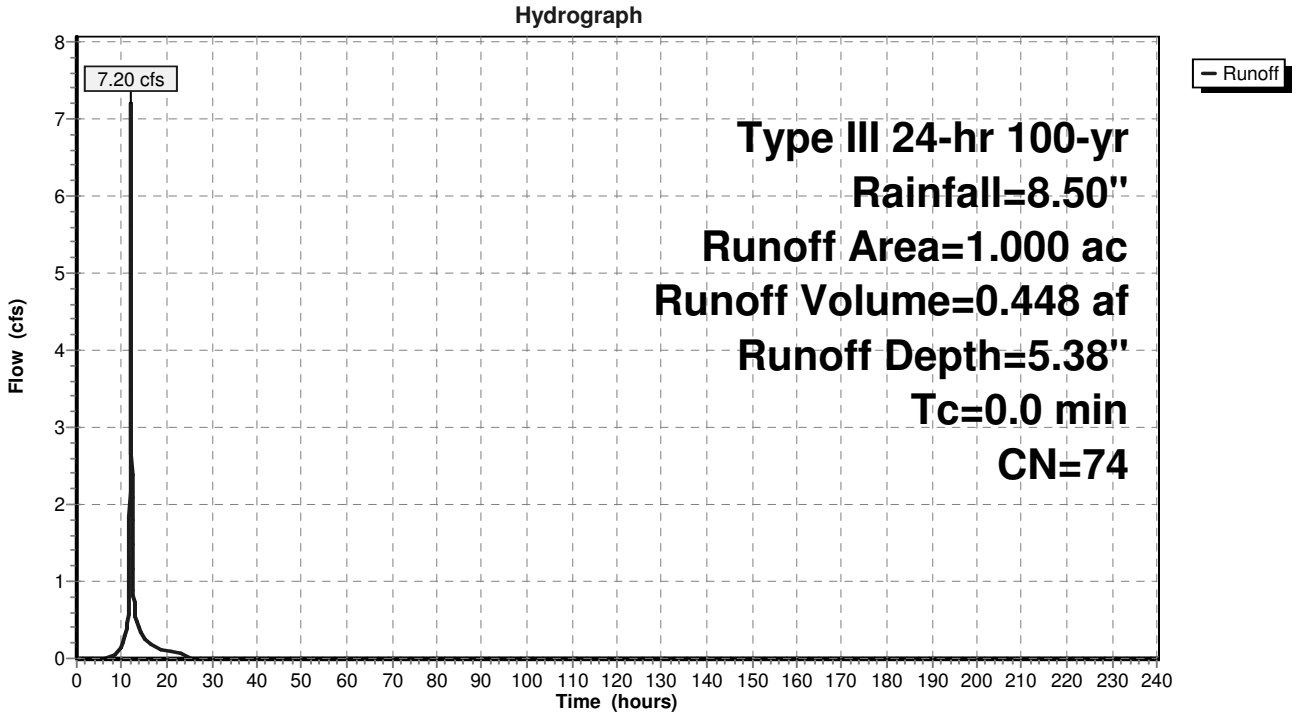
Summary for Subcatchment 1.2S:

Runoff = 7.20 cfs @ 12.00 hrs, Volume= 0.448 af, Depth= 5.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.100	98	Water Surface
0.900	71	Meadow, non-grazed, HSG C
1.000	74	Weighted Average
0.900		Pervious Area
0.100		Impervious Area

Subcatchment 1.2S:



Summary for Subcatchment 1.3S:

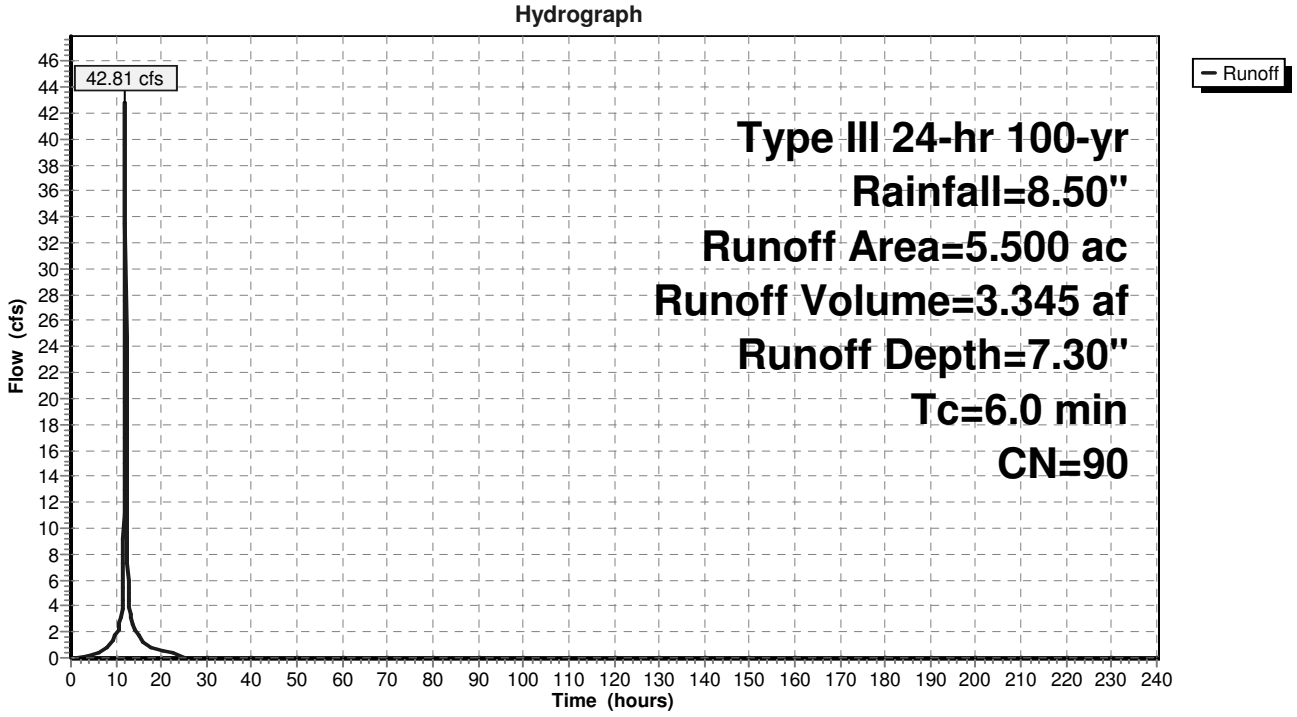
Runoff = 42.81 cfs @ 12.09 hrs, Volume= 3.345 af, Depth= 7.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

	Area (ac)	CN	Description
	3.900	98	Paved parking & roofs
	0.200	74	>75% Grass cover, Good, HSG C
	0.900	71	Meadow, non-grazed, HSG C
	0.200	98	Water Surface
*	0.300	56	Pervious Pavement
	5.500	90	Weighted Average
	1.400		Pervious Area
	4.100		Impervious Area

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

Subcatchment 1.3S:



Summary for Subcatchment 1.4S:

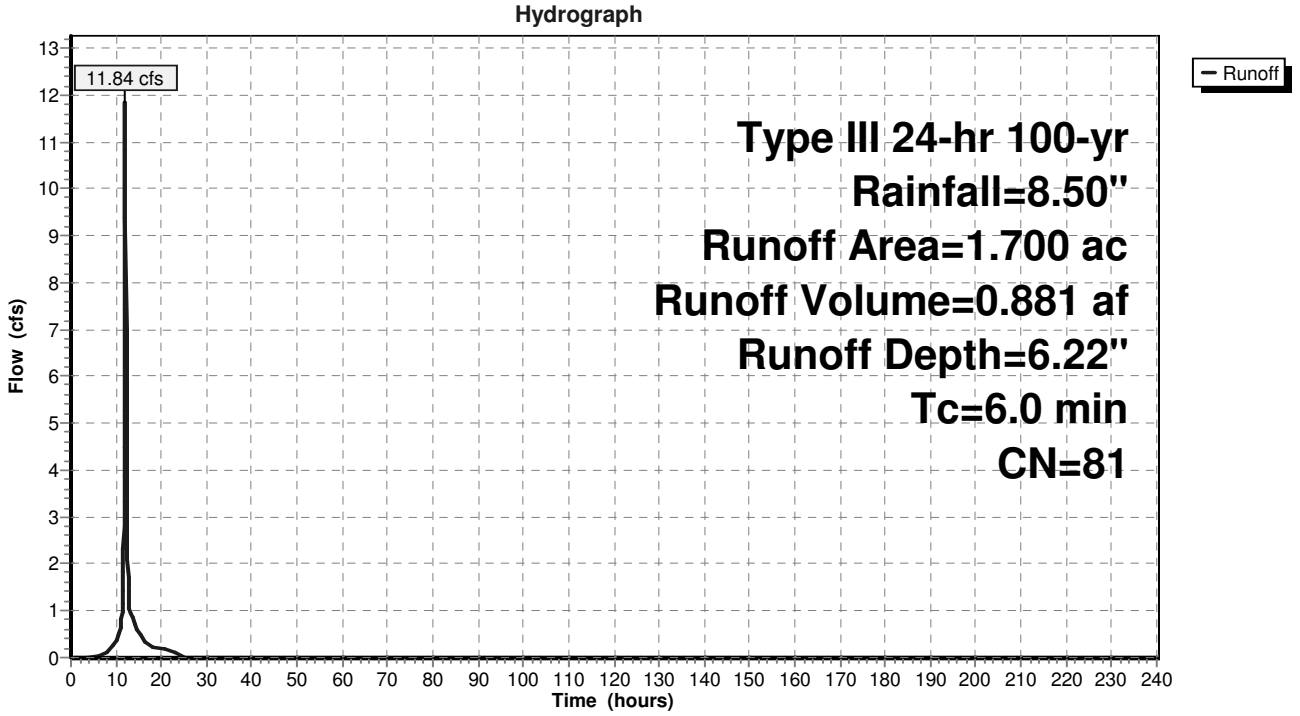
Runoff = 11.84 cfs @ 12.09 hrs, Volume= 0.881 af, Depth= 6.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.900	74	>75% Grass cover, Good, HSG C
0.300	71	Meadow, non-grazed, HSG C
0.400	98	Water Surface
1.700	81	Weighted Average
1.200		Pervious Area
0.500		Impervious Area

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

Subcatchment 1.4S:



Summary for Subcatchment 1.5S:

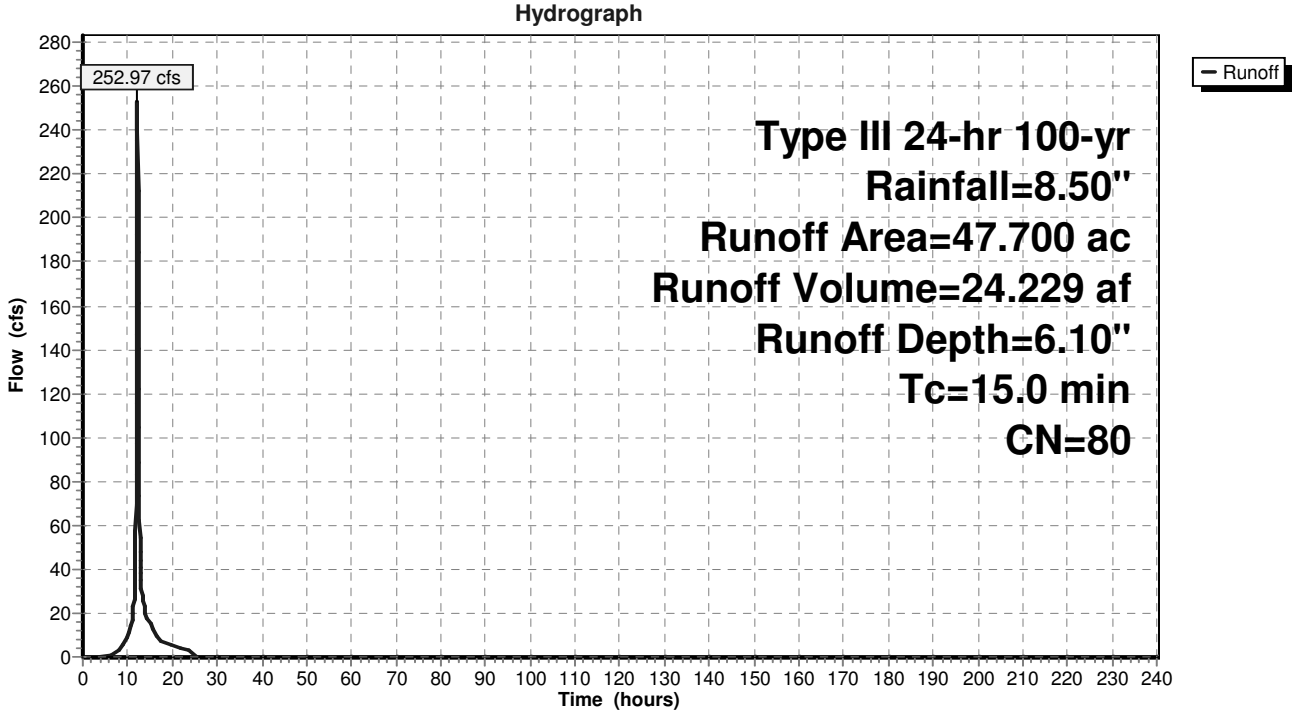
Runoff = 252.97 cfs @ 12.20 hrs, Volume= 24.229 af, Depth= 6.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
12.200	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
10.500	74	>75% Grass cover, Good, HSG C
9.700	71	Meadow, non-grazed, HSG C
12.700	70	Woods, Good, HSG C
0.700	98	Water Surface
1.700	94	Urban commercial, 85% imp, HSG C
47.700	80	Weighted Average
33.355		Pervious Area
14.345		Impervious Area

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

Subcatchment 1.5S:



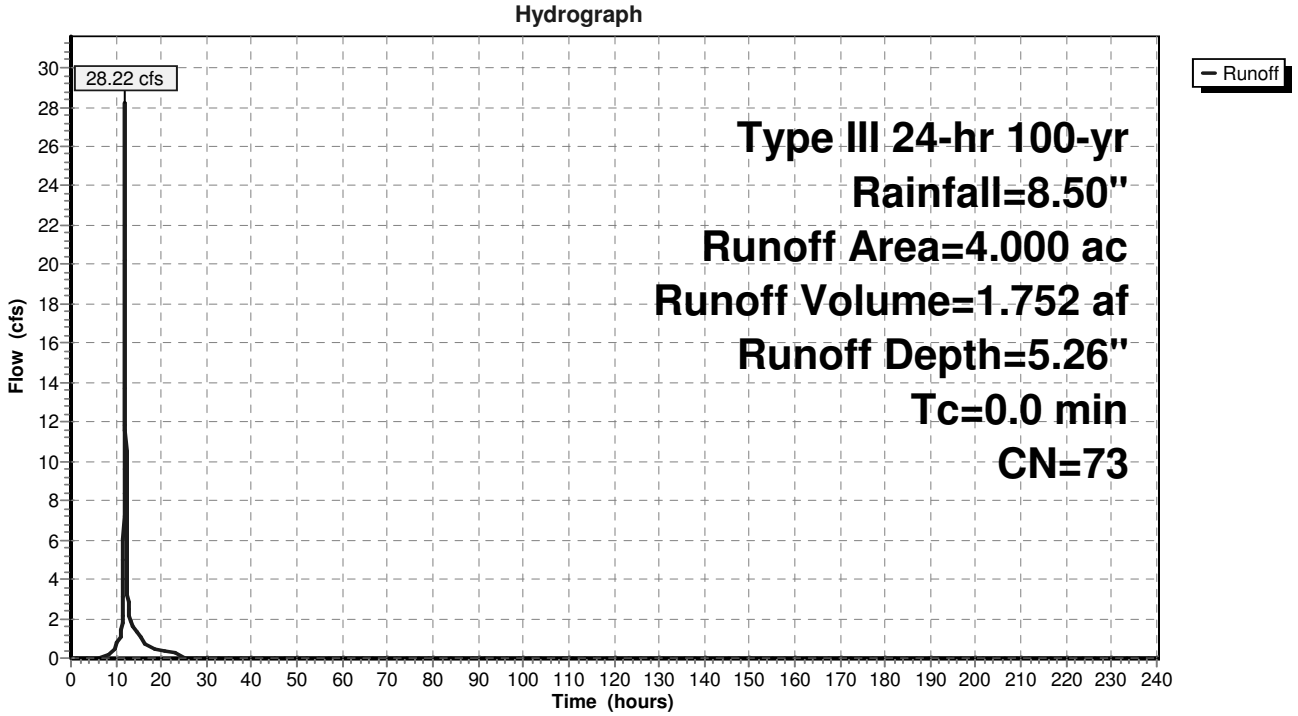
Summary for Subcatchment 1.6S:

Runoff = 28.22 cfs @ 12.00 hrs, Volume= 1.752 af, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
3.200	71	Meadow, non-grazed, HSG C
0.500	73	Woods, Fair, HSG C
0.300	98	Water Surface
4.000	73	Weighted Average
3.700		Pervious Area
0.300		Impervious Area

Subcatchment 1.6S:



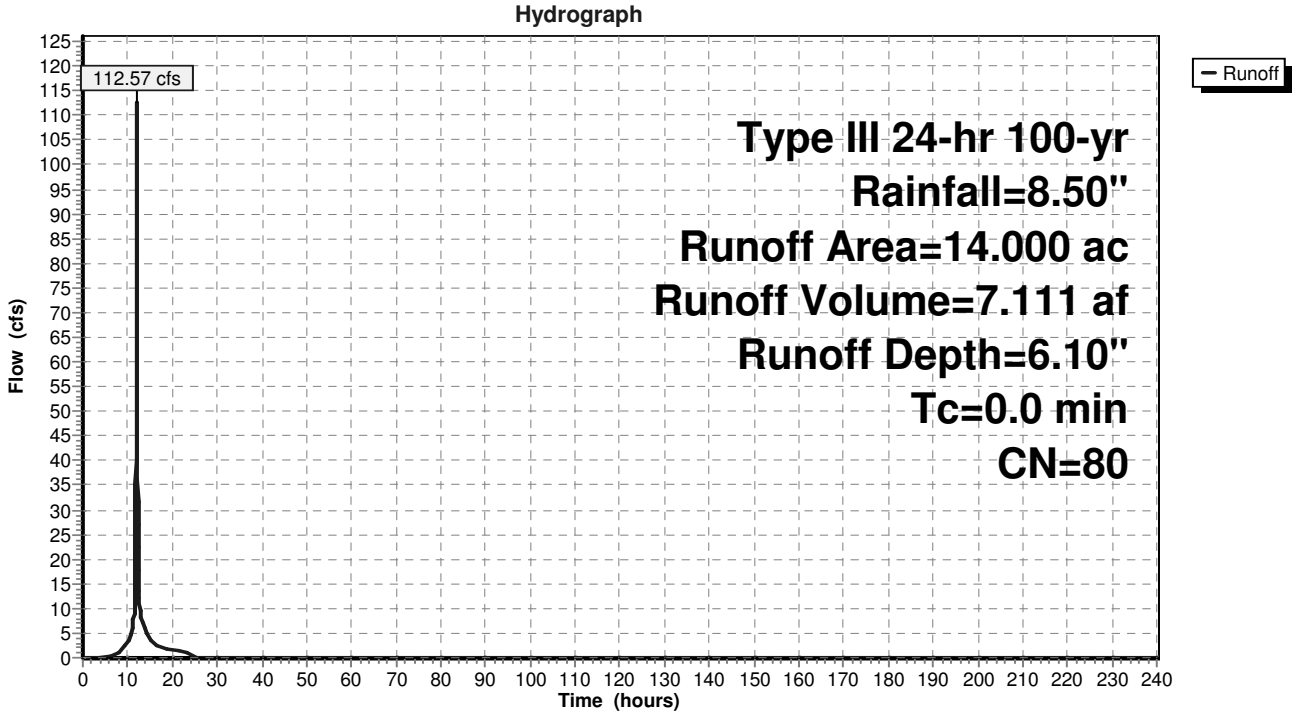
Summary for Subcatchment 1.7S:

Runoff = 112.57 cfs @ 12.00 hrs, Volume= 7.111 af, Depth= 6.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
3.700	98	Paved parking & roofs
2.900	74	>75% Grass cover, Good, HSG C
3.100	71	Meadow, non-grazed, HSG C
3.900	73	Woods, Fair, HSG C
0.400	98	Water Surface
14.000	80	Weighted Average
9.900		Pervious Area
4.100		Impervious Area

Subcatchment 1.7S:



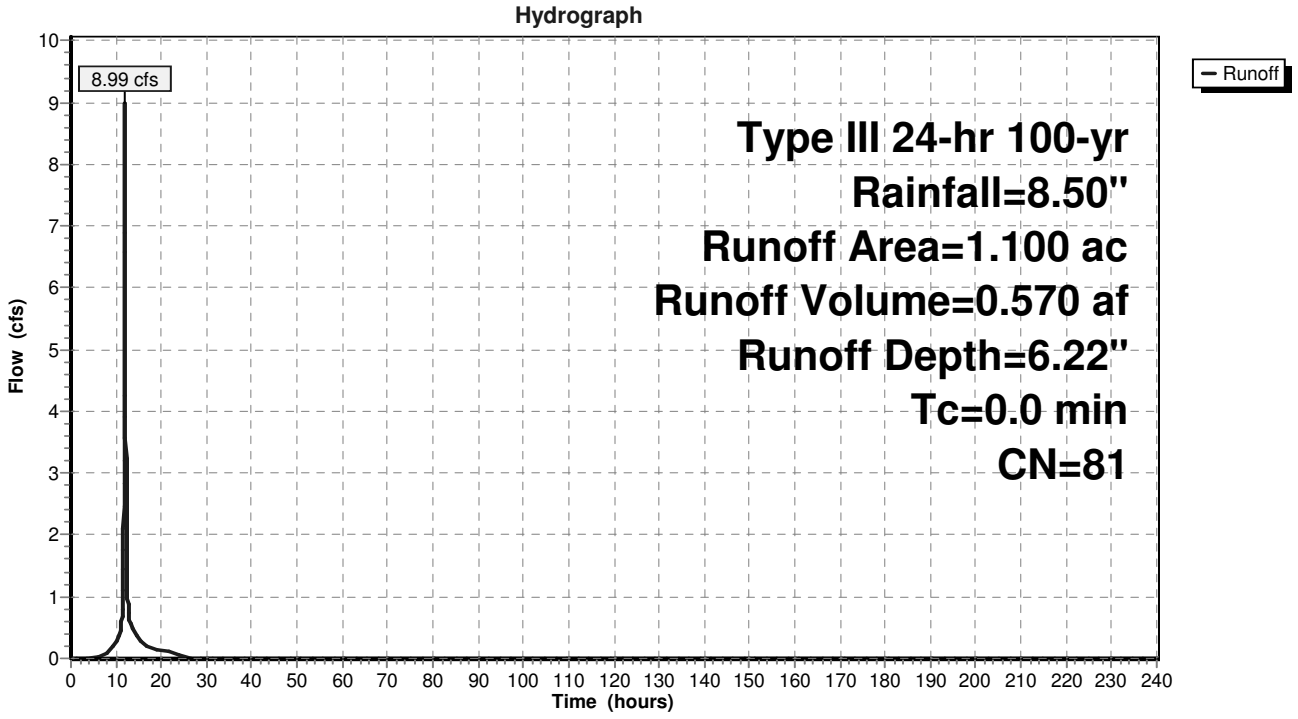
Summary for Subcatchment 1.8S:

Runoff = 8.99 cfs @ 12.00 hrs, Volume= 0.570 af, Depth= 6.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.700	71	Meadow, non-grazed, HSG C
0.400	98	Water Surface
1.100	81	Weighted Average
0.700		Pervious Area
0.400		Impervious Area

Subcatchment 1.8S:



Summary for Subcatchment 1.9S:

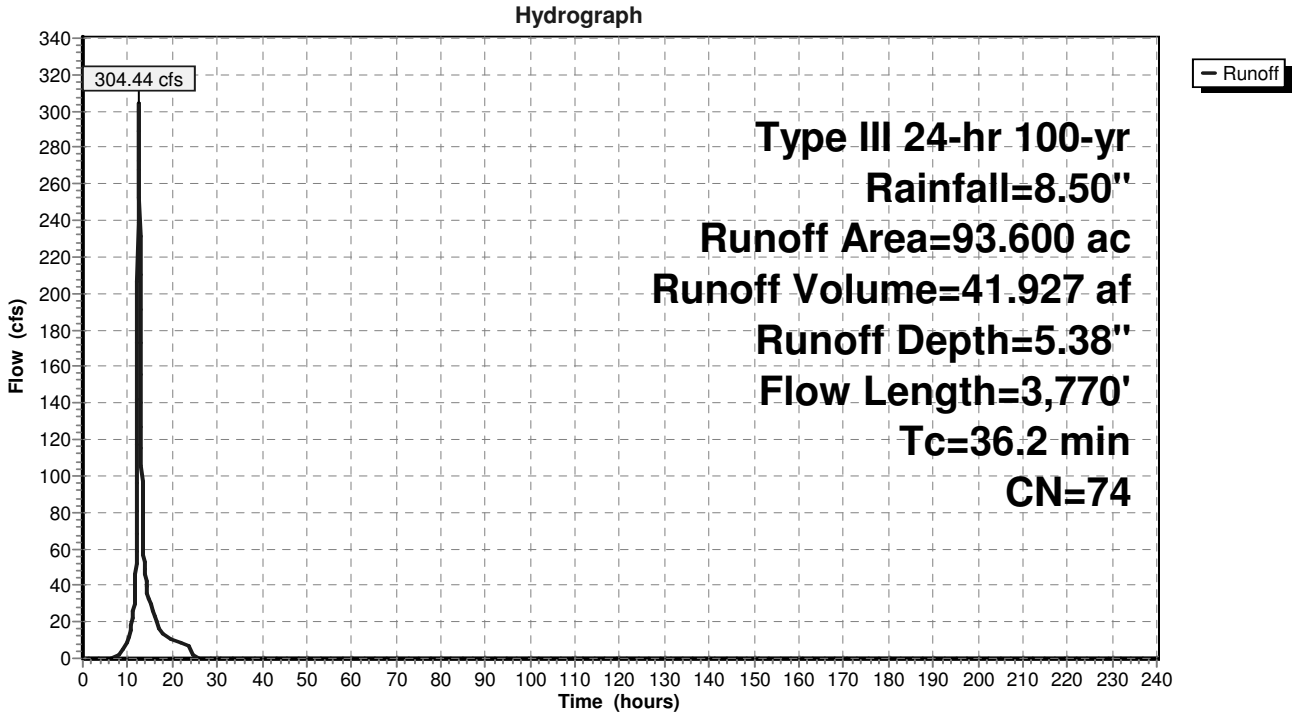
Runoff = 304.44 cfs @ 12.50 hrs, Volume= 41.927 af, Depth= 5.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
1.500	87	Dirt roads, HSG C
0.500	74	>75% Grass cover, Good, HSG C
13.900	71	Meadow, non-grazed, HSG C
1.500	60	Woods, Fair, HSG B
63.300	73	Woods, Fair, HSG C
9.900	79	Woods, Fair, HSG D
3.000	94	Urban commercial, 85% imp, HSG C
93.600	74	Weighted Average
91.050		Pervious Area
2.550		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0500	0.29		**Sheet Flow,** Range n= 0.130 P2= 3.50"
9.9	1,643	0.1560	2.76		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.7	668	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.8	1,359	0.0220	2.58	1.37	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=0.25' Z= 0.5 '/' Top.W=2.25' n= 0.030 Earth, grassed & winding
36.2	3,770	Total			

Subcatchment 1.9S:

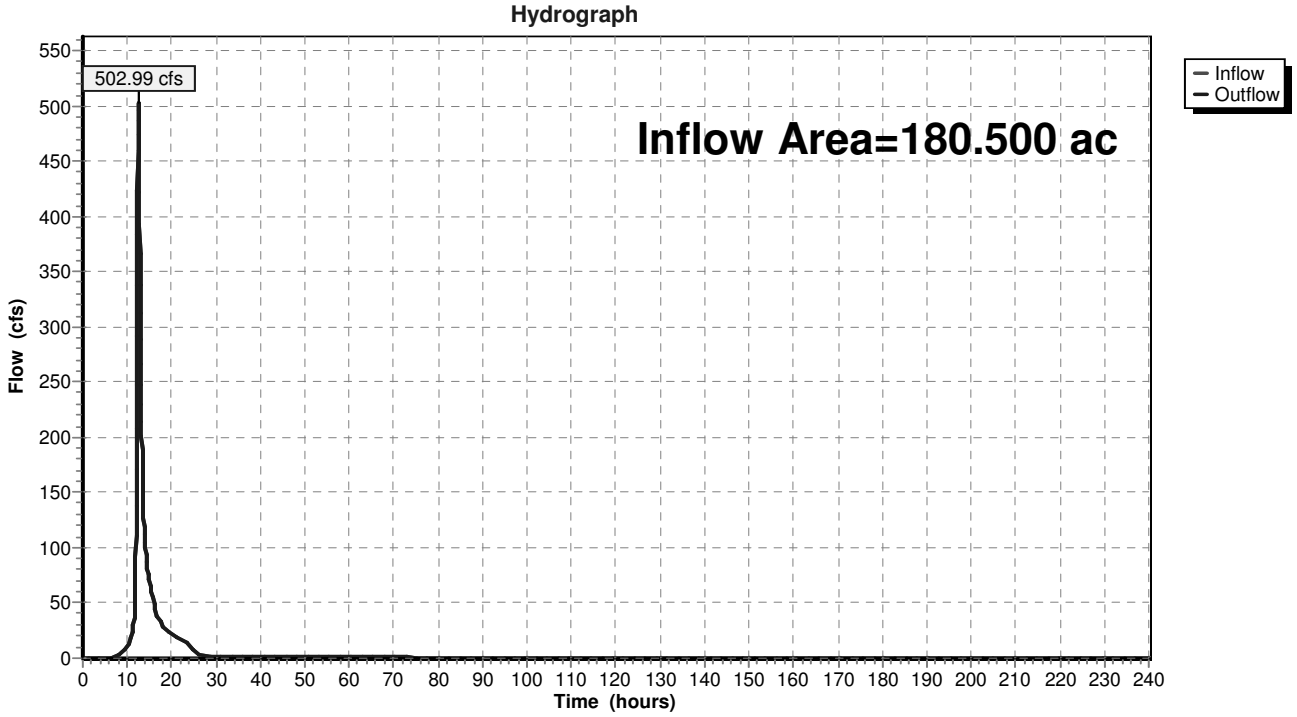


Summary for Reach DP 1: Design Point 1

Inflow Area = 180.500 ac, 19.28% Impervious, Inflow Depth = 5.82" for 100-yr event
Inflow = 502.99 cfs @ 12.53 hrs, Volume= 87.578 af
Outflow = 502.99 cfs @ 12.53 hrs, Volume= 87.578 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 1: Design Point 1



Summary for Pond 1.1P: Micropool Extended Detention Pond (P-1)

Inflow Area = 19.100 ac, 68.06% Impervious, Inflow Depth = 7.31" for 100-yr event
Inflow = 92.27 cfs @ 12.09 hrs, Volume= 11.632 af
Outflow = 56.35 cfs @ 12.21 hrs, Volume= 11.613 af, Atten= 39%, Lag= 7.5 min
Primary = 56.35 cfs @ 12.21 hrs, Volume= 11.613 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 613.00' Surf.Area= 19,800 sf Storage= 81,050 cf
Peak Elev= 616.75' @ 12.21 hrs Surf.Area= 28,757 sf Storage= 171,512 cf (90,462 cf above start)
Flood Elev= 617.00' Surf.Area= 29,400 sf Storage= 178,700 cf (97,650 cf above start)

Plug-Flow detention time= 1,186.2 min calculated for 9.750 af (84% of inflow)
Center-of-Mass det. time= 549.5 min (1,786.1 - 1,236.6)

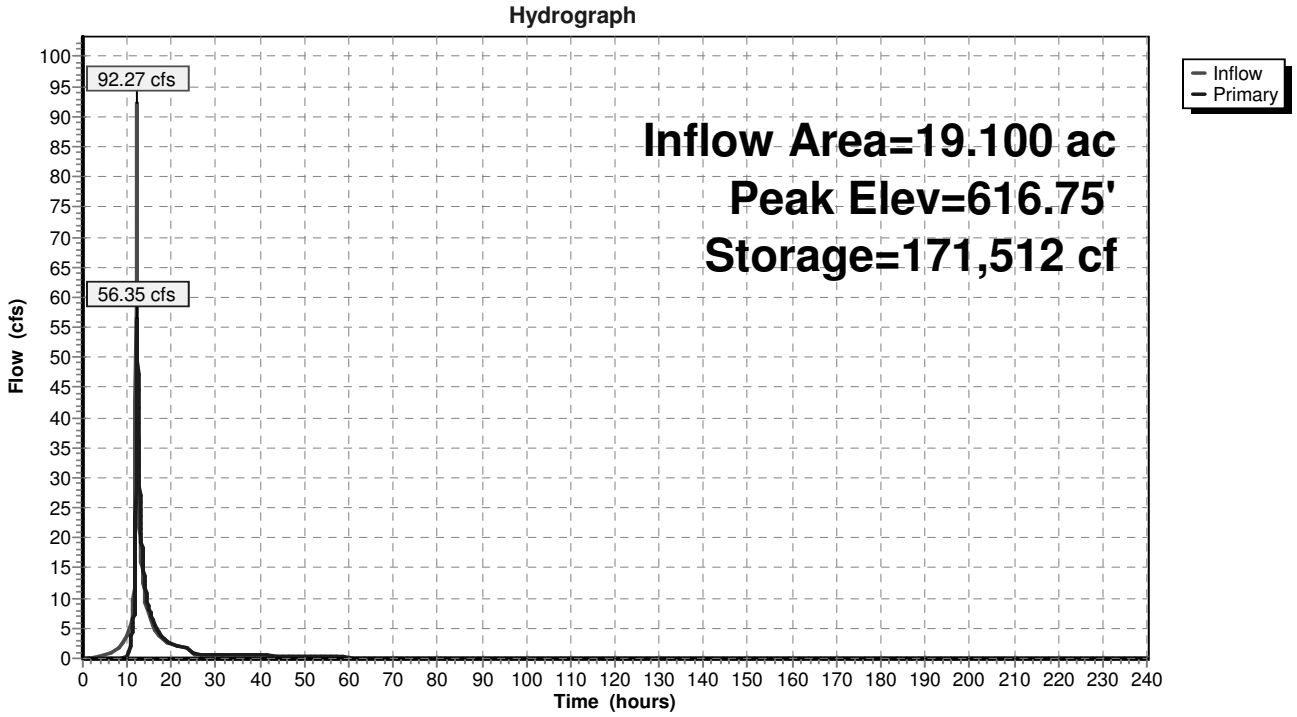
Volume	Invert	Avail.Storage	Storage Description
#1	605.00'	209,400 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
605.00	5,000	0	0
606.00	6,000	5,500	5,500
608.00	8,100	14,100	19,600
610.00	10,400	18,500	38,100
612.00	15,100	25,500	63,600
613.00	19,800	17,450	81,050
614.00	21,900	20,850	101,900
616.00	26,800	48,700	150,600
618.00	32,000	58,800	209,400

Device	Routing	Invert	Outlet Devices
#1	Primary	613.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	614.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=56.06 cfs @ 12.21 hrs HW=616.75' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.20 cfs @ 9.21 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 55.86 cfs @ 4.97 fps)

Pond 1.1P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 20.100 ac, 65.17% Impervious, Inflow Depth = 7.20" for 100-yr event
Inflow = 58.96 cfs @ 12.21 hrs, Volume= 12.060 af
Outflow = 34.41 cfs @ 12.71 hrs, Volume= 12.055 af, Atten= 42%, Lag= 30.2 min
Primary = 34.41 cfs @ 12.71 hrs, Volume= 12.055 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 600.00' Surf.Area= 6,300 sf Storage= 9,700 cf
Peak Elev= 608.67' @ 12.71 hrs Surf.Area= 26,331 sf Storage= 145,620 cf (135,920 cf above start)
Flood Elev= 609.00' Surf.Area= 27,250 sf Storage= 154,575 cf (144,875 cf above start)

Plug-Flow detention time= 903.4 min calculated for 11.832 af (98% of inflow)
Center-of-Mass det. time= 654.6 min (2,404.4 - 1,749.8)

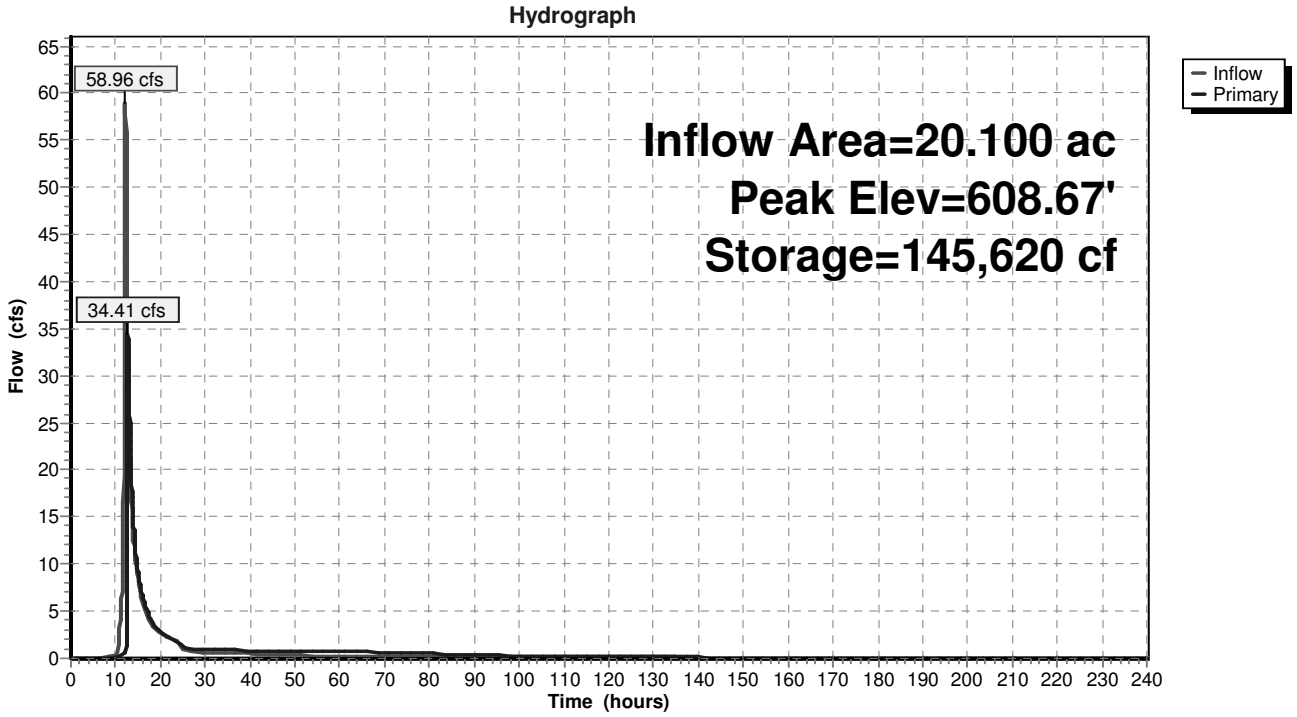
Volume	Invert	Avail.Storage	Storage Description
#1	596.00'	183,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
596.00	600	0	0
598.00	1,400	2,000	2,000
600.00	6,300	7,700	9,700
602.00	10,200	16,500	26,200
604.00	14,600	24,800	51,000
606.00	19,300	33,900	84,900
608.00	24,500	43,800	128,700
610.00	30,000	54,500	183,200

Device	Routing	Invert	Outlet Devices
#1	Primary	600.00'	**3.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	607.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=34.31 cfs @ 12.71 hrs HW=608.66' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.94 cfs @ 14.05 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 33.37 cfs @ 3.58 fps)

Pond 1.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 1.3P: Micropool Extended Detention Pond (P-1)

Inflow Area = 5.500 ac, 74.55% Impervious, Inflow Depth = 7.30" for 100-yr event
Inflow = 42.81 cfs @ 12.09 hrs, Volume= 3.345 af
Outflow = 30.78 cfs @ 12.17 hrs, Volume= 3.634 af, Atten= 28%, Lag= 4.9 min
Primary = 30.78 cfs @ 12.17 hrs, Volume= 3.634 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 664.00' Surf.Area= 14,500 sf Storage= 29,600 cf
Peak Elev= 666.59' @ 12.17 hrs Surf.Area= 19,746 sf Storage= 73,964 cf (44,364 cf above start)
Flood Elev= 667.00' Surf.Area= 20,550 sf Storage= 82,275 cf (52,675 cf above start)

Plug-Flow detention time= 1,196.8 min calculated for 2.954 af (88% of inflow)
Center-of-Mass det. time= 914.4 min (1,688.6 - 774.2)

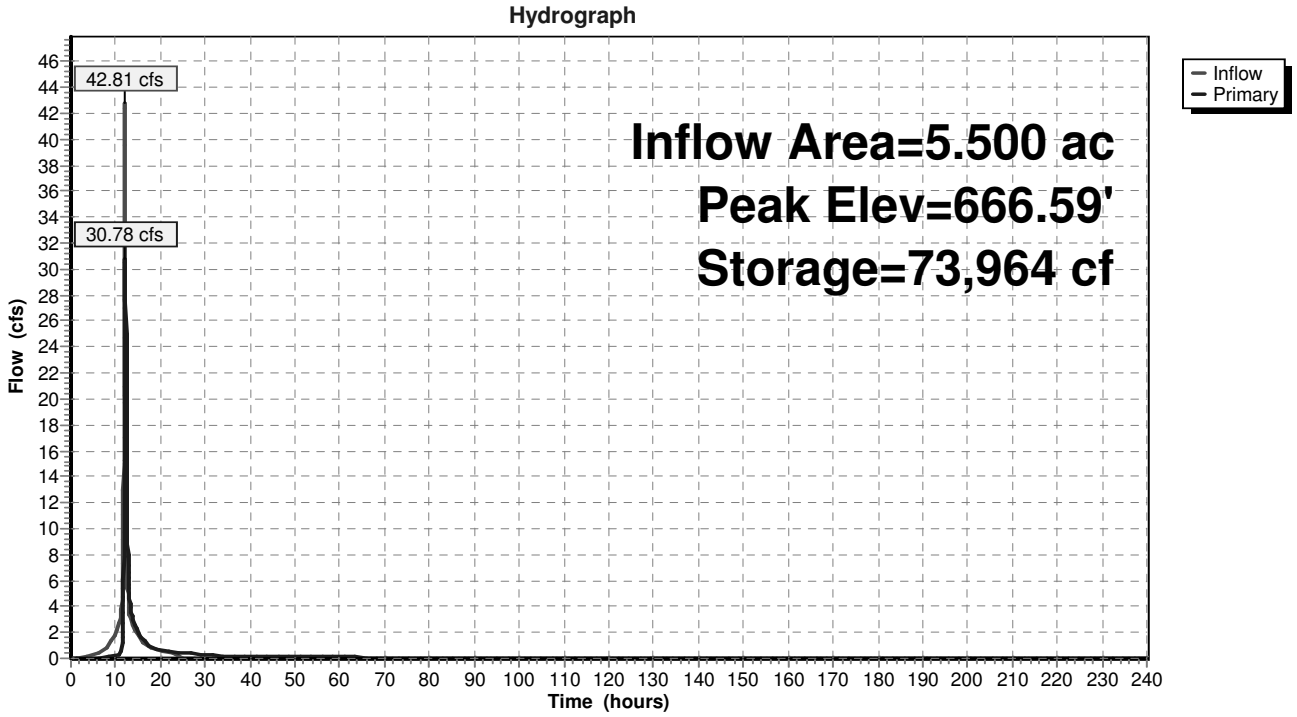
Volume	Invert	Avail.Storage	Storage Description
#1	659.00'	103,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
659.00	1,500	0	0
660.00	2,000	1,750	1,750
662.00	5,200	7,200	8,950
663.00	10,800	8,000	16,950
664.00	14,500	12,650	29,600
666.00	18,600	33,100	62,700
668.00	22,500	41,100	103,800

Device	Routing	Invert	Outlet Devices
#1	Primary	663.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	665.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	664.75'	**4.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=30.31 cfs @ 12.17 hrs HW=666.58' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.11 cfs @ 9.03 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 29.65 cfs @ 3.44 fps)
- **3=Orifice/Grate** (Orifice Controls 0.54 cfs @ 6.20 fps)

Pond 1.3P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.4P: Extended Detention Pond (Design 2) - Premanent Pool Provided

Inflow Area = 7.200 ac, 63.89% Impervious, Inflow Depth = 7.52" for 100-yr event
Inflow = 39.98 cfs @ 12.14 hrs, Volume= 4.515 af
Outflow = 13.12 cfs @ 12.61 hrs, Volume= 4.514 af, Atten= 67%, Lag= 28.0 min
Primary = 13.12 cfs @ 12.61 hrs, Volume= 4.514 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 657.00' Surf.Area= 12,850 sf Storage= 36,525 cf
Peak Elev= 660.55' @ 12.61 hrs Surf.Area= 26,305 sf Storage= 104,276 cf (67,751 cf above start)
Flood Elev= 661.00' Surf.Area= 28,250 sf Storage= 116,475 cf (79,950 cf above start)

Plug-Flow detention time= 1,413.4 min calculated for 3.674 af (81% of inflow)
Center-of-Mass det. time= 446.1 min (1,961.1 - 1,515.0)

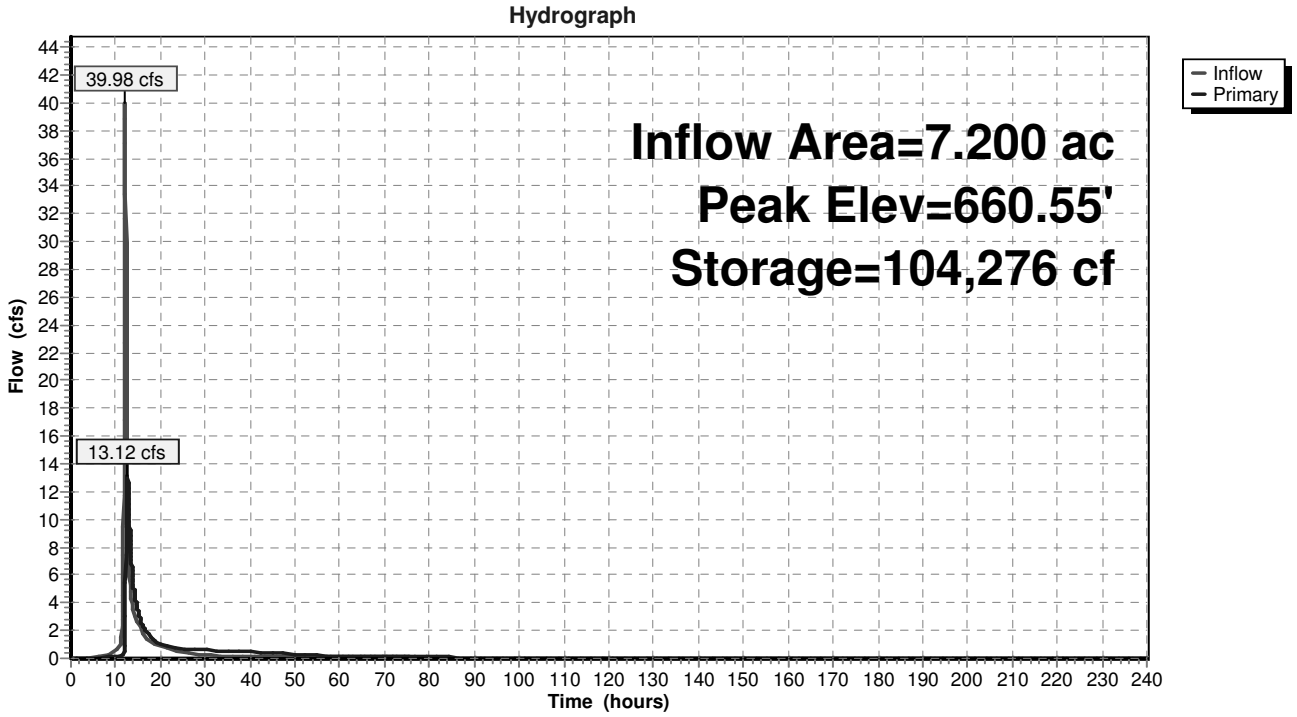
Volume	Invert	Avail.Storage	Storage Description
#1	650.00'	146,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
650.00	500	0	0
652.00	1,100	1,600	1,600
654.00	6,200	7,300	8,900
656.00	10,000	16,200	25,100
658.00	15,700	25,700	50,800
660.00	23,900	39,600	90,400
662.00	32,600	56,500	146,900

Device	Routing	Invert	Outlet Devices
#1	Primary	657.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	659.25'	**2.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=13.11 cfs @ 12.61 hrs HW=660.55' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 0.77 cfs @ 8.86 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 12.33 cfs @ 3.79 fps)

Pond 1.4P: Extended Detention Pond (Design 2) - Premanent Pool Provided



Summary for Pond 1.5P: Micropool Extended Detention Pond (P-1)

Inflow Area = 47.700 ac, 30.07% Impervious, Inflow Depth = 6.10" for 100-yr event
Inflow = 252.97 cfs @ 12.20 hrs, Volume= 24.229 af
Outflow = 170.98 cfs @ 12.38 hrs, Volume= 24.205 af, Atten= 32%, Lag= 10.6 min
Primary = 170.98 cfs @ 12.38 hrs, Volume= 24.205 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 656.00' Surf.Area= 38,400 sf Storage= 157,900 cf
Peak Elev= 661.28' @ 12.38 hrs Surf.Area= 63,889 sf Storage= 421,353 cf (263,453 cf above start)
Flood Elev= 661.00' Surf.Area= 61,600 sf Storage= 404,050 cf (246,150 cf above start)

Plug-Flow detention time= 403.6 min calculated for 20.581 af (85% of inflow)
Center-of-Mass det. time= 272.9 min (1,081.9 - 809.0)

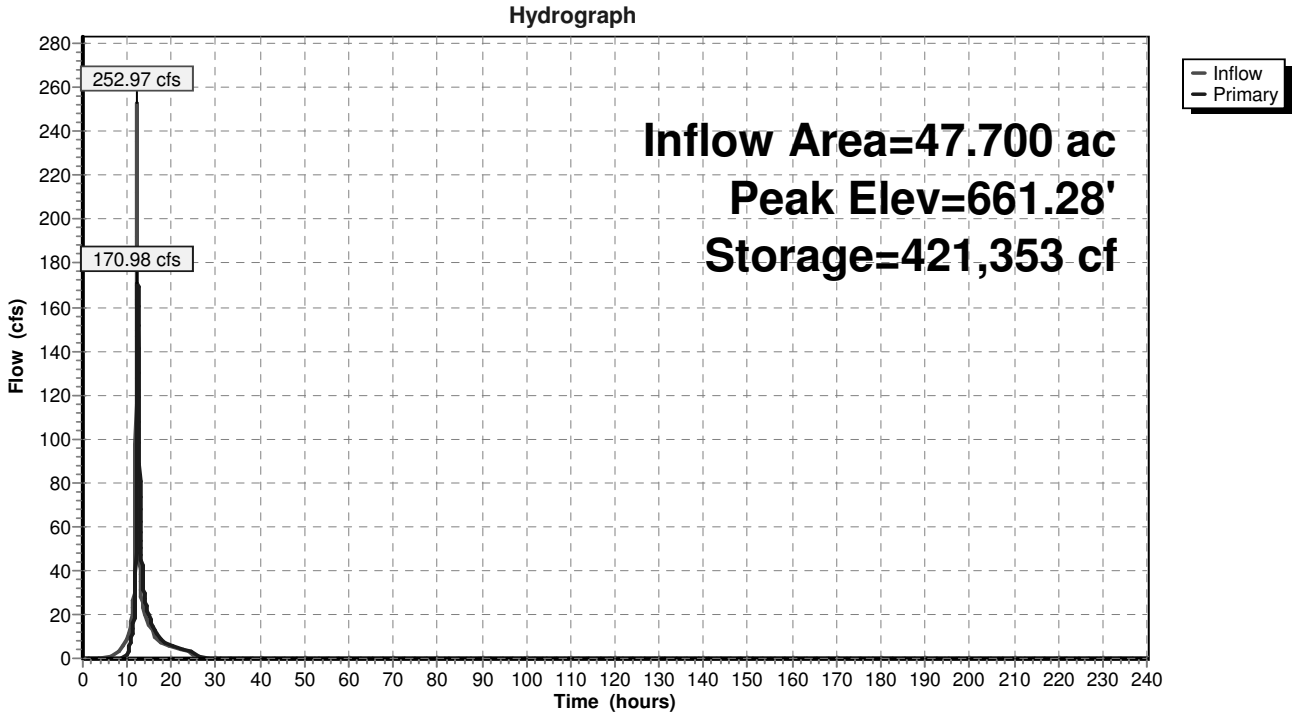
Volume	Invert	Avail.Storage	Storage Description
#1	648.00'	469,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
648.00	10,500	0	0
650.00	14,200	24,700	24,700
652.00	18,100	32,300	57,000
654.00	22,200	40,300	97,300
656.00	38,400	60,600	157,900
658.00	48,500	86,900	244,800
660.00	53,300	101,800	346,600
662.00	69,900	123,200	469,800

Device	Routing	Invert	Outlet Devices
#1	Primary	656.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	657.00'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	658.75'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=170.47 cfs @ 12.38 hrs HW=661.27' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.24 cfs @ 10.96 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 117.13 cfs @ 6.86 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 53.09 cfs @ 5.27 fps)

Pond 1.5P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.6P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 51.700 ac, 28.33% Impervious, Inflow Depth = 6.02" for 100-yr event
Inflow = 177.67 cfs @ 12.37 hrs, Volume= 25.957 af
Outflow = 138.47 cfs @ 12.63 hrs, Volume= 25.919 af, Atten= 22%, Lag= 15.6 min
Primary = 138.47 cfs @ 12.63 hrs, Volume= 25.919 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 627.00' Surf.Area= 30,860 sf Storage= 131,598 cf
Peak Elev= 632.78' @ 12.63 hrs Surf.Area= 47,926 sf Storage= 357,719 cf (226,121 cf above start)
Flood Elev= 633.00' Surf.Area= 48,641 sf Storage= 368,223 cf (236,625 cf above start)

Plug-Flow detention time= 548.0 min calculated for 22.897 af (88% of inflow)
Center-of-Mass det. time= 224.5 min (1,288.0 - 1,063.5)

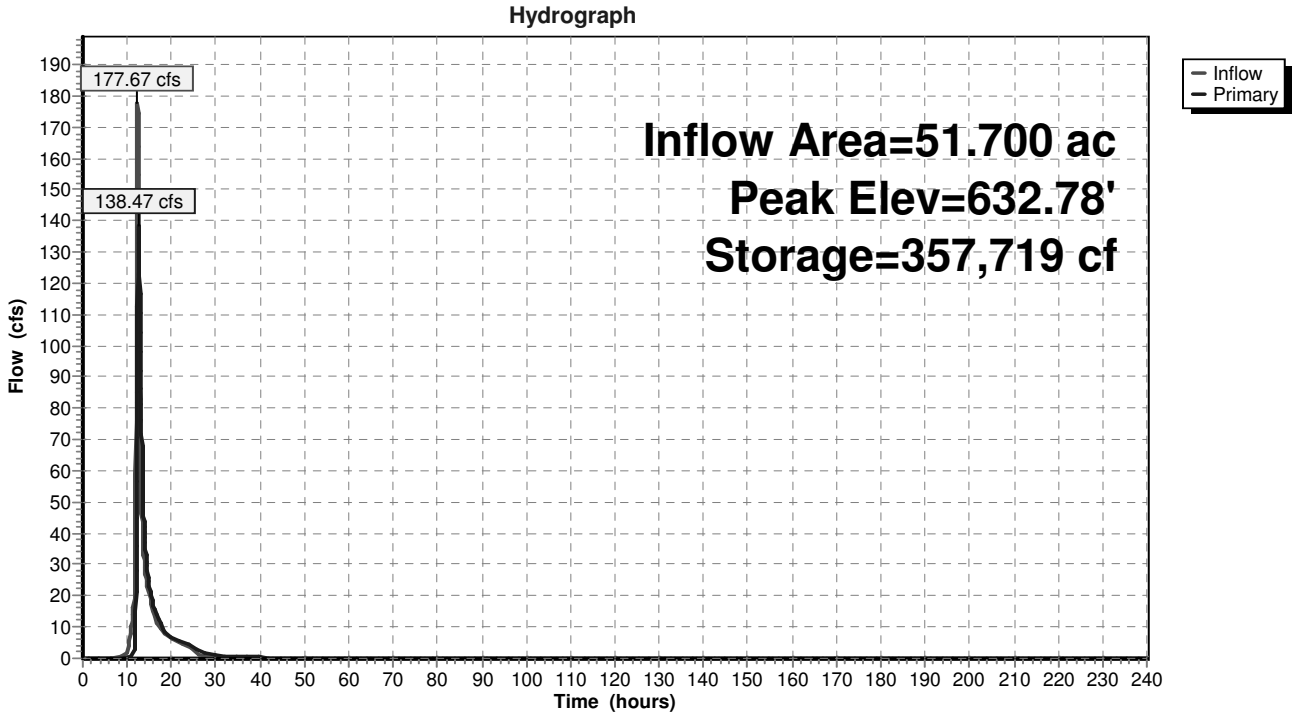
Volume	Invert	Avail.Storage	Storage Description
#1	621.00'	418,508 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
621.00	14,753	0	0
622.00	16,761	15,757	15,757
624.00	21,116	37,877	53,634
627.00	30,860	77,964	131,598
628.00	33,557	32,209	163,807
630.00	39,254	72,811	236,618
632.00	45,354	84,608	321,226
634.00	51,928	97,282	418,508

Device	Routing	Invert	Outlet Devices
#1	Primary	627.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	627.75'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	628.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=138.21 cfs @ 12.63 hrs HW=632.78' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.39 cfs @ 11.47 fps)
- **2=Orifice/Grate** (Orifice Controls 3.64 cfs @ 10.43 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 134.18 cfs @ 6.66 fps)

Pond 1.6P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 1.7P: Micropool Extended Detention Pond (P-1)

Inflow Area = 14.000 ac, 29.29% Impervious, Inflow Depth = 6.10" for 100-yr event
Inflow = 112.57 cfs @ 12.00 hrs, Volume= 7.111 af
Outflow = 70.36 cfs @ 12.08 hrs, Volume= 7.110 af, Atten= 37%, Lag= 4.5 min
Primary = 70.36 cfs @ 12.08 hrs, Volume= 7.110 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 664.00' Surf.Area= 16,200 sf Storage= 41,300 cf
Peak Elev= 666.81' @ 12.08 hrs Surf.Area= 27,996 sf Storage= 103,339 cf (62,039 cf above start)
Flood Elev= 667.00' Surf.Area= 28,800 sf Storage= 108,650 cf (67,350 cf above start)

Plug-Flow detention time= 373.2 min calculated for 6.161 af (87% of inflow)
Center-of-Mass det. time= 259.0 min (1,054.1 - 795.1)

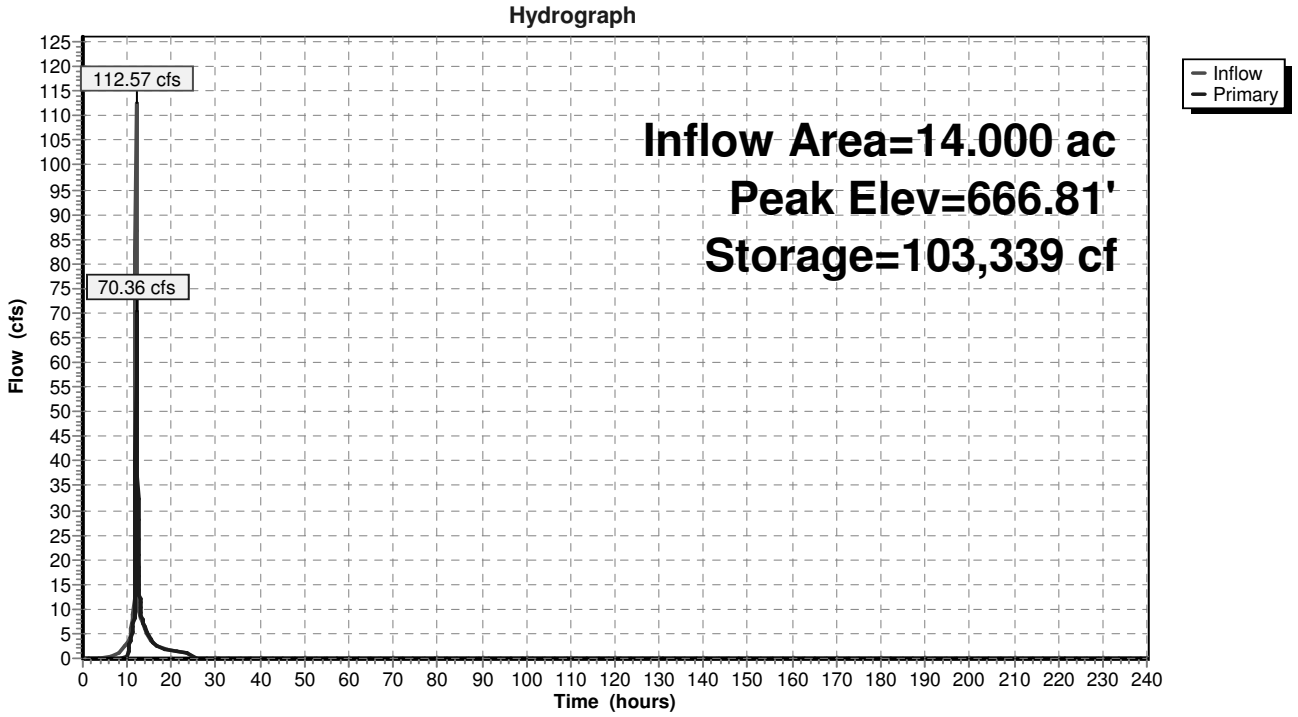
Volume	Invert	Avail.Storage	Storage Description
#1	658.00'	139,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
658.00	3,100	0	0
660.00	4,500	7,600	7,600
662.00	6,500	11,000	18,600
664.00	16,200	22,700	41,300
666.00	24,500	40,700	82,000
668.00	33,100	57,600	139,600

Device	Routing	Invert	Outlet Devices
#1	Primary	664.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	664.90'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=69.58 cfs @ 12.08 hrs HW=666.80' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.10 cfs @ 7.96 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 69.48 cfs @ 4.57 fps)

Pond 1.7P: Micropool Extended Detention Pond (P-1)



Summary for Pond 1.8P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 15.100 ac, 29.80% Impervious, Inflow Depth = 6.10" for 100-yr event
Inflow = 77.02 cfs @ 12.07 hrs, Volume= 7.680 af
Outflow = 61.35 cfs @ 12.20 hrs, Volume= 7.678 af, Atten= 20%, Lag= 8.1 min
Primary = 61.35 cfs @ 12.20 hrs, Volume= 7.678 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 644.00' Surf.Area= 16,900 sf Storage= 54,400 cf
Peak Elev= 646.74' @ 12.20 hrs Surf.Area= 24,415 sf Storage= 110,931 cf (56,531 cf above start)
Flood Elev= 647.00' Surf.Area= 25,150 sf Storage= 117,325 cf (62,925 cf above start)

Plug-Flow detention time= 586.0 min calculated for 6.429 af (84% of inflow)
Center-of-Mass det. time= 217.5 min (1,252.2 - 1,034.7)

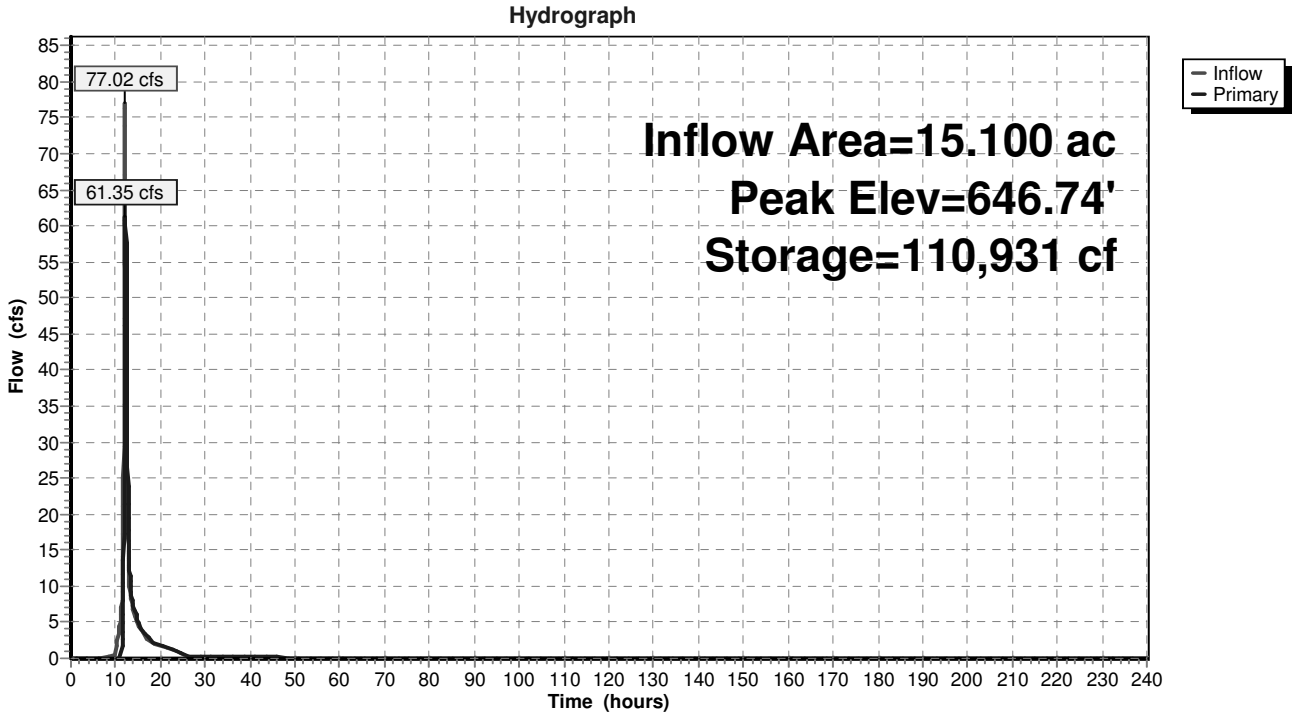
Volume	Invert	Avail.Storage	Storage Description
#1	638.00'	143,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

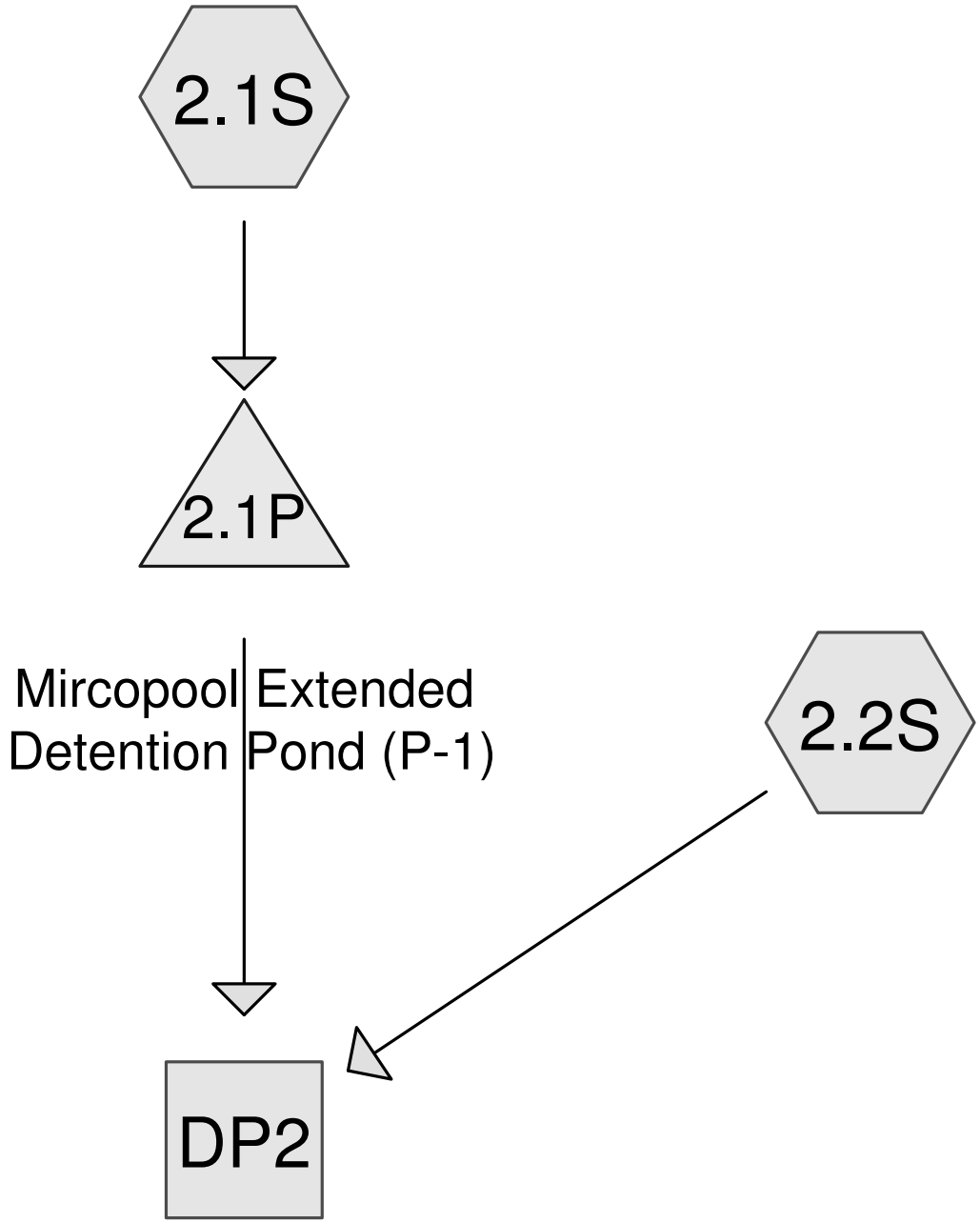
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
638.00	5,100	0	0
640.00	7,000	12,100	12,100
642.00	9,200	16,200	28,300
644.00	16,900	26,100	54,400
646.00	22,300	39,200	93,600
648.00	28,000	50,300	143,900

Device	Routing	Invert	Outlet Devices
#1	Primary	644.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	645.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=61.32 cfs @ 12.20 hrs HW=646.74' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.27 cfs @ 7.82 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 61.06 cfs @ 4.38 fps)

Pond 1.8P: Extended Detention Pond (Design 2) - Permanent Pool Provided





Design Point 2

Subcat Reach Pond Link

Drainage Diagram for Union Place Post-development_DP2
Prepared by {enter your company name here}, Printed 10/12/2010

Summary for Subcatchment 2.1S:

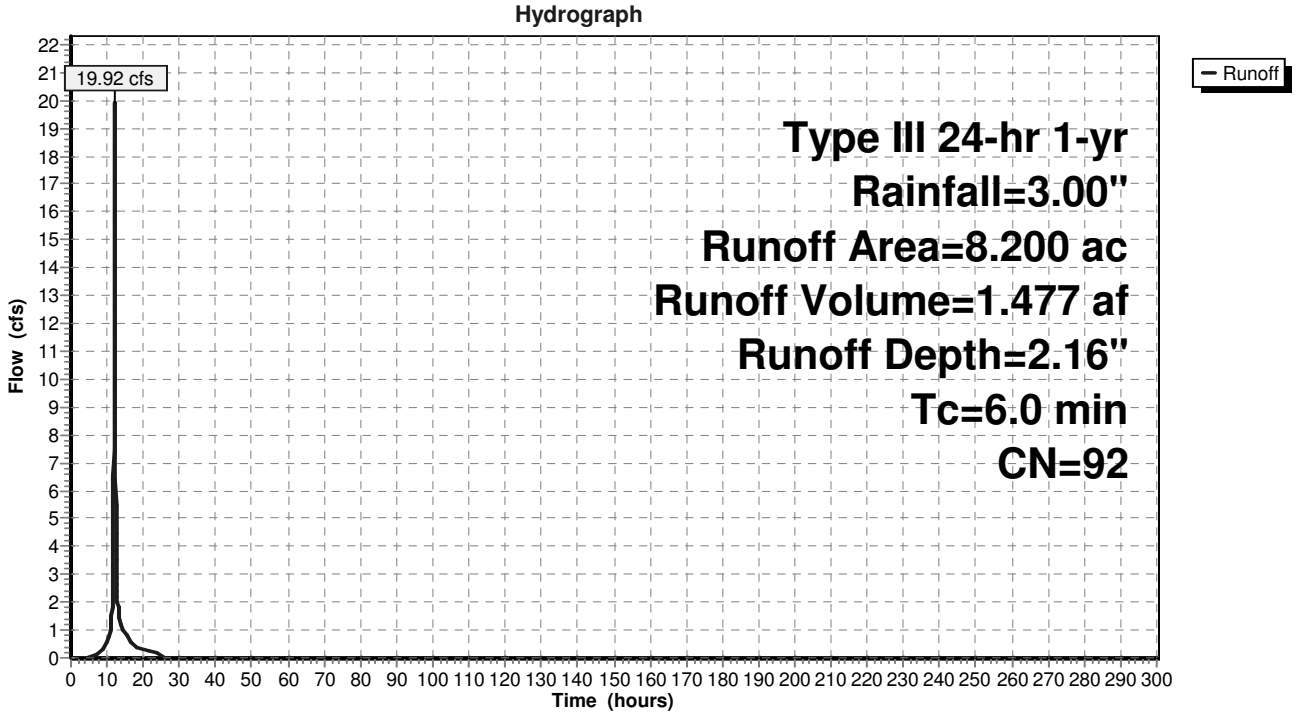
Runoff = 19.92 cfs @ 12.09 hrs, Volume= 1.477 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

	Area (ac)	CN	Description
	6.000	98	Paved parking & roofs
	1.200	74	>75% Grass cover, Good, HSG C
	0.400	71	Meadow, non-grazed, HSG C
	0.300	98	Water Surface
*	0.300	56	Pervious Pavement
	8.200	92	Weighted Average
	1.900		Pervious Area
	6.300		Impervious Area

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

Subcatchment 2.1S:



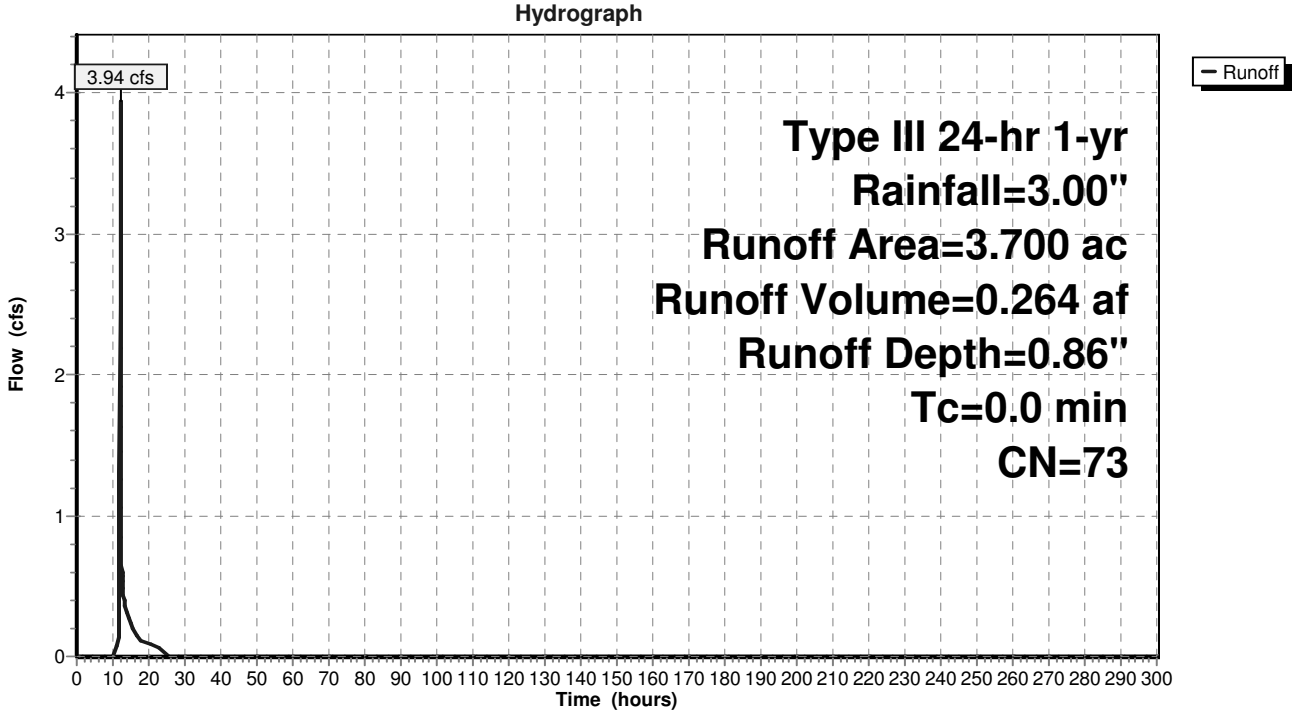
Summary for Subcatchment 2.2S:

Runoff = 3.94 cfs @ 12.01 hrs, Volume= 0.264 af, Depth= 0.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.300	98	Paved parking & roofs
0.500	74	>75% Grass cover, Good, HSG C
1.400	71	Meadow, non-grazed, HSG C
1.500	70	Woods, Good, HSG C
3.700	73	Weighted Average
3.400		Pervious Area
0.300		Impervious Area

Subcatchment 2.2S:

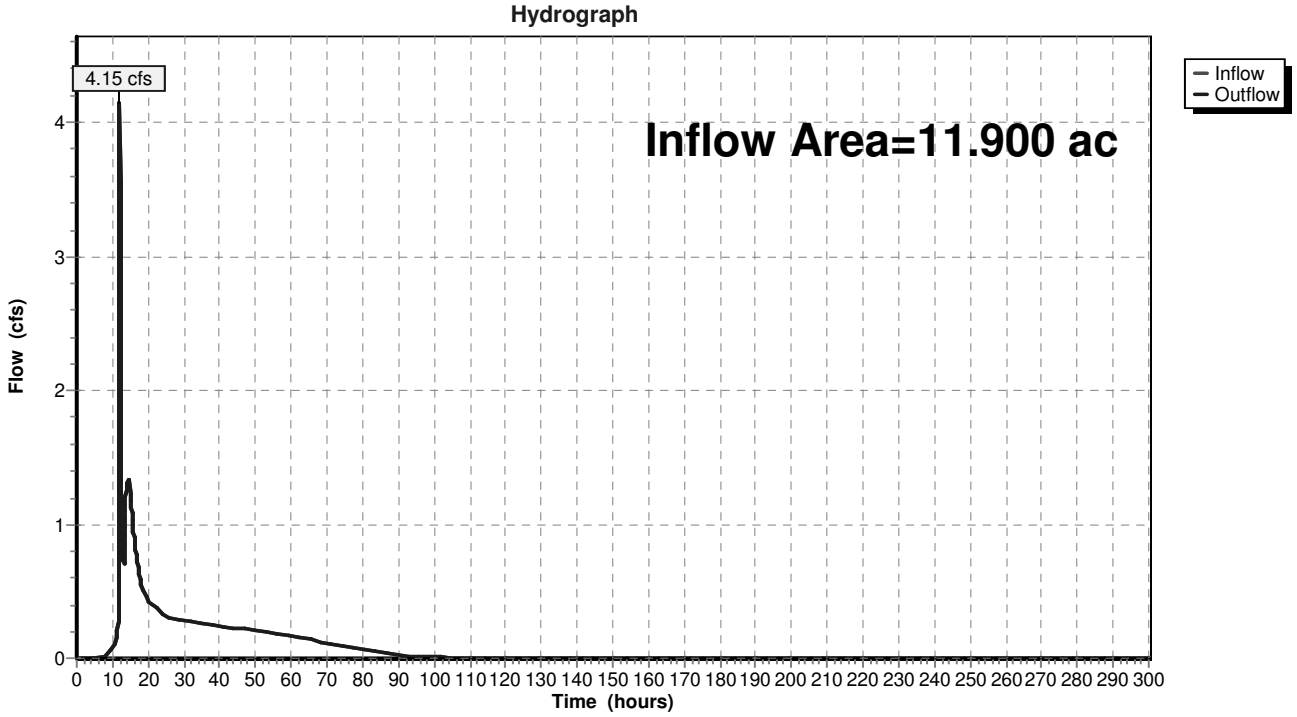


Summary for Reach DP2: Design Point 2

Inflow Area = 11.900 ac, 55.46% Impervious, Inflow Depth = 1.75" for 1-yr event
Inflow = 4.15 cfs @ 12.01 hrs, Volume= 1.739 af
Outflow = 4.15 cfs @ 12.01 hrs, Volume= 1.739 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP2: Design Point 2



Summary for Pond 2.1P: Mircopool Extended Detention Pond (P-1)

Inflow Area = 8.200 ac, 76.83% Impervious, Inflow Depth = 2.16" for 1-yr event
Inflow = 19.92 cfs @ 12.09 hrs, Volume= 1.477 af
Outflow = 1.08 cfs @ 14.26 hrs, Volume= 1.475 af, Atten= 95%, Lag= 130.3 min
Primary = 1.08 cfs @ 14.26 hrs, Volume= 1.475 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 620.00' Surf.Area= 11,200 sf Storage= 37,300 cf
Peak Elev= 623.11' @ 14.26 hrs Surf.Area= 17,167 sf Storage= 81,131 cf (43,831 cf above start)
Flood Elev= 625.00' Surf.Area= 21,300 sf Storage= 117,450 cf (80,150 cf above start)

Plug-Flow detention time= 2,925.9 min calculated for 0.619 af (42% of inflow)
Center-of-Mass det. time= 1,489.7 min (2,289.8 - 800.1)

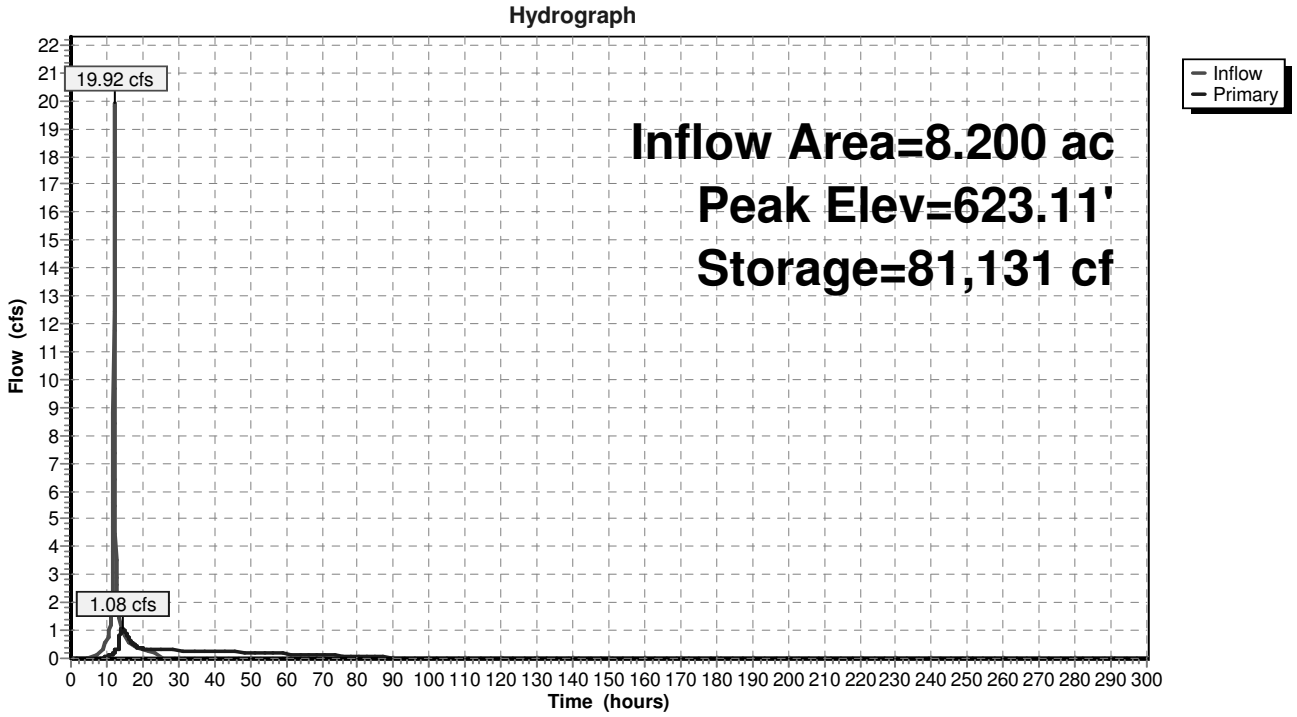
Volume	Invert	Avail.Storage	Storage Description
#1	612.00'	139,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
612.00	1,700	0	0
614.00	2,700	4,400	4,400
616.00	4,000	6,700	11,100
618.00	5,500	9,500	20,600
620.00	11,200	16,700	37,300
622.00	14,900	26,100	63,400
624.00	19,000	33,900	97,300
626.00	23,600	42,600	139,900

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**2.6" Vert. Orifice/Grate** C= 0.600
#2	Primary	623.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.08 cfs @ 14.26 hrs HW=623.11' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.31 cfs @ 8.34 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 0.77 cfs @ 0.91 fps)

Pond 2.1P: Mircopool Extended Detention Pond (P-1)



Summary for Subcatchment 2.1S:

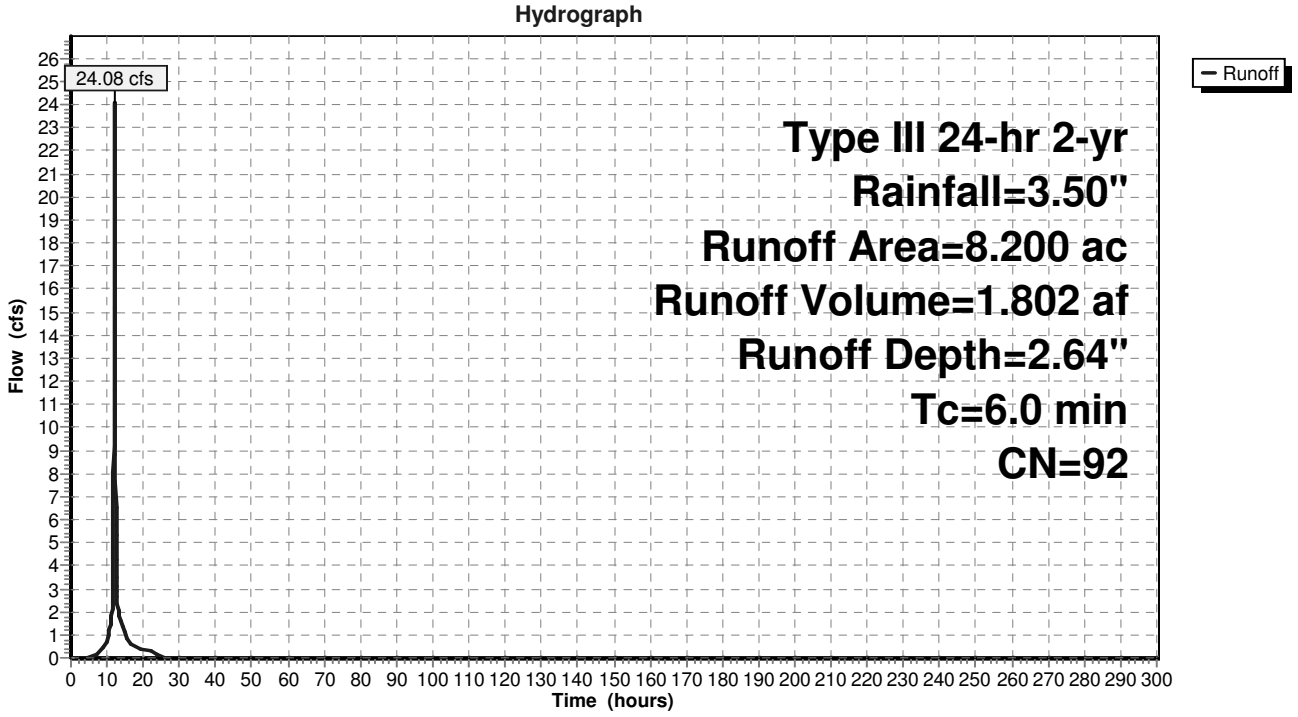
Runoff = 24.08 cfs @ 12.09 hrs, Volume= 1.802 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

	Area (ac)	CN	Description
	6.000	98	Paved parking & roofs
	1.200	74	>75% Grass cover, Good, HSG C
	0.400	71	Meadow, non-grazed, HSG C
	0.300	98	Water Surface
*	0.300	56	Pervious Pavement
	8.200	92	Weighted Average
	1.900		Pervious Area
	6.300		Impervious Area

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

Subcatchment 2.1S:



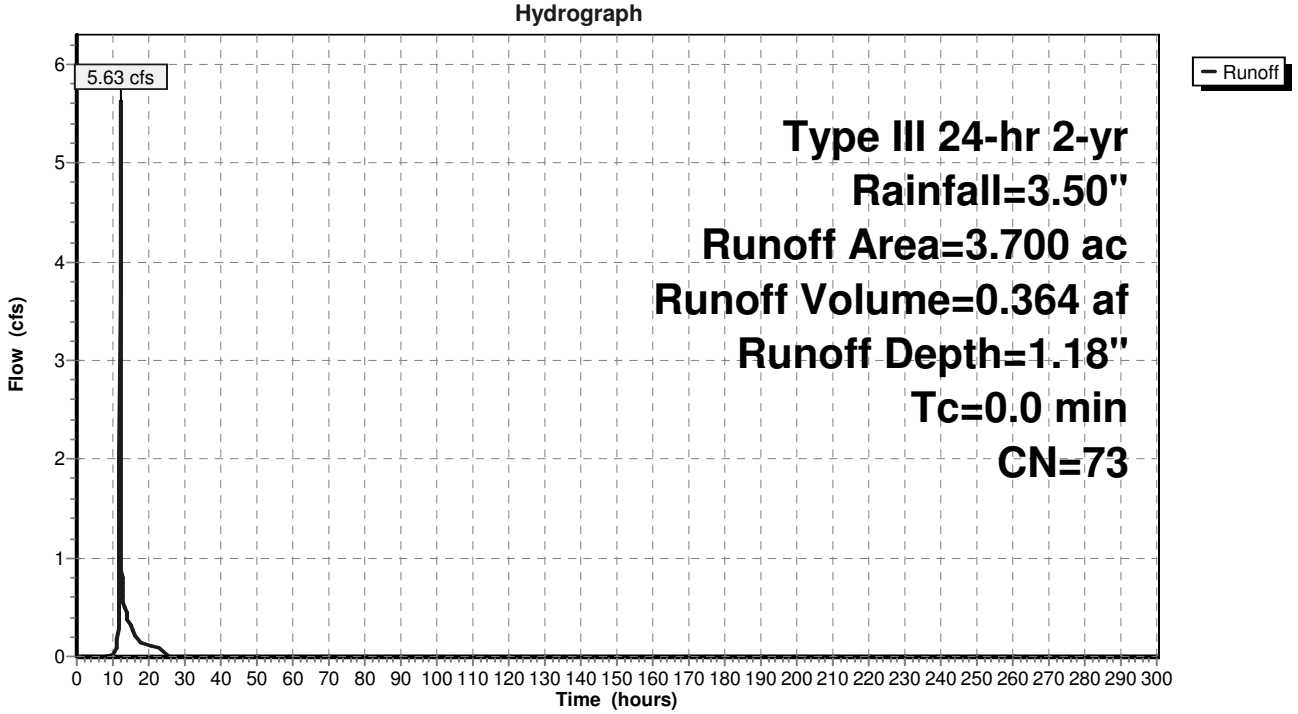
Summary for Subcatchment 2.2S:

Runoff = 5.63 cfs @ 12.01 hrs, Volume= 0.364 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.300	98	Paved parking & roofs
0.500	74	>75% Grass cover, Good, HSG C
1.400	71	Meadow, non-grazed, HSG C
1.500	70	Woods, Good, HSG C
3.700	73	Weighted Average
3.400		Pervious Area
0.300		Impervious Area

Subcatchment 2.2S:

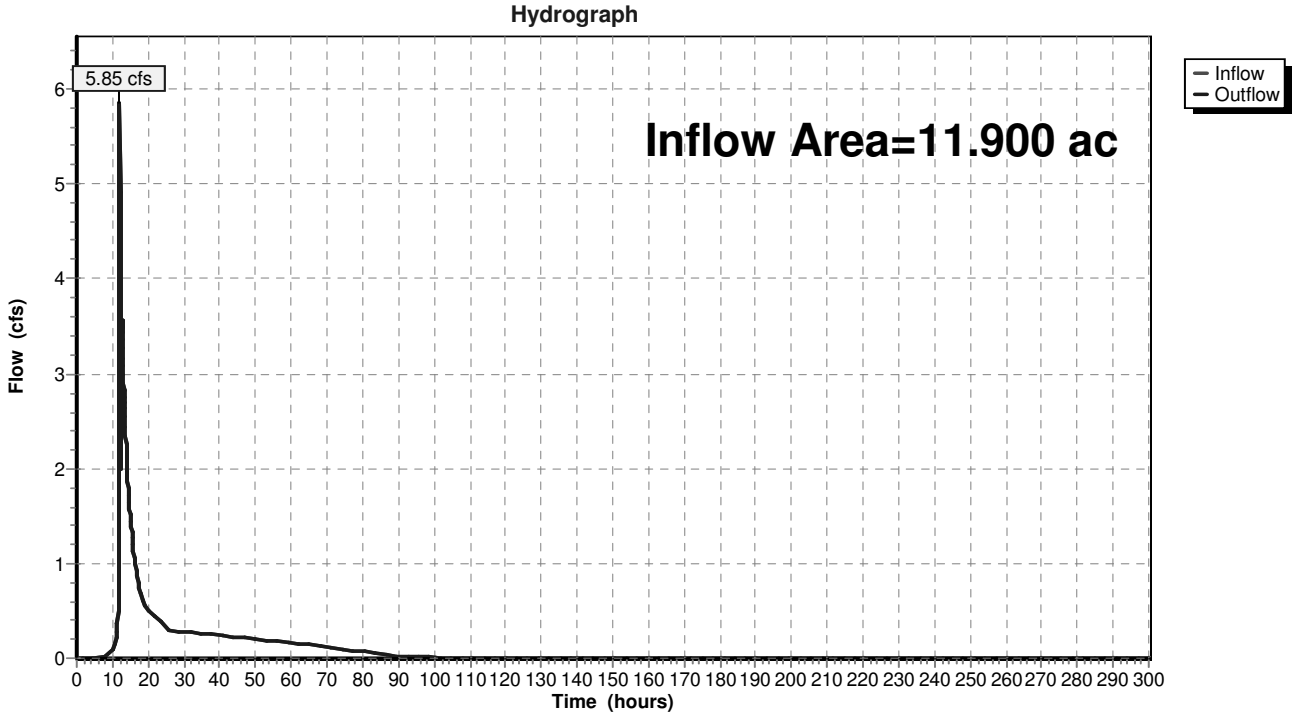


Summary for Reach DP2: Design Point 2

Inflow Area = 11.900 ac, 55.46% Impervious, Inflow Depth = 2.18" for 2-yr event
Inflow = 5.85 cfs @ 12.01 hrs, Volume= 2.164 af
Outflow = 5.85 cfs @ 12.01 hrs, Volume= 2.164 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP2: Design Point 2



Summary for Pond 2.1P: Mircopool Extended Detention Pond (P-1)

Inflow Area = 8.200 ac, 76.83% Impervious, Inflow Depth = 2.64" for 2-yr event
Inflow = 24.08 cfs @ 12.09 hrs, Volume= 1.802 af
Outflow = 2.86 cfs @ 12.73 hrs, Volume= 1.800 af, Atten= 88%, Lag= 38.7 min
Primary = 2.86 cfs @ 12.73 hrs, Volume= 1.800 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 620.00' Surf.Area= 11,200 sf Storage= 37,300 cf
Peak Elev= 623.23' @ 12.73 hrs Surf.Area= 17,428 sf Storage= 83,336 cf (46,036 cf above start)
Flood Elev= 625.00' Surf.Area= 21,300 sf Storage= 117,450 cf (80,150 cf above start)

Plug-Flow detention time= 2,348.9 min calculated for 0.944 af (52% of inflow)
Center-of-Mass det. time= 1,248.8 min (2,043.4 - 794.6)

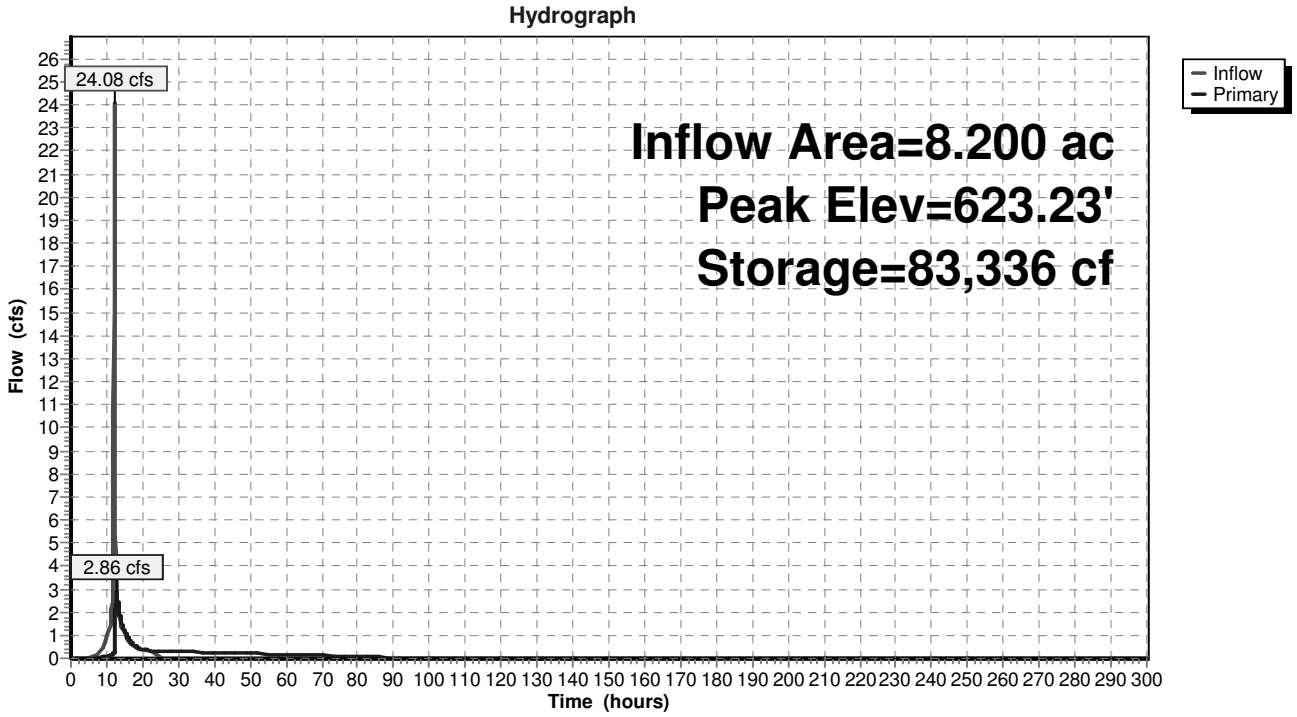
Volume	Invert	Avail.Storage	Storage Description
#1	612.00'	139,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
612.00	1,700	0	0
614.00	2,700	4,400	4,400
616.00	4,000	6,700	11,100
618.00	5,500	9,500	20,600
620.00	11,200	16,700	37,300
622.00	14,900	26,100	63,400
624.00	19,000	33,900	97,300
626.00	23,600	42,600	139,900

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**2.6" Vert. Orifice/Grate** C= 0.600
#2	Primary	623.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.85 cfs @ 12.73 hrs HW=623.23' TW=0.00' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.31 cfs @ 8.51 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 2.54 cfs @ 1.36 fps)

Pond 2.1P: Mircopool Extended Detention Pond (P-1)



Summary for Subcatchment 2.1S:

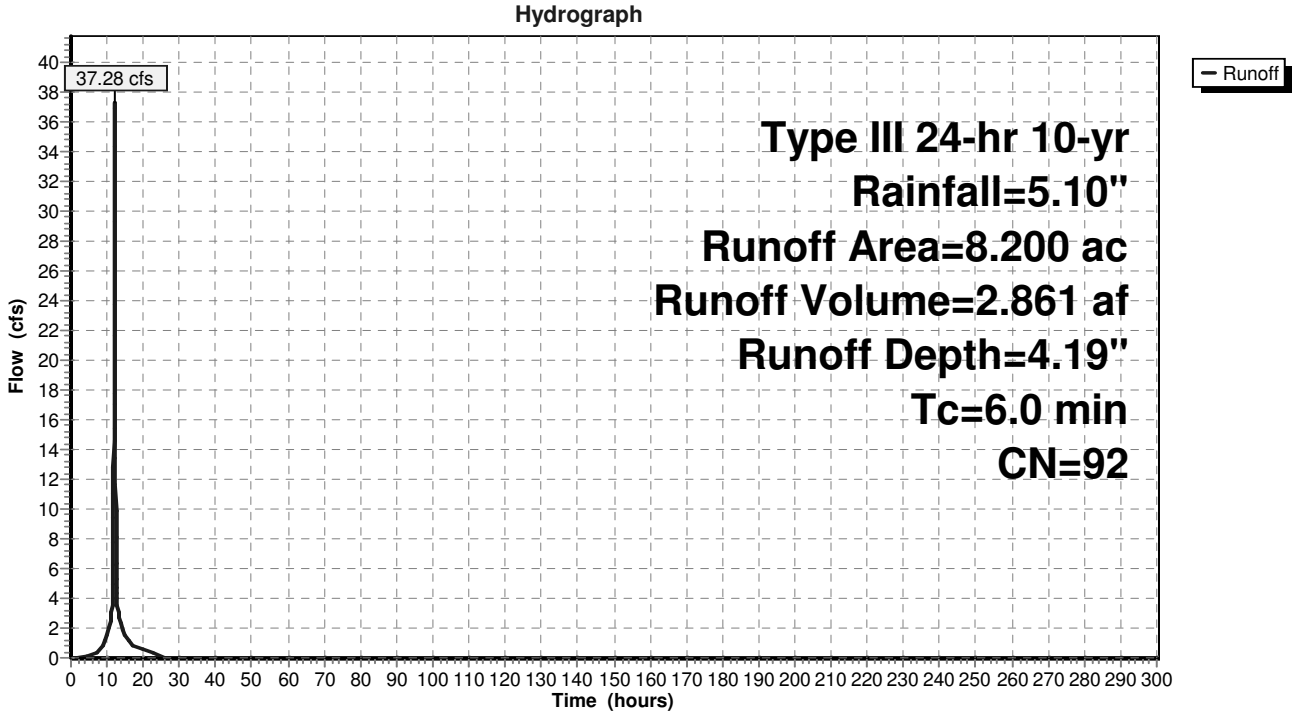
Runoff = 37.28 cfs @ 12.09 hrs, Volume= 2.861 af, Depth= 4.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

	Area (ac)	CN	Description
	6.000	98	Paved parking & roofs
	1.200	74	>75% Grass cover, Good, HSG C
	0.400	71	Meadow, non-grazed, HSG C
	0.300	98	Water Surface
*	0.300	56	Pervious Pavement
	8.200	92	Weighted Average
	1.900		Pervious Area
	6.300		Impervious Area

