11 November 2020
Revised 12 March 2021

Antonio Iadarola, P.E.
Town Engineer
4 Brush Hill Road
New Fairfield, CT 06082

RE: Stormwater Management Analysis
New Fairfield High School
54 Gillotti Road
New Fairfield, Connecticut 06812
Langan Project No.: 140215301

Dear Mr. Iadarola:

This report provides an analysis of peak runoff discharges and the engineering design for the proposed stormwater conveyance system associated with the proposed New Fairfield High School located at 54 Gillotti Road in New Fairfield, Connecticut. The analysis area totals about 26.66-acres.

PROJECT DESPCRIPTION

Existing Site Conditions

The project site is located within the about 83.46-acre parcel owned by the Town of New Fairfield located at 54 Gillotti Road in New Fairfield, Connecticut. This parcel is currently occupied by the New Fairfield High School and Middle School as well as two residential buildings and garages. The proposed project site is located within the southern portion of this parcel and bound by residential properties to the north, south, and west, and the Meeting House Hill School to the east, see Figure 1. The site is located within the Residential 88 (R-88) zone. School use is permitted within this zone via a special permit.

A topographic survey prepared by Langan, dated April 21, 2020, indicates site elevations (NAVD88) vary from about 950 feet south of the existing school to about 910 feet at the project limit north of the existing school.

Based upon FEMA's Flood Insurance Rate Map (FIRM) Map number 09001C0110F for Fairfield County, Panel Number 110 of 626, effective date June 18, 2010, the entirety of the site is located within Zone X. This area is determined to be outside the 0.2% annual chance floodplain, see Figure 2.

According to the Web Soil Survey of Fairfield County published by the Natural Resources Conservation Service (NRCS), the site is comprised of Udorthents-Urban land complex, Udorthents-Smoothed, and Woodbridge fine sandy loam, see Figure 3. The closest surface water is an onsite wetland located in the northwestern portion of the site and is about 160 feet from the proposed project limits of disturbance.

Proposed Project

The proposed project includes renovations and partial demolition of the about 156,550 SF existing New Fairfield Middle & High School and the construction of a new 80,580 SF High School to the southwest of the existing school. Proposed site work includes a new parking layout, revising the bus and parent drop-off locations, new sidewalks, and a new central plaza area. Associated site utility and stormwater management improvements are also proposed to accommodate the project.

STORMWATER QUALITY IMPROVEMENTS (See Appendix D)

The proposed stormwater management plan was developed using the Connecticut Stormwater Quality Manual. This approach combines treatment practices in series to enhanced pollutant removal and achieve groundwater recharge, channel protection and peak runoff attenuation. Practices are classified as primary or secondary treatment types. Primary practices can be used as stand-alone treatment and secondary practices must be applied together with other measures to meet water quality objectives. The following section describes the measures proposed for the project:

Primary practices:

- **Underground Infiltration System** with pretreatment capture runoff from impervious areas and allow for infiltration of stormwater and pollutant removal through pervious soil. The proposed basins were designed to meet the following criteria for maximum effectiveness:
    - Minimum infiltration rate greater than 0.3 in/ hr
    - Minimum 5 feet of separation from basin bottom to groundwater and bedrock
    - Maximum drainage area of 5 acres
    - Location in natural soils

Secondary practices

- **Hydrodynamic Separators/ swirl concentrators** are designed to remove coarse solids and oil droplets. These units are sized based on the water quality flow and are used in areas with high potential for spills, such as parking lots and loading areas. The units are designed to fully

treat the Water Quality Flows (WQF) being directed to them, while allowing peak flows from the less frequent, more severe events to bypass the unit. The WQF is defined within CTDEEP's Stormwater Quality Manual as:

"The peak flow associated with the water quality volume calculated using the NRCS Graphical Discharge Method. Although most of the stormwater treatment practices in this Manual should be sized based on WQV, some treatment practices such as grass drainage channels and proprietary treatment devices (designed to treat higher flow rates, thereby requiring less water quality storage volume) are more appropriately designed based on peak flow rate. In this approach, a stormwater treatment facility must have a flow rate capacity equal to or greater than the WQF in order to treat the entire water quality volume".

- **Deep Sump Catch Basins** provide for limited removal of trash, oil, and sediment from stormwater for small catchment areas with high imperviousness. These are used throughout the project as a pre-treatment measure before draining to a primary practice.

PEAK RUNOFF ANALYSIS (See Appendices A & B)

The stormwater management system was designed in accordance with Section 1.5.4 of the New Fairfield Zoning Regulations, amended to 4-4-2016. These regulations require that a site shall be designed to minimize runoff volumes, prevent flooding, reduce soil erosion, and protect water quality. Mechanisms for this purpose shall be designed to handle runoff up to, and including, a 25-year, 24-hour duration storm event. For the purpose of this report the 2-, 10-, and 25-year storms were analyzed.

The peak runoff discharges for the existing and proposed conditions were analyzed using the USDA Soil Conservation Service Publication Technical Release (TR-55) "Urban Hydrology for Small Watersheds", which provides procedures for estimating runoff and peak discharges in small watersheds. The analysis is based upon the watershed areas, land coverage, soil group types, curve numbers (CN), times of concentration (Tc), rainfall distribution type, and rainfall amount for the design storm events. The pre- and post-development peak discharge rates of runoff have been evaluated utilizing stormwater modeling software. The extents of the project limit was included in the analysis; see Drawings EXWS and PRWS.

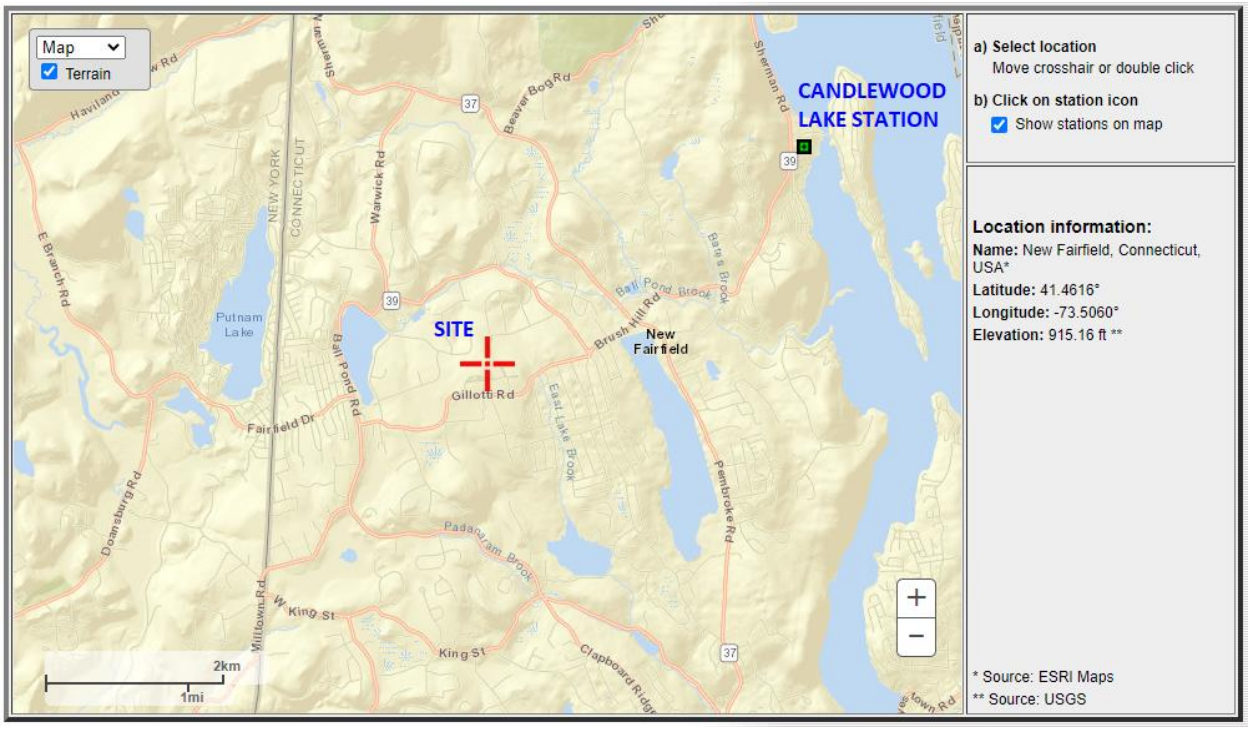
The peak runoff discharges for the existing and proposed conditions were analyzed using Soil Conservation Service (SCS) methodology which outlines procedures for calculating peak rates of runoff resulting from precipitation events as well as procedures for developing runoff hydrographs. The extents of our project limit was included in the analysis; see Drawings EXWS and PRWS. Values for area, curve number (CN), and a time of concentration (Tc) were calculated for the existing and proposed conditions.

The curve number is a land sensitive coefficient that dictates the relationship between total rainfall depth and direct storm runoff. The soils within the watershed are divided into hydrologic soil groups (A, B, C, and D). The SCS classification system evaluates the runoff potential of a soil according to its infiltration and transmission rates. "A" soils have the lowest runoff potential, while "D" soils have the greatest runoff potential. Soils within the project area are mostly Udorthents-Urban land complex with a hydrologic soil rating of "B" and Woodbridge fine sandy loam with a hydrologic soil group designation of "C/D". A small area in the northwest section of the project limits is Udorthents-Smoothed with a hydrologic soil rating of "C".

The time of concentration (Tc) is defined as the time for runoff to travel from the hydraulically most distant point in the watershed to a point of interest. Values of time of concentration were determined for existing and proposed conditions based on land cover and slope of the flow path using methods outlined in TR-55.

For this study, a 24-hour SCS Type III standard rainfall distribution was used to determine the peak flow rates discharging from the site. Precipitation data used for the various storm events is based on the "NOAA Atlas 14 Point Precipitation Frequency Estimates: CT" for Candlewood Lake Station. Candlewood Lake Station was chosen for rainfall data because it is the station located within the closest proximity of the project location as shown in Graphic 1. A summary of all rainfall data utilized in the analysis for this site is provided below and a complete compilation of data provided by NOAA for this location is included in Appendix C.

Graphic 1. NOAA Rainfall Data Location Map



NOAA Precipitation Depth per Average Recurrence Interval [in]			
Duration	**2-Year**	**10-Year**	**25-Year**
24-hour	3.50	5.49	6.72

Existing Condition (See Appendix A)

The existing site is currently developed with the existing high school and middle school, a couple of residential buildings to the south, as well as various athletic fields and facilities. Impervious areas include building roofs, hardscape walkways and drives, and parking lots. Existing Watershed A (see Drawing No. EXWS) encompasses about 6.9-acres and includes two residential dwellings, garage, driveway, lawn and wooded area. This watershed flows untreated to the existing drainage collection system located in Gillotti Road.

Existing Watershed B-1 encompasses about 8.40-acres and includes portions of the school, parking lot, athletic fields. This watershed flows untreated toward an onsite wetland located in the northwest portion of the property.

Existing Watershed B-2 encompasses about 9.24-acres and includes portions of the school, parking lot, athletic fields. This watershed flows untreated into an existing storm system onsite and discharges to the onsite wetland located in the north portion of the property.

Existing Watershed C is about 2.12-acres and comprised of a portion of the parking lot south of the school. This watershed flows untreated into an existing storm system onsite and discharges east of the school. This existing system then sheet flows east and ultimately discharges towards a pond located on site.

Proposed Condition (See Appendix B)

In the proposed condition, (see Drawing No. PRWS) Watershed A1 (2.80-acres) encompasses Gillotti Road, a portion of the driveway and associated lawn and wooded areas. The stormwater runoff will sheet flow towards Gillotti Road and discharge to the existing drainage collection system.

Proposed Watershed A2 (2.70-acres) encompasses a portion of the southern parking lot, and associated landscape islands. The stormwater will be caught by catch basins and piped underground to the water quality unit before discharging into an underground stormwater infiltration system. The proposed underground stormwater infiltration system will provide water quality treatment and control the rate of stormwater runoff resulting from the development to less than existing conditions rates. The water quality units have been selected to achieve a minimum 80% of the annual solids load reduction and a 100% floatables reduction. The overflow from the infiltration system will be pipped to the existing drainage collection system in Gillotti Road.

Proposed Watershed B will be divided into five subwatersheds – B1 to B6 (note B2 has been removed). Proposed Watershed B1 (2.40-acres) encompasses the southern parking lot, a portion of proposed school, access drive, the southern parking lot and associated landscape islands. The stormwater will be caught by catch basins and piped underground to a water quality unit before discharging into an underground stormwater infiltration system. The proposed underground stormwater infiltration system will provide water quality treatment and control the rate of stormwater runoff resulting from the development to less than existing conditions rates. The overflow from the infiltration system will be directed towards the onsite wetland located northwest of the proposed school. The water quality units have been selected to achieve a minimum 80% of the annual solids load reduction and a 100% floatables reduction.

Proposed Watershed B3 (2.60-acres) encompasses a portion of the proposed school, access drive and courtyard. The stormwater will be caught by catch basins and piped underground to a water quality unit before discharging into an underground stormwater infiltration system. The proposed underground stormwater infiltration system will provide water quality treatment and control the rate of stormwater runoff resulting from the development to less than existing conditions rates. The overflow from the infiltration system will be directed towards the onsite wetland located northwest of the proposed school. The water quality units have been selected to achieve a minimum 80% of the annual solids load reduction and a 100% floatables reduction.

Proposed Watershed B4 (1.30-acres) encompasses the northern parking lot and associated landscape islands. The stormwater will be caught by catch basins and piped underground to a water quality unit before discharging into an underground stormwater infiltration system. The proposed underground stormwater infiltration system will provide water quality treatment and control the rate of stormwater runoff resulting from the development to less than existing conditions rates. The overflow from the infiltration system will be directed towards the onsite wetland located northwest of the proposed school. The water quality units have been selected to achieve a minimum 80% of the annual solids load reduction and a 100% floatables reduction.

Proposed Watershed B5 (6.22-acres) consists of the athletic fields that sheet flows towards the onsite wetland.

Proposed Watershed B6 (6.60-acres) consists of the athletic fields that sheet flows towards the onsite wetland.

Proposed Watershed C1 (2.08-acres) was reduced in size and impervious cover from the existing condition, but otherwise remained the same and discharges to the existing drainage collection system and eventually flows east towards the pond on site.

Per Section 1.5.4 of the Town of New Fairfield Zoning Regulations, all development shall be designed to the extent practical with the goal of no net runoff from the site through the use Best Management Practices (BMP to minimize, treat, prevent, and/or reduce degradation of water quality and flooding potential due to storm water runoff from parking and/or impervious surfaces and to reduce Effective Impervious Coverage wherever possible. a site shall be designed to maximize the amount of runoff able to percolate directly into the soil. Mechanisms for this purpose were designed for all storms up to and including the 25-year, 24-hour storm event. An outlet control structure, utilizing low flow orifices and a high-flow overflow weir is proposed to help attenuate and reduce peak flow rates.

Our drainage analysis shows that the proposed development will maintain existing drainage patterns, control the rate of stormwater runoff resulting from the development, and provide water quality treatment and erosion control during and after construction.

The total watershed peak flow rates are summarized below.

Site Discharge Peak Flow Comparison for WS-A, Gillotti Road (CFS)

	Current	Proposed	Delta	% Reduction
2- Year	6.50	6.46	-0.04	0.6%
10-Year	15.06	11.40	-3.66	32.1%
25-Year	20.85	14.86	-5.99	40.3%

Site Discharge Peak Flow Comparison for Combined WS-B-1, Wetland (CFS)

	Current	Proposed	Delta	% Reduction
2- Year	11.75	11.56	-0.19	1.6%
10-Year	23.27	23.27	-0.00	0.0%
25-Year	30.55	30.17	-0.38	1.26%

Site Discharge Peak Flow Comparison for Combined WS-B-2, Wetland (CFS)

	Current	Proposed	Delta	% Reduction
2- Year	12.39	12.04	-0.35	2.9%
10-Year	24.96	24.35	-0.61	2.5%
25-Year	32.97	32.65	-0.32	1.0%

Site Discharge Peak Flow Comparison for WS-C, 18" Pipe (CFS)

	Current	Proposed	Delta	% Reduction
2- Year	5.60	5.17	-0.43	8.3%
10-Year	9.42	8.94	-0.48	5.3%
25-Year	11.76	11.26	-0.50	4.4%

Site Discharge Peak Flow Comparison (CFS)

	Current	Proposed	Delta	% Reduction
2- Year	36.24	35.23	-1.01	2.9%
10-Year	72.71	67.96	-5.02	6.9%
25-Year	96.13	88.94	-7.19	8.1%

STORMWATER CONVEYANCE SYSTEM (See Appendix E)

The stormwater conveyance system was sized using the Rational Method for the 25-year storm event. A 25-year storm event was chosen as directed by the New Fairfield town engineer in a phone conversation on 11/09/20. Values for area, runoff coefficient (C), and a time of concentration were calculated for each drainage area. The average runoff coefficient was calculated based upon the following cover types:

Cover	C

Grass/Pervious	0.3
Pavement/Impervious	0.9

Rainfall intensities were taken from the "NOAA Atlas 14 Point Precipitation Frequency Estimates: CT" for Hartford Bradley AP Station in Connecticut. Stormwater pipes were then sized based upon the Manning's Equation for full flow pipe capacity.

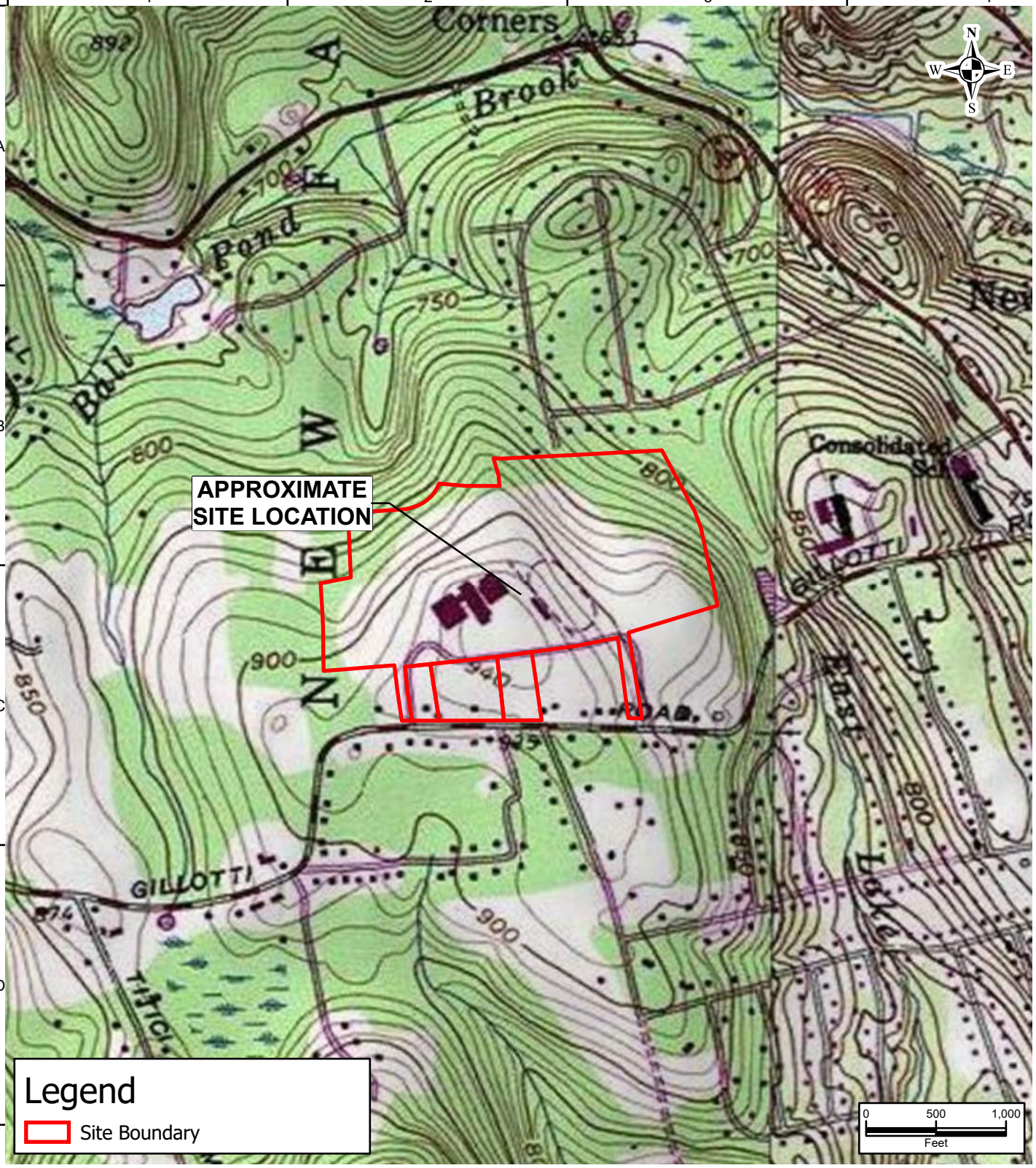
Please refer to the Drawings for additional drainage information.

LIST OF FIGURES

LIST OF DRAWINGS

REFERENCE DRAWINGS (See Submission Set)

LIST OF APPENDICES



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Collectively known as Langan

Project
New Fairfield High School

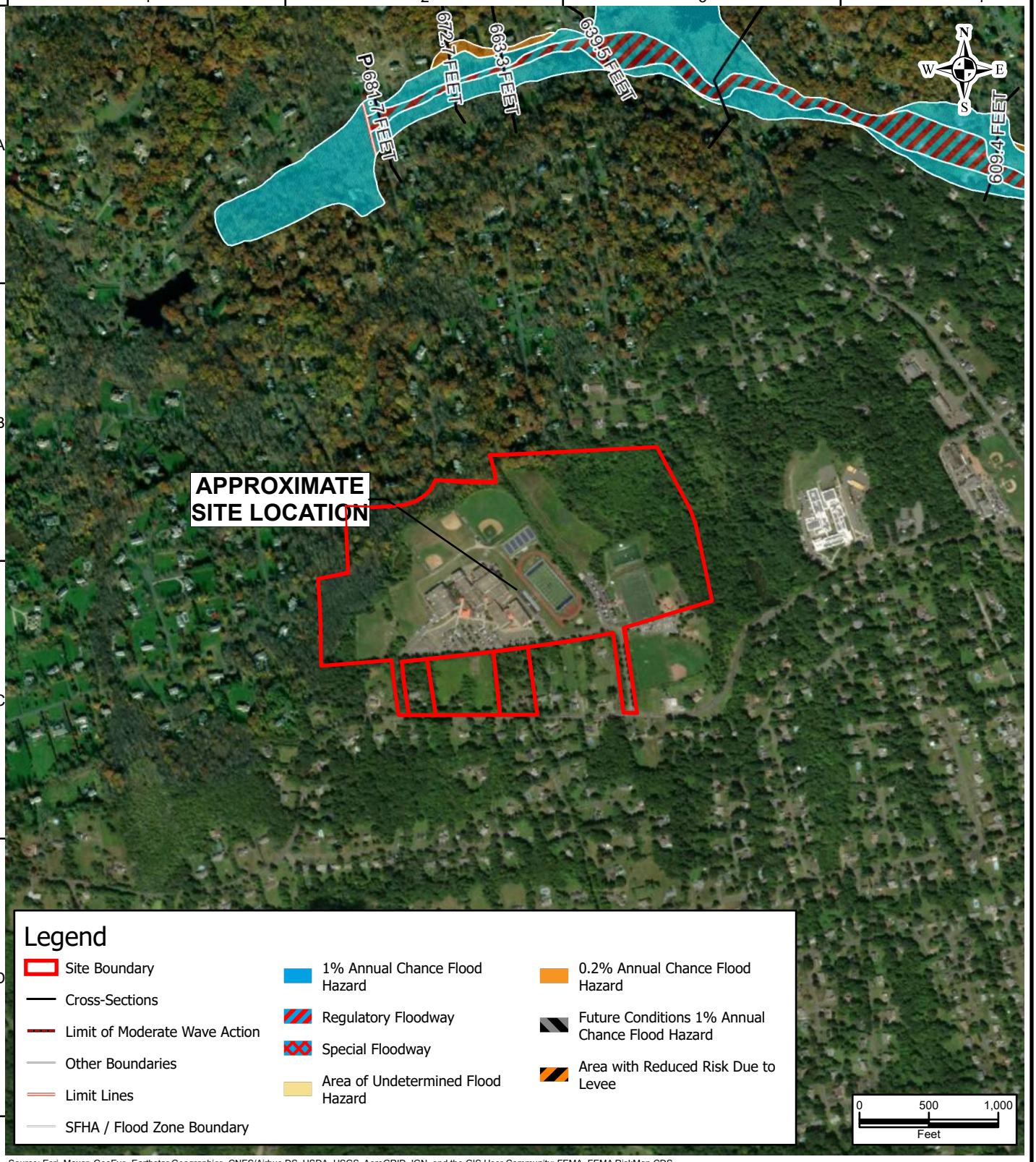
NEW FAIRFIELD
COUNTY
FAIRFIELD CONNECTICUT

Drawing Title
SITE LOCATION

Project No.	140215301
Date	11/10/2020
Scale	1:1,000
Drawn By	Site Analyzer
Submission Date	11/11/2020

Figure
1

Spatial Reference: NAD 1983 StatePlane Connecticut FIPS 0600 Feet



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; FEMA, FEMA RiskMap CDS

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Project
New Fairfield High School

NEW FAIRFIELD
COUNTY
FAIRFIELD CONNECTICUT

Drawing Title
EFFECTIVE FEMA FIRM

Project No.	140215301
Date	11/10/2020
Scale	1:1,000
Drawn By	Site Analyzer
Submission Date	11/11/2020

Figure
2

Spatial Reference: NAD 1983 StatePlane Connecticut FIPS 0600 Feet

Tables — Hydrologic Soil Group — Summary By Map Unit

Summary by Map Unit — State of Connecticut (CT600)

Summary by Map Unit — State of Connecticut (CT600)

Map unit symbol	Map unit name	Rating
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	D
4	Leicester fine sandy loam	B/D
45A	Woodbridge fine sandy loam, 0 to 3 percent slopes	C/D
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	C/D
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	C/D
46C	Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony	C/D
47C	Woodbridge fine sandy loam, 3 to 15 percent slopes, extremely stony	C/D
48B	Georgia and Amenia silt loams, 2 to 8 percent slopes	C
49B	Georgia and Amenia silt loams, 3 to 8 percent slopes, very stony	C
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	C
85C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony	C
86D	Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony	C
306	Udorthents-Urban land complex	B
308	Udorthents, smoothed	C

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Project
New Fairfield High School

NEW FAIRFIELD
COUNTY
FAIRFIELD CONNECTICUT

Drawing Title
NRCS SOIL MAP

Project No.	140215301
Date	11/10/2020
Scale	1:1,000
Drawn By	Site Analyzer
Submission Date	11/11/2020

Figure **3**

Disclaimer: This information is produced by an automated system and may not be complete. The absence of a feature is not a confirmation that the feature is not present at the subject location. Information produced is in the public domain and unless noted has not been field verified or provided for any specific use. Users are also cautioned to confirm the information shown is suitable for their intended use.
Spatial Reference: NAD 1983 StatePlane Connecticut FIPS 0600 Feet

GENERAL NOTES

1. EXISTING INFORMATION OBTAINED FROM A PLAN TITLED "PARTIAL BOUNDARY AND TOPOGRAPHIC SURVEY", NEW FAIRFIELD MIDDLE & HIGH SCHOOL, 54 & 56 GILLOTTI ROAD, NEW FAIRFIELD, CT, DATED APRIL 9, 2020, AND PREPARED BY LANGAN.
2. PROPOSED BUILDING FOOTPRINT RECEIVED ELECTRONICALLY FROM JCJ ARCHITECTURE IN OCTOBER 2020.
3. WETLANDS WERE DELINEATED AND FIELD LOCATED BY ALL-POINTS TECHNOLOGY CORPORATION DURING THE MONTH OF FEBRUARY 2020.
4. THE SITE IS LOCATED WITHIN ZONE X, AN AREA OF MINIMAL FLOODING, PER FEMA FIRM MAP 09001C0110F, EFFECTIVE DATE 6/18/2010.

EX-WS B-2 (WETLAND, NORTHWEST)
AREA: 9.24 AC.
CN: 81
TC: 19.9 MIN.

NRCS SOIL TYPE: 308
UDORTHENTS, SMOOTHED
HYDROLOGIC SOIL GROUP: C

NRCS SOIL TYPE: 306
UDORTHENTS-URBAN LAND COMPLEX
HYDROLOGIC SOIL GROUP: B

NRCS SOIL TYPE: 308
UDORTHENTS, SMOOTHED
HYDROLOGIC SOIL GROUP: C

EX-WS B-1 (WETLAND, NORTHWEST)
AREA: 8.40 AC.
CN: 82
TC: 20.0 MIN.

EX-WS C (18" EAST)
AREA: 2.12 AC.
CN: 92
TC: 9.3 MIN.

EX-WS A (GILLOTTI)
AREA: 6.90 AC.
CN: 74
TC: 19.6 MIN.

NRCS SOIL TYPE: 45A
WOODBRIDGE FINE SANDY LOAM
HYDROLOGIC SOIL GROUP: C/D

80 0 40 80
SCALE: 1 INCH = 80 FEET

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NEW FAIRFIELD HIGH SCHOOL

NEW FAIRFIELD CONNECTICUT

EXISTING WATERSHED MAP

Project No. 20DASY091044N0620	Drawing No. EXWS
Langan Project No. 140215301	
Date NOVEMBER 11, 2020	
Scale 1"=80'	

Date: 3/18/2021 Time: 19:24 User: ekingsbury Style Table: Langan.stb Layout: EXWS Document Code: 140215301-0501-CG103-0101

GENERAL NOTES

1. EXISTING INFORMATION OBTAINED FROM A PLAN TITLED "PARTIAL BOUNDARY AND TOPOGRAPHIC SURVEY", NEW FAIRFIELD MIDDLE & HIGH SCHOOL, 54 & 56 GILLOTTI ROAD, NEW FAIRFIELD, CT, DATED APRIL 9, 2020, AND PREPARED BY LANGAN.
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4. THE SITE IS LOCATED WITHIN ZONE X, AN AREA OF MINIMAL FLOODING, PER FEMA FIRM MAP 09001C0110F, EFFECTIVE DATE 6/18/2010.

PR-WS B6 (WETLAND) AREA: 6.60 AC. CN: 76 TC: 19.9 MIN.

UNDERGROUND STORMWATER MANAGEMENT PRACTICE 4P

SOIL BOUNDARY (TYP.)

NRCS SOIL TYPE: 308 UDORTHENTS, SMOOTHED HYDROLOGIC SOIL GROUP: C

PR-WS B5 (WETLAND) AREA: 6.22 AC. CN: 80 TC: 20.0 MIN.

NRCS SOIL TYPE: 306 UDORTHENTS-URBAN LAND COMPLEX HYDROLOGIC SOIL GROUP: B

PR-WS B4 (WETLAND) AREA: 1.30 AC. CN: 87 TC: 7.7 MIN.

NRCS SOIL TYPE: 308 UDORTHENTS, SMOOTHED HYDROLOGIC SOIL GROUP: C

UNDERGROUND STORMWATER MANAGEMENT PRACTICE 3P

PR-WS C1 (18" EAST) AREA: 2.08 AC. CN: 90 TC: 9.3 MIN.

PR-WS B3 (WETLAND) AREA: 2.60 AC. CN: 84 TC: 17.0 MIN.

PR-WS B5 (WETLAND) AREA: 6.22 AC. CN: 80 TC: 20.0 MIN.

NRCS SOIL TYPE: 45B WOODBRIDGE FINE SANDY LOAM HYDROLOGIC SOIL GROUP: C/D

PR-WS B1 (WETLAND & GILLOTTI) AREA: 2.79 AC. CN: 87 TC: 10.5 MIN.

TIME OF CONCENTRATION (TYP.)

PR-WS A2 (GILLOTTI) AREA: 3.07 AC. CN: 89 TC: 19.2 MIN.

WATERSHED BOUNDARY (TYP.)

UNDERGROUND STORMWATER MANAGEMENT PRACTICE 2P

UNDERGROUND STORMWATER MANAGEMENT PRACTICE 1P

PR-WS A1 (GILLOTTI) AREA: 2.00 AC. CN: 73 TC: 19.6 MIN.

NRCS SOIL TYPE: 45A WOODBRIDGE FINE SANDY LOAM HYDROLOGIC SOIL GROUP: C/D

80 0 40 80
SCALE: 1 INCH = 80 FEET

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NEW FAIRFIELD HIGH SCHOOL

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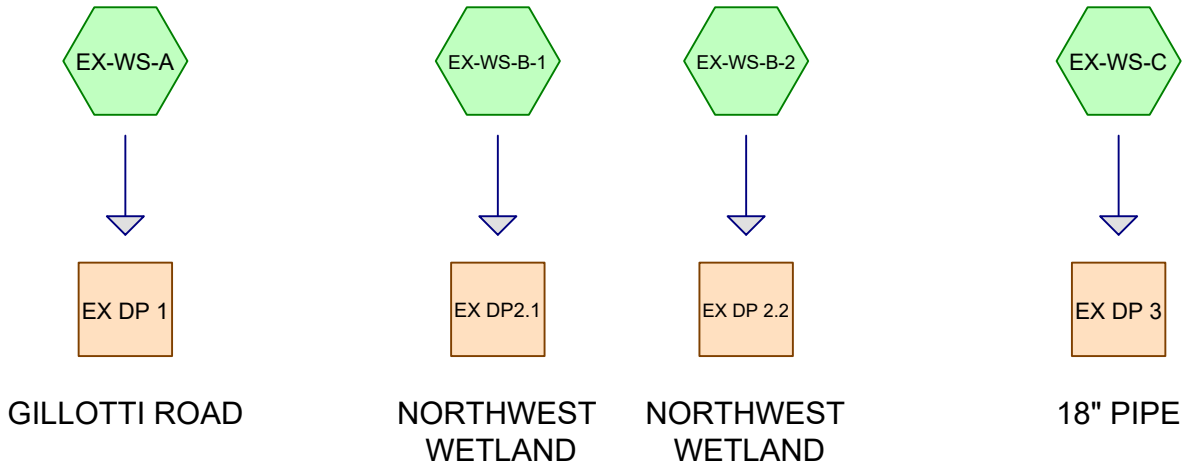
PROPOSED WATERSHED MAP

Project No.	Drawing No.
20DASY091044N0620	PRWS
Langan Project No.	
140215301	
Date	
NOVEMBER 11, 2020	
Scale	
1"=80'	

APPENDIX A

Existing Stormwater Discharge Calculations



Subcat Reach Pond Link

Routing Diagram for 2021-03-09 Existing
Prepared by Langan Eng & Env Srvcs, Inc, Printed 3/18/2021

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
6.670	69	50-75% Grass cover, Fair, HSG B (EX-WS-A, EX-WS-B-1, EX-WS-B-2, EX-WS-C)
10.370	79	50-75% Grass cover, Fair, HSG C (EX-WS-B-1, EX-WS-B-2)
5.570	98	Paved parking, HSG B (EX-WS-B-1, EX-WS-B-2, EX-WS-C)
0.900	98	Paved parking, HSG C (EX-WS-A)
0.050	60	Woods, Fair, HSG B (EX-WS-C)
3.100	73	Woods, Fair, HSG C (EX-WS-A, EX-WS-B-2)
26.660	**80**	**TOTAL AREA**

Summary for Subcatchment EX-WS-A:

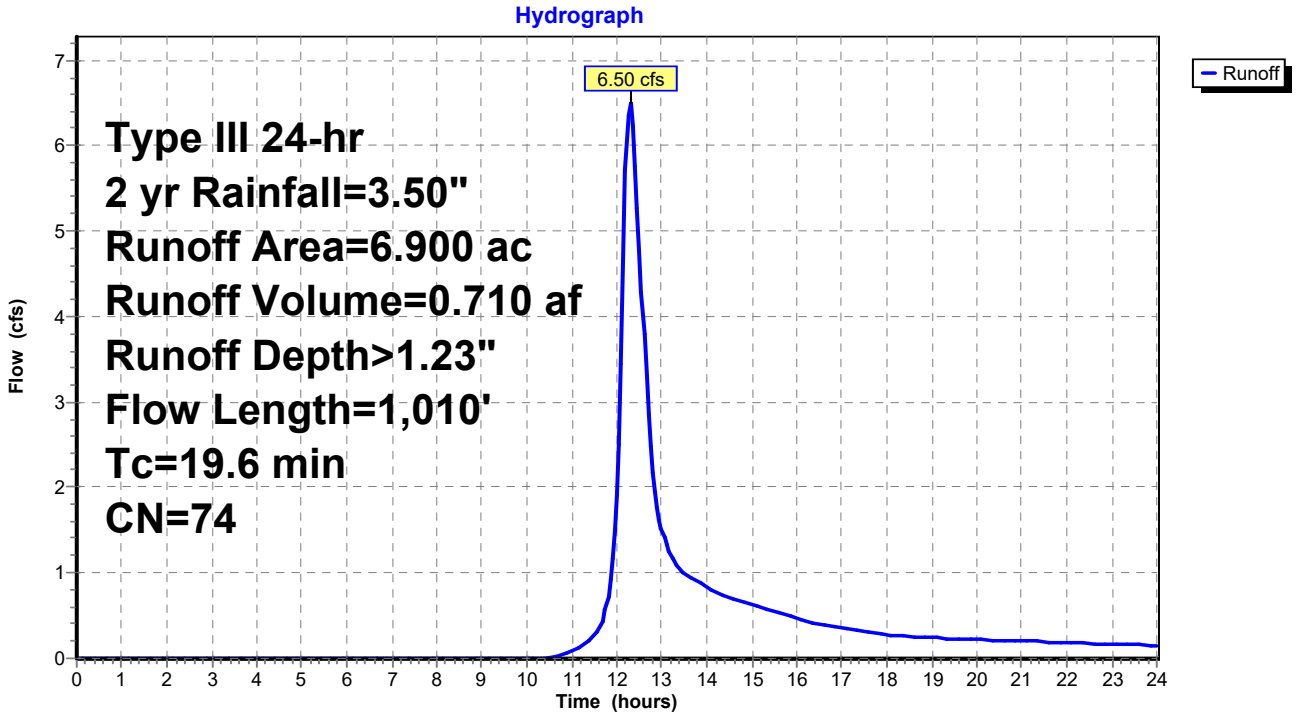
Runoff = 6.50 cfs @ 12.29 hrs, Volume= 0.710 af, Depth> 1.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.50"

Area (ac)	CN	Description
0.900	98	Paved parking, HSG C
4.100	69	50-75% Grass cover, Fair, HSG B
1.900	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.000		86.96% Pervious Area
0.900		13.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	45	0.0600	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
6.3	105	0.0600	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.5	55	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.0	270	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	155	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	380	0.0150	6.98	8.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
19.6	1,010	Total			

Subcatchment EX-WS-A:



Summary for Subcatchment EX-WS-B-1:

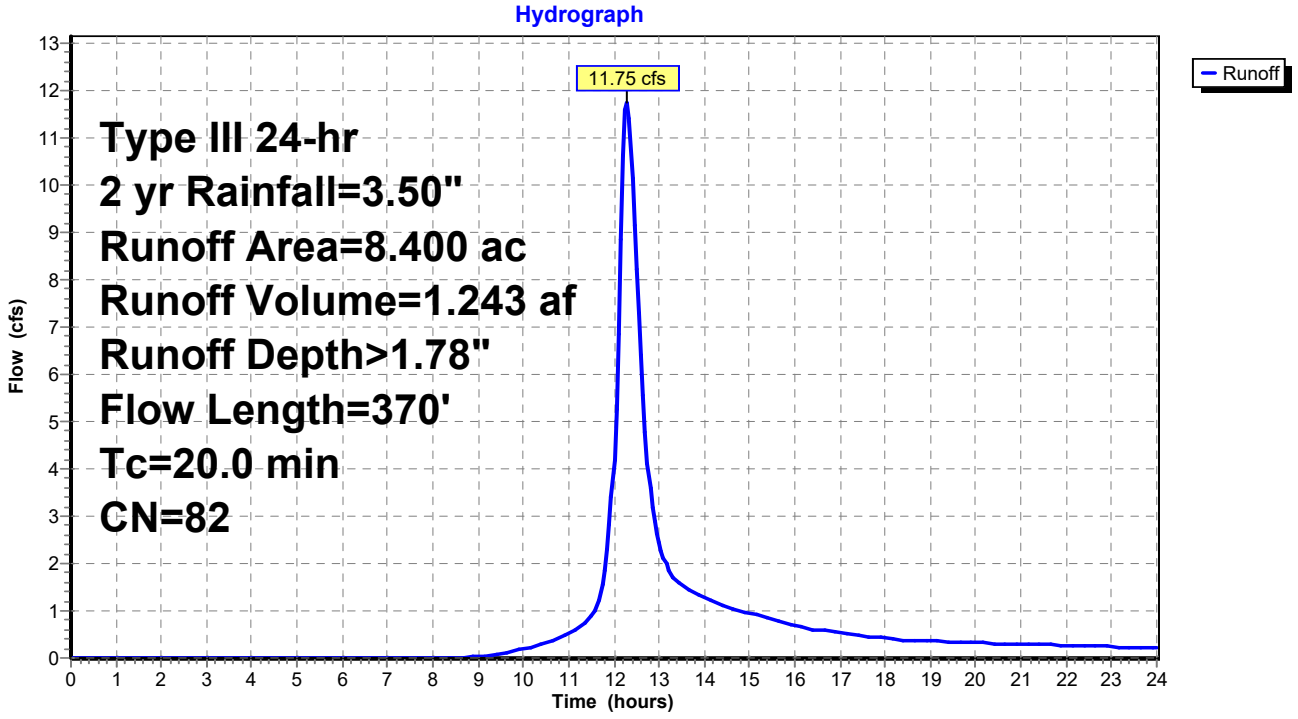
Runoff = 11.75 cfs @ 12.28 hrs, Volume= 1.243 af, Depth> 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.50"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG B
6.600	79	50-75% Grass cover, Fair, HSG C
0.400	69	50-75% Grass cover, Fair, HSG B
8.400	82	Weighted Average
7.000		83.33% Pervious Area
1.400		16.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	150	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.2	50	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.7	170	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.0	370	Total			

Subcatchment EX-WS-B-1:



Summary for Subcatchment EX-WS-B-2:

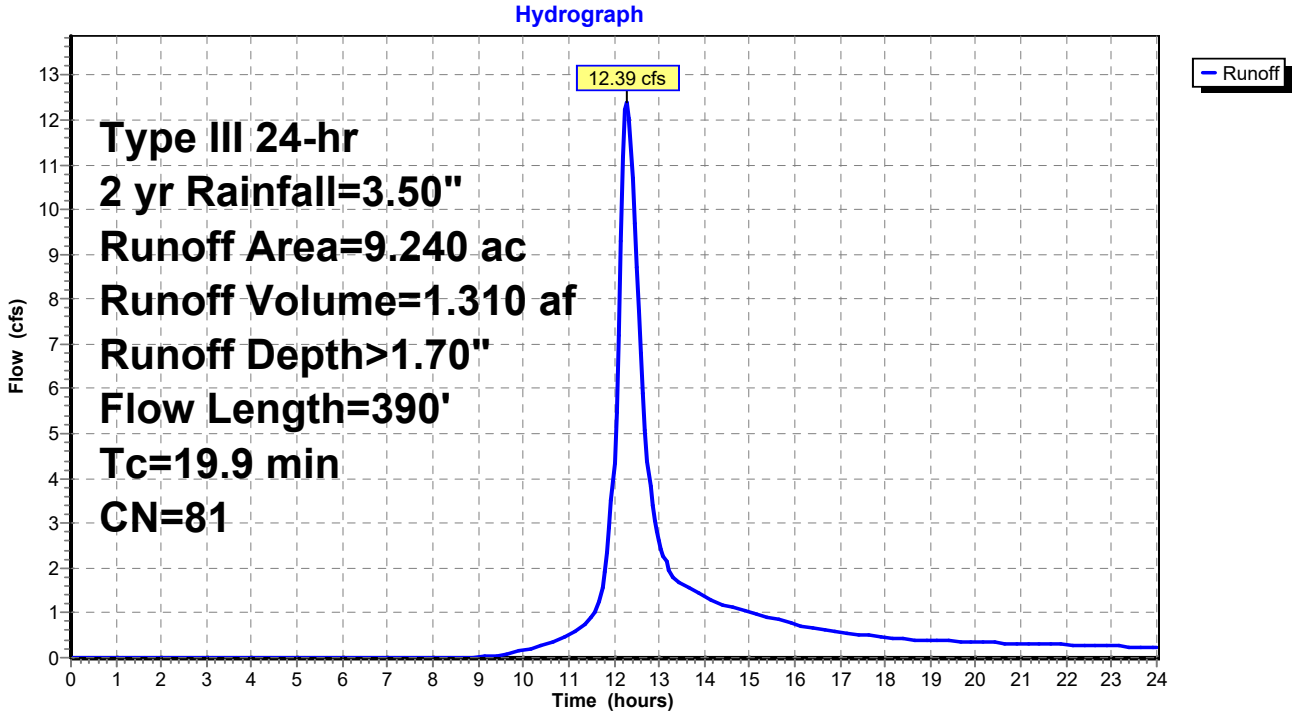
Runoff = 12.39 cfs @ 12.28 hrs, Volume= 1.310 af, Depth> 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.50"

Area (ac)	CN	Description
2.500	98	Paved parking, HSG B
3.770	79	50-75% Grass cover, Fair, HSG C
1.770	69	50-75% Grass cover, Fair, HSG B
1.200	73	Woods, Fair, HSG C
9.240	81	Weighted Average
6.740		72.94% Pervious Area
2.500		27.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	150	0.0160	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
5.7	240	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	390	Total			

Subcatchment EX-WS-B-2:



Summary for Subcatchment EX-WS-C:

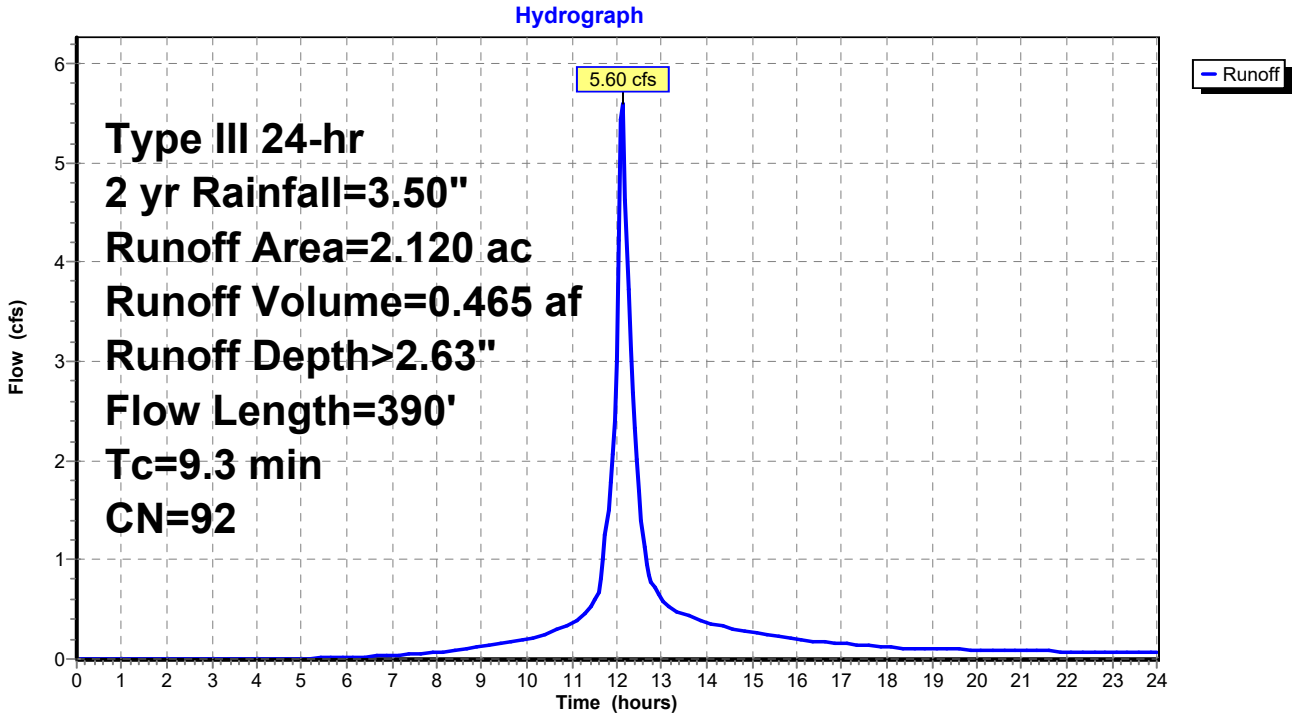
Runoff = 5.60 cfs @ 12.13 hrs, Volume= 0.465 af, Depth> 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.50"

Area (ac)	CN	Description
1.670	98	Paved parking, HSG B
0.050	60	Woods, Fair, HSG B
0.400	69	50-75% Grass cover, Fair, HSG B
2.120	92	Weighted Average
0.450		21.23% Pervious Area
1.670		78.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	10	0.0100	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.4	20	0.0100	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.9	120	0.0600	2.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
0.7	240	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.3	390	Total			

Subcatchment EX-WS-C:

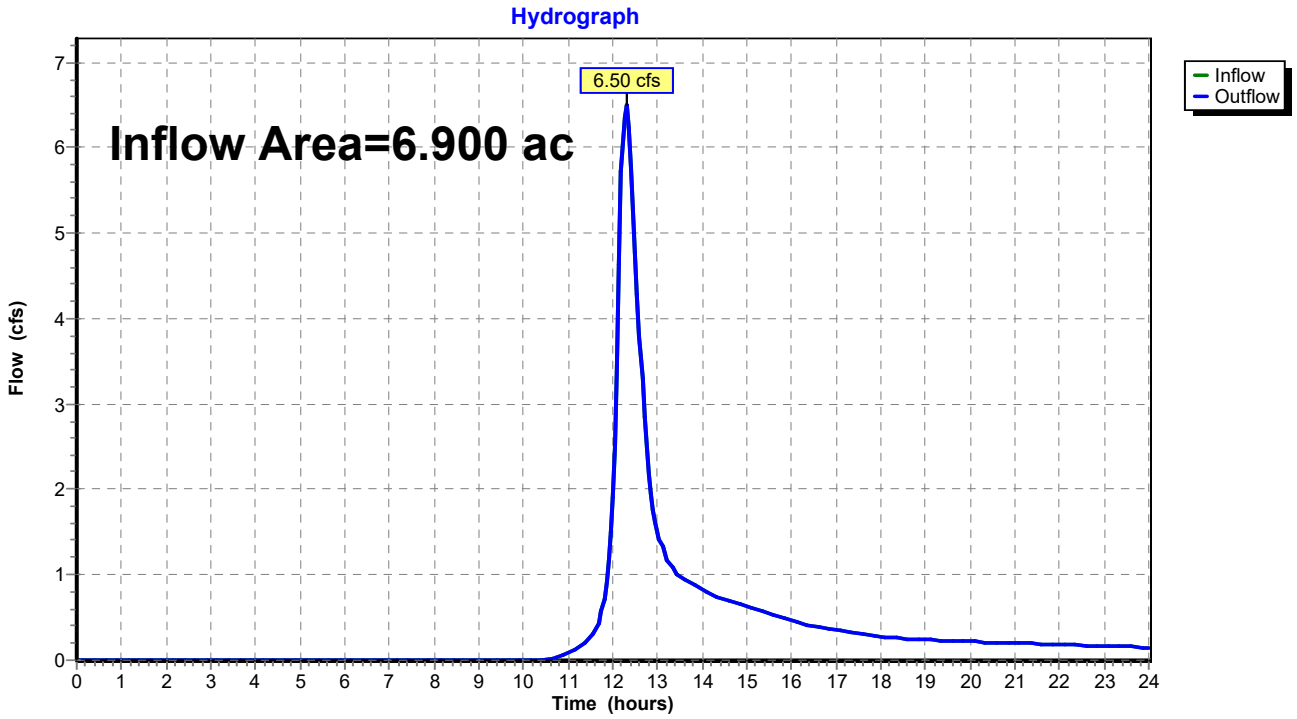


Summary for Reach EX DP 1: GILLOTTI ROAD

Inflow Area = 6.900 ac, 13.04% Impervious, Inflow Depth > 1.23" for 2 yr event
Inflow = 6.50 cfs @ 12.29 hrs, Volume= 0.710 af
Outflow = 6.50 cfs @ 12.29 hrs, Volume= 0.710 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EX DP 1: GILLOTTI ROAD

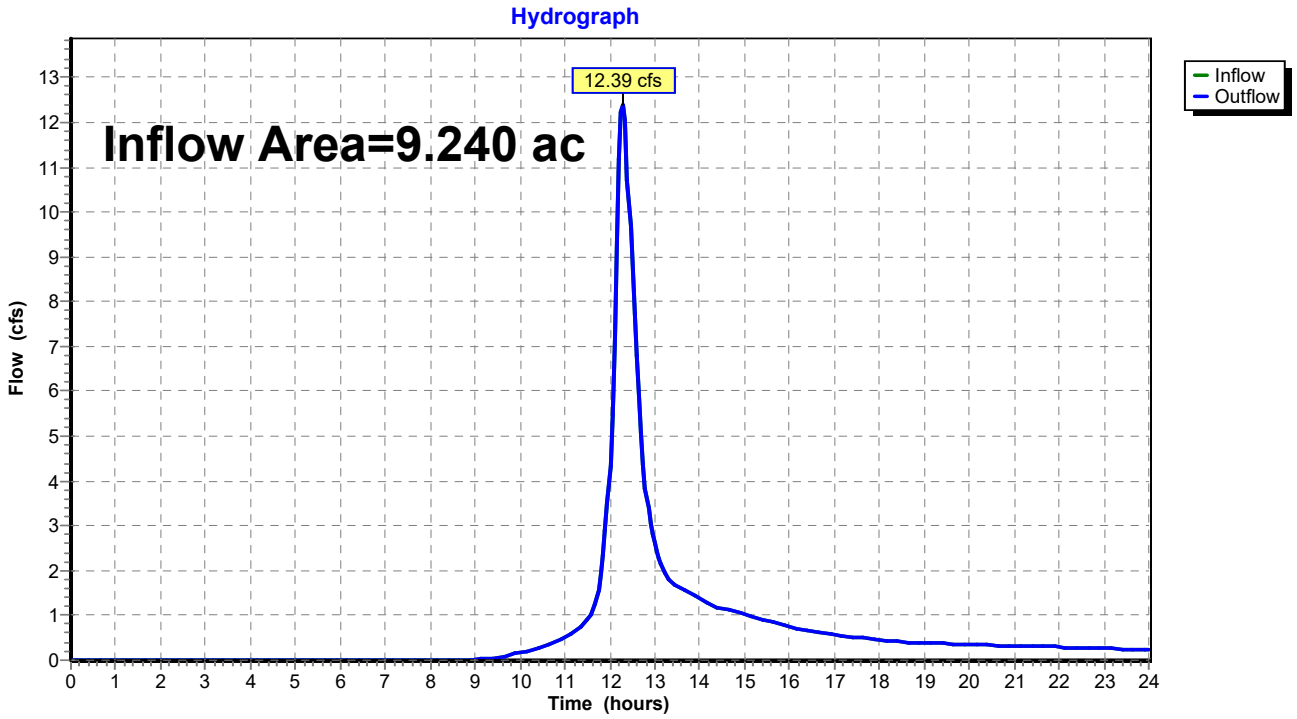


Summary for Reach EX DP 2.2: NORTHWEST WETLAND

Inflow Area = 9.240 ac, 27.06% Impervious, Inflow Depth > 1.70" for 2 yr event
Inflow = 12.39 cfs @ 12.28 hrs, Volume= 1.310 af
Outflow = 12.39 cfs @ 12.28 hrs, Volume= 1.310 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EX DP 2.2: NORTHWEST WETLAND

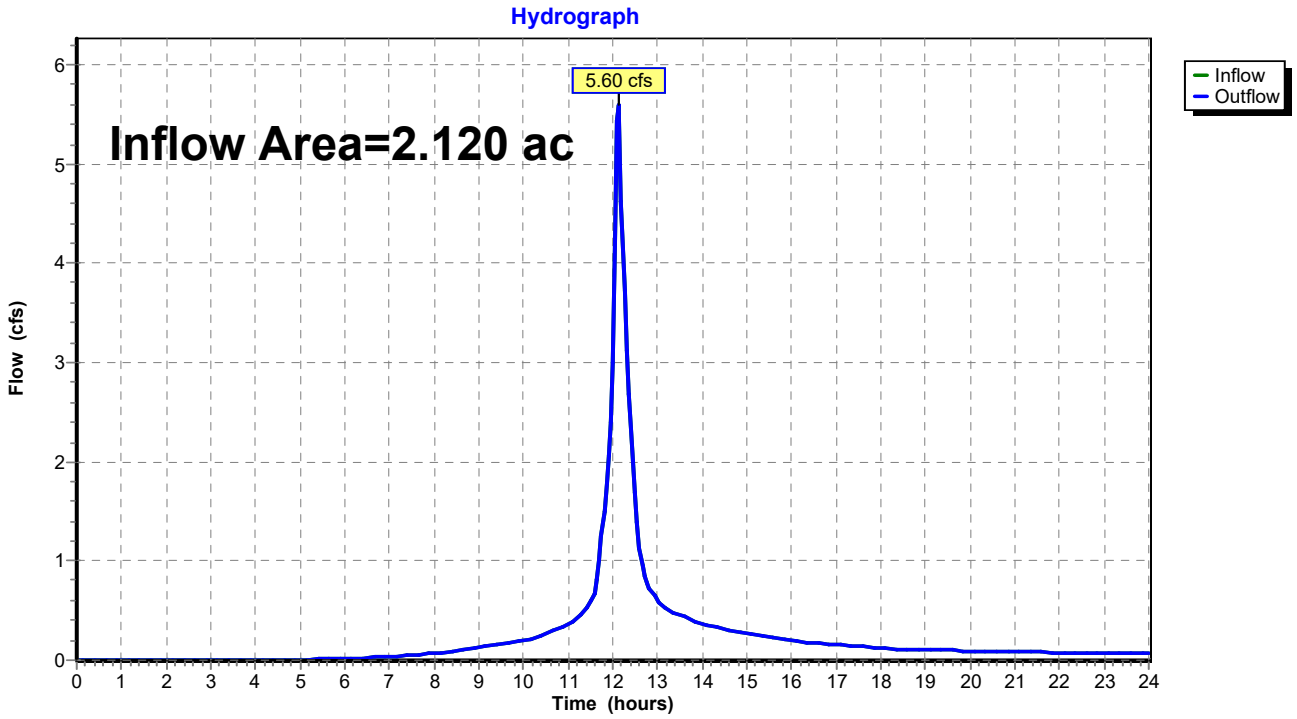


Summary for Reach EX DP 3: 18" PIPE

Inflow Area = 2.120 ac, 78.77% Impervious, Inflow Depth > 2.63" for 2 yr event
Inflow = 5.60 cfs @ 12.13 hrs, Volume= 0.465 af
Outflow = 5.60 cfs @ 12.13 hrs, Volume= 0.465 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EX DP 3: 18" PIPE

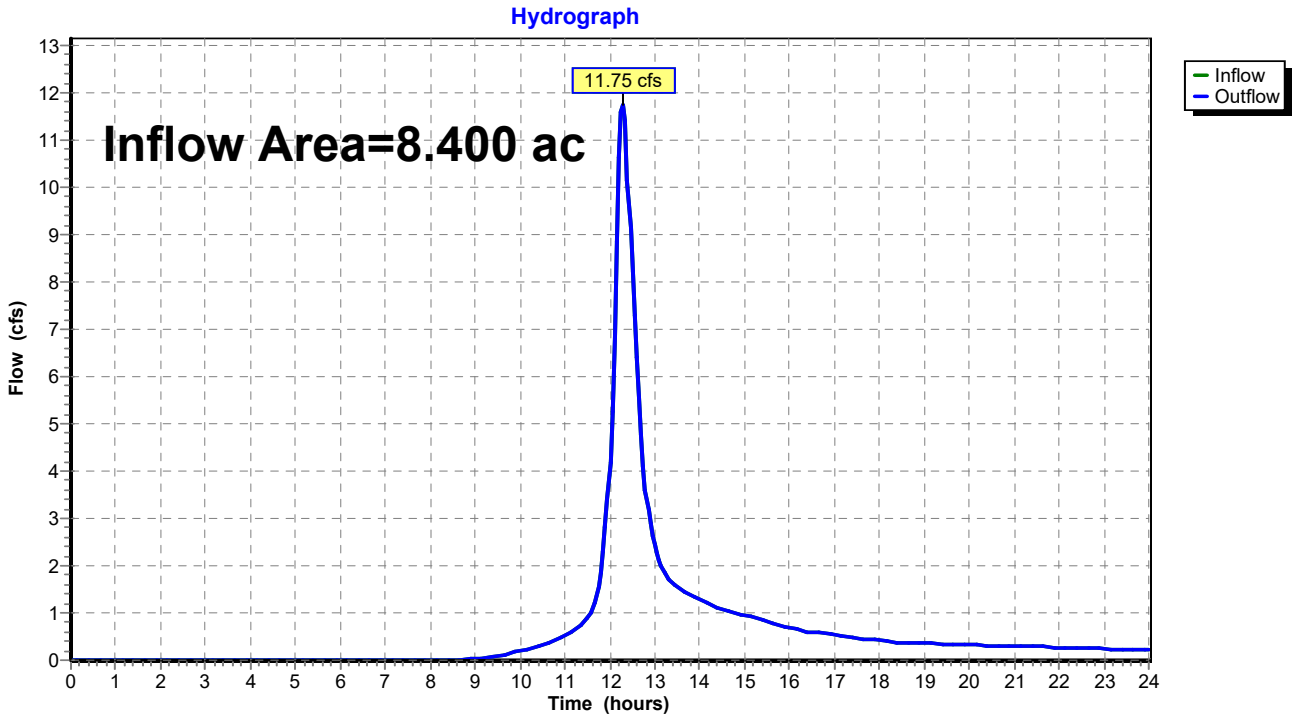


Summary for Reach EX DP2.1: NORTHWEST WETLAND

Inflow Area = 8.400 ac, 16.67% Impervious, Inflow Depth > 1.78" for 2 yr event
Inflow = 11.75 cfs @ 12.28 hrs, Volume= 1.243 af
Outflow = 11.75 cfs @ 12.28 hrs, Volume= 1.243 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EX DP2.1: NORTHWEST WETLAND



Summary for Subcatchment EX-WS-A:

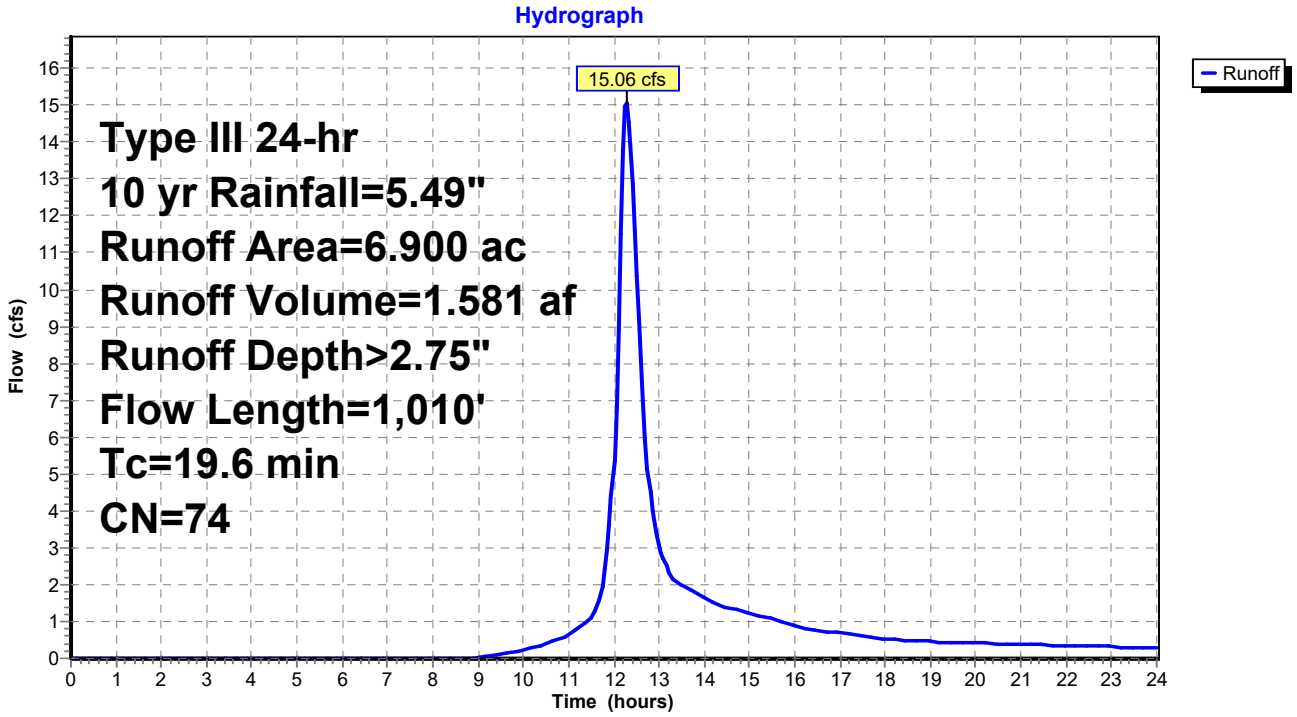
Runoff = 15.06 cfs @ 12.28 hrs, Volume= 1.581 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=5.49"

Area (ac)	CN	Description
0.900	98	Paved parking, HSG C
4.100	69	50-75% Grass cover, Fair, HSG B
1.900	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.000		86.96% Pervious Area
0.900		13.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	45	0.0600	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
6.3	105	0.0600	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.5	55	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.0	270	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	155	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	380	0.0150	6.98	8.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
19.6	1,010	Total			

Subcatchment EX-WS-A:



Summary for Subcatchment EX-WS-B-1:

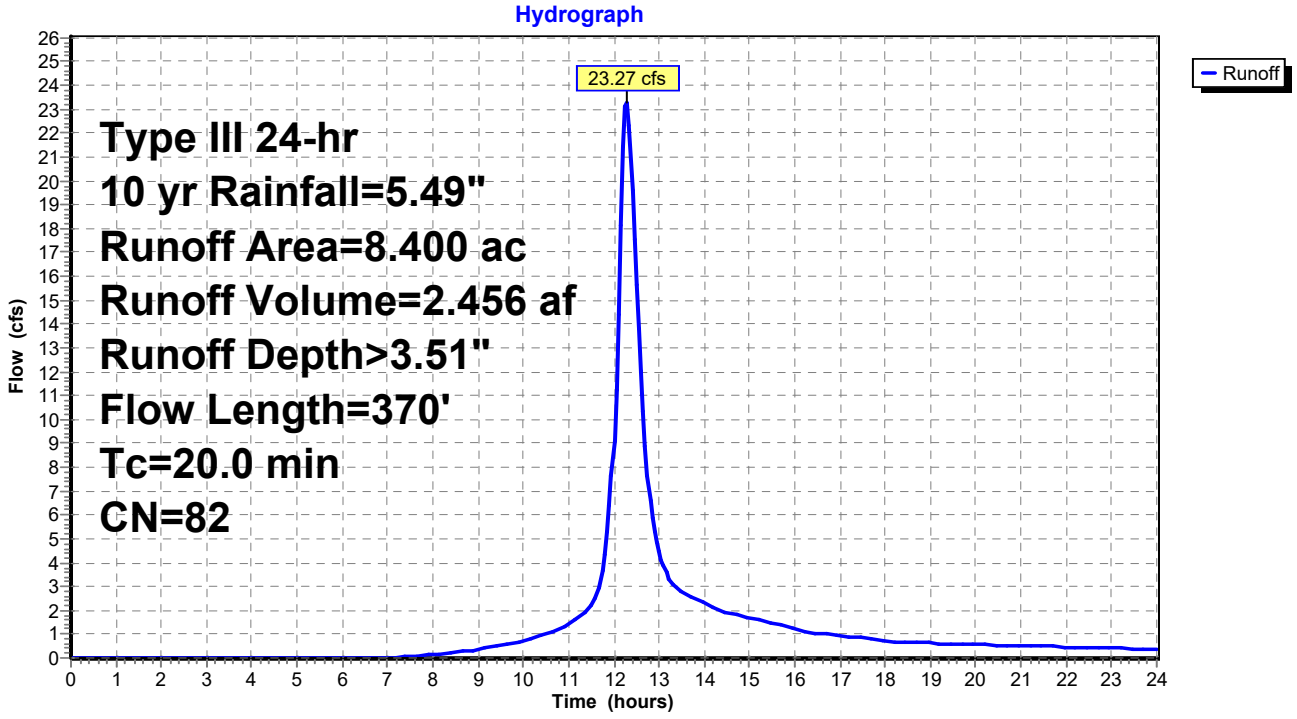
Runoff = 23.27 cfs @ 12.27 hrs, Volume= 2.456 af, Depth> 3.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=5.49"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG B
6.600	79	50-75% Grass cover, Fair, HSG C
0.400	69	50-75% Grass cover, Fair, HSG B
8.400	82	Weighted Average
7.000		83.33% Pervious Area
1.400		16.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	150	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.2	50	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.7	170	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.0	370	Total			

Subcatchment EX-WS-B-1:



Summary for Subcatchment EX-WS-B-2:

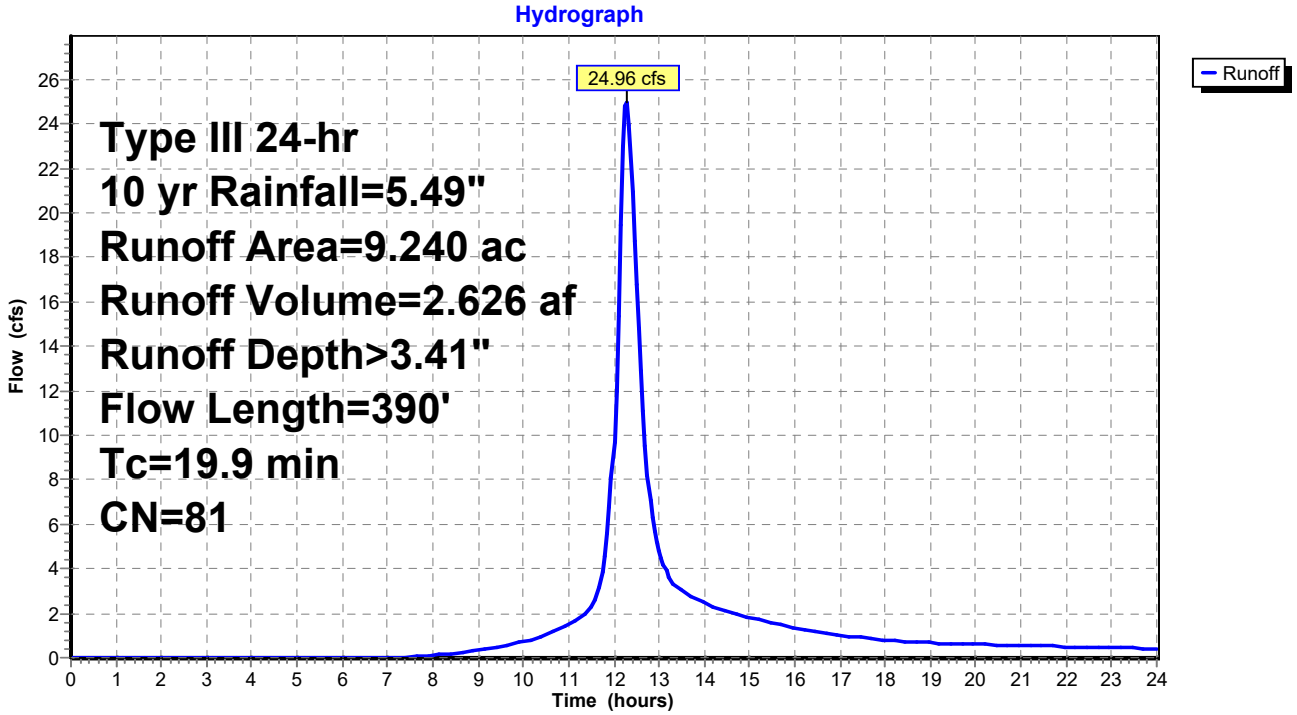
Runoff = 24.96 cfs @ 12.27 hrs, Volume= 2.626 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=5.49"

Area (ac)	CN	Description
2.500	98	Paved parking, HSG B
3.770	79	50-75% Grass cover, Fair, HSG C
1.770	69	50-75% Grass cover, Fair, HSG B
1.200	73	Woods, Fair, HSG C
9.240	81	Weighted Average
6.740		72.94% Pervious Area
2.500		27.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	150	0.0160	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
5.7	240	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	390	Total			

Subcatchment EX-WS-B-2:



Summary for Subcatchment EX-WS-C:

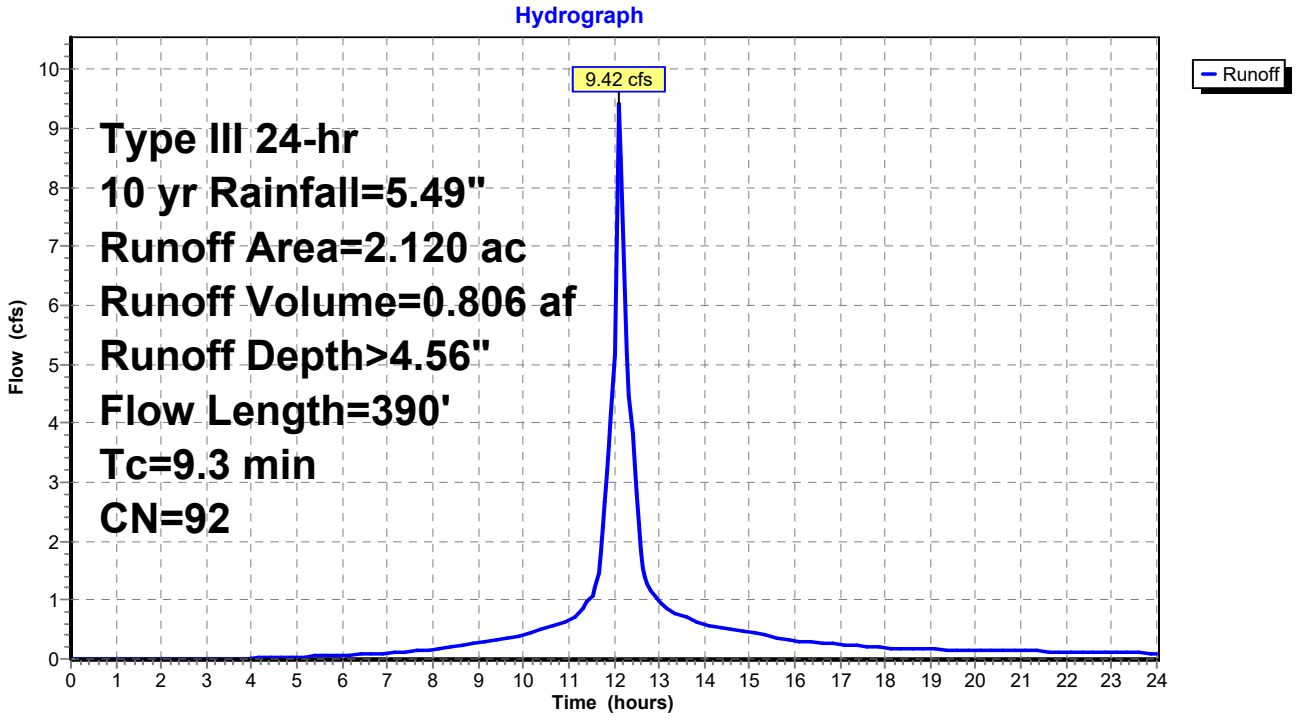
Runoff = 9.42 cfs @ 12.13 hrs, Volume= 0.806 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=5.49"

Area (ac)	CN	Description
1.670	98	Paved parking, HSG B
0.050	60	Woods, Fair, HSG B
0.400	69	50-75% Grass cover, Fair, HSG B
2.120	92	Weighted Average
0.450		21.23% Pervious Area
1.670		78.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	10	0.0100	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.4	20	0.0100	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.9	120	0.0600	2.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
0.7	240	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.3	390	Total			

Subcatchment EX-WS-C:

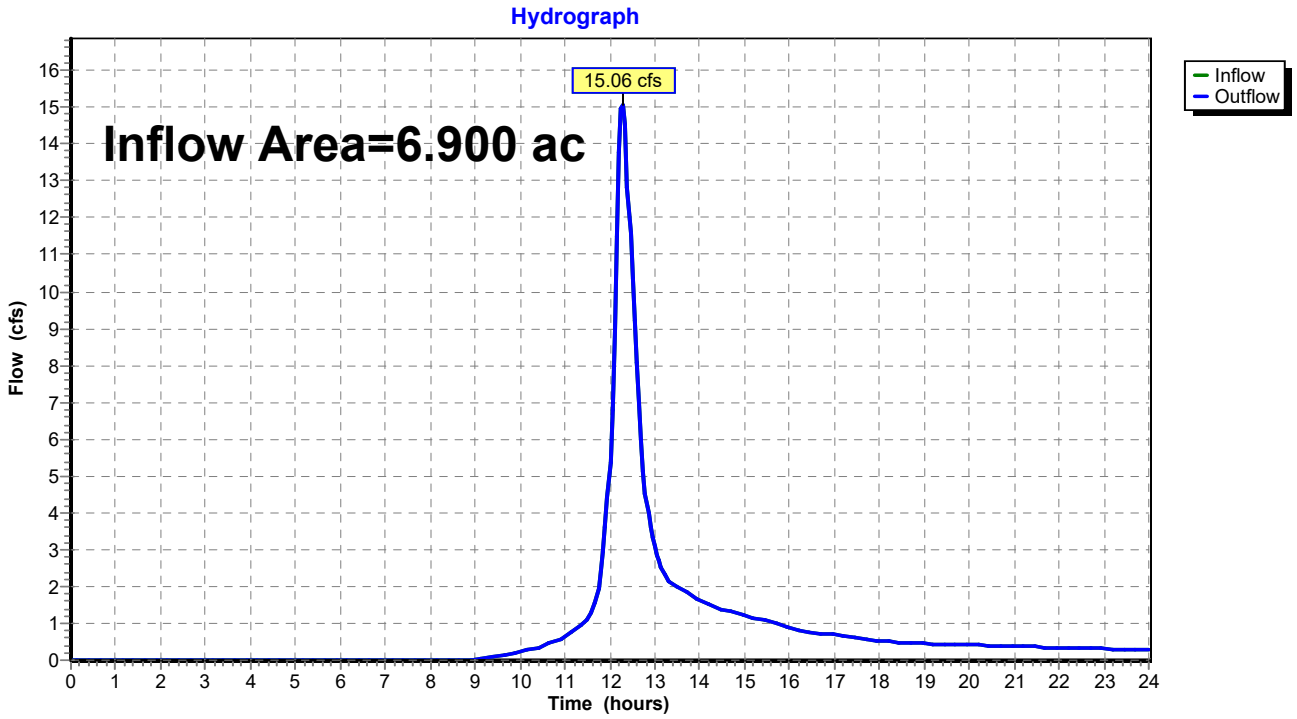


Summary for Reach EX DP 1: GILLOTTI ROAD

Inflow Area = 6.900 ac, 13.04% Impervious, Inflow Depth > 2.75" for 10 yr event
Inflow = 15.06 cfs @ 12.28 hrs, Volume= 1.581 af
Outflow = 15.06 cfs @ 12.28 hrs, Volume= 1.581 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EX DP 1: GILLOTTI ROAD

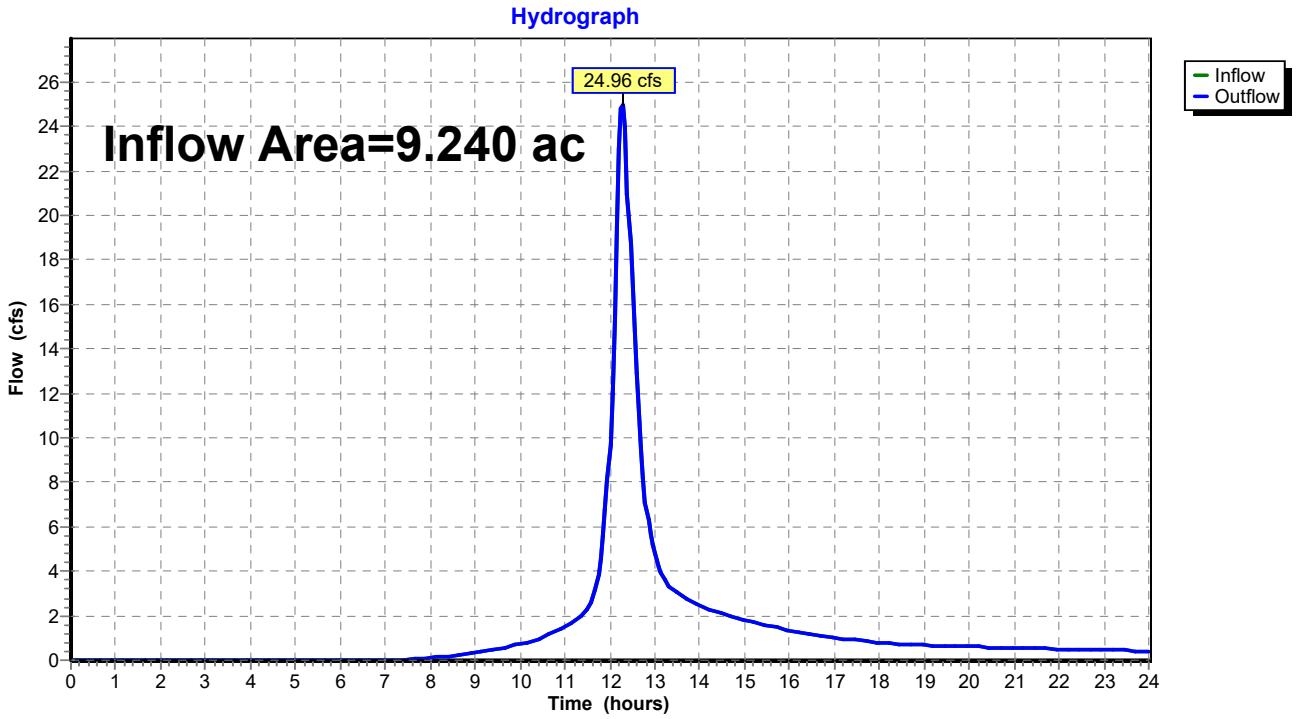


Summary for Reach EX DP 2.2: NORTHWEST WETLAND

Inflow Area = 9.240 ac, 27.06% Impervious, Inflow Depth > 3.41" for 10 yr event
Inflow = 24.96 cfs @ 12.27 hrs, Volume= 2.626 af
Outflow = 24.96 cfs @ 12.27 hrs, Volume= 2.626 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EX DP 2.2: NORTHWEST WETLAND

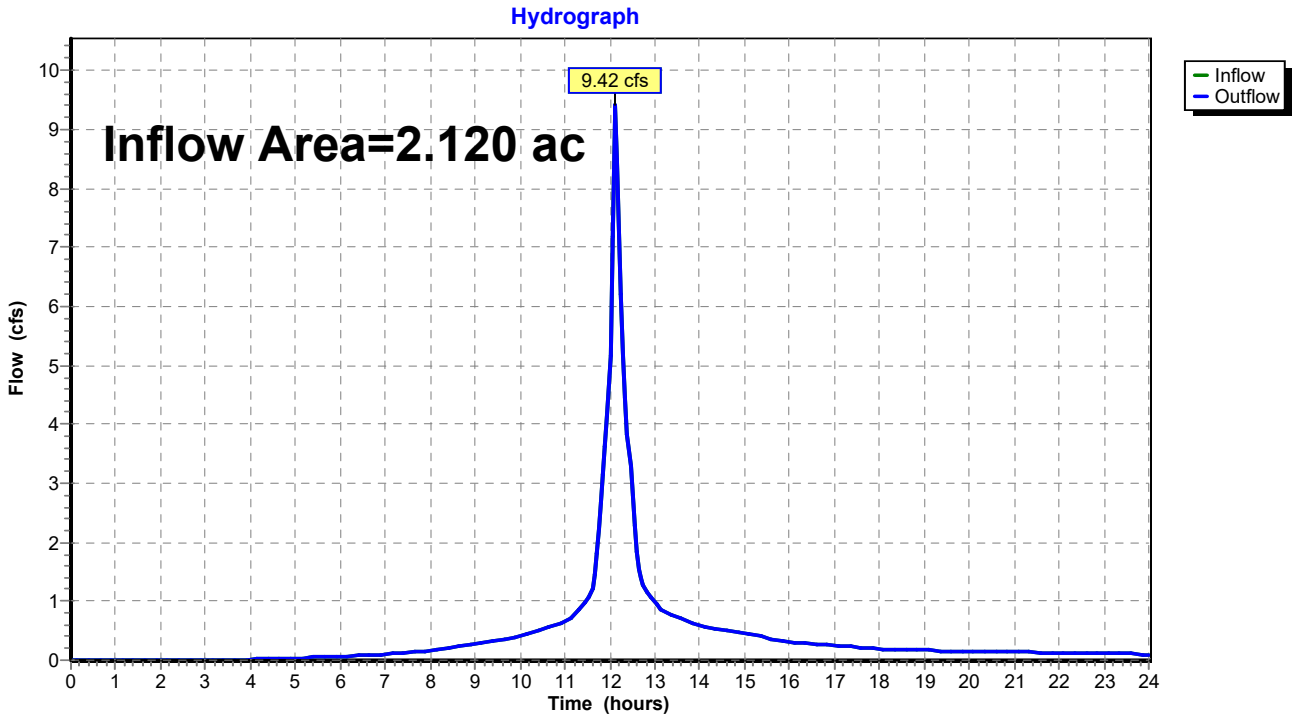


Summary for Reach EX DP 3: 18" PIPE

Inflow Area = 2.120 ac, 78.77% Impervious, Inflow Depth > 4.56" for 10 yr event
Inflow = 9.42 cfs @ 12.13 hrs, Volume= 0.806 af
Outflow = 9.42 cfs @ 12.13 hrs, Volume= 0.806 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EX DP 3: 18" PIPE

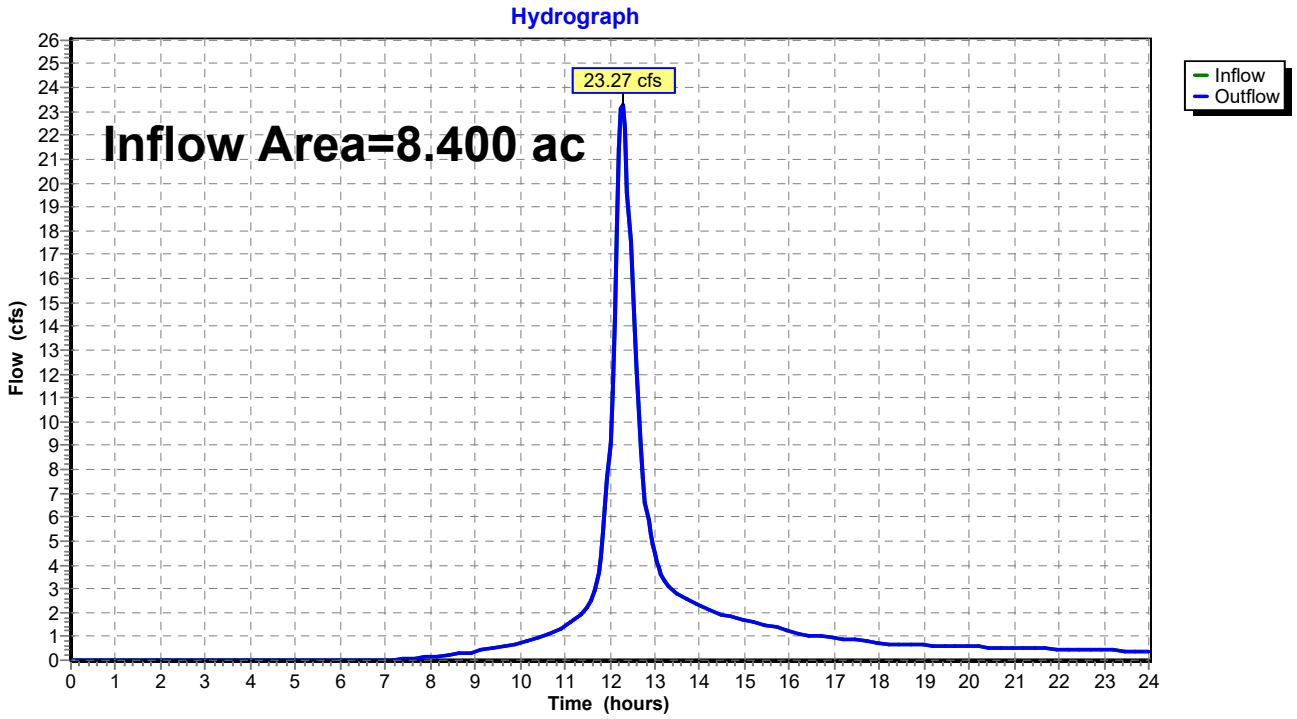


Summary for Reach EX DP2.1: NORTHWEST WETLAND

Inflow Area = 8.400 ac, 16.67% Impervious, Inflow Depth > 3.51" for 10 yr event
Inflow = 23.27 cfs @ 12.27 hrs, Volume= 2.456 af
Outflow = 23.27 cfs @ 12.27 hrs, Volume= 2.456 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EX DP2.1: NORTHWEST WETLAND



Summary for Subcatchment EX-WS-A:

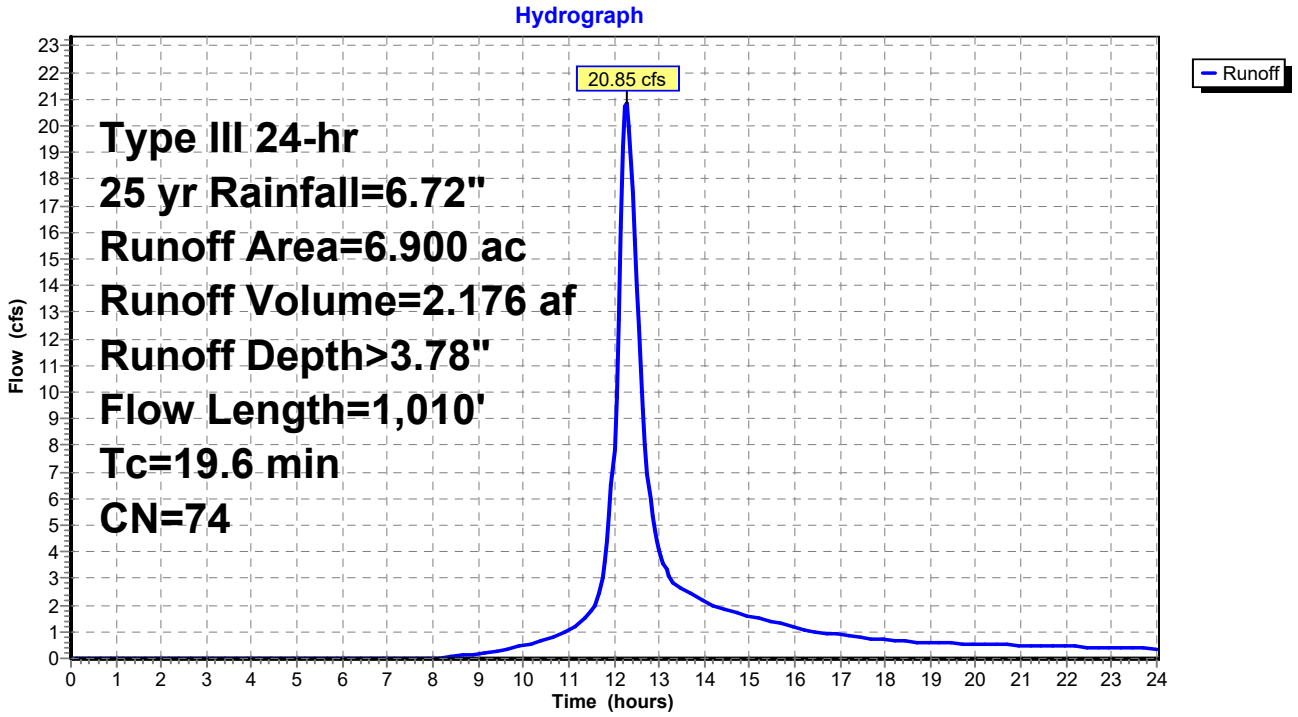
Runoff = 20.85 cfs @ 12.27 hrs, Volume= 2.176 af, Depth> 3.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.72"

Area (ac)	CN	Description
0.900	98	Paved parking, HSG C
4.100	69	50-75% Grass cover, Fair, HSG B
1.900	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.000		86.96% Pervious Area
0.900		13.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	45	0.0600	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
6.3	105	0.0600	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.5	55	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.0	270	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	155	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	380	0.0150	6.98	8.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
19.6	1,010	Total			

Subcatchment EX-WS-A:



Summary for Subcatchment EX-WS-B-1:

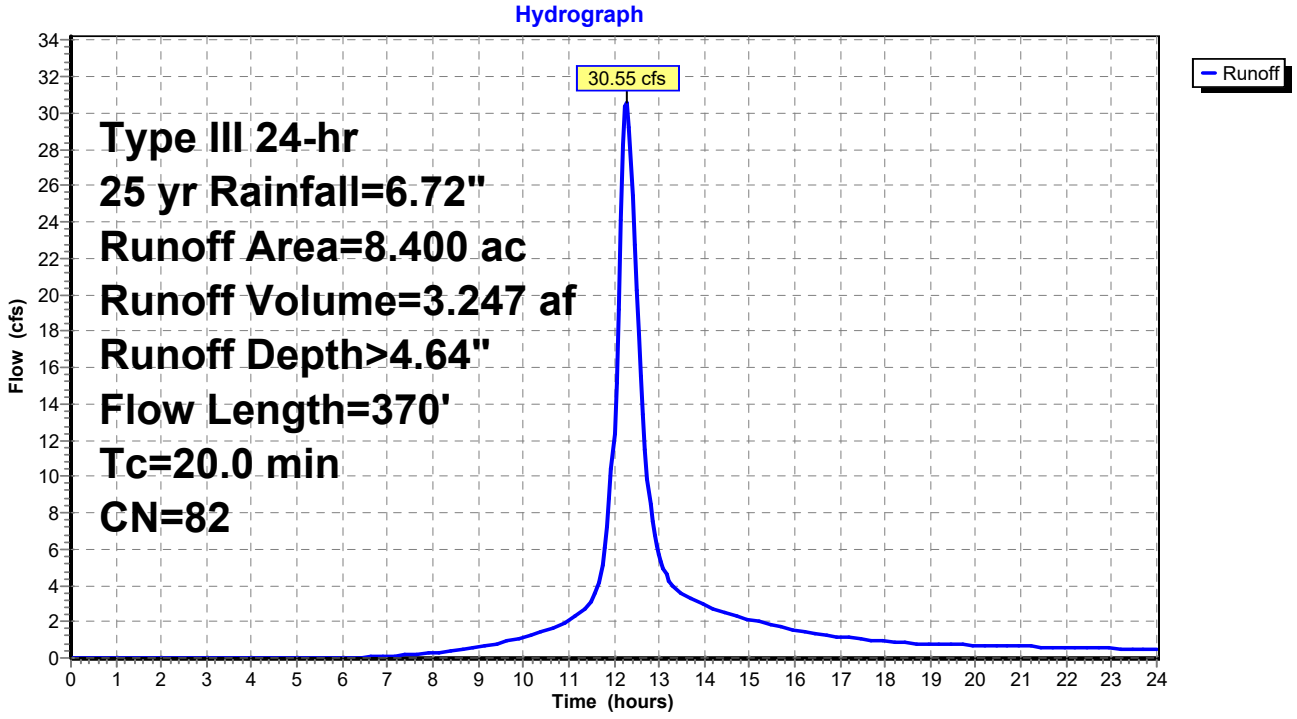
Runoff = 30.55 cfs @ 12.27 hrs, Volume= 3.247 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.72"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG B
6.600	79	50-75% Grass cover, Fair, HSG C
0.400	69	50-75% Grass cover, Fair, HSG B
8.400	82	Weighted Average
7.000		83.33% Pervious Area
1.400		16.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	150	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.2	50	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.7	170	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.0	370	Total			

Subcatchment EX-WS-B-1:



Summary for Subcatchment EX-WS-B-2:

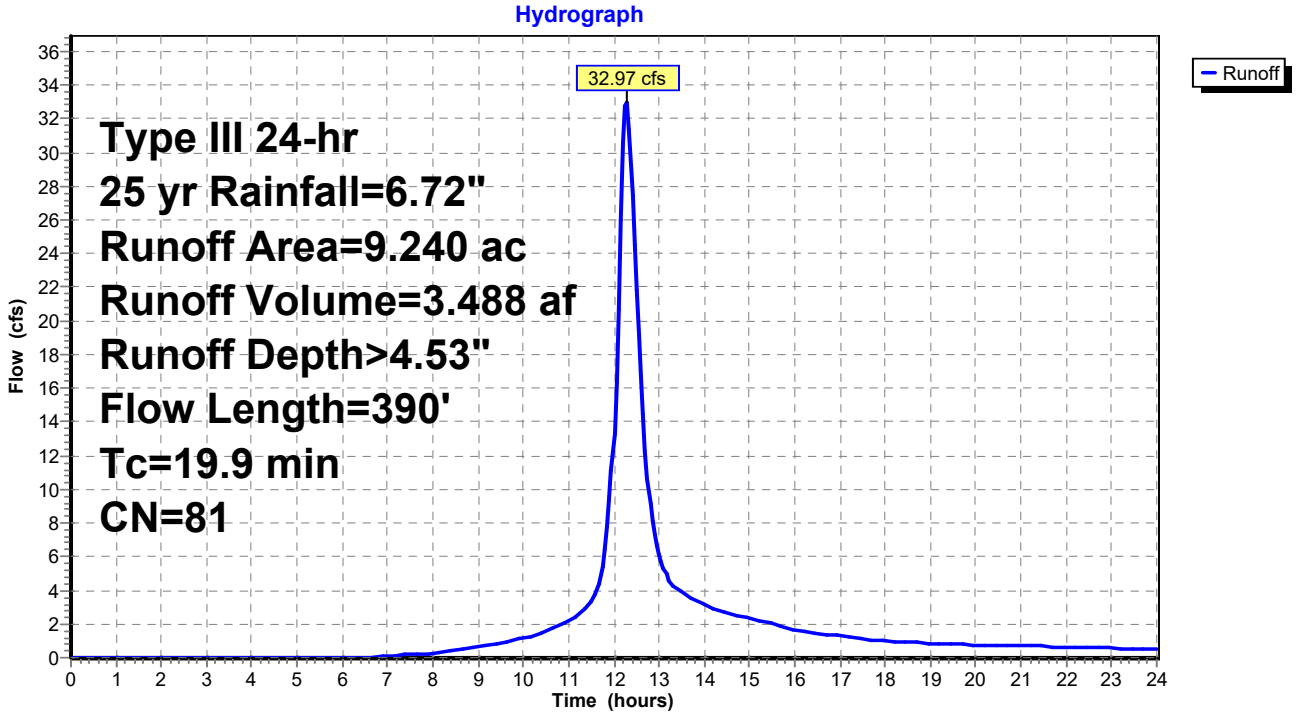
Runoff = 32.97 cfs @ 12.27 hrs, Volume= 3.488 af, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.72"

Area (ac)	CN	Description
2.500	98	Paved parking, HSG B
3.770	79	50-75% Grass cover, Fair, HSG C
1.770	69	50-75% Grass cover, Fair, HSG B
1.200	73	Woods, Fair, HSG C
9.240	81	Weighted Average
6.740		72.94% Pervious Area
2.500		27.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	150	0.0160	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
5.7	240	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	390	Total			

Subcatchment EX-WS-B-2:



Summary for Subcatchment EX-WS-C:

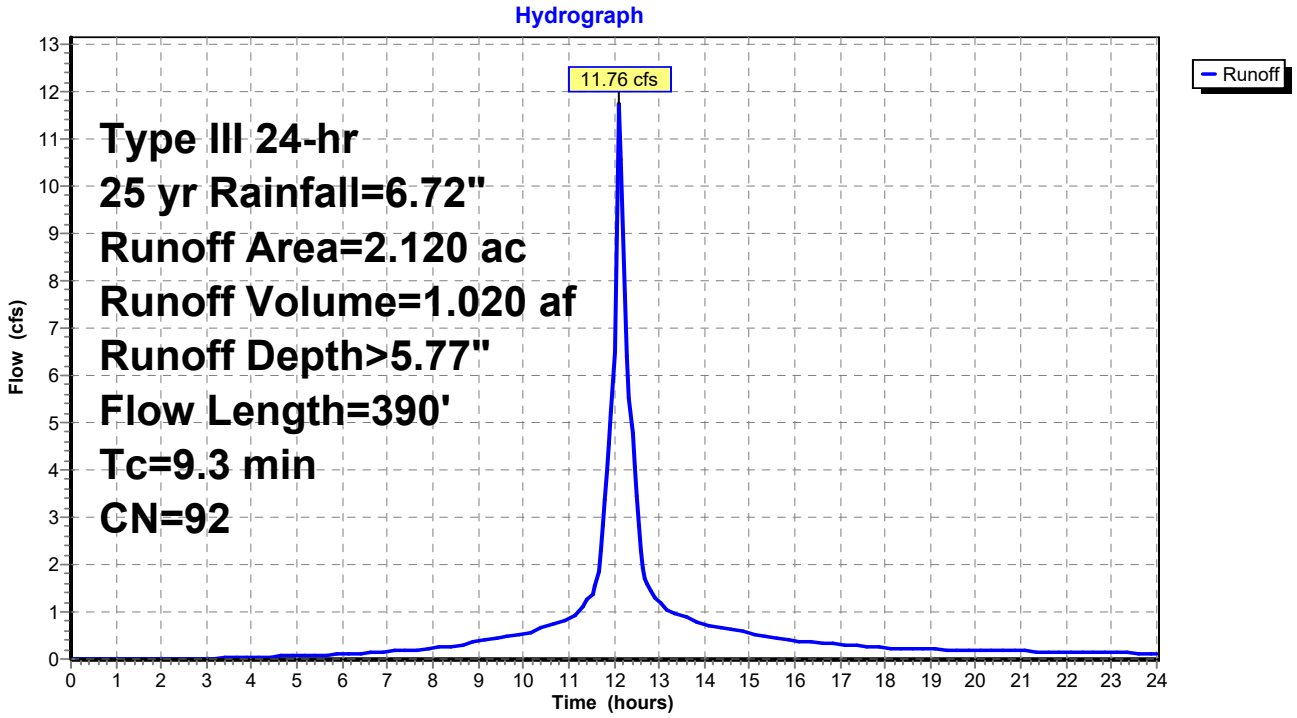
Runoff = 11.76 cfs @ 12.13 hrs, Volume= 1.020 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.72"

Area (ac)	CN	Description
1.670	98	Paved parking, HSG B
0.050	60	Woods, Fair, HSG B
0.400	69	50-75% Grass cover, Fair, HSG B
2.120	92	Weighted Average
0.450		21.23% Pervious Area
1.670		78.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	10	0.0100	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.4	20	0.0100	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.9	120	0.0600	2.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
0.7	240	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.3	390	Total			

Subcatchment EX-WS-C:

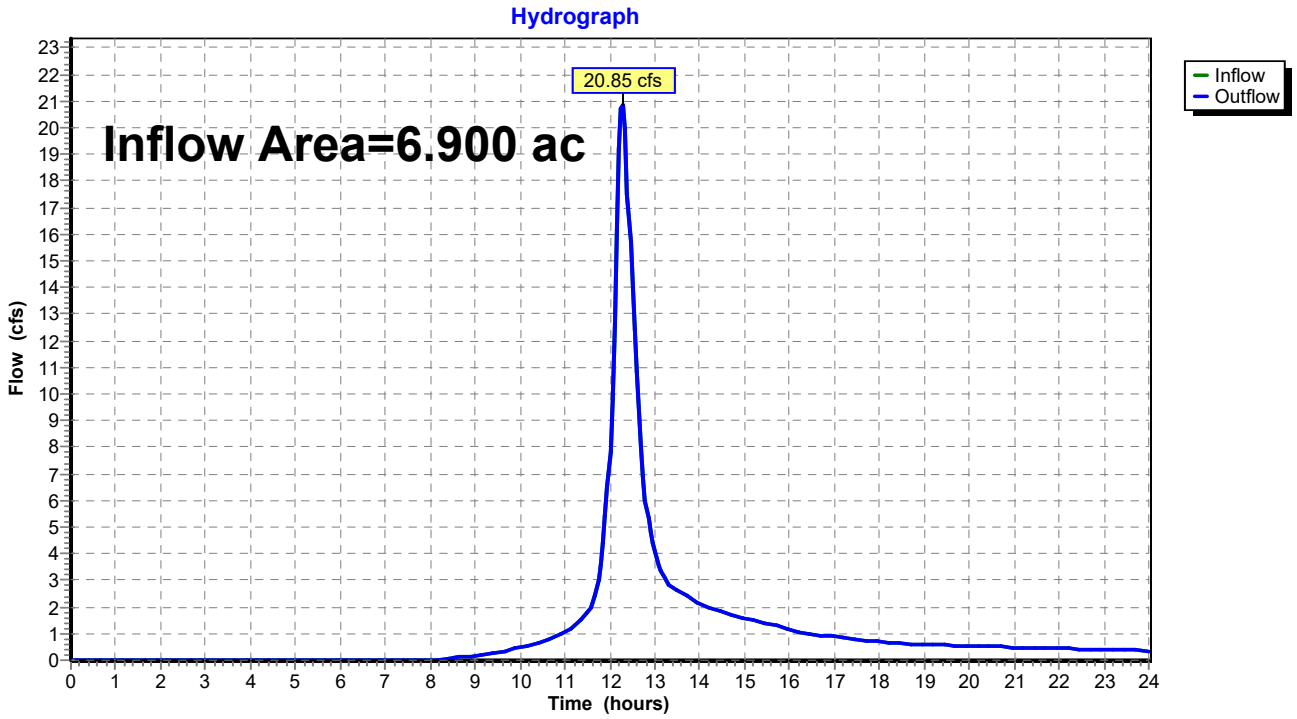


Summary for Reach EX DP 1: GILLOTTI ROAD

Inflow Area = 6.900 ac, 13.04% Impervious, Inflow Depth > 3.78" for 25 yr event
Inflow = 20.85 cfs @ 12.27 hrs, Volume= 2.176 af
Outflow = 20.85 cfs @ 12.27 hrs, Volume= 2.176 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EX DP 1: GILLOTTI ROAD

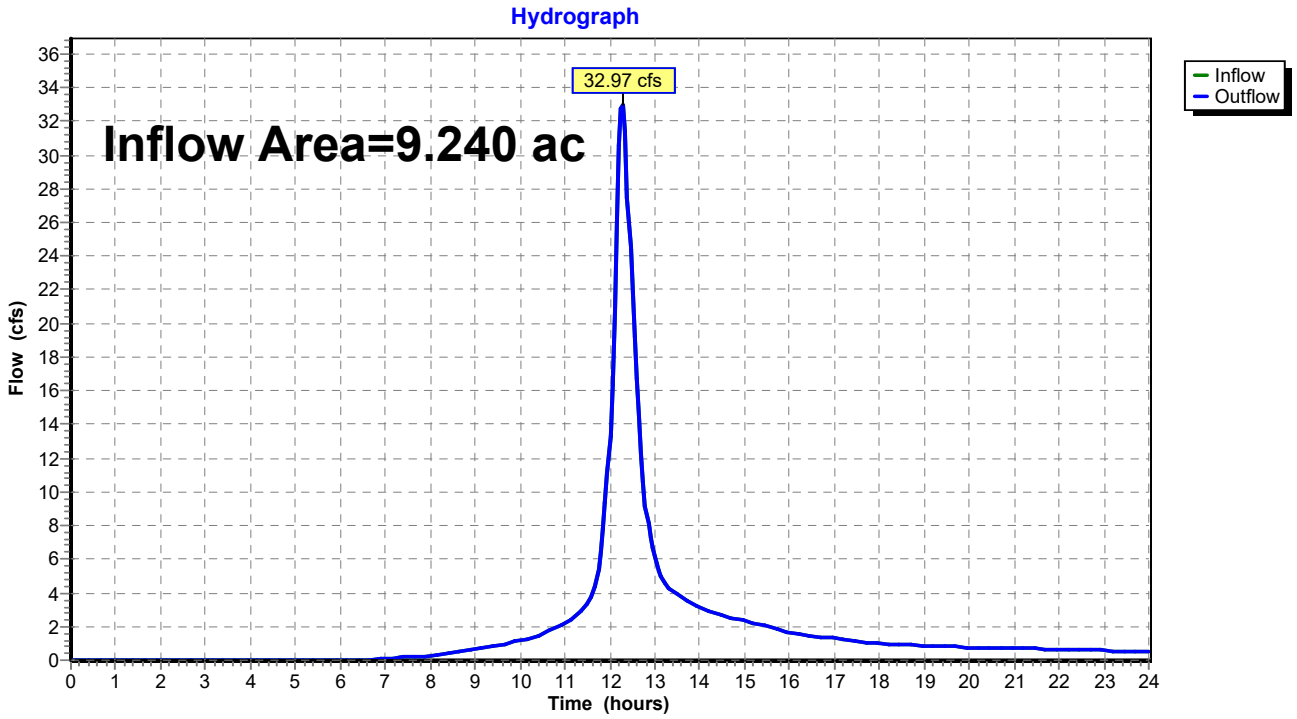


Summary for Reach EX DP 2.2: NORTHWEST WETLAND

Inflow Area = 9.240 ac, 27.06% Impervious, Inflow Depth > 4.53" for 25 yr event
Inflow = 32.97 cfs @ 12.27 hrs, Volume= 3.488 af
Outflow = 32.97 cfs @ 12.27 hrs, Volume= 3.488 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EX DP 2.2: NORTHWEST WETLAND

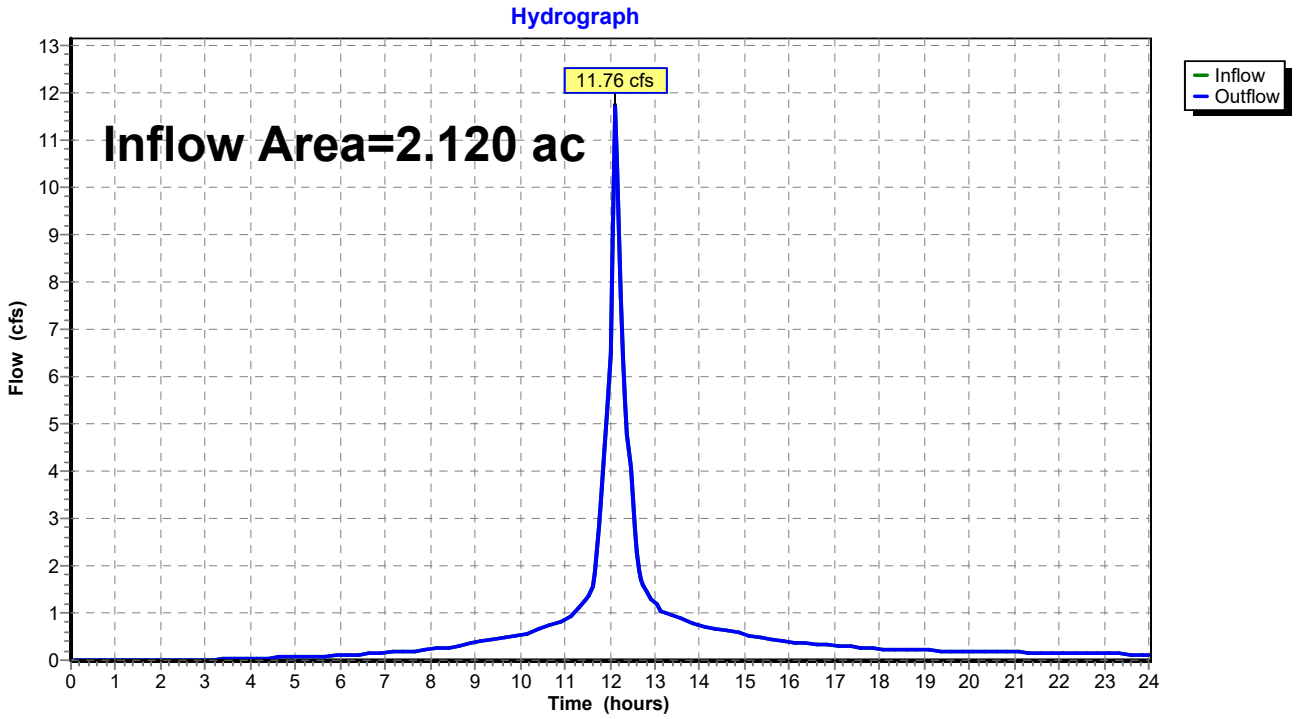


Summary for Reach EX DP 3: 18" PIPE

Inflow Area = 2.120 ac, 78.77% Impervious, Inflow Depth > 5.77" for 25 yr event
Inflow = 11.76 cfs @ 12.13 hrs, Volume= 1.020 af
Outflow = 11.76 cfs @ 12.13 hrs, Volume= 1.020 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EX DP 3: 18" PIPE

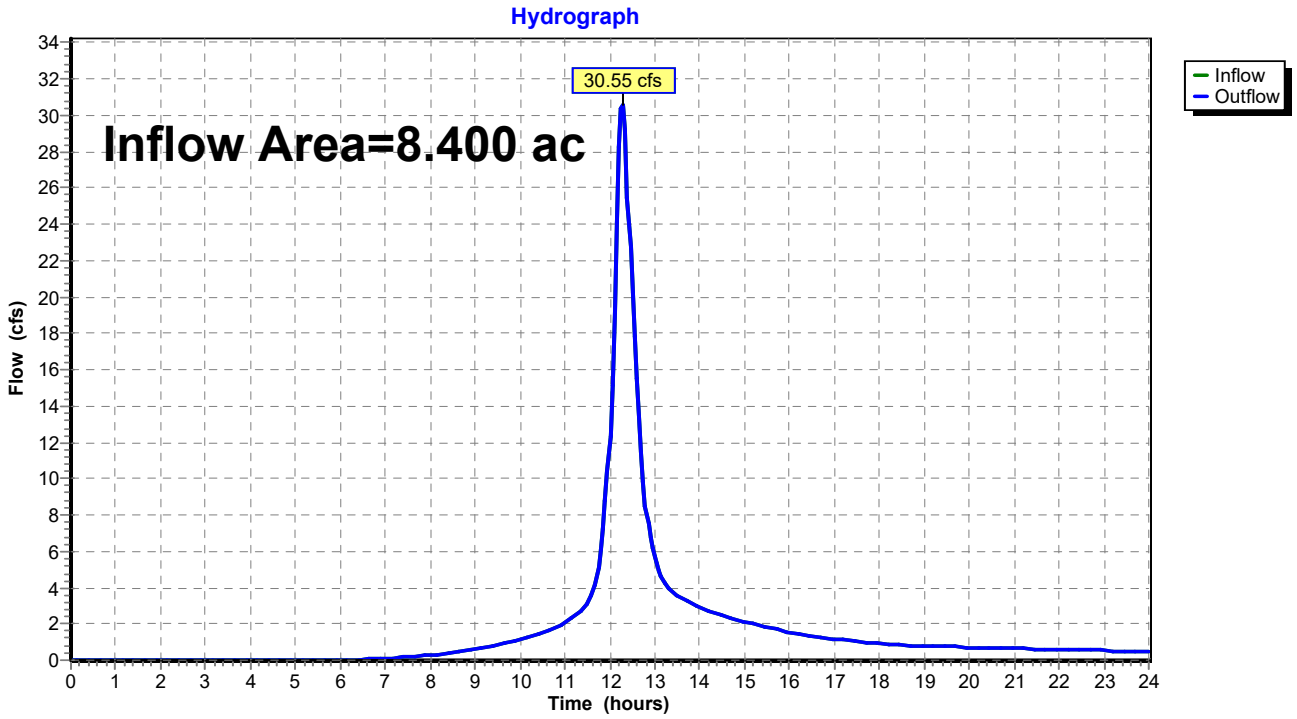


Summary for Reach EX DP2.1: NORTHWEST WETLAND

Inflow Area = 8.400 ac, 16.67% Impervious, Inflow Depth > 4.64" for 25 yr event
Inflow = 30.55 cfs @ 12.27 hrs, Volume= 3.247 af
Outflow = 30.55 cfs @ 12.27 hrs, Volume= 3.247 af, Atten= 0%, Lag= 0.0 min

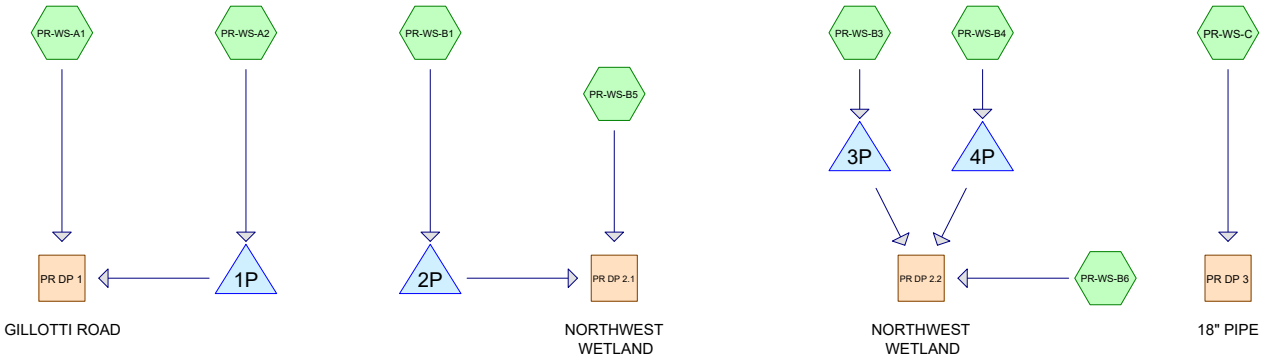
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EX DP2.1: NORTHWEST WETLAND



APPENDIX B

Proposed Stormwater Discharge Calculations



Subcat Reach Pond Link

Routing Diagram for 2021-03-09 Proposed
Prepared by Langan Eng & Env Srvcs, Inc, Printed 3/18/2021

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.750	69	50-75% Grass cover, Fair, HSG B (PR-WS-A2, PR-WS-B6)
8.920	79	50-75% Grass cover, Fair, HSG C (PR-WS-B5, PR-WS-B6)
2.920	61	>75% Grass cover, Good, HSG B (PR-WS-A1, PR-WS-B3, PR-WS-B4, PR-WS-C)
1.260	74	>75% Grass cover, Good, HSG C (PR-WS-B1)
0.520	85	Green parking (PR-WS-A2)
7.940	98	Paved parking, HSG B (PR-WS-A2, PR-WS-B1, PR-WS-B3, PR-WS-B4, PR-WS-B5, PR-WS-B6, PR-WS-C)
0.500	98	Paved parking, HSG C (PR-WS-A1)
0.050	60	Woods, Fair, HSG B (PR-WS-C)
2.800	73	Woods, Fair, HSG C (PR-WS-A1, PR-WS-B6)
26.660	**82**	**TOTAL AREA**

Summary for Subcatchment PR-WS-A1:

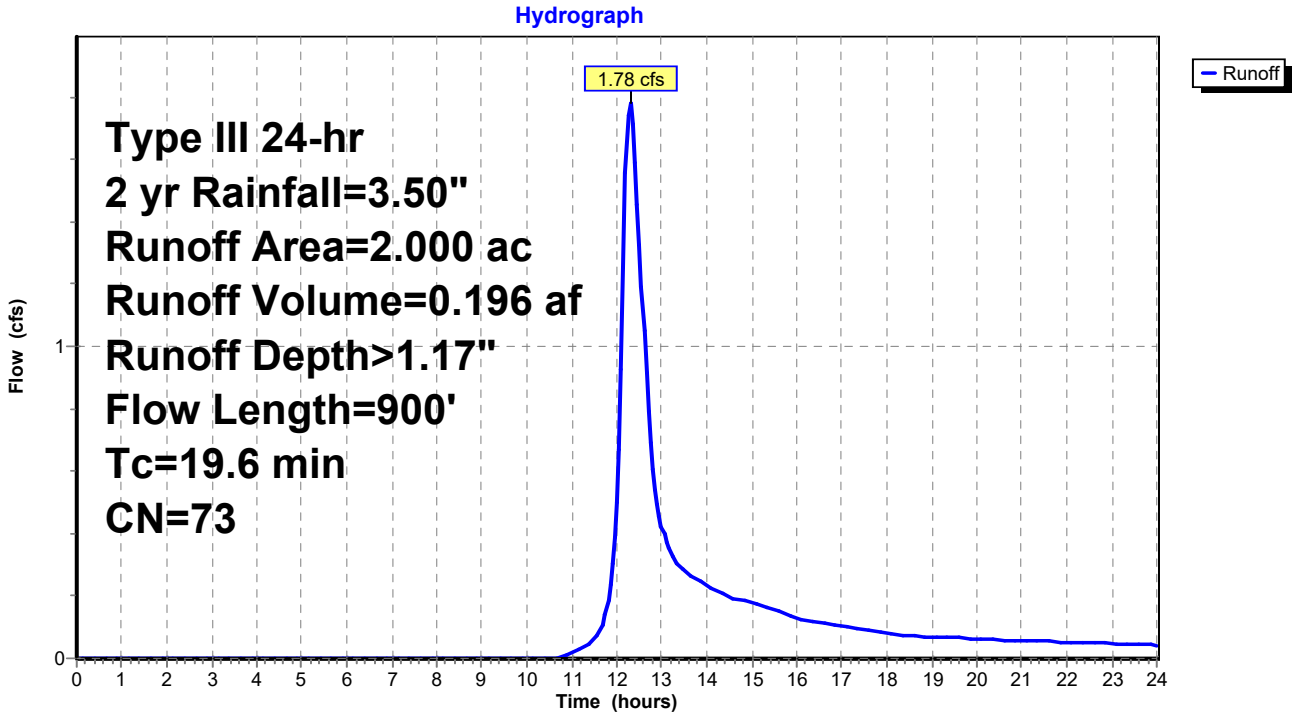
Runoff = 1.78 cfs @ 12.29 hrs, Volume= 0.196 af, Depth> 1.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.50"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG C
1.100	61	>75% Grass cover, Good, HSG B
0.400	73	Woods, Fair, HSG C
2.000	73	Weighted Average
1.500		75.00% Pervious Area
0.500		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	90	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
4.0	60	0.0600	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.9	90	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.6	280	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	380	0.0150	6.98	8.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
19.6	900	Total			

Subcatchment PR-WS-A1:



Summary for Subcatchment PR-WS-A2:

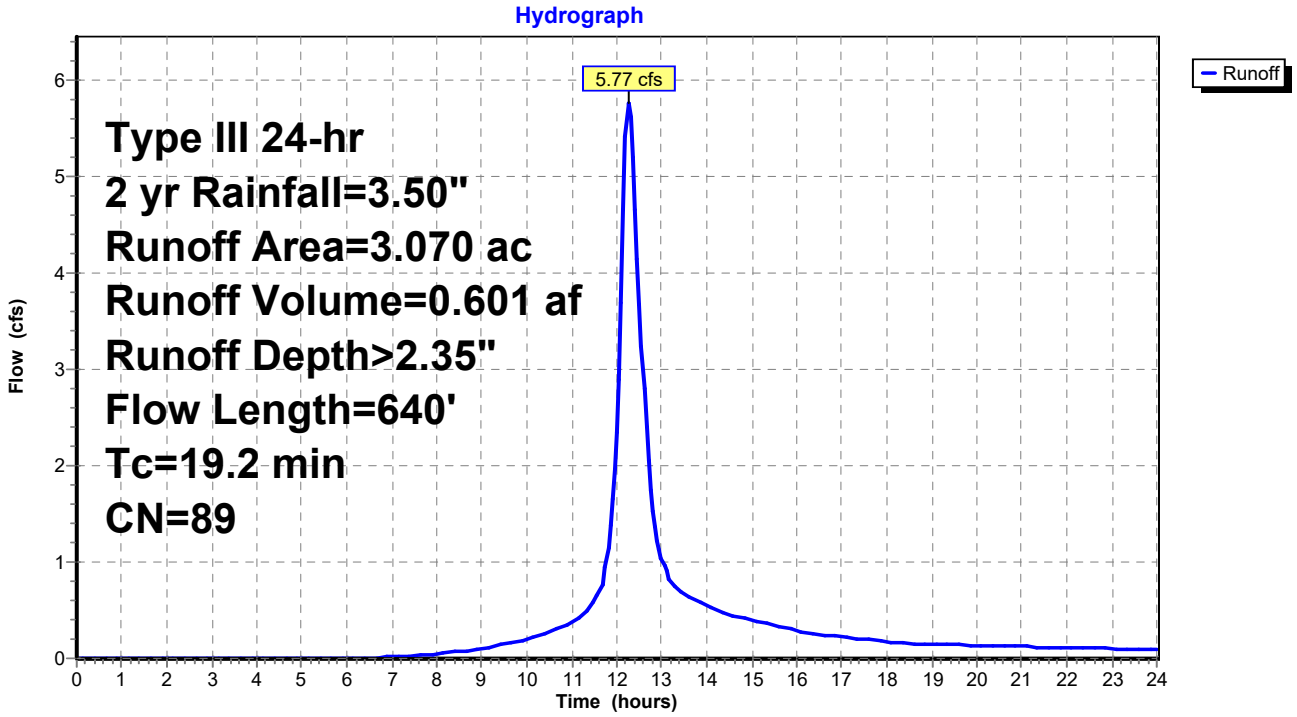
Runoff = 5.77 cfs @ 12.26 hrs, Volume= 0.601 af, Depth> 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.50"

	Area (ac)	CN	Description
	1.800	98	Paved parking, HSG B
	0.750	69	50-75% Grass cover, Fair, HSG B
*	0.520	85	Green parking
	3.070	89	Weighted Average
	1.270		41.37% Pervious Area
	1.800		58.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	150	0.0250	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.5	30	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	160	0.0600	4.97		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	300	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
19.2	640	Total			

Subcatchment PR-WS-A2:



Summary for Subcatchment PR-WS-B1:

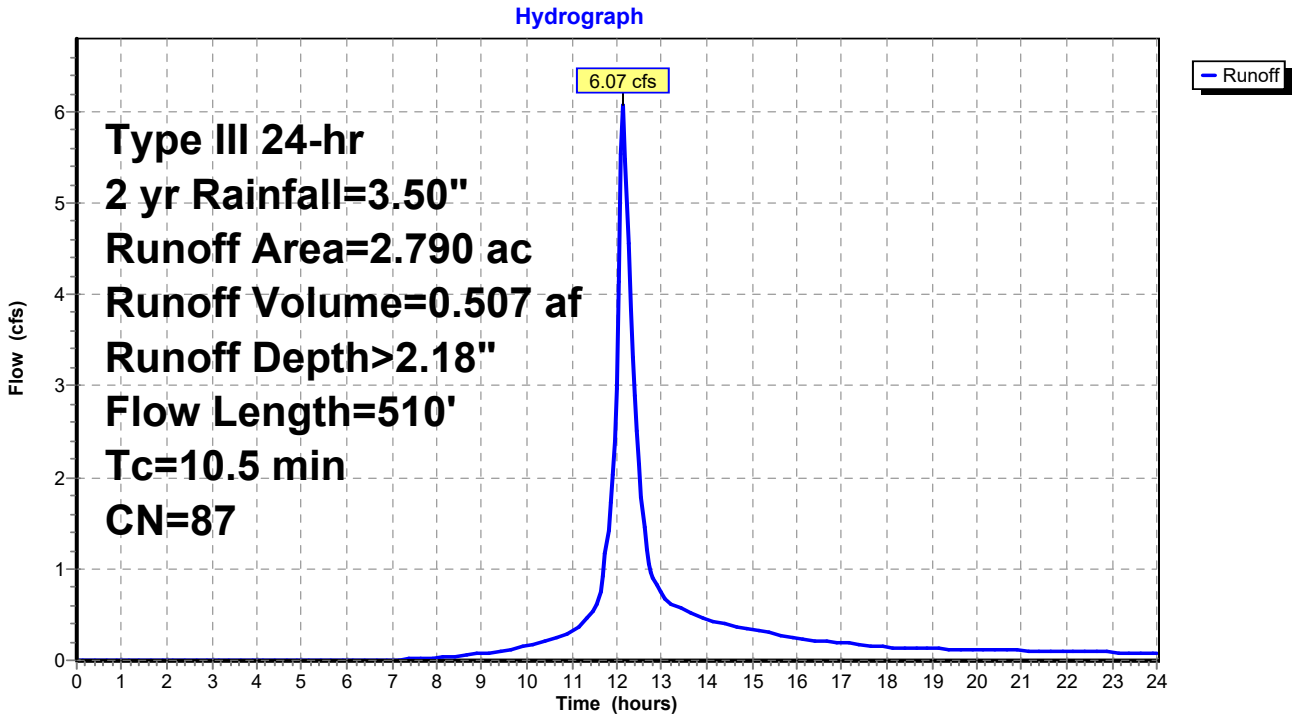
Runoff = 6.07 cfs @ 12.15 hrs, Volume= 0.507 af, Depth> 2.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.50"

Area (ac)	CN	Description
1.530	98	Paved parking, HSG B
1.260	74	>75% Grass cover, Good, HSG C
2.790	87	Weighted Average
1.260		45.16% Pervious Area
1.530		54.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	150	0.1200	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.3	360	0.0100	4.54	3.56	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
10.5	510	Total			

Subcatchment PR-WS-B1:



Summary for Subcatchment PR-WS-B3:

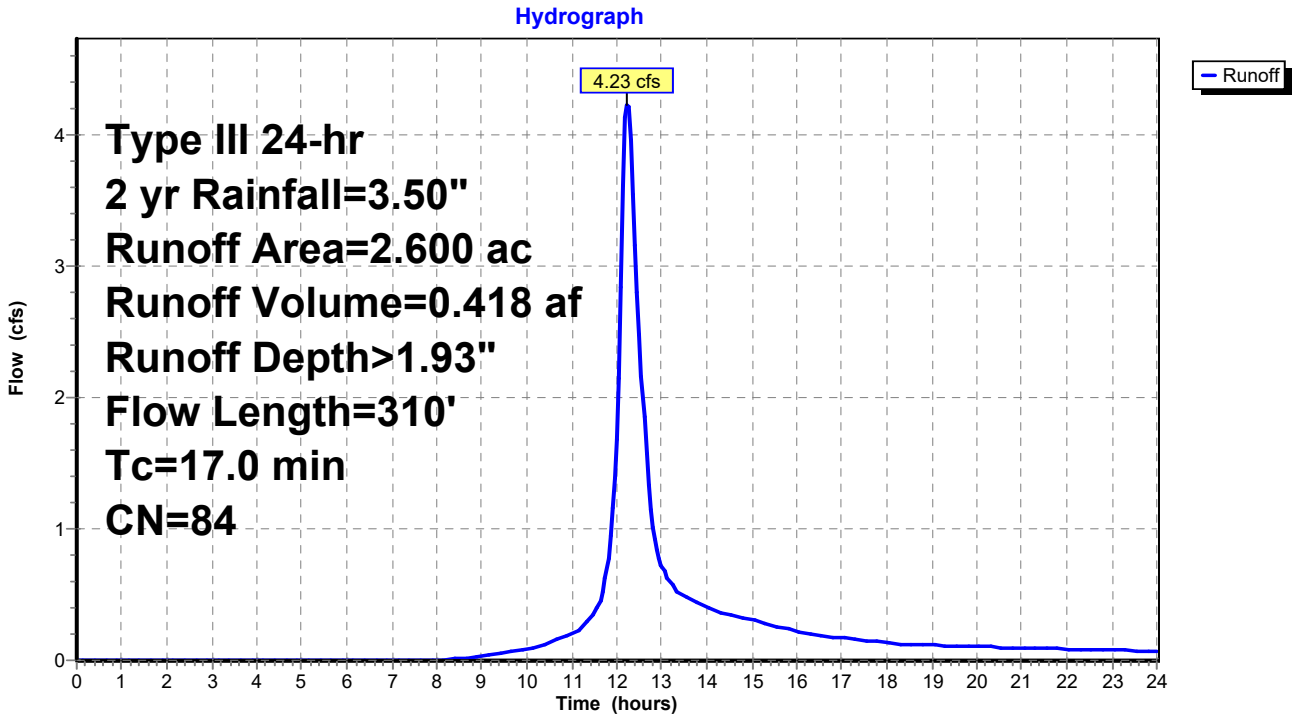
Runoff = 4.23 cfs @ 12.24 hrs, Volume= 0.418 af, Depth> 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.50"

Area (ac)	CN	Description
1.600	98	Paved parking, HSG B
1.000	61	>75% Grass cover, Good, HSG B
2.600	84	Weighted Average
1.000		38.46% Pervious Area
1.600		61.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	90	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.5	220	0.0300	7.86	6.17	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
17.0	310	Total			

Subcatchment PR-WS-B3:



Summary for Subcatchment PR-WS-B4:

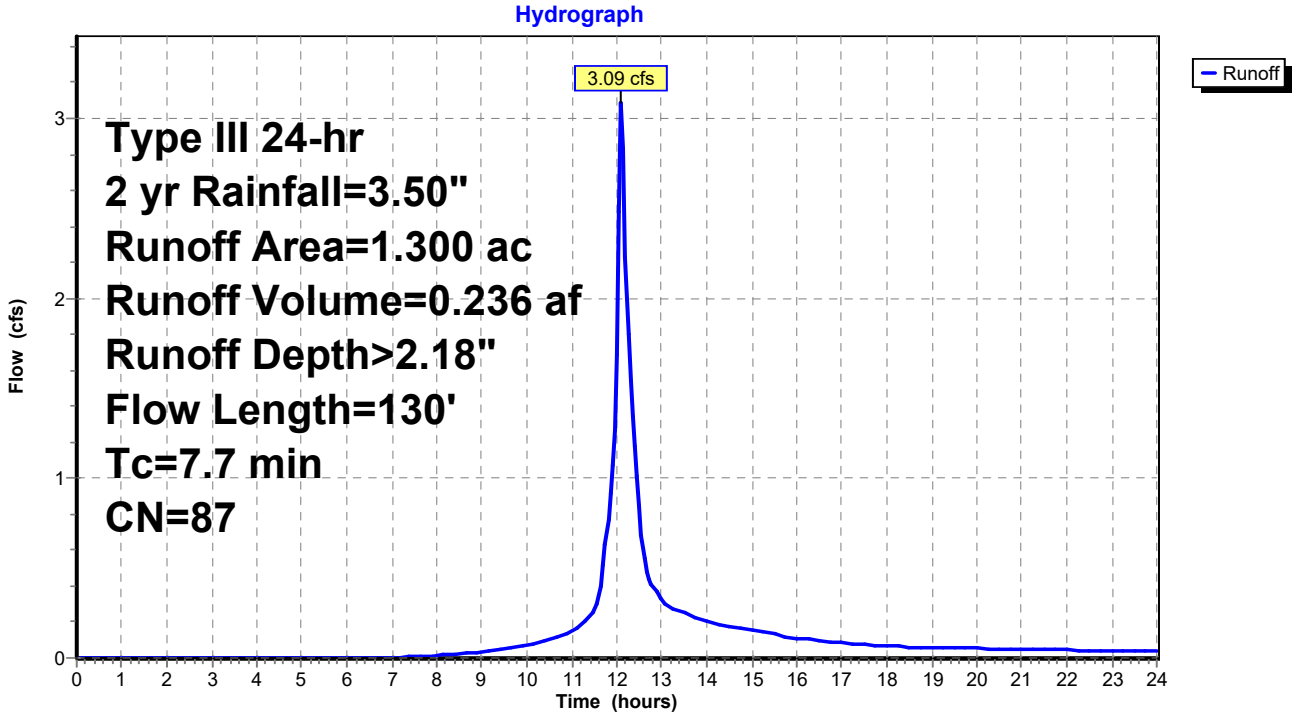
Runoff = 3.09 cfs @ 12.11 hrs, Volume= 0.236 af, Depth> 2.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.50"

Area (ac)	CN	Description
0.900	98	Paved parking, HSG B
0.400	61	>75% Grass cover, Good, HSG B
1.300	87	Weighted Average
0.400		30.77% Pervious Area
0.900		69.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	30	0.0100	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	70	0.0300	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
0.1	30	0.0120	4.97	3.90	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
7.7	130	Total			

Subcatchment PR-WS-B4:



Summary for Subcatchment PR-WS-B5:

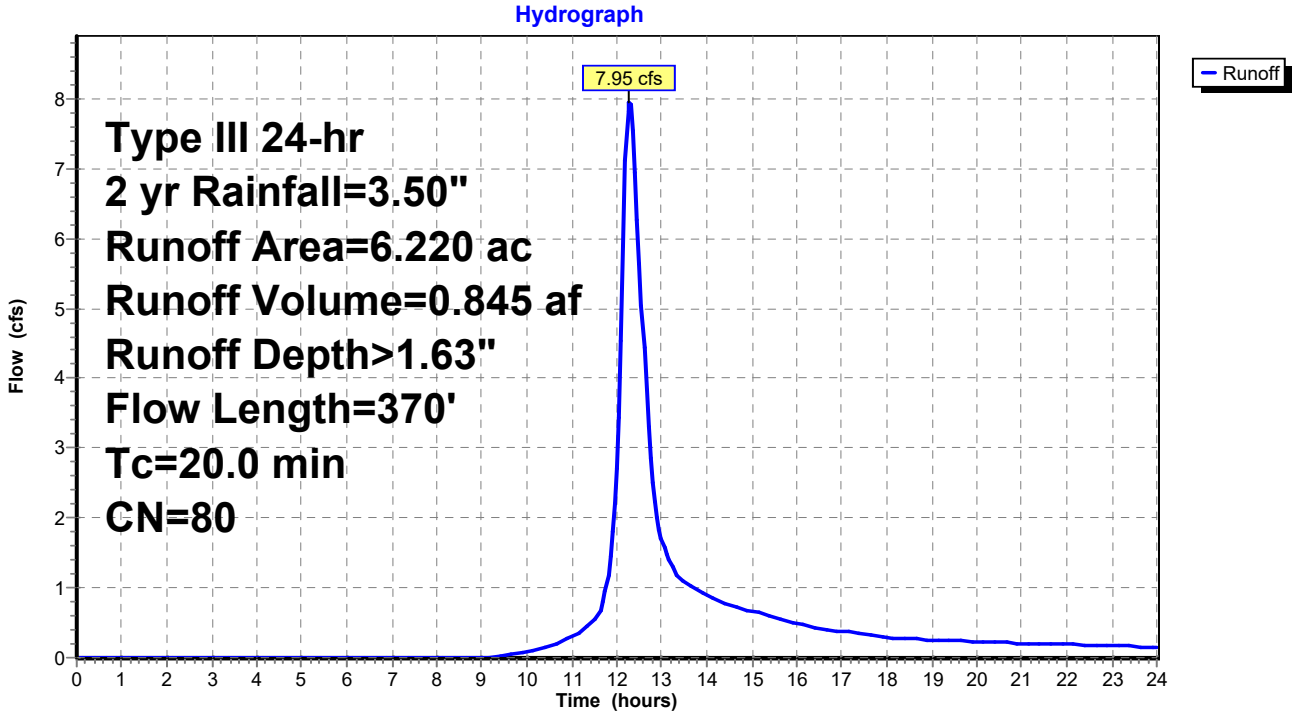
Runoff = 7.95 cfs @ 12.28 hrs, Volume= 0.845 af, Depth> 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.50"

Area (ac)	CN	Description
0.200	98	Paved parking, HSG B
6.020	79	50-75% Grass cover, Fair, HSG C
6.220	80	Weighted Average
6.020		96.78% Pervious Area
0.200		3.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	150	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.2	50	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.7	170	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.0	370	Total			

Subcatchment PR-WS-B5:



Summary for Subcatchment PR-WS-B6:

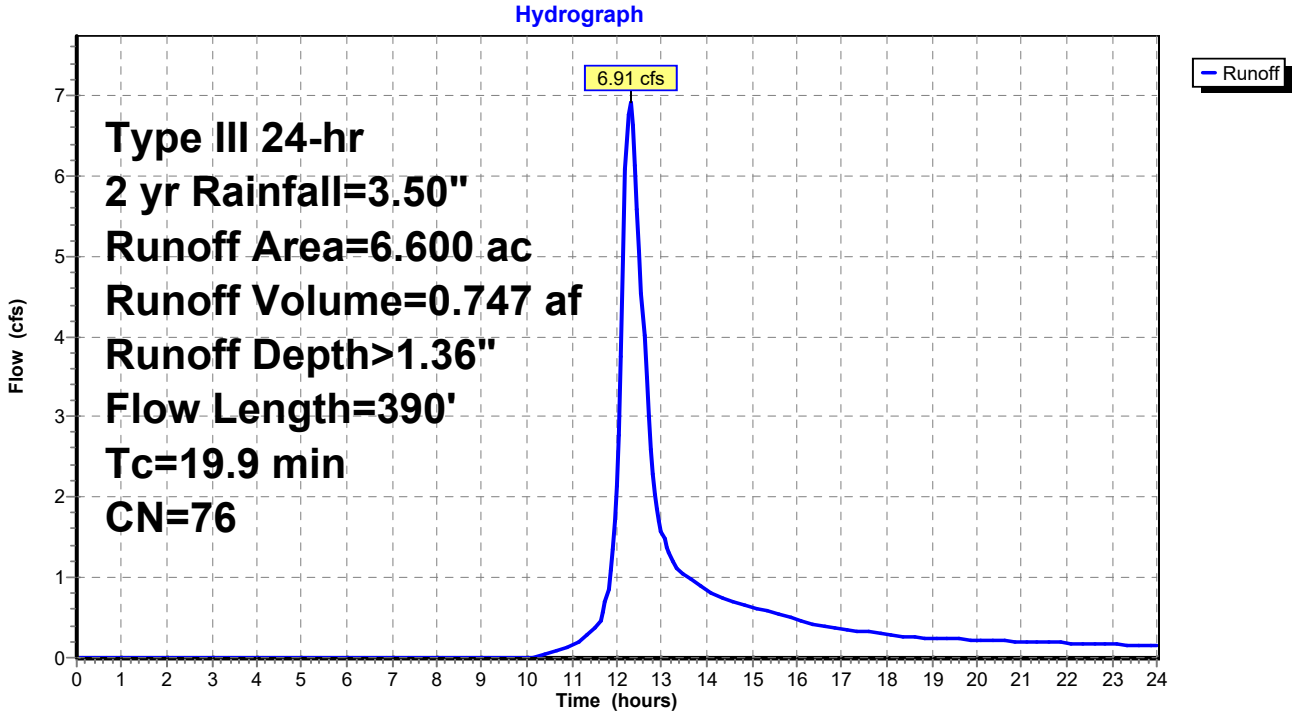
Runoff = 6.91 cfs @ 12.29 hrs, Volume= 0.747 af, Depth> 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.50"

Area (ac)	CN	Description
0.300	98	Paved parking, HSG B
2.900	79	50-75% Grass cover, Fair, HSG C
1.000	69	50-75% Grass cover, Fair, HSG B
2.400	73	Woods, Fair, HSG C
6.600	76	Weighted Average
6.300		95.45% Pervious Area
0.300		4.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	150	0.0160	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
5.7	240	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	390	Total			

Subcatchment PR-WS-B6:



Summary for Subcatchment PR-WS-C:

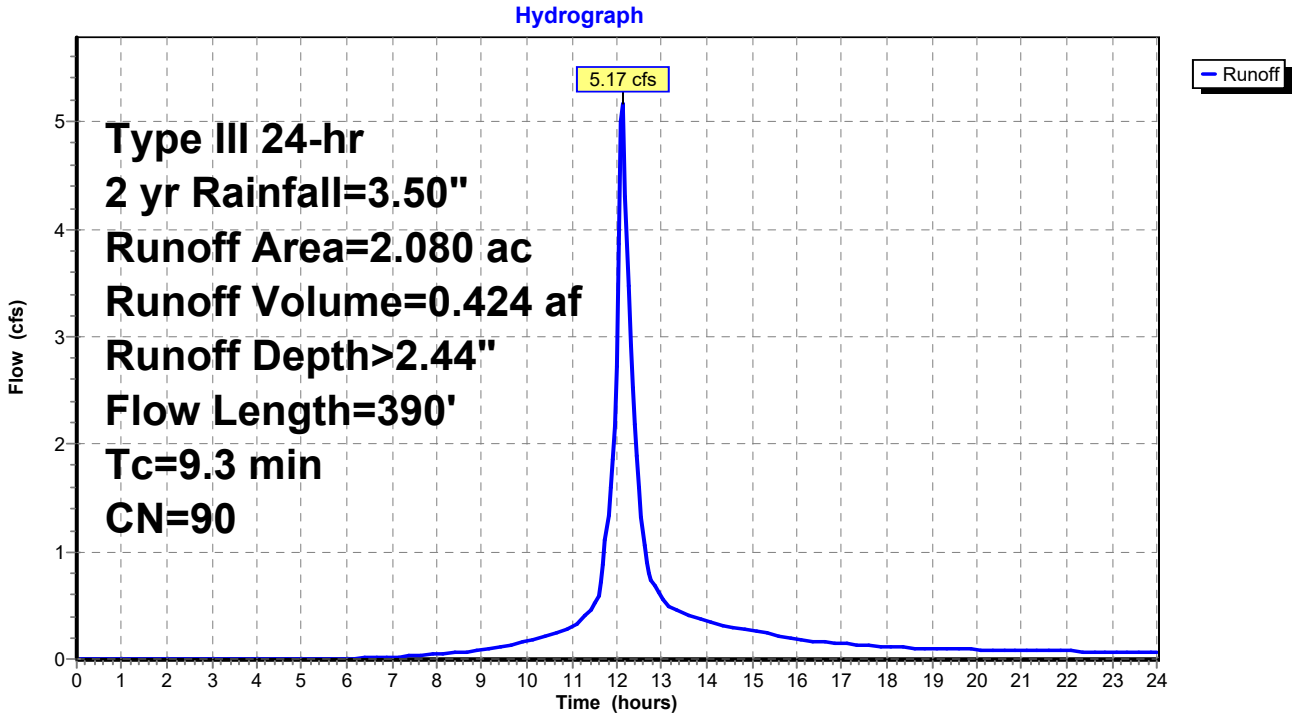
Runoff = 5.17 cfs @ 12.13 hrs, Volume= 0.424 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.50"

Area (ac)	CN	Description
1.610	98	Paved parking, HSG B
0.050	60	Woods, Fair, HSG B
0.420	61	>75% Grass cover, Good, HSG B
2.080	90	Weighted Average
0.470		22.60% Pervious Area
1.610		77.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	10	0.0100	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.4	20	0.0100	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.9	120	0.0600	2.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
0.7	240	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.3	390	Total			

Subcatchment PR-WS-C:

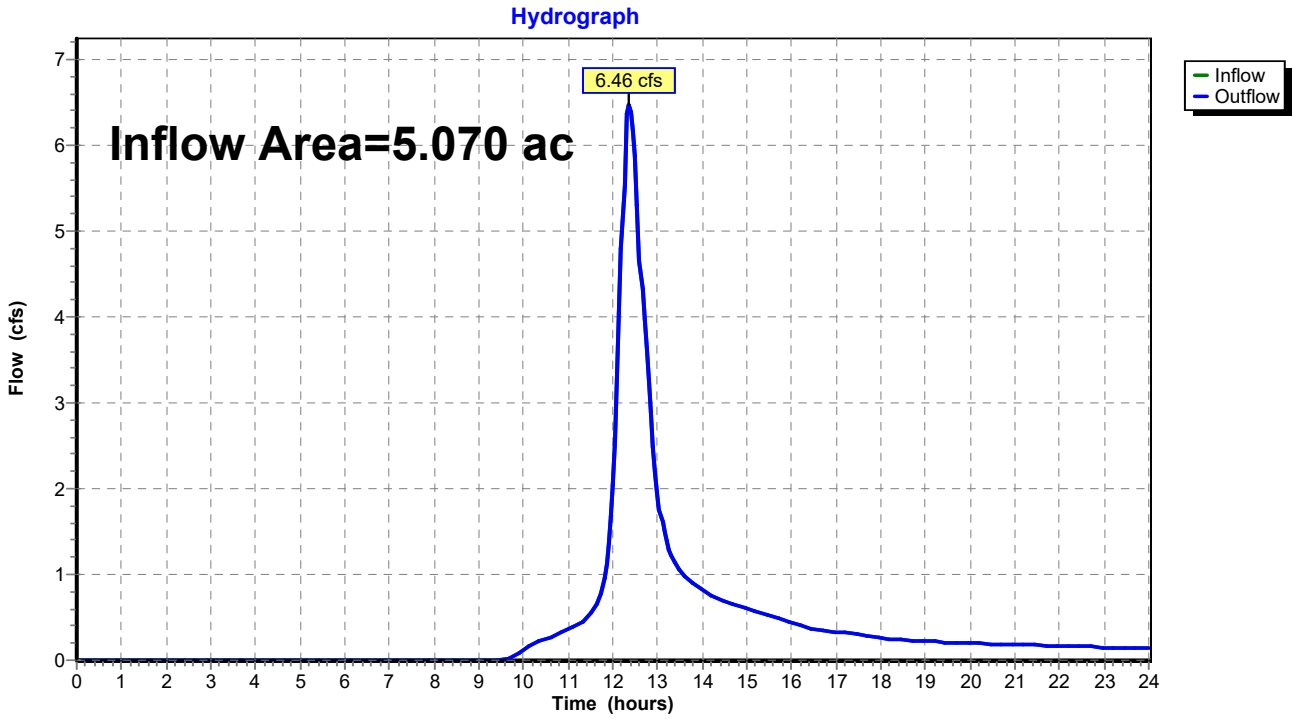


Summary for Reach PR DP 1: GILLOTTI ROAD

Inflow Area = 5.070 ac, 45.36% Impervious, Inflow Depth > 1.84" for 2 yr event
Inflow = 6.46 cfs @ 12.35 hrs, Volume= 0.778 af
Outflow = 6.46 cfs @ 12.35 hrs, Volume= 0.778 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PR DP 1: GILLOTTI ROAD

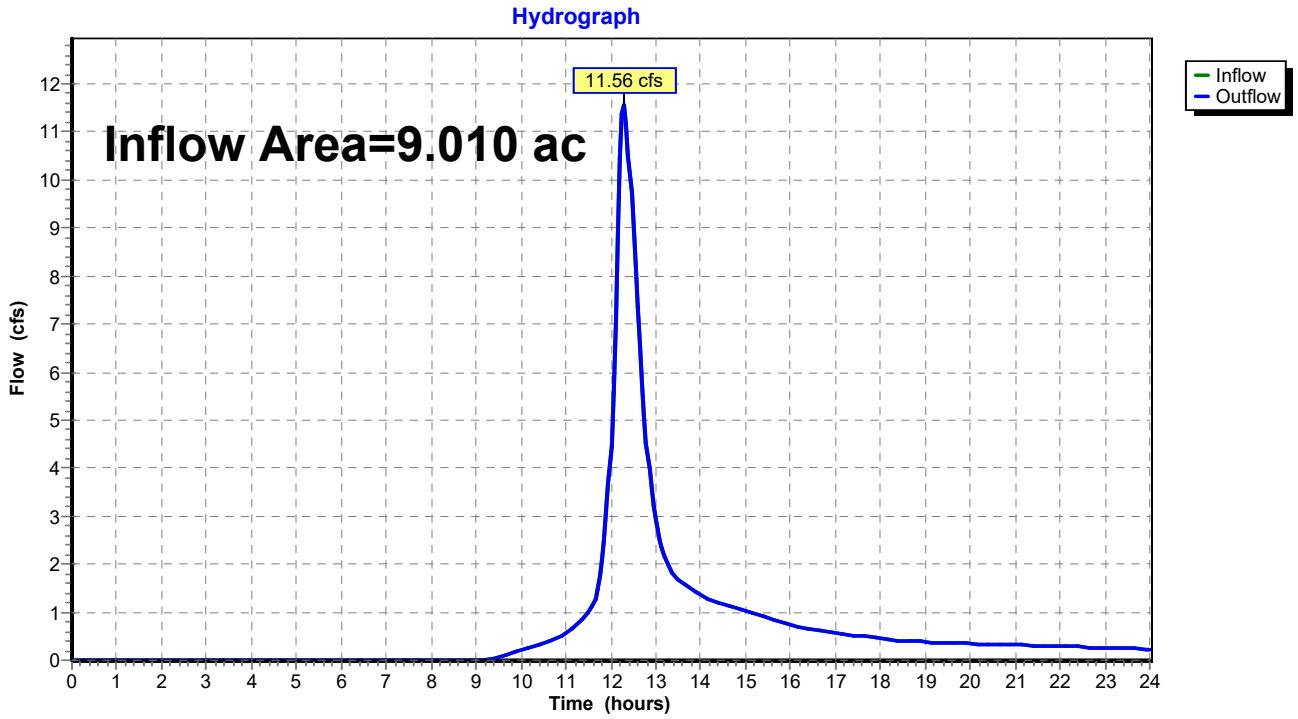


Summary for Reach PR DP 2.1: NORTHWEST WETLAND

Inflow Area = 9.010 ac, 19.20% Impervious, Inflow Depth > 1.79" for 2 yr event
Inflow = 11.56 cfs @ 12.29 hrs, Volume= 1.342 af
Outflow = 11.56 cfs @ 12.29 hrs, Volume= 1.342 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PR DP 2.1: NORTHWEST WETLAND

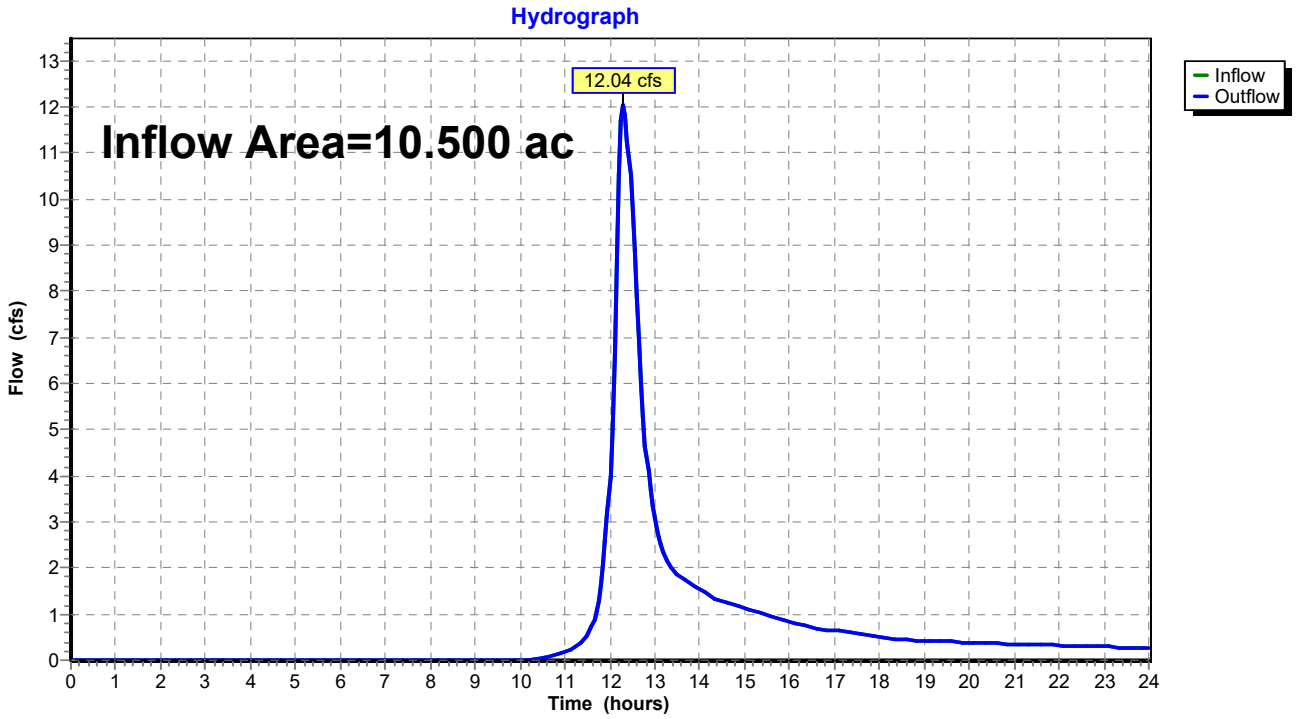


Summary for Reach PR DP 2.2: NORTHWEST WETLAND

Inflow Area = 10.500 ac, 26.67% Impervious, Inflow Depth > 1.55" for 2 yr event
Inflow = 12.04 cfs @ 12.30 hrs, Volume= 1.356 af
Outflow = 12.04 cfs @ 12.30 hrs, Volume= 1.356 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PR DP 2.2: NORTHWEST WETLAND

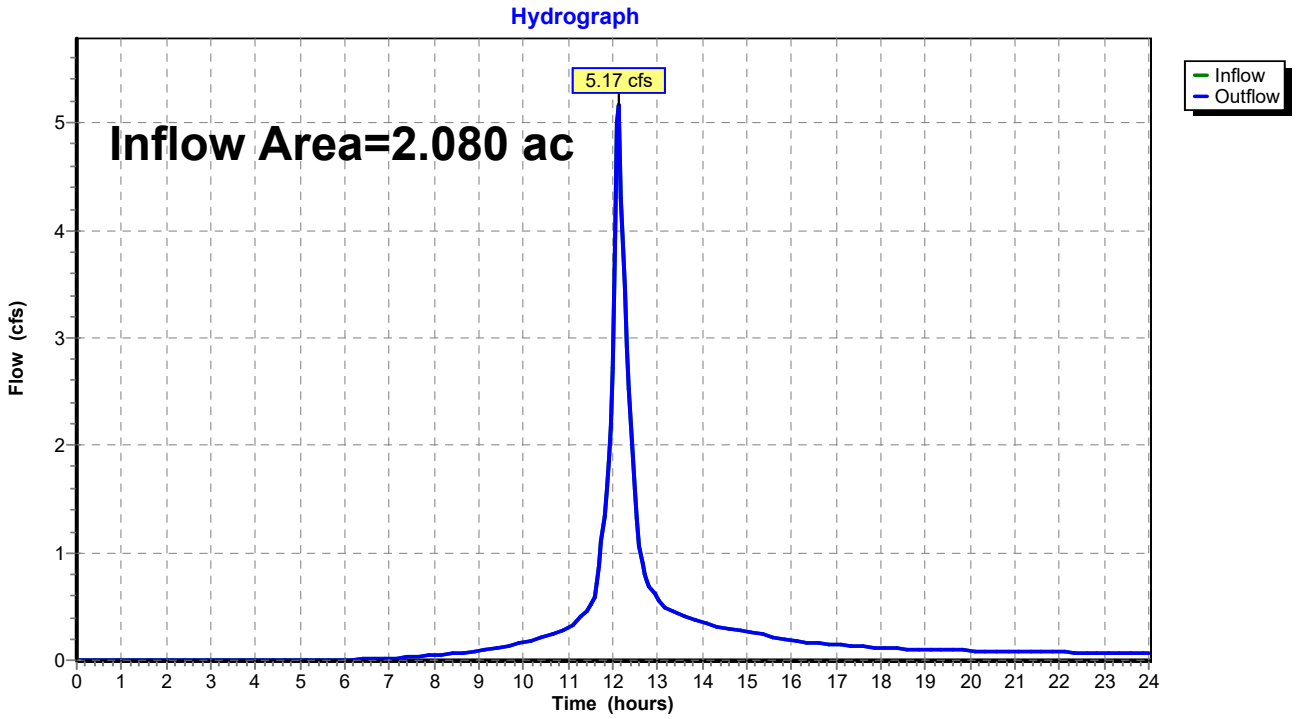


Summary for Reach PR DP 3: 18" PIPE

Inflow Area = 2.080 ac, 77.40% Impervious, Inflow Depth > 2.44" for 2 yr event
Inflow = 5.17 cfs @ 12.13 hrs, Volume= 0.424 af
Outflow = 5.17 cfs @ 12.13 hrs, Volume= 0.424 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PR DP 3: 18" PIPE



Summary for Pond 1P:

Inflow Area = 3.070 ac, 58.63% Impervious, Inflow Depth > 2.35" for 2 yr event
Inflow = 5.77 cfs @ 12.26 hrs, Volume= 0.601 af
Outflow = 4.79 cfs @ 12.39 hrs, Volume= 0.582 af, Atten= 17%, Lag= 7.8 min
Primary = 4.79 cfs @ 12.39 hrs, Volume= 0.582 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 920.88' @ 12.39 hrs Surf.Area= 0.055 ac Storage= 0.081 af

Plug-Flow detention time= 35.0 min calculated for 0.581 af (97% of inflow)
Center-of-Mass det. time= 17.6 min (835.4 - 817.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	918.50'	0.087 af	**16.58'W x 143.93'L x 5.75'H Field A** 0.315 af Overall - 0.097 af Embedded = 0.218 af x 40.0% Voids
#2A	919.50'	0.097 af	**ADS_StormTech MC-3500 d +Cap**x 38 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 2 Rows of 19 Chambers Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf
		0.184 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	919.20'	**15.0" Round Culvert** L= 88.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 919.20' / 916.60' S= 0.0295 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	920.60'	**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
#3	Device 1	919.20'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.78 cfs @ 12.39 hrs HW=920.88' (Free Discharge)
└**1=Culvert** (Inlet Controls 4.78 cfs @ 3.90 fps)
  ├**2=Broad-Crested Rectangular Weir** (Passes < 2.06 cfs potential flow)
  └**3=Orifice/Grate** (Passes < 4.10 cfs potential flow)

Pond 1P: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

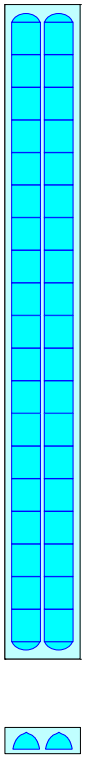
19 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 139.93' Row Length +24.0" End Stone x 2 = 143.93' Base Length
2 Rows x 77.0" Wide + 9.0" Spacing x 1 + 18.0" Side Stone x 2 = 16.58' Base Width
12.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.75' Field Height

38 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 2 Rows = 4,237.8 cf Chamber Storage

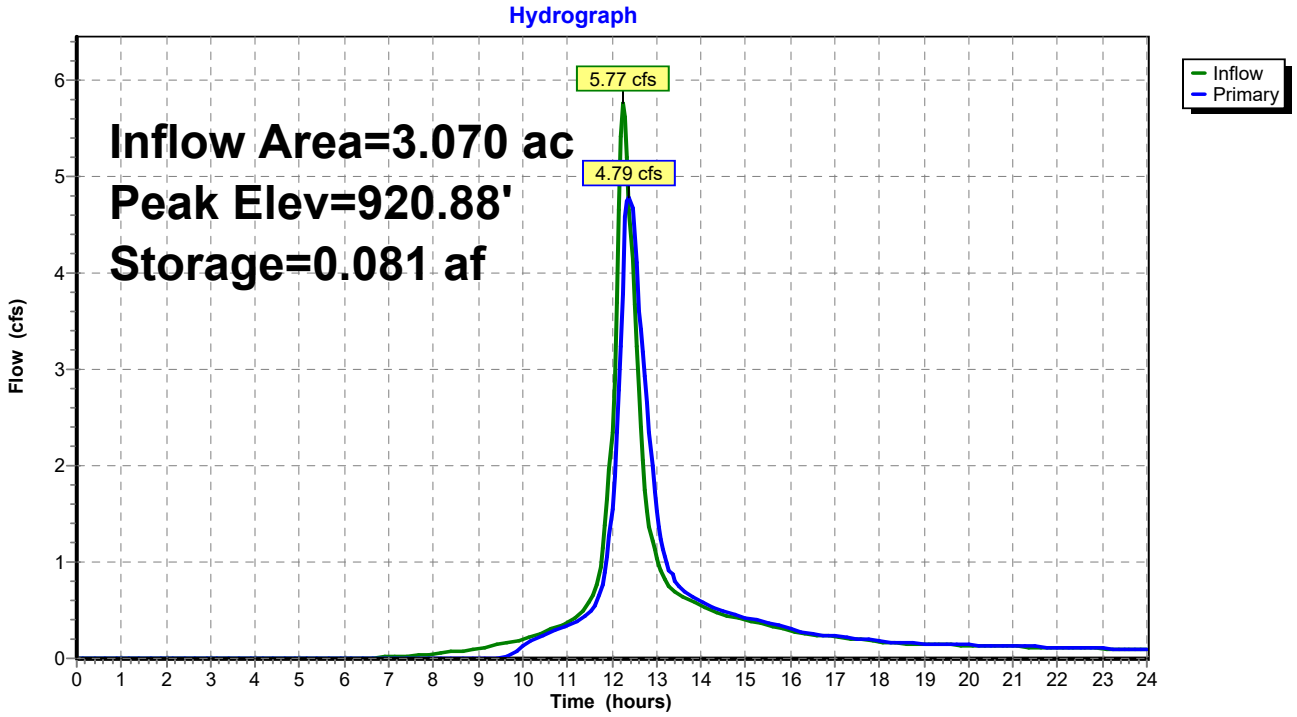
13,724.3 cf Field - 4,237.8 cf Chambers = 9,486.6 cf Stone x 40.0% Voids = 3,794.6 cf Stone Storage

Chamber Storage + Stone Storage = 8,032.4 cf = 0.184 af
Overall Storage Efficiency = 58.5%
Overall System Size = 143.93' x 16.58' x 5.75'

38 Chambers
508.3 cy Field
351.4 cy Stone



Pond 1P:


Hydrograph
Inflow Area=3.070 ac
Peak Elev=920.88'
Storage=0.081 af
5.77 cfs
4.79 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
0 1 2 3 4 5 6

Summary for Pond 2P:

Inflow Area = 2.790 ac, 54.84% Impervious, Inflow Depth > 2.18" for 2 yr event
Inflow = 6.07 cfs @ 12.15 hrs, Volume= 0.507 af
Outflow = 3.63 cfs @ 12.32 hrs, Volume= 0.497 af, Atten= 40%, Lag= 10.3 min
Primary = 3.63 cfs @ 12.32 hrs, Volume= 0.497 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 923.85' @ 12.32 hrs Surf.Area= 0.070 ac Storage= 0.084 af

Plug-Flow detention time= 26.8 min calculated for 0.496 af (98% of inflow)
Center-of-Mass det. time= 15.9 min (834.2 - 818.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	922.00'	0.102 af	**32.17'W x 94.74'L x 5.42'H Field A** 0.379 af Overall - 0.124 af Embedded = 0.255 af x 40.0% Voids
#2A	922.67'	0.124 af	**ADS_StormTech MC-3500 d +Cap**x 48 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 4 Rows of 12 Chambers Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf
		0.226 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	922.20'	**15.0" Round Culvert** L= 96.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 922.20' / 921.10' S= 0.0115 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	924.00'	**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
#3	Device 1	922.20'	**11.3" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=3.63 cfs @ 12.32 hrs HW=923.84' (Free Discharge)
└**1=Culvert** (Passes 3.63 cfs of 4.70 cfs potential flow)
  ├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 3.63 cfs @ 5.21 fps)

Pond 2P: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf

77.0" Wide + 10.0" Spacing = 87.0" C-C Row Spacing

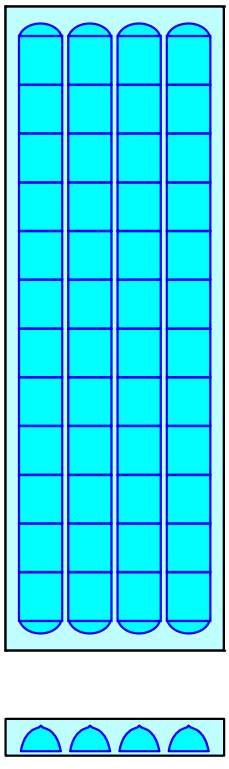
12 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 89.74' Row Length +30.0" End Stone x 2 = 94.74' Base Length
4 Rows x 77.0" Wide + 10.0" Spacing x 3 + 24.0" Side Stone x 2 = 32.17' Base Width
8.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.42' Field Height

48 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 4 Rows = 5,396.9 cf Chamber Storage

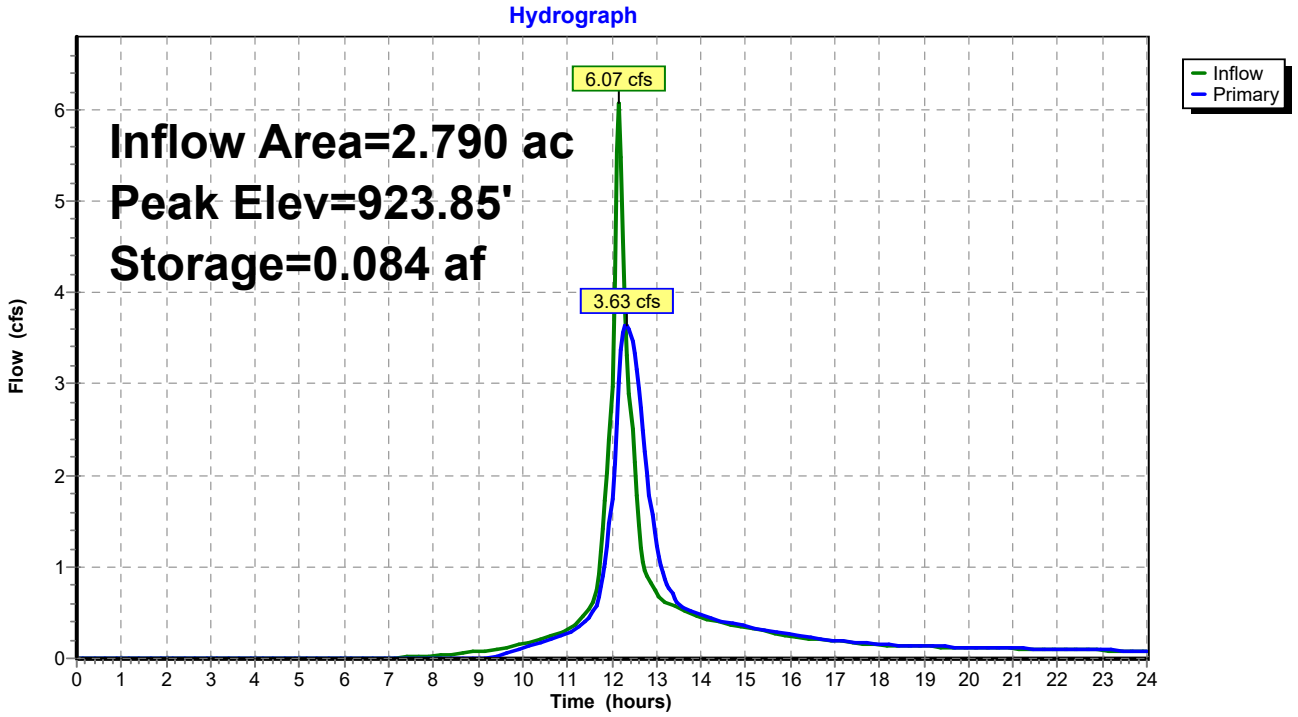
16,507.1 cf Field - 5,396.9 cf Chambers = 11,110.2 cf Stone x 40.0% Voids = 4,444.1 cf Stone Storage

Chamber Storage + Stone Storage = 9,841.0 cf = 0.226 af
Overall Storage Efficiency = 59.6%
Overall System Size = 94.74' x 32.17' x 5.42'

48 Chambers
611.4 cy Field
411.5 cy Stone



Pond 2P:


Hydrograph
Inflow Area=2.790 ac
Peak Elev=923.85'
Storage=0.084 af
6.07 cfs
3.63 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Pond 3P:

Inflow Area = 2.600 ac, 61.54% Impervious, Inflow Depth > 1.93" for 2 yr event
Inflow = 4.23 cfs @ 12.24 hrs, Volume= 0.418 af
Outflow = 3.47 cfs @ 12.36 hrs, Volume= 0.389 af, Atten= 18%, Lag= 7.6 min
Primary = 3.47 cfs @ 12.36 hrs, Volume= 0.389 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 925.58' @ 12.36 hrs Surf.Area= 0.057 ac Storage= 0.076 af

Plug-Flow detention time= 62.0 min calculated for 0.389 af (93% of inflow)
Center-of-Mass det. time= 26.7 min (860.5 - 833.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	923.40'	0.090 af	**16.58'W x 150.10'L x 5.75'H Field A** 0.329 af Overall - 0.102 af Embedded = 0.226 af x 40.0% Voids
#2A	924.40'	0.102 af	**ADS_StormTech MC-3500 d +Cap**x 40 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 2 Rows of 20 Chambers Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf
		0.193 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	924.40'	**18.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 924.40' / 924.30' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	927.50'	**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
#3	Device 1	924.40'	**12.8" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=3.46 cfs @ 12.36 hrs HW=925.58' (Free Discharge)
└**1=Culvert** (Passes 3.46 cfs of 3.81 cfs potential flow)
  ├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 3.46 cfs @ 3.87 fps)

Pond 3P: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

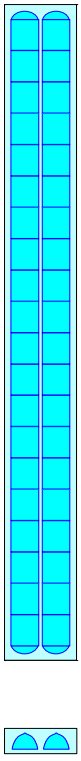
20 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 147.10' Row Length +18.0" End Stone x 2 = 150.10' Base Length
2 Rows x 77.0" Wide + 9.0" Spacing x 1 + 18.0" Side Stone x 2 = 16.58' Base Width
12.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.75' Field Height

40 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 2 Rows = 4,457.7 cf Chamber Storage

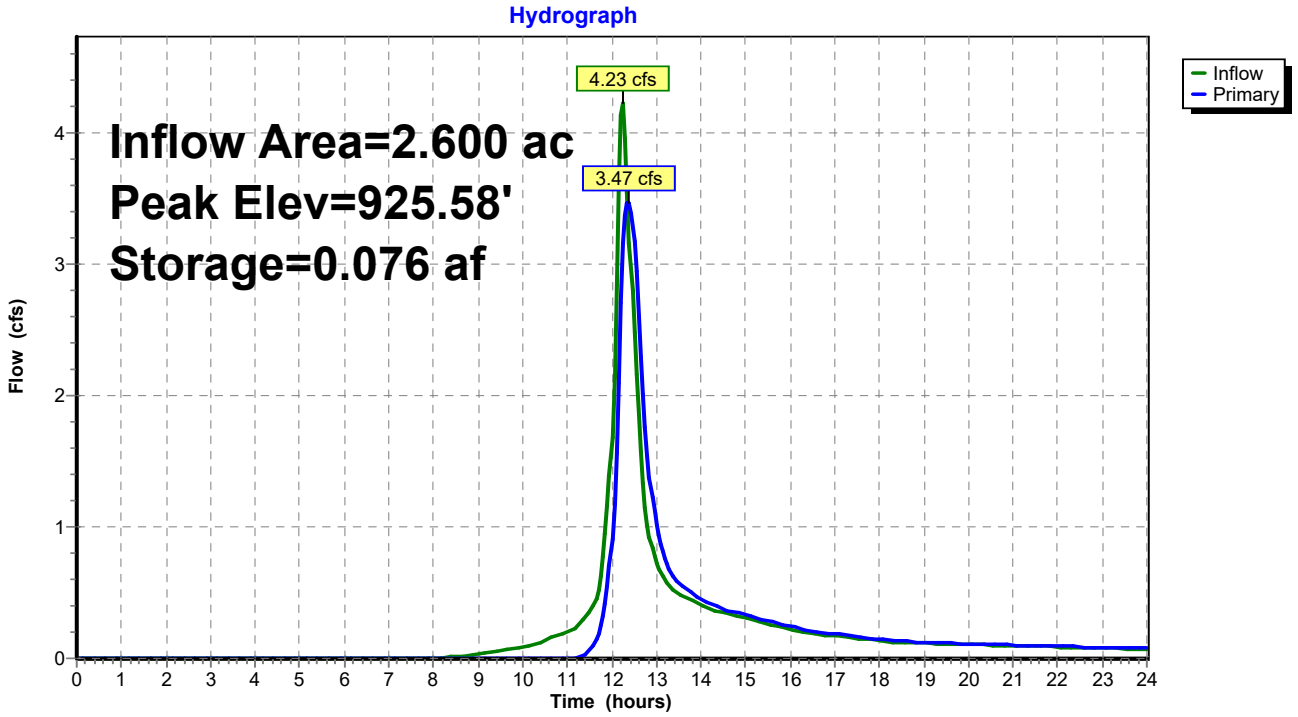
14,312.7 cf Field - 4,457.7 cf Chambers = 9,855.0 cf Stone x 40.0% Voids = 3,942.0 cf Stone Storage

Chamber Storage + Stone Storage = 8,399.7 cf = 0.193 af
Overall Storage Efficiency = 58.7%
Overall System Size = 150.10' x 16.58' x 5.75'

40 Chambers
530.1 cy Field
365.0 cy Stone



Pond 3P:


Hydrograph
Inflow Area=2.600 ac
Peak Elev=925.58'
Storage=0.076 af
4.23 cfs
3.47 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0
1
2
3
4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Pond 4P:

Inflow Area = 1.300 ac, 69.23% Impervious, Inflow Depth > 2.18" for 2 yr event
Inflow = 3.09 cfs @ 12.11 hrs, Volume= 0.236 af
Outflow = 1.76 cfs @ 12.26 hrs, Volume= 0.219 af, Atten= 43%, Lag= 9.2 min
Primary = 1.76 cfs @ 12.26 hrs, Volume= 0.219 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 926.93' @ 12.26 hrs Surf.Area= 0.035 ac Storage= 0.053 af

Plug-Flow detention time= 66.3 min calculated for 0.219 af (93% of inflow)
Center-of-Mass det. time= 29.6 min (845.5 - 816.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	924.50'	0.055 af	**23.75'W x 64.06'L x 5.75'H Field A** 0.201 af Overall - 0.063 af Embedded = 0.138 af x 40.0% Voids
#2A	925.50'	0.063 af	**ADS_StormTech MC-3500 d +Cap**x 24 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 3 Rows of 8 Chambers Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf
		0.118 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	925.50'	**12.0" Round Culvert** L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 925.50' / 924.10' S= 0.0163 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	927.70'	**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	Device 1	925.50'	**8.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.76 cfs @ 12.26 hrs HW=926.93' (Free Discharge)
└**1=Culvert** (Passes 1.76 cfs of 2.88 cfs potential flow)
  ├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 1.76 cfs @ 5.04 fps)

Pond 4P: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

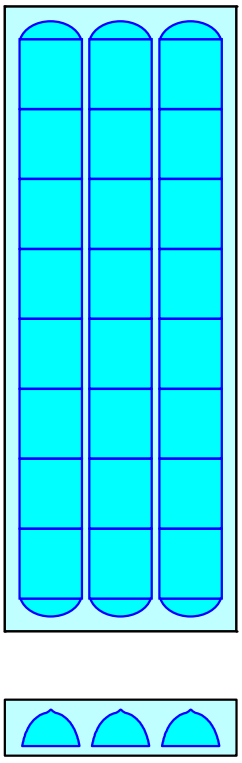
8 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 61.06' Row Length +18.0" End Stone x 2 = 64.06' Base Length
3 Rows x 77.0" Wide + 9.0" Spacing x 2 + 18.0" Side Stone x 2 = 23.75' Base Width
12.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.75' Field Height

24 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 3 Rows = 2,728.2 cf Chamber Storage

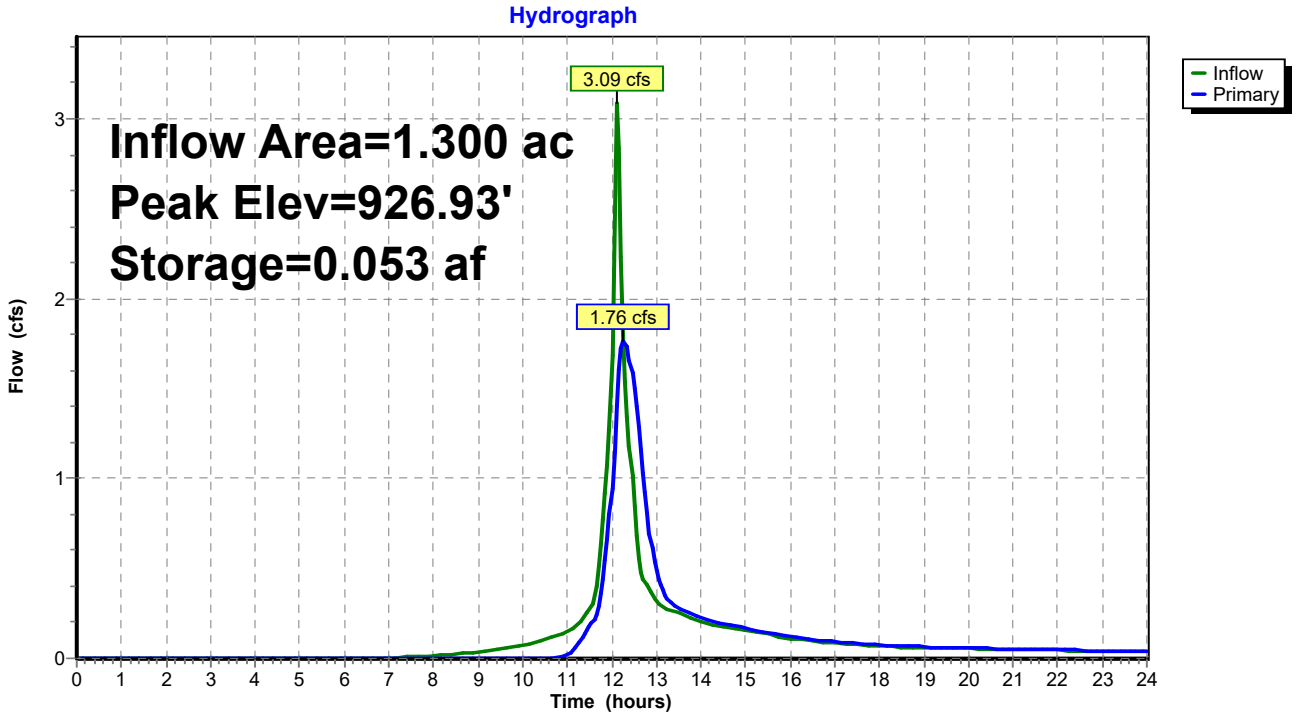
8,748.2 cf Field - 2,728.2 cf Chambers = 6,019.9 cf Stone x 40.0% Voids = 2,408.0 cf Stone Storage

Chamber Storage + Stone Storage = 5,136.2 cf = 0.118 af
Overall Storage Efficiency = 58.7%
Overall System Size = 64.06' x 23.75' x 5.75'

24 Chambers
324.0 cy Field
223.0 cy Stone



Pond 4P:


Hydrograph
Inflow Area=1.300 ac
Peak Elev=926.93'
Storage=0.053 af
3.09 cfs
1.76 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0
1
2
3
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Subcatchment PR-WS-A1:

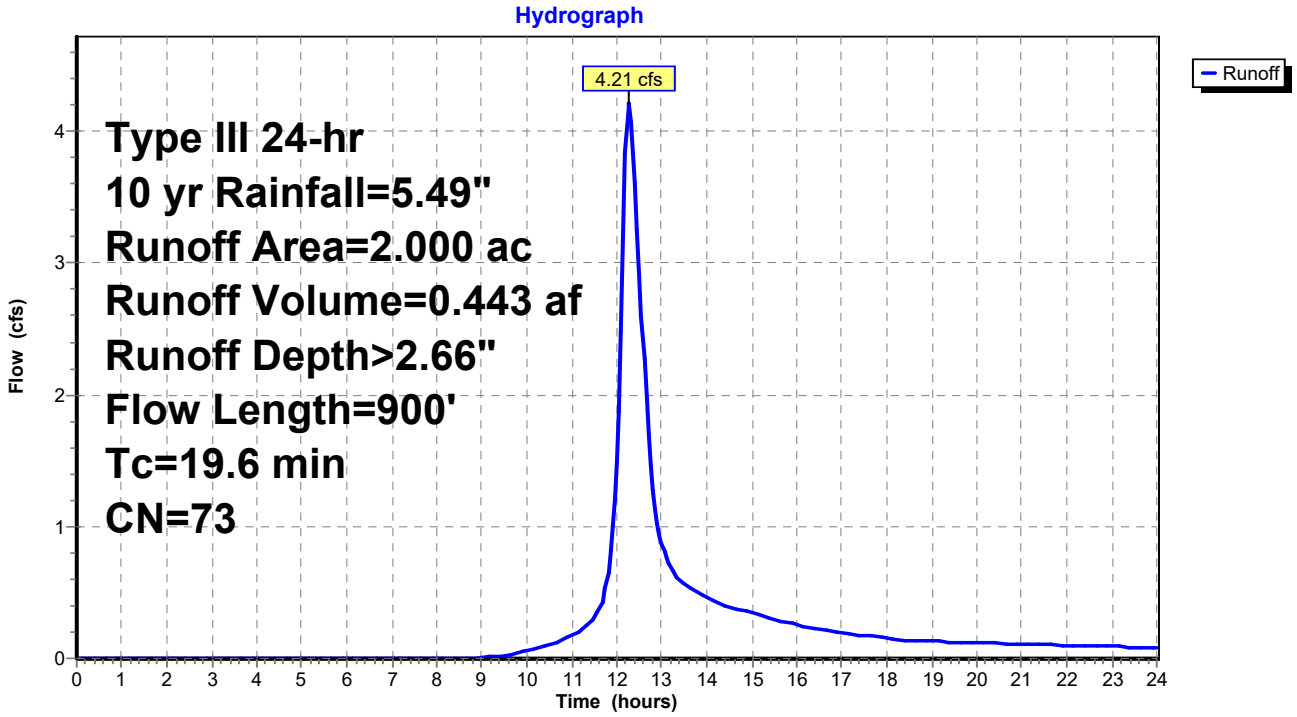
Runoff = 4.21 cfs @ 12.28 hrs, Volume= 0.443 af, Depth> 2.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=5.49"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG C
1.100	61	>75% Grass cover, Good, HSG B
0.400	73	Woods, Fair, HSG C
2.000	73	Weighted Average
1.500		75.00% Pervious Area
0.500		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	90	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
4.0	60	0.0600	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.9	90	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.6	280	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	380	0.0150	6.98	8.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
19.6	900	Total			

Subcatchment PR-WS-A1:



Summary for Subcatchment PR-WS-A2:

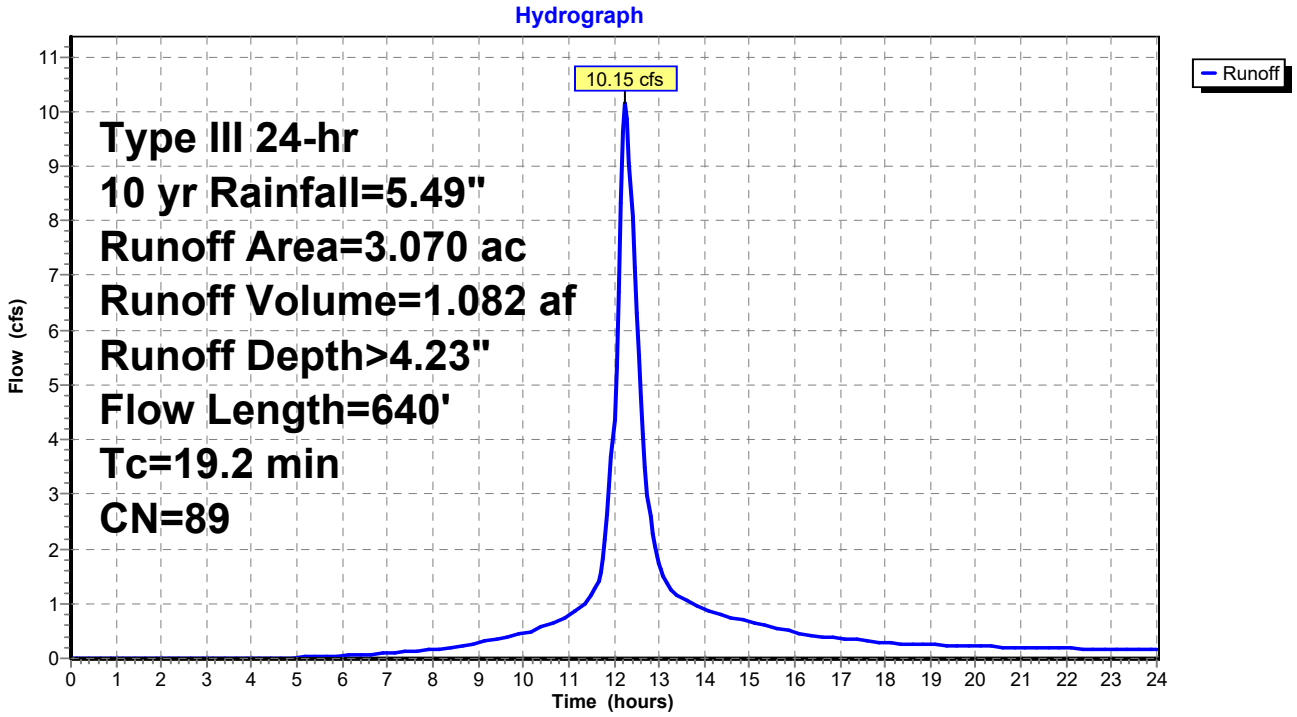
Runoff = 10.15 cfs @ 12.26 hrs, Volume= 1.082 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=5.49"