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

Subcatchment 2.1S:



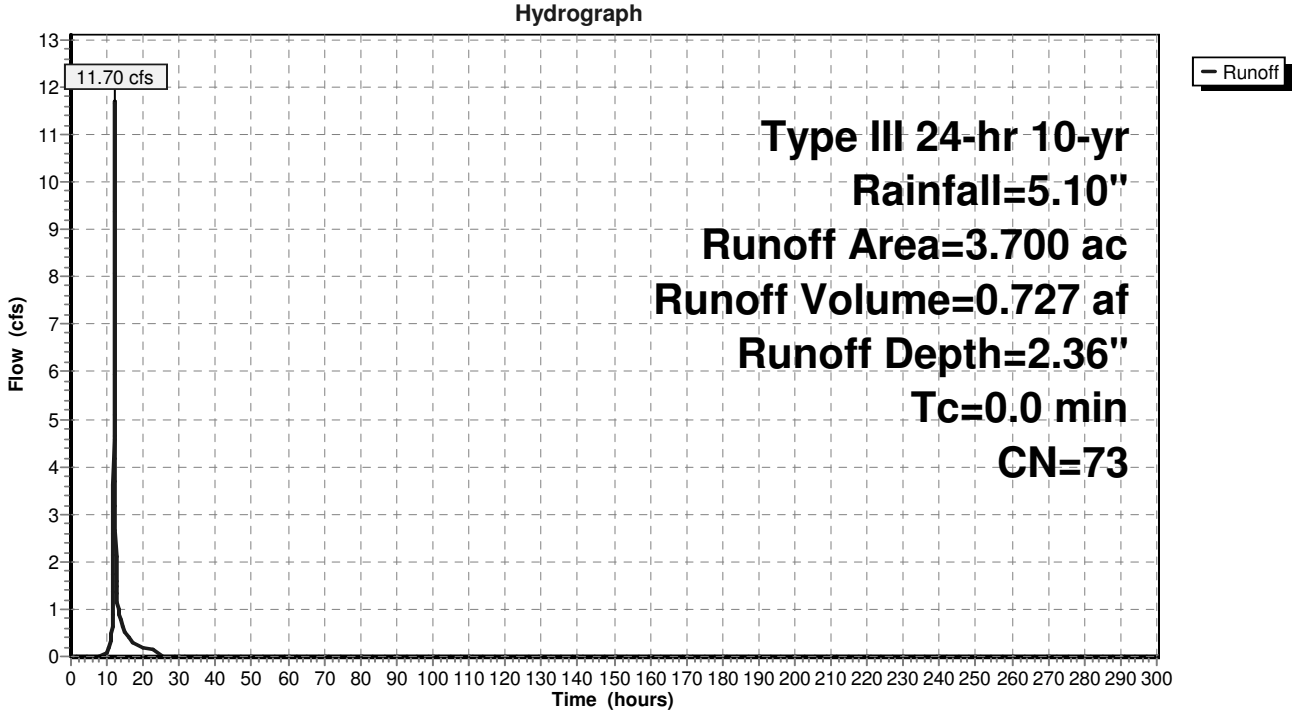
Summary for Subcatchment 2.2S:

Runoff = 11.70 cfs @ 12.01 hrs, Volume= 0.727 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.300	98	Paved parking & roofs
0.500	74	>75% Grass cover, Good, HSG C
1.400	71	Meadow, non-grazed, HSG C
1.500	70	Woods, Good, HSG C
3.700	73	Weighted Average
3.400		Pervious Area
0.300		Impervious Area

Subcatchment 2.2S:

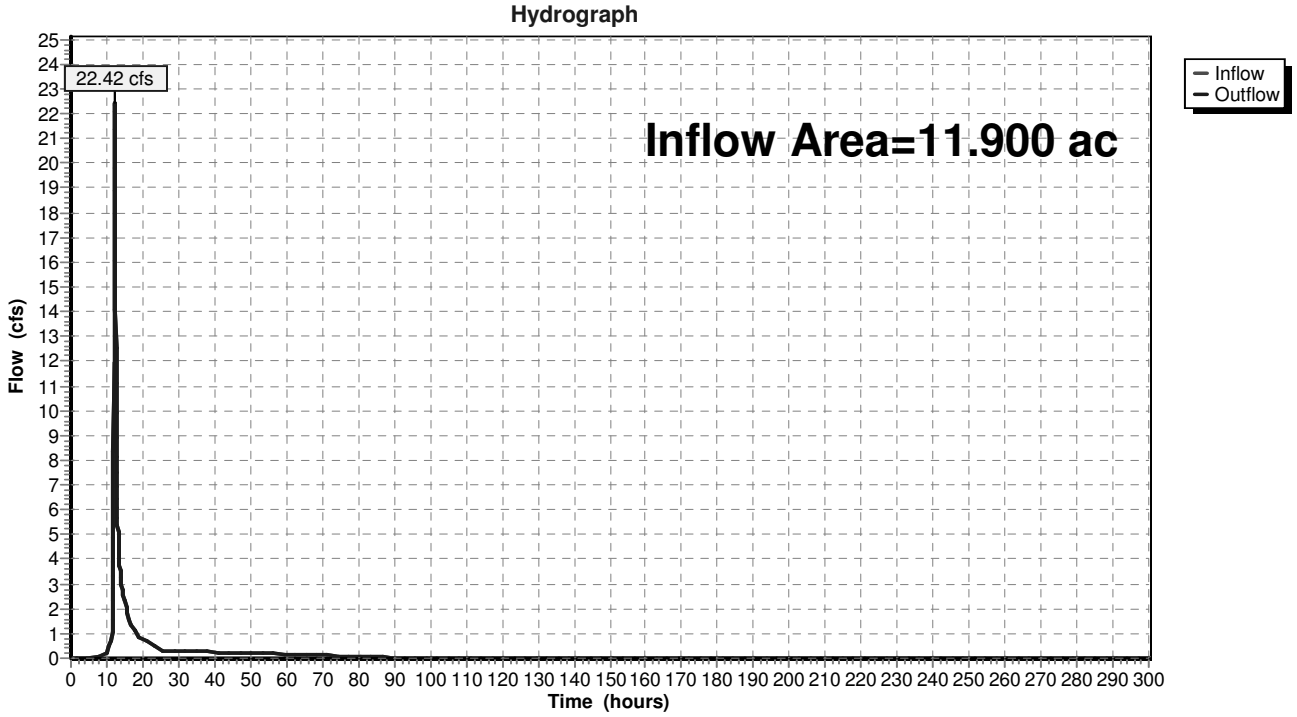


Summary for Reach DP2: Design Point 2

Inflow Area = 11.900 ac, 55.46% Impervious, Inflow Depth = 3.62" for 10-yr event
Inflow = 22.42 cfs @ 12.24 hrs, Volume= 3.587 af
Outflow = 22.42 cfs @ 12.24 hrs, Volume= 3.587 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP2: Design Point 2



Summary for Pond 2.1P: Mircopool Extended Detention Pond (P-1)

Inflow Area = 8.200 ac, 76.83% Impervious, Inflow Depth = 4.19" for 10-yr event
Inflow = 37.28 cfs @ 12.09 hrs, Volume= 2.861 af
Outflow = 18.18 cfs @ 12.25 hrs, Volume= 2.859 af, Atten= 51%, Lag= 10.0 min
Primary = 18.18 cfs @ 12.25 hrs, Volume= 2.859 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 620.00' Surf.Area= 11,200 sf Storage= 37,300 cf
Peak Elev= 623.77' @ 12.25 hrs Surf.Area= 18,538 sf Storage= 93,069 cf (55,769 cf above start)
Flood Elev= 625.00' Surf.Area= 21,300 sf Storage= 117,450 cf (80,150 cf above start)

Plug-Flow detention time= 1,277.3 min calculated for 2.003 af (70% of inflow)
Center-of-Mass det. time= 816.3 min (1,598.4 - 782.1)

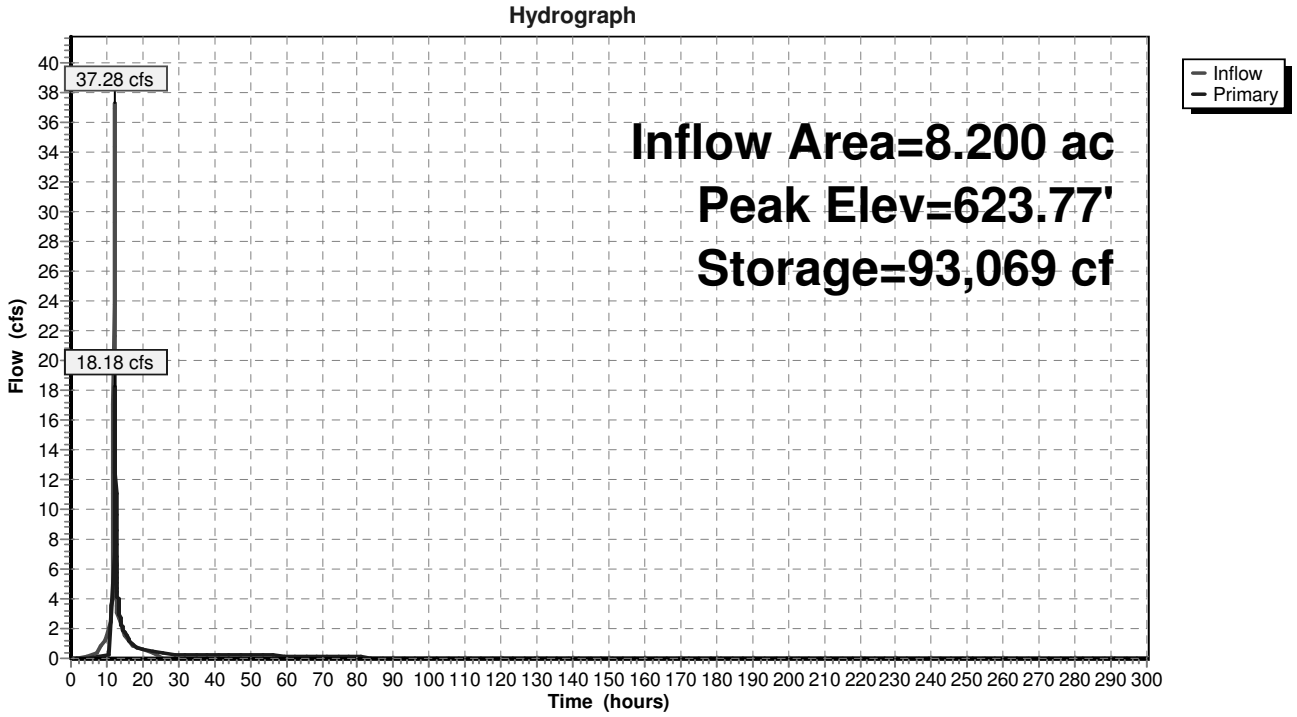
Volume	Invert	Avail.Storage	Storage Description
#1	612.00'	139,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
612.00	1,700	0	0
614.00	2,700	4,400	4,400
616.00	4,000	6,700	11,100
618.00	5,500	9,500	20,600
620.00	11,200	16,700	37,300
622.00	14,900	26,100	63,400
624.00	19,000	33,900	97,300
626.00	23,600	42,600	139,900

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**2.6" Vert. Orifice/Grate** C= 0.600
#2	Primary	623.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=18.14 cfs @ 12.25 hrs HW=623.77' TW=0.00' (Dynamic Tailwater)
↑—**1=Orifice/Grate** (Orifice Controls 0.34 cfs @ 9.22 fps)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 17.80 cfs @ 2.88 fps)

Pond 2.1P: Mircopool Extended Detention Pond (P-1)



Summary for Subcatchment 2.1S:

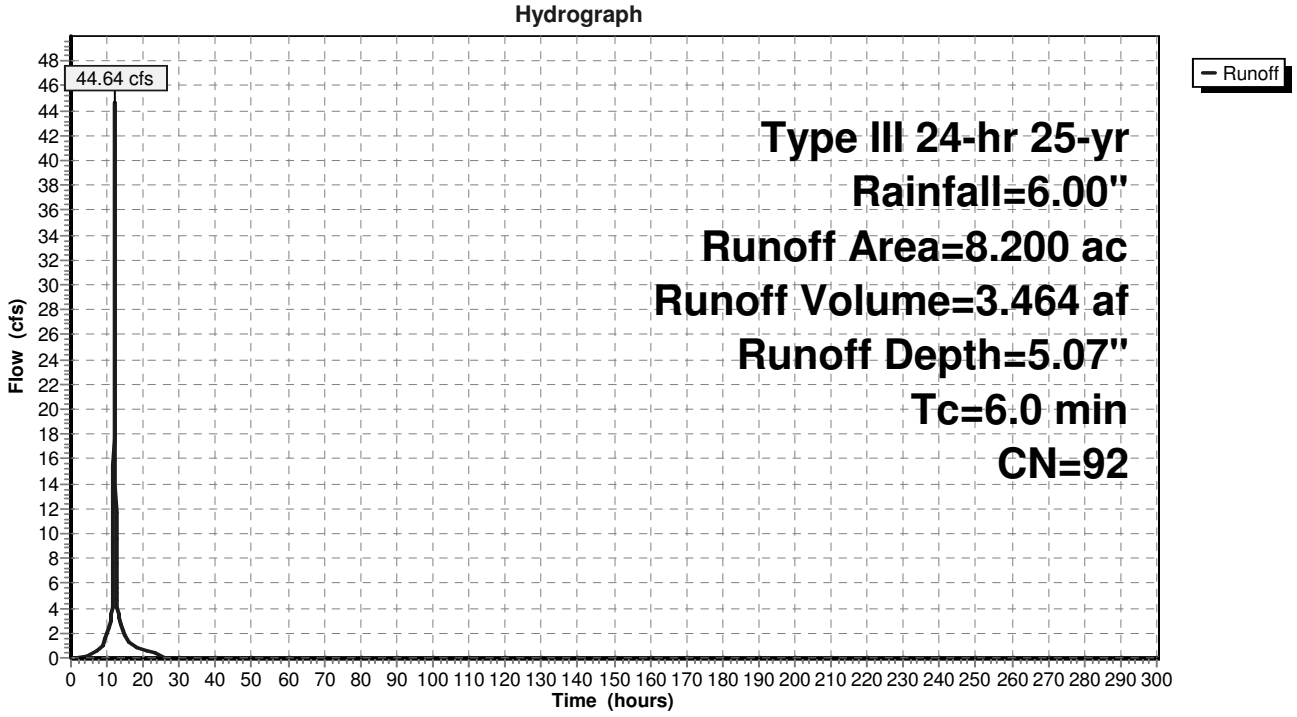
Runoff = 44.64 cfs @ 12.09 hrs, Volume= 3.464 af, Depth= 5.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

	Area (ac)	CN	Description
	6.000	98	Paved parking & roofs
	1.200	74	>75% Grass cover, Good, HSG C
	0.400	71	Meadow, non-grazed, HSG C
	0.300	98	Water Surface
*	0.300	56	Pervious Pavement
	8.200	92	Weighted Average
	1.900		Pervious Area
	6.300		Impervious Area

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

Subcatchment 2.1S:



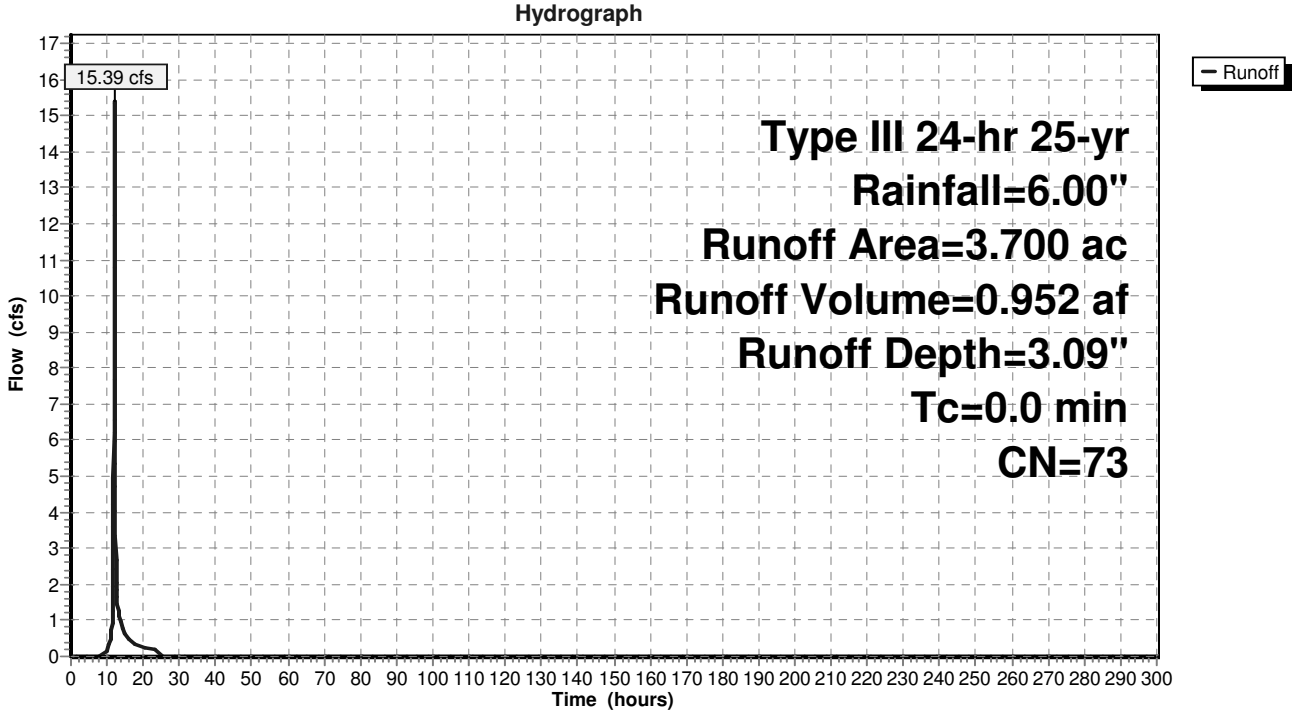
Summary for Subcatchment 2.2S:

Runoff = 15.39 cfs @ 12.00 hrs, Volume= 0.952 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.300	98	Paved parking & roofs
0.500	74	>75% Grass cover, Good, HSG C
1.400	71	Meadow, non-grazed, HSG C
1.500	70	Woods, Good, HSG C
3.700	73	Weighted Average
3.400		Pervious Area
0.300		Impervious Area

Subcatchment 2.2S:

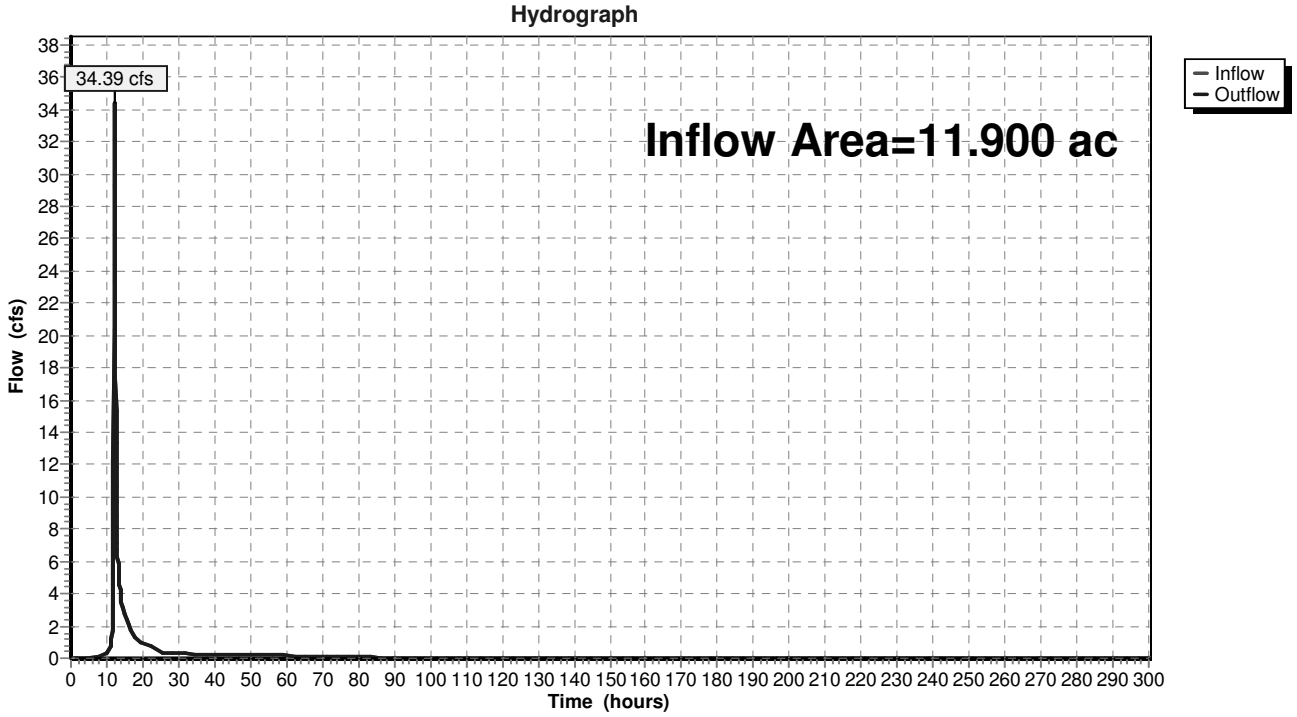


Summary for Reach DP2: Design Point 2

Inflow Area = 11.900 ac, 55.46% Impervious, Inflow Depth = 4.45" for 25-yr event
Inflow = 34.39 cfs @ 12.18 hrs, Volume= 4.415 af
Outflow = 34.39 cfs @ 12.18 hrs, Volume= 4.415 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP2: Design Point 2



Summary for Pond 2.1P: Mircopool Extended Detention Pond (P-1)

Inflow Area = 8.200 ac, 76.83% Impervious, Inflow Depth = 5.07" for 25-yr event
Inflow = 44.64 cfs @ 12.09 hrs, Volume= 3.464 af
Outflow = 28.29 cfs @ 12.19 hrs, Volume= 3.462 af, Atten= 37%, Lag= 6.4 min
Primary = 28.29 cfs @ 12.19 hrs, Volume= 3.462 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 620.00' Surf.Area= 11,200 sf Storage= 37,300 cf
Peak Elev= 624.03' @ 12.19 hrs Surf.Area= 19,079 sf Storage= 97,953 cf (60,653 cf above start)
Flood Elev= 625.00' Surf.Area= 21,300 sf Storage= 117,450 cf (80,150 cf above start)

Plug-Flow detention time= 1,013.7 min calculated for 2.606 af (75% of inflow)
Center-of-Mass det. time= 685.7 min (1,462.8 - 777.2)

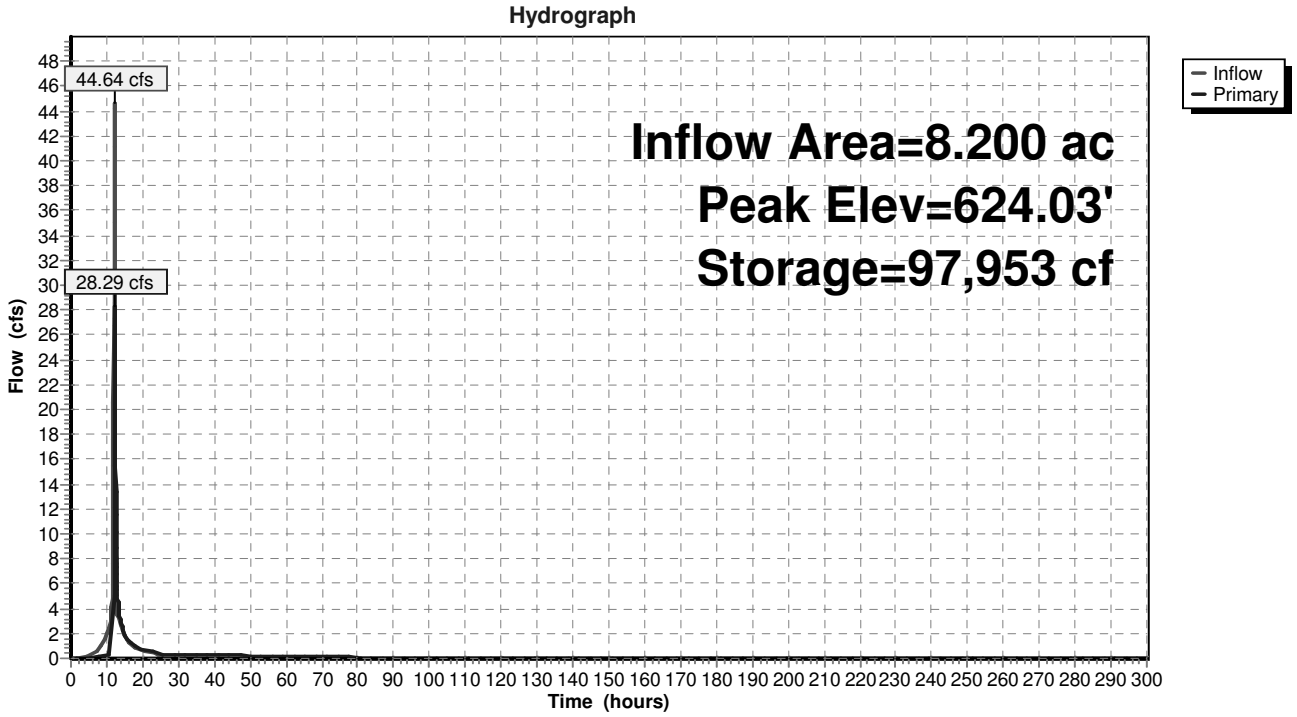
Volume	Invert	Avail.Storage	Storage Description
#1	612.00'	139,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
612.00	1,700	0	0
614.00	2,700	4,400	4,400
616.00	4,000	6,700	11,100
618.00	5,500	9,500	20,600
620.00	11,200	16,700	37,300
622.00	14,900	26,100	63,400
624.00	19,000	33,900	97,300
626.00	23,600	42,600	139,900

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**2.6" Vert. Orifice/Grate** C= 0.600
#2	Primary	623.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=28.17 cfs @ 12.19 hrs HW=624.03' TW=0.00' (Dynamic Tailwater)
↑—**1=Orifice/Grate** (Orifice Controls 0.35 cfs @ 9.54 fps)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 27.82 cfs @ 3.37 fps)

Pond 2.1P: Mircopool Extended Detention Pond (P-1)



Summary for Subcatchment 2.1S:

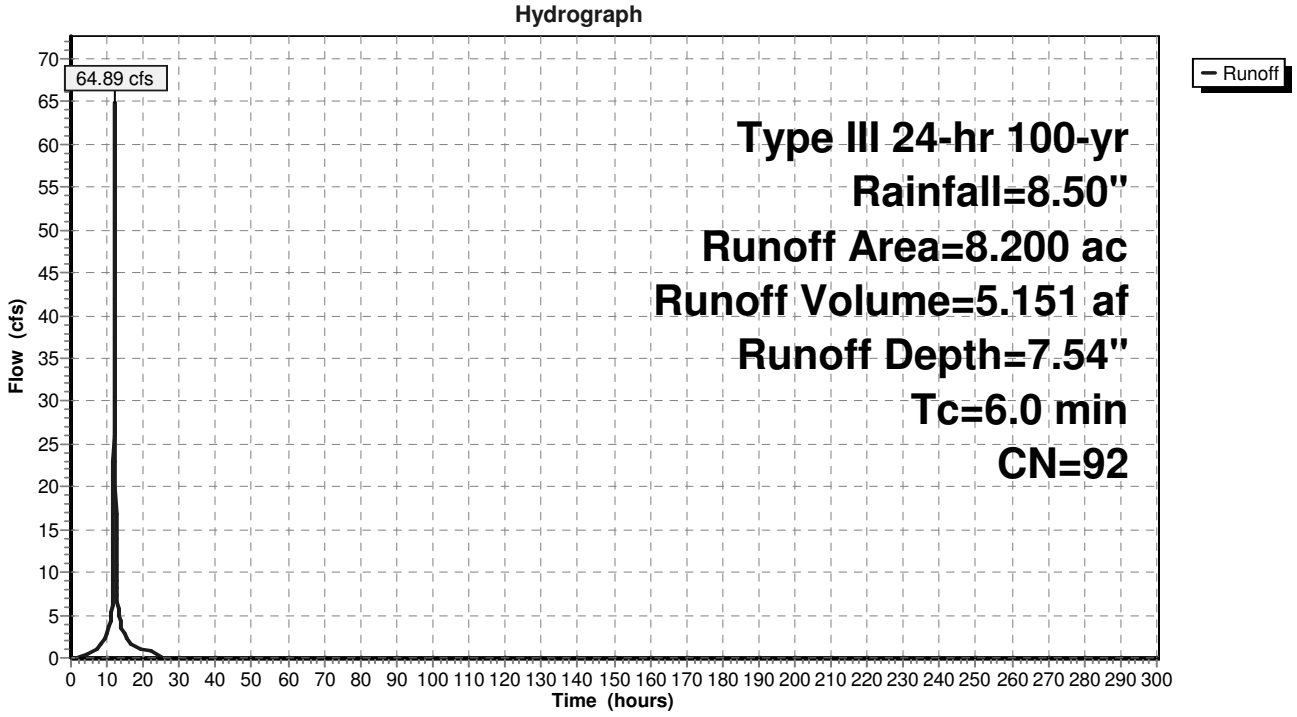
Runoff = 64.89 cfs @ 12.09 hrs, Volume= 5.151 af, Depth= 7.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

	Area (ac)	CN	Description
	6.000	98	Paved parking & roofs
	1.200	74	>75% Grass cover, Good, HSG C
	0.400	71	Meadow, non-grazed, HSG C
	0.300	98	Water Surface
*	0.300	56	Pervious Pavement
	8.200	92	Weighted Average
	1.900		Pervious Area
	6.300		Impervious Area

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

Subcatchment 2.1S:



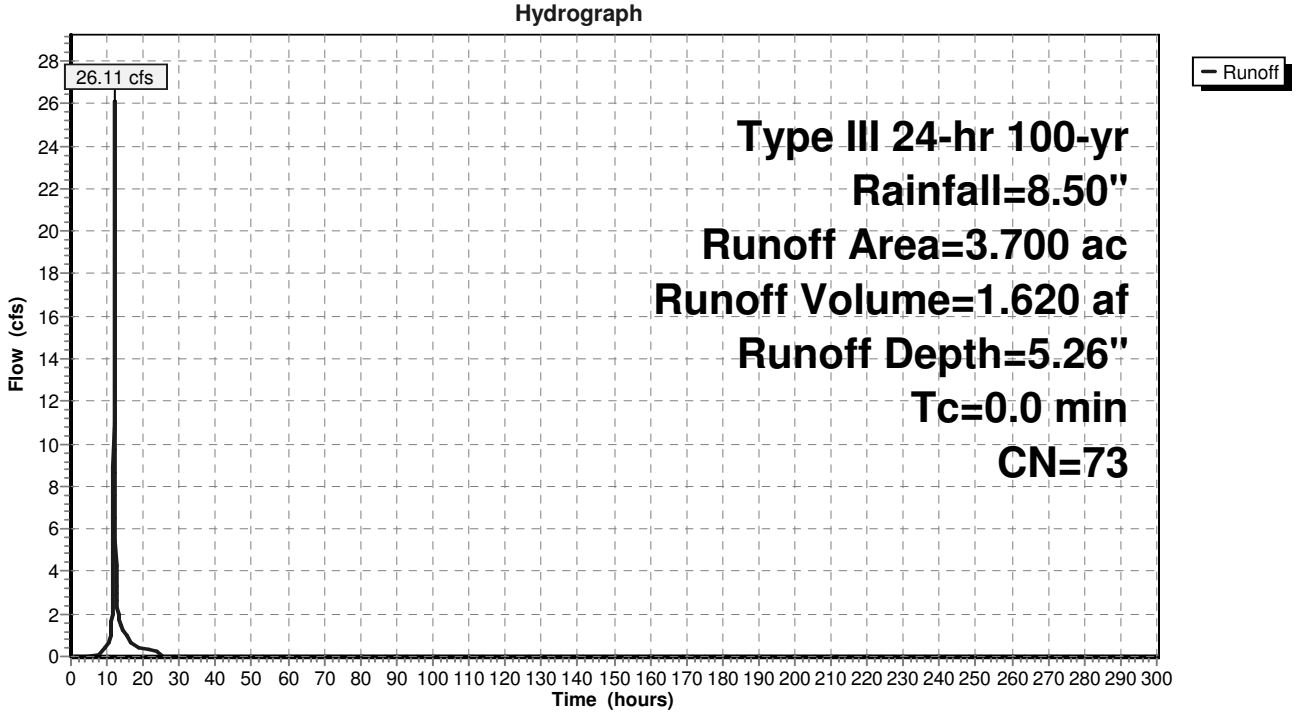
Summary for Subcatchment 2.2S:

Runoff = 26.11 cfs @ 12.00 hrs, Volume= 1.620 af, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.300	98	Paved parking & roofs
0.500	74	>75% Grass cover, Good, HSG C
1.400	71	Meadow, non-grazed, HSG C
1.500	70	Woods, Good, HSG C
3.700	73	Weighted Average
3.400		Pervious Area
0.300		Impervious Area

Subcatchment 2.2S:

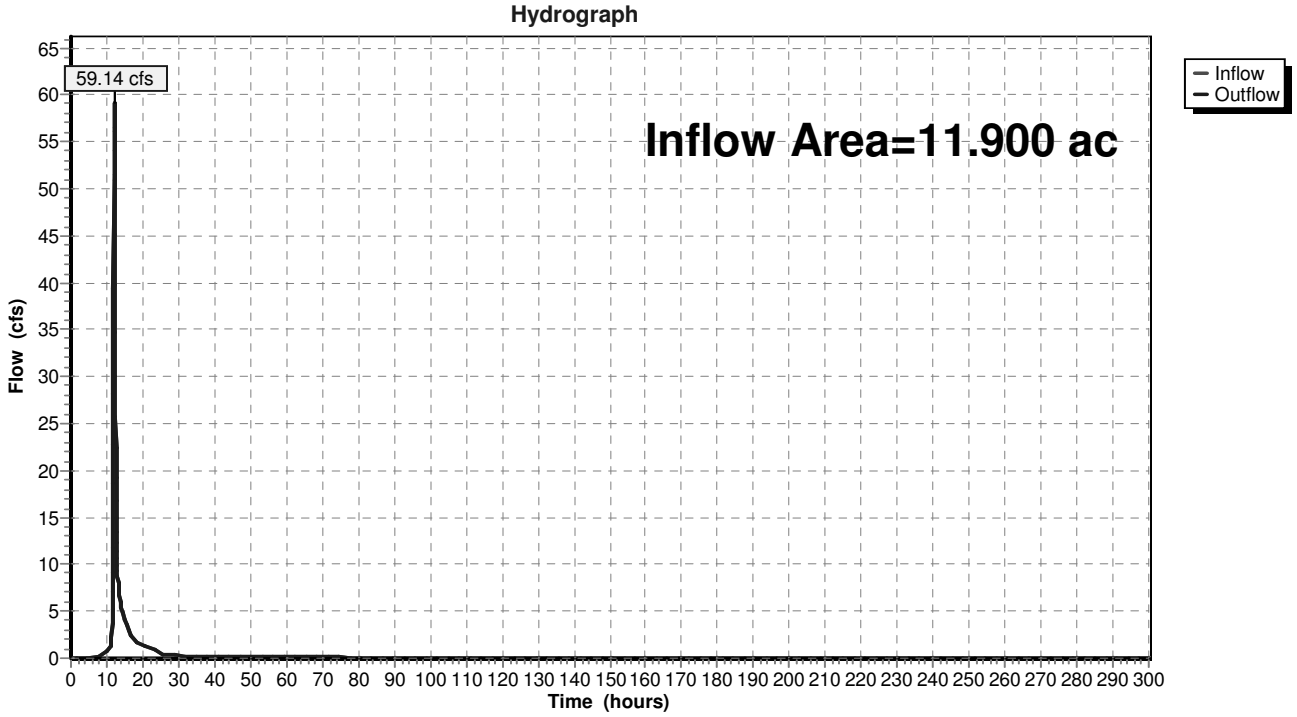


Summary for Reach DP2: Design Point 2

Inflow Area = 11.900 ac, 55.46% Impervious, Inflow Depth = 6.83" for 100-yr event
Inflow = 59.14 cfs @ 12.15 hrs, Volume= 6.770 af
Outflow = 59.14 cfs @ 12.15 hrs, Volume= 6.770 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP2: Design Point 2



Summary for Pond 2.1P: Mircopool Extended Detention Pond (P-1)

Inflow Area = 8.200 ac, 76.83% Impervious, Inflow Depth = 7.54" for 100-yr event
Inflow = 64.89 cfs @ 12.09 hrs, Volume= 5.151 af
Outflow = 48.63 cfs @ 12.16 hrs, Volume= 5.150 af, Atten= 25%, Lag= 4.6 min
Primary = 48.63 cfs @ 12.16 hrs, Volume= 5.150 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 620.00' Surf.Area= 11,200 sf Storage= 37,300 cf
Peak Elev= 624.49' @ 12.16 hrs Surf.Area= 20,125 sf Storage= 106,871 cf (69,571 cf above start)
Flood Elev= 625.00' Surf.Area= 21,300 sf Storage= 117,450 cf (80,150 cf above start)

Plug-Flow detention time= 656.7 min calculated for 4.293 af (83% of inflow)
Center-of-Mass det. time= 480.9 min (1,248.4 - 767.5)

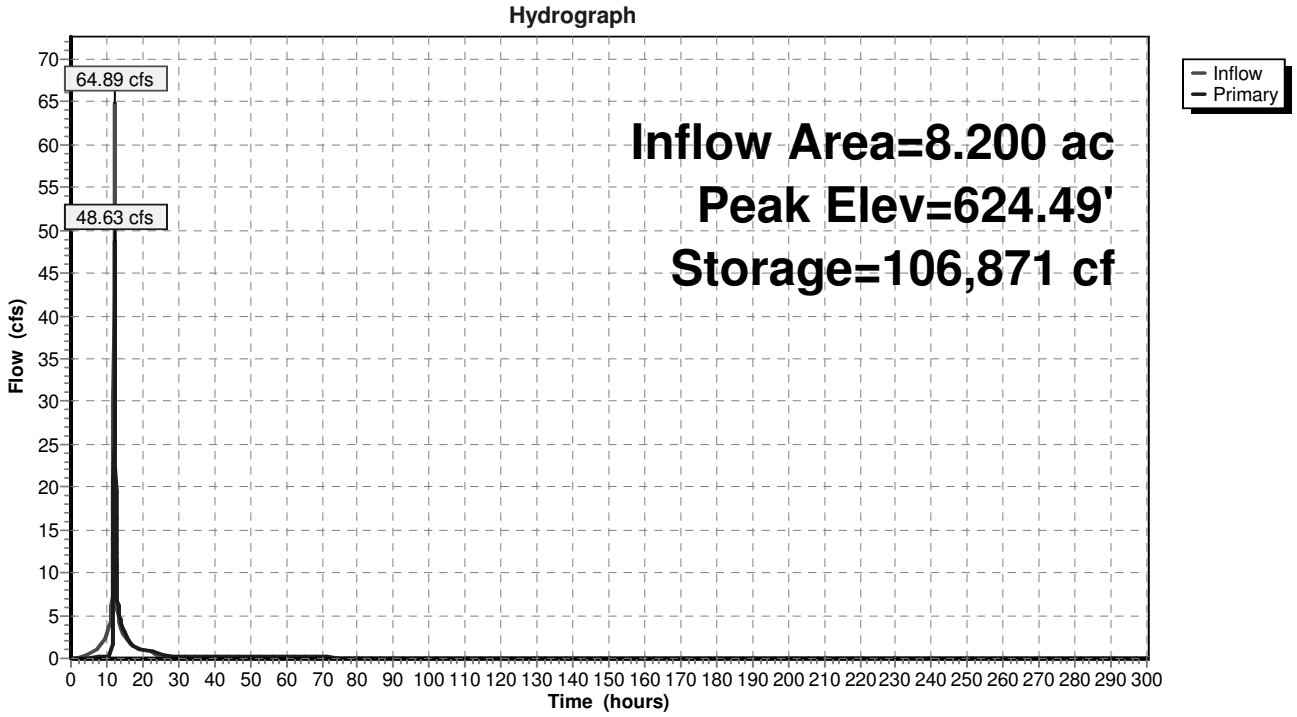
Volume	Invert	Avail.Storage	Storage Description
#1	612.00'	139,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
612.00	1,700	0	0
614.00	2,700	4,400	4,400
616.00	4,000	6,700	11,100
618.00	5,500	9,500	20,600
620.00	11,200	16,700	37,300
622.00	14,900	26,100	63,400
624.00	19,000	33,900	97,300
626.00	23,600	42,600	139,900

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**2.6" Vert. Orifice/Grate** C= 0.600
#2	Primary	623.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=48.00 cfs @ 12.16 hrs HW=624.48' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.37 cfs @ 10.06 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 47.63 cfs @ 4.03 fps)

Pond 2.1P: Mircopool Extended Detention Pond (P-1)



Subcat Reach Pond Link

Drainage Diagram for Union Place Post-development_DP3
Prepared by {enter your company name here}, Printed 10/12/2010

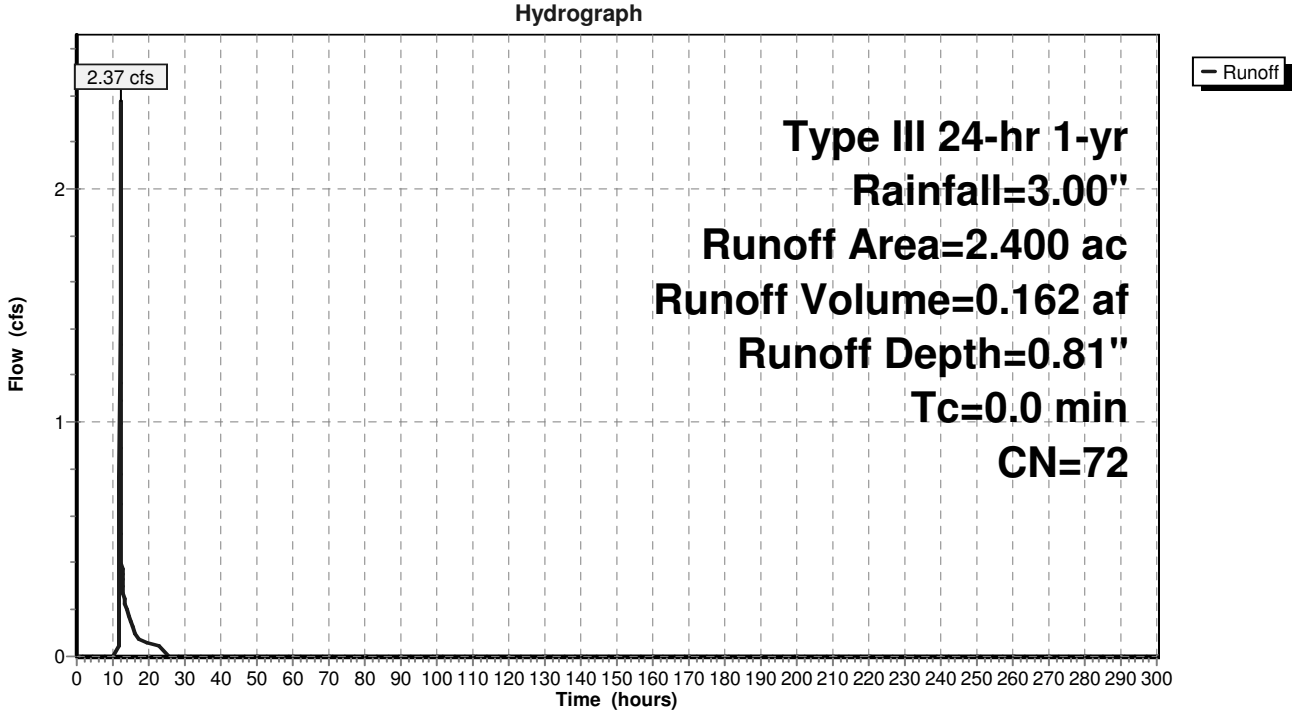
Summary for Subcatchment 3.1S:

Runoff = 2.37 cfs @ 12.01 hrs, Volume= 0.162 af, Depth= 0.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.100	98	Paved roads w/curbs & sewers
0.300	74	>75% Grass cover, Good, HSG C
1.200	71	Meadow, non-grazed, HSG C
0.800	70	Woods, Good, HSG C
2.400	72	Weighted Average
2.300		Pervious Area
0.100		Impervious Area

Subcatchment 3.1S:



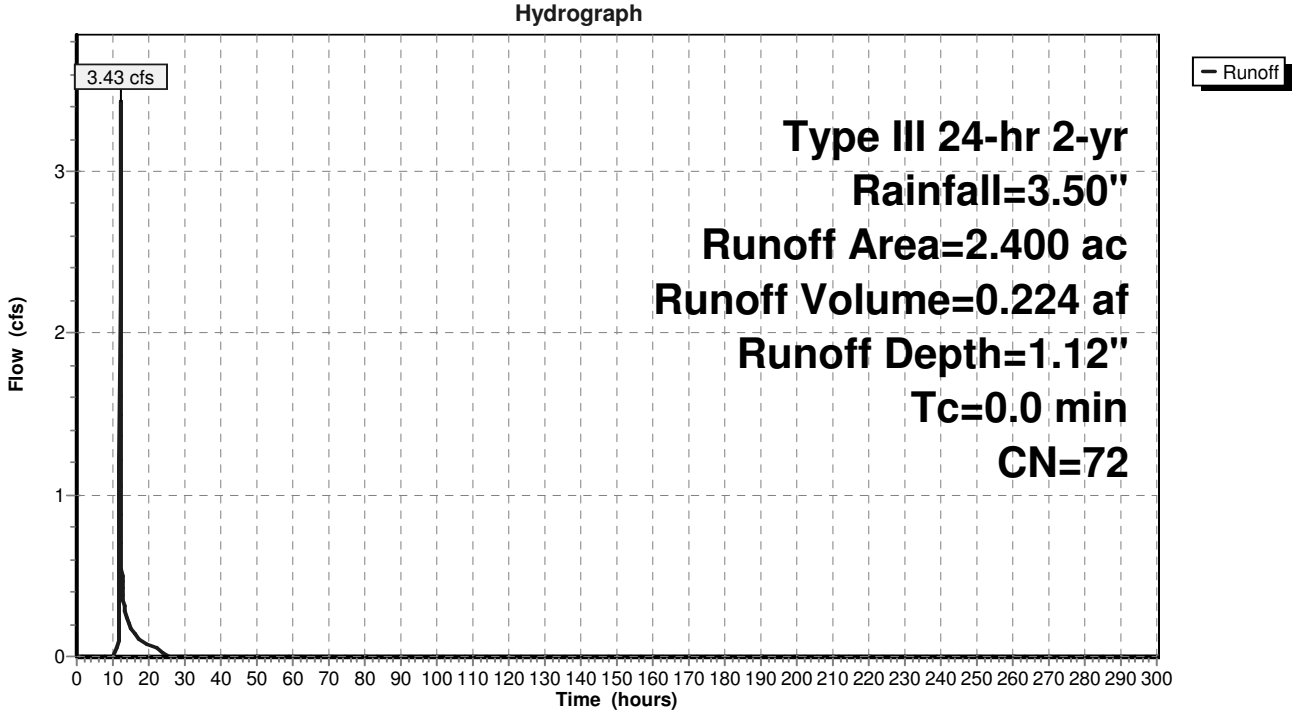
Summary for Subcatchment 3.1S:

Runoff = 3.43 cfs @ 12.01 hrs, Volume= 0.224 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.100	98	Paved roads w/curbs & sewers
0.300	74	>75% Grass cover, Good, HSG C
1.200	71	Meadow, non-grazed, HSG C
0.800	70	Woods, Good, HSG C
2.400	72	Weighted Average
2.300		Pervious Area
0.100		Impervious Area

Subcatchment 3.1S:



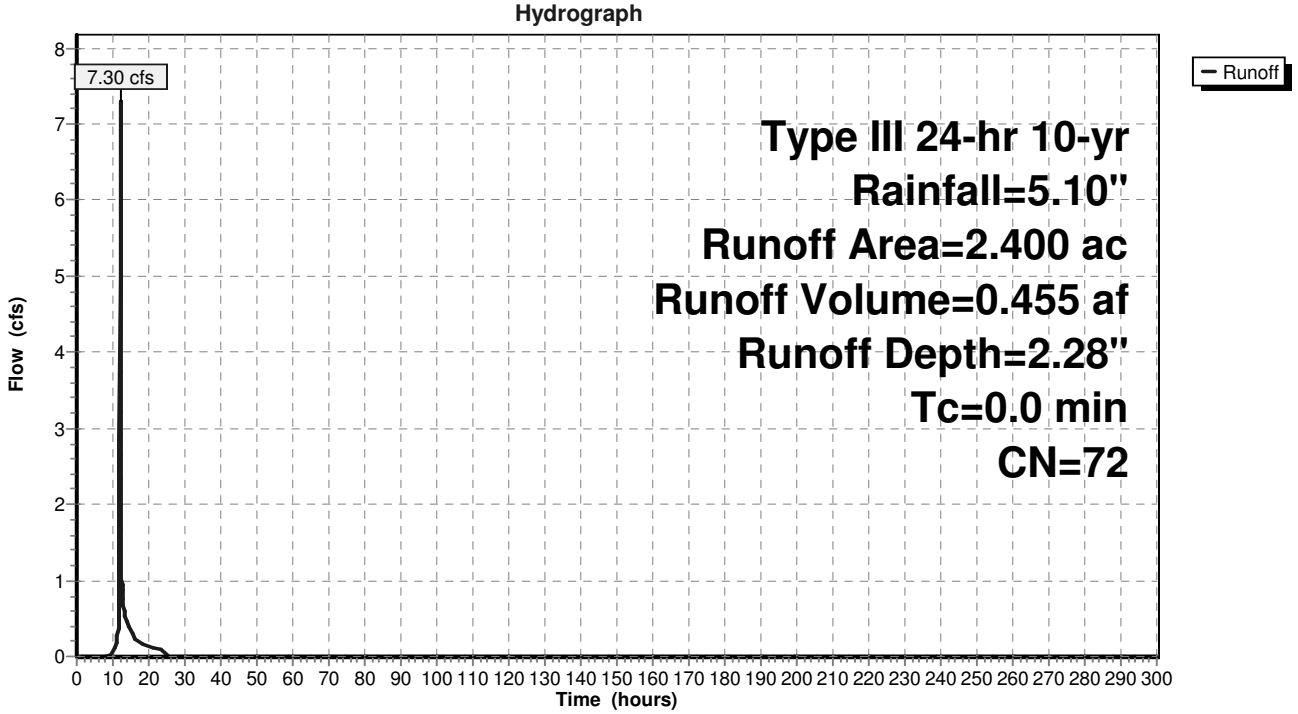
Summary for Subcatchment 3.1S:

Runoff = 7.30 cfs @ 12.01 hrs, Volume= 0.455 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.100	98	Paved roads w/curbs & sewers
0.300	74	>75% Grass cover, Good, HSG C
1.200	71	Meadow, non-grazed, HSG C
0.800	70	Woods, Good, HSG C
2.400	72	Weighted Average
2.300		Pervious Area
0.100		Impervious Area

Subcatchment 3.1S:



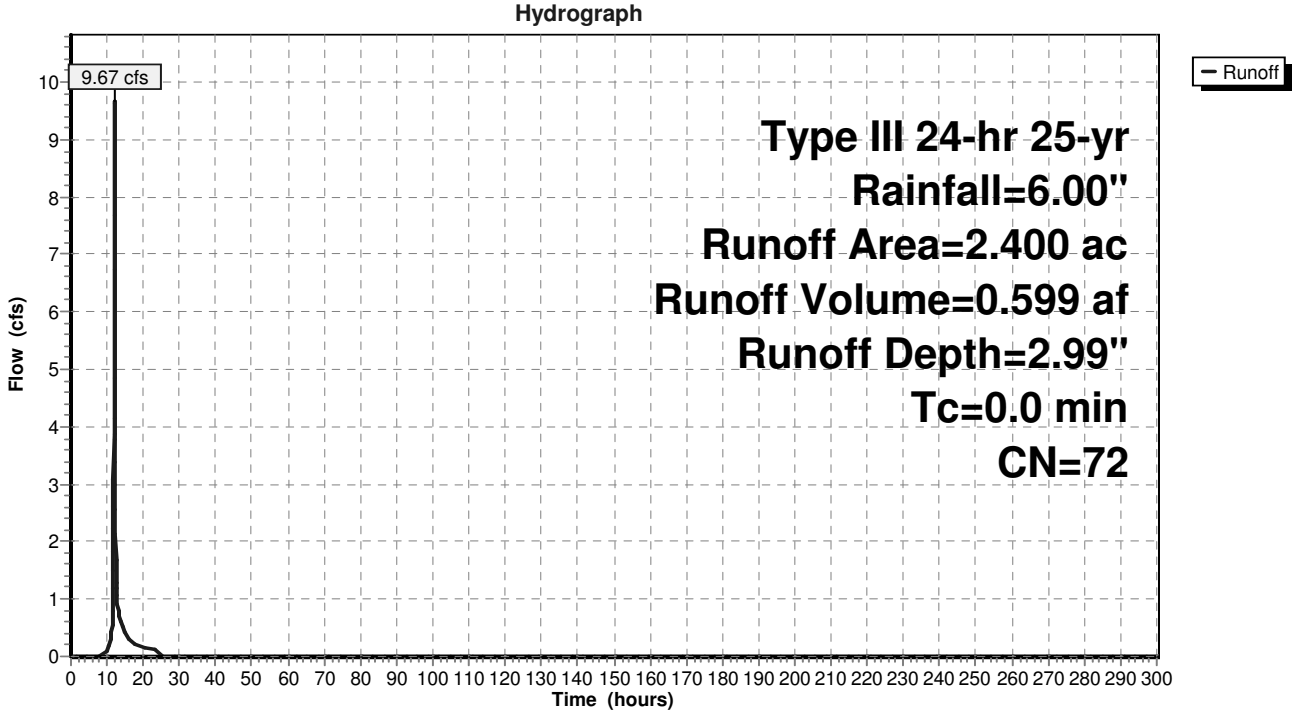
Summary for Subcatchment 3.1S:

Runoff = 9.67 cfs @ 12.00 hrs, Volume= 0.599 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.100	98	Paved roads w/curbs & sewers
0.300	74	>75% Grass cover, Good, HSG C
1.200	71	Meadow, non-grazed, HSG C
0.800	70	Woods, Good, HSG C
2.400	72	Weighted Average
2.300		Pervious Area
0.100		Impervious Area

Subcatchment 3.1S:



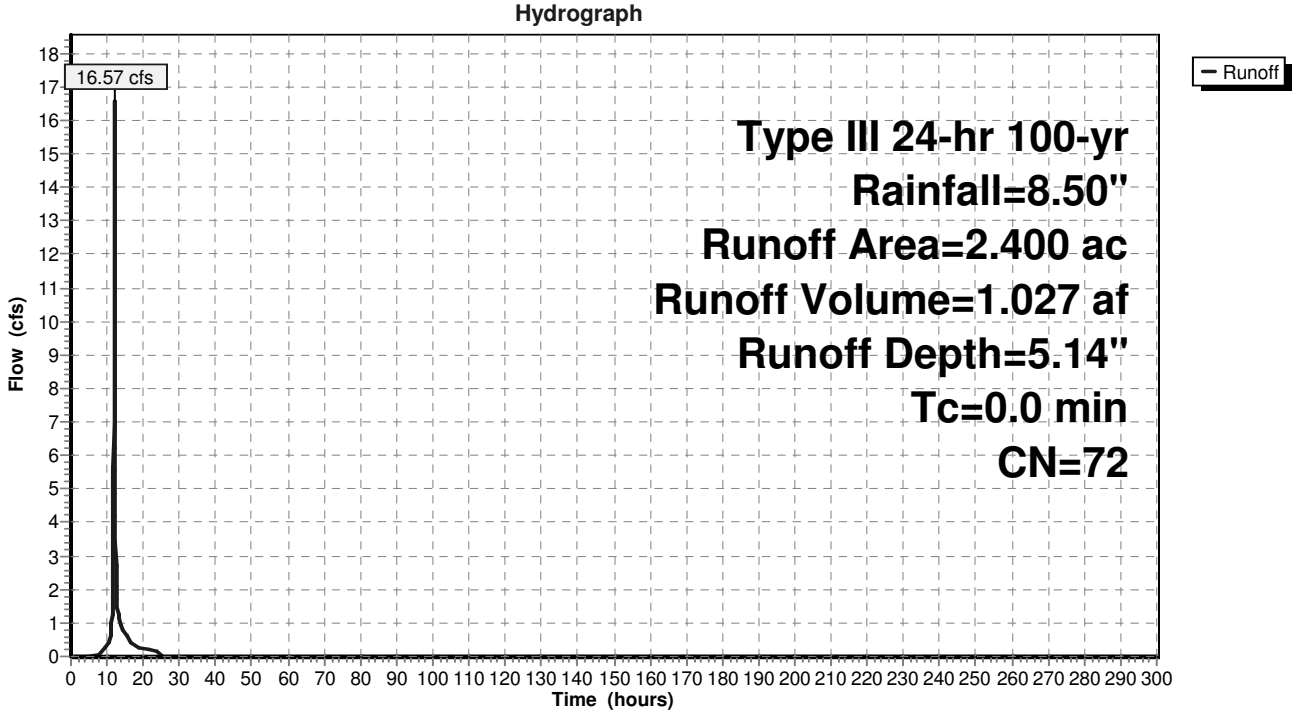
Summary for Subcatchment 3.1S:

Runoff = 16.57 cfs @ 12.00 hrs, Volume= 1.027 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.100	98	Paved roads w/curbs & sewers
0.300	74	>75% Grass cover, Good, HSG C
1.200	71	Meadow, non-grazed, HSG C
0.800	70	Woods, Good, HSG C
2.400	72	Weighted Average
2.300		Pervious Area
0.100		Impervious Area

Subcatchment 3.1S:



Subcat Reach Pond Link

Drainage Diagram for Union Place Post-development_DP4
Prepared by {enter your company name here}, Printed 10/12/2010

Summary for Subcatchment 4.1S:

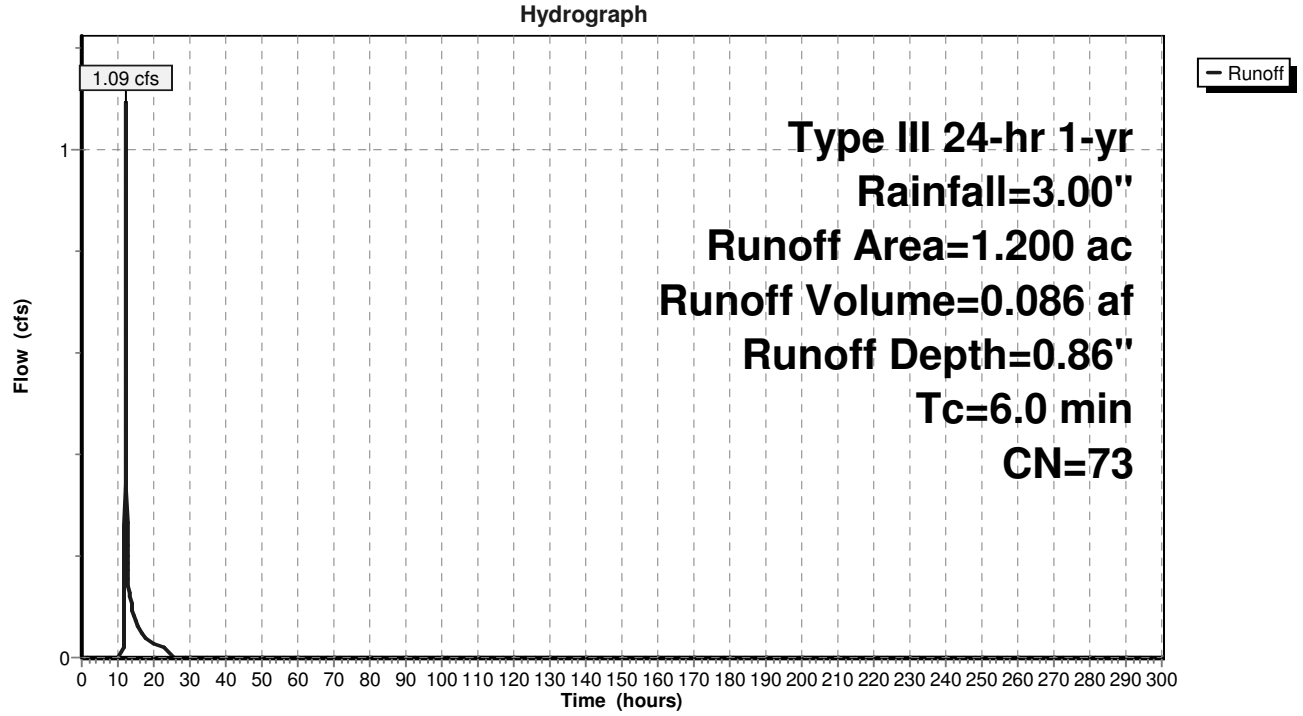
Runoff = 1.09 cfs @ 12.10 hrs, Volume= 0.086 af, Depth= 0.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
0.900	71	Meadow, non-grazed, HSG C
0.100	70	Woods, Good, HSG C
1.200	73	Weighted Average
1.100		Pervious Area
0.100		Impervious Area

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

Subcatchment 4.1S:



Summary for Subcatchment 4.1S:

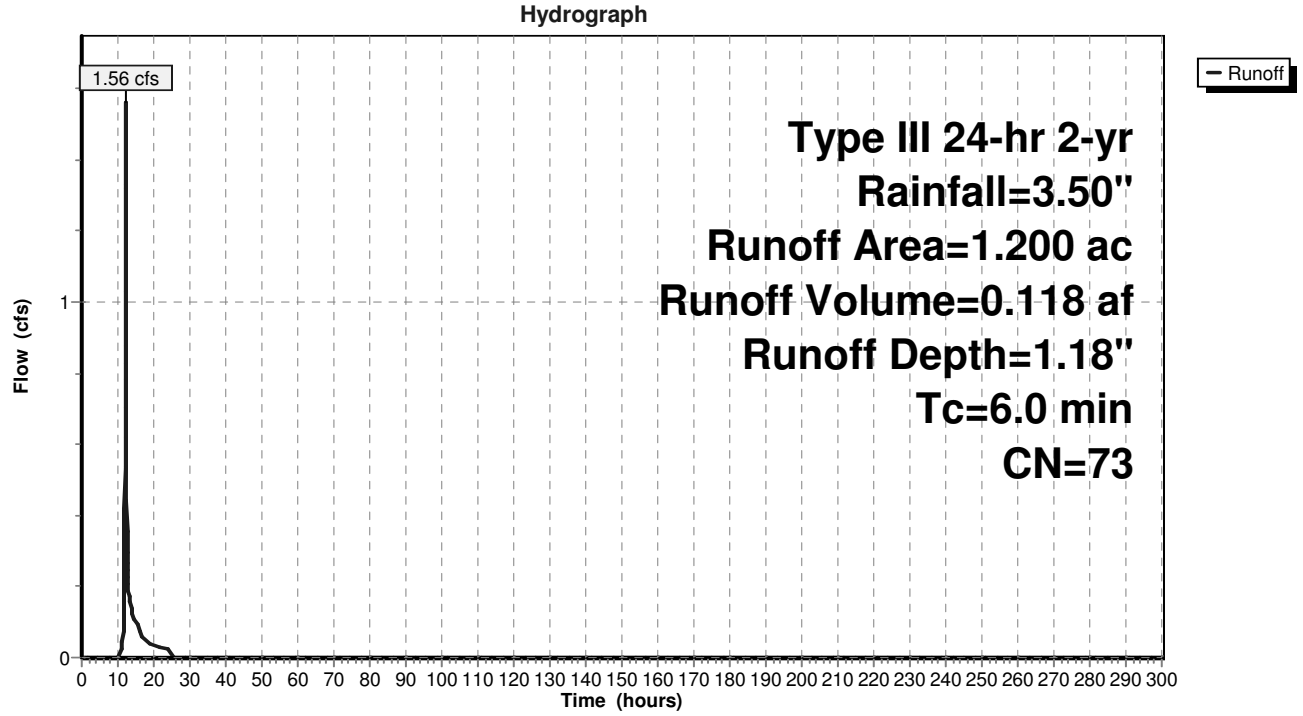
Runoff = 1.56 cfs @ 12.10 hrs, Volume= 0.118 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
0.900	71	Meadow, non-grazed, HSG C
0.100	70	Woods, Good, HSG C
1.200	73	Weighted Average
1.100		Pervious Area
0.100		Impervious Area

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

Subcatchment 4.1S:



Summary for Subcatchment 4.1S:

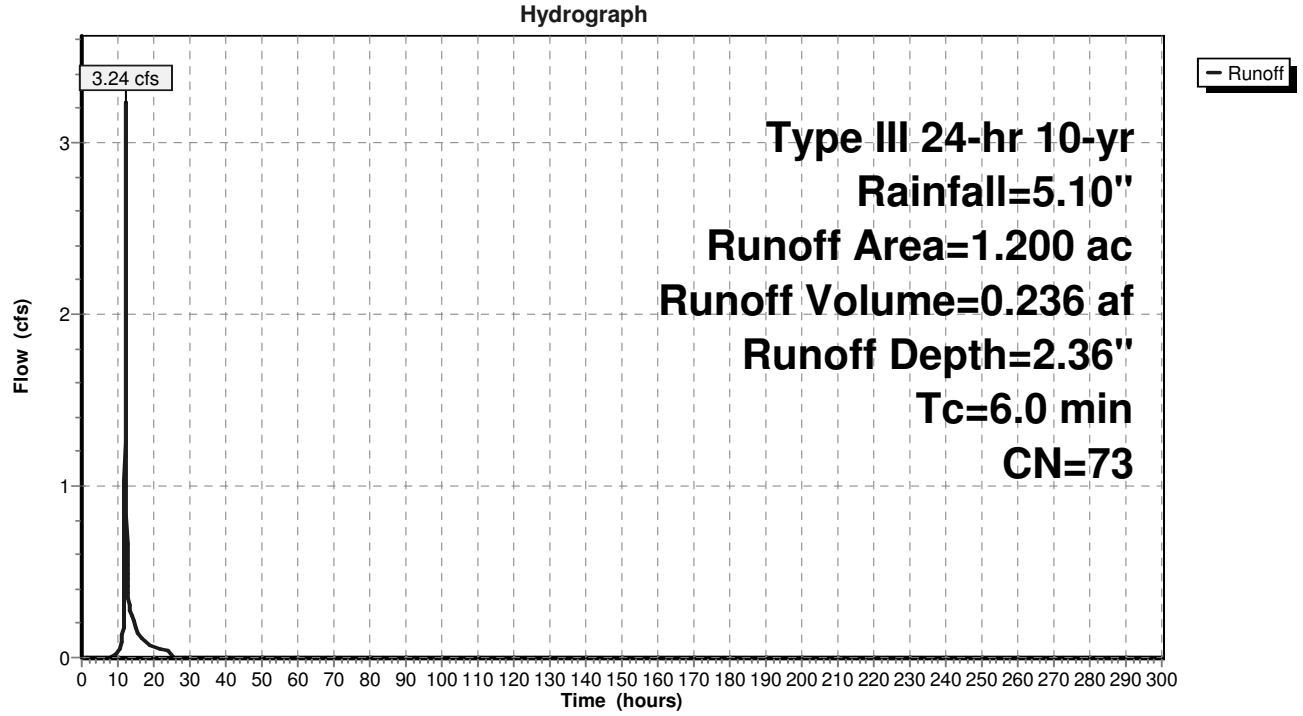
Runoff = 3.24 cfs @ 12.10 hrs, Volume= 0.236 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
0.900	71	Meadow, non-grazed, HSG C
0.100	70	Woods, Good, HSG C
1.200	73	Weighted Average
1.100		Pervious Area
0.100		Impervious Area

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

Subcatchment 4.1S:



Summary for Subcatchment 4.1S:

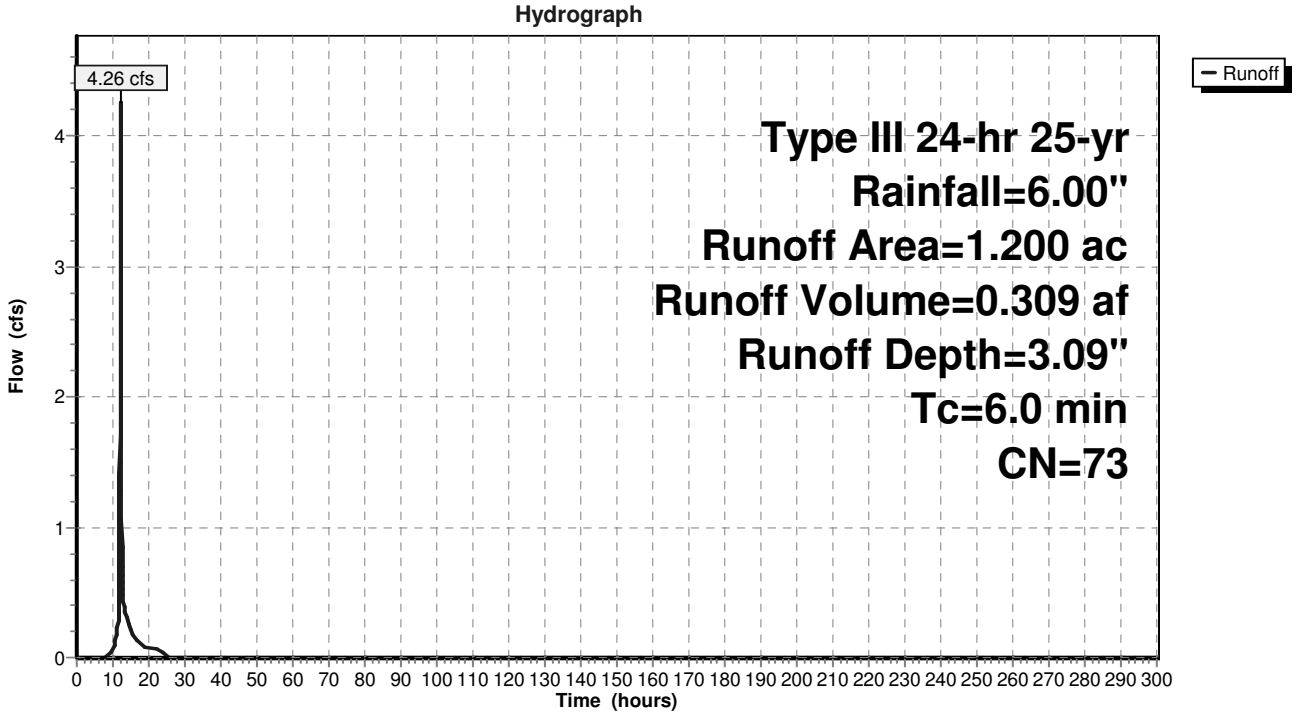
Runoff = 4.26 cfs @ 12.09 hrs, Volume= 0.309 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
0.900	71	Meadow, non-grazed, HSG C
0.100	70	Woods, Good, HSG C
1.200	73	Weighted Average
1.100		Pervious Area
0.100		Impervious Area

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

Subcatchment 4.1S:



Summary for Subcatchment 4.1S:

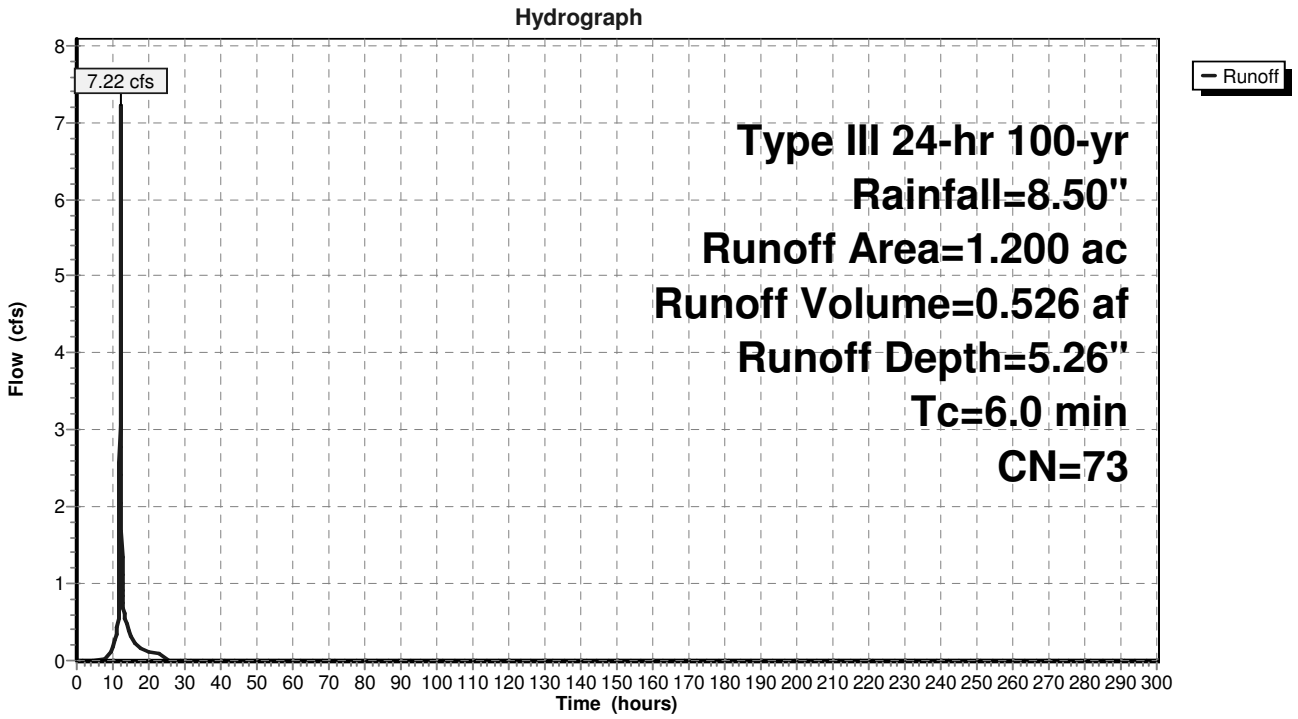
Runoff = 7.22 cfs @ 12.09 hrs, Volume= 0.526 af, Depth= 5.26"

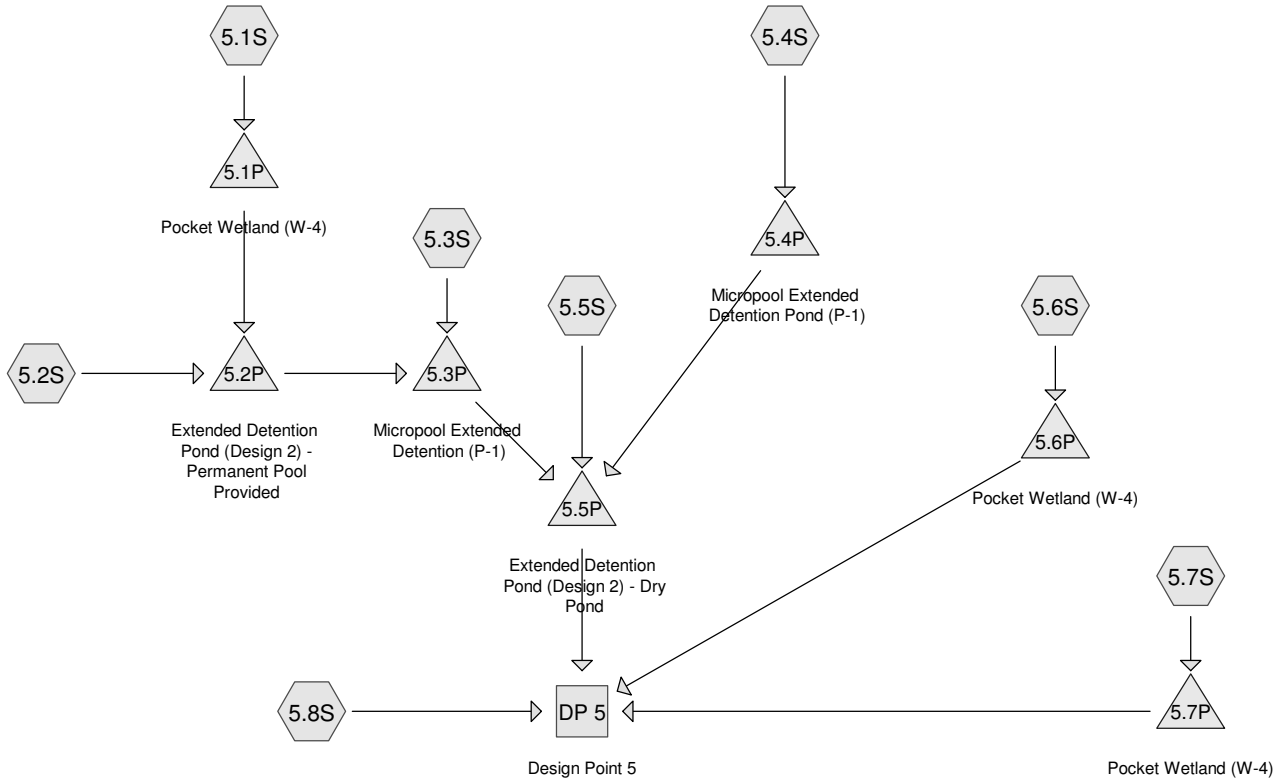
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
0.900	71	Meadow, non-grazed, HSG C
0.100	70	Woods, Good, HSG C
1.200	73	Weighted Average
1.100		Pervious Area
0.100		Impervious Area

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

Subcatchment 4.1S:





Subcat Reach Pond Link

Drainage Diagram for Union Place Post-development_DP5

Prepared by {enter your company name here}, Printed 10/12/2010

Summary for Subcatchment 5.1S:

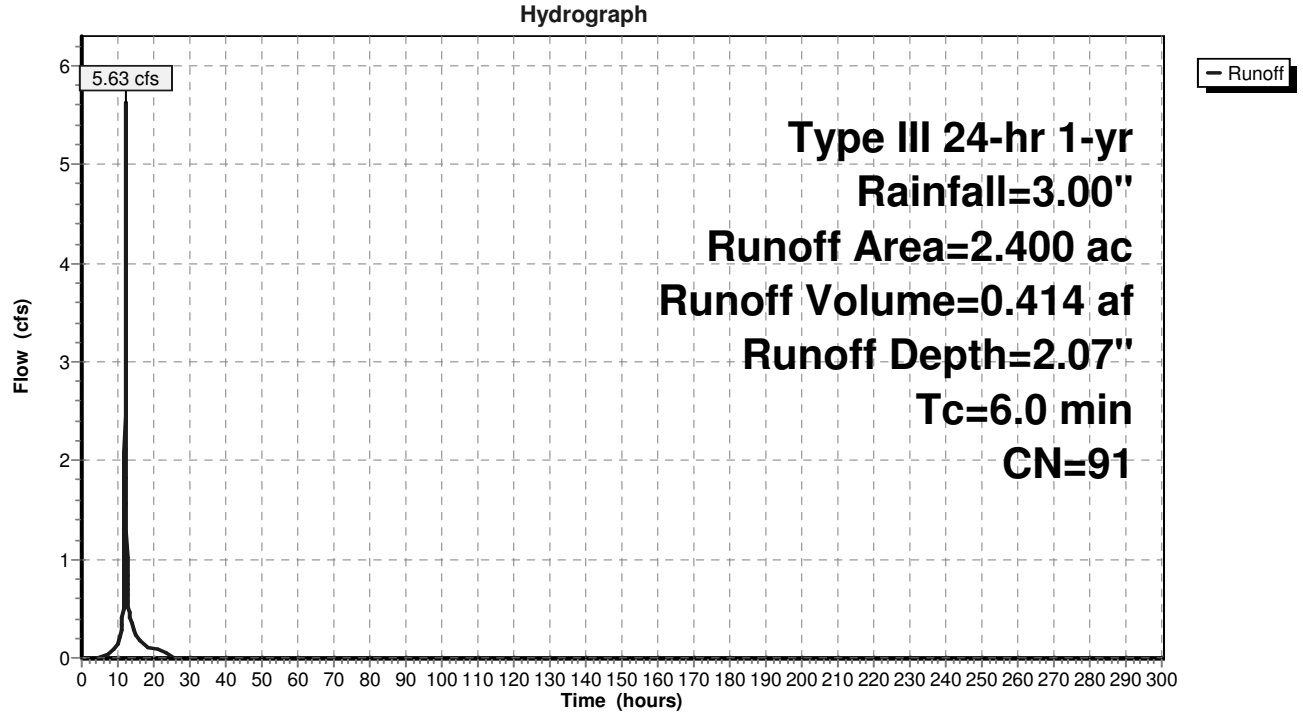
Runoff = 5.63 cfs @ 12.09 hrs, Volume= 0.414 af, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

	Area (ac)	CN	Description
	1.600	98	Paved parking & roofs
	0.200	74	>75% Grass cover, Good, HSG C
	0.300	71	Meadow, non-grazed, HSG C
	0.200	98	Water Surface
*	0.100	56	Pervious Pavement
	2.400	91	Weighted Average
	0.600		Pervious Area
	1.800		Impervious Area

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

Subcatchment 5.1S:



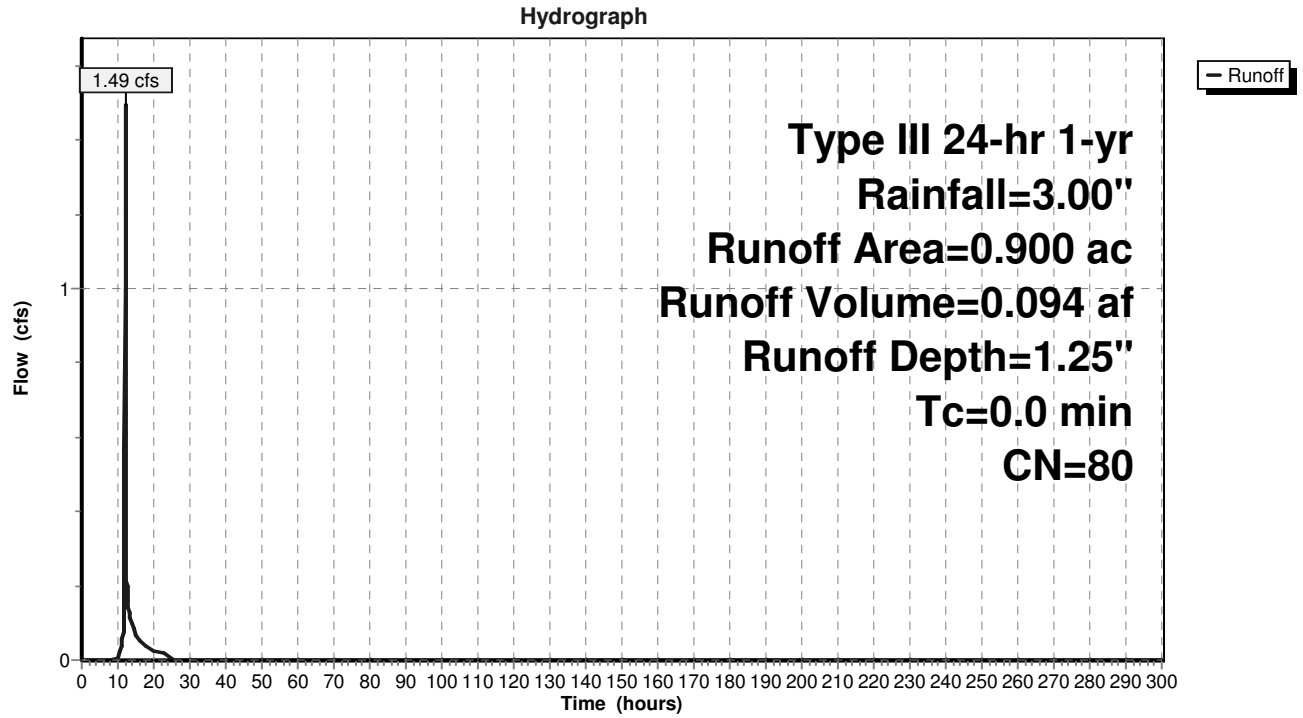
Summary for Subcatchment 5.2S:

Runoff = 1.49 cfs @ 12.01 hrs, Volume= 0.094 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.100	74	>75% Grass cover, Good, HSG C
0.500	71	Meadow, non-grazed, HSG C
0.300	98	Water Surface
0.900	80	Weighted Average
0.600		Pervious Area
0.300		Impervious Area

Subcatchment 5.2S:



Summary for Subcatchment 5.3S:

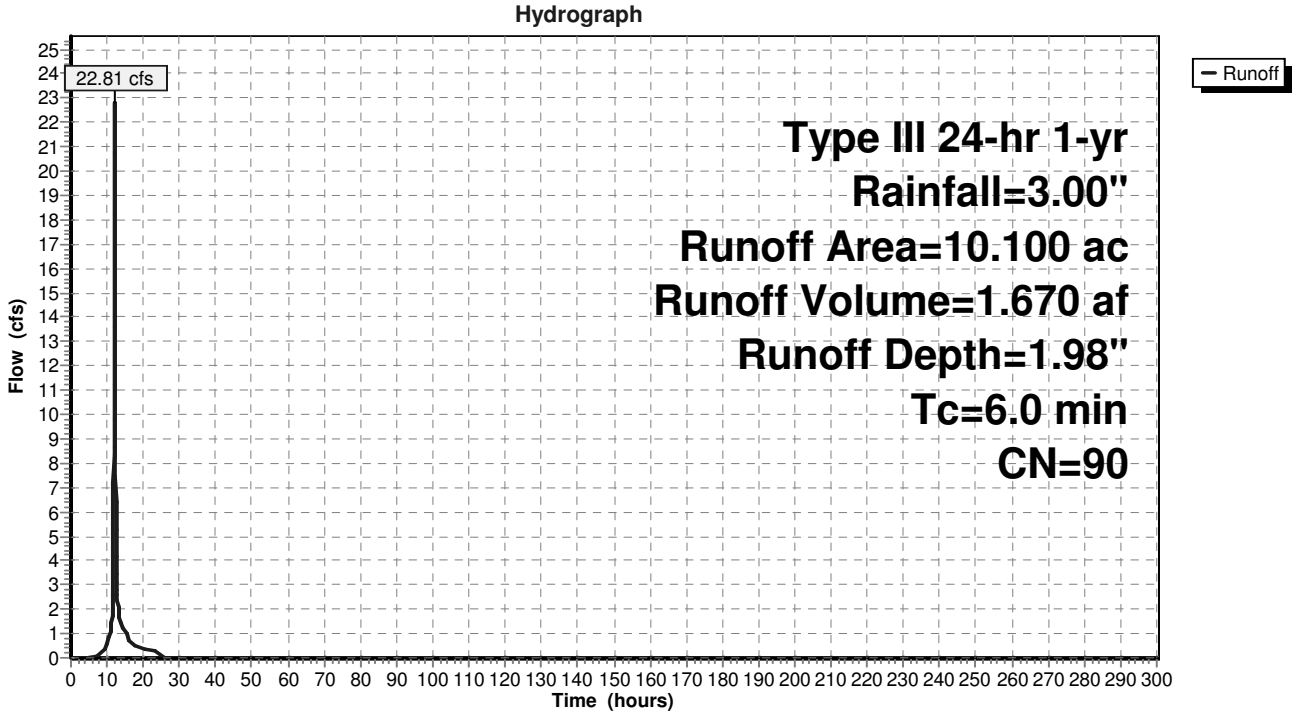
Runoff = 22.81 cfs @ 12.09 hrs, Volume= 1.670 af, Depth= 1.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

	Area (ac)	CN	Description
	6.600	98	Paved parking & roofs
	1.900	74	>75% Grass cover, Good, HSG C
	0.700	71	Meadow, non-grazed, HSG C
	0.600	98	Water Surface
*	0.300	56	Pervious Pavement
	10.100	90	Weighted Average
	2.900		Pervious Area
	7.200		Impervious Area

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

Subcatchment 5.3S:



Summary for Subcatchment 5.4S:

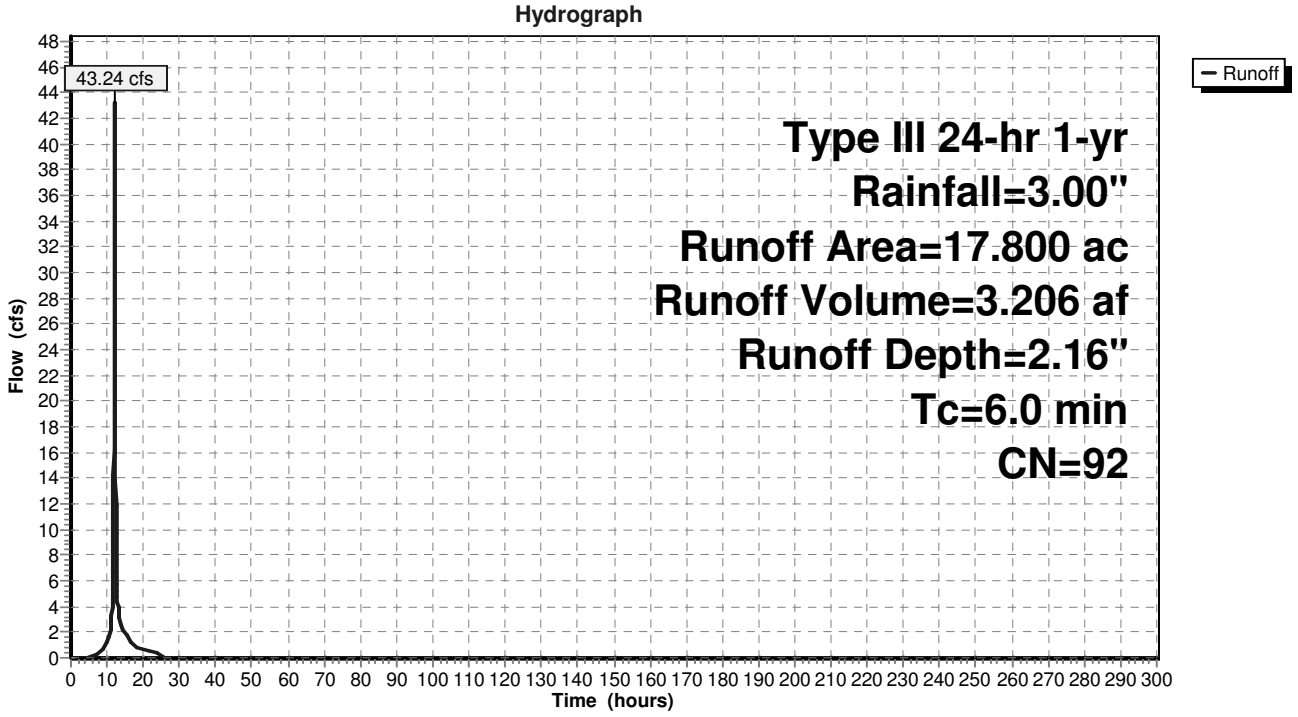
Runoff = 43.24 cfs @ 12.09 hrs, Volume= 3.206 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

	Area (ac)	CN	Description
	13.800	98	Paved parking & roofs
	2.200	74	>75% Grass cover, Good, HSG C
	0.900	71	Meadow, non-grazed, HSG C
	0.400	98	Water Surface
*	0.500	56	Pervious Pavement
	17.800	92	Weighted Average
	3.600		Pervious Area
	14.200		Impervious Area

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

Subcatchment 5.4S:



Summary for Subcatchment 5.5S:

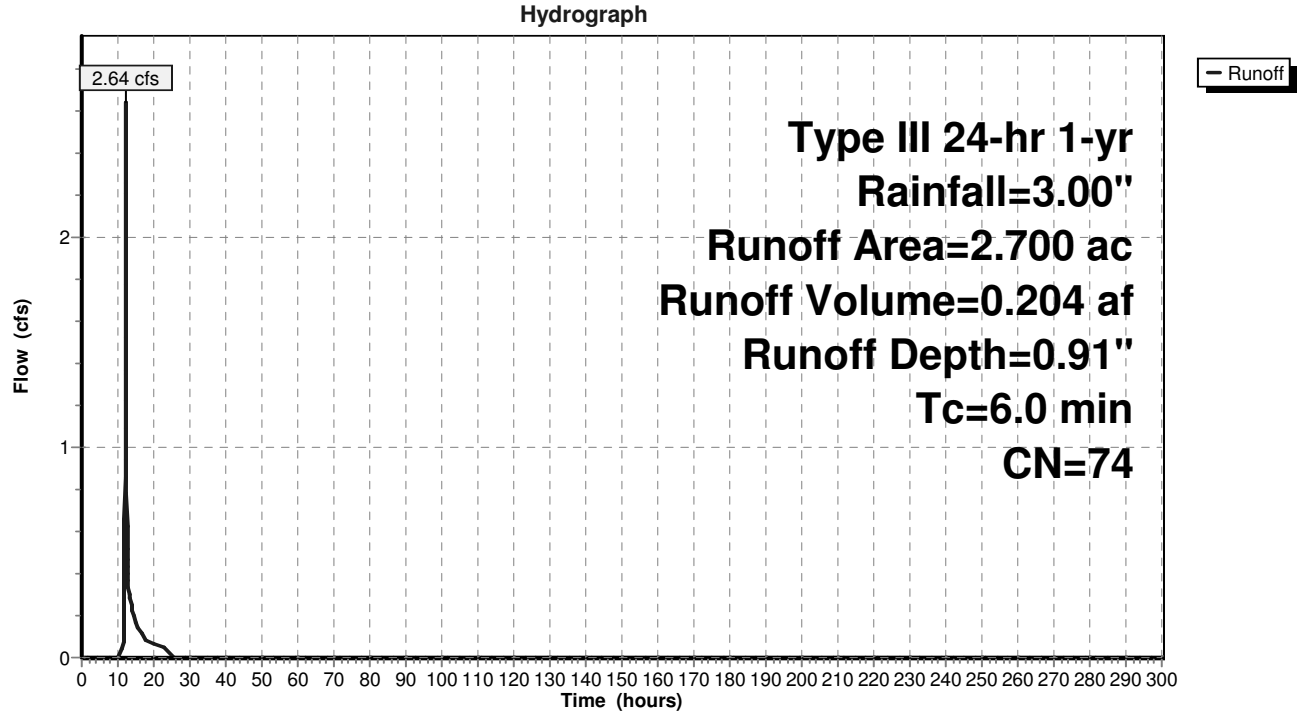
Runoff = 2.64 cfs @ 12.10 hrs, Volume= 0.204 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
2.300	71	Meadow, non-grazed, HSG C
0.200	98	Water Surface
2.700	74	Weighted Average
2.400		Pervious Area
0.300		Impervious Area

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

Subcatchment 5.5S:



Summary for Subcatchment 5.6S:

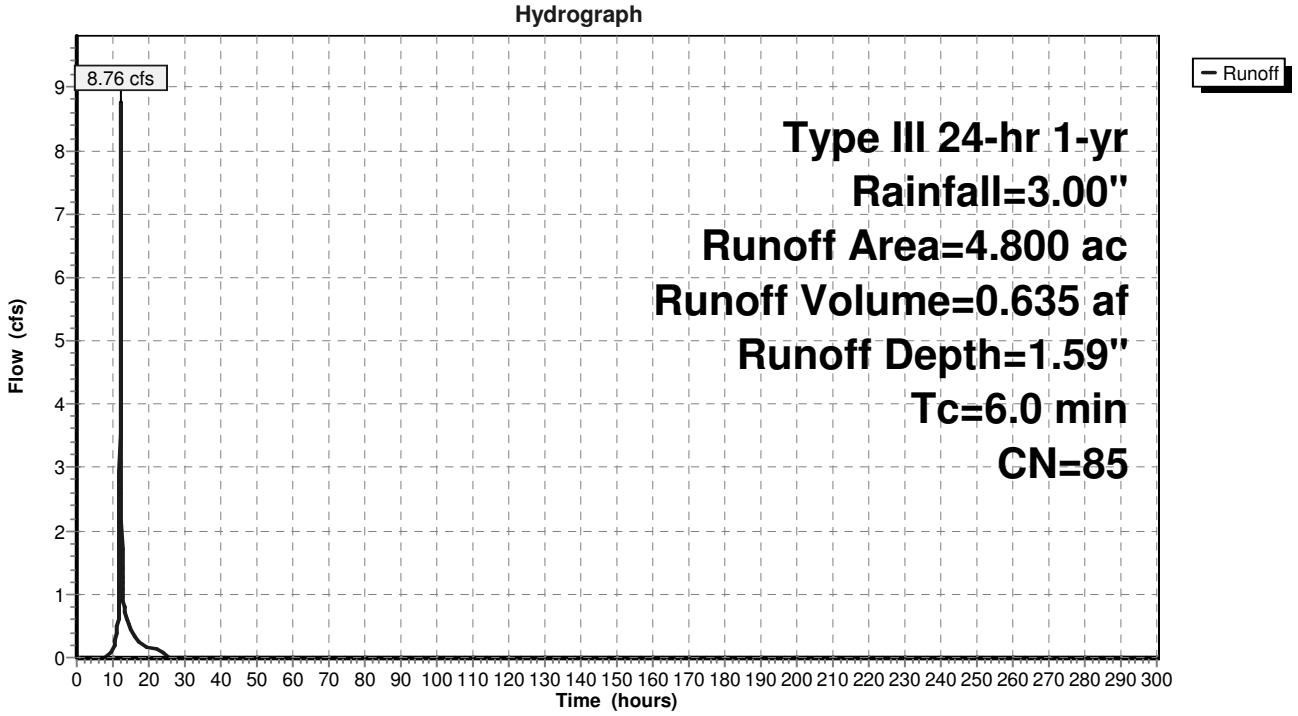
Runoff = 8.76 cfs @ 12.09 hrs, Volume= 0.635 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
2.100	98	Paved parking & roofs
1.000	74	>75% Grass cover, Good, HSG C
1.400	71	Meadow, non-grazed, HSG C
0.300	98	Water Surface
4.800	85	Weighted Average
2.400		Pervious Area
2.400		Impervious Area

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

Subcatchment 5.6S:



Summary for Subcatchment 5.7S:

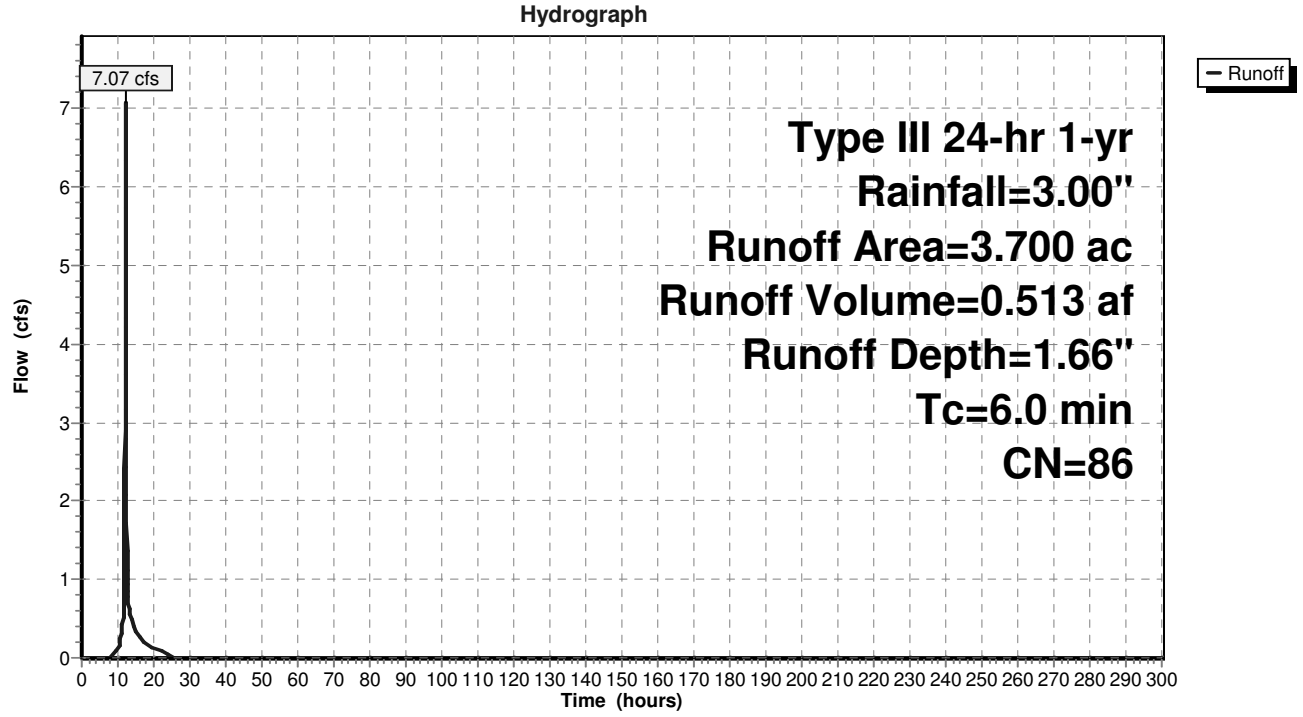
Runoff = 7.07 cfs @ 12.09 hrs, Volume= 0.513 af, Depth= 1.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
1.700	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
0.700	71	Meadow, non-grazed, HSG C
0.800	73	Woods, Fair, HSG C
0.200	98	Water Surface
3.700	86	Weighted Average
1.800		Pervious Area
1.900		Impervious Area

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

Subcatchment 5.7S:



Summary for Subcatchment 5.8S:

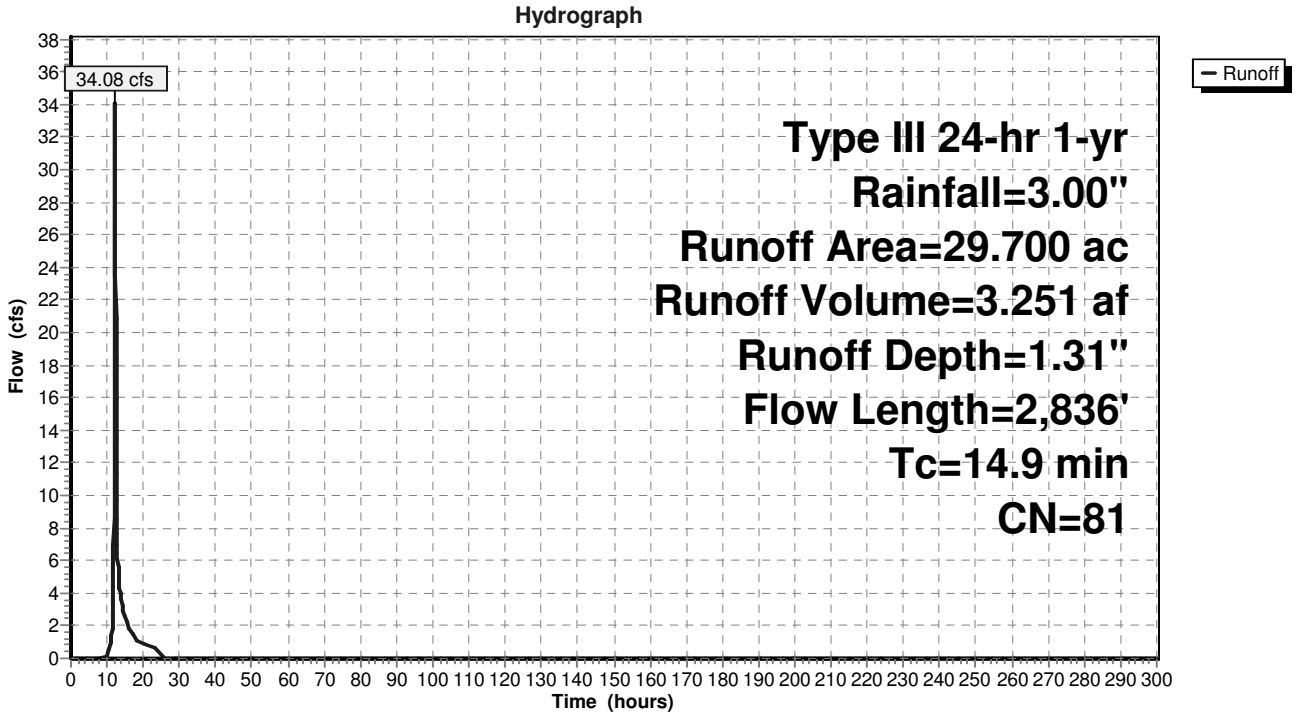
Runoff = 34.08 cfs @ 12.21 hrs, Volume= 3.251 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
4.700	98	Paved parking & roofs
2.400	74	>75% Grass cover, Good, HSG C
4.500	71	Meadow, non-grazed, HSG C
10.100	70	Woods, Good, HSG C
1.200	83	Woods, Poor, HSG D
1.700	98	Water Surface
5.100	94	Urban commercial, 85% imp, HSG C
29.700	81	Weighted Average
18.965		Pervious Area
10.735		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0900	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.4	136	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.4	2,600	0.0390	5.15	10.30	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=0.50' Z= 2.0 '/' Top.W=5.00' n= 0.030 Earth, grassed & winding
14.9	2,836	Total			

Subcatchment 5.8S:

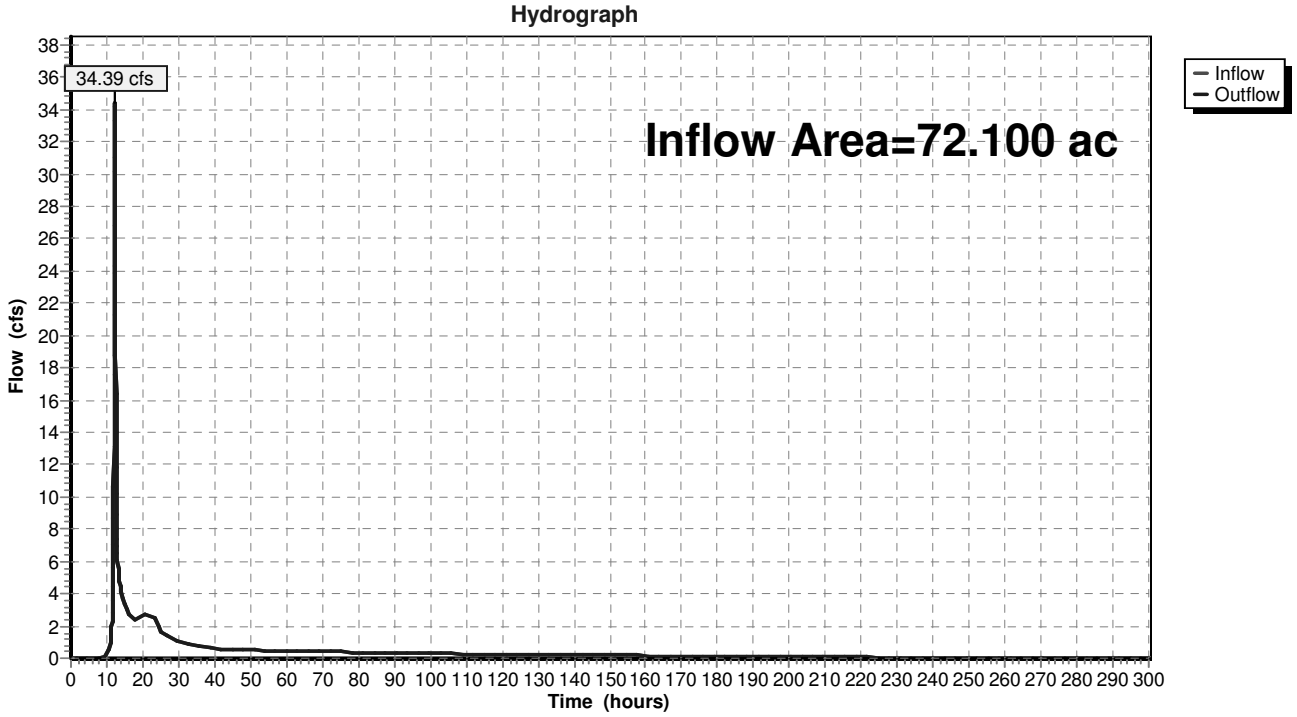


Summary for Reach DP 5: Design Point 5

Inflow Area = 72.100 ac, 53.86% Impervious, Inflow Depth > 1.62" for 1-yr event
Inflow = 34.39 cfs @ 12.21 hrs, Volume= 9.753 af
Outflow = 34.39 cfs @ 12.21 hrs, Volume= 9.753 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 5: Design Point 5



Summary for Pond 5.1P: Pocket Wetland (W-4)

Inflow Area = 2.400 ac, 75.00% Impervious, Inflow Depth = 2.07" for 1-yr event
Inflow = 5.63 cfs @ 12.09 hrs, Volume= 0.414 af
Outflow = 0.17 cfs @ 16.18 hrs, Volume= 0.413 af, Atten= 97%, Lag= 245.5 min
Primary = 0.17 cfs @ 16.18 hrs, Volume= 0.413 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 678.00' Surf.Area= 9,300 sf Storage= 19,400 cf
Peak Elev= 679.18' @ 16.18 hrs Surf.Area= 11,961 sf Storage= 31,971 cf (12,571 cf above start)
Flood Elev= 681.00' Surf.Area= 16,250 sf Storage= 57,525 cf (38,125 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 1,022.2 min (1,827.1 - 804.9)

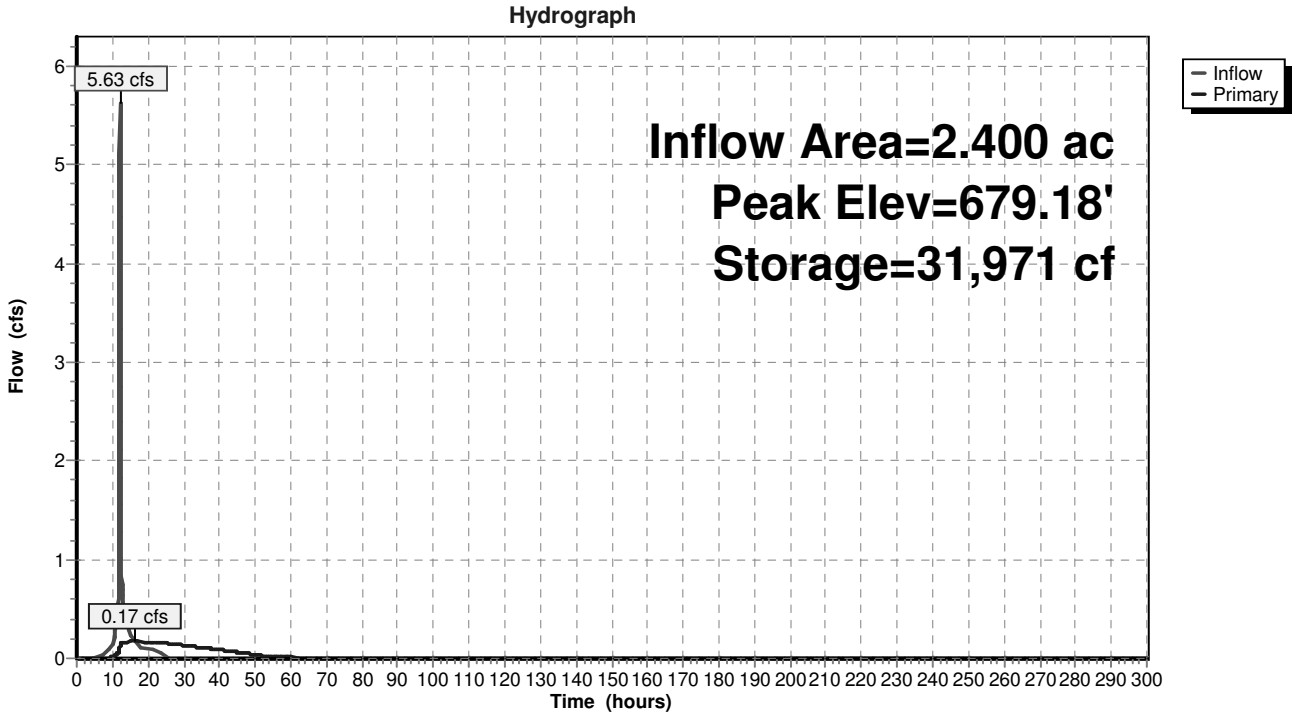
Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	75,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	300	0	0
674.00	1,600	1,900	1,900
676.00	3,300	4,900	6,800
678.00	9,300	12,600	19,400
680.00	13,800	23,100	42,500
682.00	18,700	32,500	75,000

Device	Routing	Invert	Outlet Devices
#1	Primary	678.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	680.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.17 cfs @ 16.18 hrs HW=679.18' TW=666.27' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.17 cfs @ 5.00 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.1P: Pocket Wetland (W-4)



Summary for Pond 5.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 3.300 ac, 63.64% Impervious, Inflow Depth = 1.84" for 1-yr event
Inflow = 1.59 cfs @ 12.01 hrs, Volume= 0.507 af
Outflow = 0.20 cfs @ 17.93 hrs, Volume= 0.505 af, Atten= 87%, Lag= 355.7 min
Primary = 0.20 cfs @ 17.93 hrs, Volume= 0.505 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 666.00' Surf.Area= 13,600 sf Storage= 42,650 cf
Peak Elev= 666.28' @ 17.93 hrs Surf.Area= 14,407 sf Storage= 46,545 cf (3,895 cf above start)
Flood Elev= 669.00' Surf.Area= 22,350 sf Storage= 96,525 cf (53,875 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 471.8 min (2,116.4 - 1,644.7)

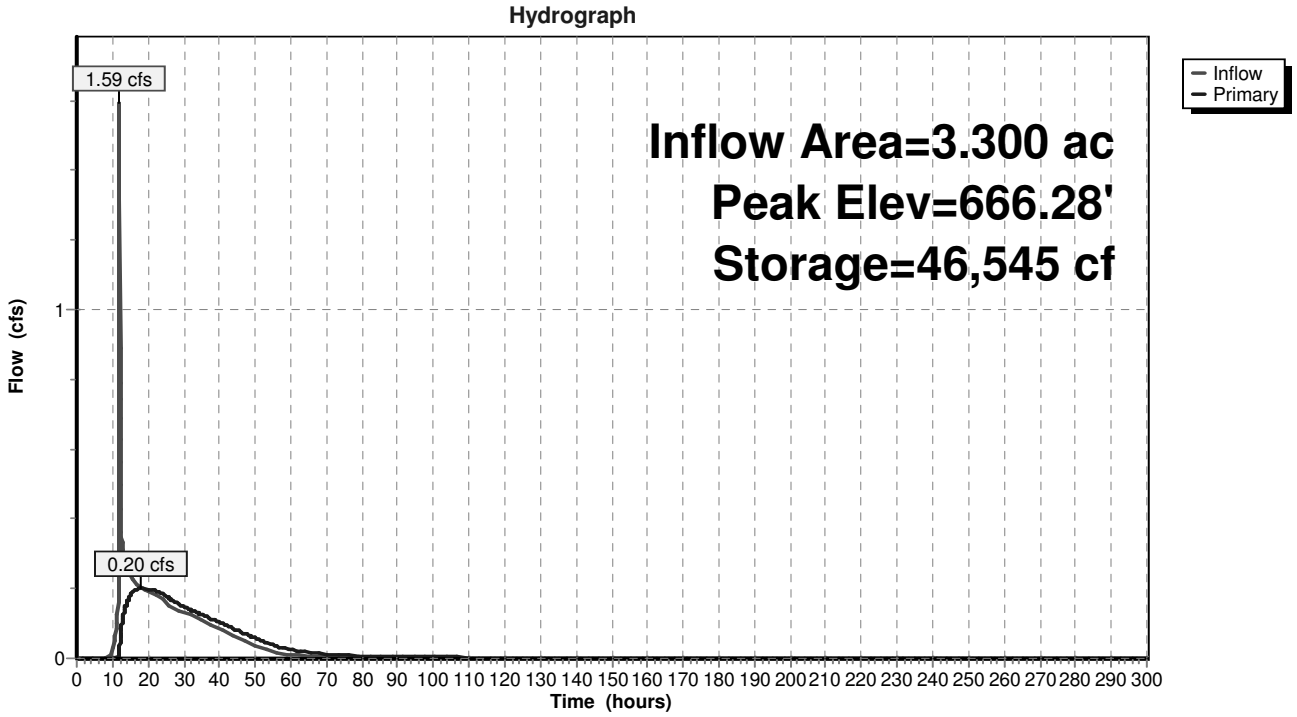
Volume	Invert	Avail.Storage	Storage Description
#1	660.50'	120,350 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
660.50	4,400	0	0
662.00	5,800	7,650	7,650
664.00	7,800	13,600	21,250
666.00	13,600	21,400	42,650
668.00	19,400	33,000	75,650
670.00	25,300	44,700	120,350

Device	Routing	Invert	Outlet Devices
#1	Primary	666.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	668.25'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.20 cfs @ 17.93 hrs HW=666.28' TW=655.61' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.20 cfs @ 1.80 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 5.3P: Micropool Extended Detention (P-1)

Inflow Area = 13.400 ac, 69.40% Impervious, Inflow Depth = 1.95" for 1-yr event
Inflow = 22.85 cfs @ 12.09 hrs, Volume= 2.175 af
Outflow = 1.14 cfs @ 15.34 hrs, Volume= 2.168 af, Atten= 95%, Lag= 194.9 min
Primary = 1.14 cfs @ 15.34 hrs, Volume= 2.168 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 654.00' Surf.Area= 24,400 sf Storage= 64,450 cf
Peak Elev= 655.70' @ 15.34 hrs Surf.Area= 30,172 sf Storage= 110,770 cf (46,320 cf above start)
Flood Elev= 657.00' Surf.Area= 34,800 sf Storage= 153,050 cf (88,600 cf above start)

Plug-Flow detention time= 2,235.2 min calculated for 0.688 af (32% of inflow)
Center-of-Mass det. time= 638.4 min (1,751.2 - 1,112.8)

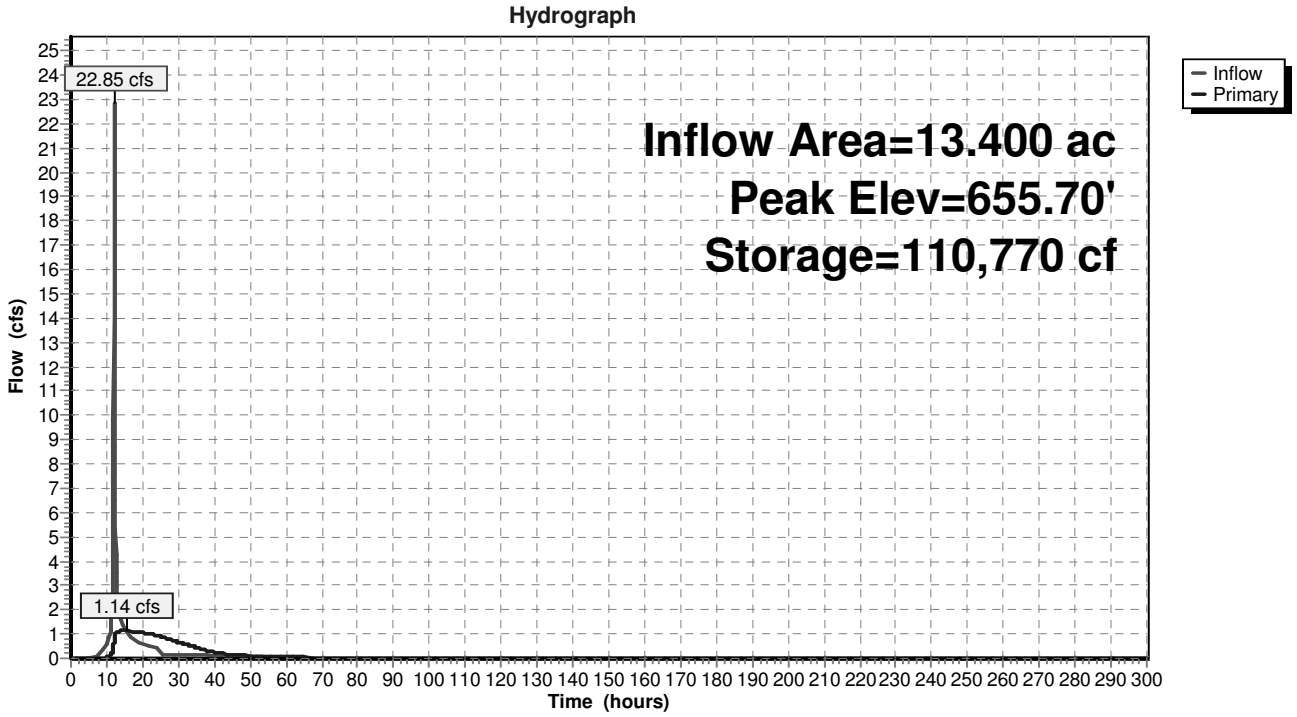
Volume	Invert	Avail.Storage	Storage Description
#1	649.00'	189,650 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
649.00	7,900	0	0
650.00	9,000	8,450	8,450
652.00	11,300	20,300	28,750
654.00	24,400	35,700	64,450
656.00	31,200	55,600	120,050
658.00	38,400	69,600	189,650

Device	Routing	Invert	Outlet Devices
#1	Primary	654.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	655.75'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.14 cfs @ 15.34 hrs HW=655.70' TW=624.09' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 1.14 cfs @ 5.79 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.3P: Micropool Extended Detention (P-1)



Summary for Pond 5.4P: Micropool Extended Detention Pond (P-1)

Inflow Area = 17.800 ac, 79.78% Impervious, Inflow Depth = 2.16" for 1-yr event
Inflow = 43.24 cfs @ 12.09 hrs, Volume= 3.206 af
Outflow = 23.85 cfs @ 12.22 hrs, Volume= 3.033 af, Atten= 45%, Lag= 8.0 min
Primary = 23.85 cfs @ 12.22 hrs, Volume= 3.033 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 636.00' Surf.Area= 17,300 sf Storage= 69,900 cf
Peak Elev= 638.53' @ 12.22 hrs Surf.Area= 25,192 sf Storage= 123,805 cf (53,905 cf above start)
Flood Elev= 640.00' Surf.Area= 29,488 sf Storage= 163,964 cf (94,064 cf above start)

Plug-Flow detention time= 3,453.5 min calculated for 1.428 af (45% of inflow)
Center-of-Mass det. time= 1,550.4 min (2,350.5 - 800.1)

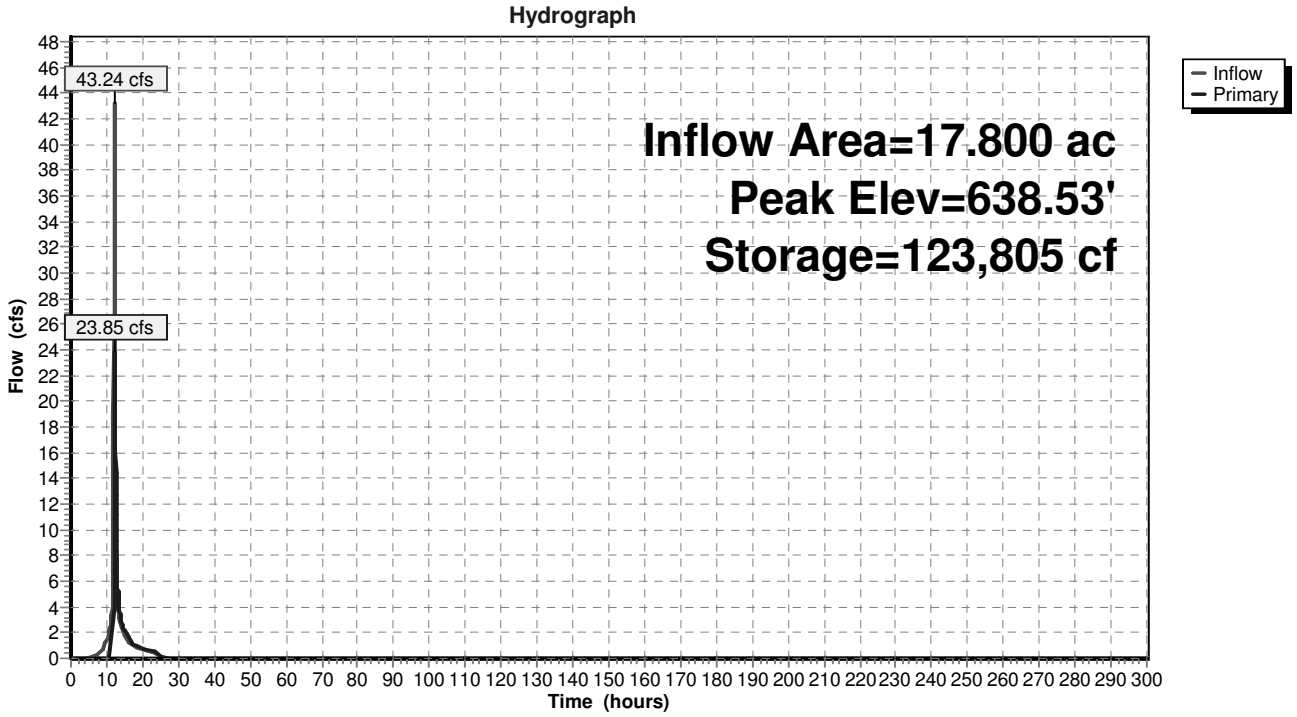
Volume	Invert	Avail.Storage	Storage Description
#1	628.00'	195,308 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
628.00	4,600	0	0
630.00	6,100	10,700	10,700
632.00	7,900	14,000	24,700
634.00	10,000	17,900	42,600
636.00	17,300	27,300	69,900
638.00	23,638	40,938	110,838
640.00	29,488	53,126	163,964
641.00	33,200	31,344	195,308

Device	Routing	Invert	Outlet Devices
#1	Primary	636.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	637.60'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=23.59 cfs @ 12.22 hrs HW=638.52' TW=620.86' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.04 cfs @ 7.59 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 23.55 cfs @ 3.18 fps)

Pond 5.4P: Micropool Extended Detention Pond (P-1)



Summary for Pond 5.5P: Extended Detention Pond (Design 2) - Dry Pond

Inflow Area = 33.900 ac, 70.21% Impervious, Inflow Depth > 1.91" for 1-yr event
Inflow = 26.41 cfs @ 12.22 hrs, Volume= 5.405 af
Outflow = 1.68 cfs @ 21.61 hrs, Volume= 5.357 af, Atten= 94%, Lag= 563.6 min
Primary = 1.68 cfs @ 21.61 hrs, Volume= 5.357 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Peak Elev= 625.02' @ 21.61 hrs Surf.Area= 29,141 sf Storage= 121,964 cf
Flood Elev= 629.00' Surf.Area= 40,550 sf Storage= 259,975 cf

Plug-Flow detention time= 2,981.1 min calculated for 5.357 af (99% of inflow)
Center-of-Mass det. time= 2,846.8 min (4,900.8 - 2,054.0)

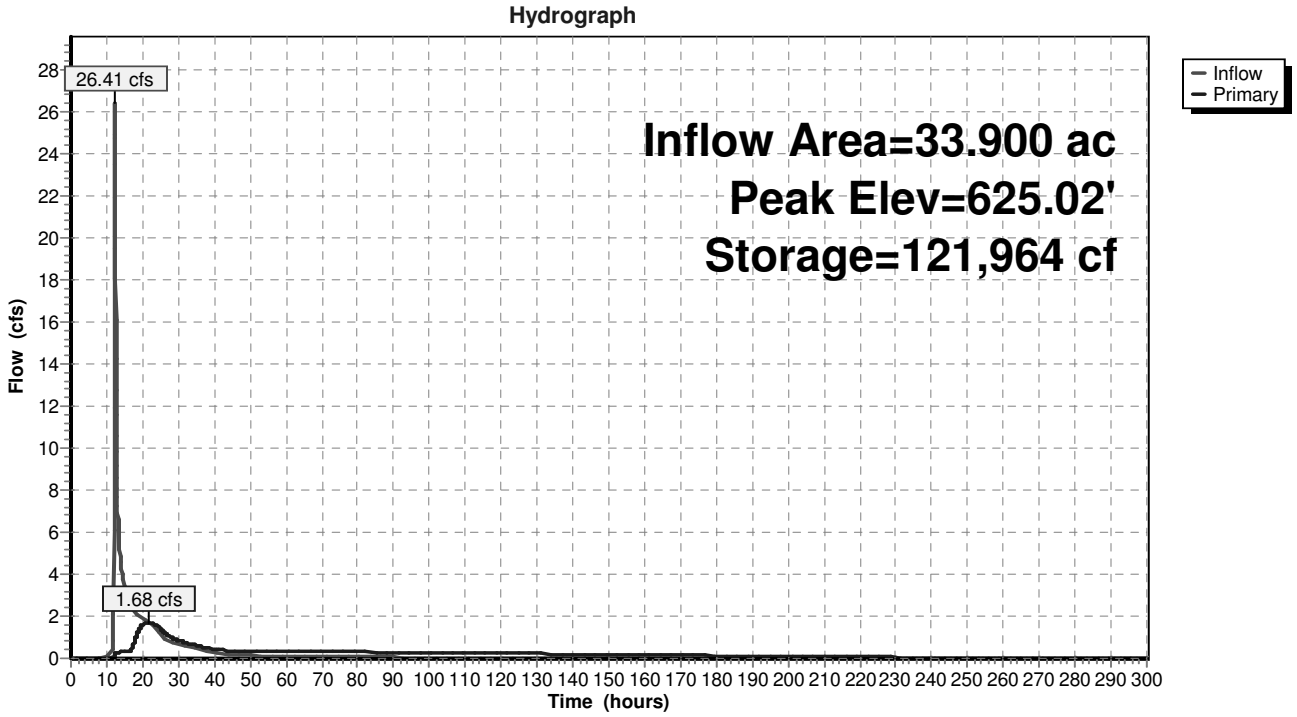
Volume	Invert	Avail.Storage	Storage Description
#1	620.00'	302,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
620.00	20,400	0	0
622.00	23,400	43,800	43,800
624.00	26,500	49,900	93,700
626.00	31,700	58,200	151,900
628.00	37,400	69,100	221,000
630.00	43,700	81,100	302,100

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	624.50'	**18.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	627.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.68 cfs @ 21.61 hrs HW=625.02' TW=0.00' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.36 cfs @ 10.67 fps)
- **2=Orifice/Grate** (Orifice Controls 1.32 cfs @ 2.45 fps)
- **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.5P: Extended Detention Pond (Design 2) - Dry Pond



Summary for Pond 5.6P: Pocket Wetland (W-4)

Inflow Area = 4.800 ac, 50.00% Impervious, Inflow Depth = 1.59" for 1-yr event
Inflow = 8.76 cfs @ 12.09 hrs, Volume= 0.635 af
Outflow = 0.15 cfs @ 20.23 hrs, Volume= 0.634 af, Atten= 98%, Lag= 488.4 min
Primary = 0.15 cfs @ 20.23 hrs, Volume= 0.634 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 609.00' Surf.Area= 7,500 sf Storage= 15,000 cf
Peak Elev= 611.26' @ 20.23 hrs Surf.Area= 11,552 sf Storage= 36,285 cf (21,285 cf above start)
Flood Elev= 614.00' Surf.Area= 17,000 sf Storage= 75,400 cf (60,400 cf above start)

Plug-Flow detention time= 2,953.9 min calculated for 0.290 af (46% of inflow)
Center-of-Mass det. time= 1,684.9 min (2,513.9 - 829.0)

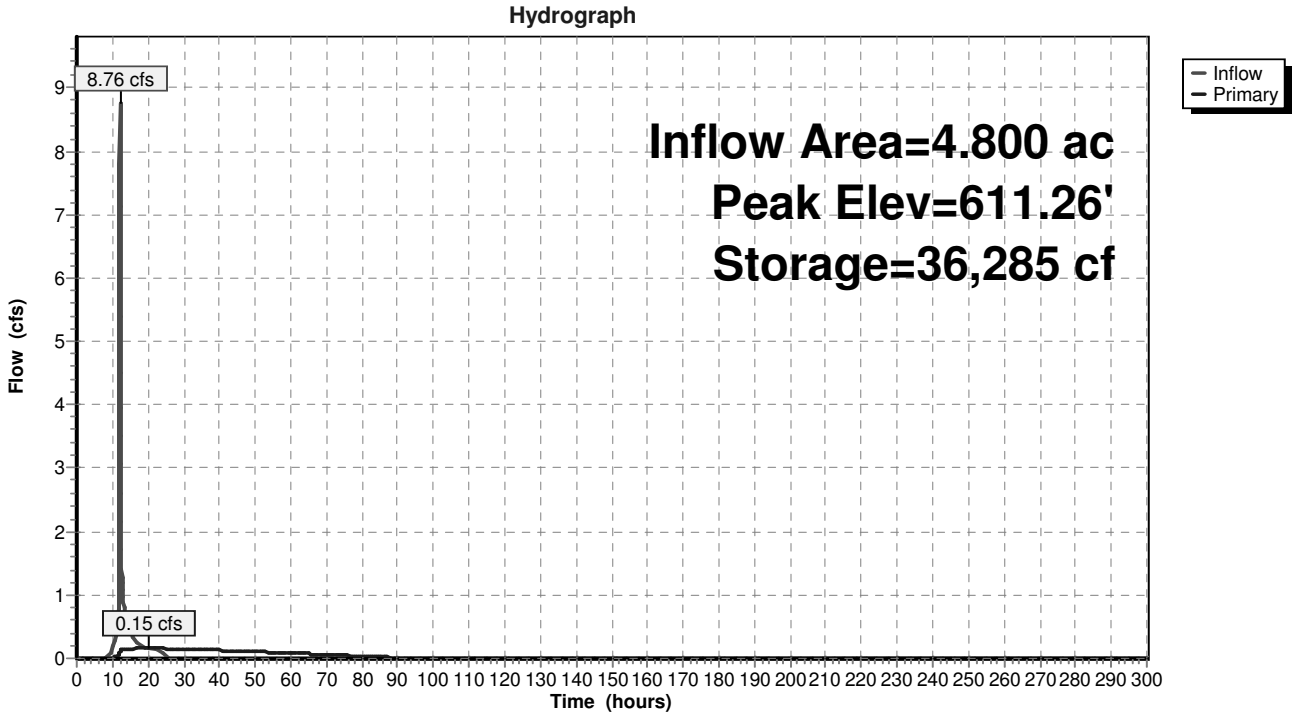
Volume	Invert	Avail.Storage	Storage Description
#1	601.00'	93,400 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
601.00	220	0	0
602.00	360	290	290
604.00	850	1,210	1,500
606.00	1,900	2,750	4,250
608.00	3,400	5,300	9,550
609.00	7,500	5,450	15,000
610.00	9,100	8,300	23,300
612.00	13,000	22,100	45,400
614.00	17,000	30,000	75,400
615.00	19,000	18,000	93,400

Device	Routing	Invert	Outlet Devices
#1	Primary	609.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	613.50'	**2.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.15 cfs @ 20.23 hrs HW=611.26' TW=0.00' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.15 cfs @ 7.10 fps)
- **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.6P: Pocket Wetland (W-4)



Summary for Pond 5.7P: Pocket Wetland (W-4)

Inflow Area = 3.700 ac, 51.35% Impervious, Inflow Depth = 1.66" for 1-yr event
Inflow = 7.07 cfs @ 12.09 hrs, Volume= 0.513 af
Outflow = 0.39 cfs @ 14.64 hrs, Volume= 0.511 af, Atten= 94%, Lag= 152.7 min
Primary = 0.39 cfs @ 14.64 hrs, Volume= 0.511 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 656.00' Surf.Area= 8,300 sf Storage= 18,240 cf
Peak Elev= 657.56' @ 14.64 hrs Surf.Area= 11,184 sf Storage= 33,425 cf (15,185 cf above start)
Flood Elev= 659.00' Surf.Area= 13,750 sf Storage= 51,415 cf (33,175 cf above start)

Plug-Flow detention time= 5,461.6 min calculated for 0.092 af (18% of inflow)
Center-of-Mass det. time= 2,006.2 min (2,831.6 - 825.4)

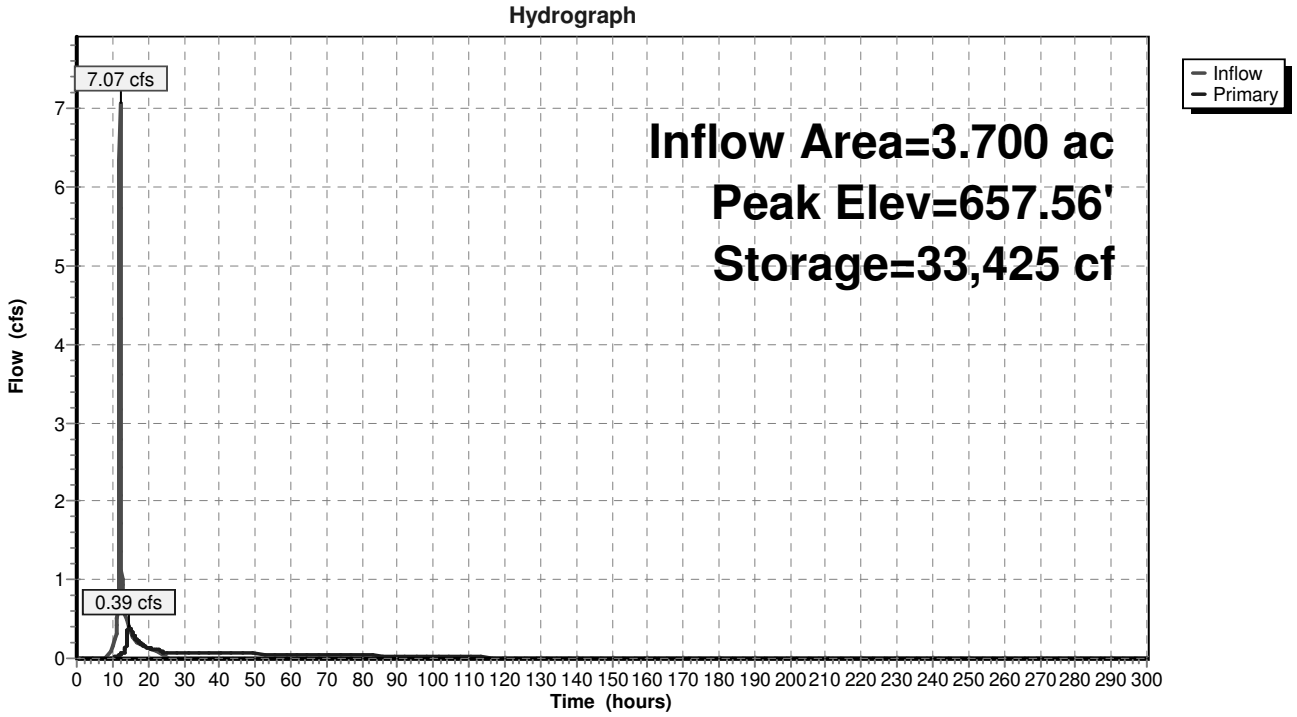
Volume	Invert	Avail.Storage	Storage Description
#1	648.00'	66,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
648.00	240	0	0
650.00	650	890	890
652.00	1,400	2,050	2,940
654.00	2,800	4,200	7,140
656.00	8,300	11,100	18,240
658.00	12,000	20,300	38,540
660.00	15,500	27,500	66,040

Device	Routing	Invert	Outlet Devices
#1	Primary	656.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	657.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.39 cfs @ 14.64 hrs HW=657.56' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.07 cfs @ 5.89 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 0.32 cfs @ 0.68 fps)

Pond 5.7P: Pocket Wetland (W-4)



Summary for Subcatchment 5.1S:

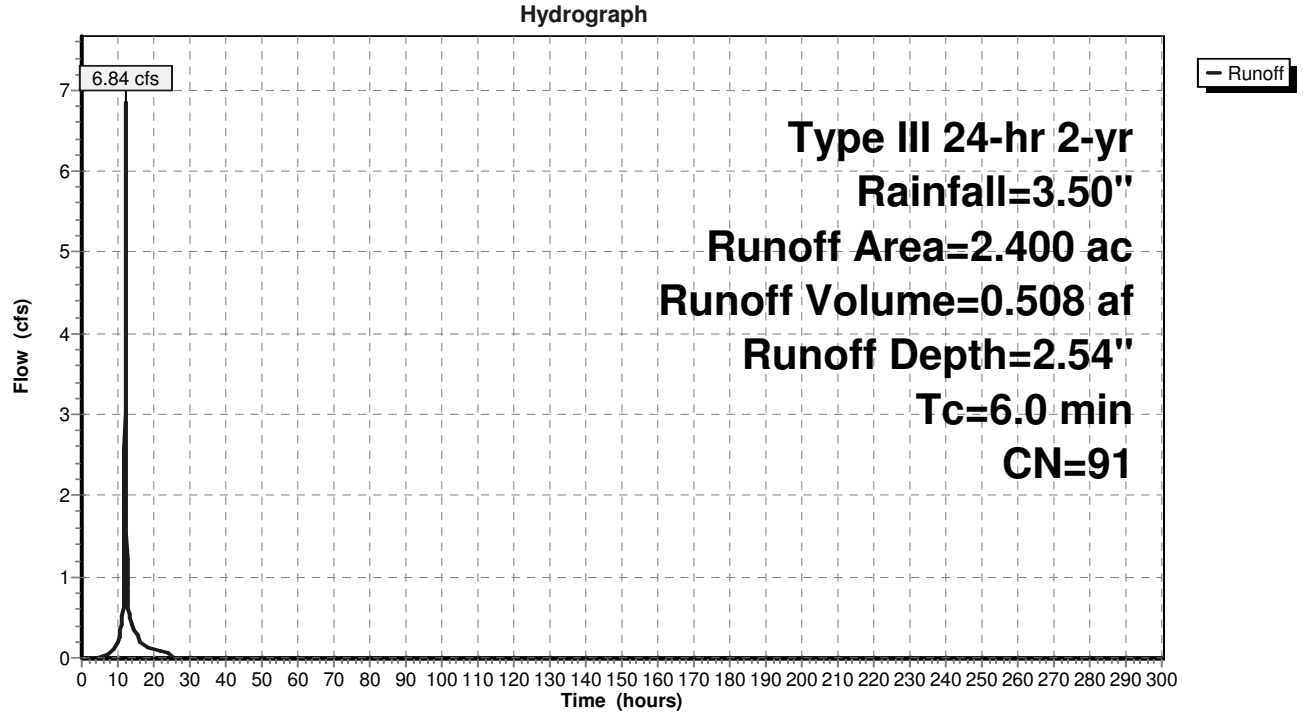
Runoff = 6.84 cfs @ 12.09 hrs, Volume= 0.508 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

	Area (ac)	CN	Description
	1.600	98	Paved parking & roofs
	0.200	74	>75% Grass cover, Good, HSG C
	0.300	71	Meadow, non-grazed, HSG C
	0.200	98	Water Surface
*	0.100	56	Pervious Pavement
	2.400	91	Weighted Average
	0.600		Pervious Area
	1.800		Impervious Area

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

Subcatchment 5.1S:



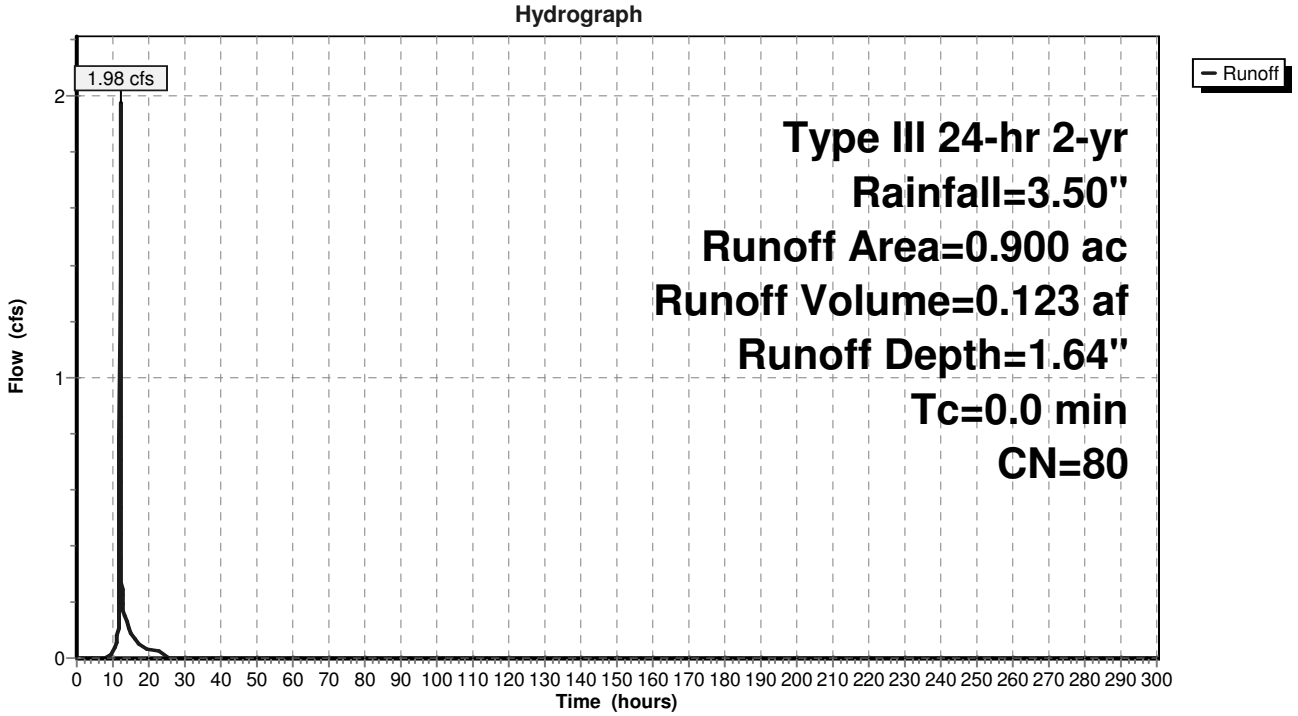
Summary for Subcatchment 5.2S:

Runoff = 1.98 cfs @ 12.01 hrs, Volume= 0.123 af, Depth= 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.100	74	>75% Grass cover, Good, HSG C
0.500	71	Meadow, non-grazed, HSG C
0.300	98	Water Surface
0.900	80	Weighted Average
0.600		Pervious Area
0.300		Impervious Area

Subcatchment 5.2S:



Summary for Subcatchment 5.3S:

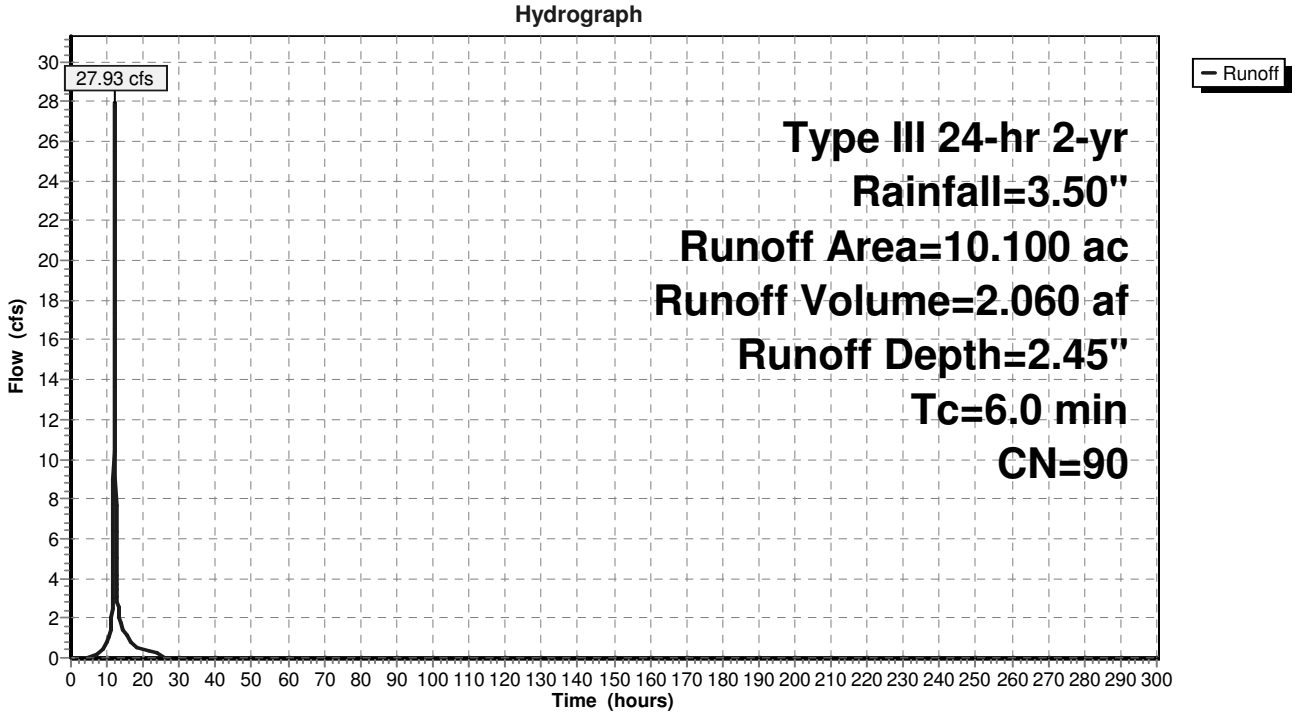
Runoff = 27.93 cfs @ 12.09 hrs, Volume= 2.060 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

	Area (ac)	CN	Description
	6.600	98	Paved parking & roofs
	1.900	74	>75% Grass cover, Good, HSG C
	0.700	71	Meadow, non-grazed, HSG C
	0.600	98	Water Surface
*	0.300	56	Pervious Pavement
	10.100	90	Weighted Average
	2.900		Pervious Area
	7.200		Impervious Area

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

Subcatchment 5.3S:



Summary for Subcatchment 5.4S:

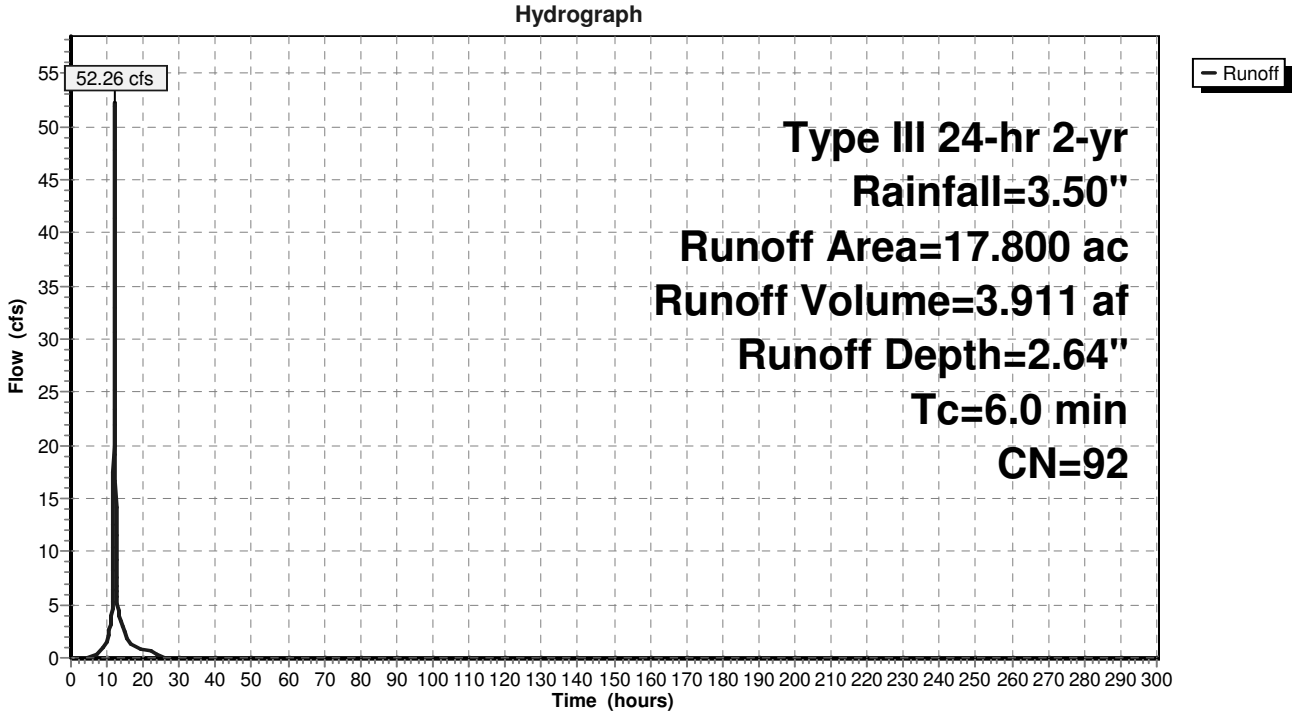
Runoff = 52.26 cfs @ 12.09 hrs, Volume= 3.911 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

	Area (ac)	CN	Description
	13.800	98	Paved parking & roofs
	2.200	74	>75% Grass cover, Good, HSG C
	0.900	71	Meadow, non-grazed, HSG C
	0.400	98	Water Surface
*	0.500	56	Pervious Pavement
	17.800	92	Weighted Average
	3.600		Pervious Area
	14.200		Impervious Area

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

Subcatchment 5.4S:



Summary for Subcatchment 5.5S:

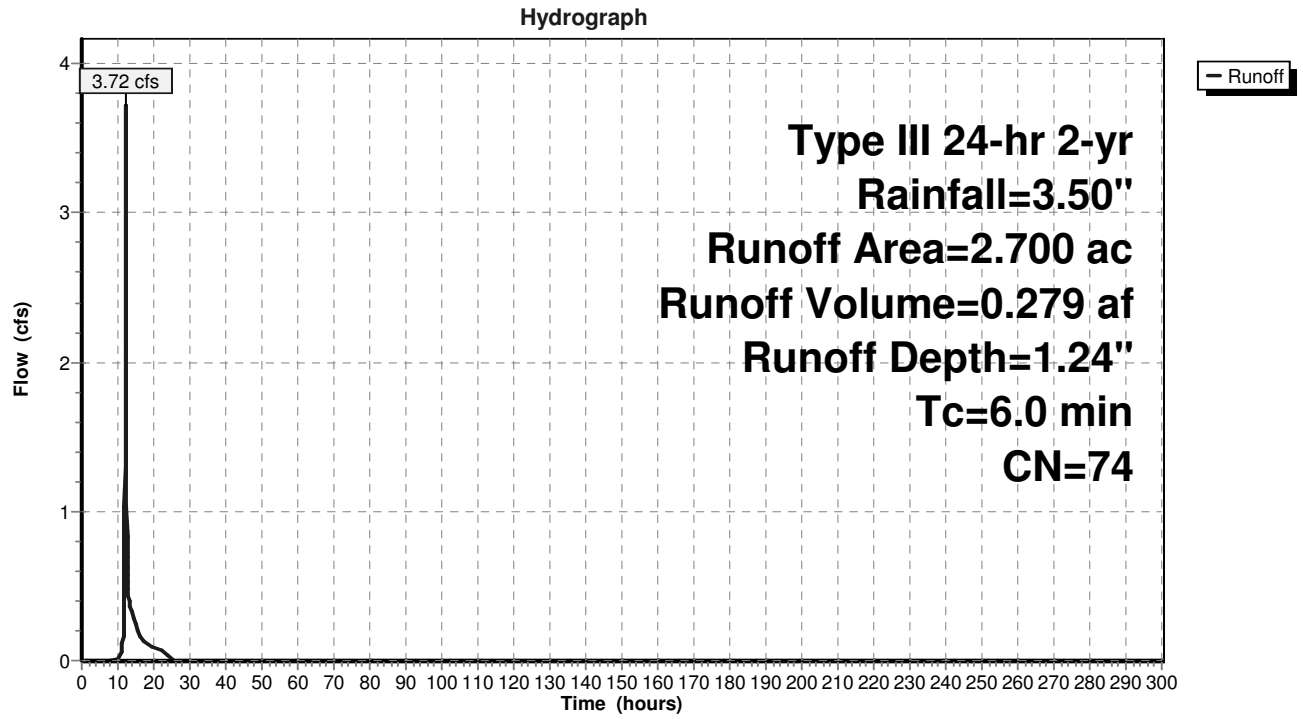
Runoff = 3.72 cfs @ 12.10 hrs, Volume= 0.279 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
2.300	71	Meadow, non-grazed, HSG C
0.200	98	Water Surface
2.700	74	Weighted Average
2.400		Pervious Area
0.300		Impervious Area

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

Subcatchment 5.5S:



Summary for Subcatchment 5.6S:

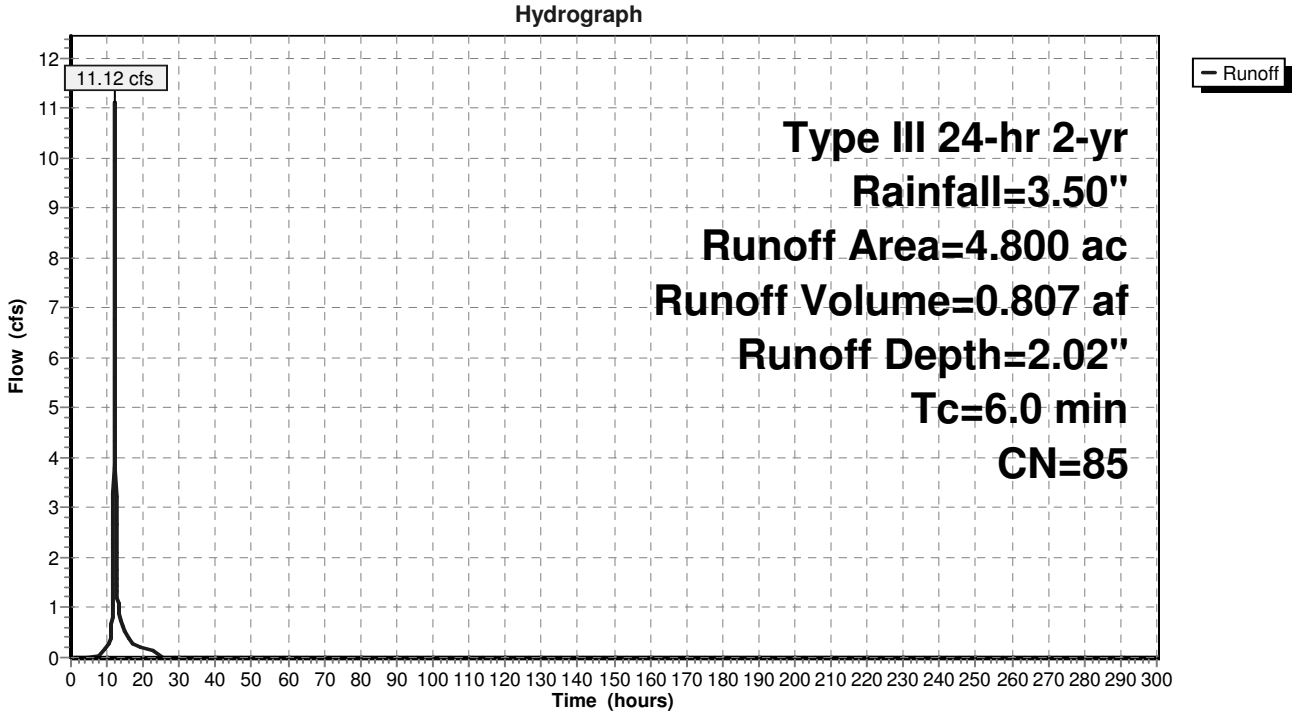
Runoff = 11.12 cfs @ 12.09 hrs, Volume= 0.807 af, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
2.100	98	Paved parking & roofs
1.000	74	>75% Grass cover, Good, HSG C
1.400	71	Meadow, non-grazed, HSG C
0.300	98	Water Surface
4.800	85	Weighted Average
2.400		Pervious Area
2.400		Impervious Area

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

Subcatchment 5.6S:



Summary for Subcatchment 5.7S:

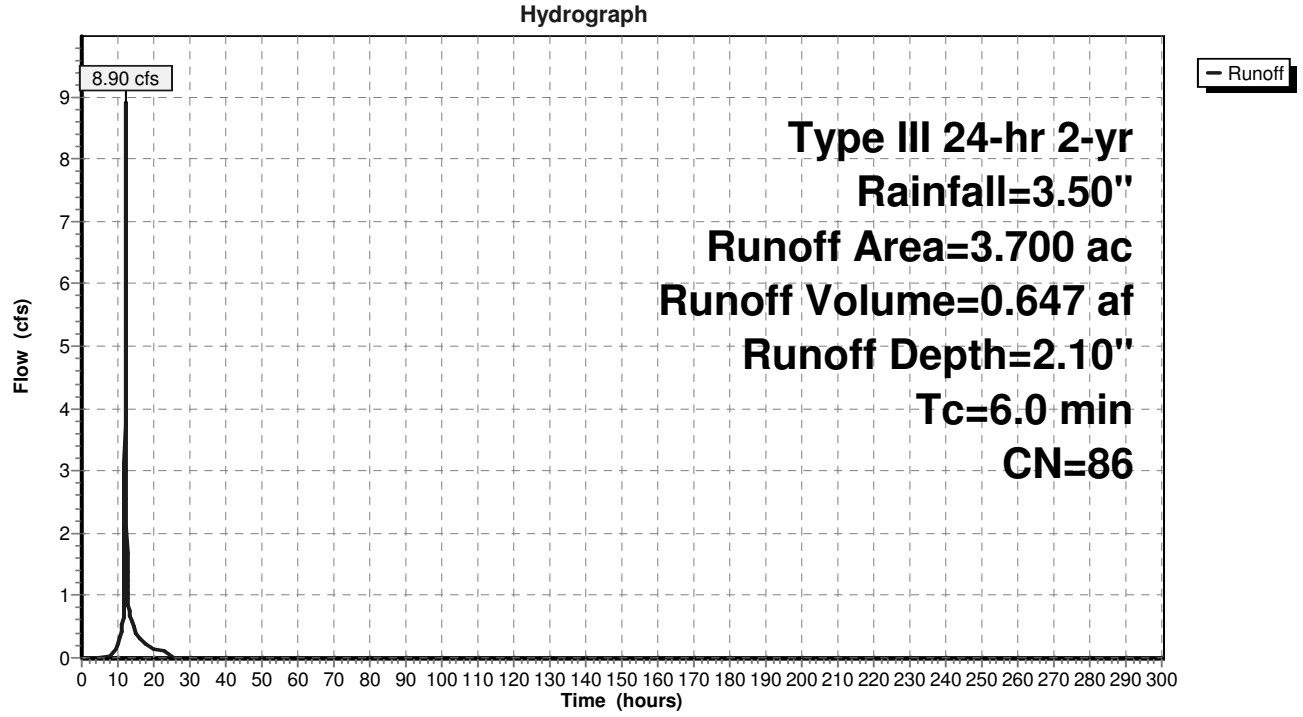
Runoff = 8.90 cfs @ 12.09 hrs, Volume= 0.647 af, Depth= 2.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
1.700	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
0.700	71	Meadow, non-grazed, HSG C
0.800	73	Woods, Fair, HSG C
0.200	98	Water Surface
3.700	86	Weighted Average
1.800		Pervious Area
1.900		Impervious Area

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

Subcatchment 5.7S:



Summary for Subcatchment 5.8S:

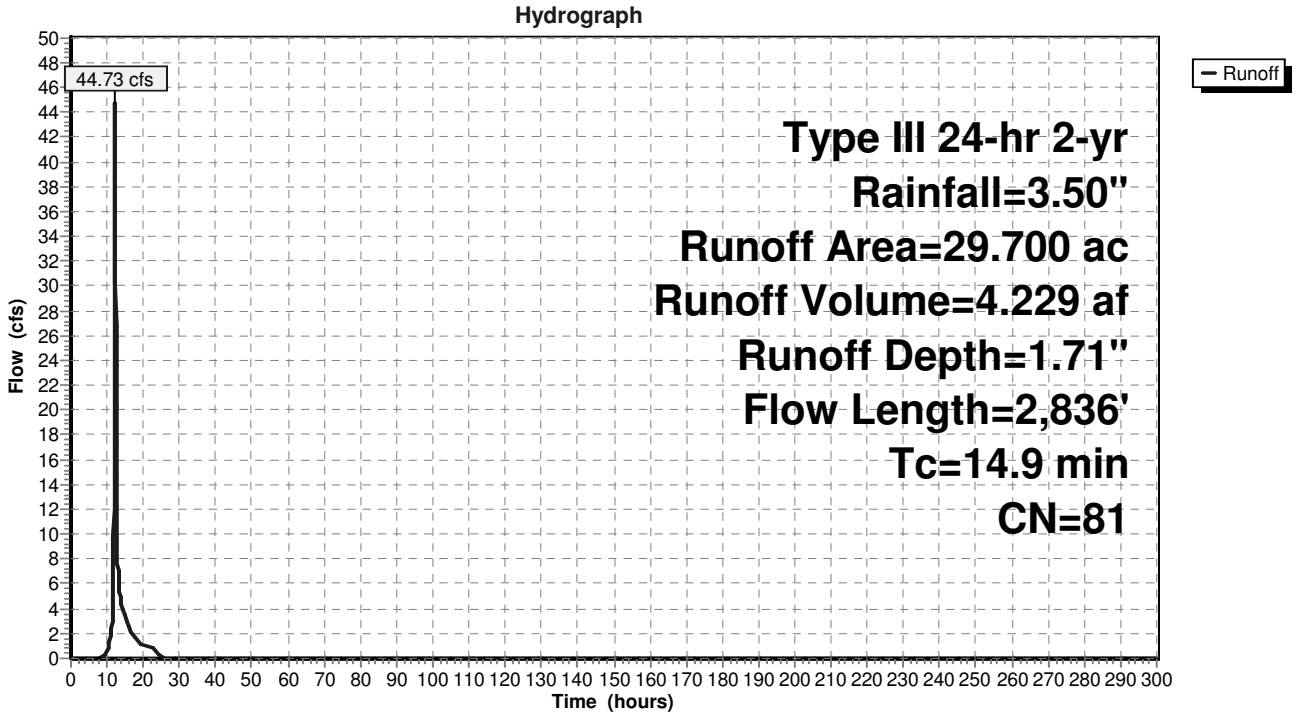
Runoff = 44.73 cfs @ 12.21 hrs, Volume= 4.229 af, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
4.700	98	Paved parking & roofs
2.400	74	>75% Grass cover, Good, HSG C
4.500	71	Meadow, non-grazed, HSG C
10.100	70	Woods, Good, HSG C
1.200	83	Woods, Poor, HSG D
1.700	98	Water Surface
5.100	94	Urban commercial, 85% imp, HSG C
29.700	81	Weighted Average
18.965		Pervious Area
10.735		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0900	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.4	136	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.4	2,600	0.0390	5.15	10.30	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=0.50' Z= 2.0 '/' Top.W=5.00' n= 0.030 Earth, grassed & winding
14.9	2,836	Total			

Subcatchment 5.8S:

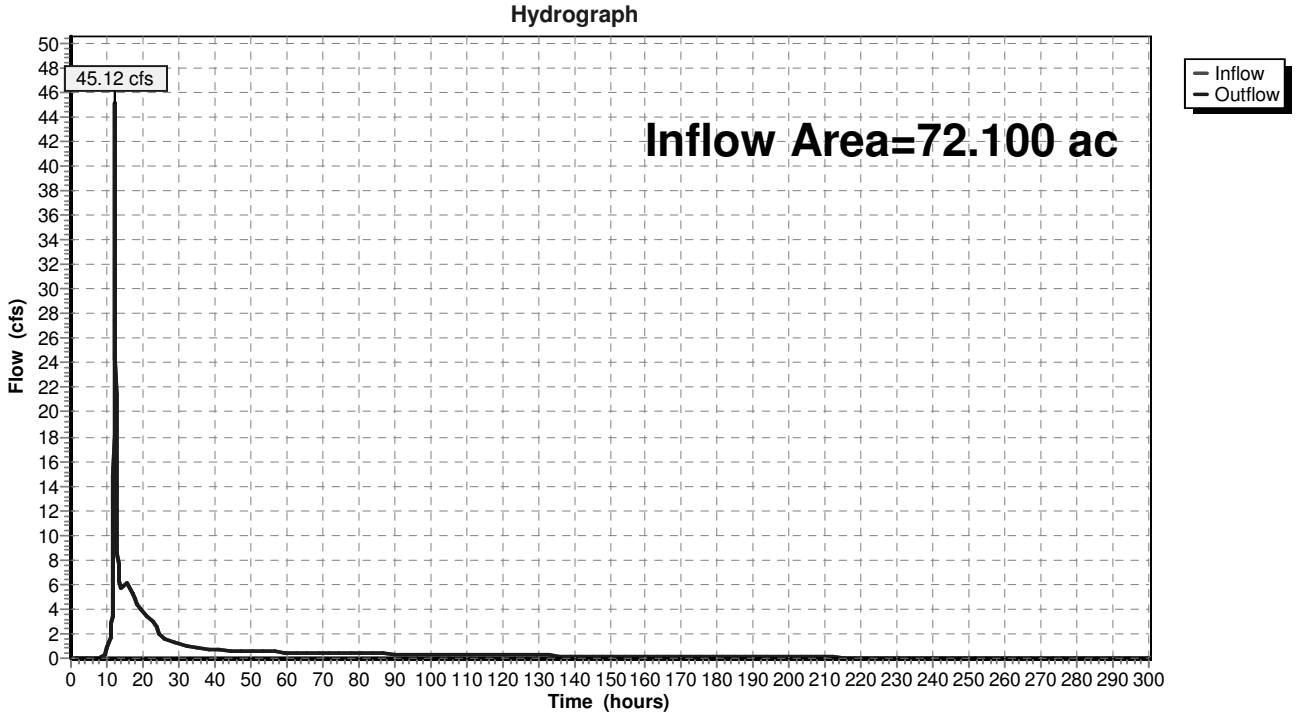


Summary for Reach DP 5: Design Point 5

Inflow Area = 72.100 ac, 53.86% Impervious, Inflow Depth > 2.05" for 2-yr event
Inflow = 45.12 cfs @ 12.21 hrs, Volume= 12.330 af
Outflow = 45.12 cfs @ 12.21 hrs, Volume= 12.330 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 5: Design Point 5



Summary for Pond 5.1P: Pocket Wetland (W-4)

Inflow Area = 2.400 ac, 75.00% Impervious, Inflow Depth = 2.54" for 2-yr event
Inflow = 6.84 cfs @ 12.09 hrs, Volume= 0.508 af
Outflow = 0.19 cfs @ 16.51 hrs, Volume= 0.507 af, Atten= 97%, Lag= 265.1 min
Primary = 0.19 cfs @ 16.51 hrs, Volume= 0.507 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 678.00' Surf.Area= 9,300 sf Storage= 19,400 cf
Peak Elev= 679.44' @ 16.51 hrs Surf.Area= 12,542 sf Storage= 35,137 cf (15,737 cf above start)
Flood Elev= 681.00' Surf.Area= 16,250 sf Storage= 57,525 cf (38,125 cf above start)

Plug-Flow detention time= 3,310.8 min calculated for 0.062 af (12% of inflow)
Center-of-Mass det. time= 1,105.3 min (1,904.5 - 799.2)

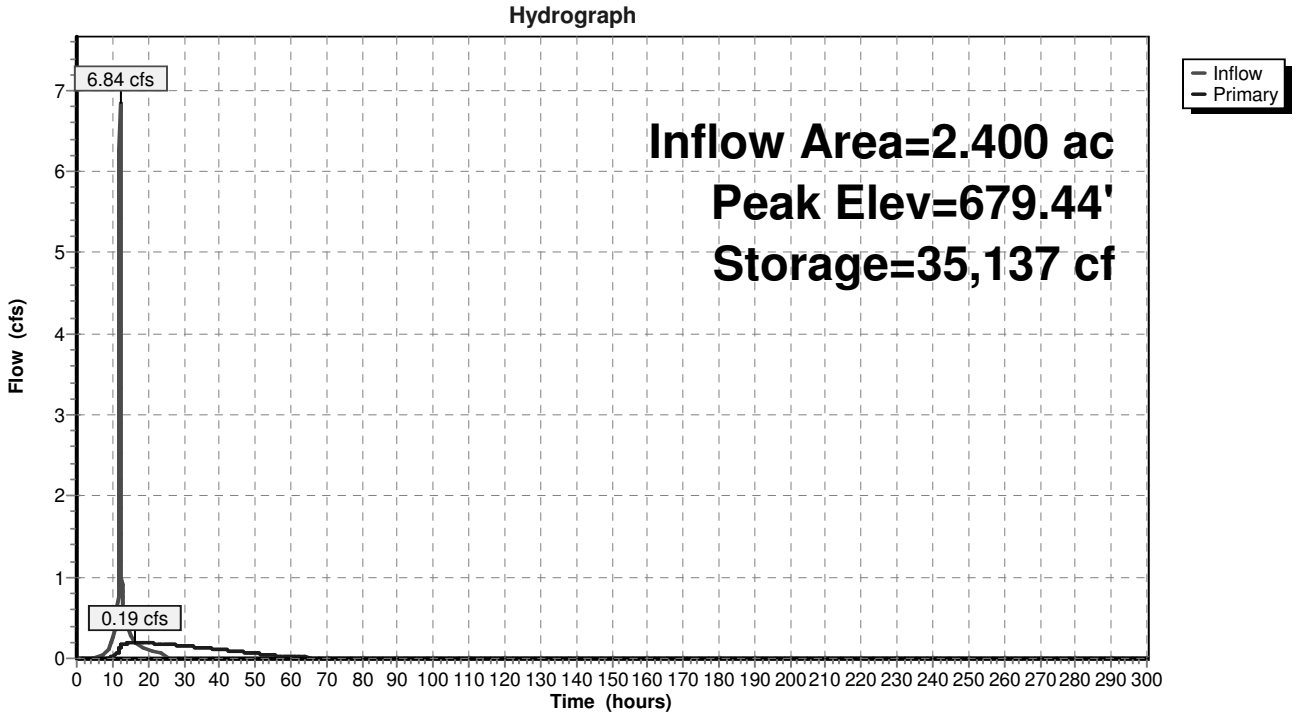
Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	75,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	300	0	0
674.00	1,600	1,900	1,900
676.00	3,300	4,900	6,800
678.00	9,300	12,600	19,400
680.00	13,800	23,100	42,500
682.00	18,700	32,500	75,000

Device	Routing	Invert	Outlet Devices
#1	Primary	678.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	680.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.19 cfs @ 16.51 hrs HW=679.44' TW=666.31' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.19 cfs @ 5.57 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.1P: Pocket Wetland (W-4)



Summary for Pond 5.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 3.300 ac, 63.64% Impervious, Inflow Depth = 2.29" for 2-yr event
Inflow = 2.09 cfs @ 12.01 hrs, Volume= 0.630 af
Outflow = 0.25 cfs @ 16.46 hrs, Volume= 0.628 af, Atten= 88%, Lag= 267.4 min
Primary = 0.25 cfs @ 16.46 hrs, Volume= 0.628 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 666.00' Surf.Area= 13,600 sf Storage= 42,650 cf
Peak Elev= 666.31' @ 16.46 hrs Surf.Area= 14,510 sf Storage= 47,058 cf (4,408 cf above start)
Flood Elev= 669.00' Surf.Area= 22,350 sf Storage= 96,525 cf (53,875 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 433.6 min (2,129.3 - 1,695.7)

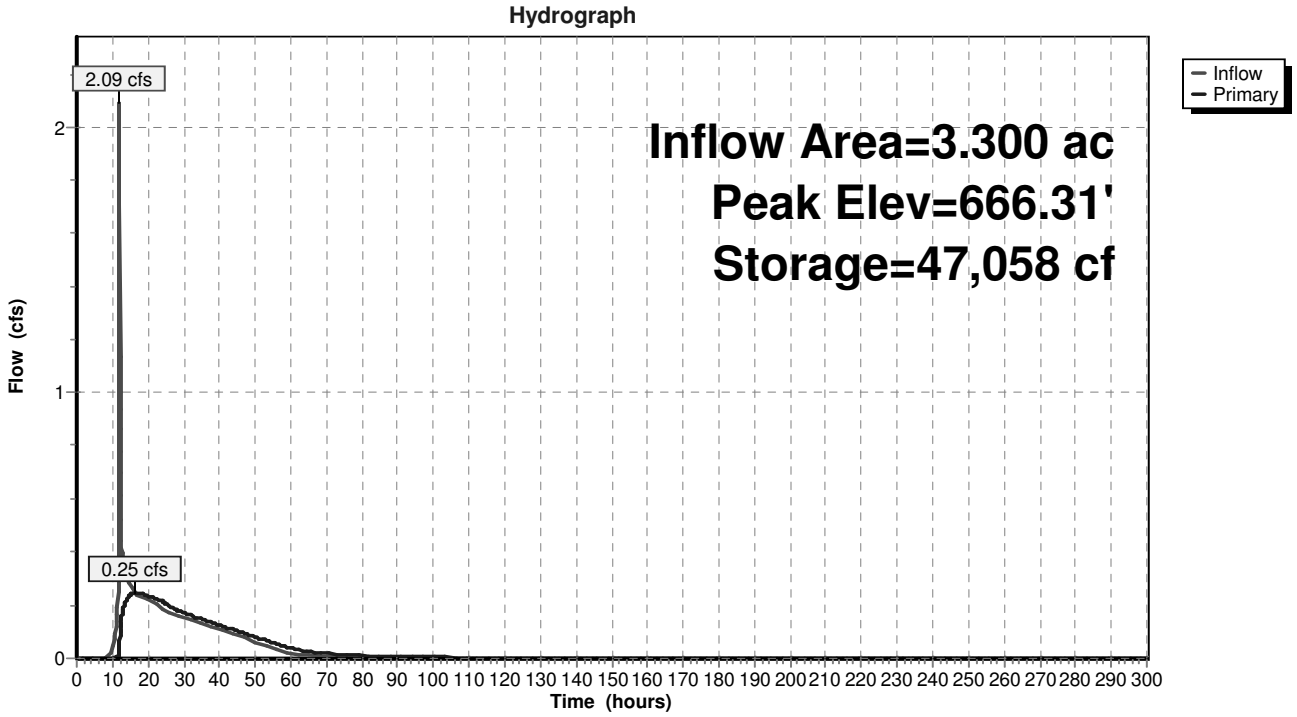
Volume	Invert	Avail.Storage	Storage Description
#1	660.50'	120,350 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
660.50	4,400	0	0
662.00	5,800	7,650	7,650
664.00	7,800	13,600	21,250
666.00	13,600	21,400	42,650
668.00	19,400	33,000	75,650
670.00	25,300	44,700	120,350

Device	Routing	Invert	Outlet Devices
#1	Primary	666.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	668.25'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.25 cfs @ 16.46 hrs HW=666.31' TW=655.79' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.25 cfs @ 1.91 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 5.3P: Micropool Extended Detention (P-1)

Inflow Area = 13.400 ac, 69.40% Impervious, Inflow Depth = 2.41" for 2-yr event
Inflow = 28.01 cfs @ 12.09 hrs, Volume= 2.688 af
Outflow = 2.45 cfs @ 13.22 hrs, Volume= 2.681 af, Atten= 91%, Lag= 67.8 min
Primary = 2.45 cfs @ 13.22 hrs, Volume= 2.681 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 654.00' Surf.Area= 24,400 sf Storage= 64,450 cf
Peak Elev= 655.89' @ 13.22 hrs Surf.Area= 30,842 sf Storage= 116,786 cf (52,336 cf above start)
Flood Elev= 657.00' Surf.Area= 34,800 sf Storage= 153,050 cf (88,600 cf above start)

Plug-Flow detention time= 1,821.1 min calculated for 1.201 af (45% of inflow)
Center-of-Mass det. time= 588.7 min (1,701.8 - 1,113.1)

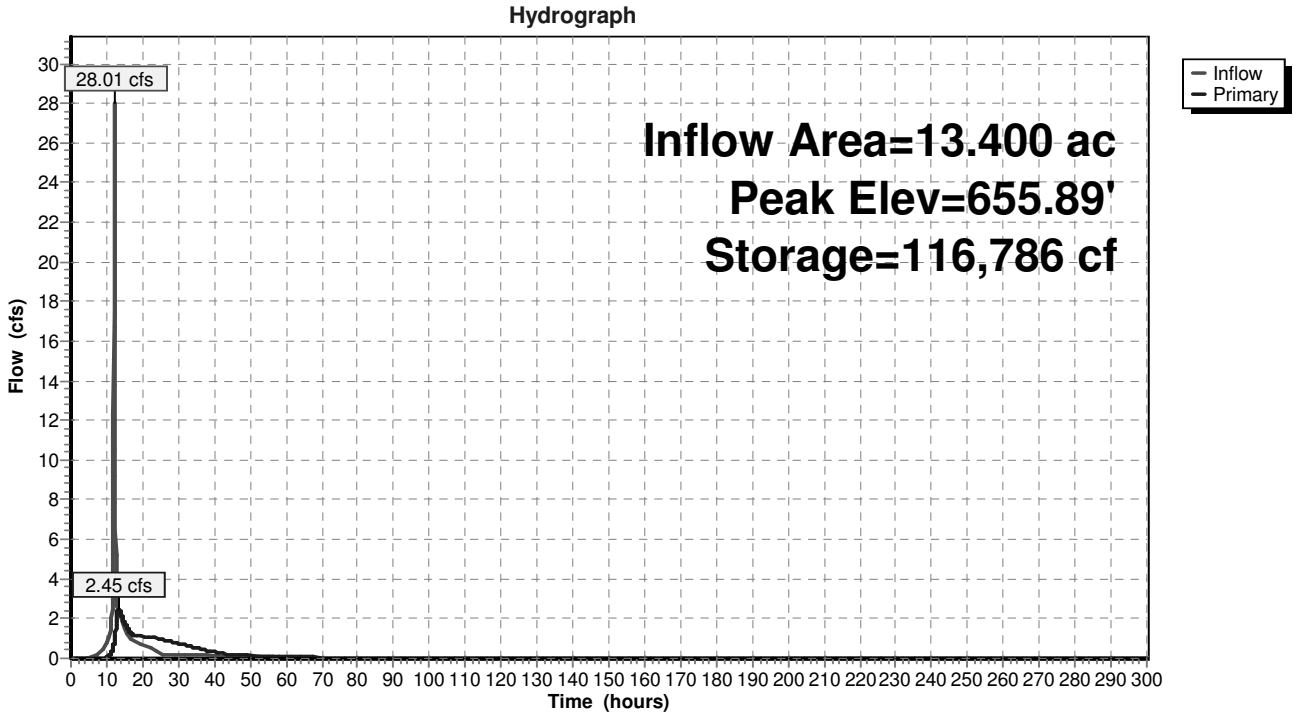
Volume	Invert	Avail.Storage	Storage Description
#1	649.00'	189,650 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
649.00	7,900	0	0
650.00	9,000	8,450	8,450
652.00	11,300	20,300	28,750
654.00	24,400	35,700	64,450
656.00	31,200	55,600	120,050
658.00	38,400	69,600	189,650

Device	Routing	Invert	Outlet Devices
#1	Primary	654.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	655.75'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.45 cfs @ 13.22 hrs HW=655.89' TW=623.99' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 1.21 cfs @ 6.18 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 1.23 cfs @ 1.07 fps)

Pond 5.3P: Micropool Extended Detention (P-1)



Summary for Pond 5.4P: Micropool Extended Detention Pond (P-1)

Inflow Area = 17.800 ac, 79.78% Impervious, Inflow Depth = 2.64" for 2-yr event
Inflow = 52.26 cfs @ 12.09 hrs, Volume= 3.911 af
Outflow = 32.77 cfs @ 12.20 hrs, Volume= 3.738 af, Atten= 37%, Lag= 6.6 min
Primary = 32.77 cfs @ 12.20 hrs, Volume= 3.738 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 636.00' Surf.Area= 17,300 sf Storage= 69,900 cf
Peak Elev= 638.75' @ 12.20 hrs Surf.Area= 25,830 sf Storage= 129,370 cf (59,470 cf above start)
Flood Elev= 640.00' Surf.Area= 29,488 sf Storage= 163,964 cf (94,064 cf above start)

Plug-Flow detention time= 2,366.8 min calculated for 2.133 af (55% of inflow)
Center-of-Mass det. time= 1,266.7 min (2,061.3 - 794.6)

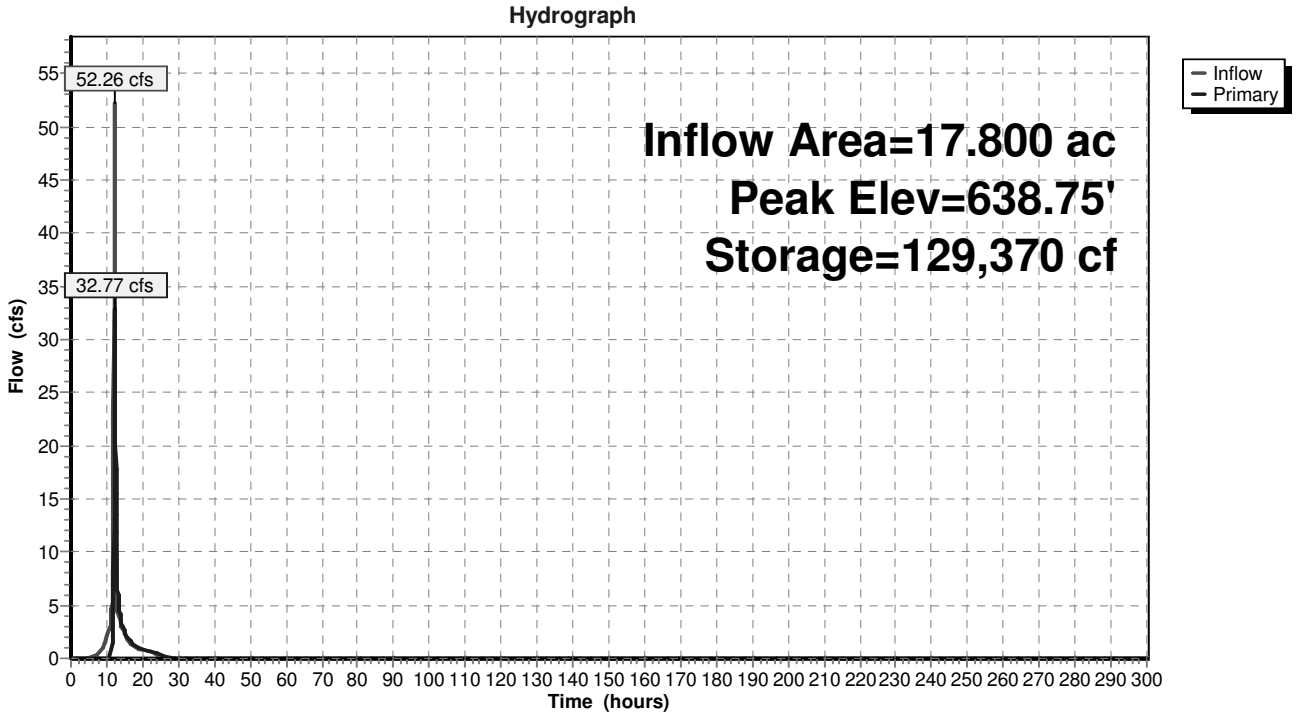
Volume	Invert	Avail.Storage	Storage Description
#1	628.00'	195,308 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
628.00	4,600	0	0
630.00	6,100	10,700	10,700
632.00	7,900	14,000	24,700
634.00	10,000	17,900	42,600
636.00	17,300	27,300	69,900
638.00	23,638	40,938	110,838
640.00	29,488	53,126	163,964
641.00	33,200	31,344	195,308

Device	Routing	Invert	Outlet Devices
#1	Primary	636.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	637.60'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=32.74 cfs @ 12.20 hrs HW=638.75' TW=621.35' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.04 cfs @ 7.92 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 32.69 cfs @ 3.56 fps)

Pond 5.4P: Micropool Extended Detention Pond (P-1)



Summary for Pond 5.5P: Extended Detention Pond (Design 2) - Dry Pond

Inflow Area = 33.900 ac, 70.21% Impervious, Inflow Depth > 2.37" for 2-yr event
Inflow = 36.30 cfs @ 12.19 hrs, Volume= 6.698 af
Outflow = 3.25 cfs @ 16.29 hrs, Volume= 6.650 af, Atten= 91%, Lag= 246.0 min
Primary = 3.25 cfs @ 16.29 hrs, Volume= 6.650 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Peak Elev= 625.29' @ 16.29 hrs Surf.Area= 29,863 sf Storage= 130,156 cf
Flood Elev= 629.00' Surf.Area= 40,550 sf Storage= 259,975 cf

Plug-Flow detention time= 2,508.3 min calculated for 6.649 af (99% of inflow)
Center-of-Mass det. time= 2,398.4 min (4,265.6 - 1,867.2)

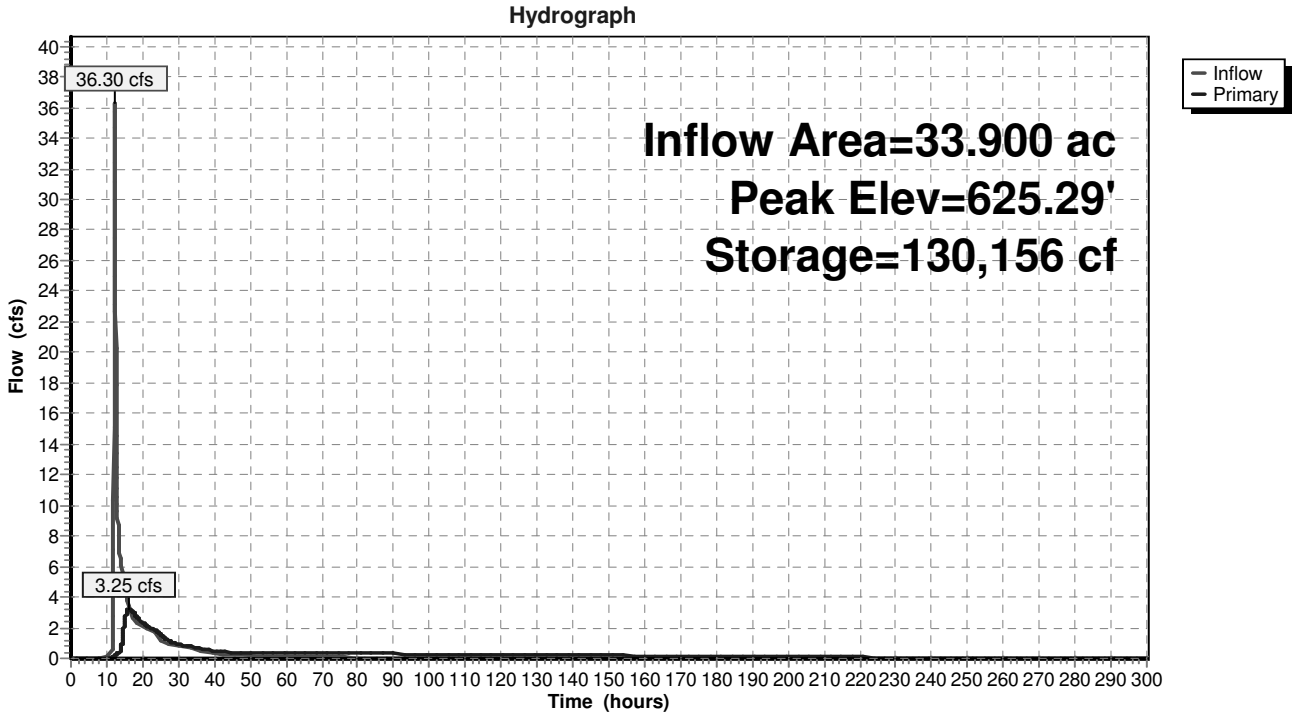
Volume	Invert	Avail.Storage	Storage Description
#1	620.00'	302,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
620.00	20,400	0	0
622.00	23,400	43,800	43,800
624.00	26,500	49,900	93,700
626.00	31,700	58,200	151,900
628.00	37,400	69,100	221,000
630.00	43,700	81,100	302,100

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	624.50'	**18.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	627.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.25 cfs @ 16.29 hrs HW=625.29' TW=0.00' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.37 cfs @ 10.97 fps)
- **2=Orifice/Grate** (Orifice Controls 2.88 cfs @ 3.03 fps)
- **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.5P: Extended Detention Pond (Design 2) - Dry Pond



Summary for Pond 5.6P: Pocket Wetland (W-4)

Inflow Area = 4.800 ac, 50.00% Impervious, Inflow Depth = 2.02" for 2-yr event
Inflow = 11.12 cfs @ 12.09 hrs, Volume= 0.807 af
Outflow = 0.17 cfs @ 21.16 hrs, Volume= 0.806 af, Atten= 98%, Lag= 544.1 min
Primary = 0.17 cfs @ 21.16 hrs, Volume= 0.806 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 609.00' Surf.Area= 7,500 sf Storage= 15,000 cf
Peak Elev= 611.79' @ 21.16 hrs Surf.Area= 12,597 sf Storage= 42,758 cf (27,758 cf above start)
Flood Elev= 614.00' Surf.Area= 17,000 sf Storage= 75,400 cf (60,400 cf above start)

Plug-Flow detention time= 2,991.3 min calculated for 0.461 af (57% of inflow)
Center-of-Mass det. time= 1,914.7 min (2,736.9 - 822.2)

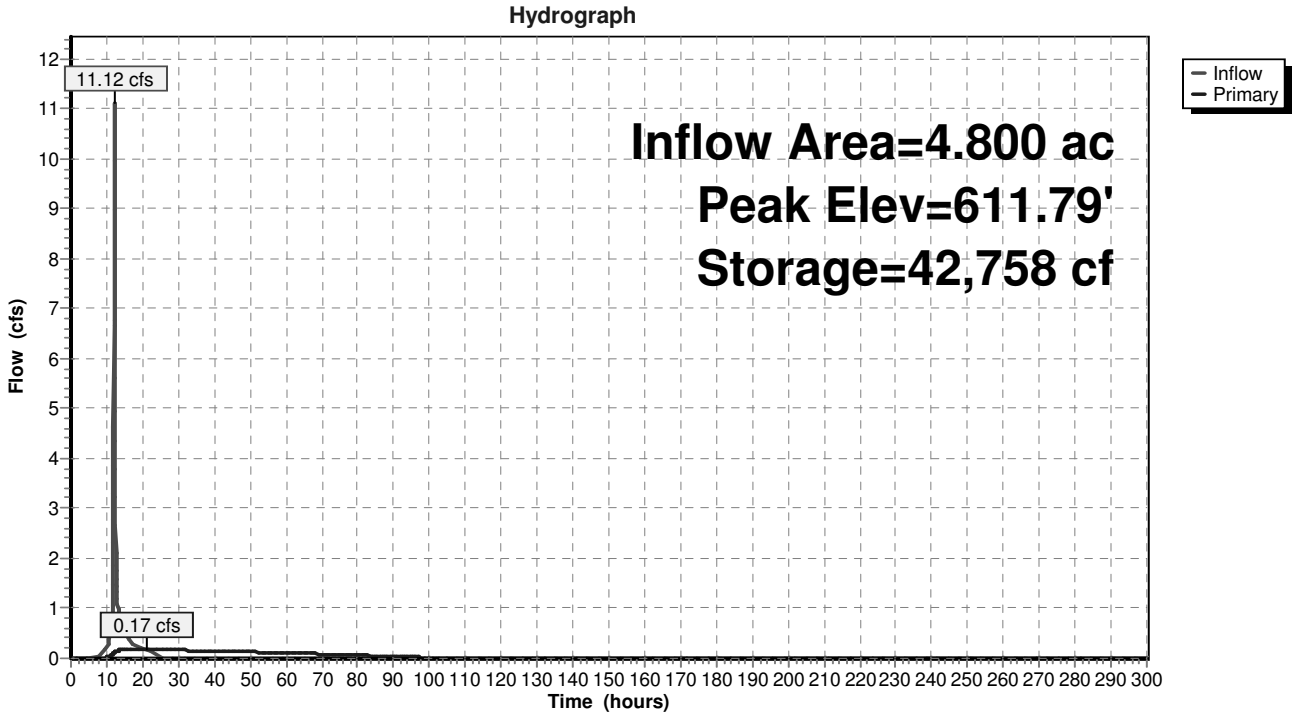
Volume	Invert	Avail.Storage	Storage Description
#1	601.00'	93,400 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
601.00	220	0	0
602.00	360	290	290
604.00	850	1,210	1,500
606.00	1,900	2,750	4,250
608.00	3,400	5,300	9,550
609.00	7,500	5,450	15,000
610.00	9,100	8,300	23,300
612.00	13,000	22,100	45,400
614.00	17,000	30,000	75,400
615.00	19,000	18,000	93,400

Device	Routing	Invert	Outlet Devices
#1	Primary	609.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	613.50'	**2.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.17 cfs @ 21.16 hrs HW=611.79' TW=0.00' (Dynamic Tailwater)
↑—**1=Orifice/Grate** (Orifice Controls 0.17 cfs @ 7.93 fps)
└—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.6P: Pocket Wetland (W-4)



Summary for Pond 5.7P: Pocket Wetland (W-4)

Inflow Area = 3.700 ac, 51.35% Impervious, Inflow Depth = 2.10" for 2-yr event
Inflow = 8.90 cfs @ 12.09 hrs, Volume= 0.647 af
Outflow = 1.00 cfs @ 12.88 hrs, Volume= 0.646 af, Atten= 89%, Lag= 47.2 min
Primary = 1.00 cfs @ 12.88 hrs, Volume= 0.646 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 656.00' Surf.Area= 8,300 sf Storage= 18,240 cf
Peak Elev= 657.62' @ 12.88 hrs Surf.Area= 11,296 sf Storage= 34,106 cf (15,866 cf above start)
Flood Elev= 659.00' Surf.Area= 13,750 sf Storage= 51,415 cf (33,175 cf above start)

Plug-Flow detention time= 3,931.7 min calculated for 0.227 af (35% of inflow)
Center-of-Mass det. time= 1,607.5 min (2,426.2 - 818.7)

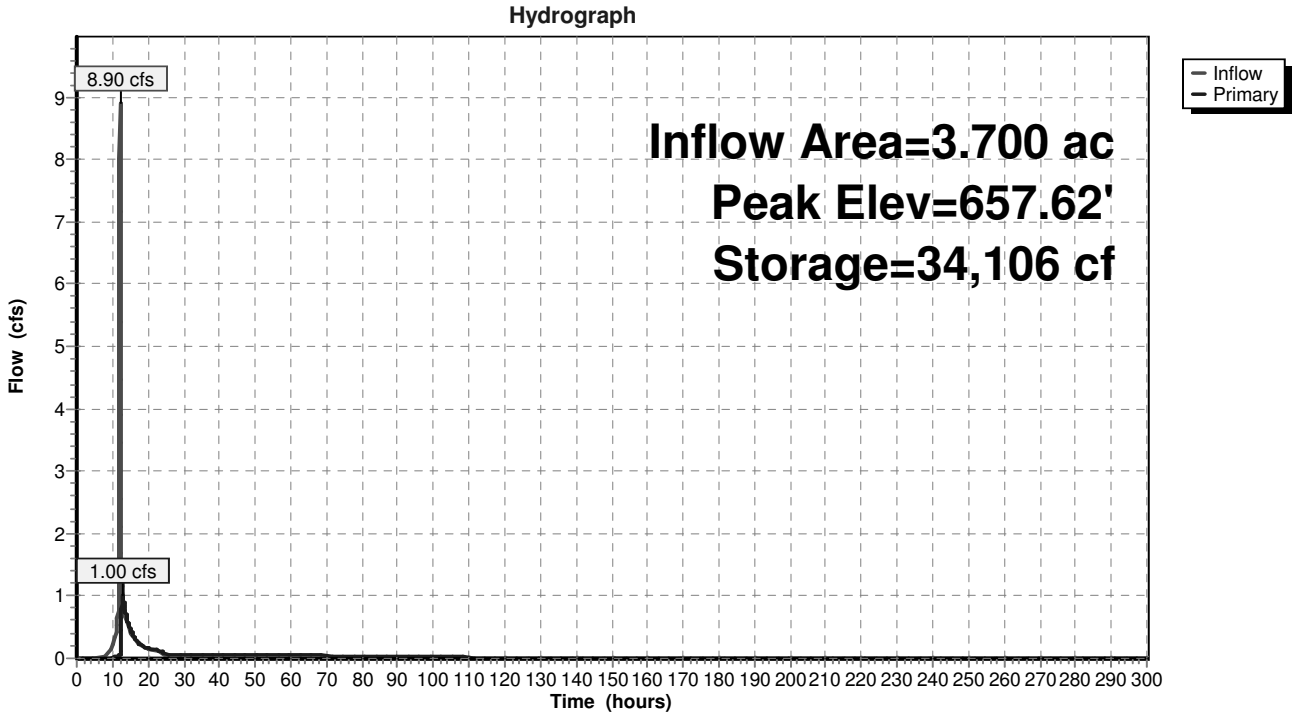
Volume	Invert	Avail.Storage	Storage Description
#1	648.00'	66,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
648.00	240	0	0
650.00	650	890	890
652.00	1,400	2,050	2,940
654.00	2,800	4,200	7,140
656.00	8,300	11,100	18,240
658.00	12,000	20,300	38,540
660.00	15,500	27,500	66,040

Device	Routing	Invert	Outlet Devices
#1	Primary	656.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	657.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.00 cfs @ 12.88 hrs HW=657.62' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.07 cfs @ 6.01 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 0.92 cfs @ 0.97 fps)

Pond 5.7P: Pocket Wetland (W-4)



Summary for Subcatchment 5.1S:

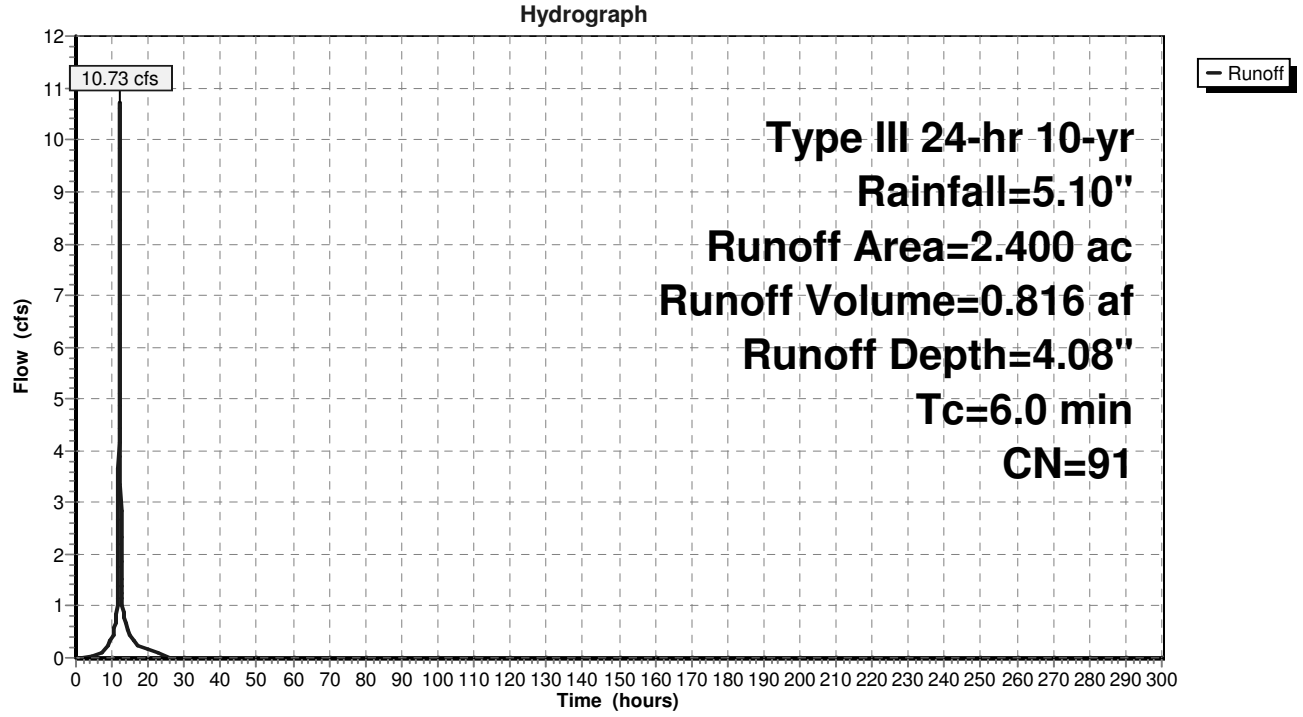
Runoff = 10.73 cfs @ 12.09 hrs, Volume= 0.816 af, Depth= 4.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

	Area (ac)	CN	Description
	1.600	98	Paved parking & roofs
	0.200	74	>75% Grass cover, Good, HSG C
	0.300	71	Meadow, non-grazed, HSG C
	0.200	98	Water Surface
*	0.100	56	Pervious Pavement
	2.400	91	Weighted Average
	0.600		Pervious Area
	1.800		Impervious Area

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

Subcatchment 5.1S:



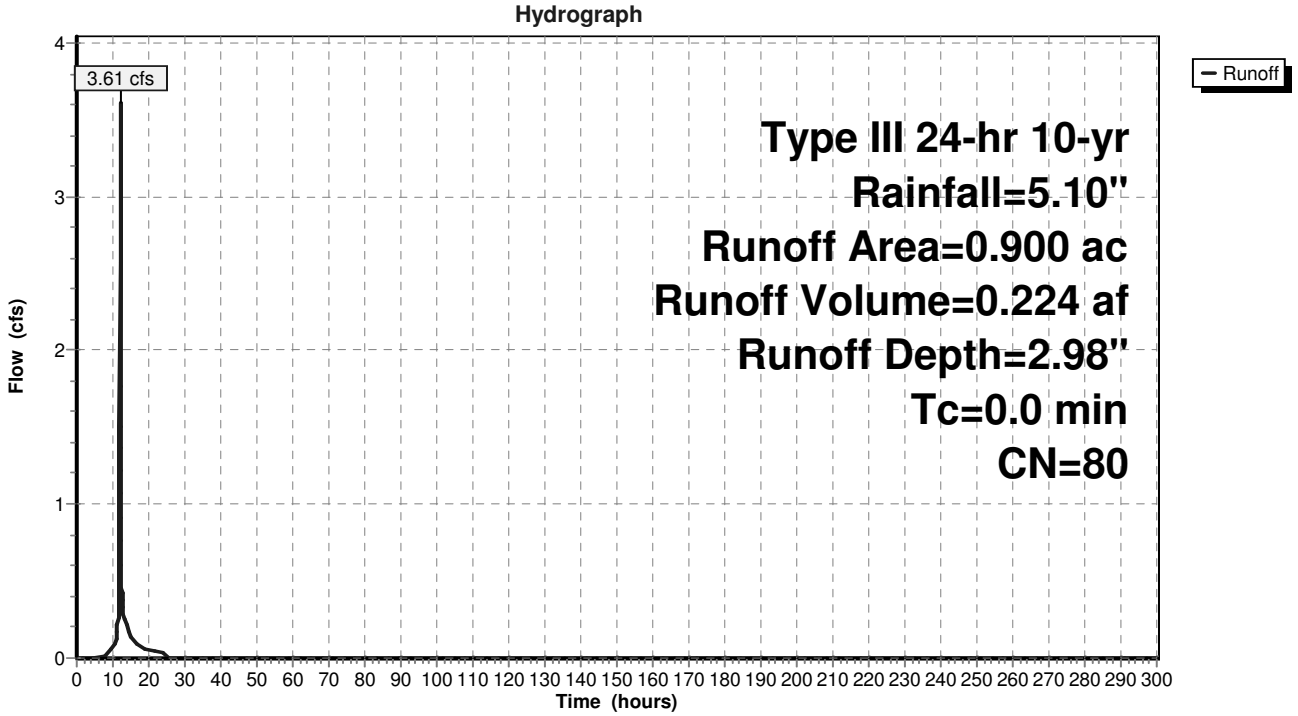
Summary for Subcatchment 5.2S:

Runoff = 3.61 cfs @ 12.00 hrs, Volume= 0.224 af, Depth= 2.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.100	74	>75% Grass cover, Good, HSG C
0.500	71	Meadow, non-grazed, HSG C
0.300	98	Water Surface
0.900	80	Weighted Average
0.600		Pervious Area
0.300		Impervious Area

Subcatchment 5.2S:



Summary for Subcatchment 5.3S:

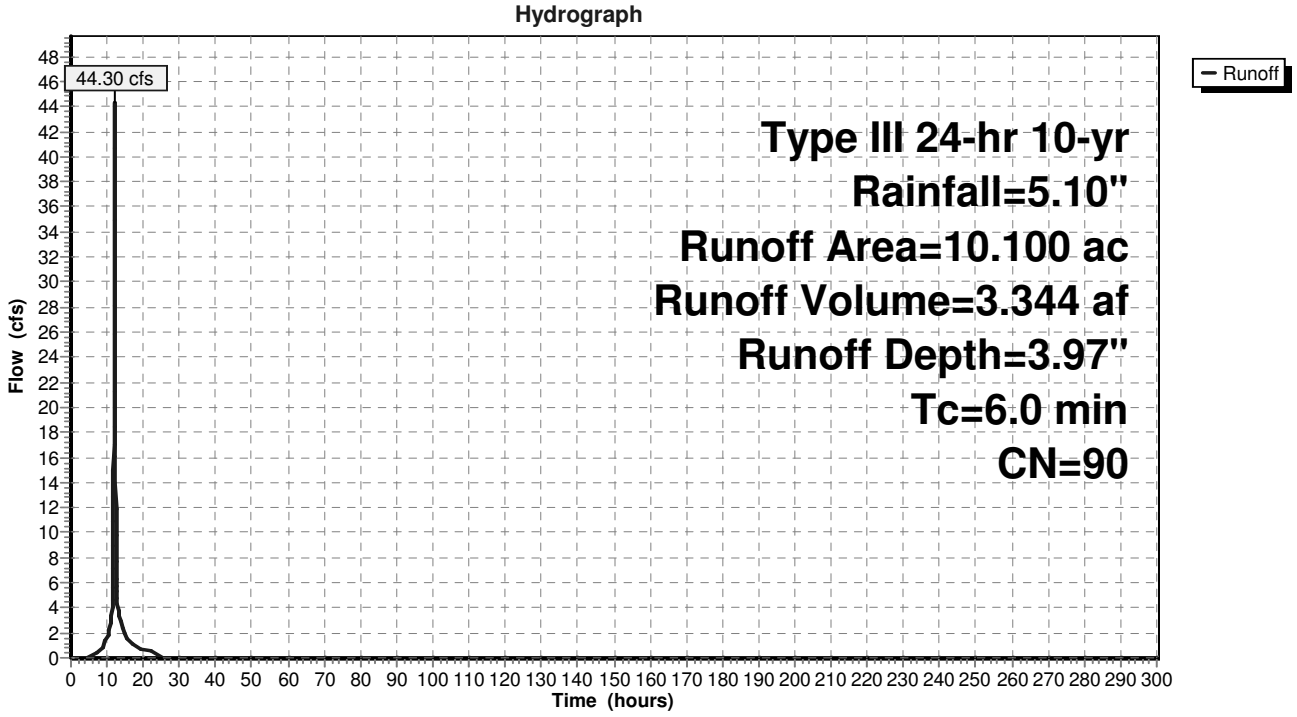
Runoff = 44.30 cfs @ 12.09 hrs, Volume= 3.344 af, Depth= 3.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

	Area (ac)	CN	Description
	6.600	98	Paved parking & roofs
	1.900	74	>75% Grass cover, Good, HSG C
	0.700	71	Meadow, non-grazed, HSG C
	0.600	98	Water Surface
*	0.300	56	Pervious Pavement
	10.100	90	Weighted Average
	2.900		Pervious Area
	7.200		Impervious Area

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

Subcatchment 5.3S:



Summary for Subcatchment 5.4S:

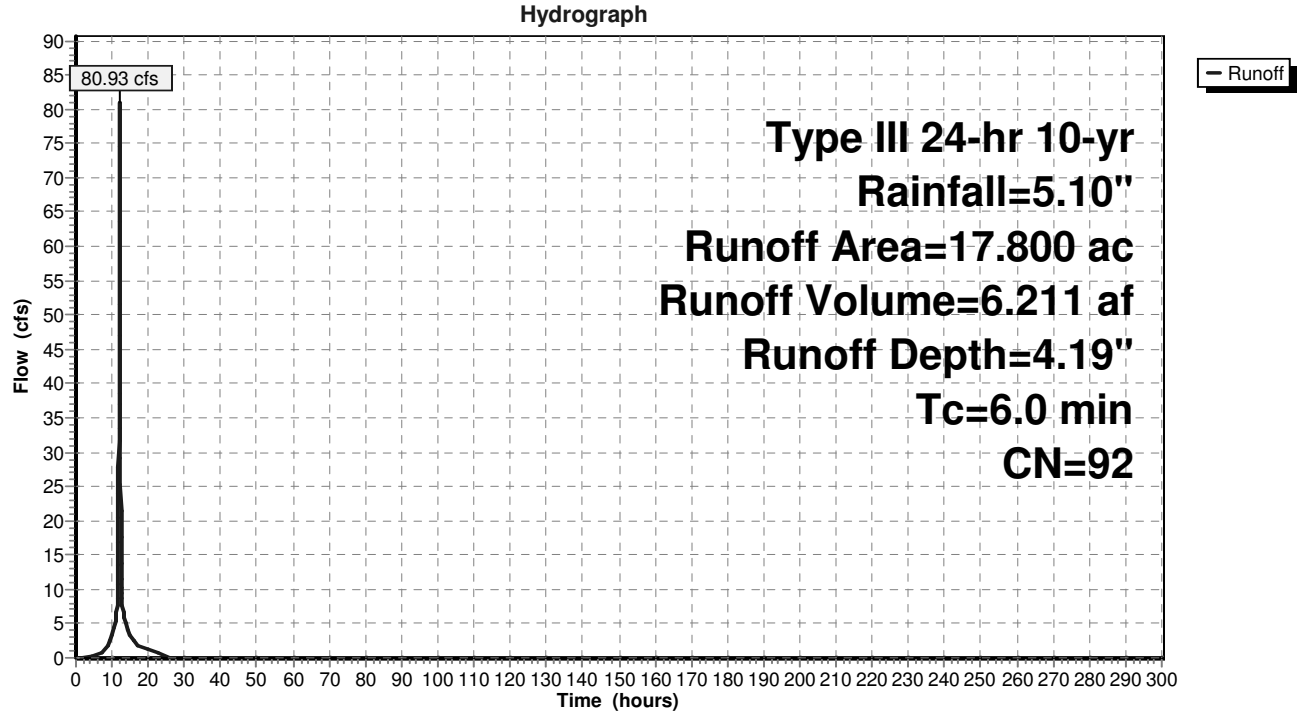
Runoff = 80.93 cfs @ 12.09 hrs, Volume= 6.211 af, Depth= 4.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

	Area (ac)	CN	Description
	13.800	98	Paved parking & roofs
	2.200	74	>75% Grass cover, Good, HSG C
	0.900	71	Meadow, non-grazed, HSG C
	0.400	98	Water Surface
*	0.500	56	Pervious Pavement
	17.800	92	Weighted Average
	3.600		Pervious Area
	14.200		Impervious Area

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

Subcatchment 5.4S:



Summary for Subcatchment 5.5S:

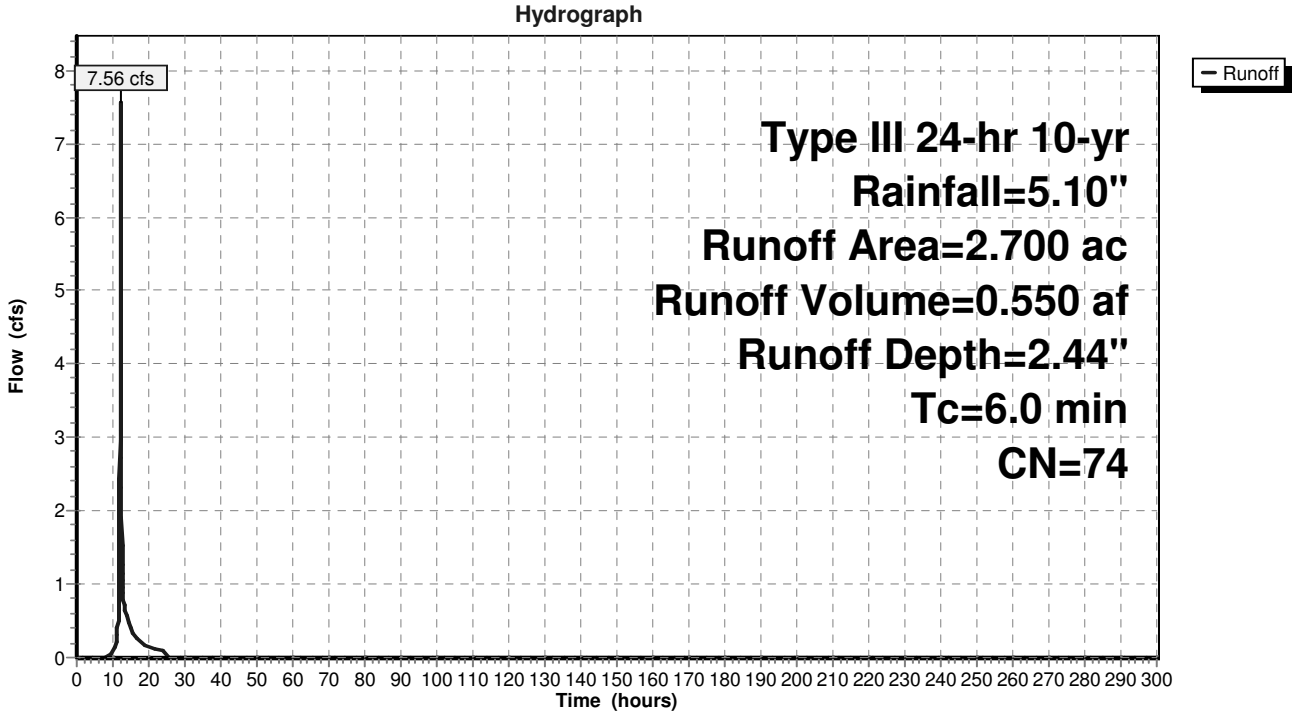
Runoff = 7.56 cfs @ 12.09 hrs, Volume= 0.550 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
2.300	71	Meadow, non-grazed, HSG C
0.200	98	Water Surface
2.700	74	Weighted Average
2.400		Pervious Area
0.300		Impervious Area

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

Subcatchment 5.5S:



Summary for Subcatchment 5.6S:

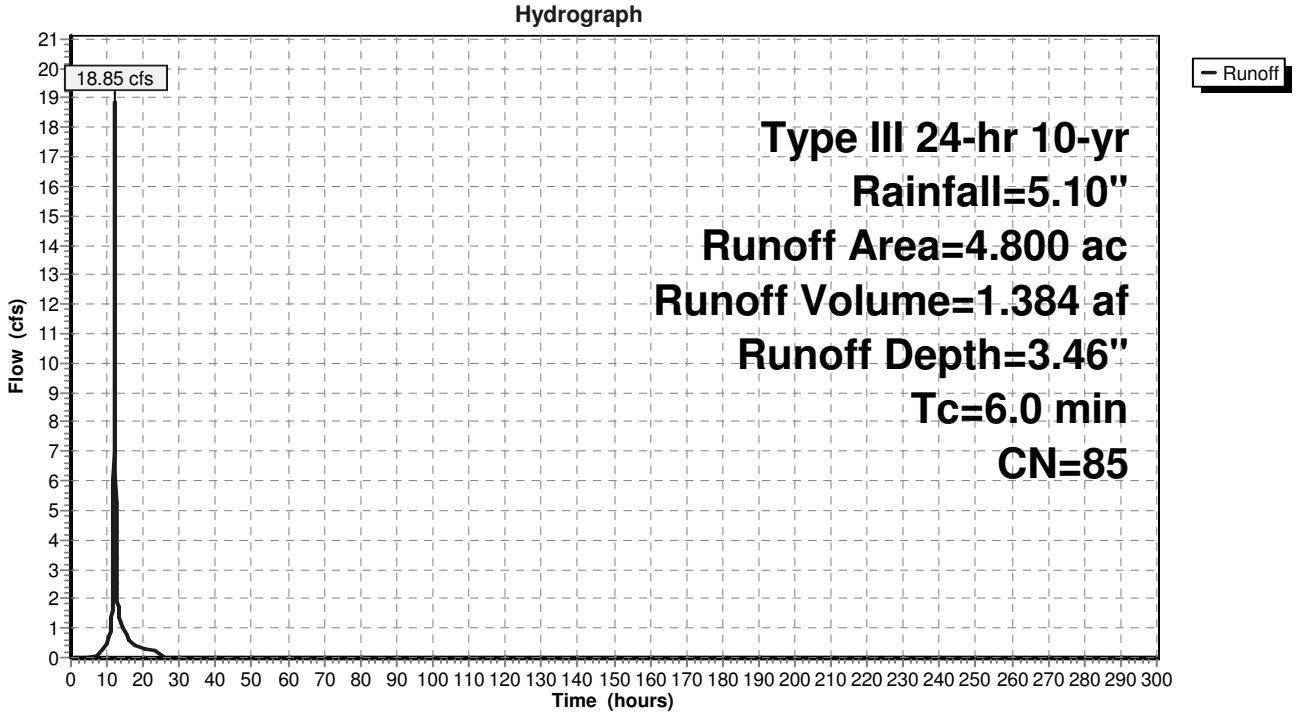
Runoff = 18.85 cfs @ 12.09 hrs, Volume= 1.384 af, Depth= 3.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
2.100	98	Paved parking & roofs
1.000	74	>75% Grass cover, Good, HSG C
1.400	71	Meadow, non-grazed, HSG C
0.300	98	Water Surface
4.800	85	Weighted Average
2.400		Pervious Area
2.400		Impervious Area

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

Subcatchment 5.6S:



Summary for Subcatchment 5.7S:

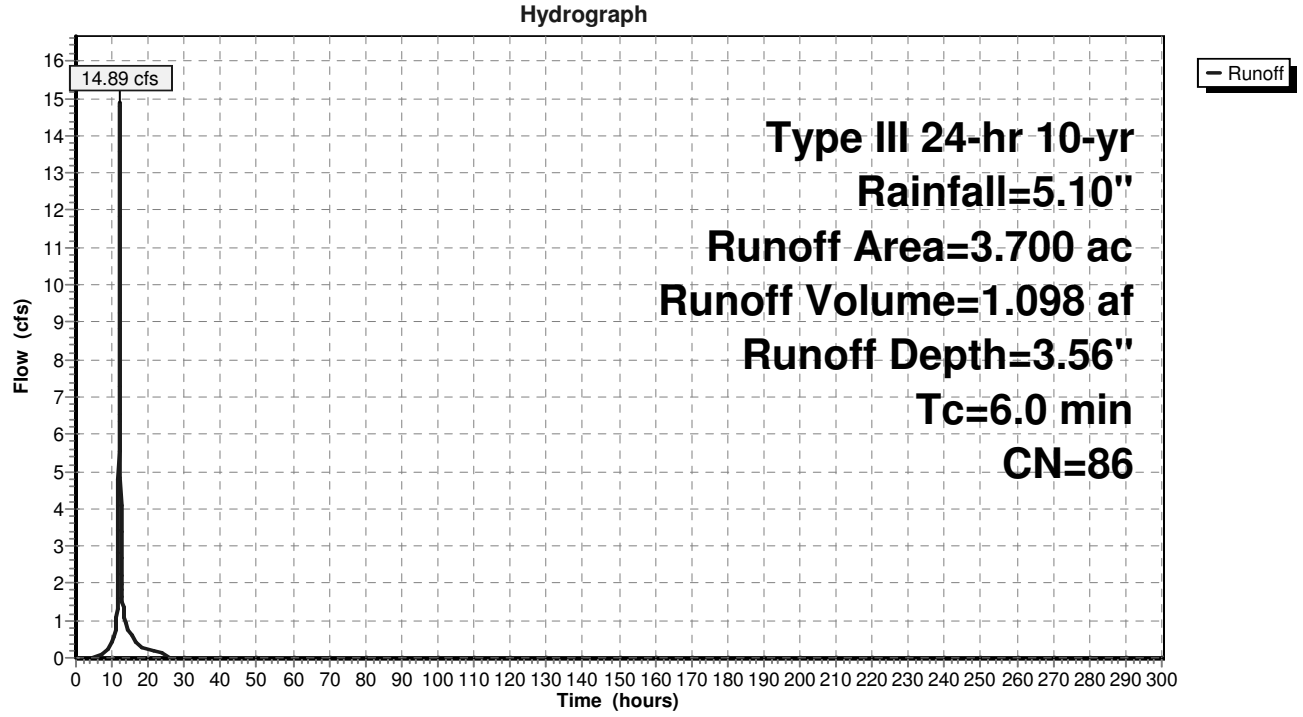
Runoff = 14.89 cfs @ 12.09 hrs, Volume= 1.098 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
1.700	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
0.700	71	Meadow, non-grazed, HSG C
0.800	73	Woods, Fair, HSG C
0.200	98	Water Surface
3.700	86	Weighted Average
1.800		Pervious Area
1.900		Impervious Area

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

Subcatchment 5.7S:



Summary for Subcatchment 5.8S:

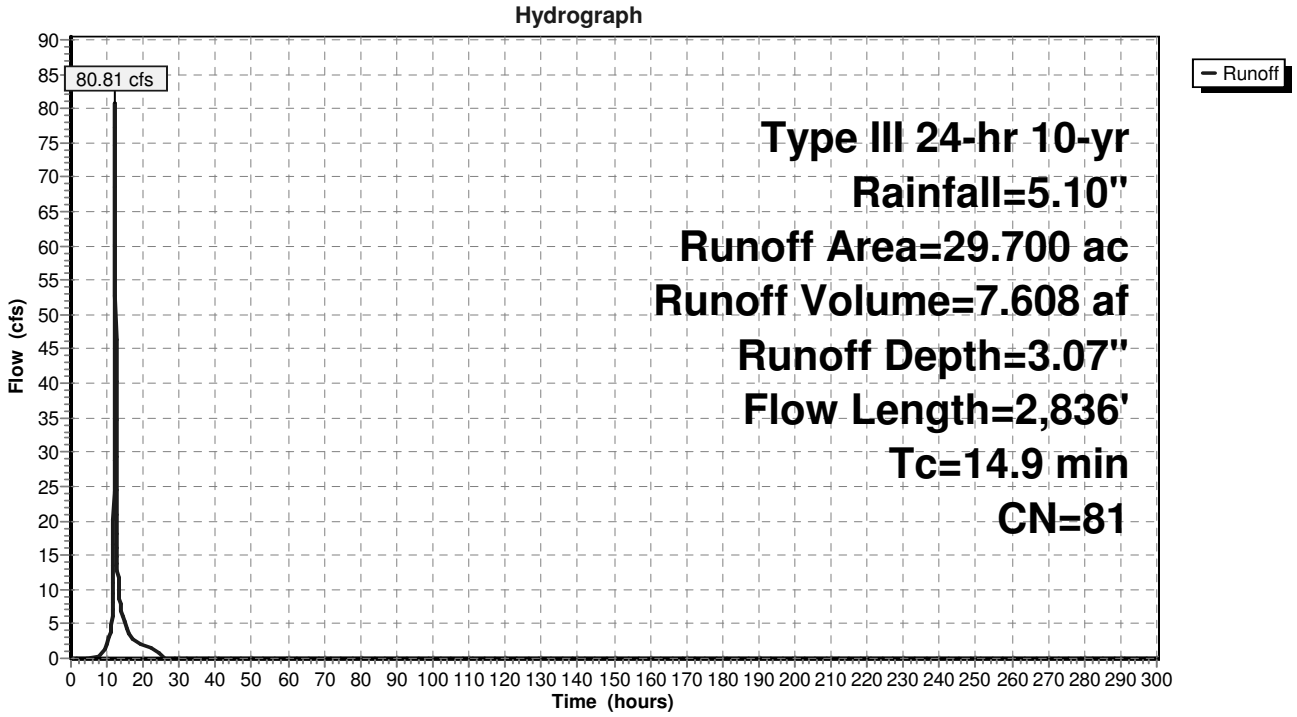
Runoff = 80.81 cfs @ 12.21 hrs, Volume= 7.608 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
4.700	98	Paved parking & roofs
2.400	74	>75% Grass cover, Good, HSG C
4.500	71	Meadow, non-grazed, HSG C
10.100	70	Woods, Good, HSG C
1.200	83	Woods, Poor, HSG D
1.700	98	Water Surface
5.100	94	Urban commercial, 85% imp, HSG C
29.700	81	Weighted Average
18.965		Pervious Area
10.735		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0900	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.4	136	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.4	2,600	0.0390	5.15	10.30	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=0.50' Z= 2.0 '/' Top.W=5.00' n= 0.030 Earth, grassed & winding
14.9	2,836	Total			

Subcatchment 5.8S:

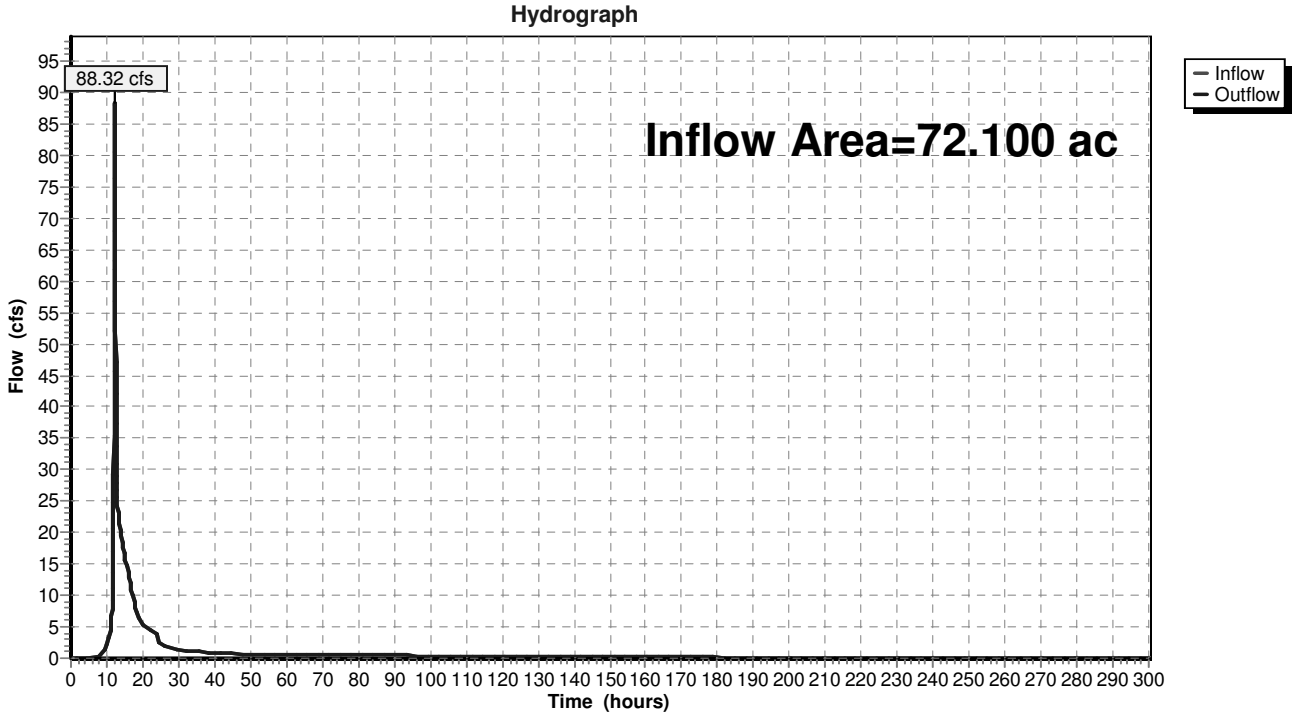


Summary for Reach DP 5: Design Point 5

Inflow Area = 72.100 ac, 53.86% Impervious, Inflow Depth > 3.49" for 10-yr event
Inflow = 88.32 cfs @ 12.21 hrs, Volume= 20.998 af
Outflow = 88.32 cfs @ 12.21 hrs, Volume= 20.998 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 5: Design Point 5



Summary for Pond 5.1P: Pocket Wetland (W-4)

Inflow Area = 2.400 ac, 75.00% Impervious, Inflow Depth = 4.08" for 10-yr event
Inflow = 10.73 cfs @ 12.09 hrs, Volume= 0.816 af
Outflow = 0.59 cfs @ 14.08 hrs, Volume= 0.815 af, Atten= 95%, Lag= 119.5 min
Primary = 0.59 cfs @ 14.08 hrs, Volume= 0.815 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 678.00' Surf.Area= 9,300 sf Storage= 19,400 cf
Peak Elev= 680.06' @ 14.08 hrs Surf.Area= 13,955 sf Storage= 43,378 cf (23,978 cf above start)
Flood Elev= 681.00' Surf.Area= 16,250 sf Storage= 57,525 cf (38,125 cf above start)

Plug-Flow detention time= 2,247.3 min calculated for 0.369 af (45% of inflow)
Center-of-Mass det. time= 1,184.2 min (1,970.4 - 786.2)

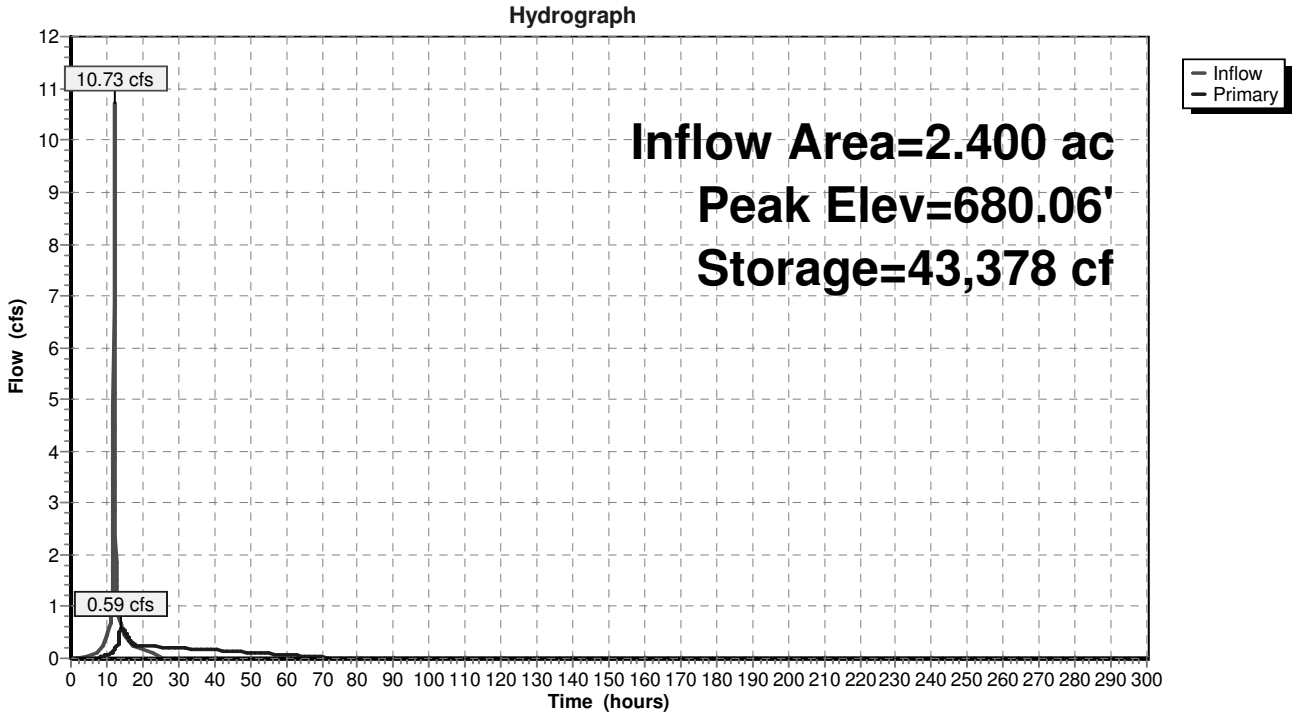
Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	75,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	300	0	0
674.00	1,600	1,900	1,900
676.00	3,300	4,900	6,800
678.00	9,300	12,600	19,400
680.00	13,800	23,100	42,500
682.00	18,700	32,500	75,000

Device	Routing	Invert	Outlet Devices
#1	Primary	678.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	680.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.59 cfs @ 14.08 hrs HW=680.06' TW=666.50' (Dynamic Tailwater)
└**1=Orifice/Grate** (Orifice Controls 0.23 cfs @ 6.74 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.36 cfs @ 0.70 fps)

Pond 5.1P: Pocket Wetland (W-4)



Summary for Pond 5.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 3.300 ac, 63.64% Impervious, Inflow Depth = 3.78" for 10-yr event
Inflow = 3.77 cfs @ 12.00 hrs, Volume= 1.038 af
Outflow = 0.53 cfs @ 15.80 hrs, Volume= 1.036 af, Atten= 86%, Lag= 227.6 min
Primary = 0.53 cfs @ 15.80 hrs, Volume= 1.036 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 666.00' Surf.Area= 13,600 sf Storage= 42,650 cf
Peak Elev= 666.56' @ 15.80 hrs Surf.Area= 15,237 sf Storage= 50,790 cf (8,140 cf above start)
Flood Elev= 669.00' Surf.Area= 22,350 sf Storage= 96,525 cf (53,875 cf above start)

Plug-Flow detention time= 5,391.2 min calculated for 0.057 af (5% of inflow)
Center-of-Mass det. time= 361.7 min (2,083.4 - 1,721.7)

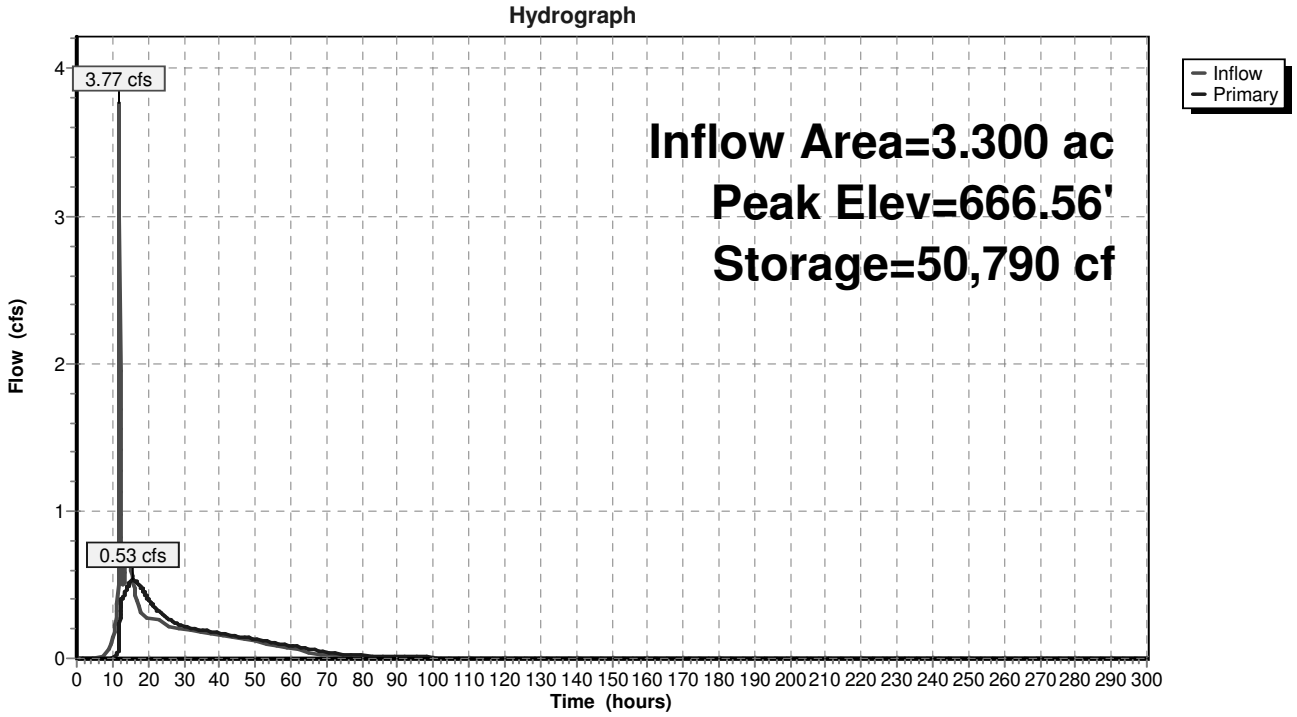
Volume	Invert	Avail.Storage	Storage Description
#1	660.50'	120,350 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
660.50	4,400	0	0
662.00	5,800	7,650	7,650
664.00	7,800	13,600	21,250
666.00	13,600	21,400	42,650
668.00	19,400	33,000	75,650
670.00	25,300	44,700	120,350

Device	Routing	Invert	Outlet Devices
#1	Primary	666.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	668.25'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.53 cfs @ 15.80 hrs HW=666.56' TW=655.89' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.53 cfs @ 2.70 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 5.3P: Micropool Extended Detention (P-1)

Inflow Area = 13.400 ac, 69.40% Impervious, Inflow Depth = 3.92" for 10-yr event
Inflow = 44.57 cfs @ 12.09 hrs, Volume= 4.380 af
Outflow = 14.49 cfs @ 12.40 hrs, Volume= 4.372 af, Atten= 67%, Lag= 18.7 min
Primary = 14.49 cfs @ 12.40 hrs, Volume= 4.372 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 654.00' Surf.Area= 24,400 sf Storage= 64,450 cf
Peak Elev= 656.40' @ 12.40 hrs Surf.Area= 32,636 sf Storage= 132,783 cf (68,333 cf above start)
Flood Elev= 657.00' Surf.Area= 34,800 sf Storage= 153,050 cf (88,600 cf above start)

Plug-Flow detention time= 1,200.0 min calculated for 2.892 af (66% of inflow)
Center-of-Mass det. time= 438.7 min (1,534.7 - 1,096.0)

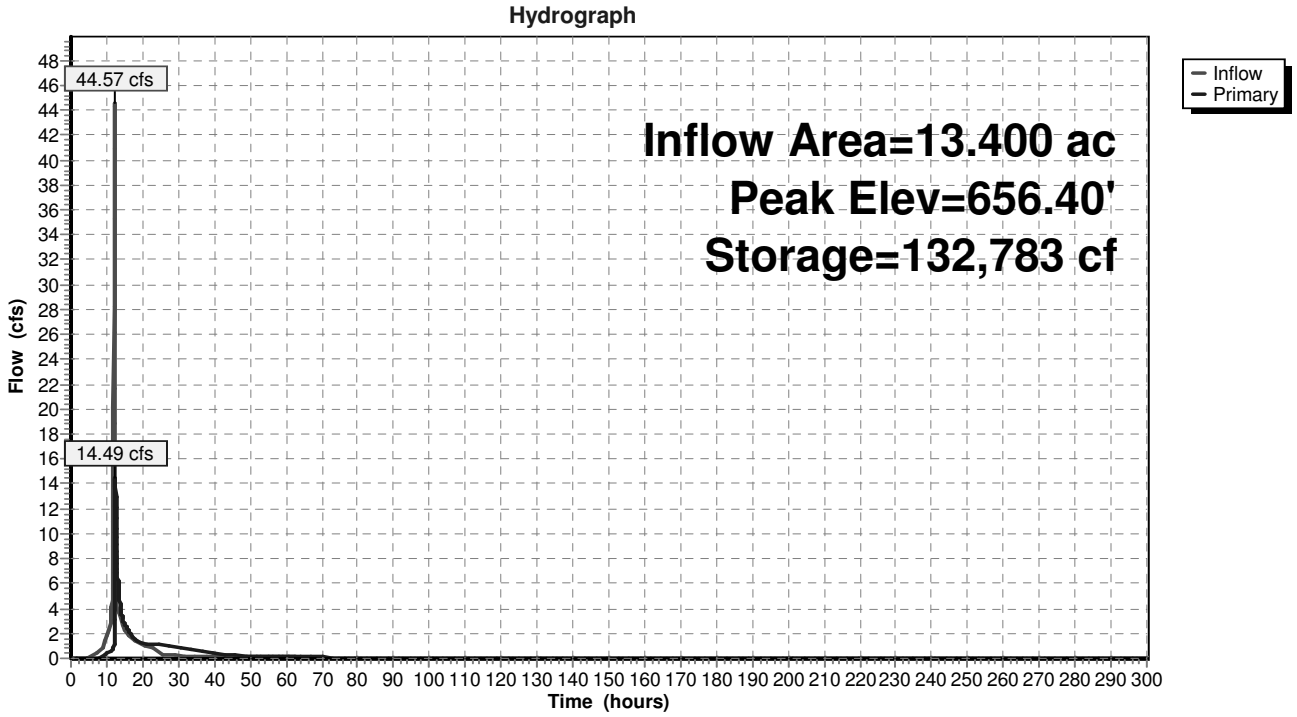
Volume	Invert	Avail.Storage	Storage Description
#1	649.00'	189,650 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
649.00	7,900	0	0
650.00	9,000	8,450	8,450
652.00	11,300	20,300	28,750
654.00	24,400	35,700	64,450
656.00	31,200	55,600	120,050
658.00	38,400	69,600	189,650

Device	Routing	Invert	Outlet Devices
#1	Primary	654.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	655.75'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=14.49 cfs @ 12.40 hrs HW=656.40' TW=625.20' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 1.39 cfs @ 7.06 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 13.10 cfs @ 2.52 fps)

Pond 5.3P: Micropool Extended Detention (P-1)



Summary for Pond 5.4P: Micropool Extended Detention Pond (P-1)

Inflow Area = 17.800 ac, 79.78% Impervious, Inflow Depth = 4.19" for 10-yr event
Inflow = 80.93 cfs @ 12.09 hrs, Volume= 6.211 af
Outflow = 55.61 cfs @ 12.18 hrs, Volume= 6.037 af, Atten= 31%, Lag= 5.3 min
Primary = 55.61 cfs @ 12.18 hrs, Volume= 6.037 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 636.00' Surf.Area= 17,300 sf Storage= 69,900 cf
Peak Elev= 639.24' @ 12.18 hrs Surf.Area= 27,253 sf Storage= 142,282 cf (72,382 cf above start)
Flood Elev= 640.00' Surf.Area= 29,488 sf Storage= 163,964 cf (94,064 cf above start)

Plug-Flow detention time= 1,206.2 min calculated for 4.433 af (71% of inflow)
Center-of-Mass det. time= 801.2 min (1,583.3 - 782.1)

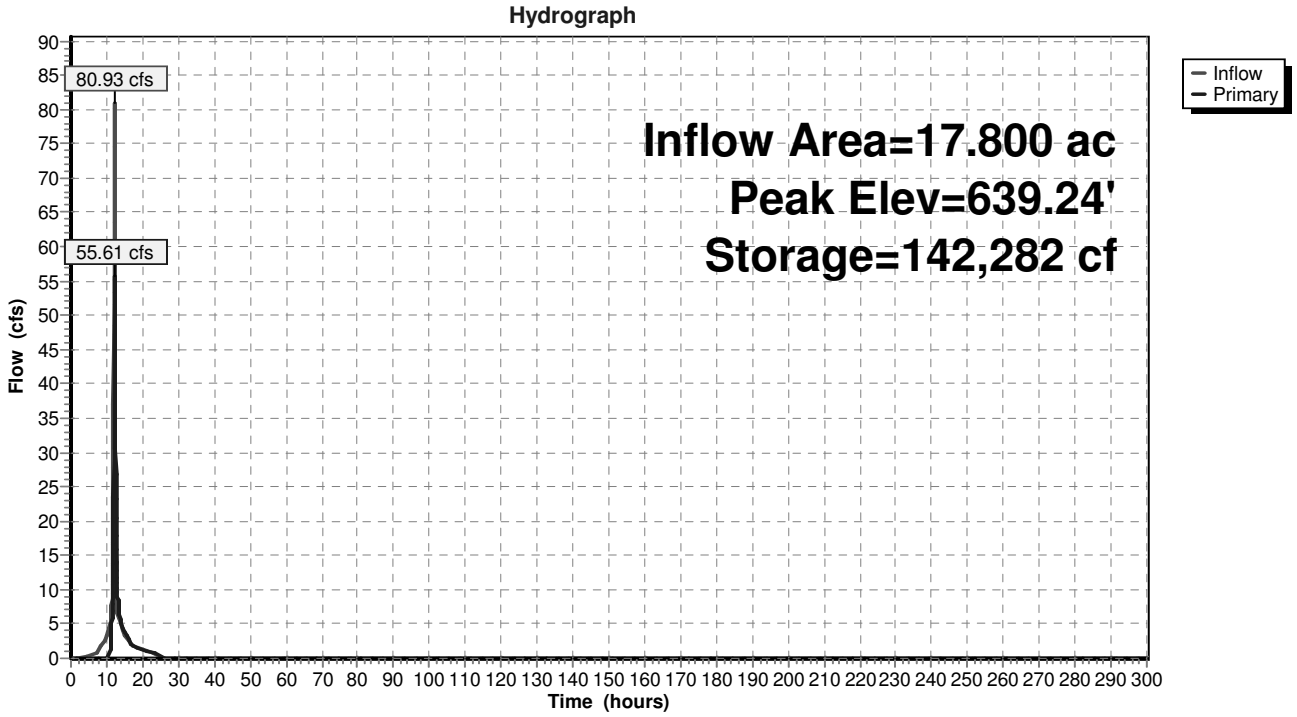
Volume	Invert	Avail.Storage	Storage Description
#1	628.00'	195,308 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
628.00	4,600	0	0
630.00	6,100	10,700	10,700
632.00	7,900	14,000	24,700
634.00	10,000	17,900	42,600
636.00	17,300	27,300	69,900
638.00	23,638	40,938	110,838
640.00	29,488	53,126	163,964
641.00	33,200	31,344	195,308

Device	Routing	Invert	Outlet Devices
#1	Primary	636.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	637.60'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=55.16 cfs @ 12.18 hrs HW=639.23' TW=623.32' (Dynamic Tailwater)
↑—**1=Orifice/Grate** (Orifice Controls 0.05 cfs @ 8.59 fps)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 55.11 cfs @ 4.23 fps)

Pond 5.4P: Micropool Extended Detention Pond (P-1)



Summary for Pond 5.5P: Extended Detention Pond (Design 2) - Dry Pond

Inflow Area = 33.900 ac, 70.21% Impervious, Inflow Depth > 3.88" for 10-yr event
Inflow = 70.06 cfs @ 12.20 hrs, Volume= 10.960 af
Outflow = 11.58 cfs @ 13.57 hrs, Volume= 10.911 af, Atten= 83%, Lag= 82.1 min
Primary = 11.58 cfs @ 13.57 hrs, Volume= 10.911 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Peak Elev= 626.97' @ 13.57 hrs Surf.Area= 34,458 sf Storage= 183,911 cf
Flood Elev= 629.00' Surf.Area= 40,550 sf Storage= 259,975 cf

Plug-Flow detention time= 1,662.7 min calculated for 10.909 af (100% of inflow)
Center-of-Mass det. time= 1,593.8 min (3,120.3 - 1,526.4)

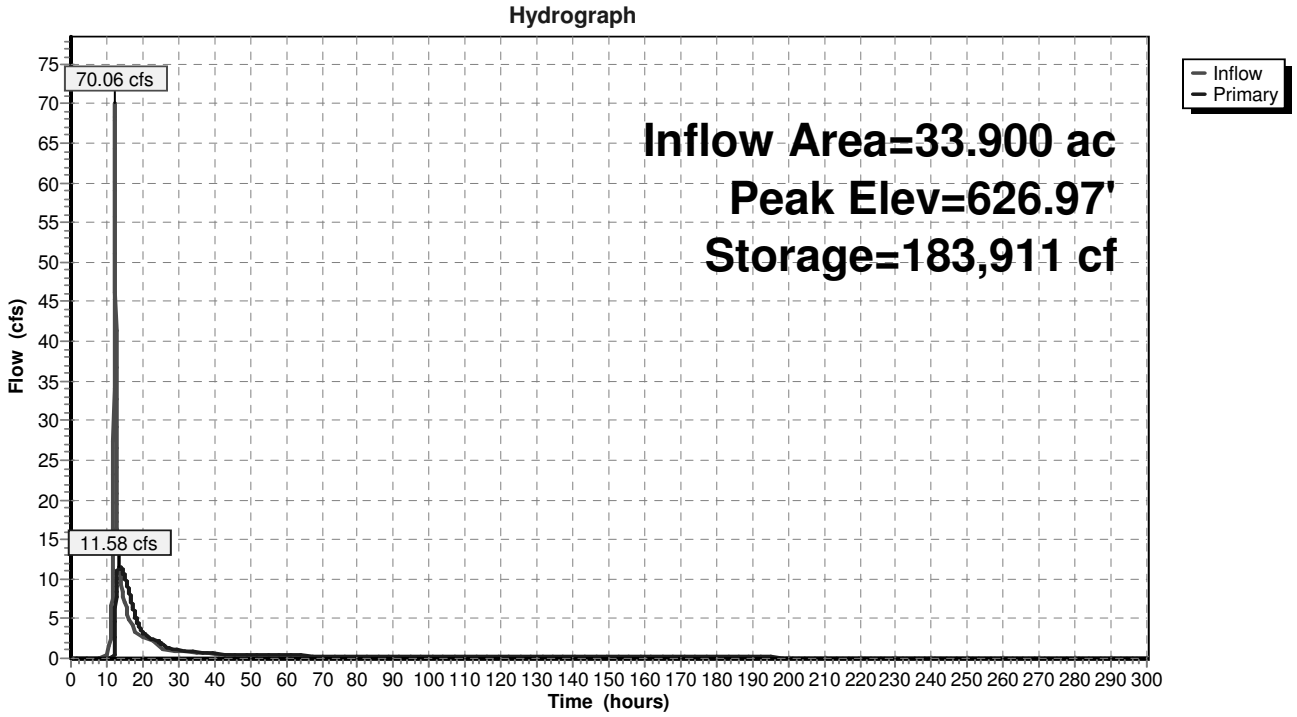
Volume	Invert	Avail.Storage	Storage Description
#1	620.00'	302,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
620.00	20,400	0	0
622.00	23,400	43,800	43,800
624.00	26,500	49,900	93,700
626.00	31,700	58,200	151,900
628.00	37,400	69,100	221,000
630.00	43,700	81,100	302,100

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	624.50'	**18.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	627.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=11.58 cfs @ 13.57 hrs HW=626.97' TW=0.00' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.43 cfs @ 12.61 fps)
- **2=Orifice/Grate** (Orifice Controls 11.15 cfs @ 6.31 fps)
- **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.5P: Extended Detention Pond (Design 2) - Dry Pond



Summary for Pond 5.6P: Pocket Wetland (W-4)

Inflow Area = 4.800 ac, 50.00% Impervious, Inflow Depth = 3.46" for 10-yr event
Inflow = 18.85 cfs @ 12.09 hrs, Volume= 1.384 af
Outflow = 0.22 cfs @ 23.17 hrs, Volume= 1.383 af, Atten= 99%, Lag= 664.7 min
Primary = 0.22 cfs @ 23.17 hrs, Volume= 1.383 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 609.00' Surf.Area= 7,500 sf Storage= 15,000 cf
Peak Elev= 613.39' @ 23.17 hrs Surf.Area= 15,778 sf Storage= 65,386 cf (50,386 cf above start)
Flood Elev= 614.00' Surf.Area= 17,000 sf Storage= 75,400 cf (60,400 cf above start)

Plug-Flow detention time= 3,412.0 min calculated for 1.039 af (75% of inflow)
Center-of-Mass det. time= 2,610.9 min (3,417.7 - 806.8)

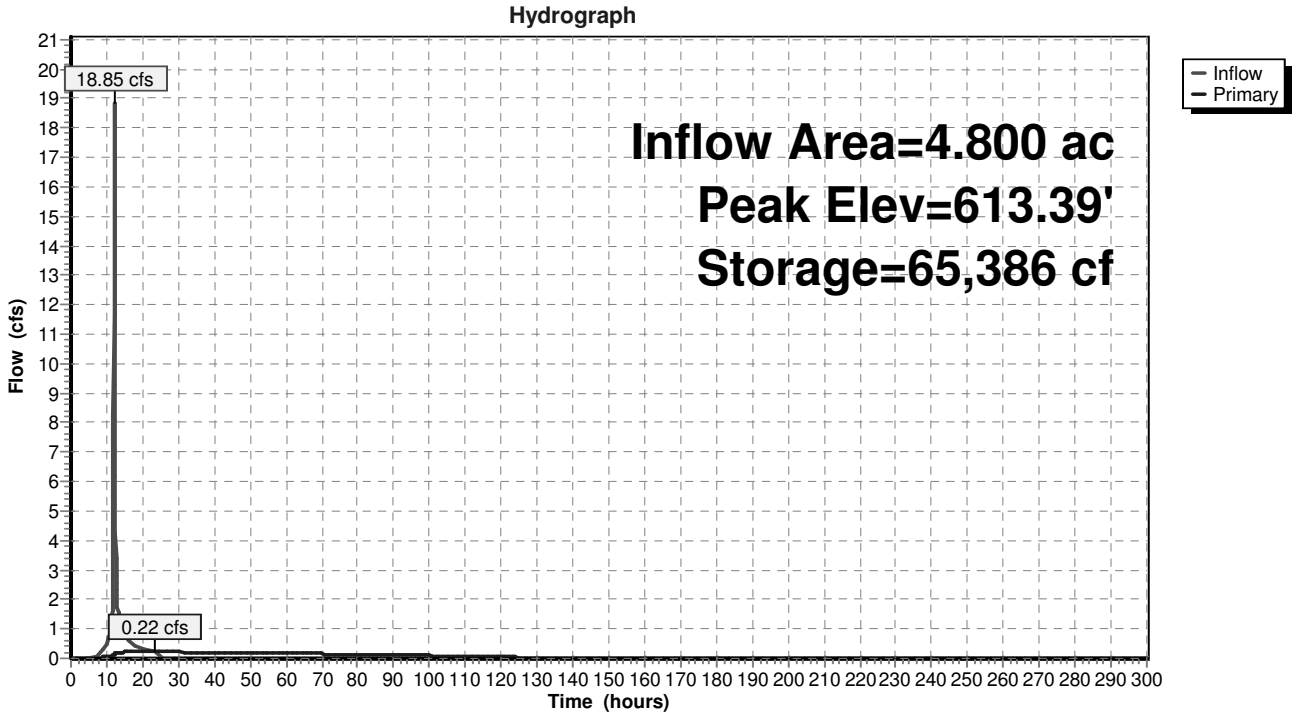
Volume	Invert	Avail.Storage	Storage Description
#1	601.00'	93,400 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
601.00	220	0	0
602.00	360	290	290
604.00	850	1,210	1,500
606.00	1,900	2,750	4,250
608.00	3,400	5,300	9,550
609.00	7,500	5,450	15,000
610.00	9,100	8,300	23,300
612.00	13,000	22,100	45,400
614.00	17,000	30,000	75,400
615.00	19,000	18,000	93,400

Device	Routing	Invert	Outlet Devices
#1	Primary	609.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	613.50'	**2.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.22 cfs @ 23.17 hrs HW=613.39' TW=0.00' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.22 cfs @ 9.99 fps)
- **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.6P: Pocket Wetland (W-4)



Summary for Pond 5.7P: Pocket Wetland (W-4)

Inflow Area = 3.700 ac, 51.35% Impervious, Inflow Depth = 3.56" for 10-yr event
Inflow = 14.89 cfs @ 12.09 hrs, Volume= 1.098 af
Outflow = 7.28 cfs @ 12.26 hrs, Volume= 1.096 af, Atten= 51%, Lag= 10.3 min
Primary = 7.28 cfs @ 12.26 hrs, Volume= 1.096 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 656.00' Surf.Area= 8,300 sf Storage= 18,240 cf
Peak Elev= 657.95' @ 12.26 hrs Surf.Area= 11,911 sf Storage= 37,966 cf (19,726 cf above start)
Flood Elev= 659.00' Surf.Area= 13,750 sf Storage= 51,415 cf (33,175 cf above start)

Plug-Flow detention time= 1,701.6 min calculated for 0.678 af (62% of inflow)
Center-of-Mass det. time= 969.3 min (1,773.0 - 803.7)

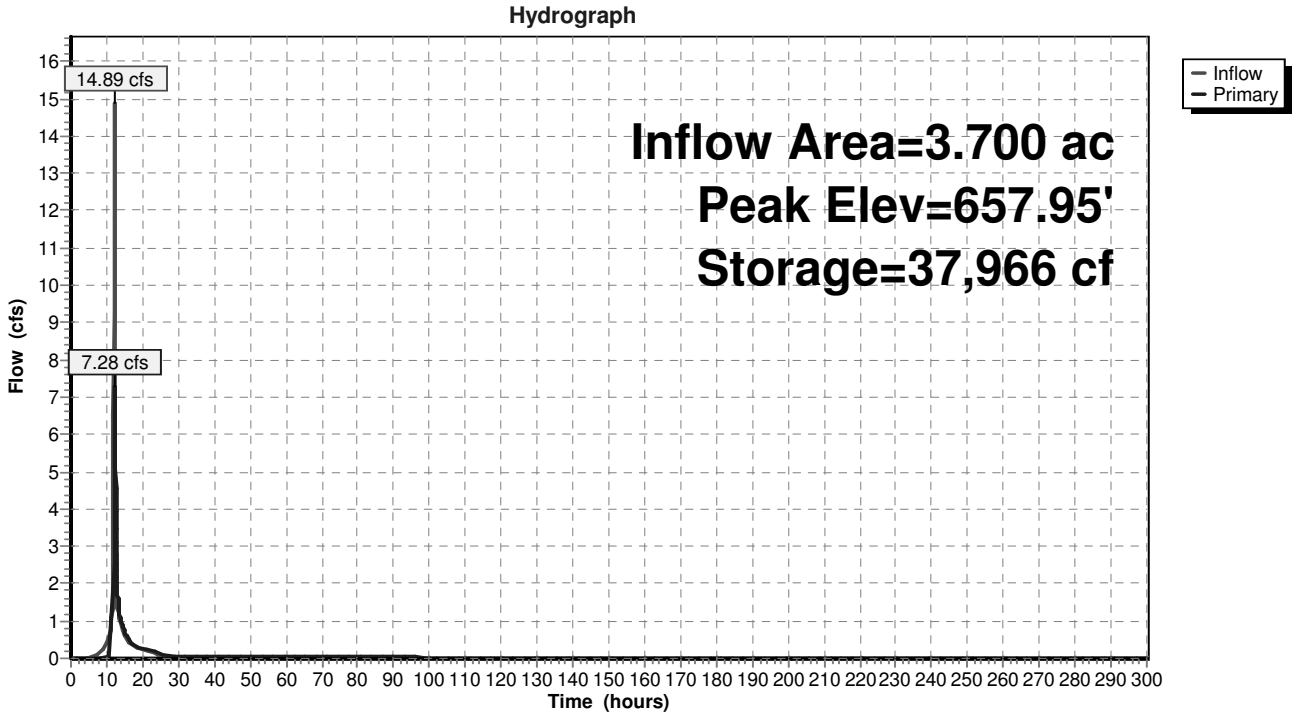
Volume	Invert	Avail.Storage	Storage Description
#1	648.00'	66,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
648.00	240	0	0
650.00	650	890	890
652.00	1,400	2,050	2,940
654.00	2,800	4,200	7,140
656.00	8,300	11,100	18,240
658.00	12,000	20,300	38,540
660.00	15,500	27,500	66,040

Device	Routing	Invert	Outlet Devices
#1	Primary	656.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	657.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=7.24 cfs @ 12.26 hrs HW=657.95' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.08 cfs @ 6.62 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 7.15 cfs @ 1.99 fps)

Pond 5.7P: Pocket Wetland (W-4)



Summary for Subcatchment 5.1S:

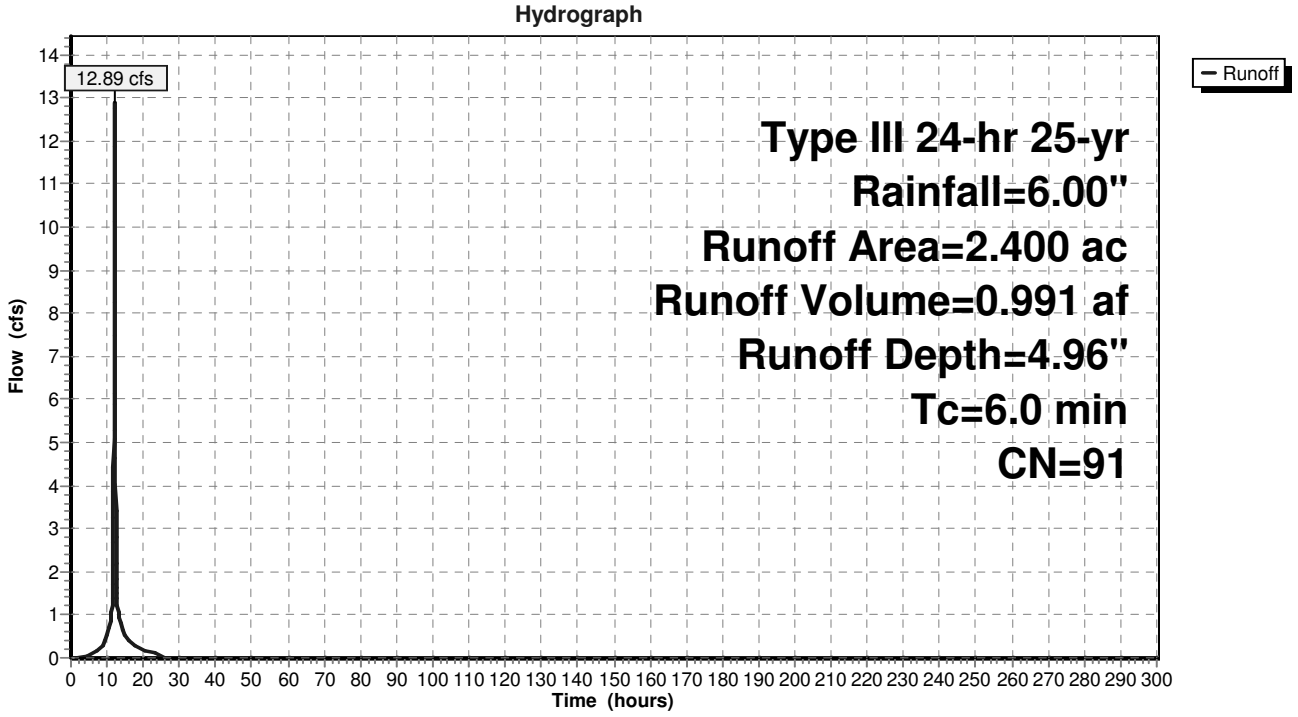
Runoff = 12.89 cfs @ 12.09 hrs, Volume= 0.991 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

	Area (ac)	CN	Description
	1.600	98	Paved parking & roofs
	0.200	74	>75% Grass cover, Good, HSG C
	0.300	71	Meadow, non-grazed, HSG C
	0.200	98	Water Surface
*	0.100	56	Pervious Pavement
	2.400	91	Weighted Average
	0.600		Pervious Area
	1.800		Impervious Area

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

Subcatchment 5.1S:



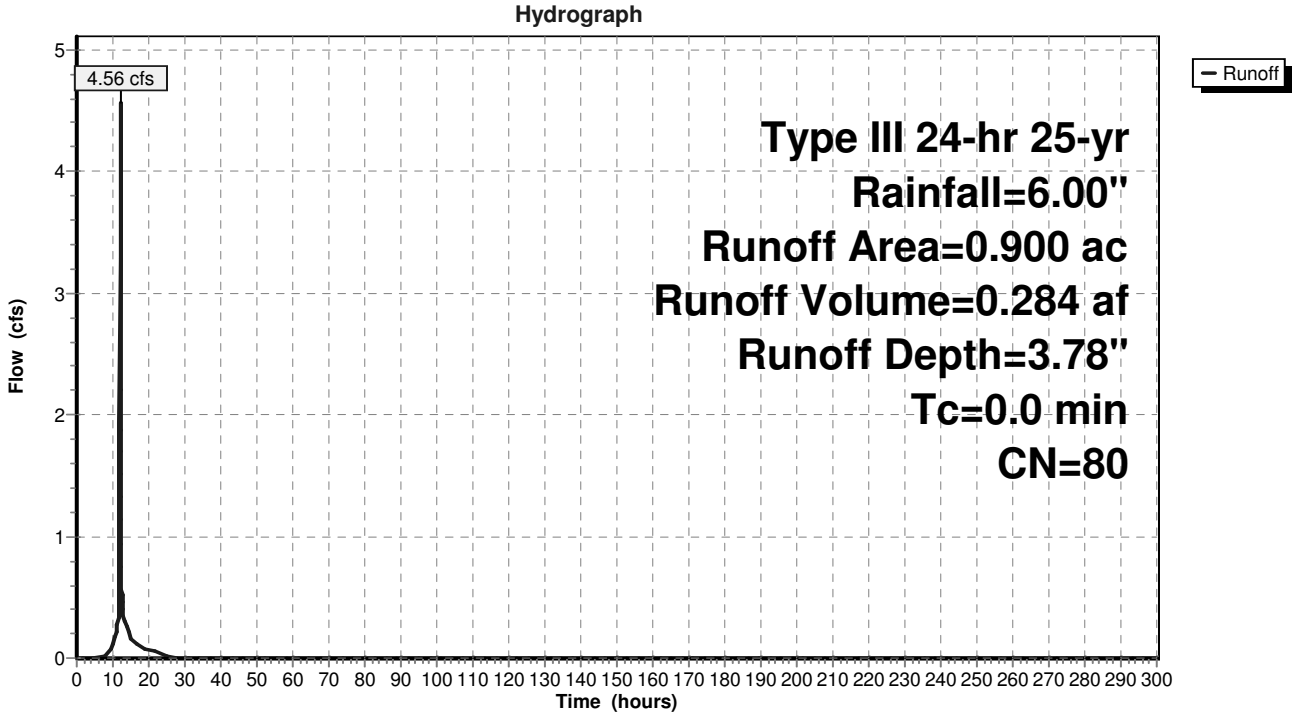
Summary for Subcatchment 5.2S:

Runoff = 4.56 cfs @ 12.00 hrs, Volume= 0.284 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.100	74	>75% Grass cover, Good, HSG C
0.500	71	Meadow, non-grazed, HSG C
0.300	98	Water Surface
0.900	80	Weighted Average
0.600		Pervious Area
0.300		Impervious Area

Subcatchment 5.2S:



Summary for Subcatchment 5.3S:

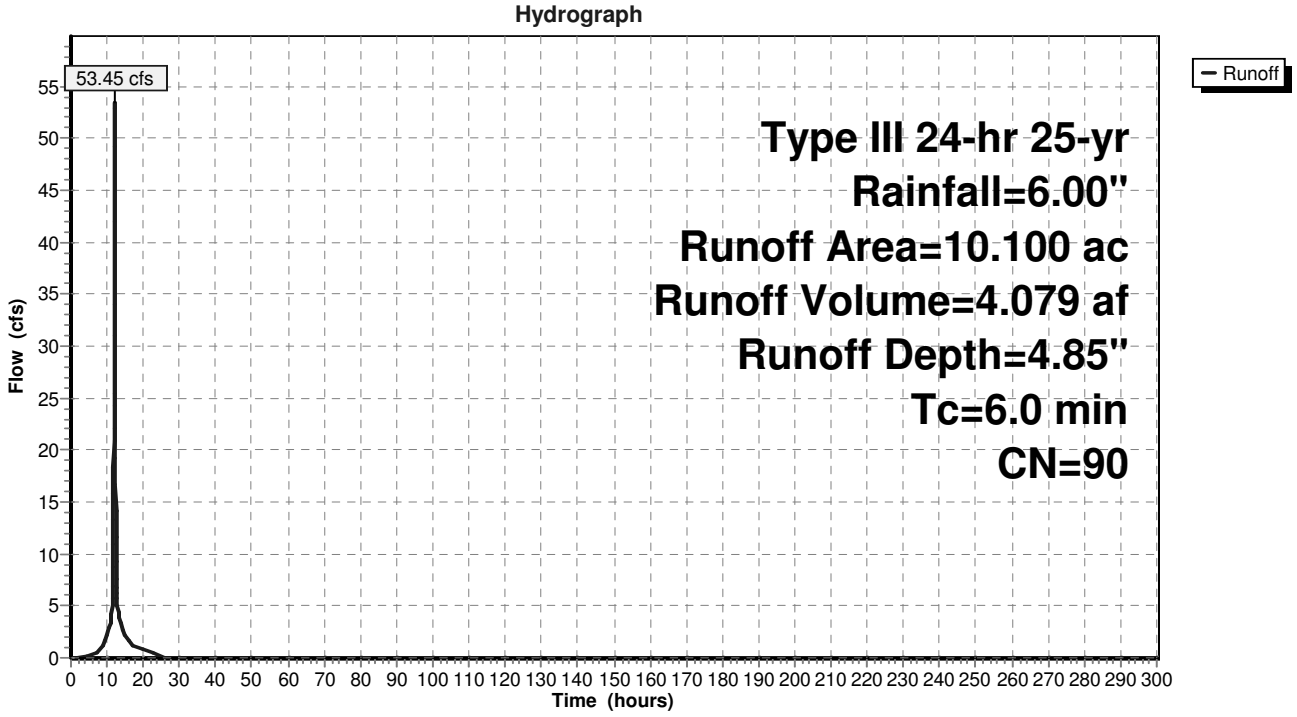
Runoff = 53.45 cfs @ 12.09 hrs, Volume= 4.079 af, Depth= 4.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

	Area (ac)	CN	Description
	6.600	98	Paved parking & roofs
	1.900	74	>75% Grass cover, Good, HSG C
	0.700	71	Meadow, non-grazed, HSG C
	0.600	98	Water Surface
*	0.300	56	Pervious Pavement
	10.100	90	Weighted Average
	2.900		Pervious Area
	7.200		Impervious Area

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

Subcatchment 5.3S:



Summary for Subcatchment 5.4S:

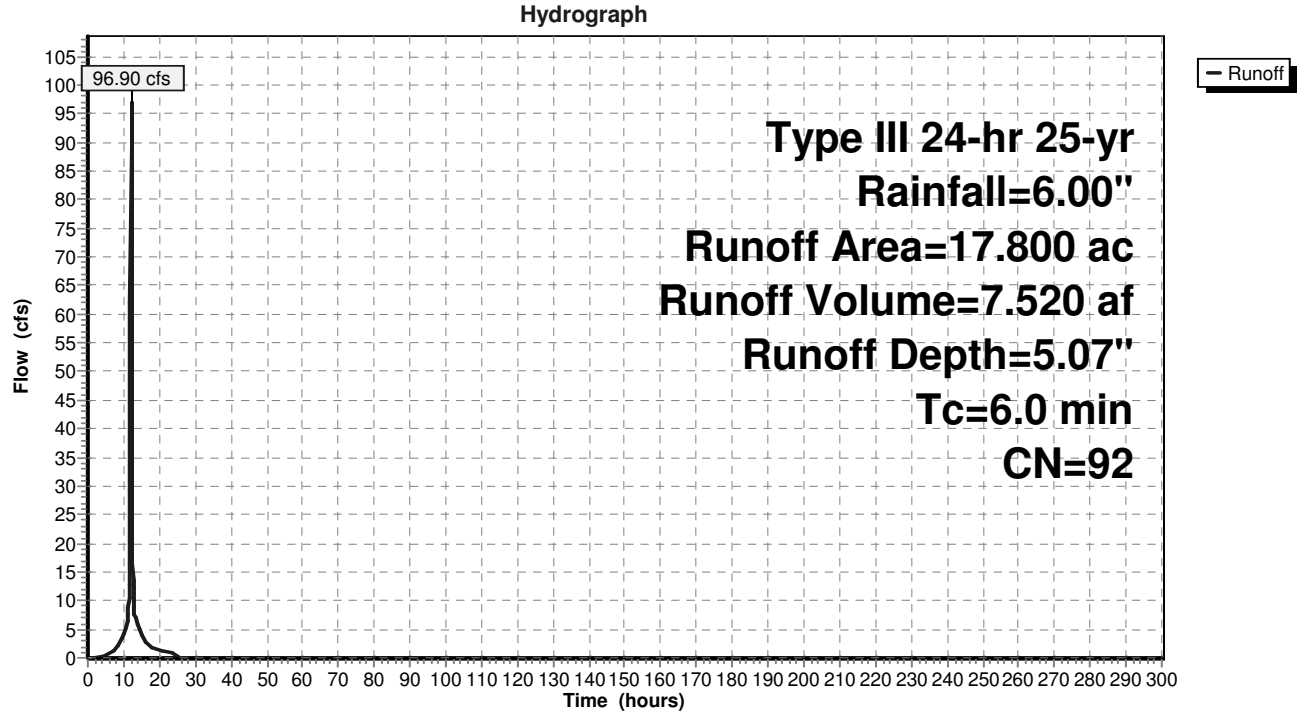
Runoff = 96.90 cfs @ 12.09 hrs, Volume= 7.520 af, Depth= 5.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

	Area (ac)	CN	Description
	13.800	98	Paved parking & roofs
	2.200	74	>75% Grass cover, Good, HSG C
	0.900	71	Meadow, non-grazed, HSG C
	0.400	98	Water Surface
*	0.500	56	Pervious Pavement
	17.800	92	Weighted Average
	3.600		Pervious Area
	14.200		Impervious Area

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

Subcatchment 5.4S:



Summary for Subcatchment 5.5S:

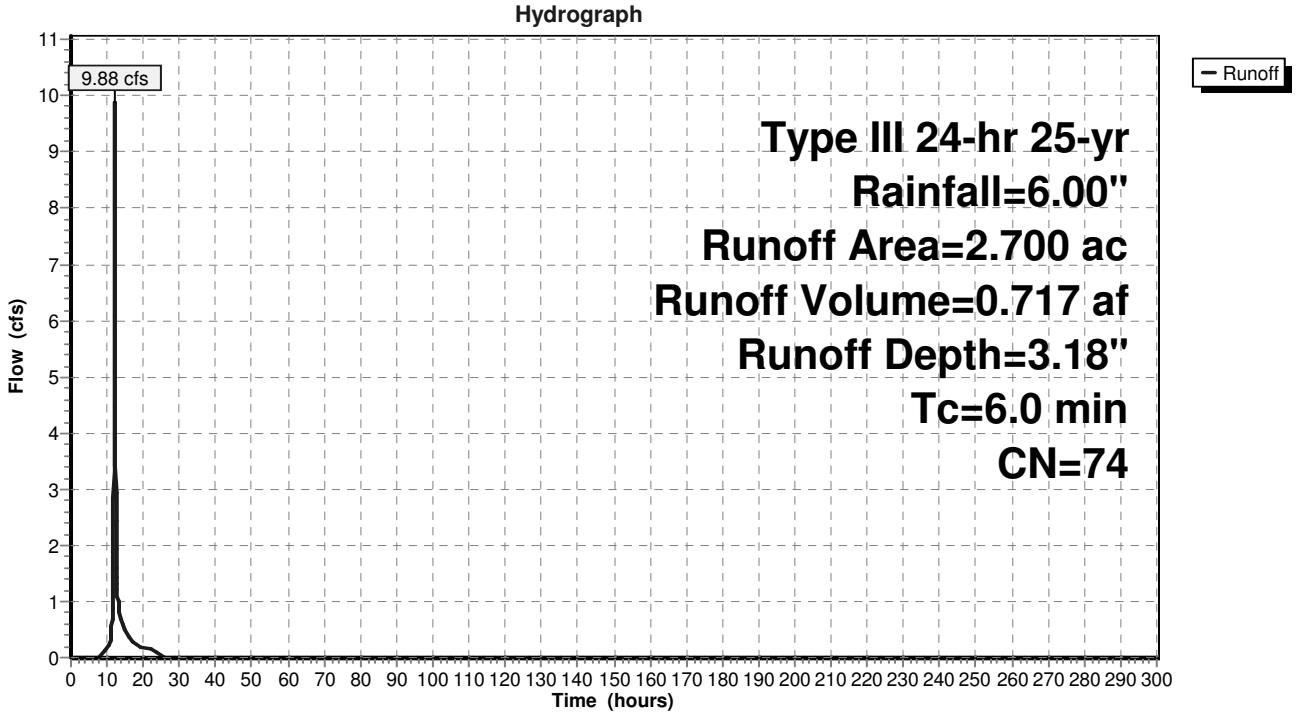
Runoff = 9.88 cfs @ 12.09 hrs, Volume= 0.717 af, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
2.300	71	Meadow, non-grazed, HSG C
0.200	98	Water Surface
2.700	74	Weighted Average
2.400		Pervious Area
0.300		Impervious Area

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

Subcatchment 5.5S:



Summary for Subcatchment 5.6S:

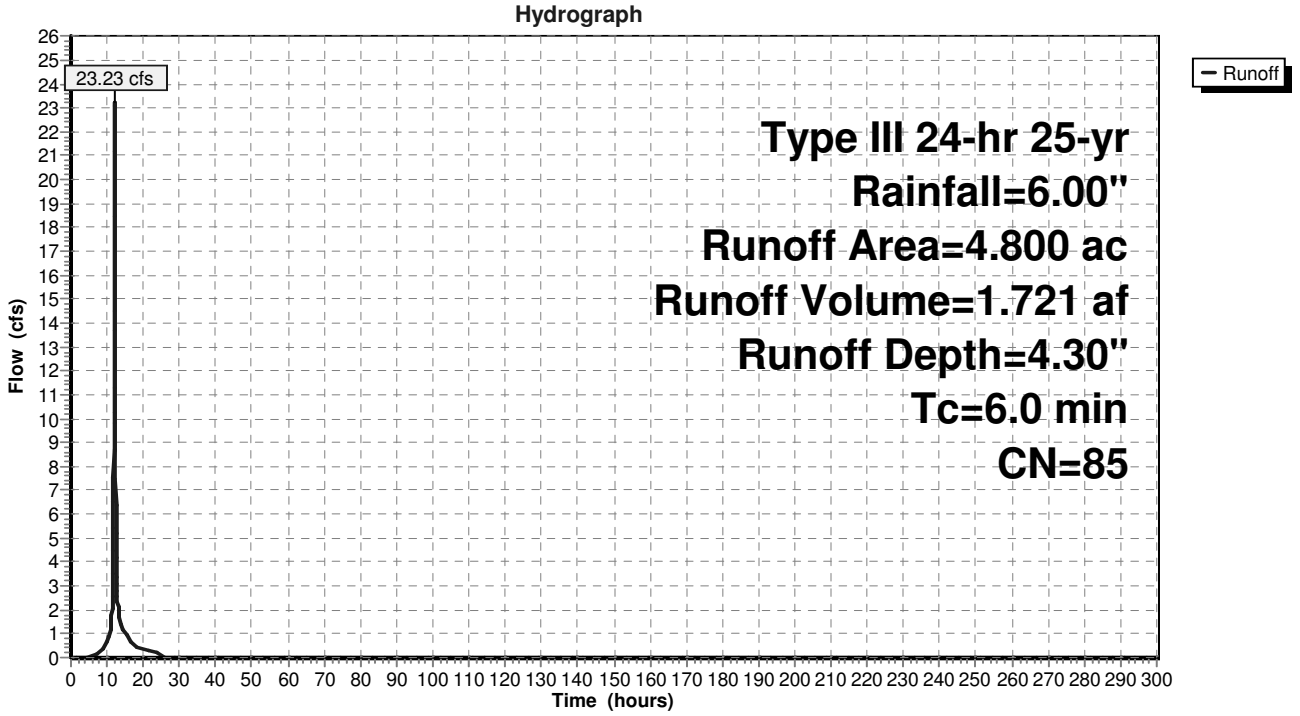
Runoff = 23.23 cfs @ 12.09 hrs, Volume= 1.721 af, Depth= 4.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
2.100	98	Paved parking & roofs
1.000	74	>75% Grass cover, Good, HSG C
1.400	71	Meadow, non-grazed, HSG C
0.300	98	Water Surface
4.800	85	Weighted Average
2.400		Pervious Area
2.400		Impervious Area

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

Subcatchment 5.6S:



Summary for Subcatchment 5.7S:

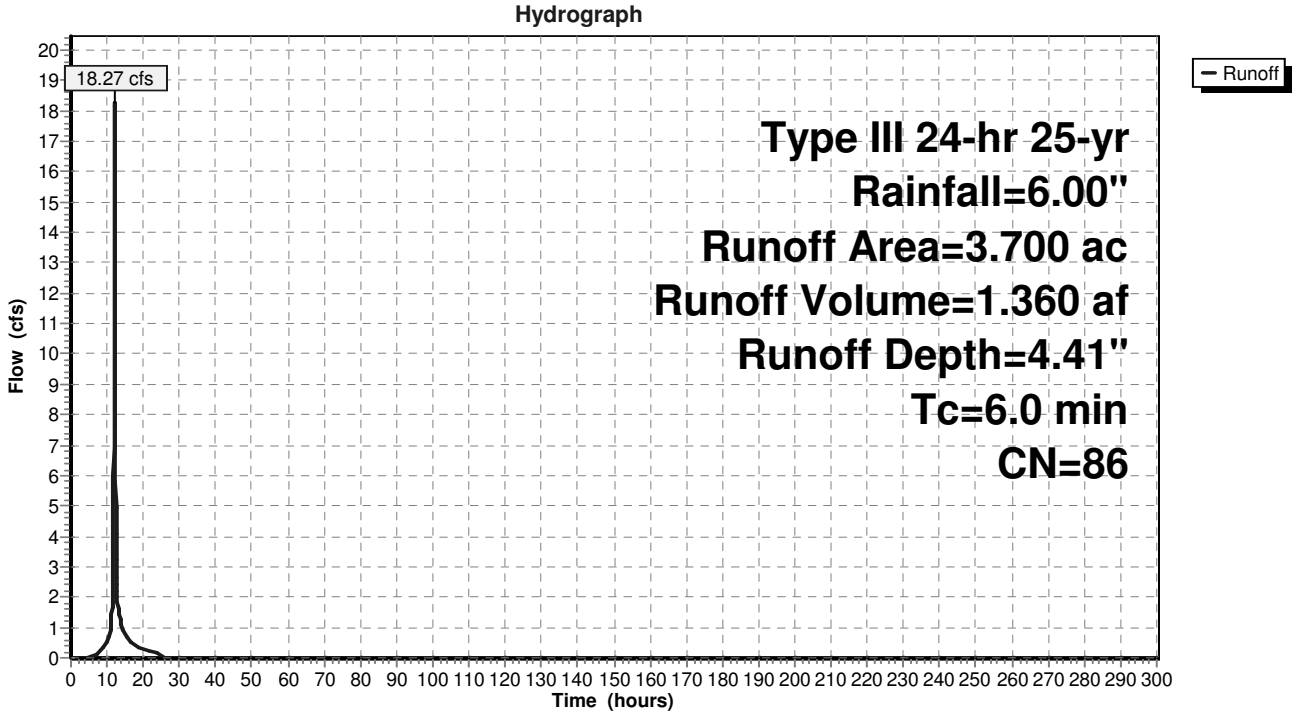
Runoff = 18.27 cfs @ 12.09 hrs, Volume= 1.360 af, Depth= 4.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
1.700	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
0.700	71	Meadow, non-grazed, HSG C
0.800	73	Woods, Fair, HSG C
0.200	98	Water Surface
3.700	86	Weighted Average
1.800		Pervious Area
1.900		Impervious Area

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

Subcatchment 5.7S:



Summary for Subcatchment 5.8S:

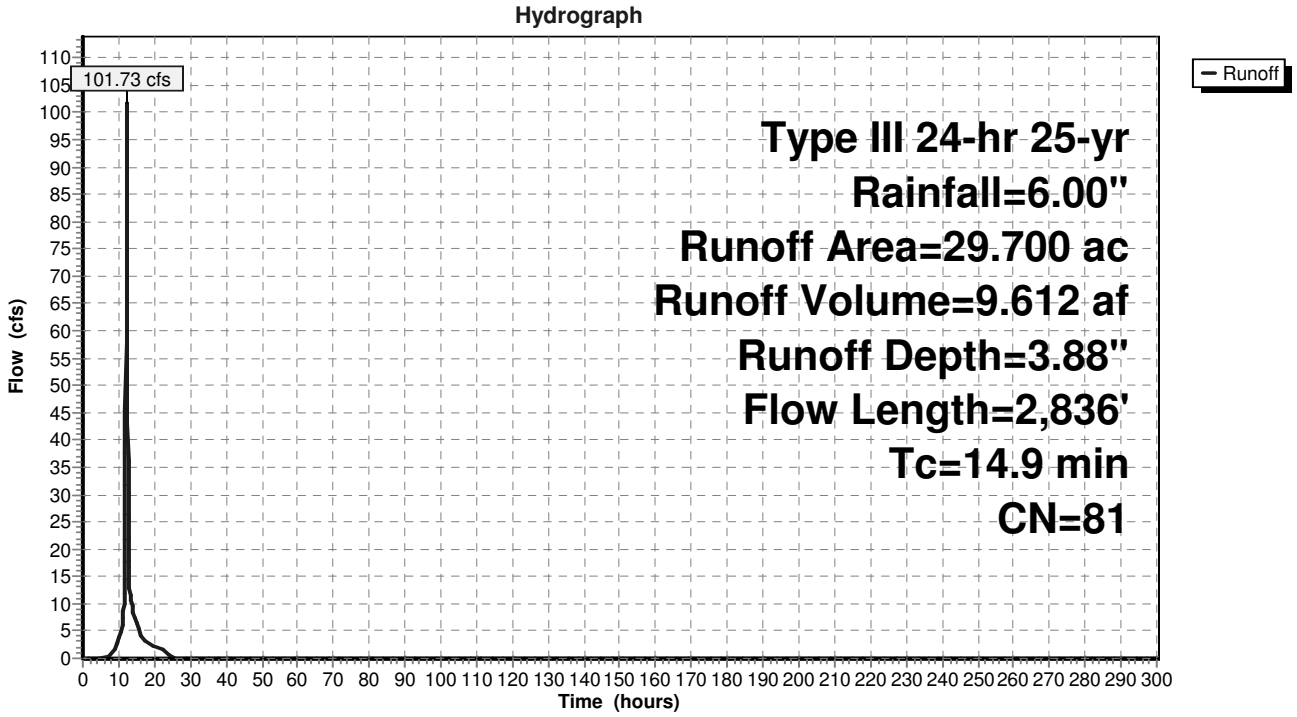
Runoff = 101.73 cfs @ 12.20 hrs, Volume= 9.612 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
4.700	98	Paved parking & roofs
2.400	74	>75% Grass cover, Good, HSG C
4.500	71	Meadow, non-grazed, HSG C
10.100	70	Woods, Good, HSG C
1.200	83	Woods, Poor, HSG D
1.700	98	Water Surface
5.100	94	Urban commercial, 85% imp, HSG C
29.700	81	Weighted Average
18.965		Pervious Area
10.735		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0900	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.4	136	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.4	2,600	0.0390	5.15	10.30	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=0.50' Z= 2.0 '/' Top.W=5.00' n= 0.030 Earth, grassed & winding
14.9	2,836	Total			

Subcatchment 5.8S:

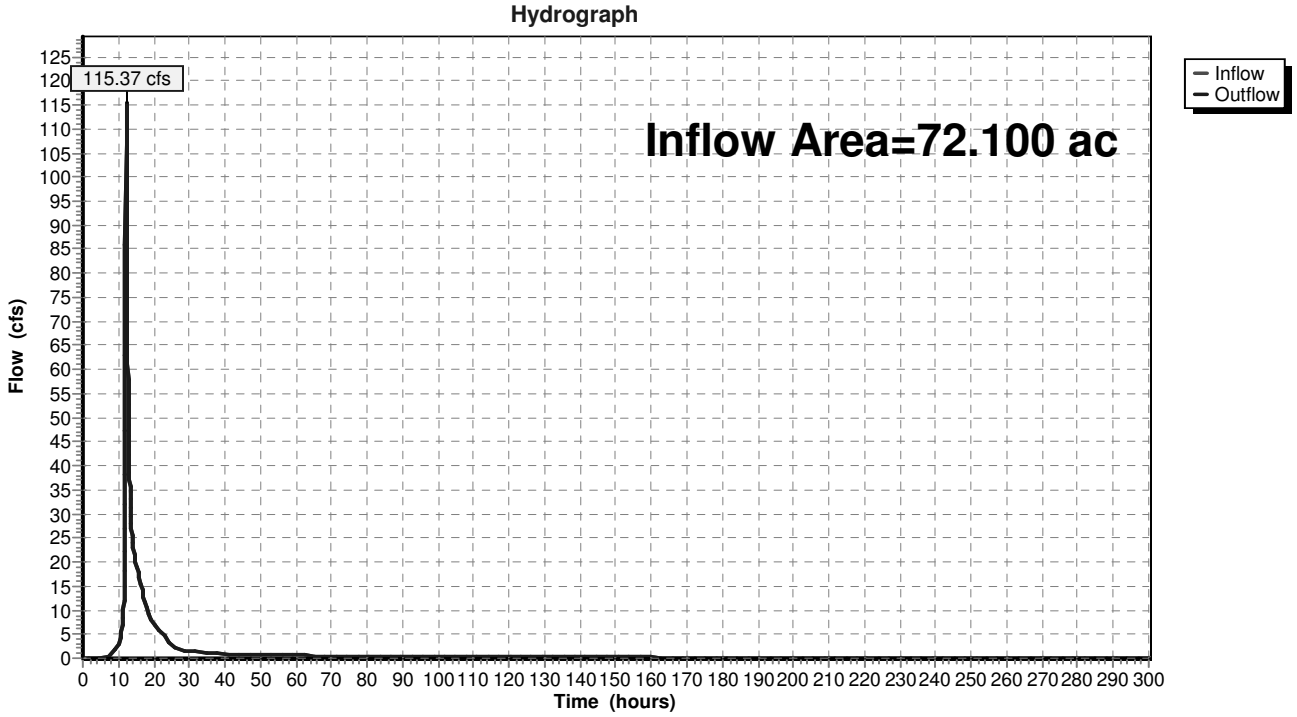


Summary for Reach DP 5: Design Point 5

Inflow Area = 72.100 ac, 53.86% Impervious, Inflow Depth > 4.34" for 25-yr event
Inflow = 115.37 cfs @ 12.21 hrs, Volume= 26.047 af
Outflow = 115.37 cfs @ 12.21 hrs, Volume= 26.047 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 5: Design Point 5



Summary for Pond 5.1P: Pocket Wetland (W-4)

Inflow Area = 2.400 ac, 75.00% Impervious, Inflow Depth = 4.96" for 25-yr event
Inflow = 12.89 cfs @ 12.09 hrs, Volume= 0.991 af
Outflow = 1.71 cfs @ 12.63 hrs, Volume= 0.990 af, Atten= 87%, Lag= 32.7 min
Primary = 1.71 cfs @ 12.63 hrs, Volume= 0.990 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 678.00' Surf.Area= 9,300 sf Storage= 19,400 cf
Peak Elev= 680.16' @ 12.63 hrs Surf.Area= 14,199 sf Storage= 44,781 cf (25,381 cf above start)
Flood Elev= 681.00' Surf.Area= 16,250 sf Storage= 57,525 cf (38,125 cf above start)

Plug-Flow detention time= 1,851.8 min calculated for 0.545 af (55% of inflow)
Center-of-Mass det. time= 1,012.2 min (1,793.3 - 781.0)

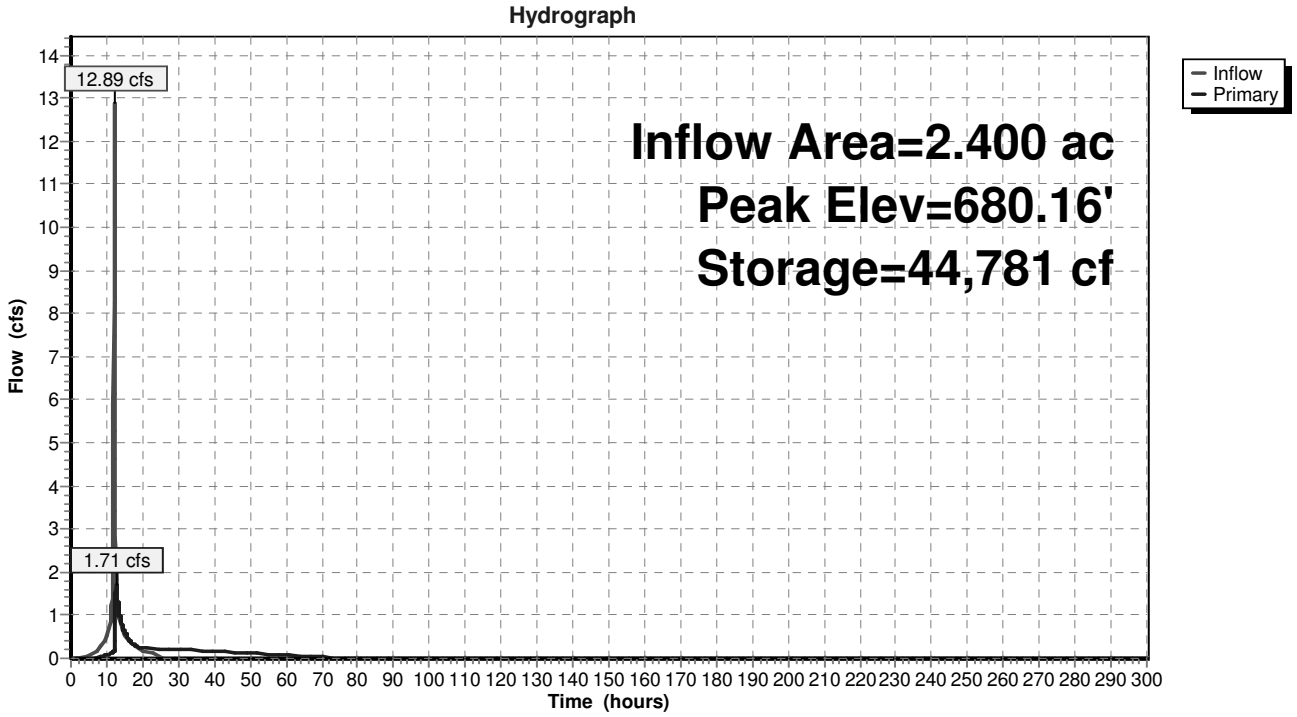
Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	75,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	300	0	0
674.00	1,600	1,900	1,900
676.00	3,300	4,900	6,800
678.00	9,300	12,600	19,400
680.00	13,800	23,100	42,500
682.00	18,700	32,500	75,000

Device	Routing	Invert	Outlet Devices
#1	Primary	678.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	680.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.71 cfs @ 12.63 hrs HW=680.16' TW=666.61' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.24 cfs @ 6.91 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 1.47 cfs @ 1.13 fps)

Pond 5.1P: Pocket Wetland (W-4)



Summary for Pond 5.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 3.300 ac, 63.64% Impervious, Inflow Depth = 4.63" for 25-yr event
Inflow = 4.74 cfs @ 12.00 hrs, Volume= 1.274 af
Outflow = 0.77 cfs @ 15.12 hrs, Volume= 1.272 af, Atten= 84%, Lag= 187.1 min
Primary = 0.77 cfs @ 15.12 hrs, Volume= 1.272 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 666.00' Surf.Area= 13,600 sf Storage= 42,650 cf
Peak Elev= 666.92' @ 15.12 hrs Surf.Area= 16,258 sf Storage= 56,336 cf (13,686 cf above start)
Flood Elev= 669.00' Surf.Area= 22,350 sf Storage= 96,525 cf (53,875 cf above start)

Plug-Flow detention time= 3,083.0 min calculated for 0.292 af (23% of inflow)
Center-of-Mass det. time= 350.2 min (1,924.3 - 1,574.1)

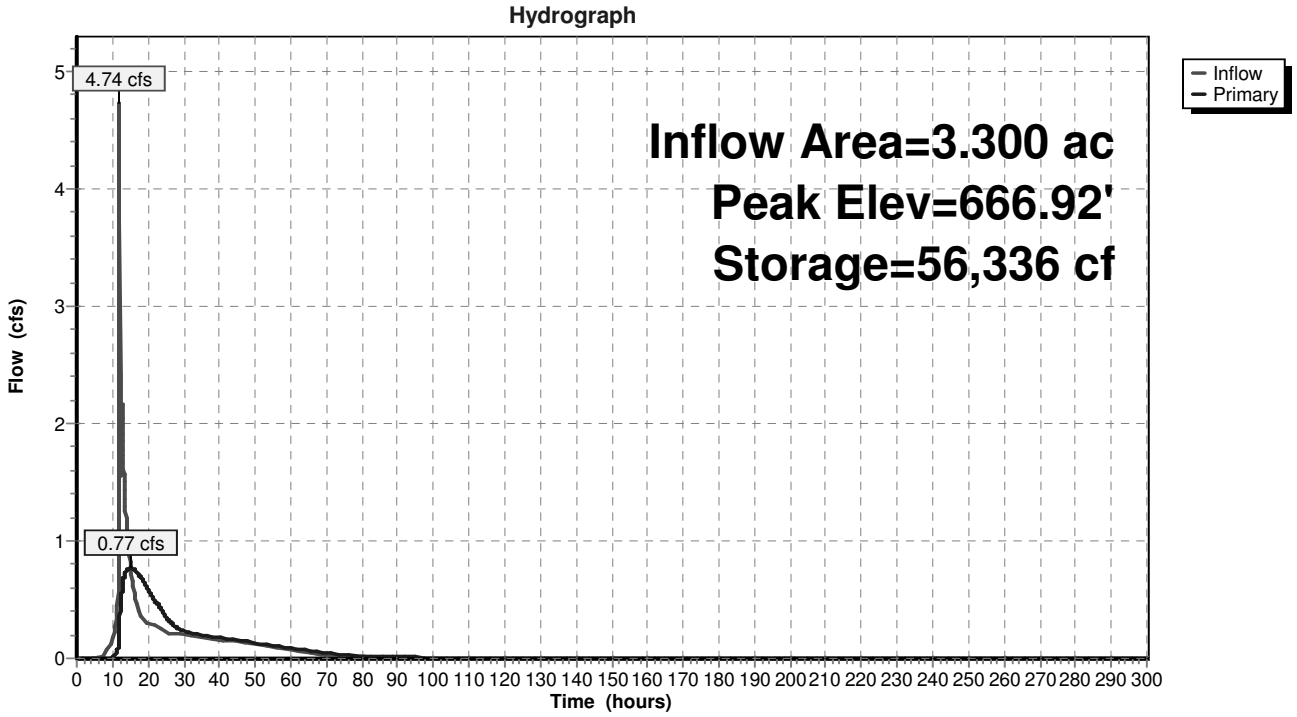
Volume	Invert	Avail.Storage	Storage Description
#1	660.50'	120,350 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
660.50	4,400	0	0
662.00	5,800	7,650	7,650
664.00	7,800	13,600	21,250
666.00	13,600	21,400	42,650
668.00	19,400	33,000	75,650
670.00	25,300	44,700	120,350

Device	Routing	Invert	Outlet Devices
#1	Primary	666.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	668.25'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.77 cfs @ 15.12 hrs HW=666.92' TW=655.96' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.77 cfs @ 3.93 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 5.3P: Micropool Extended Detention (P-1)

Inflow Area = 13.400 ac, 69.40% Impervious, Inflow Depth = 4.79" for 25-yr event
Inflow = 53.84 cfs @ 12.09 hrs, Volume= 5.350 af
Outflow = 23.28 cfs @ 12.29 hrs, Volume= 5.343 af, Atten= 57%, Lag= 12.3 min
Primary = 23.28 cfs @ 12.29 hrs, Volume= 5.343 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 654.00' Surf.Area= 24,400 sf Storage= 64,450 cf
Peak Elev= 656.63' @ 12.29 hrs Surf.Area= 33,465 sf Storage= 140,395 cf (75,945 cf above start)
Flood Elev= 657.00' Surf.Area= 34,800 sf Storage= 153,050 cf (88,600 cf above start)

Plug-Flow detention time= 965.1 min calculated for 3.863 af (72% of inflow)
Center-of-Mass det. time= 382.0 min (1,437.5 - 1,055.5)

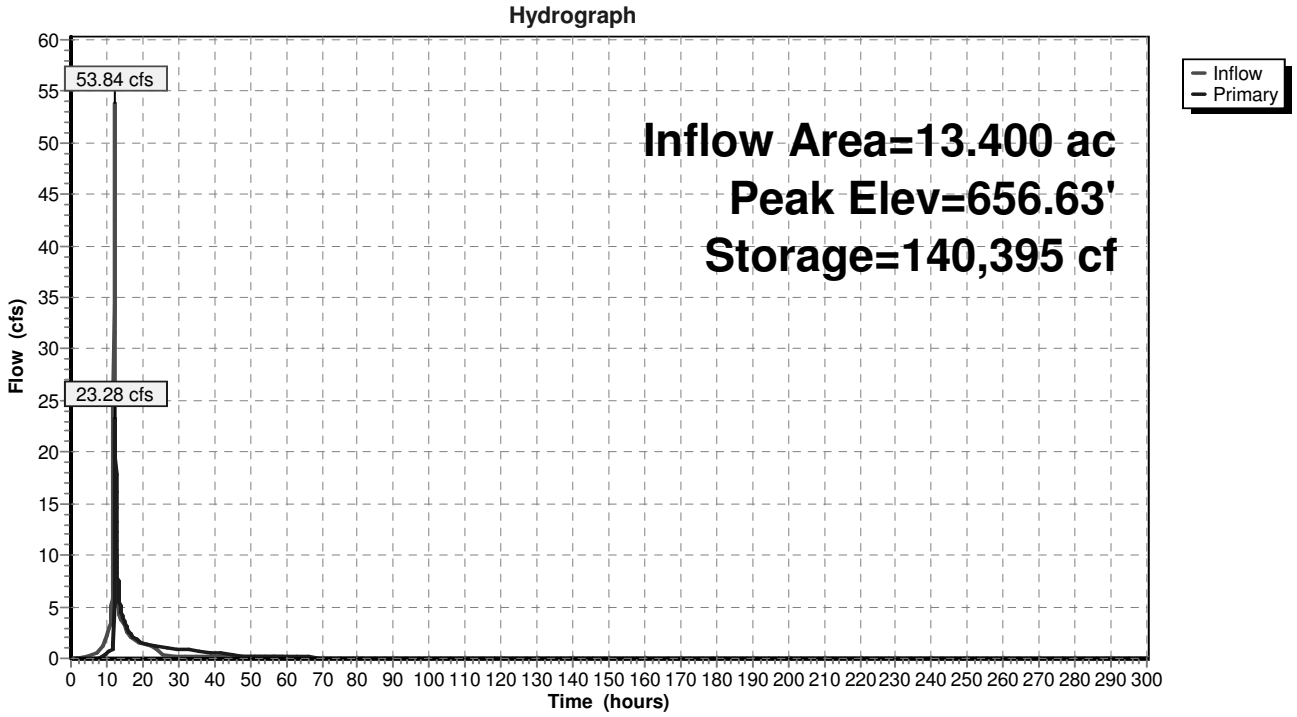
Volume	Invert	Avail.Storage	Storage Description
#1	649.00'	189,650 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
649.00	7,900	0	0
650.00	9,000	8,450	8,450
652.00	11,300	20,300	28,750
654.00	24,400	35,700	64,450
656.00	31,200	55,600	120,050
658.00	38,400	69,600	189,650

Device	Routing	Invert	Outlet Devices
#1	Primary	654.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	655.75'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=23.24 cfs @ 12.29 hrs HW=656.63' TW=625.85' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 1.46 cfs @ 7.43 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 21.78 cfs @ 3.10 fps)

Pond 5.3P: Micropool Extended Detention (P-1)



Summary for Pond 5.4P: Micropool Extended Detention Pond (P-1)

Inflow Area = 17.800 ac, 79.78% Impervious, Inflow Depth = 5.07" for 25-yr event
Inflow = 96.90 cfs @ 12.09 hrs, Volume= 7.520 af
Outflow = 68.13 cfs @ 12.17 hrs, Volume= 7.346 af, Atten= 30%, Lag= 5.1 min
Primary = 68.13 cfs @ 12.17 hrs, Volume= 7.346 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 636.00' Surf.Area= 17,300 sf Storage= 69,900 cf
Peak Elev= 639.47' @ 12.17 hrs Surf.Area= 27,948 sf Storage= 148,840 cf (78,940 cf above start)
Flood Elev= 640.00' Surf.Area= 29,488 sf Storage= 163,964 cf (94,064 cf above start)

Plug-Flow detention time= 953.3 min calculated for 5.741 af (76% of inflow)
Center-of-Mass det. time= 665.4 min (1,442.5 - 777.2)

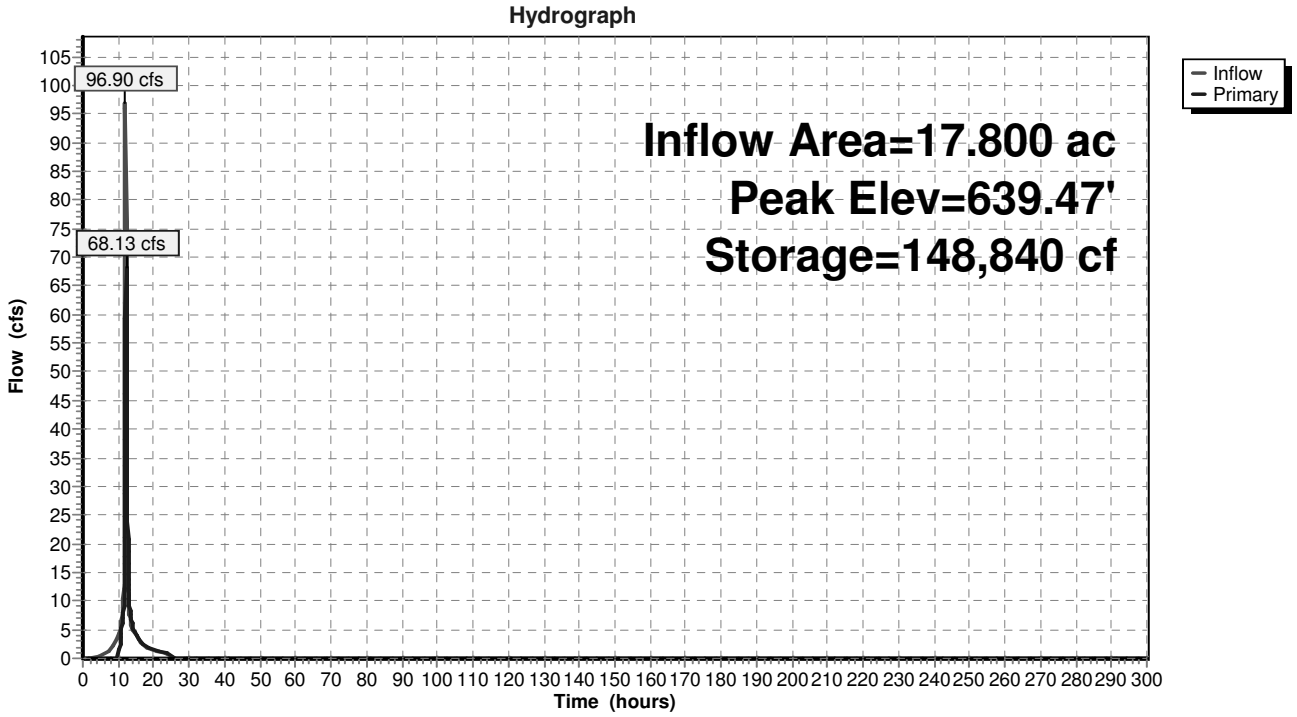
Volume	Invert	Avail.Storage	Storage Description
#1	628.00'	195,308 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
628.00	4,600	0	0
630.00	6,100	10,700	10,700
632.00	7,900	14,000	24,700
634.00	10,000	17,900	42,600
636.00	17,300	27,300	69,900
638.00	23,638	40,938	110,838
640.00	29,488	53,126	163,964
641.00	33,200	31,344	195,308