	Area (ac)	CN	Description
	1.800	98	Paved parking, HSG B
	0.750	69	50-75% Grass cover, Fair, HSG B
*	0.520	85	Green parking
	3.070	89	Weighted Average
	1.270		41.37% Pervious Area
	1.800		58.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	150	0.0250	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.5	30	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	160	0.0600	4.97		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	300	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
19.2	640	Total			

Subcatchment PR-WS-A2:



Summary for Subcatchment PR-WS-B1:

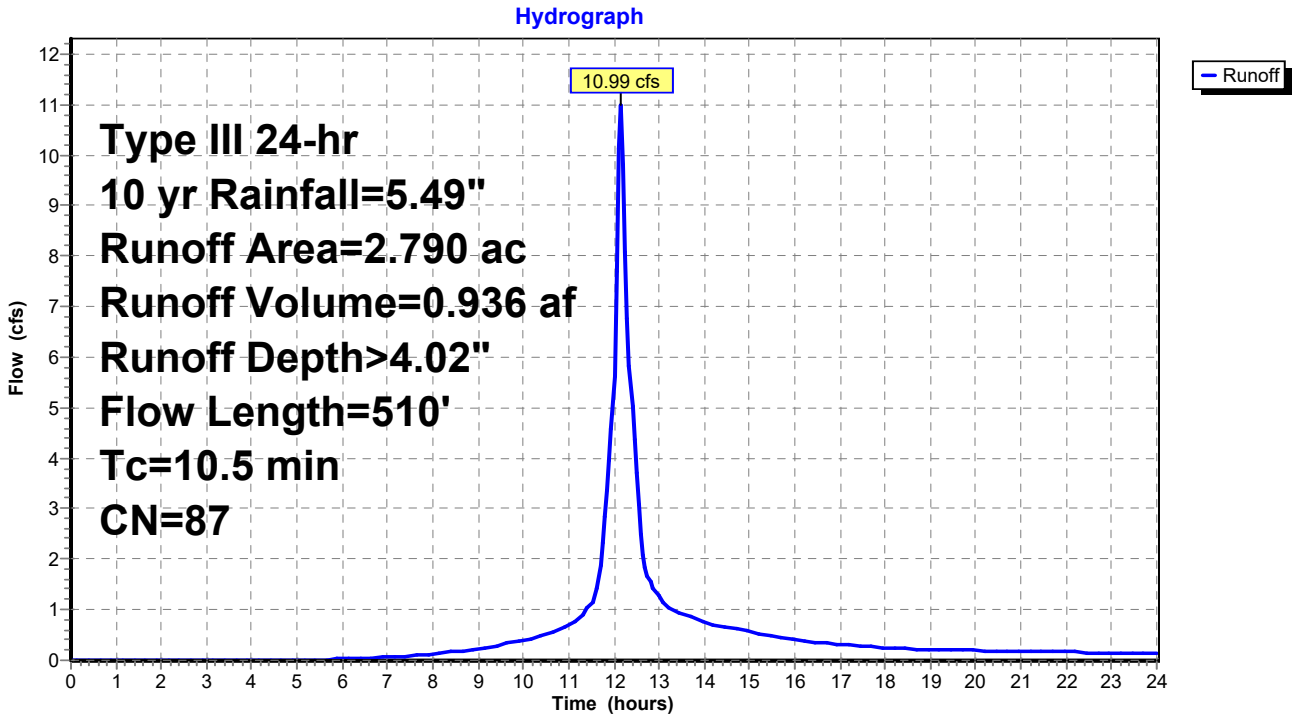
Runoff = 10.99 cfs @ 12.15 hrs, Volume= 0.936 af, Depth> 4.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=5.49"

Area (ac)	CN	Description
1.530	98	Paved parking, HSG B
1.260	74	>75% Grass cover, Good, HSG C
2.790	87	Weighted Average
1.260		45.16% Pervious Area
1.530		54.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	150	0.1200	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.3	360	0.0100	4.54	3.56	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
10.5	510	Total			

Subcatchment PR-WS-B1:



Summary for Subcatchment PR-WS-B3:

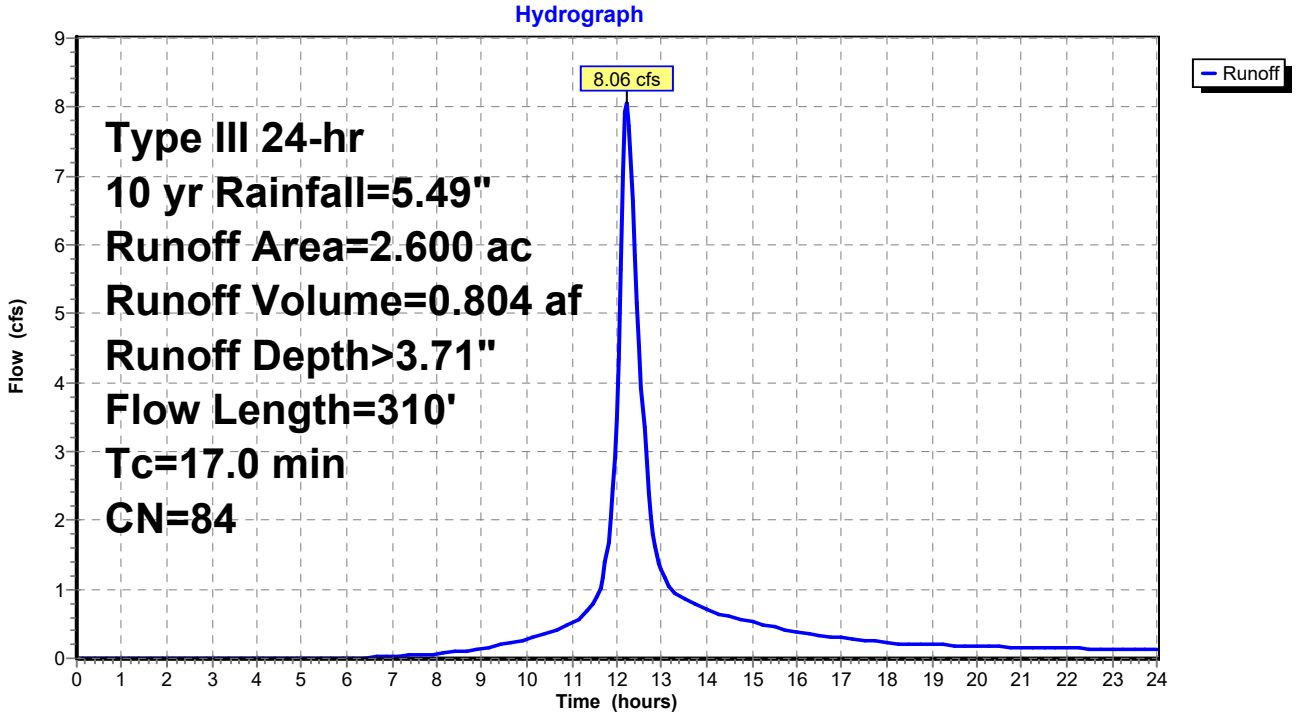
Runoff = 8.06 cfs @ 12.23 hrs, Volume= 0.804 af, Depth> 3.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=5.49"

Area (ac)	CN	Description
1.600	98	Paved parking, HSG B
1.000	61	>75% Grass cover, Good, HSG B
2.600	84	Weighted Average
1.000		38.46% Pervious Area
1.600		61.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	90	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.5	220	0.0300	7.86	6.17	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
17.0	310	Total			

Subcatchment PR-WS-B3:



Summary for Subcatchment PR-WS-B4:

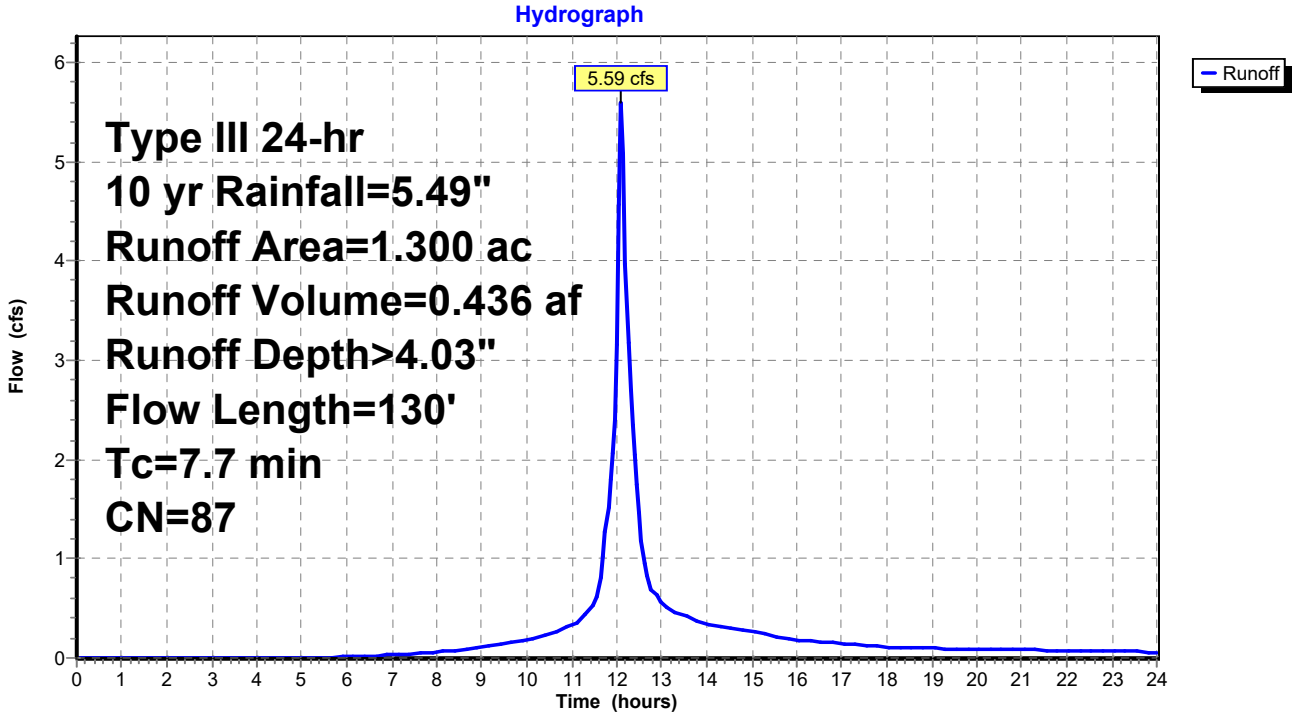
Runoff = 5.59 cfs @ 12.11 hrs, Volume= 0.436 af, Depth> 4.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=5.49"

Area (ac)	CN	Description
0.900	98	Paved parking, HSG B
0.400	61	>75% Grass cover, Good, HSG B
1.300	87	Weighted Average
0.400		30.77% Pervious Area
0.900		69.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	30	0.0100	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	70	0.0300	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
0.1	30	0.0120	4.97	3.90	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
7.7	130	Total			

Subcatchment PR-WS-B4:



Summary for Subcatchment PR-WS-B5:

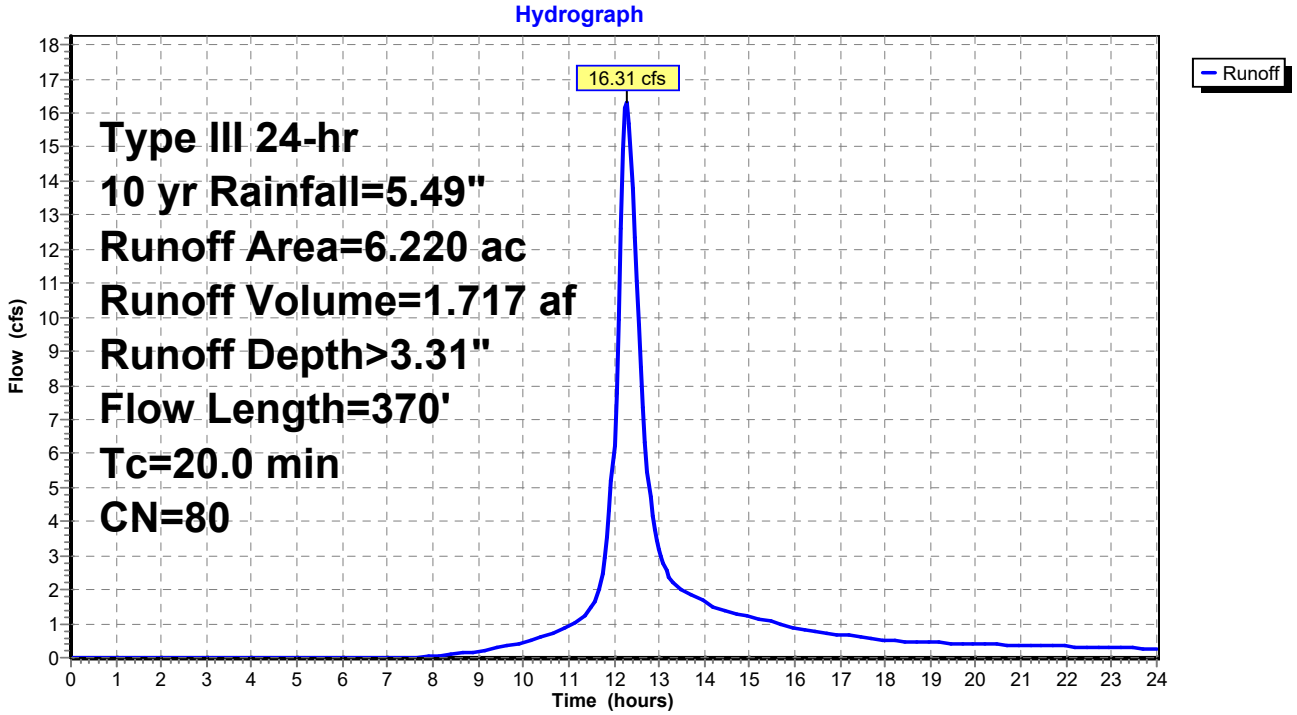
Runoff = 16.31 cfs @ 12.27 hrs, Volume= 1.717 af, Depth> 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=5.49"

Area (ac)	CN	Description
0.200	98	Paved parking, HSG B
6.020	79	50-75% Grass cover, Fair, HSG C
6.220	80	Weighted Average
6.020		96.78% Pervious Area
0.200		3.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	150	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.2	50	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.7	170	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.0	370	Total			

Subcatchment PR-WS-B5:



Summary for Subcatchment PR-WS-B6:

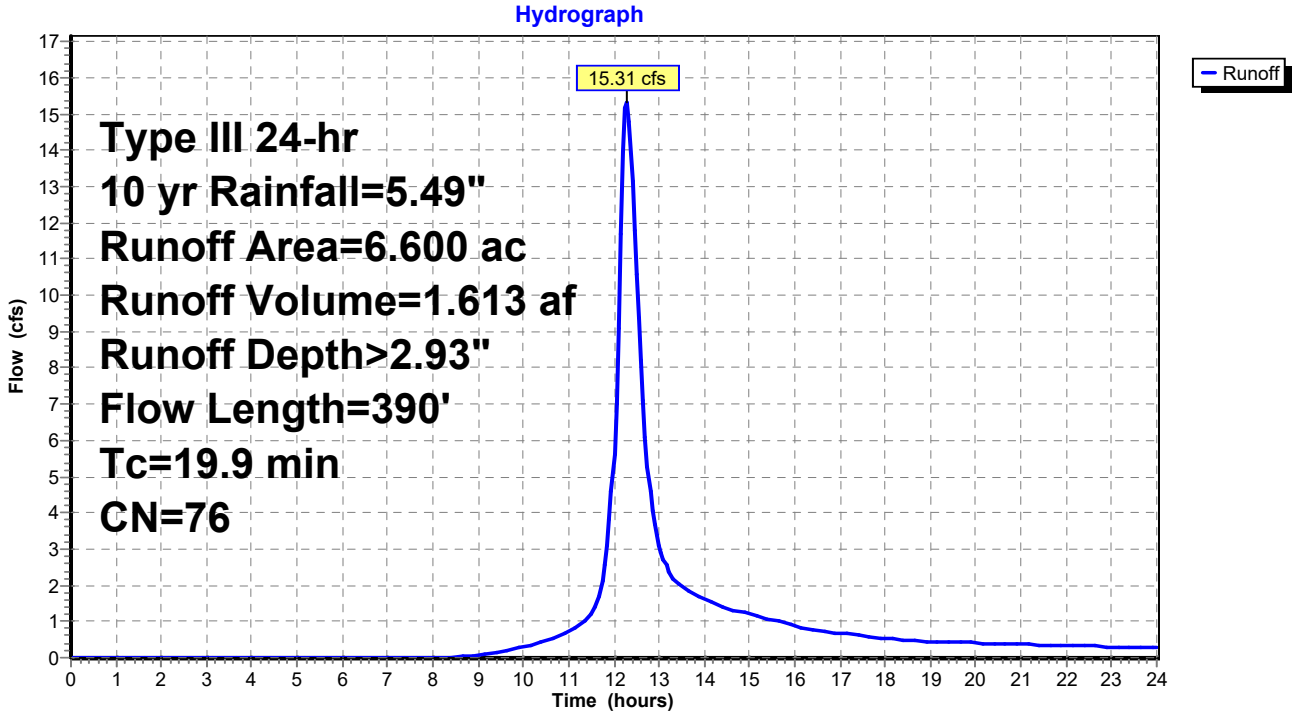
Runoff = 15.31 cfs @ 12.28 hrs, Volume= 1.613 af, Depth> 2.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=5.49"

Area (ac)	CN	Description
0.300	98	Paved parking, HSG B
2.900	79	50-75% Grass cover, Fair, HSG C
1.000	69	50-75% Grass cover, Fair, HSG B
2.400	73	Woods, Fair, HSG C
6.600	76	Weighted Average
6.300		95.45% Pervious Area
0.300		4.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	150	0.0160	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
5.7	240	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	390	Total			

Subcatchment PR-WS-B6:



Summary for Subcatchment PR-WS-C:

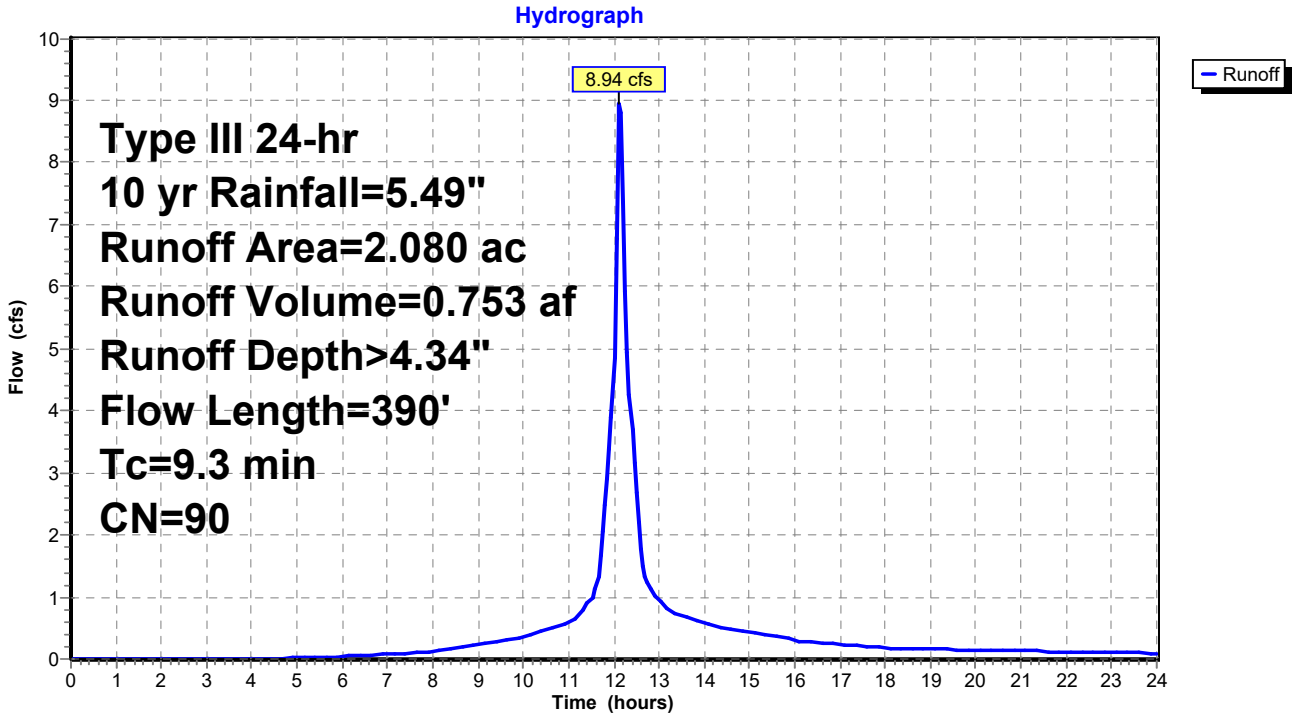
Runoff = 8.94 cfs @ 12.13 hrs, Volume= 0.753 af, Depth> 4.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=5.49"

Area (ac)	CN	Description
1.610	98	Paved parking, HSG B
0.050	60	Woods, Fair, HSG B
0.420	61	>75% Grass cover, Good, HSG B
2.080	90	Weighted Average
0.470		22.60% Pervious Area
1.610		77.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	10	0.0100	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.4	20	0.0100	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.9	120	0.0600	2.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
0.7	240	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.3	390	Total			

Subcatchment PR-WS-C:

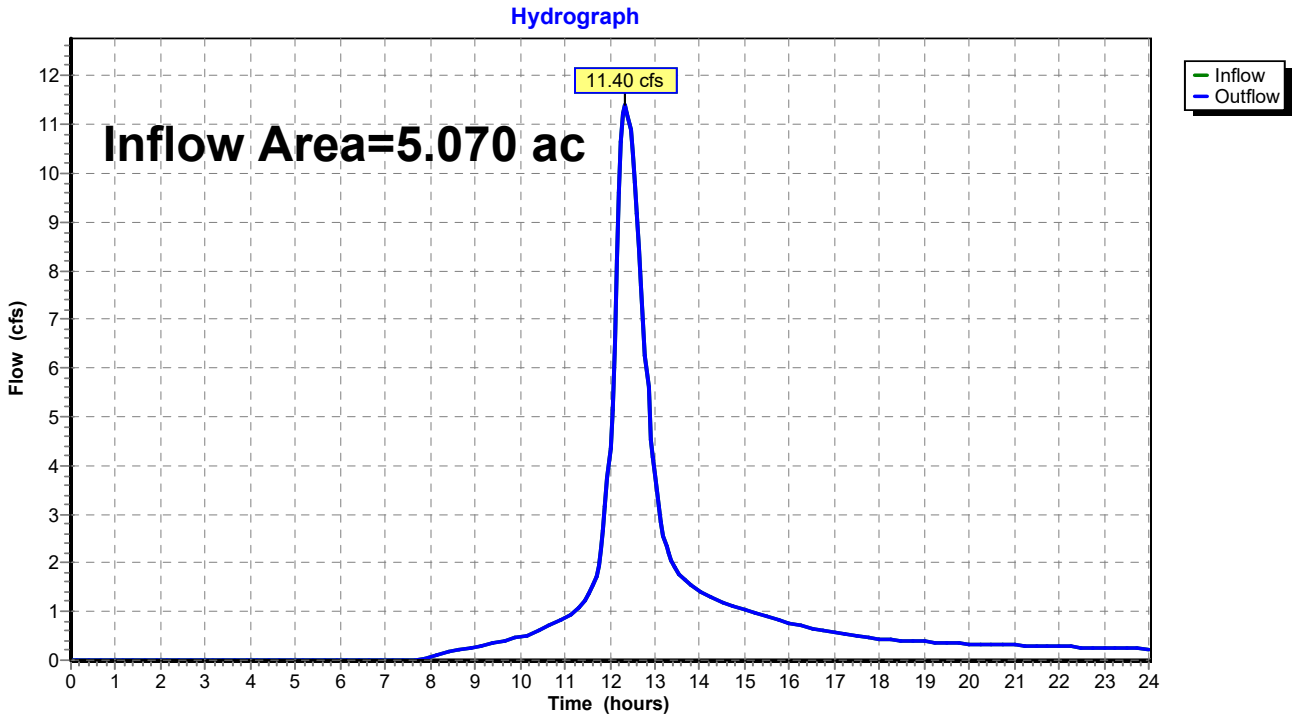


Summary for Reach PR DP 1: GILLOTTI ROAD

Inflow Area = 5.070 ac, 45.36% Impervious, Inflow Depth > 3.56" for 10 yr event
Inflow = 11.40 cfs @ 12.35 hrs, Volume= 1.506 af
Outflow = 11.40 cfs @ 12.35 hrs, Volume= 1.506 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PR DP 1: GILLOTTI ROAD

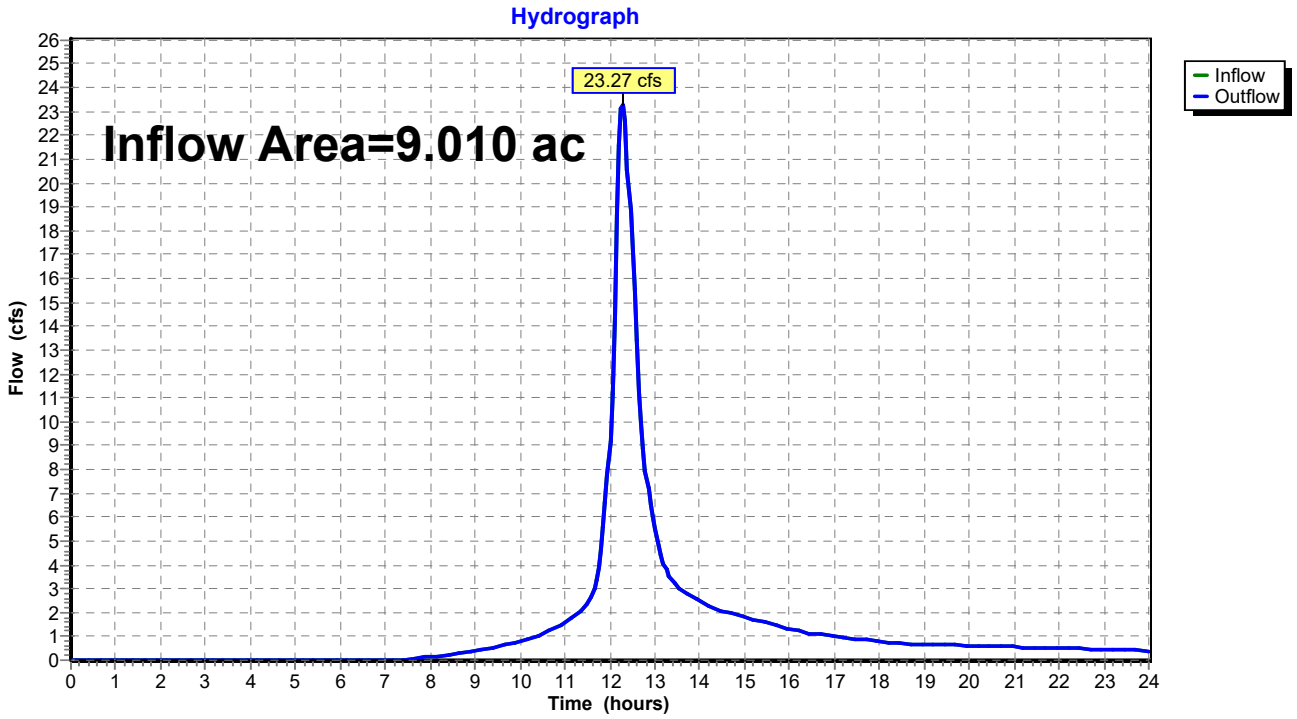


Summary for Reach PR DP 2.1: NORTHWEST WETLAND

Inflow Area = 9.010 ac, 19.20% Impervious, Inflow Depth > 3.52" for 10 yr event
Inflow = 23.27 cfs @ 12.28 hrs, Volume= 2.642 af
Outflow = 23.27 cfs @ 12.28 hrs, Volume= 2.642 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PR DP 2.1: NORTHWEST WETLAND

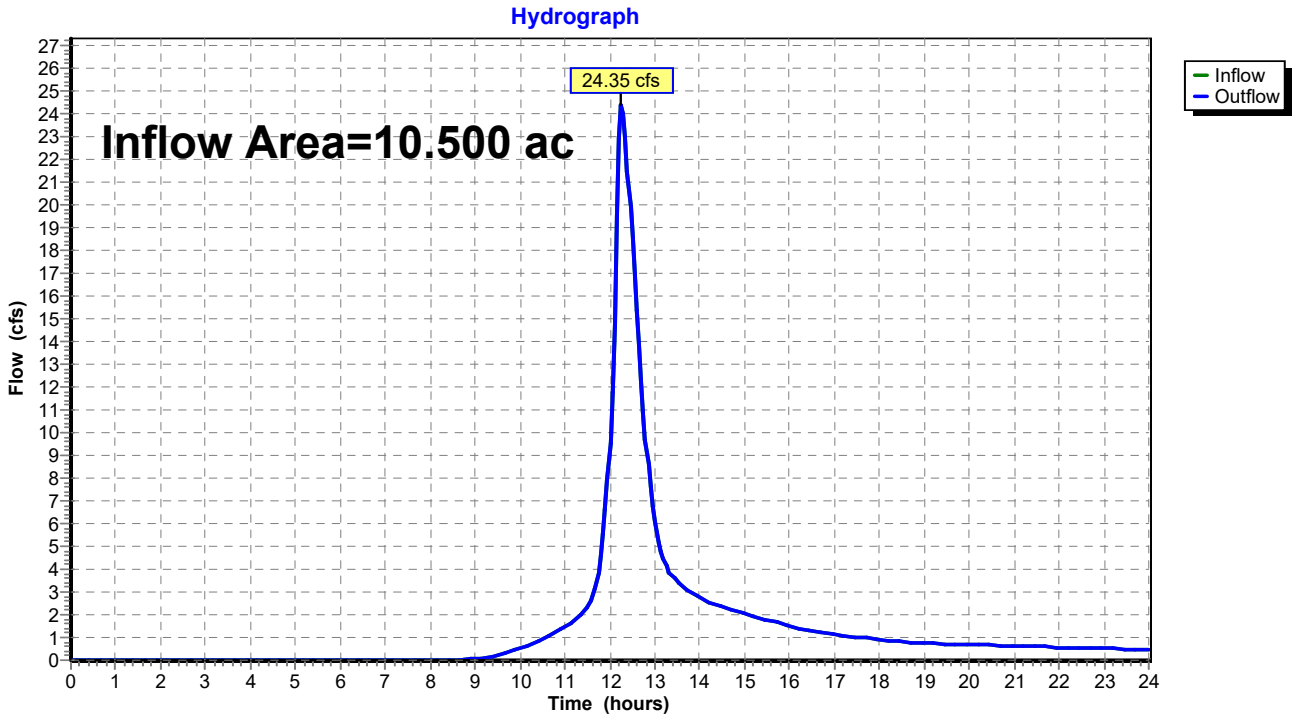


Summary for Reach PR DP 2.2: NORTHWEST WETLAND

Inflow Area = 10.500 ac, 26.67% Impervious, Inflow Depth > 3.21" for 10 yr event
Inflow = 24.35 cfs @ 12.27 hrs, Volume= 2.805 af
Outflow = 24.35 cfs @ 12.27 hrs, Volume= 2.805 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PR DP 2.2: NORTHWEST WETLAND

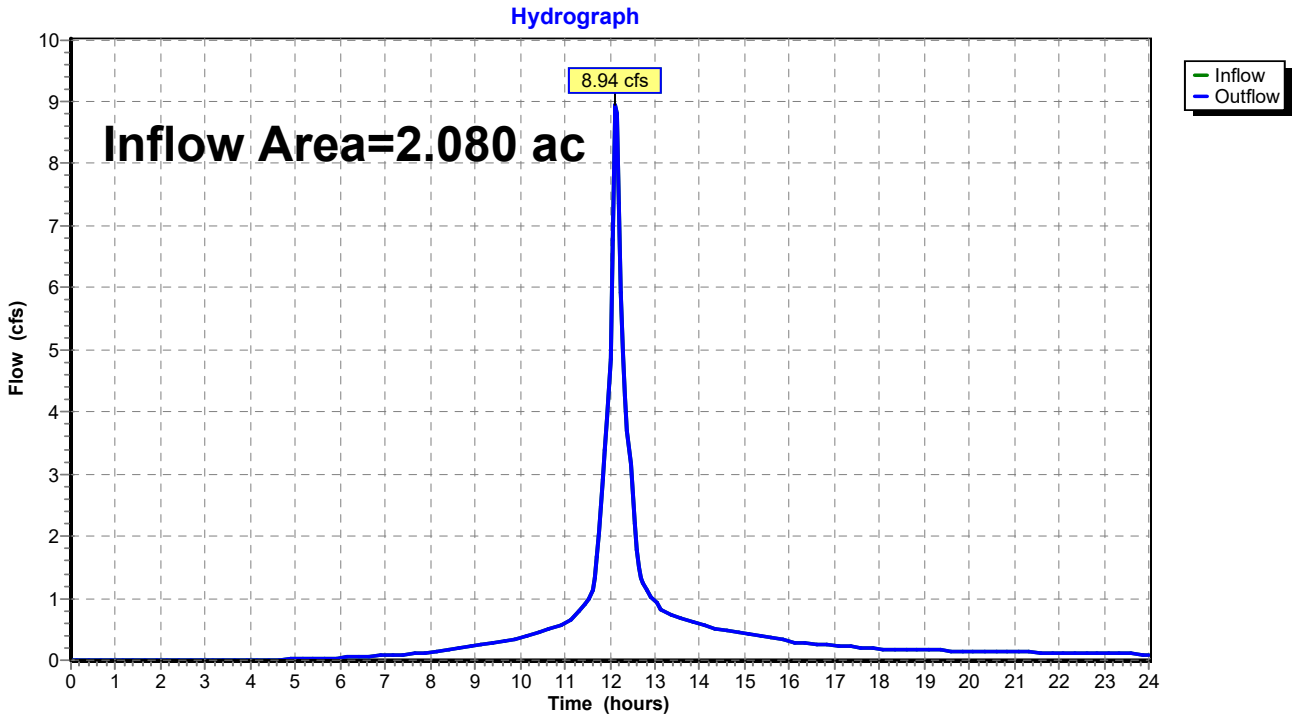


Summary for Reach PR DP 3: 18" PIPE

Inflow Area = 2.080 ac, 77.40% Impervious, Inflow Depth > 4.34" for 10 yr event
Inflow = 8.94 cfs @ 12.13 hrs, Volume= 0.753 af
Outflow = 8.94 cfs @ 12.13 hrs, Volume= 0.753 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PR DP 3: 18" PIPE



Summary for Pond 1P:

Inflow Area = 3.070 ac, 58.63% Impervious, Inflow Depth > 4.23" for 10 yr event
Inflow = 10.15 cfs @ 12.26 hrs, Volume= 1.082 af
Outflow = 7.66 cfs @ 12.42 hrs, Volume= 1.063 af, Atten= 25%, Lag= 10.0 min
Primary = 7.66 cfs @ 12.42 hrs, Volume= 1.063 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 922.52' @ 12.42 hrs Surf.Area= 0.055 ac Storage= 0.143 af

Plug-Flow detention time= 26.6 min calculated for 1.063 af (98% of inflow)
Center-of-Mass det. time= 15.8 min (817.3 - 801.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	918.50'	0.087 af	**16.58'W x 143.93'L x 5.75'H Field A** 0.315 af Overall - 0.097 af Embedded = 0.218 af x 40.0% Voids
#2A	919.50'	0.097 af	**ADS_StormTech MC-3500 d +Cap**x 38 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 2 Rows of 19 Chambers Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf
		0.184 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	919.20'	**15.0" Round Culvert** L= 88.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 919.20' / 916.60' S= 0.0295 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	920.60'	**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
#3	Device 1	919.20'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=7.63 cfs @ 12.42 hrs HW=922.50' (Free Discharge)
└**1=Culvert** (Inlet Controls 7.63 cfs @ 6.22 fps)
├**2=Broad-Crested Rectangular Weir** (Passes < 43.54 cfs potential flow)
└**3=Orifice/Grate** (Passes < 6.33 cfs potential flow)

Pond 1P: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

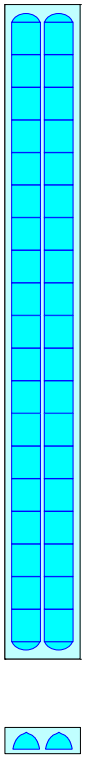
19 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 139.93' Row Length +24.0" End Stone x 2 = 143.93' Base Length
2 Rows x 77.0" Wide + 9.0" Spacing x 1 + 18.0" Side Stone x 2 = 16.58' Base Width
12.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.75' Field Height

38 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 2 Rows = 4,237.8 cf Chamber Storage

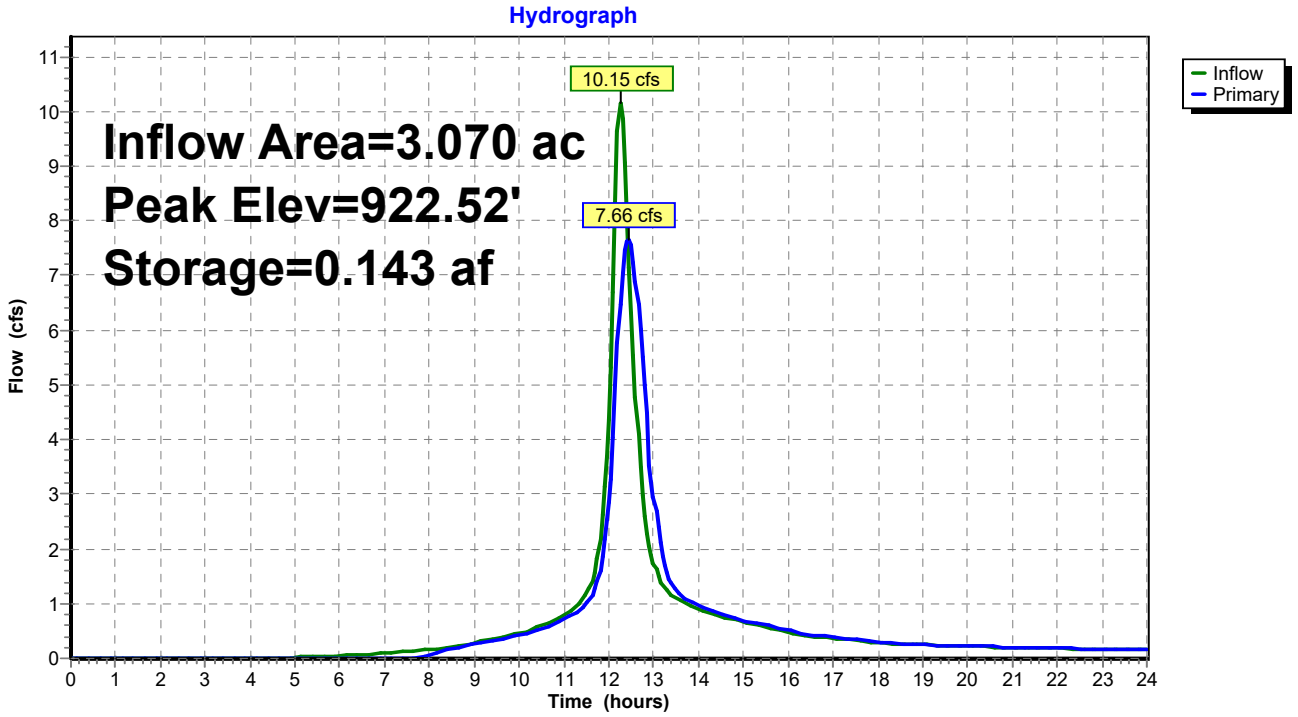
13,724.3 cf Field - 4,237.8 cf Chambers = 9,486.6 cf Stone x 40.0% Voids = 3,794.6 cf Stone Storage

Chamber Storage + Stone Storage = 8,032.4 cf = 0.184 af
Overall Storage Efficiency = 58.5%
Overall System Size = 143.93' x 16.58' x 5.75'

38 Chambers
508.3 cy Field
351.4 cy Stone



Pond 1P:


Hydrograph
Inflow Area=3.070 ac
Peak Elev=922.52'
Storage=0.143 af
10.15 cfs
7.66 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Pond 2P:

Inflow Area = 2.790 ac, 54.84% Impervious, Inflow Depth > 4.02" for 10 yr event
Inflow = 10.99 cfs @ 12.15 hrs, Volume= 0.936 af
Outflow = 7.01 cfs @ 12.30 hrs, Volume= 0.925 af, Atten= 36%, Lag= 8.9 min
Primary = 7.01 cfs @ 12.30 hrs, Volume= 0.925 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 925.09' @ 12.30 hrs Surf.Area= 0.070 ac Storage= 0.146 af

Plug-Flow detention time= 21.3 min calculated for 0.925 af (99% of inflow)
Center-of-Mass det. time= 14.4 min (815.4 - 801.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	922.00'	0.102 af	**32.17'W x 94.74'L x 5.42'H Field A** 0.379 af Overall - 0.124 af Embedded = 0.255 af x 40.0% Voids
#2A	922.67'	0.124 af	**ADS_StormTech MC-3500 d +Cap**x 48 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 4 Rows of 12 Chambers Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf
		0.226 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	922.20'	**15.0" Round Culvert** L= 96.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 922.20' / 921.10' S= 0.0115 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	924.00'	**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
#3	Device 1	922.20'	**11.3" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=7.01 cfs @ 12.30 hrs HW=925.08' (Free Discharge)
└**1=Culvert** (Inlet Controls 7.01 cfs @ 5.71 fps)
  ├**2=Broad-Crested Rectangular Weir** (Passes < 18.66 cfs potential flow)
  └**3=Orifice/Grate** (Passes < 5.21 cfs potential flow)

Pond 2P: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf

77.0" Wide + 10.0" Spacing = 87.0" C-C Row Spacing

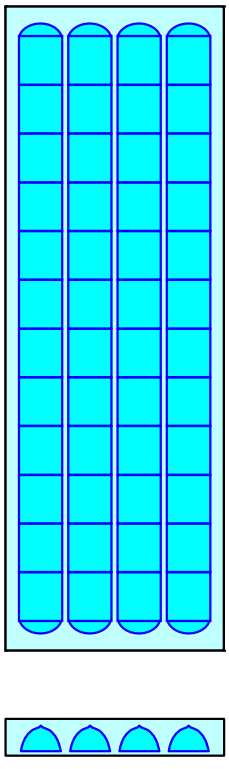
12 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 89.74' Row Length +30.0" End Stone x 2 = 94.74' Base Length
4 Rows x 77.0" Wide + 10.0" Spacing x 3 + 24.0" Side Stone x 2 = 32.17' Base Width
8.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.42' Field Height

48 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 4 Rows = 5,396.9 cf Chamber Storage

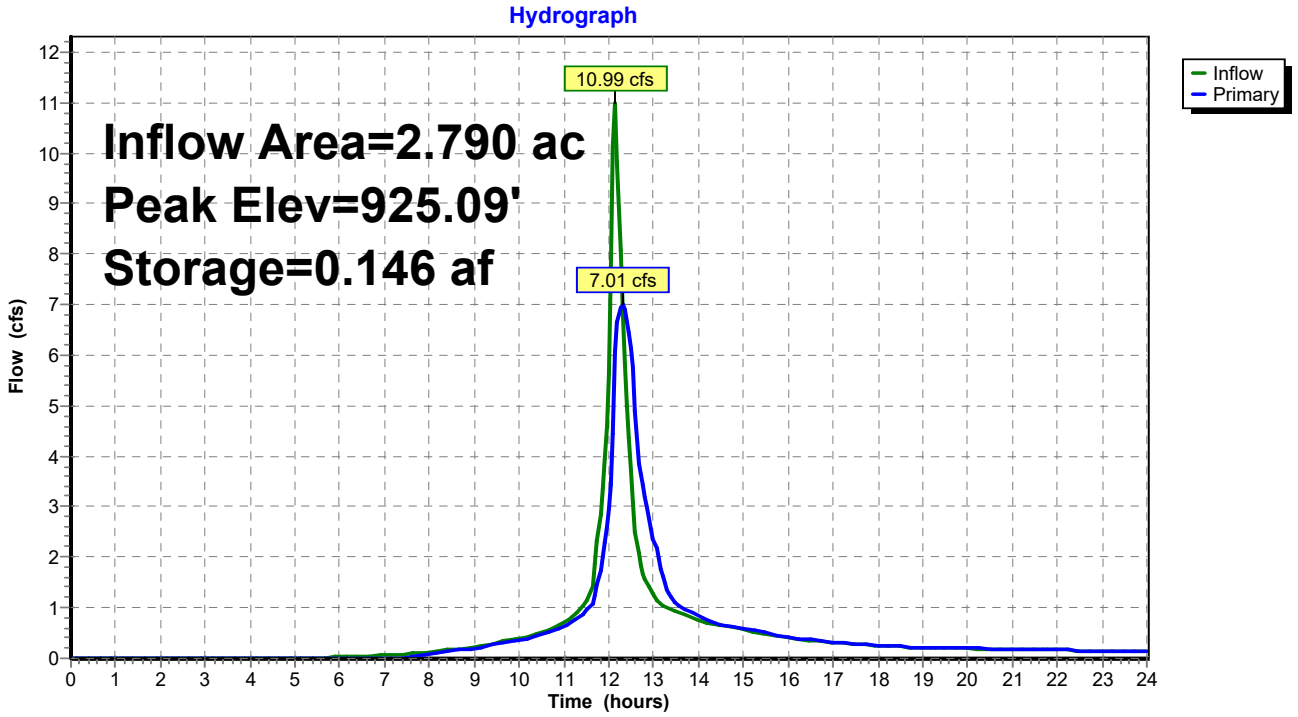
16,507.1 cf Field - 5,396.9 cf Chambers = 11,110.2 cf Stone x 40.0% Voids = 4,444.1 cf Stone Storage

Chamber Storage + Stone Storage = 9,841.0 cf = 0.226 af
Overall Storage Efficiency = 59.6%
Overall System Size = 94.74' x 32.17' x 5.42'

48 Chambers
611.4 cy Field
411.5 cy Stone



Pond 2P:


Hydrograph
Inflow Area=2.790 ac
Peak Elev=925.09'
Storage=0.146 af
10.99 cfs
7.01 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Pond 3P:

Inflow Area = 2.600 ac, 61.54% Impervious, Inflow Depth > 3.71" for 10 yr event
Inflow = 8.06 cfs @ 12.23 hrs, Volume= 0.804 af
Outflow = 5.92 cfs @ 12.40 hrs, Volume= 0.773 af, Atten= 27%, Lag= 10.1 min
Primary = 5.92 cfs @ 12.40 hrs, Volume= 0.773 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 926.83' @ 12.40 hrs Surf.Area= 0.057 ac Storage= 0.128 af

Plug-Flow detention time= 43.0 min calculated for 0.772 af (96% of inflow)
Center-of-Mass det. time= 21.9 min (837.2 - 815.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	923.40'	0.090 af	**16.58'W x 150.10'L x 5.75'H Field A** 0.329 af Overall - 0.102 af Embedded = 0.226 af x 40.0% Voids
#2A	924.40'	0.102 af	**ADS_StormTech MC-3500 d +Cap**x 40 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 2 Rows of 20 Chambers Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf
		0.193 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	924.40'	**18.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 924.40' / 924.30' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	927.50'	**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
#3	Device 1	924.40'	**12.8" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=5.92 cfs @ 12.40 hrs HW=926.83' (Free Discharge)
└**1=Culvert** (Passes 5.92 cfs of 8.70 cfs potential flow)
  ├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 5.92 cfs @ 6.63 fps)

Pond 3P: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

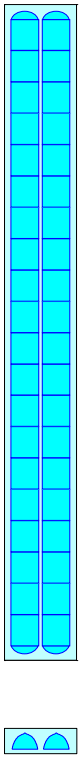
20 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 147.10' Row Length +18.0" End Stone x 2 = 150.10' Base Length
2 Rows x 77.0" Wide + 9.0" Spacing x 1 + 18.0" Side Stone x 2 = 16.58' Base Width
12.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.75' Field Height

40 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 2 Rows = 4,457.7 cf Chamber Storage

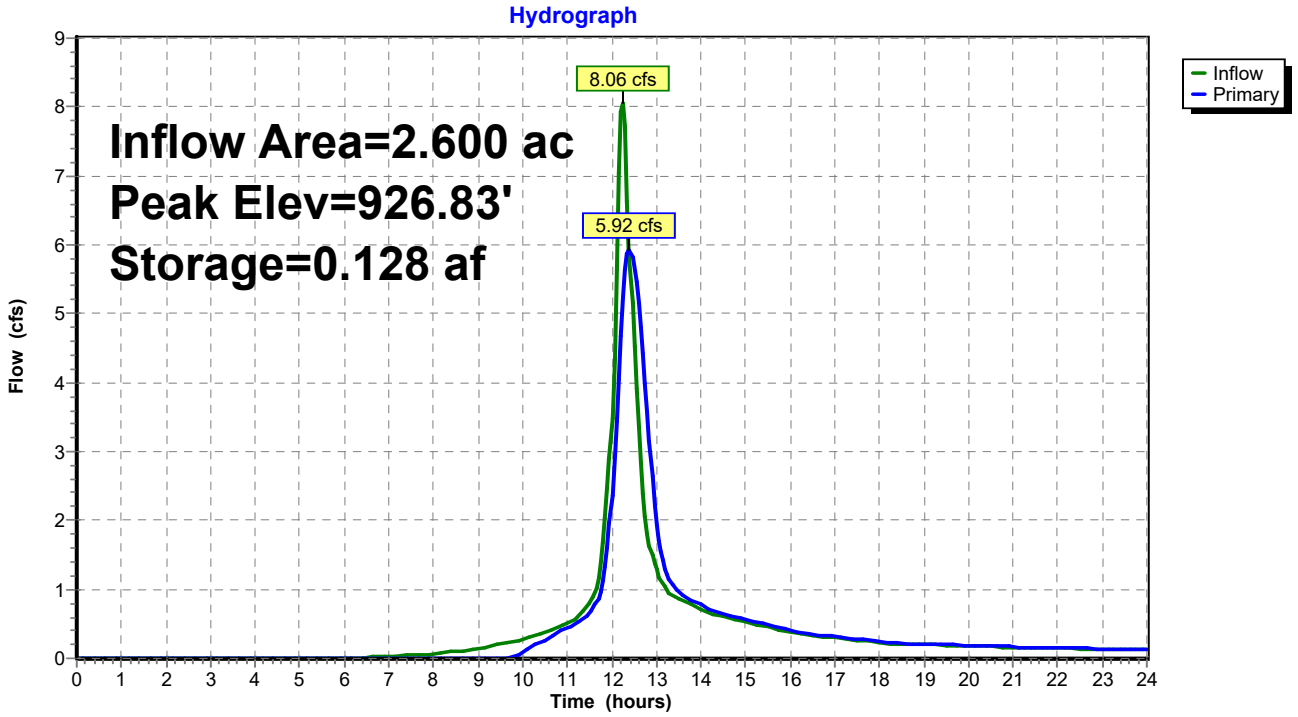
14,312.7 cf Field - 4,457.7 cf Chambers = 9,855.0 cf Stone x 40.0% Voids = 3,942.0 cf Stone Storage

Chamber Storage + Stone Storage = 8,399.7 cf = 0.193 af
Overall Storage Efficiency = 58.7%
Overall System Size = 150.10' x 16.58' x 5.75'

40 Chambers
530.1 cy Field
365.0 cy Stone



Pond 3P:


Hydrograph
Inflow Area=2.600 ac
Peak Elev=926.83'
Storage=0.128 af
8.06 cfs
5.92 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Pond 4P:

Inflow Area = 1.300 ac, 69.23% Impervious, Inflow Depth > 4.03" for 10 yr event
Inflow = 5.59 cfs @ 12.11 hrs, Volume= 0.436 af
Outflow = 4.26 cfs @ 12.20 hrs, Volume= 0.419 af, Atten= 24%, Lag= 5.7 min
Primary = 4.26 cfs @ 12.20 hrs, Volume= 0.419 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 928.03' @ 12.20 hrs Surf.Area= 0.035 ac Storage= 0.081 af

Plug-Flow detention time= 47.8 min calculated for 0.419 af (96% of inflow)
Center-of-Mass det. time= 24.9 min (823.6 - 798.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	924.50'	0.055 af	**23.75'W x 64.06'L x 5.75'H Field A** 0.201 af Overall - 0.063 af Embedded = 0.138 af x 40.0% Voids
#2A	925.50'	0.063 af	**ADS_StormTech MC-3500 d +Cap**x 24 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 3 Rows of 8 Chambers Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf
		0.118 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	925.50'	**12.0" Round Culvert** L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 925.50' / 924.10' S= 0.0163 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	927.70'	**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	Device 1	925.50'	**8.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.25 cfs @ 12.20 hrs HW=928.03' (Free Discharge)
└**1=Culvert** (Inlet Controls 4.25 cfs @ 5.41 fps)
├**2=Broad-Crested Rectangular Weir** (Passes < 2.14 cfs potential flow)
└**3=Orifice/Grate** (Passes < 2.49 cfs potential flow)

Pond 4P: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

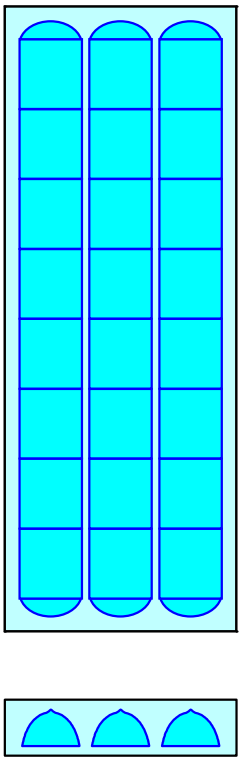
8 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 61.06' Row Length +18.0" End Stone x 2 = 64.06' Base Length
3 Rows x 77.0" Wide + 9.0" Spacing x 2 + 18.0" Side Stone x 2 = 23.75' Base Width
12.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.75' Field Height

24 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 3 Rows = 2,728.2 cf Chamber Storage

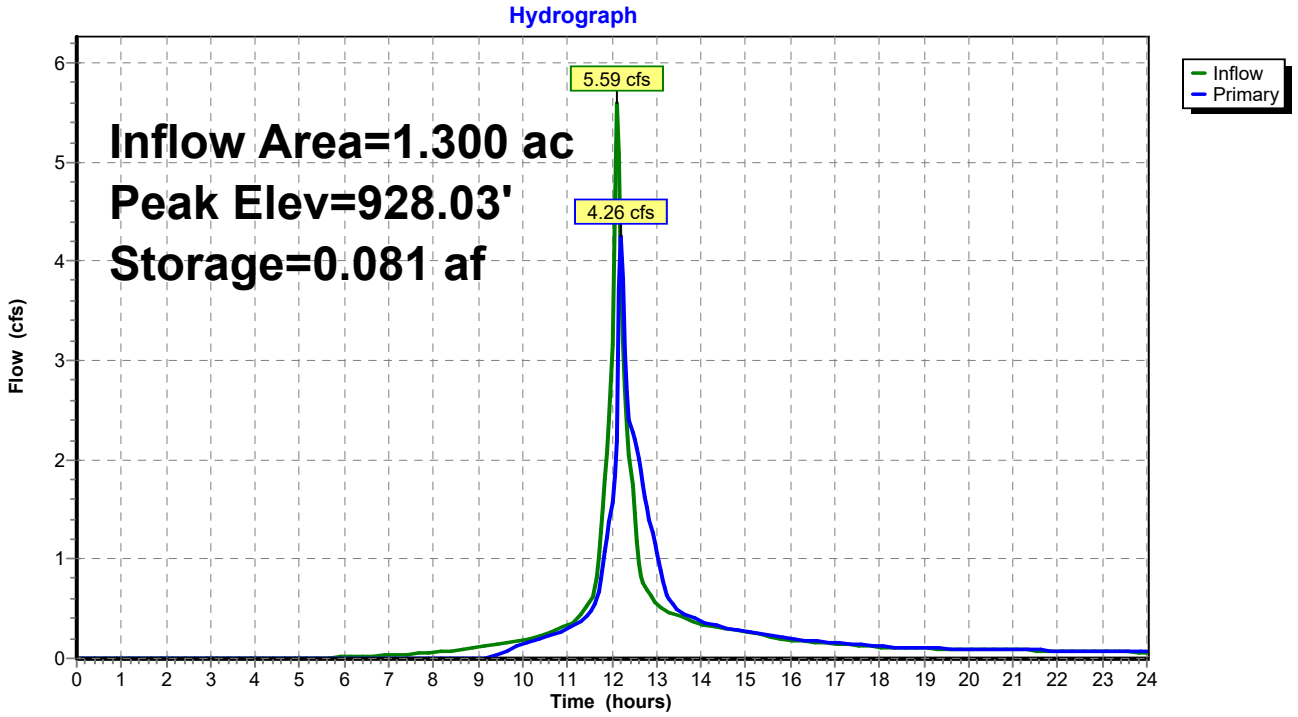
8,748.2 cf Field - 2,728.2 cf Chambers = 6,019.9 cf Stone x 40.0% Voids = 2,408.0 cf Stone Storage

Chamber Storage + Stone Storage = 5,136.2 cf = 0.118 af
Overall Storage Efficiency = 58.7%
Overall System Size = 64.06' x 23.75' x 5.75'

24 Chambers
324.0 cy Field
223.0 cy Stone



Pond 4P:


Hydrograph
Inflow Area=1.300 ac
Peak Elev=928.03'
Storage=0.081 af
5.59 cfs
4.26 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

Summary for Subcatchment PR-WS-A1:

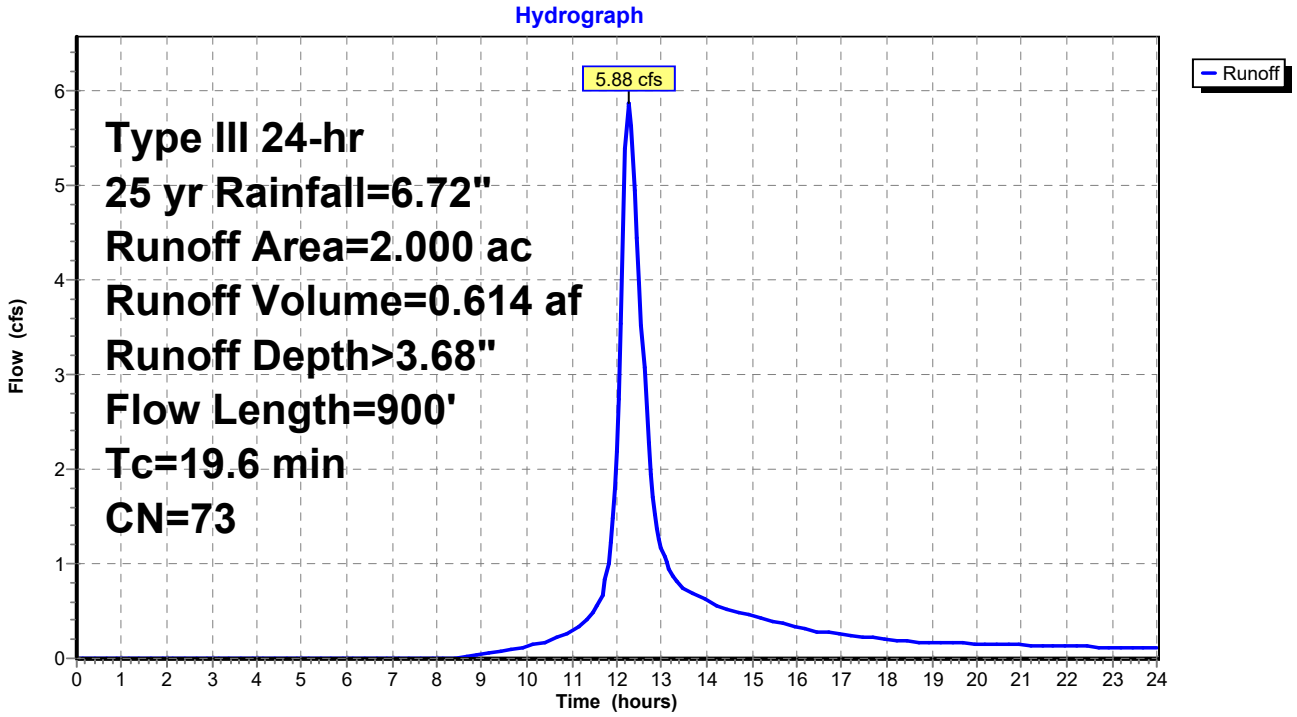
Runoff = 5.88 cfs @ 12.27 hrs, Volume= 0.614 af, Depth> 3.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.72"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG C
1.100	61	>75% Grass cover, Good, HSG B
0.400	73	Woods, Fair, HSG C
2.000	73	Weighted Average
1.500		75.00% Pervious Area
0.500		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	90	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
4.0	60	0.0600	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.9	90	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.6	280	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	380	0.0150	6.98	8.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
19.6	900	Total			

Subcatchment PR-WS-A1:



Summary for Subcatchment PR-WS-A2:

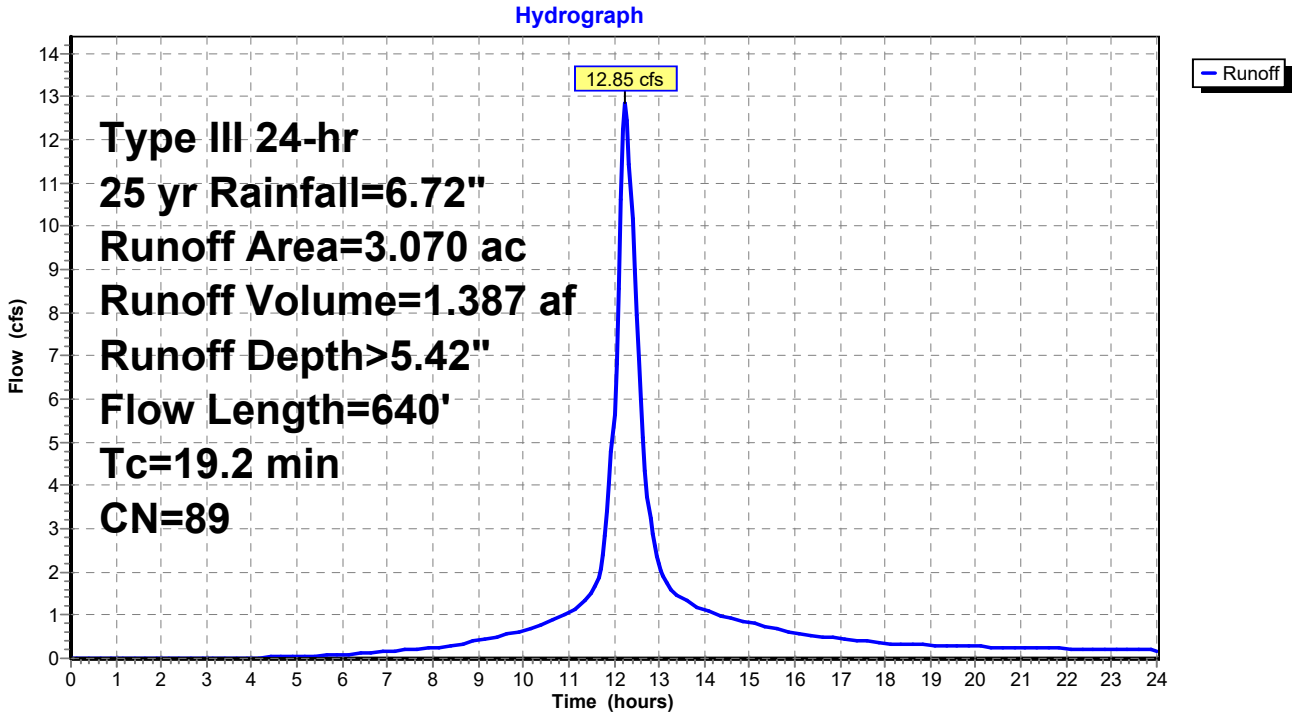
Runoff = 12.85 cfs @ 12.26 hrs, Volume= 1.387 af, Depth> 5.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.72"

	Area (ac)	CN	Description
	1.800	98	Paved parking, HSG B
	0.750	69	50-75% Grass cover, Fair, HSG B
*	0.520	85	Green parking
	3.070	89	Weighted Average
	1.270		41.37% Pervious Area
	1.800		58.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	150	0.0250	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.5	30	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	160	0.0600	4.97		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	300	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
19.2	640	Total			

Subcatchment PR-WS-A2:



Summary for Subcatchment PR-WS-B1:

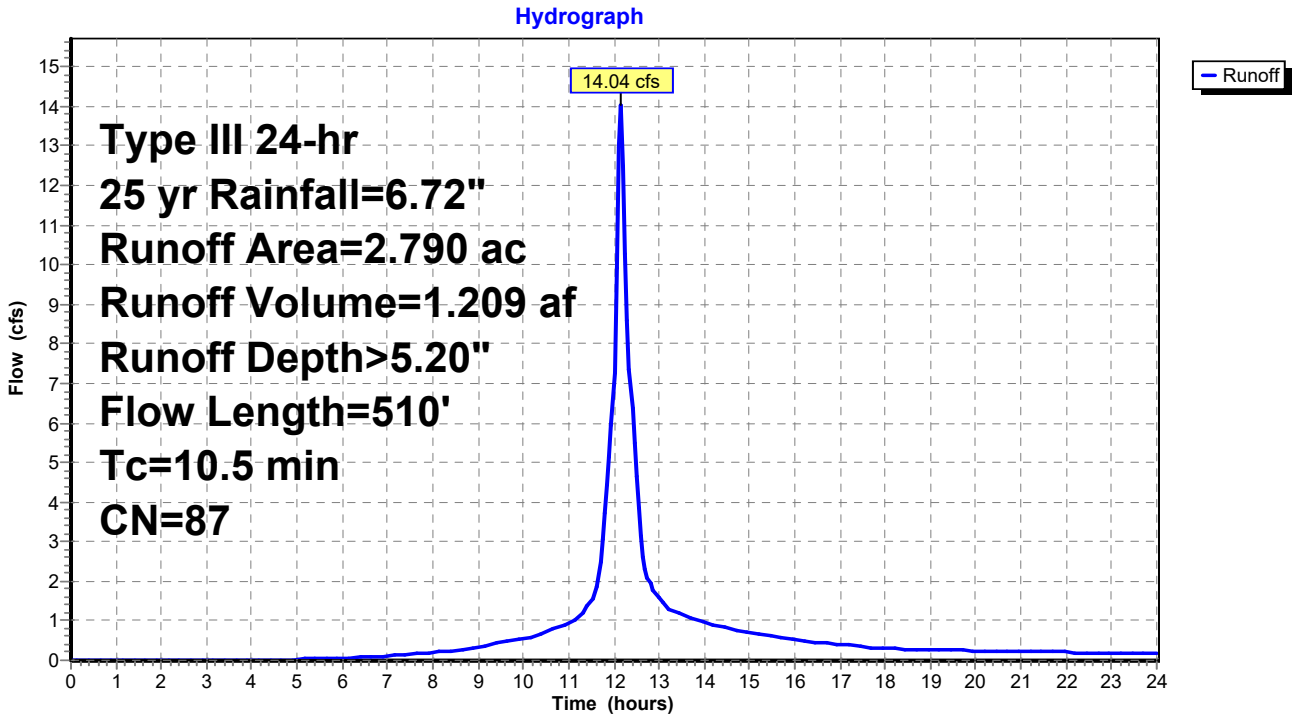
Runoff = 14.04 cfs @ 12.15 hrs, Volume= 1.209 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.72"

Area (ac)	CN	Description
1.530	98	Paved parking, HSG B
1.260	74	>75% Grass cover, Good, HSG C
2.790	87	Weighted Average
1.260		45.16% Pervious Area
1.530		54.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	150	0.1200	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.3	360	0.0100	4.54	3.56	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
10.5	510	Total			

Subcatchment PR-WS-B1:



Summary for Subcatchment PR-WS-B3:

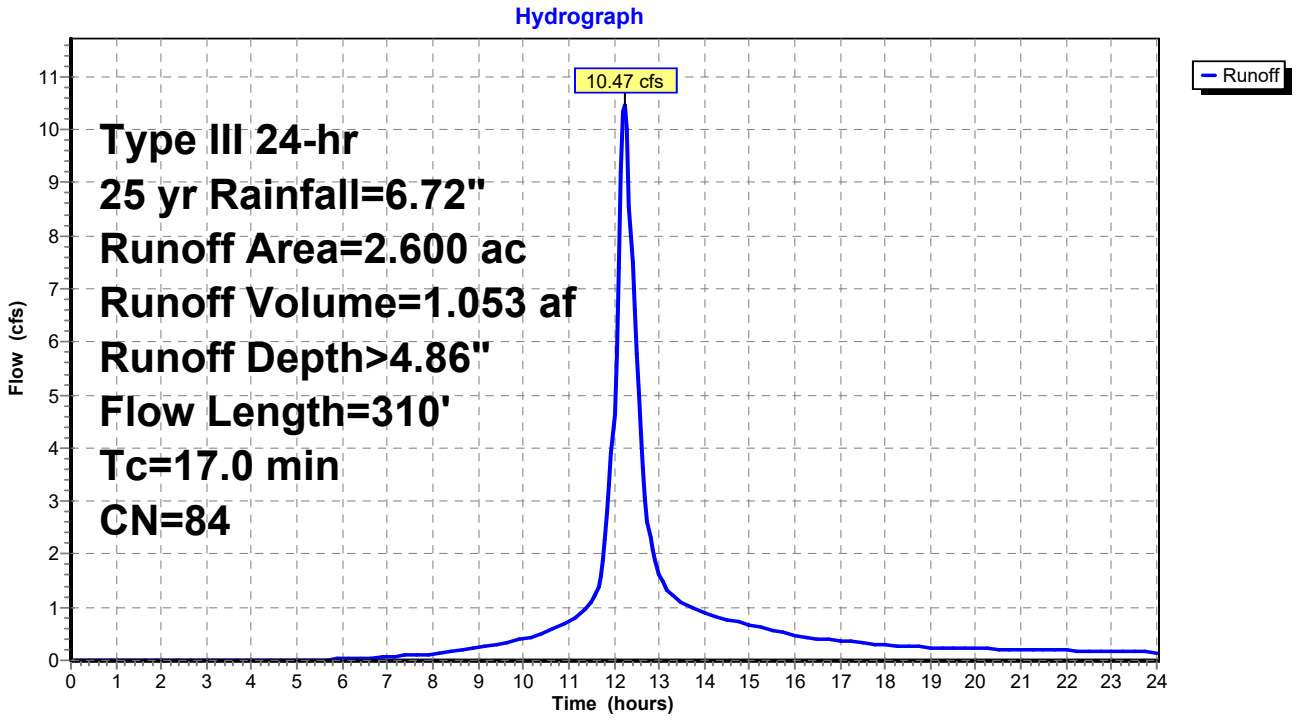
Runoff = 10.47 cfs @ 12.23 hrs, Volume= 1.053 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.72"

Area (ac)	CN	Description
1.600	98	Paved parking, HSG B
1.000	61	>75% Grass cover, Good, HSG B
2.600	84	Weighted Average
1.000		38.46% Pervious Area
1.600		61.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	90	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.5	220	0.0300	7.86	6.17	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
17.0	310	Total			

Subcatchment PR-WS-B3:



Summary for Subcatchment PR-WS-B4:

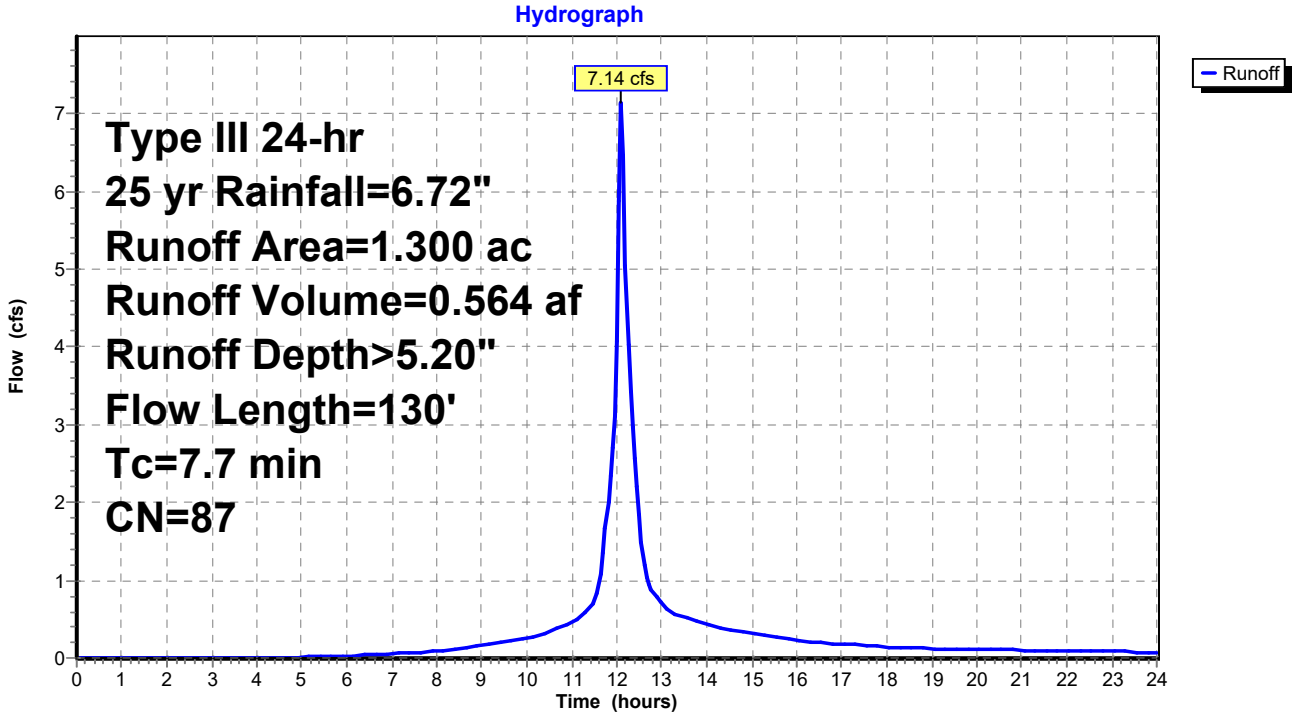
Runoff = 7.14 cfs @ 12.11 hrs, Volume= 0.564 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.72"

Area (ac)	CN	Description
0.900	98	Paved parking, HSG B
0.400	61	>75% Grass cover, Good, HSG B
1.300	87	Weighted Average
0.400		30.77% Pervious Area
0.900		69.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	30	0.0100	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	70	0.0300	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
0.1	30	0.0120	4.97	3.90	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
7.7	130	Total			

Subcatchment PR-WS-B4:



Summary for Subcatchment PR-WS-B5:

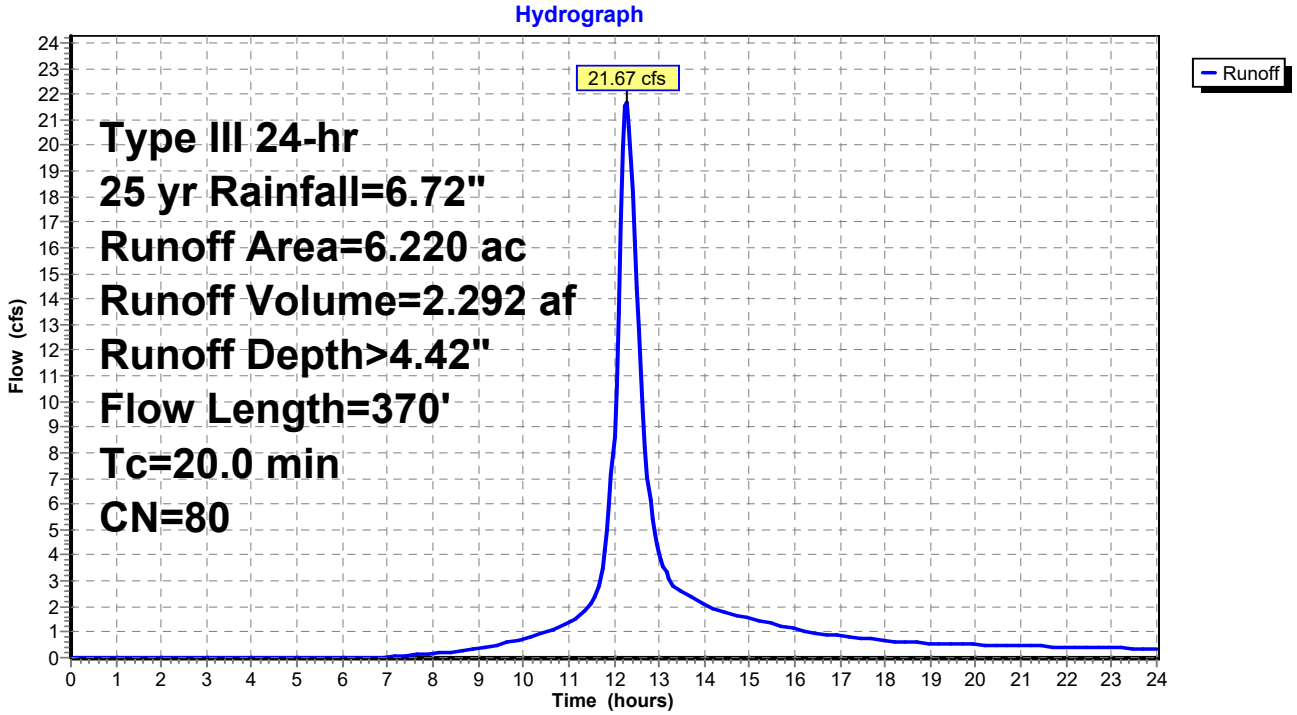
Runoff = 21.67 cfs @ 12.27 hrs, Volume= 2.292 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.72"

Area (ac)	CN	Description
0.200	98	Paved parking, HSG B
6.020	79	50-75% Grass cover, Fair, HSG C
6.220	80	Weighted Average
6.020		96.78% Pervious Area
0.200		3.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	150	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.2	50	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.7	170	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.0	370	Total			

Subcatchment PR-WS-B5:



Summary for Subcatchment PR-WS-B6:

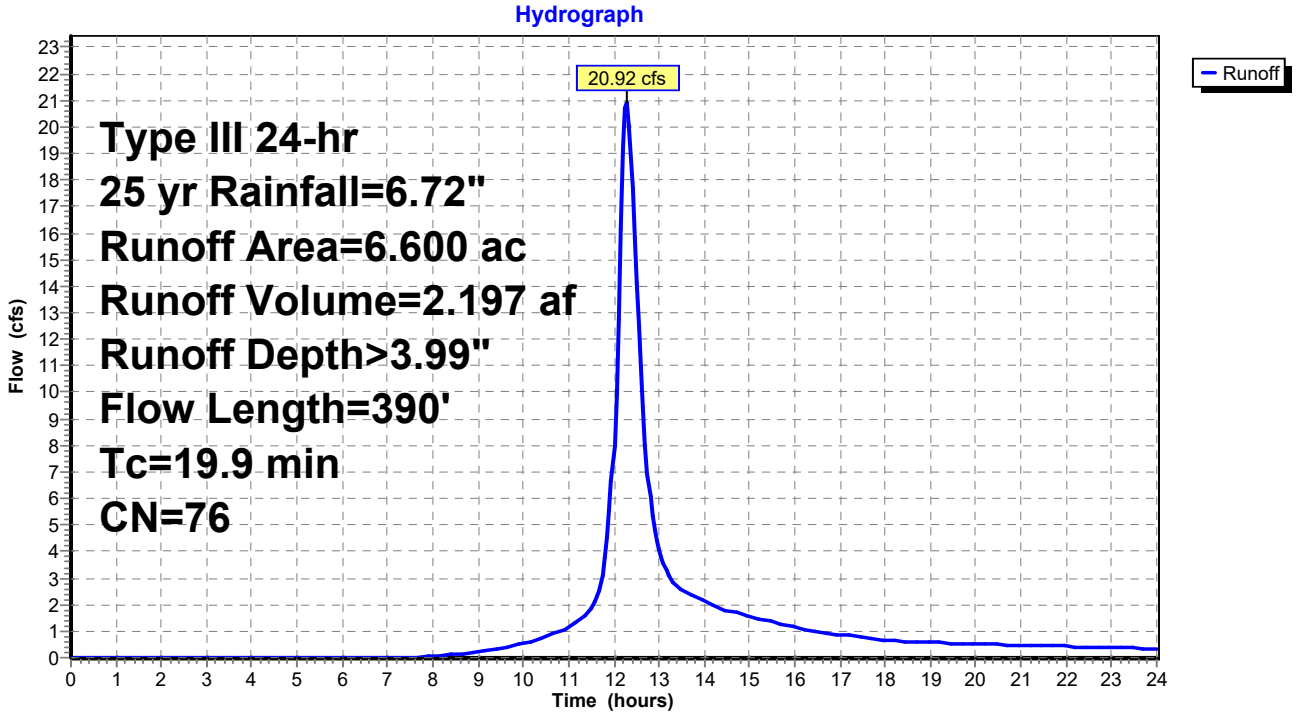
Runoff = 20.92 cfs @ 12.27 hrs, Volume= 2.197 af, Depth> 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.72"

Area (ac)	CN	Description
0.300	98	Paved parking, HSG B
2.900	79	50-75% Grass cover, Fair, HSG C
1.000	69	50-75% Grass cover, Fair, HSG B
2.400	73	Woods, Fair, HSG C
6.600	76	Weighted Average
6.300		95.45% Pervious Area
0.300		4.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	150	0.0160	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
5.7	240	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	390	Total			

Subcatchment PR-WS-B6:



Summary for Subcatchment PR-WS-C:

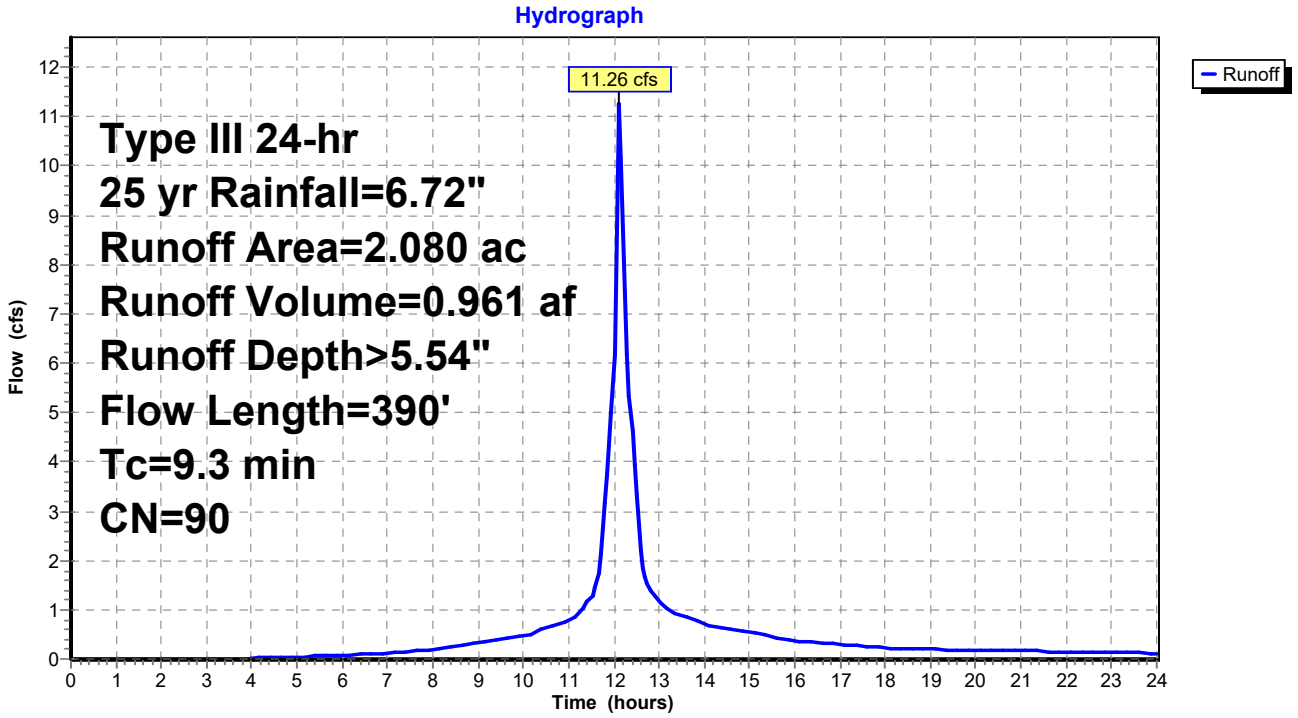
Runoff = 11.26 cfs @ 12.13 hrs, Volume= 0.961 af, Depth> 5.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.72"

Area (ac)	CN	Description
1.610	98	Paved parking, HSG B
0.050	60	Woods, Fair, HSG B
0.420	61	>75% Grass cover, Good, HSG B
2.080	90	Weighted Average
0.470		22.60% Pervious Area
1.610		77.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	10	0.0100	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.4	20	0.0100	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
0.9	120	0.0600	2.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
0.7	240	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.3	390	Total			

Subcatchment PR-WS-C:

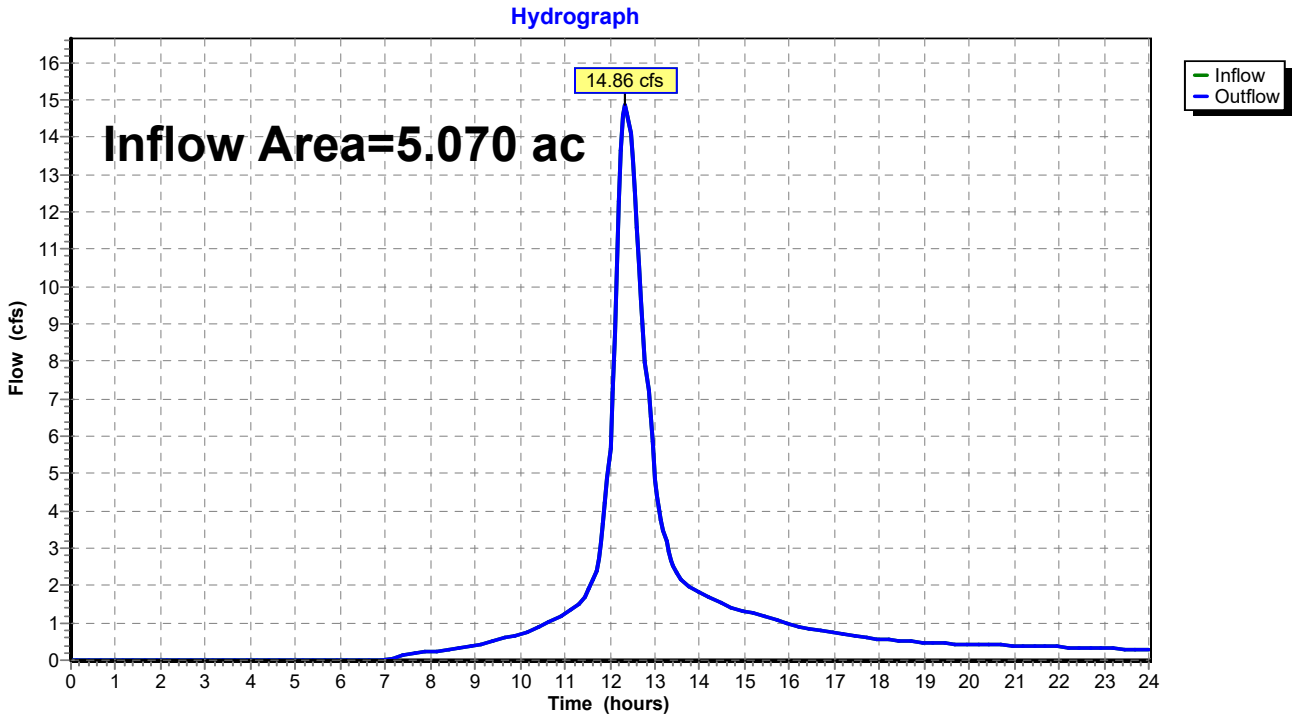


Summary for Reach PR DP 1: GILLOTTI ROAD

Inflow Area = 5.070 ac, 45.36% Impervious, Inflow Depth > 4.69" for 25 yr event
Inflow = 14.86 cfs @ 12.35 hrs, Volume= 1.980 af
Outflow = 14.86 cfs @ 12.35 hrs, Volume= 1.980 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PR DP 1: GILLOTTI ROAD

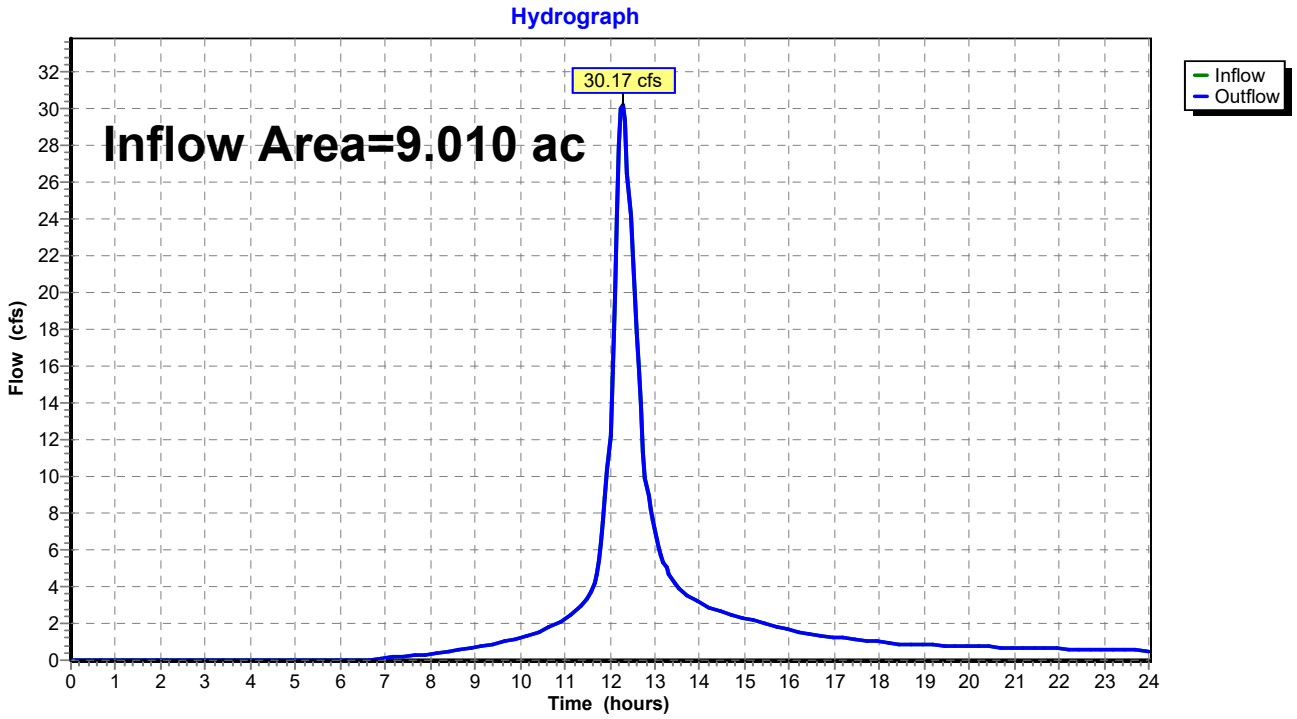


Summary for Reach PR DP 2.1: NORTHWEST WETLAND

Inflow Area = 9.010 ac, 19.20% Impervious, Inflow Depth > 4.65" for 25 yr event
Inflow = 30.17 cfs @ 12.28 hrs, Volume= 3.490 af
Outflow = 30.17 cfs @ 12.28 hrs, Volume= 3.490 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PR DP 2.1: NORTHWEST WETLAND

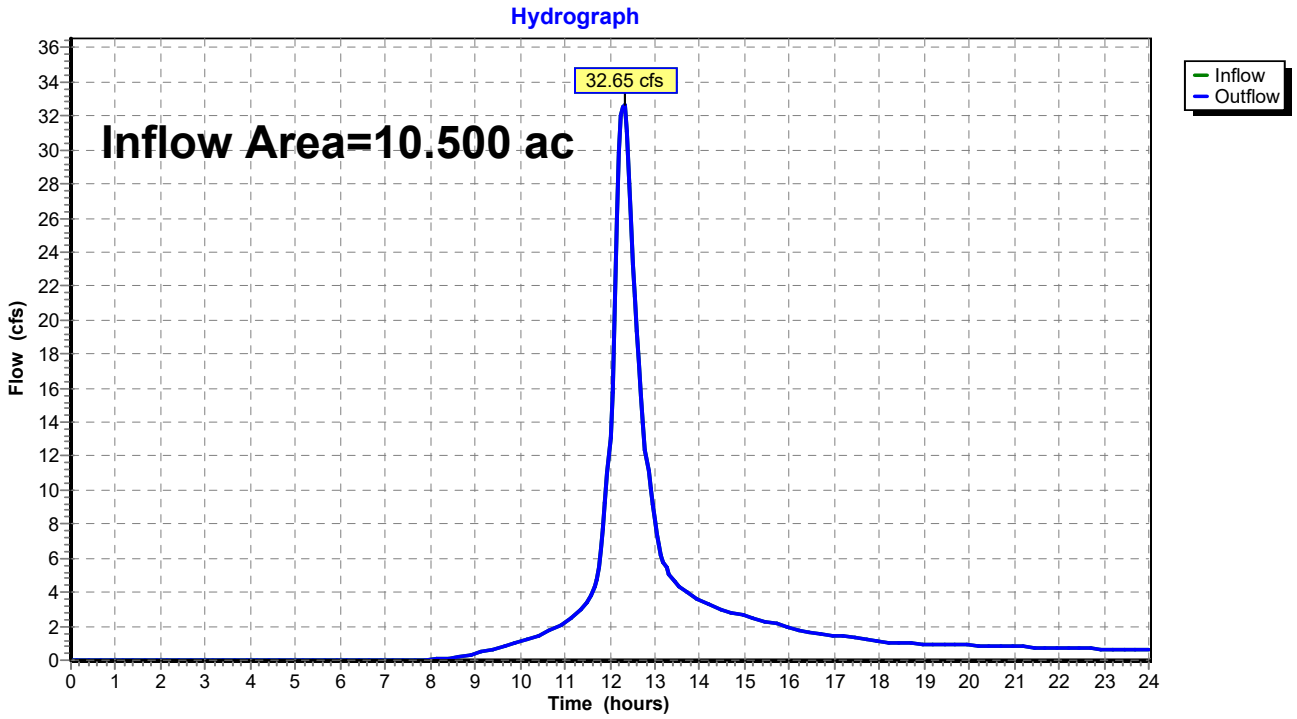


Summary for Reach PR DP 2.2: NORTHWEST WETLAND

Inflow Area = 10.500 ac, 26.67% Impervious, Inflow Depth > 4.30" for 25 yr event
Inflow = 32.65 cfs @ 12.32 hrs, Volume= 3.764 af
Outflow = 32.65 cfs @ 12.32 hrs, Volume= 3.764 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PR DP 2.2: NORTHWEST WETLAND