Device	Routing	Invert	Outlet Devices
#1	Primary	636.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	637.60'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=67.11 cfs @ 12.17 hrs HW=639.45' TW=624.57' (Dynamic Tailwater)
↑—**1=Orifice/Grate** (Orifice Controls 0.05 cfs @ 8.89 fps)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 67.06 cfs @ 4.52 fps)

Pond 5.4P: Micropool Extended Detention Pond (P-1)



Summary for Pond 5.5P: Extended Detention Pond (Design 2) - Dry Pond

Inflow Area = 33.900 ac, 70.21% Impervious, Inflow Depth > 4.75" for 25-yr event
Inflow = 94.97 cfs @ 12.19 hrs, Volume= 13.406 af
Outflow = 29.59 cfs @ 12.80 hrs, Volume= 13.357 af, Atten= 69%, Lag= 36.7 min
Primary = 29.59 cfs @ 12.80 hrs, Volume= 13.357 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Peak Elev= 627.72' @ 12.80 hrs Surf.Area= 36,606 sf Storage= 210,695 cf
Flood Elev= 629.00' Surf.Area= 40,550 sf Storage= 259,975 cf

Plug-Flow detention time= 1,383.7 min calculated for 13.357 af (100% of inflow)
Center-of-Mass det. time= 1,326.8 min (2,734.6 - 1,407.7)

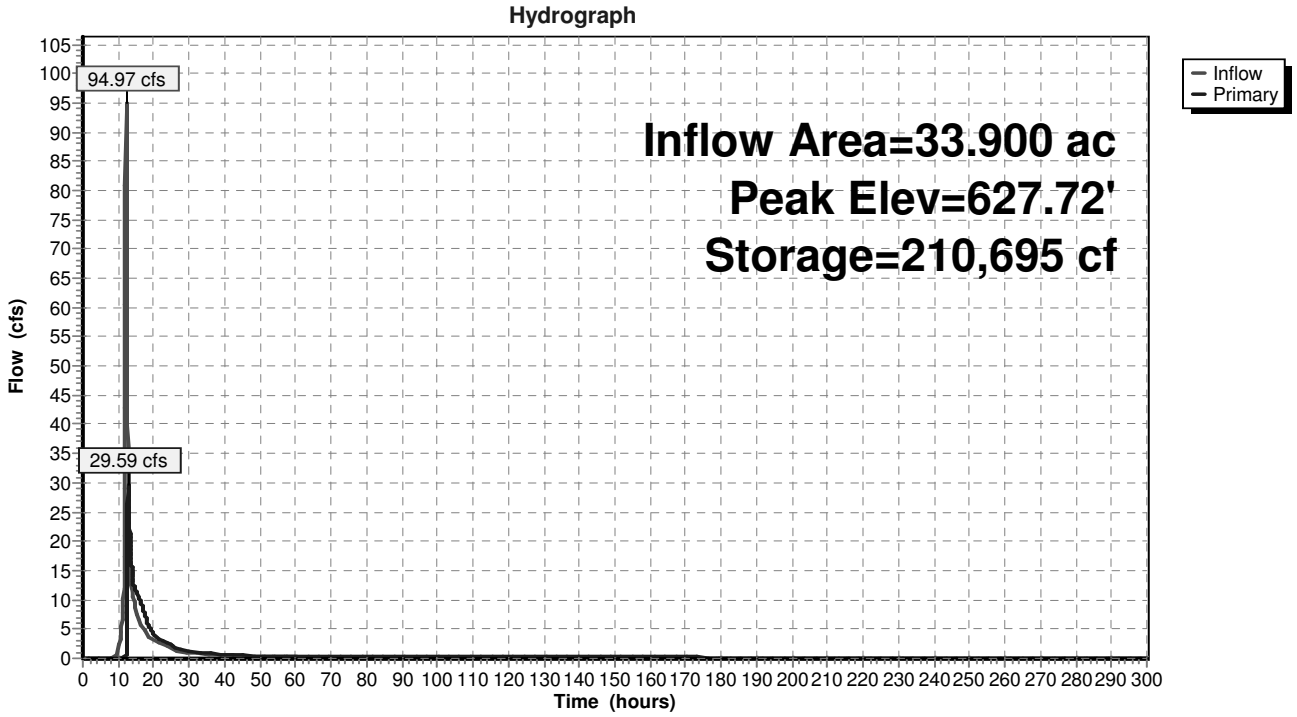
Volume	Invert	Avail.Storage	Storage Description
#1	620.00'	302,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
620.00	20,400	0	0
622.00	23,400	43,800	43,800
624.00	26,500	49,900	93,700
626.00	31,700	58,200	151,900
628.00	37,400	69,100	221,000
630.00	43,700	81,100	302,100

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	624.50'	**18.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	627.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=29.57 cfs @ 12.80 hrs HW=627.72' TW=0.00' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.45 cfs @ 13.29 fps)
- **2=Orifice/Grate** (Orifice Controls 13.38 cfs @ 7.57 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 15.75 cfs @ 2.73 fps)

Pond 5.5P: Extended Detention Pond (Design 2) - Dry Pond



Summary for Pond 5.6P: Pocket Wetland (W-4)

Inflow Area = 4.800 ac, 50.00% Impervious, Inflow Depth = 4.30" for 25-yr event
Inflow = 23.23 cfs @ 12.09 hrs, Volume= 1.721 af
Outflow = 0.89 cfs @ 15.47 hrs, Volume= 1.720 af, Atten= 96%, Lag= 202.9 min
Primary = 0.89 cfs @ 15.47 hrs, Volume= 1.720 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 609.00' Surf.Area= 7,500 sf Storage= 15,000 cf
Peak Elev= 613.71' @ 15.47 hrs Surf.Area= 16,417 sf Storage= 70,531 cf (55,531 cf above start)
Flood Elev= 614.00' Surf.Area= 17,000 sf Storage= 75,400 cf (60,400 cf above start)

Plug-Flow detention time= 2,907.4 min calculated for 1.376 af (80% of inflow)
Center-of-Mass det. time= 2,291.3 min (3,091.9 - 800.6)

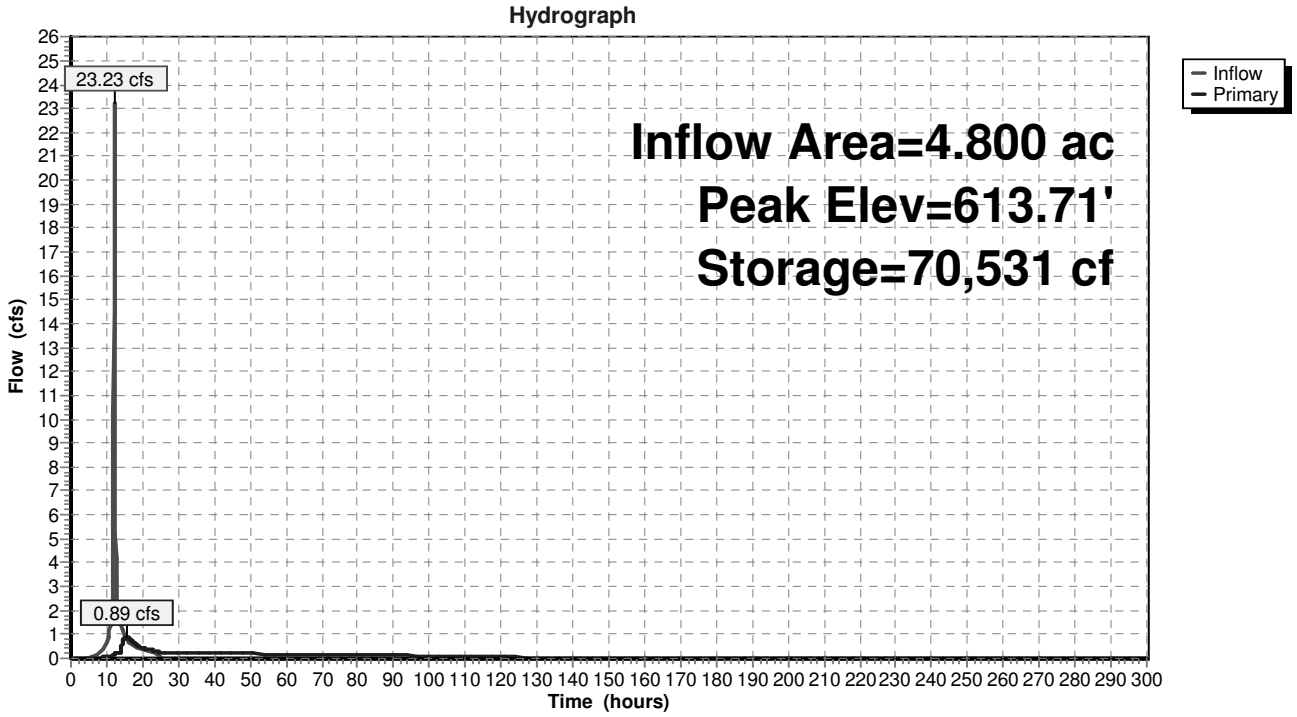
Volume	Invert	Avail.Storage	Storage Description
#1	601.00'	93,400 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
601.00	220	0	0
602.00	360	290	290
604.00	850	1,210	1,500
606.00	1,900	2,750	4,250
608.00	3,400	5,300	9,550
609.00	7,500	5,450	15,000
610.00	9,100	8,300	23,300
612.00	13,000	22,100	45,400
614.00	17,000	30,000	75,400
615.00	19,000	18,000	93,400

Device	Routing	Invert	Outlet Devices
#1	Primary	609.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	613.50'	**2.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.89 cfs @ 15.47 hrs HW=613.71' TW=0.00' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.23 cfs @ 10.36 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 0.67 cfs @ 1.28 fps)

Pond 5.6P: Pocket Wetland (W-4)



Summary for Pond 5.7P: Pocket Wetland (W-4)

Inflow Area = 3.700 ac, 51.35% Impervious, Inflow Depth = 4.41" for 25-yr event
Inflow = 18.27 cfs @ 12.09 hrs, Volume= 1.360 af
Outflow = 11.98 cfs @ 12.19 hrs, Volume= 1.358 af, Atten= 34%, Lag= 6.2 min
Primary = 11.98 cfs @ 12.19 hrs, Volume= 1.358 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 656.00' Surf.Area= 8,300 sf Storage= 18,240 cf
Peak Elev= 658.11' @ 12.19 hrs Surf.Area= 12,199 sf Storage= 39,913 cf (21,673 cf above start)
Flood Elev= 659.00' Surf.Area= 13,750 sf Storage= 51,415 cf (33,175 cf above start)

Plug-Flow detention time= 1,267.1 min calculated for 0.939 af (69% of inflow)
Center-of-Mass det. time= 791.8 min (1,589.5 - 797.7)

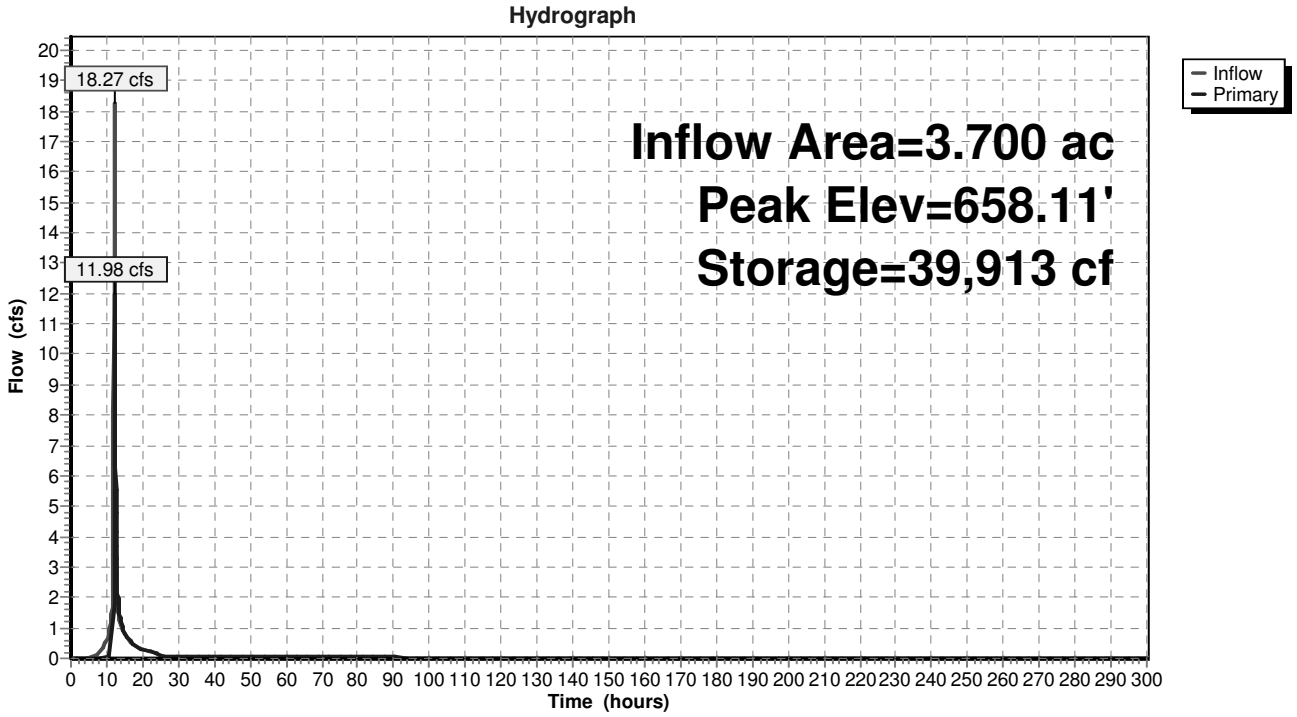
Volume	Invert	Avail.Storage	Storage Description
#1	648.00'	66,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
648.00	240	0	0
650.00	650	890	890
652.00	1,400	2,050	2,940
654.00	2,800	4,200	7,140
656.00	8,300	11,100	18,240
658.00	12,000	20,300	38,540
660.00	15,500	27,500	66,040

Device	Routing	Invert	Outlet Devices
#1	Primary	656.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	657.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=11.89 cfs @ 12.19 hrs HW=658.11' TW=0.00' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.08 cfs @ 6.89 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 11.81 cfs @ 2.42 fps)

Pond 5.7P: Pocket Wetland (W-4)



Summary for Subcatchment 5.1S:

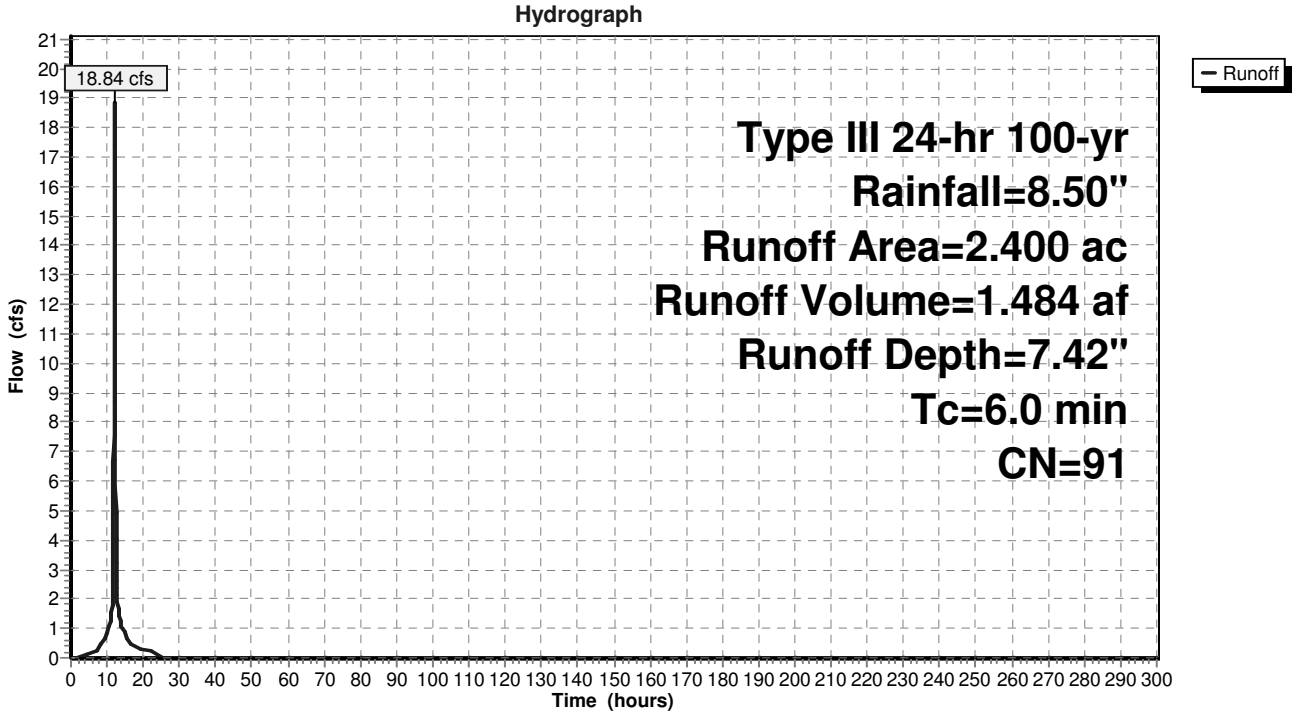
Runoff = 18.84 cfs @ 12.09 hrs, Volume= 1.484 af, Depth= 7.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

	Area (ac)	CN	Description
	1.600	98	Paved parking & roofs
	0.200	74	>75% Grass cover, Good, HSG C
	0.300	71	Meadow, non-grazed, HSG C
	0.200	98	Water Surface
*	0.100	56	Pervious Pavement
	2.400	91	Weighted Average
	0.600		Pervious Area
	1.800		Impervious Area

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

Subcatchment 5.1S:



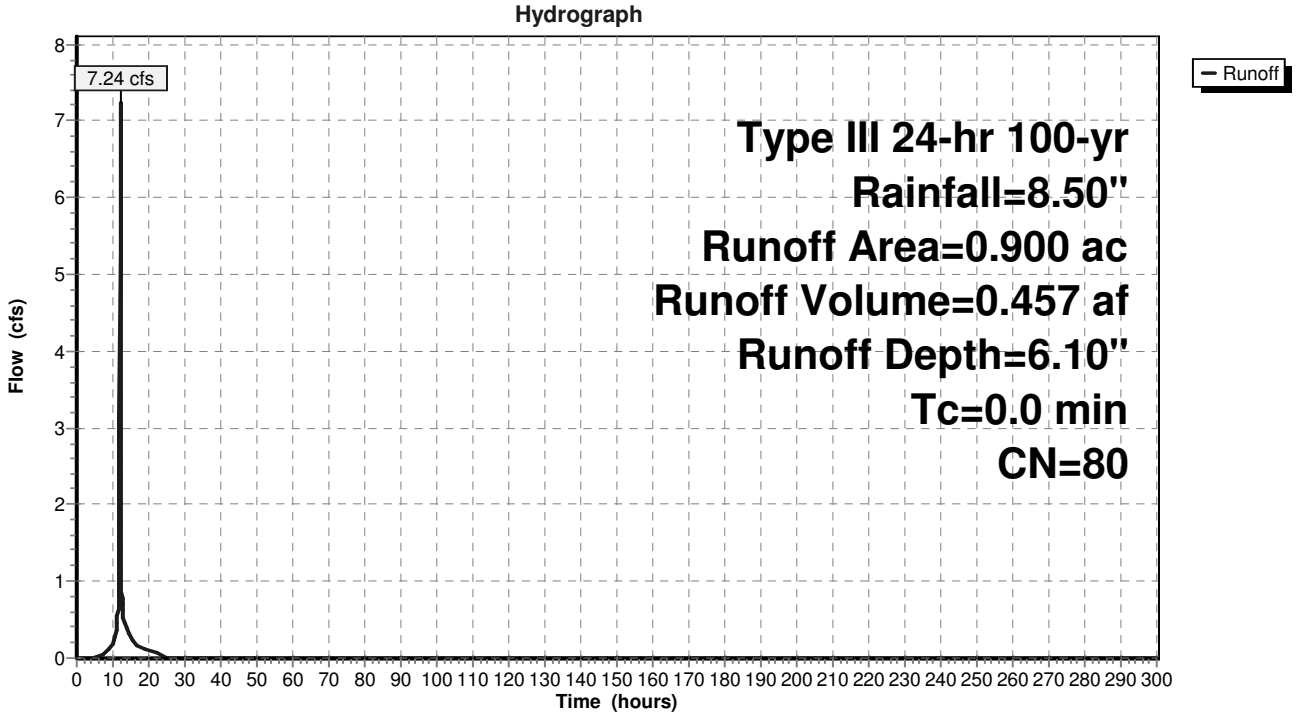
Summary for Subcatchment 5.2S:

Runoff = 7.24 cfs @ 12.00 hrs, Volume= 0.457 af, Depth= 6.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.100	74	>75% Grass cover, Good, HSG C
0.500	71	Meadow, non-grazed, HSG C
0.300	98	Water Surface
0.900	80	Weighted Average
0.600		Pervious Area
0.300		Impervious Area

Subcatchment 5.2S:



Summary for Subcatchment 5.3S:

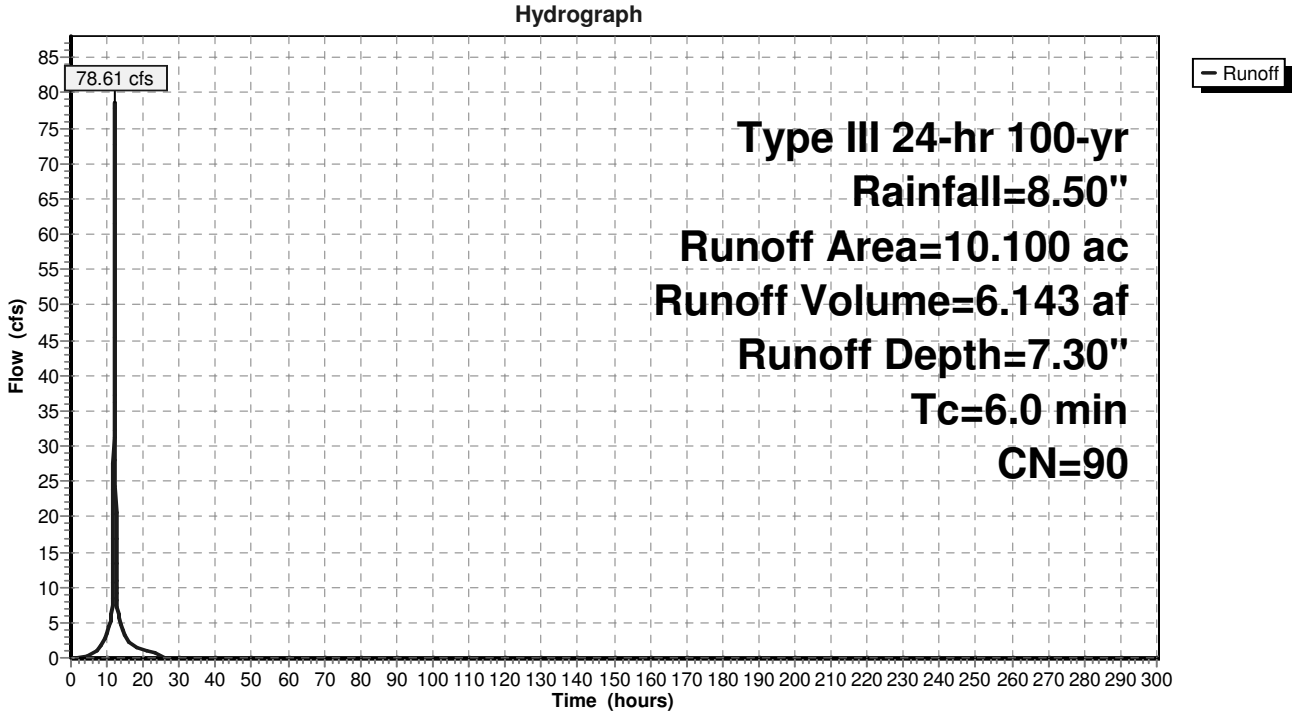
Runoff = 78.61 cfs @ 12.09 hrs, Volume= 6.143 af, Depth= 7.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

	Area (ac)	CN	Description
	6.600	98	Paved parking & roofs
	1.900	74	>75% Grass cover, Good, HSG C
	0.700	71	Meadow, non-grazed, HSG C
	0.600	98	Water Surface
*	0.300	56	Pervious Pavement
	10.100	90	Weighted Average
	2.900		Pervious Area
	7.200		Impervious Area

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

Subcatchment 5.3S:



Summary for Subcatchment 5.4S:

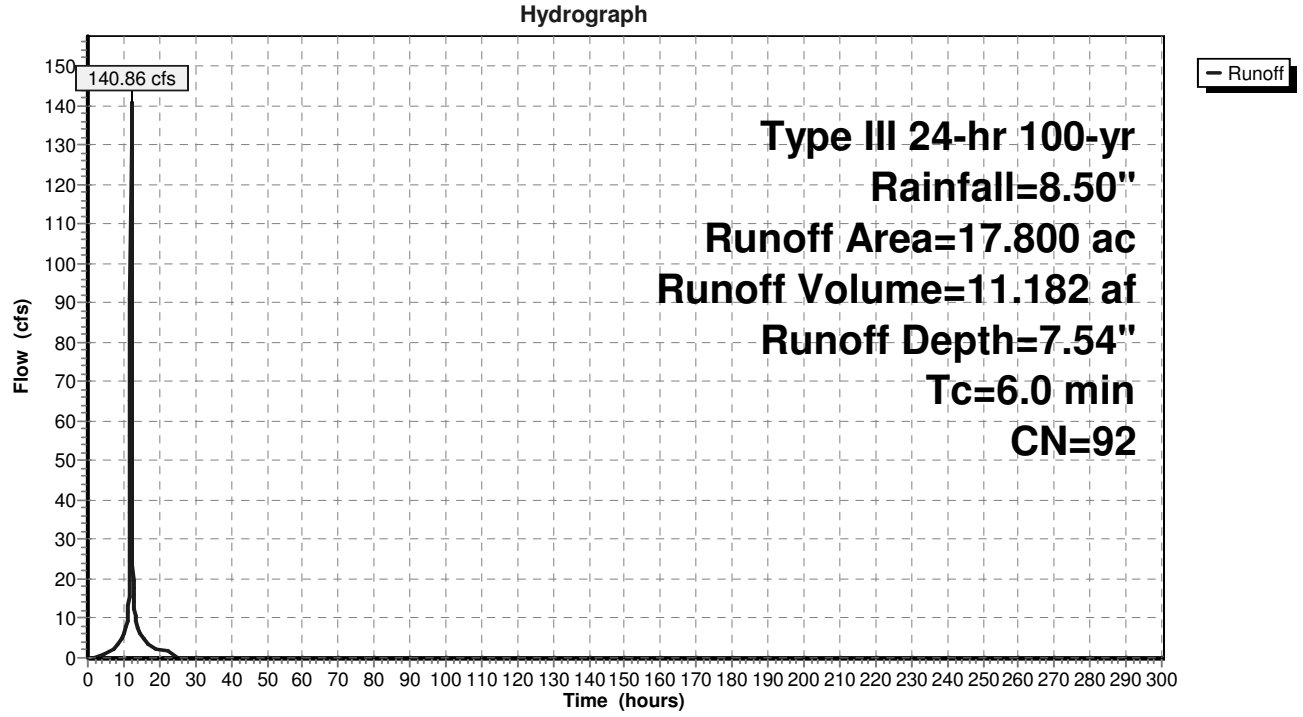
Runoff = 140.86 cfs @ 12.09 hrs, Volume= 11.182 af, Depth= 7.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

	Area (ac)	CN	Description
	13.800	98	Paved parking & roofs
	2.200	74	>75% Grass cover, Good, HSG C
	0.900	71	Meadow, non-grazed, HSG C
	0.400	98	Water Surface
*	0.500	56	Pervious Pavement
	17.800	92	Weighted Average
	3.600		Pervious Area
	14.200		Impervious Area

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

Subcatchment 5.4S:



Summary for Subcatchment 5.5S:

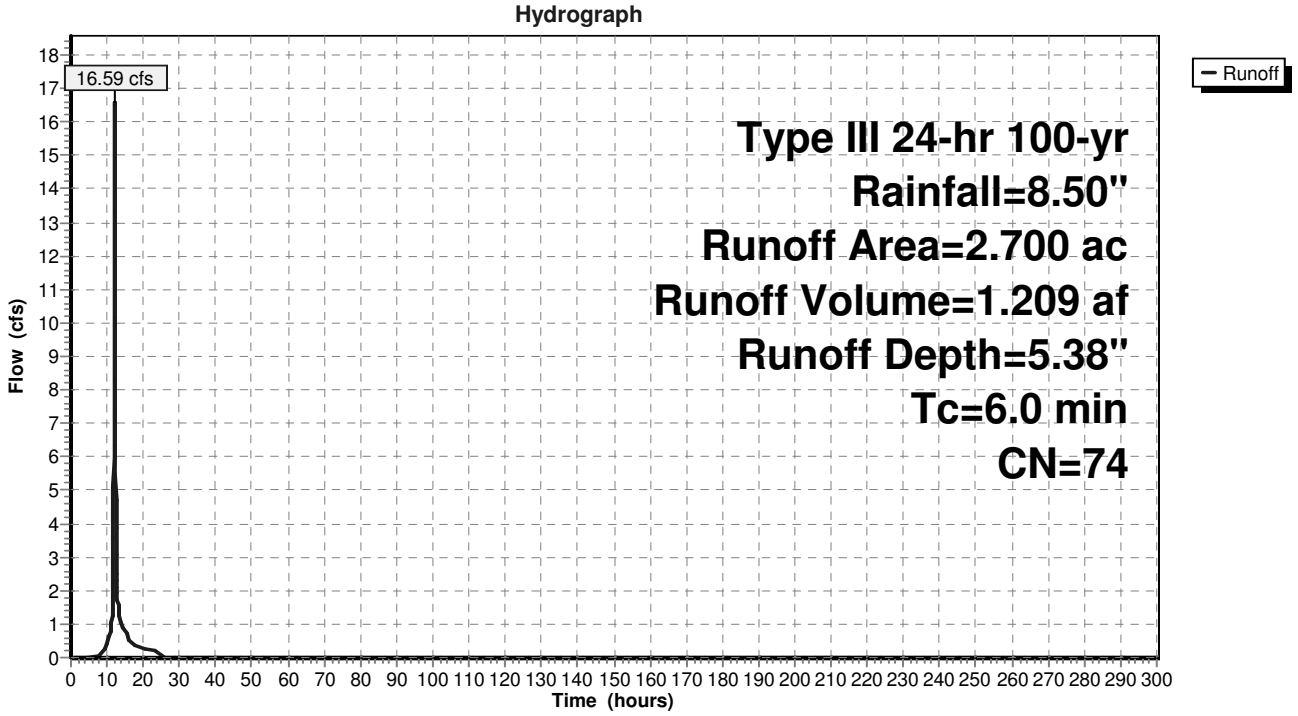
Runoff = 16.59 cfs @ 12.09 hrs, Volume= 1.209 af, Depth= 5.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
2.300	71	Meadow, non-grazed, HSG C
0.200	98	Water Surface
2.700	74	Weighted Average
2.400		Pervious Area
0.300		Impervious Area

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

Subcatchment 5.5S:



Summary for Subcatchment 5.6S:

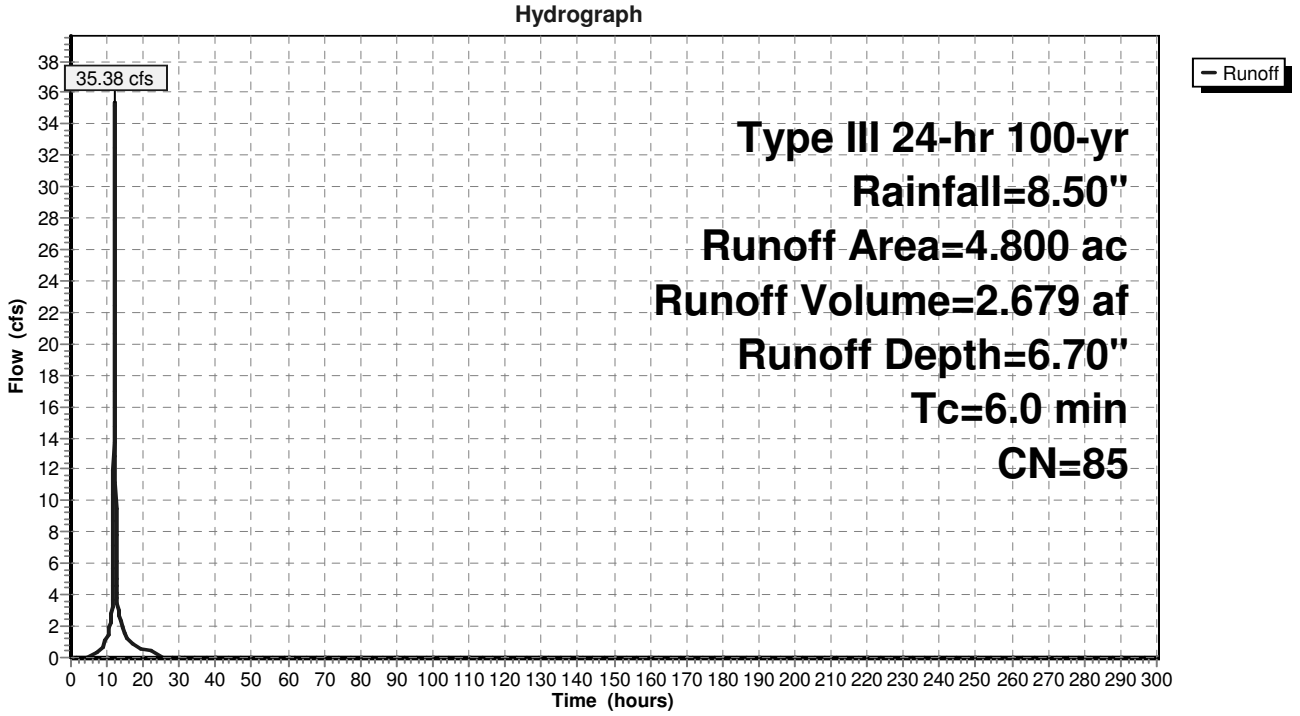
Runoff = 35.38 cfs @ 12.09 hrs, Volume= 2.679 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
2.100	98	Paved parking & roofs
1.000	74	>75% Grass cover, Good, HSG C
1.400	71	Meadow, non-grazed, HSG C
0.300	98	Water Surface
4.800	85	Weighted Average
2.400		Pervious Area
2.400		Impervious Area

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

Subcatchment 5.6S:



Summary for Subcatchment 5.7S:

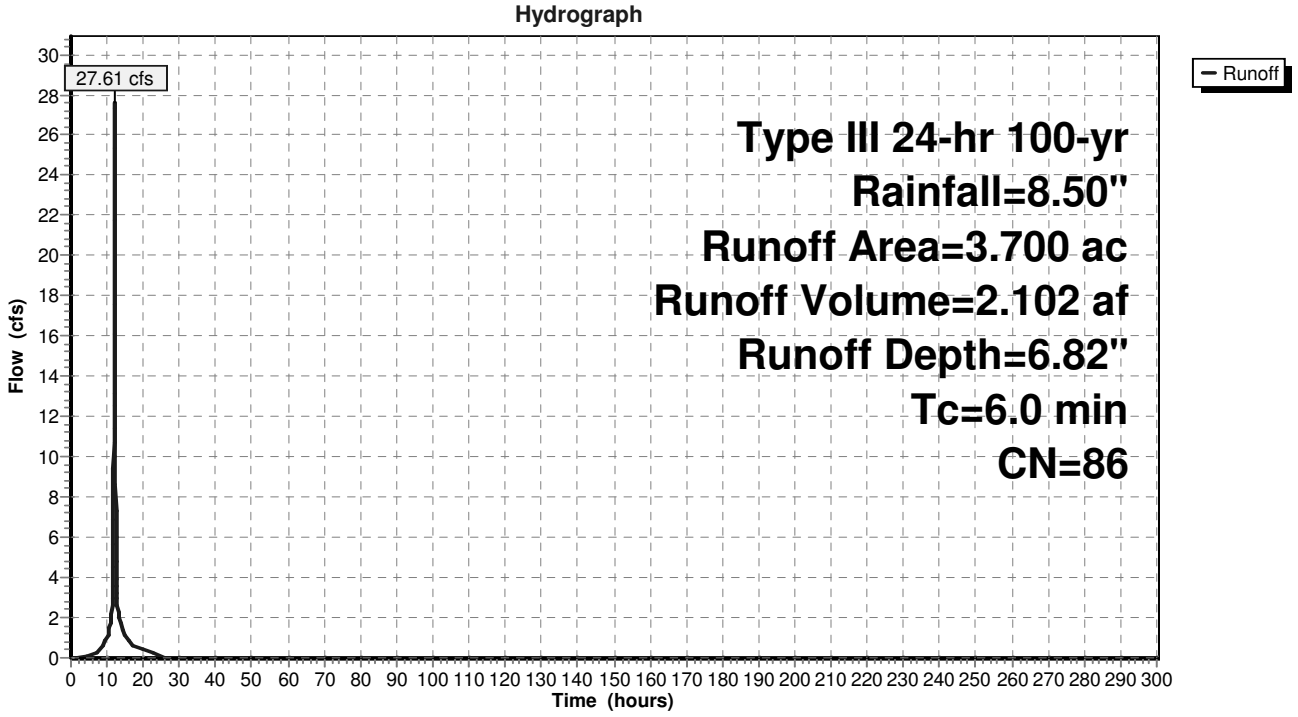
Runoff = 27.61 cfs @ 12.09 hrs, Volume= 2.102 af, Depth= 6.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
1.700	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
0.700	71	Meadow, non-grazed, HSG C
0.800	73	Woods, Fair, HSG C
0.200	98	Water Surface
3.700	86	Weighted Average
1.800		Pervious Area
1.900		Impervious Area

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

Subcatchment 5.7S:



Summary for Subcatchment 5.8S:

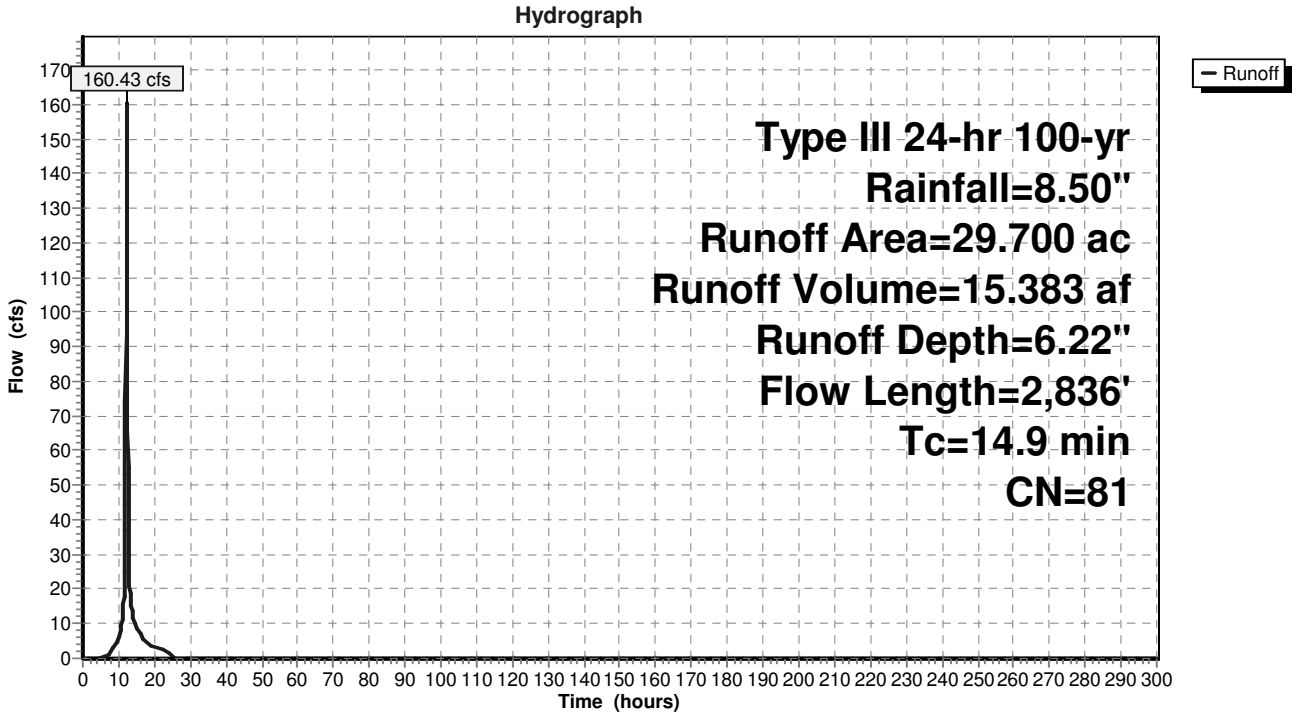
Runoff = 160.43 cfs @ 12.20 hrs, Volume= 15.383 af, Depth= 6.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
4.700	98	Paved parking & roofs
2.400	74	>75% Grass cover, Good, HSG C
4.500	71	Meadow, non-grazed, HSG C
10.100	70	Woods, Good, HSG C
1.200	83	Woods, Poor, HSG D
1.700	98	Water Surface
5.100	94	Urban commercial, 85% imp, HSG C
29.700	81	Weighted Average
18.965		Pervious Area
10.735		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0900	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.4	136	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.4	2,600	0.0390	5.15	10.30	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=0.50' Z= 2.0 '/' Top.W=5.00' n= 0.030 Earth, grassed & winding
14.9	2,836	Total			

Subcatchment 5.8S:

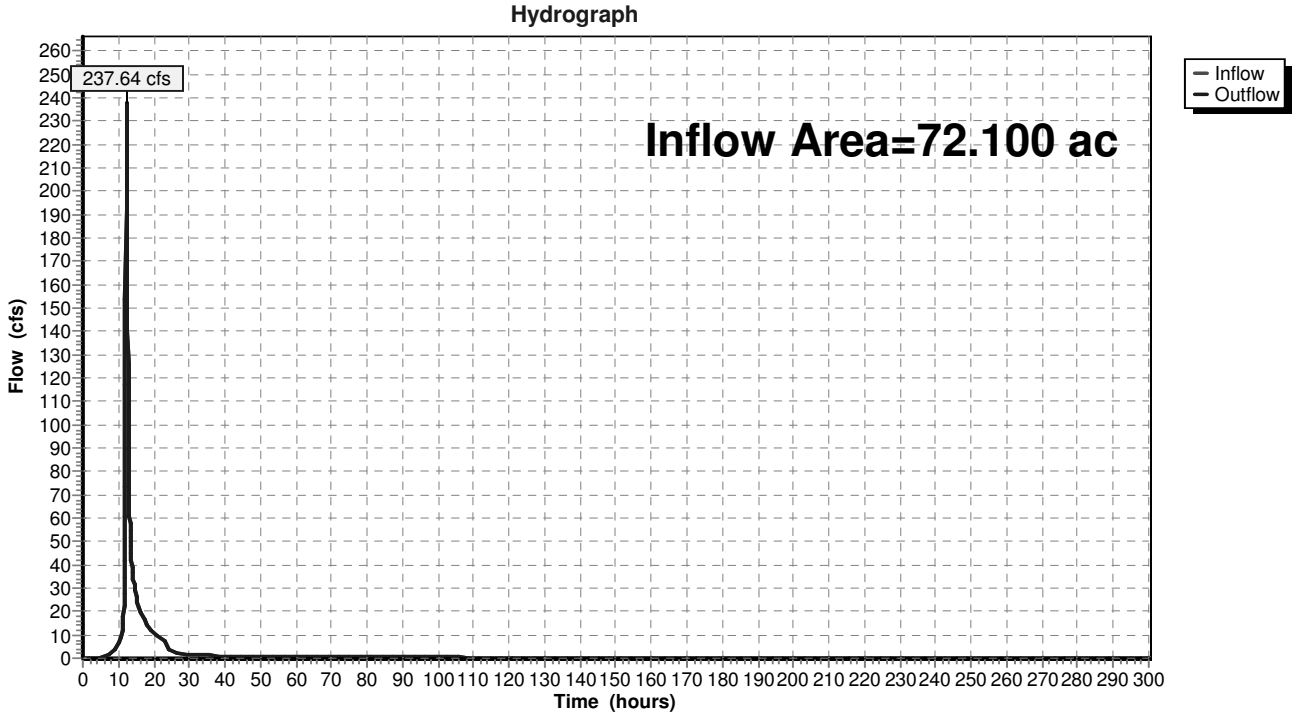


Summary for Reach DP 5: Design Point 5

Inflow Area = 72.100 ac, 53.86% Impervious, Inflow Depth = 6.72" for 100-yr event
Inflow = 237.64 cfs @ 12.26 hrs, Volume= 40.403 af
Outflow = 237.64 cfs @ 12.26 hrs, Volume= 40.403 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 5: Design Point 5



Summary for Pond 5.1P: Pocket Wetland (W-4)

Inflow Area = 2.400 ac, 75.00% Impervious, Inflow Depth = 7.42" for 100-yr event
Inflow = 18.84 cfs @ 12.09 hrs, Volume= 1.484 af
Outflow = 8.46 cfs @ 12.27 hrs, Volume= 1.483 af, Atten= 55%, Lag= 11.1 min
Primary = 8.46 cfs @ 12.27 hrs, Volume= 1.483 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 678.00' Surf.Area= 9,300 sf Storage= 19,400 cf
Peak Elev= 680.49' @ 12.27 hrs Surf.Area= 15,000 sf Storage= 49,555 cf (30,155 cf above start)
Flood Elev= 681.00' Surf.Area= 16,250 sf Storage= 57,525 cf (38,125 cf above start)

Plug-Flow detention time= 1,140.1 min calculated for 1.037 af (70% of inflow)
Center-of-Mass det. time= 722.3 min (1,493.2 - 770.9)

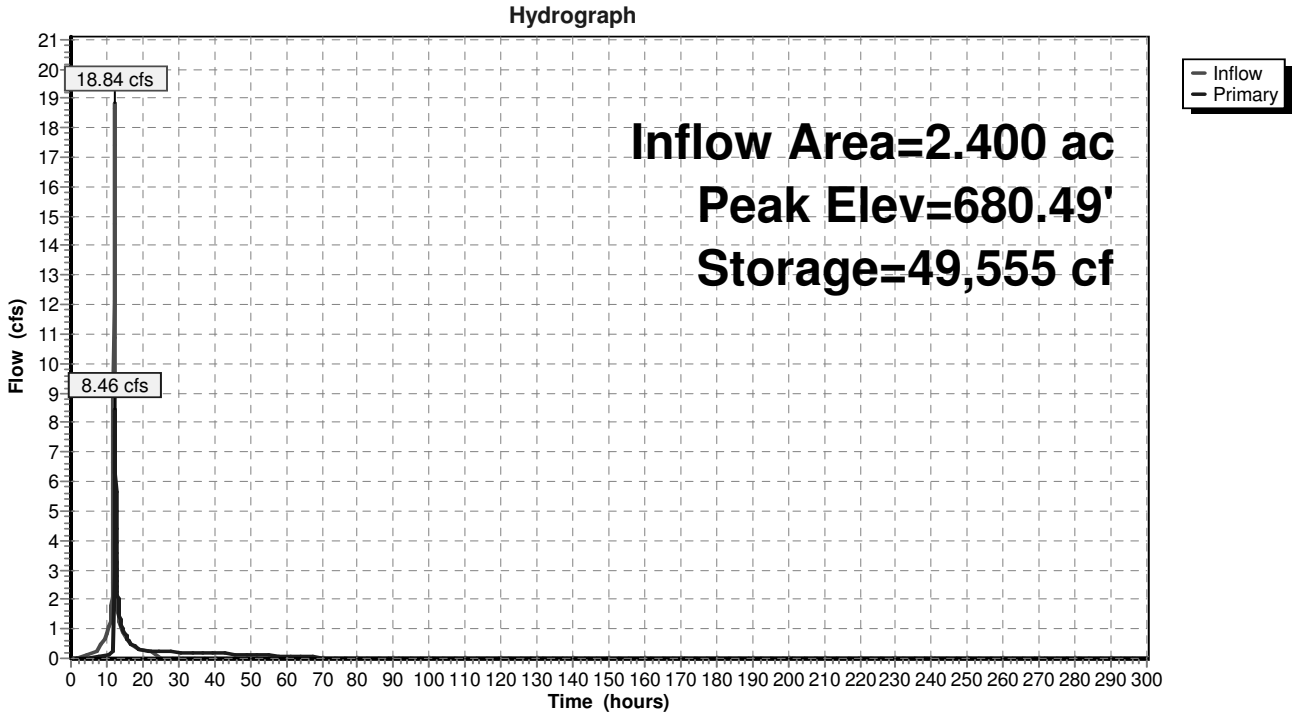
Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	75,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	300	0	0
674.00	1,600	1,900	1,900
676.00	3,300	4,900	6,800
678.00	9,300	12,600	19,400
680.00	13,800	23,100	42,500
682.00	18,700	32,500	75,000

Device	Routing	Invert	Outlet Devices
#1	Primary	678.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	680.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=8.39 cfs @ 12.27 hrs HW=680.49' TW=667.03' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.25 cfs @ 7.43 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 8.13 cfs @ 2.09 fps)

Pond 5.1P: Pocket Wetland (W-4)



Summary for Pond 5.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 3.300 ac, 63.64% Impervious, Inflow Depth = 7.05" for 100-yr event
Inflow = 10.72 cfs @ 12.25 hrs, Volume= 1.940 af
Outflow = 1.23 cfs @ 14.73 hrs, Volume= 1.937 af, Atten= 89%, Lag= 148.9 min
Primary = 1.23 cfs @ 14.73 hrs, Volume= 1.937 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 666.00' Surf.Area= 13,600 sf Storage= 42,650 cf
Peak Elev= 667.94' @ 14.73 hrs Surf.Area= 19,240 sf Storage= 74,583 cf (31,933 cf above start)
Flood Elev= 669.00' Surf.Area= 22,350 sf Storage= 96,525 cf (53,875 cf above start)

Plug-Flow detention time= 1,687.4 min calculated for 0.958 af (49% of inflow)
Center-of-Mass det. time= 382.0 min (1,710.6 - 1,328.7)

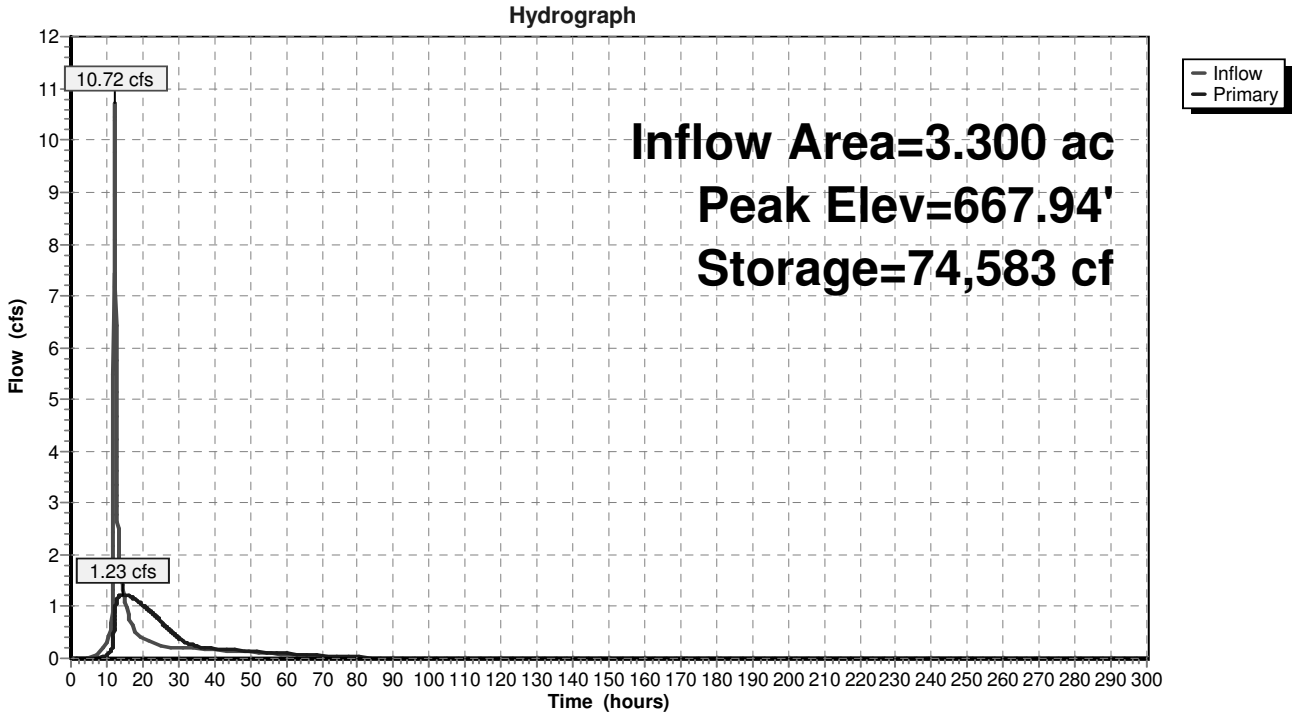
Volume	Invert	Avail.Storage	Storage Description
#1	660.50'	120,350 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
660.50	4,400	0	0
662.00	5,800	7,650	7,650
664.00	7,800	13,600	21,250
666.00	13,600	21,400	42,650
668.00	19,400	33,000	75,650
670.00	25,300	44,700	120,350

Device	Routing	Invert	Outlet Devices
#1	Primary	666.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	668.25'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.23 cfs @ 14.73 hrs HW=667.94' TW=656.06' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 1.23 cfs @ 6.27 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 5.3P: Micropool Extended Detention (P-1)

Inflow Area = 13.400 ac, 69.40% Impervious, Inflow Depth = 7.24" for 100-yr event
Inflow = 79.23 cfs @ 12.09 hrs, Volume= 8.080 af
Outflow = 46.96 cfs @ 12.21 hrs, Volume= 8.073 af, Atten= 41%, Lag= 7.2 min
Primary = 46.96 cfs @ 12.21 hrs, Volume= 8.073 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 654.00' Surf.Area= 24,400 sf Storage= 64,450 cf
Peak Elev= 657.18' @ 12.21 hrs Surf.Area= 35,442 sf Storage= 159,315 cf (94,865 cf above start)
Flood Elev= 657.00' Surf.Area= 34,800 sf Storage= 153,050 cf (88,600 cf above start)

Plug-Flow detention time= 651.7 min calculated for 6.593 af (82% of inflow)
Center-of-Mass det. time= 289.7 min (1,288.4 - 998.7)

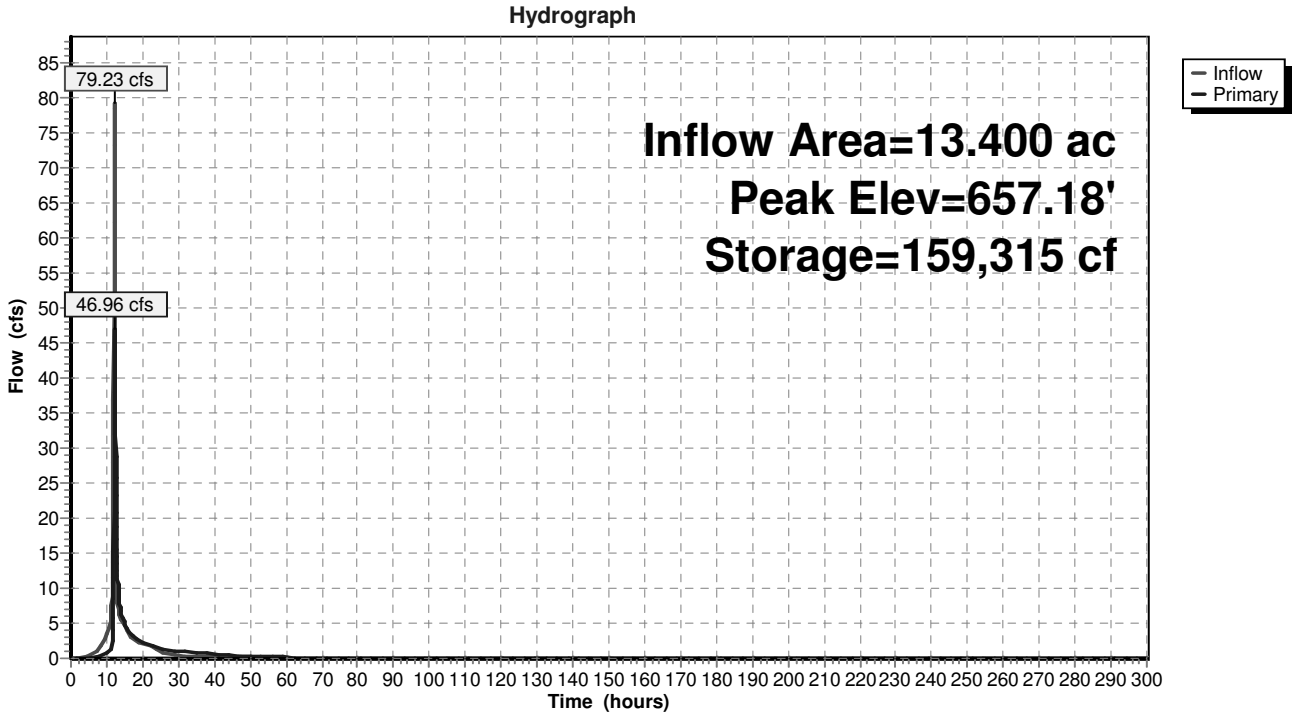
Volume	Invert	Avail.Storage	Storage Description
#1	649.00'	189,650 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
649.00	7,900	0	0
650.00	9,000	8,450	8,450
652.00	11,300	20,300	28,750
654.00	24,400	35,700	64,450
656.00	31,200	55,600	120,050
658.00	38,400	69,600	189,650

Device	Routing	Invert	Outlet Devices
#1	Primary	654.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	655.75'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=46.76 cfs @ 12.21 hrs HW=657.17' TW=628.12' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 1.62 cfs @ 8.23 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 45.14 cfs @ 3.96 fps)

Pond 5.3P: Micropool Extended Detention (P-1)



Summary for Pond 5.4P: Micropool Extended Detention Pond (P-1)

Inflow Area = 17.800 ac, 79.78% Impervious, Inflow Depth = 7.54" for 100-yr event
Inflow = 140.86 cfs @ 12.09 hrs, Volume= 11.182 af
Outflow = 101.90 cfs @ 12.17 hrs, Volume= 11.009 af, Atten= 28%, Lag= 4.9 min
Primary = 101.90 cfs @ 12.17 hrs, Volume= 11.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 636.00' Surf.Area= 17,300 sf Storage= 69,900 cf
Peak Elev= 640.05' @ 12.17 hrs Surf.Area= 29,675 sf Storage= 165,452 cf (95,552 cf above start)
Flood Elev= 640.00' Surf.Area= 29,488 sf Storage= 163,964 cf (94,064 cf above start)

Plug-Flow detention time= 620.6 min calculated for 9.404 af (84% of inflow)
Center-of-Mass det. time= 454.9 min (1,222.4 - 767.5)

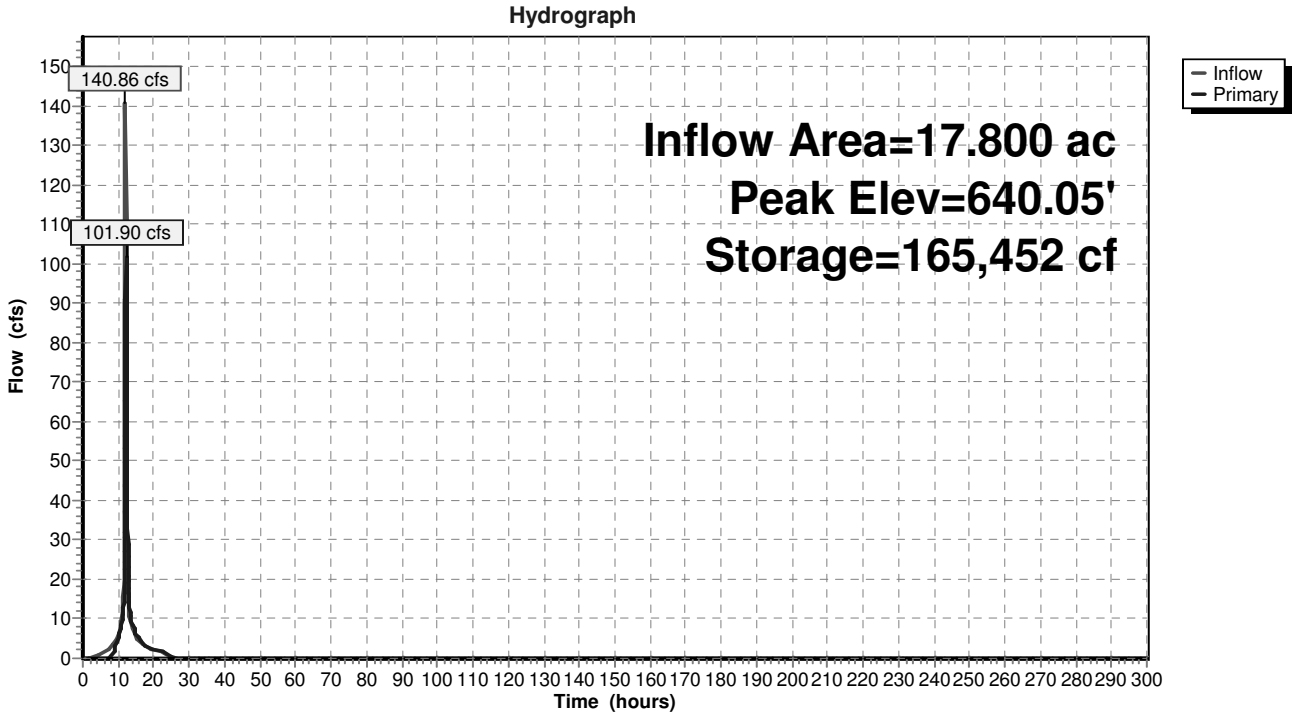
Volume	Invert	Avail.Storage	Storage Description
#1	628.00'	195,308 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
628.00	4,600	0	0
630.00	6,100	10,700	10,700
632.00	7,900	14,000	24,700
634.00	10,000	17,900	42,600
636.00	17,300	27,300	69,900
638.00	23,638	40,938	110,838
640.00	29,488	53,126	163,964
641.00	33,200	31,344	195,308

Device	Routing	Invert	Outlet Devices
#1	Primary	636.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	637.60'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=100.43 cfs @ 12.17 hrs HW=640.03' TW=627.66' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.05 cfs @ 9.61 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 100.38 cfs @ 5.17 fps)

Pond 5.4P: Micropool Extended Detention Pond (P-1)



Summary for Pond 5.5P: Extended Detention Pond (Design 2) - Dry Pond

Inflow Area = 33.900 ac, 70.21% Impervious, Inflow Depth > 7.18" for 100-yr event
Inflow = 160.22 cfs @ 12.17 hrs, Volume= 20.291 af
Outflow = 98.33 cfs @ 12.45 hrs, Volume= 20.242 af, Atten= 39%, Lag= 17.1 min
Primary = 98.33 cfs @ 12.45 hrs, Volume= 20.242 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Peak Elev= 629.11' @ 12.45 hrs Surf.Area= 40,882 sf Storage= 264,263 cf
Flood Elev= 629.00' Surf.Area= 40,550 sf Storage= 259,975 cf

Plug-Flow detention time= 948.9 min calculated for 20.239 af (100% of inflow)
Center-of-Mass det. time= 911.1 min (2,135.4 - 1,224.3)

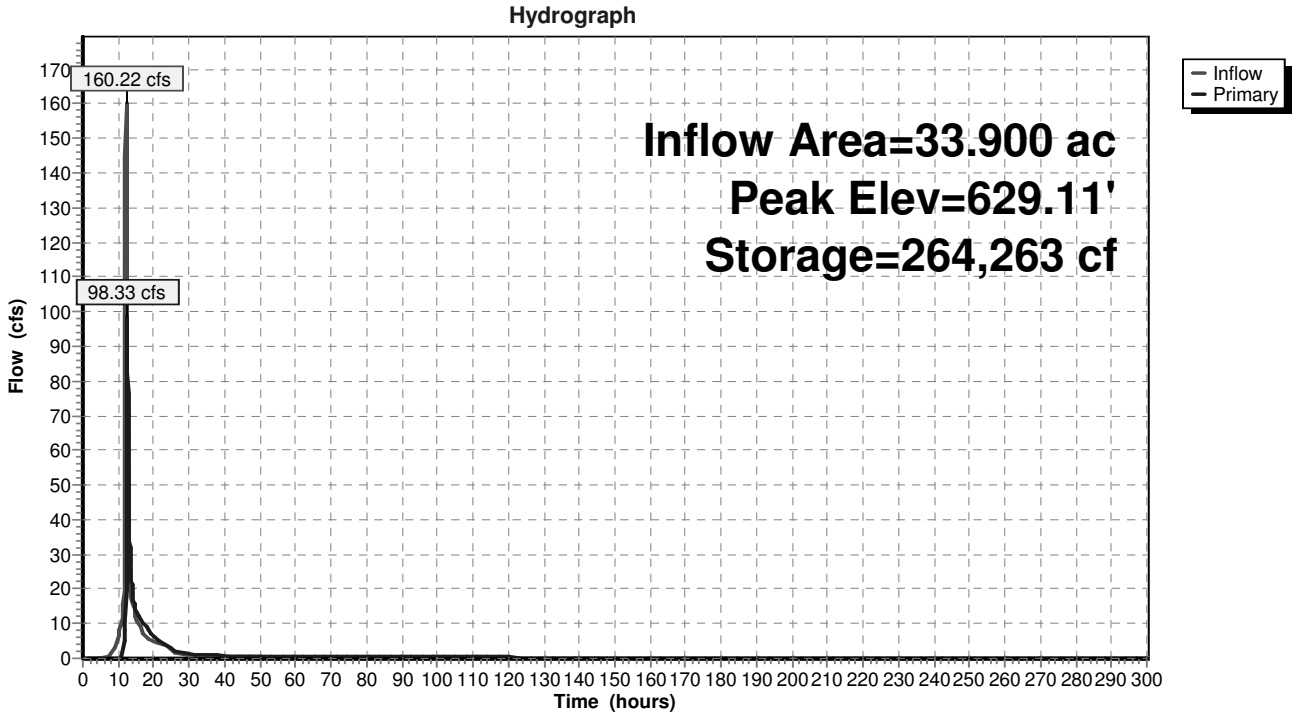
Volume	Invert	Avail.Storage	Storage Description
#1	620.00'	302,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
620.00	20,400	0	0
622.00	23,400	43,800	43,800
624.00	26,500	49,900	93,700
626.00	31,700	58,200	151,900
628.00	37,400	69,100	221,000
630.00	43,700	81,100	302,100

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	624.50'	**18.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	627.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=98.32 cfs @ 12.45 hrs HW=629.11' TW=0.00' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.49 cfs @ 14.45 fps)
- **2=Orifice/Grate** (Orifice Controls 16.71 cfs @ 9.45 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 81.12 cfs @ 4.82 fps)

Pond 5.5P: Extended Detention Pond (Design 2) - Dry Pond



Summary for Pond 5.6P: Pocket Wetland (W-4)

Inflow Area = 4.800 ac, 50.00% Impervious, Inflow Depth = 6.70" for 100-yr event
Inflow = 35.38 cfs @ 12.09 hrs, Volume= 2.679 af
Outflow = 6.33 cfs @ 12.55 hrs, Volume= 2.677 af, Atten= 82%, Lag= 27.7 min
Primary = 6.33 cfs @ 12.55 hrs, Volume= 2.677 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 609.00' Surf.Area= 7,500 sf Storage= 15,000 cf
Peak Elev= 614.32' @ 12.55 hrs Surf.Area= 17,634 sf Storage= 80,885 cf (65,885 cf above start)
Flood Elev= 614.00' Surf.Area= 17,000 sf Storage= 75,400 cf (60,400 cf above start)

Plug-Flow detention time= 1,811.1 min calculated for 2.333 af (87% of inflow)
Center-of-Mass det. time= 1,521.0 min (2,309.5 - 788.4)

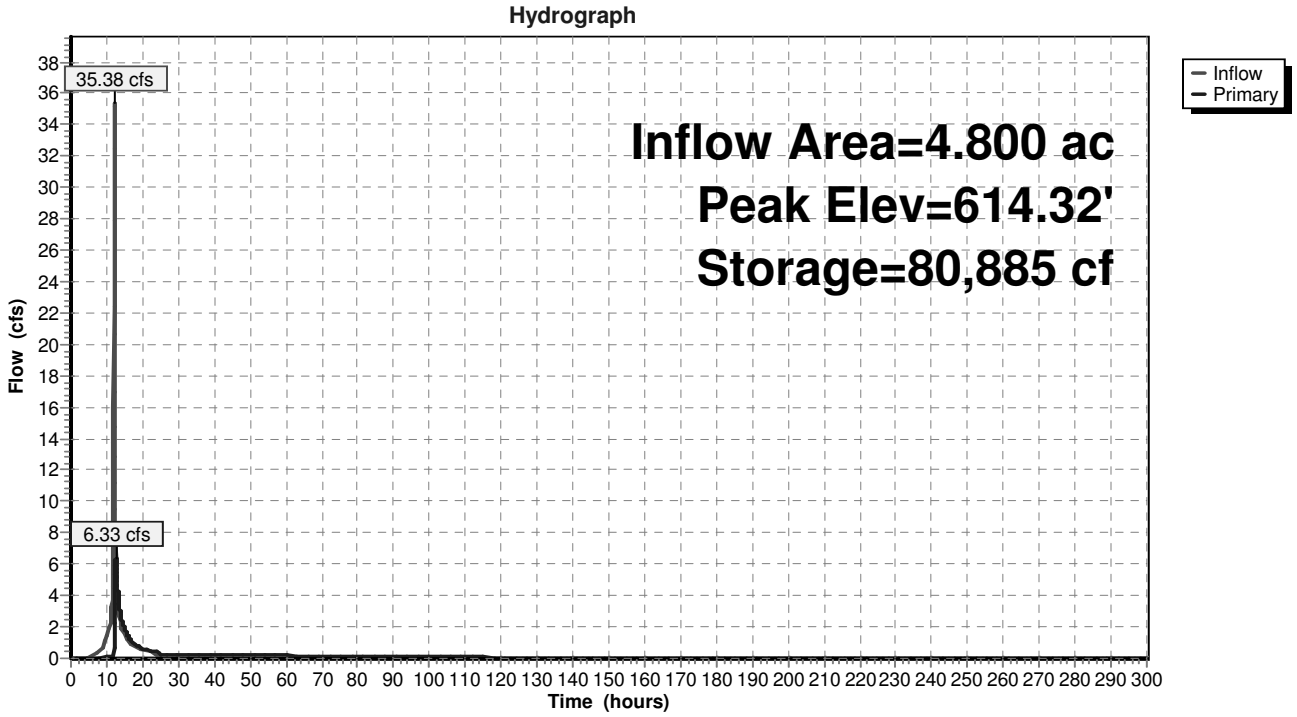
Volume	Invert	Avail.Storage	Storage Description
#1	601.00'	93,400 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
601.00	220	0	0
602.00	360	290	290
604.00	850	1,210	1,500
606.00	1,900	2,750	4,250
608.00	3,400	5,300	9,550
609.00	7,500	5,450	15,000
610.00	9,100	8,300	23,300
612.00	13,000	22,100	45,400
614.00	17,000	30,000	75,400
615.00	19,000	18,000	93,400

Device	Routing	Invert	Outlet Devices
#1	Primary	609.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	613.50'	**2.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=6.33 cfs @ 12.55 hrs HW=614.32' TW=0.00' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.24 cfs @ 11.01 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 6.09 cfs @ 2.98 fps)

Pond 5.6P: Pocket Wetland (W-4)



Summary for Pond 5.7P: Pocket Wetland (W-4)

Inflow Area = 3.700 ac, 51.35% Impervious, Inflow Depth = 6.82" for 100-yr event
Inflow = 27.61 cfs @ 12.09 hrs, Volume= 2.102 af
Outflow = 21.99 cfs @ 12.15 hrs, Volume= 2.100 af, Atten= 20%, Lag= 4.0 min
Primary = 21.99 cfs @ 12.15 hrs, Volume= 2.100 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 656.00' Surf.Area= 8,300 sf Storage= 18,240 cf
Peak Elev= 658.38' @ 12.15 hrs Surf.Area= 12,667 sf Storage= 43,243 cf (25,003 cf above start)
Flood Elev= 659.00' Surf.Area= 13,750 sf Storage= 51,415 cf (33,175 cf above start)

Plug-Flow detention time= 753.3 min calculated for 1.682 af (80% of inflow)
Center-of-Mass det. time= 528.3 min (1,314.1 - 785.8)

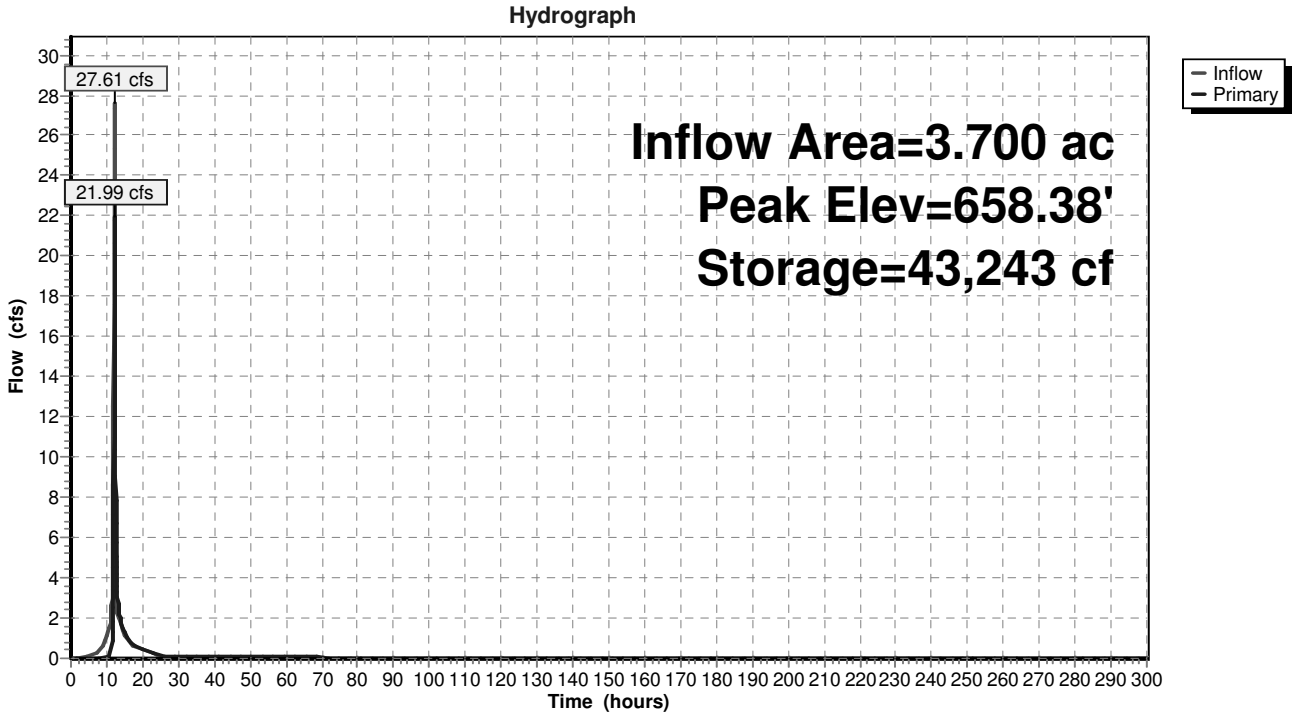
Volume	Invert	Avail.Storage	Storage Description
#1	648.00'	66,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

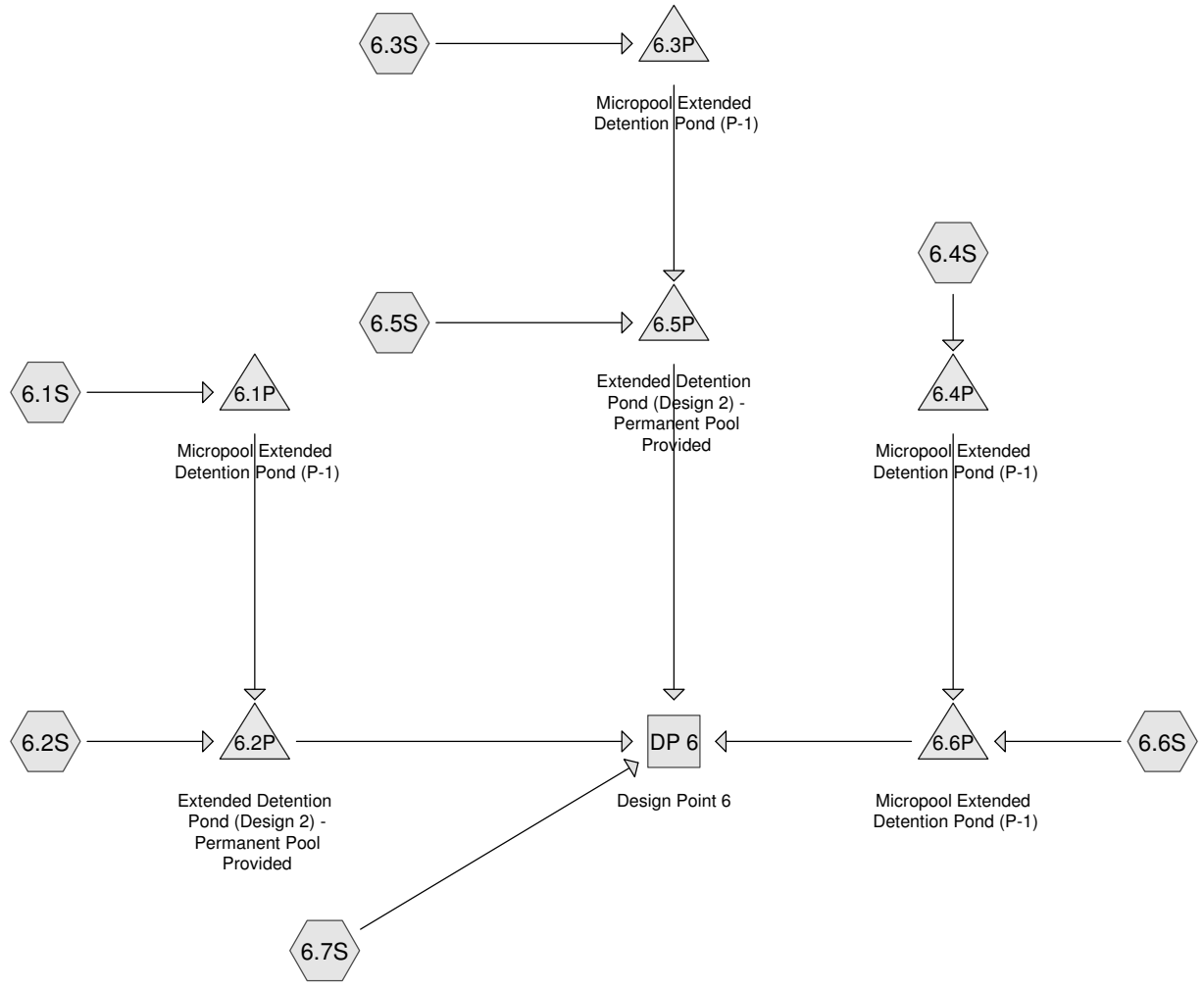
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
648.00	240	0	0
650.00	650	890	890
652.00	1,400	2,050	2,940
654.00	2,800	4,200	7,140
656.00	8,300	11,100	18,240
658.00	12,000	20,300	38,540
660.00	15,500	27,500	66,040

Device	Routing	Invert	Outlet Devices
#1	Primary	656.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	657.50'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=21.85 cfs @ 12.15 hrs HW=658.38' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.09 cfs @ 7.33 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 21.76 cfs @ 3.10 fps)

Pond 5.7P: Pocket Wetland (W-4)





Subcat Reach Pond Link

Drainage Diagram for Union Place Post-development_DP6

Prepared by {enter your company name here}, Printed 10/12/2010

Summary for Subcatchment 6.1S:

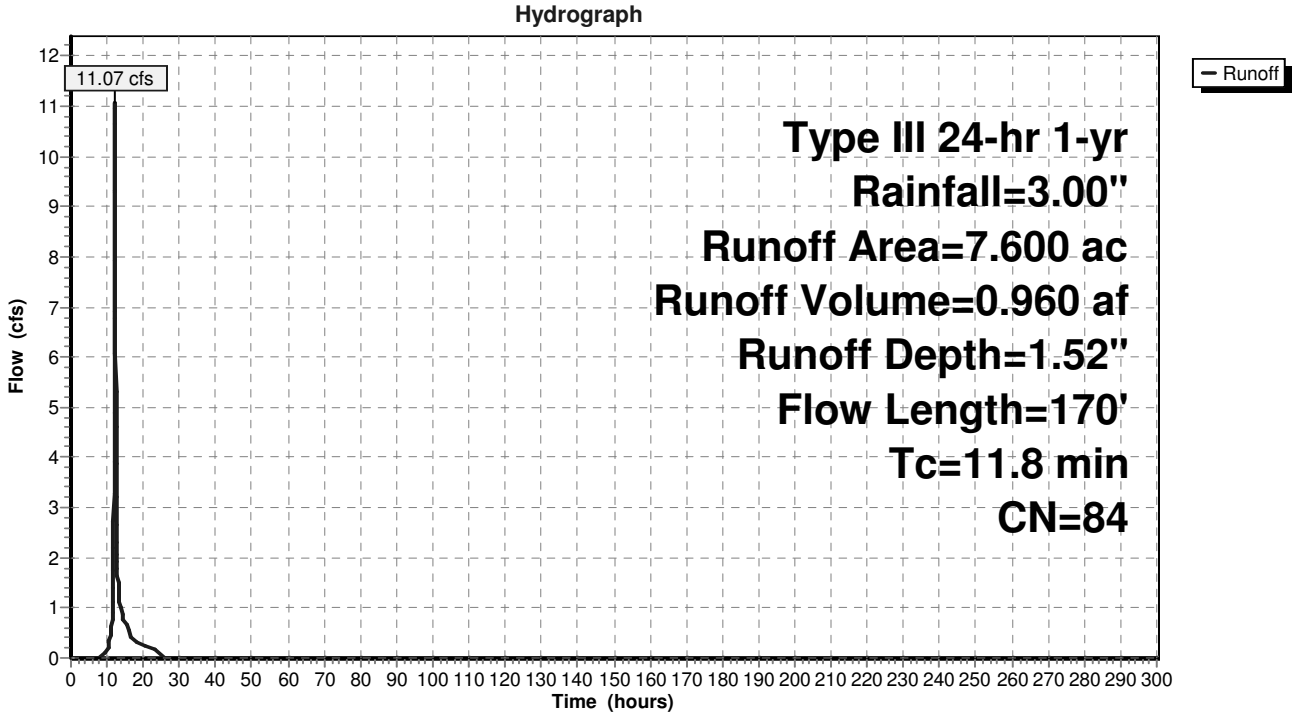
Runoff = 11.07 cfs @ 12.17 hrs, Volume= 0.960 af, Depth= 1.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
3.100	98	Paved parking & roofs
3.700	74	>75% Grass cover, Good, HSG C
0.400	71	Meadow, non-grazed, HSG C
0.200	70	Woods, Good, HSG C
0.200	98	Water Surface
7.600	84	Weighted Average
4.300		Pervious Area
3.300		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.5	70	0.1300	2.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.8	170	Total			

Subcatchment 6.1S:



Summary for Subcatchment 6.2S:

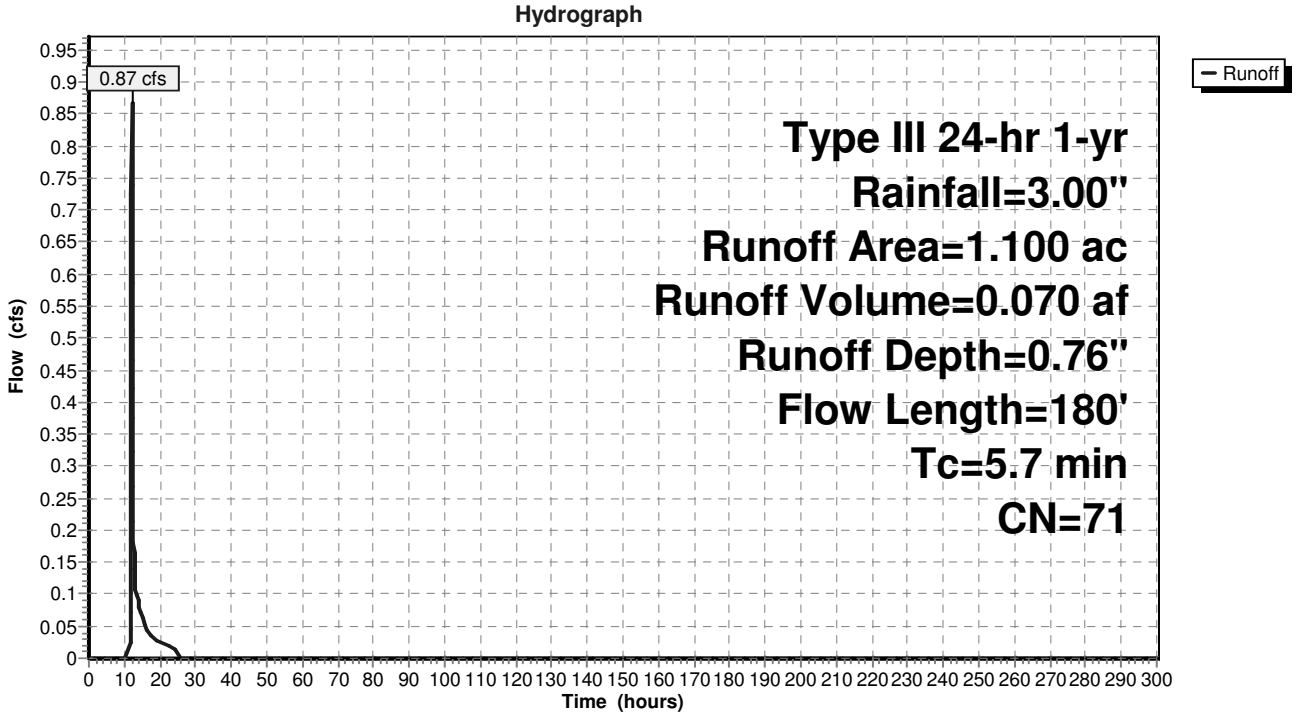
Runoff = 0.87 cfs @ 12.10 hrs, Volume= 0.070 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.800	71	Meadow, non-grazed, HSG C
0.300	70	Woods, Good, HSG C
1.100	71	Weighted Average
1.100		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0900	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.6	80	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.7	180	Total			

Subcatchment 6.2S:



Summary for Subcatchment 6.3S:

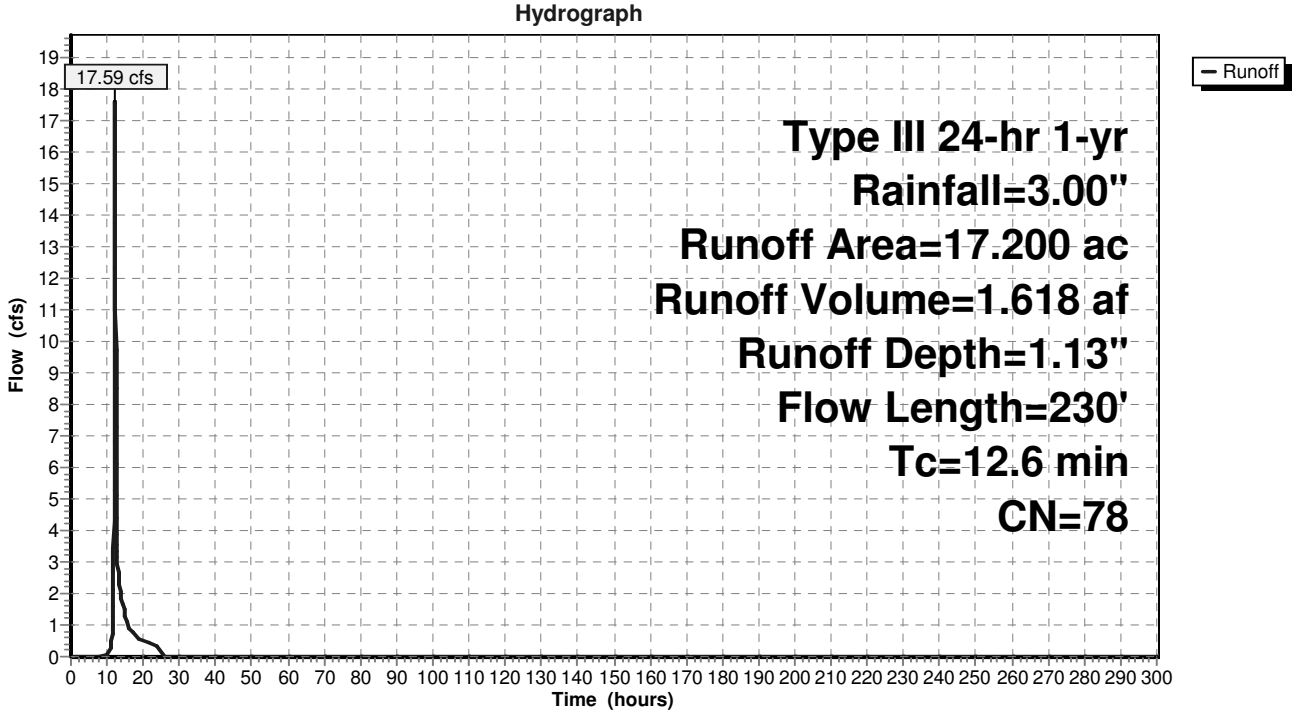
Runoff = 17.59 cfs @ 12.19 hrs, Volume= 1.618 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
4.000	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
2.800	74	>75% Grass cover, Good, HSG C
6.400	71	Meadow, non-grazed, HSG C
3.400	70	Woods, Good, HSG C
0.400	98	Water Surface
17.200	78	Weighted Average
12.800		Pervious Area
4.400		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.8	130	0.1600	2.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	230	Total			

Subcatchment 6.3S:



Summary for Subcatchment 6.4S:

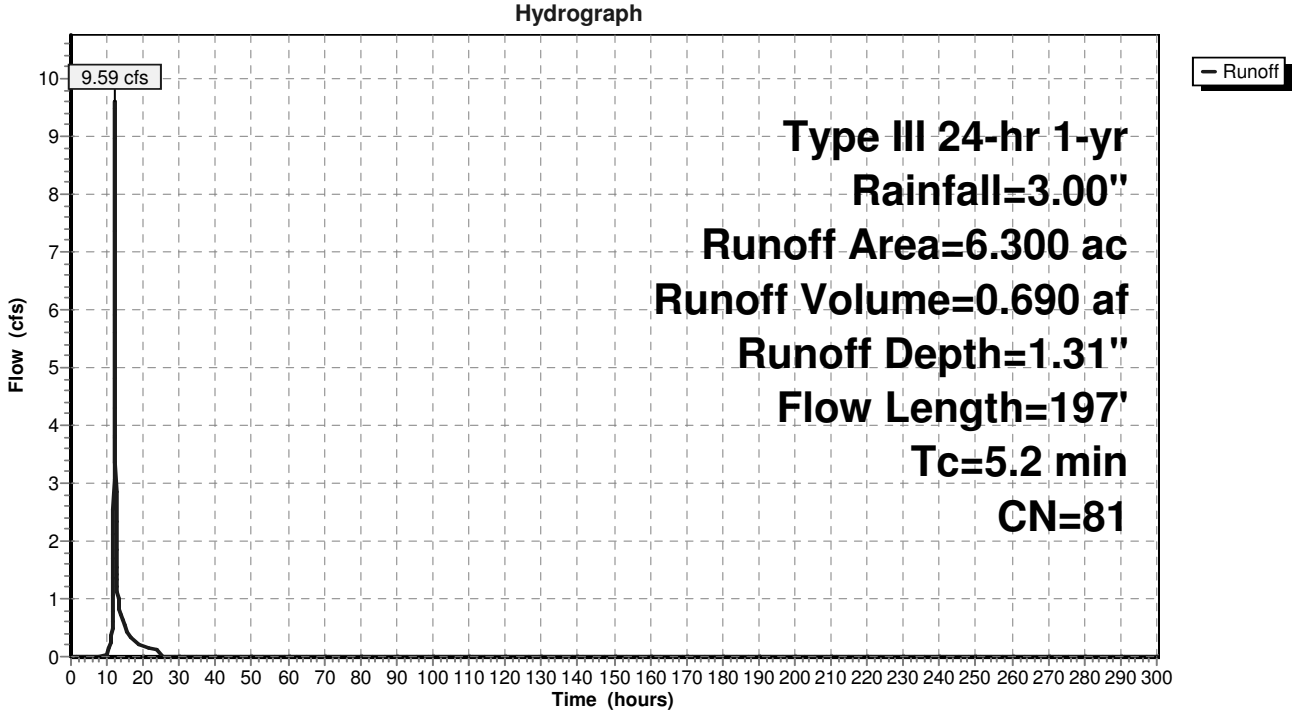
Runoff = 9.59 cfs @ 12.08 hrs, Volume= 0.690 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
1.600	98	Paved parking & roofs
0.300	87	Dirt roads, HSG C
1.700	74	>75% Grass cover, Good, HSG C
1.500	71	Meadow, non-grazed, HSG C
0.900	70	Woods, Good, HSG C
0.300	98	Water Surface
6.300	81	Weighted Average
4.400		Pervious Area
1.900		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.1100	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.5	97	0.2500	3.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.2	197	Total			

Subcatchment 6.4S:



Summary for Subcatchment 6.5S:

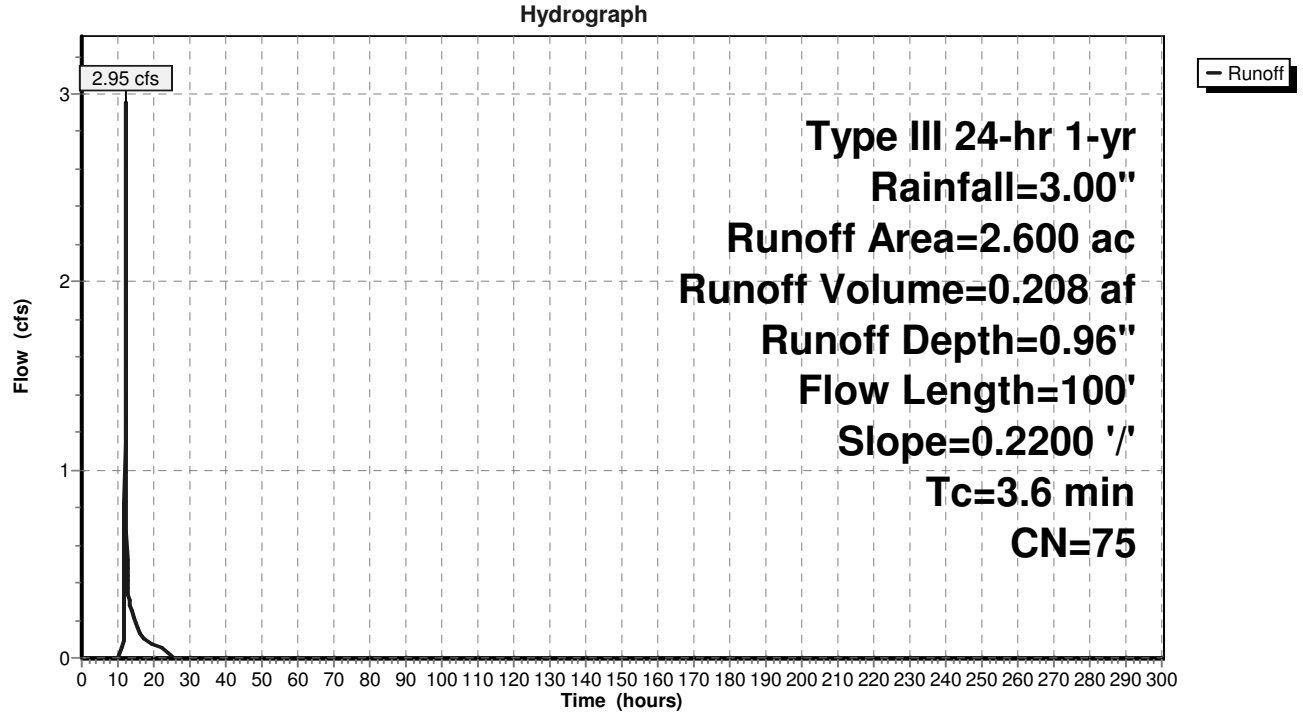
Runoff = 2.95 cfs @ 12.06 hrs, Volume= 0.208 af, Depth= 0.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.400	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
1.700	71	Meadow, non-grazed, HSG C
0.200	70	Woods, Good, HSG C
2.600	75	Weighted Average
2.200		Pervious Area
0.400		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	100	0.2200	0.46		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"

Subcatchment 6.5S:



Summary for Subcatchment 6.6S:

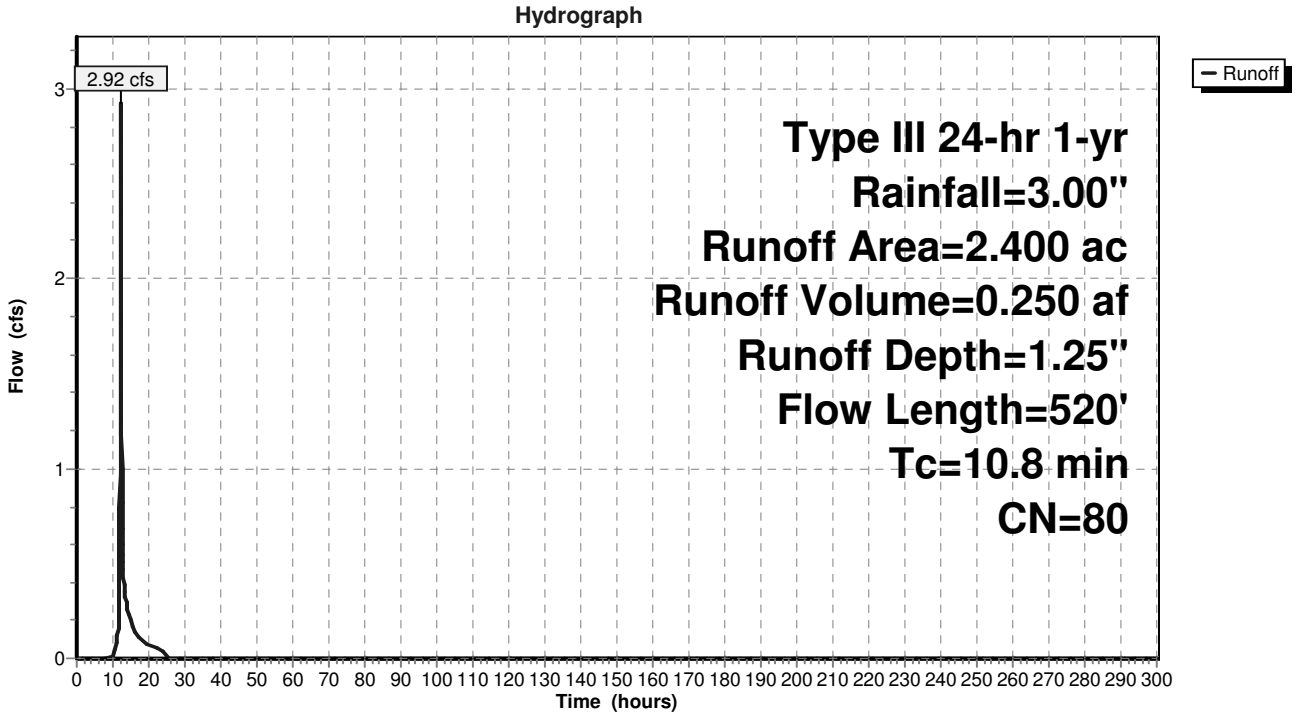
Runoff = 2.92 cfs @ 12.16 hrs, Volume= 0.250 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.500	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
1.200	71	Meadow, non-grazed, HSG C
0.300	70	Woods, Good, HSG C
0.300	98	Water Surface
2.400	80	Weighted Average
1.600		Pervious Area
0.800		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	75	0.0700	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
3.9	25	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.1	140	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	40	0.4500	4.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	240	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.8	520	Total			

Subcatchment 6.6S:



Summary for Subcatchment 6.7S:

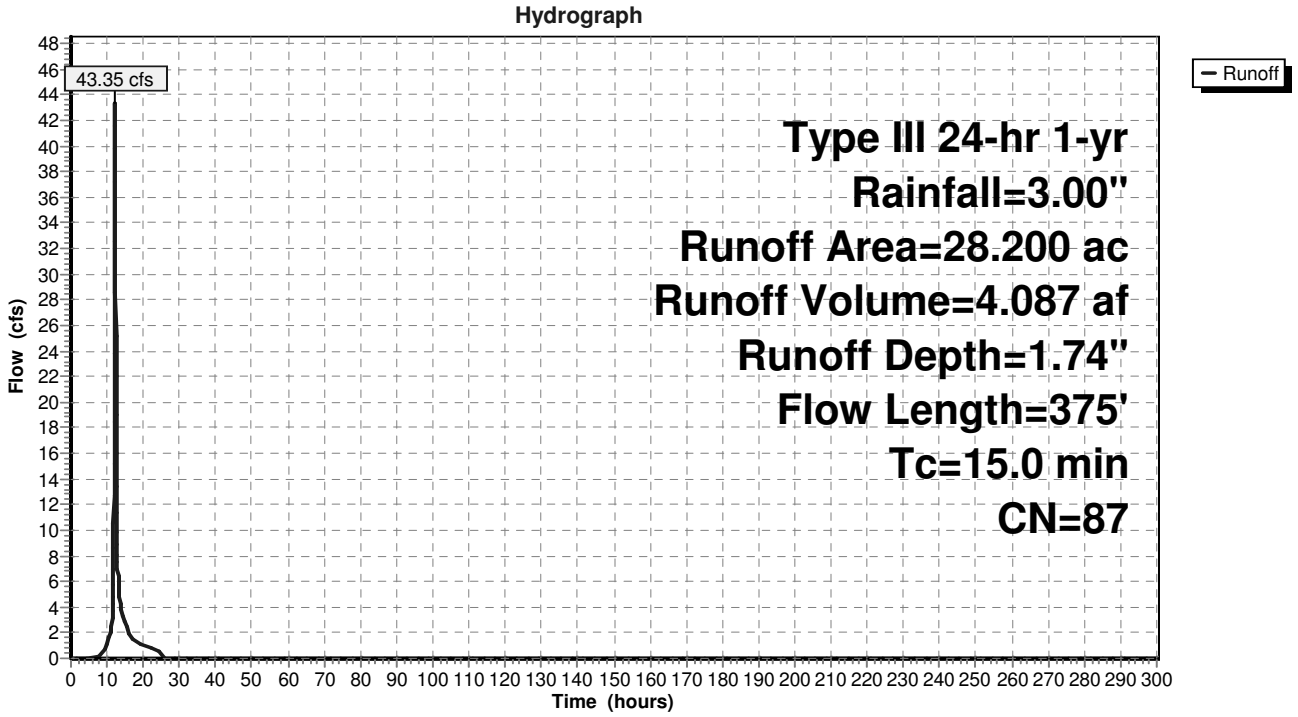
Runoff = 43.35 cfs @ 12.21 hrs, Volume= 4.087 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs
0.200	74	>75% Grass cover, Good, HSG C
2.700	71	Meadow, non-grazed, HSG C
3.700	70	Woods, Good, HSG C
16.300	94	Urban commercial, 85% imp, HSG C
5.100	83	1/4 acre lots, 38% imp, HSG C
28.200	87	Weighted Average
12.207		Pervious Area
15.993		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.8	175	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	100	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.0	375	Total			

Subcatchment 6.7S:

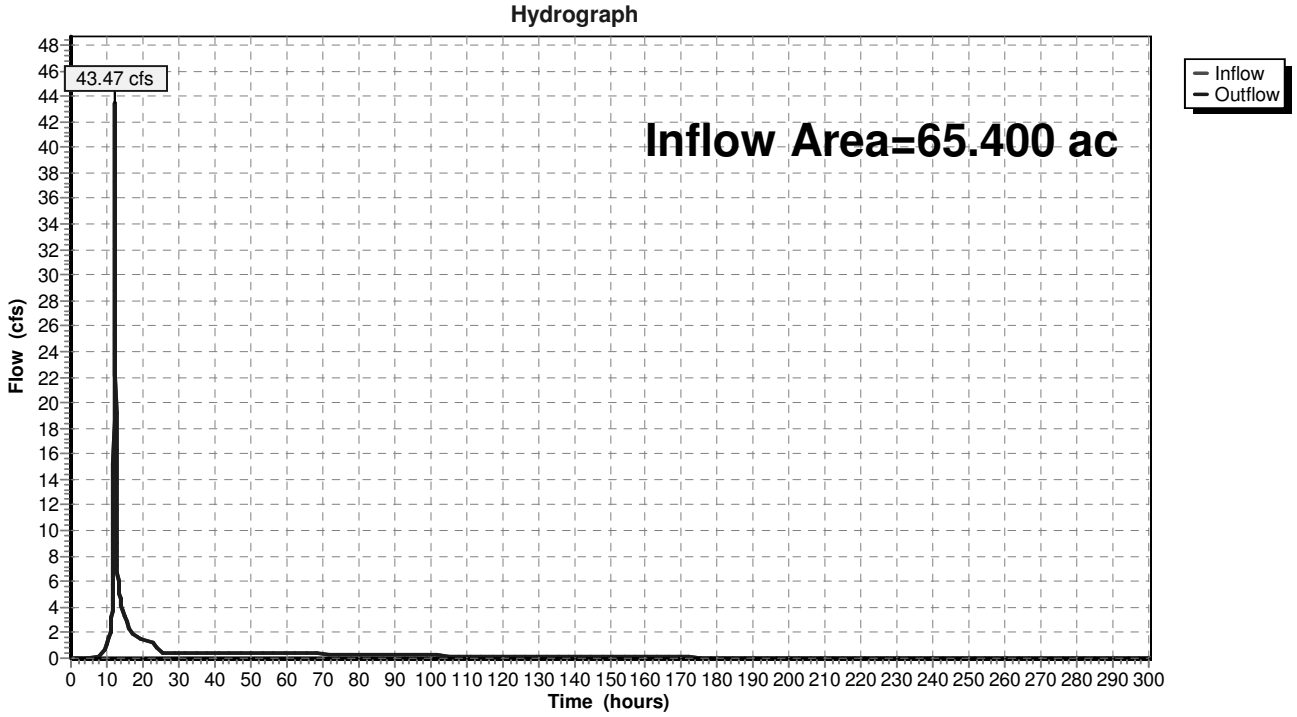


Summary for Reach DP 6: Design Point 6

Inflow Area = 65.400 ac, 40.97% Impervious, Inflow Depth > 1.43" for 1-yr event
Inflow = 43.47 cfs @ 12.21 hrs, Volume= 7.806 af
Outflow = 43.47 cfs @ 12.21 hrs, Volume= 7.806 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 6: Design Point 6



Summary for Pond 6.1P: Micropool Extended Detention Pond (P-1)

Inflow Area = 7.600 ac, 43.42% Impervious, Inflow Depth = 1.52" for 1-yr event
Inflow = 11.07 cfs @ 12.17 hrs, Volume= 0.960 af
Outflow = 1.25 cfs @ 13.24 hrs, Volume= 0.960 af, Atten= 89%, Lag= 64.4 min
Primary = 1.25 cfs @ 13.24 hrs, Volume= 0.960 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 687.00' Surf.Area= 9,450 sf Storage= 23,775 cf
Peak Elev= 688.93' @ 13.24 hrs Surf.Area= 14,108 sf Storage= 46,843 cf (23,068 cf above start)
Flood Elev= 691.00' Surf.Area= 18,550 sf Storage= 80,525 cf (56,750 cf above start)

Plug-Flow detention time= 2,693.5 min calculated for 0.415 af (43% of inflow)
Center-of-Mass det. time= 1,232.2 min (2,070.1 - 837.9)

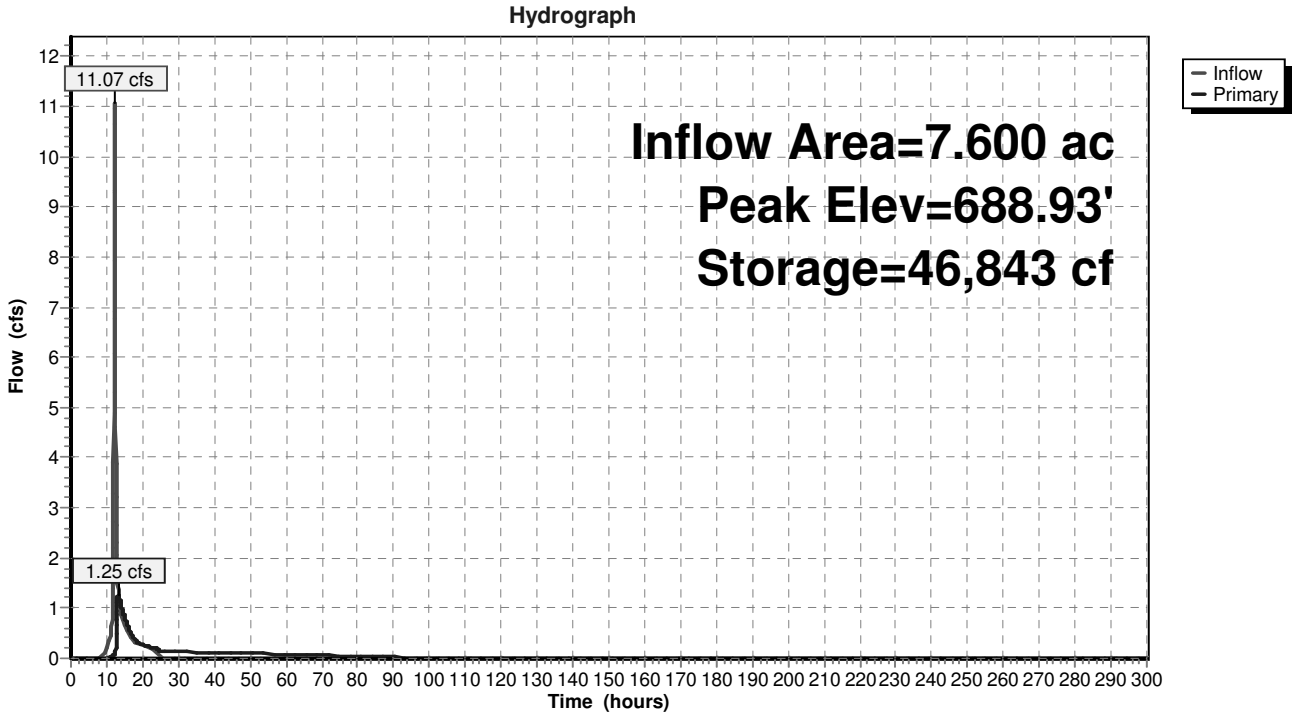
Volume	Invert	Avail.Storage	Storage Description
#1	682.00'	100,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
682.00	2,200	0	0
684.00	3,400	5,600	5,600
686.00	6,700	10,100	15,700
688.00	12,200	18,900	34,600
690.00	16,300	28,500	63,100
692.00	20,800	37,100	100,200

Device	Routing	Invert	Outlet Devices
#1	Primary	687.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	688.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.22 cfs @ 13.24 hrs HW=688.93' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.14 cfs @ 6.54 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.08 cfs @ 1.19 fps)

Pond 6.1P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 8.700 ac, 37.93% Impervious, Inflow Depth = 1.42" for 1-yr event
Inflow = 1.36 cfs @ 13.22 hrs, Volume= 1.030 af
Outflow = 0.08 cfs @ 58.88 hrs, Volume= 1.029 af, Atten= 94%, Lag= 2,739.7 min
Primary = 0.08 cfs @ 58.88 hrs, Volume= 1.029 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 673.00' Surf.Area= 10,250 sf Storage= 30,225 cf
Peak Elev= 674.95' @ 58.88 hrs Surf.Area= 15,190 sf Storage= 55,464 cf (25,239 cf above start)
Flood Elev= 677.00' Surf.Area= 19,650 sf Storage= 91,075 cf (60,850 cf above start)

Plug-Flow detention time= 9,261.9 min calculated for 0.335 af (33% of inflow)
Center-of-Mass det. time= 4,056.7 min (6,046.0 - 1,989.3)

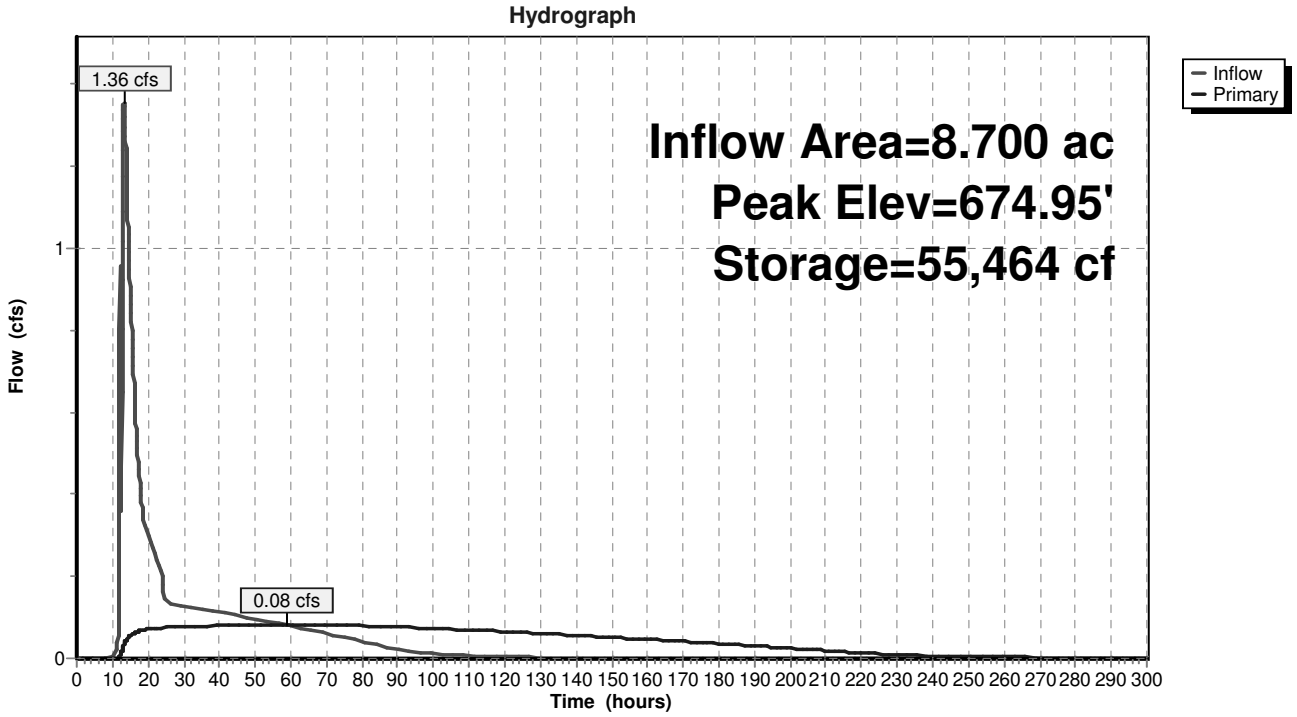
Volume	Invert	Avail.Storage	Storage Description
#1	668.00'	111,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
668.00	3,700	0	0
670.00	5,300	9,000	9,000
672.00	7,200	12,500	21,500
674.00	13,300	20,500	42,000
676.00	17,300	30,600	72,600
678.00	22,000	39,300	111,900

Device	Routing	Invert	Outlet Devices
#1	Primary	673.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	675.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.08 cfs @ 58.88 hrs HW=674.95' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.08 cfs @ 6.61 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 6.3P: Micropool Extended Detention Pond (P-1)

Inflow Area = 17.200 ac, 25.58% Impervious, Inflow Depth = 1.13" for 1-yr event
Inflow = 17.59 cfs @ 12.19 hrs, Volume= 1.618 af
Outflow = 5.34 cfs @ 12.64 hrs, Volume= 1.618 af, Atten= 70%, Lag= 27.2 min
Primary = 5.34 cfs @ 12.64 hrs, Volume= 1.618 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 747.50' Surf.Area= 15,148 sf Storage= 43,193 cf
Peak Elev= 748.99' @ 12.64 hrs Surf.Area= 21,528 sf Storage= 70,835 cf (27,642 cf above start)
Flood Elev= 751.10' Surf.Area= 30,065 sf Storage= 125,041 cf (81,848 cf above start)

Plug-Flow detention time= 2,085.9 min calculated for 0.626 af (39% of inflow)
Center-of-Mass det. time= 762.5 min (1,621.4 - 858.9)

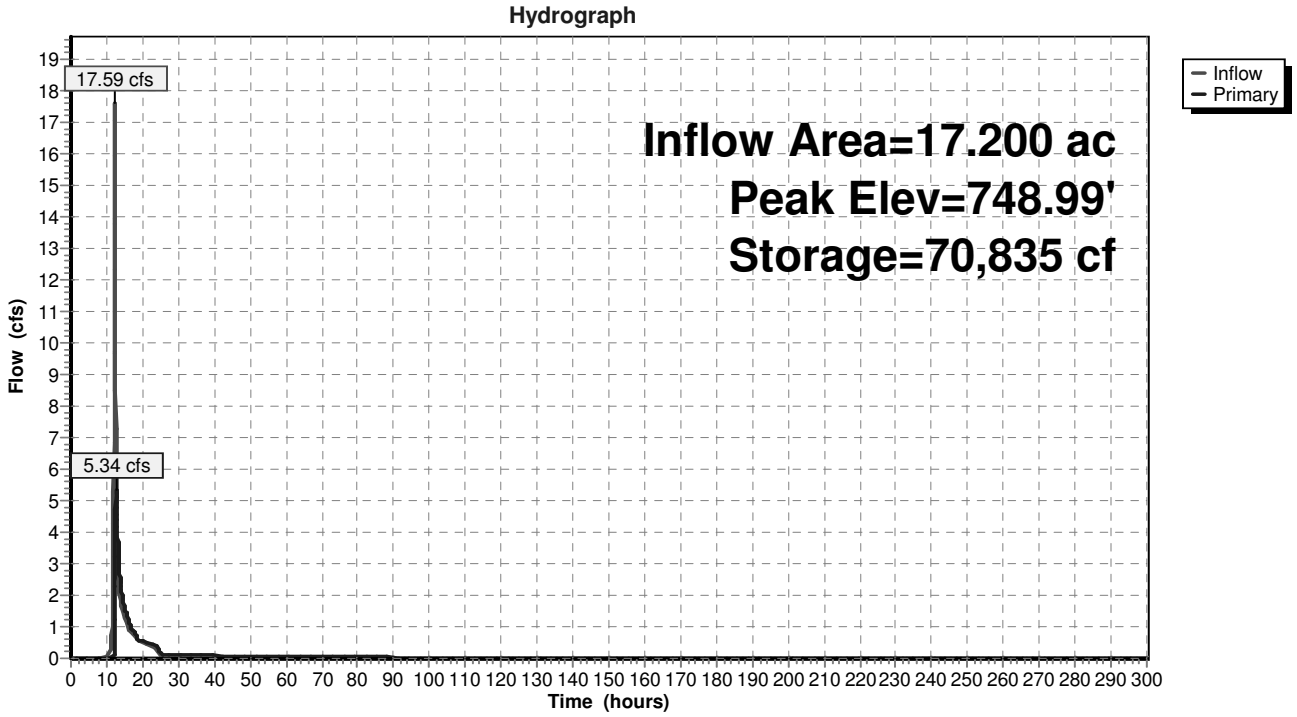
Volume	Invert	Avail.Storage	Storage Description
#1	742.00'	153,780 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
742.00	5,200	0	0
744.00	6,500	11,700	11,700
746.00	7,790	14,290	25,990
748.00	17,600	25,390	51,380
750.00	25,500	43,100	94,480
752.00	33,800	59,300	153,780

Device	Routing	Invert	Outlet Devices
#1	Primary	747.50'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	748.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.32 cfs @ 12.64 hrs HW=748.99' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.12 cfs @ 5.72 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 5.20 cfs @ 2.10 fps)

Pond 6.3P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.4P: Micropool Extended Detention Pond (P-1)

Inflow Area = 6.300 ac, 30.16% Impervious, Inflow Depth = 1.31" for 1-yr event
Inflow = 9.59 cfs @ 12.08 hrs, Volume= 0.690 af
Outflow = 0.20 cfs @ 19.53 hrs, Volume= 0.638 af, Atten= 98%, Lag= 446.9 min
Primary = 0.20 cfs @ 19.53 hrs, Volume= 0.638 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 728.00' Surf.Area= 12,100 sf Storage= 33,800 cf
Peak Elev= 729.80' @ 19.53 hrs Surf.Area= 16,055 sf Storage= 59,108 cf (25,308 cf above start)
Flood Elev= 732.00' Surf.Area= 21,200 sf Storage= 100,100 cf (66,300 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 6,047.6 min (6,889.7 - 842.1)

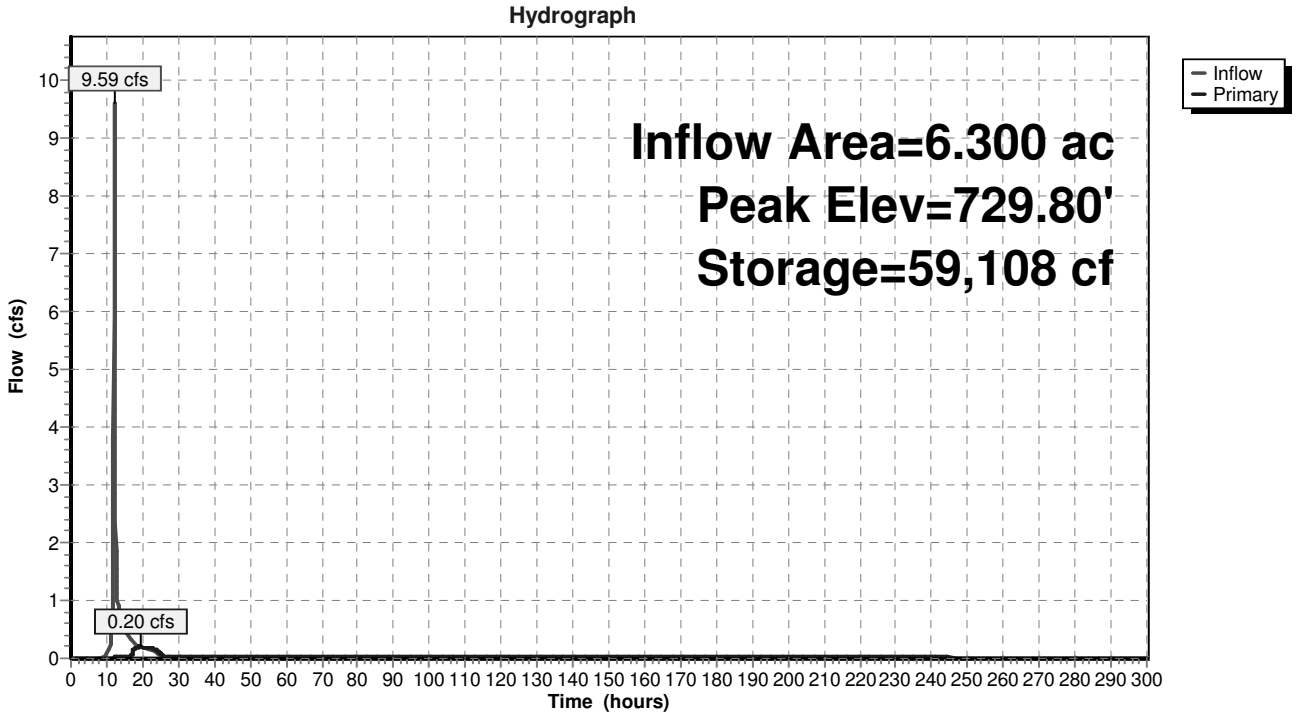
Volume	Invert	Avail.Storage	Storage Description
#1	722.00'	122,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
722.00	2,700	0	0
724.00	4,000	6,700	6,700
726.00	5,500	9,500	16,200
728.00	12,100	17,600	33,800
730.00	16,500	28,600	62,400
732.00	21,200	37,700	100,100
733.00	23,800	22,500	122,600

Device	Routing	Invert	Outlet Devices
#1	Primary	728.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	729.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.18 cfs @ 19.53 hrs HW=729.80' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.03 cfs @ 6.38 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 0.15 cfs @ 0.61 fps)

Pond 6.4P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.5P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 19.800 ac, 24.24% Impervious, Inflow Depth = 1.11" for 1-yr event
Inflow = 5.79 cfs @ 12.63 hrs, Volume= 1.826 af
Outflow = 0.32 cfs @ 24.36 hrs, Volume= 1.826 af, Atten= 95%, Lag= 703.8 min
Primary = 0.32 cfs @ 24.36 hrs, Volume= 1.826 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 732.00' Surf.Area= 8,900 sf Storage= 5,350 cf
Peak Elev= 735.84' @ 24.36 hrs Surf.Area= 16,396 sf Storage= 53,970 cf (48,620 cf above start)
Flood Elev= 741.00' Surf.Area= 28,300 sf Storage= 170,100 cf (164,750 cf above start)

Plug-Flow detention time= 2,258.9 min calculated for 1.703 af (93% of inflow)
Center-of-Mass det. time= 1,780.0 min (3,314.7 - 1,534.7)

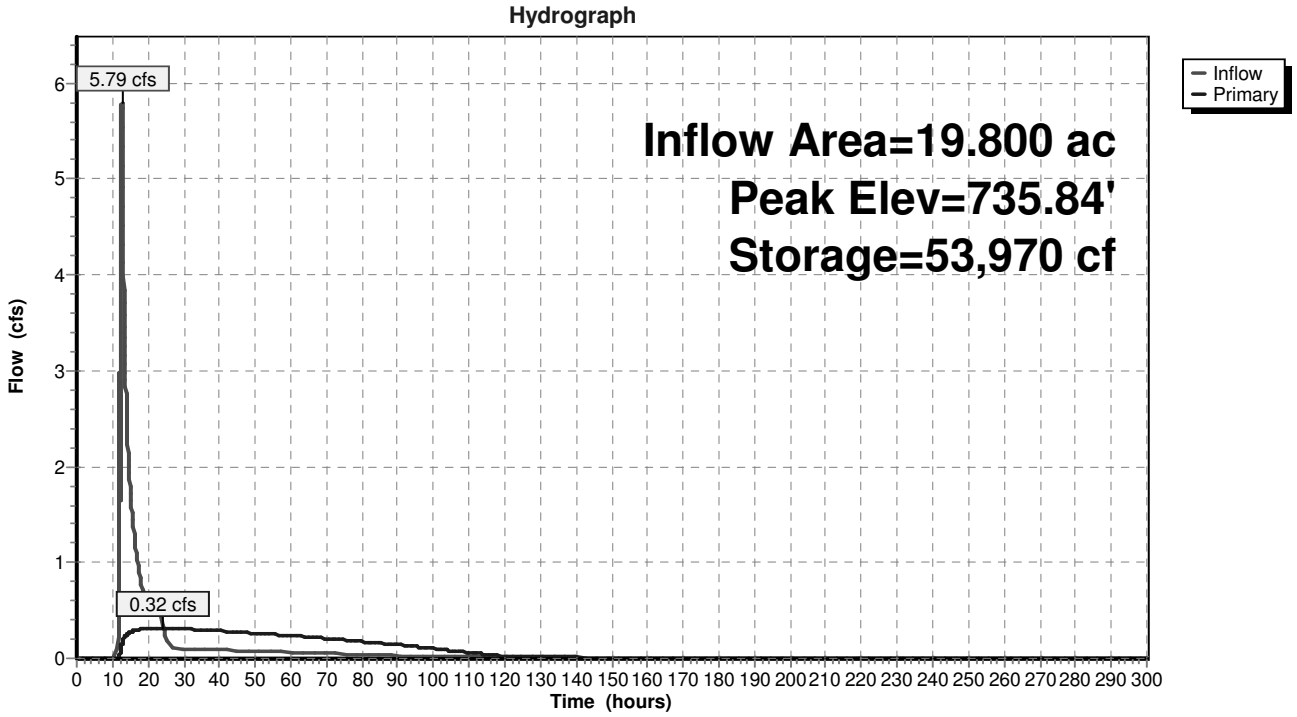
Volume	Invert	Avail.Storage	Storage Description
#1	731.00'	199,250 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
731.00	1,800	0	0
732.00	8,900	5,350	5,350
734.00	12,800	21,700	27,050
736.00	16,700	29,500	56,550
738.00	21,400	38,100	94,650
740.00	26,600	48,000	142,650
742.00	30,000	56,600	199,250

Device	Routing	Invert	Outlet Devices
#1	Primary	732.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	738.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.32 cfs @ 24.36 hrs HW=735.84' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.32 cfs @ 9.31 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 6.5P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 6.6P: Micropool Extended Detention Pond (P-1)

Inflow Area = 8.700 ac, 31.03% Impervious, Inflow Depth > 1.22" for 1-yr event
Inflow = 2.94 cfs @ 12.16 hrs, Volume= 0.888 af
Outflow = 0.08 cfs @ 24.83 hrs, Volume= 0.864 af, Atten= 97%, Lag= 760.2 min
Primary = 0.08 cfs @ 24.83 hrs, Volume= 0.864 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 690.00' Surf.Area= 12,300 sf Storage= 40,000 cf
Peak Elev= 690.98' @ 24.83 hrs Surf.Area= 14,168 sf Storage= 53,009 cf (13,009 cf above start)
Flood Elev= 695.00' Surf.Area= 22,600 sf Storage= 126,250 cf (86,250 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 1,513.8 min (6,702.5 - 5,188.7)

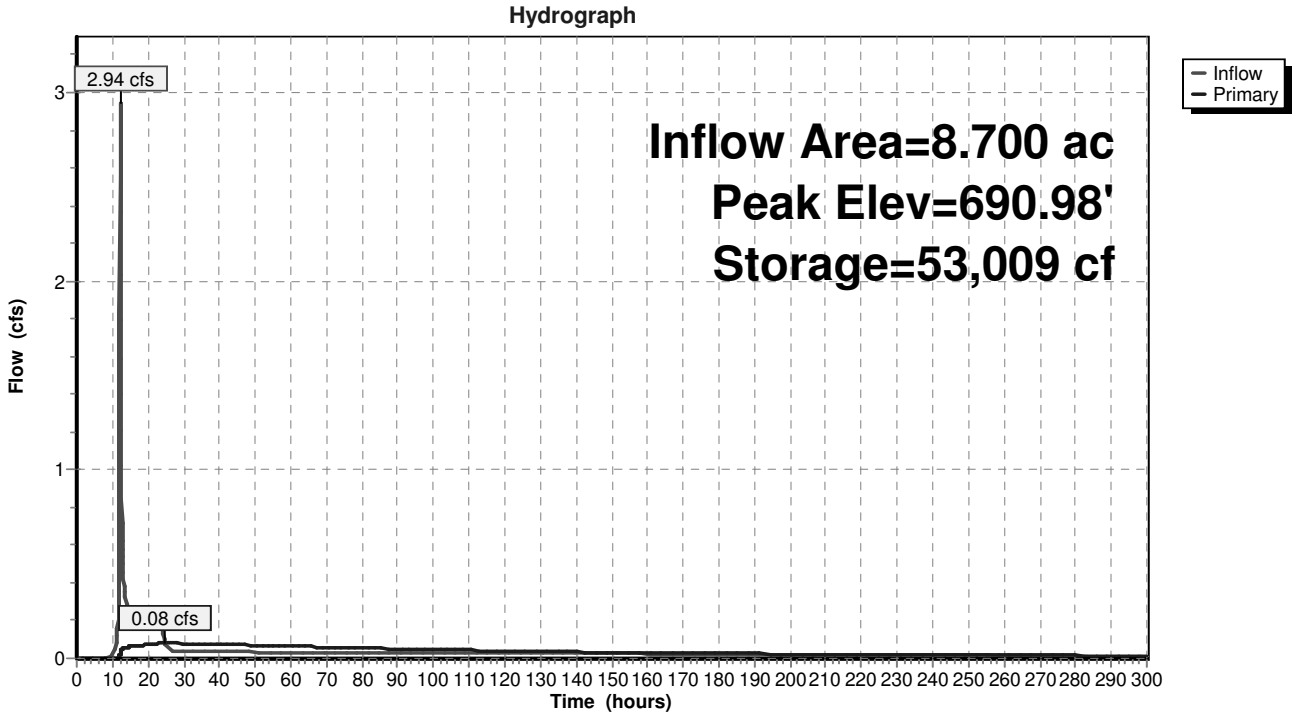
Volume	Invert	Avail.Storage	Storage Description
#1	684.00'	150,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
684.00	3,700	0	0
686.00	5,200	8,900	8,900
688.00	6,800	12,000	20,900
690.00	12,300	19,100	40,000
692.00	16,100	28,400	68,400
694.00	20,300	36,400	104,800
696.00	24,900	45,200	150,000

Device	Routing	Invert	Outlet Devices
#1	Primary	690.00'	**1.8" Vert. Orifice/Grate** C= 0.600
#2	Primary	691.25'	**10.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	693.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.08 cfs @ 24.83 hrs HW=690.98' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.08 cfs @ 4.59 fps)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6.6P: Micropool Extended Detention Pond (P-1)



Summary for Subcatchment 6.1S:

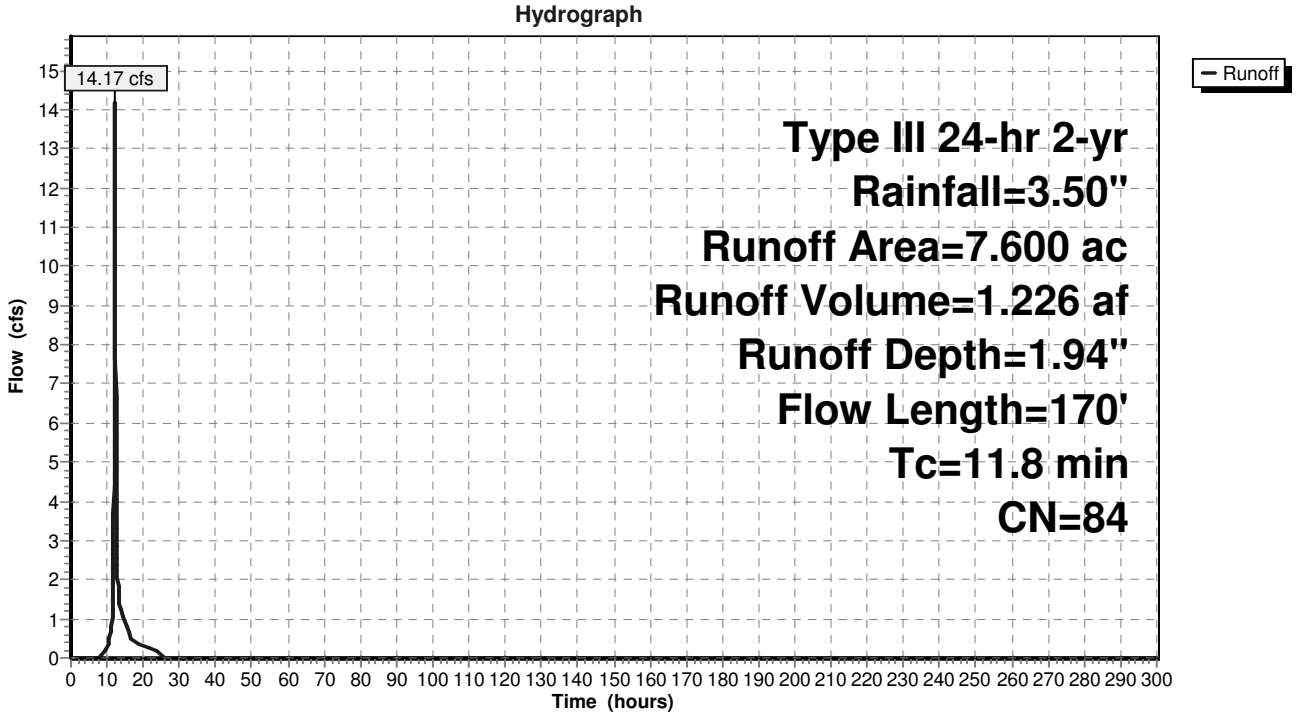
Runoff = 14.17 cfs @ 12.17 hrs, Volume= 1.226 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
3.100	98	Paved parking & roofs
3.700	74	>75% Grass cover, Good, HSG C
0.400	71	Meadow, non-grazed, HSG C
0.200	70	Woods, Good, HSG C
0.200	98	Water Surface
7.600	84	Weighted Average
4.300		Pervious Area
3.300		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.5	70	0.1300	2.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.8	170	Total			

Subcatchment 6.1S:



Summary for Subcatchment 6.2S:

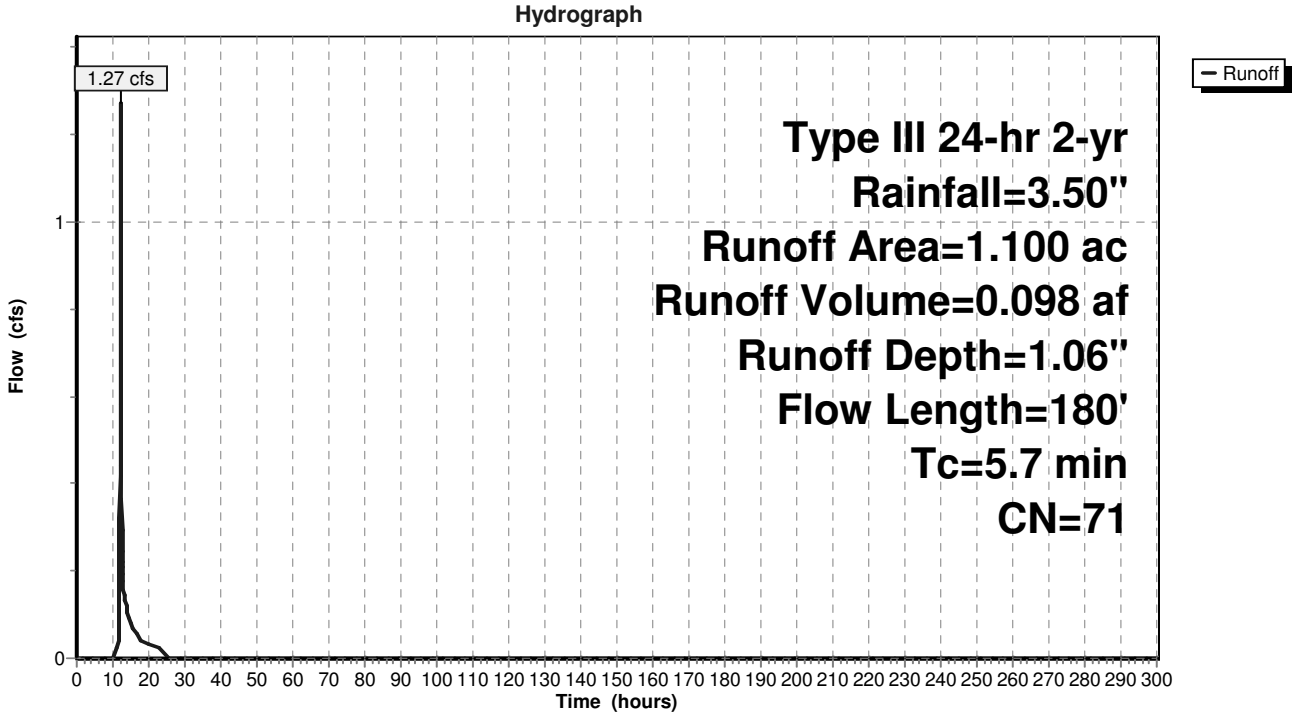
Runoff = 1.27 cfs @ 12.10 hrs, Volume= 0.098 af, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.800	71	Meadow, non-grazed, HSG C
0.300	70	Woods, Good, HSG C
1.100	71	Weighted Average
1.100		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0900	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.6	80	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.7	180	Total			

Subcatchment 6.2S:



Summary for Subcatchment 6.3S:

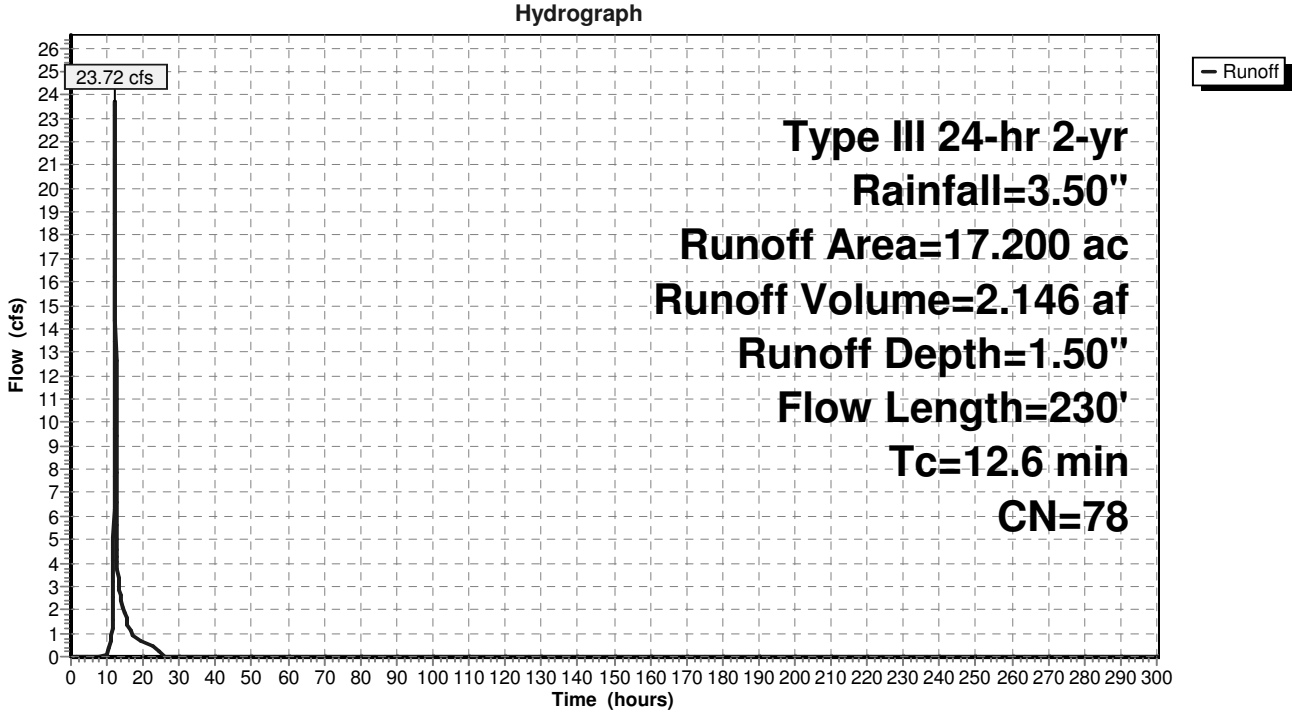
Runoff = 23.72 cfs @ 12.18 hrs, Volume= 2.146 af, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
4.000	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
2.800	74	>75% Grass cover, Good, HSG C
6.400	71	Meadow, non-grazed, HSG C
3.400	70	Woods, Good, HSG C
0.400	98	Water Surface
17.200	78	Weighted Average
12.800		Pervious Area
4.400		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.8	130	0.1600	2.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	230	Total			

Subcatchment 6.3S:



Summary for Subcatchment 6.4S:

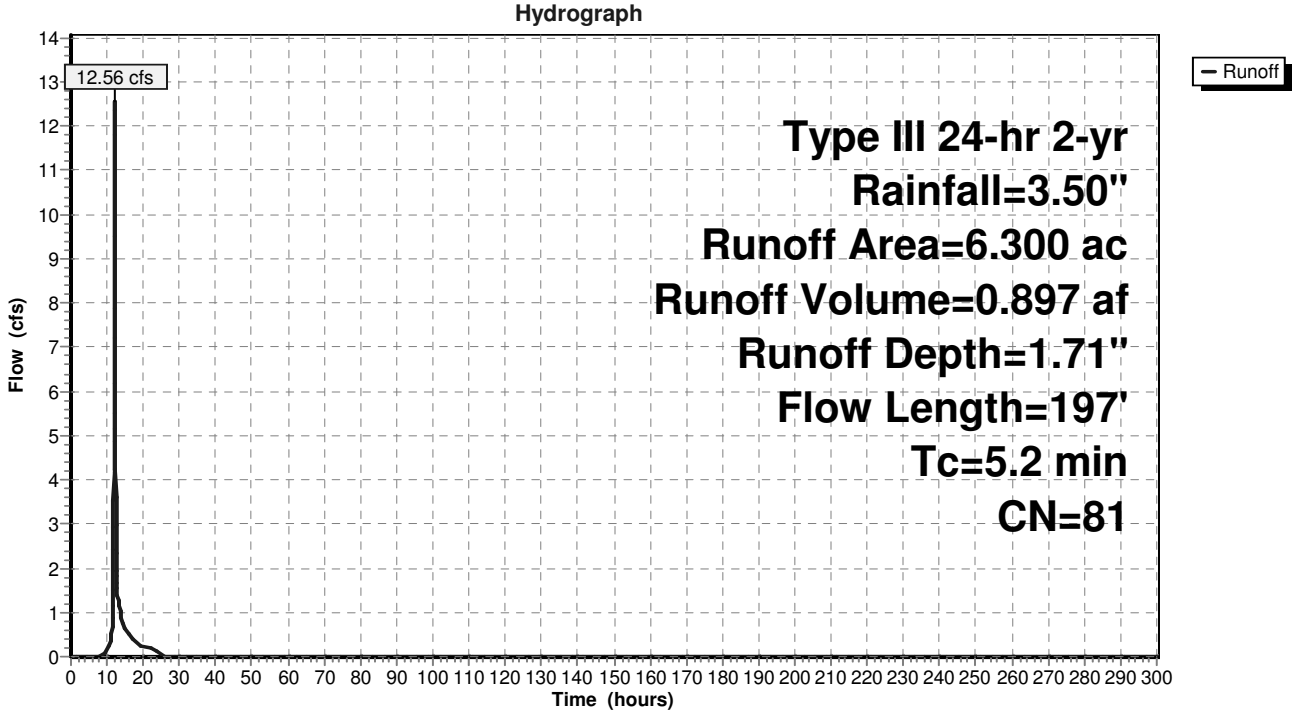
Runoff = 12.56 cfs @ 12.08 hrs, Volume= 0.897 af, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
1.600	98	Paved parking & roofs
0.300	87	Dirt roads, HSG C
1.700	74	>75% Grass cover, Good, HSG C
1.500	71	Meadow, non-grazed, HSG C
0.900	70	Woods, Good, HSG C
0.300	98	Water Surface
6.300	81	Weighted Average
4.400		Pervious Area
1.900		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.1100	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.5	97	0.2500	3.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.2	197	Total			

Subcatchment 6.4S:



Summary for Subcatchment 6.5S:

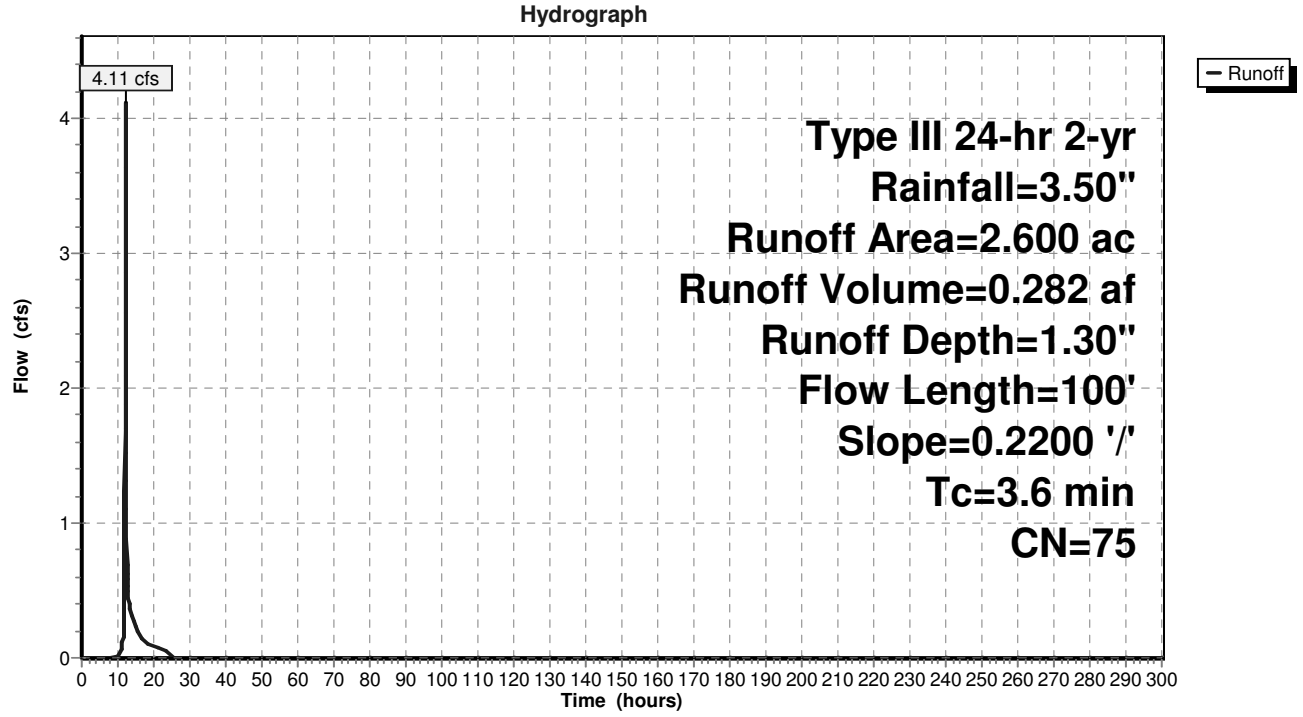
Runoff = 4.11 cfs @ 12.06 hrs, Volume= 0.282 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.400	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
1.700	71	Meadow, non-grazed, HSG C
0.200	70	Woods, Good, HSG C
2.600	75	Weighted Average
2.200		Pervious Area
0.400		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	100	0.2200	0.46		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"

Subcatchment 6.5S:



Summary for Subcatchment 6.6S:

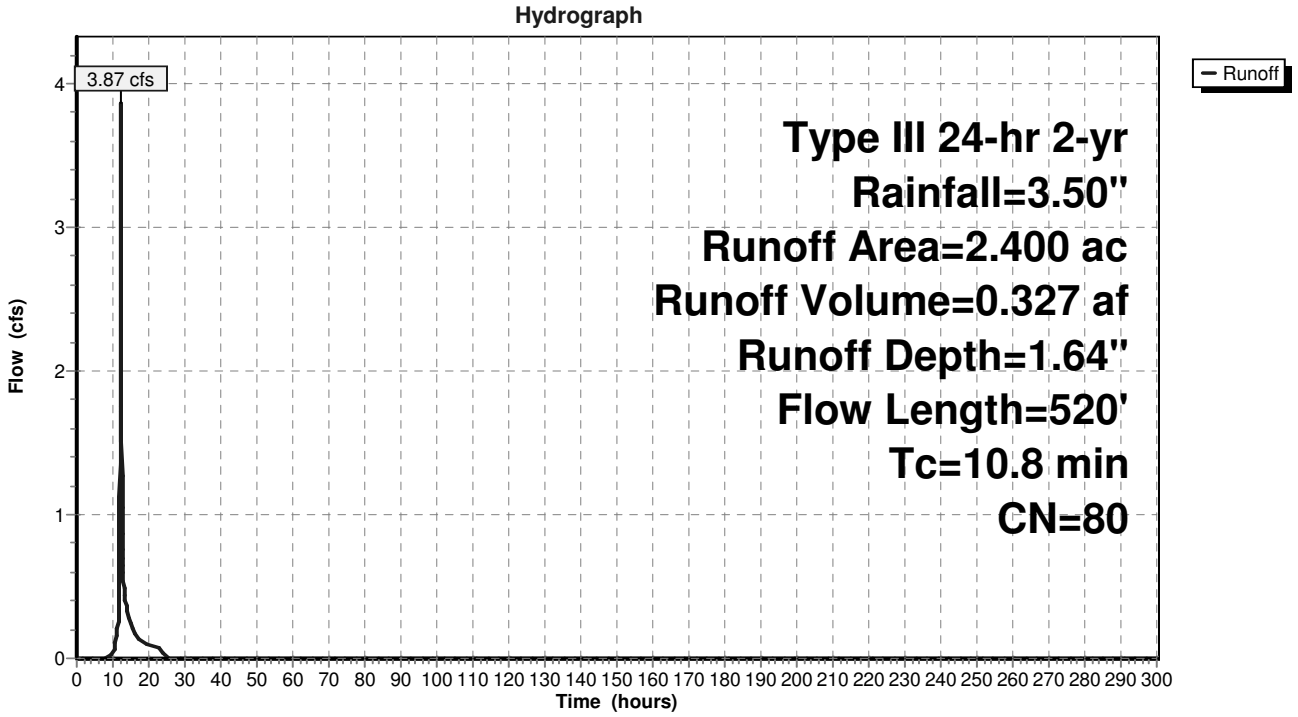
Runoff = 3.87 cfs @ 12.16 hrs, Volume= 0.327 af, Depth= 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.500	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
1.200	71	Meadow, non-grazed, HSG C
0.300	70	Woods, Good, HSG C
0.300	98	Water Surface
2.400	80	Weighted Average
1.600		Pervious Area
0.800		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	75	0.0700	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
3.9	25	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.1	140	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	40	0.4500	4.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	240	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.8	520	Total			

Subcatchment 6.6S:



Summary for Subcatchment 6.7S:

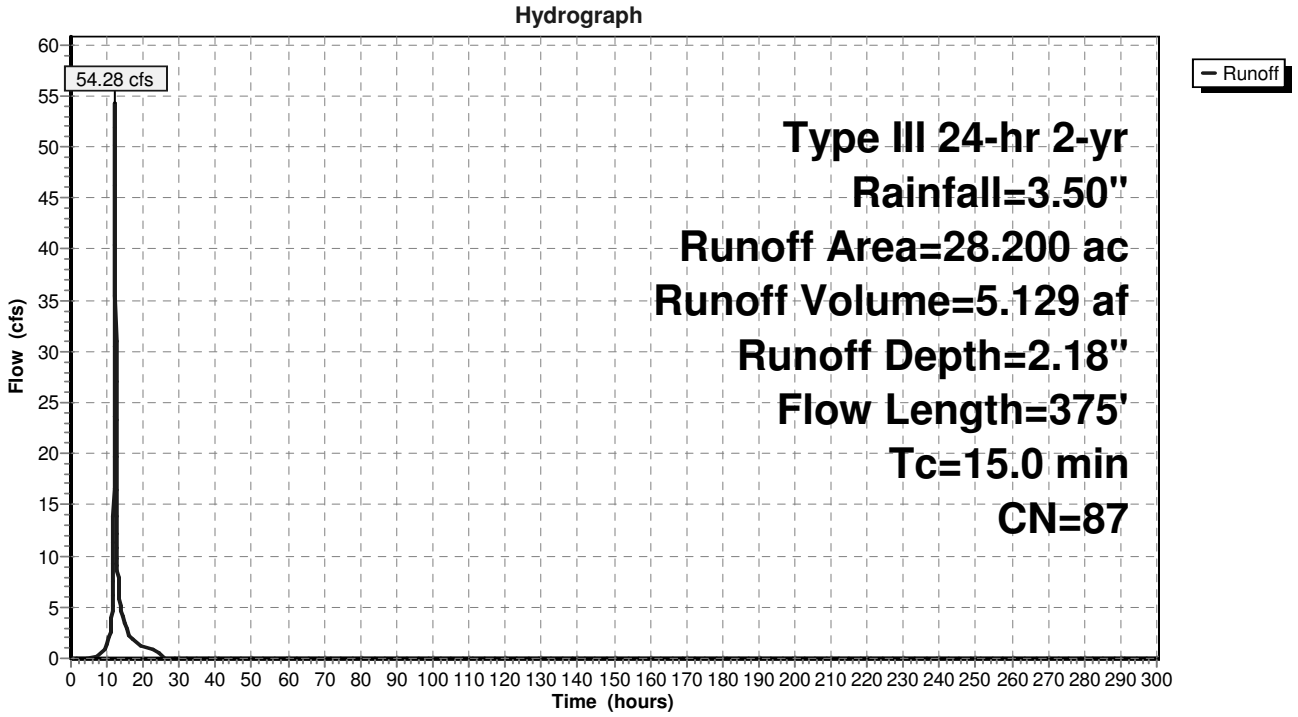
Runoff = 54.28 cfs @ 12.21 hrs, Volume= 5.129 af, Depth= 2.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs
0.200	74	>75% Grass cover, Good, HSG C
2.700	71	Meadow, non-grazed, HSG C
3.700	70	Woods, Good, HSG C
16.300	94	Urban commercial, 85% imp, HSG C
5.100	83	1/4 acre lots, 38% imp, HSG C
28.200	87	Weighted Average
12.207		Pervious Area
15.993		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.8	175	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	100	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.0	375	Total			

Subcatchment 6.7S:

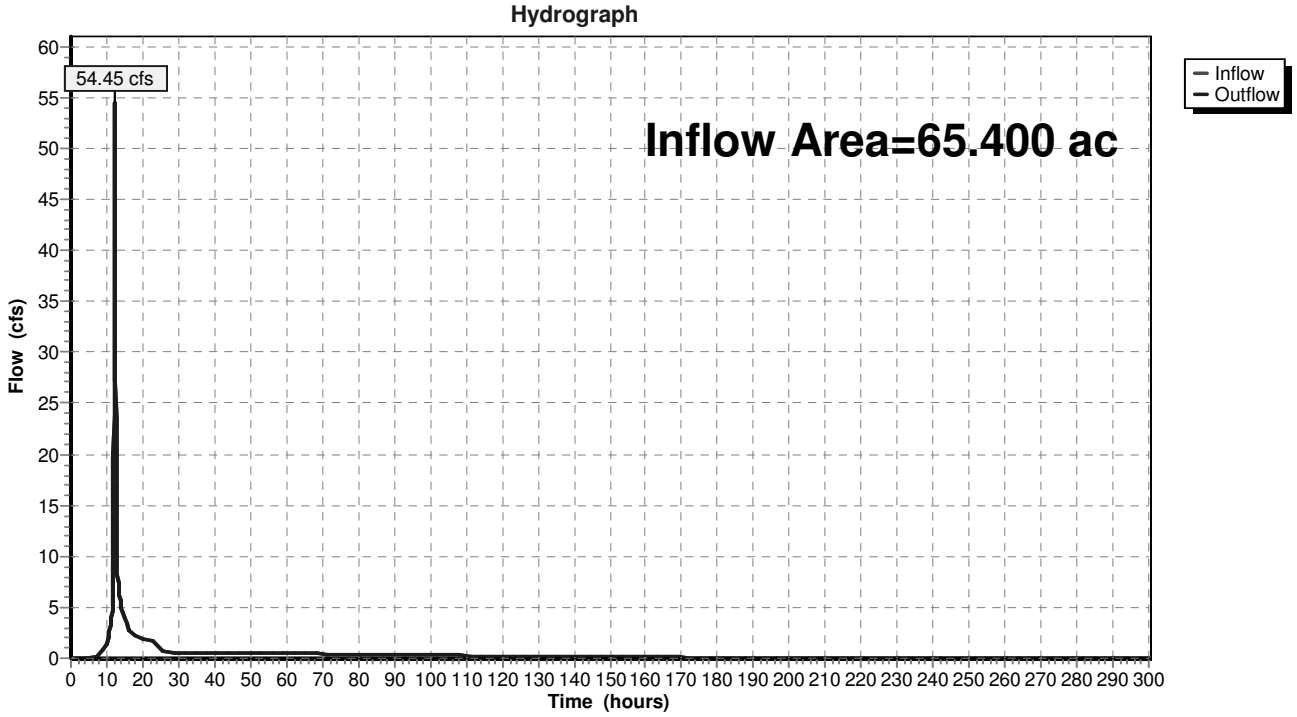


Summary for Reach DP 6: Design Point 6

Inflow Area = 65.400 ac, 40.97% Impervious, Inflow Depth > 1.84" for 2-yr event
Inflow = 54.45 cfs @ 12.21 hrs, Volume= 10.027 af
Outflow = 54.45 cfs @ 12.21 hrs, Volume= 10.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 6: Design Point 6



Summary for Pond 6.1P: Micropool Extended Detention Pond (P-1)

Inflow Area = 7.600 ac, 43.42% Impervious, Inflow Depth = 1.94" for 2-yr event
Inflow = 14.17 cfs @ 12.17 hrs, Volume= 1.226 af
Outflow = 3.53 cfs @ 12.64 hrs, Volume= 1.226 af, Atten= 75%, Lag= 28.3 min
Primary = 3.53 cfs @ 12.64 hrs, Volume= 1.226 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 687.00' Surf.Area= 9,450 sf Storage= 23,775 cf
Peak Elev= 689.13' @ 12.64 hrs Surf.Area= 14,509 sf Storage= 49,644 cf (25,869 cf above start)
Flood Elev= 691.00' Surf.Area= 18,550 sf Storage= 80,525 cf (56,750 cf above start)

Plug-Flow detention time= 1,874.6 min calculated for 0.681 af (55% of inflow)
Center-of-Mass det. time= 981.1 min (1,812.0 - 830.9)

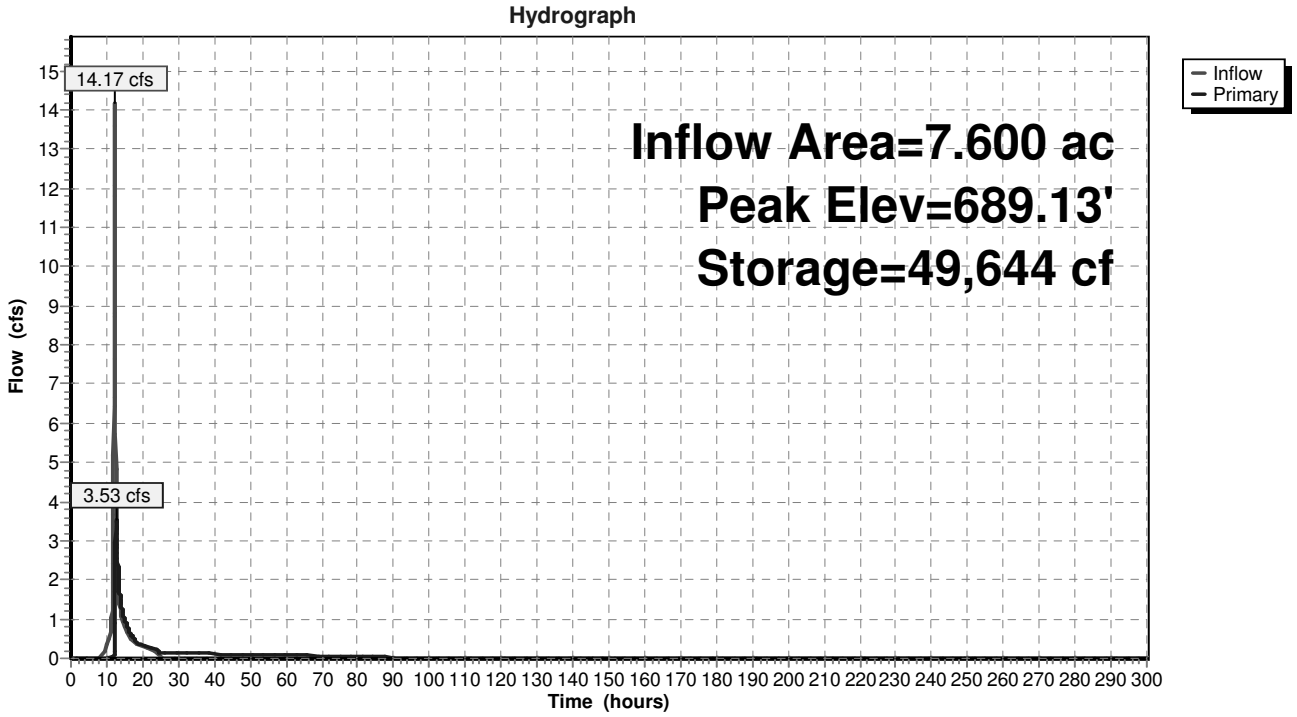
Volume	Invert	Avail.Storage	Storage Description
#1	682.00'	100,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
682.00	2,200	0	0
684.00	3,400	5,600	5,600
686.00	6,700	10,100	15,700
688.00	12,200	18,900	34,600
690.00	16,300	28,500	63,100
692.00	20,800	37,100	100,200

Device	Routing	Invert	Outlet Devices
#1	Primary	687.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	688.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.50 cfs @ 12.64 hrs HW=689.13' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.15 cfs @ 6.88 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 3.35 cfs @ 1.78 fps)

Pond 6.1P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 8.700 ac, 37.93% Impervious, Inflow Depth = 1.83" for 2-yr event
Inflow = 3.76 cfs @ 12.63 hrs, Volume= 1.324 af
Outflow = 0.13 cfs @ 31.47 hrs, Volume= 1.321 af, Atten= 97%, Lag= 1,130.4 min
Primary = 0.13 cfs @ 31.47 hrs, Volume= 1.321 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 673.00' Surf.Area= 10,250 sf Storage= 30,225 cf
Peak Elev= 675.51' @ 31.47 hrs Surf.Area= 16,315 sf Storage= 64,323 cf (34,098 cf above start)
Flood Elev= 677.00' Surf.Area= 19,650 sf Storage= 91,075 cf (60,850 cf above start)

Plug-Flow detention time= 8,799.6 min calculated for 0.627 af (47% of inflow)
Center-of-Mass det. time= 4,587.1 min (6,329.4 - 1,742.3)

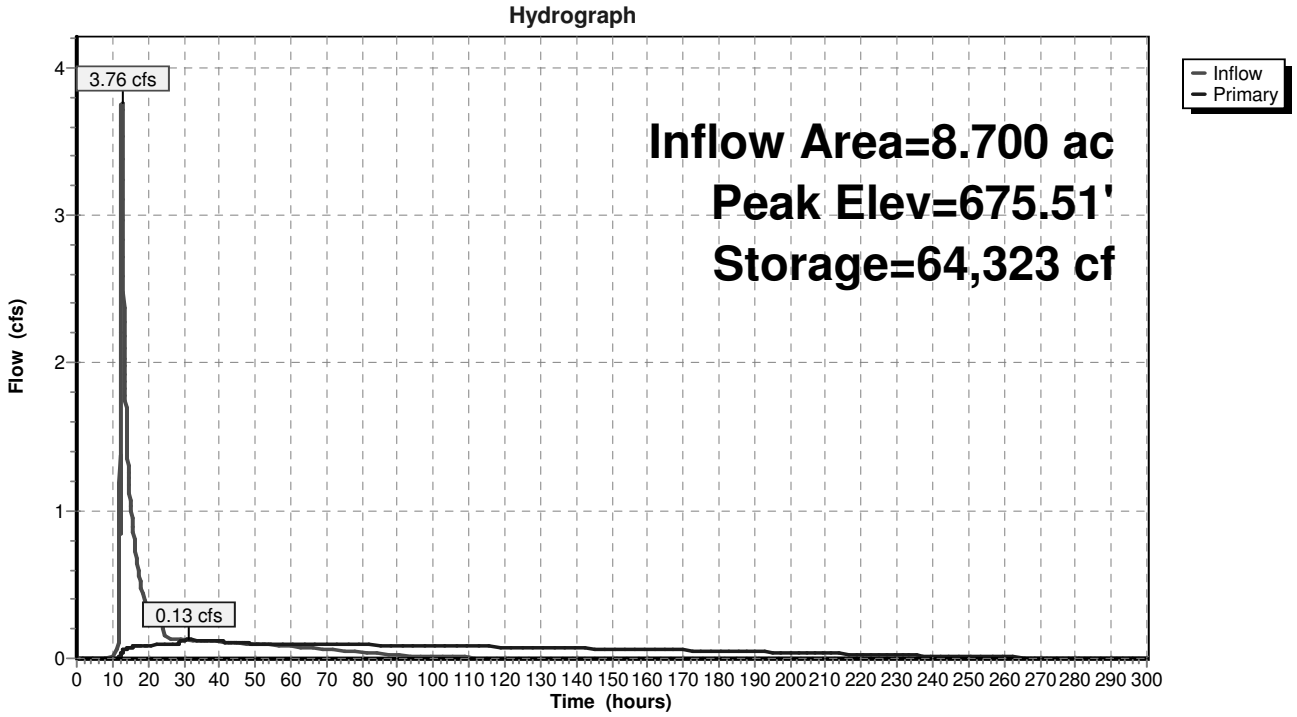
Volume	Invert	Avail.Storage	Storage Description
#1	668.00'	111,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
668.00	3,700	0	0
670.00	5,300	9,000	9,000
672.00	7,200	12,500	21,500
674.00	13,300	20,500	42,000
676.00	17,300	30,600	72,600
678.00	22,000	39,300	111,900

Device	Routing	Invert	Outlet Devices
#1	Primary	673.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	675.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.10 cfs @ 31.47 hrs HW=675.51' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.53 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.24 fps)

Pond 6.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 6.3P: Micropool Extended Detention Pond (P-1)

Inflow Area = 17.200 ac, 25.58% Impervious, Inflow Depth = 1.50" for 2-yr event
Inflow = 23.72 cfs @ 12.18 hrs, Volume= 2.146 af
Outflow = 10.38 cfs @ 12.52 hrs, Volume= 2.146 af, Atten= 56%, Lag= 20.3 min
Primary = 10.38 cfs @ 12.52 hrs, Volume= 2.146 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 747.50' Surf.Area= 15,148 sf Storage= 43,193 cf
Peak Elev= 749.24' @ 12.52 hrs Surf.Area= 22,485 sf Storage= 76,166 cf (32,973 cf above start)
Flood Elev= 751.10' Surf.Area= 30,065 sf Storage= 125,041 cf (81,848 cf above start)

Plug-Flow detention time= 1,267.4 min calculated for 1.155 af (54% of inflow)
Center-of-Mass det. time= 587.0 min (1,437.5 - 850.5)

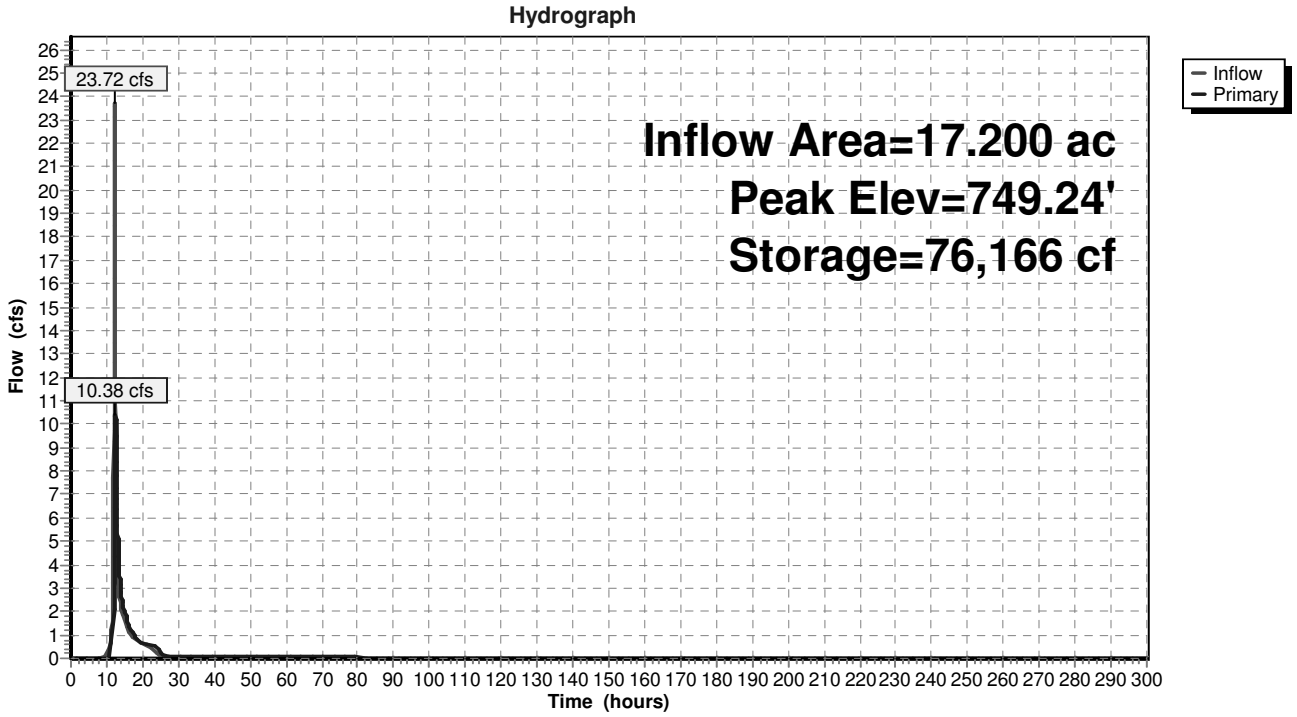
Volume	Invert	Avail.Storage	Storage Description
#1	742.00'	153,780 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
742.00	5,200	0	0
744.00	6,500	11,700	11,700
746.00	7,790	14,290	25,990
748.00	17,600	25,390	51,380
750.00	25,500	43,100	94,480
752.00	33,800	59,300	153,780

Device	Routing	Invert	Outlet Devices
#1	Primary	747.50'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	748.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=10.30 cfs @ 12.52 hrs HW=749.23' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.13 cfs @ 6.19 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 10.17 cfs @ 2.77 fps)

Pond 6.3P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.4P: Micropool Extended Detention Pond (P-1)

Inflow Area = 6.300 ac, 30.16% Impervious, Inflow Depth = 1.71" for 2-yr event
Inflow = 12.56 cfs @ 12.08 hrs, Volume= 0.897 af
Outflow = 0.68 cfs @ 14.84 hrs, Volume= 0.845 af, Atten= 95%, Lag= 165.7 min
Primary = 0.68 cfs @ 14.84 hrs, Volume= 0.845 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 728.00' Surf.Area= 12,100 sf Storage= 33,800 cf
Peak Elev= 729.87' @ 14.84 hrs Surf.Area= 16,220 sf Storage= 60,318 cf (26,518 cf above start)
Flood Elev= 732.00' Surf.Area= 21,200 sf Storage= 100,100 cf (66,300 cf above start)

Plug-Flow detention time= 15,261.6 min calculated for 0.069 af (8% of inflow)
Center-of-Mass det. time= 4,611.6 min (5,446.0 - 834.4)

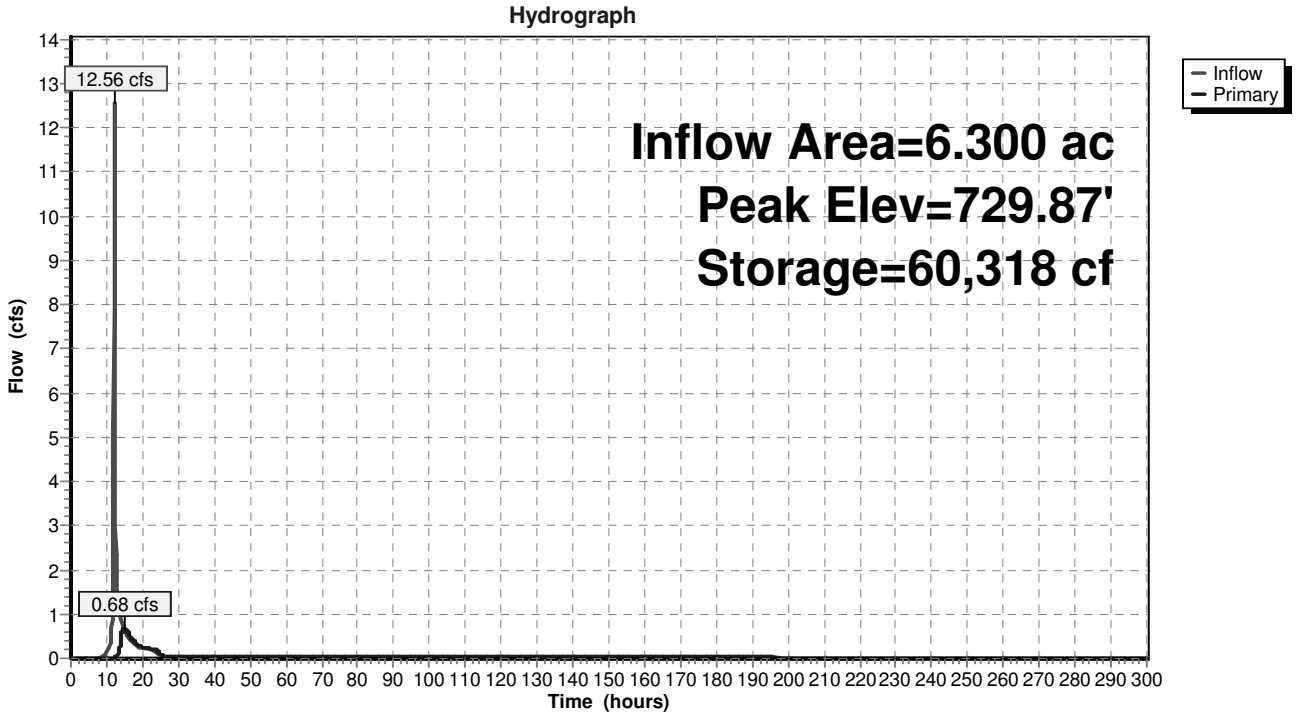
Volume	Invert	Avail.Storage	Storage Description
#1	722.00'	122,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
722.00	2,700	0	0
724.00	4,000	6,700	6,700
726.00	5,500	9,500	16,200
728.00	12,100	17,600	33,800
730.00	16,500	28,600	62,400
732.00	21,200	37,700	100,100
733.00	23,800	22,500	122,600

Device	Routing	Invert	Outlet Devices
#1	Primary	728.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	729.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.64 cfs @ 14.84 hrs HW=729.87' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.04 cfs @ 6.52 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 0.60 cfs @ 0.98 fps)

Pond 6.4P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.5P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 19.800 ac, 24.24% Impervious, Inflow Depth = 1.47" for 2-yr event
Inflow = 11.23 cfs @ 12.49 hrs, Volume= 2.428 af
Outflow = 0.37 cfs @ 24.44 hrs, Volume= 2.428 af, Atten= 97%, Lag= 716.9 min
Primary = 0.37 cfs @ 24.44 hrs, Volume= 2.428 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 732.00' Surf.Area= 8,900 sf Storage= 5,350 cf
Peak Elev= 737.16' @ 24.44 hrs Surf.Area= 19,423 sf Storage= 77,475 cf (72,125 cf above start)
Flood Elev= 741.00' Surf.Area= 28,300 sf Storage= 170,100 cf (164,750 cf above start)

Plug-Flow detention time= 2,616.9 min calculated for 2.305 af (95% of inflow)
Center-of-Mass det. time= 2,236.0 min (3,605.4 - 1,369.4)

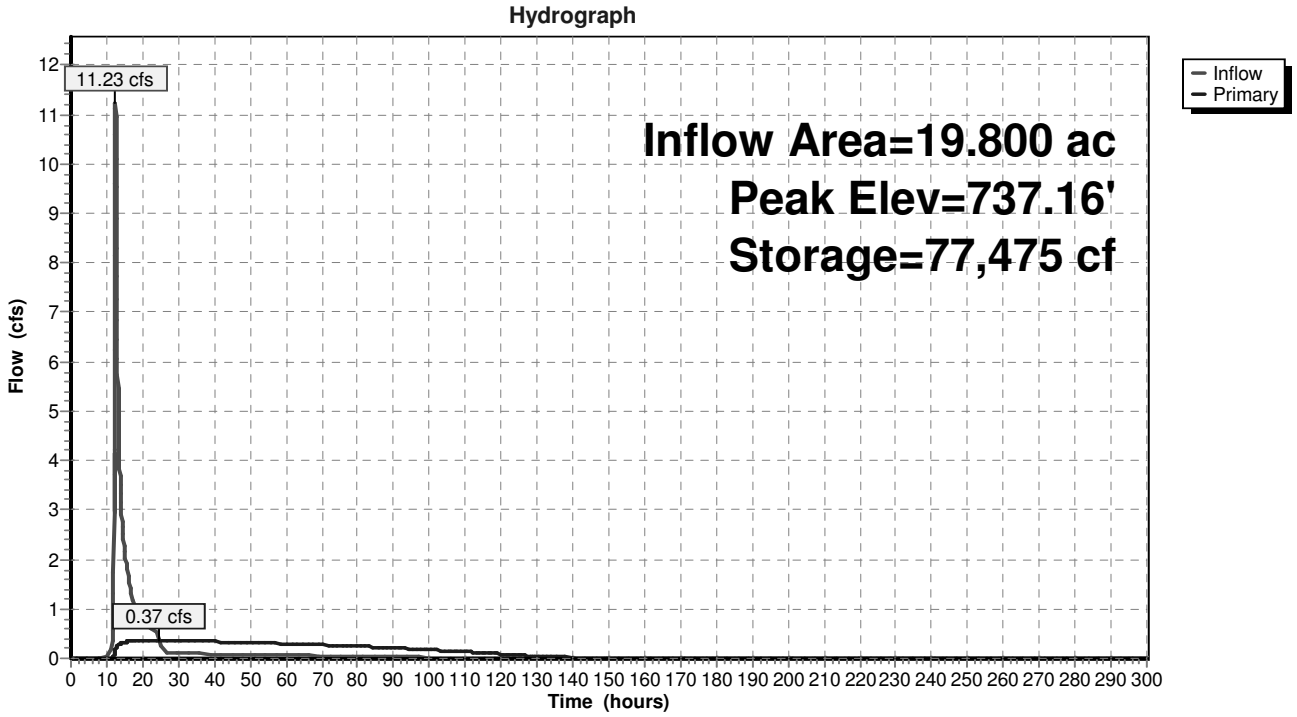
Volume	Invert	Avail.Storage	Storage Description
#1	731.00'	199,250 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
731.00	1,800	0	0
732.00	8,900	5,350	5,350
734.00	12,800	21,700	27,050
736.00	16,700	29,500	56,550
738.00	21,400	38,100	94,650
740.00	26,600	48,000	142,650
742.00	30,000	56,600	199,250

Device	Routing	Invert	Outlet Devices
#1	Primary	732.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	738.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.37 cfs @ 24.44 hrs HW=737.16' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.37 cfs @ 10.83 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 6.5P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 6.6P: Micropool Extended Detention Pond (P-1)

Inflow Area = 8.700 ac, 31.03% Impervious, Inflow Depth > 1.62" for 2-yr event
Inflow = 3.89 cfs @ 12.16 hrs, Volume= 1.172 af
Outflow = 0.30 cfs @ 21.48 hrs, Volume= 1.149 af, Atten= 92%, Lag= 559.4 min
Primary = 0.30 cfs @ 21.48 hrs, Volume= 1.149 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 690.00' Surf.Area= 12,300 sf Storage= 40,000 cf
Peak Elev= 691.48' @ 21.48 hrs Surf.Area= 15,103 sf Storage= 60,213 cf (20,213 cf above start)
Flood Elev= 695.00' Surf.Area= 22,600 sf Storage= 126,250 cf (86,250 cf above start)

Plug-Flow detention time= 12,467.3 min calculated for 0.231 af (20% of inflow)
Center-of-Mass det. time= 1,640.8 min (5,801.4 - 4,160.6)

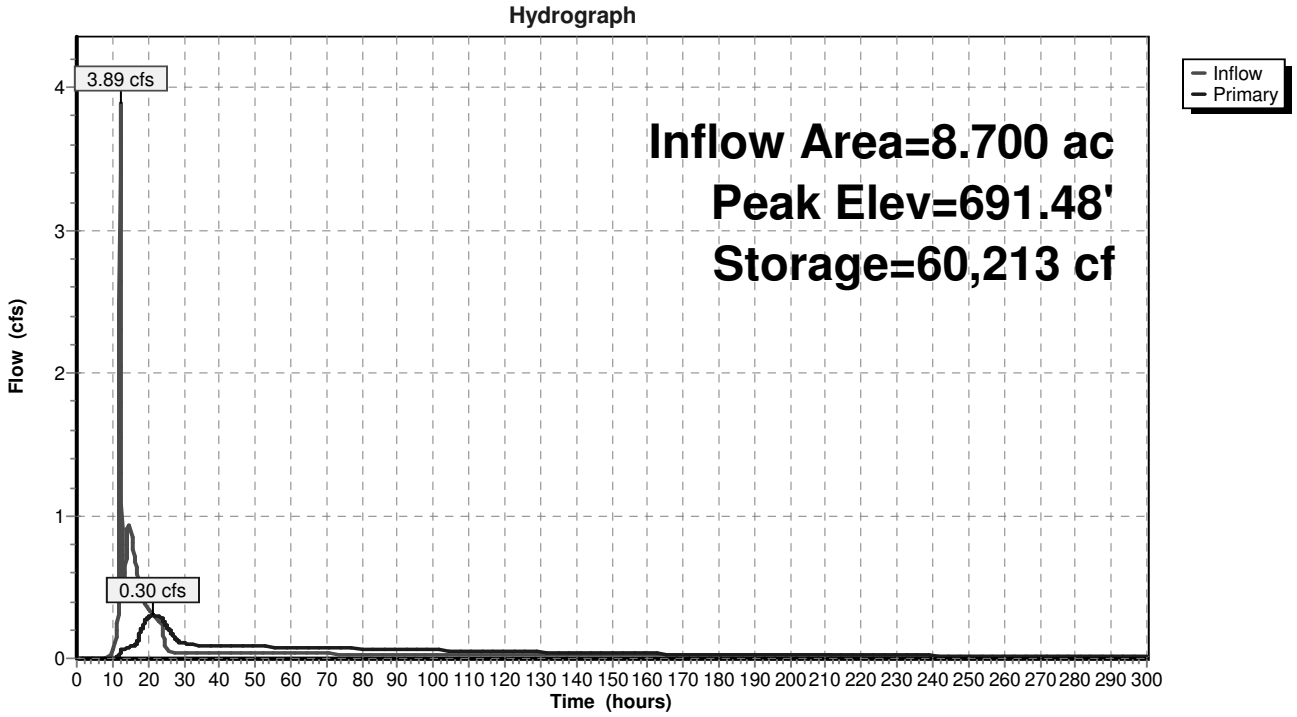
Volume	Invert	Avail.Storage	Storage Description
#1	684.00'	150,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
684.00	3,700	0	0
686.00	5,200	8,900	8,900
688.00	6,800	12,000	20,900
690.00	12,300	19,100	40,000
692.00	16,100	28,400	68,400
694.00	20,300	36,400	104,800
696.00	24,900	45,200	150,000

Device	Routing	Invert	Outlet Devices
#1	Primary	690.00'	**1.8" Vert. Orifice/Grate** C= 0.600
#2	Primary	691.25'	**10.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	693.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.29 cfs @ 21.48 hrs HW=691.48' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.10 cfs @ 5.70 fps)
- **2=Orifice/Grate** (Orifice Controls 0.19 cfs @ 1.62 fps)
- **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6.6P: Micropool Extended Detention Pond (P-1)



Summary for Subcatchment 6.1S:

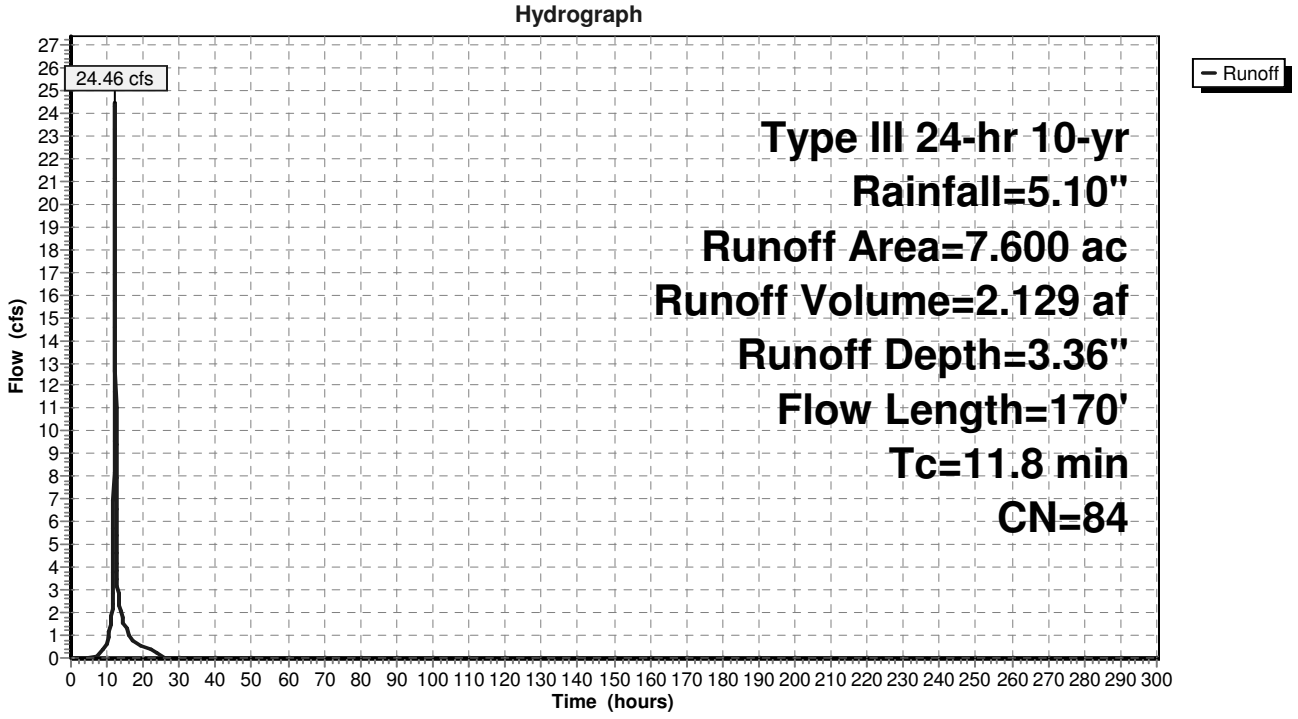
Runoff = 24.46 cfs @ 12.16 hrs, Volume= 2.129 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
3.100	98	Paved parking & roofs
3.700	74	>75% Grass cover, Good, HSG C
0.400	71	Meadow, non-grazed, HSG C
0.200	70	Woods, Good, HSG C
0.200	98	Water Surface
7.600	84	Weighted Average
4.300		Pervious Area
3.300		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.5	70	0.1300	2.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.8	170	Total			

Subcatchment 6.1S:



Summary for Subcatchment 6.2S:

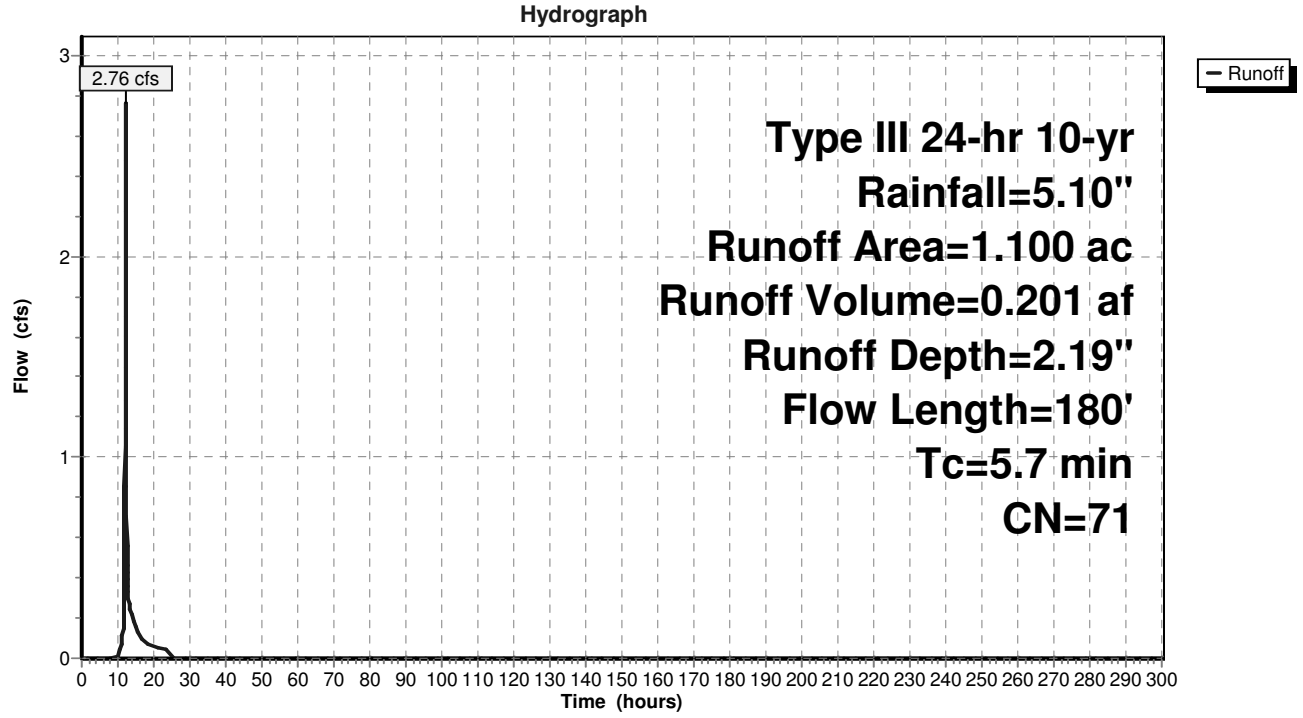
Runoff = 2.76 cfs @ 12.09 hrs, Volume= 0.201 af, Depth= 2.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.800	71	Meadow, non-grazed, HSG C
0.300	70	Woods, Good, HSG C
1.100	71	Weighted Average
1.100		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0900	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.6	80	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.7	180	Total			

Subcatchment 6.2S:



Summary for Subcatchment 6.3S:

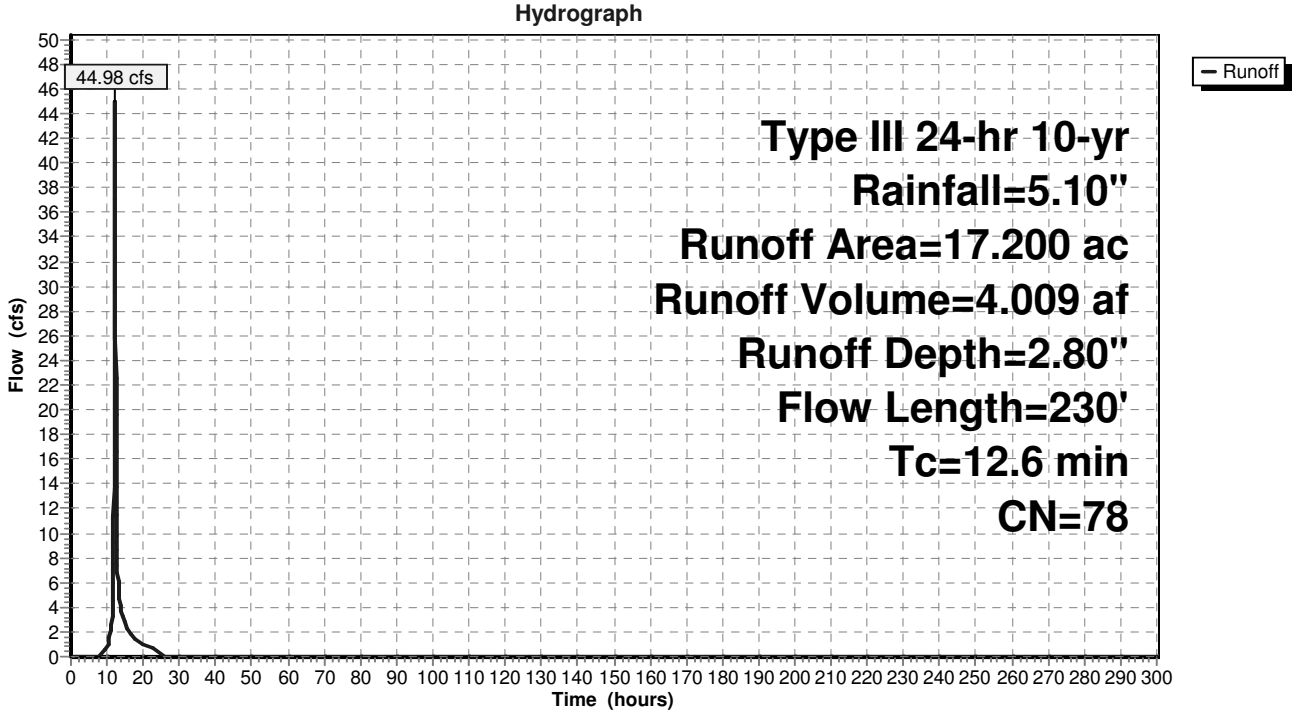
Runoff = 44.98 cfs @ 12.18 hrs, Volume= 4.009 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
4.000	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
2.800	74	>75% Grass cover, Good, HSG C
6.400	71	Meadow, non-grazed, HSG C
3.400	70	Woods, Good, HSG C
0.400	98	Water Surface
17.200	78	Weighted Average
12.800		Pervious Area
4.400		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.8	130	0.1600	2.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	230	Total			

Subcatchment 6.3S:



Summary for Subcatchment 6.4S:

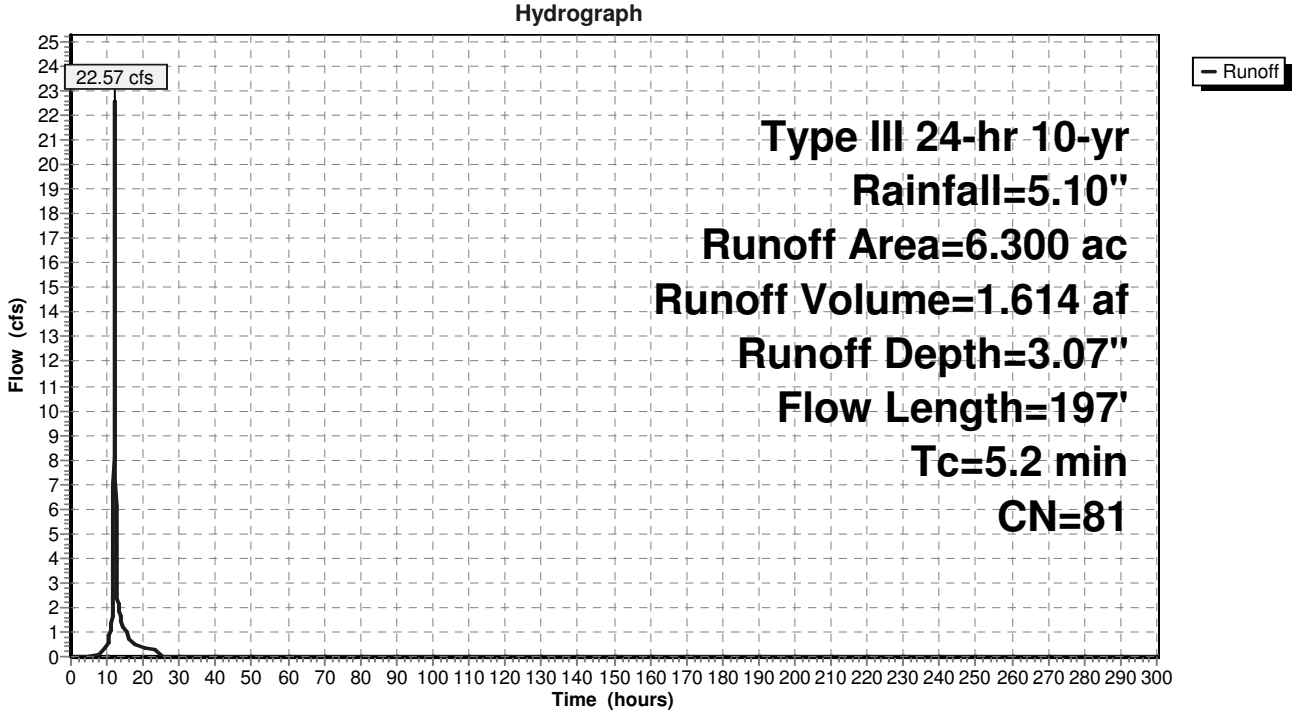
Runoff = 22.57 cfs @ 12.08 hrs, Volume= 1.614 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
1.600	98	Paved parking & roofs
0.300	87	Dirt roads, HSG C
1.700	74	>75% Grass cover, Good, HSG C
1.500	71	Meadow, non-grazed, HSG C
0.900	70	Woods, Good, HSG C
0.300	98	Water Surface
6.300	81	Weighted Average
4.400		Pervious Area
1.900		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.1100	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.5	97	0.2500	3.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.2	197	Total			

Subcatchment 6.4S:



Summary for Subcatchment 6.5S:

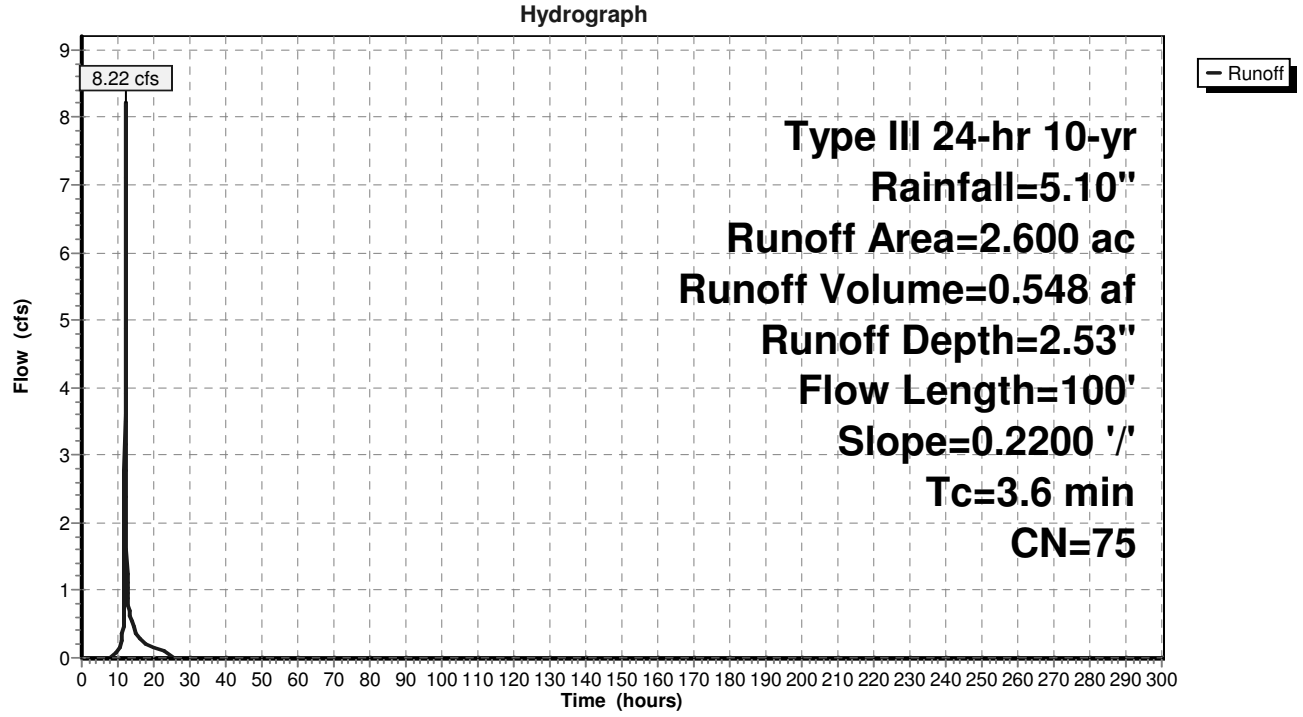
Runoff = 8.22 cfs @ 12.06 hrs, Volume= 0.548 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.400	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
1.700	71	Meadow, non-grazed, HSG C
0.200	70	Woods, Good, HSG C
2.600	75	Weighted Average
2.200		Pervious Area
0.400		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	100	0.2200	0.46		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"

Subcatchment 6.5S:



Summary for Subcatchment 6.6S:

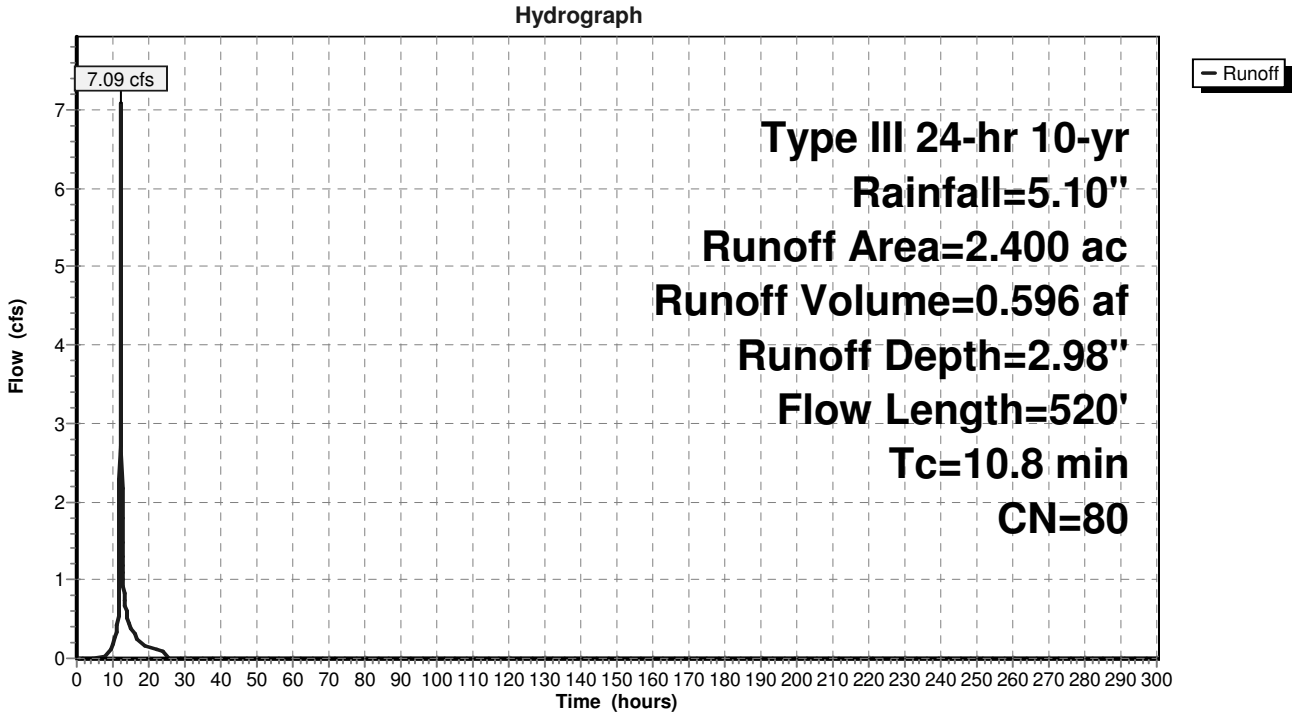
Runoff = 7.09 cfs @ 12.15 hrs, Volume= 0.596 af, Depth= 2.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.500	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
1.200	71	Meadow, non-grazed, HSG C
0.300	70	Woods, Good, HSG C
0.300	98	Water Surface
2.400	80	Weighted Average
1.600		Pervious Area
0.800		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	75	0.0700	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
3.9	25	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.1	140	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	40	0.4500	4.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	240	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.8	520	Total			