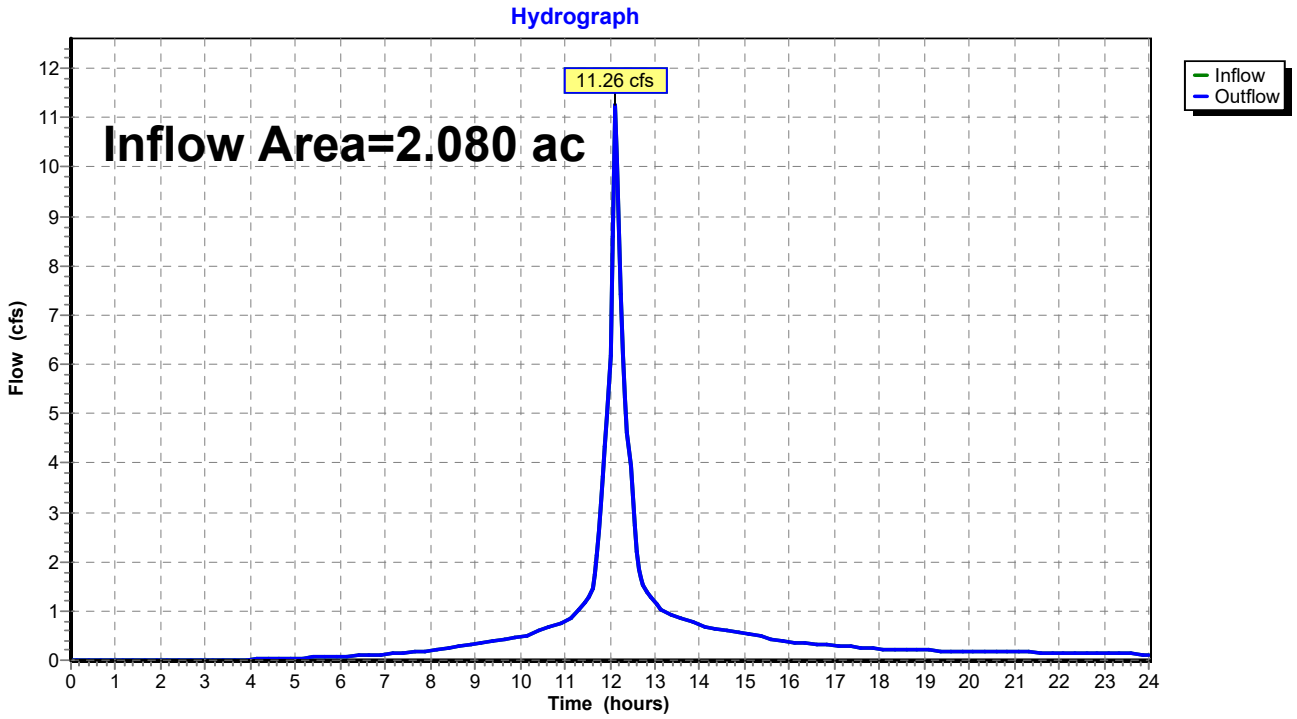


Summary for Reach PR DP 3: 18" PIPE

Inflow Area = 2.080 ac, 77.40% Impervious, Inflow Depth > 5.54" for 25 yr event
Inflow = 11.26 cfs @ 12.13 hrs, Volume= 0.961 af
Outflow = 11.26 cfs @ 12.13 hrs, Volume= 0.961 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PR DP 3: 18" PIPE



Summary for Pond 1P:

Inflow Area = 3.070 ac, 58.63% Impervious, Inflow Depth > 5.42" for 25 yr event
Inflow = 12.85 cfs @ 12.26 hrs, Volume= 1.387 af
Outflow = 9.71 cfs @ 12.42 hrs, Volume= 1.366 af, Atten= 24%, Lag= 10.0 min
Primary = 9.71 cfs @ 12.42 hrs, Volume= 1.366 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 924.15' @ 12.42 hrs Surf.Area= 0.055 ac Storage= 0.182 af

Plug-Flow detention time= 24.0 min calculated for 1.366 af (99% of inflow)
Center-of-Mass det. time= 15.2 min (810.1 - 794.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	918.50'	0.087 af	**16.58'W x 143.93'L x 5.75'H Field A** 0.315 af Overall - 0.097 af Embedded = 0.218 af x 40.0% Voids
#2A	919.50'	0.097 af	**ADS_StormTech MC-3500 d +Cap**x 38 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 2 Rows of 19 Chambers Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf
		0.184 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	919.20'	**15.0" Round Culvert** L= 88.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 919.20' / 916.60' S= 0.0295 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	920.60'	**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
#3	Device 1	919.20'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=9.67 cfs @ 12.42 hrs HW=924.12' (Free Discharge)
└**1=Culvert** (Inlet Controls 9.67 cfs @ 7.88 fps)
  ├**2=Broad-Crested Rectangular Weir** (Passes < 109.80 cfs potential flow)
  └**3=Orifice/Grate** (Passes < 7.95 cfs potential flow)

Pond 1P: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

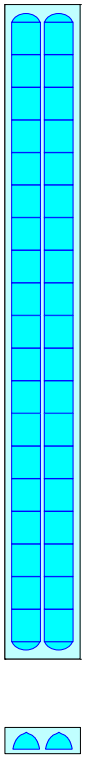
19 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 139.93' Row Length +24.0" End Stone x 2 = 143.93' Base Length
2 Rows x 77.0" Wide + 9.0" Spacing x 1 + 18.0" Side Stone x 2 = 16.58' Base Width
12.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.75' Field Height

38 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 2 Rows = 4,237.8 cf Chamber Storage

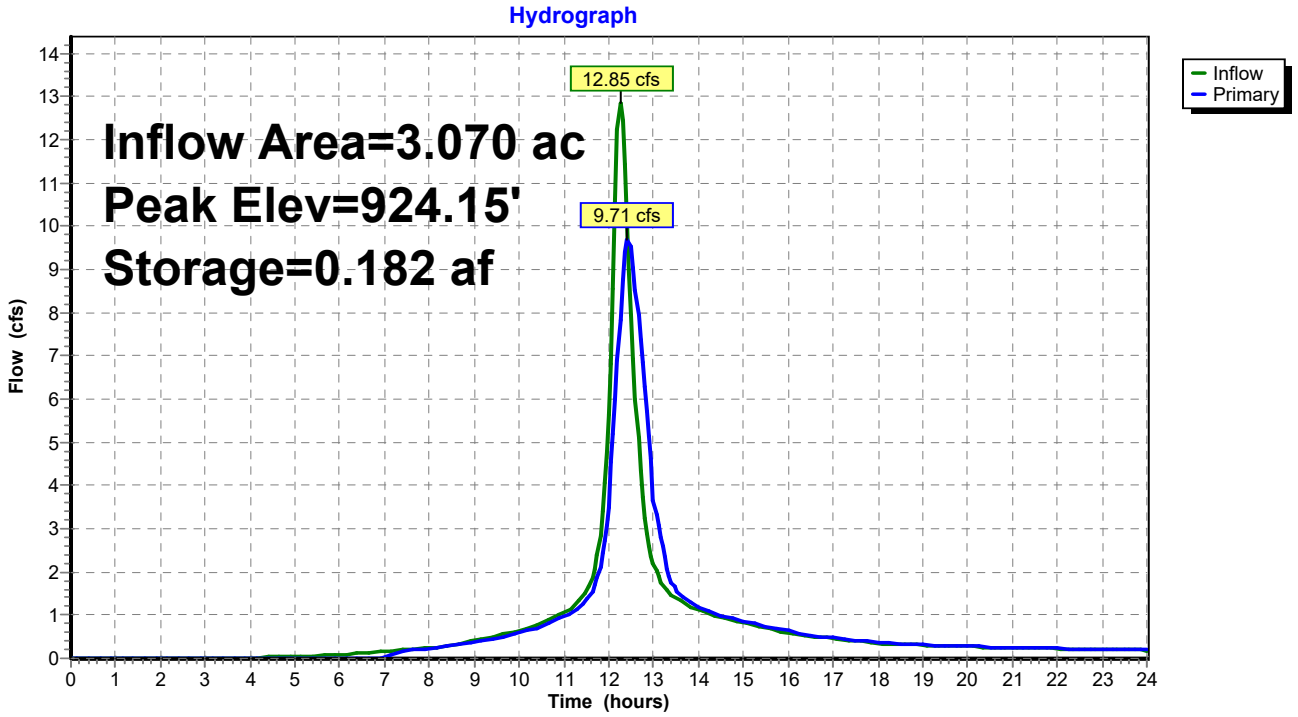
13,724.3 cf Field - 4,237.8 cf Chambers = 9,486.6 cf Stone x 40.0% Voids = 3,794.6 cf Stone Storage

Chamber Storage + Stone Storage = 8,032.4 cf = 0.184 af
Overall Storage Efficiency = 58.5%
Overall System Size = 143.93' x 16.58' x 5.75'

38 Chambers
508.3 cy Field
351.4 cy Stone



Pond 1P:


Hydrograph
Inflow Area=3.070 ac
Peak Elev=924.15'
Storage=0.182 af
12.85 cfs
9.71 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Pond 2P:

Inflow Area = 2.790 ac, 54.84% Impervious, Inflow Depth > 5.20" for 25 yr event
Inflow = 14.04 cfs @ 12.15 hrs, Volume= 1.209 af
Outflow = 8.61 cfs @ 12.30 hrs, Volume= 1.198 af, Atten= 39%, Lag= 9.6 min
Primary = 8.61 cfs @ 12.30 hrs, Volume= 1.198 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 926.23' @ 12.30 hrs Surf.Area= 0.070 ac Storage= 0.193 af

Plug-Flow detention time= 20.0 min calculated for 1.198 af (99% of inflow)
Center-of-Mass det. time= 14.2 min (808.2 - 794.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	922.00'	0.102 af	**32.17'W x 94.74'L x 5.42'H Field A** 0.379 af Overall - 0.124 af Embedded = 0.255 af x 40.0% Voids
#2A	922.67'	0.124 af	**ADS_StormTech MC-3500 d +Cap**x 48 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 4 Rows of 12 Chambers Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf
		0.226 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	922.20'	**15.0" Round Culvert** L= 96.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 922.20' / 921.10' S= 0.0115 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	924.00'	**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
#3	Device 1	922.20'	**11.3" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=8.60 cfs @ 12.30 hrs HW=926.22' (Free Discharge)
└**1=Culvert** (Inlet Controls 8.60 cfs @ 7.01 fps)
├**2=Broad-Crested Rectangular Weir** (Passes < 54.96 cfs potential flow)
└**3=Orifice/Grate** (Passes < 6.32 cfs potential flow)

Pond 2P: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf

77.0" Wide + 10.0" Spacing = 87.0" C-C Row Spacing

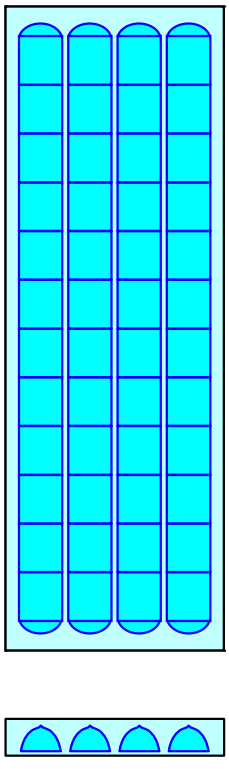
12 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 89.74' Row Length +30.0" End Stone x 2 = 94.74' Base Length
4 Rows x 77.0" Wide + 10.0" Spacing x 3 + 24.0" Side Stone x 2 = 32.17' Base Width
8.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.42' Field Height

48 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 4 Rows = 5,396.9 cf Chamber Storage

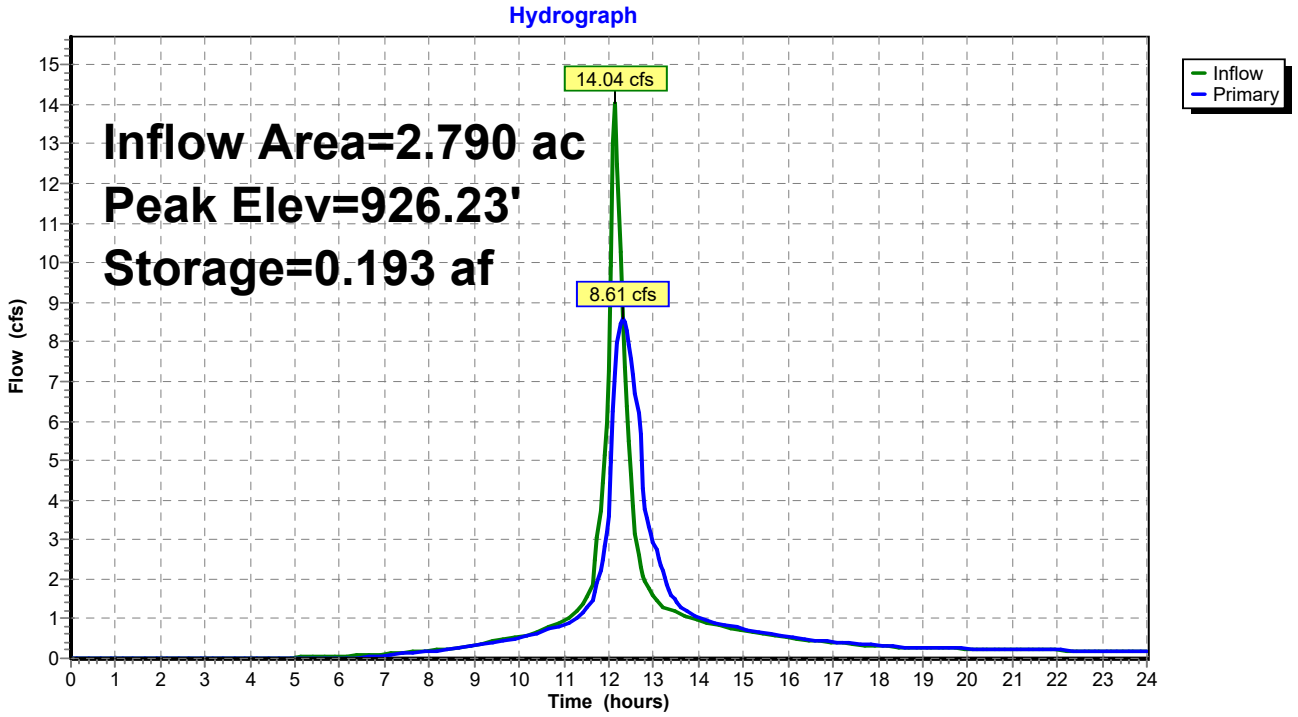
16,507.1 cf Field - 5,396.9 cf Chambers = 11,110.2 cf Stone x 40.0% Voids = 4,444.1 cf Stone Storage

Chamber Storage + Stone Storage = 9,841.0 cf = 0.226 af
Overall Storage Efficiency = 59.6%
Overall System Size = 94.74' x 32.17' x 5.42'

48 Chambers
611.4 cy Field
411.5 cy Stone



Pond 2P:


Hydrograph
Inflow Area=2.790 ac
Peak Elev=926.23'
Storage=0.193 af
14.04 cfs
8.61 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Pond 3P:

Inflow Area = 2.600 ac, 61.54% Impervious, Inflow Depth > 4.86" for 25 yr event
Inflow = 10.47 cfs @ 12.23 hrs, Volume= 1.053 af
Outflow = 8.71 cfs @ 12.36 hrs, Volume= 1.022 af, Atten= 17%, Lag= 8.0 min
Primary = 8.71 cfs @ 12.36 hrs, Volume= 1.022 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 927.73' @ 12.36 hrs Surf.Area= 0.057 ac Storage= 0.159 af

Plug-Flow detention time= 37.4 min calculated for 1.019 af (97% of inflow)
Center-of-Mass det. time= 20.4 min (828.2 - 807.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	923.40'	0.090 af	**16.58'W x 150.10'L x 5.75'H Field A** 0.329 af Overall - 0.102 af Embedded = 0.226 af x 40.0% Voids
#2A	924.40'	0.102 af	**ADS_StormTech MC-3500 d +Cap**x 40 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 2 Rows of 20 Chambers Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf
		0.193 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	924.40'	**18.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 924.40' / 924.30' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	927.50'	**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
#3	Device 1	924.40'	**12.8" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=8.53 cfs @ 12.36 hrs HW=927.71' (Free Discharge)
└**1=Culvert** (Passes 8.53 cfs of 10.75 cfs potential flow)
├**2=Broad-Crested Rectangular Weir** (Weir Controls 1.36 cfs @ 1.29 fps)
└**3=Orifice/Grate** (Orifice Controls 7.17 cfs @ 8.02 fps)

Pond 3P: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

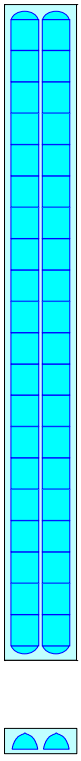
20 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 147.10' Row Length +18.0" End Stone x 2 = 150.10' Base Length
2 Rows x 77.0" Wide + 9.0" Spacing x 1 + 18.0" Side Stone x 2 = 16.58' Base Width
12.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.75' Field Height

40 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 2 Rows = 4,457.7 cf Chamber Storage

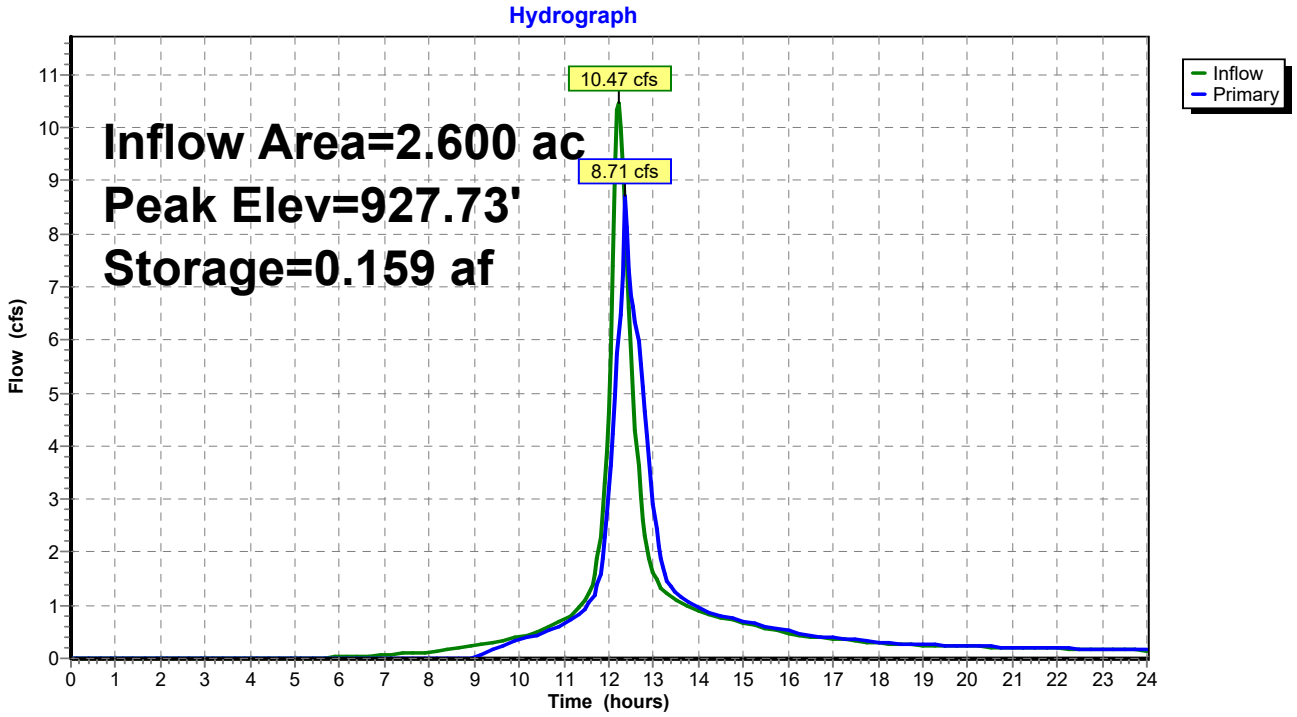
14,312.7 cf Field - 4,457.7 cf Chambers = 9,855.0 cf Stone x 40.0% Voids = 3,942.0 cf Stone Storage

Chamber Storage + Stone Storage = 8,399.7 cf = 0.193 af
Overall Storage Efficiency = 58.7%
Overall System Size = 150.10' x 16.58' x 5.75'

40 Chambers
530.1 cy Field
365.0 cy Stone



Pond 3P:


Hydrograph
Inflow Area=2.600 ac
Peak Elev=927.73'
Storage=0.159 af
10.47 cfs
8.71 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Pond 4P:

Inflow Area = 1.300 ac, 69.23% Impervious, Inflow Depth > 5.20" for 25 yr event
Inflow = 7.14 cfs @ 12.11 hrs, Volume= 0.564 af
Outflow = 4.96 cfs @ 12.21 hrs, Volume= 0.546 af, Atten= 31%, Lag= 6.1 min
Primary = 4.96 cfs @ 12.21 hrs, Volume= 0.546 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 928.76' @ 12.21 hrs Surf.Area= 0.035 ac Storage= 0.096 af

Plug-Flow detention time= 41.1 min calculated for 0.544 af (97% of inflow)
Center-of-Mass det. time= 22.6 min (814.3 - 791.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	924.50'	0.055 af	**23.75'W x 64.06'L x 5.75'H Field A** 0.201 af Overall - 0.063 af Embedded = 0.138 af x 40.0% Voids
#2A	925.50'	0.063 af	**ADS_StormTech MC-3500 d +Cap**x 24 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 3 Rows of 8 Chambers Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf
		0.118 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	925.50'	**12.0" Round Culvert** L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 925.50' / 924.10' S= 0.0163 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	927.70'	**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	Device 1	925.50'	**8.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.94 cfs @ 12.21 hrs HW=928.74' (Free Discharge)
└**1=Culvert** (Inlet Controls 4.94 cfs @ 6.29 fps)
├**2=Broad-Crested Rectangular Weir** (Passes < 13.99 cfs potential flow)
└**3=Orifice/Grate** (Passes < 2.86 cfs potential flow)

Pond 4P: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

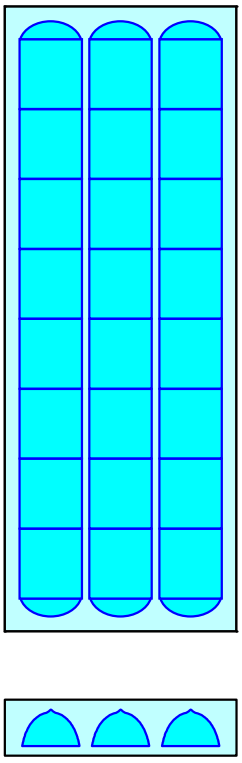
8 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 61.06' Row Length +18.0" End Stone x 2 = 64.06' Base Length
3 Rows x 77.0" Wide + 9.0" Spacing x 2 + 18.0" Side Stone x 2 = 23.75' Base Width
12.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.75' Field Height

24 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 3 Rows = 2,728.2 cf Chamber Storage

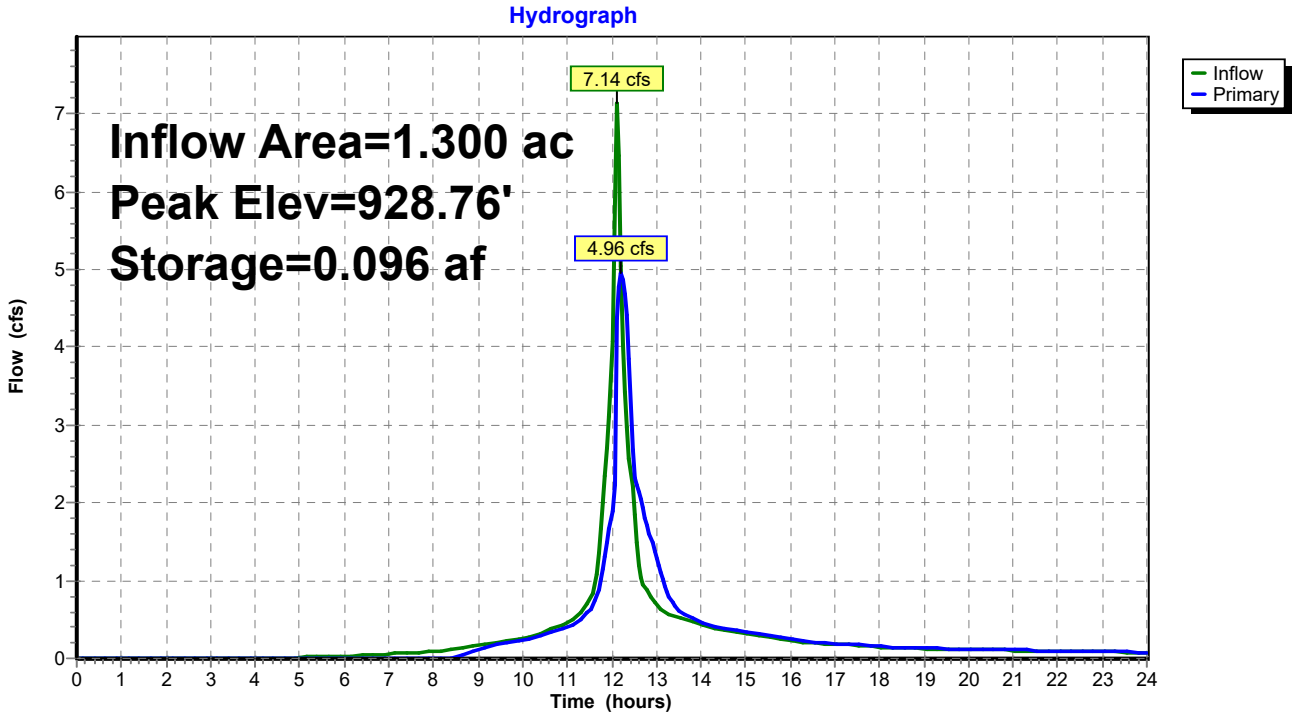
8,748.2 cf Field - 2,728.2 cf Chambers = 6,019.9 cf Stone x 40.0% Voids = 2,408.0 cf Stone Storage

Chamber Storage + Stone Storage = 5,136.2 cf = 0.118 af
Overall Storage Efficiency = 58.7%
Overall System Size = 64.06' x 23.75' x 5.75'

24 Chambers
324.0 cy Field
223.0 cy Stone



Pond 4P:


Hydrograph
Inflow Area=1.300 ac
Peak Elev=928.76'
Storage=0.096 af
7.14 cfs
4.96 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

APPENDIX C

NOAA Rainfall Data

NOAA Atlas 14, Volume 10, Version 3
CANDLEWOOD LAKE
Station ID: 06-1093
Location name: New Fairfield, Connecticut, USA*
Latitude: 41.484°, Longitude: -73.4625°
Elevation:
Elevation (station metadata): 502 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.358** (0.272-0.473)	**0.419** (0.317-0.553)	**0.518** (0.390-0.686)	**0.599** (0.450-0.797)	**0.711** (0.519-0.983)	**0.796** (0.570-1.12)	**0.884** (0.616-1.29)	**0.978** (0.653-1.46)	**1.11** (0.716-1.71)	**1.21** (0.764-1.91)
10-min	**0.508** (0.385-0.670)	**0.593** (0.449-0.783)	**0.732** (0.553-0.970)	**0.848** (0.637-1.13)	**1.01** (0.735-1.39)	**1.13** (0.808-1.59)	**1.25** (0.873-1.82)	**1.39** (0.926-2.07)	**1.57** (1.01-2.42)	**1.71** (1.08-2.70)
15-min	**0.597** (0.453-0.788)	**0.698** (0.528-0.921)	**0.862** (0.650-1.14)	**0.998** (0.749-1.33)	**1.19** (0.865-1.64)	**1.33** (0.951-1.87)	**1.47** (1.03-2.15)	**1.63** (1.09-2.44)	**1.84** (1.19-2.85)	**2.01** (1.27-3.18)
30-min	**0.833** (0.631-1.10)	**0.969** (0.733-1.28)	**1.19** (0.899-1.58)	**1.38** (1.03-1.83)	**1.63** (1.19-2.25)	**1.82** (1.31-2.57)	**2.02** (1.41-2.94)	**2.23** (1.49-3.34)	**2.51** (1.62-3.88)	**2.73** (1.73-4.31)
60-min	**1.07** (0.809-1.41)	**1.24** (0.938-1.64)	**1.52** (1.15-2.01)	**1.75** (1.32-2.34)	**2.08** (1.51-2.87)	**2.32** (1.66-3.27)	**2.57** (1.79-3.73)	**2.83** (1.89-4.23)	**3.18** (2.06-4.92)	**3.45** (2.18-5.44)
2-hr	**1.40** (1.06-1.83)	**1.62** (1.23-2.13)	**1.99** (1.50-2.62)	**2.29** (1.73-3.03)	**2.71** (1.99-3.75)	**3.02** (2.19-4.27)	**3.35** (2.37-4.93)	**3.75** (2.51-5.60)	**4.34** (2.82-6.70)	**4.85** (3.08-7.62)
3-hr	**1.61** (1.23-2.11)	**1.88** (1.43-2.46)	**2.31** (1.76-3.04)	**2.68** (2.02-3.54)	**3.17** (2.34-4.39)	**3.54** (2.58-5.02)	**3.94** (2.81-5.82)	**4.44** (2.98-6.61)	**5.22** (3.39-8.03)	**5.89** (3.75-9.24)
6-hr	**2.00** (1.53-2.61)	**2.38** (1.82-3.10)	**2.98** (2.28-3.91)	**3.49** (2.65-4.59)	**4.18** (3.10-5.77)	**4.68** (3.43-6.63)	**5.25** (3.77-7.75)	**5.96** (4.01-8.84)	**7.09** (4.61-10.9)	**8.07** (5.15-12.6)
12-hr	**2.42** (1.87-3.15)	**2.94** (2.26-3.82)	**3.78** (2.90-4.93)	**4.48** (3.41-5.87)	**5.44** (4.05-7.49)	**6.15** (4.51-8.66)	**6.92** (4.99-10.2)	**7.89** (5.33-11.7)	**9.39** (6.13-14.3)	**10.7** (6.85-16.6)
24-hr	**2.84** (2.19-3.67)	**3.50** (2.70-4.53)	**4.59** (3.53-5.96)	**5.49** (4.20-7.16)	**6.72** (5.03-9.21)	**7.64** (5.62-10.7)	**8.63** (6.23-12.6)	**9.86** (6.68-14.5)	**11.8** (7.69-17.9)	**13.4** (8.59-20.7)
2-day	**3.25** (2.52-4.18)	**4.03** (3.13-5.20)	**5.31** (4.11-6.87)	**6.38** (4.90-8.29)	**7.84** (5.89-10.7)	**8.91** (6.59-12.5)	**10.1** (7.33-14.7)	**11.6** (7.86-16.9)	**13.8** (9.09-21.0)	**15.8** (10.2-24.4)
3-day	**3.54** (2.76-4.55)	**4.39** (3.41-5.65)	**5.78** (4.48-7.45)	**6.93** (5.34-8.99)	**8.52** (6.41-11.6)	**9.68** (7.18-13.5)	**11.0** (7.98-16.0)	**12.6** (8.55-18.3)	**15.0** (9.90-22.7)	**17.2** (11.1-26.5)
4-day	**3.80** (2.96-4.87)	**4.69** (3.65-6.02)	**6.16** (4.78-7.93)	**7.38** (5.69-9.54)	**9.05** (6.82-12.3)	**10.3** (7.63-14.3)	**11.6** (8.47-16.9)	**13.3** (9.08-19.4)	**15.9** (10.5-24.0)	**18.2** (11.8-28.0)
7-day	**4.49** (3.51-5.73)	**5.48** (4.28-7.01)	**7.11** (5.53-9.11)	**8.46** (6.55-10.9)	**10.3** (7.79-13.9)	**11.7** (8.69-16.2)	**13.2** (9.60-19.0)	**15.0** (10.3-21.8)	**17.8** (11.8-26.7)	**20.2** (13.1-30.9)
10-day	**5.18** (4.06-6.60)	**6.23** (4.88-7.95)	**7.95** (6.20-10.2)	**9.38** (7.28-12.1)	**11.3** (8.58-15.3)	**12.8** (9.52-17.6)	**14.4** (10.5-20.6)	**16.2** (11.1-23.5)	**19.1** (12.6-28.5)	**21.4** (13.9-32.7)
20-day	**7.38** (5.80-9.35)	**8.52** (6.70-10.8)	**10.4** (8.15-13.3)	**12.0** (9.32-15.3)	**14.1** (10.7-18.8)	**15.7** (11.7-21.4)	**17.4** (12.6-24.5)	**19.3** (13.3-27.7)	**21.8** (14.5-32.5)	**23.9** (15.6-36.3)
30-day	**9.22** (7.28-11.7)	**10.4** (8.22-13.2)	**12.4** (9.75-15.8)	**14.1** (11.0-18.0)	**16.3** (12.4-21.6)	**18.1** (13.4-24.3)	**19.8** (14.2-27.5)	**21.6** (14.9-31.0)	**24.0** (16.0-35.6)	**25.8** (16.8-39.2)
45-day	**11.5** (9.10-14.5)	**12.8** (10.1-16.2)	**14.9** (11.7-18.9)	**16.7** (13.0-21.2)	**19.1** (14.5-25.1)	**20.9** (15.5-28.1)	**22.8** (16.4-31.4)	**24.6** (17.0-35.1)	**26.9** (18.0-39.7)	**28.5** (18.6-43.1)
60-day	**13.4** (10.6-16.9)	**14.8** (11.7-18.6)	**17.0** (13.4-21.5)	**18.8** (14.8-24.0)	**21.4** (16.2-28.1)	**23.4** (17.4-31.2)	**25.3** (18.2-34.8)	**27.1** (18.9-38.7)	**29.4** (19.7-43.4)	**31.0** (20.3-46.8)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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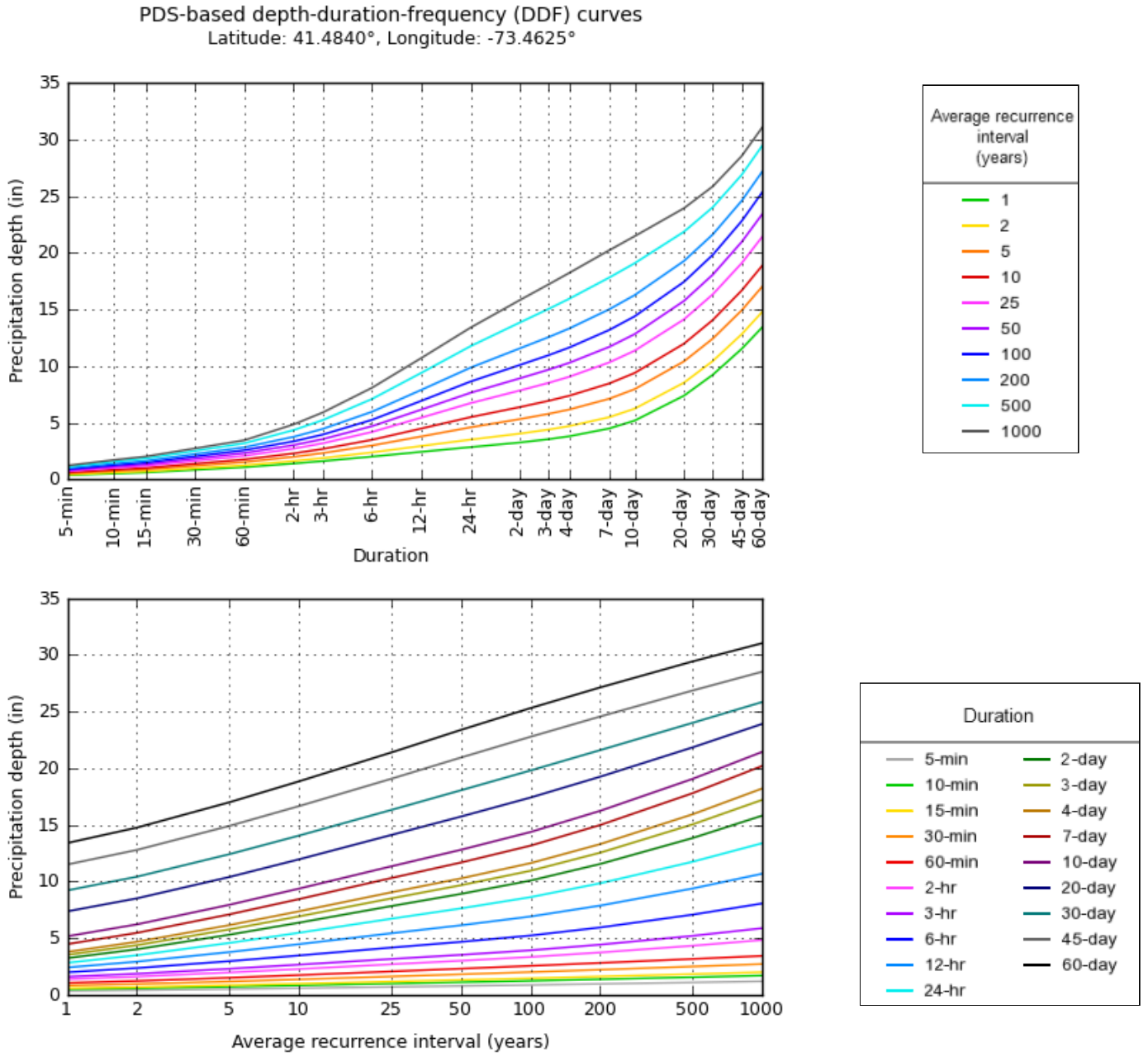
PF graphical



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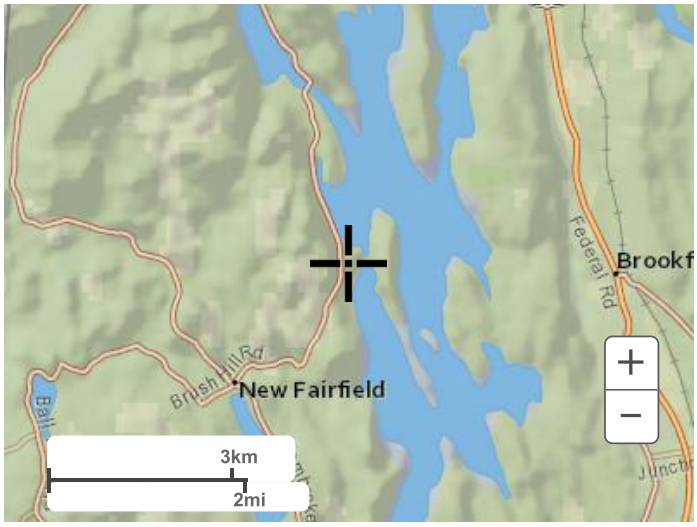
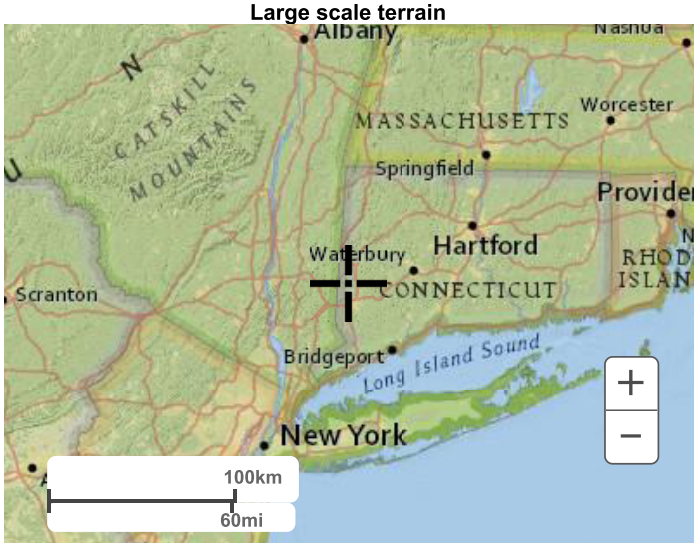
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map