Subcatchment 6.6S:



Summary for Subcatchment 6.7S:

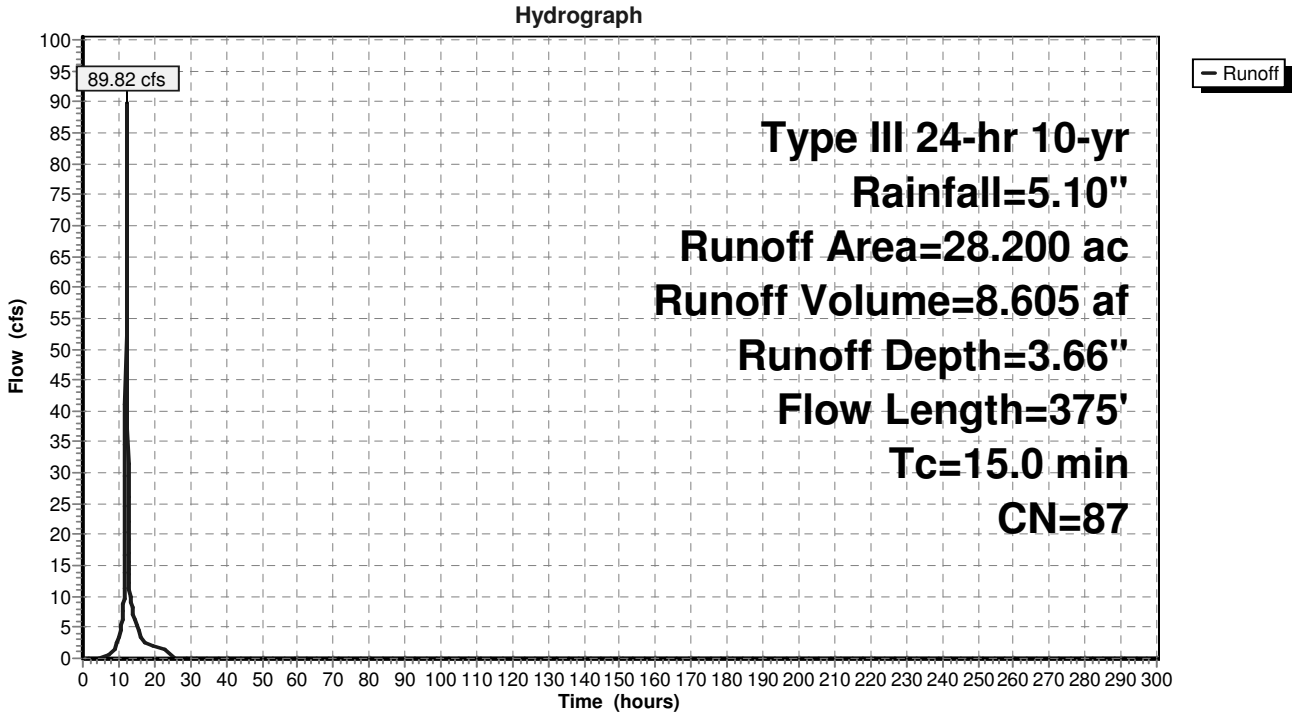
Runoff = 89.82 cfs @ 12.20 hrs, Volume= 8.605 af, Depth= 3.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs
0.200	74	>75% Grass cover, Good, HSG C
2.700	71	Meadow, non-grazed, HSG C
3.700	70	Woods, Good, HSG C
16.300	94	Urban commercial, 85% imp, HSG C
5.100	83	1/4 acre lots, 38% imp, HSG C
28.200	87	Weighted Average
12.207		Pervious Area
15.993		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.8	175	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	100	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.0	375	Total			

Subcatchment 6.7S:

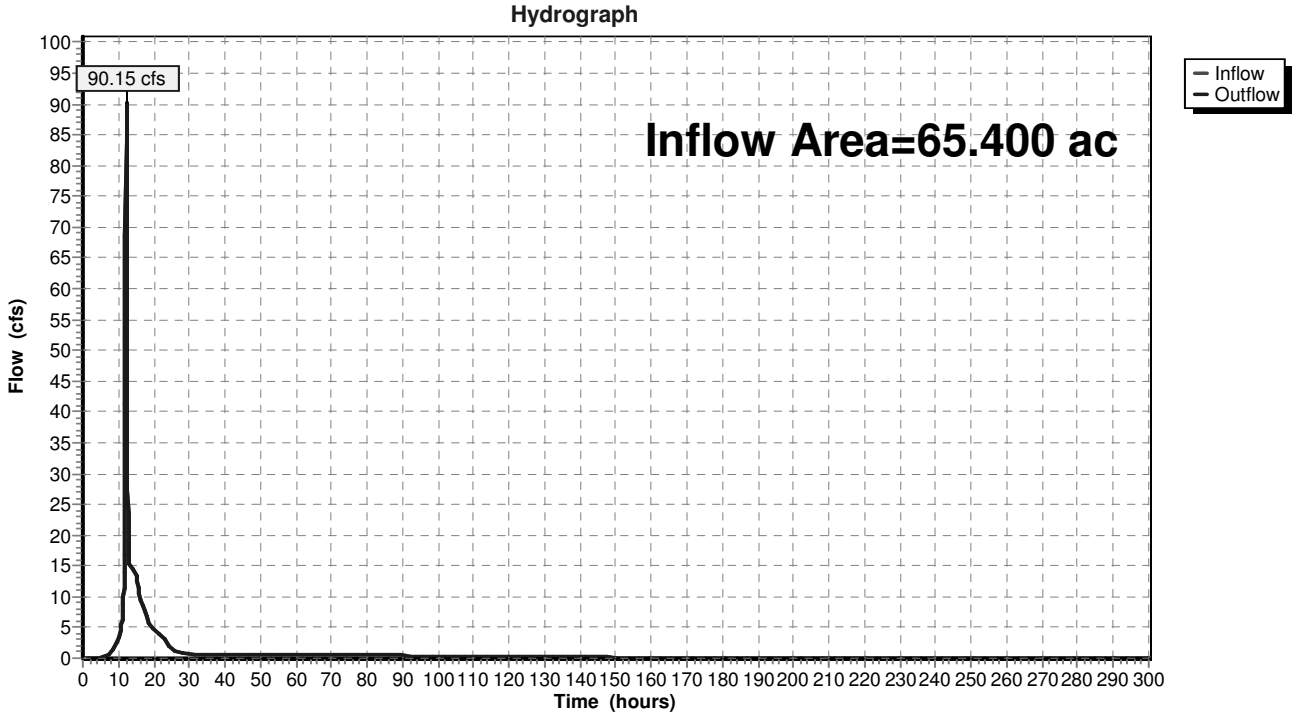


Summary for Reach DP 6: Design Point 6

Inflow Area = 65.400 ac, 40.97% Impervious, Inflow Depth > 3.23" for 10-yr event
Inflow = 90.15 cfs @ 12.20 hrs, Volume= 17.623 af
Outflow = 90.15 cfs @ 12.20 hrs, Volume= 17.623 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 6: Design Point 6



Summary for Pond 6.1P: Micropool Extended Detention Pond (P-1)

Inflow Area = 7.600 ac, 43.42% Impervious, Inflow Depth = 3.36" for 10-yr event
Inflow = 24.46 cfs @ 12.16 hrs, Volume= 2.129 af
Outflow = 14.50 cfs @ 12.36 hrs, Volume= 2.129 af, Atten= 41%, Lag= 11.7 min
Primary = 14.50 cfs @ 12.36 hrs, Volume= 2.129 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 687.00' Surf.Area= 9,450 sf Storage= 23,775 cf
Peak Elev= 689.66' @ 12.36 hrs Surf.Area= 15,598 sf Storage= 57,639 cf (33,864 cf above start)
Flood Elev= 691.00' Surf.Area= 18,550 sf Storage= 80,525 cf (56,750 cf above start)

Plug-Flow detention time= 903.8 min calculated for 1.583 af (74% of inflow)
Center-of-Mass det. time= 587.7 min (1,402.8 - 815.1)

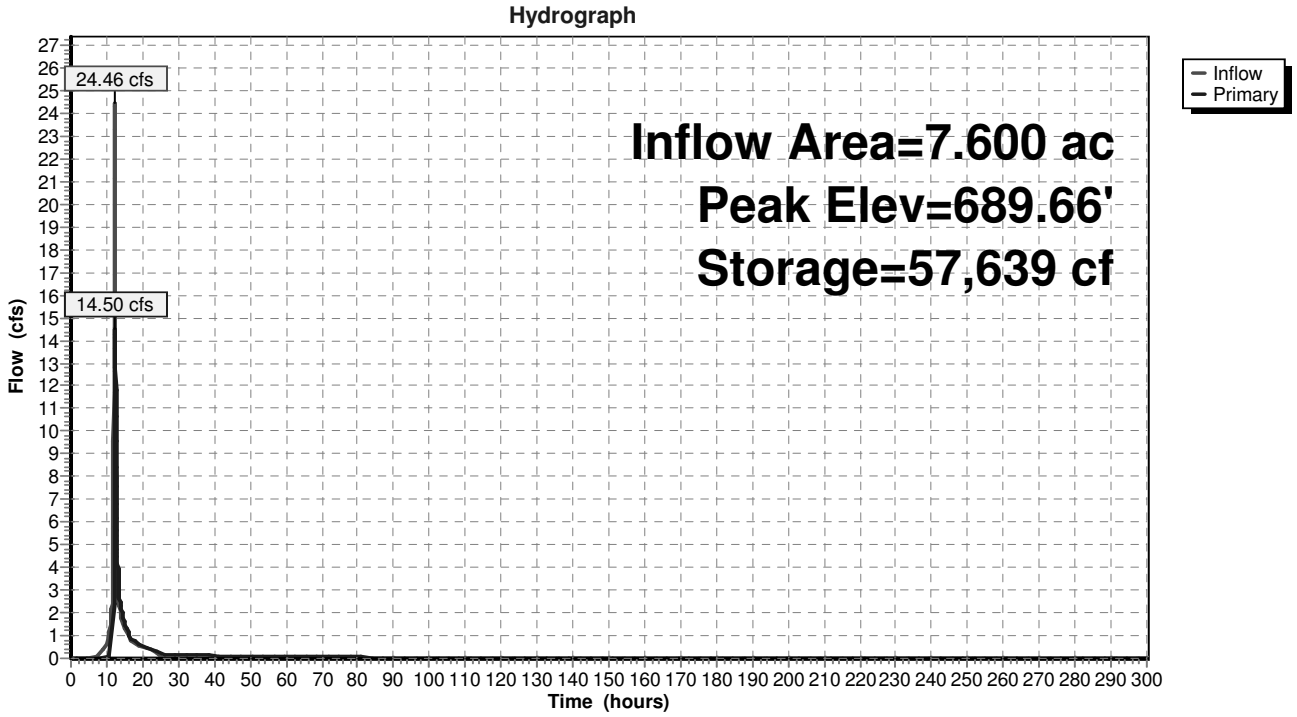
Volume	Invert	Avail.Storage	Storage Description
#1	682.00'	100,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
682.00	2,200	0	0
684.00	3,400	5,600	5,600
686.00	6,700	10,100	15,700
688.00	12,200	18,900	34,600
690.00	16,300	28,500	63,100
692.00	20,800	37,100	100,200

Device	Routing	Invert	Outlet Devices
#1	Primary	687.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	688.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=14.44 cfs @ 12.36 hrs HW=689.66' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.17 cfs @ 7.72 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 14.27 cfs @ 3.15 fps)

Pond 6.1P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 8.700 ac, 37.93% Impervious, Inflow Depth = 3.21" for 10-yr event
Inflow = 15.63 cfs @ 12.35 hrs, Volume= 2.330 af
Outflow = 2.93 cfs @ 13.59 hrs, Volume= 2.327 af, Atten= 81%, Lag= 74.7 min
Primary = 2.93 cfs @ 13.59 hrs, Volume= 2.327 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 673.00' Surf.Area= 10,250 sf Storage= 30,225 cf
Peak Elev= 675.84' @ 13.59 hrs Surf.Area= 16,972 sf Storage= 69,792 cf (39,567 cf above start)
Flood Elev= 677.00' Surf.Area= 19,650 sf Storage= 91,075 cf (60,850 cf above start)

Plug-Flow detention time= 4,561.1 min calculated for 1.633 af (70% of inflow)
Center-of-Mass det. time= 2,688.7 min (4,043.3 - 1,354.6)

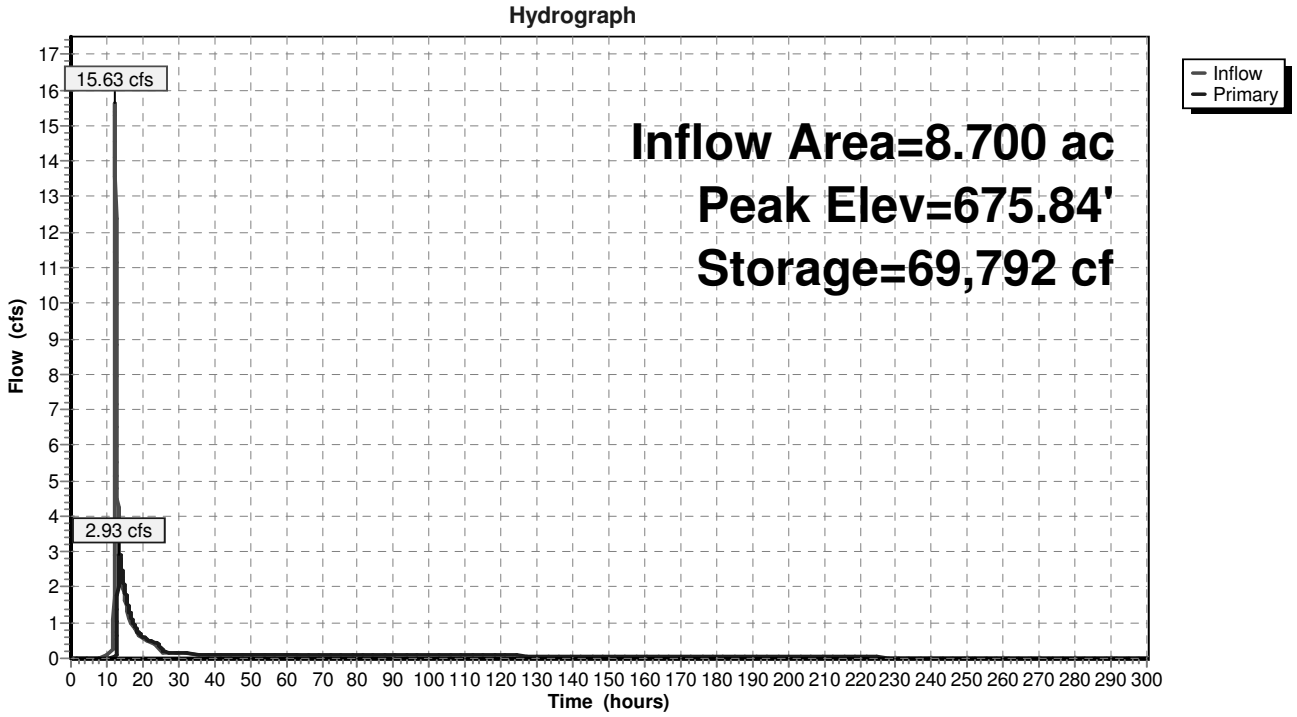
Volume	Invert	Avail.Storage	Storage Description
#1	668.00'	111,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
668.00	3,700	0	0
670.00	5,300	9,000	9,000
672.00	7,200	12,500	21,500
674.00	13,300	20,500	42,000
676.00	17,300	30,600	72,600
678.00	22,000	39,300	111,900

Device	Routing	Invert	Outlet Devices
#1	Primary	673.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	675.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.91 cfs @ 13.59 hrs HW=675.84' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.10 cfs @ 8.02 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 2.81 cfs @ 1.67 fps)

Pond 6.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 6.3P: Micropool Extended Detention Pond (P-1)

Inflow Area = 17.200 ac, 25.58% Impervious, Inflow Depth = 2.80" for 10-yr event
Inflow = 44.98 cfs @ 12.18 hrs, Volume= 4.009 af
Outflow = 28.28 cfs @ 12.37 hrs, Volume= 4.009 af, Atten= 37%, Lag= 11.6 min
Primary = 28.28 cfs @ 12.37 hrs, Volume= 4.009 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 747.50' Surf.Area= 15,148 sf Storage= 43,193 cf
Peak Elev= 749.92' @ 12.37 hrs Surf.Area= 25,188 sf Storage= 92,475 cf (49,282 cf above start)
Flood Elev= 751.10' Surf.Area= 30,065 sf Storage= 125,041 cf (81,848 cf above start)

Plug-Flow detention time= 558.3 min calculated for 3.017 af (75% of inflow)
Center-of-Mass det. time= 332.4 min (1,164.8 - 832.3)

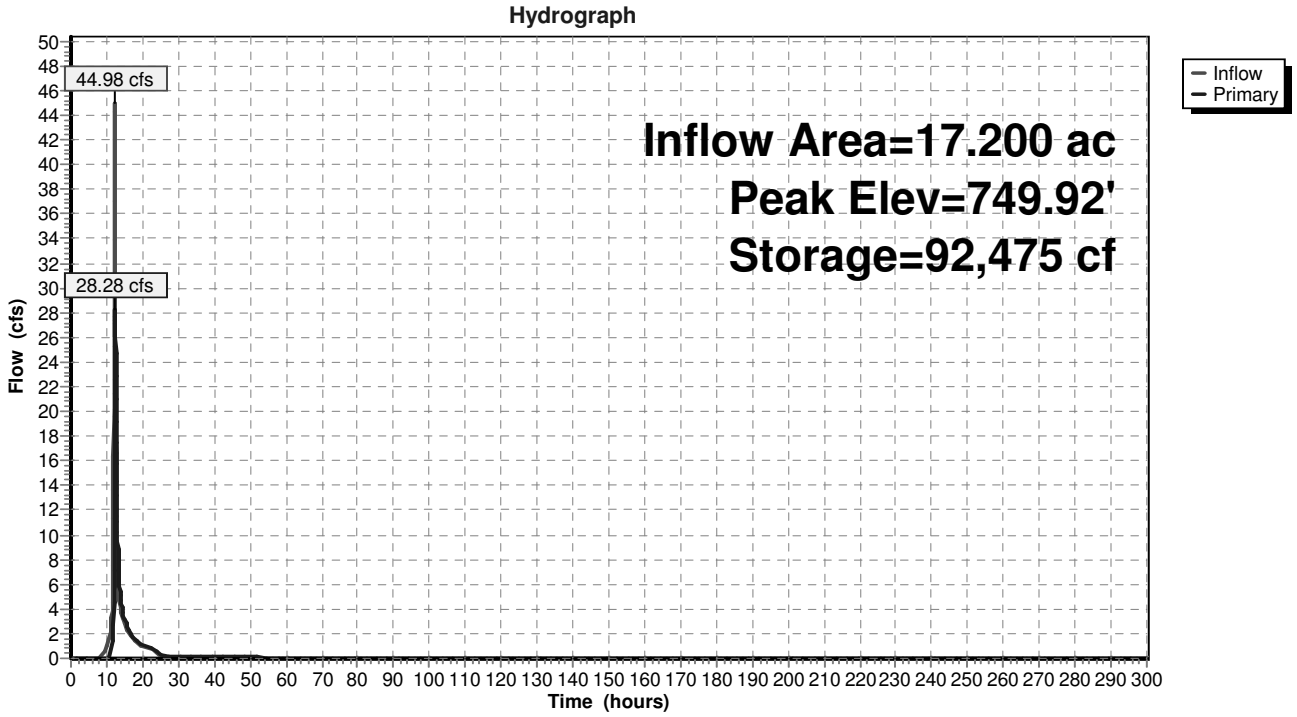
Volume	Invert	Avail.Storage	Storage Description
#1	742.00'	153,780 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
742.00	5,200	0	0
744.00	6,500	11,700	11,700
746.00	7,790	14,290	25,990
748.00	17,600	25,390	51,380
750.00	25,500	43,100	94,480
752.00	33,800	59,300	153,780

Device	Routing	Invert	Outlet Devices
#1	Primary	747.50'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	748.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=28.17 cfs @ 12.37 hrs HW=749.92' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.16 cfs @ 7.36 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 28.01 cfs @ 3.95 fps)

Pond 6.3P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.4P: Micropool Extended Detention Pond (P-1)

Inflow Area = 6.300 ac, 30.16% Impervious, Inflow Depth = 3.07" for 10-yr event
Inflow = 22.57 cfs @ 12.08 hrs, Volume= 1.614 af
Outflow = 5.99 cfs @ 12.46 hrs, Volume= 1.561 af, Atten= 73%, Lag= 22.7 min
Primary = 5.99 cfs @ 12.46 hrs, Volume= 1.561 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 728.00' Surf.Area= 12,100 sf Storage= 33,800 cf
Peak Elev= 730.28' @ 12.46 hrs Surf.Area= 17,168 sf Storage= 67,188 cf (33,388 cf above start)
Flood Elev= 732.00' Surf.Area= 21,200 sf Storage= 100,100 cf (66,300 cf above start)

Plug-Flow detention time= 5,136.5 min calculated for 0.785 af (49% of inflow)
Center-of-Mass det. time= 2,527.2 min (3,344.7 - 817.5)

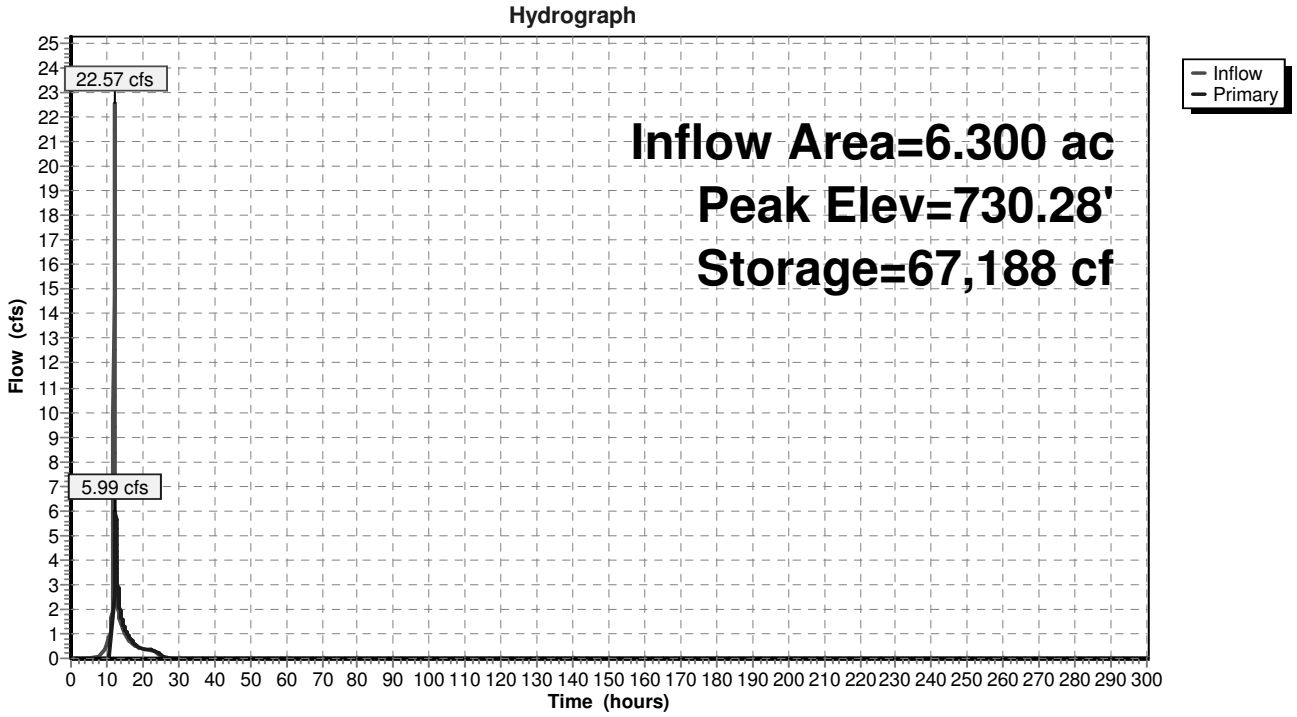
Volume	Invert	Avail.Storage	Storage Description
#1	722.00'	122,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
722.00	2,700	0	0
724.00	4,000	6,700	6,700
726.00	5,500	9,500	16,200
728.00	12,100	17,600	33,800
730.00	16,500	28,600	62,400
732.00	21,200	37,700	100,100
733.00	23,800	22,500	122,600

Device	Routing	Invert	Outlet Devices
#1	Primary	728.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	729.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.94 cfs @ 12.46 hrs HW=730.28' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.04 cfs @ 7.21 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 5.90 cfs @ 2.21 fps)

Pond 6.4P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.5P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 19.800 ac, 24.24% Impervious, Inflow Depth = 2.76" for 10-yr event
Inflow = 31.00 cfs @ 12.35 hrs, Volume= 4.557 af
Outflow = 3.97 cfs @ 14.70 hrs, Volume= 4.557 af, Atten= 87%, Lag= 140.9 min
Primary = 3.97 cfs @ 14.70 hrs, Volume= 4.557 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 732.00' Surf.Area= 8,900 sf Storage= 5,350 cf
Peak Elev= 738.89' @ 14.70 hrs Surf.Area= 23,706 sf Storage= 114,655 cf (109,305 cf above start)
Flood Elev= 741.00' Surf.Area= 28,300 sf Storage= 170,100 cf (164,750 cf above start)

Plug-Flow detention time= 2,155.8 min calculated for 4.434 af (97% of inflow)
Center-of-Mass det. time= 1,962.3 min (3,087.0 - 1,124.7)

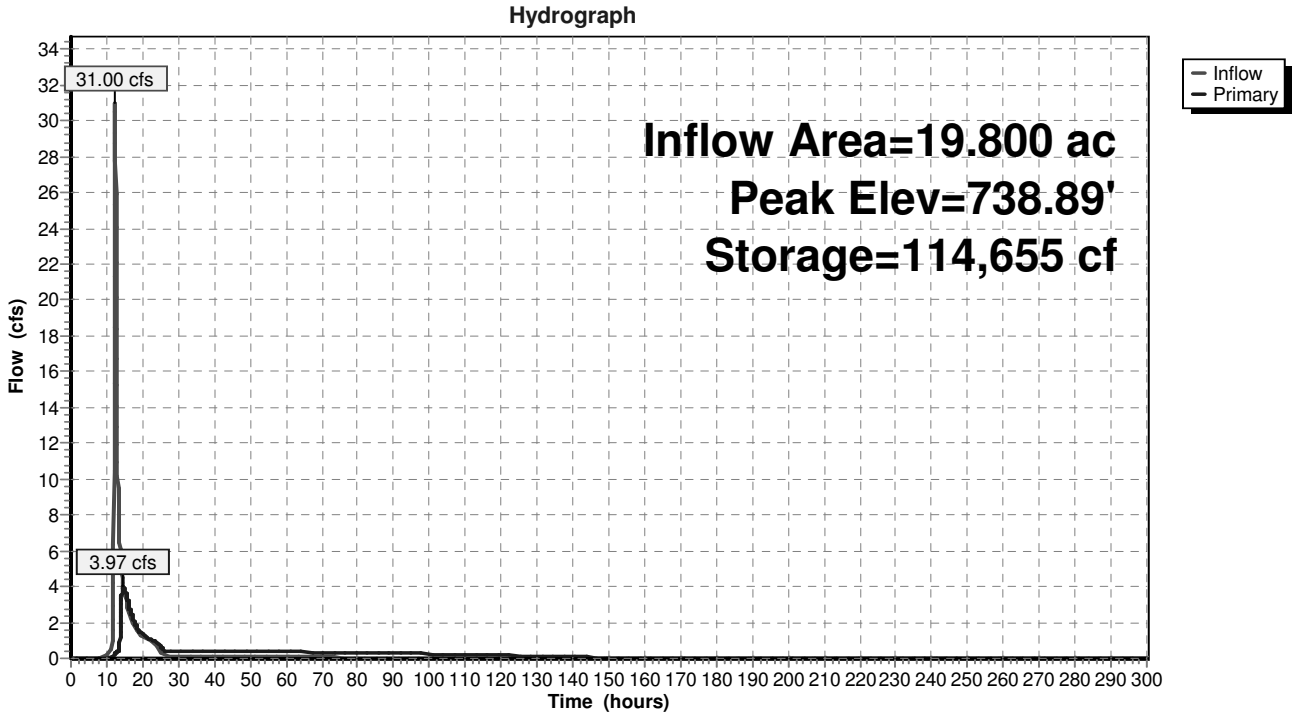
Volume	Invert	Avail.Storage	Storage Description
#1	731.00'	199,250 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
731.00	1,800	0	0
732.00	8,900	5,350	5,350
734.00	12,800	21,700	27,050
736.00	16,700	29,500	56,550
738.00	21,400	38,100	94,650
740.00	26,600	48,000	142,650
742.00	30,000	56,600	199,250

Device	Routing	Invert	Outlet Devices
#1	Primary	732.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	738.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.93 cfs @ 14.70 hrs HW=738.89' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.43 cfs @ 12.54 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 3.51 cfs @ 1.81 fps)

Pond 6.5P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 6.6P: Micropool Extended Detention Pond (P-1)

Inflow Area = 8.700 ac, 31.03% Impervious, Inflow Depth > 2.98" for 10-yr event
Inflow = 9.44 cfs @ 12.34 hrs, Volume= 2.157 af
Outflow = 2.06 cfs @ 14.24 hrs, Volume= 2.134 af, Atten= 78%, Lag= 114.3 min
Primary = 2.06 cfs @ 14.24 hrs, Volume= 2.134 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 690.00' Surf.Area= 12,300 sf Storage= 40,000 cf
Peak Elev= 692.21' @ 14.24 hrs Surf.Area= 16,550 sf Storage= 71,895 cf (31,895 cf above start)
Flood Elev= 695.00' Surf.Area= 22,600 sf Storage= 126,250 cf (86,250 cf above start)

Plug-Flow detention time= 4,821.2 min calculated for 1.215 af (56% of inflow)
Center-of-Mass det. time= 953.1 min (3,601.7 - 2,648.6)

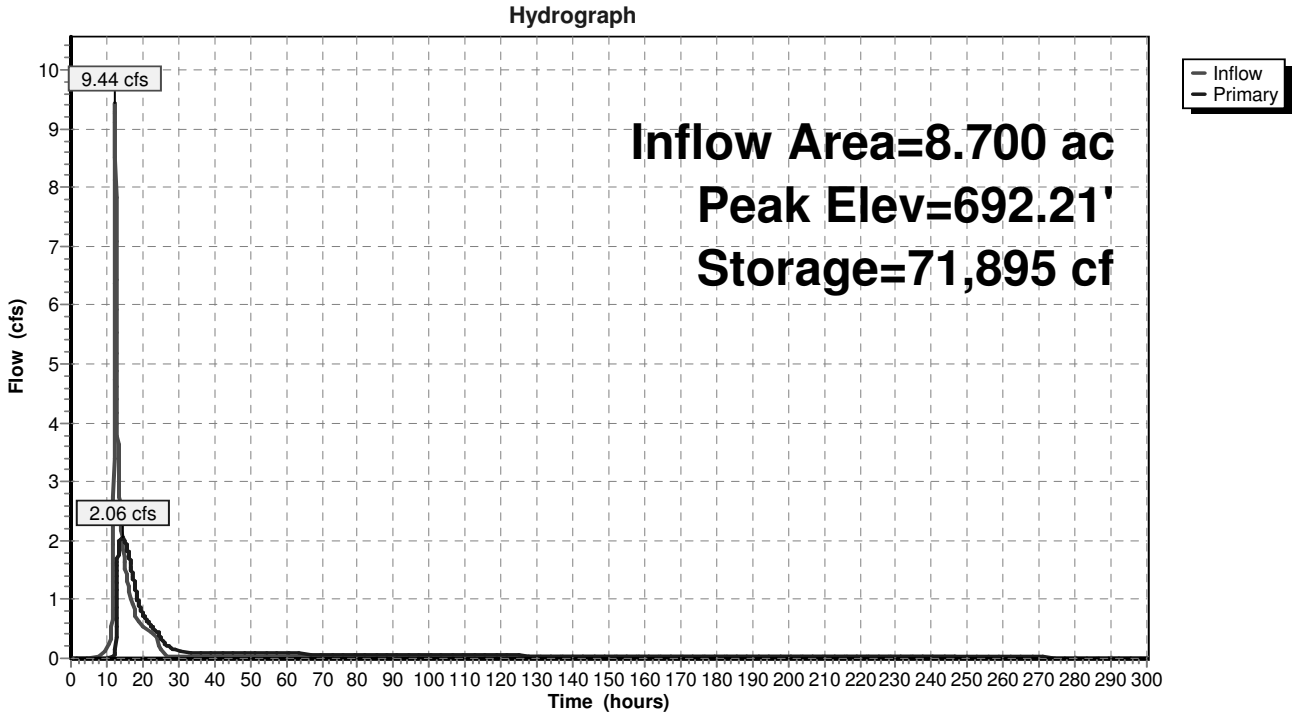
Volume	Invert	Avail.Storage	Storage Description
#1	684.00'	150,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
684.00	3,700	0	0
686.00	5,200	8,900	8,900
688.00	6,800	12,000	20,900
690.00	12,300	19,100	40,000
692.00	16,100	28,400	68,400
694.00	20,300	36,400	104,800
696.00	24,900	45,200	150,000

Device	Routing	Invert	Outlet Devices
#1	Primary	690.00'	**1.8" Vert. Orifice/Grate** C= 0.600
#2	Primary	691.25'	**10.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	693.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.07 cfs @ 14.24 hrs HW=692.21' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.12 cfs @ 7.04 fps)
- **2=Orifice/Grate** (Orifice Controls 1.94 cfs @ 3.56 fps)
- **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6.6P: Micropool Extended Detention Pond (P-1)



Summary for Subcatchment 6.1S:

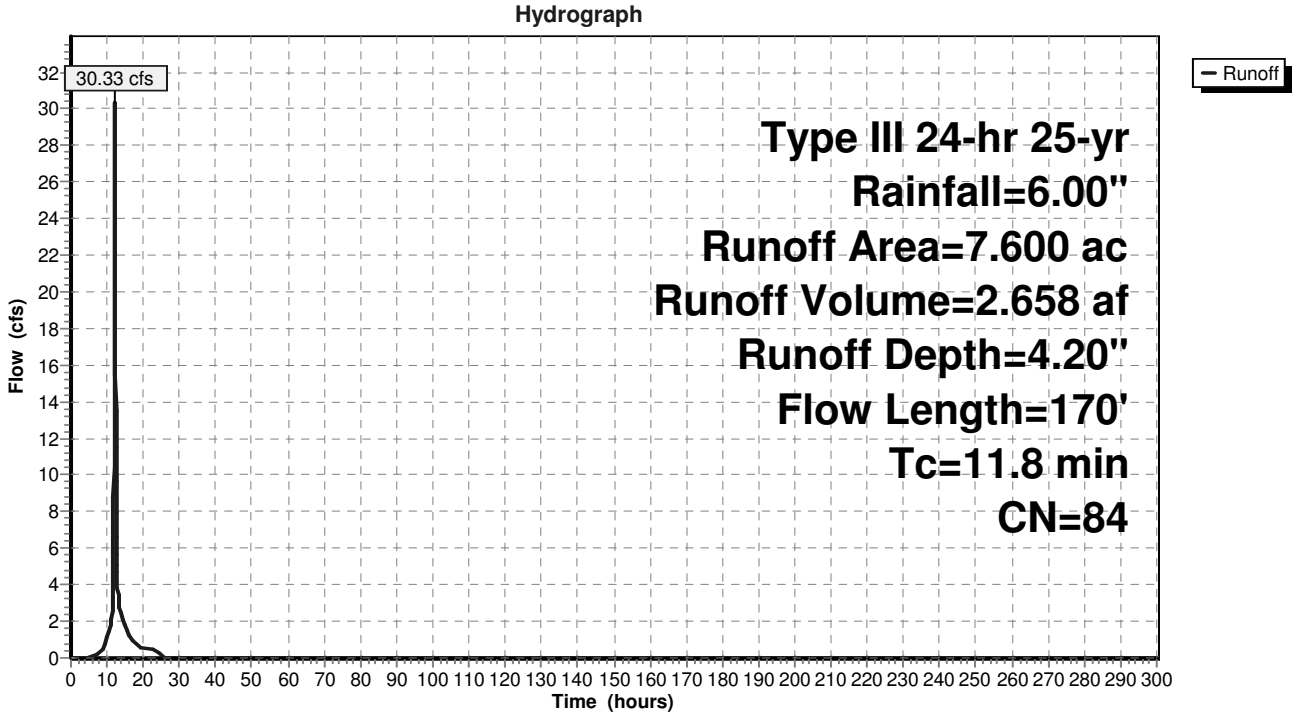
Runoff = 30.33 cfs @ 12.16 hrs, Volume= 2.658 af, Depth= 4.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
3.100	98	Paved parking & roofs
3.700	74	>75% Grass cover, Good, HSG C
0.400	71	Meadow, non-grazed, HSG C
0.200	70	Woods, Good, HSG C
0.200	98	Water Surface
7.600	84	Weighted Average
4.300		Pervious Area
3.300		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.5	70	0.1300	2.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.8	170	Total			

Subcatchment 6.1S:



Summary for Subcatchment 6.2S:

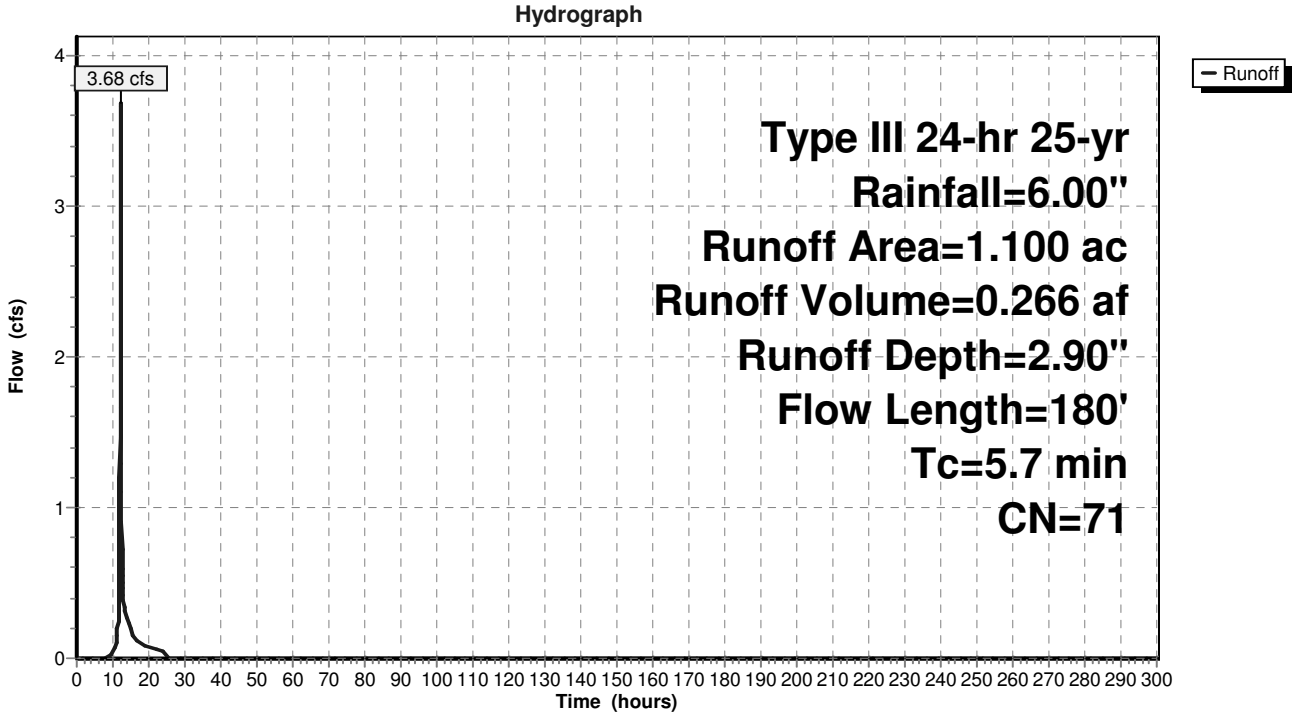
Runoff = 3.68 cfs @ 12.09 hrs, Volume= 0.266 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.800	71	Meadow, non-grazed, HSG C
0.300	70	Woods, Good, HSG C
1.100	71	Weighted Average
1.100		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0900	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.6	80	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.7	180	Total			

Subcatchment 6.2S:



Summary for Subcatchment 6.3S:

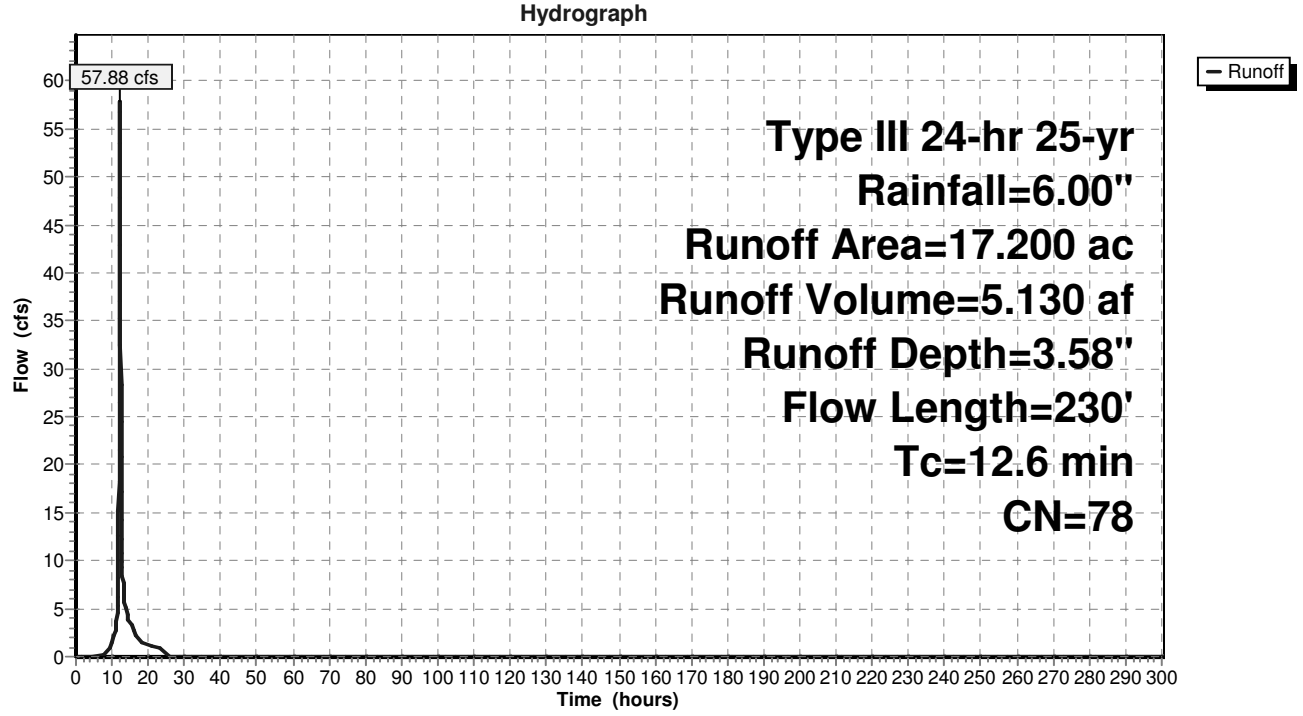
Runoff = 57.88 cfs @ 12.17 hrs, Volume= 5.130 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
4.000	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
2.800	74	>75% Grass cover, Good, HSG C
6.400	71	Meadow, non-grazed, HSG C
3.400	70	Woods, Good, HSG C
0.400	98	Water Surface
17.200	78	Weighted Average
12.800		Pervious Area
4.400		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.8	130	0.1600	2.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	230	Total			

Subcatchment 6.3S:



Summary for Subcatchment 6.4S:

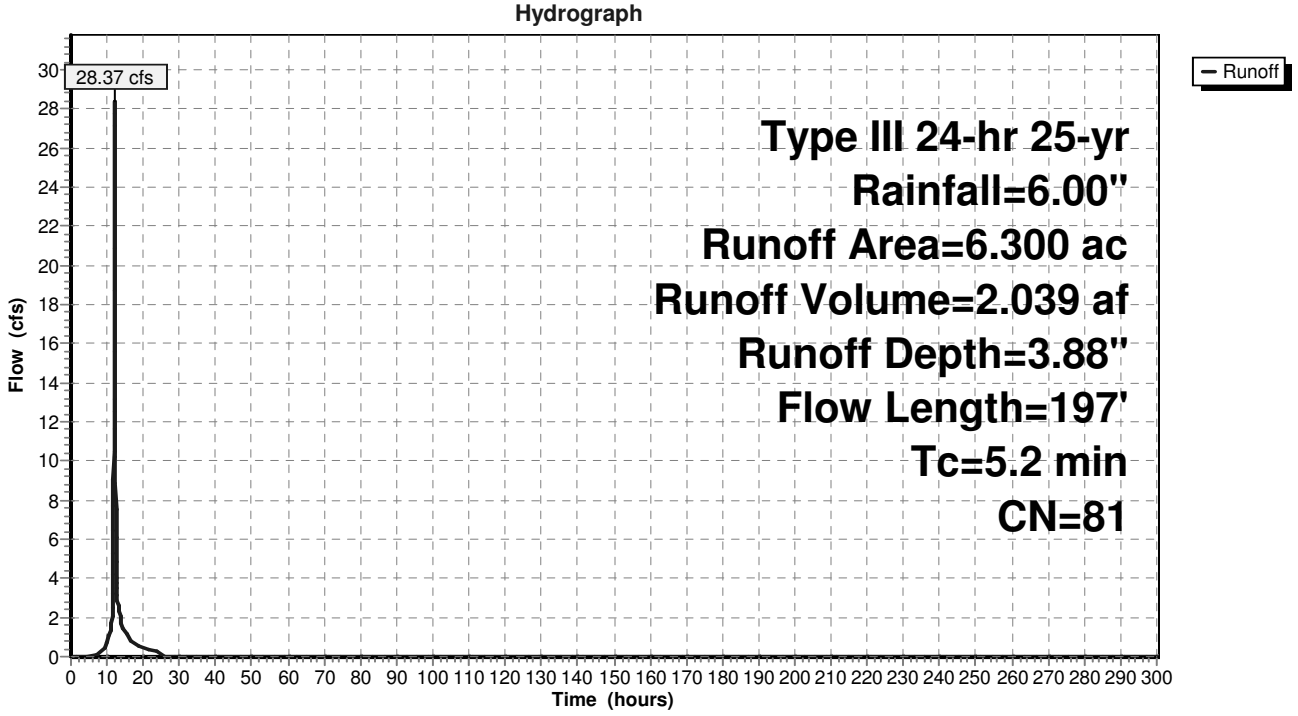
Runoff = 28.37 cfs @ 12.08 hrs, Volume= 2.039 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
1.600	98	Paved parking & roofs
0.300	87	Dirt roads, HSG C
1.700	74	>75% Grass cover, Good, HSG C
1.500	71	Meadow, non-grazed, HSG C
0.900	70	Woods, Good, HSG C
0.300	98	Water Surface
6.300	81	Weighted Average
4.400		Pervious Area
1.900		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.1100	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.5	97	0.2500	3.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.2	197	Total			

Subcatchment 6.4S:



Summary for Subcatchment 6.5S:

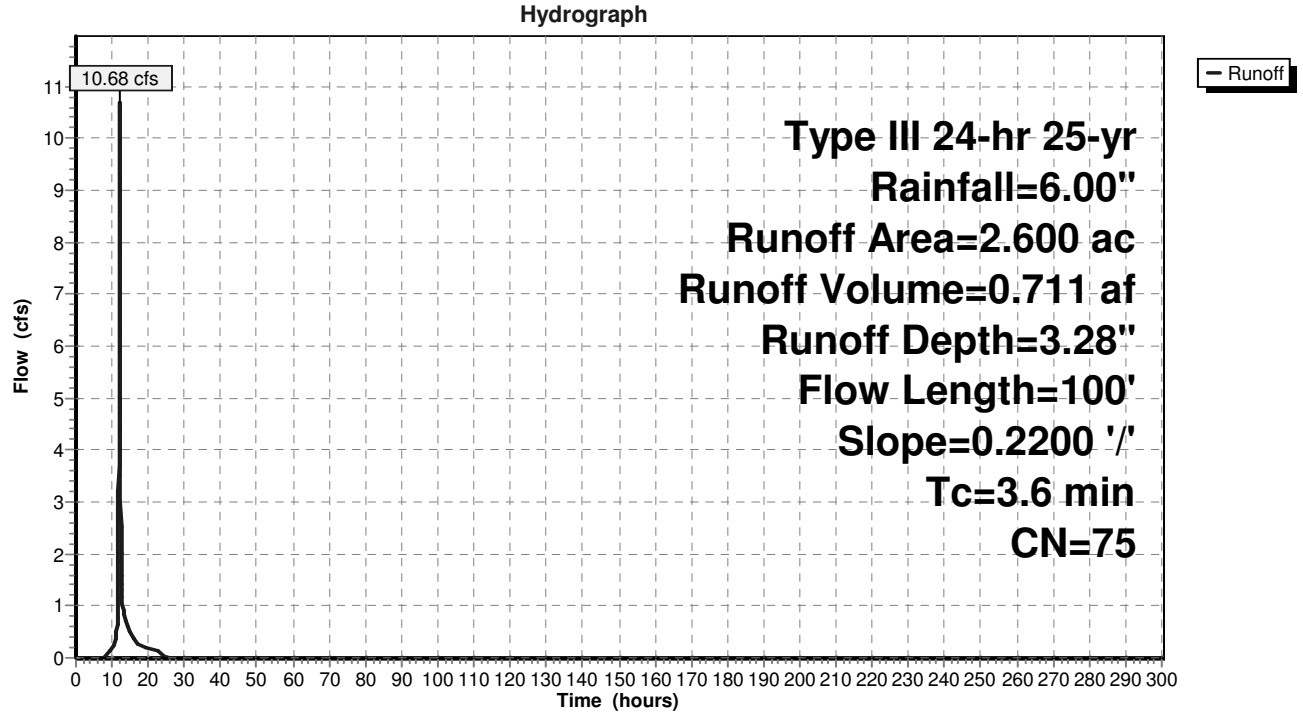
Runoff = 10.68 cfs @ 12.06 hrs, Volume= 0.711 af, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.400	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
1.700	71	Meadow, non-grazed, HSG C
0.200	70	Woods, Good, HSG C
2.600	75	Weighted Average
2.200		Pervious Area
0.400		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	100	0.2200	0.46		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"

Subcatchment 6.5S:



Summary for Subcatchment 6.6S:

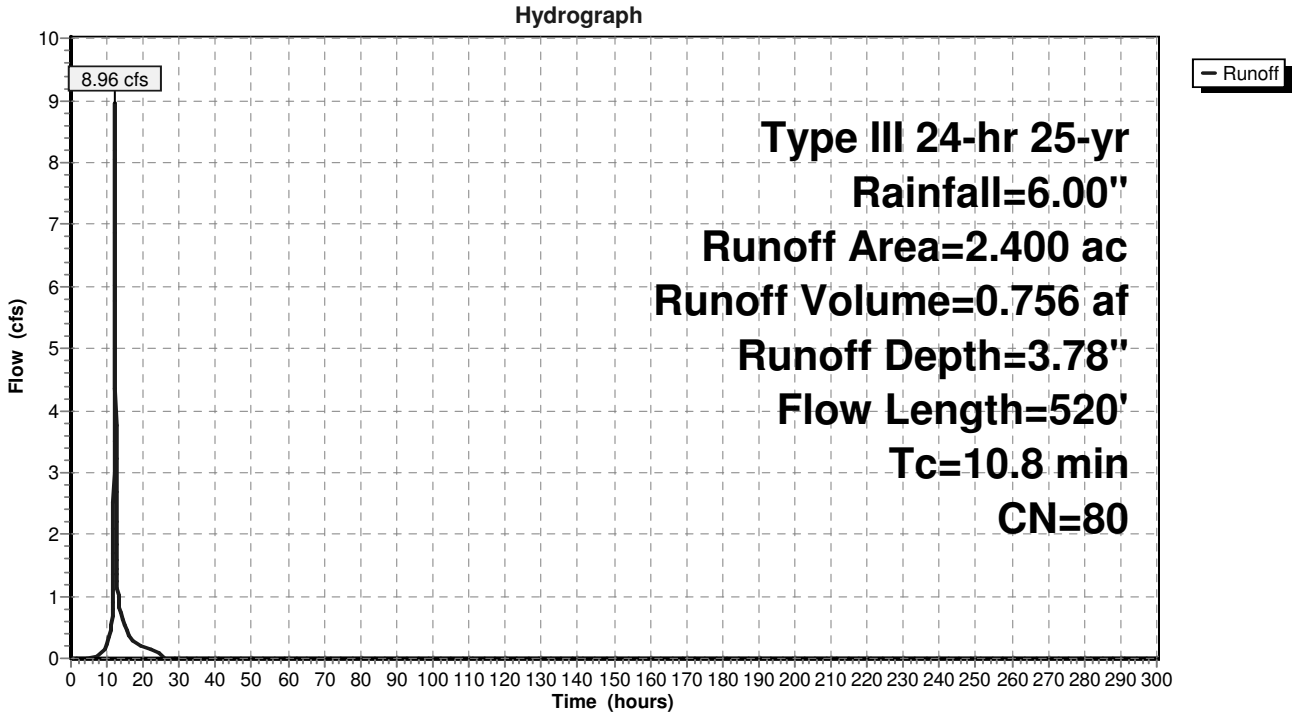
Runoff = 8.96 cfs @ 12.15 hrs, Volume= 0.756 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.500	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
1.200	71	Meadow, non-grazed, HSG C
0.300	70	Woods, Good, HSG C
0.300	98	Water Surface
2.400	80	Weighted Average
1.600		Pervious Area
0.800		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	75	0.0700	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
3.9	25	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.1	140	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	40	0.4500	4.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	240	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.8	520	Total			

Subcatchment 6.6S:



Summary for Subcatchment 6.7S:

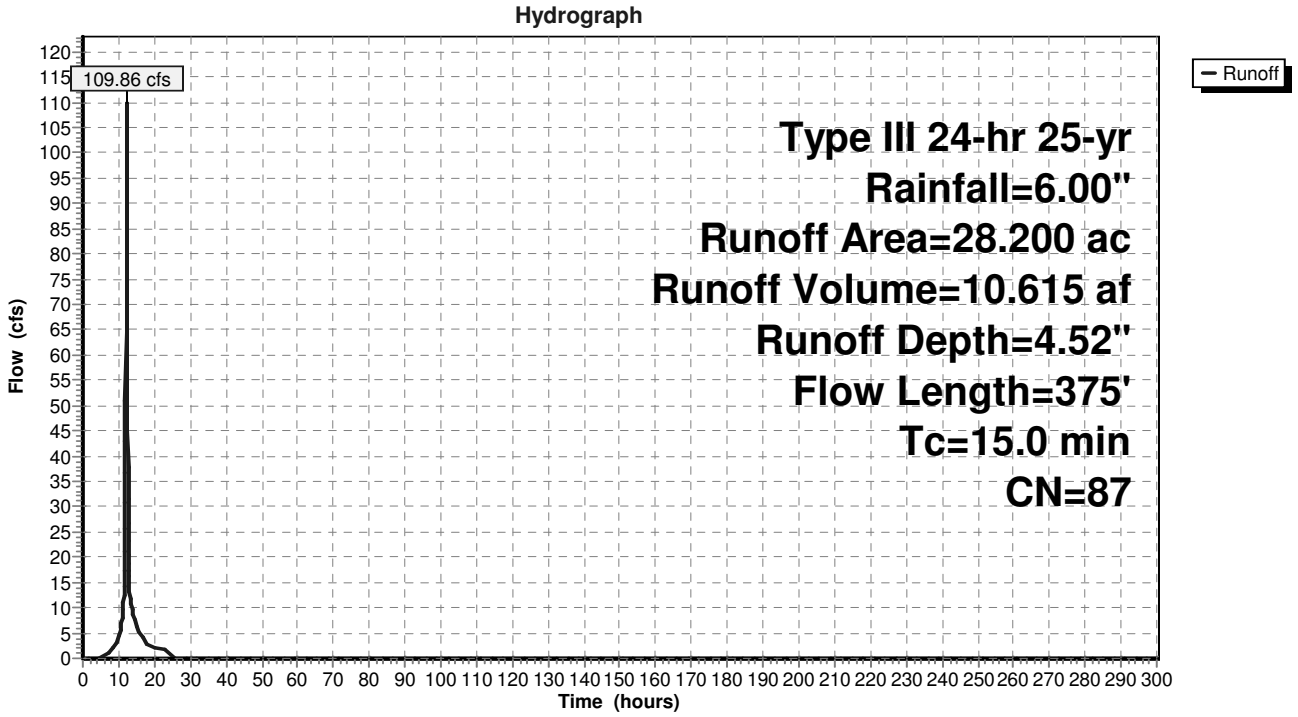
Runoff = 109.86 cfs @ 12.20 hrs, Volume= 10.615 af, Depth= 4.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs
0.200	74	>75% Grass cover, Good, HSG C
2.700	71	Meadow, non-grazed, HSG C
3.700	70	Woods, Good, HSG C
16.300	94	Urban commercial, 85% imp, HSG C
5.100	83	1/4 acre lots, 38% imp, HSG C
28.200	87	Weighted Average
12.207		Pervious Area
15.993		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.8	175	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	100	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.0	375	Total			

Subcatchment 6.7S:

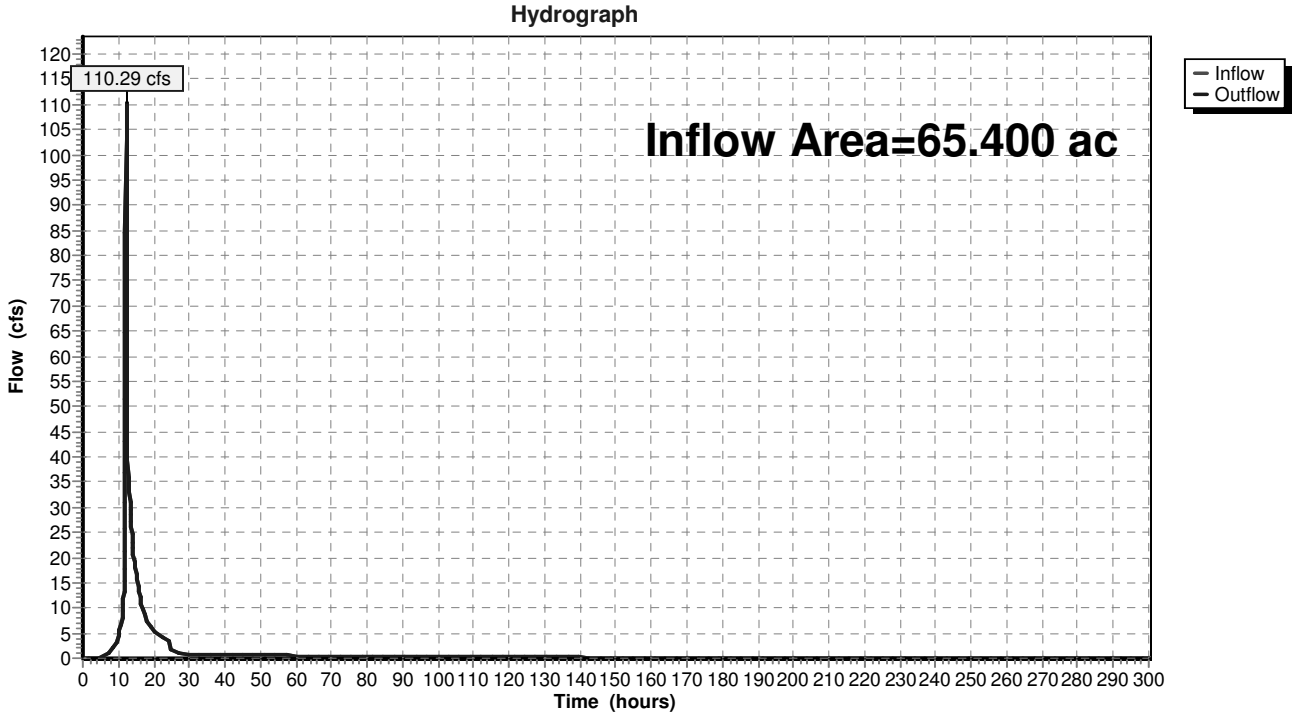


Summary for Reach DP 6: Design Point 6

Inflow Area = 65.400 ac, 40.97% Impervious, Inflow Depth > 4.05" for 25-yr event
Inflow = 110.29 cfs @ 12.20 hrs, Volume= 22.096 af
Outflow = 110.29 cfs @ 12.20 hrs, Volume= 22.096 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 6: Design Point 6



Summary for Pond 6.1P: Micropool Extended Detention Pond (P-1)

Inflow Area = 7.600 ac, 43.42% Impervious, Inflow Depth = 4.20" for 25-yr event
Inflow = 30.33 cfs @ 12.16 hrs, Volume= 2.658 af
Outflow = 20.75 cfs @ 12.31 hrs, Volume= 2.658 af, Atten= 32%, Lag= 8.8 min
Primary = 20.75 cfs @ 12.31 hrs, Volume= 2.658 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 687.00' Surf.Area= 9,450 sf Storage= 23,775 cf
Peak Elev= 689.90' @ 12.31 hrs Surf.Area= 16,103 sf Storage= 61,540 cf (37,765 cf above start)
Flood Elev= 691.00' Surf.Area= 18,550 sf Storage= 80,525 cf (56,750 cf above start)

Plug-Flow detention time= 699.9 min calculated for 2.112 af (79% of inflow)
Center-of-Mass det. time= 480.0 min (1,288.8 - 808.9)

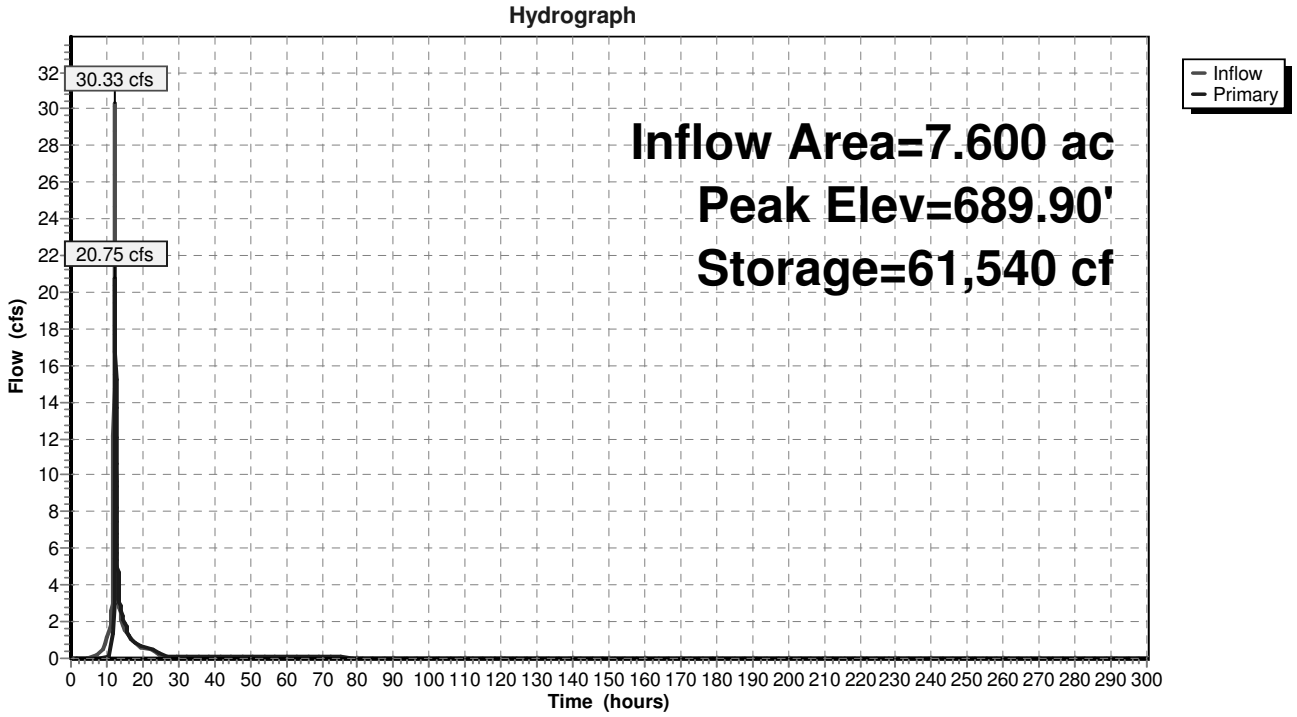
Volume	Invert	Avail.Storage	Storage Description
#1	682.00'	100,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
682.00	2,200	0	0
684.00	3,400	5,600	5,600
686.00	6,700	10,100	15,700
688.00	12,200	18,900	34,600
690.00	16,300	28,500	63,100
692.00	20,800	37,100	100,200

Device	Routing	Invert	Outlet Devices
#1	Primary	687.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	688.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=20.68 cfs @ 12.31 hrs HW=689.90' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.18 cfs @ 8.08 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 20.50 cfs @ 3.56 fps)

Pond 6.1P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 8.700 ac, 37.93% Impervious, Inflow Depth = 4.03" for 25-yr event
Inflow = 22.40 cfs @ 12.30 hrs, Volume= 2.924 af
Outflow = 7.49 cfs @ 12.88 hrs, Volume= 2.920 af, Atten= 67%, Lag= 35.0 min
Primary = 7.49 cfs @ 12.88 hrs, Volume= 2.920 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 673.00' Surf.Area= 10,250 sf Storage= 30,225 cf
Peak Elev= 676.11' @ 12.88 hrs Surf.Area= 17,560 sf Storage= 74,528 cf (44,303 cf above start)
Flood Elev= 677.00' Surf.Area= 19,650 sf Storage= 91,075 cf (60,850 cf above start)

Plug-Flow detention time= 3,393.2 min calculated for 2.226 af (76% of inflow)
Center-of-Mass det. time= 2,152.3 min (3,399.9 - 1,247.6)

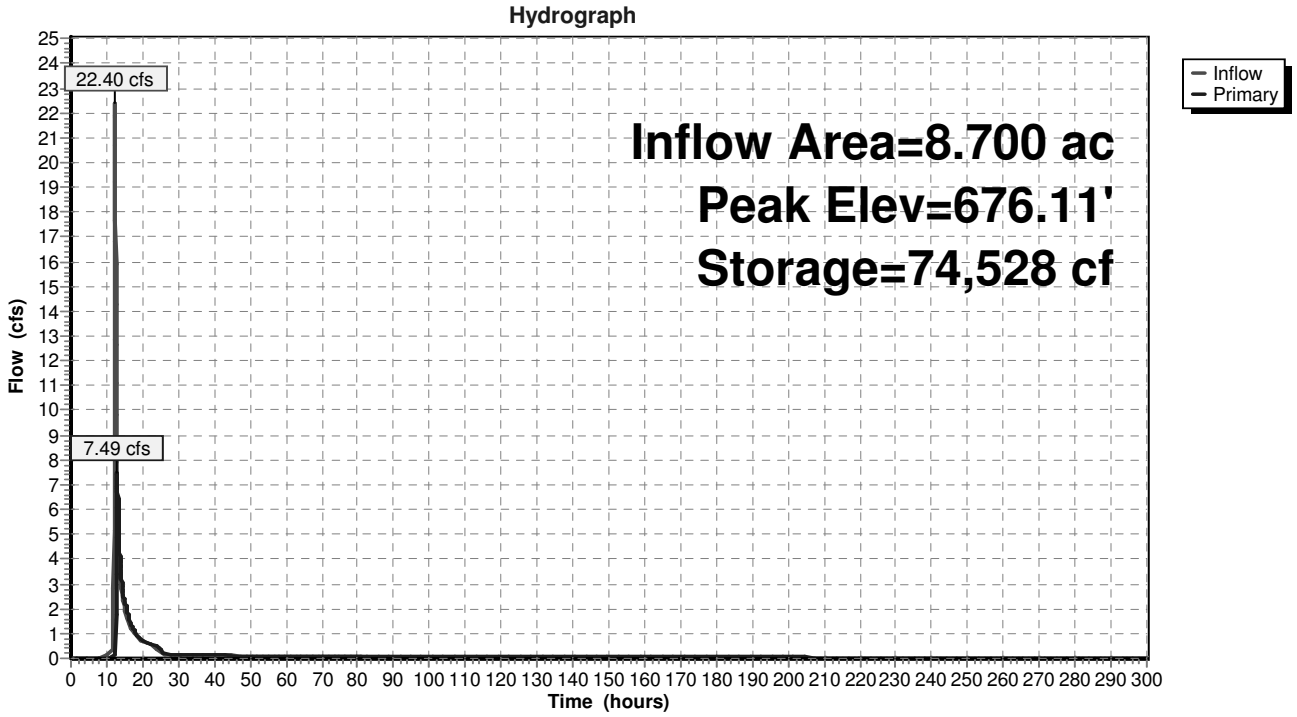
Volume	Invert	Avail.Storage	Storage Description
#1	668.00'	111,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
668.00	3,700	0	0
670.00	5,300	9,000	9,000
672.00	7,200	12,500	21,500
674.00	13,300	20,500	42,000
676.00	17,300	30,600	72,600
678.00	22,000	39,300	111,900

Device	Routing	Invert	Outlet Devices
#1	Primary	673.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	675.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=7.46 cfs @ 12.88 hrs HW=676.11' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.10 cfs @ 8.41 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 7.36 cfs @ 2.41 fps)

Pond 6.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 6.3P: Micropool Extended Detention Pond (P-1)

Inflow Area = 17.200 ac, 25.58% Impervious, Inflow Depth = 3.58" for 25-yr event
Inflow = 57.88 cfs @ 12.17 hrs, Volume= 5.130 af
Outflow = 38.33 cfs @ 12.34 hrs, Volume= 5.130 af, Atten= 34%, Lag= 10.2 min
Primary = 38.33 cfs @ 12.34 hrs, Volume= 5.130 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 747.50' Surf.Area= 15,148 sf Storage= 43,193 cf
Peak Elev= 750.24' @ 12.34 hrs Surf.Area= 26,502 sf Storage= 100,760 cf (57,567 cf above start)
Flood Elev= 751.10' Surf.Area= 30,065 sf Storage= 125,041 cf (81,848 cf above start)

Plug-Flow detention time= 428.5 min calculated for 4.137 af (81% of inflow)
Center-of-Mass det. time= 267.6 min (1,092.9 - 825.3)

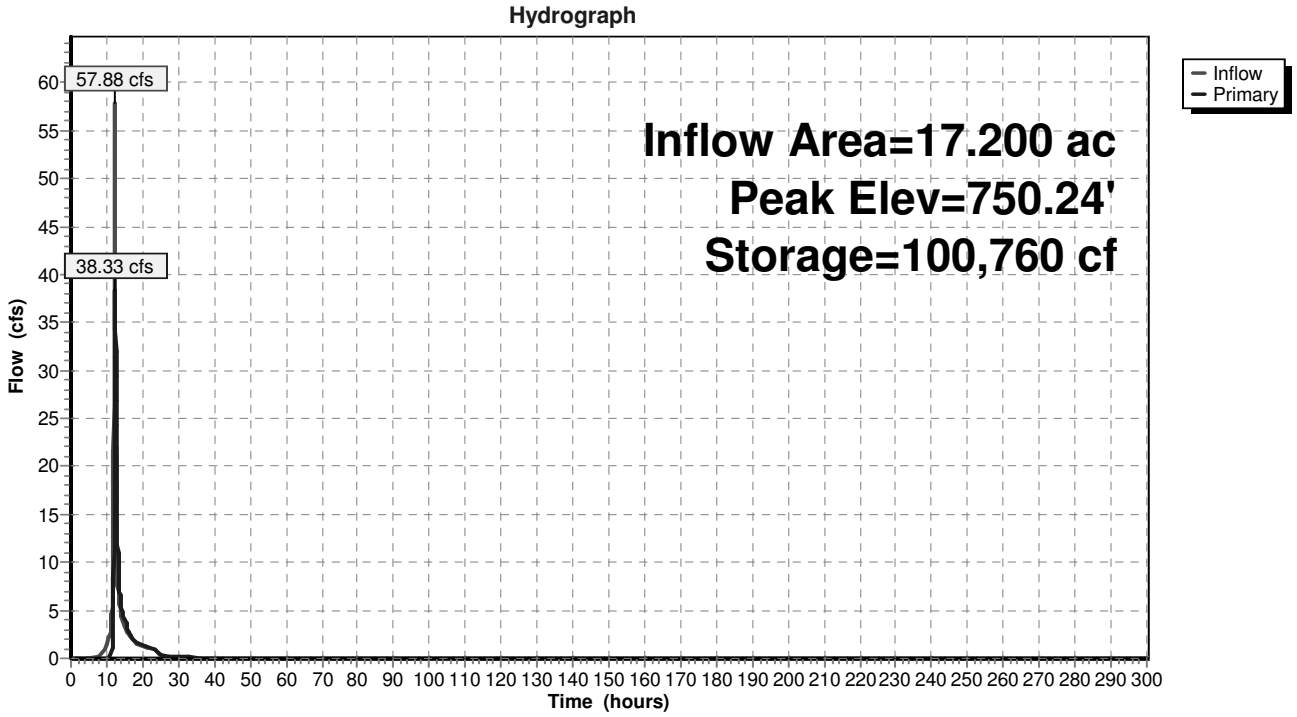
Volume	Invert	Avail.Storage	Storage Description
#1	742.00'	153,780 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
742.00	5,200	0	0
744.00	6,500	11,700	11,700
746.00	7,790	14,290	25,990
748.00	17,600	25,390	51,380
750.00	25,500	43,100	94,480
752.00	33,800	59,300	153,780

Device	Routing	Invert	Outlet Devices
#1	Primary	747.50'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	748.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=38.26 cfs @ 12.34 hrs HW=750.24' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.17 cfs @ 7.85 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 38.09 cfs @ 4.38 fps)

Pond 6.3P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.4P: Micropool Extended Detention Pond (P-1)

Inflow Area = 6.300 ac, 30.16% Impervious, Inflow Depth = 3.88" for 25-yr event
Inflow = 28.37 cfs @ 12.08 hrs, Volume= 2.039 af
Outflow = 11.15 cfs @ 12.32 hrs, Volume= 1.986 af, Atten= 61%, Lag= 14.5 min
Primary = 11.15 cfs @ 12.32 hrs, Volume= 1.986 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 728.00' Surf.Area= 12,100 sf Storage= 33,800 cf
Peak Elev= 730.52' @ 12.32 hrs Surf.Area= 17,730 sf Storage= 71,360 cf (37,560 cf above start)
Flood Elev= 732.00' Surf.Area= 21,200 sf Storage= 100,100 cf (66,300 cf above start)

Plug-Flow detention time= 3,413.0 min calculated for 1.210 af (59% of inflow)
Center-of-Mass det. time= 1,996.9 min (2,807.7 - 810.8)

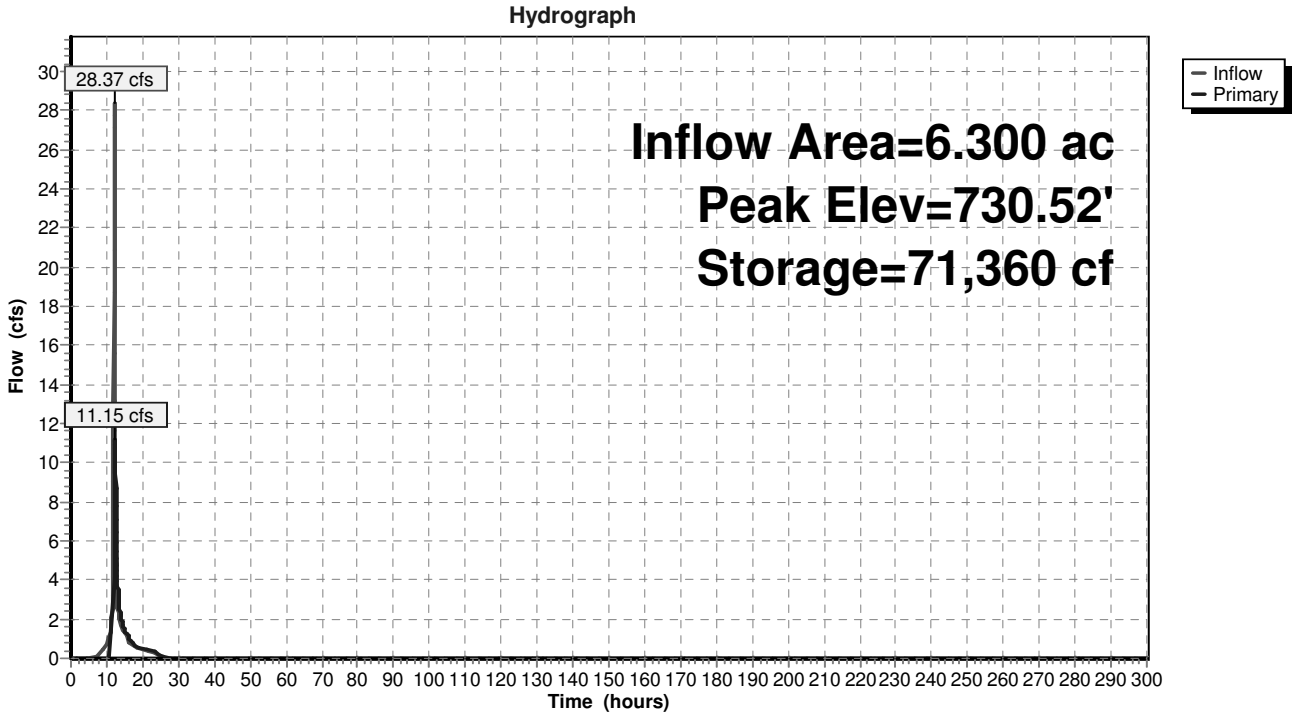
Volume	Invert	Avail.Storage	Storage Description
#1	722.00'	122,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
722.00	2,700	0	0
724.00	4,000	6,700	6,700
726.00	5,500	9,500	16,200
728.00	12,100	17,600	33,800
730.00	16,500	28,600	62,400
732.00	21,200	37,700	100,100
733.00	23,800	22,500	122,600

Device	Routing	Invert	Outlet Devices
#1	Primary	728.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	729.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=11.12 cfs @ 12.32 hrs HW=730.52' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.04 cfs @ 7.58 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 11.08 cfs @ 2.87 fps)

Pond 6.4P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.5P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 19.800 ac, 24.24% Impervious, Inflow Depth = 3.54" for 25-yr event
Inflow = 42.08 cfs @ 12.32 hrs, Volume= 5.841 af
Outflow = 10.46 cfs @ 13.24 hrs, Volume= 5.841 af, Atten= 75%, Lag= 55.2 min
Primary = 10.46 cfs @ 13.24 hrs, Volume= 5.841 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 732.00' Surf.Area= 8,900 sf Storage= 5,350 cf
Peak Elev= 739.23' @ 13.24 hrs Surf.Area= 24,592 sf Storage= 122,884 cf (117,534 cf above start)
Flood Elev= 741.00' Surf.Area= 28,300 sf Storage= 170,100 cf (164,750 cf above start)

Plug-Flow detention time= 1,689.7 min calculated for 5.717 af (98% of inflow)
Center-of-Mass det. time= 1,549.0 min (2,609.1 - 1,060.2)

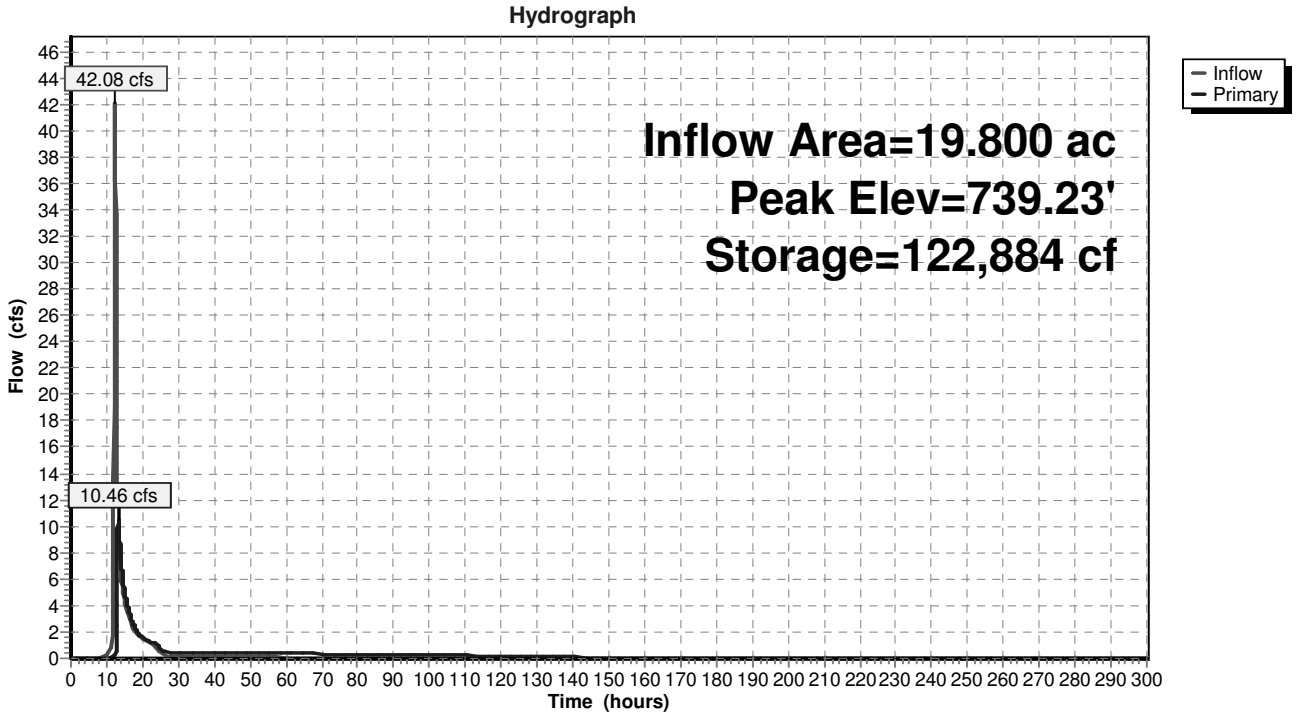
Volume	Invert	Avail.Storage	Storage Description
#1	731.00'	199,250 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
731.00	1,800	0	0
732.00	8,900	5,350	5,350
734.00	12,800	21,700	27,050
736.00	16,700	29,500	56,550
738.00	21,400	38,100	94,650
740.00	26,600	48,000	142,650
742.00	30,000	56,600	199,250

Device	Routing	Invert	Outlet Devices
#1	Primary	732.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	738.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=10.43 cfs @ 13.24 hrs HW=739.23' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.44 cfs @ 12.85 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 9.99 cfs @ 2.75 fps)

Pond 6.5P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 6.6P: Micropool Extended Detention Pond (P-1)

Inflow Area = 8.700 ac, 31.03% Impervious, Inflow Depth > 3.78" for 25-yr event
Inflow = 18.04 cfs @ 12.22 hrs, Volume= 2.743 af
Outflow = 3.03 cfs @ 13.78 hrs, Volume= 2.719 af, Atten= 83%, Lag= 93.6 min
Primary = 3.03 cfs @ 13.78 hrs, Volume= 2.719 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 690.00' Surf.Area= 12,300 sf Storage= 40,000 cf
Peak Elev= 692.88' @ 13.78 hrs Surf.Area= 17,943 sf Storage= 83,339 cf (43,339 cf above start)
Flood Elev= 695.00' Surf.Area= 22,600 sf Storage= 126,250 cf (86,250 cf above start)

Plug-Flow detention time= 3,361.1 min calculated for 1.801 af (66% of inflow)
Center-of-Mass det. time= 780.7 min (3,039.9 - 2,259.2)

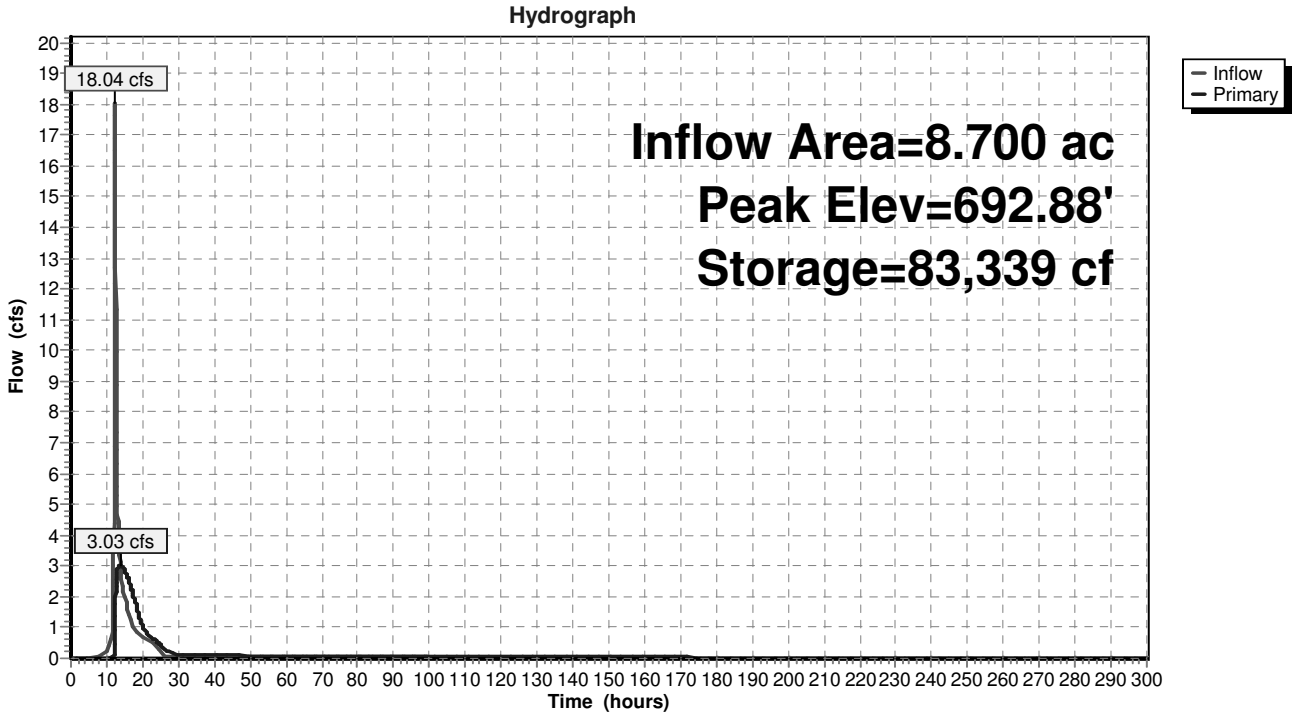
Volume	Invert	Avail.Storage	Storage Description
#1	684.00'	150,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
684.00	3,700	0	0
686.00	5,200	8,900	8,900
688.00	6,800	12,000	20,900
690.00	12,300	19,100	40,000
692.00	16,100	28,400	68,400
694.00	20,300	36,400	104,800
696.00	24,900	45,200	150,000

Device	Routing	Invert	Outlet Devices
#1	Primary	690.00'	**1.8" Vert. Orifice/Grate** C= 0.600
#2	Primary	691.25'	**10.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	693.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.03 cfs @ 13.78 hrs HW=692.88' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.14 cfs @ 8.06 fps)
- **2=Orifice/Grate** (Orifice Controls 2.89 cfs @ 5.30 fps)
- **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6.6P: Micropool Extended Detention Pond (P-1)



Summary for Subcatchment 6.1S:

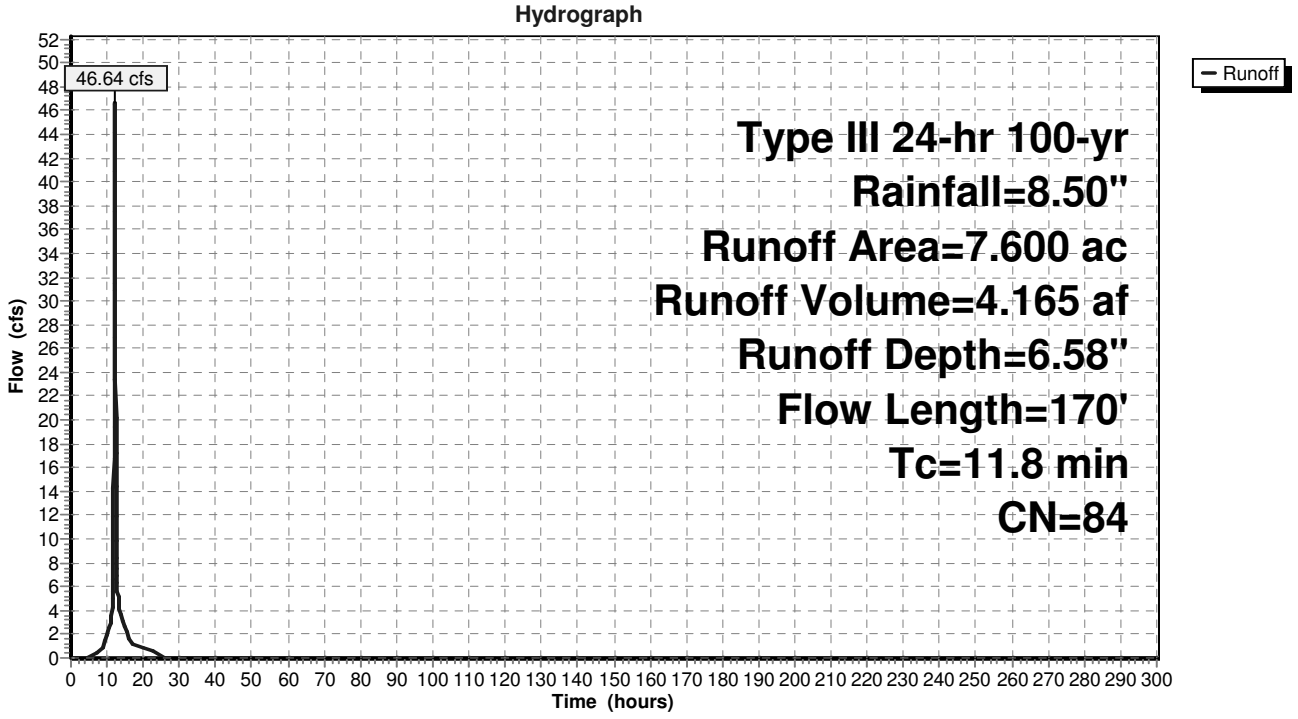
Runoff = 46.64 cfs @ 12.16 hrs, Volume= 4.165 af, Depth= 6.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
3.100	98	Paved parking & roofs
3.700	74	>75% Grass cover, Good, HSG C
0.400	71	Meadow, non-grazed, HSG C
0.200	70	Woods, Good, HSG C
0.200	98	Water Surface
7.600	84	Weighted Average
4.300		Pervious Area
3.300		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.5	70	0.1300	2.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.8	170	Total			

Subcatchment 6.1S:



Summary for Subcatchment 6.2S:

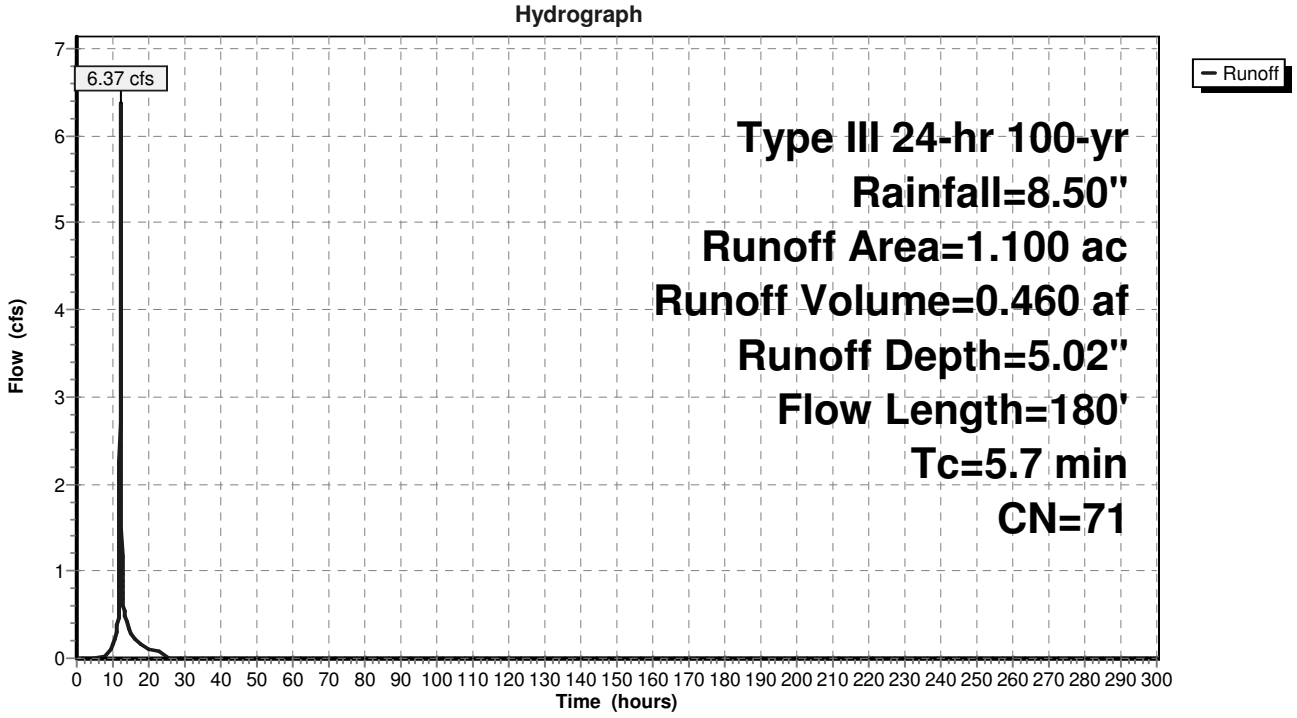
Runoff = 6.37 cfs @ 12.09 hrs, Volume= 0.460 af, Depth= 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.800	71	Meadow, non-grazed, HSG C
0.300	70	Woods, Good, HSG C
1.100	71	Weighted Average
1.100		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.0900	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.6	80	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.7	180	Total			

Subcatchment 6.2S:



Summary for Subcatchment 6.3S:

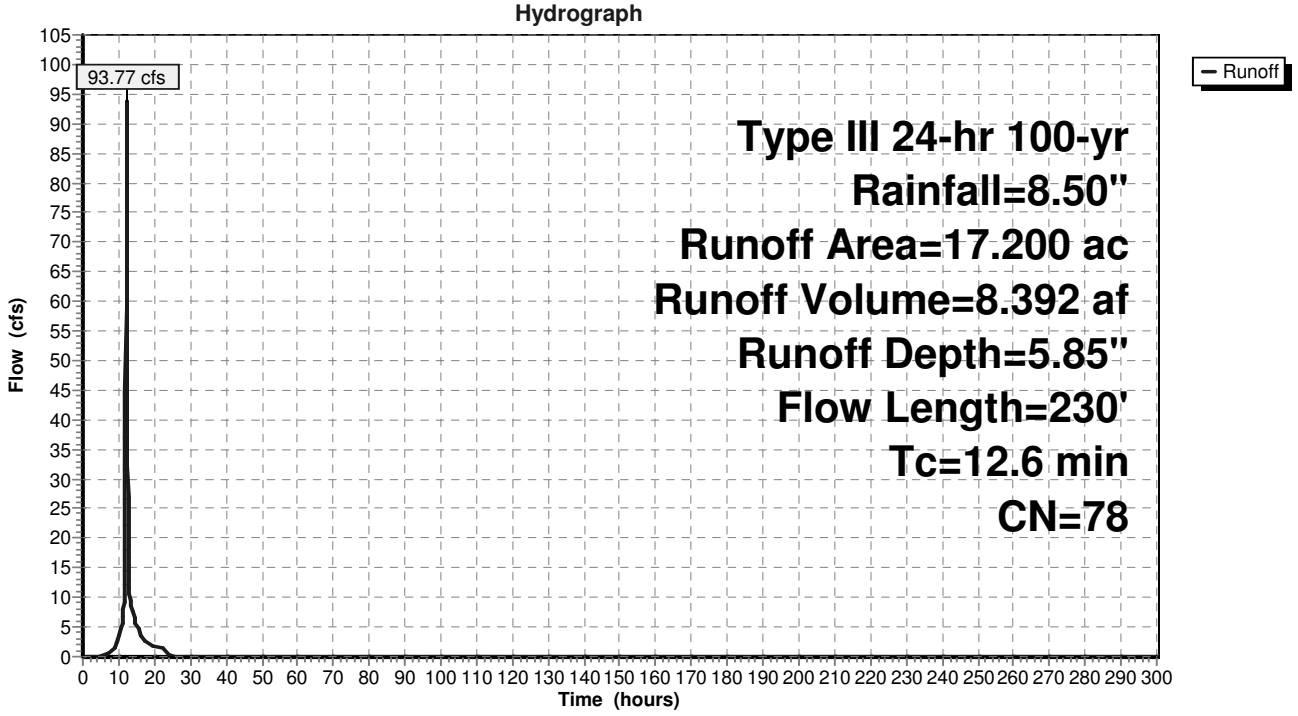
Runoff = 93.77 cfs @ 12.17 hrs, Volume= 8.392 af, Depth= 5.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
4.000	98	Paved parking & roofs
0.200	87	Dirt roads, HSG C
2.800	74	>75% Grass cover, Good, HSG C
6.400	71	Meadow, non-grazed, HSG C
3.400	70	Woods, Good, HSG C
0.400	98	Water Surface
17.200	78	Weighted Average
12.800		Pervious Area
4.400		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.8	130	0.1600	2.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	230	Total			

Subcatchment 6.3S:



Summary for Subcatchment 6.4S:

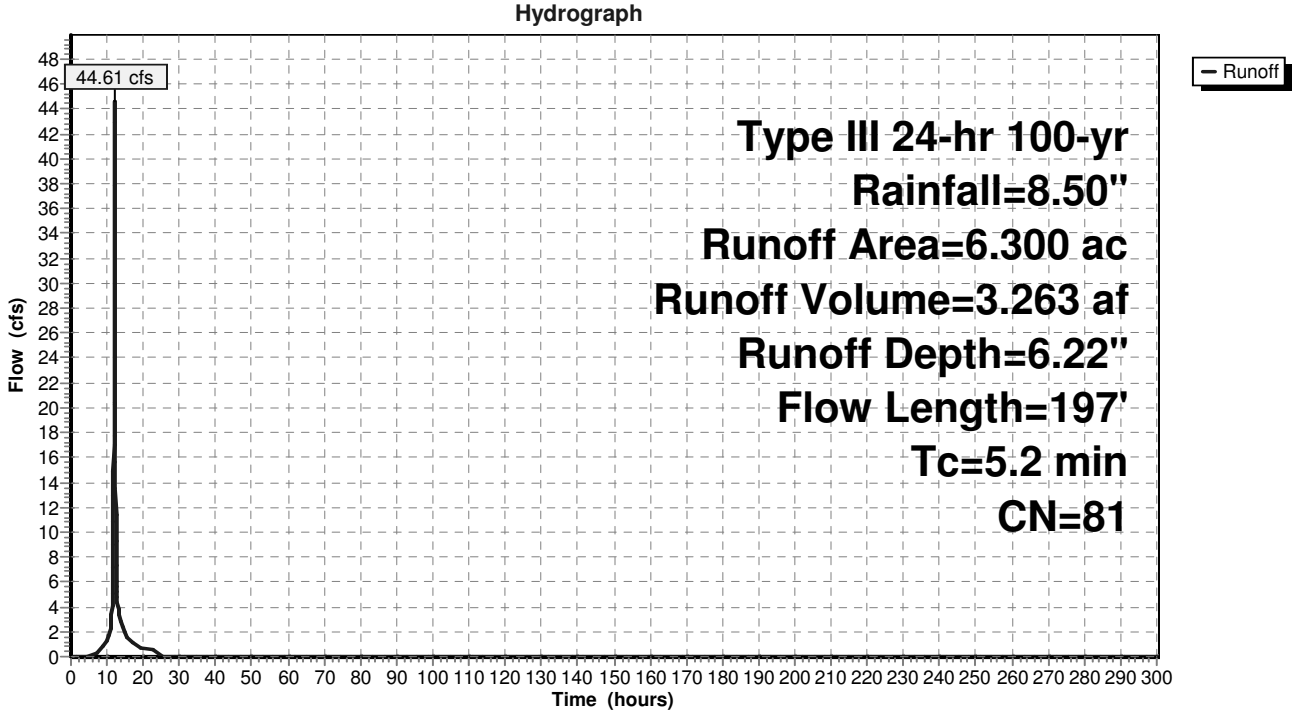
Runoff = 44.61 cfs @ 12.08 hrs, Volume= 3.263 af, Depth= 6.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
1.600	98	Paved parking & roofs
0.300	87	Dirt roads, HSG C
1.700	74	>75% Grass cover, Good, HSG C
1.500	71	Meadow, non-grazed, HSG C
0.900	70	Woods, Good, HSG C
0.300	98	Water Surface
6.300	81	Weighted Average
4.400		Pervious Area
1.900		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.1100	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.5	97	0.2500	3.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.2	197	Total			

Subcatchment 6.4S:



Summary for Subcatchment 6.5S:

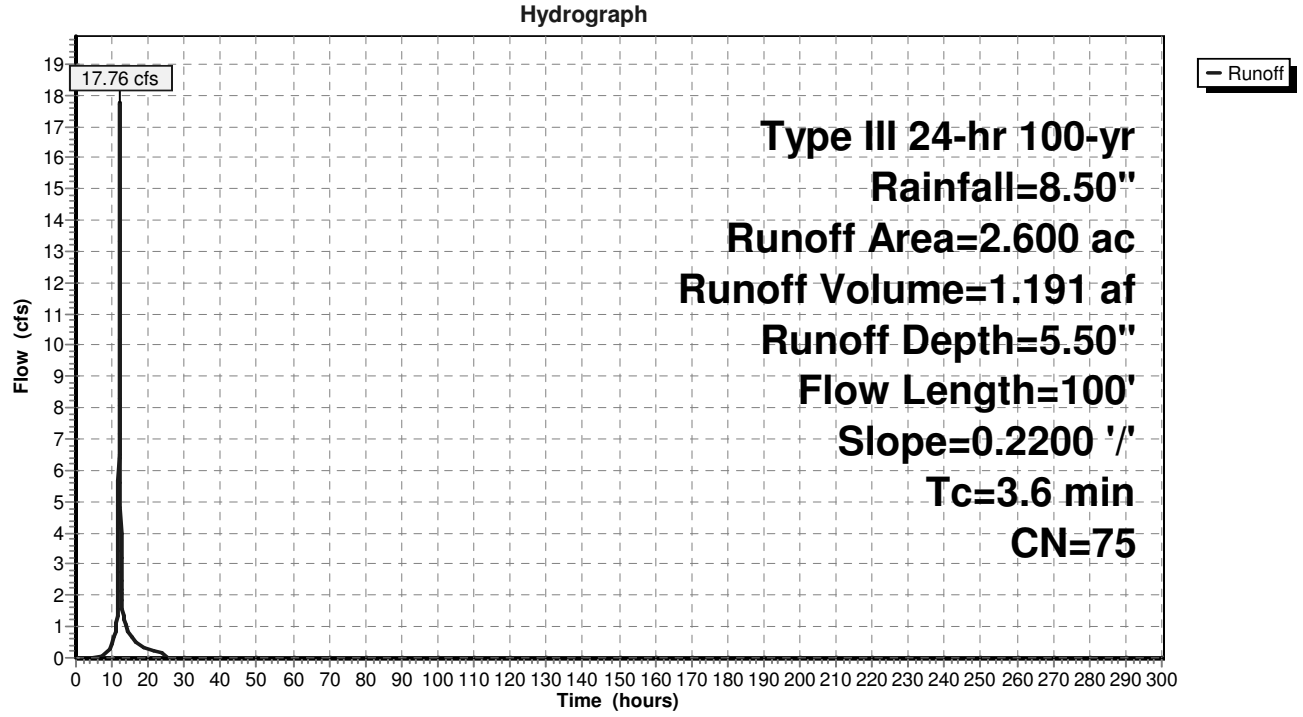
Runoff = 17.76 cfs @ 12.06 hrs, Volume= 1.191 af, Depth= 5.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.400	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
1.700	71	Meadow, non-grazed, HSG C
0.200	70	Woods, Good, HSG C
2.600	75	Weighted Average
2.200		Pervious Area
0.400		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	100	0.2200	0.46		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"

Subcatchment 6.5S:



Summary for Subcatchment 6.6S:

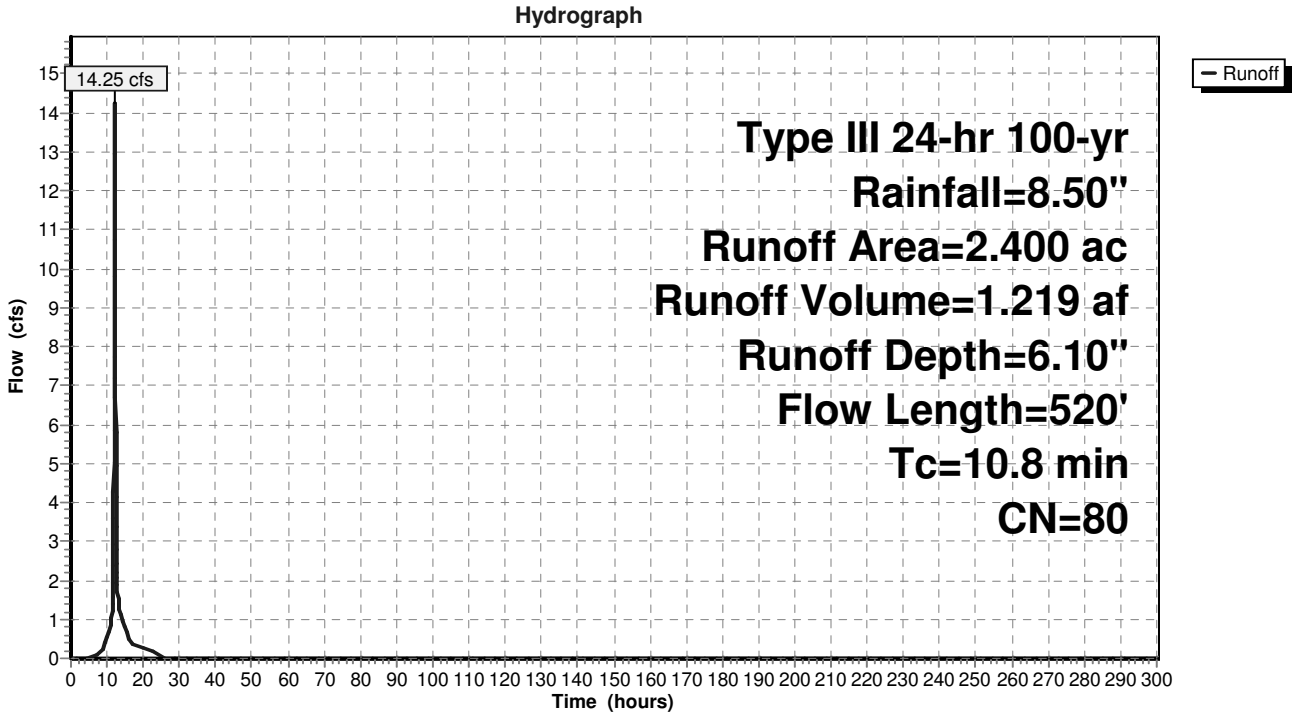
Runoff = 14.25 cfs @ 12.15 hrs, Volume= 1.219 af, Depth= 6.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.500	98	Paved parking & roofs
0.100	74	>75% Grass cover, Good, HSG C
1.200	71	Meadow, non-grazed, HSG C
0.300	70	Woods, Good, HSG C
0.300	98	Water Surface
2.400	80	Weighted Average
1.600		Pervious Area
0.800		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	75	0.0700	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
3.9	25	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.1	140	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	40	0.4500	4.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	240	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.8	520	Total			

Subcatchment 6.6S:



Summary for Subcatchment 6.7S:

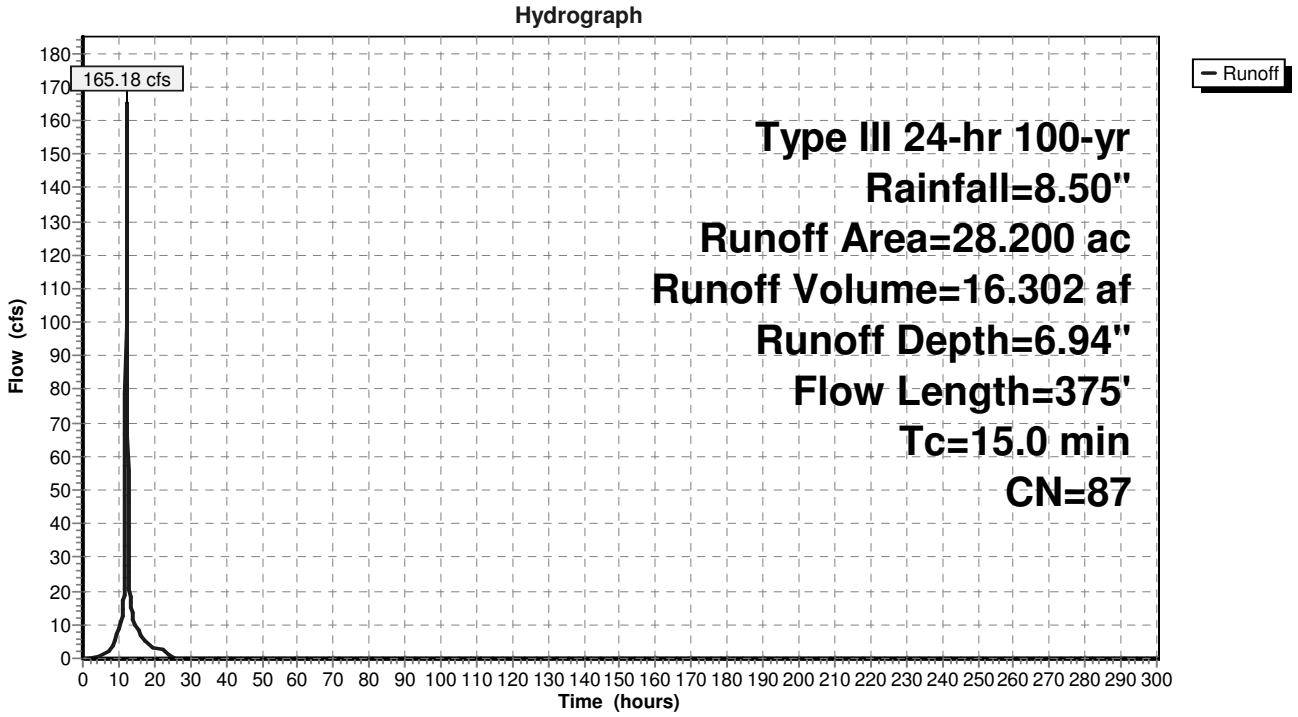
Runoff = 165.18 cfs @ 12.20 hrs, Volume= 16.302 af, Depth= 6.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs
0.200	74	>75% Grass cover, Good, HSG C
2.700	71	Meadow, non-grazed, HSG C
3.700	70	Woods, Good, HSG C
16.300	94	Urban commercial, 85% imp, HSG C
5.100	83	1/4 acre lots, 38% imp, HSG C
28.200	87	Weighted Average
12.207		Pervious Area
15.993		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.8	175	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	100	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.0	375	Total			

Subcatchment 6.7S:

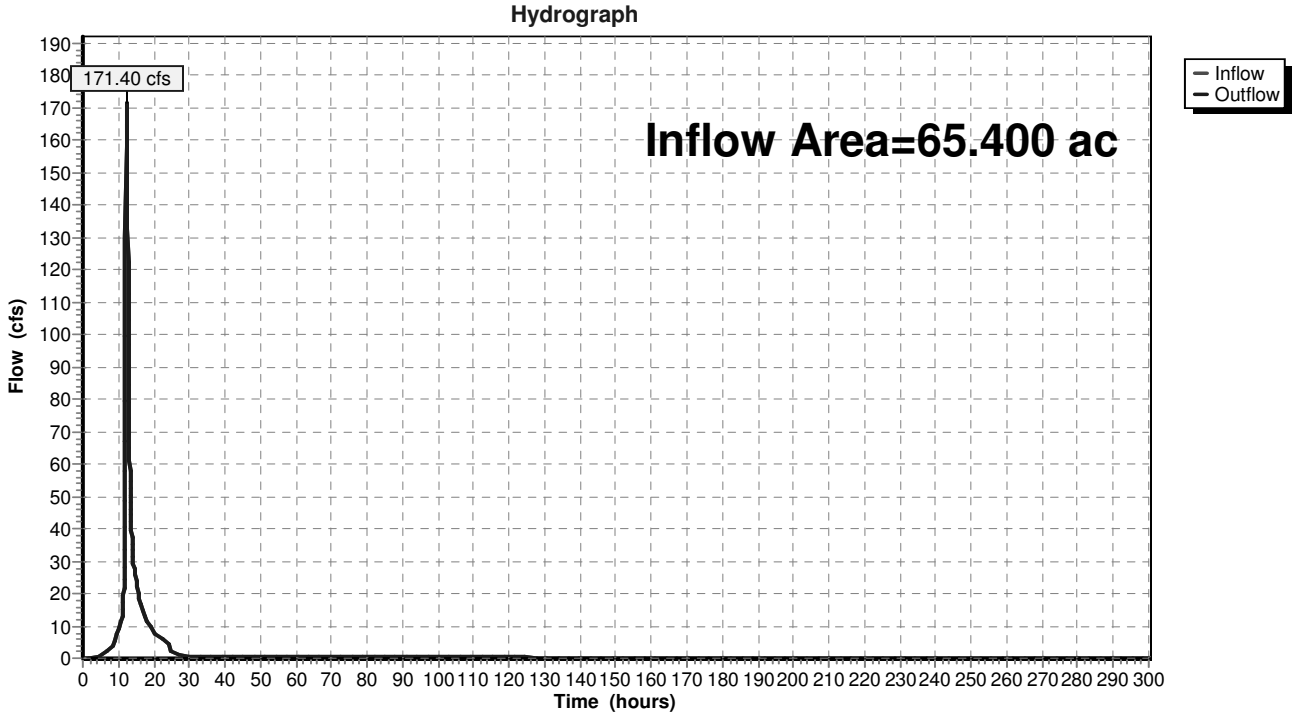


Summary for Reach DP 6: Design Point 6

Inflow Area = 65.400 ac, 40.97% Impervious, Inflow Depth = 6.41" for 100-yr event
Inflow = 171.40 cfs @ 12.22 hrs, Volume= 34.912 af
Outflow = 171.40 cfs @ 12.22 hrs, Volume= 34.912 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs

Reach DP 6: Design Point 6



Summary for Pond 6.1P: Micropool Extended Detention Pond (P-1)

Inflow Area = 7.600 ac, 43.42% Impervious, Inflow Depth = 6.58" for 100-yr event
Inflow = 46.64 cfs @ 12.16 hrs, Volume= 4.165 af
Outflow = 35.30 cfs @ 12.27 hrs, Volume= 4.165 af, Atten= 24%, Lag= 6.7 min
Primary = 35.30 cfs @ 12.27 hrs, Volume= 4.165 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 687.00' Surf.Area= 9,450 sf Storage= 23,775 cf
Peak Elev= 690.40' @ 12.27 hrs Surf.Area= 17,195 sf Storage= 69,759 cf (45,984 cf above start)
Flood Elev= 691.00' Surf.Area= 18,550 sf Storage= 80,525 cf (56,750 cf above start)

Plug-Flow detention time= 443.5 min calculated for 3.619 af (87% of inflow)
Center-of-Mass det. time= 322.1 min (1,118.5 - 796.4)

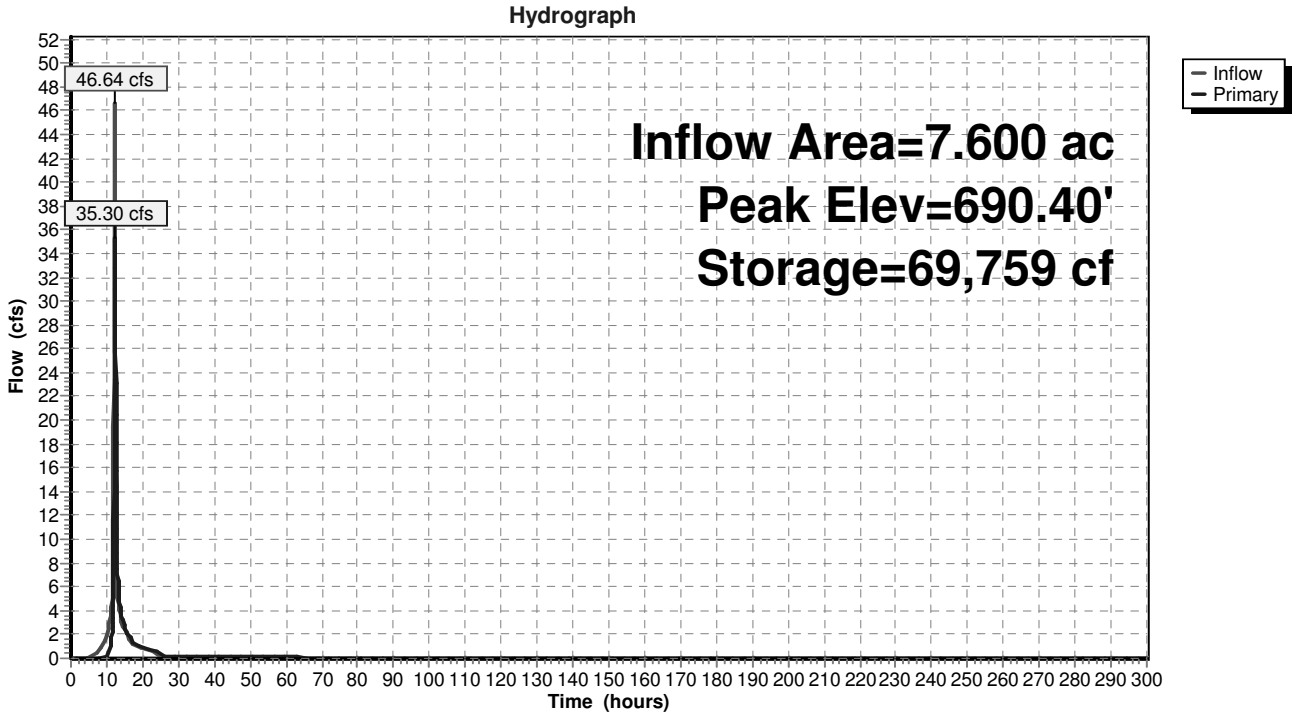
Volume	Invert	Avail.Storage	Storage Description
#1	682.00'	100,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
682.00	2,200	0	0
684.00	3,400	5,600	5,600
686.00	6,700	10,100	15,700
688.00	12,200	18,900	34,600
690.00	16,300	28,500	63,100
692.00	20,800	37,100	100,200

Device	Routing	Invert	Outlet Devices
#1	Primary	687.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	688.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=34.99 cfs @ 12.27 hrs HW=690.39' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.19 cfs @ 8.75 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 34.80 cfs @ 4.25 fps)

Pond 6.1P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 8.700 ac, 37.93% Impervious, Inflow Depth = 6.38" for 100-yr event
Inflow = 38.28 cfs @ 12.26 hrs, Volume= 4.625 af
Outflow = 25.73 cfs @ 12.53 hrs, Volume= 4.622 af, Atten= 33%, Lag= 15.9 min
Primary = 25.73 cfs @ 12.53 hrs, Volume= 4.622 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 673.00' Surf.Area= 10,250 sf Storage= 30,225 cf
Peak Elev= 676.83' @ 12.53 hrs Surf.Area= 19,262 sf Storage= 87,862 cf (57,637 cf above start)
Flood Elev= 677.00' Surf.Area= 19,650 sf Storage= 91,075 cf (60,850 cf above start)

Plug-Flow detention time= 1,951.7 min calculated for 3.928 af (85% of inflow)
Center-of-Mass det. time= 1,372.9 min (2,461.7 - 1,088.8)

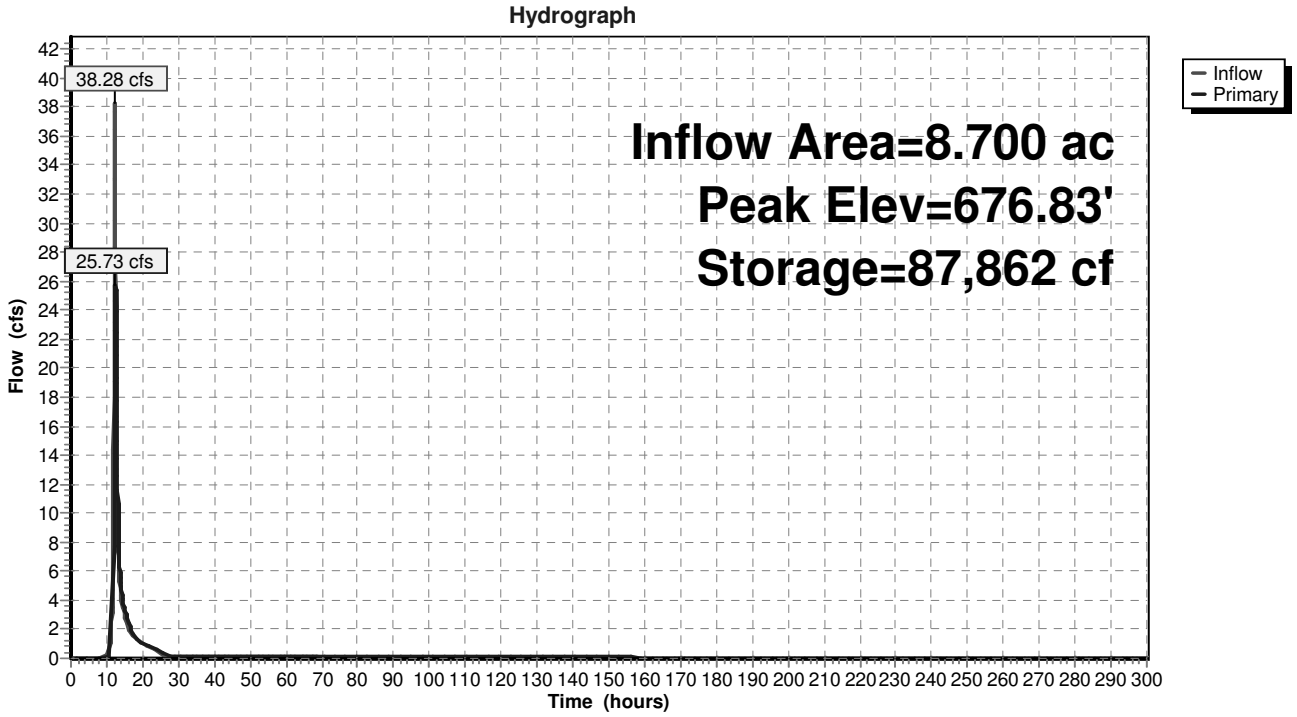
Volume	Invert	Avail.Storage	Storage Description
#1	668.00'	111,900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
668.00	3,700	0	0
670.00	5,300	9,000	9,000
672.00	7,200	12,500	21,500
674.00	13,300	20,500	42,000
676.00	17,300	30,600	72,600
678.00	22,000	39,300	111,900

Device	Routing	Invert	Outlet Devices
#1	Primary	673.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	675.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=25.63 cfs @ 12.53 hrs HW=676.83' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.11 cfs @ 9.35 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 25.52 cfs @ 3.83 fps)

Pond 6.2P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 6.3P: Micropool Extended Detention Pond (P-1)

Inflow Area = 17.200 ac, 25.58% Impervious, Inflow Depth = 5.85" for 100-yr event
Inflow = 93.77 cfs @ 12.17 hrs, Volume= 8.392 af
Outflow = 65.16 cfs @ 12.32 hrs, Volume= 8.392 af, Atten= 31%, Lag= 8.9 min
Primary = 65.16 cfs @ 12.32 hrs, Volume= 8.392 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 747.50' Surf.Area= 15,148 sf Storage= 43,193 cf
Peak Elev= 750.98' @ 12.32 hrs Surf.Area= 29,581 sf Storage= 121,559 cf (78,366 cf above start)
Flood Elev= 751.10' Surf.Area= 30,065 sf Storage= 125,041 cf (81,848 cf above start)

Plug-Flow detention time= 268.0 min calculated for 7.399 af (88% of inflow)
Center-of-Mass det. time= 176.1 min (987.3 - 811.3)

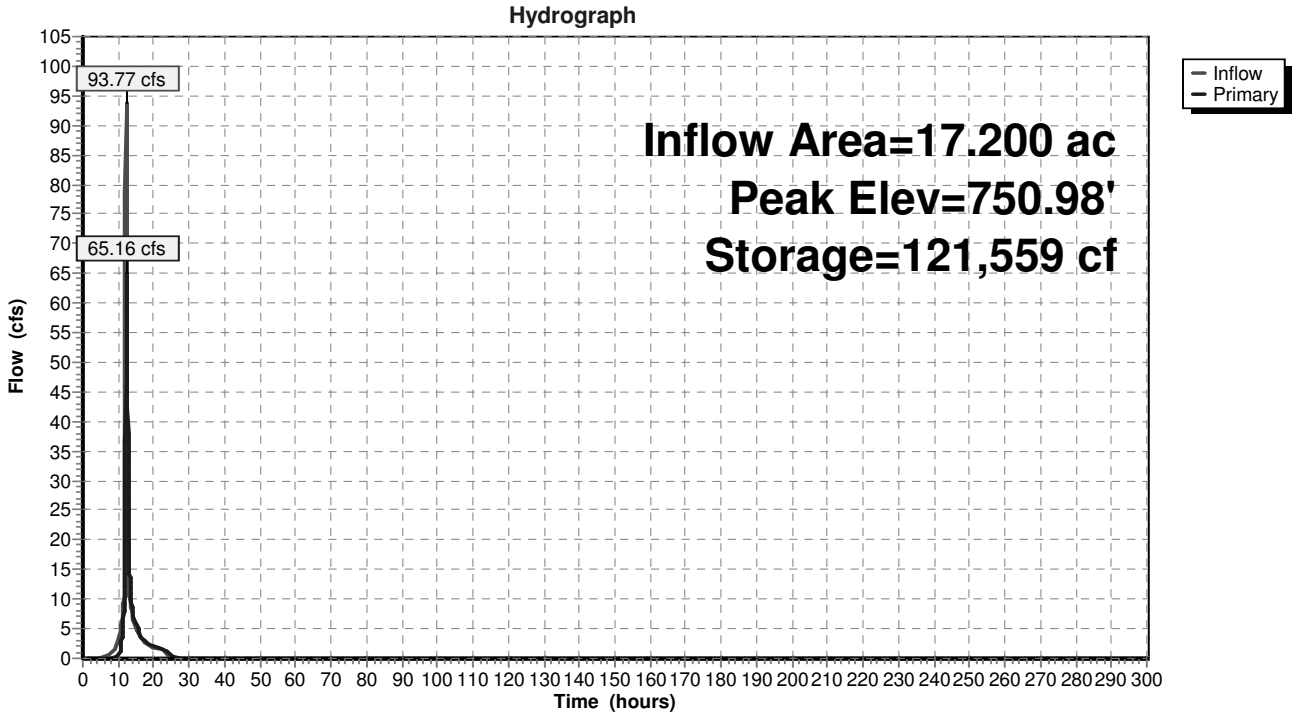
Volume	Invert	Avail.Storage	Storage Description
#1	742.00'	153,780 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
742.00	5,200	0	0
744.00	6,500	11,700	11,700
746.00	7,790	14,290	25,990
748.00	17,600	25,390	51,380
750.00	25,500	43,100	94,480
752.00	33,800	59,300	153,780

Device	Routing	Invert	Outlet Devices
#1	Primary	747.50'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	748.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=64.81 cfs @ 12.32 hrs HW=750.97' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.19 cfs @ 8.87 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 64.62 cfs @ 5.22 fps)

Pond 6.3P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.4P: Micropool Extended Detention Pond (P-1)

Inflow Area = 6.300 ac, 30.16% Impervious, Inflow Depth = 6.22" for 100-yr event
Inflow = 44.61 cfs @ 12.08 hrs, Volume= 3.263 af
Outflow = 26.85 cfs @ 12.19 hrs, Volume= 3.210 af, Atten= 40%, Lag= 6.8 min
Primary = 26.85 cfs @ 12.19 hrs, Volume= 3.210 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 728.00' Surf.Area= 12,100 sf Storage= 33,800 cf
Peak Elev= 731.13' @ 12.19 hrs Surf.Area= 19,147 sf Storage= 82,474 cf (48,674 cf above start)
Flood Elev= 732.00' Surf.Area= 21,200 sf Storage= 100,100 cf (66,300 cf above start)

Plug-Flow detention time= 1,761.3 min calculated for 2.434 af (75% of inflow)
Center-of-Mass det. time= 1,253.7 min (2,051.3 - 797.6)

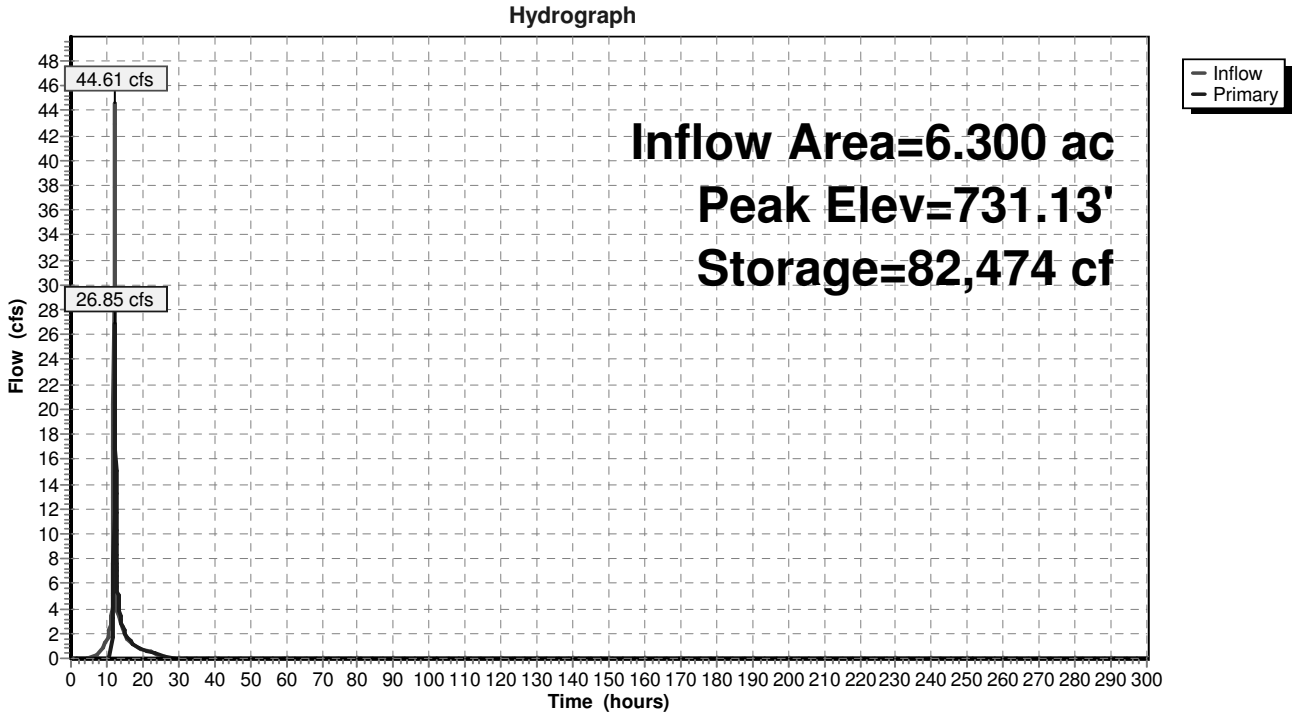
Volume	Invert	Avail.Storage	Storage Description
#1	722.00'	122,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
722.00	2,700	0	0
724.00	4,000	6,700	6,700
726.00	5,500	9,500	16,200
728.00	12,100	17,600	33,800
730.00	16,500	28,600	62,400
732.00	21,200	37,700	100,100
733.00	23,800	22,500	122,600

Device	Routing	Invert	Outlet Devices
#1	Primary	728.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	729.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=26.72 cfs @ 12.19 hrs HW=731.12' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.05 cfs @ 8.45 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 26.67 cfs @ 3.89 fps)

Pond 6.4P: Micropool Extended Detention Pond (P-1)



Summary for Pond 6.5P: Extended Detention Pond (Design 2) - Permanent Pool Provided

Inflow Area = 19.800 ac, 24.24% Impervious, Inflow Depth = 5.81" for 100-yr event
Inflow = 71.33 cfs @ 12.31 hrs, Volume= 9.583 af
Outflow = 43.49 cfs @ 12.66 hrs, Volume= 9.583 af, Atten= 39%, Lag= 21.4 min
Primary = 43.49 cfs @ 12.66 hrs, Volume= 9.583 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 732.00' Surf.Area= 8,900 sf Storage= 5,350 cf
Peak Elev= 740.39' @ 12.66 hrs Surf.Area= 27,257 sf Storage= 153,052 cf (147,702 cf above start)
Flood Elev= 741.00' Surf.Area= 28,300 sf Storage= 170,100 cf (164,750 cf above start)

Plug-Flow detention time= 1,044.0 min calculated for 9.460 af (99% of inflow)
Center-of-Mass det. time= 964.6 min (1,929.9 - 965.2)

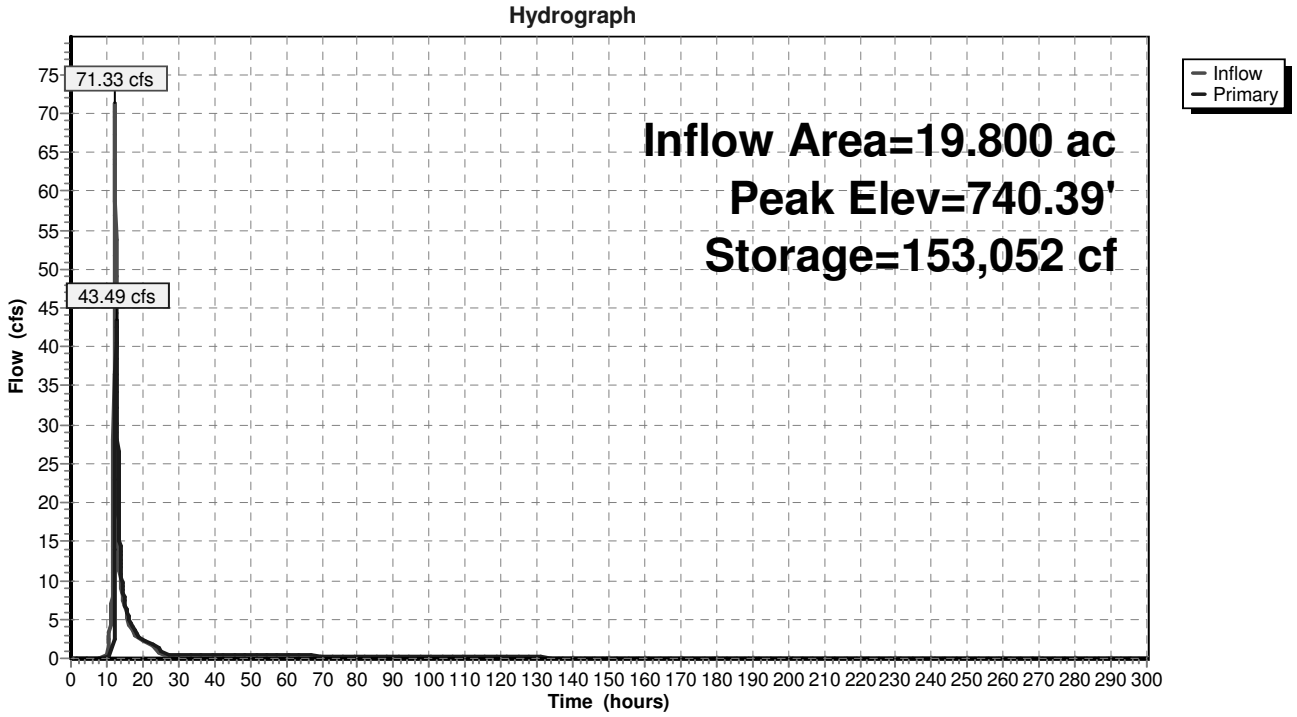
Volume	Invert	Avail.Storage	Storage Description
#1	731.00'	199,250 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
731.00	1,800	0	0
732.00	8,900	5,350	5,350
734.00	12,800	21,700	27,050
736.00	16,700	29,500	56,550
738.00	21,400	38,100	94,650
740.00	26,600	48,000	142,650
742.00	30,000	56,600	199,250

Device	Routing	Invert	Outlet Devices
#1	Primary	732.00'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	738.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=43.37 cfs @ 12.66 hrs HW=740.38' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 0.47 cfs @ 13.85 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 42.90 cfs @ 4.56 fps)

Pond 6.5P: Extended Detention Pond (Design 2) - Permanent Pool Provided



Summary for Pond 6.6P: Micropool Extended Detention Pond (P-1)

Inflow Area = 8.700 ac, 31.03% Impervious, Inflow Depth > 6.11" for 100-yr event
Inflow = 40.96 cfs @ 12.17 hrs, Volume= 4.429 af
Outflow = 20.82 cfs @ 12.52 hrs, Volume= 4.406 af, Atten= 49%, Lag= 21.3 min
Primary = 20.82 cfs @ 12.52 hrs, Volume= 4.406 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Starting Elev= 690.00' Surf.Area= 12,300 sf Storage= 40,000 cf
Peak Elev= 693.75' @ 12.52 hrs Surf.Area= 19,775 sf Storage= 99,792 cf (59,792 cf above start)
Flood Elev= 695.00' Surf.Area= 22,600 sf Storage= 126,250 cf (86,250 cf above start)

Plug-Flow detention time= 1,812.4 min calculated for 3.488 af (79% of inflow)
Center-of-Mass det. time= 509.0 min (2,217.3 - 1,708.3)

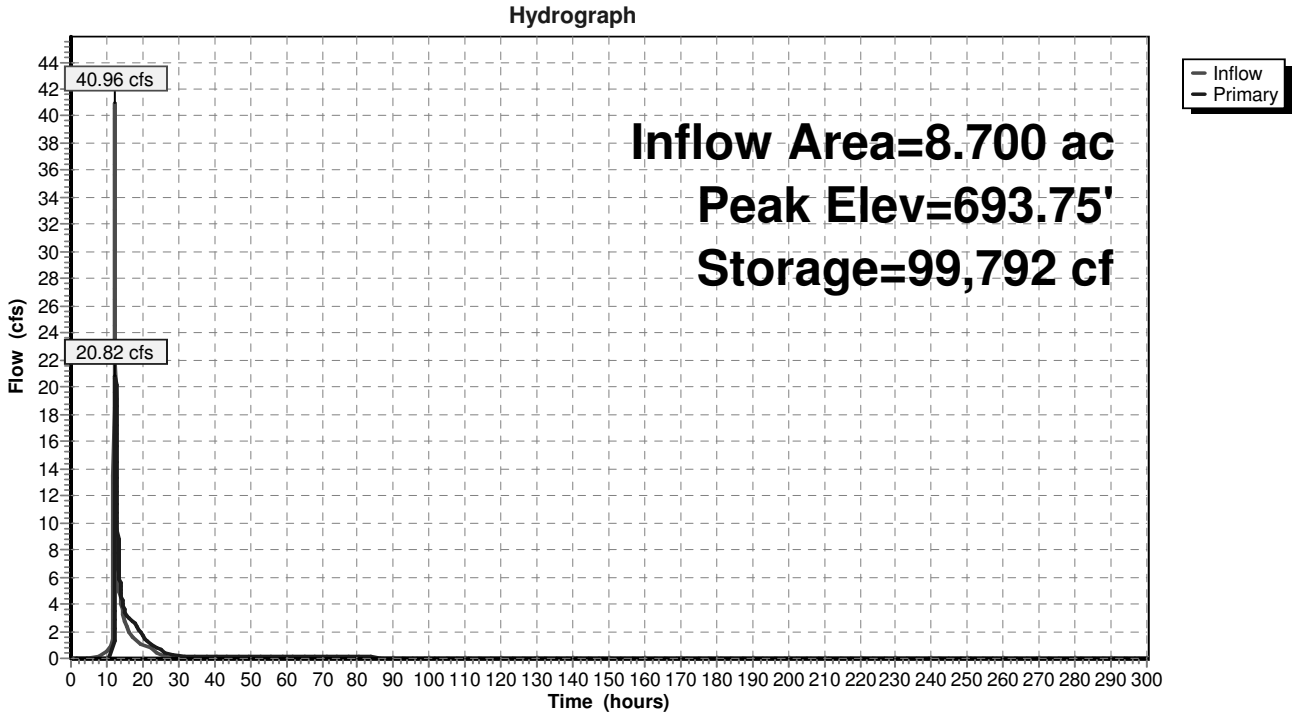
Volume	Invert	Avail.Storage	Storage Description
#1	684.00'	150,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
684.00	3,700	0	0
686.00	5,200	8,900	8,900
688.00	6,800	12,000	20,900
690.00	12,300	19,100	40,000
692.00	16,100	28,400	68,400
694.00	20,300	36,400	104,800
696.00	24,900	45,200	150,000

Device	Routing	Invert	Outlet Devices
#1	Primary	690.00'	**1.8" Vert. Orifice/Grate** C= 0.600
#2	Primary	691.25'	**10.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	693.00'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=20.67 cfs @ 12.52 hrs HW=693.75' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.16 cfs @ 9.23 fps)
- **2=Orifice/Grate** (Orifice Controls 3.79 cfs @ 6.94 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 16.72 cfs @ 2.80 fps)

Pond 6.6P: Micropool Extended Detention Pond (P-1)



Subcat Reach Pond Link

Drainage Diagram for Union Place Post-development_DP7
Prepared by {enter your company name here}, Printed 10/12/2010

Summary for Subcatchment 7.1S:

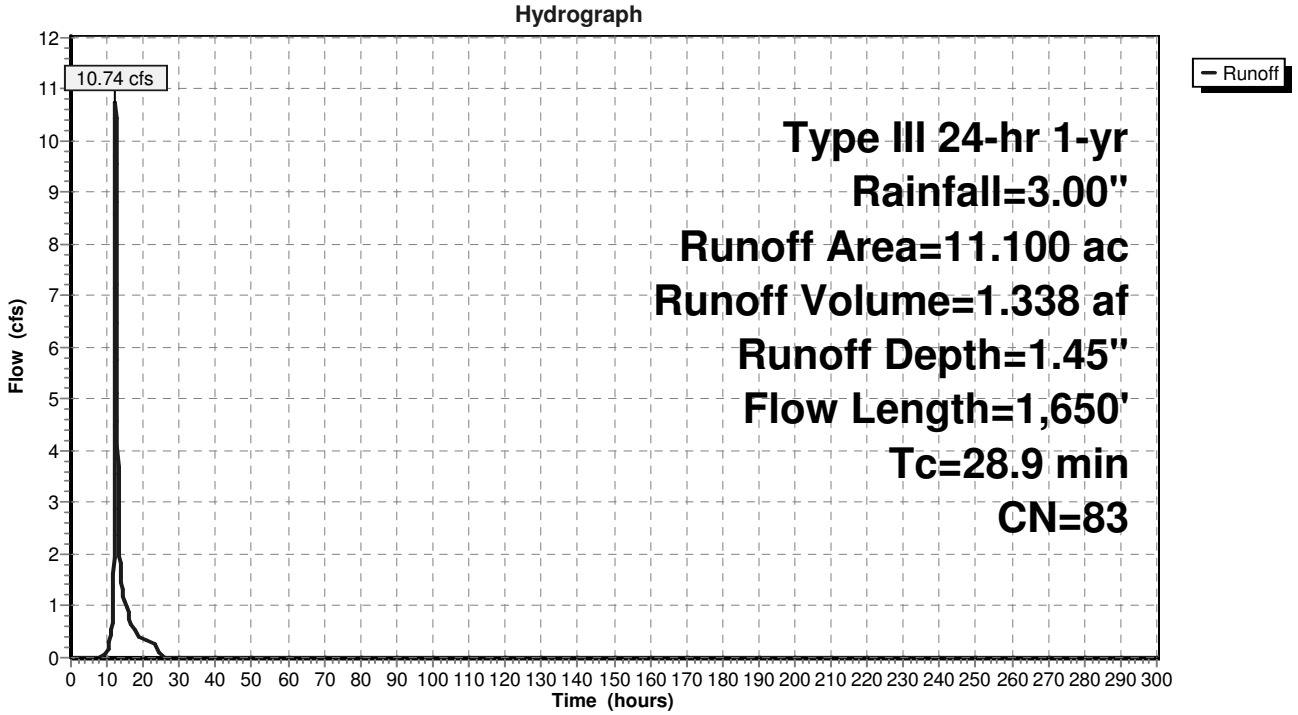
Runoff = 10.74 cfs @ 12.41 hrs, Volume= 1.338 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=3.00"

Area (ac)	CN	Description
0.100	74	>75% Grass cover, Good, HSG C
4.400	71	Meadow, non-grazed, HSG C
0.700	73	Woods, Fair, HSG C
5.900	94	Urban commercial, 85% imp, HSG C
11.100	83	Weighted Average
6.085		Pervious Area
5.015		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0600	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
15.7	1,550	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.9	1,650	Total			

Subcatchment 7.1S:



Summary for Subcatchment 7.1S:

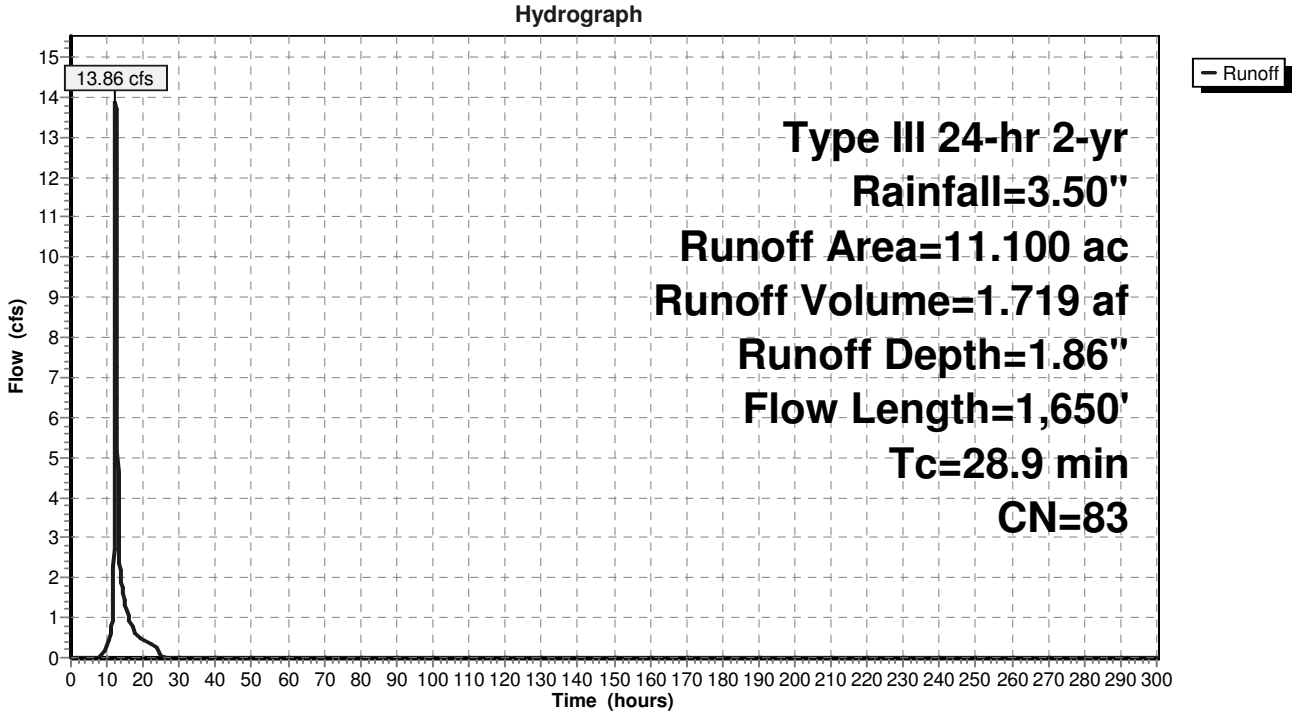
Runoff = 13.86 cfs @ 12.41 hrs, Volume= 1.719 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.100	74	>75% Grass cover, Good, HSG C
4.400	71	Meadow, non-grazed, HSG C
0.700	73	Woods, Fair, HSG C
5.900	94	Urban commercial, 85% imp, HSG C
11.100	83	Weighted Average
6.085		Pervious Area
5.015		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0600	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
15.7	1,550	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.9	1,650	Total			

Subcatchment 7.1S:



Summary for Subcatchment 7.1S:

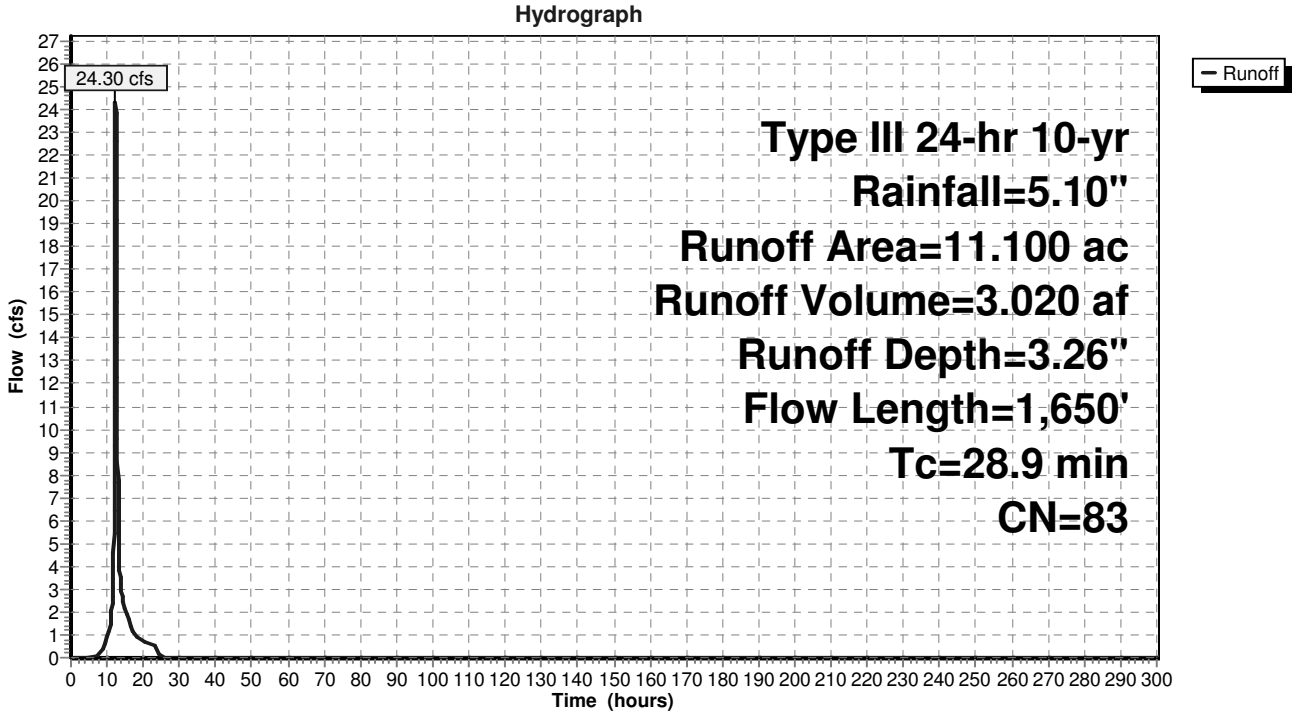
Runoff = 24.30 cfs @ 12.40 hrs, Volume= 3.020 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.10"

Area (ac)	CN	Description
0.100	74	>75% Grass cover, Good, HSG C
4.400	71	Meadow, non-grazed, HSG C
0.700	73	Woods, Fair, HSG C
5.900	94	Urban commercial, 85% imp, HSG C
11.100	83	Weighted Average
6.085		Pervious Area
5.015		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0600	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
15.7	1,550	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.9	1,650	Total			

Subcatchment 7.1S:



Summary for Subcatchment 7.1S:

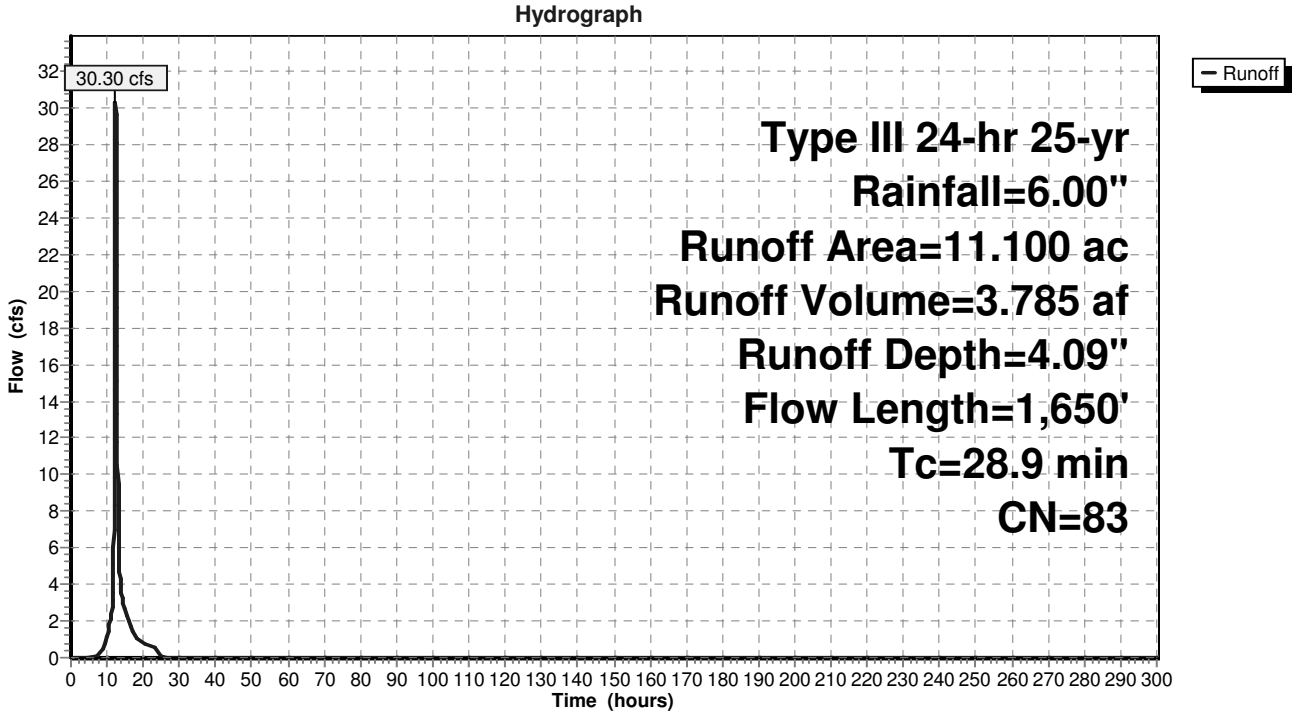
Runoff = 30.30 cfs @ 12.39 hrs, Volume= 3.785 af, Depth= 4.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.100	74	>75% Grass cover, Good, HSG C
4.400	71	Meadow, non-grazed, HSG C
0.700	73	Woods, Fair, HSG C
5.900	94	Urban commercial, 85% imp, HSG C
11.100	83	Weighted Average
6.085		Pervious Area
5.015		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0600	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
15.7	1,550	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.9	1,650	Total			

Subcatchment 7.1S:



Summary for Subcatchment 7.1S:

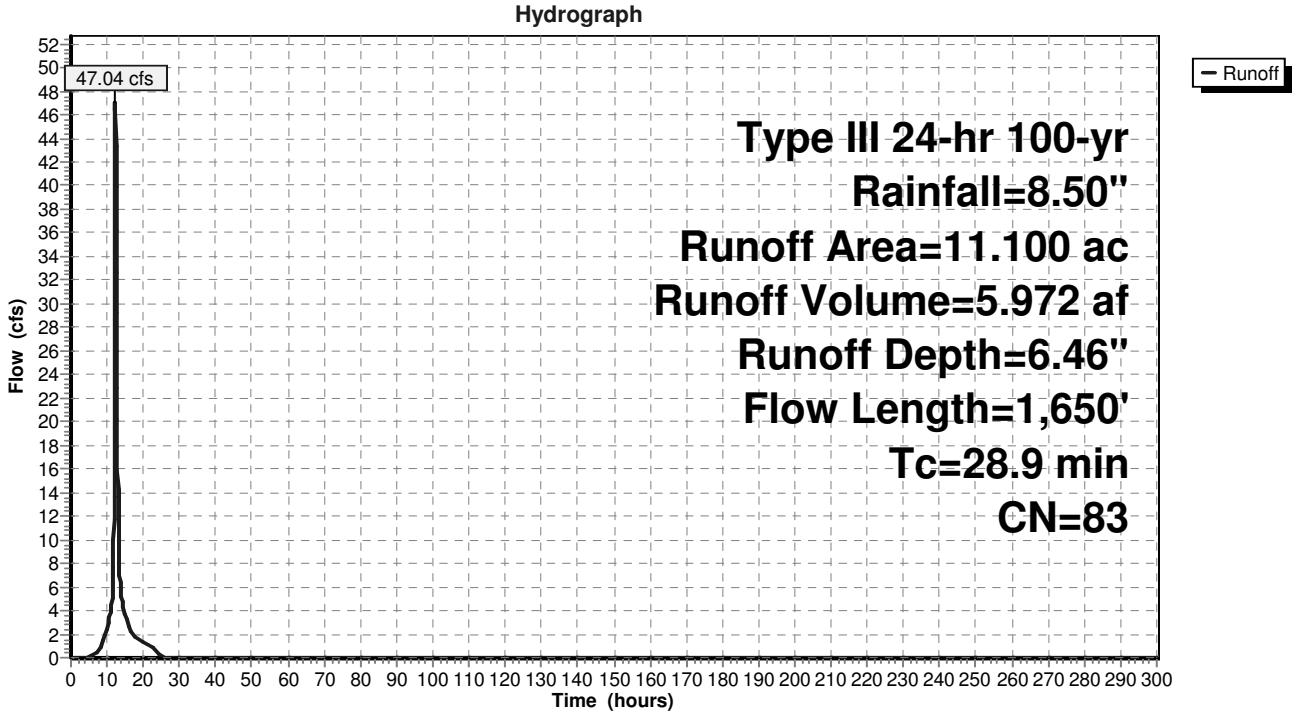
Runoff = 47.04 cfs @ 12.39 hrs, Volume= 5.972 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-300.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.100	74	>75% Grass cover, Good, HSG C
4.400	71	Meadow, non-grazed, HSG C
0.700	73	Woods, Fair, HSG C
5.900	94	Urban commercial, 85% imp, HSG C
11.100	83	Weighted Average
6.085		Pervious Area
5.015		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0600	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
15.7	1,550	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.9	1,650	Total			

Subcatchment 7.1S:



APPENDIX C

Pollutant Loading Calculation

DESIGN POINT 1

PRE-DEVELOPMENT UNION PLACE
ANNUAL POLLUTANT LOADS

SUB 1.0S

NO TREATMENT

Land use/Ground Cover	Area (Acres)	BOD	TP	TN	TSS	BOD	TP	TN	TSS
Commercial (High Impervious)	6.3	163.0	0.70	4.6	716.5	1026.9	4.41	29.0	4514.0
Cow Pasture	30.2	32.0	0.10	3.7	305.3	966.4	3.02	111.7	9220.1
Conventional Tillage	5.6	45.0	4.20	18.6	305.3	252.0	23.52	104.2	1709.7
Forest	132.5	7.0	0.10	1.8	76.5	927.5	13.25	238.5	10136.3
					TOTALS	**3172.8**	**44.20**	**483.4**	**25580.1**

DESIGN POINT 1

POST-DEVELOPMENT UNION PLACE

SUB 1.1S

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	10.4	163.0	0.71	4.6	716.5	1695.2	7.38	47.8	7451.6
Cow Pasture	1.0	32.0	0.10	3.7	305.3	32.0	0.10	3.7	305.3
Forest	0.5	7.0	0.10	1.8	76.5	3.5	0.05	0.9	38.3
					TOTALS PRIOR TO TREATMENT	**1730.7**	**7.53**	**52.4**	**7795.2**
						40%	40%	20%	80%
					DESIGN 2 EXTENDED DETENTION POND 1.1P POLLUTANT REMOVAL EFFICIENCIES	to	to	to	to
						60%	60%	40%	100%
						1038.4	4.52	41.9	1559.0
					SUBTOTAL	to	to	to	to
						692.3	3.01	31.4	0.0
						40%	40%	20%	80%
					DESIGN 2 EXTENDED DETENTION POND 1.2P POLLUTANT REMOVAL EFFICIENCIES	to	to	to	to
						60%	60%	40%	100%
						623.0	2.71	33.5	311.8
					SUBTOTAL	to	to	to	to
						276.9	1.20	18.8	0.0
						20%	20%	20%	20%
					DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHECKDAMS	to	to	to	to
						40%	40%	40%	40%
						498.4	**2.17**	**26.8**	**249.4**
					TOTALS AFTER TREATMENT	to	to	to	to
						166.1	**0.72**	**11.3**	**0.0**

SUB 1.2S

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Cow Pasture	1.0	32.0	0.10	3.7	305.3	32.0	0.10	3.7	305.3
					TOTALS PRIOR TO TREATMENT	**32.0**	**0.10**	**3.7**	**305.3**
						40%	40%	20%	80%
					DESIGN 2 EXTENDED DETENTION POND 1.2P POLLUTANT REMOVAL EFFICIENCIES	to	to	to	to
						60%	60%	40%	100%
						19.2	0.06	3.0	61.1
					SUBTOTAL	to	to	to	to
						12.8	0.04	2.2	0.0
						20%	20%	20%	20%
					DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHECKDAMS	to	to	to	to
						40%	40%	40%	40%
						15.4	**0.05**	**2.4**	**48.9**
					TOTALS AFTER TREATMENT	to	to	to	to
						7.7	**0.02**	**1.3**	**0.0**

SUB 1.3S

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	4.6	163.0	0.71	4.6	716.5	749.8	3.27	21.2	3295.9
Cow Pasture	0.9	32.0	0.10	3.7	305.3	28.8	0.09	3.3	274.8
		TOTALS PRIOR TO TREATMENT				**778.6**	**3.36**	**24.5**	**3570.7**
DESIGN 2 EXTENDED DETENTION POND 1.3P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
SUBTOTAL						467.2	2.02	19.6	714.1
						to	to	to	to
						311.4	1.34	14.7	0.0
DESIGN 2 EXTENDED DETENTION POND 1.4P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
SUBTOTAL						280.3	1.21	15.7	142.8
						to	to	to	to
						124.6	0.54	8.8	0.0
DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHECKDAMS						20%	20%	20%	20%
						to	to	to	to
						40%	40%	40%	40%
SUBTOTAL						224.2	0.97	12.6	114.2
						to	to	to	to
						74.8	0.32	5.3	0.0
DESIGN 2 EXTENDED DETENTION POND 1.2P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
SUBTOTAL						134.5	0.58	10.1	22.8
						to	to	to	to
						29.9	0.13	3.2	0.0
DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHECKDAMS						20%	20%	20%	20%
						to	to	to	to
						40%	40%	40%	40%
TOTALS AFTER TREATMENT						**107.6**	**0.46**	**8.1**	**18.2**
						to	to	to	to
						17.9	**0.08**	**1.9**	**0.0**

SUB 1.4S

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	1.4	163.0	0.71	4.6	716.5	228.2	0.99	6.4	1003.1
Cow Pasture	0.3	32.0	0.10	3.7	305.3	9.6	0.03	1.1	91.6
		TOTALS PRIOR TO TREATMENT				**237.8**	**1.02**	**7.5**	**1094.7**
DESIGN 2 EXTENDED DETENTION POND 1.4P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
SUBTOTAL						142.7	0.61	6.0	218.9
						to	to	to	to
						95.1	0.41	4.5	0.0
DESIGN 2 EXTENDED DETENTION POND 1.2P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
SUBTOTAL						85.6	0.37	4.8	43.8
						to	to	to	to
						38.0	0.16	2.7	0.0
DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHECKDAMS						20%	20%	20%	20%
						to	to	to	to
						40%	40%	40%	40%
TOTALS AFTER TREATMENT						**68.5**	**0.30**	**3.8**	**35.0**
						to	to	to	to
						22.8	**0.10**	**1.6**	**0.0**

1.5S									
NO TREATMENT									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Town House	24.6	50.0	0.62	5.0	286.6	1230.0	15.25	123.0	7050.4
Cow Pasture	9.7	32.0	0.10	3.7	305.3	310.4	0.97	35.9	2961.4
Forest	13.4	7.0	0.10	1.8	76.5	93.8	1.34	24.1	1025.1
		TOTALS PRIOR TO TREATMENT				**1634.2**	**17.56**	**183.0**	**11036.9**
DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHECKDAMS						20%	20%	20%	20%
						to	to	to	to
						40%	40%	40%	40%
SUBTOTAL						1307.4	14.05	146.4	8829.5
						to	to	to	to
						980.5	10.54	109.8	6622.1
DESIGN 2 EXTENDED DETENTION POND 1.5P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
SUBTOTAL						784.4	8.43	117.1	1765.9
						to	to	to	to
						392.2	4.22	65.9	0.0
DESIGN 2 EXTENDED DETENTION POND 1.6P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
TOTALS AFTER TREATMENT						**470.6**	**5.06**	**93.7**	**353.2**
						to	to	to	to
						156.9	**1.69**	**39.5**	**0.0**

1.6S									
NO TREATMENT									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Cow Pasture	3.2	32.0	0.12	3.7	305.3	102.4	0.38	11.8	977.0
Forest	0.8	7.0	0.10	1.8	76.5	5.6	0.08	1.4	61.2
		TOTALS PRIOR TO TREATMENT				**108.0**	**0.46**	**13.2**	**1038.2**
DESIGN 2 EXTENDED DETENTION POND 1.6P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
TOTALS AFTER TREATMENT						**64.8**	**0.28**	**10.6**	**207.6**
						to	to	to	to
						43.2	**0.18**	**7.9**	**0.0**

1.7S									
NO TREATMENT									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Town House	6.6	50.0	0.62	5.0	286.6	330.0	4.09	33.0	1891.6
Cow Pasture	3.1	32.0	0.12	3.7	305.3	99.2	0.37	11.5	946.4
Forest	4.3	7.0	0.10	1.8	76.5	30.1	0.43	7.7	329.0
		TOTALS PRIOR TO TREATMENT				**459.3**	**4.89**	**52.2**	**3167.0**
DESIGN 2 EXTENDED DETENTION POND 1.7P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
SUBTOTAL						275.6	2.93	41.8	633.4
						to	to	to	to
						183.7	1.96	31.3	0.0
DESIGN 2 EXTENDED DETENTION POND 1.8P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
TOTALS AFTER TREATMENT						**165.4**	**1.76**	**33.4**	**126.7**
						to	to	to	to
						73.5	**0.78**	**18.8**	**0.0**

1.8S									
NO TREATMENT									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Cow Pasture	1.1	32.0	0.12	3.7	305.3	35.2	0.13	4.1	335.8
		TOTALS PRIOR TO TREATMENT				**35.2**	**0.13**	**4.1**	**335.8**
DESIGN 2 EXTENDED DETENTION POND 1.8P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
TOTALS AFTER TREATMENT						**21.1**	**0.08**	**3.3**	**67.2**
						to	to	to	to
						14.1	**0.05**	**2.5**	**0.0**
SUB 1.9S									
NO TREATMENT									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	5.0	163.0	0.71	4.6	716.5	815.0	3.55	23.0	3582.5
Cow Pasture	13.9	32.0	0.12	3.7	305.3	444.8	1.67	51.4	4243.7
Forest	74.7	7.0	0.10	1.8	76.5	522.9	7.47	134.5	5714.6
		TOTALS				**1782.7**	**12.69**	**208.9**	**13540.8**
POST-DEVELOPMENT TOTALS AT DESIGN POINT 1									
TOTALS AFTER TREATMENT						**3194.5**	**22.85**	**391.0**	**14647.0**
						to	to	to	to
						2284.9	**16.31**	**293.7**	**13540.8**

DESIGN POINT 2

PRE-DEVELOPMENT UNION PLACE
ANNUAL POLLUTANT LOADS

SUB 2.0S

NO TREATMENT

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Cow Pasture	0.9	32.0	0.10	3.7	305.3	28.8	0.09	3.3	274.8
Conventional Tillage	9.2	45.0	4.20	18.6	305.3	414.0	38.64	171.1	2808.8
Forest	8.6	7.0	0.10	1.8	76.5	60.2	0.86	15.5	657.9
				TOTALS		**503.0**	**39.59**	**189.9**	**3741.5**

DESIGN POINT 2

POST-DEVELOPMENT UNION PLACE

SUB 2.1S

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commerical (High Impervious)	7.8	163.0	0.71	4.6	716.5	1271.4	5.54	35.9	5588.7
Cow Pasture	0.4	32.0	0.10	3.7	305.3	12.8	0.04	1.5	122.1
				TOTALS PRIOR TO TREATMENT		**1284.2**	**5.58**	**37.4**	**5710.8**
						40%	40%	20%	80%
DESIGN 2 EXTENDED DETENTION POND 1.0P POLLUTANT REMOVAL EFFICIENCIES						to	to	to	to
						60%	60%	40%	100%
						770.5	**3.35**	**29.9**	**1142.2**
TOTALS AFTER TREATMENT						**to**	**to**	**to**	**to**
						513.7	**2.23**	**22.4**	**0.0**

SUB 2.2S

NO TREATMENT

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (high Impervious)	0.8	163.0	0.71	4.6	716.5	130.4	0.57	3.7	573.2
Cow Pasture	1.4	32.0	0.12	5.0	305.3	44.8	0.17	7.0	427.4
Forest	1.5	7.0	0.10	1.8	76.5	10.5	0.15	2.7	114.8
				TOTALS		**185.7**	**0.89**	**13.4**	**1115.4**

POST-DEVELOPMENT TOTALS AT DESIGN POINT 2

	956.2	**4.24**	**43.3**	**2257.6**
TOTALS AFTER TREATMENT	to	to	to	to
	699.4	**3.12**	**35.8**	**1115.4**

DESIGN POINT 3

PRE-DEVELOPMENT UNION PLACE
ANNUAL POLLUTANT LOADS

SUB 3.0S

NO TREATMENT

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	0.3	163.0	0.71	4.6	716.5	48.9	0.21	1.4	215.0
Cow Pasture	2.8	32.0	0.12	3.7	305.3	89.6	0.34	10.4	854.8
Conventional Tillage	1.3	45.0	4.20	18.6	305.3	58.5	5.46	24.2	396.9
Forest	6.2	7.0	0.10	1.8	76.5	43.4	0.62	11.2	474.3
					TOTALS	**240.4**	**6.63**	**47.2**	**1941.0**

DESIGN POINT 3

POST-DEVELOPMENT UNION PLACE

SUB 3.1S

NO TREATMENT

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	0.4	163.0	0.71	4.6	716.5	65.2	0.3	1.8	286.6
Cow Pasture	1.2	32.0	0.12	3.7	305.3	38.4	0.14	4.4	366.4
Forest	0.8	7.0	0.10	1.8	76.5	5.6	0.08	1.4	61.2
					TOTALS	**109.2**	**0.52**	**7.6**	**714.2**

DESIGN POINT 4

PRE-DEVELOPMENT UNION PLACE
ANNUAL POLLUTANT LOADS

SUB 4.0S

NO TREATMENT

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Cow Pasture	0.2	32.0	0.10	3.7	305.3	6.4	0.02	0.7	61.1
Forest	2.9	7.0	0.10	1.8	76.5	20.3	0.29	5.2	221.9
					TOTALS	**26.7**	**0.31**	**5.9**	**283.0**

DESIGN POINT 4

POST-DEVELOPMENT UNION PLACE

SUB 4.1S

NO TREATMENT

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	0.2	163.0	0.71	4.6	716.5	32.6	0.14	0.9	143.3
Cow Pasture	0.9	32.0	0.10	3.7	305.3	28.8	0.09	3.3	274.8
Forest	0.1	7.0	0.10	1.8	76.5	0.7	0.01	0.2	7.7
					TOTALS	**33.3**	**0.15**	**1.1**	**151.0**

DESIGN POINT 5

PRE-DEVELOPMENT UNION PLACE
ANNUAL POLLUTANT LOADS

SUB 5.0S

NO TREATMENT

Land use/Ground Cover	Area (Acres)	BOD	TP	TN	TSS	BOD	TP	TN	TSS
Commercial (High Impervious)	20.0	163.0	0.70	4.6	716.5	3260.0	14.00	92.0	14330.0
Cow Pasture	3.5	32.0	0.10	3.7	305.3	112.0	0.35	13.0	1068.6
Conventional Tillage	9.7	45.0	4.20	18.6	305.3	436.5	40.74	180.4	2961.4
Forest	26.6	7.0	0.10	1.8	76.5	186.2	2.66	47.9	2034.9
				TOTALS		**3994.7**	**57.75**	**333.3**	**20394.9**

DESIGN POINT 5

POST-DEVELOPMENT UNION PLACE
ANNUAL POLLUTANT LOADS

SUB 5.1S

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	2.1	163.0	0.71	4.6	716.5	342.3	1.49	9.7	1504.7
Cow Pasture	0.3	32.0	0.10	3.7	305.3	9.6	0.03	1.1	91.6
				TOTALS PRIOR TO TREATMENT		**351.9**	**1.52**	**10.8**	**1596.3**
						40%	60%	40%	80%
DESIGN 3 EXTENDED DETENTION POND 5.1P POLLUTANT REMOVAL EFFICIENCIES						to	to	to	to
						60%	80%	60%	100%
						211.1	0.61	6.5	319.3
SUBTOTAL						to	to	to	to
						140.8	0.30	4.3	0.0
						40%	40%	20%	80%
DESIGN 2 EXTENDED DETENTION POND 5.2P POLLUTANT REMOVAL EFFICIENCIES						to	to	to	to
						60%	60%	40%	100%
						126.7	0.37	5.2	63.9
SUBTOTAL						to	to	to	to
						56.3	0.12	2.6	0.0
						40%	40%	20%	80%
DESIGN 2 EXTENDED DETENTION POND 5.3P POLLUTANT REMOVAL EFFICIENCIES						to	to	to	to
						60%	60%	40%	100%
						76.0	0.22	4.2	12.8
SUBTOTAL						to	to	to	to
						22.5	0.05	1.6	0.0
						40%	40%	20%	80%
DESIGN 2 EXTENDED DETENTION POND 5.5P POLLUTANT REMOVAL EFFICIENCIES						to	to	to	to
						60%	60%	40%	100%
						45.6	0.13	3.4	2.6
SUBTOTAL						to	to	to	to
						9.0	0.02	1.0	0.0
						20%	20%	20%	20%
DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHECKDAMS						to	to	to	to
						40%	40%	40%	40%
						36.5	**0.10**	**2.7**	**2.1**
TOTALS AFTER TREATMENT						to	to	to	to
						5.4	**0.01**	**0.6**	**0.0**

SUB 5.2S

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	0.4	163.0	0.71	4.6	716.5	65.2	0.28	1.8	286.6
Cow Pasture	0.5	32.0	0.10	3.7	305.3	16.0	0.05	1.9	152.7
		TOTALS PRIOR TO TREATMENT				**81.2**	**0.33**	**3.7**	**439.3**
DESIGN 2 EXTENDED DETENTION POND 5.2P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
SUBTOTAL						48.7	0.20	3.0	87.9
						to	to	to	to
						32.5	0.13	2.2	0.0
DESIGN 2 EXTENDED DETENTION POND 5.3P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
SUBTOTAL						29.2	0.12	2.4	17.6
						to	to	to	to
						13.0	0.05	1.3	0.0
DESIGN 2 EXTENDED DETENTION POND 5.5P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
SUBTOTAL						17.5	0.07	1.9	3.5
						to	to	to	to
						5.2	0.02	0.8	0.0
DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHECKDAMS						20%	20%	20%	20%
						to	to	to	to
						40%	40%	40%	40%
TOTALS AFTER TREATMENT						**14.0**	**0.06**	**1.5**	**2.8**
						to	to	to	to
						3.1	**0.01**	**0.5**	**0.0**

SUB 5.3S

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	9.4	163.0	0.71	4.6	716.5	1532.2	6.67	43.2	6735.1
Cow Pasture	0.7	32.0	0.10	3.7	305.3	22.4	0.07	2.6	213.7
		TOTALS PRIOR TO TREATMENT				**1554.6**	**6.74**	**45.8**	**6948.8**
DESIGN 2 EXTENDED DETENTION POND 5.3P POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
SUBTOTAL						932.8	4.04	36.6	1389.8
						to	to	to	to
						621.8	2.70	27.5	0.0
DESIGN 2 EXTENDED DETENTION POND 5.5 POLLUTANT REMOVAL EFFICIENCIES						40%	40%	20%	80%
						to	to	to	to
						60%	60%	40%	100%
SUBTOTAL						559.7	2.42	29.3	278.0
						to	to	to	to
						248.7	1.08	16.5	0.0
DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHECKDAMS						20%	20%	20%	20%
						to	to	to	to
						40%	40%	40%	40%
TOTALS AFTER TREATMENT						**447.8**	**1.94**	**23.4**	**222.4**
						to	to	to	to
						149.2	**0.65**	**9.9**	**0.0**

SUB 5.4S									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	16.9	163.0	0.71	4.6	716.5	2754.7	12.00	77.7	12108.9
Cow Pasture	0.9	32.0	0.10	3.7	305.3	28.8	0.09	3.3	274.8
		TOTALS PRIOR TO TREATMENT				**2783.5**	**12.09**	**81.0**	**12383.7**
DESIGN 2 EXTENDED DETENTION POND 5.4P POLLUTANT REMOVAL EFFICIENCIES						40% to 60%	40% to 60%	20% to 40%	80% to 100%
SUBTOTAL						1670.1 to 1113.4	7.25 to 4.84	64.8 to 48.6	2476.7 to 0.0
DESIGN 2 EXTENDED DETENTION POND 5.5P POLLUTANT REMOVAL EFFICIENCIES						40% to 60%	40% to 60%	20% to 40%	80% to 100%
SUBTOTAL						1002.1 to 445.4	4.35 to 1.94	51.8 to 29.2	495.3 to 0.0
DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHEKCDAMS						20% to 40%	20% to 40%	20% to 40%	20% to 40%
TOTALS AFTER TREATMENT						**801.7** to **267.2**	**3.48** to **1.16**	**41.4** to **17.5**	**396.2** to **0.0**

SUB 5.5S									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	0.4	163.0	0.71	4.6	716.5	65.2	0.28	1.8	286.6
Cow Pasture	2.3	32.0	0.12	3.7	305.3	73.6	0.28	8.5	702.2
		TOTALS PRIOR TO TREATMENT				**138.8**	**0.56**	**10.3**	**988.8**
DESIGN 2 EXTENDED DETENTION POND 5.5P POLLUTANT REMOVAL EFFICIENCIES						40% to 60%	40% to 60%	20% to 40%	80% to 100%
SUBTOTAL						83.3 to 55.5	0.34 to 0.22	8.2 to 6.2	197.8 to 0.0
DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHEKCDAMS						20% to 40%	20% to 40%	20% to 40%	20% to 40%
TOTALS AFTER TREATMENT						**66.6** to **33.3**	**0.27** to **0.13**	**6.6** to **3.7**	**158.2** to **0.0**

SUB 5.6S									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	3.40	163.0	0.71	4.6	716.5	554.2	2.41	15.6	2436.1
Cow Pasture	1.4	32.0	0.12	3.7	305.3	44.8	0.17	5.2	427.4
		TOTALS PRIOR TO TREATMENT				**599.0**	**2.58**	**20.8**	**2863.5**
						40%	60%	40%	80%
DESIGN 3 EXTENDED DETENTION POND 5.6P POLLUTANT REMOVAL EFFICIENCIES						to	to	to	to
						60%	80%	60%	100%
						359.4	**1.03**	**12.5**	**572.7**
TOTALS AFTER TREATMENT						to	to	to	to
						239.6	**0.52**	**8.3**	**0.0**

SUB 5.7S									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	2.2	163.0	0.71	4.6	716.5	358.6	1.56	10.1	1576.3
Cow Pasture	0.7	32.0	0.12	3.7	305.3	22.4	0.08	2.6	213.7
Forest	0.8	7.0	0.10	1.8	76.5	5.6	0.08	1.4	61.2
		TOTALS PRIOR TO TREATMENT				**386.6**	**1.72**	**14.1**	**1851.2**
						40%	60%	40%	80%
DESIGN 3 EXTENDED DETENTION POND 5.7P POLLUTANT REMOVAL EFFICIENCIES						to	to	to	to
						60%	80%	60%	100%
						232.0	0.69	8.5	370.2
SUBTOTAL						to	to	to	to
						154.6	0.34	5.6	0.0
						20%	20%	20%	20%
DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHEKCDAMS						to	to	to	to
						40%	40%	40%	40%
						185.6	**0.6**	**6.8**	**296.2**
TOTALS AFTER TREATMENT						to	to	to	to
						92.8	**0.2**	**3.4**	**0.0**

SUB 5.8S									
NO TREATMENT									
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	12.4	163.0	0.71	4.6	716.5	2021.2	8.80	57.0	8884.6
Cow Pasture	4.5	32.0	0.12	3.7	305.3	144.0	0.54	16.7	1373.9
Forest	12.8	7.0	0.10	1.8	7.0	89.6	1.28	23.0	89.6
					TOTALS	**2254.8**	**10.62**	**96.7**	**10348.1**

POST-DEVELOPMENT TOTALS FOR DESIGN POINT 5									
						4166.4	**18.10**	**191.6**	**11998.7**
TOTALS AFTER TREATMENT						**to**	to	to	to
						3045.4	**13.30**	**140.6**	**10348.1**

DESIGN POINT 6

PRE-DEVELOPMENT UNION PLACE
ANNUAL POLLUTANT LOADS

SUB 6.0S

NO TREATMENT

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	22.3	163.0	0.70	4.6	716.5	3634.9	15.61	102.6	15978.0
Cow Pasture	3.7	32.0	0.10	3.7	305.3	118.4	0.37	13.7	1129.6
Forest	25.9	7.0	0.10	1.8	76.5	181.3	2.59	46.6	1981.4
					TOTALS	**3934.6**	**18.57**	**162.9**	**19089.0**

DESIGN POINT 6

POST-DEVELOPMENT UNION PLACE

SUB 6.1S

NO TREATMENT

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Town House	6.8	50.0	0.62	5.0	286.6	340.0	4.22	34.0	1948.9
Cow Pasture	0.4	32.0	0.10	3.7	305.3	12.8	0.04	1.5	122.1
Forest	0.4	7.0	0.10	1.8	76.5	2.8	0.04	0.7	30.6
					TOTALS PRIOR TO TREATMENT	**355.6**	**4.30**	**36.2**	**2101.6**
					DESIGN 2 EXTENDED DETENTION POND 6.1P POLLUTANT REMOVAL EFFICIENCIES	40% to 60%	40% to 60%	20% to 40%	80% to 100%
					SUBTOTAL	213.4 to 142.2	2.58 to 1.72	29.0 to 21.7	420.3 to 0.0
					DESIGN 2 EXTENDED DETENTION POND 6.2P POLLUTANT REMOVAL EFFICIENCIES	40% to 60%	40% to 60%	20% to 40%	80% to 100%
					SUBTOTAL	128.0 to 56.9	1.55 to 0.69	23.2 to 13.0	84.1 to 0.0
					DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHECKDAMS	20% to 40%	20% to 40%	20% to 40%	20% to 40%
					TOTALS AFTER TREATMENT	**102.4** to **34.1**	**1.24** to **0.41**	**18.6** to **7.8**	**67.3** to **0.0**

6.2S									
NO TREATMENT									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Cow Pasture	0.8	32.0	0.12	3.7	305.3	25.6	0.10	3.0	244.2
Forest	0.3	7.0	0.10	1.8	76.5	2.1	0.03	0.5	23.0
					TOTALS PRIOR TO TREATMENT	**27.7**	**0.13**	**3.5**	**267.2**
					DESIGN 2 EXTENDED DETENTION POND 6.2P POLLUTANT REMOVAL EFFICIENCIES	40% to 60%	40% to 60%	20% to 40%	80% to 100%
					SUBTOTAL	16.6 to 11.1	0.08 to 0.05	2.8 to 2.1	53.4 to 0.0
					DESIGN 14 LOW GRADIENT GRASS SWALE WITH STONE CHECKDAMS	20% to 40%	20% to 40%	20% to 40%	20% to 40%
					TOTALS AFTER TREATMENT	**13.3 to 6.7**	**0.06 to 0.03**	**2.2 to 1.3**	**42.7 to 0.0**

6.3									
NO TREATMENT									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Town House	7.0	50.0	0.62	5.0	286.6	350.0	4.34	35.0	2006.2
Cow Pasture	6.4	32.0	0.12	3.7	305.3	204.8	0.77	23.7	1953.9
Forest	3.8	7.0	0.10	1.8	76.5	26.6	0.38	6.8	290.7
					TOTALS PRIOR TO TREATMENT	**581.4**	**5.49**	**65.5**	**4250.8**
					DESIGN 2 EXTENDED DETENTION POND 6.3P POLLUTANT REMOVAL EFFICIENCIES	40% to 60%	40% to 60%	20% to 40%	80% to 100%
					SUBTOTAL	348.8 to 232.6	3.29 to 2.20	52.4 to 39.3	850.2 to 0.0
					DESIGN 2 EXTENDED DETENTION POND 6.5P POLLUTANT REMOVAL EFFICIENCIES	40% to 60%	40% to 60%	20% to 40%	80% to 100%
					TOTALS AFTER TREATMENT	**209.3 to 93.0**	**1.97 to 0.88**	**41.9 to 23.6**	**170.0 to 0.0**

6.4									
NO TREATMENT									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Town House	3.6	50.0	0.62	5.0	286.6	180.0	2.23	18.0	1031.8
Cow Pasture	1.5	32.0	0.12	3.7	305.3	48.0	0.18	5.6	458.0
Forest	1.2	7.0	0.10	1.8	76.5	8.4	0.12	2.2	91.8
TOTALS PRIOR TO TREATMENT						**236.4**	**2.53**	**25.8**	**1581.6**
DESIGN 2 EXTENDED DETENTION POND 6.4P POLLUTANT REMOVAL EFFICIENCIES						40% to 60%	40% to 60%	20% to 40%	80% to 100%
SUBTOTAL						141.8 to 94.6	1.52 to 1.01	20.6 to 15.5	316.3 to 0.0
DESIGN 2 EXTENDED DETENTION POND 6.6P POLLUTANT REMOVAL EFFICIENCIES						40% to 60%	40% to 60%	20% to 40%	80% to 100%
TOTALS AFTER TREATMENT						**85.1 to 37.8**	**0.91 to 0.40**	**16.5 to 9.3**	**63.3 to 0.0**

6.5S									
NO TREATMENT									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Town House	0.7	50.0	0.62	5.0	286.6	35.0	0.43	3.5	200.6
Cow Pasture	1.7	32.0	0.12	3.7	305.3	54.4	0.20	6.3	519.0
Forest	0.2	7.0	0.10	1.8	76.5	1.4	0.02	0.4	15.3
TOTALS PRIOR TO TREATMENT						**90.8**	**0.65**	**10.2**	**734.9**
DESIGN 2 EXTENDED DETENTION POND 6.5P POLLUTANT REMOVAL EFFICIENCIES						40% to 60%	40% to 60%	20% to 40%	80% to 100%
TOTALS AFTER TREATMENT						**54.5 to 36.3**	**0.39 to 0.26**	**8.2 to 6.1**	**147.0 to 0.0**

6.6									
NO TREATMENT									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	0.6	163.0	0.72	4.6	716.5	97.8	0.43	2.8	429.9
Cow Pasture	1.2	32.0	0.12	3.7	305.3	38.4	0.14	4.4	366.4
Forest	0.6	7.0	0.10	1.8	76.5	4.2	0.06	1.1	45.9
					TOTALS PRIOR TO TREATMENT	**140.4**	**0.63**	**8.3**	**842.2**
					DESIGN 2 EXTENDED DETENTION POND 6.6P POLLUTANT REMOVAL EFFICIENCIES	40% to 60%	40% to 60%	20% to 40%	80% to 100%
					TOTALS AFTER TREATMENT	**84.2 to 56.2**	**0.38 to 0.25**	**6.6 to 5.0**	**168.4 to 0.0**

SUB 6.7S									
NO TREATMENT									
		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	21.8	163.0	0.71	4.6	716.5	3553.4	15.48	100.3	15619.7
Cow Pasture	2.7	32.0	0.12	3.7	305.3	86.4	0.32	10.0	824.3
Forest	3.7	7.0	0.10	1.8	76.5	25.9	0.37	6.7	283.1
					TOTALS	**3665.7**	**16.17**	**117.0**	**16727.1**

POST-DEVELOPMENT TOTALS AT DESIGN POINT 6				
TOTALS AFTER TREATMENT	**4214.5 to 3929.8**	**21.12 to 18.40**	**211.0 to 170.1**	**17385.8 to 16727.1**

DESIGN POINT 7

PRE-DEVELOPMENT UNION PLACE
ANNUAL POLLUTANT LOADS

SUB 7.0S

NO TREATMENT

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	5.9	163.0	0.70	4.6	716.5	961.7	4.13	27.1	4227.4
Cow Pasture	3.5	32.0	0.10	3.7	305.3	112.0	0.35	13.0	1068.6
Forest	14.1	7.0	0.10	1.8	76.5	98.7	1.41	25.4	1078.7
					TOTALS	**1172.4**	**5.89**	**65.5**	**6374.7**

DESIGN POINT 7

POST-DEVELOPMENT UNION PLACE

SUB 7.1S

NO TREATMENT

		Rates (lb/ac/yr)				Annual Loads (lb/yr)			
Land use/Ground Cover	**Area (Acres)**	**BOD**	**TP**	**TN**	**TSS**	**BOD**	**TP**	**TN**	**TSS**
Commercial (High Impervious)	6.0	163.0	0.71	4.6	716.5	978.0	4.26	27.6	4299.0
Cow Pasture	4.4	32.0	0.12	3.7	305.3	140.8	0.53	16.3	1343.3
Forest	0.7	7.0	0.10	1.8	76.5	4.9	0.07	1.3	53.6
					TOTALS	**1123.7**	**4.86**	**45.2**	**5695.9**

APPENDIX D

Project and Owner Information

Site Data:

Union Place
U.S. Route 6 & Baldwin Place Road
Town of Carmel
New York

Tax Map Numbers: 75.19-1-1.12, 86.6-1-4, 86.10-1-2, 86.10-1-3, 86.14-1-7, 86.11-1-1
Area: 287.2 acres

Owner Information:

Camarda Realty Investments, LLC
1699 Route 6, Suite 1
Carmel, N.Y. 10512

Party Responsible for Implementation of the Stormwater Pollution Prevention Plan:

To be determined prior to construction

Qualified Professional Responsible for Inspection of the Stormwater Pollution Prevention Plan:

Inspector to be determined at time of construction

APPENDIX E

NYSDEC SPDES for Construction Activities Construction Site Log Book

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM
FOR CONSTRUCTION ACTIVITIES

CONSTRUCTION SITE LOG BOOK

Table of Contents

Properly completing forms such as those contained in this document meet the inspection requirement of NYSDEC SPDES GP 0-10-001 for Construction Activities, or superceding permit. Completed forms shall be kept on site at all times and made available to authorities upon request.

I. PRE-CONSTRUCTION MEETING DOCUMENTS

Project Name _____
Permit No. _____**Date of Authorization**_____
Name of Operator _____
Prime Contractor _____

a. Preamble to Site Assessment and Inspections -The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified professional[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements.

When construction starts, site inspections shall be conducted by the qualified professional at least every 7 calendar days (Construction Duration Inspections). The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 "Qualified Professional means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed engineer or someone working under the direction and supervision of a licensed engineer (person must have experience in the principles and practices of erosion and sediment control).

2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Operators Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Further, I hereby certify that the SWPPP meets all Federal, State, and local erosion and sediment control requirements. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law. "

Name (please print):_____

Title _____ **Date:**_____

Address: _____

Phone: _____ **Email:**_____

Signature:_____

c. Qualified Professional's Credentials & Certification

" I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the following Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction."

Name (please print): _____

Title _____ **Date:** _____

Address: _____

Phone: _____ **Email:** _____

Signature: _____

d. Contractors Certification Statement

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

_____

Signature of Contractor Date

_____

Print Name Title

_____

Signature of Trained Contractor Date

_____

Print Name of Trained Contractor Title

Name of Contracting Firm _____

Street Address _____

City, State, Zip _____

Telephone No. _____

A copy of this statement shall be retained as part of the Stormwater Pollution Prevention Plan (SWPPP) for a period off at least five (5) years after the subject property is stabilized.

e. Pre-construction Site Assessment Checklist (NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Perimeter Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SWPPP on page _____
[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:
Inspection Forms will be filled out during the entire construction phase of the project.
Required Elements:

(1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

(2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

(3) Indicate all disturbed site areas that have not undergone active site work during the previous 7-day period;

Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

(5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

(6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

_____ _____

Inspector (print name) **Date of Inspection**

_____ _____

Qualified Professional (print name) **Qualified Professional Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes No NA

[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions?

[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease?

[ ] [ ] [ ] All disturbance is within the limits of the approved plans.

[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA

[ ] [ ] [ ] Is construction site litter and debris appropriately managed?

[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?

[ ] [ ] [ ] Is construction impacting the adjacent property?

[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA

[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.

[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.

[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?

[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

Runoff Control Practices

1. Excavation Dewatering

Yes No NA

[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.

[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.

[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.

[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader

Yes No NA

[ ] [ ] [ ] Installed per plan.

[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.

[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.

[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.

[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

Runoff Control Practices (continued)

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control

1. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation is ___% of design capacity.

Sediment Control (continued)

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation ___% of design capacity.

4. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.

Sediment accumulation is ___% of design capacity.

5. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.

Sediment accumulation is ___% of design capacity.

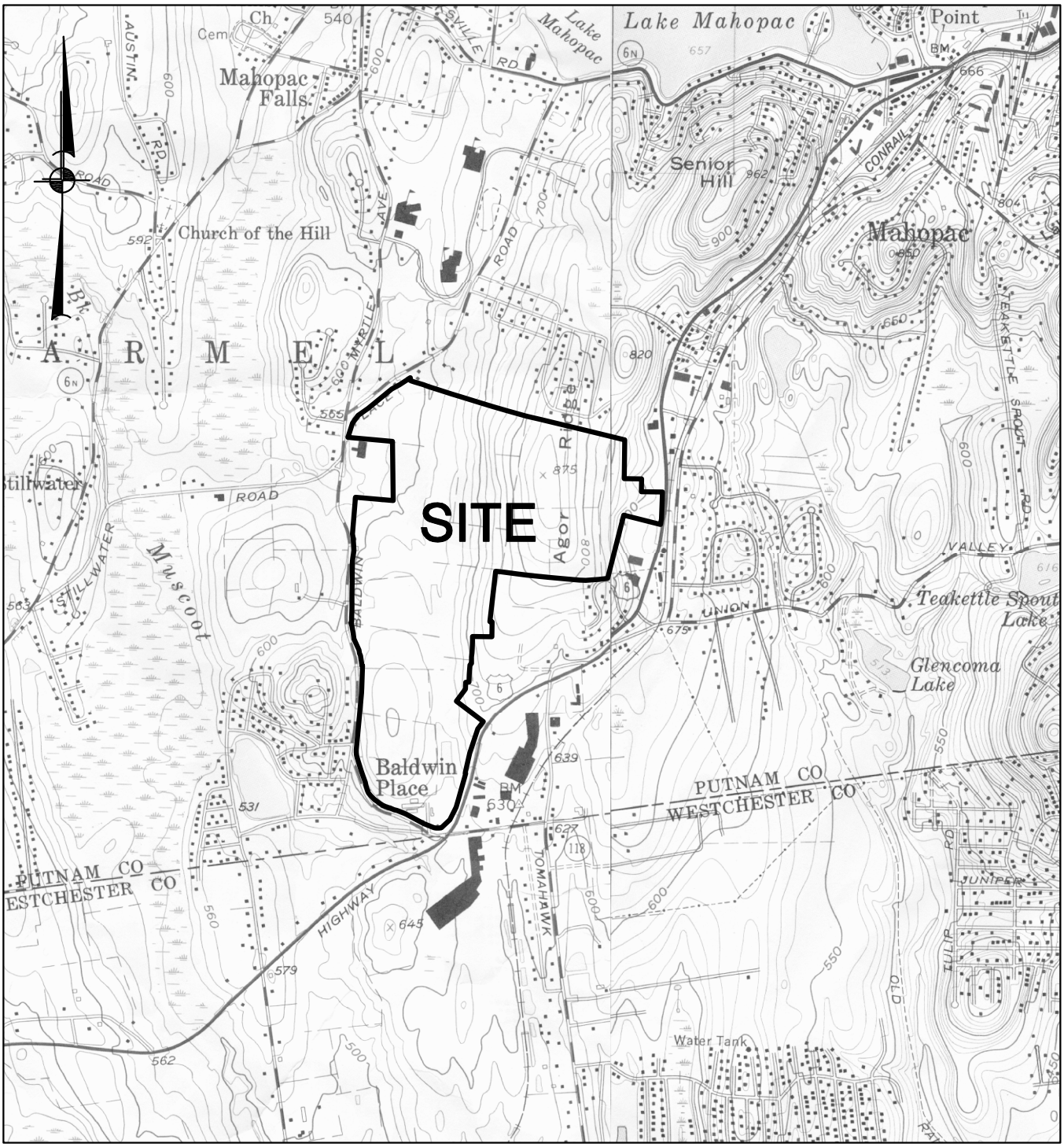
Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design.
Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS
b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:
1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

FIGURES



PROJECT: UNION PLACE ROUTE 6 AND BALDWIN PLACE ROAD TOWN OF CARMEL, PUTNAM COUNTY, NEW YORK	**PREPARED BY:** INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C. 3 Garrett Place • Carmel, New York 10512 Phone (845) 225-9690 • Fax (845) 225-9717 www.insite-eng.com	**DATE:** 6-18-2010
		SCALE: 1" = 2,000'
		PROJECT NO.: 02119.100
DRAWING: LOCATION MAP		**FIGURE:** 1

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

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

DESIGN POINT 7
DESIGN POINT 6
DESIGN POINT 5
DESIGN POINT 4
DESIGN POINT 3
DESIGN POINT 2
DESIGN POINT 1

TOWN OF SOMERS, WESTCHESTER COUNTY
TOWN OF CARMEL, PUTNAM COUNTY

LEGEND

1.0S Subcatchment

SOIL LEGEND

SOILS	DESCRIPTION	HYDROLOGICAL GROUP
CHE	Charlton loam, 25 to 35% slopes	B
PnB	Paxton fine sandy loam 2 to 8% slopes	C
PnC	Paxton fine sandy loam 8 to 15% slopes	C
PnD	Paxton fine sandy loam 15 to 25% slopes	C
RdA	Ridgebury loam 0 to 3% slopes.	C
RdB	Ridgebury loam 3 to 8% slopes	C
WaB	Woodbridge loam 3 to 8% slopes	C
WaC	Woodbridge loam 8 to 15% slopes	C
Sh	Sun loam 0 to 3% slopes	D
LcA	Leicester loam 0 to 3% slopes, stony	C
Uc	Udorthents, wet substratum 0 to 3% slopes	C

Note: Soils information shown is based on interpretation of the USDA SCS Soils Survey.

NO.	DATE	REVISION	BY

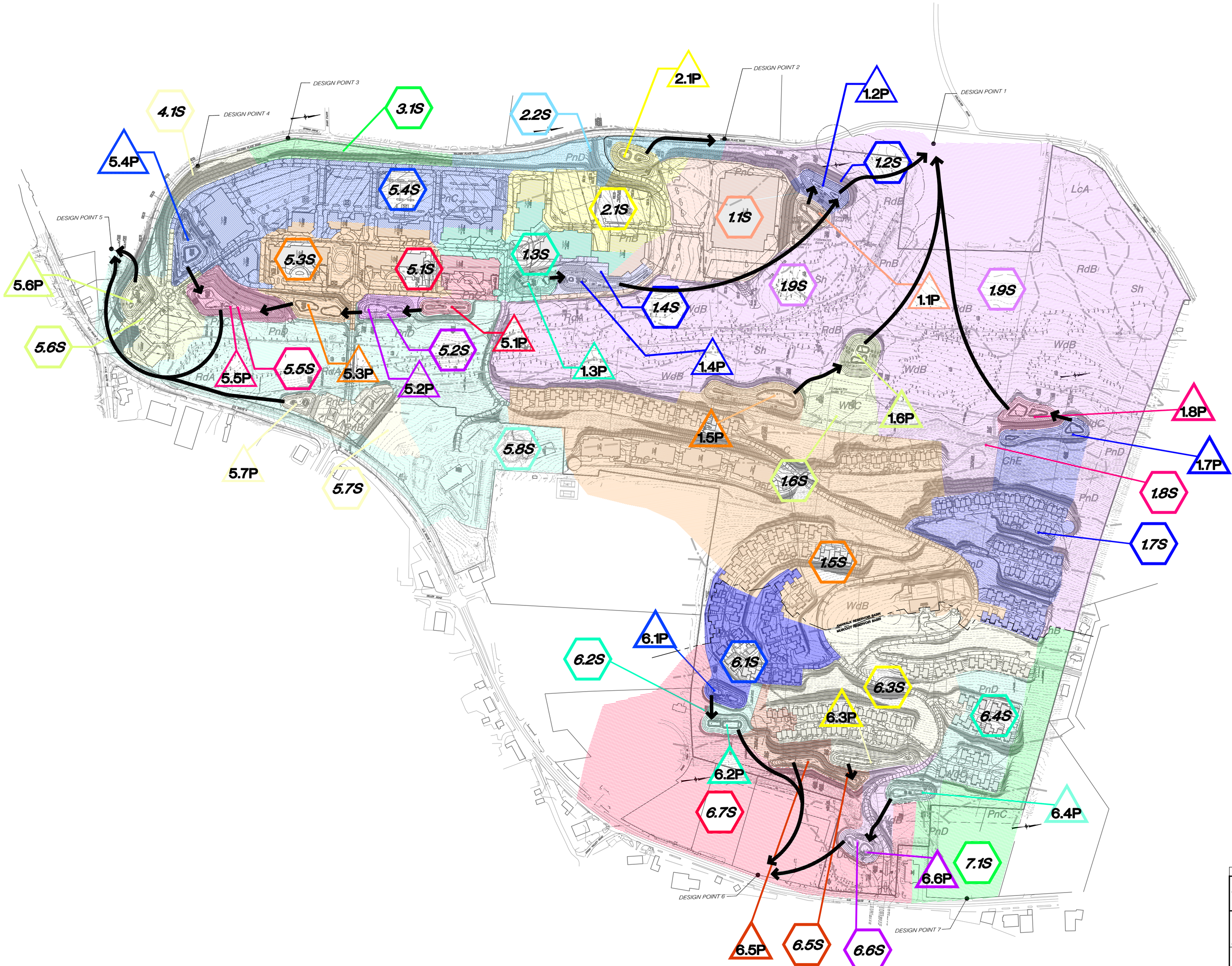
INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Gyrmtt Place
Carmel, NY 10512
(845) 225-9630
(845) 225-9717 fax
www.insite-eng.com

PROJECT:
UNION PLACE
U.S. ROUTE 6 & BALDWIN PLACE ROAD, TOWN OF CARMEL, PUTNAM COUNTY, NY

DRAWING:
PRE-DEVELOPMENT DRAINAGE MAP

PROJECT NO.	02119.100	PROJECT MANAGER	J.J.C.
DATE	6-18-10	DRAWN BY	B.J.H.
SCALE	1" = 200'	CHECKED BY	

DRAWING NO. 2 SHEET 2 / 3



SOIL LEGEND

SOILS	DESCRIPTION	HYDROLOGICAL GROUP
ChE	Charlton loam, 25 to 35% slopes	B
PnB	Paxton fine sandy loam 2 to 8% slopes	C
PnC	Paxton fine sandy loam 8 to 15% slopes	C
PnD	Paxton fine sandy loam 15 to 25% slopes	C
RdA	Ridgebury loam 0 to 3% slopes	C
RdB	Ridgebury loam 3 to 8% slopes	C
WdB	Woodbridge loam 3 to 8% slopes	C
WdC	Woodbridge loam 8 to 15% slopes	C
Sh	Sun loam 0 to 3% slopes	D
LcA	Leicester loam 0 to 3% slopes, stony	C
Uc	Udorthents, wet substratum 0 to 3% slopes	B

Note: Soils information shown is based on interpolation of the USDA SCS Soils Survey.

LEGEND

1.0S — Subcatchment

1.1P — Proposed Stormwater Management Practice

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

NO.	DATE	REVISION	BY

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
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www.insite-eng.com

PROJECT:

UNION PLACE

U.S. ROUTE 6 & BALDWIN PLACE ROAD, TOWN OF CARMEL, PUTNAM COUNTY, NY

DRAWING:

POST-DEVELOPMENT DRAINAGE MAP

PROJECT NO.	02119.100	PROJECT MANAGER	J.J.C.	DRAWING NO.	SHEET
DATE	2-20-09	DRAWN BY	B.J.H.	3	3 / 3
SCALE	1" = 200'	CHECKED BY			