Large scale aerial

NOAA Atlas 14, Volume 10, Version 3
Location name: New Fairfield, Connecticut, USA*
Latitude: 41.484°, Longitude: -73.4625°
Elevation: 515.81 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**4.30** (3.26-5.68)	**5.03** (3.80-6.64)	**6.22** (4.68-8.23)	**7.19** (5.40-9.56)	**8.53** (6.23-11.8)	**9.55** (6.84-13.5)	**10.6** (7.39-15.4)	**11.7** (7.84-17.5)	**13.3** (8.59-20.5)	**14.5** (9.17-22.9)
10-min	**3.05** (2.31-4.02)	**3.56** (2.69-4.70)	**4.39** (3.32-5.82)	**5.09** (3.82-6.77)	**6.04** (4.41-8.36)	**6.77** (4.85-9.55)	**7.52** (5.24-10.9)	**8.32** (5.56-12.4)	**9.41** (6.08-14.6)	**10.3** (6.50-16.2)
15-min	**2.39** (1.81-3.15)	**2.79** (2.11-3.68)	**3.45** (2.60-4.56)	**3.99** (3.00-5.31)	**4.74** (3.46-6.56)	**5.31** (3.80-7.49)	**5.90** (4.11-8.58)	**6.52** (4.36-9.76)	**7.38** (4.77-11.4)	**8.05** (5.10-12.7)
30-min	**1.67** (1.26-2.20)	**1.94** (1.47-2.56)	**2.38** (1.80-3.16)	**2.75** (2.07-3.66)	**3.26** (2.38-4.50)	**3.65** (2.61-5.14)	**4.04** (2.81-5.87)	**4.46** (2.98-6.67)	**5.02** (3.25-7.77)	**5.46** (3.46-8.62)
60-min	**1.07** (0.809-1.41)	**1.24** (0.938-1.64)	**1.52** (1.15-2.01)	**1.75** (1.32-2.34)	**2.08** (1.51-2.87)	**2.32** (1.66-3.27)	**2.57** (1.79-3.73)	**2.83** (1.89-4.23)	**3.18** (2.06-4.92)	**3.45** (2.18-5.44)
2-hr	**0.698** (0.530-0.916)	**0.810** (0.615-1.06)	**0.992** (0.752-1.31)	**1.14** (0.863-1.52)	**1.35** (0.996-1.87)	**1.51** (1.09-2.14)	**1.68** (1.19-2.46)	**1.88** (1.26-2.80)	**2.17** (1.41-3.35)	**2.42** (1.54-3.81)
3-hr	**0.535** (0.408-0.701)	**0.624** (0.476-0.819)	**0.770** (0.585-1.01)	**0.891** (0.673-1.18)	**1.06** (0.781-1.46)	**1.18** (0.858-1.67)	**1.31** (0.937-1.94)	**1.48** (0.993-2.20)	**1.74** (1.13-2.67)	**1.96** (1.25-3.08)
6-hr	**0.335** (0.256-0.436)	**0.397** (0.303-0.518)	**0.498** (0.380-0.652)	**0.582** (0.442-0.766)	**0.698** (0.518-0.964)	**0.782** (0.572-1.11)	**0.876** (0.630-1.30)	**0.995** (0.670-1.48)	**1.18** (0.770-1.81)	**1.35** (0.860-2.11)
12-hr	**0.201** (0.155-0.261)	**0.244** (0.187-0.317)	**0.314** (0.240-0.409)	**0.372** (0.283-0.487)	**0.452** (0.336-0.621)	**0.510** (0.374-0.719)	**0.575** (0.414-0.844)	**0.655** (0.442-0.967)	**0.780** (0.509-1.19)	**0.888** (0.568-1.38)
24-hr	**0.118** (0.091-0.153)	**0.146** (0.113-0.189)	**0.191** (0.147-0.248)	**0.229** (0.175-0.298)	**0.280** (0.209-0.384)	**0.318** (0.234-0.446)	**0.360** (0.260-0.526)	**0.411** (0.278-0.604)	**0.490** (0.321-0.744)	**0.558** (0.358-0.864)
2-day	**0.068** (0.053-0.087)	**0.084** (0.065-0.108)	**0.111** (0.086-0.143)	**0.133** (0.102-0.173)	**0.163** (0.123-0.223)	**0.186** (0.137-0.260)	**0.210** (0.153-0.307)	**0.241** (0.164-0.353)	**0.288** (0.189-0.436)	**0.330** (0.212-0.508)
3-day	**0.049** (0.038-0.063)	**0.061** (0.047-0.078)	**0.080** (0.062-0.104)	**0.096** (0.074-0.125)	**0.118** (0.089-0.161)	**0.134** (0.100-0.188)	**0.152** (0.111-0.222)	**0.174** (0.119-0.255)	**0.209** (0.137-0.316)	**0.239** (0.154-0.368)
4-day	**0.040** (0.031-0.051)	**0.049** (0.038-0.063)	**0.064** (0.050-0.083)	**0.077** (0.059-0.099)	**0.094** (0.071-0.128)	**0.107** (0.080-0.149)	**0.121** (0.088-0.176)	**0.139** (0.095-0.202)	**0.166** (0.109-0.250)	**0.190** (0.123-0.291)
7-day	**0.027** (0.021-0.034)	**0.033** (0.025-0.042)	**0.042** (0.033-0.054)	**0.050** (0.039-0.065)	**0.061** (0.046-0.083)	**0.070** (0.052-0.096)	**0.078** (0.057-0.113)	**0.089** (0.061-0.130)	**0.106** (0.070-0.159)	**0.120** (0.078-0.184)
10-day	**0.022** (0.017-0.027)	**0.026** (0.020-0.033)	**0.033** (0.026-0.042)	**0.039** (0.030-0.050)	**0.047** (0.036-0.064)	**0.053** (0.040-0.073)	**0.060** (0.044-0.086)	**0.068** (0.046-0.098)	**0.079** (0.053-0.119)	**0.089** (0.058-0.136)
20-day	**0.015** (0.012-0.019)	**0.018** (0.014-0.023)	**0.022** (0.017-0.028)	**0.025** (0.019-0.032)	**0.029** (0.022-0.039)	**0.033** (0.024-0.045)	**0.036** (0.026-0.051)	**0.040** (0.028-0.058)	**0.046** (0.030-0.068)	**0.050** (0.032-0.076)
30-day	**0.013** (0.010-0.016)	**0.014** (0.011-0.018)	**0.017** (0.014-0.022)	**0.020** (0.015-0.025)	**0.023** (0.017-0.030)	**0.025** (0.019-0.034)	**0.027** (0.020-0.038)	**0.030** (0.021-0.043)	**0.033** (0.022-0.049)	**0.036** (0.023-0.054)
45-day	**0.011** (0.008-0.013)	**0.012** (0.009-0.015)	**0.014** (0.011-0.017)	**0.015** (0.012-0.020)	**0.018** (0.013-0.023)	**0.019** (0.014-0.026)	**0.021** (0.015-0.029)	**0.023** (0.016-0.033)	**0.025** (0.017-0.037)	**0.026** (0.017-0.040)
60-day	**0.009** (0.007-0.012)	**0.010** (0.008-0.013)	**0.012** (0.009-0.015)	**0.013** (0.010-0.017)	**0.015** (0.011-0.019)	**0.016** (0.012-0.022)	**0.018** (0.013-0.024)	**0.019** (0.013-0.027)	**0.020** (0.014-0.030)	**0.022** (0.014-0.033)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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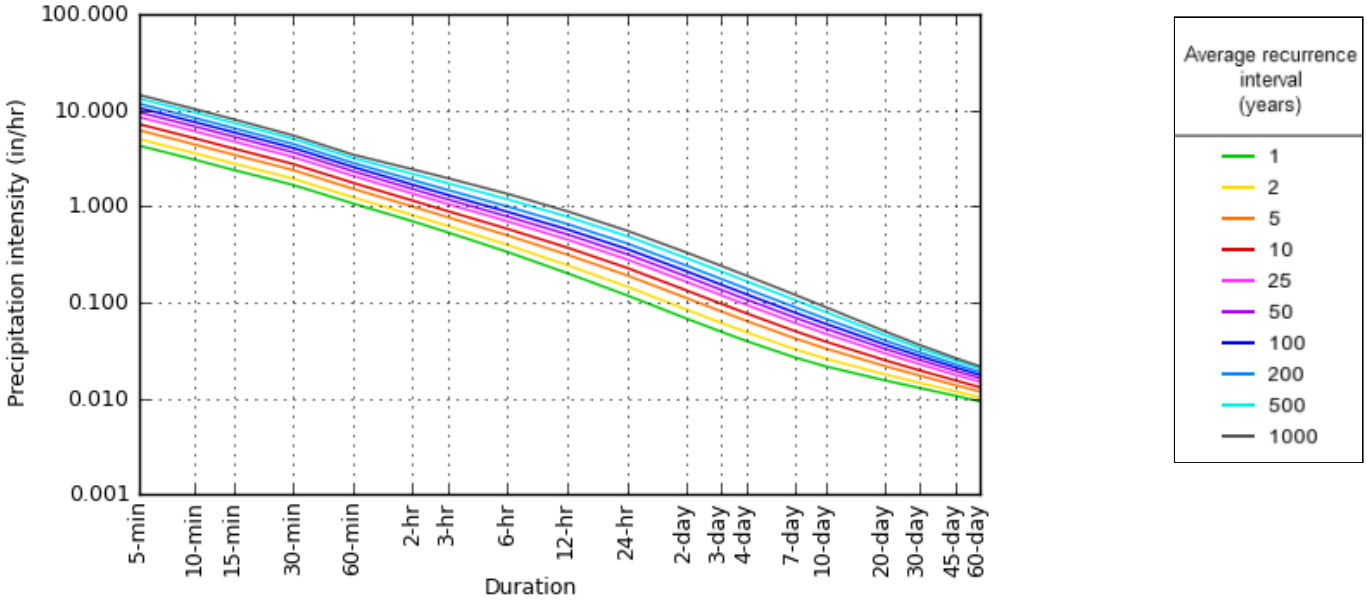
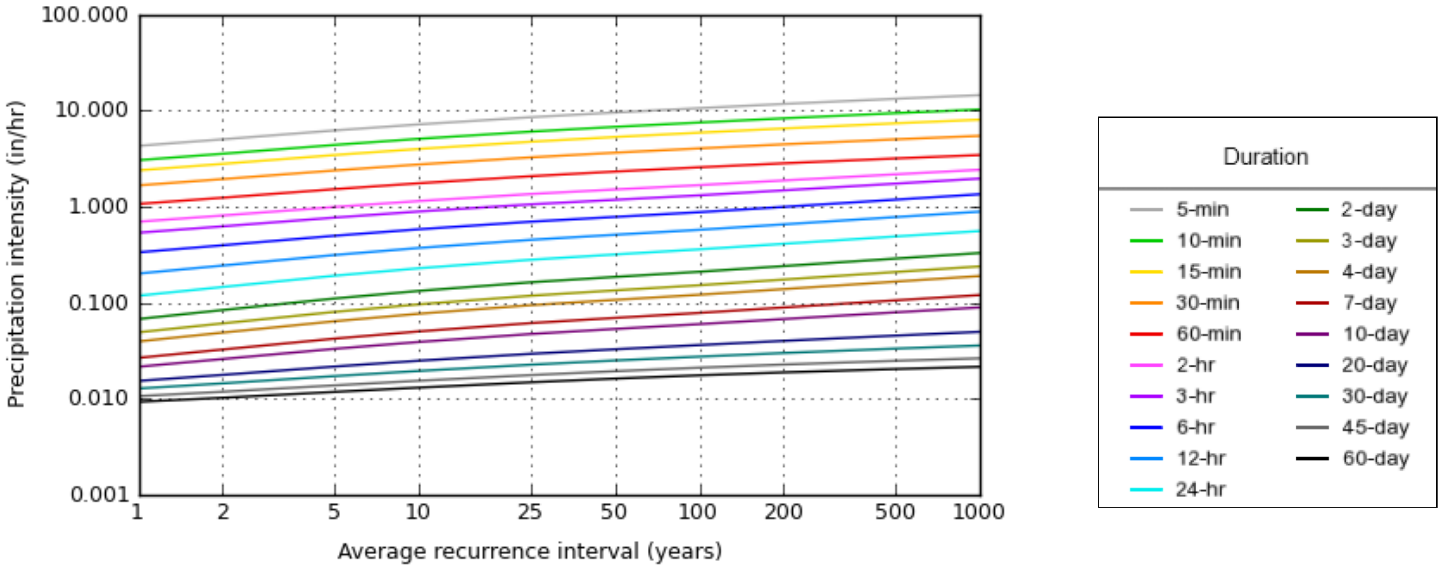
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 41.4840°, Longitude: -73.4625°





NOAA Atlas 14, Volume 10, Version 3

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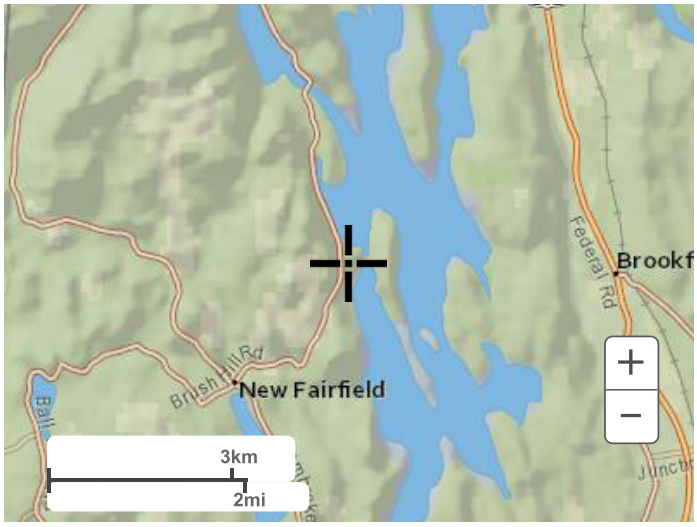
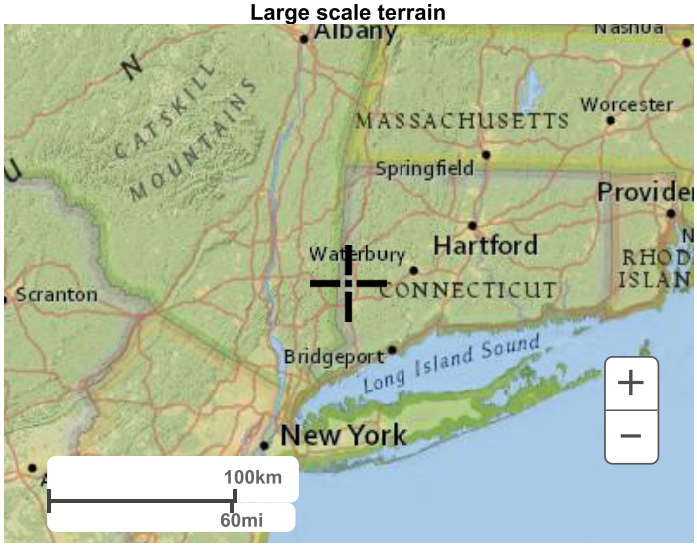
Maps & aerials

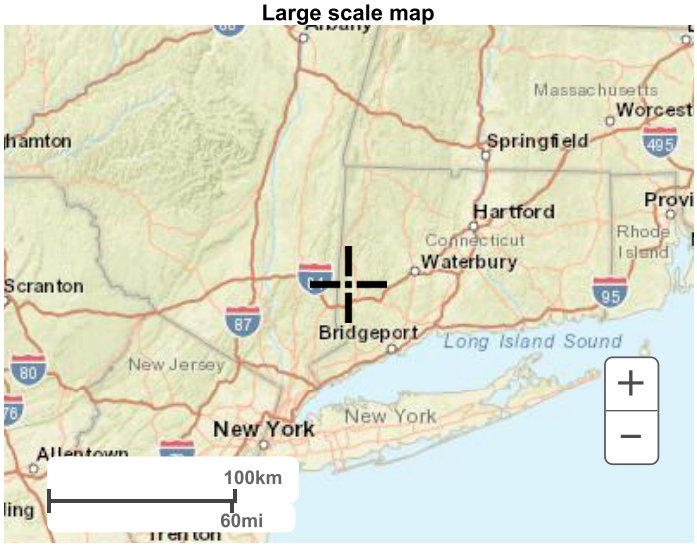
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

APPENDIX D

Stormwater Quality Calculations

STORMWATER QUALITY CALCULATIONS

Methodology: Water Quality Volume and Flow

Reference: 2004 Stormwater Quality Manual

WQV = (1")(R)(A)
12

WQV= water quality volume *(acre-feet)*
R= volumetric runoff coefficient
I = percent impervious cover
A= site area *(acres)*

WQF = (q_u)(A)(Q)

WQF = water quality flow *(cfs)*
q_u= unit peak discharge *(cfs/mi^2/inch)*
A= drainage area *(mi^2)*
Q= runoff depth *(watershed inches)*
= [WQV *(acre-feet)*]x[12*(inches/foot)*]
Drainage area *(acres)*

Site Characteristics (Overall)

Description	WQU 110		
Area	2.2865243	acres	0.003573 mi^2
Impervious Area	1.2778696	acres	
I	55.9	%	
R = 0.05+ 0.009(I) =	0.553		
WQV=	**0.11**	**acre-ft**	4,590 cf
Q= WQV x 12/A =	0.553	inches	

determine qu using NRCS Runoff Curve Number

P 1 inch

$$CN = \frac{1000}{[10 + 5P + 10Q - 10(Q^2 + 1.25QP)^{.5}]}$$

CN= 90.00

Determine Ia, table 4-1 Chapter 4 TR-55

Ia 0.222

Determine qu, Exhibit 4-III Chapter 4 TR-55

qu 650 csm/in

WQF= 1.28 cfs

New Fairfield High School New Fairfield, CT	BY	KMS	DATE	3/25/2021	PROJ NO. 140215301
Overall Site	CKD	KEG	DATE	3/25/2021	SHEET 1 of 1

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STORMWATER QUALITY CALCULATIONS

Methodology: Water Quality Volume and Flow

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WQF = (q_u)(A)(Q)

WQF = water quality flow *(cfs)*
q_u= unit peak discharge *(cfs/mi^2/inch)*
A= drainage area *(mi^2)*
Q= runoff depth *(watershed inches)*
= [WQV *(acre-feet)*]x[12*(inches/foot)*]
Drainage area *(acres)*

Site Characteristics (Overall)

Description	WQU 410		
Area	1.9226814	acres	0.003004 mi^2
Impervious Area	0.960124	acres	
I	49.9	%	
R = 0.05+ 0.009(I) =	0.499		
WQV=	**0.08**	**acre-ft**	3,486 cf
Q= WQV x 12/A =	0.499	inches	

determine qu using NRCS Runoff Curve Number

P 1 inch

$$CN = \frac{1000}{[10 + 5P + 10Q - 10(Q^2 + 1.25QP)^{.5}]}$$

CN= 89.00

Determine Ia, table 4-1 Chapter 4 TR-55

Ia 0.247

Determine qu, Exhibit 4-III Chapter 4 TR-55

qu	650	csm/in
WQF=	**0.98**	cfs

New Fairfield High School New Fairfield, CT	BY	KMS	DATE	3/25/2021	PROJ NO.	140215301
Overall Site	CKD	KEG	DATE	3/25/2021	SHEET	1 of 1

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STORMWATER QUALITY CALCULATIONS

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R= volumetric runoff coefficient
I = percent impervious cover
A= site area *(acres)*

WQF = (q_u)(A)(Q)

WQF = water quality flow *(cfs)*
q_u= unit peak discharge *(cfs/mi^2/inch)*
A= drainage area *(mi^2)*
Q= runoff depth *(watershed inches)*
= [WQV *(acre-feet)*]x[12*(inches/foot)*]
Drainage area *(acres)*

Site Characteristics (Overall)

Description	WQU 421		
Area	1.1783747	acres	0.001841 mi^2
Impervious Area	0.6158173	acres	
I	52.3	%	
R = 0.05+ 0.009(I) =	0.520		
WQV=	**0.05**	**acre-ft**	2,226 cf
Q= WQV x 12/A =	0.520	inches	

determine qu using NRCS Runoff Curve Number

P 1 inch

$$CN = \frac{1000}{[10 + 5P + 10Q - 10(Q^2 + 1.25QP)^{.5}]}$$

CN= 89.00

Determine Ia, table 4-1 Chapter 4 TR-55

Ia 0.247

Determine qu, Exhibit 4-III Chapter 4 TR-55

qu 650 csm/in

WQF= 0.62 cfs

New Fairfield High School New Fairfield, CT	BY	KMS	DATE	3/25/2021	PROJ NO. 140215301
Overall Site	CKD	KEG	DATE	3/25/2021	SHEET 1 of 1

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STORMWATER QUALITY CALCULATIONS

Methodology: Water Quality Volume and Flow

Reference: 2004 Stormwater Quality Manual

WQV = (1")(R)(A)
12

WQV= water quality volume *(acre-feet)*
R= volumetric runoff coefficient
I = percent impervious cover
A= site area *(acres)*

WQF = (q_u)(A)(Q)

WQF = water quality flow *(cfs)*
q_u= unit peak discharge *(cfs/mi^2/inch)*
A= drainage area *(mi^2)*
Q= runoff depth *(watershed inches)*
= [WQV *(acre-feet)*]x[12*(inches/foot)*]
Drainage area *(acres)*

Site Characteristics (Overall)

Description	WQU 203		
Area	2.41	acres	0.003766 mi^2
Impervious Area	1.55	acres	
I	64.3	%	
R = 0.05+ 0.009(I) =	0.629		
WQV=	**0.13**	**acre-ft**	5,501 cf
Q= WQV x 12/A =	0.629	inches	

determine qu using NRCS Runoff Curve Number

P 1 inch

$$CN = \frac{1000}{[10 + 5P + 10Q - 10(Q^2 + 1.25QP)^{.5}]}$$

CN= 95.98

Determine Ia, table 4-1 Chapter 4 TR-55

Ia 0.083

Determine qu, Exhibit 4-III Chapter 4 TR-55

qu 700 csm/in

WQF= **1.66** cfs

New Fairfield High School New Fairfield, CT	BY	KMS	DATE	3/25/2021	PROJ NO. 140215301
Overall Site	CKD	KEG	DATE	3/25/2021	SHEET 1 of 1

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STORMWATER QUALITY CALCULATIONS

Methodology: Water Quality Volume and Flow

Reference: 2004 Stormwater Quality Manual

WQV = (1")(R)(A)
12

WQV= water quality volume *(acre-feet)*
R= volumetric runoff coefficient
I = percent impervious cover
A= site area *(acres)*

WQF = (q_u)(A)(Q)

WQF = water quality flow *(cfs)*
q_u= unit peak discharge *(cfs/mi^2/inch)*
A= drainage area *(mi^2)*
Q= runoff depth *(watershed inches)*
= [WQV *(acre-feet)*]x[12*(inches/foot)*]
Drainage area *(acres)*

Site Characteristics (Overall)

Description	WQU 215		
Area	1.19	acres	0.001859 mi^2
Impervious Area	0.9	acres	
I	75.6	%	
R = 0.05+ 0.009(I) =	0.731		
WQV=	**0.07**	**acre-ft**	3,156 cf
Q= WQV x 12/A =	0.731	inches	

determine qu using NRCS Runoff Curve Number

P 1 inch

$$CN = \frac{1000}{[10 + 5P + 10Q - 10(Q^2 + 1.25QP)^{.5}]}$$

CN= 97.31

Determine Ia, table 4-1 Chapter 4 TR-55

Ia 0.062

Determine qu, Exhibit 4-III Chapter 4 TR-55

qu 700 csm/in

WQF= 0.95 cfs

New Fairfield High School New Fairfield, CT	BY	KMS	DATE	3/25/2021	PROJ NO. 140215301
Overall Site	CKD	KEG	DATE	3/25/2021	SHEET 1 of 1

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STORMWATER QUALITY CALCULATIONS

Methodology: Water Quality Volume and Flow

Reference: 2004 Stormwater Quality Manual

WQV = (1")(R)(A)
12

WQV= water quality volume *(acre-feet)*
R= volumetric runoff coefficient
I = percent impervious cover
A= site area *(acres)*

WQF = (q_u)(A)(Q)

WQF = water quality flow *(cfs)*
q_u= unit peak discharge *(cfs/mi^2/inch)*
A= drainage area *(mi^2)*
Q= runoff depth *(watershed inches)*
= [WQV *(acre-feet)*]x[12*(inches/foot)*]
Drainage area *(acres)*

Site Characteristics (Overall)

Description	WQU 300		
Area	0.52	acres	0.000813 mi^2
Impervious Area	0.49	acres	
I	94.2	%	
R = 0.05+ 0.009(I) =	0.898		
WQV=	**0.04**	**acre-ft**	1,695 cf
Q= WQV x 12/A =	0.898	inches	

determine qu using NRCS Runoff Curve Number

P 1 inch

$$CN = \frac{1000}{[10 + 5P + 10Q - 10(Q^2 + 1.25QP)^{.5}]}$$

CN= 99.09

Determine Ia, table 4-1 Chapter 4 TR-55

Ia 0.041

Determine qu, Exhibit 4-III Chapter 4 TR-55

qu 700 csm/in

WQF= 0.51 cfs

New Fairfield High School New Fairfield, CT	BY	KMS	DATE	3/25/2021	PROJ NO. 140215301
Overall Site	CKD	KEG	DATE	3/25/2021	SHEET 1 of 1

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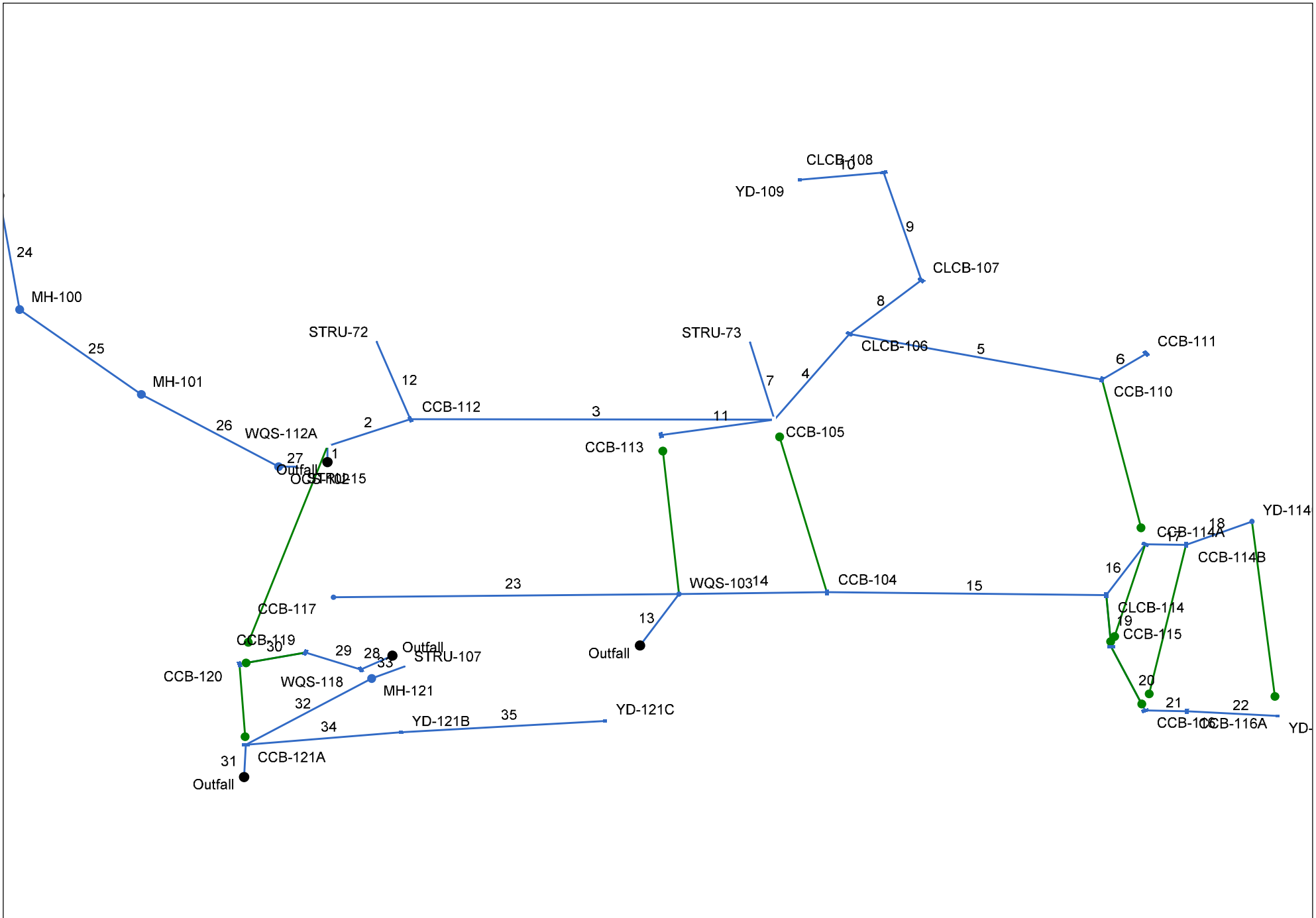
APPENDIX E

Stormwater Conveyance System Calculations

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: Storm - High School.stm	Number of lines: 35	Date: 3/25/2021

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	12.204	0.40	3.11	0.75	0.30	2.31	7.0	13.4	5.3	12.18	14.56	7.39	18	1.64	922.40	922.60	923.72	923.92	931.00	930.44	OUTFALL - 112A
2	1	51.833	0.33	2.71	0.74	0.24	2.01	7.0	13.3	5.3	10.65	12.24	6.61	18	1.16	922.60	923.20	923.92	924.45	930.44	931.24	112A - 112
3	2	208.786	0.20	1.84	0.79	0.16	1.28	6.0	12.7	5.4	6.95	8.93	5.98	15	1.63	923.20	926.60	924.45	927.66	931.24	932.28	112 - 105
4	3	78.351	0.07	0.86	0.44	0.03	0.47	10.0	12.3	5.5	2.60	2.76	3.31	12	0.51	926.60	927.00	927.66	927.99	932.28	931.50	105 - 106
5	4	148.989	0.16	0.28	0.76	0.12	0.23	6.0	6.0	7.9	1.81	9.84	3.10	12	6.51	927.00	936.70	928.31	937.27	931.50	940.26	106 - 110
6	5	32.176	0.12	0.12	0.90	0.11	0.11	5.0	5.0	8.5	0.92	8.87	2.55	12	5.28	936.70	938.40	937.27	938.80	940.26	941.76	110 -111
7	3	60.556	0.49	0.49	0.90	0.44	0.44	5.0	5.0	8.5	3.75	4.72	6.94	10	3.96	926.60	929.00	927.66	929.79	932.28	933.00	105 - STRU 73 (R
8	4	58.166	0.15	0.51	0.43	0.06	0.21	10.0	11.7	5.7	1.19	3.58	1.59	12	0.86	927.00	927.50	928.31	928.36	931.50	931.20	106 - 107
9	8	85.005	0.30	0.36	0.31	0.09	0.15	11.0	11.0	5.9	0.85	3.50	2.09	12	0.82	927.50	928.20	928.41	928.59	931.20	931.20	107 - 108
10	9	48.319	0.06	0.06	0.87	0.05	0.05	5.0	5.0	8.5	0.44	1.88	2.45	8	2.07	928.20	929.20	928.59	929.51	931.20	932.50	108 -109
11	3	66.080	0.29	0.29	0.73	0.21	0.21	7.0	7.0	7.3	1.56	3.36	3.94	12	0.76	927.70	928.20	928.18	928.73	932.28	931.20	105 -113
12	2	62.139	0.54	0.54	0.90	0.49	0.49	5.0	5.0	8.5	4.14	3.43	7.58	10	2.09	927.70	929.00	928.53	930.42	931.24	933.00	112 - STRU 72 (R
13	End	45.243	0.20	1.78	0.79	0.16	1.10	6.0	13.1	5.3	5.86	16.44	5.68	15	5.53	919.50	922.00	920.48	922.98	923.06	933.19	OUTFALL - 103
14	13	84.783	0.02	1.49	0.74	0.01	0.87	7.0	12.8	5.4	4.69	8.32	4.82	15	1.42	922.00	923.20	922.98	924.08	933.19	935.97	103 - 104
15	14	160.271	0.25	1.47	0.60	0.15	0.85	8.0	12.2	5.5	4.71	6.40	5.12	15	0.84	923.20	924.54	924.08	925.42	935.97	934.80	104 -114
16	15	44.821	0.26	0.44	0.53	0.14	0.19	9.0	11.6	5.7	1.10	3.87	3.77	12	1.00	929.95	930.40	930.31	930.84	934.80	933.44	114 - 114A
17	16	23.324	0.06	0.18	0.31	0.02	0.05	11.0	11.3	5.8	0.32	5.05	1.62	12	1.71	930.40	930.80	930.84	931.03	933.44	934.76	114A - 114B
18	17	41.770	0.12	0.12	0.30	0.04	0.04	11.0	11.0	5.9	0.21	3.00	2.09	8	5.27	930.80	933.00	931.03	933.21	934.76	937.28	114B - 114C
19	15	39.559	0.49	0.78	0.78	0.38	0.51	6.0	12.1	5.6	2.84	2.74	3.90	12	0.51	924.54	924.74	925.42	925.61	934.80	929.22	114 - 115
20	19	52.369	0.06	0.29	0.90	0.05	0.13	5.0	11.6	5.7	0.72	2.72	1.91	12	0.50	924.74	925.00	925.74	925.35	929.22	928.00	115 - 116
21	20	24.009	0.09	0.23	0.34	0.03	0.07	11.0	11.4	5.7	0.42	5.57	2.08	12	2.08	925.00	925.50	925.35	925.77	928.00	929.38	116 - 116A
22	21	52.078	0.14	0.14	0.30	0.04	0.04	11.0	11.0	5.9	0.25	1.31	2.11	8	1.00	925.50	926.02	925.77	926.25	929.38	930.97	116A - 116B

Project File: Storm - High School.stm

Number of lines: 35

Run Date: 3/25/2021

NOTES:Intensity = 38.74 / (Inlet time + 3.60) ^ 0.70; Return period =Yrs. 25 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
23	13	198.230	0.09	0.09	0.81	0.07	0.07	6.0	6.0	7.9	0.57	5.27	1.72	12	1.87	922.00	925.70	922.98	926.01	933.19	929.00	103 -117
24	End	87.870	0.00	0.00	0.00	0.00	0.00	0.0	0.4	0.0	9.52	8.80	7.96	15	1.58	918.41	919.80	919.58	920.97	921.41	924.90	OUTFALL - 100
25	24	95.200	0.00	0.00	0.00	0.00	0.00	0.0	0.2	0.0	9.52	8.17	7.76	15	1.37	919.80	921.10	921.64	923.41	924.90	929.20	100 - 101
26	25	96.162	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	9.52	7.48	7.76	15	1.14	921.10	922.20	923.57	925.35	929.20	931.70	101 - 102
27	26	10.411	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	9.52	9.70	7.76	15	1.92	922.20	922.40	925.94	926.13	931.70	931.00	102 - UG SYS
28	End	21.048	0.39	0.82	0.77	0.30	0.59	6.0	7.4	7.2	4.24	14.47	4.89	15	4.28	919.50	920.40	920.33	921.23	923.05	925.70	OUTFALL - 118
29	28	34.286	0.05	0.43	0.66	0.03	0.29	7.0	7.2	7.3	2.11	10.00	3.12	15	2.04	920.40	921.10	921.23	921.68	925.70	925.30	118 - 119
30	29	38.928	0.38	0.38	0.68	0.26	0.26	7.0	7.0	7.3	1.90	10.03	3.54	15	2.06	921.10	921.90	921.68	922.45	925.30	924.60	119 - 120
31	End	24.676	0.12	0.32	0.65	0.08	0.14	7.0	12.4	5.5	12.53	12.11	10.27	15	3.00	915.81	916.55	917.03	917.77	921.51	922.86	OUTFALL - 121A
32	31	88.201	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	11.77	12.13	9.66	15	3.00	916.55	919.20	917.77	920.41	922.86	927.85	121A - 121
33	32	20.889	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	11.77	8.38	9.59	15	1.44	919.20	919.50	920.45	921.04	927.85	924.32	121 - UG SYS
34	31	89.610	0.02	0.20	0.30	0.01	0.06	11.0	11.8	5.6	0.34	1.85	2.69	8	2.01	917.52	919.32	917.77	919.59	922.86	923.96	121A - 121B
35	34	117.173	0.18	0.18	0.30	0.05	0.05	11.0	11.0	5.9	0.32	1.53	2.45	8	1.37	919.32	920.93	919.59	921.19	923.96	923.93	121B - 121C

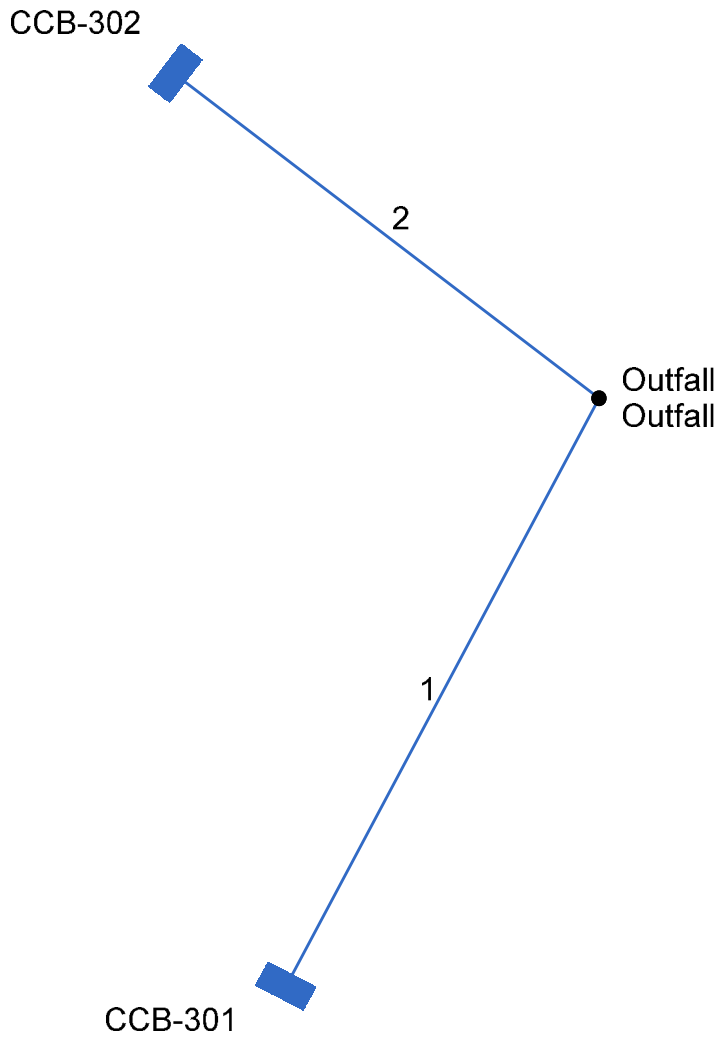
Project File: Storm - High School.stm

Number of lines: 35

Run Date: 3/25/2021

NOTES:Intensity = 38.74 / (Inlet time + 3.60) ^ 0.70; Return period =Yrs. 25 ; c = cir e = ellip b = box

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: Storm - East.stm	Number of lines: 2	Date: 3/19/2021

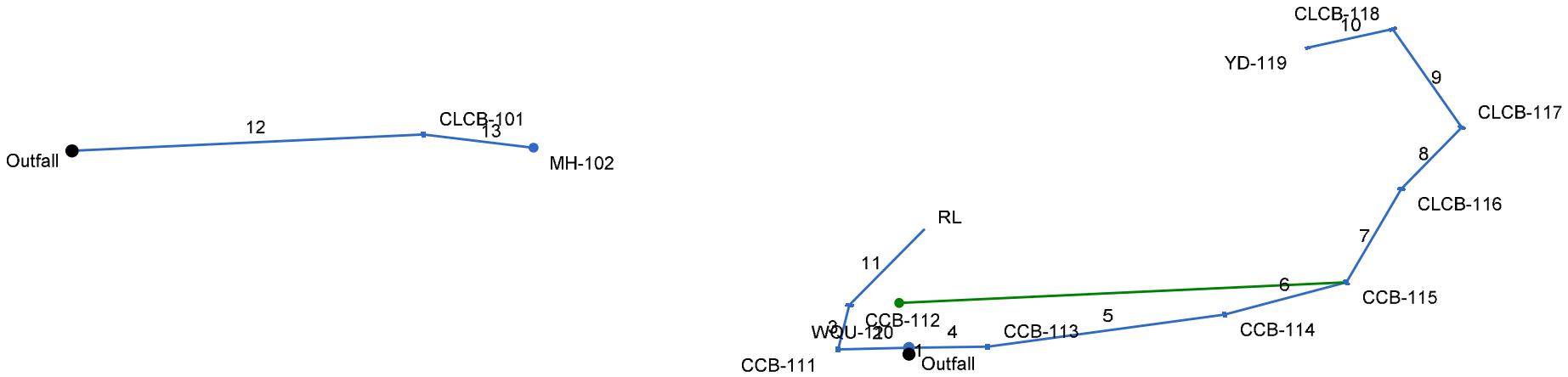
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	49.913	0.18	0.18	0.83	0.15	0.15	6.0	6.0	7.9	1.18	11.72	3.17	15	2.80	933.60	935.00	934.03	935.43	943.76	944.91	OUTFALL - 301
2	End	39.980	0.34	0.34	0.88	0.30	0.30	5.0	5.0	8.5	2.55	13.09	4.04	15	3.50	933.60	935.00	934.24	935.64	943.76	943.85	OUTFALL - 302

Project File: Storm - East.stm | Number of lines: 2 | Run Date: 3/19/2021

NOTES:Intensity = 38.74 / (Inlet time + 3.60) ^ 0.70; Return period =Yrs. 25 ; c = cir e = ellip b = box

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 2021-03-24 Storm - Middle.stm	Number of lines: 13	Date: 3/24/2021

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	5.000	0.00	3.27	0.00	0.00	2.33	0.0	7.5	7.1	16.57	18.99	6.70	24	0.60	924.00	924.03	925.47	925.50	931.00	931.00	DET-WQU 110
2	1	38.087	0.28	1.78	0.78	0.22	1.46	5.0	5.3	8.3	12.16	11.28	9.91	15	2.60	924.03	925.02	925.50	926.65	931.00	930.00	WQU 110- CCB 1
3	2	34.998	0.52	1.50	0.69	0.36	1.24	5.0	5.2	8.4	10.40	11.28	8.47	15	2.60	925.02	925.93	928.94	929.71	930.00	930.30	CCB 111-CCB 11
4	1	42.500	0.06	1.49	0.90	0.05	0.88	5.0	7.4	7.2	6.27	8.58	5.23	15	1.51	924.00	924.64	925.50	925.78	931.00	931.90	WQU 110-CCB 11
5	4	129.985	0.47	1.43	0.77	0.36	0.82	5.0	7.0	7.4	6.04	8.57	5.35	15	1.50	924.64	926.59	926.00	927.58	931.90	931.60	CCB 113-CCB 11
6	5	70.438	0.24	0.96	0.58	0.14	0.46	5.0	6.7	7.5	3.43	3.85	4.76	12	0.99	926.59	927.29	927.58	928.08	931.60	932.30	CCB 114-CCB 11
7	6	78.607	0.13	0.72	0.45	0.06	0.32	5.0	6.4	7.7	2.45	2.72	3.81	12	0.50	927.29	927.68	928.08	928.42	932.30	931.50	CCB 115-CLCB 1
8	7	57.918	0.24	0.59	0.44	0.11	0.26	5.0	6.1	7.8	2.05	2.73	3.17	12	0.50	927.68	927.97	928.54	928.67	931.50	931.20	CLCB 116-CLCB
9	8	85.201	0.30	0.35	0.37	0.11	0.16	5.0	5.4	8.2	1.28	2.74	2.13	12	0.50	927.97	928.40	928.92	929.00	931.20	931.20	CLCB 117-CLCB
10	9	48.273	0.05	0.05	0.90	0.05	0.05	5.0	5.0	8.5	0.38	2.07	1.88	8	2.51	928.40	929.61	929.16	929.90	931.20	935.20	CLCB 118-YD 11
11	3	71.198	0.98	0.98	0.90	0.88	0.88	5.0	5.0	8.5	7.51	7.73	6.12	15	1.22	925.93	926.80	930.49	931.31	930.30	933.00	CCB 112-RL
12	End	189.828	0.23	0.23	0.30	0.07	0.07	5.0	5.0	8.5	9.20	4.95	7.62	15	0.50	907.00	907.95	908.16	911.28	909.50	912.00	EX-CLCB 101
13	12	60.174	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	8.61	19.78	7.17	15	7.99	907.96	912.77	911.72	913.91	912.00	924.29	CLCB 101-MH 10

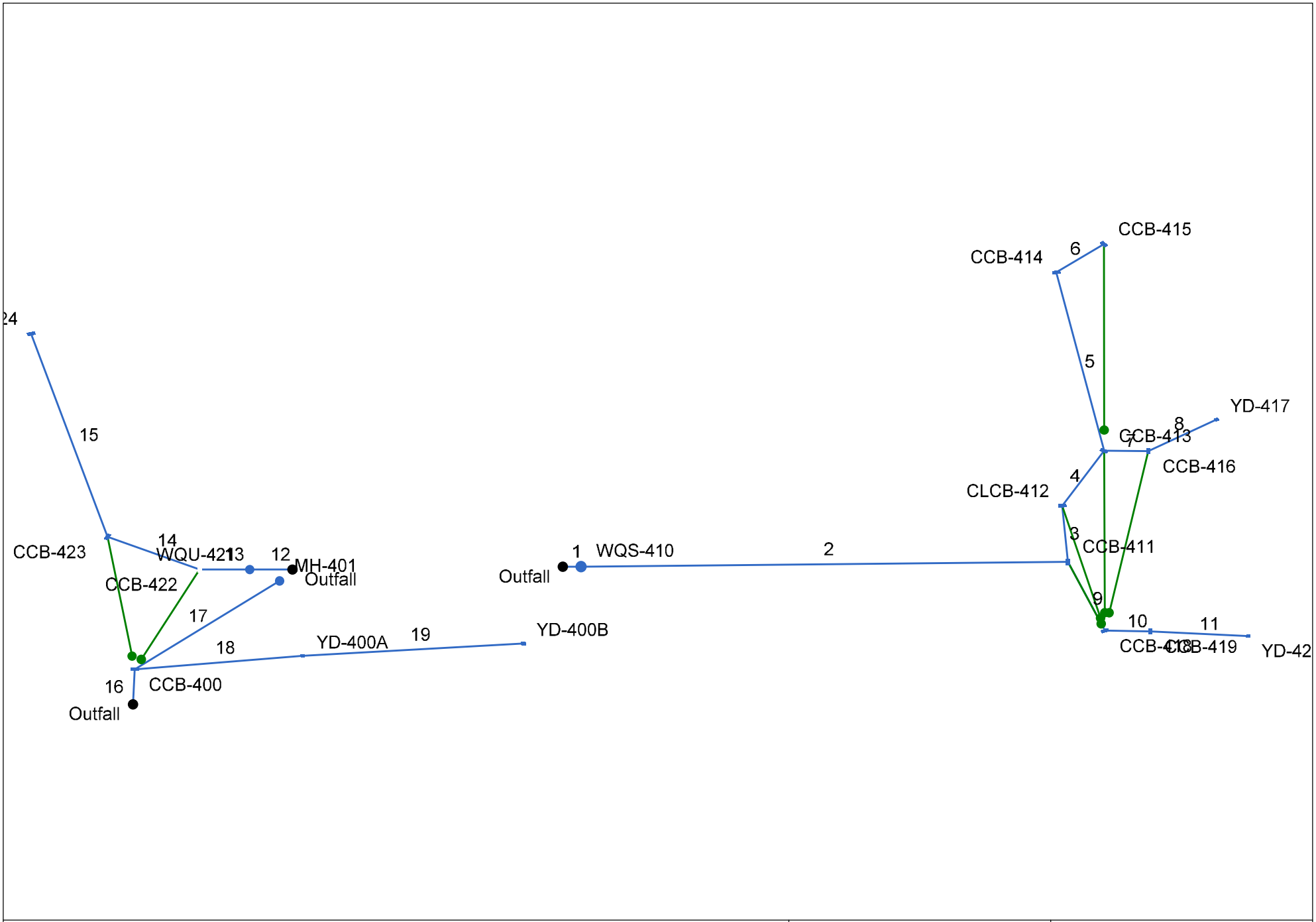
Project File: 2021-03-24 Storm - Middle.stm

Number of lines: 13

Run Date: 3/24/2021

NOTES:Intensity = 38.74 / (Inlet time + 3.60) ^ 0.70; Return period =Yrs. 25 ; c = cir e = ellip b = box

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 2021-03-24 Storm - South.stm	Number of lines: 19	Date: 3/24/2021

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	9.672	0.00	1.91	0.00	0.00	1.05	0.0	6.6	7.6	7.95	31.51	5.09	24	1.65	921.00	921.16	921.99	922.16	933.00	933.20	DET-WQU 410
2	1	258.023	0.33	1.91	0.70	0.23	1.05	5.0	6.0	7.9	8.30	7.98	7.25	15	1.30	921.38	924.74	922.46	925.87	933.20	929.22	WQU 410-CCB 41
3	2	39.559	0.15	0.92	0.50	0.08	0.51	5.0	5.8	8.0	4.09	5.45	6.67	12	2.00	926.00	926.79	926.65	927.64	929.22	934.80	CCB 411-CLCB 4
4	3	44.821	0.13	0.77	0.61	0.08	0.43	5.0	5.7	8.1	3.52	5.47	6.30	12	2.01	929.10	930.00	929.68	930.80	934.80	933.40	CLCB 412-CCB 4
5	4	128.187	0.21	0.38	0.65	0.14	0.28	5.0	5.1	8.4	2.34	7.72	3.89	12	4.00	930.00	935.13	930.80	935.78	933.40	940.20	CCB 413-CCB 41
6	5	32.176	0.17	0.17	0.83	0.14	0.14	5.0	5.0	8.5	1.20	7.72	5.26	12	4.01	937.00	938.29	937.27	938.75	940.20	941.70	CCB 414-CCB 41
7	4	23.324	0.03	0.26	0.30	0.01	0.08	5.0	5.2	8.4	0.65	6.68	1.89	12	3.00	930.00	930.70	930.80	931.04	933.40	934.70	CCB 413-CCB 41
8	7	42.484	0.23	0.23	0.30	0.07	0.07	5.0	5.0	8.5	0.59	2.92	3.19	8	4.99	930.70	932.82	931.04	933.18	934.70	935.50	CCB 416-YD 417
9	2	52.369	0.40	0.66	0.58	0.23	0.31	5.0	5.7	8.0	2.49	3.84	3.52	12	0.99	924.74	925.26	925.87	926.03	929.22	928.00	CCB 411-CCB 41
10	9	24.009	0.03	0.26	0.30	0.01	0.08	5.0	5.3	8.3	0.65	3.86	0.87	12	1.00	925.26	925.50	926.35	926.36	928.00	928.30	CCB 418-CCB 41
11	10	52.078	0.23	0.23	0.30	0.07	0.07	5.0	5.0	8.5	0.59	1.31	3.35	8	1.00	926.48	927.00	926.79	927.36	928.30	930.00	CCB 419-YD 420
12	End	22.605	0.00	1.18	0.00	0.00	0.69	0.0	6.0	7.9	5.39	24.17	4.45	24	0.97	921.00	921.22	921.82	922.04	923.12	926.50	DET-WQU 421
13	12	26.637	0.52	1.18	0.61	0.32	0.69	5.0	6.0	7.9	5.41	3.88	6.89	12	1.01	921.22	921.49	922.22	922.74	926.50	925.20	WQU 421-CCB 42
14	13	53.901	0.25	0.66	0.49	0.12	0.37	5.0	5.7	8.0	2.96	3.86	3.77	12	1.00	921.49	922.03	923.28	923.59	925.20	925.20	CCB 422-CCB 42
15	14	148.765	0.41	0.41	0.60	0.25	0.25	5.0	5.0	8.5	2.09	5.46	3.39	12	2.00	922.02	925.00	923.86	925.62	925.20	928.20	CCB 423-CCB 42
16	End	24.676	0.21	0.48	0.49	0.10	0.18	5.0	6.6	7.6	11.10	13.06	9.16	15	3.49	918.00	918.86	919.20	920.06	922.00	922.86	EX-CCB 400
17	16	98.880	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	9.71	7.00	7.91	15	1.00	919.01	920.00	920.26	922.17	922.86	927.30	CCB 400-MH 401
18	16	89.610	0.06	0.27	0.30	0.02	0.08	5.0	5.8	8.0	0.65	1.30	2.03	8	0.99	918.86	919.75	920.06	920.27	922.86	923.96	CCB 400-YD 400
19	18	117.173	0.21	0.21	0.30	0.06	0.06	5.0	5.0	8.5	0.54	1.31	2.34	8	1.01	919.75	920.93	920.31	921.27	923.96	923.93	YD 400A-YD 400

Project File: 2021-03-24 Storm - South.stm

Number of lines: 19

Run Date: 3/24/2021

NOTES:Intensity = 38.74 / (Inlet time + 3.60) ^ 0.70; Return period =Yrs. 25 ; c = cir e = ellip b = box